Columbia River System Operations
Final Environmental Impact Statement

Appendix T

Public Comment Report

Note: The Section 508 amendment of the Rehabilitation Act of 1973 requires that the information in federal documents be accessible to individuals with disabilities. The Agency has made every effort to ensure that the information in Appendix T: Public Comment Report is accessible. However, if readers have any issues accessing the information in this appendix, please contact the U.S. Army Corps of Engineers at (800) 290-5033 or info@crso.info so additional accommodations may be provided.

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PUBLIC COMMENT REPORT

1.1 INTRODUCTION

This Public Comment Report provides information regarding the comments received during the Draft EIS public involvement period which occurred from February 28 to April 13, 2020. This report also provides responses from the co-lead agencies to the substantive comments received. Please see Chapter 9 of the Final Environmental Impact Statement (EIS) for a summary of public scoping, details on the public comment period, and details on meetings held with the public, agencies, and Tribes.

1.2 COMMENTS RECEIVED

1.2.1 Number and Types of Comments Received

The co-lead agencies received a total of 58,849 submissions (also called letters in this report) during the public comment period. Submissions were received via the co-agency website, hard copy, testimony during public hearing, and email. Of the individual submissions, 4,572 were unique (i.e., original submissions that did not have identical or almost identical wording as another submission) with the remainder submitted as "form" (i.e., submissions containing identical content) or form submissions with slight modifications (e.g., one or two unique sentences added, but otherwise identical to a form). The form submissions all originated from a total of 36 unique form masters, some of which shared overlapping phrases or bullet points.

The co-lead agencies reviewed and considered all submissions received during the public comment period.

1.2.2 List of Individuals/Organizations/Agencies Submitting Comments

A list of all individuals, organizations, and agencies that submitted comments during the public comment period is shown in Table 1-1. The co-lead agencies received 2,034 submissions from entities that did not provide a name or affiliation. Therefore, there will be letter numbers in Table 1-1 with no commenter name, email, or affiliation.

If a letter contained substantive comments, that letter number and associated comment number will also be found in Table 1-2, with the co-lead agency response to the substantive comment. Due to size limitations for upload on the project website, some commenters submitted multiple times. Often these additional submissions were reference materials that do not require a response from the co-lead agencies. Submissions that did not contain comment letters are identified with an asterisk (*) in Table 1-1.

Table 1-1 has been partitioned so that comments are organized in this order: tribes, federal agencies, state agencies, local municipalities, organizations, individuals, and finally anonymous comment. Within the partitions, Table 1-1 is organized alphabetically by the last name and first name of the commenter. The website that was set up for receiving comments, indicated that

commenter names were optional to provide. Many commenters did not provide their name. Following the listing of alphabetical names, the commenters are then organized alphabetically by e-mail for those commenters that provided their e-mail address. Finally, comments are organized by those comments that are anonymous (did not provide either name or e-mail) and sequentially in the order those comments were received. For commenters to locate responses to substantive comments, they will first find their identifier (name or e-mail address) in Table 1-1 and the associated letter number for their comment. Commenters will then use that letter number to find their comment and the associated response in Table 1-2. If a commenter submitted a form letter that contained substantive comments, the responses to those form letter comments can be found in Table 1-4 under the form letter number. If a commenter had further substantive comments, those responses will be found in Table 1-2 under the unique letter number.

Table 1-1. Table of Commenters (Name, Email, and Affiliation listed if provided)

Commenter Last Name	Commenter First Name	Commenter email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
TRIBES						
Cawston	Rodney	not provided	Confederated Tribes of the Colville Reservation	Hand-delivered or oral testimony (personally delivered)	4251	N/A
Cawston	Rodney	not provided	Confederated Tribes of the Colville Reservation	US Mail or commercial carrier (UPS, FedEx)	32376	N/A
not provided	Confederated Tribes of the Colville Reservation	not provided	Confederated Tribes of the Colville Reservation	Email	32262	N/A
Dick	Cecil	calla.hagle@burnspaiute-nsn.gov	Burns Paiute Tribe	Web-based comments	6040. However, no attachment provided. The co-lead agencies reached out and the Tribe indicated that USRT represented the Tribes comments. These comments are under letter 6162.	N/A
Evans	Carol	not provided	Spokane Tribe of Indians	Email	32263	N/A
Hauser	Scott	scott.hauser@usrtf.org	Upper Snake River Tribes Foundation on behalf of Burns Paiute Tribe, Fort McDermitt Paiute-Shoshone Tribe, and Shoshone-Paiute Tribes of the Duck Valley Reservation.	Web-based comments	6162	N/A
Keenan	Brendan	brendan@yakamanation-olc.org	Confederated Tribes and Bands of the Yakama Nation	Web-based comments	6299	N/A
Michel	Donald	dr@ucut-nsn.org	Upper Columbia United Tribes	Email	32264	N/A
Robinson	Laura	laura@ucut-nsn.org	Upper Columbia United Tribes	Web-based comments	2458	N/A
Nelson	Charlene	not provided	Shoalwater Bay Indian Tribe	Email	4216	N/A
Nelson	Charlene	not provided	Shoalwater Bay Indian Tribe	Hand-delivered or oral testimony (personally delivered)	4252	N/A
not provided	not provided	ajvitale@cdatribe-nsn.gov	Coeur d'Alene Tribe	Web-based comments	6364	N/A
not provided	not provided	anjeet@nezperce.org	Nez Perce Tribe	Web-based comments	6905	N/A
not provided	not provided	golc@critfc.org	Columbia River Inter-Tribal Fish Commission	Web-based comments	31775	N/A
not provided	not provided	ireland@kootenai.org	Kootenai Tribe of Idaho	Web-based comments	6932 – However, no attachment was provided. The co-lead agencies reached out and the Kootenai Tribe stated that they have submitted comments through letters from the Upper Basin Sovereigns and the Upper Columbia United Tribes.	N/A
not provided	not provided	JOHN.OGAN@JWOGANLAW.COM	Confederated Tribes of Warm Springs	Web-based comments	31764 - However, no attachment provided The co-lead agencies confirmed that Warm Springs comments were submitted by the Columbia River Inter-Tribal Fish Commission. Letter 31775.	N/A
OSTERMAN	DEANE	DOSTERMAN@KNRD.ORG	Kalispel Tribe of Indians	Web-based comments	6106	N/A
Quaempts	Eric	ericquaempts@ctuir.org	Confederated Tribes of the Umatilla Indian Reservation Department of Natural Resources	Web-based comments	6854, 6894	N/A
Stone	Daniel	dstone@sbtribes.com	Shoshone-Bannock Tribes	Web-based comments	6823	N/A
Wakeland	Torey	Torey.wakeland@grandronde.org	The Confederated Tribes of Grand Ronde	Web-based comments	6923	N/A
FEDERAL AGENCIES						
Baca	Andrew	baca.andrew@epa.gov	Environmental Protection Agency	Web-based comments	31858	N/A
Daniel	Christopher	cdaniel@achp.gov	Advisory Council on Historic Heritage	Web-based comments	4162	N/A
STATE AGENCIES						
Corry	Chris	chris.corry@leg.wa.gov	Washington State Representative	Web-based comments	2417	N/A
Edmondson	Mike	mike.edmondson@osc.idaho.gov	State of Idaho	Web-based comments	6841	N/A
Englander	Nina	nina.englander@doj.state.or.us	Oregon Department of Justice	Web-based comments	6229 (duplicate letter of 6692), 6639*, 6692, 6715*, 6720*, 6725*, 6737*, 6744*, 6771*, 6784*, 6791*, 6797*, 6802*, 6809*	N/A
Garrity	Michael	Michael.Garrity@dfw.wa.gov	State of Washington	Web-based comments	31781	N/A
Not provided	Not provided	cynthia.banuelos@leg.wa.gov	Washington State Legislature	Web-based comments	4550	N/A
Patrick	Not provided	jpatrick@senate.idaho.gov	Idaho Senator	Web-based comments	3893	N/A
LOCAL MUNICIPALITIES						
Beard	Justin	justin.beard@rexburg.org	City of Rexburg	Web-based comments	3946	11
Brandt	R. Skipper	not provided	Board of Idaho County Commissioners	US Mail or commercial carrier (UPS, FedEx)	58785	N/A
Duman	Denis	not provided	Board of Idaho County Commissioners	US Mail or commercial carrier (UPS, FedEx)	58785	N/A
Erickson	Allan	not provided	Port of Longview	US Mail or commercial carrier (UPS, FedEx)	32550	N/A
Frei	Mark	not provided	Board of Idaho County Commissioners	US Mail or commercial carrier (UPS, FedEx)	58785	N/A
Grove	Randy	not provided	Central Lincoln	US Mail or commercial carrier (UPS, FedEx)	58800	N/A
Hayden	Randy	rhayden@portofpasco.org	Port of Pasco	Web-based comments	6246, 58807	N/A
Keefer	Wanda	wanda@portofclarkston.com	Port of Clarkston	Web-based comments	31762	N/A
Kemak	Kristin	lcpresident@lcvalleychamber.org	Lewis Clark Valley Chamber of Commerce	Hand-delivered or oral testimony (personally delivered)	4234	N/A
Kemak	Kristin	lcpresident@lcvalleychamber.org	Lewis Clark Valley Chamber of Commerce	Web-based comments	6068	N/A
Light	Seattle	cindy.wright@seattle.gov	Seattle City Light	Web-based comments	6318	N/A
no provided	none provided	not provided	Riggins, Stanley, Salmon, White Bird, and Kamiah Chambers of Commerce	Web-based comments	6463	N/A
none provided	none provided	CommissionersWebPageE-mail@co.yakima.wa.us	Yakima County Commissioners	Web-based comments	6595	N/A

Commenter Last Name	Commenter First Name	Commenter email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
none provided	none provided	portdave@portoflewiston.com	Port of Lewiston	Web-based comments	31766, 31818	N/A
none provided	none provided	uniontowntownhall@gmail.com	Town of Uniontown	Web-based comments	2828 - – No attachment with submission, co-lead agencies reached out but did not receive a response	N/A
Retzer	Jim	not provided	City of Colfax	Web-based comments	2762	N/A
Salzman	Steve	endicottmayor@gmail.com	City of Endicott	Web-based comments	2704	N/A
Smith	John	Not provided	Clearwater County Board of Commissioners	Web-based comments	6388	N/A
Tersch	Laura	lvontersch@cityoflewiston.org	City of Lewiston, Idaho	Web-based comments	4025	N/A
Thornsbury	Marc	not provided	Port of Klickitat	US Mail or commercial carrier (UPS, FedEx)	32499	N/A
Trask	Sharon	not provided	Mason County Board of Commissioners	Web-based comments	32305	N/A
Ulrich	Steve	not provided	Town of Lamont	US Mail or commercial carrier (UPS, FedEx)	32267	N/A
Volz	Pam	pvolz@northmasonchamber.com	North Mason Chamber of Commerce	Web-based comments	32303	N/A
Webb	Mayor	stjohn@stjohncable.com	Town of St. Johns	Web-based comments	2736	N/A
ORGANIZATIONS						
A	A	not provided	Washington Rural Electric Coop Association	US Mail or commercial carrier (UPS, FedEx)	32367	30
Anderson	Jeff	not provided	Salem Electric	US Mail or commercial carrier (UPS, FedEx)	2586	N/A
Arrington	Paul	paul@iwua.org	Idaho Water Users Association	Web-based comments	6411	N/A
AWyatt	Christina	cwyatt@bbec.org	Big Bend Electric Cooperative	Web-based comments	4109	N/A
AWyatt	Christina	cwyatt@bbec.org	Big Bend Electric Cooperative	Hand-delivered or oral testimony (personally delivered)	4714	N/A
Beasley	Dale	crabby@bakerbay.org	Columbia River Crab fisherman's Association	Web-based comments	5948	N/A
Bilodeau	Katie	katie@friendsoftheclearwater.org	Friends of the Clearwater	Web-based comments	3217, 3218*, 3221*, 3225*, *3227*, 3229*	N/A
Black	Chad	cblack@rrelectric.com	Raft River Rural Electric Cooperative	Web-based comments	3222	N/A
Bogaard	Joseph	joseph@wildsalmon.org	Wild Salmon	Web-based comments	6906	4
Braaten	Duane	not provided	Flathead Electric Cooperative	Hand-delivered or oral testimony (personally delivered)	4747	N/A
Brooks	Keith	not provided	Douglas Electric Cooperative	US Mail or commercial carrier (UPS, FedEx)	32531	N/A
Byrne	Jim	byrnejim7@gmail.com	Friends of Clark County and Loo Wit Sierra Club	Web-based comments	6346	N/A
Case	Ted	not provided	Oregon Rural Electric Cooperative Association	US Mail or commercial carrier (UPS, FedEx)	32547	N/A
Case	Ted	not provided	Oregon Rural Electric Cooperative Association	Hand-delivered or oral testimony (personally delivered)	5601	N/A
Cooper	Mary	maryanne@oregonfb.org	Oregon Farm Bureau	Web-based comments	5857	N/A
Costanzo	Charles	ccostanzo@americanwaterways.com	The American Waterways Operators	Web-based comments	6912	N/A
Creekpaum	Annette	not provided	Mason Public Utility District (PUD) 3	US Mail or commercial carrier (UPS, FedEx)	58787	N/A
D	D	not provided	Columbia Basin Electric Coop	US Mail or commercial carrier (UPS, FedEx)	32375, 32377	30, 6
Dauwalter	Daniel	not provided	Western Division of the American Fisheries Society	Web-based comments	6387	N/A
Davis	Jeff	jeffd@wascoelectric.com	Wasko Electric Cooperative	Web-based comments	6248	N/A
DeArmond	Gordon	not provided	Midstate Electric Cooperative	US Mail or commercial carrier (UPS, FedEx)	58715	6
DeFranco	Danny	defranco@wacattle.org	Washington's Cattle Association	Web-based comments	6584	N/A
Deen	Michael	mdeen@ppcpdx.org	Public Power Council (PPC)	Web-based comments	6554	N/A
Domanski	Adam	not provided	ECONorthwest	US Mail or commercial carrier (UPS, FedEx)	32296	N/A
Dunkelbury	David	not provided	Kenney Farms, Inc.	US Mail or commercial carrier (UPS, FedEx)	2260	N/A
Dunn	Rick	dunnr@bentonpud.org	Benton PUD	Web-based comments	5972	N/A
Dye	Karl	dreeploeg@tridec.org	Tri-City Development Council	Web-based comments	31779	N/A
Electric	Fall River	not provided	Fall River Rural Electric Cooperative	US Mail or commercial carrier (UPS, FedEx)	32359	N/A
Enticknap	Ben	benticknap@oceana.org	Oceana	Web-based comments	6653, 6903	N/A
Falkenberg	Humaira	humairaf@pacificpud.org	Pacific County Public Utility District No. 2	Web-based comments	31768	N/A
Farm	Yakima	mherke@mail.com	Yakima County Farm Bureau	Web-based comments	5878	N/A
Farmer	W. Marc	mfarmer@clatskaniepud.com	Clatskanie People's Utility District	Web-based comments	3674	N/A
Ferrari	Chandra	chandra.ferrari@tu.org	Trout Unlimited	Web-based comments	6929, 58819	N/A
Foltz	John	john@snakeriverboard.org	Snake River Salmon Recovery Board	Web-based comments	6765	N/A
France	Tom	france@nwf.org	National Wildlife Federation Action Fund	Web-based comments	6527, 6590, 6599, 6624, 6628	28
Francisco	John	jfrancisco@nru-nw.com	Northwest Requirements Utilities (NRU)	Web-based comments	6659	N/A
Francisco	John	jfrancisco@nru-nw.com	Northwest Requirements Utilities (NRU)	Hand-delivered or oral testimony (personally delivered)	4632, 4718, 5543	N/A
Frommelt	Gary	gfrommelt@aqsc.com	American Queen Steamboat Company	Web-based comments	31799	N/A
Freepons	Michael	info@bentonrea.org	Benton Rural Electric Association	Web-based comments	2559	N/A
Garrett	Howard	howard@orcanetwork.org	Orca Network	Hand-delivered or oral testimony (personally delivered)	5573	N/A
Garrett	Howard	howard@orcanetwork.org	Orca Network	Web-based comments	5866, 6739	N/A
Gillen	Roman	not provided	Consumer Power Inc. (CPI)	US Mail or commercial carrier (UPS, FedEx)	32345	N/A
Hagen	K. David	not provided	Cleanwater Power Co.	US Mail or commercial carrier (UPS, FedEx)	58798	N/A

Commenter Last Name	Commenter First Name	Commenter email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Haller	Greg	greg@pacificrivers.org	Pacific Rivers	Web-based comments	32218	N/A
Havens	Doug	dough@co.nezperce.id.us	Nez Perce County Republican Central Committee	Web-based comments	3143	N/A
Hayden	Mark	markh@meddoop.com	Missoula Electric Cooperative	Web-based comments	6215	N/A
Heiken	Doug	dh@oregonwild.org	Oregon Wild	Web-based comments	4130	N/A
Hess	Brian	brianh@inlandpower.com	Inland Power and Light	Web-based comments	3250	N/A
Heutte	Fred	fred@nwenergy.org	Northwest Energy Coalition	Web-based comments	6881	N/A
Jensen	Howard	not provided	Sunheaven Farms	US Mail or commercial carrier (UPS, FedEx)	32434	N/A
Johnson	Mark	not provided	Flathead Electric Cooperative	Hand-delivered or oral testimony (personally delivered)	4720, 5590	N/A
Kallstrom	Jeff	jkallstrom@snopud.com	Snohomish County Public Utility District No. 1	Web-based comments	32066	N/A
Keepers	Columbia River	miles@columbiariverkeeper.org	Columbia River Keepers	Web-based comments	6506, 6532, 6553*	N/A
Keeton	William	not provided	Central Electric Cooperative, Inc.	US Mail or commercial carrier (UPS, FedEx)	32418	N/A
Kendall	Bud	not provided	Midstate Electric Cooperative	US Mail or commercial carrier (UPS, FedEx)	58721	6
Knowles	Cybele	cknowles@biologicaldiversity.org	Center for Biological Diversity	Web-based comments	6697	N/A
Konz	David	david.konz@tidewater.com	Pacific Northwest Waterways Association	Web-based comments	6231	N/A
Kostka	Kari	kari.kostka@tnc.org	The Nature Conservancy of Idaho	Web-based comments	6899	N/A
Kramer	Courtney	courtney@beautifuldowntownlewiston.org	Beautiful Downtown Lewiston	Web-based comments	5992	N/A
Krehbiel	Robb	rkrehbiel@defenders.org	Center for Biological Diversity, Defenders of Wildlife, and the Audubon Society of Portland, Earth Ministry/Washington Interfaith Power and Light, the Idaho Conservation League, Orca Conservancy, Orca Network, the Save Our Wild Salmon Coalition, the Sierra Club, the Western Environmental Law Center, Whale Scout, Wild Earth Guardians, and Willamette Riverkeepers	Web-based comments	6264, 6283, 6588	N/A
Levy	Scott	redfish@bluefish.org	Redfish Bluefish	Web-based comments	32180	N/A
Lieberman	Aaron	aaron@ioga.org	Idaho Outfitters & Guides Association	Web-based comments	6666, 31769	N/A
Lindstedt	Anna	anna.lindstedt@fallriverelectric.com	Fall River Rural Electric Cooperative	Web-based comments	4974	11
Mather	Clark	cmather@cityoftacoma.org	Tacoma Power	Web-based comments	4599	N/A
Meira	Kristin	kristin.meira@pnwa.net	Pacific Northwest Waterways Association	Web-based comments	6839	N/A
Mercer	Rob	not provided	Columbia-Snake River Irrigators Association	US Mail or commercial carrier (UPS, FedEx)	32295	N/A
Miller	Kurt	kurt@nwriverpartners.org	Northwest River Partners	Web-based comments	4510, 6272	N/A
Miller	Kurt	kurt@nwriverpartners.org	Northwest River Partners	Hand-delivered or oral testimony (personally delivered)	4215, 4258, 4271, 4649, 4717, 5571	N/A
Molvar	Erik	not provided	Western Watersheds Project	US Mail or commercial carrier (UPS, FedEx)	58788	N/A
Montgomery	Arlene	arlene@wildswan.org	Friends of the Wild Swan	Web-based comments	4077	N/A
Murphy	Kate	kate@columbiariverkeeper.org	Columbia River Keepers	Email	32329*	N/A
Murphy	Kate	kate@columbiariverkeeper.org	Columbia River Keepers	Hand-delivered or oral testimony (personally delivered)	5583	N/A
Murphy	Kate	kate@columbiariverkeeper.org	Columbia River Keepers	Web-based comments	2775	N/A
Myer	Joel	jmyer@masonpud3.org	Mason Public Utility Distric (PUD) 3	Web-based comments	4613	N/A
Myers	Todd	tmyers@washingtonpolicy.org	Washington Policy Center	Web-based comments	6915*	N/A
Myrum	Tom	tmyrum@wswra.org	Washington State Water Resources Association	Web-based comments	31981 – No attachment with submission, co-lead agencies reached out but did not receive a response	N/A
Nealey	Tedd	not provided	Five T Farms, Inc.	US Mail or commercial carrier (UPS, FedEx)	32374	N/A
Nelson	Nicholas	nic@idahorivers.org	Idaho Rivers United	Web-based comments	6344	N/A
Neugebauer	Whitney	director@whalescout.org	Whales Scout	Web-based comments	6880	N/A
none provided	none provided	not provided	Lewis Clark Valley MPO	Web-based comments	6105 – No attachment with submission, co-lead agencies reached out but did not receive a response	N/A
not provided	A	not provided	Concerned Students of Sunnyside Environmental School	US Mail or commercial carrier (UPS, FedEx)	5523	N/A
not provided	NEDC	richardvinh@lclark.edu	Northwest Environmental Defense Center	Web-based comments	6464 – No attachment with submission, co-lead agencies reached out but did not receive a response	N/A
not provided	not provided	lakescommission@gmail.com	Lakes Commission	Web-based comments	6576	N/A
not provided	not provided	not provided	The Legislative Committee of the Oregon Chapter of the American Fisheries Society	Web-based comments	6714	N/A
O'Keefe	Thomas	okeefe@americanwhitewater.org	American Whitewater	Web-based comments	32174 – No attachment with submission, co-lead agencies reached out but did not receive a response	N/A
O'Leary	Sean	not provided	Northwest Energy Coalition	Hand-delivered or oral testimony (personally delivered)	4704	N/A
Olpin	Scott	solpin@seasonsatsandpoint.com	Seasons at Sandpoint	Web-based comments	4085	N/A
Or	Jennifer	jenniferjoly@omeu.org	Oregon Municipal Electric Utilities Association (OMEU)	Web-based comments	3656	N/A
Orzack	Steven	orzack@freshpond.org	Fresh Pond Research Institute	Web-based comments	6245	N/A
Petersen	Mike	mpetersen@landscouncil.org	The Lands Council	Web-based comments	5001	N/A
Priddy,	Robin	robin.priddy@bentoncleanair.org	Benton Clear Air Agency	Web-based comments	58826	N/A

Commenter Last Name	Commenter First Name	Commenter email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Public	Lewis	powersupply@lcpud.org	Lewis County PUD	Web-based comments	4596	N/A
Reed	Robert	not provided	Midstate Electric Cooperative	US Mail or commercial carrier (UPS, FedEx)	58720	6
Rhees	Scott	not provided	Franklin PUD	US Mail or commercial carrier (UPS, FedEx)	2845	N/A
Rochek	Daryl	not provided	LifePoint	US Mail or commercial carrier (UPS, FedEx)	56631	N/A
Rolfe	Trish	trolfe@celp.org	Center for Environmental Law & Policy	Web-based comments	6430	N/A
Russell	Catherine	not provided	Benton Rural Electric Association	US Mail or commercial carrier (UPS, FedEx)	32287	N/A
Ryan	Micky	mickyryan@aol.com	Great Old Broads for Wilderness	Email	31744	N/A
Ryan	Micky	mickyryan@aol.com	Great Old Broads for Wilderness	Web-based comments	6505	N/A
St. Germaine	Christina	cstgermaine@clearwatercounty.org	Clearwater County Economic Development	Web-based comments	6609	N/A
Sallinger	Bob	bsallinger@audubonportland.org	Portland Audubon Society	Web-based comments	31950 – No attachment with submission, co-lead agencies reached out but did not receive a response	N/A
Satterlee	Stacey	ssatterlee@idahograin.org	Idaho Grain Producers Association	Web-based comments	6712	N/A
Short	Curtis	blec@blec.coop	Blanchly-Lane Electric Co-op	US Mail or commercial carrier (UPS, FedEx)	32370	N/A
Silbert	Shelley	not provided	Great Old Broads for Wilderness	Web-based comments	4810	N/A
Silbert	Shelley	not provided	Great Old Broads for Wilderness	US Mail or commercial carrier (UPS, FedEx)	3970	N/A
Simms	Scott	not provided	Public Power Council (PPC)	Hand-delivered or oral testimony (personally delivered)	4250, 5579, 4275, 4642	N/A
Simpson	Craig	csimpson@ecbid.org	East Columbia Basin Irrigation District	Web-based comments	31786	N/A
Simpson	Tim	tsimpson@asotinpud.org	Asotin County Public Utility District	Web-based comments	6156	N/A
Squires	Glen	not provided	Washington Grain Commission	US Mail or commercial carrier (UPS, FedEx)	32355	N/A
Stark	R	not provided	PNGC Power	US Mail or commercial carrier (UPS, FedEx)	58706	N/A
Stark	R	rgray@pngcpower.com	PNGC Power	Web-based comments	2266	N/A
Stebbings	Heather	hstebbings@shavertransportation.com	Shaver Transportation Company	Web-based comments	3813	N/A
Stefani	Giulia	ggoodstefani@nrdc.org	Natural Resources Defense Council	Web-based comments	31941, 32185	N/A
Taylor	Steve	staylor@cowlitzpud.org	Cowlitz PUD	Web-based comments	4156	N/A
Thomas	Amy	athomas@publicpower.org	American Public Power Association	Web-based comments	5964	N/A
Thompson	James	jthompson@washingtonports.org	Washington Public Ports Association	Web-based comments	6885	N/A
Tracy	Charles	chuck.tracy@noaa.gov	Pacific Fishery Management Council	US Mail or commercial carrier (UPS, FedEx)	58803	N/A
Tracy	Charles	chuck.tracy@noaa.gov	Pacific Fishery Management Council	Web-based comments	2421, 2422, 6605	N/A
True	Todd	ttrue@earthjustice.org	Earth Justice	Web-based comments	3871*, 3875*, 3876*, 3877*, 3879*, 3880*, 3884*, 3886*, 3887*, 3889*, 3890*, 3891*, 3892*, 3894*, 3895*, 3897*, 3898*, 3899*, 3900*, 3902*, 3903*, 3904*, 3905*, 3907*, 3908*, 3909*, 3910*, 3911*, 3912*, 3913*, 3914*, 3915*, 3916*, 3917*, 3918*, 3919*, 3920*, 3921*, 3923*, 3924*, 3925*, 3926*, 3927*, 3928*, 3930*, 3931*, 3932*, 3935*, 3936*, 3937*, 3938*, 3940*, 3941*, 3942*, 3943*, 3945*, 3947*, 3948*, 3949*, 3950*, 3951*, 3952*, 3953*, 3954*, 3955*, 3956*, 3959*, 3961*, 3963*, 3965*, 3974*, 3975*, 3985*, 3996*, 3999, 4048*, 4052*, 4059*, 4115*, 4116*, 4166*, 4168*, 4169*, 4171*, 4172*, 4173*, 4195*, 4196*, 4197*, 4200*, 4202*, 4203*, 4204*, 4206*, 4208*, 4209*, 4798*, 4801*, 4806*, 4809*, 4813*, 4816*, 4818*, 4821*, 4823*, 4825*, 4826*, 4827*, 4828*, 4830*, 4833*, 4835*, 4836*, 4837*, 4838*, 4839*, 4840*, 4842*, 4869*, 4870*, 4871*, 4872*, 6110, 6910	N/A
Umek	Anthony	not provided	AKU Enterprises, LLC	US Mail or commercial carrier (UPS, FedEx)	2529, 56626	N/A
Vileisis	Ann	annvil@earthlink.net	Kalmiopsis Audubon Society	Hand-delivered or oral testimony (personally delivered)	5600	N/A
Vileisis	Ann	annvil@earthlink.net	Kalmiopsis Audubon Society	Web-based comments	2792	N/A
Visser	Garret	gvisser@idahowildlife.org	Idaho Wildlife Federation, Idaho Outfitters and Guides Association, Idaho River Community Alliance	Web-based comments	6606	N/A
Ward	Dave	icope@ghpud.org	Grays Harbor Public Utility District	Web-based comments	6524	N/A
Ward	Robert	shaun@palousertpo.org	Palouse Regional Transportation Planning Organization	Web-based comments	2946	N/A
Weiler	Colleen	colleen.weiler@whales.org	Whale and Dolphin Conservation	Web-based comments	31821, 31826	35
White	Rawleigh	not provided	Central Electric Cooperative Inc	US Mail or commercial carrier (UPS, FedEx)	32534	N/A
Wilson	Ken	not provided	Midstate Electric Cooperative	US Mail or commercial carrier (UPS, FedEx)	58714	6
Wright	Steve	Suzanne.Grassell@chelanpud.org	Chelan County PUD	Web-based comments	6202	N/A
Zimmerle	Jessica	not provided	Earth Ministry in Washington Interfaith Power and Light	Hand-delivered or oral testimony (personally delivered)	5572	N/A

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
INDIVIDUALS						
1	W	not provided	N/A	Web-based Comments	31335	24
-	Colleen	not provided	N/A	Web-based comments	57553	35
-	Velva	not provided	N/A	Web-based Comments	47781	34
[unreadable]	[unreadable]	not provided	N/A	Web-based Comments	25417	24
[unreadable]	[unreadable]	not provided	N/A	Web-based Comments	25416	24
[unreadable]	[unreadable]	not provided	N/A	Web-based Comments	15828	24
[unreadable]	B.E.	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	56673	N/A
[unreadable]	Barbara	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32286	N/A
[unreadable]	Dita	not provided	N/A	Web-based Comments	12973	24
[unreadable]	Even & Lauralie	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32444	N/A
[unreadable]	Fatma	not provided	N/A	Web-based Comments	14398	24
[unreadable]	Tania	not provided	N/A	Web-based Comments	30170	24
	W	not provided	N/A	Web-based Comments	31336	24
A	A	not provided	N/A	Web-based Comments	6950	24
A	A	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	4772	18
A	Candace	not provided	N/A	Web-based comments	32144	1
A	David	not provided	N/A	Web-based Comments	11927	24
A	Judy	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32557	N/A
A	L	not provided	N/A	Web-based Comments	44494	34
A	Natalie	arroynan@gmail.com	N/A	Web-based comments	571	1
A	Paul	not provided	N/A	Web-based Comments	47956, 47957	34
A	Raquel	not provided	N/A	Web-based Comments	26653	24
A	Rita	not provided	N/A	Web-based Comments	27126	24
A	Tru	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	4782	N/A
a.	anne	not provided	N/A	Web-based Comments	8166	24
A.	Pat	not provided	N/A	Web-based Comments	45339, 45340	34
A.	Pat	not provided	N/A	Web-based Comments	25628	24
Aadsen	Tela	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4666	N/A
Aaron	aaron	not provided	N/A	Web-based Comments	6992	24
Aaron	Daniel	not provided	N/A	Web-based Comments	46151	34
Aaron	Donald	not provided	N/A	Web-based Comments	13048	24
Aaronson	Denise	not provided	N/A	Web-based Comments	49664	34
Abate	Andrew	not provided	N/A	Web-based Comments	45251, 45252	34
Abate	Tom	not provided	N/A	Web-based comments	6096	N/A
Abbas	Pat	not provided	N/A	Web-based Comments	46889, 46890	34
Abbate	Adam	not provided	N/A	Web-based Comments	7037	24
Abbott	Bruce	not provided	N/A	Web-based Comments	9594	24
Abbott	Carol	not provided	N/A	Web-based Comments	9879	24
Abbott	Elizabeth	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	5604	N/A
Abbott	Joanna	not provided	N/A	Web-based Comments	17783	24
Abbott	John	not provided	N/A	Web-based Comments	17949	24
Abbott	Katana	not provided	N/A	Web-based Comments	46571	34
Abbott	Katie	not provided	N/A	Web-based Comments	53181	34
Abbott	Katie	not provided	N/A	Web-based Comments	19781	24
Abbott	Melinda	not provided	N/A	Web-based Comments	23856	24
ABbott	Ronald	not provided	N/A	Web-based Comments	27645	24
Abbott Mejorado	Dove	not provided	N/A	Web-based Comments	13350	24
Abby	Kathy	not provided	N/A	Web-based Comments	52143, 58055	34, 16
Abdi	Reyhaneh	not provided	N/A	Web-based Comments	26880	24
Abdul-Aleem	Nasira	not provided	N/A	Web-based Comments	55419	34
Abdulla	Pervez	not provided	N/A	Web-based Comments	26227	24
Abe	Margherita	not provided	N/A	Web-based Comments	22538	24
a'Becket	Suzanne	not provided	N/A	Web-based Comments	29979	24
Abedaziz	Sabha	not provided	N/A	Web-based comments	57172	35
Abel	B	not provided	N/A	Web-based Comments	8565	24
abel	jenny	not provided	N/A	Web-based Comments	49915, 58469	34
Abel	Judith	not provided	N/A	Web-based Comments	18554	24
Abel	Katharine	not provided	N/A	Web-based Comments	19413	24
Abel	Marjorie	not provided	N/A	Web-based Comments	22875	24
Abela	Maya	not provided	N/A	Web-based Comments	23755	24
Abeles	Aryeh	not provided	N/A	Web-based Comments	8473	24
Abels	Irene	not provided	N/A	Web-based Comments	15893	24
Abels	Maya	maya.abels@gmail.com	N/A	Web-based comments	6367	N/A
Abend	Gail	not provided	N/A	Web-based Comments	14664	24
Abendroth	James	not provided	N/A	Web-based Comments	52661	34
Abendroth	James	not provided	N/A	Web-based Comments	16170	24
Aberle	Eric	not provided	N/A	Web-based Comments	14081	24
Abernathy	Gina	not provided	N/A	Web-based Comments	15045	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Abernathy	Jennifer	not provided	N/A	Web-based Comments	45028	34
Abernathy	Jennifer	not provided	N/A	Web-based Comments	17148	24
Abers	Marilyn	not provided	N/A	Web-based Comments	49059	34
Abers	Mimi	not provided	N/A	Web-based Comments	24520	24
Abery	Chris	not provided	N/A	Web-based Comments	10715	24
Abing	Don	not provided	N/A	Web-based Comments	51412	34
Abner	June	not provided	N/A	Web-based Comments	18928	24
Abnet	Holly	not provided	N/A	Web-based Comments	15727	24
Abolt	Russ	not provided	N/A	Web-based Comments	27822	24
Aboud	Diane	not provided	N/A	Web-based Comments	12805	24
Abraham	Barbara	not provided	N/A	Web-based Comments	8613	24
Abraham	Barbara J	not provided	N/A	Web-based Comments	8838	24
Abraham	Brad J	not provided	N/A	Web-based Comments	51087	34
Abraham	Greg	not provided	N/A	Web-based Comments	15224	24
Abraham	Scott	not provided	N/A	Web-based comments	57651	35
Abraham	Thomas	not provided	N/A	Web-based Comments	30467	24
Abrahamson	Robert	not provided	N/A	Web-based Comments	27198	24
Abramczyk	Casimir	not provided	N/A	Web-based Comments	48339	34
Abramczyk	Megan	not provided	N/A	Web-based Comments	58481	34
Abramovic	Lisa	not provided	N/A	Web-based Comments	21515	24
Abramovic	Tom	not provided	N/A	Web-based Comments	30734	24
Abrams	Dan	not provided	N/A	Web-based Comments	11647	24
Abrams	Eric	not provided	N/A	Web-based Comments	58624	34
Abrams	Ericka	not provided	N/A	Web-based Comments	14178	24
Abrams	Fay	not provided	N/A	Web-based Comments	14402	24
Abrams	Jon	not provided	N/A	Web-based Comments	55191, 55192	34
Abrams	Jon	not provided	N/A	Web-based Comments	18243	24
Abrams	Sally	not provided	N/A	Web-based Comments	27997	24
Abrantes	Elizabeth	not provided	N/A	Web-based Comments	51034	34
Abrehart	Carol	not provided	N/A	Web-based Comments	9880	24
Abreu	Melissa	not provided	N/A	Web-based Comments	48666	34
Absolonova	Karolina	not provided	N/A	Web-based Comments	54376	34
Abusamra	Laurel	not provided	N/A	Web-based Comments	20728	24
Accardi	Maria	not provided	N/A	Web-based comments	57085	35
Accary	Hania	not provided	N/A	Web-based Comments	49491, 51780, 51781	34
Acebo	Ryan	not provided	N/A	Web-based Comments	27902	24
Acevedo	Jessica	not provided	N/A	Web-based Comments	53495	34
Acevedo	NK	not provided	N/A	Web-based Comments	25325	24
Aceves	Amelia	not provided	N/A	Web-based Comments	7576	24
Achey	Barbara	not provided	N/A	Web-based Comments	47798	34
Achey	James	not provided	N/A	Web-based Comments	51071	34
Acker	Michael	not provided	N/A	Web-based Comments	50494	34
Ackerman	Andrea	not provided	N/A	Web-based Comments	50464	34
Ackerman	Celia	not provided	N/A	Web-based Comments	54927	34
Ackerman	Gail	not provided	N/A	Web-based Comments	14665	24
Ackerman	Jan	not provided	N/A	Web-based Comments	44918, 44919	34
Ackerman	Jan	not provided	N/A	Web-based Comments	16380	24
Ackerman	Judith	not provided	N/A	Web-based Comments	18555	24
Ackerman	Laura	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4639	N/A
Ackerman	Shelly	shellya@whidbey.com	N/A	Web-based comments	3555	3
Ackermann	Dorelle	not provided	N/A	Web-based Comments	47914	34
Ackermann	Jan	not provided	N/A	Web-based Comments	16381	24
Ackert	Suzanne	not provided	N/A	Web-based Comments	29980	24
Ackley	Lynn	not provided	N/A	Web-based Comments	22045	24
Acomb	Katie	not provided	N/A	Web-based Comments	19782	24
Acord	Marilyn	not provided	N/A	Web-based Comments	22760	24
Acosta	Carlos	not provided	N/A	Web-based Comments	55317	34
Acosta	Kristell	not provided	N/A	Web-based Comments	20338	24
Acosta	Mike	not provided	N/A	Web-based Comments	54182	34
Acosta	Peggy	not provided	N/A	Web-based Comments	26144	24
Acosta	Sara	not provided	N/A	Web-based comments	57280	35
Acott	Peggy	not provided	N/A	Web-based Comments	44678	34
Acs-Ray	Julie	not provided	N/A	Web-based Comments	49793	34
Adaba	Nellie	not provided	N/A	Web-based Comments	25144	24
Adachi	Margaret	not provided	N/A	Web-based Comments	51371	34
Adair	Gina	not provided	N/A	Web-based comments	57508	35
Adair	Jan	not provided	N/A	Web-based Comments	44275	34
Adam	In?s	ines27.adam@gmail.com	N/A	Web-based comments	1697, 1698	1
Adam	Mary	not provided	N/A	Web-based Comments	23198	24
Adam	Rusty	not provided	N/A	Web-based Comments	47005	34

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Adams	Alexis	not provided	N/A	Web-based Comments	7303	24
Adams	Andrea	beadmask@gmail.com	N/A	Web-based comments	1711, 2410	4, 3
Adams	Anne	not provided	N/A	Web-based Comments	8167	24
Adams	Ashley	not provided	N/A	Web-based Comments	8478	24
Adams	Becky	not provided	N/A	Web-based Comments	8903	24
Adams	Ben	ben99115@gmail.com	N/A	Web-based comments	2629	N/A
Adams	Catherine	not provided	N/A	Web-based Comments	52689	34
Adams	Cecile	not provided	N/A	Web-based Comments	10413	24
Adams	David	not provided	N/A	Web-based Comments	45853	34
Adams	David	not provided	N/A	Web-based Comments	11928	24
adams	donna	not provided	N/A	Web-based Comments	48849	34
adams	donna	not provided	N/A	Web-based Comments	13099	24
Adams	Douglas	not provided	N/A	Web-based Comments	13320	24
Adams	Evelyn	not provided	N/A	Web-based Comments	49266, 49267	34
Adams	Evelyn	not provided	N/A	Web-based Comments	14346	24
Adams	Fred	fadams@cableone.net	N/A	Web-based comments	4425	N/A
Adams	James	not provided	N/A	Web-based Comments	56182, 56584	34
Adams	James	not provided	N/A	Web-based Comments	16171	24
Adams	John	not provided	N/A	Web-based Comments	17950	24
Adams	Jonathan	not provided	N/A	Web-based Comments	46785	34
ADAMS	JUDITH	not provided	N/A	Web-based Comments	18556	24
Adams	Julie	not provided	N/A	Web-based Comments	49075	34
Adams	K.	lotuslily007@gmail.com	N/A	Web-based comments	31874	1
Adams	Kathy	not provided	N/A	Web-based Comments	19676	24
Adams	Katy	kladams@eckerd.edu	N/A	Web-based comments	4616	1
Adams	Kristin	ksadams513@gmail.com	N/A	Web-based comments	589	2
Adams	L.	not provided	N/A	Web-based Comments	46824	34
Adams	L.	not provided	N/A	Web-based Comments	20494	24
Adams	Letitia	not provided	N/A	Web-based Comments	21123	24
Adams	Lori	lorimoodyadams@gmail.com	N/A	Web-based comments	3698	N/A
Adams	Lorraine and Ralph	not provided	N/A	Web-based Comments	21850	24
Adams	Lynne	not provided	N/A	Web-based Comments	22113	24
Adams	Marci	not provided	N/A	Web-based Comments	22357	24
Adams	Margaret	not provided	N/A	Web-based Comments	54085	34
Adams	Marsha	not provided	N/A	Web-based Comments	48015, 48016, 58121	34, 16
Adams	Marsha	not provided	N/A	Web-based Comments	23061	24
Adams	Martha	not provided	N/A	Web-based Comments	23090	24
Adams	Martin	not provided	N/A	Web-based Comments	23150	24
Adams	Mary	not provided	N/A	Web-based Comments	23199	24
Adams	Mary Lou	not provided	N/A	Web-based Comments	23538	24
Adams	Michelle	michelle.adams@chsinc.com	N/A	Web-based comments	5741	N/A
Adams	Moira	not provided	N/A	Web-based Comments	24587	24
Adams	Patty	not provided	N/A	Web-based Comments	44519	34
Adams	Paula	not provided	N/A	Web-based Comments	26066	24
Adams	Rosie	not provided	N/A	Web-based Comments	27777	24
Adams	Sandra	not provided	N/A	Web-based Comments	50493	34
Adams	Sandra	not provided	N/A	Web-based Comments	28108	24
Adams	Sarah	not provided	N/A	Web-based Comments	28322	24
Adams	Scott	scotta@ae1.org	N/A	Web-based comments	4345	N/A
Adams	Shilo	not provided	N/A	Web-based Comments	28934	24
Adams	Simon	not provided	N/A	Web-based comments	56935	35
Adams	Simon	not provided	N/A	Web-based Comments	29019	24
Adams	Susan	not provided	N/A	Web-based comments	56888	35
Adams	Virginia	not provided	N/A	Web-based Comments	31267	24
Adams	Wendy	not provided	N/A	Web-based Comments	31406	24
Adams Chapman	Nancy	not provided	N/A	Web-based Comments	24797	24
Adcock	Michelle	not provided	N/A	Web-based Comments	46401, 46402	34
Adcock	Michelle	not provided	N/A	Web-based Comments	24319	24
Addeo	Alicia	not provided	N/A	Web-based Comments	7375	24
Addink	jackie	not provided	N/A	Web-based Comments	16053	24
Addis	Barbara	not provided	N/A	Web-based Comments	8614	24
Addis	Doris	not provided	N/A	Web-based Comments	13222	24
Addison	David	not provided	N/A	Web-based Comments	11929	24
Addison	Stacey	not provided	N/A	Web-based Comments	29107	24
Adela	Pirlog	kikita94@yahoo.com	N/A	Web-based comments	1153, 1158	1
Adell	Alex	not provided	N/A	Web-based Comments	7241	24
Adell	Val	not provided	N/A	Web-based Comments	30994	24
Adell	Valerie	not provided	N/A	Web-based Comments	46459	34
Aden	Sandi	not provided	N/A	Web-based Comments	45311	34

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Aden	Sandi	not provided	N/A	Web-based Comments	28105	24
Ader	Roberta	not provided	N/A	Web-based Comments	27429	24
Aderhold	Steven	not provided	N/A	Web-based Comments	29417	24
Adhikari	Richard	not provided	N/A	Web-based Comments	26929	24
Adibi	Elise	not provided	N/A	Web-based Comments	13686	24
Adibi	Soria	not provided	N/A	Web-based Comments	29094	24
adiel	eleanor	not provided	N/A	Web-based Comments	13625	24
Adkins	Connie	not provided	N/A	Web-based Comments	11289	24
Adkins	Jen	not provided	N/A	Web-based Comments	17109	24
Adkins	Karen	not provided	N/A	Web-based Comments	52658	34
Adkins	Karen	not provided	N/A	Web-based Comments	19031	24
adkins	kaye	not provided	N/A	Web-based Comments	50816	34
Adkins	Patti	not provided	N/A	Web-based Comments	25939	24
Adler	Alissa	not provided	N/A	Web-based Comments	54050	34
Adler	Alissa	not provided	N/A	Web-based Comments	7424	24
Adler	Jill	not provided	N/A	Web-based Comments	17491	24
Adler	Judi	not provided	N/A	Web-based Comments	18543	24
Adler	Michael	not provided	N/A	Web-based comments	57145	35
adler	steve	not provided	N/A	Web-based Comments	29353	24
Admirer of Steven Universe	Lady Yuri,	not provided	N/A	Web-based Comments	20513	24
Adoue	Miss Novella	not provided	N/A	Web-based Comments	24567	24
Adrian	Trent	not provided	N/A	Web-based Comments	30895	24
Adsit	John	not provided	N/A	Web-based Comments	17951	24
Advocate	Tamara Animal	not provided	N/A	Web-based Comments	51066	34
Ady	Amal	not provided	N/A	Web-based comments	57352	35
Ady	Summer	not provided	N/A	Web-based comments	57353	35
aenlle	willy	not provided	N/A	Web-based Comments	31621	24
Afanador	Rocio	not provided	N/A	Web-based Comments	44609, 44610	34
Afaq	Maryam	maryamafaq@gmail.com	N/A	Web-based comments	6425	1
Afchar	Beate	not provided	N/A	Web-based Comments	8888	24
Afeld	Dennis	not provided	N/A	Web-based Comments	12673	24
Afonso	Fatima	not provided	N/A	Web-based Comments	14397	24
Agacinski	Malina	not provided	N/A	Web-based comments	56733	35
Agarwal	Shubham	not provided	N/A	Web-based Comments	28976	24
Agas	Christine	not provided	N/A	Web-based Comments	10890	24
Agen	Matthew	not provided	N/A	Web-based Comments	23629	24
Ager	Tim	not provided	N/A	Web-based Comments	30597	24
Ager	Wanda	not provided	N/A	Web-based Comments	31372	24
Ageyeva	Marina	not provided	N/A	Web-based Comments	22828	24
Agnew	Brenda	not provided	N/A	Web-based Comments	46901	34
Agnew	Brenda	not provided	N/A	Web-based Comments	9388	24
Agnew	Erika	not provided	N/A	Web-based Comments	48198	34
Agnew	Kim	not provided	N/A	Web-based Comments	20160	24
Agnew	Victoria	not provided	N/A	Web-based Comments	31178	24
Agonito	Rosemary	not provided	N/A	Web-based Comments	27756	24
Agozzino	Cassondra	clagozzino@gmail.com	N/A	Web-based comments	58816	1
Agranovich	Amelia	aagran1@umbc.edu	N/A	Web-based comments	6586, 57094	1, 35
Agranovich	Anna	agranovich@gmail.com	N/A	Web-based comments	31875	1
Agresta	Kathy	not provided	N/A	Web-based Comments	19677	24
Agriopoulos	Danielle	not provided	N/A	Web-based Comments	53611, 58415	34
Agro	Joan	not provided	N/A	Web-based Comments	52302	34
Ague	Kate	not provided	N/A	Web-based Comments	48494, 48495	34
Agui	Gisele	not provided	N/A	Web-based comments	56752	35
Aguilar	Jason	not provided	N/A	Web-based Comments	16771	24
Aguilar	Javier	not provided	N/A	Web-based Comments	16797	24
Aguinaldo	Alicia m	not provided	N/A	Web-based Comments	7388	24
Aguirre	Gloria	not provided	N/A	Web-based Comments	15147	24
Aguirre	Guillermina	not provided	N/A	Web-based Comments	15333	24
Aguirre	Ricardo	not provided	N/A	Web-based Comments	26916	24
Aharonian	Natalie	not provided	N/A	Web-based Comments	46674, 46675	34
Aharonian	Natalie	not provided	N/A	Web-based Comments	25057	24
Ahart	LeRene	not provided	N/A	Web-based Comments	21024	24
Ahearn	Jim	not provided	N/A	Web-based Comments	50111	34
Ahern	Bruce	not provided	N/A	Web-based Comments	9595	24
ahern	elvira	not provided	N/A	Web-based Comments	45439	34
Ahern	Garrett	not provided	N/A	Web-based Comments	51566	34
Ahern	Garrett	not provided	N/A	Web-based Comments	14740	24
Ahern	Susan	not provided	N/A	Web-based Comments	29577	24
Ahlers	Jeff	AhlJD@msn.com	N/A	Web-based comments	2042	N/A

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Ahlers	William	not provided	N/A	Web-based Comments	31498	24
Ahlstrand	Heidi	not provided	N/A	Web-based Comments	53954, 53955	34
Ahlstrand	Heidi lynn	not provided	N/A	Web-based Comments	15585	24
Ahmadi	M	not provided	N/A	Web-based Comments	44408	34
Ahmadian	Noona	noona_ahmadian@yahoo.com	N/A	Web-based comments	2881	N/A
Ahmed	Duaa	not provided	N/A	Web-based Comments	13381	24
Ahmed	Paul	not provided	N/A	Web-based Comments	25967	24
Ahner	Ernest	sahner1@frontier.com	N/A	Web-based comments	4199	N/A
Ahrens	Cindy	not provided	N/A	Web-based Comments	11061	24
Ahrens	Danielle	daniellerahrens@gmail.com	N/A	Web-based comments	3883	12
Ahumada	Leo	not provided	N/A	Web-based Comments	20992	24
Ahumada	Minerva	not provided	N/A	Web-based Comments	24533	24
AHY	CMY	not provided	N/A	Web-based comments	4950	N/A
Aichele	Tamra	not provided	N/A	Web-based comments	4529	N/A
Aiello	Carmela	not provided	N/A	Web-based Comments	9864	24
Aiello	Claire	not provided	N/A	Web-based Comments	46761	34
Aiello	Claire	not provided	N/A	Web-based Comments	11119	24
Aiello	Francis	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32502	N/A
Aiello	Patrice	not provided	N/A	Web-based Comments	25689	24
Aiken	Achilles	not provided	N/A	Web-based Comments	55820	34
Aiken	Achilles	not provided	N/A	Web-based Comments	7029	24
Aiken	Edwin	not provided	N/A	Web-based Comments	53726, 53727	34
Aiken	Edwin	not provided	N/A	Web-based Comments	13522	24
Aiken	Jennifer	not provided	N/A	Web-based Comments	50142	34
Aiken	Karen	not provided	N/A	Web-based Comments	19032	24
Aiken	Pamela	not provided	N/A	Web-based Comments	25522	24
Aiken	Shauna	not provided	N/A	Web-based Comments	28742	24
Aikens	Sonja	not provided	N/A	Web-based Comments	47662	34
Ainsley	Brian	not provided	N/A	Web-based Comments	9455	24
AIOUN	Micheline	not provided	N/A	Web-based Comments	24316	24
Airey	Tommy	tommyairey@gmail.com	N/A	Web-based comments	4473	N/A
Aisen	Rachelle	not provided	N/A	Web-based Comments	26560	24
Aitken	Hannah	not provided	N/A	Web-based Comments	15395	24
aitken	maria	not provided	N/A	Web-based Comments	22577	24
Aitken	Marsha	not provided	N/A	Web-based Comments	23062	24
Aiton	William	not provided	N/A	Web-based Comments	31499	24
Aiudi	Bethany	not provided	N/A	Web-based Comments	52429	34
Aizen	Valeria	not provided	N/A	Web-based Comments	50685	34
Ajemian	Peter	not provided	N/A	Web-based Comments	26238	24
Ajmani	Anjali	not provided	N/A	Web-based comments	57065	35
Akdeniz	Deniz	not provided	N/A	Web-based Comments	12672	24
Akehurst	Mike	not provided	N/A	Web-based Comments	44454, 44455	34
Akehurst	Tim	not provided	N/A	Web-based Comments	54315	34
Aker	Katherine	not provided	N/A	Web-based Comments	19430	24
Aker	Kathi	not provided	N/A	Web-based Comments	56055	34
Akers	Fred	not provided	N/A	Web-based Comments	14567	24
Akers	Rose	not provided	N/A	Web-based Comments	27716	24
Akers	Tom	not provided	N/A	Web-based Comments	30735	24
Akiba	Lorraine	not provided	N/A	Web-based Comments	52252	34
Akiba	Lorraine	not provided	N/A	Web-based Comments	21831	24
Akimova	Yulia	not provided	N/A	Web-based Comments	47264	34
Akins	Judith	sunsetjam@gmail.com	N/A	Web-based comments	4317	N/A
Aksman	Cyrene	not provided	N/A	Web-based Comments	51272	34
Al Saleh	Mohammerd	not provided	N/A	Web-based Comments	24585	24
Alabidi	Torah	not provided	N/A	Web-based Comments	30826	24
Alabiso	Marie	not provided	N/A	Web-based comments	56976	35
Alafouzos	Iakovos	not provided	N/A	Web-based Comments	15829	24
Alagammai	Andrea	not provided	N/A	Web-based Comments	7724	24
Alamprese	Laura	not provided	N/A	Web-based Comments	20603	24
Alanis	Monica	not provided	N/A	Web-based Comments	24614	24
Alaniz	Isabel	not provided	N/A	Web-based Comments	15932	24
Alba	Jennifer	not provided	N/A	Web-based Comments	17149	24
Albanese	Dawn	not provided	N/A	Web-based Comments	56039, 56040	34
Albanese	Dawn	not provided	N/A	Web-based Comments	12198	24
albence	ann	not provided	N/A	Web-based Comments	7997	24
Alberhasky	Craig	not provided	N/A	Web-based Comments	11410	24
Albert	Anthony	not provided	N/A	Web-based Comments	53154	34
Albert	Cheryl	not provided	N/A	Web-based Comments	47564	34
Albert	Cheryl	not provided	N/A	Web-based Comments	10614	24
Albert	David	not provided	N/A	Web-based Comments	11930	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Albert	Gloria	not provided	N/A	Web-based Comments	15148	24
Albert	Jordy	not provided	N/A	Web-based Comments	18325	24
Albert	Marton	not provided	N/A	Web-based Comments	23189	24
Albert	Matthew	not provided	N/A	Web-based Comments	23630	24
Albert	Paul	not provided	N/A	Web-based Comments	25968	24
Albert	Ryan	not provided	N/A	Web-based Comments	27903	24
Albert	Susan	not provided	N/A	Web-based Comments	55396	34
Albert	Susan	not provided	N/A	Web-based Comments	29578	24
Alberti	Gabriel	not provided	N/A	Web-based Comments	14635	24
Albertine	Gisele	not provided	N/A	Web-based Comments	49419	34
Alberto	Maria	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	31745	N/A
Alberts	Carlos	not provided	N/A	Web-based Comments	9849	24
Alberts	Jessie	not provided	N/A	Web-based Comments	17479	24
Albertson	Glen	not provided	N/A	Web-based Comments	55174	34
albin	woodrow	not provided	N/A	Web-based Comments	45027	34
Albrecht	Chris	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32331	N/A
Albrecht	Kathryn	not provided	N/A	Web-based Comments	19617	24
Albrecht	Volker	not provided	N/A	Web-based Comments	31333	24
Albrecht	Yvonne	not provided	N/A	Web-based Comments	54065, 54066	34
Albrecht	Yvonne	not provided	N/A	Web-based Comments	31688	24
Albrets	Peg	not provided	N/A	Web-based Comments	26136	24
Albright	Gary	not provided	N/A	Web-based Comments	56163	34
Albright	Shai	not provided	N/A	Web-based Comments	28558	24
Albright.	Helen	not provided	N/A	Web-based Comments	15591	24
Alcamo	Amanda	not provided	N/A	Web-based Comments	7516	24
Alcantara	Anita	not provided	N/A	Web-based Comments	7963	24
alcaraz	carmen	fncalcaraz@outlook.com	N/A	Web-based comments	1975	N/A
Alcaraz	Montse	not provided	N/A	Web-based Comments	24661	24
Alcock	Roland	not provided	N/A	Web-based Comments	27599	24
Aldana	Judith	not provided	N/A	Web-based Comments	18557	24
Alden	Erica	not provided	N/A	Web-based Comments	14155	24
Alden	Garrett	not provided	N/A	Web-based Comments	52807	34
Alden	Janet	not provided	N/A	Web-based Comments	16560	24
Alden	Jennifer	not provided	N/A	Web-based Comments	44820	34
Alden	Mandy	not provided	N/A	Web-based Comments	22303	24
Alder	John	jralder@comcast.net	N/A	Web-based comments	1286	3
Alderman	Mick	not provided	N/A	Web-based Comments	48731	34
Alderman	Nancy	not provided	N/A	Web-based Comments	24798	24
Alderman	Richard	not provided	N/A	Web-based Comments	26930	24
Alderson	Deborah and Johnny	not provided	N/A	Web-based Comments	12495	24
Alderton	Janet	not provided	N/A	Web-based Comments	16561	24
Aldrich	Andrea	anmaldrich@aol.com	N/A	Web-based comments	1811	N/A
Aldrich	Catherine	not provided	N/A	Web-based Comments	10253	24
Aldrich	Jim	not provided	N/A	Web-based Comments	46985	34
Aldrich	Mary Lee	not provided	N/A	Web-based Comments	23536	24
Aldrich	Michael	mnaaldrich1@aol.com	N/A	Web-based comments	2501	N/A
Aldrich	Michael	mnaaldrich1@aol.com	N/A	US Mail or commercial carrier (UPS, FedEx)	58396	N/A
Aldrich	Virginia	not provided	N/A	Web-based Comments	31268	24
Aldridge	Allan	not provided	N/A	Web-based comments	56928	35
Aldridge	Baylor	not provided	N/A	Web-based Comments	8879	24
Aldridge	Mark	Aldridge1958@gmail.com	N/A	Web-based comments	5275	8
ALDY	DEBBIE	not provided	N/A	Web-based Comments	12306	24
Aleshire	Ric	not provided	N/A	Web-based Comments	26914	24
Aleshire	Stephen	not provided	N/A	Web-based Comments	58466	34
Alexakos	Irene	not provided	N/A	Web-based Comments	50325	N/A
Alexander	Allen	not provided	N/A	Web-based Comments	7440	24
Alexander	Andrea	not provided	N/A	Web-based Comments	48280	34
Alexander	Betty	not provided	N/A	Web-based Comments	9087	24
Alexander	Bettyjo	not provided	N/A	Web-based Comments	9107	24
Alexander	Bill	not provided	N/A	Web-based Comments	9162	24
Alexander	Bob	not provided	N/A	Web-based Comments	46396	34
Alexander	Bob	not provided	N/A	Web-based Comments	9226	24
Alexander	Carolyn	not provided	N/A	Web-based Comments	10135	24
Alexander	Charles	not provided	N/A	Web-based comments	57599	35
Alexander	Charles	not provided	N/A	Web-based Comments	10480	24
Alexander	Deborah	debbie@alexanderzoo.com	N/A	Web-based comments	5198	N/A
Alexander	Debra	djalexa373@gmail.com	N/A	Web-based comments	2384	N/A
Alexander	Denise	madalex@filertel.com	N/A	Web-based comments	3352	13
Alexander	Dina	not provided	N/A	Web-based Comments	12957	24
Alexander	Elizabeth	not provided	N/A	Web-based Comments	47985	34

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Alexander	Gary	not provided	N/A	Web-based Comments	47972	34
Alexander	H.	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	2838	N/A
Alexander	J	not provided	N/A	Web-based Comments	15967	24
Alexander	Jane	not provided	N/A	Web-based Comments	16458	24
ALEXANDER	JOYCE	not provided	N/A	Web-based Comments	18477	24
Alexander	Judith	not provided	N/A	Web-based Comments	18558	24
Alexander	Kathy	not provided	N/A	Web-based Comments	19678	24
Alexander	Lottie	not provided	N/A	Web-based Comments	46242	34
Alexander	Lyndsay	not provided	N/A	Web-based Comments	22031	24
Alexander	Marlene	not provided	N/A	Web-based Comments	46009	34
Alexander	Marlene	not provided	N/A	Web-based Comments	23035	24
alexander	melody	not provided	N/A	Web-based Comments	23941	24
Alexander	Michael	not provided	N/A	Web-based Comments	24013	24
Alexander	Natalie	not provided	N/A	Web-based Comments	54153, 54154	34
Alexander	Natalie	not provided	N/A	Web-based Comments	25058	24
Alexander	Sarah	not provided	N/A	Web-based comments	57518	35
Alexander	Susan	not provided	N/A	Web-based Comments	29579	24
Alexander	Suzanne	not provided	N/A	Web-based Comments	49827	34
alexander	virginia	not provided	N/A	Web-based Comments	54595	34
Alexanderson	Diane	not provided	N/A	Web-based Comments	12806	24
alexandra	Kathryn	not provided	N/A	Web-based Comments	50178	34
alexandra	Kathryn	not provided	N/A	Web-based Comments	19618	24
Alexandre	Charlotte	not provided	N/A	Web-based Comments	10552	24
Alexandre	Lebrun	not provided	N/A	Web-based comments	56709	35
Alexandrea	Dawn	not provided	N/A	Web-based Comments	12199	24
Alexandrou	Michael	not provided	N/A	Web-based Comments	24014	24
Alexandrowicz	Katherine	not provided	N/A	Web-based Comments	50966	34
alexi	eva	not provided	N/A	Web-based Comments	14309	24
Alexlander	Carol	not provided	N/A	Web-based Comments	45779	34
Alf	Jade	not provided	N/A	Web-based Comments	16150	24
Alfaiq	Lindsey	not provided	N/A	Web-based comments	57186	35
Alfandari	Irene	not provided	N/A	Web-based Comments	15894	24
Alfaro	Elaine	not provided	N/A	Web-based Comments	13570	24
alfimow	beverly	not provided	N/A	Web-based Comments	9117	24
alfoldi	anita	not provided	N/A	Web-based Comments	54130	34
Alfonso	Carmen	not provided	N/A	Web-based comments	56844	35
Alfonso	Carmen	not provided	N/A	Web-based Comments	9865	24
Alford Johnson	Jeannelle	not provided	N/A	Web-based Comments	16982	24
Alfuwairis	Shaikha	not provided	N/A	Web-based Comments	51187, 51188	34
Alfuwairis	Shaikha	not provided	N/A	Web-based Comments	28559	24
Algarin	Bonnie	not provided	N/A	Web-based Comments	44981	34
Alger	Christina	not provided	N/A	Web-based Comments	10841	24
Alhart	Kyle	not provided	N/A	Web-based Comments	20445	24
Ali	Diane	not provided	N/A	Web-based Comments	12807	24
Ali	Lee Ann	not provided	N/A	Web-based Comments	20953	24
Ali	Lydian	not provided	N/A	Web-based Comments	56170	34
Ali	Lydian	not provided	N/A	Web-based Comments	21996	24
Ali	Margaret	not provided	N/A	Web-based Comments	22424	24
ali	saadia	not provided	N/A	Web-based Comments	27967	24
Alibrandi	Jill	not provided	N/A	Web-based Comments	17492	24
Alic	Margaret	not provided	N/A	Web-based Comments	22425	24
Alicea	Julie	not provided	N/A	Web-based Comments	49014	34
Alison	Cheryl	not provided	N/A	Web-based Comments	10615	24
Alkhalil	Dema	dema.alkhalil@gmail.com	N/A	Web-based comments	1874	4
Alkire	Claire	not provided	N/A	Web-based Comments	50891	34
Allaburda	Charity	not provided	N/A	Web-based Comments	51819	34
Allage	Amy	not provided	N/A	Web-based Comments	7591	24
allan	agee	not provided	N/A	Web-based Comments	7112	24
Allan	Don	donallan711@gmail.com	N/A	Web-based comments	2175	N/A
allard	gisele	not provided	N/A	Web-based Comments	15096	24
allarde	lisa	not provided	N/A	Web-based Comments	48602, 48603	34
Allbaugh	John	not provided	N/A	Web-based Comments	17952	24
Allbright	Bruce	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32390	11
Alldredge	Rich	rich.alldredge@gmail.com	N/A	Web-based comments	3679	N/A
Alle Greig	Connie	not provided	N/A	Web-based Comments	11290	24
Allen	Aaron	not provided	N/A	Web-based Comments	6993	24
Allen	Benjamin	not provided	N/A	Web-based Comments	8960	24
Allen	Beth	not provided	N/A	Web-based Comments	9007	24
Allen	Bruce	not provided	N/A	Web-based Comments	9596	24
Allen	C.	not provided	N/A	Web-based comments	6785	N/A

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Allen	Caroline	not provided	N/A	Web-based Comments	55767	34
Allen	Cindy	not provided	N/A	Web-based Comments	55835	34
ALLEN	CINDY	not provided	N/A	Web-based Comments	11062	24
Allen	Clint	saudade1970@yahoo.com	N/A	Web-based comments	4445	N/A
Allen	Connie	not provided	N/A	Web-based Comments	11291	24
Allen	Cynthia	not provided	N/A	Web-based Comments	11487	24
Allen	Edwina	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	5556	N/A
Allen	Forrest	not provided	N/A	Web-based Comments	14456	24
Allen	Gary	not provided	N/A	Web-based Comments	47487	34
Allen	Gary	not provided	N/A	Web-based Comments	14750	24
Allen	Harmony	harmonyallen79@gmail.com	N/A	Web-based comments	31825	1
Allen	Jackie	not provided	N/A	Web-based Comments	16054	24
Allen	James E	not provided	N/A	Web-based Comments	55516	34
Allen	Jeffrey	not provided	N/A	Web-based Comments	17065	24
Allen	Jim	not provided	N/A	Web-based Comments	17563	24
Allen	Jim	not provided	N/A	Web-based Comments	17564	24
Allen	Joan	not provided	N/A	Web-based Comments	54268	34
Allen	Joanne	not provided	N/A	Web-based Comments	44619	34
Allen	Johnnie	georgiaandjohnnie@gmail.com	N/A	Web-based comments	2952	N/A
Allen	Johnnie	not provided	N/A	Web-based Comments	48440	34
Allen	Kat	not provided	N/A	Web-based Comments	46948	34
Allen	Ken	not provided	N/A	Web-based Comments	19962	24
Allen	Leanne	not provided	N/A	Web-based Comments	20917	24
Allen	Linda	not provided	N/A	Web-based Comments	21190	24
Allen	Lisa	not provided	N/A	Web-based Comments	21516	24
Allen	Michael	not provided	N/A	Web-based Comments	24015	24
Allen	Miriam	not provided	N/A	Web-based Comments	24543	24
Allen	Nancy	not provided	N/A	Web-based Comments	53138	34
Allen	Patricia	not provided	N/A	Web-based Comments	46992, 46993	34
Allen	Rachel	not provided	N/A	Web-based Comments	26506	24
Allen	Robert	not provided	N/A	Web-based Comments	51389	34
Allen	Sean	seanallen83@ymail.com	N/A	Hand-delivered or oral testimony (personally delivered)	4754	N/A
Allen	Sean	seanallen83@ymail.com	N/A	Web-based comments	1451, 2579	1
Allen	Sloan	not provided	N/A	Web-based Comments	29039	24
Allen	Sue	sueannallen1@gmail.com	N/A	Web-based comments	3255	3
Allen	Susan	not provided	N/A	Web-based Comments	29580	24
Allen	Susan	seattlegirlmakesgood@gmail.com	N/A	Web-based comments	84	1
Allen	Teresa	not provided	N/A	Web-based Comments	44816, 44817	34
Allen	Teresa	not provided	N/A	Web-based Comments	30258	24
Allen	Travis	not provided	N/A	Web-based Comments	30890	24
Allen, III	Doug	not provided	N/A	Web-based Comments	13287	24
AllenIII	Doug	not provided	N/A	Web-based Comments	50227	34
Alley	Lynn	not provided	N/A	Web-based Comments	55077	34
Allgood	Jean	not provided	N/A	Web-based Comments	46465	34
Allgood	Jean	not provided	N/A	Web-based Comments	16835	24
Allis	Nancy	not provided	N/A	Web-based Comments	24799	24
allison	cindy	not provided	N/A	Web-based Comments	11063	24
Allison	Connie	not provided	N/A	Web-based Comments	53578, 53579	34
Allison	Connie	not provided	N/A	Web-based Comments	11292	24
Allison	Diane	not provided	N/A	Web-based Comments	52532	34
Allison	Gail	not provided	N/A	Web-based Comments	14666	24
Allison	Jennifer	not provided	N/A	Web-based Comments	17150	24
Allison	Jenny	not provided	N/A	Web-based Comments	17283	24
Allison	Joanne	JA1448@comcast.net	N/A	Web-based comments	3847	3
Allison	Kelly	not provided	N/A	Web-based Comments	51138	34
Allison	Michelle	not provided	N/A	Web-based Comments	24320	24
Allison	Nancy	not provided	N/A	Web-based Comments	24800	24
Allman	Curt	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32456	13
Allman	Susan	not provided	N/A	Web-based Comments	29581	24
Allnutt	Julie	not provided	N/A	Web-based Comments	18808	24
Allon	John	not provided	N/A	Web-based Comments	17953	24
Alloy	Andrew	not provided	N/A	Web-based Comments	7796	24
Allred	Philip	allredp@gmail.com	N/A	Web-based comments	4285	N/A
Allred	Tuesday	not provided	N/A	Web-based Comments	30950	24
Allrud	Sydney	not provided	N/A	Web-based Comments	53353	34
Allsop	Shannon	not provided	N/A	Web-based Comments	28578	24
Allton	Anette Juhl	not provided	N/A	Web-based Comments	7883	24
Almack	Charles	not provided	N/A	Web-based Comments	10481	24
Almanza	Connie	not provided	N/A	Web-based Comments	11293	24
Almares	Delia	not provided	N/A	Web-based Comments	12599	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Almazova	Olya	not provided	N/A	Web-based Comments	25442	24
Almeida	Andrea	ms.andreaalmeida@gmail.com	N/A	Web-based comments	1690	N/A
Almeida	Filomena	not provided	N/A	Web-based Comments	53205	34
Almeida	Maryann Almeida	not provided	N/A	Web-based Comments	23565	24
Almeida-Altamirano	Gabriela	not provided	N/A	Web-based Comments	51243, 51244, 14642	34, 24
Almendarez	Mary	not provided	N/A	Web-based Comments	23200	24
Almgren	Anne	not provided	N/A	Web-based Comments	8168	24
almgren	susie	not provided	N/A	Web-based Comments	29957	24
Almony	Andrea	not provided	N/A	Web-based Comments	7725	24
Almstrom	Sabine	not provided	N/A	Web-based Comments	52589	34
Alonso	Pierrette	not provided	N/A	Web-based Comments	26408	24
Alper	Gregory	not provided	N/A	Web-based Comments	15268	24
Alper	Jeff	not provided	N/A	Web-based Comments	17002	24
Alper	Kyle	not provided	N/A	Web-based Comments	20446	24
Alpern	Diane	not provided	N/A	Web-based Comments	12808	24
Alpern	Dianne	not provided	N/A	Web-based Comments	52647, 50986	34
Alpern	Dianne	not provided	N/A	Web-based Comments	12932	24
Alpers	Benjamin	not provided	N/A	Web-based Comments	8961	24
Alpha	James	not provided	N/A	Web-based Comments	16172	24
Alraun	Claudia	not provided	N/A	Web-based Comments	47720	34
Alsafi	Catherine	not provided	N/A	Web-based Comments	47925	34
Alsafi	Catherine	not provided	N/A	Web-based Comments	10254	24
Alsenas	Laura	not provided	N/A	Web-based Comments	20604	24
Al-Sharif	Ahmid	not provided	N/A	Web-based Comments	7123	24
Alshatti	Khaled	not provided	N/A	Web-based Comments	20151	24
Alshehri	Fares	not provided	N/A	Web-based Comments	14391	24
Alspach	Brent	not provided	N/A	Web-based Comments	9436	24
Alstad	Linda	not provided	N/A	Web-based Comments	51347	34
Alstad	Linda	not provided	N/A	Web-based Comments	21191	24
Alston	Edith	not provided	N/A	Web-based Comments	48203	34
Alstott	Tanya	not provided	N/A	Web-based Comments	30177	24
Alstrom	Laurie	not provided	N/A	Web-based Comments	45698	34
Alstyne	Annie Van	not provided	N/A	Web-based Comments	45122	34
Alt	Peggy	not provided	N/A	Web-based Comments	26145	24
Altenburg	Leona	not provided	N/A	Web-based Comments	21002	24
Alter	Judy	not provided	N/A	Web-based Comments	18665	24
Al-thani	Noora	not provided	N/A	Web-based Comments	25351	24
Althouse	Sherry	not provided	N/A	Web-based Comments	54089	34
Altieri	Sarah	not provided	N/A	Web-based Comments	28323	24
Altman	Allen	not provided	N/A	Web-based Comments	53119	34
Altman	Allen	not provided	N/A	Web-based Comments	7441	24
Altman	Jeri	not provided	N/A	Web-based Comments	53651	34
Altman	Penny	not provided	N/A	Web-based Comments	54011	34
Altom	Robert	not provided	N/A	Web-based Comments	51801	34
Altomari	Chris	not provided	N/A	Web-based Comments	10716	24
Altree	Arthur	not provided	N/A	Web-based Comments	54945	34
Altree	Arthur	not provided	N/A	Web-based Comments	8456	24
Altro	Patricia	not provided	N/A	Web-based Comments	25698	24
Altshuler	Joshua	not provided	N/A	Web-based Comments	18427	24
Altshuler	Noah	not provided	N/A	Web-based Comments	25327	24
Alvarado	Denise	not provided	N/A	Web-based Comments	44399	34
Alvarado	Denise	not provided	N/A	Web-based Comments	12625	24
Alvarado	Joyce	not provided	N/A	Web-based Comments	54404	34
Alvare	Michelle	not provided	N/A	Web-based Comments	24321	24
Alvarez	Barbara	not provided	N/A	Web-based Comments	58293	16
Alvarez	Jeremy	not provided	N/A	Web-based Comments	17310	24
Alvarez	Leandro	not provided	N/A	Web-based Comments	20910	24
Alvarez	Lynda	not provided	N/A	Web-based Comments	58460	34
Alvarez	Lynda	not provided	N/A	Web-based Comments	22014	24
Alvarez	S	not provided	N/A	Web-based Comments	27935	24
Alvarez-Oppus	Sonia	not provided	N/A	Web-based Comments	29057	24
Alveraz	Babs	not provided	N/A	Web-based Comments	50838	34
Alves	Ana	not provided	N/A	Web-based Comments	7686	24
Alves	Jaime	not provided	N/A	Web-based Comments	16155	24
Alvestad	Paul	alvestadlaw@gmail.com	N/A	Web-based comments	4572	N/A
Alvesteffer	Pamela	not provided	N/A	Web-based Comments	50438, 50439	34
Alvstad	Kristen	not provided	N/A	Web-based Comments	20339	24
Alwardt	Larry	lasilvervette@gmail.com	N/A	Web-based comments	2537	N/A
Alwin	Michael	mikealwin@gmail.com	N/A	Web-based comments	5247	N/A
Alyne	Emily Van	not provided	N/A	Web-based Comments	48993, 48994, 57881	34, 16

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Amala	Bodhi	not provided	N/A	Web-based comments	56796	35
Amala	Bodhi	not provided	N/A	Web-based Comments	9275	24
Amalfitano	Gloriamarie	not provided	N/A	Web-based Comments	15175	24
Amalphy	Madeline	not provided	N/A	Web-based Comments	51794	34
Amalphy	Madeline	not provided	N/A	Web-based Comments	22238	24
Aman	Asfa	not provided	N/A	Web-based Comments	44429	34
Aman	Diane	not provided	N/A	Web-based Comments	12809	24
Amandine	Martin	not provided	N/A	Web-based comments	302	1
Amanullah	Ahmad	not provided	N/A	Web-based Comments	49904, 49905	34
Amaral	Nicole	not provided	N/A	Web-based Comments	25220	24
Amari	Francene	not provided	N/A	Web-based Comments	47960	34
Amato	Kathleen	not provided	N/A	Web-based Comments	52935	34
Amber	Betsy	not provided	N/A	Web-based Comments	9070	24
AMBEZA	Carole	not provided	N/A	Web-based Comments	55282, 55283	34
Ambler	Veronica	not provided	N/A	Web-based Comments	31094	24
Ambriz	Jacqueline	not provided	N/A	Web-based Comments	16101	24
Ambrose	Billie	not provided	N/A	Web-based Comments	48421	34
Ambrose	Jerre	not provided	N/A	Web-based Comments	17334	24
Ambrose	Melissa	not provided	N/A	Web-based Comments	23871	24
Ambrose	Sydnie	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58723	6
Ambrosio	Antoinette	not provided	N/A	Web-based Comments	8353	24
amdal	andrea	not provided	N/A	Web-based Comments	7726	24
Amel	Dean	not provided	N/A	Web-based Comments	12260	24
Amell	Sue	not provided	N/A	Web-based Comments	29508	24
Amembal	A	not provided	N/A	Web-based Comments	6951	24
Amembal	Sheela and Amar	not provided	N/A	Web-based Comments	28775	24
Amen	Brad	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32363	13
Amen	Joni	joni.amen@fallriverelectric.com	N/A	Web-based comments	32382, 3448	11
Amenta	Michael	not provided	N/A	Web-based Comments	24016	24
Amery	Yvonne	not provided	N/A	Web-based Comments	31689	24
Ames	Carol	not provided	N/A	Web-based Comments	48389, 48390	34
Ames	Justin	not provided	N/A	Web-based Comments	18947	24
Ames	Paul	not provided	N/A	Web-based Comments	25969	24
Amick	Lauren	not provided	N/A	Web-based Comments	52961, 52962	34
Amick	Lauren	not provided	N/A	Web-based Comments	20750	24
Amini	Shireen	shireen.amini@gmail.com	N/A	Web-based comments	6723	1
Amirhosseini	Nushin	not provided	N/A	Web-based Comments	25409	24
Amling	James	not provided	N/A	Web-based Comments	47857	34
Ammon	Cara	not provided	N/A	Web-based Comments	9772	24
Ammon	Kay	not provided	N/A	Web-based Comments	19815	24
Amodeo-Morris	Pamela	not provided	N/A	Web-based Comments	25523	24
Amodio	Katie	not provided	N/A	Web-based Comments	50543	34
Amorâˆšâ‰ n	Gonzalo	not provided	N/A	Web-based Comments	15179	24
Amoroso	Amy	not provided	N/A	Web-based Comments	54079	34
Ampfer	Patricia	not provided	N/A	Web-based Comments	25699	24
Amrod	David	not provided	N/A	Web-based Comments	11931	24
Amsler	Julia	not provided	N/A	Web-based Comments	18742	24
Amundson	Scott	not provided	N/A	Web-based Comments	28454	24
Amy	Doug	waheilman@yahoo.com	N/A	Web-based comments	4967	N/A
Amys	Helen	not provided	N/A	Web-based Comments	45664	34
Anacker	Celeste	not provided	N/A	Web-based Comments	47438, 47439	34
Anacker	Celeste	not provided	N/A	Web-based Comments	10431	24
Anand	Pooja	not provided	N/A	Web-based comments	57081	35
Anastasia	Mantzari	not provided	N/A	Web-based Comments	45314, 45315	34
Anastopulos	Harry	not provided	N/A	Web-based Comments	15459	24
Anatolievich	Ivan	not provided	N/A	Web-based Comments	15955	24
Anaya	Yanisa	not provided	N/A	Web-based Comments	51658, 51659	34
Ancell	Kristin	not provided	N/A	Web-based Comments	20366	24
Ancel-Wisner	Annette	not provided	N/A	Web-based Comments	50292	34
Ancel-Wisner	Annette	not provided	N/A	Web-based Comments	8275	24
Anctil	Chris	not provided	N/A	Web-based Comments	45746	34
anctil	chris	not provided	N/A	Web-based Comments	10717	24
And Anthony Mok from Australia	Jacqueline Storm	not provided	N/A	Web-based Comments	16138	24
and Ariel Summerlin	Jay Atkinson	not provided	N/A	Web-based Comments	16819	24
and Phil McPherson	Cindy Pardee	not provided	N/A	Web-based Comments	11110	24
Anda	Esther	not provided	N/A	Web-based Comments	14269	24
Andaloro	Bernadette	not provided	N/A	Web-based Comments	49079, 49080	34
Andaloro	Bernadette	not provided	N/A	Web-based Comments	8983	24
Anders	Belinda	not provided	N/A	Web-based Comments	44419	34

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Anders	Dagmar	not provided	N/A	Web-based Comments	47285, 47286	34
Anders	Dagmar	not provided	N/A	Web-based Comments	11610	24
Anders	Mary	not provided	N/A	Web-based Comments	23201	24
Andersen	Camilla	not provided	N/A	Web-based Comments	9735	24
Andersen	Corinne	not provided	N/A	Web-based Comments	11372	24
Andersen	Eric	not provided	N/A	Web-based Comments	14082	24
Andersen	Eva	not provided	N/A	Web-based Comments	14310	24
Andersen	Glenn	not provided	N/A	Web-based Comments	50455	34
Andersen	Janis	not provided	N/A	Web-based Comments	53626	34
Andersen	Lars	not provided	N/A	Web-based Comments	44461	34
Andersen	Lars	not provided	N/A	Web-based Comments	20598	24
Andersen	Lorraine	not provided	N/A	Web-based Comments	21832	24
Andersen	Patricia	not provided	N/A	Web-based Comments	25700	24
Andersen	Paula	not provided	N/A	Web-based Comments	48276, 48277	34
Andersen	Stephen	not provided	N/A	Web-based Comments	29269	24
Andersen and Inglese	Glenn and Tekla	not provided	N/A	Web-based Comments	15142	24
Anderson	Alice	aliceanderson@cableone.net	N/A	Web-based comments	4053	N/A
Anderson	Anabelle	not provided	N/A	Web-based Comments	50360, 50361	34
Anderson	Anabelle	not provided	N/A	Web-based Comments	7703	24
Anderson	Andrew	not provided	N/A	Web-based Comments	7797	24
Anderson	Angela	not provided	N/A	Web-based Comments	7887	24
Anderson	Anita	not provided	N/A	Web-based Comments	7964	24
Anderson	Ann	not provided	N/A	Web-based Comments	7998	24
Anderson	Anthony	not provided	N/A	Web-based Comments	51599	34
Anderson	Anthony	not provided	N/A	Web-based Comments	8323	24
Anderson	Bailey	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58725	6
Anderson	Barbara	not provided	N/A	Web-based Comments	8615	24
Anderson	Bebe	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4689	N/A
Anderson	Bebe	not provided	N/A	Web-based Comments	8898	24
Anderson	Bill	not provided	N/A	Web-based Comments	9163	24
Anderson	Brad	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32397	13
Anderson	Breanna	bre.l.anderson@gmail.com	N/A	Web-based comments	6112	N/A
Anderson	Brian	snoozealot@gmail.com	N/A	Web-based comments	3368	13
Anderson	Cara	not provided	N/A	Web-based Comments	9773	24
Anderson	Caro	not provided	N/A	Web-based Comments	46687	34
ANDERSON	CAROL	not provided	N/A	Web-based Comments	9881	24
Anderson	Catherine	not provided	N/A	Web-based Comments	49365	34
Anderson	Chanel	not provided	N/A	Web-based comments	57087	35
Anderson	Charles	not provided	N/A	Web-based Comments	10482	24
Anderson	Chel	not provided	N/A	Web-based Comments	10586	24
Anderson	Chris	not provided	N/A	Web-based Comments	10718	24
Anderson	Cyndi	thebrownsvillehouse@gmail.com	N/A	Web-based comments	4286	N/A
Anderson	Dana	not provided	N/A	Web-based Comments	11685	24
Anderson	Diana	not provided	N/A	Web-based Comments	12752	24
Anderson	Ed	not provided	N/A	Web-based Comments	13432	24
anderson	edna	not provided	N/A	Web-based Comments	13477	24
Anderson	Elaine	not provided	N/A	Web-based Comments	13571	24
Anderson	Elizabeth	not provided	N/A	Web-based Comments	13700	24
Anderson	Elizabeth	not provided	N/A	Web-based Comments	13701	24
Anderson	Emily	Emily.wallace91@yahoo.com	N/A	Web-based comments	6157	1
Anderson	Emily	not provided	N/A	Web-based Comments	14005	24
Anderson	Erika	not provided	N/A	Web-based Comments	14190	24
Anderson	Frank and	not provided	N/A	Web-based Comments	51011	34
Anderson	Frank and Gillian	not provided	N/A	Web-based Comments	51012	34
Anderson	Fred	not provided	N/A	Web-based Comments	48255	34
Anderson	Glen	glenanderson@integra.net	N/A	Web-based comments	3254	3
Anderson	Glen	not provided	N/A	Web-based Comments	57943, 46135	16, 34
Anderson	Gray	not provided	N/A	Web-based Comments	15219	24
Anderson	Helen	not provided	N/A	Web-based Comments	15592	24
Anderson	Helen	not provided	N/A	Web-based Comments	58098	16
anderson	james	not provided	N/A	Web-based Comments	16173	24
Anderson	Jan	not provided	N/A	Web-based Comments	16382	24
Anderson	Janet	8mjanderson@gmail.com	N/A	Web-based comments	3552	N/A
Anderson	Jaye	not provided	N/A	Web-based Comments	16820	24
Anderson	Jeanne	not provided	N/A	Web-based Comments	16932	24
Anderson	Jeanne	not provided	N/A	Web-based Comments	16933	24
Anderson	Jeanne	not provided	N/A	Web-based Comments	16934	24
Anderson	Jeffery	not provided	N/A	Web-based Comments	17062	24
Anderson	Jerid	not provided	N/A	Web-based Comments	17329	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
anderson	jim	not provided	N/A	Web-based Comments	53998	34
Anderson	John	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	56605	N/A
anderson	john	not provided	N/A	Web-based Comments	52884	34
Anderson	Joney	not provided	N/A	Web-based comments	57139	35
Anderson	Joseph	jra1291@gmail.com	N/A	Web-based comments	5650	N/A
Anderson	Judith	not provided	N/A	Web-based Comments	18559	24
Anderson	Judy	not provided	N/A	Web-based Comments	18666	24
Anderson	Karen	not provided	N/A	Web-based Comments	19033	24
Anderson	Karen	not provided	N/A	Web-based Comments	19034	24
Anderson	Karen	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58310	11
Anderson	Katherine	not provided	N/A	Web-based Comments	19431	24
Anderson	Kathryn	ander690@wwu.edu	N/A	Web-based comments	6694	N/A
Anderson	Kathy	not provided	N/A	Web-based Comments	19679	24
Anderson	Kayla	not provided	N/A	Web-based Comments	19844	24
Anderson	Keith	4andersonfamily@gmail.com	N/A	Web-based comments	5175	N/A
Anderson	Ken	anderson4ken@charter.net	N/A	Web-based comments	3534, 4176	N/A
Anderson	Kristin	skad@charter.net	N/A	Web-based comments	4041	N/A
Anderson	Laurel	not provided	N/A	Web-based Comments	20729	24
Anderson	Lauren	not provided	N/A	Web-based Comments	20751	24
ANDERSON	LAURIE	not provided	N/A	Web-based Comments	20819	24
Anderson	Laurie Ragan	not provided	N/A	Web-based Comments	20864	24
anderson	leon	not provided	N/A	Web-based Comments	20997	24
Anderson	Leslie	lesliedianne@outlook.com	N/A	Web-based comments	3792	N/A
Anderson	Leslie	not provided	N/A	Web-based Comments	21055	24
Anderson	Ligia	not provided	N/A	Web-based Comments	21153	24
Anderson	Linda	not provided	N/A	Web-based Comments	53535	34
Anderson	Linda K	not provided	N/A	Web-based Comments	44594, 44595	34
Anderson	Lindsay	not provided	N/A	Web-based comments	57422	35
Anderson	LJ	not provided	N/A	Web-based comments	4068	N/A
Anderson	Lyle	not provided	N/A	Web-based Comments	21998	24
Anderson	Marc	not provided	N/A	Web-based Comments	22326	24
Anderson	Margaret	not provided	N/A	Web-based Comments	22426	24
Anderson	Marshall	not provided	N/A	Web-based Comments	23081	24
Anderson	Martha	not provided	N/A	Web-based Comments	46855	34
Anderson	Matthew	not provided	N/A	Web-based Comments	47228, 47229	34
Anderson	Matthew	not provided	N/A	Web-based Comments	23631	24
Anderson	Meredith	not provided	N/A	Web-based Comments	23969	24
Anderson	Michael	not provided	N/A	Web-based Comments	24017	24
Anderson	Michelle	not provided	N/A	Web-based Comments	24322	24
Anderson	Michelle	snzzzer@gmail.com	N/A	Web-based comments	3367	13
Anderson	Mike	not provided	N/A	Web-based Comments	24431	24
Anderson	Nancy	not provided	N/A	Web-based Comments	24801	24
Anderson	Neil	ydna1682@yahoo.com	N/A	Web-based comments	2387	N/A
Anderson	Noah	noahanderson9113@gmail.com	N/A	Web-based comments	658	N/A
Anderson	Paul	not provided	N/A	Web-based Comments	25970	24
Anderson	PJ	not provided	N/A	Web-based Comments	56215, 56216	34
Anderson	Ralph	not provided	N/A	Web-based Comments	26585	24
Anderson	Rhonda	not provided	N/A	Web-based Comments	26890	24
Anderson	Robert	not provided	N/A	Web-based Comments	54273	34
Anderson	Robert	not provided	N/A	Web-based Comments	27199	24
Anderson	Rosanne	not provided	N/A	Web-based Comments	57897	16
Anderson	Ruth	not provided	N/A	Web-based Comments	27851	24
Anderson	Sandra	not provided	N/A	Web-based Comments	28109	24
Anderson	Scott	not provided	N/A	Web-based Comments	28455	24
Anderson	Shelley	not provided	N/A	Web-based Comments	55549	34
Anderson	Shelley	not provided	N/A	Web-based Comments	28826	24
Anderson	Stacee	not provided	N/A	Web-based Comments	29105	24
Anderson	Stephen	afarmllc@embarqmail.com	N/A	Web-based comments	58815	N/A
Anderson	Steven	sande@gemstate.net	N/A	Web-based comments	6071, 6087	N/A
Anderson	Susan	not provided	N/A	Web-based Comments	58272	16
Anderson	Tami	not provided	N/A	Web-based Comments	30136	24
Anderson	Tate	not provided	N/A	Web-based Comments	53791	34
Anderson	Tate	not provided	N/A	Web-based Comments	30219	24
Anderson	Terry	terryanderson1947@gmail.com	N/A	Web-based comments	4928	N/A
Anderson	Tiffany	not provided	N/A	Web-based Comments	51237	34
Anderson	Tom	not provided	N/A	Web-based Comments	48153	34
Anderson	Tom	not provided	N/A	Web-based Comments	30736	24
Anderson	Tom	teaanderson.ta@gmail.com	N/A	Web-based comments	2001	N/A
Anderson	Vanessa	not provided	N/A	Web-based Comments	51502	34
Anderson	Victoria	not provided	N/A	Web-based Comments	57798, 57799	34

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
anderson	victoria	not provided	N/A	Web-based Comments	31179	24
Anderson	Walt	not provided	N/A	Web-based comments	2408	N/A
Anderson	William	not provided	N/A	Web-based Comments	56036, 56037	34
Anderson	William	not provided	N/A	Web-based Comments	31500	24
Anderton	Phillip	not provided	N/A	Web-based Comments	55482, 55483	34
Andes	Larry	not provided	N/A	Web-based Comments	20566	24
Andewrs	J	not provided	N/A	Web-based Comments	15968	24
Andhavarapu	Srinivas	not provided	N/A	Web-based Comments	29101	24
Andrade	Ana	not provided	N/A	Web-based Comments	47195	34
Andrade	Ana	not provided	N/A	Web-based Comments	7687	24
Andrade	Debra	not provided	N/A	Web-based Comments	12498	24
Andrade	Jennifer	not provided	N/A	Web-based Comments	17151	24
Andrade	Sherri	not provided	N/A	Web-based Comments	28862	24
Andre	Rae	not provided	N/A	Web-based Comments	26569	24
Andrea	Melissa	not provided	N/A	Web-based Comments	23872	24
Andreas	Leticia	not provided	N/A	Web-based Comments	21119	24
Andreatta	Loretta	not provided	N/A	Web-based Comments	21757	24
Andreatta	Tina	not provided	N/A	Web-based Comments	51706	34
Andregg	S.	not provided	N/A	Web-based Comments	55596, 55597	34
Andrepont	Sue	not provided	N/A	Web-based Comments	29509	24
Andres	Michelle	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4221, 4266	N/A
Andresen	Toril	not provided	N/A	Web-based Comments	30829	24
Andrew	Susan	not provided	N/A	Web-based Comments	29582	24
Andrewjeski	Mike	not provided	N/A	Web-based Comments	24432	24
Andrews	Becky	not provided	N/A	Web-based Comments	45110, 45111	34
Andrews	Becky	not provided	N/A	Web-based Comments	8904	24
Andrews	Bonnie	not provided	N/A	Web-based Comments	56503	34
Andrews	Jennifer	not provided	N/A	Web-based Comments	17152	24
Andrews	Jill	not provided	N/A	Web-based Comments	17493	24
Andrews	Kelli	not provided	N/A	Web-based Comments	19897	24
Andrews	Linda	not provided	N/A	Web-based Comments	54499	34
Andrews	Linda	not provided	N/A	Web-based Comments	21192	24
Andrews	Lynne	not provided	N/A	Web-based Comments	22114	24
Andrews	Marta	not provided	N/A	Web-based Comments	23084	24
Andrews	Mindy	not provided	N/A	Web-based comments	32141	1
Andrews	Nancy	not provided	N/A	Web-based Comments	49410, 49411	34
Andrews	Penelope	not provided	N/A	Web-based Comments	26188	24
Andrews	Ray	not provided	N/A	Web-based Comments	26663	24
Andrews	Steve	not provided	N/A	Web-based Comments	57959	16
Andrews	Theresa	not provided	N/A	Web-based Comments	50740	34
Andrews-Mellouise	Tracy	not provided	N/A	Web-based Comments	30859	24
Andreykovic	John	not provided	N/A	Web-based Comments	17954	24
Andriakos	Bobbi	not provided	N/A	Web-based Comments	48129, 48130	34
Andric	Eileen	not provided	N/A	Web-based Comments	51172, 51173	34
Andring	Patricia	not provided	N/A	Web-based Comments	25701	24
Andrus	James	not provided	N/A	Web-based Comments	16174	24
ANDRUS	NEAL	andrusfarms@gmail.com	N/A	Web-based comments	31782	N/A
Anduaga	Eider	not provided	N/A	Web-based Comments	13534	24
Anduaga	Fernando	not provided	N/A	Web-based Comments	14426	24
Andujar	Julio	not provided	N/A	Web-based Comments	55961	34
Anduskey	Susan	not provided	N/A	Web-based Comments	29583	24
Ang	Darrell	not provided	N/A	Web-based Comments	11891	24
Angel	Aaron	not provided	N/A	Web-based Comments	50779	34
Angel	Beth	not provided	N/A	Web-based Comments	48449	34
Angelella	Nancy	not provided	N/A	Web-based Comments	24802	24
ANGELIS	Louise B	not provided	N/A	Web-based Comments	21905	24
Angell	JL	not provided	N/A	Web-based Comments	47244, 47245	34
Angell	Kirsten	kirstkrane@yahoo.com	N/A	Web-based comments	194	N/A
Angell	Ross	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32321	13
Angelo	Lori	not provided	N/A	Web-based Comments	47441	34
angelo	marjorie	not provided	N/A	Web-based Comments	53403	34
Angelo	Matt	not provided	N/A	Web-based Comments	23605	24
Angelosanto	Joan	not provided	N/A	Web-based Comments	54908, 54909	34
Angelosanto	Joan	not provided	N/A	Web-based Comments	17663	24
Angelou Jr.	Peter	not provided	N/A	Web-based Comments	26239	24
Angelova	Darina	not provided	N/A	Web-based Comments	11866	24
Angelovich	Nancy	not provided	N/A	Web-based Comments	24803	24
Angelstad	Judy	not provided	N/A	Web-based Comments	49348, 49349	34
Angeltveit	Andreas Rossing	not provided	N/A	Web-based Comments	45945	34
Angelus	Joshua	not provided	N/A	Web-based Comments	46616	34

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
angenent	ernst	not provided	N/A	Web-based Comments	14254	24
Angerer	Christine	not provided	N/A	Web-based Comments	54767	34
Angle	Beth	not provided	N/A	Web-based Comments	9008	24
Angley	James	jangley7@aol.com	N/A	Web-based comments	6161	N/A
Angley	James	not provided	N/A	Web-based Comments	16175	24
Angotti	Michele	not provided	N/A	Web-based Comments	44404	34
Angus	Billy	not provided	N/A	Web-based Comments	9195	24
Anisman	Mark	not provided	N/A	Web-based Comments	22892	24
Ankenbrandt	Donnys	not provided	N/A	Web-based Comments	44341	34
Ankenbrandt	Donnys	not provided	N/A	Web-based Comments	13204	24
Ankeny	Karen	not provided	N/A	Web-based comments	57231	35
Anker	Roger	not provided	N/A	Web-based Comments	48463	34
Ankowski	Ronald	not provided	N/A	Web-based Comments	27646	24
Ann	Kimberly	not provided	N/A	Web-based Comments	20213	24
Ann	Lisa	not provided	N/A	Web-based comments	937	N/A
Ann	Lisa	not provided	N/A	Web-based Comments	21517	24
Ann	Susan	not provided	N/A	Web-based Comments	29584	24
Ann	Tina	not provided	N/A	Web-based Comments	56316, 56317	34
Annavarapu	Kiran	not provided	N/A	Web-based Comments	20267	24
Annecone	Lisa	not provided	N/A	Web-based Comments	45469	34
Annecone	Lisa	not provided	N/A	Web-based Comments	21518	24
Annis	Darla	not provided	N/A	Web-based Comments	11868	24
Annoni	Pat	not provided	N/A	Web-based Comments	25629	24
Annoot	Jan	not provided	N/A	Web-based Comments	48812	34
Annoot	Jan	not provided	N/A	Web-based Comments	16383	24
Ansbergs	Ginny	not provided	N/A	Web-based Comments	15078	24
Ansel	Helmut	not provided	N/A	Web-based Comments	15651	24
Ansel	Jana	not provided	N/A	Web-based Comments	16446	24
Anshutz	Cody	not provided	N/A	Web-based Comments	50143	34
Ansley	Marlene	not provided	N/A	Web-based Comments	23036	24
Anson	Michelle	not provided	N/A	Web-based Comments	24323	24
Anspach	Carol	not provided	N/A	Web-based Comments	9882	24
Anthes	Russell	not provided	N/A	Web-based Comments	27828	N/A
Anthony	Erin	not provided	N/A	Web-based Comments	14209	24
Anthony	Joseph	not provided	N/A	Web-based Comments	18341	24
Anthony	Kordula	not provided	N/A	Web-based Comments	45732	34
Anthony-Huebert	Anita	not provided	N/A	Web-based Comments	7965	24
Anthopoulos	Maile	not provided	N/A	Web-based Comments	22284	24
Antieau	Renee	not provided	N/A	Web-based Comments	26834	24
Antin	Judith	not provided	N/A	Web-based Comments	53692	34
Antin	Judith	not provided	N/A	Web-based Comments	18560	24
Antinoro	Evelyne	not provided	N/A	Web-based Comments	14359	24
Anton	Michael	not provided	N/A	Web-based Comments	24018	24
Antonellis	Janice	not provided	N/A	Web-based Comments	16664	24
Antonic	Vesna	not provided	N/A	Web-based Comments	48171	34
antonic	vesna	not provided	N/A	Web-based Comments	31111	24
Antonio	Beverly	not provided	N/A	Web-based Comments	52102	34
Antrim	Phoebe	not provided	N/A	Web-based Comments	26370	24
Anttila	Cory	not provided	N/A	Web-based Comments	11390	24
Anttinen	Niina	not provided	N/A	Web-based Comments	25277	24
Antwi Adjei	Jesse McCoy	not provided	N/A	Web-based Comments	17403	24
Anundsen	Kristin	not provided	N/A	Web-based Comments	20367	24
Aoki	Kristine	not provided	N/A	Web-based Comments	55136	34
Aoki	Mieko	not provided	N/A	Web-based Comments	24419	24
Apathy	Katalin	not provided	N/A	Web-based Comments	53090	34
Apfel	Sarah	not provided	N/A	Web-based Comments	52376	34
APLIN	ALISON	not provided	N/A	Web-based Comments	7397	24
Apling	Nancy	not provided	N/A	Web-based Comments	24804	24
Apodaca	Mel	not provided	N/A	Web-based Comments	45514	34
Apodaca	Mel	not provided	N/A	Web-based Comments	23822	24
Apone	James	not provided	N/A	Web-based Comments	56005, 57755	34
Aponte	Elena	not provided	N/A	Web-based Comments	13644	24
Apostol	Daniela	not provided	N/A	Web-based Comments	51119	34
Apostolopoulos	Eula	not provided	N/A	Web-based Comments	14306	24
Apostolos	Andrew	not provided	N/A	Web-based Comments	7798	24
Appel	David	appel1939@yahoo.com	N/A	Web-based comments	2397	N/A
Appel	Fred	not provided	N/A	Web-based comments	3799	N/A
Appel	Janice	not provided	N/A	Web-based Comments	16665	24
Appel	Mary	not provided	N/A	Web-based Comments	23202	24
Appel	Patricia	not provided	N/A	Web-based Comments	25702	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Appelbaum	Jack and Judith	not provided	N/A	Web-based Comments	16049	24
Appenzeller	Cary	not provided	N/A	Web-based Comments	10215	24
Apperson	Kimberly	kimapperson@icloud.com	N/A	Web-based comments	6297	N/A
Applebaum	Doris	not provided	N/A	Web-based Comments	13223	24
Applebaum	Morris	not provided	N/A	Web-based Comments	24674	24
Applebaum	Robert	not provided	N/A	Web-based Comments	27200	24
Appleton	Joseph	not provided	N/A	Web-based Comments	18342	24
Applin	Diane	not provided	N/A	Web-based comments	56890	35
Appling	Leslie	not provided	N/A	Web-based Comments	52639	34
Aprile	Kathy	not provided	N/A	Web-based Comments	19680	24
Aprilliano	Pamela	not provided	N/A	Web-based Comments	55579	34
Apsega	Janet	not provided	N/A	Web-based Comments	16562	24
Aquarium	Seattle	not provided	N/A	Web-based comments	5855	N/A
Aquila	Karen	not provided	N/A	Web-based Comments	19035	24
Aquino	Tracey	not provided	N/A	Web-based Comments	30835	24
ar	ro	not provided	N/A	Web-based Comments	27166	24
Arace	Marylucia	not provided	N/A	Web-based Comments	23588	24
Aragiannis	Evangelos	not provided	N/A	Web-based Comments	58442, 58443	34
Arago	Marybeth	not provided	N/A	Web-based Comments	23575	24
Aragon	Maria	not provided	N/A	Web-based Comments	48392	34
Aragon	Maria	not provided	N/A	Web-based Comments	22578	24
Aragon	Susan	not provided	N/A	Web-based Comments	46156	34
Araiza	Linda	not provided	N/A	Web-based Comments	21193	24
Aram	Susaan	not provided	N/A	Web-based Comments	29576	24
Aranda	Laura	not provided	N/A	Web-based Comments	44556, 44557	34
Aranibar	Patricia	not provided	N/A	Web-based Comments	58567	34
Aranita	Rose R	not provided	N/A	Web-based Comments	27737	24
arasteh	christina	not provided	N/A	Web-based Comments	49254, 49255	34
Arbiter	Daniel	not provided	N/A	Web-based Comments	11719	24
Arbogast	Audrey	not provided	N/A	Web-based Comments	54377	34
Arbogast	Audrey	not provided	N/A	Web-based Comments	8522	24
Arbogast	Devyn	not provided	N/A	Web-based Comments	52744	34
Arbogast	Katie	not provided	N/A	Web-based Comments	19783	24
Arbuckle	Bonnie	not provided	N/A	Web-based Comments	9280	24
Arbuckle	Kimberly	not provided	N/A	Web-based Comments	48661	34
Arbuckle	Kit	karbuckle@gmail.com	N/A	Web-based comments	2332	N/A
Arbuckle	Nancy	not provided	N/A	Web-based Comments	48608, 50473	34
Arce Ventura	Evelyn	not provided	N/A	Web-based Comments	14347	24
Archambault	Caitlin	not provided	N/A	Web-based Comments	46828	34
Archambault	Caitlin	not provided	N/A	Web-based Comments	9709	24
Archambault	Laurie	not provided	N/A	Web-based Comments	20820	24
Archangel	Amber	not provided	N/A	Web-based Comments	7564	24
Archibald	Kathy	not provided	N/A	Web-based Comments	49648	34
Archuleta	Patricia	not provided	N/A	Web-based Comments	48040	34
Ard	Bruce	bruceard@outlook.com	N/A	Web-based comments	3776	N/A
Ardaiolo	Shannon	not provided	N/A	Web-based Comments	28579	24
Arden	Greg	not provided	N/A	Web-based comments	57459	35
Arden	Ivy	not provided	N/A	Web-based comments	57460	35
Arden	Theo	not provided	N/A	Web-based comments	57461	35
Ardern	Philip	not provided	N/A	Web-based Comments	26329	24
Ardito	Gary Wolf	not provided	N/A	Web-based Comments	53413	34
Ardito	Gary Wolf	not provided	N/A	Web-based Comments	14811	24
Arefieva	Maria	not provided	N/A	Web-based Comments	48678	34
Arellano	Alice	not provided	N/A	Web-based Comments	7330	24
arends	chritine	not provided	N/A	Web-based Comments	11046	24
Arendt	Mary	not provided	N/A	Web-based Comments	23203	24
Arent	Raymond	not provided	N/A	Web-based Comments	26683	24
Arent	Sean	not provided	N/A	Web-based Comments	47459	34
Argenal	Ana	not provided	N/A	Web-based Comments	7688	24
Argon	Ahmet	not provided	N/A	Web-based Comments	50895	34
ARGUELLO	SYLVANA	not provided	N/A	Web-based Comments	49956, 49957	34
ARGUELLO	SYLVANA	not provided	N/A	Web-based Comments	30057	24
Arias	Jen	not provided	N/A	Web-based comments	1862	1
Arias Lev≥n	Victoria	not provided	N/A	Web-based Comments	31180	24
Ariel	Kathryn Shanti	not provided	N/A	Web-based Comments	47711	34
Arioli	Kristin	not provided	N/A	Web-based Comments	53029, 53030	34
Arion	Mason	not provided	N/A	Web-based Comments	23596	24
Arisawa	Sennuwy	not provided	N/A	Web-based Comments	54006	34
arisman	judith	not provided	N/A	Web-based Comments	18561	24
Arist	Phyllis	not provided	N/A	Web-based Comments	44575	34

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Ariyasu	Kaoru	not provided	N/A	Web-based Comments	19018	24
Arkin	Diane	not provided	N/A	Web-based Comments	12810	24
Arko Hargrove	Barbara	not provided	N/A	Web-based Comments	8616	24
Arle	Don	not provided	N/A	Web-based Comments	53794	34
Arlen	Barbara	not provided	N/A	Web-based Comments	53657, 53658	34
Armand	Claudine	not provided	N/A	Web-based Comments	11203	24
Armand	Shirley	not provided	N/A	Web-based Comments	28938	24
Armano	Kara	kara.armano@tu.org	N/A	Web-based comments	5372	N/A
Armao	Terri	not provided	N/A	Web-based Comments	30325	24
Armbruster	Jay	not provided	N/A	Web-based Comments	46612	34
Armel	Marc	not provided	N/A	Web-based Comments	22327	24
Armendarez	Elisabeth	not provided	N/A	Web-based Comments	13673	24
Armentrout	Harley	not provided	N/A	Web-based Comments	55983	34
Armentrout	Sara	not provided	N/A	Web-based Comments	28271	24
Armer	Joan	not provided	N/A	Web-based Comments	53275	34
armijo	salme	not provided	N/A	Web-based Comments	45191	34
Armijo	Sherry	sherryarmijo@gmail.com	N/A	Web-based comments	4607	N/A
Armillas	Mercedes	not provided	N/A	Web-based Comments	47430	34
Armillas	Mercedes	not provided	N/A	Web-based Comments	23963	24
Armistead	Melinda	not provided	N/A	Web-based Comments	49868	34
Armistead	Melinda	not provided	N/A	Web-based Comments	23857	24
Armon	Caroline	onboardtours@yahoo.com	N/A	Web-based comments	2302, 2785, 57465	35
Armony	Lauren	not provided	N/A	Web-based comments	6842	1
Armour	Bruce	not provided	N/A	Web-based Comments	9597	24
Armour	John	not provided	N/A	Web-based Comments	17955	24
Armstrong	A.	not provided	N/A	Web-based Comments	46338	34
Armstrong	AJ	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58784	32
Armstrong	Brad	not provided	N/A	Web-based Comments	9338	24
Armstrong	Chance	Challischance@hotmail.com	N/A	Web-based comments	5140	N/A
Armstrong	Diane	not provided	N/A	Web-based Comments	12811	24
Armstrong	Jennifer	not provided	N/A	Web-based Comments	17153	24
armstrong	joan	not provided	N/A	Web-based Comments	17664	24
armstrong	john	not provided	N/A	Web-based Comments	17956	24
Armstrong	Johnny	not provided	N/A	Web-based Comments	47137, 47138	34
Armstrong	Johnny	not provided	N/A	Web-based Comments	18230	24
Armstrong	Jonathan	not provided	N/A	Web-based Comments	18272	24
Armstrong	Judith	not provided	N/A	Web-based Comments	18562	24
Armstrong	Kayleen	not provided	N/A	Web-based Comments	19849	24
Armstrong	Leslie	not provided	N/A	Web-based Comments	49052	34
Armstrong	Pat	not provided	N/A	Web-based Comments	25630	24
Armstrong	Stephanie	not provided	N/A	Web-based Comments	29192	24
Armstrong	William	not provided	N/A	Web-based Comments	31501	24
Arnal	Diane	not provided	N/A	Web-based Comments	12812	24
Arnas	Barbara	not provided	N/A	Web-based Comments	8617	24
Arndtsen	Beth	not provided	N/A	Web-based Comments	9009	24
Arneach	Robert	not provided	N/A	Web-based Comments	27201	24
Arneson	Cynthia	not provided	N/A	Web-based Comments	11488	24
Arneson	Karen	not provided	N/A	Web-based Comments	19036	24
Arnett	Angela	not provided	N/A	Web-based comments	57516	35
arnett	cathy	not provided	N/A	Web-based Comments	10348	24
Arney	Jennifer	not provided	N/A	Web-based Comments	52621	34
Arney	Jennifer	not provided	N/A	Web-based Comments	17154	24
Arney	Karl	not provided	N/A	Web-based Comments	19294	24
Arney	Laura	not provided	N/A	Web-based comments	57187	35
Arnheim	Madeleine	not provided	N/A	Web-based Comments	48423	34
Arnold	Carlos	not provided	N/A	Web-based Comments	9850	24
Arnold	Chantell	Chantell.arnold@gmail.com	N/A	Web-based comments	2855	N/A
Arnold	Charles	not provided	N/A	Web-based Comments	10483	24
Arnold	Claudia	not provided	N/A	Web-based Comments	11175	24
Arnold	Eeica	not provided	N/A	Web-based Comments	13530	24
Arnold	Gail	not provided	N/A	Web-based Comments	14667	24
Arnold	Jessica	not provided	N/A	Web-based Comments	47451	34
Arnold	Joan	not provided	N/A	Web-based Comments	54627	34
Arnold	Joan	not provided	N/A	Web-based Comments	17665	24
Arnold	John	not provided	N/A	Web-based Comments	17957	24
Arnold	Ralph	not provided	N/A	Web-based Comments	26586	24
Arnold	Ray	chinaarnolds@yahoo.com	N/A	Web-based comments	6363	N/A
Arnold	Tracey	not provided	N/A	Web-based Comments	30836	24
Arnone	Ruth	not provided	N/A	Web-based Comments	27852	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Arnowitz	Rosanne	not provided	N/A	Web-based Comments	27711	24
Arnsparger	Alisha	not provided	N/A	Web-based comments	976	1
Arnzen	Sandra	not provided	N/A	Web-based Comments	28110	24
Aronoff	Nina	not provided	N/A	Web-based Comments	25299	24
Aronova	Maria	not provided	N/A	Web-based Comments	22579	24
Aronow	Myra	not provided	N/A	Web-based Comments	24710	24
Aronowitz	Barbara	not provided	N/A	Web-based Comments	53827	34
Aronowitz	Barbara	not provided	N/A	Web-based Comments	8618	24
Aronson	Marilyn	not provided	N/A	Web-based Comments	22761	24
Aronson	Max	not provided	N/A	Web-based Comments	23736	24
Aronson	Reevyn	not provided	N/A	Web-based Comments	26800	24
arpin	susan	not provided	N/A	Web-based Comments	29585	24
Arra	Melissa	not provided	N/A	Web-based Comments	50278	34
ARRE	NAN	not provided	N/A	Web-based Comments	47967	34
ARRE	NAN	not provided	N/A	Web-based Comments	24782	24
Arrecis	Chris	not provided	N/A	Web-based Comments	56082	34
Arreguin	Sofia	not provided	N/A	Web-based Comments	29040	24
Arrington	Aubrey	not provided	N/A	Web-based Comments	8519	24
Arriola	Karen	not provided	N/A	Web-based Comments	19037	24
Arroyo	Agustin	not provided	N/A	Web-based Comments	7119	24
Arroyo	Christine	not provided	N/A	Web-based Comments	48315	34
arroyo	susan	not provided	N/A	Web-based Comments	29586	24
Arroyos	Glory	not provided	N/A	Web-based Comments	15176	24
Arsenault	Michael	not provided	N/A	Web-based Comments	24019	24
Arslan	Nicole	not provided	N/A	Web-based Comments	25221	24
Arsove	Ellen	not provided	N/A	Web-based Comments	13892	24
Arstein	Chris & Roberta	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32346	N/A
Artaxet	Jeanne	not provided	N/A	Web-based Comments	16935	24
Arteaga	Jose de	not provided	N/A	Web-based Comments	44323	34
Arteaga	Maria	not provided	N/A	Web-based Comments	53152, 53153	34
arteaga	mario	not provided	N/A	Web-based Comments	22845	24
Artemova	Andra	not provided	N/A	Web-based Comments	7720	24
Arthur	Bill	billwarthur@gmail.com	N/A	Web-based comments	5684	N/A
Arthur	Bill	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4265	N/A
Arthur	Cheryl	not provided	N/A	Web-based Comments	48312, 48313	34
Arthur	Cheryl	not provided	N/A	Web-based Comments	10616	24
Arthur	Dianne	not provided	N/A	Web-based Comments	12933	24
Arthur	Kay	not provided	N/A	Web-based Comments	48081, 48082	34
Arthur	Linda	not provided	N/A	Web-based Comments	21194	24
Arthurs	Ann	not provided	N/A	Web-based Comments	7999	24
Artinian	Emily	not provided	N/A	Web-based Comments	14006	24
Artist	Ryan	Rlchadwickartist@gmail.com	N/A	Web-based comments	169	1
artman	cara	not provided	N/A	Web-based Comments	44835, 44836	34
artman	cara	not provided	N/A	Web-based Comments	9774	24
Artoonian	Agnes	not provided	N/A	Web-based comments	5806	1
Artrip	Juanita	not provided	N/A	Web-based Comments	18531	24
Artymyshyn	Renee	not provided	N/A	Web-based Comments	26835	24
Artzi	Yael	not provided	N/A	Web-based Comments	31649	24
arvati	patrizia	not provided	N/A	Web-based Comments	25934	24
Arvio	Cheryl	not provided	N/A	Web-based Comments	10617	24
Ary	David	not provided	N/A	Web-based Comments	11932	24
Arzamasova	Ekaterina	not provided	N/A	Web-based Comments	49733	34
Asadolahi	Danial	not provided	N/A	Web-based Comments	48024	34
Asamura	Holly	not provided	N/A	Web-based Comments	15728	24
Asbury	Craig	not provided	N/A	Web-based Comments	55061	34
Asbury	Craig	not provided	N/A	Web-based Comments	11411	24
Asbury	Mamie	not provided	N/A	Web-based Comments	22301	24
Ascher	Vivienne	not provided	N/A	Web-based Comments	31330	24
Aschettino-Ramirez	Amanda	not provided	N/A	Web-based Comments	7517	24
Aschliman	Brian	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32497	11
Ash	Jenn	not provided	N/A	Web-based comments	3719, 57561	, 35
Ash	JoAnn	not provided	N/A	Web-based Comments	17763	24
Ash	Kristina	not provided	N/A	Web-based Comments	45081	34
ASH	KRISTINA	not provided	N/A	Web-based Comments	20397	24
Ash	Yona	not provided	N/A	Web-based Comments	31672	24
Ashbaugh	Sue	not provided	N/A	Web-based Comments	55040	34
Ashbrook	Doris	not provided	N/A	Web-based Comments	13224	24
Ashburn	Samantha	not provided	N/A	Web-based Comments	28068	24
Ashburne	Marny	not provided	N/A	Web-based Comments	23059	24
Ashby	Elizabeth	not provided	N/A	Web-based Comments	13702	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
ashcraft	James	not provided	N/A	Web-based Comments	50931	34
Ashcraft	Nathan	farmernate10@gmail.com	N/A	Web-based comments	3064	N/A
Asher	Ben	not provided	N/A	Web-based Comments	8931	24
Asher	Laura	not provided	N/A	Web-based Comments	20605	24
Ashleigh	Moira	not provided	N/A	Web-based Comments	48505	34
Ashley	Carol	not provided	N/A	Web-based Comments	9883	24
Ashley	Cathy	not provided	N/A	Web-based Comments	10349	24
Ashley	Clifford	EbonyIvoryPianos@AOL.com	N/A	Web-based comments	1900	5
ashley	jackie	not provided	N/A	Web-based Comments	16055	24
Ashley	Mark	not provided	N/A	Web-based Comments	50348	34
Ashley-Hollinger	Mika	not provided	N/A	Web-based Comments	24424	24
Ashman	Linda	not provided	N/A	Web-based Comments	21195	24
Ashman	Marilyn	not provided	N/A	Web-based Comments	51802, 51803	34
Ashmore	Christine	not provided	N/A	Web-based Comments	10891	24
Ashouri	Aida	not provided	N/A	Web-based Comments	44400	34
Ashrafnia	Linda	not provided	N/A	Web-based Comments	21196	24
Ashton	Chris	not provided	N/A	Web-based Comments	10719	24
Ashton	David	not provided	N/A	Web-based Comments	11933	24
Ashton	Debra	not provided	N/A	Web-based Comments	12499	24
Ashton	Emily	not provided	N/A	Web-based Comments	56540	34
Ashton	Jenna	not provided	N/A	Web-based Comments	17137	24
Ashton	Linda	not provided	N/A	Web-based Comments	54071	34
Ashton	Richard	not provided	N/A	Web-based Comments	26931	24
Ashton	Sally	not provided	N/A	Web-based Comments	27998	24
Ashwell	Martin	not provided	N/A	Web-based Comments	23151	24
Ashworth	Adrian	not provided	N/A	Web-based Comments	54030	34
Askew	Georgena	not provided	N/A	Web-based Comments	47440	34
Askew	Georgena	not provided	N/A	Web-based Comments	14929	24
Askew	Pamela	not provided	N/A	Web-based Comments	25524	24
Askins	Susanna	not provided	N/A	Web-based Comments	57827	34
Askins	Susanna	not provided	N/A	Web-based Comments	29936	24
Askren	Misha	not provided	N/A	Web-based Comments	24566	24
Aslakson	Sarah	not provided	N/A	Web-based Comments	28324	24
Aslam	Nayeem	not provided	N/A	Web-based Comments	25112	24
Asmus	Jessica	not provided	N/A	Web-based Comments	17406	24
asp	karen	not provided	N/A	Web-based Comments	52955	34
asp	karen	not provided	N/A	Web-based Comments	19038	24
Asperti	Sissi	not provided	N/A	Web-based Comments	29030	24
Asphar	Jude	not provided	N/A	Web-based Comments	18540	24
Aspland	David	not provided	N/A	Web-based Comments	11934	24
Asproyerakas	Mary	not provided	N/A	Web-based Comments	23204	24
Asquini	Antonio	not provided	N/A	Web-based Comments	8365	24
Asseff	Sam	not provided	N/A	Web-based Comments	49268	34
Asseff	Sam	not provided	N/A	Web-based Comments	28043	24
Asselin	Margaret	not provided	N/A	Web-based Comments	22427	24
Astalos	Andy	not provided	N/A	Web-based Comments	58385	28
Astalos	Andy	not provided	N/A	Web-based Comments	7869	24
Asteinza	Maria	not provided	N/A	Web-based Comments	22580	24
Aston	Stephanie	not provided	N/A	Web-based Comments	46303	34
astorino	gina	not provided	N/A	Web-based Comments	15046	24
Astrahan	Cheri	not provided	N/A	Web-based Comments	10599	24
Asvestas	John	not provided	N/A	Web-based Comments	17958	24
Atchison	Dorian	not provided	N/A	Web-based Comments	55891	34
Atchley	Tom	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32464, 32309	11
ATENCIO	CARLOS	not provided	N/A	Web-based Comments	9851	24
Atencio	Susan	not provided	N/A	Web-based Comments	29587	24
Athans	Demetrios	not provided	N/A	Web-based Comments	12613	24
Athearn	Daniel	not provided	N/A	Web-based Comments	11720	24
Atherton	Brooks	not provided	N/A	Web-based Comments	9590	24
Athey	Laurie	not provided	N/A	Web-based Comments	20821	24
Athlan	Eric	not provided	N/A	Web-based Comments	14083	24
Athreya	Mahathi	not provided	N/A	Web-based Comments	22278	24
Atkin	Joy	not provided	N/A	Web-based Comments	18455	24
Atkins	Dale	not provided	N/A	Web-based Comments	11622	24
Atkins	Darlene	not provided	N/A	Web-based Comments	49359	34
Atkins	Desmond	not provided	N/A	Web-based Comments	12732	24
Atkins	Gail	not provided	N/A	Web-based Comments	14668	24
Atkins	Todd	not provided	N/A	Web-based Comments	30714	24
Atkinson	Ellen	not provided	N/A	Web-based Comments	13893	24
Atkinson	Jay	not provided	N/A	Web-based Comments	16801	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Atkinson	Kenneth	not provided	N/A	Web-based Comments	20004	24
Atkinson	Martha	not provided	N/A	Web-based Comments	57972	16
Atkinson	Rhys	not provided	N/A	Web-based Comments	26912	24
Atkinson	Tamala	not provided	N/A	Web-based Comments	30114	24
Atlas	Debra	not provided	N/A	Web-based Comments	12500	24
Atnip	Dana	not provided	N/A	Web-based Comments	56586	34
Attarian	June	not provided	N/A	Web-based Comments	48219	34
atter	frank	atterf@gmail.com	N/A	Web-based comments	5434	N/A
Attika	Quinn	not provided	N/A	Web-based Comments	26462	24
Attila	Daniel	not provided	N/A	Web-based Comments	11721	24
Atwater	Pat and Carol	not provided	N/A	Web-based Comments	25680	24
Atwood	April	not provided	N/A	Web-based Comments	49272, 49273, 49274	34
Atwood	April	not provided	N/A	Web-based Comments	8376	24
Atwood	Barrett	not provided	N/A	Web-based Comments	8853	24
Atwood	Kristie	not provided	N/A	Web-based Comments	52396	34
Aub	Kathy	not provided	N/A	Web-based Comments	49021	34
Aub	Kathy	not provided	N/A	Web-based Comments	19681	24
Aubertin	amy	not provided	N/A	Web-based Comments	7592	24
Aubin	Luan	not provided	N/A	Web-based Comments	21918	24
Aucoin	Susan	not provided	N/A	Web-based Comments	58150	16
Auda-Koscs	Christine	not provided	N/A	Web-based Comments	10892	24
Audesirk	Teresa	not provided	N/A	Web-based Comments	30259	24
Audette	Jarryd	not provided	N/A	Web-based Comments	16765	24
Audette	Jenni	not provided	N/A	Web-based comments	57250	35
Audette	Marie lyne	not provided	N/A	Web-based comments	57181	35
Audette	Sophie	not provided	N/A	Web-based Comments	29085	24
Audia	Gale Marie	not provided	N/A	Web-based Comments	14736	24
Auer	Patricia	not provided	N/A	Web-based Comments	45449	34
Auer	Patricia	not provided	N/A	Web-based Comments	25703	24
Auerbach	Delayne	not provided	N/A	Web-based Comments	12598	24
Auerbach	Martha	not provided	N/A	Web-based Comments	23091	24
Auerback	Robin	not provided	N/A	Web-based Comments	27464	24
Aufhauser	Suki	not provided	N/A	Web-based Comments	29567	24
Auge	Benita	not provided	N/A	Web-based Comments	8956	24
Augenstein	Wayne	wsaugenstein@hotmail.com	N/A	Web-based comments	5765	N/A
Auger	R	not provided	N/A	Web-based Comments	26463	24
Auger	Sylvie	not provided	N/A	Web-based Comments	49161	34
Aughey	Arlene	not provided	N/A	Web-based Comments	8421	24
Augur	Janise	not provided	N/A	Web-based Comments	16748	24
august	jane	not provided	N/A	Web-based Comments	16459	24
Augusta	Ryan	ryanwayneaugusta@gmail.com	N/A	Web-based comments	5132	N/A
Augustin	Rebecca	not provided	N/A	Web-based Comments	26703	24
Augustine	Saski	not provided	N/A	Web-based Comments	28441	24
Auker	Michele	not provided	N/A	Web-based Comments	47477	34
Auker	Michele	not provided	N/A	Web-based Comments	24275	24
Auletta	Hedwig	not provided	N/A	Web-based Comments	15559	24
Ault	Alice	not provided	N/A	Web-based Comments	7331	24
Auman	Barry	not provided	N/A	Web-based Comments	8858	24
auman	rick	not provided	N/A	Web-based Comments	57916	16
Aurand	Joann	not provided	N/A	Web-based Comments	55619	34
Aurand	Joann	not provided	N/A	Web-based Comments	17764	24
Aurand	Martin	not provided	N/A	Web-based Comments	23152	24
Auray	Louise	not provided	N/A	Web-based Comments	48902, 48903	34
Auray	Louise	not provided	N/A	Web-based Comments	21880	24
Aures	Bonita	not provided	N/A	Web-based Comments	9277	24
Aurian-Blajeni	Dan	not provided	N/A	Web-based Comments	11648	24
AURIGEMMA	KAYE	not provided	N/A	Web-based Comments	57829	34
AURIGEMMA	KAYE	not provided	N/A	Web-based Comments	19840	24
Aurilia	Christine	not provided	N/A	Web-based Comments	10893	24
Aurilio	Laura	not provided	N/A	Web-based Comments	20606	24
Aurore	MAMIE	mamieaurore@yahoo.fr	N/A	Web-based comments	1757	N/A
Ausmus	Mike	propertyguy@comcast.net	N/A	Web-based comments	5000	N/A
Austen	Rebecca	not provided	N/A	Web-based comments	57089	35
Austin	Alison	not provided	N/A	Web-based Comments	54260	34
Austin	Bruce	not provided	N/A	Web-based Comments	9598	24
Austin	Deborah	not provided	N/A	Web-based Comments	52648	34
Austin	Donna	not provided	N/A	Web-based Comments	13100	24
Austin	Jana	not provided	N/A	Web-based Comments	16447	24
Austin	Jessica	jessie.lehua@hotmail.com	N/A	Web-based comments	6341	1
austin	lorraine	not provided	N/A	Web-based Comments	21833	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Austin	Lyle	not provided	N/A	Web-based Comments	21999	24
Austin	Patricia	not provided	N/A	Web-based Comments	55106	34
Austin	R	not provided	N/A	Web-based Comments	26464	24
Austin	Ted	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32541	13
Austin III	Archie	not provided	N/A	Web-based Comments	8397	24
Austring	Dee	not provided	N/A	Web-based Comments	50259	34
Avalos	Joy	not provided	N/A	Web-based Comments	55360	34
Avalos	Luis	not provided	N/A	Web-based Comments	21968	24
Avelino-David	Karen Liza	not provided	N/A	Web-based Comments	45365, 56477	34
Avelino-David	Karen Liza	not provided	N/A	Web-based Comments	19260	24
Averill	Anne	not provided	N/A	Web-based Comments	8169	24
Averill	COL	colronjanaverill@comcast.net	N/A	Web-based comments	4875	10
Averill	Linda	not provided	N/A	Web-based Comments	47341	34
Averill	Linda	not provided	N/A	Web-based Comments	21197	24
Avery	Judy	not provided	N/A	Web-based Comments	52204	34
Avery	Tim & Lisa	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58390	32
Avila	Marilyn	not provided	N/A	Web-based Comments	22762	24
Avila	Olivia	not provided	N/A	Web-based Comments	25435	24
Avila	Roman	not provided	N/A	Web-based Comments	57850	34
Aviles	Araceli	not provided	N/A	Web-based Comments	8393	24
Avilla	Phyllis	not provided	N/A	Web-based Comments	26379	24
Avissar	Naomi	not provided	N/A	Web-based Comments	25041	24
Avrutin	Roberta	not provided	N/A	Web-based Comments	27430	24
Awad	James	not provided	N/A	Web-based Comments	16176	24
Awsiukiewicz	Eileen	not provided	N/A	Web-based Comments	13535	24
Awsumb	Pan	not provided	N/A	Web-based Comments	25606	24
Axel	Bradford	not provided	N/A	Web-based Comments	58169	16
Axt	Alina	not provided	N/A	Web-based Comments	7391	24
Axtell	Catherine	not provided	N/A	Web-based Comments	10255	24
Axten	Shawn	Dragonfly97701@gmail.com	N/A	Web-based comments	6865	N/A
Ayala	Carol	not provided	N/A	Web-based Comments	9884	24
Ayala	Margarita	not provided	N/A	Web-based Comments	50030, 50031	34
Ayalin	Ellen P	not provided	N/A	Web-based Comments	13961	24
Ayash	Nadia	not provided	N/A	Web-based Comments	58423	34
Aydelott	Steve	not provided	N/A	Web-based Comments	48664, 48665, 58097	34, 16
Ayers	Charles	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32311	N/A
Ayers	Cheryl	not provided	N/A	Web-based Comments	10618	24
Ayers	Frank	not provided	N/A	Web-based Comments	14517	24
Ayers	Judy	not provided	N/A	Web-based comments	57603	35
Ayers	Michele	not provided	N/A	Web-based Comments	24276	24
Ayers	Russ	not provided	N/A	Web-based Comments	27823	24
Aylor	Joel	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4661	N/A
Aylward	Andie	not provided	N/A	Web-based Comments	7717	24
Aylward	Barb	not provided	N/A	Web-based Comments	8596	24
Aylward	David	not provided	N/A	Web-based Comments	53899	34
Aymond	Laura	not provided	N/A	Web-based Comments	47417	34
Ayotte	Roberta	not provided	N/A	Web-based Comments	27431	24
Ayral	Odile	not provided	N/A	Web-based Comments	25424	24
Ayre	Lily	not provided	N/A	Web-based comments	56919	35
Ayres	Darcy	not provided	N/A	Web-based Comments	11852	24
Ayres	Peter	not provided	N/A	Web-based Comments	26240	24
Ayriss	Sandra	not provided	N/A	Web-based Comments	28111	24
Ayyar	Adarsh	not provided	N/A	Web-based Comments	52416	34
Azar	Marc	not provided	N/A	Web-based Comments	22328	24
Azarian	Rosanne	not provided	N/A	Web-based Comments	27712	24
Azarova	Ekaterina	not provided	N/A	Web-based Comments	13566	24
Azhar	Atiah	not provided	N/A	Web-based Comments	46772	34
Aziz	Zahir	not provided	N/A	Web-based Comments	31719	24
Azupardo	Fe Camila	not provided	N/A	Web-based Comments	14410	24
Azzam	Nancy	not provided	N/A	Web-based Comments	24805	24
Azzarello	Joe	not provided	N/A	Web-based Comments	17873	24
Azzopardi	Jordan	not provided	N/A	Web-based Comments	18313	24
Azzoto	Laurie	not provided	N/A	Web-based Comments	47054	34
B	A	not provided	N/A	Web-based comments	301	N/A
B	A	not provided	N/A	Web-based Comments	6952	24
B	Arianne	not provided	N/A	Web-based comments	6238	1
B	B	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	4784	N/A
B	Barbara	not provided	N/A	Web-based Comments	51765, 51766	34
B	Barbara	not provided	N/A	Web-based Comments	8619	24
B	Clay	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	4769	18

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
B	D	not provided	N/A	Web-based Comments	11571	24
B	Dan	not provided	N/A	Web-based Comments	11649	24
B	Jared	not provided	N/A	Web-based comments	2166	N/A
B	Justin	not provided	N/A	Web-based comments	2601	N/A
B	Kayla	fawkesyphoenix@gmail.com	N/A	Web-based comments	31847	1
B	Lidia	not provided	N/A	Web-based Comments	21147	24
B	Lilly	not provided	N/A	Web-based Comments	21170	24
b	linda	not provided	N/A	Web-based Comments	21198	24
B	Lisa	not provided	N/A	Web-based Comments	21519	24
B	Meta	not provided	N/A	Web-based Comments	51267	34
B	Meta	not provided	N/A	Web-based Comments	24003	24
B	Mina	not provided	N/A	Web-based Comments	54813	34
B	Pierce	not provided	N/A	Web-based Comments	26406	24
b	r	not provided	N/A	Web-based Comments	26465	24
B	Regina	not provided	N/A	Web-based Comments	46516	34
B	Robin	not provided	N/A	Web-based Comments	54019, 54020	34
B	S	not provided	N/A	Web-based Comments	27936	24
B	Shanna	not provided	N/A	Web-based Comments	28572	24
B	Shary	not provided	N/A	Web-based Comments	46367, 46368	34
B	Shary	not provided	N/A	Web-based Comments	28737	24
B	Shary	shary50@yahoo.com	N/A	Web-based comments	292	3
B	Terry	not provided	N/A	Web-based Comments	30358	24
B.	Alayna	not provided	N/A	Web-based comments	4971	1
B.	Christina	not provided	N/A	Web-based comments	415	1
B.	Christine	not provided	N/A	Web-based Comments	10894	24
B.	Donna	not provided	N/A	Web-based Comments	13101	24
B.	Jesse	not provided	N/A	Web-based Comments	17384	24
B.	Jill	not provided	N/A	Web-based Comments	49651, 49652, 49653	34
B.	Laura	not provided	N/A	Web-based Comments	50071, 50072	34
B.	Laura	not provided	N/A	Web-based Comments	20607	24
B.O.	Elizabeth	not provided	N/A	Web-based Comments	13703	24
Ba	Kimberly	whalewarrior33@gmail.com	N/A	Web-based comments	4544	1
Baar	Gretchen	not provided	N/A	Web-based comments	57702	35
Baard	Cindi	not provided	N/A	Web-based Comments	11057	24
Babaian	Cynthia	not provided	N/A	Web-based Comments	11489	24
Babayan	Anaida	not provided	N/A	Web-based Comments	7704	24
Babb	Ann	not provided	N/A	Web-based Comments	8000	24
Babb	Cheryl	not provided	N/A	Web-based Comments	10619	24
Babb	Stephen	not provided	N/A	Web-based Comments	51921, 51922	34
Babb	Stephen	not provided	N/A	Web-based Comments	29270	24
Babbitt	Andrelene	not provided	N/A	Web-based Comments	55159	34
Babbitt	Susan	not provided	N/A	Web-based Comments	53266	34
Babineau	Mary	not provided	N/A	Web-based Comments	52235	34
Babu	Sarah	not provided	N/A	Web-based Comments	28325	24
BACA	JONI	not provided	N/A	Web-based Comments	47743	34
baca	m	not provided	N/A	Web-based Comments	22166	24
Baccarat	Tanya	not provided	N/A	Web-based Comments	51761, 51762	34
Baccarat	Tanya	not provided	N/A	Web-based Comments	30178	24
Bacci	Carlo	not provided	N/A	Web-based Comments	45192	34
Bacellar	Helena	not provided	N/A	Web-based Comments	15632	24
Bach	Julie	not provided	N/A	Web-based Comments	56483, 56484	34
Bach	Julie	not provided	N/A	Web-based Comments	18809	24
Bach	Kimberly	not provided	N/A	Web-based Comments	54188	34
Bach	Kimberly	not provided	N/A	Web-based Comments	20214	24
Bachand	Judith	not provided	N/A	Web-based Comments	18563	24
Bachant-Bell	Danielle	not provided	N/A	Web-based Comments	11798	24
Bache	Kathryn	not provided	N/A	Web-based Comments	19619	24
Bachelder	Lisa	not provided	N/A	Web-based Comments	21520	24
Bacheller	Emily	not provided	N/A	Web-based Comments	14007	24
Bachhuber	Stephen	srbachhuber1@gmail.com	N/A	Web-based comments	4594	19
Bachman	geraldine	not provided	N/A	Web-based Comments	14967	24
Bachman	John	jabachman@earthlink.net	N/A	Web-based comments	3869	1
Bachman	Mary	not provided	N/A	Web-based Comments	23205	24
Bachman	Terri	not provided	N/A	Web-based Comments	30326	24
Bachner	Patty Bain	not provided	N/A	Web-based Comments	25966	24
Bacigalupi	Teresa	not provided	N/A	Web-based Comments	26372	24
Backer	Jen	not provided	N/A	Web-based Comments	17110	24
Backhouse	Maxi	not provided	N/A	Web-based Comments	53094	34
Backlund	Stanley	backlunds@att.net	N/A	Web-based comments	4456	8
Backos	Anthony	not provided	N/A	Web-based Comments	8324	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Backus	Jay	jay.backus@clearwaterpaper.com	N/A	Web-based comments	2276	N/A
Bacon	Ann	not provided	N/A	Web-based Comments	8001	24
Bacon	Nick	nickwbacon@gmail.com	N/A	Web-based comments	3224	N/A
bacon	warren	not provided	N/A	Web-based Comments	31379	24
bacri	maryse	not provided	N/A	Web-based Comments	23592	24
Bacyk	Laurie	not provided	N/A	Web-based Comments	20822	24
Baczkowski	Dave	not provided	N/A	Web-based Comments	55315	34
Badami	Antonette	not provided	N/A	Web-based Comments	8359	24
Badcock	Robert	not provided	N/A	Web-based Comments	46400	34
Bader	Carol	not provided	N/A	Web-based Comments	9885	24
Bader	Heidi	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32449	N/A
Bader	Larry and Sandra	not provided	N/A	Web-based Comments	20594	24
Bader	Sandra	not provided	N/A	Web-based Comments	51590	34
Bader	Tracy	not provided	N/A	Web-based Comments	30860	24
Badger	Ben	badger_benjamin@yahoo.com	N/A	Web-based comments	3009	N/A
Badger	Julie	not provided	N/A	Web-based Comments	51319	34
Badger	Rodney	not provided	N/A	Web-based Comments	27573	24
Badham	Linda	not provided	N/A	Web-based Comments	49317	34
Badham	Linda	not provided	N/A	Web-based Comments	21199	24
badran	jalil	not provided	N/A	Web-based Comments	16168	24
Badura	Christine	not provided	N/A	Web-based Comments	45662	34
Baecker	Patricia	not provided	N/A	Web-based Comments	25704	24
Baehr	Lauren	not provided	N/A	Web-based Comments	20752	24
Baele	Frank	not provided	N/A	Web-based Comments	14518	24
Baele	O.	not provided	N/A	Web-based Comments	25414	24
Baer	Joel	not provided	N/A	Web-based Comments	17905	24
Baer	Robin M	not provided	N/A	Web-based Comments	27542	24
Baerfuss	Theresa	not provided	N/A	Web-based Comments	30422	24
Baerman	Logan	logan.obermoeller@icloud.con	N/A	Web-based comments	6117	1
Baethge	Cordelia	not provided	N/A	Web-based Comments	11360	24
Baffa	Valerie	not provided	N/A	Web-based Comments	31006	24
Bafus	Carol	not provided	N/A	Web-based comments	57602	35
Bagby	Barbara L.	not provided	N/A	Web-based Comments	8840	24
Bagby	Jeff	not provided	N/A	Web-based Comments	17003	24
Bagdon	Callie	not provided	N/A	Web-based Comments	52573, 52574	34
Bagg	Scott	not provided	N/A	Web-based Comments	28456	24
Baggott	Julie	not provided	N/A	Web-based comments	56877	35
Baggott	Julie	not provided	N/A	Web-based Comments	18810	24
Bagheri	Susan	not provided	N/A	Web-based Comments	29588	24
Bagley	Richard	not provided	N/A	Web-based Comments	26932	24
Bagore	E	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	3971	18
Bahary	S	not provided	N/A	Web-based Comments	27937	24
Bahm	Matt	not provided	N/A	Web-based Comments	54194	34
Bahn	Emmy-Lou	not provided	N/A	Web-based comments	1062	N/A
Bahn	Ted	not provided	N/A	Web-based Comments	30242	24
Bahnson	Erik	not provided	N/A	Web-based Comments	14180	24
Bahr	Dennis	not provided	N/A	Web-based Comments	46965	34
Bahr	Dennis	not provided	N/A	Web-based Comments	12674	24
Bahr	Jeffrey	driftlessone65@gmail.com	N/A	Web-based comments	5515	8
Bahr	Jessica	not provided	N/A	Web-based Comments	54749	34
Bahr	Kristina	kristinab@inlandpower.com	N/A	Web-based comments	2462	7
Bahris	Angie	not provided	N/A	Web-based Comments	44916	34
Bai	Bei	shella.b.bai@gmail.com	N/A	Web-based comments	2990	4
Baier	Carol	not provided	N/A	Web-based Comments	56333, 56334	34
baier	dawn	not provided	N/A	Web-based Comments	12200	24
Baier	Francis	not provided	N/A	Web-based Comments	14503	24
Baier	Palmeta	not provided	N/A	Web-based Comments	45857, 45858	34
Baier	Palmeta	not provided	N/A	Web-based Comments	25485	24
Baier-Barnes	DeAnna	not provided	N/A	Web-based Comments	12273	24
Baigas	Phil	pbaigas@yahoo.com	N/A	Web-based comments	31952	N/A
bailes	micki	not provided	N/A	Web-based Comments	53397	34
Bailes Baker	Heather	not provided	N/A	Web-based Comments	15495	24
Bailey	Andrew J.	not provided	N/A	Web-based Comments	7865	24
Bailey	Anthony	abailey@otecc.com	N/A	Web-based comments	2752	N/A
Bailey	Barb	not provided	N/A	Web-based Comments	53200	34
Bailey	Beth	not provided	N/A	Web-based Comments	9010	24
Bailey	Brenda	not provided	N/A	Web-based Comments	47997	34
Bailey	Carrie	not provided	N/A	Web-based Comments	10191	24
Bailey	David	not provided	N/A	Web-based comments	57153	35
Bailey	David	not provided	N/A	Web-based Comments	11935	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Bailey	Debbie	not provided	N/A	Web-based Comments	12307	24
Bailey	Dennis	not provided	N/A	Web-based Comments	12675	24
Bailey	Diana	not provided	N/A	Web-based Comments	12753	24
Bailey	Donna	not provided	N/A	Web-based Comments	13102	24
BAILEY	DORI	not provided	N/A	Web-based Comments	54583	34
BAILEY	DORI	not provided	N/A	Web-based Comments	13214	24
Bailey	Elizabeth	not provided	N/A	Web-based Comments	49992	34
Bailey	Gary	g_bailey@stjohncable.com	N/A	Web-based comments	5213	N/A
Bailey	Janice	not provided	N/A	Web-based Comments	45581	34
Bailey	Janice	not provided	N/A	Web-based Comments	16666	24
Bailey	Jenny	not provided	N/A	Web-based Comments	17284	24
Bailey	Jill	not provided	N/A	Web-based Comments	55704	34
Bailey	Jill	not provided	N/A	Web-based Comments	17494	24
Bailey	Jim	not provided	N/A	Web-based Comments	17565	24
Bailey	Joan	not provided	N/A	Web-based Comments	57823	34
Bailey	John	not provided	N/A	Web-based Comments	17959	24
Bailey	John	not provided	N/A	Web-based Comments	17960	24
Bailey	Karen	not provided	N/A	Web-based Comments	19039	24
Bailey	Larry	not provided	N/A	Web-based Comments	20567	24
Bailey	Marie	not provided	N/A	Web-based Comments	46227	34
Bailey	Mary	mhabailey@comcast.net	N/A	Web-based comments	3455* – No attachment with submission, co-lead agencies reached out but did not receive a response.	N/A
Bailey	Michael	not provided	N/A	Web-based Comments	45462	34
Bailey	Michael	not provided	N/A	Web-based Comments	24020	24
Bailey	Morgan	not provided	N/A	Web-based Comments	24663	24
Bailey	Nicole	not provided	N/A	Web-based Comments	25222	24
bailey	reid	not provided	N/A	Web-based Comments	26814	24
Bailey	Stephen	not provided	N/A	Web-based Comments	54602	34
Bailey	Susan	not provided	N/A	Web-based Comments	29589	24
Bailey	William	not provided	N/A	Web-based Comments	31502	24
Bailey	William	not provided	N/A	Web-based Comments	31503	24
Bailie's	The	not provided	N/A	Web-based comments	3572	10
Bailin	Adrienne	not provided	N/A	Web-based Comments	7092	24
Bailleul	Ann	not provided	N/A	Web-based Comments	8002	24
baillio	chris	not provided	N/A	Web-based Comments	57995	16
Bain	B	not provided	N/A	Web-based Comments	8566	24
Bain	Christopher	not provided	N/A	Web-based Comments	10998	24
Bain	Diana	not provided	N/A	Web-based Comments	55005, 55006	34
Bain	Diana	not provided	N/A	Web-based Comments	12754	24
Bain	Karen	not provided	N/A	Web-based Comments	44274	34
Bainbridge	Susan	not provided	N/A	Web-based Comments	29590	24
Baine	Dave	not provided	N/A	Web-based Comments	55906	34
Baine	Dave	not provided	N/A	Web-based Comments	11906	24
Baines	Helen	not provided	N/A	Web-based Comments	15593	24
Baines	Lori	not provided	N/A	Web-based Comments	21770	24
Bains	Jeffrey	not provided	N/A	Web-based Comments	17066	24
Bains	Kashmir	not provided	N/A	Web-based Comments	19342	24
Bainter	Anna	not provided	N/A	Web-based Comments	8115	24
Baio	Sara	not provided	N/A	Web-based Comments	51996	34
Bair	Jennifer	not provided	N/A	Web-based Comments	54797	34
Bair	Patrick	not provided	N/A	Web-based Comments	25889	24
Baird	Abby	not provided	N/A	Web-based Comments	7010	24
Baird	Andrew	not provided	N/A	Web-based Comments	7799	24
Baird	Barbara	not provided	N/A	Web-based Comments	50310	34
Baird	Barbara	not provided	N/A	Web-based Comments	8620	24
Baird	Barbara	not provided	N/A	Web-based Comments	8621	24
baird	inger	not provided	N/A	Web-based Comments	15869	24
Baird	Peter	not provided	N/A	Web-based Comments	58089	16
Bair-Jones	Samantha	not provided	N/A	Web-based Comments	28069	24
Bajon	Eric	not provided	N/A	Web-based Comments	14084	24
Bak	Patrick	not provided	N/A	Web-based Comments	25890	24
Baka	Ryan	not provided	N/A	Web-based Comments	44563, 44564	34
Baka	Ryan	not provided	N/A	Web-based Comments	27904	24
BAKAL	MARTIN	not provided	N/A	Web-based Comments	46896	34
Baker	Adrian	not provided	N/A	Web-based Comments	7078	24
Baker	Alicia	not provided	N/A	Web-based Comments	7376	24
Baker	Alison	not provided	N/A	Web-based Comments	7398	24
Baker	Anne	not provided	N/A	Web-based Comments	47347	34
Baker	Arlene	not provided	N/A	Web-based Comments	47379	34
Baker	Arlene	not provided	N/A	Web-based Comments	8422	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Baker	Autumn	not provided	N/A	Web-based Comments	8544	24
Baker	Barbara	not provided	N/A	Web-based Comments	49541	34
Baker	Bethanie	not provided	N/A	Web-based Comments	9064	24
Baker	Beverly	not provided	N/A	Web-based Comments	9118	24
Baker	Brenda	not provided	N/A	Web-based Comments	9389	24
Baker	Carl	hodor@warmrock.net	N/A	Web-based comments	4978	N/A
Baker	Carl	not provided	N/A	Web-based Comments	53661	34
BAKER	COLUMBUS	not provided	N/A	Web-based Comments	11284	24
Baker	Deborah	not provided	N/A	Web-based Comments	12367	24
Baker	Denise	not provided	N/A	Web-based Comments	56113, 56114, 56115, 56116	34
Baker	Elizabeth L	not provided	N/A	Web-based Comments	13876	24
Baker	Grant	not provided	N/A	Web-based Comments	15216	24
Baker	Greg	not provided	N/A	Web-based Comments	15225	24
Baker	Jane	not provided	N/A	Web-based Comments	16460	24
Baker	Janice	not provided	N/A	Web-based Comments	50805	34
Baker	Jeanne	not provided	N/A	Web-based Comments	16936	24
Baker	Jenica	not provided	N/A	Web-based comments	158	1
Baker	Jessica	baker6164@aol.com	N/A	Web-based comments	6556	1
Baker	Karen	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58388	32
Baker	Kimberly	not provided	N/A	Web-based Comments	20215	24
Baker	Linda	not provided	N/A	Web-based Comments	21200	24
Baker	Lynn	not provided	N/A	Web-based Comments	52607	34
Baker	Mary	not provided	N/A	Web-based Comments	55827, 55828	34
Baker	Mary	not provided	N/A	Web-based Comments	23206	24
Baker	Mary Sue	not provided	N/A	Web-based Comments	23548	24
Baker	Megan	not provided	N/A	Web-based Comments	47791, 47792	34
Baker	Michael	zentrumpet@hotmail.com	N/A	Web-based comments	2131	N/A
Baker	Mikal	not provided	N/A	Web-based Comments	24429	24
Baker	Norman	not provided	N/A	Web-based Comments	58155, 56232	16, 34
Baker	Rebecca	rbaker6505@charter.net	N/A	Web-based comments	4424	N/A
Baker	Richard	not provided	N/A	Web-based Comments	26933	24
Baker	Rowan	Watershedfishbio@yahoo.com	N/A	Web-based comments	4484	19
Baker	Susan	not provided	N/A	Web-based Comments	52578	34
Baker	Tiffany	not provided	N/A	Web-based Comments	51633	34
Baker	Tiffany	not provided	N/A	Web-based Comments	30581	24
Baker	Tom and Lu	not provided	N/A	Web-based Comments	30785	24
Baker	Ute	not provided	N/A	Web-based Comments	49308	34
Baker	Vickey	not provided	N/A	Web-based Comments	31117	24
Baker	Victoria	not provided	N/A	Web-based Comments	31181	24
Baker-Smith	Gerritt and Elizabeth	not provided	N/A	Web-based Comments	14998	24
Bakewell	Deb	not provided	N/A	Web-based Comments	12285	24
Bakke	Susan	not provided	N/A	Web-based Comments	46508	34
Bakkes	Kimberly	not provided	N/A	Web-based Comments	45269	34
Baksa	Virginia	not provided	N/A	Web-based Comments	31269	24
Bal	Steven	not provided	N/A	Web-based Comments	53780	34
Bal	Steven	not provided	N/A	Web-based Comments	29418	24
Bala	Marietta	not provided	N/A	Web-based Comments	22745	24
Bala	Sheree	not provided	N/A	Web-based Comments	46180, 46181	34
Balaban	Susan	not provided	N/A	Web-based Comments	52765	34
Balaban	Susan	not provided	N/A	Web-based Comments	29591	24
BALABANIAN	JERRY	not provided	N/A	Web-based Comments	17339	24
Balan	Bruce	not provided	N/A	Web-based Comments	9599	24
Balan	David	not provided	N/A	Web-based Comments	11936	24
Balash	Pam	not provided	N/A	Web-based Comments	25486	24
Balbi	Lulu	not provided	N/A	Web-based Comments	44352	34
Balbi-Atkinson	Lulu	not provided	N/A	Web-based Comments	44353	34
Balbino	Larissa	larissabalbino@edu.unifil.br	N/A	Web-based comments	1012	1
Balbus	Marcia	not provided	N/A	Web-based Comments	22359	24
Balcerzak	Laura	not provided	N/A	Web-based Comments	20608	24
Balchunas	Tony	not provided	N/A	Web-based Comments	30805	24
Balcombe	Kenneth	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4734	N/A
Balder	Wendy	not provided	N/A	Web-based Comments	45343	34
Balderama	Disa	not provided	N/A	Web-based comments	57351	35
Baldewicz	Lindsey	not provided	N/A	Web-based Comments	21488	24
Baldi	Melanie	not provided	N/A	Web-based Comments	23832	24
baldoz	Jerry	jerry.baldoz@hotmail.com	N/A	Web-based comments	58843	N/A
Balduff	Marilyn	not provided	N/A	Web-based Comments	22763	24
Balduk	T.	not provided	N/A	Web-based Comments	30099	24
Baldwin	Carol	carol83442@gmail.com	N/A	Web-based comments	32072	N/A

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Baldwin	Christina	not provided	N/A	Web-based Comments	10842	24
Baldwin	Darrell	d_cbaldwin@msn.com	N/A	Web-based comments	32073	N/A
Baldwin	Elise	not provided	N/A	Web-based Comments	44458	34
Baldwin	Elise	not provided	N/A	Web-based Comments	13687	24
Baldwin	Jennifer	not provided	N/A	Web-based Comments	17155	24
Baldwin	Laura	not provided	N/A	Web-based Comments	46385, 46386	34
Baldwin	Sam	not provided	N/A	Web-based Comments	46851	34
Baldwin	Sam	not provided	N/A	Web-based Comments	28044	24
Baldwin	Sarah	not provided	N/A	Web-based Comments	28326	24
baldyka	Kamila	milly8585@gmail.com	N/A	Web-based comments	6731	1
Bales	Ashley	not provided	N/A	Web-based Comments	52055, 55142	34
Bales	Clarice	not provided	N/A	Web-based Comments	50676	34
Bales	Dorlan	not provided	N/A	Web-based Comments	13244	24
Bales	timothy	not provided	N/A	Web-based Comments	49625	34
Baley	Patricia	not provided	N/A	Web-based Comments	57882, 55100	16, 34
balfour	alannah	alannahbalfour@gmail.com	N/A	Web-based comments	206	1
balfour	doug	dbal0680@gmail.com	N/A	Web-based comments	28	N/A
Balfour	Joan	not provided	N/A	Web-based Comments	45338	34
Balgemann	Dennis	not provided	N/A	Web-based Comments	12676	24
Balicka	Maria	not provided	N/A	Web-based Comments	55158	34
balint	igor	not provided	N/A	Web-based Comments	56225	34
Balk	Garrick	not provided	N/A	Web-based Comments	14742	24
Balk	Sue	not provided	N/A	Web-based Comments	29510	24
Balko	Pat	not provided	N/A	Web-based Comments	54340	34
Balko	Patricia	not provided	N/A	Web-based Comments	25705	24
Ball	Amanda	not provided	N/A	Web-based Comments	7518	24
Ball	Betty	not provided	N/A	Web-based Comments	55643, 55644	34
Ball	Cecilia	not provided	N/A	Web-based Comments	10415	24
Ball	Gillian	not provided	N/A	Web-based Comments	15035	24
Ball	Jane	not provided	N/A	Web-based Comments	45902	34
Ball	Jane	not provided	N/A	Web-based Comments	16461	24
Ball	Laurie	not provided	N/A	Web-based Comments	20823	24
Ball	Peter	not provided	N/A	Web-based Comments	44397, 44398	34
Ball	Roger	rcb@theriver.com	N/A	Web-based comments	4108	N/A
Ball	Sheilah	not provided	N/A	Web-based Comments	45741	34
Ball	virginia	not provided	N/A	Web-based Comments	44395, 44396	34
Ballah	Joan	not provided	N/A	Web-based Comments	17666	24
Ballantine	Dikka	strawberrella@yahoo.com	N/A	Web-based comments	1681	3
Ballantine	Linda	not provided	N/A	Web-based Comments	21201	24
Ballard	Clifford	not provided	N/A	Web-based Comments	50384	34
Ballard	Dave	not provided	N/A	Web-based Comments	11907	24
Ballard	Thad	Citizenthad@gmail.com	N/A	Web-based comments	6925	N/A
Ballard	Wendi	ballards@bratsman.com	N/A	Web-based comments	6084	11
Ballas	Freda	not provided	N/A	Web-based Comments	54961	34
Ballenger	Charlotte	not provided	N/A	Web-based Comments	10553	24
Ballerini	Jennifer	not provided	N/A	Web-based Comments	17156	24
Ballesteros	Kelsy	not provided	N/A	Web-based Comments	19959	24
Ballew	Richard	not provided	N/A	Web-based Comments	26934	24
Ballot	Michael	not provided	N/A	Web-based Comments	24021	24
Ballou	Elaine	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58299	N/A
Ballou	Jeffrey	not provided	N/A	Web-based Comments	17067	24
Ballweg	Raymond	not provided	N/A	Web-based Comments	26684	24
Balmelli-Powe	Julie	not provided	N/A	Web-based comments	3251	10
Balogh	Susan	not provided	N/A	Web-based Comments	56190	34
Baloyra	Enrique	not provided	N/A	Web-based Comments	14076	24
Balster	Kaci	not provided	N/A	Web-based Comments	18991	24
Balter	Lauri	not provided	N/A	Web-based Comments	20810	24
Baltin	Brian	not provided	N/A	Web-based Comments	44947	34
Baltin	Brian	not provided	N/A	Web-based Comments	58176	16
Baltz	Ruhee	not provided	N/A	Web-based Comments	27818	24
Balzano	Sharon	not provided	N/A	Web-based Comments	53851, 53852	34
Balzano	Sharon	not provided	N/A	Web-based Comments	28625	24
Bambauer	Jennifer	not provided	N/A	Web-based Comments	55771	34
Bambauer	Jennifer	not provided	N/A	Web-based Comments	17157	24
Bambl	Herbert	not provided	N/A	Web-based Comments	15677	24
bambridge	sharon	not provided	N/A	Web-based Comments	28626	24
Bamford	Robert	not provided	N/A	Web-based Comments	27202	24
Banach	Darlene	not provided	N/A	Web-based Comments	11875	24
Banach	John	not provided	N/A	Web-based Comments	17961	24
Banashek	Eileen	not provided	N/A	Web-based Comments	13536	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Banaszak	Nancy	not provided	N/A	Web-based Comments	24806	24
Banchick	Patricia	not provided	N/A	Web-based Comments	25706	24
Bancroft	Celia	not provided	N/A	Web-based Comments	10436	24
Bancroft	Deborah	not provided	N/A	Web-based Comments	12368	24
Bandola	Jodi	not provided	N/A	Web-based Comments	48397	34
Bandt	Paula	not provided	N/A	Web-based Comments	52980, 52981	34
Bandt	Paula	not provided	N/A	Web-based Comments	26067	24
banducci	diana	not provided	N/A	Web-based Comments	12755	24
Bandura	Mary	not provided	N/A	Web-based Comments	23207	24
Banerjee	Lakshmi	not provided	N/A	Web-based Comments	50910	34
Banerjee	Lakshmi	not provided	N/A	Web-based Comments	20520	24
Bange	Nick	not provided	N/A	Web-based Comments	25191	24
Bangers	Ingrid	not provided	N/A	Web-based Comments	15870	24
Bango	Nikki	not provided	N/A	Web-based Comments	49520, 49521	34
Bangs	Mary	not provided	N/A	Web-based Comments	23208	24
Banin	Pamela	not provided	N/A	Web-based Comments	48764	34
Bank	Helene	not provided	N/A	Web-based Comments	56262, 56263	34
Bank	Helene	not provided	N/A	Web-based Comments	15638	24
Banker	Cindy	not provided	N/A	Web-based Comments	11064	24
Bankon	Dean	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	56687	N/A
Bankon	Vicki	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	56687	N/A
Bankowski	Shari	not provided	N/A	Web-based Comments	58235	16
Banks	Darlene	not provided	N/A	Web-based Comments	50712	34
Banks	Donna	not provided	N/A	Web-based Comments	13103	24
banks	elizabeth	not provided	N/A	Web-based Comments	48564	34
banks	elizabeth	not provided	N/A	Web-based Comments	13704	24
Banks	Janice	not provided	N/A	Web-based Comments	52328	34
Banks	Jerry	not provided	N/A	Web-based Comments	17340	24
Banks	Steve	dinoatgs@gmail.com	N/A	Web-based comments	5208	N/A
Banks	Theresa	not provided	N/A	Web-based Comments	30423	24
Banks	Victoria	vfbanks94@gmail.com	N/A	Web-based comments	2095	N/A
Bannerman	Lynne	not provided	N/A	Web-based Comments	53885	34
Bannerman	Lynne	not provided	N/A	Web-based Comments	22115	24
Banning	Robert	not provided	N/A	Web-based Comments	27203	24
Bannister	Christy	not provided	N/A	Web-based Comments	11039	24
Bannon	Kevin	not provided	N/A	Web-based Comments	44479	34
Bannon	Kevin	not provided	N/A	Web-based Comments	20080	24
Bannon	Lynne	not provided	N/A	Web-based Comments	22116	24
Banta	Jeremy	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32414	13
Bantle	Alyssa	not provided	N/A	Web-based Comments	7500	24
Bantz	Jeremy	not provided	N/A	Web-based Comments	17311	24
Banuelos	Fabiola	not provided	N/A	Web-based Comments	58546	34
Banyard	Stef	not provided	N/A	Web-based Comments	29161	24
Banyard	Stef	not provided	N/A	Web-based Comments	29162	24
Banzhaf	Christina	not provided	N/A	Web-based Comments	10843	24
Baptist	Jeremy	not provided	N/A	Web-based Comments	17312	24
Baptiste	Ameke	not provided	N/A	Web-based Comments	7575	24
Bara	Asa Javier	not provided	N/A	Web-based Comments	8474	24
Barabi	Soraya	not provided	N/A	Web-based Comments	51526	34
Barabi	Soraya	not provided	N/A	Web-based Comments	29091	24
Barad	Janet	not provided	N/A	Web-based Comments	16563	24
Barahona	Cesar	not provided	N/A	Web-based Comments	10446	24
Baraini	Olimpia	not provided	N/A	Web-based Comments	25431	24
Barajas	Amber	not provided	N/A	Web-based Comments	7565	24
Barajas	Graciela	not provided	N/A	Web-based Comments	15205	24
Barajas	Lydia	not provided	N/A	Web-based Comments	21989	24
Barajas	Melinda Barajas	not provided	N/A	Web-based comments	57600	35
Barakat	Nauman	not provided	N/A	Web-based Comments	49976	34
Barakat	Regina	not provided	N/A	Web-based Comments	26802	24
Baral-Baron	Valerie	not provided	N/A	Web-based Comments	31007	24
Baranowski	Cheri	not provided	N/A	Web-based Comments	10600	24
Barats	Betty	not provided	N/A	Web-based Comments	54101	34
Baratta	Jennifer	not provided	N/A	Web-based Comments	51597, 51598	34
Baratta	Jennifer	not provided	N/A	Web-based Comments	17158	24
BARBARA	JENNIFER	not provided	N/A	Web-based Comments	17159	24
barbarisi	maryelizabeth	not provided	N/A	Web-based Comments	23579	24
Barbarisi	Susan	not provided	N/A	Web-based Comments	29592	24
Barbato	Alicia	not provided	N/A	Web-based Comments	7377	24
BARBAUD	AUDREY	audrey.june2@gmail.com	N/A	Web-based comments	1746	1

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Barber	Amaryntha	not provided	N/A	Web-based Comments	49049	34
Barber	Astrata	not provided	N/A	Web-based Comments	53268, 53269	34
Barber	Astrata	not provided	N/A	Web-based Comments	8508	24
barber	carol	not provided	N/A	Web-based Comments	9886	24
Barber	Donald	not provided	N/A	Web-based Comments	13049	24
Barber	Jacqueline	not provided	N/A	Web-based Comments	16102	24
Barber	jim	not provided	N/A	Web-based Comments	47464	34
Barber	jim	not provided	N/A	Web-based Comments	17566	24
Barber	Julie	not provided	N/A	Web-based Comments	18811	24
Barbera	Diane	not provided	N/A	Web-based Comments	12813	24
Barberi	Lillyam	not provided	N/A	Web-based Comments	21174	24
Barbetta	John	not provided	N/A	Web-based Comments	17962	24
barbezat	gita	not provided	N/A	Web-based Comments	15099	24
Barbezat	Mary	not provided	N/A	Web-based Comments	23209	24
Barborinas	Jim	jbarborinas@bartlett.com	N/A	Web-based comments	3242	N/A
Barbosa	Antonio	not provided	N/A	Web-based Comments	8366	24
Barbosa	Reece	not provided	N/A	Web-based Comments	26796	24
Barbosa	Ron	not provided	N/A	Web-based Comments	27612	24
Barbour	Laurie-Ann	not provided	N/A	Web-based Comments	20865	24
Barbour	M.	not provided	N/A	Web-based Comments	22208	24
Barbour	Michelle	not provided	N/A	Web-based Comments	24324	24
Barbuto	Paul	not provided	N/A	Web-based Comments	55160	34
Barca	Erin	not provided	N/A	Web-based Comments	57790	34
Barcilon	Danielle	not provided	N/A	Web-based comments	57156	35
Barcilon	Danielle	not provided	N/A	Web-based Comments	11799	24
Barclay	Carmen	not provided	N/A	Web-based comments	887	1
Barclay	Deborah	not provided	N/A	Web-based Comments	54636	34
Barclay	Ken	not provided	N/A	Web-based Comments	54653	34
Barcott	Nick	not provided	N/A	Web-based Comments	46125, 46126, 58094	34, 16
Barczak	Debra	not provided	N/A	Web-based Comments	12501	24
Bard	Eric	not provided	N/A	Web-based Comments	14085	24
Bard	Holly	not provided	N/A	Web-based Comments	15729	24
Bardashevich	Alina	not provided	N/A	Web-based Comments	45908, 55912	34
Bardashevich	Alina	not provided	N/A	Web-based Comments	7392	24
Barden	Lindley Paxton	not provided	N/A	Web-based Comments	21478	24
Bardett	Karen	not provided	N/A	Web-based comments	57730	35
Bareikis	A	not provided	N/A	Web-based Comments	6953	24
Barendregt	Yolanda	not provided	N/A	Web-based comments	56820	35
Barense	Diane	not provided	N/A	Web-based Comments	12814	24
Baret	Sam	not provided	N/A	Web-based Comments	28045	24
Barger	Karin	not provided	N/A	Web-based Comments	48773, 48774	34
Barger	Karin	not provided	N/A	Web-based Comments	19275	24
Barger	Michael	barger.michael@gmail.com	N/A	Web-based comments	6295	N/A
Bargiel	Paula	not provided	N/A	Web-based Comments	51452	34
Barham	Kevin	not provided	N/A	Web-based Comments	20081	24
Barham	Scott	scottbarham4818@gmail.com	N/A	Web-based comments	4134	N/A
Barhydt	Mary	not provided	N/A	Web-based Comments	23210	24
Barile	Liz	not provided	N/A	Web-based comments	57519	35
Barile	Rita	not provided	N/A	Web-based Comments	27127	24
Baris	Sonja	not provided	N/A	Web-based Comments	51809	34
Baris	Sonja	not provided	N/A	Web-based Comments	29071	24
Baritz	Diana	not provided	N/A	Web-based Comments	55309	34
BARKER	AIDA	maestas_aida@yahoo.com	N/A	Web-based comments	2661	6
Barker	Andrew	not provided	N/A	Web-based Comments	7800	24
Barker	Anne	not provided	N/A	Web-based Comments	47003	34
Barker	Anne	not provided	N/A	Web-based Comments	8170	24
Barker	Bruce J	not provided	N/A	Web-based Comments	58216, 58289	16
Barker	Carolyn	not provided	N/A	Web-based Comments	10136	24
Barker	Cher	not provided	N/A	Web-based Comments	10595	24
Barker	Diane	not provided	N/A	Web-based Comments	50917	34
Barker	Donald	not provided	N/A	Web-based Comments	13050	24
Barker	E. Mark	not provided	N/A	Web-based Comments	13425	24
Barker	Geoff	not provided	N/A	Web-based Comments	14872	24
Barker	Holly	not provided	N/A	Web-based Comments	15730	24
Barker	Irene	not provided	N/A	Web-based Comments	15895	24
Barker	Jillian	not provided	N/A	Web-based Comments	45324	34
Barker	John	not provided	N/A	Web-based comments	6778	N/A
Barker	Richard	not provided	N/A	Web-based Comments	56427	34
Barker	Richard	not provided	N/A	Web-based Comments	26935	24
Barker	Taylor	not provided	N/A	Web-based Comments	30233	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Barkman	Susan	not provided	N/A	Web-based Comments	29593	24
Barkow	Carolyn	not provided	N/A	Web-based Comments	50857, 50862	34
Barler	Helen	not provided	N/A	Web-based Comments	46051	34
Barlow	Margery	not provided	N/A	Web-based Comments	22537	24
Barmann	Adriene	not provided	N/A	Web-based Comments	50766	34
Barmann	Matthew	not provided	N/A	Web-based Comments	48487, 48488	34
Barmettler	William	not provided	N/A	Web-based Comments	56178	34
Barnard	Char	not provided	N/A	Web-based Comments	10462	24
Barnard	Jeff	not provided	N/A	Web-based Comments	17004	24
Barnard	Kaelie	not provided	N/A	Web-based Comments	18995	24
Barnard	Michele	not provided	N/A	Web-based Comments	24277	24
Barnard	Sylvia	not provided	N/A	Web-based Comments	47427	34
Barnes	Ann-Elizabeth	not provided	N/A	Web-based Comments	47592	34
Barnes	Ashley	not provided	N/A	Web-based Comments	8479	24
Barnes	Brent T	not provided	N/A	Web-based Comments	9444	24
barnes	brice	brice@boatingfun.com	N/A	Web-based comments	6539	N/A
Barnes	Chelsea	not provided	N/A	Web-based Comments	49169	34
Barnes	Christopher	not provided	N/A	Web-based comments	57733	35
Barnes	Christopher	not provided	N/A	Web-based Comments	10999	24
Barnes	Christy	not provided	N/A	Web-based Comments	49204	34
Barnes	Cindy	not provided	N/A	Web-based Comments	11065	24
Barnes	Corey	not provided	N/A	Web-based Comments	11362	24
Barnes	Joanne	not provided	N/A	Web-based Comments	53714	34
Barnes	Juliana	not provided	N/A	Web-based Comments	18791	24
Barnes	Linda Sue	not provided	N/A	Web-based Comments	21472	24
Barnes	M. D.	not provided	N/A	Web-based Comments	54397	34
Barnes	Melody	not provided	N/A	Web-based Comments	23942	24
Barnes	Michael	not provided	N/A	Web-based Comments	56525	34
Barnes	Michael	not provided	N/A	Web-based Comments	24022	24
Barnes	Michele	not provided	N/A	Web-based Comments	47323	34
Barnes	Noel	not provided	N/A	Web-based Comments	50166	34
Barnes	Noel	not provided	N/A	Web-based Comments	25335	24
Barnes	Richard	not provided	N/A	Web-based Comments	26936	24
Barnes	Robert	not provided	N/A	Web-based Comments	27204	24
Barnes	Sandra	not provided	N/A	Web-based Comments	28112	24
Barnes	Sheila	not provided	N/A	Web-based Comments	28779	24
Barnett	A.	not provided	N/A	Web-based Comments	45692	34
Barnett	Analie	not provided	N/A	Web-based Comments	7705	24
barnett	april	not provided	N/A	Web-based Comments	8377	24
Barnett	Catherine	not provided	N/A	Web-based Comments	10256	24
Barnett	Colson	not provided	N/A	Web-based Comments	11283	24
Barnett	Elaine	not provided	N/A	Web-based Comments	13572	24
BARNETT	LARRY	not provided	N/A	Web-based Comments	20568	24
Barnett	Lucia	lucia.candy13@gmail.com	N/A	Web-based comments	1256	1
Barnett	Tod	not provided	N/A	Web-based Comments	30712	24
Barnette	Renee	not provided	N/A	Web-based Comments	26836	24
Barney	Linden	lnbarney@gmail.com	N/A	Web-based comments	3775	N/A
Barney	Linden	lnbarney@gmail.com	N/A	US Mail or commercial carrier (UPS, FedEx)	32415	13
Barney	Sally	not provided	N/A	Web-based Comments	27999	24
Barnhart	Bryan	not provided	N/A	Web-based Comments	9634	24
Barnhart	Chris	not provided	N/A	Web-based comments	32061	N/A
barnhart	katherine	not provided	N/A	Web-based Comments	19432	24
Barnings	Courtney	not provided	N/A	Web-based Comments	11397	24
Barns	Suzanne	not provided	N/A	Web-based Comments	29981	24
Baron	Anise	not provided	N/A	Web-based Comments	7962	24
Baron	Teresa	not provided	N/A	Web-based comments	56889	35
Barone	David	not provided	N/A	Web-based Comments	11937	24
Barowicz	Daryl	not provided	N/A	Web-based Comments	11904	24
Barquin	William	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4698	N/A
Barr	Anne	not provided	N/A	Web-based Comments	45104	34
Barr	Holly	not provided	N/A	Web-based Comments	52623	34
Barr	JoAnn	not provided	N/A	Web-based Comments	17765	24
Barr	Robert	not provided	N/A	Web-based comments	2083	N/A
Barr	Sheila	not provided	N/A	Web-based Comments	28780	24
Barr	Steven	not provided	N/A	Web-based Comments	57762	34
Barraco	Gail	not provided	N/A	Web-based Comments	55930	34
Barragan	Marguerite	not provided	N/A	Web-based Comments	22560	24
Barragan	William	not provided	N/A	Web-based Comments	31504	24
Barraillier	Clelmence Aspisi	not provided	N/A	Web-based Comments	49621	34
Barranco	Pilar	not provided	N/A	Web-based Comments	47284	34

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Barranco	Pilar	not provided	N/A	Web-based Comments	26410	24
Barratt	Phaedra	not provided	N/A	Web-based Comments	26317	24
Barredo	Aileen	not provided	N/A	Web-based Comments	7127	24
Barrentine	Pat	not provided	N/A	Web-based Comments	25631	24
Barreto	Kaila	kaila.barreto@gmail.com	N/A	Web-based comments	1409	1
Barreto	Stanley	not provided	N/A	Web-based Comments	29152	24
Barrett	Addison	not provided	N/A	Web-based comments	57747	35
Barrett	Addison	not provided	N/A	Web-based Comments	49756, 49757	34
Barrett	Alan	not provided	N/A	Web-based Comments	50942, 50943, 50944	34
Barrett	Bill	not provided	N/A	Web-based Comments	9164	24
Barrett	Charles	not provided	N/A	Web-based Comments	10484	24
Barrett	Diane	not provided	N/A	Web-based Comments	53309	34
Barrett	Donna	not provided	N/A	Web-based Comments	55089	34
Barrett	Donna	not provided	N/A	Web-based Comments	13104	24
Barrett	Elaine	not provided	N/A	Web-based Comments	13573	24
Barrett	Gregory	not provided	N/A	Web-based Comments	15269	24
Barrett	Janna	not provided	N/A	Web-based Comments	16753	24
Barrett	Jessica	not provided	N/A	Web-based Comments	17407	24
Barrett	Joan	not provided	N/A	Web-based Comments	17667	24
Barrett	Karen	not provided	N/A	Web-based Comments	19040	24
Barrett	Katharine	not provided	N/A	Web-based Comments	54856	34
Barrett	Katharine	not provided	N/A	Web-based Comments	19414	24
barrett	kristin	not provided	N/A	Web-based Comments	20368	24
Barrett	Leigh	not provided	N/A	Web-based Comments	20961	24
Barrett	Linda	not provided	N/A	Web-based Comments	44335	34
Barrett	Lisa	not provided	N/A	Web-based Comments	48685, 48686, 49346	34
Barrett	Lisa	not provided	N/A	Web-based Comments	21521	24
Barrett	Lisa	not provided	N/A	Web-based Comments	21522	24
Barrett	Lydia	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58329	N/A
Barrett	Marlene	not provided	N/A	Web-based Comments	51874	34
Barrett	Marlene	not provided	N/A	Web-based Comments	23037	24
Barrett	Michael	not provided	N/A	Web-based Comments	24023	24
Barrett	Nancy	not provided	N/A	Web-based Comments	24807	24
Barrett	Paula	not provided	N/A	Web-based Comments	26068	24
barrett	sophia	not provided	N/A	Web-based Comments	29081	24
Barrett	Susan	not provided	N/A	Web-based Comments	29594	24
Barricarte	Monica	not provided	N/A	Web-based Comments	47339	34
Barrick	Charlene	not provided	N/A	Web-based Comments	10471	24
Barrick	Nadine	not provided	N/A	Web-based Comments	24758	24
Barrie	Ms	not provided	N/A	Web-based Comments	49627	34
Barrientos	Mary	not provided	N/A	Web-based Comments	23211	24
Barriga	Margot	not provided	N/A	Web-based Comments	22551	24
Barrilo	Addie	not provided	N/A	Web-based comments	57055	35
Barringer	Joyce Porter	not provided	N/A	Web-based Comments	18524	24
Barrington	Tim	not provided	N/A	Web-based Comments	52629	34
Barrington	Tim	not provided	N/A	Web-based Comments	30598	24
Barron	Bridget	not provided	N/A	Web-based Comments	50472	34
Barron	Bridget	not provided	N/A	Web-based Comments	9535	24
Barron	Elizabeth	not provided	N/A	Web-based Comments	13705	24
Barron	Hugh	hughbarron@comcast.net	N/A	Web-based comments	5329	N/A
Barron	Jane	not provided	N/A	Web-based Comments	16462	24
Barron	Keith	not provided	N/A	Web-based Comments	19867	24
Barron	Sally	not provided	N/A	Web-based Comments	28000	24
Barron	Stephanie	not provided	N/A	Web-based Comments	29193	24
Barronton	Monica	not provided	N/A	Web-based Comments	24615	24
Barroso	Annette	not provided	N/A	Web-based Comments	8276	24
Barrow	Debra	not provided	N/A	Web-based Comments	12502	24
Barrow	Ryan	not provided	N/A	Web-based Comments	27905	24
Barrows	Daniel	not provided	N/A	Web-based Comments	11722	24
Barrows	Hadlai	not provided	N/A	Web-based Comments	15374	24
Barrows	Jeanine	not provided	N/A	Web-based Comments	16925	24
Barry	Beverly	not provided	N/A	Web-based Comments	54894, 54895	34
Barry	Beverly	not provided	N/A	Web-based Comments	9119	24
Barry	Dana	not provided	N/A	Web-based Comments	11686	24
barry	karyn	not provided	N/A	Web-based Comments	19335	24
Barry	Marge	not provided	N/A	Web-based Comments	22526	24
Barry	Marge W	not provided	N/A	Web-based Comments	47033, 47034	34
Barry	Marion	not provided	N/A	Web-based Comments	22849	24
Barry	Pearl	pearl.momilani.barry@gmail.com	N/A	Web-based comments	104	N/A
Barry	Ray	not provided	N/A	Web-based Comments	26664	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Barry	Ray	not provided	N/A	Web-based Comments	26665	24
Barry	Raymond	not provided	N/A	Web-based Comments	51207	34
Barry	Ronald	not provided	N/A	Web-based Comments	27647	24
Barry	Stephanie	not provided	N/A	Web-based Comments	29194	24
Barshis	Jan	not provided	N/A	Web-based Comments	16384	24
Barski	Barbara	not provided	N/A	Web-based Comments	48917	34
Barsom	Andrew	not provided	N/A	Web-based Comments	7801	24
Bartel	Pauline	not provided	N/A	Web-based Comments	26118	24
Bartelheimer	Dan	Snovalleyfarms@gmail.com	N/A	Web-based comments	3248	N/A
Bartell	Ann	not provided	N/A	Web-based Comments	58656	34
Bartell	Lee	not provided	N/A	Web-based Comments	20924	24
Bartell	William	not provided	N/A	Web-based Comments	31505	24
Bartelme	Ricardo	not provided	N/A	Web-based Comments	26917	24
Bartels	Andrew	not provided	N/A	Web-based Comments	7802	24
Bartels	Ed	bartels.ed@gmail.com	N/A	Web-based comments	6374	8
Bartels	Janis	not provided	N/A	Web-based Comments	16736	24
Bartels	John R.	not provided	N/A	Web-based Comments	53778	34
Bartelt	Jeannette	not provided	N/A	Web-based Comments	16983	24
Bartelt	Jill	not provided	N/A	Web-based Comments	17495	24
Barter	Mary	not provided	N/A	Web-based Comments	23212	24
Barth	Joline	not provided	N/A	Web-based Comments	44721	34
Barth	Joline	not provided	N/A	Web-based Comments	18242	24
Bartheld	Annika von	not provided	N/A	Web-based Comments	54889, 54890	34
Barthelow	Marilyn	not provided	N/A	Web-based Comments	22764	24
Bartholomay	Karen	not provided	N/A	Web-based Comments	44407	34
Bartholomew	Pam	not provided	N/A	Web-based Comments	48782	34
Bartholomew	Ross	not provided	N/A	Web-based Comments	27784	24
Bartik-Sweeney	Cat	not provided	N/A	Web-based Comments	44605	34
Bartle	Lachelle	not provided	N/A	Web-based Comments	20511	24
Bartleman	Mark	not provided	N/A	Web-based Comments	50356, 51527	34
Bartleman	Mark	not provided	N/A	Web-based Comments	22893	24
Bartles	Mary Jo	not provided	N/A	Web-based Comments	51153	34
Bartlett	Debra	not provided	N/A	Web-based Comments	49310, 49311	34
Bartlett	Floyd N	not provided	N/A	Web-based Comments	14454	24
Bartlett	Lee	not provided	N/A	Web-based Comments	20925	24
Bartlett	Ray	not provided	N/A	Web-based Comments	26666	24
Bartlett	Rebecca	not provided	N/A	Web-based Comments	55584	34
Bartlett	Rebecca	not provided	N/A	Web-based Comments	26704	24
Bartlett	Tina	not provided	N/A	Web-based Comments	55519	34
Bartlett	Victor	vic@evans-bartlett.com	N/A	Web-based comments	2916	N/A
Bartlett	Vivian	not provided	N/A	Web-based Comments	51617	34
Bartlett	Vivian	not provided	N/A	Web-based Comments	31311	24
Bartley	Rose	not provided	N/A	Web-based Comments	27717	24
barton	adrian	not provided	N/A	Web-based Comments	7079	24
Barton	Jackie	not provided	N/A	Web-based Comments	16056	24
Barton	Jennifer	not provided	N/A	Web-based Comments	52844	34
Barton	Jennifer	not provided	N/A	Web-based Comments	17160	24
Barton	Nicole	not provided	N/A	Web-based Comments	25223	24
Barton	SandraKanela	not provided	N/A	Web-based Comments	28236	24
Barton	Tara	not provided	N/A	Web-based Comments	30198	24
Barton-Venner	Susan	not provided	N/A	Web-based Comments	53477	34
BARTOS	Betty	not provided	N/A	Web-based Comments	48797	34
Bartos	Janet	not provided	N/A	Web-based Comments	16564	24
Bartos	Jeff	jbartos322@gmail.com	N/A	Web-based comments	1639	N/A
Bartosh	Carollynn	not provided	N/A	Web-based Comments	49624	34
Bartsch	Ellen	not provided	N/A	Web-based comments	57628	35
Bartsch	Robert	not provided	N/A	Web-based Comments	27205	24
Bartz	Lauren	not provided	N/A	Web-based Comments	20753	24
Baruch	Lois	not provided	N/A	Web-based Comments	21714	24
Barulich	Maryann	not provided	N/A	Web-based Comments	47948, 47949	34
Barzee	Jessie	jbarzee@gmail.com	N/A	Web-based comments	4601	N/A
Bas	Aurora	not provided	N/A	Web-based Comments	8539	24
Bas	Lauren	not provided	N/A	Web-based Comments	54539	34
Bas	Lauren	not provided	N/A	Web-based Comments	20754	24
Basa	Elizabeth	not provided	N/A	Web-based Comments	51990	34
Basabe	Milca	not provided	N/A	Web-based Comments	24506	24
Baseman	Joan	not provided	N/A	Web-based Comments	17668	24
Bash	Carol	not provided	N/A	Web-based Comments	9887	24
Basham	Maria	not provided	N/A	Web-based Comments	22581	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Bashaw	Midge	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	2143	N/A
Basiewicz	Kathleen	not provided	N/A	Web-based Comments	54202	34
Basile	Diane	not provided	N/A	Web-based Comments	12815	24
Basin	Ben	not provided	N/A	Web-based Comments	48499	34
Basin	Ben	not provided	N/A	Web-based Comments	8932	24
Basiourski	Oleh	not provided	N/A	Web-based Comments	58240	16
Baskett	Jason	not provided	N/A	Web-based Comments	58373	28
Baskin	John	tbaskin@cableone.net	N/A	Web-based comments	5108	N/A
Basmajian	John	johnbaz@aol.com	N/A	Web-based comments	4542	N/A
Bass	linda	not provided	N/A	Web-based Comments	21202	24
Bass	Patricia	not provided	N/A	Web-based Comments	25707	24
Bass	sheryl	not provided	N/A	Web-based Comments	28916	24
Bass	Tracey	not provided	N/A	Web-based Comments	53250	34
Bassas	Nuria	not provided	N/A	Web-based Comments	25407	24
Bassat	Candace	not provided	N/A	Web-based Comments	49187	34
Bassett	Christine	not provided	N/A	Web-based Comments	10895	24
Bassett	Linda	not provided	N/A	Web-based Comments	52626	34
Bassham	Cindy	not provided	N/A	Web-based Comments	51005	34
Bassin	Carolyn	Bassinc6393@gmail.com	N/A	Web-based comments	39	N/A
Bassin	Carolyn	not provided	N/A	Web-based Comments	10137	24
Bast	Kate	not provided	N/A	Web-based Comments	19364	24
Bast	Maria	not provided	N/A	Web-based Comments	50844	34
Bast	N. J.	not provided	N/A	Web-based Comments	24742	24
Bast	Rhonda	not provided	N/A	Web-based Comments	47703	34
Bast	Rhonda	not provided	N/A	Web-based Comments	26891	24
Baste	Alma	alma.baste@gmail.com	N/A	Web-based comments	6100	1
Bastian	Diane	not provided	N/A	Web-based Comments	48179	34
Bastian	Gary	not provided	N/A	Web-based Comments	14751	24
Bastian	Mark	not provided	N/A	Web-based Comments	55023, 55024	34
Bastian	Mark	not provided	N/A	Web-based Comments	22894	24
Bastron	Malcolm	not provided	N/A	Web-based Comments	22290	24
Basu	Rosanne	not provided	N/A	Web-based Comments	48536, 48596	34
Basu	Udita	not provided	N/A	Web-based comments	57646	35
Basye	Judith	not provided	N/A	Web-based Comments	52322	34
Basye	Mae	not provided	N/A	Web-based Comments	48420	34
Batavia	Cathie	not provided	N/A	Web-based Comments	53237, 53238	34
Batcheller	Jimmy	not provided	N/A	Web-based Comments	17625	24
Batchellor	Marilyn	not provided	N/A	Web-based Comments	22765	24
Batchelor	Sue	not provided	N/A	Web-based Comments	29511	24
Bate	Nancy	not provided	N/A	Web-based Comments	49586	34
Bate	William	not provided	N/A	Web-based Comments	56129, 56130	34
Batek	Michael	not provided	N/A	Web-based Comments	24024	24
Bateman	Dixie	not provided	N/A	Web-based Comments	12976	24
Bateman	George	not provided	N/A	Web-based Comments	48910, 48911	34
Bateman	Guy	gdbateman111@gmail.com	N/A	Web-based comments	6275	N/A
Bateman	Joe	not provided	N/A	Web-based Comments	52585, 52586	34
Bateman-House	Alison	not provided	N/A	Web-based Comments	7399	24
Bates	Arien	not provided	N/A	Web-based Comments	8417	24
Bates	Dwight	bateslee777@gmail.com	N/A	Web-based comments	3158	N/A
Bates	Elizabeth Karen	not provided	N/A	Web-based Comments	49935	34
BATES	GINA	not provided	N/A	Web-based Comments	15047	24
Bates	James	not provided	N/A	Web-based Comments	53869	34
Bates	James	not provided	N/A	Web-based Comments	16177	24
Bates	Jeremy-Aaron	stonemonkeylives@gmail.com	N/A	Web-based comments	1180	1
Bates	Lori	not provided	N/A	Web-based Comments	44627	34
Bates	Melody	not provided	N/A	Web-based Comments	23943	24
Bates	Mike	mbatesbcw@gmail.com	N/A	Web-based comments	2227	N/A
Bates	Robert	not provided	N/A	Web-based Comments	27206	24
Bates	Susan	not provided	N/A	Web-based Comments	29595	24
Bates	Turk	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58400	32
Batista	Michele	not provided	N/A	Web-based Comments	51504	34
Batra	Sumeet	not provided	N/A	Web-based Comments	29568	24
Batson	Kristine	not provided	N/A	Web-based Comments	20411	24
Batson	Tracie	not provided	N/A	Web-based Comments	44739	34
Batson	Tracie	not provided	N/A	Web-based Comments	30856	24
Battaglia	Lindsey	not provided	N/A	Web-based comments	1345	N/A
Battaglio	Patty	not provided	N/A	Web-based Comments	25956	24
Battaly	Gertrude	not provided	N/A	Web-based Comments	50020	34
Batterton	Vicki	not provided	N/A	Web-based comments	2326	N/A
Battles	Eileen	not provided	N/A	Web-based Comments	13537	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Battles	Sharrie	not provided	N/A	Web-based Comments	28734	24
Batty	Vernon	not provided	N/A	Web-based Comments	45177	34
Batty	Vernon	not provided	N/A	Web-based Comments	31092	24
Batway	Jewell	not provided	N/A	Web-based Comments	17486	24
Baud	annick	not provided	N/A	Web-based Comments	46462	34
Baudains	Barry Frederick	not provided	N/A	Web-based Comments	8869	24
Baudouin	Jacqueline	not provided	N/A	Web-based Comments	52757, 52758	34
Baudouin	Jacqueline	not provided	N/A	Web-based Comments	16103	24
Bauer	Becky	not provided	N/A	Web-based comments	57507	35
Bauer	Cherine	not provided	N/A	Web-based Comments	57993, 56106	16, 34
Bauer	Cherine	not provided	N/A	Web-based Comments	10609	24
Bauer	Elaine	not provided	N/A	Web-based comments	57591	35
Bauer	Evelyn	not provided	N/A	Web-based Comments	14348	24
Bauer	Joanne	not provided	N/A	Web-based Comments	17793	24
Bauer	Kelly	not provided	N/A	Web-based Comments	46129	34
Bauer	Kelly	not provided	N/A	Web-based Comments	19909	24
Bauer	Lani	not provided	N/A	Web-based Comments	53734	34
Bauer	Lani	not provided	N/A	Web-based Comments	20540	24
Bauer	Melissa	not provided	N/A	Web-based Comments	44338	34
Bauer	Melissa	not provided	N/A	Web-based Comments	23873	24
Bauer	Pauline	not provided	N/A	Web-based Comments	26119	24
Bauer	Robin	not provided	N/A	Web-based Comments	54818	34
Bauer	Ruth	not provided	N/A	Web-based Comments	53067, 53068	34
bauer	tom	not provided	N/A	Web-based Comments	30737	24
Bauer	Tyerhone	not provided	N/A	Web-based Comments	30957	24
Bauernschmitt	Helena	not provided	N/A	Web-based Comments	15633	24
Baughman	Charles	not provided	N/A	Web-based Comments	45189, 45190	34
baughman	charles	not provided	N/A	Web-based Comments	10485	24
Baum	Elizabeth	not provided	N/A	Web-based Comments	13706	24
Baum	Maria	not provided	N/A	Web-based Comments	46931	34
Baum	Miriam	not provided	N/A	Web-based Comments	53297, 53298	34
Baum	Miriam	not provided	N/A	Web-based Comments	24544	24
Baum	Susan	not provided	N/A	Web-based Comments	29596	24
Bauman	Brad	not provided	N/A	Web-based comments	4354	N/A
Bauman	Helen	not provided	N/A	Web-based Comments	15594	24
Bauman	Paul	not provided	N/A	Web-based comments	57022	35
Bauman	Sarah	not provided	N/A	Web-based Comments	52674, 52675	34
Bauman	SarahBauman	not provided	N/A	Web-based Comments	28425	24
Baumann	Richard	not provided	N/A	Web-based Comments	26937	24
Baumbach	Naomi	sunflower0972@gmail.com	N/A	Web-based comments	2015	N/A
Baumbusch	Linda	not provided	N/A	Web-based Comments	21203	24
Baumer	Marilyn	not provided	N/A	Web-based Comments	22766	24
Baumgardner	Emily	not provided	N/A	Web-based Comments	54589	34
Baumgarten	Christian	not provided	N/A	Web-based Comments	10822	24
Baumgarten	Darlene	not provided	N/A	Web-based Comments	11876	24
Baumgartner	Cherine	not provided	N/A	Web-based comments	32221	1
Baumhauer	Rick	not provided	N/A	Web-based Comments	27082	24
Baumung	Clay	not provided	N/A	Web-based Comments	53768	34
BAUNE	MARK	not provided	N/A	Web-based comments	2025	N/A
Baunton	Brett	not provided	N/A	Web-based Comments	58195	16
Baur	Larry	not provided	N/A	Web-based Comments	20569	24
BAUS	NEIL	not provided	N/A	Web-based Comments	53570	34
Bautch	Kurt	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32410	N/A
Bautel	Paul	not provided	N/A	Web-based Comments	45910	34
Bauza	Alex	not provided	N/A	Web-based Comments	7242	24
Baxel	Gary	not provided	N/A	Web-based Comments	46706	34
Baxter	Aaron	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4694	N/A
Baxter	Aaron	not provided	N/A	Web-based comments	5281	N/A
Baxter	Barbara	not provided	N/A	Web-based Comments	8622	24
Baxter	Bea	not provided	N/A	Web-based Comments	8883	24
Baxter	Judith	not provided	N/A	Web-based Comments	52531	34
Baxter	Judith	not provided	N/A	Web-based Comments	18564	24
Baxter	Susan	not provided	N/A	Web-based Comments	46128	34
Baybordi	Manucher	not provided	N/A	Web-based Comments	46432	34
Bayer	Judith	not provided	N/A	Web-based Comments	18565	24
Bayer	Ted	not provided	N/A	Web-based Comments	50807	34
Bayer	Ursula	not provided	N/A	Web-based Comments	30976	24
Bayham	Debra	not provided	N/A	Web-based Comments	12503	24
Bayless	Pamela	not provided	N/A	Web-based Comments	55446	34
Bayley	Daniel	not provided	N/A	Web-based Comments	11723	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
BAYMAN	REBECCA	not provided	N/A	Web-based Comments	26705	24
Bayne	Karen	not provided	N/A	Web-based Comments	19041	24
Bayon	Eric	not provided	N/A	Web-based Comments	14086	24
Bayouth	Michael	not provided	N/A	Web-based Comments	24025	24
Bays	Romani	not provided	N/A	Web-based Comments	55661	34
Bayus	Marie	not provided	N/A	Web-based Comments	44967	34
Bazuin	Judith	not provided	N/A	Web-based Comments	18566	24
Bazylewski	Conrad	not provided	N/A	Web-based Comments	11329	24
Bazyn	Barbara	not provided	N/A	Web-based Comments	8623	N/A
Bazzani	Carolyn	not provided	N/A	Web-based Comments	10138	N/A
Bea	Contxyta	not provided	N/A	Web-based Comments	11356	24
Beabraut	Sarah	not provided	N/A	Web-based Comments	28327	24
Beach	James	not provided	N/A	Web-based Comments	16178	24
Beach	Max	maxbeach@hotmail.com	N/A	Web-based comments	6140*	N/A
Beaird	Heather	not provided	N/A	Web-based Comments	47058	34
Beale	Beth	not provided	N/A	Web-based Comments	52009, 52010	34
Beale	Isabella	not provided	N/A	Web-based Comments	15940	24
Bealer	George	not provided	N/A	Web-based Comments	14880	24
Beall	Jane	not provided	N/A	Web-based Comments	16463	24
Beall	Jo	not provided	N/A	Web-based Comments	17636	24
Beall	Paula	not provided	N/A	Web-based Comments	52343	34
Beall	Sandy	not provided	N/A	Web-based Comments	28238	24
Bealmear	Holly	not provided	N/A	Web-based Comments	15731	24
Beals	Lorraine	not provided	N/A	Web-based Comments	21834	24
Beam	Kristine	not provided	N/A	Web-based Comments	45257	34
BEAM	RACHEL	not provided	N/A	Web-based Comments	26507	24
Beam	Rick	not provided	N/A	Web-based Comments	55638	34
Beaman	D.	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	2587	N/A
Beaman	Jeff	beaman.jeff@gmail.com	N/A	Web-based comments	31916	N/A
Beaman	Patricia	not provided	N/A	Web-based Comments	25708	24
Bean	Ethelle	not provided	N/A	Web-based Comments	56539	34
Bean	F	not provided	N/A	Web-based Comments	52613	34
Bean	F	not provided	N/A	Web-based Comments	14371	24
Bean	Judd	not provided	N/A	Web-based Comments	52525	34
Bean	Kathleen	not provided	N/A	Web-based Comments	19508	24
Bean	Robin	not provided	N/A	Web-based Comments	27465	24
Bear	Jackie	not provided	N/A	Web-based Comments	47844, 47845	34
bear	marcia	not provided	N/A	Web-based Comments	22360	24
Beard	Carla	not provided	N/A	Web-based Comments	9816	24
Beard	Charles	not provided	N/A	Web-based Comments	10486	24
Beard	Jeff	not provided	N/A	Web-based Comments	44768	34
Beard	Jeff	not provided	N/A	Web-based Comments	17005	24
Beard	Justin	not provided	N/A	Web-based Comments	18948	24
Beard	Kenny	not provided	N/A	Web-based Comments	20036	24
Beard	Pamela	not provided	N/A	Web-based Comments	47055, 47056	34
Beard	Robin	robinabeard@hotmail.com	N/A	Web-based comments	3458	N/A
Bearden	Amanda	not provided	N/A	Web-based Comments	7519	24
Bearden	Jim	not provided	N/A	Web-based Comments	54138	34
Bearman	Shannon	not provided	N/A	Web-based Comments	56351	34
Bearman	Shannon	not provided	N/A	Web-based Comments	28580	24
Bearry	Christa	not provided	N/A	Web-based Comments	10801	24
Beary	Wesley	not provided	N/A	Web-based Comments	31464	24
Beasley	Dale	not provided	N/A	Web-based Comments	58663, 58664	34
Beasley	Dale	not provided	N/A	Web-based Comments	11623	24
Beasley	Stephen	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58757	13
Beattie	Julie	not provided	N/A	Web-based Comments	51274	34
Beattie	Lindsay	not provided	N/A	Web-based Comments	53233	34
Beattie	Susan	not provided	N/A	Web-based Comments	48904	34
beattie	susan	not provided	N/A	Web-based Comments	29597	24
Beatty	Brenda	not provided	N/A	Web-based Comments	54690	34
Beatty	Brenda	not provided	N/A	Web-based Comments	9390	24
beatty	joy	not provided	N/A	Web-based Comments	18456	24
Beatty	Lorne	not provided	N/A	Web-based Comments	48140	34
Beatty	Lorne	not provided	N/A	Web-based Comments	21829	24
Beatty	Nan	not provided	N/A	Web-based Comments	24783	24
Beaty	Edward	not provided	N/A	Web-based Comments	58060	16
Beaty	Lee	not provided	N/A	Web-based Comments	20926	24
Beau	Josette Le	not provided	N/A	Web-based Comments	44819	34
Beaubien	Keeta	not provided	N/A	Web-based Comments	19863	24
Beauchamp	Catherine	not provided	N/A	Web-based Comments	45742	34

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Beauchamp	Marian	not provided	N/A	Web-based Comments	22653	24
Beaudette	M	not provided	N/A	Web-based Comments	52681	34
Beaudoin	Marie	not provided	N/A	Web-based Comments	22699	24
Beaudry	Patrick	not provided	N/A	Web-based Comments	25891	24
Beaujon	Stephen	not provided	N/A	Web-based Comments	29271	24
Beaulieu	Camille	not provided	N/A	Web-based Comments	9738	24
Beaumont	Barbara	not provided	N/A	Web-based Comments	8624	24
Beaumont	Jesse	not provided	N/A	Web-based Comments	50174	34
Beaumont	Jesse	not provided	N/A	Web-based Comments	17385	24
Beaumont	Kurtis	not provided	N/A	Web-based Comments	20441	24
Beaumont	Lily	not provided	N/A	Web-based Comments	21175	24
Beaver	Judith	not provided	N/A	Web-based Comments	18567	24
Beaver	Melissa	not provided	N/A	Web-based Comments	44324, 44325	34
Beavers	James	not provided	N/A	Web-based Comments	16179	24
Beavers	Nancy	not provided	N/A	Web-based Comments	24808	24
Beazley	Brandy	not provided	N/A	Web-based Comments	45360	34
Bechard	Angie	not provided	N/A	Web-based Comments	7950	24
Bechard	Jen	not provided	N/A	Web-based Comments	17111	24
Becher	Anne	not provided	N/A	Web-based Comments	8171	24
Becherer	Ann	not provided	N/A	Web-based Comments	8003	24
Bechert	Ursula	not provided	N/A	Web-based Comments	30977	24
Bechko	Corinna	not provided	N/A	Web-based Comments	55784	34
Bechmann	Elisabeth	not provided	N/A	Web-based Comments	55025, 55026	34
Bechmann	Elisabeth	not provided	N/A	Web-based Comments	13674	24
Bechtel	Jean	not provided	N/A	Web-based Comments	16836	24
Bechtel	Paul	not provided	N/A	Web-based Comments	25971	24
Bechtholt	Susan	not provided	N/A	Web-based Comments	50115	34
Beck	Dana L	not provided	N/A	Web-based Comments	50251, 50252	34
Beck	Dana L	not provided	N/A	Web-based Comments	11715	24
BECK	DONALD C	not provided	N/A	Web-based Comments	13095	24
Beck	Eric	not provided	N/A	Web-based Comments	14087	24
Beck	Janet	not provided	N/A	Web-based Comments	16565	24
Beck	Jeffrey	not provided	N/A	Web-based Comments	17068	24
Beck	Jonathan	not provided	N/A	Web-based Comments	18273	24
Beck	Kim	not provided	N/A	Web-based comments	2436, 6913	N/A
Beck	Patricia	not provided	N/A	Web-based Comments	25709	24
Beck	Paul	not provided	N/A	Web-based Comments	25972	24
Beck	Riki	not provided	N/A	Web-based Comments	50956	34
Beck	Riki	not provided	N/A	Web-based Comments	27113	24
Beck	Sandy	not provided	N/A	Web-based Comments	54060	34
Beck	Stefanie	not provided	N/A	Web-based Comments	29168	24
Beck	Thomas	not provided	N/A	Web-based Comments	30468	24
Beck	William	not provided	N/A	Web-based comments	5654	N/A
Beck-Brown	Susan	not provided	N/A	Web-based Comments	29598	24
Becker	Adrienne	not provided	N/A	Web-based Comments	7093	24
Becker	Albert	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4735	N/A
Becker	Albert	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58740	N/A
Becker	Anna	not provided	N/A	Web-based Comments	8116	24
Becker	Barbara	not provided	N/A	Web-based Comments	44893	34
Becker	Barbara	not provided	N/A	Web-based Comments	8625	24
Becker	Carol	not provided	N/A	Web-based Comments	9888	24
Becker	Christine	not provided	N/A	Web-based Comments	10896	24
Becker	Dale	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32341	N/A
Becker	David & Judith	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	56615	N/A
Becker	Elaine	elainebecker@yahoo.com	N/A	Web-based comments	4886, 57735	35
Becker	Elaine	not provided	N/A	Web-based Comments	48310, 50462	34
Becker	Elaine	not provided	N/A	Web-based Comments	13574	24
becker	eugene	not provided	N/A	Web-based Comments	14288	24
Becker	Jessica	not provided	N/A	Web-based Comments	17408	24
Becker	Martin	not provided	N/A	Web-based Comments	23153	24
Becker	Ralph	not provided	N/A	Web-based Comments	58478	34
Beckerman	Gary	not provided	N/A	Web-based Comments	14752	24
Beckett	Clint	not provided	N/A	Web-based Comments	11224	24
Beckham	Joan	not provided	N/A	Web-based Comments	17669	24
Beckhardt	Nina	not provided	N/A	Web-based Comments	25300	24
Beckhaus	Ines	not provided	N/A	Web-based Comments	45291, 48113	34
Beckingham	Carolyn	not provided	N/A	Web-based Comments	10139	24
Beckley	Cindy	not provided	N/A	Web-based Comments	11066	24
Beckley	Dawn	not provided	N/A	Web-based Comments	12201	24
Becklumb	Georgia Rose	not provided	N/A	Web-based comments	57554	35

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Beckman	Don	not provided	N/A	Web-based Comments	13011	24
Beckrich	Lisa	not provided	N/A	Web-based Comments	21523	24
Beckstead	Dallas	rockymtnsurvival@gmail.com	N/A	Web-based comments	32210	N/A
Beckstrom	Miriam	not provided	N/A	Web-based Comments	24545	24
Beclard	Sylvie	not provided	N/A	Web-based Comments	55923	34
Becroft	Priscilla M	not provided	N/A	Web-based Comments	26454	24
Becton	Patricia	not provided	N/A	Web-based Comments	46618	34
Bedard	Alan	not provided	N/A	Web-based Comments	46598	34
Bedard	Pascale	not provided	N/A	Web-based Comments	56143	34
Bedard	Pascale	not provided	N/A	Web-based Comments	25623	24
Bedarff	Anke	not provided	N/A	Web-based Comments	7995	24
Bedart-Vachez	Cathy	not provided	N/A	Web-based Comments	45393	34
Beddingfield	Syd	not provided	N/A	Web-based Comments	51321	34
Bedendo	Emanuela	not provided	N/A	Web-based Comments	14000	24
bedford	pauline	not provided	N/A	Web-based Comments	26120	24
Bedic	Kristina	not provided	N/A	Web-based Comments	54212	34
Bedirian	George	gbedirian@hotmail.com	N/A	Web-based comments	5781	N/A
Bedirian	George	not provided	N/A	Web-based Comments	56293	34
Bedrick	Sue	not provided	N/A	Web-based Comments	44831, 44832	34
Bee	Cory	not provided	N/A	Web-based Comments	46096	34
Bee	Katie	not provided	N/A	Web-based comments	6873	1
BEE	PATRICIA V	not provided	N/A	Web-based Comments	25887	24
Beebe	Beth	not provided	N/A	Web-based Comments	9011	24
Beebe	David	not provided	N/A	Web-based Comments	50695	34
Beebe	Karolyn	not provided	N/A	Web-based Comments	19327	24
Beebe	Kevin	kl1bb@msn.com	N/A	Web-based comments	5241	N/A
beebe	lauren	not provided	N/A	Web-based Comments	20755	24
Beebe	Natalie	not provided	N/A	Web-based Comments	25059	24
Beebe III	Junius	not provided	N/A	Web-based Comments	18946	24
Beech	Daniel	not provided	N/A	Web-based Comments	51800	34
Beech	Emily	not provided	N/A	Web-based Comments	48197	34
Beedle	Tina	not provided	N/A	Web-based Comments	55676	34
Beedle	Tina	not provided	N/A	Web-based Comments	30665	24
Beegle	Margaret	not provided	N/A	Web-based Comments	47108	34
Beehler	Lauriannah	not provided	N/A	Web-based Comments	20816	24
Beek	John	jevb53@gmail.com	N/A	Web-based comments	2747	N/A
Beekmeijer	Ad	not provided	N/A	Web-based Comments	7030	24
Beelen	Andrew	not provided	N/A	Web-based Comments	7803	24
Beeler	Judy	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58854	N/A
Beeley	Kay	not provided	N/A	Web-based Comments	19816	24
Beeman	Joanne	not provided	N/A	Web-based Comments	53660	34
Beene	D	not provided	N/A	Web-based Comments	11572	24
Beer	Isabel	not provided	N/A	Web-based comments	748	N/A
Beer	Julie	not provided	N/A	Web-based Comments	53950, 53951	34
Beer	Julie	not provided	N/A	Web-based Comments	18812	24
Beer	Sally	not provided	N/A	Web-based Comments	28001	24
Beers	Linda	not provided	N/A	Web-based Comments	21204	24
Beers	Paula	not provided	N/A	Web-based Comments	26069	24
Beery	Richard	not provided	N/A	Web-based Comments	49427	34
Beeson	Audra	britishmonacle@gmail.com	N/A	Web-based comments	32243	1
Beeson	Joanne	not provided	N/A	Web-based Comments	52178	34
Beever	Renee	not provided	N/A	Web-based Comments	54310	34
Beezley	Jo	not provided	N/A	Web-based Comments	17637	24
Begalske	Leigh	not provided	N/A	Web-based Comments	55813, 55814	34
Begalske	Leigh	not provided	N/A	Web-based Comments	20962	24
Behar	Barbara	not provided	N/A	Web-based Comments	8626	24
Behar	Victoria	not provided	N/A	Web-based Comments	45811	34
Behar	Victoria	not provided	N/A	Web-based Comments	31182	24
Behla	Martina	not provided	N/A	Web-based Comments	23181	24
Behnken	Del	not provided	N/A	Web-based Comments	45038	34
Behr	Rose-Anna	not provided	N/A	Web-based Comments	27740	24
Behrana	Meher	not provided	N/A	Web-based Comments	48151	34
Behrana	Meher	not provided	N/A	Web-based Comments	23819	24
Behrens	Claus	not provided	N/A	Web-based Comments	11209	24
Behrens	Georg	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32366	N/A
Behrens	Joanna	not provided	N/A	Web-based Comments	52144, 52145	34
Behymer	Richard	not provided	N/A	Web-based Comments	26938	24
Beier	Angela	not provided	N/A	Web-based comments	56831	35
beierle	richard	not provided	N/A	Web-based Comments	26939	24
Beighe	Denise	not provided	N/A	Web-based Comments	12626	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Beightol	Florence	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32271	N/A
Beikirch	David	not provided	N/A	Web-based Comments	11938	24
Beillevert	Marie	marie.beillevert@gmail.com	N/A	Web-based comments	99	1
Beilmann	John	not provided	N/A	Web-based Comments	17963	24
Bein	Ann	not provided	N/A	Web-based Comments	8004	24
Bein	Jeanie	not provided	N/A	Web-based Comments	54898	34
Bein	Robert	not provided	N/A	Web-based Comments	27207	24
Beinner	Tansy	not provided	N/A	Web-based Comments	30176	24
Bejgrowicz	Thomas	not provided	N/A	Web-based Comments	30469	24
BEJINA	FREDERIC	not provided	N/A	Web-based Comments	14588	24
Bejnar	Darlene	not provided	N/A	Web-based Comments	11877	24
Bekker	Ralph	not provided	N/A	Web-based Comments	26587	24
Belachew	Daniel	not provided	N/A	Web-based Comments	11724	24
Belanger	Barb	not provided	N/A	Web-based Comments	8597	24
Belanger	Cynthia	not provided	N/A	Web-based Comments	11490	24
Belanger	Lester	not provided	N/A	Web-based Comments	56208	34
Belanger	Mitchell	mbelanger2014@gmail.com	N/A	Web-based comments	581	N/A
belcastro	frank	not provided	N/A	Web-based Comments	14519	24
Belcher	Jessica	not provided	N/A	Web-based comments	57415	35
Belcher	Joann	not provided	N/A	Web-based Comments	17766	24
Belchis	Deborah	not provided	N/A	Web-based Comments	12369	24
Beldin	Joan	not provided	N/A	Web-based Comments	52326, 52327	34
Belenky	Daniel	dbelenky@yahoo.com	N/A	Web-based comments	3107	N/A
Belenus	Virginie	virginie.gieux@gmail.com	N/A	Web-based comments	1527	1
Belew	Lynette	not provided	N/A	Web-based Comments	55533, 55534	34
Belew	Lynette	not provided	N/A	Web-based Comments	22035	24
Belfer	Morgan	not provided	N/A	Web-based comments	57141	35
Belfer	Morgan	not provided	N/A	Web-based Comments	24664	24
Belford	David	not provided	N/A	Web-based Comments	11939	24
Belgeri	Kevin	not provided	N/A	Web-based Comments	20082	24
Beliard	Diana	not provided	N/A	Web-based Comments	12756	24
Belinski	Anna	not provided	N/A	Web-based comments	6650	N/A
Belisle	Mavis	not provided	N/A	Web-based Comments	23734	24
Beliveau	Christina	not provided	N/A	Web-based Comments	45583	34
Belknap	Bobby	not provided	N/A	Web-based Comments	52078, 52079	34
Belknap	Bobby	not provided	N/A	Web-based Comments	9266	24
Belknap	Robert	not provided	N/A	Web-based Comments	51691, 51692	34
Bell	Adam	not provided	N/A	Web-based Comments	7038	24
Bell	Alyssa	not provided	N/A	Web-based Comments	51325	34
Bell	Alyssa	not provided	N/A	Web-based Comments	7501	24
Bell	Brett	not provided	N/A	Web-based Comments	53257	34
Bell	Cathie	not provided	N/A	Web-based Comments	52684	34
Bell	Cathie	not provided	N/A	Web-based Comments	10338	24
Bell	David	not provided	N/A	Web-based Comments	11940	24
Bell	Dottie	not provided	N/A	Web-based Comments	50773	34
Bell	Frances	not provided	N/A	Web-based Comments	53947, 53948	34
Bell	Frances	not provided	N/A	Web-based Comments	14472	24
Bell	Frank	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32513	11
Bell	Gail	not provided	N/A	Web-based Comments	44661	34
Bell	Gary	not provided	N/A	Web-based Comments	55301	34
Bell	Grace	not provided	N/A	Web-based Comments	46858, 46859	34
Bell	Kathleen	not provided	N/A	Web-based Comments	19509	24
Bell	Kathleen	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32512	13
Bell	Lauren	not provided	N/A	Web-based Comments	20756	24
Bell	Lynne	not provided	N/A	Web-based Comments	22117	24
Bell	Margaret	not provided	N/A	Web-based Comments	22428	24
Bell	MARSHA	not provided	N/A	Web-based Comments	23063	24
Bell	Maxine	not provided	N/A	Web-based Comments	23748	24
Bell	Nicole	not provided	N/A	Web-based Comments	25224	24
Bell	Peggy	not provided	N/A	Web-based Comments	26146	24
Bell	Richard	not provided	N/A	Web-based Comments	26940	24
Bell	Sandra	not provided	N/A	Web-based comments	57363	35
Bell	Sandra	not provided	N/A	Web-based Comments	28113	24
Bell	SC	jasperjosh@comcast.net	N/A	Web-based comments	3752	N/A
Bell	Stacy	not provided	N/A	Web-based Comments	29133	24
Bell	Stephanie	not provided	N/A	Web-based Comments	47392	34
Bell	Steve	not provided	N/A	Web-based Comments	29354	24
bell	t	not provided	N/A	Web-based Comments	30087	24
Bella	Nancy	not provided	N/A	Web-based Comments	24809	24
Bellaccomo	Josephine	not provided	N/A	Web-based Comments	52154	34

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Bellach	William	not provided	N/A	Web-based Comments	31506	24
Bellacosa	Angela	not provided	N/A	Web-based Comments	58073	16
Bellamy	David	not provided	N/A	Web-based Comments	53756	34
Bellamy	Lauralyn	not provided	N/A	Web-based Comments	20725	24
Belland	Barbara	not provided	N/A	Web-based Comments	55595	34
Belland	Tara	not provided	N/A	Web-based Comments	48249, 50635	34
Bellant	Charla	not provided	N/A	Web-based Comments	47863	34
Bellant	Nick	not provided	N/A	Web-based comments	57578	35
Bellardini	Kim	not provided	N/A	Web-based Comments	51605	34
Bell-Brugger	Karen	not provided	N/A	Web-based Comments	19042	24
belle	linda	not provided	N/A	Web-based Comments	54881	34
Belle	Maureen	not provided	N/A	Web-based Comments	45013	34
Belle	Peggy	not provided	N/A	Web-based Comments	55294	34
Bellemare	Renee	not provided	N/A	Web-based Comments	58529	34
Beller	Robert	not provided	N/A	Web-based Comments	27208	24
Bellero	Lisa	not provided	N/A	Web-based Comments	21524	24
bellerue	ilene	not provided	N/A	Web-based Comments	47630	34
Bellevue	Lydia	not provided	N/A	Web-based Comments	21990	24
Bellflower	Shannon	not provided	N/A	Web-based Comments	51050, 51051	34
Bellhaven	Walt	not provided	N/A	Web-based Comments	51070	34
Bellhaven	Walt	not provided	N/A	Web-based Comments	31346	24
Belli	William	not provided	N/A	Web-based Comments	31507	24
Belliardo	Martine	not provided	N/A	Web-based Comments	23185	24
Belliston	David	not provided	N/A	Web-based comments	1816	N/A
Bello	Carl	not provided	N/A	Web-based Comments	9800	24
Bello	D	not provided	N/A	Web-based Comments	48677	34
Bello	D	not provided	N/A	Web-based Comments	11573	24
Bellomo	Lore	not provided	N/A	Web-based Comments	21746	24
Bellomy	Rebecca	not provided	N/A	Web-based Comments	26706	24
Bellows	Laura	not provided	N/A	Web-based Comments	20609	24
Bellville	Bonny	not provided	N/A	Web-based Comments	47898	34
Beloglazova	Ludmila	not provided	N/A	Web-based Comments	21964	24
Beloin	Sylvain	not provided	N/A	Web-based Comments	30056	24
Belotz	Mark	not provided	N/A	Web-based Comments	22895	24
Belsby	Nancy	nbelsby42@gmail.com	N/A	Web-based comments	31843	N/A
Belsley	Jim	not provided	N/A	Web-based Comments	17567	24
Beltrone	Paula	not provided	N/A	Web-based Comments	26070	24
Bemer	Lynne	not provided	N/A	Web-based Comments	22118	24
bemis	evalyn	not provided	N/A	Web-based Comments	14323	24
Benabderrazik	Martine	not provided	N/A	Web-based Comments	23186	24
Benak	Mickie	not provided	N/A	Web-based Comments	24415	24
Benardo	Sally	not provided	N/A	Web-based Comments	48311	34
Benavidez	Susan	not provided	N/A	Web-based Comments	29599	24
Benco	Mike and Andrea	not provided	N/A	Web-based Comments	24499	24
Benda	Pegalee	not provided	N/A	Web-based Comments	26143	24
Bendel	David	not provided	N/A	Web-based Comments	11941	24
Bender	Dan	danbender@yahoo.com	N/A	Web-based comments	4342	11
Bender	Doug	not provided	N/A	Web-based Comments	49154, 49155	34
Bender	Doug	not provided	N/A	Web-based Comments	13288	24
Bender	Holly	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58751	13
Bender	Jerry	not provided	N/A	Web-based Comments	17341	24
Bender	John	not provided	N/A	Web-based Comments	17964	24
Bender	Kae	not provided	N/A	Web-based Comments	18994	24
Bender	Kathryn	not provided	N/A	Web-based Comments	19620	24
Bender	Leslie	not provided	N/A	Web-based Comments	21056	24
bender	matt	not provided	N/A	Web-based Comments	23606	24
Bender	Michelle	michellebendervls@gmail.com	N/A	Web-based comments	2466	1
Bender	Milene	not provided	N/A	Web-based Comments	24511	24
Bendix	Pamela	not provided	N/A	Web-based Comments	49428	34
Bendix	Pamela	not provided	N/A	Web-based Comments	25525	24
Bendixen	Ranja	not provided	N/A	Web-based Comments	26651	24
Bendowsky	Nalda	bennsr2@outlook.com	N/A	Web-based comments	4538	N/A
Bendror	Margie	not provided	N/A	Web-based Comments	22539	24
Benedetto	Gloria	not provided	N/A	Web-based Comments	15149	24
Benedetto	Rainbow Di	not provided	N/A	Web-based Comments	54794	34
Benedict	Derek	not provided	N/A	Web-based Comments	50745, 57859	34
Benedict	Derek	not provided	N/A	Web-based Comments	12715	24
Benedict	Frederic	not provided	N/A	Web-based Comments	14589	24
Benedict	R	not provided	N/A	Web-based comments	1542	1
Benedict	Rachael	not provided	N/A	Web-based comments	57191	35

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Benedict	Rachael	not provided	N/A	Web-based Comments	26498	24
Benedict	Sarah	not provided	N/A	Web-based Comments	28328	24
Benedict	Tennyson	not provided	N/A	Web-based Comments	30254	24
Benedict-Gill	Diane	not provided	N/A	Web-based Comments	12816	24
Beneke	Paula	not provided	N/A	Web-based Comments	49205	34
Benes	Michelle	not provided	N/A	Web-based Comments	52417, 52507	34
Benes	Michelle	not provided	N/A	Web-based Comments	24325	24
Benet	Mercedes	not provided	N/A	Web-based Comments	23964	24
Benevento	Janet	not provided	N/A	Web-based Comments	16566	24
Benford	Al	not provided	N/A	Web-based Comments	50962	34
Benford	Al	not provided	N/A	Web-based Comments	7141	24
Bengel	James	not provided	N/A	Web-based Comments	55496	34
Bengen	Donna	not provided	N/A	Web-based Comments	13105	24
Bengochea	Tora	not provided	N/A	Web-based Comments	30825	24
Bengston	Lynn	not provided	N/A	Web-based Comments	22046	24
Bengtson-Lang	Rachel	not provided	N/A	Web-based Comments	49584	34
Benitez	Victoria	not provided	N/A	Web-based Comments	31183	24
Benito	Alejandra	not provided	N/A	Web-based Comments	7224	24
Benito Reber	B. Lluis	not provided	N/A	Web-based Comments	8583	24
Benjafield	Helen	not provided	N/A	Web-based Comments	15595	24
Benjamin	Brian	not provided	N/A	Web-based Comments	9456	24
Benjamin	Christopher	not provided	N/A	Web-based Comments	11000	24
Benjamin	Corey	not provided	N/A	Web-based Comments	46240, 50192	34
Benjamin	Dawn	not provided	N/A	Web-based Comments	12202	24
Benjamin	Elaine	not provided	N/A	Web-based Comments	53083	34
Benjamin	Elaine	not provided	N/A	Web-based Comments	13575	24
Benjamin	Glen	not provided	N/A	Web-based Comments	45548	34
Benjamin	Glen	not provided	N/A	Web-based Comments	15110	24
Benjamin	Henry	not provided	N/A	Web-based Comments	15657	24
Benjamin	Jody	not provided	N/A	Web-based Comments	17861	24
BENJAMIN	MIKAELA	not provided	N/A	Web-based Comments	24428	24
Benjamin	Sara	sarabrookebenjamin@gmail.com	N/A	Web-based comments	5406	8
Benke	Brooke	not provided	N/A	Web-based Comments	9580	24
Benn	Suzanne	not provided	N/A	Web-based Comments	51122	34
Benner	Cynthia	not provided	N/A	Web-based Comments	11491	24
Benner	Juliana	not provided	N/A	Web-based Comments	58076	16
Benner	Kim	not provided	N/A	Web-based Comments	20161	24
Benner	Linda	not provided	N/A	Web-based Comments	52756	34
Benner	Linda	not provided	N/A	Web-based Comments	21205	24
Benner	Nancy	not provided	N/A	Web-based Comments	46603	34
Benner	Nancy	not provided	N/A	Web-based Comments	24810	24
Benner	Steven	not provided	N/A	Web-based Comments	29419	24
Bennet	T	not provided	N/A	Web-based comments	1545	1
BENNETT	AMBER	not provided	N/A	Web-based Comments	7566	24
Bennett	BL	not provided	N/A	Web-based Comments	9210	24
Bennett	Celeste	bennetthastings@yahoo.com	N/A	Web-based comments	2305	1
Bennett	Christine	not provided	N/A	Web-based Comments	50806	34
Bennett	Colin	not provided	N/A	Web-based Comments	11250	24
Bennett	Deborah	not provided	N/A	Web-based Comments	53392	34
Bennett	Ed	not provided	N/A	Web-based Comments	53921	34
Bennett	Edward	not provided	N/A	Web-based Comments	58566	34
Bennett	Elizabeth	not provided	N/A	Web-based Comments	13707	24
Bennett	Ernest	not provided	N/A	Web-based Comments	53629	34
Bennett	Gary	not provided	N/A	Web-based Comments	57788	34
Bennett	Gary	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32472	N/A
Bennett	Henry	not provided	N/A	Web-based Comments	15658	24
Bennett	Henry	not provided	N/A	Web-based Comments	58239	16
Bennett	Jeremy	not provided	N/A	Web-based Comments	17313	24
Bennett	Jonathan	not provided	N/A	Web-based Comments	52575	34
Bennett	LeeAnn	not provided	N/A	Web-based Comments	20955	24
Bennett	Louis	not provided	N/A	Web-based Comments	21863	24
BENNETT	Margaret R	not provided	N/A	Web-based Comments	22524	24
Bennett	Mark	not provided	N/A	Web-based Comments	22896	24
Bennett	Mary	not provided	N/A	Web-based Comments	23213	24
Bennett	Melissa	shame.bennett@gmail.com	N/A	Web-based comments	2198	N/A
bennett	michelle	micmacmich@hotmail.com	N/A	Web-based comments	873*	2
Bennett	Paul	not provided	N/A	Web-based comments	5831	N/A
Bennett	Ray	not provided	N/A	Web-based Comments	26667	24
Bennett	Regina	not provided	N/A	Web-based Comments	51004	34
Bennett	Susan	not provided	N/A	Web-based Comments	29600	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Bennett	Thomas	not provided	N/A	Web-based Comments	30470	24
Bennett	Trey	not provided	N/A	Web-based Comments	30902	24
Bennett	Valerie	not provided	N/A	Web-based Comments	31008	24
Bennett	Victoria	not provided	N/A	Web-based Comments	46438	34
Bennett	Virginia	not provided	N/A	Web-based Comments	31270	24
Benney	Julien Peter	not provided	N/A	Web-based Comments	18911	24
Bennick	Mary Anne	not provided	N/A	Web-based Comments	55252	34
Benning	Sheryl	not provided	N/A	Web-based Comments	28917	24
BENO	TOM	not provided	N/A	Web-based comments	2	N/A
Benoit	Allison	not provided	N/A	Web-based Comments	7457	24
Benoit	Marguerite	not provided	N/A	Web-based Comments	22561	24
Benoit	Nick	not provided	N/A	Web-based Comments	57984	16
Benoit	Sherry	not provided	N/A	Web-based Comments	46136	34
Benore	Beth	not provided	N/A	Web-based Comments	9012	24
Benras	Sara	not provided	N/A	Web-based Comments	28272	24
Benrols	Sara	not provided	N/A	Web-based Comments	46768, 46769	34
Benschoter	John	not provided	N/A	Web-based Comments	48704	34
Benschoter	John	not provided	N/A	Web-based Comments	17965	24
Bensetler	Shirley	not provided	N/A	Web-based Comments	28939	24
Benson	Barbara	not provided	N/A	Web-based Comments	56450	34
Benson	Barbara	not provided	N/A	Web-based Comments	8627	24
Benson	David	not provided	N/A	Web-based Comments	11942	24
Benson	Eric	not provided	N/A	Web-based Comments	14088	24
Benson	Eric	not provided	N/A	Web-based Comments	14089	24
Benson	John	not provided	N/A	Web-based Comments	17966	24
Benson	Josephine	jody.benson@ymail.com	N/A	Web-based comments	6270	N/A
Benson	Julia	not provided	N/A	Web-based Comments	18743	24
Benson	Sonja	not provided	N/A	Web-based Comments	50808	34
Benson	Sonja	not provided	N/A	Web-based Comments	29072	24
Bensonhaver	Samuel	not provided	N/A	Web-based Comments	28098	24
Benston	Kim	not provided	N/A	Web-based Comments	46278, 46279	34
Bent	George	not provided	N/A	Web-based Comments	14881	24
Bentley	Anne	not provided	N/A	Web-based comments	4986	N/A
Bentley	Carolyn	not provided	N/A	Web-based Comments	53980	34
Bentley	Carolyn	not provided	N/A	Web-based Comments	10140	24
Bentley	Cynthia	not provided	N/A	Web-based Comments	48744	34
Bentley	Ian	not provided	N/A	Web-based Comments	45356	34
Bentley	Kathleen	not provided	N/A	Web-based Comments	47191	34
Bentley	Naomi	not provided	N/A	Web-based comments	56938	35
Bentley	Rebecca	not provided	N/A	Web-based Comments	26707	24
Bentley	Thomas	not provided	N/A	Web-based Comments	30471	24
Bentley	Tom	not provided	N/A	Web-based Comments	30738	24
Benton	Annette	not provided	N/A	Web-based Comments	52219, 52220	34
Benton	Devon	not provided	N/A	Web-based Comments	12739	24
Benton	Mary	not provided	N/A	Web-based Comments	47456	34
Benton	Mary	not provided	N/A	Web-based Comments	23214	24
Benton	Pamela	not provided	N/A	Web-based Comments	25526	24
Benton	Patricia	not provided	N/A	Web-based Comments	25710	24
Benton	Richard	not provided	N/A	Web-based Comments	26941	24
Bents	Lisa	not provided	N/A	Web-based Comments	21525	24
Bentsen	Christopher	not provided	N/A	Web-based Comments	57776	34
Bentzel	Jen	not provided	N/A	Web-based Comments	53007, 53008	34
Bentzel	Jen	not provided	N/A	Web-based Comments	17112	24
Bentzel	Jennifer	not provided	N/A	Web-based Comments	57994	16
Benucci	Joseph	v8gya9fu8lml@opayq.com	N/A	Web-based comments	5769	8
Benware	BettyAnn	not provided	N/A	Web-based Comments	44501	34
Benware	BettyAnn	not provided	N/A	Web-based Comments	9106	24
Beran	Lisa	not provided	N/A	Web-based Comments	21526	24
Berard	Carol	not provided	N/A	Web-based Comments	9889	24
Berardino	Angela Di	not provided	N/A	Web-based Comments	57868	34
berario	myra	not provided	N/A	Web-based Comments	45906, 45907	34
berario	myra	not provided	N/A	Web-based Comments	24711	24
Berberi	Julie	not provided	N/A	Web-based Comments	18813	24
Berberich	Gloria-Jean	not provided	N/A	Web-based Comments	58588	34
Berchem	Marie-Ange	not provided	N/A	Web-based Comments	48835, 48836	34
Berckman	Julianne	not provided	N/A	Web-based Comments	18802	24
Berdanis	Margo	not provided	N/A	Web-based Comments	22545	24
Berdeaux	Kelly	not provided	N/A	Web-based Comments	19910	24
Bereczki	Pat	not provided	N/A	Web-based Comments	25632	24
Berencia	Dahlia	not provided	N/A	Web-based Comments	11617	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Beres	Danielle	not provided	N/A	Web-based Comments	11800	24
Berezansky	Nick	not provided	N/A	Web-based Comments	25192	24
Berg	Brian	not provided	N/A	Web-based Comments	9457	24
Berg	Chelsea	not provided	N/A	Web-based Comments	56054	34
Berg	David and Judith	not provided	N/A	Web-based Comments	50698	34
Berg	David and Judith	not provided	N/A	Web-based Comments	12187	24
Berg	Debra	not provided	N/A	Web-based Comments	51939	34
Berg	Douglas	not provided	N/A	Web-based Comments	13321	24
Berg	Eva	evaberg.20@gmail.com	N/A	Web-based comments	6236	1
Berg	Jon	not provided	N/A	Web-based Comments	18244	24
Berg	Justin	not provided	N/A	Web-based Comments	18949	24
Berg	Pamela	not provided	N/A	Web-based Comments	45447	34
Berg	Sandra	not provided	N/A	Web-based Comments	28114	24
Berg	Sheryl	not provided	N/A	Web-based Comments	28918	24
Bergan	Dagmar	not provided	N/A	Web-based comments	57285	35
Bergan	Eileen	not provided	N/A	Web-based Comments	13538	24
Bergemann	Melissa	not provided	N/A	Web-based Comments	23874	24
bergen	jameson	not provided	N/A	Web-based Comments	45766	34
Bergen	Jaye	not provided	N/A	Web-based Comments	51174	34
Bergen	Peggy	not provided	N/A	Web-based Comments	26147	24
Berger	Christine	not provided	N/A	Web-based Comments	46370	34
Berger	Dan	not provided	N/A	Web-based Comments	48586	34
Berger	Dan	not provided	N/A	Web-based Comments	11650	24
Berger	Diane	not provided	N/A	Web-based Comments	12817	24
berger	jocelyne	not provided	N/A	Web-based Comments	17842	24
Berger	Linda	not provided	N/A	Web-based Comments	21206	24
Berger	Murielle	not provided	N/A	Web-based Comments	48860	34
Berger	Pat	not provided	N/A	Web-based Comments	25633	24
Bergeron	Adrian	not provided	N/A	Web-based Comments	56197, 56198	34
bergeron	brad	not provided	N/A	Web-based Comments	9339	24
Bergeron	Jodie	not provided	N/A	Web-based Comments	17854	24
Bergeron	Lance	not provided	N/A	Web-based Comments	51159	34
Bergeron	Sheilagh	not provided	N/A	Web-based Comments	55837	34
Bergeron	Terry	not provided	N/A	Web-based Comments	52595, 52596	34
Bergeron	Terry	not provided	N/A	Web-based Comments	30359	24
Bergeron	Valerie	not provided	N/A	Web-based Comments	46852	34
Bergeron	Valerie	not provided	N/A	Web-based Comments	31009	24
bergerud	leela	not provided	N/A	Web-based Comments	49589	34
Bergerud	Leela	not provided	N/A	Web-based Comments	49588	34
bergerud	leela	not provided	N/A	Web-based Comments	20957	24
Bergeson	James	jrb.acs@gmail.com	N/A	Web-based comments	5364	N/A
Bergey	Don	not provided	N/A	Web-based Comments	13012	24
Bergh	Colleen	not provided	N/A	Web-based Comments	55560	34
Berghofer	Jojo	not provided	N/A	Web-based Comments	18237	24
Bergin	Heather	not provided	N/A	Web-based Comments	15496	24
Bergin	Louise	not provided	N/A	Web-based Comments	21881	24
Berglee	Milton	miltonberglee@gmail.com	N/A	Web-based comments	2396	N/A
Berglund	Arn	fishvik@aol.com	N/A	Web-based comments	6233	8
Berglund	Erik	not provided	N/A	Web-based Comments	14181	24
Berglund	Troy	troylberglund@gmail.com	N/A	Web-based comments	614	N/A
Bergman	Eric	not provided	N/A	Web-based Comments	45080	34
bergman	eric	not provided	N/A	Web-based Comments	14090	24
Bergman	Michael	not provided	N/A	Web-based Comments	24026	24
Bergman	Oren	not provided	N/A	Web-based Comments	25447	24
Bergmann	Amy	not provided	N/A	Web-based Comments	44772	34
bergmann	e	not provided	N/A	Web-based Comments	58647	34
Bergmann	Nadine	not provided	N/A	Web-based comments	56788	35
Bergmann	Theodore	not provided	N/A	Web-based Comments	30420	24
Bergren	Stephen	not provided	N/A	Web-based Comments	55338	34
Bergstrom	Barbra	not provided	N/A	Web-based Comments	8846	24
Bergstrom	Bo	not provided	N/A	Web-based Comments	58577, 58578	34
BERGSTROM	DREW	not provided	N/A	Web-based Comments	13373	24
Bergtholdt	Edward	not provided	N/A	Web-based Comments	13482	24
bergutz	Paula	not provided	N/A	Web-based Comments	26071	24
Berheide	Leah	not provided	N/A	Web-based comments	57196	35
Berigan	Kathleen	not provided	N/A	Web-based Comments	19510	24
Berinstein	Joni	not provided	N/A	Web-based Comments	18306	24
Beris	LeeAnne	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4630	N/A
Berk	Valerie	not provided	N/A	Web-based Comments	31010	24
Berke	Jeannette	not provided	N/A	Web-based Comments	16984	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Berke	Laurie	not provided	N/A	Web-based Comments	20824	24
Berkebile	Karl	not provided	N/A	Web-based Comments	19295	24
Berkel	Berry	not provided	N/A	Web-based Comments	8999	24
Berkeley	Bonnie	not provided	N/A	Web-based Comments	9281	24
Berkey	James	not provided	N/A	Web-based Comments	16180	24
Berklacy	Gale	not provided	N/A	Web-based Comments	14730	24
Berkon	Marilyn	not provided	N/A	Web-based Comments	22767	24
Berkowitz	Diana	not provided	N/A	Web-based Comments	47724	34
Berkowitz	Henry	not provided	N/A	Web-based Comments	53014	34
Berkowitz	Henry	not provided	N/A	Web-based Comments	15659	24
Berkowitz	Karen	not provided	N/A	Web-based Comments	19043	24
Berkson	Andrew	not provided	N/A	Web-based Comments	7804	24
Berkvist	Andy	not provided	N/A	Web-based Comments	7870	24
Berlad	Tina	not provided	N/A	Web-based Comments	30666	24
Berlan	Debra	not provided	N/A	Web-based Comments	48076	34
Berlant	Rebecca	not provided	N/A	Web-based Comments	26708	24
berlin	eric	not provided	N/A	Web-based Comments	14091	24
Berlin	Leslie	not provided	N/A	Web-based Comments	21057	24
Berlind	Barbara	not provided	N/A	Web-based Comments	8628	24
Berliner	Alice	not provided	N/A	Web-based Comments	7332	24
Berliner	Diane	not provided	N/A	Web-based Comments	12818	24
Berliner	Hayley	not provided	N/A	Web-based Comments	15477	24
Berliner	Ron	not provided	N/A	Web-based Comments	55647	34
berlinghof	barbara	not provided	N/A	Web-based Comments	47950	34
Berman	Ali	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4657	N/A
Berman	Jody	not provided	N/A	Web-based Comments	17862	24
berman	karen	not provided	N/A	Web-based Comments	19044	24
Berman	Leah	not provided	N/A	Web-based Comments	52256, 52257	34
Berman	Leah	not provided	N/A	Web-based Comments	20897	24
Berman	Libby Esther	not provided	N/A	Web-based Comments	21144	24
Berman	Mark	not provided	N/A	Web-based Comments	52258, 52259	34
Berman	Pacey	not provided	N/A	Web-based Comments	25478	24
berman	siegrid	not provided	N/A	Web-based Comments	28984	24
Berman	Steve	not provided	N/A	Web-based Comments	52089	34
Berman	Steve	not provided	N/A	Web-based Comments	29355	24
Bermant	Alison	not provided	N/A	Web-based Comments	7400	24
Bermeo	Carla	not provided	N/A	Web-based Comments	9817	24
Bernaert	Ruthie	not provided	N/A	Web-based Comments	54597	34
Bernal	Stephen	not provided	N/A	Web-based Comments	29272	24
Bernard	Flora	not provided	N/A	Web-based Comments	14446	24
Bernard	Janice	not provided	N/A	Web-based Comments	16667	24
Bernard	Judith	not provided	N/A	Web-based Comments	18568	24
Bernard	Kelsey	kelsey.bernard@wsu.edu	N/A	Web-based comments	110	1
BERNARD	WILLIAM	not provided	N/A	Web-based Comments	31508	24
Bernardo	Kate	not provided	N/A	Web-based Comments	46329	34
Bernardo	Kate	not provided	N/A	Web-based Comments	19365	24
Bernardo	Kate	not provided	N/A	Web-based Comments	19366	24
Bernas	Edward	not provided	N/A	Web-based Comments	13483	24
Bernat	Susan	not provided	N/A	Web-based Comments	52863	34
bernatdi	sarah	not provided	N/A	Web-based Comments	28329	24
Bernath	Anna	not provided	N/A	Web-based Comments	46473	34
Berndt	Ann	not provided	N/A	Web-based Comments	56164, 56165	34
Berndt	Ann	not provided	N/A	Web-based Comments	8005	24
berner	kris	not provided	N/A	Web-based Comments	20318	24
Berner	Sydney	not provided	N/A	Web-based Comments	30050	24
Bernett	Cynthia	not provided	N/A	Web-based Comments	11492	24
Bernhard	Anna	not provided	N/A	Web-based Comments	8117	24
BERNHARD-MOINE	Monika	not provided	N/A	Web-based Comments	24645	24
Bernhardt	Mike	not provided	N/A	Web-based Comments	24433	24
Bernhardt	Ray	not provided	N/A	Web-based Comments	26668	24
Bernhardt-House	Phillip	not provided	N/A	Web-based Comments	55284	34
Bernstein	Abbie	not provided	N/A	Web-based Comments	44780	34
Bernstein	Abbie	not provided	N/A	Web-based Comments	7009	24
Bernstein	Adam	not provided	N/A	Web-based Comments	7040	24
BERNSTEIN	ADAM	not provided	N/A	Web-based Comments	7039	24
Bernstein	Barbara	not provided	N/A	Web-based Comments	45366	34
Bernstein	Hillary	not provided	N/A	Web-based Comments	15710	24
Bernstein	Jan	not provided	N/A	Web-based Comments	16385	24
Bernstein	Janice	not provided	N/A	Web-based Comments	16668	24
Bernstein	Janice	not provided	N/A	Web-based Comments	16669	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Bernstein	Laura	not provided	N/A	Web-based Comments	45831, 45832	34
Bernstein	Robert	bobbo1946@yahoo.com	N/A	Web-based comments	3599	N/A
Bernstein	Robert	not provided	N/A	Web-based Comments	50905	34
Bernstein	Shelly	not provided	N/A	Web-based comments	57046	35
Berntsen	Karen	not provided	N/A	Web-based Comments	58484	34
Berolzheimer	Jean	not provided	N/A	Web-based Comments	16837	24
beron	jenny	not provided	N/A	Web-based Comments	17285	24
Beroza	Connie	not provided	N/A	Web-based Comments	57768	N/A
Berret	Joseph	not provided	N/A	Web-based Comments	18343	24
Berry	Ann	not provided	N/A	Web-based Comments	8006	24
berry	anna	not provided	N/A	Web-based Comments	8118	24
Berry	Christina	not provided	N/A	Web-based Comments	10844	24
Berry	David	not provided	N/A	Web-based Comments	11943	24
Berry	Jason	not provided	N/A	Web-based comments	57104	35
Berry	Judith	not provided	N/A	Web-based Comments	50073, 50074	34
Berry	Kelly	not provided	N/A	Web-based Comments	55511	34
Berry	Marla	not provided	N/A	Web-based Comments	23022	24
Berry	Nina	not provided	N/A	Web-based Comments	25301	24
Berry	Susan	not provided	N/A	Web-based Comments	49855	34
Berry	Sylvia	not provided	N/A	Web-based Comments	30058	24
Berryhill	Julie	not provided	N/A	Web-based Comments	18814	24
Bersani	Vanessa	not provided	N/A	Web-based Comments	49777	34
Bersani	Vanessa	not provided	N/A	Web-based Comments	31062	24
Bersselaar	Nanette	not provided	N/A	Web-based Comments	25032	24
Berta	Carolyn	not provided	N/A	Web-based Comments	10141	24
Bertano	Silvia	not provided	N/A	Web-based Comments	29004	24
Bertha	Emily	not provided	N/A	Web-based Comments	14008	24
Berthaudin	R	not provided	N/A	Web-based Comments	26466	24
Berthelson	Shawn	shawn.berthelson@gmail.com	N/A	Web-based comments	3314	N/A
Bertholet	Marie Unreadable	not provided	N/A	Web-based comments	56775	35
Bertholet	Marie Unreadable	not provided	N/A	Web-based Comments	22734	24
Berti	Ron	not provided	N/A	Web-based Comments	27613	24
Bertin	Hector	not provided	N/A	Web-based Comments	53349, 53350	34
Bertinat	Romina	not provided	N/A	Web-based Comments	27610	24
Bertolino	Terry	not provided	N/A	Web-based Comments	30360	24
Bertoni	Jonathan	not provided	N/A	Web-based Comments	47337	34
BERTRAM	HARRISON	not provided	N/A	Web-based Comments	53157	34
BERTRAM	HARRISON P	not provided	N/A	Web-based Comments	15458	24
Bertram-Nothnagel	Olaf	not provided	N/A	Web-based Comments	25426	24
Bertrand	Louise	not provided	N/A	Web-based Comments	21882	24
Bertsch	Charles	not provided	N/A	Web-based Comments	10487	24
Bertsch	Hans	not provided	N/A	Web-based Comments	15423	24
Bertsch	Jim	jfbertsch@owt.com	N/A	Web-based comments	4931	N/A
Bertucci	Gloria	not provided	N/A	Web-based Comments	15150	24
Berube	Charlie	not provided	N/A	Web-based Comments	10546	24
Berube	Renee	not provided	N/A	Web-based Comments	26837	24
Bervaldi	Lorraine	not provided	N/A	Web-based Comments	21835	24
Berven	Christine	cberven@moscow.com	N/A	Web-based comments	31979	N/A
Berzac	Susan	not provided	N/A	Web-based Comments	54110, 58431	34
Besancon	Micki	not provided	N/A	Web-based Comments	24413	24
besaw	suzanne	not provided	N/A	Web-based Comments	29982	24
Beschler	Ellen	not provided	N/A	Web-based Comments	13894	24
Beschler	Marc	not provided	N/A	Web-based Comments	47133	34
Bescript	Linda	not provided	N/A	Web-based Comments	48550, 48551	34
Bescript	Linda	not provided	N/A	Web-based Comments	21207	24
Beserra	Dana	danabeserra@hotmail.com	N/A	Web-based comments	6281	1
Besnard	Cecile	not provided	N/A	Web-based comments	56754	35
Besom	B	not provided	N/A	Web-based Comments	47562	34
Besom	Lela	lbjane@live.com	N/A	Web-based comments	31947	1
Bess	Barbara	not provided	N/A	Web-based Comments	8629	24
Bessett	Kevin	not provided	N/A	Web-based Comments	20083	24
bessette	matthew	not provided	N/A	Web-based Comments	23632	24
Bessinger	Drew	bessi1dj@gmail.com	N/A	Web-based comments	5237	8
Best	Alma	not provided	N/A	Web-based Comments	7484	24
Best	Debs	not provided	N/A	Web-based Comments	12567	24
Best	Glen	glenb@inlandpower.com	N/A	Web-based comments	3502	N/A
Best	Jan	not provided	N/A	Web-based Comments	16386	24
Best	Joan	not provided	N/A	Web-based Comments	17670	24
Best	Larraine	not provided	N/A	Web-based Comments	20564	24
Best	Neil	not provided	N/A	Web-based Comments	25126	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Best	Rolf	not provided	N/A	Web-based Comments	27603	24
Best	Shirley	not provided	N/A	Web-based Comments	28940	24
Best	William	bestbc2@bentonrea.com	N/A	Web-based comments	4609	N/A
Beste	Anthony	anthonybeste@yahoo.com	N/A	Web-based comments	4322	11
Besteiro	Marisa	not provided	N/A	Web-based Comments	53757, 53758, 53759, 53760	34
Betancourt	Evelyn	not provided	N/A	Web-based Comments	45424	34
Betcher	Alan	alan.betcher@carestream.com	N/A	Web-based comments	9	N/A
Bethe	Joyce Li	not provided	N/A	Web-based Comments	54993	34
Betourne	susan	not provided	N/A	Web-based Comments	55573	34
Betourne	Susan	not provided	N/A	Web-based Comments	29601	24
Betsinger	Darrel	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32478	N/A
Better	William	not provided	N/A	Web-based Comments	31509	24
Betti	Mark	not provided	N/A	Web-based Comments	52725	34
Betti	Mark	not provided	N/A	Web-based Comments	22897	24
Bettington	Claire	not provided	N/A	Web-based Comments	11120	24
Bettino	Celeste	not provided	N/A	Web-based Comments	10432	24
Bettis	Katherine	not provided	N/A	Web-based Comments	19433	24
bettison	Terri	lovedreaming82@hotmail.com	N/A	Web-based comments	967	1
bettison	Terri	terri.bettison@gmail.com	N/A	Web-based comments	963	1
bettolo	sue	not provided	N/A	Web-based Comments	29512	24
Betton	Debbie	not provided	N/A	Web-based comments	56918	35
Betz	Catherine	not provided	N/A	Web-based Comments	51989	34
Betz	Catherine	not provided	N/A	Web-based Comments	10257	24
Betz	Michael	not provided	N/A	Web-based Comments	24027	24
Betz	Sandie	not provided	N/A	Web-based Comments	28107	24
Betz	Terri	not provided	N/A	Web-based Comments	48630	34
Betz-Zall	Jonathan	jbetzzall@yahoo.com	N/A	Web-based comments	2442	3
Beuchamps	Miguel	Miguelbeuchamps@yahoo.com	N/A	Web-based comments	644	N/A
Beugnier	Val	not provided	N/A	Web-based Comments	31001	24
Beutel	Lilia	not provided	N/A	Web-based Comments	55703	34
Beutel	Teresa	not provided	N/A	Web-based Comments	45608	34
Bever	Marcia	not provided	N/A	Web-based Comments	22361	24
Beverage	Bonnie	not provided	N/A	Web-based Comments	9282	24
Beverly	J.	not provided	N/A	Web-based Comments	44710, 44711	34
Beverly	J.	not provided	N/A	Web-based Comments	16006	24
Beverly	Robert	not provided	N/A	Web-based Comments	27209	24
Beverstock	Caroline	not provided	N/A	Web-based Comments	10115	24
beville	rick	not provided	N/A	Web-based Comments	27083	24
Bevington	Rita	not provided	N/A	Web-based Comments	27128	24
Bevirt	Danika	not provided	N/A	Web-based Comments	51120	34
Bevis	Carl	carlbevis@yahoo.com	N/A	Web-based comments	32137	N/A
Bevis	Ken	krbevis@methownet.com	N/A	Web-based comments	5722	N/A
Bey	Lisa	not provided	N/A	Web-based Comments	49721	34
Bey	Lisa	not provided	N/A	Web-based Comments	21527	24
Beyer	Brody	not provided	N/A	Web-based Comments	9578	24
Beyer	Cynthia	not provided	N/A	Web-based Comments	47815	34
Beyerlein	Karen	not provided	N/A	Web-based Comments	19045	24
Beymer	Krista	not provided	N/A	Web-based Comments	20329	24
BezansonPhD	David	not provided	N/A	Web-based Comments	11944	24
Bhakti	Sara	not provided	N/A	Web-based Comments	28273	24
Bhandari	Aviar	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	5562	N/A
Bhargava	Asmita	not provided	N/A	Web-based Comments	8506	24
Bhatt	Bhuvanesh	not provided	N/A	Web-based Comments	46862	34
Bhatt	Suzanne	not provided	N/A	Web-based Comments	51074	34
Bhayat	Tasneem	not provided	N/A	Web-based comments	6685	1
Bhence	Bhence	not provided	N/A	Web-based Comments	9154	24
Biagi	Josephine	not provided	N/A	Web-based Comments	53343	34
Biagi	Josephine	not provided	N/A	Web-based Comments	18407	24
Biale	Cheryl	not provided	N/A	Web-based Comments	48648	34
Bialostosky	Anna	not provided	N/A	Web-based Comments	8119	24
Bianchi	Matthew	not provided	N/A	Web-based Comments	23633	24
Biardeau	Christine	not provided	N/A	Web-based Comments	44375, 44376	34
Biasci	Laura	not provided	N/A	Web-based Comments	20610	24
biasi	giuseppe carlo	not provided	N/A	Web-based Comments	15106	24
Biasio	Pina Di	not provided	N/A	Web-based Comments	46154	34
Bibb	Martha	marthasbibb@gmail.com	N/A	Web-based comments	5166	N/A
Bibb	Martha	not provided	N/A	Web-based Comments	50759	34
Bibel	Barbara	not provided	N/A	Web-based Comments	8630	24
Bickel	Ann	annmbickel@yahoo.com	N/A	Web-based comments	1269	3
Bickel	Bettina	not provided	N/A	Web-based Comments	56081	34

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Bickel	Bettina	not provided	N/A	Web-based Comments	9083	24
Bickel	Kenneth	not provided	N/A	Web-based Comments	56017, 56018	34
Bickel	Kenneth	not provided	N/A	Web-based Comments	20005	24
Bickel	Nicole	not provided	N/A	Web-based Comments	25225	24
Bickenbach	Dale N	not provided	N/A	Web-based Comments	11637	24
Bickham	Maria	not provided	N/A	Web-based Comments	22582	24
Bicking	Ann	not provided	N/A	Web-based Comments	44760	34
Bicking	Ann	not provided	N/A	Web-based Comments	8007	24
Bicknell	Amanda	not provided	N/A	Web-based Comments	7520	24
Bicondova	Sandra	not provided	N/A	Web-based Comments	28115	24
Biddle	Lauren	not provided	N/A	Web-based Comments	20757	24
Bidinian	Jane	not provided	N/A	Web-based Comments	46052, 46053	34
Bidstrup	George	not provided	N/A	Web-based comments	32097	13
Bidwell	Karen	not provided	N/A	Web-based Comments	19046	24
Bidwell	Troy	not provided	N/A	Web-based Comments	30933	24
Biebel	Joseph	not provided	N/A	Web-based Comments	18344	24
Biederman	Sue	not provided	N/A	Web-based Comments	58620	34
Biederman	Sue	not provided	N/A	Web-based Comments	29513	24
Biederman	William	not provided	N/A	Web-based Comments	31510	24
Biedermann	Chris	chrisbied49@gmail.com	N/A	Web-based comments	2098	N/A
Biehler	Cindy	not provided	N/A	Web-based Comments	11067	24
Biehn	Lissa	hickorybiehn@yahoo.com	N/A	Web-based comments	4003	N/A
Biekert	Jackie	jackiebiek7@gmail.com	N/A	Web-based comments	2955	1
Biel	Louie	not provided	N/A	Web-based comments	57120	35
Bielefeld	capt dan	not provided	N/A	Web-based Comments	57856	34
Bielema	Brian	not provided	N/A	Web-based Comments	9458	24
Bielski	Janek	not provided	N/A	Web-based Comments	16552	24
Bielstein	Patrick	not provided	N/A	Web-based Comments	25892	24
Biemer	Linda	not provided	N/A	Web-based Comments	21208	24
Bien	Annie	not provided	N/A	Web-based Comments	45517	34
Bienen	Dorothy	not provided	N/A	Web-based Comments	47566	34
Bienick	Michelle	not provided	N/A	Web-based Comments	54465	34
Bierbaum	Rebecca	not provided	N/A	Web-based Comments	26709	24
Bierman	Jayne & Britt	not provided	N/A	Web-based Comments	16831	24
Bierman	Kenneth	not provided	N/A	Web-based Comments	20006	24
Bierman-clinton	Katharine	not provided	N/A	Web-based Comments	19415	24
Biers	Kate	not provided	N/A	Web-based Comments	19367	24
Bierschenk	Diana	not provided	N/A	Web-based Comments	12757	24
Biesack	David	not provided	N/A	Web-based Comments	11945	24
Biesanz	Karen	not provided	N/A	Web-based Comments	19047	24
Biestek	Marion	not provided	N/A	Web-based Comments	48883	34
Bieszk	John	not provided	N/A	Web-based Comments	17967	24
Bigbee	Zac	not provided	N/A	Web-based Comments	31707	24
bigda	diane	not provided	N/A	Web-based Comments	12819	24
Bigelow	Patricia	not provided	N/A	Web-based Comments	25711	24
Biggins	Holly	not provided	N/A	Web-based Comments	15732	24
biggins Esq	jane	not provided	N/A	Web-based Comments	16464	24
Biggs	Amy	not provided	N/A	Web-based Comments	50032	34
Biggs	Paige	not provided	N/A	Web-based Comments	25480	24
Bigi	Lorena	not provided	N/A	Web-based Comments	21751	24
Bigley	Kim	not provided	N/A	Web-based Comments	20162	24
Bignall	Rob	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4650	N/A
Bigney	Alyson	not provided	N/A	Web-based Comments	7498	24
Bilek	Harald	not provided	N/A	Web-based Comments	15430	24
Bilelo	Vasco	not provided	N/A	Web-based Comments	31073	24
Bilenchi	Henry	not provided	N/A	Web-based Comments	15660	24
Bilgen	Guzin	not provided	N/A	Web-based Comments	15347	24
Bilgen	Mehmet	not provided	N/A	Web-based Comments	45903	34
Bilicke	Kathy	not provided	N/A	Web-based Comments	19682	24
Bilisoly	Kandice	not provided	N/A	Web-based Comments	54975, 54976	34
Bilisoly	Kandice	not provided	N/A	Web-based Comments	19017	24
Billard-Madrieres	Victor	victorbillardmadrieres@gmail.com	N/A	Web-based comments	1598	1
Billham	jane	not provided	N/A	Web-based Comments	16465	24
Billiaux	Dora	not provided	N/A	Web-based comments	1667	1
Billick	Ralph	not provided	N/A	Web-based Comments	58658	34
Billick	Ralph	not provided	N/A	Web-based Comments	26588	24
Billings	Leslie	not provided	N/A	Web-based Comments	47421, 47422	34
Billings	Leslie	not provided	N/A	Web-based Comments	21058	24
Billings	Lisa	not provided	N/A	Web-based Comments	53699	34
Billingsley	Penny	not provided	N/A	Web-based Comments	26197	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Billock	Abby	not provided	N/A	Web-based Comments	7011	24
Billops II	Freddie	not provided	N/A	Web-based Comments	14585	24
Billotte	Mira	not provided	N/A	Web-based Comments	24536	24
Billow	Robert	rohebi53@gmail.com	N/A	Web-based comments	4795	N/A
Bills	Barbara	not provided	N/A	Web-based Comments	55085, 55086	34
Bills	Barbara	not provided	N/A	Web-based Comments	8631	24
Bilwin	Gina	not provided	N/A	Web-based Comments	15048	24
Bilyeu	George	not provided	N/A	Web-based Comments	51212, 51213	34
Binarsch	Ramona	not provided	N/A	Web-based comments	56785	35
Binchet	Julie	not provided	N/A	Web-based Comments	44440	34
Bindas	Janet	not provided	N/A	Web-based Comments	48625	34
Binder	Stacia	not provided	N/A	Web-based Comments	58521	34
Binder	Valerie	not provided	N/A	Web-based Comments	31011	24
Binderim	Gary	not provided	N/A	Web-based Comments	14753	24
Bindseil	Eric	not provided	N/A	Web-based Comments	57840	34
Binegar	Marv	not provided	N/A	Web-based Comments	52195	34
Binette	Janet	not provided	N/A	Web-based Comments	16567	24
Bing	Donna	not provided	N/A	Web-based Comments	44982, 44983	34
Bing	Donna	not provided	N/A	Web-based Comments	13106	24
Bingaman	Benjamin	not provided	N/A	Web-based Comments	48299	34
Bingaman	Vicki	not provided	N/A	Web-based Comments	31118	24
Bingaman	Wade	wbingaman@msn.com	N/A	Web-based comments	2433	N/A
Binggeli	Matthew	not provided	N/A	Web-based Comments	23634	24
bingham	celana	not provided	N/A	Web-based Comments	10429	24
Bingham	Erryn	not provided	N/A	Web-based Comments	14255	24
Bingham	Lesley	not provided	N/A	Web-based Comments	21039	24
Bingham	Petra	not provided	N/A	Web-based Comments	26308	24
BINNER	RAYMOND	rabinner@gmail.com	N/A	Web-based comments	4467	N/A
Binns	Kari	not provided	N/A	Web-based Comments	19264	24
Binsacca	Meredith	not provided	N/A	Web-based Comments	23970	24
Binstead	Elizabeth	not provided	N/A	Web-based Comments	13708	24
Binzinger	Evi	not provided	N/A	Web-based Comments	46042	34
Biology	Kim Bannon Msc	not provided	N/A	Web-based Comments	56246	34
Biondi	Sharon	not provided	N/A	Web-based Comments	28627	24
Birch	Diana	not provided	N/A	Web-based Comments	56451	34
Birch-Williams	Penny	not provided	N/A	Web-based Comments	53926	34
Birchwood	Frances	not provided	N/A	Web-based Comments	14473	24
Birckhead	Elliott	not provided	N/A	Web-based Comments	13972	24
Bird	Andrew	not provided	N/A	Web-based Comments	7805	24
Bird	Oscar	not provided	N/A	Web-based Comments	48048	34
Bird	Oscar	not provided	N/A	Web-based Comments	25453	24
Bird	Steve	ocularwiz@msn.com	N/A	Web-based comments	6302	N/A
Birdi	Sonal	not provided	N/A	Web-based Comments	29054	24
birge	jay	jaybird@odessaoffice.com	N/A	Web-based comments	188, 189	N/A
Birkett	Courtney	not provided	N/A	Web-based Comments	11398	24
Birkett	Richard	birkettstl@gmail.com	N/A	Web-based comments	5251	N/A
Birmingham	Denise	not provided	N/A	Web-based Comments	12627	24
Birnbaum	Jacqueline	not provided	N/A	Web-based Comments	55586	34
Birnbaum	Jacqueline	not provided	N/A	Web-based Comments	16104	24
Birney	Gail	not provided	N/A	Web-based Comments	51681	34
Birrell	Doug	dgb18@comcast.net	N/A	Web-based comments	5890	N/A
Birrell	Tracy	not provided	N/A	Web-based Comments	30861	24
bisanz	jeanne	not provided	N/A	Web-based Comments	53097	34
Bischof	Greg	not provided	N/A	Web-based Comments	15226	24
Bischoff	Brent	brent.bischoff@cooscurryelectric.com	N/A	Web-based comments	6006	N/A
Bischoff	Charles	not provided	N/A	Web-based Comments	10488	24
Biser	James	not provided	N/A	Web-based Comments	45808	34
Bish	Mer	not provided	N/A	Web-based Comments	56145, 56146	34
Bish	Mer	not provided	N/A	Web-based Comments	23962	24
Bishop	Cori	not provided	N/A	Web-based Comments	46331, 46332	34
Bishop	Cori	not provided	N/A	Web-based Comments	11368	24
Bishop	Debra	not provided	N/A	Web-based Comments	56413	34
Bishop	Donald	not provided	N/A	Web-based Comments	13051	24
Bishop	Helen	not provided	N/A	Web-based Comments	15596	24
Bishop	Julia	not provided	N/A	Web-based Comments	18744	24
Bishop	Justin	not provided	N/A	Web-based Comments	18950	24
Bishop	Karan	not provided	N/A	Web-based Comments	19029	24
Bishop	Kelsey	not provided	N/A	Web-based Comments	19956	24
Bishop	Nancy	not provided	N/A	Web-based Comments	24811	24
Bishop	Norman	not provided	N/A	Web-based Comments	58062, 53593	16, 34

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Bishop	Norman	not provided	N/A	Web-based Comments	25394	24
Bishop	Roberta	not provided	N/A	Web-based Comments	58597	34
Bishop	Roberta	not provided	N/A	Web-based Comments	27432	24
Bishop	Shirley	not provided	N/A	Web-based Comments	28941	24
Bishop	Stephanie	not provided	N/A	Web-based Comments	29195	24
Bishop	Tarun	not provided	N/A	Web-based Comments	50193	34
Bishop-vonWettber	E	not provided	N/A	Web-based Comments	13407	24
Bisler	Maryanne	not provided	N/A	Web-based Comments	23569	24
Bisner	Kerri	not provided	N/A	Web-based Comments	20056	24
Biss	Jeffery	not provided	N/A	Web-based Comments	17063	24
Bissell	Mary	not provided	N/A	Web-based Comments	49772, 52841	34
Bissell	Mary	not provided	N/A	Web-based Comments	23215	24
Bissell	Nancy	not provided	N/A	Web-based Comments	24812	24
bisset	pat	not provided	N/A	Web-based Comments	25634	24
Bitter	Greg	gb.pms83420@gmail.com	N/A	Web-based comments	4476	13
Bittle	Juanita	not provided	N/A	Web-based Comments	48406	34
Bittloff	David	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	5540	N/A
Bittner	Season	not provided	N/A	Web-based Comments	28525	24
bitton	jeffrey	jeff@ioga.org	N/A	Web-based comments	6853	N/A
Bivens	Kyla	not provided	N/A	Web-based Comments	20442	24
Bivins	Michele	not provided	N/A	Web-based Comments	44558	34
Bixenmann	Leah	not provided	N/A	Web-based comments	57293	35
Bixter	Pam	not provided	N/A	Web-based Comments	25487	24
Bizarro	Betsy	not provided	N/A	Web-based Comments	9071	24
Bizon	Amy Lynn	not provided	N/A	Web-based Comments	47161	34
Bjarke	BJ	not provided	N/A	Web-based Comments	9207	24
Bjerke	Jean	not provided	N/A	Web-based Comments	45554	34
Bjoerk	Aake	not provided	N/A	Web-based Comments	6991	24
Bjorkman	David	not provided	N/A	Web-based Comments	11946	24
Bjorkman	Inge	not provided	N/A	Web-based Comments	53023, 53024	34
BlaVü	Joachim	not provided	N/A	Web-based Comments	17662	24
Blaauw	Astrid	not provided	N/A	Web-based Comments	8509	24
Blace	Brian	blace13@msn.com	N/A	Web-based comments	5309	N/A
Blache	Unreadable	not provided	N/A	Web-based Comments	26434	24
Black	Carolyn	not provided	N/A	Web-based Comments	10142	24
Black	Diane	not provided	N/A	Web-based Comments	12820	24
Black	Ender	not provided	N/A	Web-based Comments	14069	N/A
Black	James	not provided	N/A	Web-based comments	56903	35
Black	Janet	not provided	N/A	Web-based Comments	16568	24
Black	Jason	not provided	N/A	Web-based Comments	53123, 53124	34
Black	Jason	not provided	N/A	Web-based Comments	16772	24
Black	Jenette Black	not provided	N/A	Web-based comments	57477	35
Black	John Black	not provided	N/A	Web-based comments	57473	35
Black	Joyce	not provided	N/A	Web-based Comments	18478	24
Black	Karina	not provided	N/A	Web-based Comments	52379	34
Black	Karina	not provided	N/A	Web-based Comments	19292	24
Black	Laurie	not provided	N/A	Web-based Comments	49680	34
Black	Laurie	not provided	N/A	Web-based Comments	20825	24
Black	Monica	not provided	N/A	Web-based Comments	24616	24
Black	Morrigan	not provided	N/A	Web-based Comments	24673	24
Black	Rebecca	not provided	N/A	Web-based Comments	26710	24
Black	Sam	not provided	N/A	Web-based Comments	52216	34
Black	Sharon	not provided	N/A	Web-based Comments	49613	34
Black	Sharon	not provided	N/A	Web-based Comments	28628	24
Black	Shauntea	not provided	N/A	Web-based Comments	28745	24
Black	Terri Black	not provided	N/A	Web-based comments	57474	35
Black Reid	Nina	not provided	N/A	Web-based Comments	25302	24
Blackburn	Adrienne	not provided	N/A	Web-based Comments	49352	34
Blackburn	JEAN	not provided	N/A	Web-based Comments	48740	34
Blackburn	Madeline	not provided	N/A	Web-based Comments	22239	24
Blackburn	Paul	not provided	N/A	Web-based Comments	54062	34
Blackburn	Paul	not provided	N/A	Web-based Comments	25973	24
BlackEagle	Cory	not provided	N/A	Web-based Comments	11391	24
Blackfeather	Jewel	not provided	N/A	Web-based Comments	17485	24
Black-Foley	Arielle	not provided	N/A	Web-based Comments	8414	24
Blackford	Robert	bobblackford@gmail.com	N/A	Web-based comments	5195	N/A
Blackie	Belinda	not provided	N/A	Web-based Comments	8924	24
Blackledge	Cynthia	not provided	N/A	Web-based Comments	11493	24
Blacklock	Craig	not provided	N/A	Web-based Comments	11412	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Blackman	David	drblackman@centurytel.net	N/A	Web-based comments	3035	N/A
Blackman	Jeffrey	not provided	N/A	Web-based Comments	49967, 50272	34
Blackmore	Ann	not provided	N/A	Web-based Comments	8008	24
Blackmore	Heather	not provided	N/A	Web-based Comments	15497	24
Blackmore	Valerie	not provided	N/A	Web-based Comments	31012	24
Blackney	David	not provided	N/A	Web-based Comments	11947	24
Blackstone	Linore	not provided	N/A	Web-based Comments	50387	34
Blackwelder	William	not provided	N/A	Web-based Comments	49351	34
Blackwell	Alan	not provided	N/A	Web-based Comments	47062	34
Blackwell	Bruce	not provided	N/A	Web-based Comments	45827	34
Blackwell-Marchant	Pat	not provided	N/A	Web-based Comments	25635	24
Blackwell-Marchant	Patricia	not provided	N/A	Web-based Comments	51428	34
Blackwood	Barbara	not provided	N/A	Web-based Comments	47178	34
Blackwood	Barbara	not provided	N/A	Web-based Comments	8632	24
Blackwood	Matthew	not provided	N/A	Web-based Comments	23635	24
Blade	Kristine	not provided	N/A	Web-based Comments	50982	34
Blaeser	Katharina	not provided	N/A	Web-based comments	56790	35
Blaeser	Katharina	not provided	N/A	Web-based Comments	19410	24
Blaha	John	not provided	N/A	Web-based Comments	17968	24
Blahut	Terri	not provided	N/A	Web-based Comments	52030	34
Blahut	Terri	not provided	N/A	Web-based Comments	30327	24
Blain	Richard	not provided	N/A	Web-based Comments	26942	24
Blain	Susan	not provided	N/A	Web-based Comments	55819	34
Blain	Susan	not provided	N/A	Web-based Comments	29602	24
Blaine	Amanda	ablaine@gmail.com	N/A	Web-based comments	6349	N/A
Blaine	Kim	not provided	N/A	Web-based Comments	20163	24
Blair	Barbara	not provided	N/A	Web-based comments	2858	N/A
Blair	Carrie	not provided	N/A	Web-based Comments	10192	24
Blair	Charles	clblair3579@gmail.com	N/A	Web-based comments	5657	8
Blair	Colby	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4222	N/A
blair	donna	not provided	N/A	Web-based Comments	13107	24
Blair	Elke	not provided	N/A	Web-based Comments	56329	34
Blair	Elke	not provided	N/A	Web-based Comments	13878	24
Blair	Frances	fblair39@centurylink.net	N/A	Web-based comments	996	3
Blair	Frances	not provided	N/A	Web-based Comments	46112	34
Blair	Jen	not provided	N/A	Web-based Comments	51703	34
Blair	Jo	barbarajoblair@gmail.com	N/A	Web-based comments	4583	N/A
Blair	Louis	not provided	N/A	Web-based Comments	49637	34
Blair	Wendy	not provided	N/A	Web-based Comments	31407	24
Blair	William	not provided	N/A	Web-based Comments	51221	34
Blaisdell	Jill	not provided	N/A	Web-based Comments	49460, 49461, 49462	34
Blaise	Sharlane	not provided	N/A	Web-based Comments	44755	34
Blake	Frank	not provided	N/A	Web-based Comments	48470	34
Blake	Janet	not provided	N/A	Web-based Comments	16569	24
Blake	Janice	not provided	N/A	Web-based Comments	55376	34
Blake	Jocelyn	not provided	N/A	Web-based Comments	44280	34
Blake	Jocelyn	not provided	N/A	Web-based Comments	17836	24
Blake	Lisa	not provided	N/A	Web-based Comments	50889	34
Blake	Lucy	not provided	N/A	Web-based Comments	21951	24
Blake	Pat	not provided	N/A	Web-based Comments	25636	24
Blake	Sheryl	not provided	N/A	Web-based Comments	50122	34
Blakeley	Jeb	jebcom@cableone.net	N/A	Web-based comments	5916	N/A
Blakeman	Ken	ken.blakeman@chsinc.com	N/A	Web-based comments	3013	N/A
Blakeney	Susan	not provided	N/A	Web-based Comments	29603	24
Blakeslee	Gayle	not provided	N/A	Web-based Comments	52390	34
Blakeslee	Gayle	not provided	N/A	Web-based Comments	14820	24
Blakley	Donna	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	56641	N/A
Blalock	Dorothy	not provided	N/A	Web-based Comments	13250	24
Blancato	Nadine	not provided	N/A	Web-based Comments	24759	24
Blanch	Eugene	not provided	N/A	Web-based Comments	45669	34
Blanchard	Andrew	not provided	N/A	Web-based Comments	7806	24
Blanchard	Ann	not provided	N/A	Web-based Comments	56097	34
Blanchard	Ann	not provided	N/A	Web-based Comments	8009	24
Blanchard	Geral	not provided	N/A	Web-based Comments	14951	24
Blanchard	Janine	not provided	N/A	Web-based Comments	16726	24
Blanchard	Kay	not provided	N/A	Web-based comments	3639	11
Blanchard	Rod	not provided	N/A	Web-based Comments	27568	24
Blanchett	Nancy	not provided	N/A	Web-based Comments	56290	34
Blanchett	Rick	not provided	N/A	Web-based Comments	47851	34
Blanchett	Rick	not provided	N/A	Web-based Comments	27084	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Blanchette	Trina	not provided	N/A	Web-based Comments	30909	24
Blanck	Lisa	not provided	N/A	Web-based Comments	55167	34
Blanco	Jose	not provided	N/A	Web-based Comments	47299	34
Blanco	Romina	not provided	N/A	Web-based Comments	53340, 53341	34
Blanco	Rosa Maria	not provided	N/A	Web-based Comments	27699	24
Blandford	Mark	not provided	N/A	Web-based Comments	52450	34
Blandford	Mark	not provided	N/A	Web-based Comments	22898	24
Blandin	Anne	not provided	N/A	Web-based Comments	8172	24
Blandin	Richard	not provided	N/A	Web-based Comments	26943	24
Blandino	Russell	not provided	N/A	Web-based Comments	27829	24
Blaney	Thomas	not provided	N/A	Web-based Comments	45026	34
Blanford	Gary	not provided	N/A	Web-based Comments	14754	24
Blank	Barbara	not provided	N/A	Web-based Comments	44752	34
Blank	D. L.	not provided	N/A	Web-based Comments	11601	24
Blank	Emily	not provided	N/A	Web-based Comments	14009	24
Blank	Gail	not provided	N/A	Web-based Comments	44679	34
Blank	Gail	not provided	N/A	Web-based Comments	14669	24
Blank	Kathleen	not provided	N/A	Web-based Comments	55196	34
Blankenbaker	Gloria	not provided	N/A	Web-based Comments	53775	34
Blankenburg	Wendy	not provided	N/A	Web-based Comments	31408	24
Blankenship	Kristina	not provided	N/A	Web-based Comments	20398	24
Blankenship	Sherri	not provided	N/A	Web-based Comments	28863	24
Blankespoor, Ph. D. in Biology	Harvey D.	not provided	N/A	Web-based Comments	15472	24
Blankinship	Ramona	not provided	N/A	Web-based Comments	55567	34
Blanton	Barbara	not provided	N/A	Web-based Comments	46088	34
Blanton	Cricket	not provided	N/A	Web-based Comments	53247	34
Blanton	Cricket	not provided	N/A	Web-based Comments	11432	24
Blanton	Lindsey	lindseyblanton1995@gmail.com	N/A	Web-based comments	2899	N/A
Blanton	Robin	not provided	N/A	Web-based Comments	27466	24
Blasco	Natalie	not provided	N/A	Web-based Comments	48033, 48034	34
Blasco	Natalie	not provided	N/A	Web-based Comments	25060	24
Blasdell	Prudence	not provided	N/A	Web-based Comments	26459	24
Blaser	Sally	not provided	N/A	Web-based comments	57313	35
Blaski,MD	Mindy	not provided	N/A	Web-based Comments	24527	24
Blatman	Resa	not provided	N/A	Web-based Comments	52304, 52305	34
Blatman	Resa	not provided	N/A	Web-based Comments	26865	24
Blattner	Gerrilynne	not provided	N/A	Web-based Comments	14997	24
BLAUG	maurice	not provided	N/A	Web-based Comments	23727	24
Blaustein	Marvin	not provided	N/A	Web-based Comments	54045, 54046	34
Blauwkamp	Susan	not provided	N/A	Web-based Comments	29604	24
Blaylock	Wesley	not provided	N/A	Web-based Comments	31465	24
Blayney	Jeffrey	not provided	N/A	Web-based Comments	17069	24
Blaze	Jon	not provided	N/A	Web-based Comments	18245	24
Blazer	Mark	not provided	N/A	Web-based Comments	22899	24
Blazich	Shelly	not provided	N/A	Web-based Comments	28843	24
Blazyca	Rita	not provided	N/A	Web-based Comments	27129	24
Bleck	Terri	not provided	N/A	Web-based Comments	30328	24
Bleckinger	Dana	not provided	N/A	Web-based Comments	51142	34
Bledsoe	Bonnie	not provided	N/A	Web-based Comments	50777	N/A
Bledsoe	Cathy	not provided	N/A	Web-based Comments	50061, 50062	34
Bledsoe	Cathy	not provided	N/A	Web-based Comments	10350	24
Bleecker	Sam	not provided	N/A	Web-based Comments	28046	24
Blekherman	Grigoriy	not provided	N/A	Web-based Comments	15322	24
Blend	Nancy	not provided	N/A	Web-based Comments	58022	16
Blende	Susan	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32365	N/A
Blessing	Dawn	not provided	N/A	Web-based Comments	12203	24
Blessing	Kate	not provided	N/A	Web-based Comments	56278	34
Bletzer	Siri	not provided	N/A	Web-based Comments	29029	24
Blevins	Dave	not provided	N/A	Web-based Comments	11908	24
blidar	Ron	not provided	N/A	Web-based Comments	47764	34
Bliler	Valerie	not provided	N/A	Web-based Comments	54415	34
Bliss	Thomas	not provided	N/A	Web-based comments	57500	35
Blissett	Lesley	not provided	N/A	Web-based Comments	21040	24
Blitzer	Mark	not provided	N/A	Web-based Comments	57914, 55455	16, 34
Blitzer	Mark	not provided	N/A	Web-based Comments	22900	24
Blitzstein	Bonnie	not provided	N/A	Web-based Comments	9283	24
Blizard	Robert	not provided	N/A	Web-based Comments	27210	24
Bloch	Dana	not provided	N/A	Web-based comments	57520	35
Bloch	Nini	not provided	N/A	Web-based Comments	50343	34

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Bloch	Nini	not provided	N/A	Web-based Comments	25321	24
Blocher	Lee	not provided	N/A	Web-based comments	2837	N/A
Block	Bryan	not provided	N/A	Web-based Comments	9635	24
Block	Jack	not provided	N/A	Web-based Comments	51618, 51619	34
Block	Jack	not provided	N/A	Web-based Comments	16027	24
Block	Julie	not provided	N/A	Web-based Comments	51507, 51508	34
Block	Julie	not provided	N/A	Web-based Comments	18815	24
Block	Lea	not provided	N/A	Web-based Comments	20893	24
Blofstein	Rebecca	not provided	N/A	Web-based Comments	26711	24
Blohm	Lisa	not provided	N/A	Web-based comments	6803	1
Blomkamp	Yvonne	not provided	N/A	Web-based Comments	46253, 46254	34
Blond	Seven	not provided	N/A	Web-based Comments	28552	24
Bloodworth	Ron	not provided	N/A	Web-based Comments	27614	24
Bloom	Char	not provided	N/A	Web-based Comments	10463	24
Bloom	R	not provided	N/A	Web-based Comments	26467	24
Blossom	Laurel	not provided	N/A	Web-based Comments	20730	24
Blough	Janis	not provided	N/A	Web-based Comments	16737	24
Blough	Jim	not provided	N/A	Web-based Comments	17568	24
Bloyer	Robert	not provided	N/A	Web-based Comments	56346	34
Bloyer	Robert	not provided	N/A	Web-based Comments	27211	24
Bludenova	Evgenia	not provided	N/A	Web-based Comments	14363	24
Blue	Cindy	not provided	N/A	Web-based Comments	52930	34
Bluemmel	Robyn	bluebug@hevanet.com	N/A	Web-based comments	3619	15
Bluestone	Susan	not provided	N/A	Web-based Comments	29605	24
Bluett	Graeme	not provided	N/A	Web-based Comments	15209	24
Bluhm	Judy	not provided	N/A	Web-based Comments	50132	34
Bluhm	Judy	not provided	N/A	Web-based Comments	18667	24
Bluhm	Kathryn	not provided	N/A	Web-based Comments	19621	24
Blum	Denny	not provided	N/A	Web-based Comments	45822, 45823	34
Blum	Denny	not provided	N/A	Web-based Comments	12714	24
Blumberg	Janet	not provided	N/A	Web-based Comments	16570	24
Blume	Alan	not provided	N/A	Web-based Comments	7152	24
Blume	Hope	not provided	N/A	Web-based Comments	55508	34
Blume	Hope	not provided	N/A	Web-based Comments	15783	24
Blume	Sharon	not provided	N/A	Web-based Comments	28629	24
Blumenthal	Harry	not provided	N/A	Web-based Comments	51146	34
Blumenthal	Harry	not provided	N/A	Web-based Comments	15460	24
Blumenthal	Robert	not provided	N/A	Web-based Comments	27212	24
Blunt	Christine	not provided	N/A	Web-based Comments	49452	34
BLY	CHERI	not provided	N/A	Web-based Comments	10601	24
BLYLY-STRAUSS	MINA	not provided	N/A	Web-based Comments	24524	24
Blythe	Joanne	not provided	N/A	Web-based Comments	48768, 48769	34
Board	Salem	not provided	N/A	Web-based comments	2274	N/A
Boast	Kerry	not provided	N/A	Web-based Comments	20061	24
Boater	Dr.	dentalflosstycoon@buffalofarts.wha	N/A	Web-based comments	4856	N/A
Boater	Qat	not provided	N/A	Web-based Comments	51810	34
Boatsman	Carolyn	not provided	N/A	Web-based Comments	10143	24
Boawn	Virginia	not provided	N/A	Web-based comments	4367, 4370	N/A
Boaz	Rob	robboaz@gmail.com	N/A	Web-based comments	6247	N/A
boaz	sarah	not provided	N/A	Web-based Comments	28330	24
Bob	Barb	not provided	N/A	Web-based comments	32080	N/A
Bobadilla Bonilla	Santiago	not provided	N/A	Web-based Comments	28270	24
Bobak	Lana	not provided	N/A	Web-based Comments	20522	24
Boband	Muriel	not provided	N/A	Web-based Comments	24694	24
Bobb	Mary	not provided	N/A	Web-based Comments	23216	24
Bobe	Pablo	not provided	N/A	Web-based Comments	55553	34
Bobe	Pablo	not provided	N/A	Web-based Comments	25477	24
Bobier	Victor	not provided	N/A	Web-based Comments	31168	24
bobow	lil	not provided	N/A	Web-based Comments	45603	34
Bobrick	Melantha	not provided	N/A	Web-based Comments	23852	24
Bobroff	Alex A.	not provided	N/A	Web-based Comments	7256	24
Bocanegra	Patricia	not provided	N/A	Web-based Comments	25712	24
Bocchetti	Ralph	not provided	N/A	Web-based Comments	26589	24
Bochert	Debbie	not provided	N/A	Web-based Comments	12308	24
Bock	Ethel	not provided	N/A	Web-based Comments	14283	24
Bockelie	Steve	not provided	N/A	Web-based Comments	56533	34
Bockian	Edith	not provided	N/A	Web-based Comments	13467	24
Bockino	Alida	alidabockino@gmail.com	N/A	US Mail or commercial carrier (UPS, FedEx)	2254	N/A
Bockino	Alida	not provided	N/A	Web-based Comments	7389	24
Boddicker	Ron	not provided	N/A	Web-based Comments	27615	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Bode	Liz	not provided	N/A	Web-based Comments	53984	34
Bodek	Sharon	not provided	N/A	Web-based Comments	28630	24
Boden	Juergen	not provided	N/A	Web-based Comments	18732	24
Bodenstab	Steven	not provided	N/A	Web-based Comments	29420	24
Bodi	Monika	not provided	N/A	Web-based Comments	24646	24
Bodlak	Justine	not provided	N/A	Web-based Comments	18966	24
Bodle	Lynne	not provided	N/A	Web-based Comments	22119	24
Bodycott	Dwight	not provided	N/A	Web-based Comments	13397	24
Boedeker	Deborah	not provided	N/A	Web-based Comments	12370	24
Boehler	Karen	not provided	N/A	Web-based Comments	46079	34
Boehler	Karen	not provided	N/A	Web-based Comments	19048	24
Boehley	Adam	not provided	N/A	Web-based Comments	7041	24
Boehlke	Holly	not provided	N/A	Web-based Comments	15733	24
Boehm	Chelsee	not provided	N/A	Web-based Comments	47098	34
Boehm	Denise	not provided	N/A	Web-based Comments	12628	24
Boehm	Lynne	not provided	N/A	Web-based Comments	22120	24
Boehm	Margaret	not provided	N/A	Web-based Comments	22429	24
Boehne	Gary	garywboehne@comcast.net	N/A	Web-based comments	7	N/A
Boehr	Christiane	not provided	N/A	Web-based Comments	10833	24
Boeira	Liriangela	not provided	N/A	Web-based Comments	21514	24
Boelter	Anne	not provided	N/A	Web-based Comments	8173	24
Boemer	Will	not provided	N/A	Web-based Comments	31483	24
Boern	Mixi	not provided	N/A	Web-based Comments	46887	34
Boerner	James	not provided	N/A	Web-based Comments	16181	24
Boersma	Katherine	not provided	N/A	Web-based Comments	19434	24
Boes	Sondra	not provided	N/A	Web-based Comments	48298	34
Boesen	Shani	not provided	N/A	Web-based Comments	28569	24
BOETTCHER	KELCY	not provided	N/A	Web-based Comments	19891	24
Boettcher	Tim	not provided	N/A	Web-based Comments	30599	24
Boeve	Talon	not provided	N/A	Web-based Comments	44617	34
Boffardi	Suzanne	not provided	N/A	Web-based Comments	29983	24
Bogaard	Joseph	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4228	N/A
Bogan	Susan	not provided	N/A	Web-based Comments	29606	24
Bogard	Sharon	not provided	N/A	Web-based Comments	28631	24
Bogardus	Judi	not provided	N/A	Web-based Comments	54568	34
Bogart	Fiona	not provided	N/A	Web-based Comments	14432	24
Bogart	Ronnie	not provided	N/A	Web-based Comments	27690	24
Bogatko	Richard C.	not provided	N/A	Web-based Comments	27079	24
Bogdan	Patatu	not provided	N/A	Web-based comments	785	1
Bogdanovich	Susan	not provided	N/A	Web-based Comments	29607	24
Boggioni	Joshua	not provided	N/A	Web-based Comments	18428	24
Bogie	Art	not provided	N/A	Web-based Comments	44958	34
Bogin	Ronald	not provided	N/A	Web-based Comments	46108	34
Bogin	Ronald	not provided	N/A	Web-based Comments	27648	24
Bogios	Constantine	not provided	N/A	Web-based Comments	48294	34
Bogolub	Larry	not provided	N/A	Web-based Comments	20570	24
Bogolub	Lawrence	not provided	N/A	Web-based Comments	49552	34
Bogue	Mary	not provided	N/A	Web-based Comments	23217	24
Boguske	Matthew	not provided	N/A	Web-based Comments	50239, 50240, 50241	34
Boguske	Matthew	not provided	N/A	Web-based Comments	23636	24
Bogusky	Rae	not provided	N/A	Web-based Comments	55989, 55990	34
Bohan	Nancy	not provided	N/A	Web-based comments	57005	35
Bohana	Roxanne	not provided	N/A	Web-based Comments	27799	24
Bohannan	Theresa	not provided	N/A	Web-based Comments	30424	24
Bohannon	Mike	not provided	N/A	Web-based Comments	54979	34
Boharski	Bobbie	not provided	N/A	Web-based Comments	9263	24
Bohl	Calleen	not provided	N/A	Web-based Comments	9724	24
Bohl	Tollie	not provided	N/A	Web-based Comments	30733	24
Bohlen	Curtis	not provided	N/A	Web-based Comments	11473	24
Bohler	Kim	not provided	N/A	Web-based Comments	20164	24
Bohley	Jeannie	not provided	N/A	Web-based comments	57207	35
Bohlman	Nicole	not provided	N/A	Web-based Comments	25226	24
Bohm	Michael	not provided	N/A	Web-based Comments	24028	24
Bohman	Dane	dbmarket2@gmail.com	N/A	Web-based comments	3401	13
Bohme	Lee	not provided	N/A	Web-based Comments	20927	24
Bohn	David	not provided	N/A	Web-based Comments	11948	24
Bohn	Jennifer	not provided	N/A	Web-based Comments	17161	24
Bohn	Julie	not provided	N/A	Web-based Comments	53536	34
Bohn	Lauren	not provided	N/A	Web-based Comments	48055	34
Bohn	Lauren	not provided	N/A	Web-based Comments	20758	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Bohne	Kenneth	not provided	N/A	Web-based Comments	20007	24
Bohnen	Julia	not provided	N/A	Web-based Comments	18745	24
Bohnet	Julie	not provided	N/A	Web-based Comments	18816	24
Bohney	John	not provided	N/A	Web-based Comments	17969	24
Boice	Ruth	not provided	N/A	Web-based Comments	50919	34
Boice	Ruth	not provided	N/A	Web-based Comments	27853	24
Boileau	Robert L.	not provided	N/A	Web-based Comments	27425	24
Boin	Michael	not provided	N/A	Web-based Comments	24029	24
BOIS	MYRIAM	not provided	N/A	Web-based Comments	24717	24
boisgard	isabelle	not provided	N/A	Web-based Comments	15946	24
Boisseau-Minor	Danielle	not provided	N/A	Web-based Comments	11801	24
Boisvert	Suzanne	not provided	N/A	Web-based Comments	29984	24
Boivin	Gary	not provided	N/A	Web-based Comments	14755	24
Boixo	Karin	not provided	N/A	Web-based Comments	56364	34
Bok	Nancy	not provided	N/A	Web-based Comments	24813	24
Boka	Erika	not provided	N/A	Web-based Comments	48056, 48057	34
Boka	Erika	not provided	N/A	Web-based Comments	14191	24
Bol'	Val	not provided	N/A	Web-based Comments	30995	24
Bolan	Nancy	not provided	N/A	Web-based Comments	24814	24
Boland	Deirdre	not provided	N/A	Web-based Comments	47511	34
Boland	Deirdre	not provided	N/A	Web-based Comments	12591	24
Boland	Kerry	not provided	N/A	Web-based Comments	20062	24
Bolander	Linda	not provided	N/A	Web-based Comments	21209	24
Bold	Richard	not provided	N/A	Web-based Comments	47742	34
Bold	Richard	not provided	N/A	Web-based Comments	26944	24
Boldin	Anastasia	not provided	N/A	Web-based Comments	45188	34
Bolduan	Linda	not provided	N/A	Web-based Comments	52026	34
Bolembach	Kevin	not provided	N/A	Web-based Comments	56423	34
BOLEMBACH	KEVIN	not provided	N/A	Web-based Comments	20084	24
Bolen	DK	not provided	N/A	Web-based Comments	12985	24
Boles	Crystal J	not provided	N/A	Web-based Comments	46688	34
Boles	Lara	not provided	N/A	Web-based Comments	20548	24
Boletchek	Stephen	not provided	N/A	Web-based Comments	29273	24
Boley	Aaron	not provided	N/A	Web-based Comments	49596	34
Boley	Kathleen	not provided	N/A	Web-based Comments	19511	24
Bolfango	Lauren	not provided	N/A	Web-based Comments	48263	34
Bolling	Chris	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58363	32
Bolling	Madelon	not provided	N/A	Web-based Comments	49896	34
Bolling	Michelle	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58360	32
Bolling	Ronnie	not provided	N/A	Web-based Comments	47192, 47193	34
Bolling	Stacey	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58361	32
Bollinger	Ben	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32431	13
Bollinger	Ben	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32471	11
Bollinger	Kathy	bollingerkathy@hotmail.com	N/A	Web-based comments	3507	N/A
Bollinger	Kathy	bollingerkathy@hotmail.com	N/A	US Mail or commercial carrier (UPS, FedEx)	32552	11
Bollini	Margaret	not provided	N/A	Web-based Comments	22430	24
Bollini	Valerie	not provided	N/A	Web-based Comments	31013	24
Bolocan	David	not provided	N/A	Web-based Comments	11949	24
Bolog	Debra	not provided	N/A	Web-based Comments	12504	24
Bolon	Amy	not provided	N/A	Web-based Comments	7593	24
Bolon	Diane	not provided	N/A	Web-based Comments	12821	24
Bolotin	Susan	not provided	N/A	Web-based Comments	29608	24
Bolser	Susie	not provided	N/A	Web-based Comments	29958	24
Bolsky	Debbie	not provided	N/A	Web-based Comments	12309	24
Bolton	Linda	not provided	N/A	Web-based Comments	54228	34
Bolton	Loretta	not provided	N/A	Web-based Comments	21758	24
Bolton	Robyn	not provided	N/A	Web-based Comments	27544	24
Bolton	Sharon	not provided	N/A	Web-based Comments	28632	24
Boltz	Barbara	not provided	N/A	Web-based Comments	8633	24
Boltz	Randall	not provided	N/A	Web-based Comments	26612	24
Bomba Jr	THEODORE J	not provided	N/A	Web-based Comments	30421	24
Bon	Lauren	not provided	N/A	Web-based Comments	20759	24
Bon	Maya	not provided	N/A	Web-based Comments	49744	34
Bon	Maya	not provided	N/A	Web-based Comments	23756	24
Bon	Patrick	not provided	N/A	Web-based Comments	25893	24
Bonaldi	Lisa	not provided	N/A	Web-based Comments	52773	34
Bonami	Sophie	not provided	N/A	Web-based Comments	53432	34
Bonaminio	Gina	not provided	N/A	Web-based comments	5698	N/A
Bonas	Matthew	not provided	N/A	Web-based Comments	23637	24
Bonatti	Karen	not provided	N/A	Web-based Comments	47699	34

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
BONAVENTURA	PAM	not provided	N/A	Web-based Comments	25488	24
Bonavia	Jacey	not provided	N/A	Web-based Comments	45293	34
Bonc	J	not provided	N/A	Web-based Comments	50961	34
Bond	David	not provided	N/A	Web-based Comments	48307	34
Bond	Debra	not provided	N/A	Web-based Comments	12505	24
Bond	Frederick	not provided	N/A	Web-based comments	5327	N/A
Bond	George	not provided	N/A	Web-based Comments	14882	24
Bond	Josh	not provided	N/A	Web-based Comments	18415	24
Bond	Julie	not provided	N/A	Web-based Comments	18817	24
Bond	Karen	not provided	N/A	Web-based Comments	46269	34
Bond	Karen	not provided	N/A	Web-based Comments	19049	24
Bond	Mary	not provided	N/A	Web-based Comments	23218	24
Bond	Michael	not provided	N/A	Web-based Comments	51915	34
Bond	Shirley	not provided	N/A	Web-based Comments	50379, 52386	34
Bond	Valerie	not provided	N/A	Web-based Comments	31014	24
Bondar Jr	Ronald	not provided	N/A	Web-based Comments	27649	24
Bondoc	Michael	not provided	N/A	Web-based Comments	24030	24
Bonds	Donna	not provided	N/A	Web-based Comments	13108	24
Bondurant	Carol	not provided	N/A	Web-based Comments	9890	24
Bone	Dennis	not provided	N/A	Web-based Comments	12677	24
Bonelli	R.	not provided	N/A	Web-based Comments	26487	24
Bonenfant	Joan	not provided	N/A	Web-based Comments	17671	24
Boness	G	not provided	N/A	Web-based Comments	58108	16
Bonett Boisseranc	Virginie	not provided	N/A	Web-based Comments	31308	24
Bonetti	Donna	not provided	N/A	Web-based Comments	53687, 53688	34
Bonetti	Donna	not provided	N/A	Web-based Comments	13109	24
Bonfield	Brenda	brenda.barnes1@outlook.com	N/A	Web-based comments	6400	N/A
Bongers	Edwin	not provided	N/A	Web-based Comments	13523	24
Bongfeldt	Katherine	not provided	N/A	Web-based Comments	19435	24
Bongiovanni	Monica	not provided	N/A	Web-based Comments	24617	24
Bonilla	Lorena	not provided	N/A	Web-based Comments	21752	24
Bonis	Jeri	jtbonis@gmail.com	N/A	Web-based comments	4421	1
Bonk	Denise	not provided	N/A	Web-based Comments	54675, 54676	34
Bonk	Denise	not provided	N/A	Web-based Comments	12629	24
Bonner	Brooks	not provided	N/A	Web-based Comments	55436	34
bonner	stanley	not provided	N/A	Web-based Comments	29153	24
Bonner	Tracey	not provided	N/A	Web-based Comments	57804, 57805	34
Bonner	Tracey	not provided	N/A	Web-based Comments	30837	24
Bonnett	Shawna	not provided	N/A	Web-based Comments	28759	24
Bonnington	Joan	not provided	N/A	Web-based Comments	17672	24
Bonometti	Dr. Robert And Ginny	not provided	N/A	Web-based Comments	13366	24
Bonora	J.B.	not provided	N/A	Web-based Comments	16016	24
Bonsager	Vivian	not provided	N/A	Web-based Comments	31312	24
Bont	Maya	not provided	N/A	Web-based Comments	23757	24
Bontacchio	Franca	not provided	N/A	Web-based Comments	45947, 45948	34
Bonte	Ken	not provided	N/A	Web-based Comments	19963	24
Boock	Max	madison.boock@gmail.com	N/A	Web-based comments	4145	N/A
Book	Carol	not provided	N/A	Web-based Comments	55316	34
Book	Carol	not provided	N/A	Web-based Comments	9891	24
Book	Robert	not provided	N/A	Web-based Comments	27213	24
Bookless	Vicki	not provided	N/A	Web-based Comments	31119	24
Boomer	Brenda & Henry	not provided	N/A	Web-based Comments	9430	24
Boomhower	Deborah	not provided	N/A	Web-based Comments	12371	24
Boon	Kimberly	not provided	N/A	Web-based Comments	20216	24
Boone	Jim	not provided	N/A	Web-based Comments	17569	24
Boone	Joseph	not provided	N/A	Web-based Comments	44970	34
Boone	Kathleen	not provided	N/A	Web-based Comments	19512	24
Boone	Lynn	not provided	N/A	Web-based Comments	22047	24
Boone	Mark	not provided	N/A	Web-based Comments	22901	24
Boone	Mary	not provided	N/A	Web-based Comments	23219	24
Boone	Merrill	not provided	N/A	Web-based Comments	23994	24
Boop	Lily	not provided	N/A	Web-based Comments	21176	24
Booras	Susan	not provided	N/A	Web-based Comments	47874	34
Boord	Carinne	not provided	N/A	Web-based Comments	9798	24
Boot	Patrick	not provided	N/A	Web-based Comments	45405, 45406	34
Booth	Carolie	not provided	N/A	Web-based Comments	46623, 46624	34
Booth	Cody	ctbooth@gmail.com	N/A	Web-based comments	6085	N/A
Booth	John	not provided	N/A	Web-based Comments	53000, 53001	34
Booth	Malcolm	not provided	N/A	Web-based Comments	50831	34

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Booth	Malcolm	not provided	N/A	Web-based Comments	22291	24
Booth	Robert	not provided	N/A	Web-based Comments	27214	24
Boots	Teri	not provided	N/A	Web-based Comments	30308	24
Boots	Valerie	not provided	N/A	Web-based Comments	31015	24
Borbv°s	Attila	not provided	N/A	Web-based comments	56811	35
Borbo	Gilmer	not provided	N/A	Web-based Comments	15043	24
Borchardt	Jerrold	not provided	N/A	Web-based Comments	17338	24
Borchart	Alan and Kathy	not provided	N/A	Web-based Comments	7198	24
Borcherding	Paul	not provided	N/A	Web-based Comments	53840, 53841, 58183	34, 16
Borcherding	Paul	not provided	N/A	Web-based Comments	25974	24
Borck	Helga	not provided	N/A	Web-based Comments	15645	24
Bordelon	Tika	not provided	N/A	Web-based Comments	49302, 50293	34
bordelon	tika	not provided	N/A	Web-based Comments	30596	24
Bordenave	Michael	not provided	N/A	Web-based Comments	24031	24
Borders	Bill	not provided	N/A	Web-based comments	4794	N/A
Borders	Tins	not provided	N/A	Web-based Comments	30701	24
Bordignon	Ashley	ashleybordignon@gmail.com	N/A	Web-based comments	1789, 6149	1
Bordin	Carol	not provided	N/A	Web-based Comments	9892	24
Boreham	Marlene	not provided	N/A	Web-based Comments	49919	34
Borelli	Nancy	not provided	N/A	Web-based Comments	24815	24
Boren	Holly	not provided	N/A	Web-based Comments	15734	24
Borg	Alan	acborg2@gmail.com	N/A	Web-based comments	1326, 3740	1
Borg	Alan	not provided	N/A	Web-based comments	56817	35
Borg	Alan	not provided	N/A	Web-based Comments	7153	24
Borg	Carolyn	not provided	N/A	Web-based Comments	50431, 50432	34
Borg	Katya	katya.borg09@gmail.com	N/A	Web-based comments	56694, 3739	35, 1
Borg	Katya	not provided	N/A	Web-based Comments	19812	24
Borg	Kris	not provided	N/A	Web-based Comments	20319	24
Borg	Marcel	not provided	N/A	Web-based comments	56816	35
Borge	Mary	not provided	N/A	Web-based Comments	23220	24
Borges	Kent	not provided	N/A	Web-based Comments	20037	24
Borgeson	Dean	not provided	N/A	Web-based Comments	12261	24
Borgeson	Eileen	not provided	N/A	Web-based Comments	13539	24
Borgi	Frank	dominatedsquash@gmail.com	N/A	Web-based comments	856	N/A
Boris	Joseph	not provided	N/A	Web-based Comments	18345	24
Boris	Sylvia	not provided	N/A	Web-based Comments	52548	34
Boris	Sylvia	not provided	N/A	Web-based Comments	30059	24
Born	Brittany	britt_division03@yahoo.com	N/A	Web-based comments	182	N/A
Born	Janet	not provided	N/A	Web-based Comments	16571	24
Bornholtz	Gavin	not provided	N/A	Web-based Comments	52347, 52348	34
Bornholtz	Gavin	not provided	N/A	Web-based Comments	14813	24
Bornstein	Bunny	not provided	N/A	Web-based Comments	9651	24
Borota	Carol	not provided	N/A	Web-based Comments	9893	24
Borowsky	Sonya	not provided	N/A	Web-based Comments	29077	24
Borrelli	Silvana	not provided	N/A	Web-based Comments	29002	24
Borrero	Beau	not provided	N/A	Web-based Comments	8896, 8897	24
Borrero	Shirley	not provided	N/A	Web-based Comments	28942	24
Borri	Patricia	not provided	N/A	Web-based Comments	25713	24
Borske	Cindy	not provided	N/A	Web-based Comments	45637, 45638	34
Borske	Cindy	not provided	N/A	Web-based Comments	11068	24
Borst	Gayle	not provided	N/A	Web-based Comments	14821	24
Bortell	Brenda	not provided	N/A	Web-based Comments	9391	24
Bortolussi	Susan	not provided	N/A	Web-based comments	56952	35
Bortolussi	Susan	not provided	N/A	Web-based Comments	46823	34
bortoluzzo	virginia	not provided	N/A	Web-based Comments	31271	24
Borus	Myrna	not provided	N/A	Web-based Comments	24720	24
Boruta	Matthew	not provided	N/A	Web-based Comments	56419	34
Bos	Stanley	stanbos11@gmail.com	N/A	Web-based comments	2445	N/A
Bosca	Lisa	not provided	N/A	Web-based Comments	44367	34
Bosch	Charlie	deheercharliebosch@gmail.com	N/A	Web-based comments	754	N/A
Boschee	Becky	not provided	N/A	Web-based Comments	8905	24
Boschen	Marianne	not provided	N/A	Web-based comments	56793	35
Bose	Phillip	not provided	N/A	Web-based comments	6426	1
Bosenius	Daniela	not provided	N/A	Web-based Comments	44512	34
Boshkov	Lynn	not provided	N/A	Web-based Comments	46749	34
Boshoff	Jemma	not provided	N/A	Web-based Comments	56501, 56502	34
Boshoff	Jemma	not provided	N/A	Web-based Comments	17108	24
Bosko	Lynn	not provided	N/A	Web-based Comments	22048	24
Bosko	Mike	not provided	N/A	Web-based comments	18	N/A
Boskovic	Helena	not provided	N/A	Web-based Comments	53273	34

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
BOSLEY	JILL	not provided	N/A	Web-based Comments	17496	24
Bosma	Julie	mrs_boz@msn.com	N/A	Web-based comments	3243	N/A
Bosnos	Lorna	not provided	N/A	Web-based Comments	50836, 55169	34
Bosnos	Lorna	not provided	N/A	Web-based Comments	21818	24
Bosold	Donovan	not provided	N/A	Web-based Comments	13205	24
Boss	Herbert	not provided	N/A	Web-based Comments	15678	24
Bossarte	Denise	not provided	N/A	Web-based Comments	12630	24
Bossert	Elizabeth	not provided	N/A	Web-based Comments	49999, 50000	34
Bossert	Elizabeth	not provided	N/A	Web-based Comments	13709	24
Bossert	Kristen	not provided	N/A	Web-based Comments	47150, 47151	34
Bost	Leilani	not provided	N/A	Web-based Comments	20974	24
Bostaph	Stacey	not provided	N/A	Web-based comments	57071	35
Bostaph	Stacey	not provided	N/A	Web-based Comments	29108	24
Bostick	Carol	not provided	N/A	Web-based Comments	48070, 48071	34
Bostock	Francis	not provided	N/A	Web-based Comments	14504	24
Bostock	Vic	not provided	N/A	Web-based Comments	47550	34
Bostock	Vic	not provided	N/A	Web-based Comments	31115	24
Boston	Caroline	not provided	N/A	Web-based Comments	55088	34
Boston	Caroline	not provided	N/A	Web-based Comments	10116	24
Boswell	Diane	not provided	N/A	Web-based Comments	55437	34
Bosworth	Marcy	not provided	N/A	Web-based Comments	22404	24
Boteler	William	not provided	N/A	Web-based Comments	31511	24
Botes	Tarryn	not provided	N/A	Web-based Comments	30212	24
Bothun	Scott	not provided	N/A	Web-based Comments	28457	24
Botta	Ezio	not provided	N/A	Web-based Comments	14370	24
Bottom	Julia	not provided	N/A	Web-based Comments	18746	24
Bottomley	Zoe	not provided	N/A	Web-based Comments	31732	24
Bottoms	Phyllis	not provided	N/A	Web-based Comments	26380	24
Bottorff	Virginia	not provided	N/A	Web-based Comments	45929, 45930	34
Bottorff	Virginia	not provided	N/A	Web-based Comments	31272	24
Botts	Joshua	not provided	N/A	Web-based Comments	18429	24
Botts	Pam	not provided	N/A	Web-based Comments	25489	24
Bouchard	David	not provided	N/A	Web-based Comments	11950	24
Bouchard	Michele	not provided	N/A	Web-based Comments	48220	34
Bouchard	Robyn	not provided	N/A	Web-based Comments	27545	24
Bouchard-Shapiro	Kimberly	not provided	N/A	Web-based Comments	58539	34
Boucher	Eric	not provided	N/A	Web-based Comments	58197	16
Boucher	Helen	not provided	N/A	Web-based Comments	15597	24
Bouder	Barb	not provided	N/A	Web-based Comments	8598	24
Boudewijn	Jacob	not provided	N/A	Web-based Comments	16085	24
Boudreau	Kristina	not provided	N/A	Web-based Comments	20399	24
boudriot	simone	not provided	N/A	Web-based Comments	52569	34
boudrot	mike	not provided	N/A	Web-based Comments	24434	24
Boudrot	Richard	not provided	N/A	Web-based Comments	26945	24
Bouilland	Stacy	not provided	N/A	Web-based Comments	53541	34
Bouilland	Stacy	not provided	N/A	Web-based Comments	29134	24
Boulan	Cassidy	not provided	N/A	Web-based Comments	54167	34
Boulay	Anne	not provided	N/A	Web-based Comments	8174	24
Boulton	Robert	not provided	N/A	Web-based Comments	56505	34
Boumali	Omar	not provided	N/A	Web-based Comments	25443	24
Boumpouridou	Elena	not provided	N/A	Web-based Comments	52904	34
Boumpouridou	Elena	not provided	N/A	Web-based Comments	13645	24
Bountalis	Eleni	not provided	N/A	Web-based comments	57349	35
Bourassa	Veronica	not provided	N/A	Web-based Comments	49767	34
Bourdelle	Stephanie	not provided	N/A	Web-based Comments	29196	24
Bourdon	Norma	not provided	N/A	Web-based Comments	25379	24
Bourget	James	not provided	N/A	Web-based Comments	16182	24
Bourgin	Richard	not provided	N/A	Web-based Comments	26946	24
bourks	claudia	not provided	N/A	Web-based Comments	50054	34
Bourland	Patricia	not provided	N/A	Web-based Comments	25714	24
Bourlotos	George	not provided	N/A	Web-based Comments	54323, 54324	34
Bourlotos	George	not provided	N/A	Web-based Comments	14883	24
Bourne	Gill	not provided	N/A	Web-based Comments	15031	24
Bourne	Richard	not provided	N/A	Web-based Comments	48254	34
Bourne	Richard	not provided	N/A	Web-based Comments	26947	24
Bournhonet	Mav´lle	not provided	N/A	Web-based Comments	45270, 45271	34
Bournhonet	Maëlle	not provided	N/A	Web-based Comments	22225	24
Bourque	Tamara	not provided	N/A	Web-based Comments	30116	24
Bourquin	Heidi	not provided	N/A	Web-based comments	56851	35
Bourquin	Jean-Jacques	not provided	N/A	Web-based comments	56850	35

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Bourquin	Unreadable	not provided	N/A	Web-based comments	56856	35
Bourquin	Unreadable	not provided	N/A	Web-based comments	56852	35
Boushey	Richard	rab@bentonrea.com	N/A	Web-based comments	6241	N/A
Bouslama	Irene	not provided	N/A	Web-based Comments	15896	24
Bousquet	Bob	not provided	N/A	Web-based Comments	46391	34
Boutin	Jennifer	not provided	N/A	Web-based Comments	17162	24
Boutwell	Jonathan	not provided	N/A	Web-based Comments	18274	24
Bouvette	Karla	not provided	N/A	Web-based Comments	54396	34
Bouvier	Kathy	not provided	N/A	Web-based Comments	19683	24
Bouvier-Belleville	Sophie	not provided	N/A	Web-based Comments	29086	24
bouvot	corinne	not provided	N/A	Web-based Comments	11373	24
Bouzidis	Thanasis	not provided	N/A	Web-based Comments	30403	24
Bove	Clifford and Pearl	not provided	N/A	Web-based Comments	11223	24
Bovello	Kathleen	not provided	N/A	Web-based Comments	19513	24
bowden	annika	rainbowkyra@gmail.com	N/A	Web-based comments	2468	1
Bowden	Chauncey	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32476	32
Bowden	Deborah	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32475	32
Bowden	Robin	not provided	N/A	Web-based Comments	27467	24
Bowden	Susan	not provided	N/A	Web-based Comments	58669	34
Bowden	Terry	not provided	N/A	Web-based Comments	49909, 49910	34
Bowels	Boyd	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32515	13
Bowen	Diana	not provided	N/A	Web-based Comments	12758	24
Bowen	Diana	not provided	N/A	Web-based Comments	12759	24
Bowen	Laraine	not provided	N/A	Web-based Comments	48195, 48196	34
Bowen	Larry	not provided	N/A	Web-based Comments	20571	24
Bowen	Nigel	not provided	N/A	Web-based Comments	25273	24
Bowen	Normajean	not provided	N/A	Web-based Comments	46476	34
Bowen	Robert	not provided	N/A	Web-based Comments	27215	24
Bowen	Robert	not provided	N/A	Web-based Comments	27216	24
Bower	Stephen	not provided	N/A	Web-based Comments	29274	24
Bower	Sylvia	not provided	N/A	Web-based Comments	30060	24
Bowering	Lynn	not provided	N/A	Web-based Comments	22049	24
Bowers	Bettina	not provided	N/A	Web-based Comments	9084	24
Bowers	Gail	not provided	N/A	Web-based Comments	58450, 58451	34
Bowers	Gail	not provided	N/A	Web-based Comments	14670	24
Bowers	Joan	not provided	N/A	Web-based Comments	55300	34
Bowers	Joan	not provided	N/A	Web-based Comments	17673	24
Bowers	Laura	lamabowers@gmail.com	N/A	Web-based comments	6643	1
Bowers	Margaret	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32554	N/A
Bowers	Nora	not provided	N/A	Web-based Comments	50204	34
Bowers	Patty	not provided	N/A	Web-based Comments	55041	34
bowers	phoebe	not provided	N/A	Web-based Comments	26371	24
Bowers	Susan	not provided	N/A	Web-based Comments	29609	24
Bowersox	Dustin	not provided	N/A	Web-based comments	3474	13
Bowlby	Ed	not provided	N/A	Web-based Comments	50339	34
Bowlby	Ed	not provided	N/A	Web-based Comments	13433, 13434	24
Bowler	Bert	bertbowler@mac.com	N/A	Web-based comments	6924	N/A
Bowler	Suzanne	not provided	N/A	Web-based Comments	29985	24
Bowles	Carol	not provided	N/A	Web-based Comments	9894	24
Bowles	Christine	not provided	N/A	Web-based Comments	47645	34
Bowles	Christine	not provided	N/A	Web-based Comments	10897	24
Bowley	Adrienne	not provided	N/A	Web-based Comments	7094	24
Bowley	Kat	not provided	N/A	Web-based Comments	52577	34
Bowley	Kat	not provided	N/A	Web-based Comments	19345	24
Bowlin	Roxie	roxie.kremer@gmail.com	N/A	Web-based comments	2288	N/A
Bowling	Beth	not provided	N/A	Web-based Comments	9013	24
Bowman	Alix	not provided	N/A	Web-based Comments	7428	24
Bowman	Annita	not provided	N/A	Web-based Comments	48793, 48794	34
Bowman	Barbara	not provided	N/A	Web-based Comments	8634	24
Bowman	Benjamin	not provided	N/A	Web-based Comments	8962	24
Bowman	Blake	not provided	N/A	Web-based comments	3849	11
Bowman	Claudia	not provided	N/A	Web-based Comments	11176	24
Bowman	Danny	not provided	N/A	Web-based Comments	11833	24
Bowman	Michael	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58736	N/A
Bowman	Pat	not provided	N/A	Web-based Comments	25637	24
Bowman	Ren	not provided	N/A	Web-based Comments	48735	34
Bowman	Renae	not provided	N/A	Web-based Comments	48734	34
Bowman	Timothy	not provided	N/A	Web-based Comments	30638	24
Bowron	Alice	not provided	N/A	Web-based Comments	7333	24
BOWSER	LARRY L	not provided	N/A	Web-based Comments	20596	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Box	Ken	not provided	N/A	Web-based Comments	19964	24
Boxer	Nancy	not provided	N/A	Web-based Comments	24816	24
Boxman	Jerry	not provided	N/A	Web-based Comments	17342	24
Boy	Robert	boyohboy41@aol.com	N/A	Web-based comments	4527	N/A
boy	sascha	not provided	N/A	Web-based Comments	28434	24
Boyall	Cynthia	not provided	N/A	Web-based comments	56700	35
Boyce	G	not provided	N/A	Web-based Comments	14610	24
Boyce	Nancy	not provided	N/A	Web-based Comments	55321, 55322	34
Boyce	Nancy	not provided	N/A	Web-based Comments	24817	24
Boyce	Oscar	oscarb4500@gmail.com	N/A	Web-based comments	2521	N/A
Boyce	Richard	not provided	N/A	Web-based Comments	26948	24
Boyd	Carol	not provided	N/A	Web-based Comments	9895	24
Boyd	Dacy	not provided	N/A	Web-based Comments	11609	24
Boyd	Jordyn	not provided	N/A	Web-based Comments	55295	34
Boyd	Jordyn	not provided	N/A	Web-based Comments	18326	24
BOYD	Justice	not provided	N/A	Web-based Comments	49353	34
Boyd	Leo	not provided	N/A	Web-based Comments	20993	24
Boyd	Susan	not provided	N/A	Web-based Comments	29610	24
Boyd	Walter	not provided	N/A	Web-based Comments	31349	24
Boyden	Roberta	not provided	N/A	Web-based Comments	52324	34
boyd-smith	juliet	juliet_boyd@me.com	N/A	Web-based comments	1043	N/A
Boydston	Charlene	not provided	N/A	Web-based Comments	54901	34
Boyens	Marguerite	not provided	N/A	Web-based Comments	22562	24
Boyer	Amelia	not provided	N/A	Web-based Comments	44786	34
Boyer	Connie	not provided	N/A	Web-based Comments	11294	24
Boyer	David	not provided	N/A	Web-based Comments	51846, 51847	34
Boyer	David	not provided	N/A	Web-based Comments	11951	24
Boyer	Diane	not provided	N/A	Web-based Comments	12822	24
Boyer	Jayne	not provided	N/A	Web-based Comments	53086	34
Boyer	John	not provided	N/A	Web-based Comments	45446	34
Boyer	Richard	not provided	N/A	Web-based Comments	50702	34
Boyer	Sarah	sarah.boyer09@gmail.com	N/A	Web-based comments	5295	N/A
Boyer	Tod	not provided	N/A	Web-based Comments	56306, 56307	34
Boyer	Tod	not provided	N/A	Web-based Comments	30713	24
Boyer	Tracy	not provided	N/A	Web-based Comments	46591	34
Boyett	Marta	not provided	N/A	Web-based Comments	55572	34
Boykan	Bev	not provided	N/A	Web-based Comments	46514	34
Boykin	andrea	not provided	N/A	Web-based Comments	7727	24
Boykiw	Russel	not provided	N/A	Web-based Comments	48935	34
Boyle	Barbara	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32474	11
Boyle	Madeleine	not provided	N/A	Web-based Comments	58690	34
Boyle	Nolan	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32467	13
Boyle	Va	not provided	N/A	Web-based Comments	30993	24
Boyle-Clapp	Dee	not provided	N/A	Web-based Comments	12568	24
Boyles	Carolyn	not provided	N/A	Web-based Comments	48448	34
Boylston	Sandra	not provided	N/A	Web-based comments	57151	35
Boylston	Sandra	not provided	N/A	Web-based Comments	28116	24
Bozich Shetzer	Lynn	not provided	N/A	Web-based Comments	22050	24
Bozowski	Chris	not provided	N/A	Web-based Comments	10720	24
Bozzola	Eliette	not provided	N/A	Web-based Comments	13663	24
Bra	Sus	not provided	N/A	Web-based Comments	29575	24
Braaten	Duane	duane0040@gmail.com	N/A	Web-based comments	5028	N/A
Braaten	Roger	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	56649	N/A
Braatz	Susannah	not provided	N/A	Web-based Comments	29944	24
Brabant	Marie Blanche	not provided	N/A	Web-based Comments	53448	34
brabant	marie blanche	not provided	N/A	Web-based Comments	22732	24
Brabec	Odette	not provided	N/A	Web-based Comments	25422	24
Brabham	Lorraine	not provided	N/A	Web-based Comments	47917	34
Brabham	Lorraine	not provided	N/A	Web-based Comments	21836	24
Brabham	Richard	not provided	N/A	Web-based Comments	26949	24
Brace	Jennifer	not provided	N/A	Web-based Comments	17163	24
Brace	Stephen	not provided	N/A	Web-based Comments	29275	24
Brace	Virginia	not provided	N/A	Web-based Comments	31273	24
Bracken	Fay	not provided	N/A	Web-based Comments	14403	24
Bracken	Laura	not provided	N/A	Web-based comments	6055	N/A
Bracken	Sarah	not provided	N/A	Web-based Comments	45878, 45879	34
Bracken	Sarah	not provided	N/A	Web-based Comments	28331	24
brackenbush	robynn	not provided	N/A	Web-based Comments	27552	24
Brackin	Richard	not provided	N/A	Web-based Comments	26950	24
Brackney	Elisabeth	not provided	N/A	Web-based Comments	49050	34

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Bradberry	Cathy	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32360	13
BRADBURY	DAVID	not provided	N/A	Web-based Comments	53390	34
bradbury	david	not provided	N/A	Web-based Comments	11952	24
Bradbury	Jay	not provided	N/A	Web-based Comments	16802	24
Bradbury	Jeanne	not provided	N/A	Web-based Comments	16937	24
Bradbury	Karen	not provided	N/A	Web-based Comments	19050	24
Braden	Christopher	c.chris.braden@gmail.com	N/A	Web-based comments	5244	N/A
Braden	Lori	not provided	N/A	Web-based Comments	21771	24
BRADEN	MARY ELLEN	not provided	N/A	Web-based Comments	23518	24
Bradford	A	not provided	N/A	Web-based Comments	6954	24
Bradford	Andrew	not provided	N/A	Web-based Comments	7807	24
Bradford	Chris	not provided	N/A	Web-based Comments	10721	24
Bradford	Deborah	not provided	N/A	Web-based Comments	50684	34
bradford	james	not provided	N/A	Web-based Comments	48192	34
Bradford	Jennifer	not provided	N/A	Web-based Comments	50398	34
Bradford	Jennifer	not provided	N/A	Web-based Comments	17164	24
bradford	leslie	not provided	N/A	Web-based Comments	54520	34
Bradford	Lisa	not provided	N/A	Web-based Comments	21528	24
Bradford	Mary	not provided	N/A	Web-based Comments	23221	24
Bradford	Teresa	not provided	N/A	Web-based Comments	30260	24
Bradlaw	Susan	not provided	N/A	Web-based Comments	29611	24
Bradley	Adam	not provided	N/A	Web-based Comments	47140	34
Bradley	Alan	not provided	N/A	Web-based Comments	7154	24
Bradley	Alice	not provided	N/A	Web-based Comments	7334	24
Bradley	Ann	not provided	N/A	Web-based Comments	8010	24
Bradley	Barbara	not provided	N/A	Web-based comments	56989	35
Bradley	Barbara	not provided	N/A	Web-based Comments	8635	24
Bradley	Deeann	not provided	N/A	Web-based Comments	50422, 52918	34
Bradley	DeeAnn	not provided	N/A	Web-based Comments	12584	24
Bradley	James	not provided	N/A	Web-based Comments	48641	34
Bradley	Jennifer	not provided	N/A	Web-based Comments	17165	24
Bradley	Kathy	not provided	N/A	Web-based Comments	50788, 50789	34
Bradley	Kathy	not provided	N/A	Web-based Comments	19684	24
Bradley	Kenn	not provided	N/A	Web-based Comments	20002	24
Bradley	Kevin	not provided	N/A	Web-based Comments	20085	24
Bradley	Leah	not provided	N/A	Web-based Comments	20898	24
Bradley	Mark	not provided	N/A	Web-based Comments	58043	16
Bradley	Marla	not provided	N/A	Web-based Comments	48960	34
Bradley	Marya	not provided	N/A	Web-based Comments	23550	24
Bradley	Neil	not provided	N/A	Web-based Comments	25127	24
bradley	peggy	not provided	N/A	Web-based Comments	26148	24
Bradley	Rhonda	not provided	N/A	Web-based Comments	26892	24
Bradley	Roger	rogerbradley4@gmail.com	N/A	Web-based comments	5482	N/A
Bradley	Ryan	not provided	N/A	Web-based Comments	27906	24
Bradley	Sharon	not provided	N/A	Web-based Comments	55307	34
Bradley	Sue	not provided	N/A	Web-based Comments	29514	24
Bradley	Will	not provided	N/A	Web-based comments	612	1
Bradshaw	Beverly	not provided	N/A	Web-based Comments	9120	24
bradshaw	Ken	not provided	N/A	Web-based comments	2922	N/A
Bradshaw	Seren	not provided	N/A	Web-based Comments	28537	24
Bradshaw	Susan	not provided	N/A	Web-based Comments	45050, 45051	34
Brady	Annemarie	not provided	N/A	Web-based Comments	8270	24
Brady	Dixie	not provided	N/A	Web-based Comments	12977	24
Brady	Hugh	not provided	N/A	Web-based Comments	15817	24
Brady	Jacqueline	not provided	N/A	Web-based Comments	55350	34
Brady	Mary	mary.flegel@gmail.com	N/A	Web-based comments	31776	9
Brady	Sarah	not provided	N/A	Web-based Comments	28332	24
Brady	Suzanne	not provided	N/A	Web-based Comments	29986	24
Brady	Thomas	not provided	N/A	Web-based Comments	58156	16
Brady	Thomas	placerminer@me.com	N/A	Web-based comments	2610	N/A
Brady-Power	Joel	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4665	N/A
Braemer	Doug	not provided	N/A	Web-based Comments	13289	24
Bragdon	Maureen	not provided	N/A	Web-based Comments	23683	24
Bragg	Jason	not provided	N/A	Web-based Comments	16773	24
Braginsky	Cheryl	not provided	N/A	Web-based Comments	10620	24
Braham	Brenda	not provided	N/A	Web-based Comments	46784	34
Braico	Kathleen	not provided	N/A	Web-based Comments	19514	24
Brainin	Sylvia	not provided	N/A	Web-based Comments	30061	24
Braithwaite	Georgia	not provided	N/A	Web-based Comments	48468	34
Braithwaite	Georgia	not provided	N/A	Web-based Comments	14933	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Braithwaite	Kimyn	not provided	N/A	Web-based Comments	20262	24
Brake	Mary K	not provided	N/A	Web-based Comments	23531	24
Braley	L	not provided	N/A	Web-based Comments	58522	34
Bralver	Jessica	not provided	N/A	Web-based Comments	17409	24
Bramble	Benjamin	not provided	N/A	Web-based Comments	8963	24
Bramblett	Sharon S.	not provided	N/A	Web-based Comments	44980	34
Bramlet	John	not provided	N/A	Web-based Comments	17970	24
Branca	Jerome	not provided	N/A	Web-based Comments	17331	24
Branca	Sea	not provided	N/A	Web-based Comments	49641	34
Brancaccio	Ellen	not provided	N/A	Web-based Comments	13895	24
Brancaccio	Marian	not provided	N/A	Web-based Comments	22654	24
Branch	Cheryl	not provided	N/A	Web-based Comments	10621	24
Branch	Mary	not provided	N/A	Web-based Comments	51896, 51897	34
Branco	Marisa	not provided	N/A	Web-based Comments	22863	24
Brand	David	not provided	N/A	Web-based Comments	11953	24
Brand	Dennis	not provided	N/A	Web-based Comments	51911, 51912	34
Brand	Donna	not provided	N/A	Web-based Comments	55913, 55914	34
Brand	Joyce	not provided	N/A	Web-based comments	57177	35
Brand	Robert	not provided	N/A	Web-based Comments	27217	24
Brandv£o	Pedro	not provided	N/A	Web-based Comments	26133	24
Brandariz	Anita	not provided	N/A	Web-based Comments	46822	34
Brandariz	Anita	not provided	N/A	Web-based Comments	7966	24
Brandau	David	not provided	N/A	Web-based Comments	11954	24
Brandenburg	Christa	not provided	N/A	Web-based Comments	10802	24
Brandes	Michael	not provided	N/A	Web-based Comments	48995	34
Brandes	Michael	not provided	N/A	Web-based Comments	24032	24
Brandes	Romy	not provided	N/A	Web-based Comments	48190	34
Brandes	Susan	not provided	N/A	Web-based Comments	53904, 53905	34
Brandlin	Sean	not provided	N/A	Web-based Comments	51739	34
Brandlin	Sean	not provided	N/A	Web-based Comments	28515	24
Brandner	Julia	not provided	N/A	Web-based Comments	18747	24
Brandon	Brian	not provided	N/A	Web-based Comments	9459	24
Brandon	Carolyn	not provided	N/A	Web-based Comments	10144	24
Brandon	Dana	not provided	N/A	Web-based Comments	11687	24
Brandon	Jennifer	not provided	N/A	Web-based Comments	45099	34
Brandon	Sara	not provided	N/A	Web-based Comments	28274	24
Brandon	Victoria	not provided	N/A	Web-based Comments	31184	24
Brandt	Alexandra	not provided	N/A	Web-based Comments	7274	24
brandt	anicca	not provided	N/A	Web-based Comments	7958	24
Brandt	Cathy	not provided	N/A	Web-based Comments	57942, 46663	16, 34
Brandt	Cathy	not provided	N/A	Web-based Comments	10351	24
Brandt	Donna	not provided	N/A	Web-based Comments	13110	24
Brandt	Ellen	not provided	N/A	Web-based Comments	13896	24
Brandt	Kate	not provided	N/A	Web-based Comments	49830	34
Brandt	Kathryn	not provided	N/A	Web-based Comments	19622	24
Brandt	Maynard	not provided	N/A	Web-based Comments	23764	24
Brandt	Rev Edgar	not provided	N/A	Web-based Comments	26869	24
Brandt	Sara	not provided	N/A	Web-based Comments	28275	24
Brandt	V.L.	not provided	N/A	Web-based Comments	44583, 44584	34
Brandt	Vicky	not provided	N/A	Web-based Comments	31162	24
Brandt	Yvonne	not provided	N/A	Web-based Comments	31690	24
Brandwein	Cheryl	not provided	N/A	Web-based Comments	10622	24
Brandwijk	Sebastiaan	s.brandwijk@gmail.com	N/A	Web-based comments	6385	1
Branen	Karen	not provided	N/A	Web-based Comments	19051	24
Brankin	Kevin	not provided	N/A	Web-based Comments	20086	24
Brannigan	Kelly	not provided	N/A	Web-based Comments	45301	34
Brannigan	Kelly	not provided	N/A	Web-based Comments	19911	24
Brannin	Tamara	not provided	N/A	Web-based Comments	30117	24
Brannon	Erica	not provided	N/A	Web-based Comments	55049	34
Brannon	Heather	heatherbranno@gmail.com	N/A	Web-based comments	172	1
Bransford	Gladys	not provided	N/A	Web-based Comments	52380	34
Branson	Jack	not provided	N/A	Web-based Comments	16028	24
Branson	Robert	not provided	N/A	Web-based Comments	27218	24
Branstetter	Kevin	not provided	N/A	Web-based Comments	20087	24
Brant	Daniel	not provided	N/A	Web-based Comments	48289	34
Brant	Daniel	not provided	N/A	Web-based Comments	11725	24
Brant	Karen	not provided	N/A	Web-based Comments	52860, 52861	34
Brant	Karen	not provided	N/A	Web-based Comments	19052	24
Brant	Stephen	not provided	N/A	Web-based comments	5148	8
Brantley	Riley	not provided	N/A	Web-based Comments	27114	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Brantley	Robin	not provided	N/A	Web-based comments	57485	35
Brantley	Tara	not provided	N/A	Web-based Comments	55108	34
Braoudakis	Spyros	not provided	N/A	Web-based Comments	46323	34
Braoudakis	Spyros	not provided	N/A	Web-based Comments	29098	24
Brashears	Karen	not provided	N/A	Web-based Comments	19053	24
Brasher	David	dnebrash1@comcast.net	N/A	Web-based comments	4480	N/A
Brashier	Brooke	not provided	N/A	Web-based Comments	9581	24
Brass	Barbara	not provided	N/A	Web-based Comments	8636	24
bratanov	lisa	not provided	N/A	Web-based Comments	21529	24
Braude	Michael	not provided	N/A	Web-based Comments	24033	24
Brauer	C	not provided	N/A	Web-based Comments	9663	24
Brauer	Sharon	not provided	N/A	Web-based Comments	28633	24
Braumiller	Tanya	not provided	N/A	Web-based Comments	30179	24
Braun	Benedikt	not provided	N/A	Web-based Comments	46564	34
Braun	Beth	not provided	N/A	Web-based Comments	9014	24
Braun	Christina	not provided	N/A	Web-based Comments	10845	24
Braun	Clait	not provided	N/A	Web-based Comments	11154	24
Braun	Conchita	not provided	N/A	Web-based Comments	11286	24
Braun	Isabella	not provided	N/A	Web-based Comments	15941	24
Braun	Jill	not provided	N/A	Web-based Comments	52473	34
Braun	M. E.	not provided	N/A	Web-based Comments	58053	16
Braun	Paula	not provided	N/A	Web-based Comments	26072	24
Braun	Ricarda	not provided	N/A	Web-based Comments	26915	24
Brauner	Kalman	k.brauner-np@comcast.net	N/A	Web-based comments	32125	N/A
Braunersreuther	Katja	not provided	N/A	Web-based Comments	55692	34
Braunlich	Emil	not provided	N/A	Web-based comments	57213	35
Braunlich	Gregory	not provided	N/A	Web-based comments	57569	35
Braunlich	Karen	not provided	N/A	Web-based comments	57214	35
Braunlich	Sabrina	not provided	N/A	Web-based comments	56977	35
Bravenec	April	not provided	N/A	Web-based Comments	8378	24
Bravo	Karen	not provided	N/A	Web-based Comments	52140, 52141	34
Bravo	Karen	not provided	N/A	Web-based Comments	19054	24
Bravo	Melissa	not provided	N/A	Web-based Comments	23875	24
Bray	Chris	not provided	N/A	Web-based Comments	10722	24
Bray	Ed	not provided	N/A	Web-based Comments	13435	24
Bray	Laura A.	not provided	N/A	Web-based Comments	20723	24
Bray	Olin	not provided	N/A	Web-based Comments	25432	24
Brazie	Joe	not provided	N/A	Web-based Comments	58085	16
Brazil	Catherine	not provided	N/A	Web-based Comments	10258	24
Brazis	Chris	not provided	N/A	Web-based Comments	55795	34
Brazzell	Christine	not provided	N/A	Web-based Comments	51977, 51978	34
breaching	Please	info@ravenstudiosart.com	N/A	Web-based comments	4508	N/A
Breakfield	Sandra	not provided	N/A	Web-based Comments	28117	24
Breakstone	Enid	not provided	N/A	Web-based Comments	48288	34
Breazeale	Joseph	not provided	N/A	Web-based Comments	45066	34
Brebrick	Patrick	not provided	N/A	Web-based comments	3504	N/A
Brech	Patricia	not provided	N/A	Web-based Comments	50729, 53713	34
Brech	Patricia	not provided	N/A	Web-based Comments	25715	24
Brecher	Henry	not provided	N/A	Web-based Comments	15661	24
Brecht	Raleigh	not provided	N/A	Web-based Comments	52061	34
Brecht	Raleigh	not provided	N/A	Web-based Comments	26584	24
Bredeson	Craig	not provided	N/A	Web-based Comments	11413	24
Bredlove	Richard	not provided	N/A	Web-based Comments	26951	24
Bredow	Cynthia	not provided	N/A	Web-based Comments	11494	24
Bree	Frank Van	not provided	N/A	Web-based Comments	49535	34
Breecker	David	not provided	N/A	Web-based Comments	11955	24
Breeden	Ann	not provided	N/A	Web-based Comments	8011	24
Breeden	Paul	not provided	N/A	Web-based Comments	25975	24
Breen	Carrie	not provided	N/A	Web-based Comments	10193	24
Breen	Sue	not provided	N/A	Web-based Comments	29515	24
Breen	Susan	not provided	N/A	Web-based Comments	55303	34
Bregonsul	Megane	meganebreg@gmail.com	N/A	Web-based comments	1232, 1388	1
Brehm	Adam	not provided	N/A	Web-based Comments	51992	34
Brehm	Kevin	not provided	N/A	Web-based Comments	54336	34
Brehm	Lisa	not provided	N/A	Web-based Comments	44946	34
Breiby	John	not provided	N/A	Web-based Comments	17971	24
Breidegam	Michael	not provided	N/A	Web-based Comments	24034	24
Breidenbach	Karen	not provided	N/A	Web-based Comments	19055	24
Breiding	Stephanie	not provided	N/A	Web-based Comments	45706	34
Breit	Allan	not provided	N/A	Web-based Comments	7430	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Breitwater	Pamela	not provided	N/A	Web-based Comments	50603	34
Brelsford	Susanna	not provided	N/A	Web-based Comments	29937	24
Bremner	Fiona	not provided	N/A	Web-based Comments	14433	24
Brems	Marianne	not provided	N/A	Web-based Comments	22670	24
brenden	kevin	brendenwoodworking@gmail.com	N/A	Web-based comments	6067	N/A
Brenen	Hannah	not provided	N/A	Web-based Comments	49842, 49843	34
Brenen	Hannah	not provided	N/A	Web-based Comments	15396	24
Brennan	Andrew	not provided	N/A	Web-based comments	4547	N/A
Brennan	David	not provided	N/A	Web-based Comments	11956	24
Brennan	Dianna	not provided	N/A	Web-based Comments	12926	24
Brennan	Ed	not provided	N/A	Web-based Comments	13436	24
Brennan	Jessica	not provided	N/A	Web-based comments	57090	35
Brennan	John	not provided	N/A	Web-based Comments	17972	24
Brennan	Judith	not provided	N/A	Web-based Comments	18569	24
Brennan	Kari	not provided	N/A	Web-based Comments	51541	34
Brennan	Kari	not provided	N/A	Web-based Comments	19265	24
Brennan	Shannon	not provided	N/A	Web-based Comments	28581	24
Brennan	Timothy	not provided	N/A	Web-based Comments	30639	24
Brennann	Lynda	not provided	N/A	Web-based Comments	49034	34
Brennan-Nash	Kathleen	not provided	N/A	Web-based Comments	19515	24
Brenneke	Marjorie	not provided	N/A	Web-based Comments	45886	34
Brenneman	Kevin	not provided	N/A	Web-based Comments	20088	24
Brennen	Alison	not provided	N/A	Web-based Comments	7401	24
Brenner	Alexander	not provided	N/A	Web-based Comments	7259	24
Brenner	Jared	not provided	N/A	Web-based Comments	56562	34
Brenner	Jared	not provided	N/A	Web-based Comments	16756	24
Brenner	Natasha	not provided	N/A	Web-based Comments	49682, 49683, 49684	34
Brenner	Vicki	not provided	N/A	Web-based Comments	31120	24
Brenner-Ward	Isis	not provided	N/A	Web-based Comments	15951	24
Brensinger	Elizabeth	not provided	N/A	Web-based Comments	13710	24
Brent	Koehler	bkkoehler@yahoo.com	N/A	Web-based comments	5291	8
Brent	Kyle	not provided	N/A	Web-based Comments	46627	34
Brent	Molly	not provided	N/A	Web-based Comments	24593	24
Brentlinger	Eric	brent.eric53@gmail.com	N/A	Web-based comments	3108	N/A
Brents	Julie	not provided	N/A	Web-based Comments	51816	34
Brenza	Tina	not provided	N/A	Web-based Comments	45502	34
Brenza	Tina	not provided	N/A	Web-based Comments	30667	24
Breon	David	not provided	N/A	Web-based Comments	11957	24
Brereton	Alexandria	not provided	N/A	Web-based comments	4097	N/A
Brereton	John	jaybrereton@hotmail.com	N/A	Web-based comments	6173	N/A
Breskin	Julie	not provided	N/A	Web-based Comments	18818	24
Breslau	Esther	not provided	N/A	Web-based Comments	14270	24
Breslin	PJ	not provided	N/A	Web-based Comments	26420	24
Bresnahan	Gerard	not provided	N/A	Web-based Comments	14977	24
Bressan	Katherine	not provided	N/A	Web-based Comments	51084	34
Bressan	Katherine	not provided	N/A	Web-based Comments	19436	24
Bressanin	Paolo	not provided	N/A	Web-based Comments	25615	24
Bressler	Darlene	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58732	13
Bressler	David	not provided	N/A	Web-based Comments	11958	24
Bressler	Robin	not provided	N/A	Web-based Comments	56069	34
Brest	Brad	bbrest@gmail.com	N/A	Web-based comments	4539	N/A
Bretl	Jeff	not provided	N/A	Web-based Comments	17006	24
Brett	Maureen	not provided	N/A	Web-based Comments	23684	24
Brettell-Vaughn	Marianne	not provided	N/A	Web-based Comments	22671	24
Brevig	Lynn	not provided	N/A	Web-based Comments	53903	34
Brewer	Amanda	not provided	N/A	Web-based Comments	7521	24
Brewer	David	not provided	N/A	Web-based Comments	11959	24
Brewer	Ginger	not provided	N/A	Web-based Comments	15072	24
Brewer	Judy	not provided	N/A	Web-based Comments	55810, 55811	34
Brewer	Kerry	not provided	N/A	Web-based Comments	54330, 54331	34
Brewer	Leann	not provided	N/A	Web-based Comments	20912	24
Brewer	Naomi	not provided	N/A	Web-based Comments	25042	24
Brewer	Norman	not provided	N/A	Web-based Comments	25395	24
Brewer	Peggy	not provided	N/A	Web-based Comments	57772	34
Brewer	Richard	not provided	N/A	Web-based Comments	26952	24
Brewer	Robert	not provided	N/A	Web-based Comments	54862	34
Brewer	Sarah	not provided	N/A	Web-based Comments	28333	24
Brewer	Stanley	not provided	N/A	Web-based Comments	29154	24
Brewer	Suzanne	not provided	N/A	Web-based Comments	29987	24
Brewster	Anna	not provided	N/A	Web-based Comments	51946, 51947	34

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Brewster	Fielding	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58754	13
Brewster	Matt	not provided	N/A	Web-based Comments	23607	24
Breyman	Steve	not provided	N/A	Web-based Comments	46737	34
Breznik	Ivana	not provided	N/A	Web-based Comments	45549	34
Briand	FranV£¬ßOise	not provided	N/A	Web-based Comments	14466	24
Brians	Megan	not provided	N/A	Web-based comments	4976	1
Brickel	Carol	not provided	N/A	Web-based Comments	9896	24
Brickell	Julie	not provided	N/A	Web-based Comments	51143	34
Brickman	Judith	not provided	N/A	Web-based Comments	48105	34
Brideau	Sharon	not provided	N/A	Web-based Comments	28634	24
bridges	cathi	not provided	N/A	Web-based Comments	10336	24
Bridges	Clare	not provided	N/A	Web-based Comments	11157	24
Bridges	Lauren	not provided	N/A	Web-based Comments	54683	34
Bridges	Linda	not provided	N/A	Web-based Comments	21210	24
Bridges	Teresa	not provided	N/A	Web-based Comments	30261	24
Bridgett	Nicholas	not provided	N/A	Web-based Comments	48952	34
Bridgett	Nicholas	not provided	N/A	Web-based Comments	25159	24
Brienze	Barbara	not provided	N/A	Web-based Comments	8637	24
Brier	Jonathan	not provided	N/A	Web-based Comments	18275	24
Brierre	William	not provided	N/A	Web-based Comments	31512	24
Briesmaster	Allan	not provided	N/A	Web-based Comments	7431	24
Brigandi	Joseph	not provided	N/A	Web-based Comments	18346	24
Briggs	Anne	not provided	N/A	Web-based Comments	8175	24
Briggs	Doris	not provided	N/A	Web-based Comments	46819	34
Briggs	Hope	not provided	N/A	Web-based Comments	15784	24
Briggs	Josephine	not provided	N/A	Web-based Comments	18408	24
Briggs	Susan	not provided	N/A	Web-based Comments	48519	34
Briggs	William	not provided	N/A	Web-based Comments	31513	24
Brigham	Barbara	not provided	N/A	Web-based Comments	8638	24
Brigham	Kitty	not provided	N/A	Web-based Comments	44716	34
Bright	Arthur	not provided	N/A	Web-based Comments	8457	24
Bright	Livvie	brightol@whitman.edu	N/A	Web-based comments	6693	N/A
Brignell	Kelly	not provided	N/A	Web-based Comments	50077, 50281	34
Briker	Pirmin	not provided	N/A	Web-based Comments	26417	24
Brill	Lesley	not provided	N/A	Web-based Comments	57785	34
Brillet	Raphael	raphael.brillet@gmail.com	N/A	Web-based comments	347	1
Brimecombe	Lynne	not provided	N/A	Web-based Comments	22121	24
brimhall	NANCY	brmhll@comcast.net	N/A	Web-based comments	3399	N/A
Brinckloe	Julia	not provided	N/A	Web-based Comments	18748	N/A
Brinderson	Ella	not provided	N/A	Web-based Comments	13884	24
Brindle	Maria	not provided	N/A	Web-based Comments	44985, 45073	34
Brindley	Eric	not provided	N/A	Web-based comments	57746	35
Brindley	Madeleine	not provided	N/A	Web-based comments	57575	35
Brinegar	Toni	tonibb75@gmail.com	N/A	Web-based comments	6259	N/A
Briner	Helen	not provided	N/A	Web-based Comments	52563	34
Briner	Helen	not provided	N/A	Web-based Comments	15598	24
Brines	Karen	not provided	N/A	Web-based Comments	19056	24
Brink	Cheri	not provided	N/A	Web-based Comments	10602	24
Brink	Katrina	not provided	N/A	Web-based Comments	19802	24
Brink	Shirley	not provided	N/A	Web-based Comments	28943	24
Brinkdopke	Paul	not provided	N/A	Web-based Comments	25976	24
Brinker	Deb	not provided	N/A	Web-based Comments	46028	34
Brinker	Debra	not provided	N/A	Web-based Comments	12506	24
Brinker	Erica	not provided	N/A	Web-based Comments	14156	24
Brinkley	John	not provided	N/A	Web-based Comments	54551	34
Brinkley	Mike	not provided	N/A	Web-based Comments	57947	16
Brinkman	John	not provided	N/A	Web-based Comments	49078	34
Brinkman	John	not provided	N/A	Web-based Comments	17973	24
Brinkman	Lisabette	not provided	N/A	Web-based Comments	21662	24
Brinkman	Sharon	not provided	N/A	Web-based Comments	28635	24
briolet	Pauline	pauline.briolet54@gmail.com	N/A	Web-based comments	1936	1
Briones	Evan	not provided	N/A	Web-based Comments	14324	24
BRISBY	ORLENA	obrisby@charter.net	N/A	Web-based comments	3135	N/A
Brisby	Susan	not provided	N/A	Web-based Comments	29612	24
Brisch	Karen	not provided	N/A	Web-based Comments	54724	34
Briscoe	Lana L	not provided	N/A	Web-based Comments	44753	34
Brisen	Henry	not provided	N/A	Web-based Comments	45263	34
Brisson	Elaine	not provided	N/A	Web-based Comments	13576	24
Brisson	William	not provided	N/A	Web-based Comments	31514	24
Bristol	Nancy	not provided	N/A	Web-based Comments	24818	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Bristol	Tim	timsalmonstate@gmail.com	N/A	Web-based comments	31761	N/A
Bristow	Gloria	not provided	N/A	Web-based Comments	46029, 46030	34
Bristow	Mary	not provided	N/A	Web-based Comments	23222	24
bristow	r	not provided	N/A	Web-based Comments	26468	24
Britt	Susan	not provided	N/A	Web-based Comments	29613	24
Brittle	Stephen	not provided	N/A	Web-based Comments	29276	24
Britton	Craig	not provided	N/A	Web-based Comments	11414	24
Britton	Joanne	not provided	N/A	Web-based Comments	44306, 44307	34
Britton	Joanne	not provided	N/A	Web-based Comments	17794	24
Britton	Kathy	not provided	N/A	Web-based Comments	19685	24
BRIZARD DE FORGES	[illegible]	not provided	N/A	Web-based Comments	15887	24
Brizzi	Paul	not provided	N/A	Web-based Comments	46056	34
Brizzi	Paul	not provided	N/A	Web-based Comments	25977	24
Broad	Alison	not provided	N/A	Web-based Comments	7402	24
broadbeck	virginia	not provided	N/A	Web-based Comments	54809	34
Broadbeck	Virginia	not provided	N/A	Web-based Comments	31274	24
Broadhurst	Adam	not provided	N/A	Web-based comments	56939	35
Broadwater	David	not provided	N/A	Web-based Comments	55815, 55816	34
broche	leora	not provided	N/A	Web-based Comments	54469	34
broche	leora	not provided	N/A	Web-based Comments	21020	24
Brochman	Mark	not provided	N/A	Web-based Comments	22902	24
Brocious	Pamela	not provided	N/A	Web-based Comments	52986, 53080	34
Brocious	Pamela	not provided	N/A	Web-based Comments	25527	24
Brock	Bill	not provided	N/A	Web-based Comments	9165	24
Brock	Charles	not provided	N/A	Web-based Comments	10489	24
Brock	Jeffrey	not provided	N/A	Web-based Comments	17070	24
Brock	John	not provided	N/A	Web-based Comments	17974	24
brock	jon	not provided	N/A	Web-based Comments	53872, 53873	34
brock	jon	not provided	N/A	Web-based Comments	18246	24
Brock	Robin	not provided	N/A	Web-based Comments	27468	24
Brockdorf	Yulia	not provided	N/A	Web-based Comments	55055	34
Brockelman	Amy	not provided	N/A	Web-based Comments	7594	24
Brocker	Frank	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32378	N/A
Brockman	Bette	not provided	N/A	Web-based Comments	52158	34
Brockmann	Judith	not provided	N/A	Web-based Comments	18570	24
Brockway	Barbara	not provided	N/A	Web-based Comments	8639	24
Brockway	Renee	not provided	N/A	Web-based Comments	26838	24
Brod	Natalie	not provided	N/A	Web-based Comments	25061	24
Brod	Peggy	not provided	N/A	Web-based Comments	26149	24
Broderick	Deborah	not provided	N/A	Web-based Comments	49244	34
BRODERICK	WILLIAM	not provided	N/A	Web-based Comments	31515	24
brodie	brynn	not provided	N/A	Web-based Comments	9647	24
Brodnax	David	not provided	N/A	Web-based Comments	11960	24
Brody	Alice	not provided	N/A	Web-based Comments	7335	24
Brody	Jane	not provided	N/A	Web-based Comments	16466	24
Brody	Pamela	not provided	N/A	Web-based Comments	25528	24
Brody	Susan	not provided	N/A	Web-based Comments	29614	24
Broeckx	Hilde	not provided	N/A	Web-based Comments	15709	24
Broeder	Pamela	not provided	N/A	Web-based Comments	25529	24
Broeke	Trisha	not provided	N/A	Web-based Comments	30925	24
Broeke	Trisha ten	not provided	N/A	Web-based Comments	57989, 45534	16, 34
Broendel	Jane	not provided	N/A	Web-based Comments	58633	34
Broendel	Jane	not provided	N/A	Web-based Comments	16467	24
Broermann	Annette	not provided	N/A	Web-based Comments	8277	24
Broersma	Don	not provided	N/A	Web-based Comments	13013	24
Brogna	Donna	not provided	N/A	Web-based Comments	13111	24
Brohl	Dagmar	not provided	N/A	Web-based Comments	11611	24
Brokens	Blayne	bbrokens@msn.com	N/A	Web-based comments	3430* – No attachment with submission, co-lead agencies reached out	N/A
broll	carol	not provided	N/A	Web-based Comments	9897	24
Bromander	Kerstin	not provided	N/A	Web-based Comments	20076	24
Bromber	Lynnb	not provided	N/A	Web-based Comments	22112	24
Bromborsky	Alan	not provided	N/A	Web-based Comments	7155	24
Bromelmeier	Pepper	not provided	N/A	Web-based Comments	26220	24
Bromer	Peter	not provided	N/A	Web-based Comments	26241	24
Bromer	Ruth	not provided	N/A	Web-based Comments	27854	24
Broms	Sharon	not provided	N/A	Web-based Comments	28636	24
Brong	Mary	not provided	N/A	Web-based Comments	23223	24
Bronson	Bill	bill.bronson@bresnan.net	N/A	Web-based comments	2818	N/A

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Bronson	Christopher	not provided	N/A	Web-based Comments	53799	34
bronson	jonette	not provided	N/A	Web-based Comments	18305	24
Bronson	Kim	not provided	N/A	Web-based Comments	20165	24
Bronson	Mary	not provided	N/A	Web-based Comments	23224	24
Bronstein	Linda	not provided	N/A	Web-based Comments	21211	24
Bronwein	Elliot	not provided	N/A	Web-based Comments	13966	24
Brook	Denise	not provided	N/A	Web-based Comments	12631	24
Brook	JoAutumn	not provided	N/A	Web-based Comments	49090	34
Brooker	Barb	not provided	N/A	Web-based Comments	8599	24
Brooker	Eric	not provided	N/A	Web-based Comments	46786, 46787	34
Brooker	Eric	not provided	N/A	Web-based Comments	14092	24
Brooker	Gary	not provided	N/A	Web-based Comments	14756	24
Brooker	M	not provided	N/A	Web-based Comments	22167	24
Brookman	Bari	not provided	N/A	Web-based Comments	8851	24
Brookman	Gerald	not provided	N/A	Web-based comments	57497	35
Brookman	Lesley	not provided	N/A	Web-based comments	57624	35
Brookman	Lesley	not provided	N/A	Web-based Comments	47864	34
brooks	amra	not provided	N/A	Web-based Comments	7589	24
Brooks	Antonia	not provided	N/A	Web-based Comments	54953	34
Brooks	Ben	not provided	N/A	Web-based Comments	56386, 56387	34
Brooks	Ben	not provided	N/A	Web-based Comments	8933	24
Brooks	Brian	brianbrooks59@msn.com	N/A	Web-based comments	4465	N/A
Brooks	Brian	brianbrooks59@msn.com	N/A	Hand-delivered or oral testimony (personally delivered)	5544	N/A
Brooks	Cathi	not provided	N/A	Web-based Comments	10337	24
Brooks	Deborah	not provided	N/A	Web-based Comments	12372	24
Brooks	Donna	not provided	N/A	Web-based Comments	50955	34
Brooks	Donna	not provided	N/A	Web-based Comments	13112	24
Brooks	Dorothy Lynn	not provided	N/A	Web-based Comments	46354	34
Brooks	Dr John	not provided	N/A	Web-based Comments	52667	34
Brooks	Elizabeth	brooksl@peak.org	N/A	Web-based comments	3052	9
Brooks	Geraldine	not provided	N/A	Web-based Comments	52994	34
Brooks	Geraldine	not provided	N/A	Web-based Comments	14968	24
Brooks	Gini	not provided	N/A	Web-based Comments	15075	24
Brooks	Gregory	not provided	N/A	Web-based Comments	15270	24
brooks	heidi	not provided	N/A	Web-based Comments	15562	24
Brooks	Joan	not provided	N/A	Web-based Comments	17674	24
Brooks	Jonica	not provided	N/A	Web-based Comments	18310	24
Brooks	Keith	not provided	N/A	Web-based comments	4074	N/A
Brooks	Kim	not provided	N/A	Web-based Comments	20166	24
Brooks	Kimberly	not provided	N/A	Web-based Comments	20217	24
Brooks	Mary	not provided	N/A	Web-based Comments	23225	24
Brooks	Patricia D	not provided	N/A	Web-based Comments	25882	24
Brooks	Paul	not provided	N/A	Web-based Comments	53601	34
Brooks	Paul	not provided	N/A	Web-based Comments	25978	24
Brooks	Rebecca	not provided	N/A	Web-based Comments	26712	24
Brooks	Regina	not provided	N/A	Web-based Comments	45497, 45498	34
Brooks	Regina	not provided	N/A	Web-based Comments	26803	24
brooks	rosemary	not provided	N/A	Web-based Comments	48811	34
Brooks	Sandy	not provided	N/A	Web-based Comments	28239	24
Brooks	Sara	not provided	N/A	Web-based comments	56727	35
Brooks	Walter	not provided	N/A	Web-based Comments	31350	24
Brooks Taylor	Maggie	not provided	N/A	Web-based Comments	22263	24
Brooks-Fetty	Cynthia	not provided	N/A	Web-based Comments	51150	34
Brooks-Fetty	Cynthia	not provided	N/A	Web-based Comments	11495	24
Brookshier	Janice	not provided	N/A	Web-based Comments	47754	34
Brookshire	Becky	not provided	N/A	Web-based Comments	8906	24
Brookshire	Neil	not provided	N/A	Web-based Comments	25128	24
Broom	Jo	not provided	N/A	Web-based Comments	17638	24
Broomall	Robert	not provided	N/A	Web-based Comments	27219	24
Broome	Gillian	not provided	N/A	Web-based Comments	56118, 56119	34
Brophy	Eileen	not provided	N/A	Web-based Comments	13540	24
Brosius	Ann	not provided	N/A	Web-based Comments	8012	24
Brossa	Barry	not provided	N/A	Web-based Comments	8859	24
Brostek	Nicole	not provided	N/A	Web-based Comments	25227	24
Brothers	Alan	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4267	N/A
Brothers	Donna	pjbrosr@gmail.com	N/A	Web-based comments	4884	N/A
Brotherton	Elizabeth	not provided	N/A	Web-based Comments	13711	24
Brotze	Wayne	not provided	N/A	Web-based Comments	31390	24
Broughton	Ann-Toy E.	not provided	N/A	Web-based Comments	8320	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Broughton	Beatrice	not provided	N/A	Web-based Comments	8890	24
Broughton	Marilyn	not provided	N/A	Web-based Comments	54276	34
Broughton	Robert	rbroughton007@hotmail.com	N/A	Web-based comments	4318	N/A
Brouillet	Ellen	not provided	N/A	Web-based Comments	13897	24
Broussard	Gregory	not provided	N/A	Web-based Comments	15271	24
Brower	Deborah	not provided	N/A	Web-based Comments	12373	24
brower	kim	not provided	N/A	Web-based Comments	44812, 44813	34
Brower	Scot	scotbrower@gmail.com	N/A	Web-based comments	5431	N/A
Brown	Adam	not provided	N/A	Web-based Comments	7042	24
Brown	Alan	not provided	N/A	Web-based Comments	46900	34
Brown	Aleasha	not provided	N/A	Web-based Comments	53704	34
Brown	Andrew	not provided	N/A	Web-based comments	32020	N/A
Brown	Arlene	not provided	N/A	Web-based Comments	8423	24
Brown	Ashley	sweeteyes0601@yahoo.com	N/A	Web-based comments	1238	1
Brown	Barbara	not provided	N/A	Web-based Comments	54282, 54283	34
Brown	Barbara	not provided	N/A	Web-based Comments	8640	24
Brown	Barbara	not provided	N/A	Web-based Comments	8641	24
Brown	Barbara	not provided	N/A	Web-based Comments	8642	24
Brown	Betty	not provided	N/A	Web-based Comments	44317	34
Brown	Bo	not provided	N/A	Web-based Comments	9224	24
Brown	Bonnie	not provided	N/A	Web-based Comments	9284	24
BROWN	BRIAN	not provided	N/A	Web-based Comments	9460	24
Brown	C Juliette	not provided	N/A	Web-based Comments	9687	24
Brown	Candace	not provided	N/A	Web-based Comments	9752	24
Brown	Cecilia	not provided	N/A	Web-based Comments	54933	34
Brown	Colleen	not provided	N/A	Web-based Comments	11256	24
Brown	Connie	not provided	N/A	Web-based Comments	11295	24
Brown	D. Patricia	not provided	N/A	Web-based Comments	11602	24
brown	dace	not provided	N/A	Web-based Comments	11606	24
Brown	Damon	not provided	N/A	Web-based Comments	46986, 46987	34
Brown	Danielle	not provided	N/A	Web-based Comments	51963	34
Brown	Dannis	not provided	N/A	Web-based Comments	11832	24
brown	david	not provided	N/A	Web-based Comments	50583	34
Brown	David	not provided	N/A	Web-based Comments	11961	24
Brown	Deja	not provided	N/A	Web-based Comments	12594	24
Brown	Denise	not provided	N/A	Web-based Comments	56368	34
Brown	Diane	not provided	N/A	Web-based Comments	12823	24
Brown	Donna	not provided	N/A	Web-based Comments	52335	34
Brown	Donna	not provided	N/A	Web-based Comments	13113	24
Brown	Doug	not provided	N/A	Web-based Comments	48924, 48925	34
Brown	Doug	not provided	N/A	Web-based Comments	13290	24
Brown	Douglas	not provided	N/A	Web-based Comments	13322	24
Brown	Duncan	not provided	N/A	Web-based Comments	56404	34
Brown	Duncan	not provided	N/A	Web-based Comments	13387	24
Brown	Edith	not provided	N/A	Web-based Comments	55664	34
brown	erica	not provided	N/A	Web-based Comments	53259	34
Brown	Erin	not provided	N/A	Web-based comments	32105	1
Brown	Evan	not provided	N/A	Web-based Comments	14325	24
Brown	Gabriella	not provided	N/A	Web-based Comments	14648	24
Brown	Gehr	not provided	N/A	Web-based Comments	14842	24
Brown	Ginger	artist5390@charter.net	N/A	Web-based comments	420	N/A
Brown	Greg	not provided	N/A	Web-based Comments	15227	24
Brown	H	not provided	N/A	Web-based Comments	45687	34
Brown	H	not provided	N/A	Web-based Comments	15363	24
Brown	Harley	not provided	N/A	Web-based Comments	15436	24
Brown	Harold	not provided	N/A	Web-based Comments	15441	24
Brown	Ian	ijbrown7@gmail.com	N/A	Web-based comments	201	N/A
Brown	Ian	not provided	N/A	Web-based Comments	54232	34
Brown	Ingrid	not provided	N/A	Web-based Comments	15871	24
Brown	Ingrid	not provided	N/A	Web-based Comments	15872	24
Brown	Jacquin	not provided	N/A	Web-based Comments	16149	24
Brown	JAMES	not provided	N/A	Web-based Comments	48549	34
BROWN	JAMES	not provided	N/A	Web-based Comments	48548	34
Brown	James	not provided	N/A	Web-based Comments	16183	24
Brown	James	not provided	N/A	Web-based Comments	16184	24
Brown	Jamie	not provided	N/A	Web-based Comments	16352	24
Brown	Jane	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32435	N/A
Brown	Janice	not provided	N/A	Web-based Comments	16670	24
Brown	Jeff	not provided	N/A	Web-based Comments	46951	34
Brown	Jeff	not provided	N/A	Web-based Comments	17007	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Brown	Jen	jenniferabrown93@gmail.com	N/A	Web-based comments	6795	1
Brown	Jessi	not provided	N/A	Web-based Comments	17405	24
Brown	Jill	not provided	N/A	Web-based Comments	53469	34
Brown	Joe	not provided	N/A	Web-based Comments	50079	34
Brown	Johanna	not provided	N/A	Web-based Comments	17938	24
Brown	John	not provided	N/A	Web-based Comments	17975	24
Brown	Jona	not provided	N/A	Web-based comments	57256	35
Brown	Joshua	not provided	N/A	Web-based Comments	18430	24
Brown	Joy	not provided	N/A	Web-based Comments	18457	24
Brown	Joy Turner	not provided	N/A	Web-based Comments	58563	34
brown	judy	not provided	N/A	Web-based Comments	18668	24
Brown	Julie	not provided	N/A	Web-based Comments	18819	24
Brown	Katherine	not provided	N/A	Web-based Comments	19437	24
Brown	Kay	not provided	N/A	Web-based Comments	53616	34
Brown	Kevin	not provided	N/A	Web-based Comments	49119, 50658	34
brown	kiley	not provided	N/A	Web-based Comments	20158	24
Brown	Kimberly	not provided	N/A	Web-based Comments	20218	24
Brown	Kimberly	not provided	N/A	Web-based Comments	20219	24
Brown	Kinsey	not provided	N/A	Web-based Comments	54028	34
Brown	Kristina	not provided	N/A	Web-based Comments	46924	34
Brown	Lauren	not provided	N/A	Web-based Comments	20760	24
Brown	Lauryn	not provided	N/A	Web-based Comments	45750	34
Brown	Lauryn	not provided	N/A	Web-based Comments	20869	24
Brown	Leslie	not provided	N/A	Web-based Comments	21059	24
Brown	Linda	not provided	N/A	Web-based Comments	21212	24
Brown	Lisi	not provided	N/A	Web-based Comments	56582	34
Brown	Lyle	not provided	N/A	Web-based Comments	22000	24
Brown	Marilyn	not provided	N/A	Web-based Comments	49781, 49782	34
Brown	Marilynn	not provided	N/A	Web-based Comments	22824	24
Brown	Marsha	not provided	N/A	Web-based Comments	23064	24
Brown	Martha	not provided	N/A	Web-based Comments	23092	24
brown	maryanne	not provided	N/A	Web-based Comments	23570	24
Brown	Maryetta	not provided	N/A	Web-based Comments	23583	24
Brown	MaryGrace	not provided	N/A	Web-based Comments	23584	24
Brown	Max	not provided	N/A	Web-based Comments	23737	24
Brown	Michael	not provided	N/A	Web-based Comments	24035	24
Brown	Michele	not provided	N/A	Web-based Comments	24278	24
Brown	Nancy	not provided	N/A	Web-based Comments	24819	24
Brown	Nancy	not provided	N/A	Web-based Comments	24820	24
Brown	Nathanael	not provided	N/A	Web-based Comments	25107	24
Brown	Patricia	not provided	N/A	Web-based Comments	25716	24
Brown	Patrick	not provided	N/A	Web-based Comments	25894	24
Brown	Paul	not provided	N/A	Web-based Comments	25979	24
Brown	Peggy	not provided	N/A	Web-based Comments	26150	24
Brown	Randi	not provided	N/A	Web-based Comments	26619	24
Brown	Randy	not provided	N/A	Web-based Comments	26630	24
Brown	Rebecca	not provided	N/A	Web-based Comments	26713	24
Brown	Robert	larkbrown@comcast.net	N/A	Web-based comments	3546	3
brown	robert	not provided	N/A	Web-based Comments	27220	24
Brown	Robert	not provided	N/A	Web-based Comments	27221	24
Brown	Robert	not provided	N/A	Web-based Comments	57997	16
Brown	Robin	not provided	N/A	Web-based Comments	27469	24
Brown	Ronald & Deidre	not provided	N/A	Web-based Comments	27676	24
Brown	Ross	not provided	N/A	Web-based Comments	27785	24
Brown	Sabrina	sabrina@sterlingm.net	N/A	Web-based comments	3306	N/A
brown	sandra	not provided	N/A	Web-based Comments	28118	24
Brown	Sara	not provided	N/A	Web-based Comments	28276	24
Brown	Sara	not provided	N/A	Web-based Comments	28277	24
Brown	Sarah	not provided	N/A	Web-based Comments	28334	24
Brown	Scott	not provided	N/A	Web-based Comments	28458	24
Brown	Seth	not provided	N/A	Web-based Comments	28544	24
Brown	Sharon	not provided	N/A	Web-based Comments	55918, 55919	34
Brown	Sheila	not provided	N/A	Web-based Comments	45528	34
brown	Steven	tarproller@gmail.com	N/A	Web-based comments	2476	N/A
Brown	Susan	not provided	N/A	Web-based Comments	53654	34
Brown	Susan	not provided	N/A	Web-based Comments	29615	24
Brown	Susan	not provided	N/A	Web-based Comments	29616	24
Brown	Susan	not provided	N/A	Web-based Comments	29617	24
Brown	Susan	not provided	N/A	Web-based Comments	29618	24
Brown	Tammy	not provided	N/A	Web-based Comments	30146	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Brown	Tina	not provided	N/A	Web-based Comments	30668	24
Brown	Tracy	not provided	N/A	Web-based Comments	30862	24
brown	valerie	not provided	N/A	Web-based Comments	47673, 47674	34
Brown	Vernon	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32429	N/A
Brown	Vicki	not provided	N/A	Web-based Comments	31121	24
Brown	Vicki	not provided	N/A	Web-based Comments	31122	24
brown	victoria	not provided	N/A	Web-based Comments	31185	24
Brown	Walter C.	not provided	N/A	Web-based Comments	31370	24
BROWN	WAYNE	not provided	N/A	Web-based Comments	31391	24
Brown	Wendy	not provided	N/A	Web-based Comments	45132, 55465, 55466	34
Brown	Wendy	not provided	N/A	Web-based Comments	31409	24
Brown	Wendy	not provided	N/A	Web-based Comments	31410	24
brown	whitney	not provided	N/A	Web-based Comments	54569	34
Brown Herzl	Lauren	not provided	N/A	Web-based Comments	20761	24
BROWN,	HARVEY	hlbrb88@gmail.com	N/A	Web-based comments	32165, 32184	N/A
Browndog	Lila	not provided	N/A	Web-based Comments	58190, 55346	16, 34
Browne	Colin	not provided	N/A	Web-based Comments	11251	24
Browne	Dawn	not provided	N/A	Web-based Comments	12204	24
Browne	Donna	not provided	N/A	Web-based Comments	13114	24
Browne	Margaret	not provided	N/A	Web-based Comments	22431	24
Browne	Patricia	not provided	N/A	Web-based Comments	45250	34
Browne	Roberta	not provided	N/A	Web-based Comments	47380	34
Brownell	Audrey	not provided	N/A	Web-based Comments	8523	24
Brownell	Stephanie	not provided	N/A	Web-based Comments	55700	34
Browning	Barb	not provided	N/A	Web-based comments	56693	35
Browning	Marjorie	not provided	N/A	Web-based Comments	48141	34
Browning	Marjorie	not provided	N/A	Web-based Comments	22876	24
Browning	S.	sbrowning@uecoop.com	N/A	Web-based comments	5881	N/A
Browning	Tim	not provided	N/A	Web-based Comments	48936	34
Brownlee	Kevin	kbrownlee@nehalemtel.net	N/A	Web-based comments	2860	N/A
brownlee	Margaret	not provided	N/A	Web-based Comments	22432	24
Brownson	Julie	not provided	N/A	Web-based comments	57562	35
Brown-Wagner	Marie	not provided	N/A	Web-based Comments	22700	24
Broyles	Elizabeth	not provided	N/A	Web-based Comments	13712	24
Broznowski	Sofie	broznowski.sofie@gmail.com	N/A	Web-based comments	6171	N/A
Brozovich	Jamie	not provided	N/A	Web-based Comments	50230	34
Brubaker	Melinda	not provided	N/A	Web-based Comments	23858	24
Bruce	Barbara	not provided	N/A	Web-based Comments	8643	24
Bruce	Dorothy	not provided	N/A	Web-based Comments	13251	24
Bruce	Edie	not provided	N/A	Web-based Comments	52169	34
Bruce	Edie	not provided	N/A	Web-based Comments	13466	24
Bruce	Felicia	not provided	N/A	Web-based Comments	14413	24
Bruce	Judy	not provided	N/A	Web-based Comments	48805, 48806, 48807	34
Bruce	Judy	not provided	N/A	Web-based Comments	18669	24
bruce	sahiry	not provided	N/A	Web-based Comments	27992	24
Bruce	Stuart	sbruce54@yahoo.com	N/A	Web-based comments	2413	N/A
Bruce-Lee	C	not provided	N/A	Web-based Comments	9664	24
Bruck	Bettina	not provided	N/A	Web-based Comments	9085	24
Brucker	Barbara and Robert	not provided	N/A	Web-based Comments	8836	24
Bruckner	Steven	not provided	N/A	Web-based Comments	49740	34
Brueder	Wendy	not provided	N/A	Web-based Comments	31411	24
Bruegge	Debra	not provided	N/A	Web-based Comments	48679	34
Bruening	Derek	not provided	N/A	Web-based Comments	12716	24
Bruess	Laura	not provided	N/A	Web-based Comments	46711	34
Bruington	Robert	bobb169@hotmail.com	N/A	Web-based comments	3701	11
brulard	marc	not provided	N/A	Web-based Comments	22329	24
Brum	Andrea	not provided	N/A	Web-based Comments	7728	24
Brumby	Ally	not provided	N/A	Web-based comments	56873	35
Brumley	Ginni	not provided	N/A	Web-based Comments	15076	24
brummett	elaine	not provided	N/A	Web-based Comments	13577	24
Brundage	Della	not provided	N/A	Web-based comments	5626	N/A
Brune	Jessica	not provided	N/A	Web-based comments	4009	1
Brunell	Barbara	not provided	N/A	Web-based Comments	8644	24
Brunell	Larry	not provided	N/A	Web-based Comments	20572	24
Brunelli	Crystal	not provided	N/A	Web-based Comments	11454	24
Bruner	Deborah	not provided	N/A	Web-based Comments	12374	24
Brunet	Flavie	flaviie.brunet@gmail.com	N/A	Web-based comments	1491	1
Brunette	Bonnie	not provided	N/A	Web-based Comments	9285	24
Brunger	Marilyn	not provided	N/A	Web-based Comments	22768	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Brunick	Cathy	not provided	N/A	Web-based Comments	10352	24
Brunn	Bob	not provided	N/A	Web-based Comments	9227	24
Brunner	Darla	not provided	N/A	Web-based Comments	11869	24
Brunner	Isaac	not provided	N/A	Web-based Comments	15930	24
Brunner	Linda	not provided	N/A	Web-based Comments	53558	34
Brunskill	Nan	not provided	N/A	Web-based Comments	24784	24
Brunson	Barbara	not provided	N/A	Web-based Comments	8645	24
Brunson	Bruce	not provided	N/A	Web-based Comments	9600	24
Brunson	Dale	d_brunson@charter.net	N/A	Web-based comments	5002	N/A
Brunton	Anna	not provided	N/A	Web-based Comments	8120	24
Brusco	Barbara V	not provided	N/A	Web-based Comments	8843	24
Brush-Hoover	Juliette	not provided	N/A	Web-based Comments	50542	34
Brush-hoover	Juliette	not provided	N/A	Web-based Comments	18919	24
Brusse	William	wcbrusse@gmail.com	N/A	Web-based comments	5268	8
Brussell	Sharon	not provided	N/A	Web-based Comments	28637	24
Brustman	Thomas	not provided	N/A	Web-based Comments	45039	34
Brutzman	Karen	Reading2kids@dwwireless.net	N/A	Web-based comments	31829	N/A
Bruyn	Nelleke	not provided	N/A	Web-based Comments	53559	34
Bruyn	Nelleke	not provided	N/A	Web-based Comments	25142	24
Bryan	Caitlyn	not provided	N/A	Web-based Comments	9716	24
Bryan	Christy	not provided	N/A	Web-based Comments	47928	34
Bryan	Christy	not provided	N/A	Web-based Comments	11040	24
Bryan	David	not provided	N/A	Web-based Comments	11962	24
Bryan	Debbie	not provided	N/A	Web-based Comments	12310	24
Bryan	Jesse	jessbjibbin@hotmail.com	N/A	Web-based comments	5880	N/A
Bryan	Karol	not provided	N/A	Web-based Comments	19323	24
Bryan	Lori	not provided	N/A	Web-based Comments	21772	24
Bryan	Patricia	not provided	N/A	Web-based Comments	57834	34
Bryan	Yemel	not provided	N/A	Web-based Comments	31665	24
Bryant	Amy	not provided	N/A	Web-based Comments	7595	24
bryant	diana	not provided	N/A	Web-based Comments	12760	24
Bryant	Donna	not provided	N/A	Web-based Comments	13115	24
Bryant	Elizabeth	not provided	N/A	Web-based Comments	47107	34
Bryant	Hallie Bryant	not provided	N/A	Web-based comments	57468	35
Bryant	jerry	not provided	N/A	Web-based Comments	17343	24
Bryant	Lori	not provided	N/A	Web-based Comments	21773	24
Bryant	Mickey	not provided	N/A	Web-based Comments	24412	24
Bryant	Pam	not provided	N/A	Web-based Comments	25490	24
Bryant	Ron O.	not provided	N/A	Web-based Comments	27641	24
Bryant	Susan	not provided	N/A	Web-based Comments	29619	24
bryant	wylie	not provided	N/A	Web-based Comments	54061	34
bryant	wylie	not provided	N/A	Web-based Comments	31644	24
Brydges	Sara	not provided	N/A	Web-based Comments	28278	24
bryer	p	not provided	N/A	Web-based Comments	46693	34
Bryn	John	not provided	N/A	Web-based Comments	17976	24
Bryne	Jim	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4641	N/A
Bryning	Alan	not provided	N/A	Web-based Comments	7156	24
Bryson	Kathleen	not provided	N/A	Web-based Comments	19516	24
Bryson	Melissa	not provided	N/A	Web-based Comments	23876	24
Brzezinski	Matt	not provided	N/A	Web-based Comments	50196, 50197	34
Brzezinski	Matt	not provided	N/A	Web-based Comments	23608	24
Brzozowska	Anna	not provided	N/A	Web-based Comments	8121	24
Bubala	Louis	lbubala@gmail.com	N/A	Web-based comments	5953	8
Bubala	Louis	not provided	N/A	Web-based Comments	46208	34
Bubelis	Wally	not provided	N/A	Web-based Comments	44792	34
Bublitz	Brien	not provided	N/A	Web-based Comments	45518	34
Buccella	Stella	not provided	N/A	Web-based Comments	29182	24
Bucci	Daniel	not provided	N/A	Web-based Comments	11726	24
Buch	Anthony	not provided	N/A	Web-based Comments	8325	24
Buch	Ken	not provided	N/A	Web-based Comments	19965	24
buchan	william	not provided	N/A	Web-based Comments	58279	16
Buchanan	Carolyn	not provided	N/A	Web-based Comments	47911	34
Buchanan	Dan	not provided	N/A	Web-based Comments	55687	34
Buchanan	Heather	not provided	N/A	Web-based Comments	48330, 48331	34
Buchanan	Jean	not provided	N/A	Web-based Comments	51449, 51450	34
Buchanan	Suzanne	not provided	N/A	Web-based Comments	29988	24
Bucher	Anne Marie	not provided	N/A	Web-based Comments	8263	24
Bucher	Hans	not provided	N/A	Web-based Comments	15424	24
Bucher	Theresa	not provided	N/A	Web-based Comments	50607	34
Bucher	Theresa	not provided	N/A	Web-based Comments	30425	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Buchheit	Jeffrey	not provided	N/A	Web-based Comments	17071	24
Buchholtz	Katharine	not provided	N/A	Web-based Comments	44668	34
Bucholtz	Valarie	lonepineappraisals@gmail.com	N/A	Web-based comments	3822	N/A
Buchsbaum	Mark	not provided	N/A	Web-based Comments	22903	24
Buchter	Alicia	aliciabuchter@gmail.com	N/A	Web-based comments	5754	N/A
Buchter	Alison	not provided	N/A	Web-based Comments	7403	24
Buchwald	Victoria	not provided	N/A	Web-based Comments	44931	34
Buck	Benja	not provided	N/A	Web-based Comments	8958	24
Buck	Julia	not provided	N/A	Web-based Comments	50340	34
Buck	Marsha	not provided	N/A	Web-based Comments	23065	24
Buck	P	not provided	N/A	Web-based Comments	25458	24
Buckingham	Billy	not provided	N/A	Web-based Comments	9196	24
Buckingham	Brittany	not provided	N/A	Web-based Comments	46954	34
Buckingham	Brittany	not provided	N/A	Web-based Comments	9567	24
Buckingham	Laurence	not provided	N/A	Web-based Comments	20798	24
Buckingham	Linda	not provided	N/A	Web-based Comments	21213	24
Buckingham	Marya	not provided	N/A	Web-based Comments	23551	24
Buckland	Susan	not provided	N/A	Web-based Comments	29620	24
Buckle	Lisa	not provided	N/A	Web-based comments	56905	35
buckles	mary	not provided	N/A	Web-based Comments	23226	24
Buckley	Danielle	not provided	N/A	Web-based Comments	44565	34
Buckley	Dianne	not provided	N/A	Web-based Comments	47705	34
Buckley	Leo	not provided	N/A	Web-based Comments	58618	34
Buckley	Leo	not provided	N/A	Web-based Comments	20994	24
Buckley	Linda	lindab353@sbcglobal.net	N/A	Web-based comments	6914	1
BUCKLEY	LYNN	not provided	N/A	Web-based Comments	46076	34
Buckley	Mary	not provided	N/A	Web-based Comments	23227	24
Buckley	Phyllis	not provided	N/A	Web-based Comments	26381	24
Bucklin	Lucia	not provided	N/A	Web-based Comments	21931	24
Bucknall	Karen	not provided	N/A	Web-based Comments	50105	34
Buckton	Sam	not provided	N/A	Web-based Comments	28047	24
Buco	Robin	not provided	N/A	Web-based Comments	52630	34
Buczek	Judith	not provided	N/A	Web-based Comments	18571	24
Budd	Robert	rmbeyefish@aol.com	N/A	Web-based comments	5222	N/A
Budde	Jessica	not provided	N/A	Web-based Comments	45934	34
Budde	Sharon	not provided	N/A	Web-based Comments	28638	24
Budet	Nemesis	nemesis.6198@gmail.com	N/A	Web-based comments	1400	N/A
Budic	Darrell	not provided	N/A	Web-based Comments	11892	24
Budin	Ilene	not provided	N/A	Web-based Comments	50395, 50406	34
Budin	Ilene	not provided	N/A	Web-based Comments	15851	24
Budnik	Bradley	not provided	N/A	Web-based Comments	9352	24
Budoff	Roslynn	not provided	N/A	Web-based Comments	53500	34
Budoff	Roslynn	not provided	N/A	Web-based Comments	27783	24
Budowski	Linda	not provided	N/A	Web-based Comments	21214	24
Buech	Heidi	not provided	N/A	Web-based Comments	49750	34
Buech	Heidi	not provided	N/A	Web-based Comments	15563	24
Bueche	Lindsey	not provided	N/A	Web-based Comments	21489	24
Buehler	Riley	not provided	N/A	Web-based Comments	27115	24
Buehler	Robert	not provided	N/A	Web-based Comments	27222	24
Buell	Lindsay	not provided	N/A	Web-based Comments	21479	24
Buell	Tiffany	not provided	N/A	Web-based Comments	30582	24
Buelow	Chris	not provided	N/A	Web-based Comments	10723	24
Buerger	Michelle	not provided	N/A	Web-based Comments	24326	24
Buescher	Michael	not provided	N/A	Web-based Comments	24036	24
Buffalo Calf	Shelly	not provided	N/A	Web-based Comments	28844	24
Buffamonti	Jill	not provided	N/A	Web-based Comments	17497	24
Buffer	Anita	not provided	N/A	Web-based Comments	50837	34
Bugas	Tom	bluebugtom@hevanet.com	N/A	Web-based comments	3626	15
Bugas	Tom	not provided	N/A	Web-based Comments	30739	24
Bugbee	Alan	not provided	N/A	Web-based Comments	7157	24
Bugbee	Patricia	not provided	N/A	Web-based comments	57645	35
Bugler	Ken	not provided	N/A	Web-based Comments	49245	34
Bugler	Kenneth	not provided	N/A	Web-based Comments	20008	24
Bugliarelli	Diane	not provided	N/A	Web-based Comments	12824	24
Buhinicek	Jennifer	not provided	N/A	Web-based Comments	17166	24
Buhler	Monica	not provided	N/A	Web-based Comments	24618	24
Buhowsky	Joe	not provided	N/A	Web-based Comments	52247	34
Buirley	Liz	not provided	N/A	Web-based Comments	50263	34
Buk-Bjerre	Vera	not provided	N/A	Web-based Comments	31082	24
Bukoski	Lori	not provided	N/A	Web-based Comments	21774	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Bulchner	Marc	not provided	N/A	Web-based Comments	54106	34
Bull	Brenda Crazy	not provided	N/A	Web-based Comments	48655	34
bull	lorraine	not provided	N/A	Web-based Comments	21837	24
Bulla	Terry	not provided	N/A	Web-based Comments	30361	24
Bullard	Trulee	trulee.stocking@gmail.com	N/A	Web-based comments	3586	13
Bulleit	Hallie	not provided	N/A	Web-based Comments	15384	24
Bullen	Joan	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32538	11
Bullock	Beverly	not provided	N/A	Web-based Comments	48983	34
Bullock	Janet	not provided	N/A	Web-based Comments	16572	24
bullock	tammy	not provided	N/A	Web-based Comments	45790, 45791	34
bullock	tammy	not provided	N/A	Web-based Comments	30147	24
Bumbak	Anne	not provided	N/A	Web-based Comments	52551	34
Bumguardner	Eddie	not provided	N/A	Web-based Comments	13457	24
Bunch	LAURIE	not provided	N/A	Web-based Comments	20826	24
Bunde	Janet	not provided	N/A	Web-based Comments	16573	24
Bungarz	Kathy	not provided	N/A	Web-based Comments	19686	24
Bunge	Delores	not provided	N/A	Web-based Comments	54603	34
Bunge	Denise	luxembrg@bright.net	N/A	Web-based comments	6412	1
Bunker	Karla	not provided	N/A	Web-based Comments	19308	24
Bunn	Grace	not provided	N/A	Web-based Comments	51136	34
Bunner	Chris	not provided	N/A	Web-based Comments	58383	28
Buns	Luna	not provided	N/A	Web-based Comments	21980	24
Buono	Alfred	not provided	N/A	Web-based Comments	7319	24
Buono	Michael	not provided	N/A	Web-based Comments	53668	34
Buono	Michael	not provided	N/A	Web-based Comments	24037	24
Bupp	Sherry	not provided	N/A	Web-based Comments	50804, 56092	34
Bupp	Sherry	not provided	N/A	Web-based Comments	28882	24
Bupp	Sherry	sherry_bupp@outlook.com	N/A	Web-based comments	93	N/A
burbea	rob	not provided	N/A	Web-based Comments	27169	24
Burbes	Judi	not provided	N/A	Web-based Comments	18544	24
Burby	Leslie	not provided	N/A	Web-based Comments	55726	34
Burch	Ilse	not provided	N/A	Web-based Comments	50918	34
Burch	Judith	not provided	N/A	Web-based Comments	18572	24
Burch	Lilian	not provided	N/A	Web-based Comments	21158	24
Burch	Robert	not provided	N/A	Web-based Comments	54585	34
Burch	Suzelle	suzelle.burch@fallriverelectric.com	N/A	Web-based comments	3475	13
Burchard	Jack	not provided	N/A	Web-based Comments	56439	34
Burchardt	April	not provided	N/A	Web-based Comments	52447	34
Burcher	Tara	not provided	N/A	Web-based Comments	30199	24
Burchett	Christina	not provided	N/A	Web-based Comments	10846	24
Burch-Pesses	Jane	not provided	N/A	Web-based Comments	48111	34
Burciaga	Julie	not provided	N/A	Web-based Comments	45273	34
Burciaga	Julie	not provided	N/A	Web-based Comments	18820	24
Burciaga	Theresa	theresaburciaga@msn.com	N/A	Web-based comments	6358	3
Burd	Gloria	not provided	N/A	Web-based Comments	15151	24
Burde	James	not provided	N/A	Web-based Comments	45937	34
Burden	Laura	ljb415@gmail.com	N/A	Web-based comments	1222	1
Burden	Veronica	not provided	N/A	Web-based Comments	31095	24
Burden	WP Lyssie	not provided	N/A	Web-based Comments	50350, 31640	34
Burdge	Margaret	not provided	N/A	Web-based Comments	22433	24
Burdick	Connie	not provided	N/A	Web-based Comments	11296	24
Burdick	Sharon	sharondburdick@hotmail.com	N/A	Web-based comments	4311	N/A
Burdwell	L	not provided	N/A	Web-based Comments	20473	24
Burek-Faber	Mary	not provided	N/A	Web-based Comments	46762	34
Bures	Frank	not provided	N/A	Web-based Comments	14520	24
Buresh	Stephanie	not provided	N/A	Web-based comments	57521	35
Burford	Clayton	not provided	N/A	Web-based Comments	11213	24
Burg	Chera Van	not provided	N/A	Web-based Comments	50154, 50155	34
Burg	Heather	not provided	N/A	Web-based Comments	15498	24
Burga	Shirley	not provided	N/A	Web-based Comments	28944	24
Burgard	Donald	not provided	N/A	Web-based Comments	13052	24
Burge	James	not provided	N/A	Web-based Comments	16185	24
Burge	Linda	not provided	N/A	Web-based Comments	21215	24
Burge	Sharon	not provided	N/A	Web-based Comments	46585	34
Burger	Carole L	not provided	N/A	Web-based Comments	10109	24
Burger	Melissa	not provided	N/A	Web-based Comments	46791	34
Burger	Melissa	not provided	N/A	Web-based Comments	23877	24
burger	nancy	not provided	N/A	Web-based Comments	24821	24
burger	wolfgang	not provided	N/A	Web-based Comments	31639	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Burgers	Cathy	not provided	N/A	Web-based Comments	10353	24
Burgess	Jane	not provided	N/A	Web-based Comments	16468	24
Burgess	Jeannie	not provided	N/A	Web-based Comments	16990	24
Burgess	Kat	not provided	N/A	Web-based Comments	53561	34
burgess	kat	not provided	N/A	Web-based Comments	19346	24
Burgess	S.	not provided	N/A	Web-based Comments	27954	24
Burgess	Sara	not provided	N/A	Web-based Comments	28279	24
Burgess	Sara	not provided	N/A	Web-based Comments	58096	16
Burgess	Stephenie	not provided	N/A	Web-based Comments	29351	24
Burghardt	Galen	not provided	N/A	Web-based Comments	14737	24
Burguieres	Martial	mburguieres@gmail.com	N/A	Web-based comments	2962	N/A
Burich	Dawnielle	not provided	N/A	Web-based Comments	12254	24
Buril	Mallory	not provided	N/A	Web-based Comments	22298	24
Burin	Elizabeth	not provided	N/A	Web-based Comments	13713	24
Burk	Robert	not provided	N/A	Web-based Comments	27223	24
Burke	Alan	not provided	N/A	Web-based Comments	7158	24
Burke	Anthony	not provided	N/A	Web-based Comments	8326	24
Burke	Bb	not provided	N/A	Web-based Comments	8880	24
Burke	Bobi	not provided	N/A	Web-based comments	3268	N/A
Burke	Carol	not provided	N/A	Web-based Comments	53740	34
Burke	Cheryl	not provided	N/A	Web-based Comments	10623	24
burke	eugene	not provided	N/A	Web-based Comments	14289	24
Burke	Frank	not provided	N/A	Web-based Comments	52849, 52850	34
Burke	Frank	not provided	N/A	Web-based Comments	14521	24
Burke	Gregory	gosolar@bendtel.net	N/A	Web-based comments	4362	N/A
Burke	Jerry	not provided	N/A	Web-based comments	5307	N/A
Burke	Jessica	not provided	N/A	Web-based Comments	17410	24
Burke	John	not provided	N/A	Web-based Comments	17977	24
Burke	Kate	misskburke@gmail.com	N/A	Web-based comments	6312	N/A
Burke	Kathleen	not provided	N/A	Web-based Comments	53844, 53845, 53846	34
Burke	Leslie	not provided	N/A	Web-based Comments	21060	24
BURKE	MARTIN	not provided	N/A	Web-based Comments	23154	24
Burke	Maureen	not provided	N/A	Web-based Comments	55779, 55780	34
Burke	Nancy	not provided	N/A	Web-based Comments	24822	24
Burke	Nancy	not provided	N/A	Web-based Comments	24823	24
Burke	Patricia	not provided	N/A	Web-based Comments	46827	34
Burke	Russell	not provided	N/A	Web-based Comments	51446	34
Burke	Russell	not provided	N/A	Web-based Comments	27830	24
Burke	Sally	not provided	N/A	Web-based Comments	52118	34
Burke	Sally	not provided	N/A	Web-based Comments	28002	24
Burke	Sharon	not provided	N/A	Web-based Comments	58601, 50934	34
Burke	Sharon	not provided	N/A	Web-based Comments	28639	24
Burke	Tom	not provided	N/A	Web-based comments	2128	N/A
Burkey	Sam	not provided	N/A	Web-based Comments	53249	34
Burkey	Sam	not provided	N/A	Web-based Comments	28048	24
Burkhalter	Jona	not provided	N/A	Web-based comments	57563	35
Burkhalter	Kyle	kyleburkhalter11@gmail.com	N/A	Web-based comments	4121	N/A
Burkhardt	David	not provided	N/A	Web-based Comments	11963	24
Burkhardt	Kerry	not provided	N/A	Web-based Comments	20063	24
Burkhardt	Margaret	not provided	N/A	Web-based Comments	22434	24
Burkhart	Kathryn	not provided	N/A	Web-based Comments	53957	34
Burkhart	Kathryn	not provided	N/A	Web-based Comments	19623	24
Burkitt	Heather	not provided	N/A	Web-based Comments	15499	24
Burkitt	Robert	not provided	N/A	Web-based Comments	27224	24
Burks	Carl	not provided	N/A	Web-based Comments	9801	24
Burleson	Daryl	not provided	N/A	Web-based Comments	54604	34
Burleson	Nicole	nburleson123@gmail.com	N/A	Web-based comments	808	2
Burley	Lindsey	lindseyb81@yahoo.com	N/A	Web-based comments	5678	1
Burlin	Elin	not provided	N/A	Web-based comments	216	N/A
Burlin	Robert	not provided	N/A	Web-based Comments	27225	24
Burman	Ruth	not provided	N/A	Web-based Comments	27855	24
Burmeister	Ronald	not provided	N/A	Web-based Comments	27650	24
Burmester	Michael	not provided	N/A	Web-based Comments	47085	34
Burmester	Michael	not provided	N/A	Web-based Comments	24038	24
Burnaby	Sara	not provided	N/A	Web-based Comments	28280	24
Burnash	George	not provided	N/A	Web-based Comments	56219	34
Burnash	George	not provided	N/A	Web-based Comments	14884	24
Burnell	Delicia	not provided	N/A	Web-based Comments	55016	34
Burnell	Delicia	not provided	N/A	Web-based Comments	12603	24
Burnet	Greg	not provided	N/A	Web-based Comments	15228	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Burnett	Anne	not provided	N/A	Web-based Comments	8176	24
Burnett	James	not provided	N/A	Web-based Comments	16186	24
Burnett	Robert	not provided	N/A	Web-based Comments	27226	24
Burnett	Susan	not provided	N/A	Web-based Comments	48458	34
Burnett	William	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32551	N/A
Burnette	Brandon	not provided	N/A	Web-based Comments	9363	24
Burnette	Erin	not provided	N/A	Web-based Comments	14210	24
Burnham	Jonathan	not provided	N/A	Web-based Comments	18276	24
Burns	Anita	not provided	N/A	Web-based Comments	7967	24
Burns	Avery	averybvta@yahoo.com	N/A	Web-based comments	175, 6416	N/A
Burns	Barbara	not provided	N/A	Web-based Comments	49350	34
Burns	Bobbi	not provided	N/A	Web-based Comments	9262	24
Burns	Bruce	not provided	N/A	Web-based Comments	49093, 49094	34
Burns	Bruce	not provided	N/A	Web-based Comments	9601	24
Burns	Bruce	not provided	N/A	Web-based Comments	9602	24
Burns	Cathleen	commcomm2@gmail.com	N/A	Web-based comments	2268, 2301	N/A
Burns	Cathleen	commcomm2@gmail.com	N/A	Hand-delivered or oral testimony (personally delivered)	4744	N/A
BURNS	CHARLES	not provided	N/A	Web-based Comments	10490	24
Burns	Charlie	not provided	N/A	Web-based Comments	45579, 45580	34
Burns	Charlie	not provided	N/A	Web-based Comments	10547	24
Burns	Chris	not provided	N/A	Web-based Comments	50033	34
Burns	Christy	not provided	N/A	Web-based Comments	44804, 44805	34
Burns	Christy	not provided	N/A	Web-based Comments	11041	24
Burns	Jeff	not provided	N/A	Web-based Comments	17008	24
Burns	Jerry	not provided	N/A	Web-based Comments	17344	24
Burns	JL	not provided	N/A	Web-based Comments	52722	34
Burns	Joseph	not provided	N/A	Web-based Comments	18347	24
Burns	Joshua	not provided	N/A	Web-based Comments	18431	24
Burns	Joy	not provided	N/A	Web-based Comments	18458	24
Burns	Katherine	not provided	N/A	Web-based Comments	19438	24
Burns	Kathryn	not provided	N/A	Web-based Comments	19624	24
Burns	Lisa	not provided	N/A	Web-based Comments	21530	24
Burns	Maude	not provided	N/A	Web-based Comments	23678	24
Burns	Neville	not provided	N/A	Web-based Comments	25153	24
burns	patricia	not provided	N/A	Web-based Comments	25717	24
Burns	Peggy	not provided	N/A	Web-based Comments	50727	34
Burns	Robert	not provided	N/A	Web-based Comments	48597, 56370	34
Burns	Robert	not provided	N/A	Web-based Comments	27227	24
Burns	Sam	not provided	N/A	Web-based Comments	28049	24
burns	sharon	not provided	N/A	Web-based Comments	28640	24
Burns	Susan	not provided	N/A	Web-based Comments	45085, 45086	34
Burns	Susan	not provided	N/A	Web-based Comments	29621	24
Burns	Timothy	not provided	N/A	Web-based Comments	30640	24
burns	tobiah	not provided	N/A	Web-based Comments	30707	24
Burns	Valerie	not provided	N/A	Web-based Comments	31016	24
Burns	Veronica	not provided	N/A	Web-based Comments	31096	24
Burns	Victoria	not provided	N/A	Web-based Comments	31186	24
Burnside	Stephanie	not provided	N/A	Web-based comments	5098	N/A
Burpo	Leslie	not provided	N/A	Web-based Comments	21061	24
Burr	Brandon	not provided	N/A	Web-based Comments	46834	34
Burr	James	not provided	N/A	Web-based Comments	55377	34
Burr	James	not provided	N/A	Web-based Comments	16187	24
Burr	Mark	mcburr@gmail.com	N/A	Web-based comments	3070	8
Burrell	Brandon	not provided	N/A	Web-based Comments	9364	24
Burrell	Drusilla	not provided	N/A	Web-based Comments	49492, 49493	34
Burrell	Jim&betty	not provided	N/A	Web-based Comments	17621	24
Burridge	John	not provided	N/A	Web-based Comments	17978	24
Burrill	Judy	not provided	N/A	Web-based Comments	18670	24
Burritt	Ken	not provided	N/A	Web-based Comments	44591	34
Burroughs	Karen	not provided	N/A	Web-based Comments	19057	24
Burroughs	Krystal	not provided	N/A	Web-based Comments	20428	24
Burroughs	Vince	not provided	N/A	Web-based Comments	31245	24
Burrows	Donna	not provided	N/A	Web-based Comments	13116	24
Burrows	Janet	not provided	N/A	Web-based Comments	51131	34
Burrows	John	not provided	N/A	Web-based Comments	17979	24
Burrows	Roger	not provided	N/A	Web-based Comments	27579	24
Burruso	Maya	not provided	N/A	Web-based Comments	23758	24
Bursler	Mildred	not provided	N/A	Web-based Comments	48283	34
Bursler	Mildred	not provided	N/A	Web-based Comments	24507	24
Burt	Kirsten	not provided	N/A	Web-based Comments	51433	34

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Burt	Linda	not provided	N/A	Web-based Comments	21216	24
Burt	Ron	ronburt@gmail.com	N/A	Web-based comments	3152	N/A
Burt	Thomas	not provided	N/A	Web-based Comments	30472	24
Burtis	David	not provided	N/A	Web-based Comments	11964	24
Burt-Jenkins	Lynne	not provided	N/A	Web-based Comments	45299	34
Burtness Prak	Karen	not provided	N/A	Web-based Comments	19058	N/A
Burton	Daryl	not provided	N/A	Web-based comments	5644	1
Burton	Margaret	not provided	N/A	Web-based Comments	22435	24
Burton	Maria	not provided	N/A	Web-based Comments	22583	24
Burton	Martha	not provided	N/A	Web-based Comments	23093	24
Burton	Pat	not provided	N/A	Web-based Comments	46451	34
Burton	Patricia	not provided	N/A	Web-based Comments	46450	34
Burton	Patricia	not provided	N/A	Web-based Comments	25718	24
Burton	Robert	rburton1950@gmail.com	N/A	Web-based comments	6360	N/A
BURTON	TESS	not provided	N/A	Web-based Comments	30392	24
Burton	Timothy	not provided	N/A	Web-based Comments	30641	24
Burton	UC	not provided	N/A	Web-based Comments	30969	24
Burton	Udell	dell.burton@nutrien.com	N/A	Web-based comments	2739	N/A
Burton	Wanda	not provided	N/A	Web-based Comments	31373	24
Burton&family	GC	not provided	N/A	Web-based Comments	14840	24
Burwasser	David	not provided	N/A	Web-based Comments	11965	24
Busby	Michael	not provided	N/A	Web-based Comments	44962	34
Busch	Amanda	not provided	N/A	Web-based Comments	7522	24
Busch	Ine	not provided	N/A	Web-based Comments	55166	34
Buschena	Cindy	not provided	N/A	Web-based Comments	52483	34
Buschena	Cindy	not provided	N/A	Web-based Comments	11069	24
Busch-Sandford	Elizabeth	not provided	N/A	Web-based Comments	13714	24
Buscio	Kevin	not provided	N/A	Web-based Comments	20089	24
Bush	Bonnie	not provided	N/A	Web-based Comments	9286	24
Bush	Carolyn	not provided	N/A	Web-based Comments	10145	24
Bush	Elliott	not provided	N/A	Web-based Comments	13973	24
Bush	Jim	not provided	N/A	Web-based Comments	17570	24
Bush	Julie	not provided	N/A	Web-based Comments	49775	34
Bush	Julie	not provided	N/A	Web-based Comments	18821	24
Bush	Nancy	not provided	N/A	Web-based Comments	24824	24
Bush	Randy	not provided	N/A	Web-based Comments	26631	24
Bush	Sakina	not provided	N/A	Web-based Comments	46695, 46696	34
Bush	Samantha	not provided	N/A	Web-based Comments	28070	24
Bush	Scott	not provided	N/A	Web-based Comments	28459	24
Bush	Steve	bushsr@moscow.com	N/A	Web-based comments	6548	N/A
Bush	Suzanne	not provided	N/A	Web-based Comments	29989	24
BUSHER	SHARMAYNE	not provided	N/A	Web-based Comments	28624	24
Bushkoff	Paula	not provided	N/A	Web-based Comments	26073	24
Bushway	Catherine T	not provided	N/A	Web-based comments	57176	35
Busi	William	not provided	N/A	Web-based Comments	31516	24
Busler	Niles and Michele	not provided	N/A	Web-based Comments	25294	24
Buslot	Chantal	not provided	N/A	Web-based Comments	10458	24
BUSSACCHINI	GIAN FRANCO	not provided	N/A	Web-based Comments	15013	24
Bussan	Amanda	not provided	N/A	Web-based Comments	7523	24
Bussan	Amanda	not provided	N/A	Web-based comments	3148	1
Bussing	Lenore	not provided	N/A	Web-based Comments	46483	34
Busterna	Rosemary	not provided	N/A	Web-based Comments	55887	34
Busto	Mark	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	5538	N/A
Bustos	Angela	not provided	N/A	Web-based Comments	7888	24
Bustos	Corinne	not provided	N/A	Web-based Comments	11374	24
Bustos	Sondra	not provided	N/A	Web-based Comments	29055	24
Busuttil	Miriam	not provided	N/A	Web-based Comments	47617	34
Butche	Mike	not provided	N/A	Web-based Comments	24435	24
Butcher	Nick	not provided	N/A	Web-based Comments	47804	34
Butcher	Sarah	not provided	N/A	Web-based Comments	28335	24
Buterbaugh	Kevin	not provided	N/A	Web-based Comments	20090	24
Butka	R	not provided	N/A	Web-based Comments	26469	24
Butler	Ava	not provided	N/A	Web-based Comments	45235	34
butler	christopher	not provided	N/A	Web-based Comments	46369	34
Butler	Cynthia	not provided	N/A	Web-based Comments	53367, 53368	34
Butler	D	not provided	N/A	Web-based Comments	11574	24
Butler	Edward	not provided	N/A	Web-based Comments	51425	34
Butler	Edward	not provided	N/A	Web-based Comments	13484	24
Butler	Elaine	not provided	N/A	Web-based comments	4819	1
Butler	ElsaMarie	not provided	N/A	Web-based Comments	48137	34

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Butler	Josh	dirtgeo@icloud.com	N/A	Web-based comments	6825*	N/A
Butler	Kathleen A	not provided	N/A	Web-based Comments	49416	34
Butler	Linda	not provided	N/A	Web-based Comments	21217	24
Butler	Linda M.	not provided	N/A	Web-based Comments	52084	34
Butler	Lisa	not provided	N/A	Web-based Comments	21531	24
Butler	Mary Jo	not provided	N/A	Web-based Comments	56229	34
Butler	Rita	not provided	N/A	Web-based Comments	55608	34
Butler	Simone	not provided	N/A	Web-based Comments	29024	24
Butler	Susan E.	not provided	N/A	Web-based Comments	29927	24
Butler	Taz	not provided	N/A	Web-based Comments	30241	24
Butler	Thomas	not provided	N/A	Web-based Comments	30473	24
Butler	Tom	not provided	N/A	Web-based Comments	58551	34
Butler	Tommi	not provided	N/A	Web-based comments	57522	35
Butlin	Augusta	not provided	N/A	Web-based Comments	8537	24
Butt	Kate	not provided	N/A	Web-based Comments	55497	34
Butt	Kate	not provided	N/A	Web-based Comments	19368	24
Butterfield	Jim	not provided	N/A	Web-based Comments	17571	24
butters	arlene	not provided	N/A	Web-based Comments	8424	24
Butterwick	Mary	not provided	N/A	Web-based Comments	23228	24
Buttery	Rickey	not provided	N/A	Web-based Comments	55621	34
Buttery	Rickey	not provided	N/A	Web-based Comments	27108	24
Buttignon	Nicoletta	not provided	N/A	Web-based Comments	25264	24
Buttimer	Dee	not provided	N/A	Web-based Comments	12569	24
Buttimer	Deett	not provided	N/A	Web-based Comments	56499	34
Buttner	Paul	not provided	N/A	Web-based Comments	25980	24
Button	Dan	dwbutton6@gmail.com	N/A	Web-based comments	2245	N/A
Button	Richard T	not provided	N/A	Web-based Comments	27080	24
Button	Tammy	not provided	N/A	Web-based Comments	30148	24
Butts	Bonnie	not provided	N/A	Web-based Comments	52039, 52040, 52041, 52042	34
Butts	Ray	sagebutt@gmail.com	N/A	Web-based comments	4430	11
Buttstead	Linda	not provided	N/A	Web-based Comments	49345	34
Butz	Andrew	not provided	N/A	Web-based Comments	7808	24
Butz	Claudia	not provided	N/A	Web-based Comments	52469	34
Buuren	Uta Van	not provided	N/A	Web-based Comments	44357	34
buvoli	luca	not provided	N/A	Web-based Comments	21925	24
Buxbaum	Doris	not provided	N/A	Web-based Comments	13225	24
Buxton	Brian	buxton5858@gmail.com	N/A	Web-based comments	5648	N/A
Buxton	Claire	not provided	N/A	Web-based Comments	51613	34
Buxton	Kathy	not provided	N/A	Web-based Comments	19687	24
Buxton	Raquel	not provided	N/A	Web-based Comments	44762, 44763	34
Buzzell	Brenda	not provided	N/A	Web-based Comments	9392	24
Byatt-Grassi	Noreen	not provided	N/A	Web-based Comments	25372	24
Bybee	Addy	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58737	11
Bybee	Darryl	darrylbybee@gmail.com	N/A	Web-based comments	4058	N/A
Bybee Miller	Lupine	not provided	N/A	Web-based Comments	21982	24
Byengton	Ron	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	56609	32
BYERLEY	MARYANN	not provided	N/A	Web-based comments	3366	10
Byers	Benjamin	not provided	N/A	Web-based Comments	8964	24
Byers	Cynthia	not provided	N/A	Web-based Comments	54105	34
Byers	Elisabeth	not provided	N/A	Web-based Comments	50614	34
Byers	Nancy	not provided	N/A	Web-based Comments	49958	34
Byers	Richard	not provided	N/A	Web-based Comments	26953	24
Byers	Sherry	not provided	N/A	Web-based Comments	28883	24
Byknish	Christine	not provided	N/A	Web-based Comments	53015	34
Byrd	Cynthia	not provided	N/A	Web-based Comments	11496	24
Byrd	James	not provided	N/A	Web-based Comments	16188	24
Byrd	Joan	not provided	N/A	Web-based Comments	50296	34
Byrd	Kenneth	not provided	N/A	Web-based Comments	20009	24
Byrd	Regan	not provided	N/A	Web-based Comments	58033	16
Byrne	Anthony	not provided	N/A	Web-based Comments	8327	24
Byrne	Charles	not provided	N/A	Web-based Comments	51567	34
Byrne	Charles	not provided	N/A	Web-based Comments	10491	24
Byrne	Dennis	dennisjbyrne@frontier.com	N/A	Web-based comments	1817	N/A
Byrne	Jim	not provided	N/A	Web-based Comments	50555	34
Byrne	Joseph	not provided	N/A	Web-based Comments	18348	24
Byrne	Marion	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32488	33
Byrne	Rachael	not provided	N/A	Web-based Comments	26499	24
Byrnes	Coleman	not provided	N/A	Web-based Comments	11245	24
Byrnes	Coleman	swampdog0001@gmail.com	N/A	Web-based comments	6538, 2292	3
Byrnes	Leslie	not provided	N/A	Web-based Comments	48634	34

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Byrnes	Shara	not provided	N/A	Web-based Comments	54468	34
Byrnes	Teresa	not provided	N/A	Web-based Comments	30262	24
Byron	Arthur	not provided	N/A	Web-based Comments	47860	34
Byron	Doug	not provided	N/A	Web-based Comments	13291, 13292	24
Byron	Randi	not provided	N/A	Web-based Comments	26620	24
Bywaters	Lynn	not provided	N/A	Web-based Comments	22051	24
C	Adina	not provided	N/A	Web-based Comments	7073	24
C	C	not provided	N/A	Web-based Comments	55964	34
C	C	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	4791, 31746	18
C	Cassie	not provided	N/A	Web-based Comments	10240	24
C	Eric	not provided	N/A	Web-based Comments	14093	24
C	Greg	not provided	N/A	Web-based Comments	15229	24
C	J	not provided	N/A	Web-based Comments	15969	24
C	Janet	not provided	N/A	Web-based Comments	16574	24
C	L	not provided	N/A	Web-based Comments	20474	24
C	Lyle	not provided	N/A	Web-based Comments	22001	24
C	Michael	not provided	N/A	Web-based Comments	54048	34
C	Michael	not provided	N/A	Web-based Comments	24039	24
C	Michele	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	4789, 5530	26
c	Pierre	not provided	N/A	Web-based Comments	26407	24
C	R	not provided	N/A	Web-based Comments	46225, 46226	34
c	rich	not provided	N/A	Web-based Comments	26922	24
C	Shell	not provided	N/A	Web-based Comments	28824	24
C.	E	not provided	N/A	Web-based Comments	13408	24
C.	Helius	not provided	N/A	Web-based Comments	15649	24
C.	Joe	not provided	N/A	Web-based Comments	52151, 52152	34
C.	Kim	not provided	N/A	Web-based comments	1085	1
C.	Lynne	not provided	N/A	Web-based Comments	47118, 47119	34
C.	Lynne	not provided	N/A	Web-based Comments	22122	24
Caballero	Carlo	not provided	N/A	Web-based Comments	9848	24
Caballero	Carolina	not provided	N/A	Web-based Comments	44905	34
Caballero	Luis	not provided	N/A	Web-based Comments	21969	24
Caballero	Nicolas	not provided	N/A	Web-based Comments	53107, 53108	34
Caban	Linda	not provided	N/A	Web-based Comments	21218	24
Cabana	Barbara	not provided	N/A	Web-based Comments	8646	24
Cabascango	Isabel	not provided	N/A	Web-based Comments	52066	34
Cabassi	Nicoletta	not provided	N/A	Web-based Comments	25265	24
Cabassi	Nicoletta	not provided	N/A	Web-based Comments	25266	24
Cabello	Najla	not provided	N/A	Web-based Comments	54237	34
Cabello	Najla	not provided	N/A	Web-based Comments	24779	24
Cabezas	Carmen	not provided	N/A	Web-based comments	6169	1
Cabral	Anthony	not provided	N/A	Web-based Comments	52827	34
Cabrales	Lourdes	not provided	N/A	Web-based Comments	21907	24
CABRERA CAMPOS	Rosario	not provided	N/A	Web-based Comments	27715	24
Cabus	Freya	not provided	N/A	Web-based Comments	14603	24
Caccia	Bill	bcpoky@hotmail.com	N/A	Web-based comments	4414	N/A
Caccioppoli	Jessica	not provided	N/A	Web-based comments	57523	35
cachoppo	patricia	not provided	N/A	Web-based Comments	25719	24
Cacioppo	Judy	not provided	N/A	Web-based Comments	46511, 46512	34
Cacioppo	Judy	not provided	N/A	Web-based Comments	18671	24
Cacoullos	Nike	not provided	N/A	Web-based Comments	50780	34
Cadonau	Sally	not provided	N/A	Web-based Comments	46610	34
Cadonau	Sally	not provided	N/A	Web-based Comments	28003	24
Cadwallader	David	drcadwallader12@gmail.com	N/A	Web-based comments	3161	N/A
cady	scott	not provided	N/A	Web-based Comments	28460	24
Caesar	Wendy	not provided	N/A	Web-based Comments	31412	24
Caetano	Antonio	not provided	N/A	Web-based Comments	8367	24
cafarelli	cenie	not provided	N/A	Web-based Comments	10444	24
Caffarelli	Rose	not provided	N/A	Web-based Comments	27718	24
Caffee	Edward	not provided	N/A	Web-based Comments	13485	24
Caffin	Aloise	not provided	N/A	Web-based comments	56736	35
Caffin	Unreadable	not provided	N/A	Web-based comments	56762	35
Cafiero	Kathleen	not provided	N/A	Web-based Comments	19517	24
Cagle	Mark	not provided	N/A	Web-based Comments	55829	34
Cagle	Mark	not provided	N/A	Web-based Comments	22904	24
Caglianone	James	not provided	N/A	Web-based Comments	16189	24
Cahoon	V	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	56682	N/A
Caiano	Aurora	not provided	N/A	Web-based Comments	55441	34
Caicco	Jody	not provided	N/A	Web-based Comments	54420	34
Caicco	Jody	not provided	N/A	Web-based Comments	17863	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Cain	Elizabeth	not provided	N/A	Web-based Comments	13715	24
Cain	Traci	not provided	N/A	Web-based Comments	51155	34
Cain	Warren	not provided	N/A	Web-based Comments	31380	24
Cairns	Karen	not provided	N/A	Web-based Comments	19059	24
Cairns	Rachel	not provided	N/A	Web-based Comments	52218	34
Cairns	Rachel	not provided	N/A	Web-based Comments	26508	24
Cais	Sandra	not provided	N/A	Web-based Comments	28119	24
Cais	Sandra Dal	not provided	N/A	Web-based Comments	49473	34
Cais	Sandy Dal	not provided	N/A	Web-based Comments	49472	34
Caito	Jamie	not provided	N/A	Web-based comments	57070	35
Caito	Jamie	not provided	N/A	Web-based Comments	16353	24
Cakert	Dennis	not provided	N/A	Web-based Comments	12678	24
Calabro	Louise	not provided	N/A	Web-based Comments	50510	34
Calabro	Nicholas	not provided	N/A	Web-based Comments	25160	24
Calambro	Leslie	not provided	N/A	Web-based Comments	56360, 56361	34
Calambro	Leslie	not provided	N/A	Web-based Comments	21062	24
Calavetta	Lisa	not provided	N/A	Web-based Comments	21532	24
CALCAGNO	KYLE	not provided	N/A	Web-based Comments	20447	24
Calcagno	Philip	not provided	N/A	Web-based Comments	26330	24
Caldas	Alejandra	not provided	N/A	Web-based Comments	44277	34
Calderon	Jean-christophe	not provided	N/A	Web-based Comments	44309	34
Calderon	Jesse	not provided	N/A	Web-based Comments	17386	24
Calderone	Diana	not provided	N/A	Web-based Comments	48614	34
calderone	tom	not provided	N/A	Web-based Comments	30740	24
Caldie	Cathy	not provided	N/A	Web-based Comments	10354	24
Caldwell	Caitlin	not provided	N/A	Web-based Comments	55128	34
Caldwell	Catherine	not provided	N/A	Web-based Comments	10259	24
Caldwell	Cheryl	not provided	N/A	Web-based Comments	10624	24
Caldwell	Constance	not provided	N/A	Web-based Comments	45567	34
Caldwell	Ellen	not provided	N/A	Web-based Comments	13898	24
Caldwell	Jill	not provided	N/A	Web-based Comments	17498	24
Caldwell	Kaci	not provided	N/A	Web-based Comments	46990	34
Caldwell	Laura	not provided	N/A	Web-based Comments	55915	34
Caldwell	Laura	not provided	N/A	Web-based Comments	20611	24
Caldwell	Marcia	not provided	N/A	Web-based Comments	50400	34
Caldwell	Mona	mooseman454@earthlink.net	N/A	Web-based comments	3594	N/A
Caldwell	Robert	not provided	N/A	Web-based Comments	27228	24
Caldwell	Sandy	not provided	N/A	Web-based Comments	28240	24
CALDWELL	SCARLETT	not provided	N/A	Web-based Comments	51820	34
Caldwell	Vickey	not provided	N/A	Web-based Comments	52375	34
Caldwell	Yogi	not provided	N/A	Web-based Comments	31667	24
Calero	Nick	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4743	N/A
Calhoon	William	not provided	N/A	Web-based Comments	31517	24
Calhoun	Becky	not provided	N/A	Web-based Comments	55981	34
Calhoun	Pamela	not provided	N/A	Web-based Comments	25530	24
Caligaris	Teresa	not provided	N/A	Web-based Comments	30263	24
Calingopo	Enrico	not provided	N/A	Web-based Comments	14073	24
Calise-Simmons	Loretta	not provided	N/A	Web-based Comments	21759	24
Calkins	Debra	not provided	N/A	Web-based Comments	12507	24
Calkins	Diane	not provided	N/A	Web-based Comments	12825	24
Call	Beth	not provided	N/A	Web-based Comments	9015	24
Callaghan	Kristen	not provided	N/A	Web-based Comments	20340	24
Callahan	Amalie	not provided	N/A	Web-based Comments	53394	34
Callahan	Amalie	not provided	N/A	Web-based Comments	7515	24
Callahan	Jack	not provided	N/A	Web-based Comments	54959	34
Callahan	Kevin	not provided	N/A	Web-based Comments	20091	24
Callahan	Margot	not provided	N/A	Web-based comments	5860	N/A
Callahan	Mariah	not provided	N/A	Web-based comments	56978	35
Callahan	Toni	not provided	N/A	Web-based Comments	30792	24
Callan	A	not provided	N/A	Web-based Comments	54968	34
Callanan	Bridget	not provided	N/A	Web-based Comments	9536	24
Callaway	Michael	not provided	N/A	Web-based Comments	24040	24
Calleja	Marta	not provided	N/A	Web-based Comments	52107	34
Callen	Peter	not provided	N/A	Web-based Comments	50517	34
Callihan	Robert	callihan@uidaho.edu	N/A	Web-based comments	3929	N/A
Callow	Allison	not provided	N/A	Web-based Comments	7458	24
Callow	Tracy	not provided	N/A	Web-based Comments	30863	24
Calnon	Libby	not provided	N/A	Web-based comments	5416	N/A
CALOIA	STEPHANIE	not provided	N/A	Web-based Comments	29197	24
Caltabiano	Kristin	not provided	N/A	Web-based Comments	20369	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Calvani	Dorothy	not provided	N/A	Web-based Comments	13252	24
Calvelage	Anthony	not provided	N/A	Web-based Comments	8328	24
Calvert	Laura	not provided	N/A	Web-based Comments	20612	24
Calvet	Julia	jucalvet4ever@gmail.com	N/A	Web-based comments	1054	1
Calvillo	Juan	juan@dancingredband.com	N/A	Web-based comments	4459	N/A
Calvillo	Juan	not provided	N/A	Web-based Comments	58146, 51764	16, 34
Calvinperez	Martha	not provided	N/A	Web-based Comments	52764	34
Calvo	Jeannette	not provided	N/A	Web-based Comments	16985	24
camardo	mary	not provided	N/A	Web-based Comments	53378	34
cambier	danielle	not provided	N/A	Web-based Comments	11802	24
Cambron	Katie	not provided	N/A	Web-based comments	57524	35
Cameron	Alexander	not provided	N/A	Web-based Comments	7260	24
Cameron	Christina	not provided	N/A	Web-based Comments	10847	24
Cameron	Greg	not provided	N/A	Web-based Comments	49526	34
Cameron	Hazel	not provided	N/A	Web-based Comments	15485	24
Cameron	James	not provided	N/A	Web-based Comments	58452	34
Cameron	Jean	not provided	N/A	Web-based Comments	45337	34
Cameron	Karen	Karen.e.Cameron@outlook.com	N/A	Web-based comments	57255, 5993	35, 11
Cameron	Leah	not provided	N/A	Web-based Comments	20899	24
Cameron	Teresa	not provided	N/A	Web-based Comments	30264	24
Camfield	Brian	not provided	N/A	Web-based Comments	9461	24
Camiel	Jack	not provided	N/A	Web-based Comments	16029	24
Camirand	Natalie	not provided	N/A	Web-based Comments	25062	24
Cammack	Carrie	not provided	N/A	Web-based Comments	44492, 44493	34
cammock	frank	not provided	N/A	Web-based Comments	14522	24
Camp	Barbara Van	not provided	N/A	Web-based Comments	51665	34
Camp	Jason	jacfolly@hotmail.com	N/A	Web-based comments	5060	1
Camp	Laura	laurawalkercamp@yahoo.com	N/A	Web-based comments	5074, 5625	N/A
Camp	Linda	not provided	N/A	Web-based Comments	21219	24
Camp	Lori	not provided	N/A	Web-based Comments	21775	24
Camp	Matthew Van	not provided	N/A	Web-based Comments	45071, 45072, 45165	34
Camp	Mike	not provided	N/A	Web-based Comments	24436	24
Campbell	Allan	not provided	N/A	Web-based comments	31986	N/A
Campbell	Allan	not provided	N/A	Web-based Comments	48783, 48784, 53063	34
Campbell	Allan	not provided	N/A	Web-based Comments	7432	24
Campbell	Amy	not provided	N/A	Web-based Comments	7596	24
Campbell	Ann	not provided	N/A	Web-based Comments	8013	24
Campbell	Brent	not provided	N/A	Web-based Comments	9437	24
campbell	carlie	not provided	N/A	Web-based Comments	9845	24
Campbell	Carol	not provided	N/A	Web-based Comments	9898	24
Campbell	Cassidy	not provided	N/A	Web-based Comments	10237	24
campbell	charmaine	not provided	N/A	Web-based Comments	10579	24
Campbell	Chelsea	durfeycc@gmail.com	N/A	Web-based comments	6858	N/A
Campbell	Cindy	not provided	N/A	Web-based Comments	11070	24
Campbell	Constance	not provided	N/A	Web-based Comments	11331	24
Campbell	David	not provided	N/A	Web-based Comments	11966	24
Campbell	Donna	not provided	N/A	Web-based Comments	55630	34
Campbell	Donna	not provided	N/A	Web-based Comments	13117	24
Campbell	J	not provided	N/A	Web-based comments	56927	35
Campbell	James	not provided	N/A	Web-based Comments	16190	24
Campbell	Jane	not provided	N/A	Web-based Comments	16469	24
Campbell	Jay	not provided	N/A	Web-based Comments	16803	24
Campbell	Jennifer	not provided	N/A	Web-based Comments	17167	24
Campbell	Jennifer	not provided	N/A	Web-based Comments	17168	24
Campbell	John	not provided	N/A	Web-based Comments	52312	34
Campbell	John	not provided	N/A	Web-based Comments	17980	24
Campbell	June	not provided	N/A	Web-based Comments	48742, 48743	34
Campbell	June	not provided	N/A	Web-based Comments	18929	24
Campbell	Kay	not provided	N/A	Web-based Comments	47702	34
Campbell	Kristin	not provided	N/A	Web-based Comments	53337, 53338	34
Campbell	Kristin	not provided	N/A	Web-based Comments	20370	24
Campbell	Laura	not provided	N/A	Web-based Comments	20613	24
Campbell	Laurie	not provided	N/A	Web-based Comments	20827	24
Campbell	Linda	not provided	N/A	Web-based Comments	50908	34
campbell	linda	not provided	N/A	Web-based Comments	21220	24
Campbell	linda	not provided	N/A	Web-based Comments	21221	24
Campbell	Liz	not provided	N/A	Web-based Comments	52457	34
Campbell	Liz	not provided	N/A	Web-based Comments	21678	24
Campbell	M.E.	not provided	N/A	Web-based Comments	22220	24
Campbell	Mike	not provided	N/A	Web-based Comments	48998	34

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Campbell	Mike	not provided	N/A	Web-based Comments	24437	24
Campbell	Norma	not provided	N/A	Web-based comments	57732	35
Campbell	Pamela	not provided	N/A	Web-based Comments	25531	24
Campbell	Rebecca	not provided	N/A	Web-based Comments	26714	24
Campbell	Susan	not provided	N/A	Web-based Comments	53716, 53717	34
Campbell	Therese	not provided	N/A	Web-based Comments	57876	34
Campbell	Vena	not provided	N/A	Web-based Comments	31077	24
Campbell	Vicki	not provided	N/A	Web-based Comments	47585	34
Campe	Melissa	not provided	N/A	Web-based Comments	23878	24
Campion	Barry	not provided	N/A	Web-based Comments	8860	24
Campo	Karen	not provided	N/A	Web-based Comments	45441	34
Campos	KAREN	not provided	N/A	Web-based Comments	19060	24
Campos	Ruth	not provided	N/A	Web-based Comments	27856	24
Camus	nathalie	not provided	N/A	Web-based Comments	25099	24
Camusi	Jake	not provided	N/A	Web-based Comments	16163	24
Camuto	Gilda	not provided	N/A	Web-based Comments	15027	24
Canada	Amy	not provided	N/A	Web-based comments	1793	N/A
Canada	Amy	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4691	N/A
Canada II	Riley	not provided	N/A	Web-based Comments	27116	24
Canarsky	Maurine	not provided	N/A	Web-based Comments	45770	34
Cancell	June	not provided	N/A	Web-based Comments	18930	24
Cancell	June	not provided	N/A	Web-based Comments	18931	24
Candal	Matthew	not provided	N/A	Web-based Comments	23638	24
Candela	Jackie	not provided	N/A	Web-based Comments	16057	24
Candela	Joseph	not provided	N/A	Web-based Comments	18349	24
Candler	Sandy	not provided	N/A	Web-based Comments	28241	24
Canganelli	Mark	not provided	N/A	Web-based Comments	22905	24
Canham	Andrew	not provided	N/A	Web-based Comments	44387	34
Canham	Andrew	not provided	N/A	Web-based Comments	7809	24
Canine	Kent	not provided	N/A	Web-based Comments	20038	24
Cann	Darryl	not provided	N/A	Web-based comments	57034	35
Cannamela	David	dacannamela@gmail.com	N/A	Web-based comments	5944	N/A
Cannamela	David	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4218	N/A
Cannamela	Madeleine	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	4232	N/A
Cannata	Steven	not provided	N/A	Web-based Comments	29421	24
Cannizzaro	Niyaso	not provided	N/A	Web-based Comments	25324	24
Cannon	Abigail	not provided	N/A	Web-based Comments	7018	24
Cannon	Carole	not provided	N/A	Web-based Comments	10070	24
Cannon	Chris	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	4774	18
Cannon	Frank	not provided	N/A	Web-based Comments	14523	24
Cannon	HC	not provided	N/A	Web-based Comments	15493	24
Cannon	John	not provided	N/A	Web-based Comments	44288, 44289	34
Cannon	Kim	Cmik2553@gmail.com	N/A	Web-based comments	4386	11
Cannon	Lois	wybelo@gmail.com	N/A	Web-based comments	4190	N/A
Cannon	Maxine	not provided	N/A	Web-based Comments	46805, 46806	34
Cannon	Patricia	not provided	N/A	Web-based Comments	25720	24
Cannon	Scott	s.c.canfam@gmail.com	N/A	Web-based comments	2452	N/A
Cannon	Stacey	not provided	N/A	Web-based Comments	29109	24
Cannon	Tom	not provided	N/A	Web-based Comments	46596, 46597	34
Cannon	Tom	not provided	N/A	Web-based Comments	30741	24
CannonJr	William	not provided	N/A	Web-based Comments	54113	34
Cano	Paula	not provided	N/A	Web-based Comments	49709	34
Cano	Paula	not provided	N/A	Web-based Comments	26074	24
Canon	Dene	not provided	N/A	Web-based Comments	12620	24
Canright	Mark	not provided	N/A	Web-based Comments	47891, 47892, 47893	34
Canright	Mark	not provided	N/A	Web-based Comments	22906	24
Canright	Rebecca	not provided	N/A	Web-based Comments	47819, 47820, 47821, 47822	34
Canright	Rebecca	not provided	N/A	Web-based Comments	26715	24
Canright	Vienna	not provided	N/A	Web-based Comments	31237	24
Cansler	James	not provided	N/A	Web-based Comments	55082	34
Cantaloub	Mike	smucker8@earthlink.net	N/A	Web-based comments	2072	N/A
Cantara	Gary	not provided	N/A	Web-based Comments	46414	34
Cantara	Steven	not provided	N/A	Web-based Comments	29422	24
Canter	Stephanie	not provided	N/A	Web-based Comments	29198	24
Cantino	J M	not provided	N/A	Web-based Comments	16003	24
Cantor	Daniel	not provided	N/A	Web-based Comments	11727	24
Cantrell	Anna	not provided	N/A	Web-based Comments	8122	24
Cantrell	David	not provided	N/A	Web-based Comments	11967	24
Cantu	Eva	not provided	N/A	Web-based Comments	14311	24
Cantu	Roel	not provided	N/A	Web-based Comments	27578	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Canty	Ken	not provided	N/A	Web-based Comments	54238, 54239	34
Canty	Ken	not provided	N/A	Web-based Comments	19966	24
Canty	Marlynn	not provided	N/A	Web-based Comments	52349	34
Cap	Bernadette	not provided	N/A	Web-based Comments	8984	24
Capacetti	Karla	kcapacet711@gmail.com	N/A	Web-based comments	32054	1
Capacio	Linda	not provided	N/A	Web-based Comments	21222	24
Capadona	Karen	not provided	N/A	Web-based Comments	19061	24
Capasso	Bill	not provided	N/A	Web-based Comments	46660	34
Capasso	Bill	not provided	N/A	Web-based Comments	9166	24
CAPDEVILLE	Marie-France	serial.woman@yahoo.fr	N/A	Web-based comments	1241, 1483	1
Capellari	Riva	not provided	N/A	Web-based Comments	27161	24
Capezzuoli	Ingrid	not provided	N/A	Web-based Comments	15873	24
Capezzuto	Raymond	not provided	N/A	Web-based Comments	45784	34
Capezzuto	Raymond	not provided	N/A	Web-based Comments	26685	24
Capitummino	Frank and Mary	not provided	N/A	Web-based Comments	14553	24
Capizzo	Jim	not provided	N/A	Web-based Comments	47210	34
Caplan	Elise	not provided	N/A	Web-based Comments	50495	34
Caplan	Laura	not provided	N/A	Web-based Comments	52895	34
Caponigro	John Paul	not provided	N/A	Web-based Comments	18226	24
capotorto	jeanette	not provided	N/A	Web-based Comments	16907	24
Cappas	Marina	not provided	N/A	Web-based Comments	54837	34
Capper	Carmen	not provided	N/A	Web-based Comments	9866	24
Capperis	Paulette	not provided	N/A	Web-based Comments	26109	24
Capps	Sally	not provided	N/A	Web-based Comments	28004	24
Caprio	Pamela	not provided	N/A	Web-based Comments	25532	24
Capstick	Hilary	not provided	N/A	Web-based Comments	55862	34
Capstick	Hilary	not provided	N/A	Web-based Comments	15692	24
Capulong	Meghan	not provided	N/A	Web-based Comments	49125	34
Capulong	Meghan	not provided	N/A	Web-based Comments	23812	24
capurro	lyn	not provided	N/A	Web-based Comments	47977, 47978	34
capurro	lyn	not provided	N/A	Web-based Comments	22006	24
Capute	Nobuko	not provided	N/A	Web-based Comments	25334	24
Caputi	Mary	not provided	N/A	Web-based Comments	51184	34
Caputo	Dan	not provided	N/A	Web-based Comments	45363	34
Caputo	Michael	not provided	N/A	Web-based Comments	24041	24
Caputo	Susana	not provided	N/A	Web-based Comments	29930	24
Caraher	P.	not provided	N/A	Web-based Comments	46922	34
Caraher	P.	not provided	N/A	Web-based Comments	25470	24
Carandang	Trisha	not provided	N/A	Web-based comments	32255	1
Carattini	Marco	not provided	N/A	Web-based Comments	22391	24
Caravelli	Cynthia	not provided	N/A	Web-based Comments	51595	34
Caraveo	Paula	not provided	N/A	Web-based Comments	26075	24
Carballar	Unreadable	not provided	N/A	Web-based Comments	18333	24
Carbary	Lawrence	not provided	N/A	Web-based Comments	53836	34
Carbary	Rachel	not provided	N/A	Web-based comments	6743	1
Carbone	Christopher	not provided	N/A	Web-based Comments	44810, 44811	34
carbone	linda	not provided	N/A	Web-based Comments	45737, 45738	34
Carcelli	Rev.	HerRevness@gmail.com	N/A	Web-based comments	3252	3
card	charles	not provided	N/A	Web-based Comments	10492	24
Card	Geraldine	not provided	N/A	Web-based Comments	14969	24
Card	Jessica	not provided	N/A	Web-based Comments	50191	34
Cardarelli	Barbara	not provided	N/A	Web-based Comments	8647	24
Cardella	Sylvia	not provided	N/A	Web-based Comments	54549	34
Cardella	Sylvia	not provided	N/A	Web-based Comments	30062	24
Cardellino	Mary Ann	not provided	N/A	Web-based Comments	23486	24
Carden	Michelle	not provided	N/A	Web-based Comments	48755	34
Cardena	Dahlia	not provided	N/A	Web-based Comments	11618	24
Cardenas	Alina	not provided	N/A	Web-based Comments	7393	24
Cardenas	Cynthia	not provided	N/A	Web-based Comments	55155	34
Cardenas	Maria	not provided	N/A	Web-based Comments	45681	34
Cardenas	Maria	not provided	N/A	Web-based Comments	22584	24
Cardenas	Mel	not provided	N/A	Web-based Comments	23823	24
Cardenas	Troy	not provided	N/A	Web-based Comments	30934	24
Carder	Bethany	not provided	N/A	Web-based Comments	57966	16
Carder	Marie	a-marie38@hotmail.fr	N/A	Web-based comments	733	1
Cardiff	Lynn	not provided	N/A	Web-based Comments	49824, 49825	34
Cardiff	Lynn	not provided	N/A	Web-based Comments	22052	24
Cardinal	Enid	not provided	N/A	Web-based Comments	56314, 56315	34
Cardinal	Enid	not provided	N/A	Web-based Comments	14071	24
Cardini	Frederick	not provided	N/A	Web-based Comments	44787, 50502	34

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Cardona	Jacqueline	not provided	N/A	Web-based Comments	16105	24
Cardona	Kay	not provided	N/A	Web-based Comments	19817	24
cardoza	jennifer	not provided	N/A	Web-based Comments	47035	34
Carew	Barb	not provided	N/A	Web-based Comments	58377	28
Carey	Amanda	not provided	N/A	Web-based comments	5784	10
Carey	Andrea	not provided	N/A	Web-based Comments	7729	24
Carey	Ann	not provided	N/A	Web-based Comments	8014	24
Carey	Barbara	not provided	N/A	Web-based Comments	8648	24
Carey	Deborah A.	not provided	N/A	Web-based Comments	50388	34
Carey	Doris	not provided	N/A	Web-based Comments	13226	24
Carey	Doris	not provided	N/A	Web-based Comments	13227	24
Carey	Elizabeth	not provided	N/A	Web-based Comments	13716	24
Carey	Michael	not provided	N/A	Web-based Comments	24042	24
Carey	Patricia	not provided	N/A	Web-based Comments	25721	24
Carey	Rita	not provided	N/A	Web-based Comments	50026	34
Carey	Steve	not provided	N/A	Web-based Comments	29356	24
Carey	Theressa	not provided	N/A	Web-based Comments	30461	24
Carfagno	Michelle	not provided	N/A	Web-based Comments	58241	16
Cargman	Jered	not provided	N/A	Web-based Comments	49645, 49646	34
Cargman	Jered	not provided	N/A	Web-based Comments	17306	24
Carkin	Susan	not provided	N/A	Web-based Comments	58256	16
Carkuff	Edward	not provided	N/A	Web-based Comments	13486	24
Carl	Greg	gregcarl1256@gmail.com	N/A	Web-based comments	2367	N/A
Carl	Karen	not provided	N/A	Web-based Comments	47315	34
Carl	Nancy	not provided	N/A	Web-based Comments	48259, 48260	34
Carl	Nancy	not provided	N/A	Web-based Comments	24825	24
Carl	Renee	not provided	N/A	Web-based Comments	44581	34
Carleton	Angela	not provided	N/A	Web-based Comments	7889	24
Carley	James	not provided	N/A	Web-based Comments	16191	24
Carley	Ru	not provided	N/A	Web-based Comments	27814	24
Carlin	Heidi	not provided	N/A	Web-based Comments	48964	34
Carlini-Davis	Elaine	not provided	N/A	Web-based Comments	13578	24
Carlino	Thomas	not provided	N/A	Web-based Comments	27163	24
Carlisle	Shelley	not provided	N/A	Web-based Comments	28827	24
Carlisle	Tracey	not provided	N/A	Web-based Comments	55179	34
Carlo	Michael	not provided	N/A	Web-based Comments	24043	24
Carlone	Ruth	not provided	N/A	Web-based Comments	27857	24
Carlos	Amadeo	not provided	N/A	Web-based Comments	7510	24
Carlos	Sherida	not provided	N/A	Web-based Comments	28858	24
Carlsen	Joy	not provided	N/A	Web-based Comments	18459	24
Carlson	Alice	not provided	N/A	Web-based Comments	7336	24
Carlson	Brian	not provided	N/A	Web-based Comments	9462	24
Carlson	CarII	not provided	N/A	Web-based Comments	9843	24
carlson	carol	not provided	N/A	Web-based Comments	9899	24
Carlson	Carol	not provided	N/A	Web-based Comments	9900	24
Carlson	Christine	not provided	N/A	Web-based Comments	54785	34
Carlson	Christine	not provided	N/A	Web-based Comments	10898	24
Carlson	Clinton	crcarlson@hughes.net	N/A	Web-based comments	2167	N/A
Carlson	Corey	not provided	N/A	Web-based Comments	11363	24
Carlson	Dorothy	not provided	N/A	Web-based Comments	13253	24
Carlson	Elan	not provided	N/A	Web-based Comments	58514, 58515	34
Carlson	Elan	not provided	N/A	Web-based Comments	13622	24
Carlson	Joan	not provided	N/A	Web-based Comments	17675	24
Carlson	Joel	not provided	N/A	Web-based Comments	17906	24
Carlson	Jonathan	not provided	N/A	Web-based Comments	18277	24
Carlson	Judith	not provided	N/A	Web-based Comments	18573	24
carlson	julie	not provided	N/A	Web-based Comments	44694	34
Carlson	Karen	not provided	N/A	Web-based Comments	19062	24
Carlson	Keith	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32292	N/A
Carlson	Kelly	not provided	N/A	Web-based Comments	19912	24
Carlson	Krista	not provided	N/A	Web-based Comments	20330	24
Carlson	Kyle	not provided	N/A	Web-based comments	5390	8
Carlson	Lora	not provided	N/A	Web-based Comments	21743	24
Carlson	Lori	not provided	N/A	Web-based Comments	21776	24
Carlson	Marilyn	mjbc201814@cableone.net	N/A	US Mail or commercial carrier (UPS, FedEx)	58789	N/A
Carlson	Max	not provided	N/A	Web-based Comments	23738	24
Carlson	Peggy	not provided	N/A	Web-based Comments	26151	24
Carlson	R	not provided	N/A	Web-based comments	4353	N/A
Carlston	Elias	not provided	N/A	Web-based Comments	13660	24
Carlton	Krista	not provided	N/A	Web-based Comments	20331	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Carlucci	Silvio	not provided	N/A	Web-based comments	1842	1
Carlyle	Cameron	not provided	N/A	Web-based Comments	48798, 48907	34
Carlyle	Daisy	not provided	N/A	Web-based Comments	45474, 45475	34
Carlyle	Duncan	not provided	N/A	Web-based Comments	45472, 45473	34
Carlyle	Elise	not provided	N/A	Web-based Comments	47484	34
Carlyle	Kirstie	not provided	N/A	Web-based Comments	53078	34
Carlyle	Pam	not provided	N/A	Web-based Comments	47219, 47220	34
Carlyle	William	not provided	N/A	Web-based Comments	47217, 47218	34
Carman	Andy	not provided	N/A	Web-based Comments	53388	34
Carman	Ann	not provided	N/A	Web-based Comments	8015	24
Carman	Gail	not provided	N/A	Web-based Comments	14671	24
Carman	Jean	not provided	N/A	Web-based Comments	16838	24
Carmany	Honey	not provided	N/A	Web-based Comments	15779	24
Carmean Floyd	Roxann L	not provided	N/A	Web-based Comments	27798	24
Carmi	Irad	not provided	N/A	Web-based Comments	52786	34
Carmichael	Janet	not provided	N/A	Web-based Comments	54491, 54492	34
Carmichael	Janet	not provided	N/A	Web-based Comments	16575	24
Carmicle	Linda	not provided	N/A	Web-based Comments	21223	24
Carmignani	Furio	not provided	N/A	Web-based Comments	14609	24
Carmody	Janet	not provided	N/A	Web-based Comments	16576	24
Carnahan	Cheryl	not provided	N/A	Web-based Comments	10625	24
Carnegie	Sheila	not provided	N/A	Web-based Comments	28781	24
Carneiro	Ana	not provided	N/A	Web-based Comments	7689	24
Carnese	David	not provided	N/A	Web-based Comments	44977	34
Carnese	David	not provided	N/A	Web-based Comments	11968	24
Carnevale	Susan	not provided	N/A	Web-based Comments	29622	24
Carney-Feldman	Catherine	not provided	N/A	Web-based Comments	10260	24
Caro	Maria Sol	not provided	N/A	Web-based Comments	49297	34
Carolis	Vera De	not provided	N/A	Web-based Comments	51463	34
Carollo	Gina	not provided	N/A	Web-based Comments	54500	34
Carollo	Gina	not provided	N/A	Web-based Comments	15049	24
Carollo	John	not provided	N/A	Web-based Comments	17981	24
Caron	Bruce	not provided	N/A	Web-based Comments	58447	34
Caron	Catherine	kateri@doncaron.com	N/A	Web-based comments	1906, 2411	3
Caron	Catherine	not provided	N/A	Web-based Comments	50630	34
Caron	Jessica	not provided	N/A	Web-based Comments	17411	24
Caron	Lily	not provided	N/A	Web-based Comments	21177	24
Caron	Michelle	not provided	N/A	Web-based Comments	24327	24
Caron	Susan	not provided	N/A	Web-based Comments	29623	24
Caron	Suzanne	suzannesg2001@yahoo.com	N/A	Web-based comments	2058	N/A
Carothers	Robert	not provided	N/A	Web-based Comments	49027	34
Carothers	Robert	not provided	N/A	Web-based Comments	27229	24
Carpenter	Amy	not provided	N/A	Web-based Comments	7597	24
Carpenter	Anne	not provided	N/A	Web-based Comments	8177	24
Carpenter	B	not provided	N/A	Web-based Comments	45452	34
Carpenter	Barbara	not provided	N/A	Web-based Comments	45642	34
Carpenter	Barbara	not provided	N/A	Web-based Comments	8649	24
Carpenter	Dale	not provided	N/A	Web-based Comments	11624	24
Carpenter	Derek	not provided	N/A	Web-based Comments	12717	24
Carpenter	Edward	not provided	N/A	Web-based Comments	13487	24
Carpenter	James	not provided	N/A	Web-based Comments	46857	34
Carpenter	James	not provided	N/A	Web-based Comments	16192	24
Carpenter	Janet	not provided	N/A	Web-based Comments	16577	24
Carpenter	Jeremy	not provided	N/A	Web-based Comments	44660	34
Carpenter	Juliet	not provided	N/A	Web-based Comments	18912	24
carpenter	lu	not provided	N/A	Web-based Comments	21916	24
CARPENTER	MICHAEL	not provided	N/A	Web-based Comments	24044	24
Carpenter	Mike	not provided	N/A	Web-based Comments	24438	24
Carpenter	Nate	not provided	N/A	Web-based Comments	51683	34
Carpenter	Neil	carpentern@gmail.com	N/A	Web-based comments	2599	N/A
Carpenter	Randal	not provided	N/A	Web-based Comments	55217	34
Carpenter	Regina	not provided	N/A	Web-based Comments	50289	34
Carpenter	Richard	rcarp@live.com	N/A	Web-based comments	4396	N/A
Carpenter	Shannon	not provided	N/A	Web-based Comments	46530	34
Carpenter	Sheri	not provided	N/A	Web-based Comments	28852	24
carpenter	steven	not provided	N/A	Web-based Comments	29423	24
Carpenter	Thomas	not provided	N/A	Web-based Comments	30474	24
Carper	Elizabeth	not provided	N/A	Web-based Comments	13717	24
Carper	Glenda	glendaycarper@gmail.com	N/A	Web-based comments	1643	3
carr	Alicia	alicia@offields.com	N/A	Web-based comments	5520	1

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
carr	Alicia	hats@tatteredgossamer.com	N/A	Web-based comments	2790	1
Carr	Barbara	not provided	N/A	Web-based Comments	8650	24
Carr	Beth	not provided	N/A	Web-based Comments	51675, 51676	34
Carr	Beth	not provided	N/A	Web-based Comments	9016	24
Carr	Chip	spadflyer@hotmail.com	N/A	Web-based comments	5144	N/A
carr	d	not provided	N/A	Web-based Comments	48484	34
carr	d	not provided	N/A	Web-based Comments	11575	24
Carr	Deb	not provided	N/A	Web-based Comments	12286	24
Carr	Debbie	not provided	N/A	Web-based Comments	12311	24
Carr	Delaney	not provided	N/A	Web-based Comments	12597	24
Carr	Delaney	not provided	N/A	Web-based comments	6219	1
Carr	Hope	not provided	N/A	Web-based Comments	15785	24
Carr	Joe	josephrcarr34@gmail.com	N/A	Web-based comments	5492	1
Carr	John	not provided	N/A	Web-based Comments	17982	24
Carr	Kathleen	not provided	N/A	Web-based Comments	19518	24
CARR	LINDA	not provided	N/A	Web-based Comments	21224	24
Carr	Phyllis Chan	not provided	N/A	Web-based Comments	46646	34
Carr	Randolph	not provided	N/A	Web-based Comments	26628	24
Carr	Sandra	not provided	N/A	Web-based Comments	52313, 52314	34
Carr	Sarah	not provided	N/A	Web-based Comments	28336	24
Carr	Steve	smcarr.ami@gmail.com	N/A	Web-based comments	5509	1
Carr	Susan	not provided	N/A	Web-based Comments	50748	34
Carr	Trinity	not provided	N/A	Web-based Comments	30917	24
Carranco	Nora	not provided	N/A	Web-based Comments	25353	24
Carrano	Frank	not provided	N/A	Web-based Comments	14524	24
Carrasco	Abbie	not provided	N/A	Web-based Comments	47865	34
CARRASCO	CARMEN	not provided	N/A	Web-based Comments	52435	34
Carrasco	Liza	not provided	N/A	Web-based comments	57032	35
Carrasco	Mariann	mcarrasco98@gmail.com	N/A	Web-based comments	2279	N/A
Carraway	Kermit	not provided	N/A	Web-based Comments	20053	24
Carrell	Heidi	not provided	N/A	Web-based Comments	15564	24
Carrell	Steven	not provided	N/A	Web-based Comments	45268	34
Carrick	Elaine	not provided	N/A	Web-based Comments	50504	34
Carrick	Elaine	not provided	N/A	Web-based Comments	13579	24
Carrick	Hannah	hcarrick@pdx.edu	N/A	Web-based comments	5702	1
Carrick	Ian	ian@openhubsinging.com	N/A	Web-based comments	3860	N/A
Carrick	Moe	moe@moecarrick.com	N/A	Web-based comments	6073	N/A
Carrick	Thomas	not provided	N/A	Web-based Comments	30475	24
Carrico	Katarina	not provided	N/A	Web-based Comments	19360	24
Carriedo	Melanie	not provided	N/A	Web-based Comments	23833	24
Carrier-Migliozzi	Michelle	not provided	N/A	Web-based comments	56993	35
Carriger	Debbie	not provided	N/A	Web-based Comments	12312	24
Carrillo	Christina	teenamarie1214@gmail.com	N/A	Web-based comments	749	N/A
Carringer	Nancy	not provided	N/A	Web-based Comments	55564	34
Carringer	Nancy	not provided	N/A	Web-based Comments	24826	24
Carrington	Jillian	not provided	N/A	Web-based Comments	50113	34
Carrington	Martha	not provided	N/A	Web-based Comments	23094	24
Carris	Joanne	not provided	N/A	Web-based Comments	17795	24
Carrizosa	Michael	not provided	N/A	Web-based comments	57455	35
Carroll	Amy	not provided	N/A	Web-based Comments	7598	24
Carroll	Carla	not provided	N/A	Web-based Comments	9818	24
Carroll	Claudia	not provided	N/A	Web-based Comments	11177	24
Carroll	Cynthia	not provided	N/A	Web-based Comments	11497	24
Carroll	Debbie	not provided	N/A	Web-based Comments	48583	34
Carroll	Elisabeth	not provided	N/A	Web-based Comments	13675	24
Carroll	F	not provided	N/A	Web-based comments	57749	35
Carroll	Geneva	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	56610	N/A
Carroll	Jackie	not provided	N/A	Web-based Comments	16058	24
Carroll	Jan	not provided	N/A	Web-based Comments	16387	24
Carroll	Jason	not provided	N/A	Web-based Comments	49873	34
Carroll	Kathryn	not provided	N/A	Web-based Comments	19625	24
Carroll	Kevin	not provided	N/A	Web-based Comments	20092	24
Carroll	Linda	not provided	N/A	Web-based Comments	50737, 50738	34
Carroll	Linda	not provided	N/A	Web-based Comments	21225	24
Carroll	Linda	not provided	N/A	Web-based Comments	21226	24
Carroll	Maureen	not provided	N/A	Web-based Comments	23685	24
Carroll	Niall	not provided	N/A	Web-based Comments	53411, 53412	34
Carroll	Niall	not provided	N/A	Web-based Comments	25154	24
Carroll	Robert	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	56611	N/A
Carroll	Robert	not provided	N/A	Web-based Comments	27230	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Carroll	Sara	not provided	N/A	Web-based Comments	28281	24
carroll	stephanie	not provided	N/A	Web-based Comments	29199	24
Carroll	Stephanie	not provided	N/A	Web-based Comments	29200	24
Carroll	Tom	thom.carroll@verizon.net	N/A	Web-based comments	5645	N/A
Carroll-Friedman	Maureen	not provided	N/A	Web-based Comments	23686, 23687	24
Carroux	Charles	not provided	N/A	Web-based Comments	10493	24
Carse	Marilyn	not provided	N/A	Web-based Comments	45759	34
Carson	Brandy	not provided	N/A	Web-based Comments	9377	24
carson	diane	not provided	N/A	Web-based Comments	12826	24
Carson	Millie	not provided	N/A	Web-based Comments	57839	34
Carson	Troy	not provided	N/A	Web-based Comments	30935	24
Carson	Winfield	not provided	N/A	Web-based Comments	31629	24
Carsten	R	not provided	N/A	Web-based Comments	55280, 55281	34
Carsten	R	not provided	N/A	Web-based Comments	26470	24
Cartan	Alison	not provided	N/A	Web-based comments	6542	1
Carter	Allen	not provided	N/A	Web-based Comments	7442	24
Carter	Amy	not provided	N/A	Web-based Comments	7599	24
Carter	Ashley	not provided	N/A	Web-based Comments	50170, 50171	34
Carter	Ashley	not provided	N/A	Web-based Comments	8480	24
Carter	Calesse	not provided	N/A	Web-based Comments	48267	34
Carter	Carolyn	honeycrispcarters@gmail.com	N/A	Web-based comments	1029	1
Carter	Catherine	not provided	N/A	Web-based Comments	10261	24
Carter	Clare	not provided	N/A	Web-based Comments	11158	24
Carter	Colleen	not provided	N/A	Web-based Comments	11257	24
Carter	Debbie	not provided	N/A	Web-based comments	57322	35
Carter	Debra	not provided	N/A	Web-based Comments	12508	24
Carter	DM	not provided	N/A	Web-based comments	4502	N/A
Carter	Dustin	dustinc76@yahoo.com	N/A	Web-based comments	5456	N/A
Carter	Ed	not provided	N/A	Web-based Comments	13437	24
Carter	Jahlina	not provided	N/A	Web-based Comments	16153	24
Carter	Janet	not provided	N/A	Web-based Comments	16578	24
Carter	Jayne	not provided	N/A	Web-based Comments	16826	24
Carter	Judith	not provided	N/A	Web-based Comments	18574	24
Carter	Julie	not provided	N/A	Web-based Comments	18822	24
Carter	Kimberly	not provided	N/A	Web-based Comments	20220	24
Carter	Kimm	not provided	N/A	Web-based Comments	50050, 50051	34
Carter	Kimm	not provided	N/A	Web-based Comments	20260	24
Carter	Lenette	not provided	N/A	Web-based Comments	52278	34
Carter	Maggie	not provided	N/A	Web-based Comments	22264	24
Carter	Marian	not provided	N/A	Web-based Comments	45838, 45839	34
Carter	Marian	not provided	N/A	Web-based Comments	22655	24
Carter	Michael	not provided	N/A	Web-based Comments	52307	34
Carter	Michael	not provided	N/A	Web-based Comments	24045	24
Carter	Rob	not provided	N/A	Web-based Comments	27170	24
Carter	Ronald	not provided	N/A	Web-based Comments	27651	24
Carter	stephanie	not provided	N/A	Web-based Comments	29201	24
Carter	Susan	not provided	N/A	Web-based Comments	29624	24
Carter	Tracy	not provided	N/A	Web-based Comments	30864	24
Carter	Tripp	not provided	N/A	Web-based Comments	30919	24
Carter-DuBois	Sally	not provided	N/A	Web-based Comments	28005	24
Cartwright	Carl	not provided	N/A	Web-based Comments	46212, 46213	34
Cartwright	Jennifer	not provided	N/A	Web-based Comments	17169	24
Caruana	Loretta	not provided	N/A	Web-based Comments	47625	34
Caruso	Astrid	not provided	N/A	Web-based Comments	8510	24
Caruso	Bob	not provided	N/A	Web-based Comments	9228	24
Caruso	Rosemarie	not provided	N/A	Web-based Comments	27745	24
carvajal	mauricio	not provided	N/A	Web-based Comments	46036	34
Carvalho	Charles	not provided	N/A	Web-based comments	31777	1
Carvalho	Mena	not provided	N/A	Web-based Comments	53174, 53175	34
Carvalho	Mena	not provided	N/A	Web-based Comments	23960	24
Carvalho	Paul	not provided	N/A	Web-based Comments	25981	24
Carvell	Susan	not provided	N/A	Web-based Comments	29625	24
Carvello	Kellyanna	not provided	N/A	Web-based Comments	19955	24
Carver	Caroline	not provided	N/A	Web-based Comments	46884	34
Carver	Charlie	not provided	N/A	Web-based Comments	52579	34
Carver	Georgia	not provided	N/A	Web-based Comments	53085	34
Carver	Georgia	not provided	N/A	Web-based Comments	14934	24
casa	m. paola	not provided	N/A	Web-based Comments	22216	24
casabona	mary	not provided	N/A	Web-based Comments	23229	24
Casado	Xiao	not provided	N/A	Web-based Comments	31648	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Casados	Patrick	patrickcasados@gmail.com	N/A	Web-based comments	31919	1
Casale	Mary	not provided	N/A	Web-based Comments	23230	24
Casares	Carlos	not provided	N/A	Web-based Comments	9852	24
Casarett	Vicki	not provided	N/A	Web-based Comments	49231	34
Casarett	Vicki	not provided	N/A	Web-based Comments	31123	24
Casarrubias	Citlalli	not provided	N/A	Web-based Comments	11116	24
Casazza	Luciana	not provided	N/A	Web-based Comments	21938	24
Cascajares	Mara	not provided	N/A	Web-based comments	56845	35
Cascajares	Marila	not provided	N/A	Web-based Comments	51447	34
Case	Bryan	sixcases@msn.com	N/A	Web-based comments	5978	11
Case	Bryan	sixcases@msn.com	N/A	US Mail or commercial carrier (UPS, FedEx)	58733	11
Case	Janice	case.janiced@gmail.com	N/A	Web-based comments	6098	N/A
Case	Janice	case.janiced@gmail.com	N/A	US Mail or commercial carrier (UPS, FedEx)	58753	13
Case	Karen	not provided	N/A	Web-based Comments	19063	24
Case	Regina	not provided	N/A	Web-based Comments	52806	34
Casey	Claire	casey.claire01@gmail.com	N/A	Web-based comments	5157	N/A
Casey	Cristina	not provided	N/A	Web-based Comments	11440	24
Casey	Ethel	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32385	N/A
Casey	Gabrielle	not provided	N/A	Web-based Comments	14653	24
Casey	Gerry	not provided	N/A	Web-based Comments	14999	24
Casey	Jim	jc.audax@gmail.com	N/A	Web-based comments	4105	N/A
Casey	Joan	not provided	N/A	Web-based Comments	17676	24
Casey	Larry	icsteelhead@gmail.com	N/A	Web-based comments	4556	N/A
Casey	Michelle	not provided	N/A	Web-based Comments	24328	24
Casey	Roger	cougrns@charter.net	N/A	Web-based comments	3129	N/A
Cash	Judy	not provided	N/A	Web-based Comments	51620, 51621	34
Cash	Karen	not provided	N/A	Web-based Comments	52792	34
Cashell	Janice	not provided	N/A	Web-based Comments	50148	34
Cashier	Gina	not provided	N/A	Web-based Comments	15050	24
cashley	karen	not provided	N/A	Web-based Comments	19064	24
Casiello	Kathy	not provided	N/A	Web-based Comments	50009, 50010	34
Casiello	Kathy	not provided	N/A	Web-based Comments	19688	24
Casino	Judith	not provided	N/A	Web-based Comments	55389	34
Caskey	Deborah	not provided	N/A	Web-based Comments	12375	24
Casner	George	not provided	N/A	Web-based comments	57510	35
Casner	George	not provided	N/A	Web-based Comments	14885	24
Casper	Chris	not provided	N/A	Web-based Comments	10724	24
Casper	John	not provided	N/A	Web-based comments	4878	N/A
Cass	Ashly	arcass84@gmail.com	N/A	Web-based comments	597	N/A
Cass Talbott	Brodie	brodietlewis@gmail.com	N/A	Web-based comments	2516	N/A
Cassara	Nicholas	nickc@mtaonline.net	N/A	Web-based comments	5354	N/A
cassel	manou	not provided	N/A	Web-based Comments	22309	24
Cassel	Rose	not provided	N/A	Web-based Comments	54640	34
Cassell	Lisa	not provided	N/A	Web-based Comments	50467	34
Cassels	Nancy	not provided	N/A	Web-based Comments	58430	34
Cassens	Susie	not provided	N/A	Web-based Comments	55604	34
Cassens	Susie	not provided	N/A	Web-based Comments	29959	24
Cassidy	Laurie	not provided	N/A	Web-based Comments	48327	34
Cassidy	Lucy	not provided	N/A	Web-based Comments	21952	24
Cassidy	Thomas	not provided	N/A	Web-based Comments	30476	24
Cassis	Kathryne	not provided	N/A	Web-based Comments	19675	24
Cast	Willard	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	56618	N/A
Castagna	Linda	not provided	N/A	Web-based Comments	56528	34
Castagna	Linda	not provided	N/A	Web-based Comments	21227	24
Castaldi	James	not provided	N/A	Web-based Comments	54672	34
Castaneda	Deb	not provided	N/A	Web-based Comments	12287	24
Castaneda	Stephanie	not provided	N/A	Web-based Comments	29202	24
Castellano	Vincent	not provided	N/A	Web-based Comments	31248	24
Castelli	Adam	not provided	N/A	Web-based Comments	7043	24
Castelli-Hill	Susan	not provided	N/A	Web-based Comments	55759, 55760	34
Castelli-Hill	Susan	not provided	N/A	Web-based Comments	29626	24
Castelluccio	K	not provided	N/A	Web-based Comments	18972	24
Castillo	Desiree	not provided	N/A	Web-based comments	5617	1
Castillo	Gabi	not provided	N/A	Web-based comments	57345	35
Castillo	Judy	not provided	N/A	Web-based Comments	18672	24
Castillo	Mark	not provided	N/A	Web-based Comments	22907	24
Castillo	Rita	not provided	N/A	Web-based Comments	48354	34
Castillo	Rita	not provided	N/A	Web-based Comments	27130	24
castine	guy	not provided	N/A	Web-based Comments	15337	24
Castine	Patricia	not provided	N/A	Web-based Comments	52119	34

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Castine	Patricia	not provided	N/A	Web-based Comments	25722	24
Castle	Catherine	not provided	N/A	Web-based Comments	10262	24
Castle	E	not provided	N/A	Web-based Comments	13409	24
Castle	Elizabeth	not provided	N/A	Web-based Comments	13718	24
Castle	Rose Castle	not provided	N/A	Web-based comments	57655	35
Castle	Tessa	not provided	N/A	Web-based Comments	30395	24
castleberry	roy	not provided	N/A	Web-based Comments	27805	24
Castleman	Nancy	not provided	N/A	Web-based Comments	58643	34
Castner	Emily	not provided	N/A	Web-based Comments	55748, 55749	34
Casto	Ray	not provided	N/A	Web-based comments	4399	N/A
Castriota	Margie	not provided	N/A	Web-based Comments	22540	24
Castro	Carlos	not provided	N/A	Web-based Comments	51032	34
Castro	Carlos	not provided	N/A	Web-based Comments	9853	24
Castro	Carlos	not provided	N/A	Web-based Comments	9854	24
Castro	Julie	not provided	N/A	Web-based Comments	18823	24
Castro	Maurcio	not provided	N/A	Web-based Comments	23682	24
Castro	Philomena	not provided	N/A	Web-based Comments	26368	24
Castrodad	Paola	not provided	N/A	Web-based comments	56947	35
Casty	Jill	not provided	N/A	Web-based Comments	17499	24
Caswell	Gail	not provided	N/A	Web-based Comments	50290	34
Catalano	Diana	not provided	N/A	Web-based Comments	47965	34
Catalano	Diana	not provided	N/A	Web-based Comments	12761	24
Cataldo	Rosanne	not provided	N/A	Web-based Comments	44496	34
Cataldo	Rosanne	not provided	N/A	Web-based Comments	27713	24
Cataloni	Daisy	not provided	N/A	Web-based comments	812	N/A
Catania	Pamela	not provided	N/A	Web-based Comments	25533	24
Catanzaro	Valerie	contact@valeriecatanzaro.com	N/A	Web-based comments	1171	1
Catapano	Paola	not provided	N/A	Web-based Comments	52908, 52909, 52910	34
Cate	Tom	not provided	N/A	Web-based Comments	45156	34
Cathala	Corine	not provided	N/A	Web-based Comments	11371	24
Catherin	Gusty	not provided	N/A	Web-based comments	3493	8
Cathers	Millie	not provided	N/A	Web-based Comments	24517	24
Catlett	Ian	lmcatlett@yahoo.com	N/A	Web-based comments	5828	N/A
Catlin	John	john.catlin@live.com	N/A	Web-based comments	5338	N/A
Catlson	Melinda	not provided	N/A	Web-based Comments	23859	24
Cato	Mary	not provided	N/A	Web-based Comments	52785	34
Cato	Mary	not provided	N/A	Web-based Comments	23231	24
Catron	Cheryl	not provided	N/A	Web-based Comments	10626	24
Caudill	Larry T	not provided	N/A	Web-based Comments	20597	24
Caudill	Lindsey	not provided	N/A	Web-based Comments	52454, 52455	34
Caudill	Lindsey	not provided	N/A	Web-based Comments	21490	24
Caulder	Kristen	not provided	N/A	Web-based Comments	20341	24
Caulfield	Rebecca	not provided	N/A	Web-based Comments	50591	34
Causey	Debbie	not provided	N/A	Web-based Comments	12313	24
Cavagnaro	Nicholas	not provided	N/A	Web-based Comments	25161	24
Cavagnaro	Paula	not provided	N/A	Web-based Comments	26076	24
Cavalcante	Kathleen	not provided	N/A	Web-based Comments	19519	24
Cavalino	Carrie	not provided	N/A	Web-based Comments	10194	24
Cavallaro	Lenny	not provided	N/A	Web-based Comments	20985	24
Cavallo	Janet	not provided	N/A	Web-based Comments	45158, 45159	34
Cavallo	Janet	not provided	N/A	Web-based Comments	16579	24
Cavallon	Faridza	not provided	N/A	Web-based Comments	14393	24
Cavanaugh	Jesikah	not provided	N/A	Web-based Comments	17379	24
Cavazos	Mark	not provided	N/A	Web-based Comments	22908	24
Caviglia	G	not provided	N/A	Web-based Comments	49260	34
Caviglia	G	not provided	N/A	Web-based Comments	14611	24
Cavin	Ron	not provided	N/A	Web-based Comments	51432	34
Cavin	Ron	not provided	N/A	Web-based Comments	27616	24
Cawood	Jeanette	not provided	N/A	Web-based Comments	16908	24
Cayias	Debbie	debbiecayias@gmail.com	N/A	Web-based comments	31863	11
Cazares	Elizabeth	not provided	N/A	Web-based Comments	13719	24
Cazeneuve	Beatriz	not provided	N/A	Web-based Comments	58480	34
cazzato	christopher	not provided	N/A	Web-based Comments	11001	24
C'Dealva-Lenik	Hope	not provided	N/A	Web-based Comments	51162	34
Ceballoss	Emilioo	not provided	N/A	Web-based Comments	14004	24
Ceccatelli	Paola	not provided	N/A	Web-based Comments	25610	24
Cecere	Doug	not provided	N/A	Web-based Comments	13293	24
Cecil	Janice	not provided	N/A	Web-based Comments	51125	34
Cecil	Karen	not provided	N/A	Web-based Comments	53897	34
Cecile	Scott	not provided	N/A	Web-based Comments	52523	34

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Cejka	Jan	not provided	N/A	Web-based Comments	51562	34
Celata	Christine	not provided	N/A	Web-based Comments	10899	24
Celeski	Nicholas	not provided	N/A	Web-based Comments	25162	24
Celikkol	Zeynep	not provided	N/A	Web-based Comments	48944, 48945	34
Celino	Wendy	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32314, 32298	11, 13
Celius	Ronald	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58339	N/A
Cella	Kevin	not provided	N/A	Web-based Comments	20093	24
Celli	Eli	not provided	N/A	Web-based Comments	13658	24
Celli	Sandra	not provided	N/A	Web-based Comments	28120	24
Cencula	David	not provided	N/A	Web-based Comments	11969	24
Center	Jodi	not provided	N/A	Web-based Comments	17845	24
Centola	Mary	not provided	N/A	Web-based Comments	23232	24
Centorrino	Linda	not provided	N/A	Web-based Comments	21228	24
CEO,	ken	kenboire@aol.com	N/A	Web-based comments	2573, 2753, 3126	N/A
Cerchie	L	not provided	N/A	Web-based Comments	20475	24
Cerda	Angelito	not provided	N/A	Web-based Comments	7948	24
Cerne	Nils-Eric	not provided	N/A	Web-based Comments	25297	24
Cerny	Jayne	not provided	N/A	Web-based Comments	16827	24
Ceron	Paula Cano	not provided	N/A	Web-based Comments	49708	34
Cerqueda	Christine	not provided	N/A	Web-based Comments	10900	24
cerron	Aislin	not provided	N/A	Web-based comments	394	1
Cerundolo	Laura	not provided	N/A	Web-based Comments	20614	24
CERVANTES	JOHN	not provided	N/A	Web-based Comments	17983	24
Cervene	Amy	not provided	N/A	Web-based Comments	7600	24
Cervino	Kathy	not provided	N/A	Web-based Comments	19689	24
Cesaro	Fabienne	not provided	N/A	Web-based Comments	54070	34
Cesaro	Fabienne	not provided	N/A	Web-based Comments	14376	24
Cespedes	Rosina	not provided	N/A	Web-based Comments	27778	24
Cetrone	Barbara	not provided	N/A	Web-based Comments	8651	24
Cetrulo	Cindy	not provided	N/A	Web-based Comments	11071	24
Chaboteaux	Elena	elena.chaboteaux@hotmail.com	N/A	Web-based comments	6549	1
Chacich	Elizabeth	not provided	N/A	Web-based Comments	13720	24
Chacon	Carmen	not provided	N/A	Web-based Comments	57960	16
Chadd	Ed	not provided	N/A	Web-based Comments	13438	24
Chadd	Edward	not provided	N/A	Web-based Comments	50456	34
Chadwick	Carina	not provided	N/A	Web-based Comments	55679	34
Chadwick	Carina	not provided	N/A	Web-based Comments	9794	24
Chadwick	John	not provided	N/A	Web-based Comments	58172	16
Chagnon	Jean	not provided	N/A	Web-based Comments	48770	34
chaiken	roslyn	not provided	N/A	Web-based Comments	27782	24
CHAILLAT	Morgane	morganechaillat@gmail.com	N/A	Web-based comments	1843	1
Chaillou	Unreadable	not provided	N/A	Web-based Comments	20506	24
Chairez	Susan	not provided	N/A	Web-based Comments	29627	24
chak	paula	not provided	N/A	Web-based comments	5027	19
Chakraborty	Srijan	not provided	N/A	Web-based Comments	56046	34
Chalcraft	David	not provided	N/A	Web-based Comments	11970	24
Chalfa	John M	not provided	N/A	Web-based Comments	18224	24
Chalfin	D.	not provided	N/A	Web-based Comments	55313, 55314	34
Chalfin	D.	not provided	N/A	Web-based Comments	11593	24
Chalker	Mikki	not provided	N/A	Web-based Comments	49006	34
Chalker	Mikki	not provided	N/A	Web-based Comments	24500	24
Chalmers	Jocelyn	not provided	N/A	Web-based Comments	56426	34
Chalmers	Kirsty	not provided	N/A	Web-based Comments	52921, 52922	34
Chamaillard	Sarah	not provided	N/A	Web-based Comments	28337	24
Chamberlain	Jillian	jillianmchamberlain@gmail.com	N/A	Web-based comments	41	5
Chamberlain	Kathryn	not provided	N/A	Web-based Comments	19626	24
CHAMBERLAIN	RON	rchamberlain111@gmail.com	N/A	Web-based comments	2950	8
Chamberlin	Clyde	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58316	N/A
Chamberlin	Helen	not provided	N/A	Web-based Comments	15599	24
Chamberlin	Kathleen	not provided	N/A	Web-based Comments	19520	24
Chambers	Claire	not provided	N/A	Web-based Comments	51767, 51768	34
Chambers	Claire	not provided	N/A	Web-based Comments	11121	24
Chambers	Connie	not provided	N/A	Web-based Comments	52367	34
Chambers	Emily	not provided	N/A	Web-based Comments	51387	34
Chambers	Emily	not provided	N/A	Web-based Comments	14010	24
Chambers	James	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58348	N/A
Chambers	John	not provided	N/A	Web-based Comments	51716	34
Chambers	pat	not provided	N/A	Web-based Comments	25638	24
Chambers	Penny	not provided	N/A	Web-based Comments	26198	24
CHAMBERS	PHYLLIS	not provided	N/A	Web-based Comments	26382	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Chambers	Scott	scottalexanderchambers@gmail.com	N/A	Web-based comments	4297	N/A
Chambers	Tara	not provided	N/A	Web-based Comments	44767	34
Chamblin	Marcy	not provided	N/A	Web-based Comments	51249	34
Chamblin	Marcy	not provided	N/A	Web-based Comments	22405	24
Chambo	Tim	not provided	N/A	Web-based Comments	46293	34
Chamlou	Parisa	not provided	N/A	Web-based Comments	53185, 53186	34
Champion	Judith	not provided	N/A	Web-based Comments	18575	24
Champy	Cheryl	not provided	N/A	Web-based Comments	50935	34
Chan	Anita	not provided	N/A	Web-based Comments	7968	24
Chan	B.	not provided	N/A	Web-based Comments	48653	34
Chan	B.	not provided	N/A	Web-based Comments	8580	24
Chan	Catherine	not provided	N/A	Web-based Comments	10263	24
Chan	Sharon	not provided	N/A	Web-based comments	56745	35
chan	wallace	not provided	N/A	Web-based Comments	31345	24
Chan	Yvonne	not provided	N/A	Web-based Comments	31691	24
Chan Carr	Phyllis	not provided	N/A	Web-based Comments	26383	24
Chance	Sherry	not provided	N/A	Web-based Comments	28884	24
Chandel	Courtney	not provided	N/A	Web-based Comments	54713	34
Chandler	Carol	not provided	N/A	Web-based Comments	49787	34
Chandler	Charlene	not provided	N/A	Web-based Comments	10472	24
Chandler	Janet	not provided	N/A	Web-based Comments	16580	24
Chandler	John	not provided	N/A	Web-based comments	57675	35
Chandler	Mark	mark.chandler@fallriverelectric.com	N/A	Web-based comments	3762	N/A
Chandler	Rita	not provided	N/A	Web-based Comments	27131	24
Chanen	Philip	not provided	N/A	Web-based Comments	26331	24
Chaney	Barbara	not provided	N/A	Web-based Comments	8652	24
Chaney	Catherine	not provided	N/A	Web-based Comments	46176	34
Chaney	Catherine	not provided	N/A	Web-based Comments	10264	24
Chaney	Johnny	not provided	N/A	Web-based Comments	18231	24
Chang	Anne	not provided	N/A	Web-based Comments	8178	24
Chang	Bryna	not provided	N/A	Web-based Comments	9646	24
Chang	Ching-Lueh	not provided	N/A	Web-based Comments	10700	24
Chang	Crystal	not provided	N/A	Web-based Comments	11455	24
Chang	Elizabeth	not provided	N/A	Web-based Comments	53968	34
Chang	Gabriel	not provided	N/A	Web-based Comments	14636	24
Chang	S	not provided	N/A	Web-based Comments	27938	24
Chang	Tina	not provided	N/A	Web-based Comments	30669	24
Channell	Rachel	not provided	N/A	Web-based Comments	49022	34
Chao	Beth	not provided	N/A	Web-based Comments	9017	24
Chapdelaine	Perry	not provided	N/A	Web-based Comments	26224	24
Chapek	S.	not provided	N/A	Web-based Comments	55713, 55714	34
Chapellier	Nancy	not provided	N/A	Web-based Comments	49285	34
Chapiesky	marya	not provided	N/A	Web-based Comments	23552	24
Chapin	Connie	not provided	N/A	Web-based Comments	11297	24
Chapin	Heather	not provided	N/A	Web-based Comments	15500	24
Chapin	Peter	not provided	N/A	Web-based Comments	26242	24
Chapin	Thomas	not provided	N/A	Web-based Comments	30477	24
Chaplin	Clarence	not provided	N/A	Web-based Comments	11165	24
Chapman	Brad	bchapman@chapcogroup.com	N/A	Web-based comments	3800	11
Chapman	Brian	not provided	N/A	Web-based Comments	9463	24
Chapman	Carol	not provided	N/A	Web-based Comments	9901	24
Chapman	Carol	not provided	N/A	Web-based Comments	9902	24
Chapman	Chris	not provided	N/A	Web-based Comments	10725	24
Chapman	Clifford	not provided	N/A	Web-based Comments	11219	24
Chapman	Cyndie	not provided	N/A	Web-based Comments	11486	24
Chapman	Deborah	not provided	N/A	Web-based comments	57629	35
Chapman	Gary	gdchapman@hotmail.com	N/A	Web-based comments	58829	N/A
Chapman	Josh	not provided	N/A	Web-based Comments	49102	34
Chapman	Kent	not provided	N/A	Web-based Comments	20039	24
Chapman	Kevin	not provided	N/A	Web-based Comments	47986	34
Chapman	Linda	not provided	N/A	Web-based Comments	21229	24
Chapman	Michael	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4741	N/A
Chapman	Nikolette	not provided	N/A	Web-based comments	57344	35
Chapman	Robert	not provided	N/A	Web-based comments	57687	35
Chapman	Robert	not provided	N/A	Web-based Comments	27231	24
Chapman	Sam	not provided	N/A	Web-based Comments	48710	34
chapman	sam	not provided	N/A	Web-based Comments	28051	24
Chapman	Sam	not provided	N/A	Web-based Comments	28050	24
Chapman	Sarah	not provided	N/A	Web-based comments	57686	35
chapman	scott	not provided	N/A	Web-based Comments	28461	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Chappell	Angie	not provided	N/A	Web-based Comments	7951	24
Chappell	Chloe	not provided	N/A	Web-based Comments	10708	24
Chappell	Elizabeth	not provided	N/A	Web-based Comments	13721	24
Chaput	Laura	not provided	N/A	Web-based Comments	20615	24
Charbonneau	Valerie	not provided	N/A	Web-based Comments	53772	34
Chard	John	not provided	N/A	Web-based Comments	17984	24
Charette	Karen	not provided	N/A	Web-based Comments	19065	24
Charkowski	Elaine	not provided	N/A	Web-based Comments	46470	34
Charles	Constance	not provided	N/A	Web-based Comments	50416	34
Charles	Sandra	not provided	N/A	Web-based Comments	28121	24
Charleston	Robert	not provided	N/A	Web-based Comments	54412	34
Charlick	Judy	not provided	N/A	Web-based Comments	18673	24
charlier/gustin	michel/bernadette	not provided	N/A	Web-based Comments	24273	24
Charlot	Rutherford	not provided	N/A	Web-based Comments	27898	24
Charlotte	Entz	charlotte.entz@gmail.com	N/A	Web-based comments	119	1
Charnak	B J	not provided	N/A	Web-based Comments	8579	24
charney	liselotte	not provided	N/A	Web-based Comments	21670	24
Charrel	Justine	justine.charrel@laposte.net	N/A	Web-based comments	821	1
Charrette	Nick	not provided	N/A	Web-based Comments	25193	24
Charrier	JL	not provided	N/A	Web-based Comments	51612	34
Charrier	JL	not provided	N/A	Web-based Comments	17632	24
Charrlin	Lynn	not provided	N/A	Web-based Comments	54804	34
Charsley	Claire Nicola	not provided	N/A	Web-based Comments	11153	24
Charter	Meg	not provided	N/A	Web-based Comments	23774	24
Chartier	Michele	not provided	N/A	Web-based Comments	24279	24
Charvet	Henry	charvethenry791@gmail.com	N/A	Web-based comments	3176	N/A
Chase	C. Daniel	not provided	N/A	Web-based Comments	9701	24
Chase	Darlene	not provided	N/A	Web-based Comments	11878	24
Chase	Derek	not provided	N/A	Web-based Comments	12718	24
Chase	Felicia	not provided	N/A	Web-based Comments	14414	24
Chase	Frederick	not provided	N/A	Web-based Comments	14594	24
Chase	Gilbert	not provided	N/A	Web-based Comments	15021	24
Chase	Jayni	not provided	N/A	Web-based Comments	50448	34
Chase	John	not provided	N/A	Web-based Comments	17985	24
Chase	Linda	not provided	N/A	Web-based Comments	21230	24
Chase	Lisa	lovealoha9@gmail.com	N/A	Web-based comments	5692	1
Chasin	Barbara	not provided	N/A	Web-based Comments	8653	24
Chasin	Ken	not provided	N/A	Web-based Comments	19967	24
Chassagnard	Carole	not provided	N/A	Web-based Comments	10071	24
Chasson	Kate	not provided	N/A	Web-based Comments	19369	24
Chastain	Richard	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32344	N/A
Chatfield	Charlotte	not provided	N/A	Web-based Comments	10554	24
Chatfield	David	not provided	N/A	Web-based Comments	52023	34
Chatfield	Nicholas	not provided	N/A	Web-based Comments	53457	34
chatfield	nicholas	not provided	N/A	Web-based Comments	25163	24
Chatfield	Sara	not provided	N/A	Web-based Comments	28282	24
Chatfield	Victoria	not provided	N/A	Web-based Comments	31187	24
Chatham	Matt	not provided	N/A	Web-based Comments	23609	24
Chatroux	Noel	not provided	N/A	Web-based Comments	25336	24
Chatterton	Craig	not provided	N/A	Web-based Comments	11415	24
Chau	Erica	not provided	N/A	Web-based Comments	14157	24
Chaudhri	Sam	not provided	N/A	Web-based Comments	48023	34
Chaudhri	Sam	not provided	N/A	Web-based Comments	28052	24
Chaupiz	Keving	not provided	N/A	Web-based comments	6093	N/A
Chauvin	Graham	not provided	N/A	Web-based Comments	15212	24
Chavers	Jon	chaversjon@gmail.com	N/A	Web-based comments	13	N/A
Chaves	Liliana	not provided	N/A	Web-based Comments	21159	24
Chavez	Barbara	not provided	N/A	Web-based Comments	8654	24
Chavez	Brittany	not provided	N/A	Web-based comments	1125	1
Chavez	Esther	not provided	N/A	Web-based Comments	14271	24
Chavez	Joyce	not provided	N/A	Web-based Comments	18479	24
Chavez	Phyllis	not provided	N/A	Web-based Comments	45505	34
Chavez	Phyllis	not provided	N/A	Web-based Comments	26384	24
Chavez	Salissa	not provided	N/A	Web-based Comments	54853, 54854	34
Chavira	Jeanette	not provided	N/A	Web-based Comments	16909	24
Chavis	Anna	not provided	N/A	Web-based Comments	52137	34
Chavis	Liz	not provided	N/A	Web-based comments	889	1
Cheechoo	Donna	not provided	N/A	Web-based Comments	50145	34
Cheeseman	Ted	not provided	N/A	Web-based comments	57410	35
Cheesman	Jean	not provided	N/A	Web-based comments	57388	35

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Cheesman	Karen	not provided	N/A	Web-based Comments	19066	24
Cheetham	Aileen	not provided	N/A	Web-based Comments	50311	34
Cheitlin	Melvin D.	not provided	N/A	Web-based Comments	23957	24
Chellappa	Ramya	not provided	N/A	Web-based Comments	26609	24
Chelosky	Mary	not provided	N/A	Web-based Comments	51465	34
Chelosky	Mary	not provided	N/A	Web-based Comments	23233	24
Chen	Allan	not provided	N/A	Web-based Comments	53862	34
Chen	Ana	not provided	N/A	Web-based Comments	7690	24
chen	cathy	not provided	N/A	Web-based Comments	10355	24
Chen	Cynthia	not provided	N/A	Web-based Comments	11498	24
Chen	Diana	not provided	N/A	Web-based Comments	12762	24
Chen	Elizabeth	not provided	N/A	Web-based Comments	55378	34
Chen	Jau-Yon	not provided	N/A	Web-based Comments	16794	24
Chen	Jennie	not provided	N/A	Web-based Comments	17144	24
Chen	Jessica	not provided	N/A	Web-based Comments	17412	24
Chen	Julianne	not provided	N/A	Web-based Comments	18803	24
Chen	Kiley	not provided	N/A	Web-based Comments	20159	24
Chenault	Matthew	mattmchenault@gmail.com	N/A	Web-based comments	6075	N/A
Chenel	Laura	not provided	N/A	Web-based Comments	20616	24
Cheney	Dian	not provided	N/A	Web-based Comments	12748	24
Cheney	G.W.	not provided	N/A	Web-based comments	57127	35
Cheney	Paul	not provided	N/A	Web-based Comments	25982	24
Cheng	Anne	not provided	N/A	Web-based Comments	8179	24
Cheng	Li Ya	not provided	N/A	Web-based Comments	21138	24
Cheng	Ronald	not provided	N/A	Web-based Comments	27652	24
Chenoweth	John	not provided	N/A	Web-based Comments	53927	34
Chenoweth	Karen	not provided	N/A	Web-based Comments	19067	24
Chenoweth	Mary	not provided	N/A	Web-based Comments	23234	24
CHENU-CAMPBELL	CATHERINE	not provided	N/A	Web-based Comments	10265	24
Cheong	Lin	not provided	N/A	Web-based Comments	50095	34
Chepeska	Jan	not provided	N/A	Web-based Comments	16388	24
Cherniski	Christine	not provided	N/A	Web-based Comments	10901	24
Chernow	Justin	not provided	N/A	Web-based Comments	44272	34
Cherry	Carla	not provided	N/A	Web-based Comments	9819	24
CHERRY	GLEN	not provided	N/A	Web-based Comments	15111	24
Cherry	Joanie	not provided	N/A	Web-based Comments	55735	34
Cherry	Judith	not provided	N/A	Web-based Comments	18576	24
Cherry	Kittredge	not provided	N/A	Web-based Comments	20289	24
Cherry	Robert	not provided	N/A	Web-based Comments	27232	24
Cherry	Russell	not provided	N/A	Web-based Comments	53187	34
Cherubin	Elizabeth	not provided	N/A	Web-based Comments	13722	24
Chervek	David	not provided	N/A	Web-based Comments	11971	24
Chervek	David M.	not provided	N/A	Web-based Comments	48046	34
Chervenock	Bonnijo	not provided	N/A	Web-based Comments	55696	34
Chesnut	Brian	brian7cees@yahoo.com	N/A	Web-based comments	3614	N/A
Chesnut	Joanna	not provided	N/A	Web-based Comments	54509	34
Chesnut	Joanna	not provided	N/A	Web-based Comments	17784	24
Chessa	Marina	not provided	N/A	Web-based Comments	22829	24
Chesser	Cathy	not provided	N/A	Web-based Comments	10356	24
Chester	Leslie	not provided	N/A	Web-based Comments	21063	24
chevalier	al	not provided	N/A	Web-based Comments	7142	24
Chevallier	Madalyn	not provided	N/A	Web-based Comments	51750	34
Chevallier	Unreadable	not provided	N/A	Web-based comments	56759	35
Chew	Debi Y	not provided	N/A	Web-based Comments	49754	34
Chew	Priscilla	not provided	N/A	Web-based Comments	26441	24
Chew	Yue Ting	not provided	N/A	Web-based Comments	31677	24
Chewning	Debbie	not provided	N/A	Web-based Comments	48131	34
Cheyne	Rodney	not provided	N/A	Web-based comments	5909	N/A
Cheyney	Edwin	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58334	N/A
Chez	Susana Chez	not provided	N/A	Web-based comments	57476	35
Chezem	Ronna	not provided	N/A	Web-based Comments	27687	24
Chi	Sarah	not provided	N/A	Web-based Comments	28338	24
Chi	Taochiung	not provided	N/A	Web-based Comments	30197	24
Chiacchio	Diane	not provided	N/A	Web-based Comments	47190	34
Chiarella	John	not provided	N/A	Web-based Comments	17986	24
Chiarelli	Sam	not provided	N/A	Web-based Comments	28053	24
Chiarello	Joan	not provided	N/A	Web-based Comments	17677	24
Chichester	Barbara	not provided	N/A	Web-based Comments	51608	34
Chichester	Barbara	not provided	N/A	Web-based Comments	8655	24
Chickman	Sue	not provided	N/A	Web-based Comments	50375	34

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Chih	Annie	not provided	N/A	Web-based Comments	54107	34
Chih	Annie	not provided	N/A	Web-based Comments	8294	24
Child	Elizabeth	not provided	N/A	Web-based Comments	13723	24
child	katrina	not provided	N/A	Web-based Comments	44933	34
Child	M	not provided	N/A	Web-based Comments	22168	24
Childers	Cherelyn	not provided	N/A	Web-based comments	2814	N/A
Childers	Judy	not provided	N/A	Web-based Comments	53542	34
Childers	Judy	not provided	N/A	Web-based Comments	18674	24
Childress	Rick	not provided	N/A	Web-based Comments	27085	24
Childress	Wendy	not provided	N/A	Web-based Comments	31413	24
childs	Alexandra	not provided	N/A	Web-based Comments	7275	24
Childs	Carole	not provided	N/A	Web-based Comments	54346	34
Childs	Christie	not provided	N/A	Web-based Comments	10836	24
Childs	Marilyn	not provided	N/A	Web-based Comments	22769	24
childs	pete	not provided	N/A	Web-based Comments	26228	24
Childs	Thomas	not provided	N/A	Web-based Comments	30567	24
Chilikas	Ellen	not provided	N/A	Web-based Comments	13899	24
Chillcott	Thomas	not provided	N/A	Web-based Comments	53103	34
Chilton	Christa	not provided	N/A	Web-based Comments	10803	24
Chilton	Marg	not provided	N/A	Web-based Comments	22420	24
Chilton	Paul	not provided	N/A	Web-based Comments	55950	34
Chimiklis	Lynne	not provided	N/A	Web-based Comments	53877	34
Chin	Anne	not provided	N/A	Web-based Comments	8180	24
Chin	Janice	not provided	N/A	Web-based Comments	16671	24
Chin	Joseph	not provided	N/A	Web-based Comments	55589, 55590	34
CHIN	MARGARET	not provided	N/A	Web-based Comments	22436	24
Chin	Mary	not provided	N/A	Web-based Comments	23235	24
Chin	Philip	not provided	N/A	Web-based comments	57048	35
Chin	Poh	poh5796@hotmail.com	N/A	Web-based comments	1106	N/A
Chin	Stacey	not provided	N/A	Web-based Comments	29110	24
Chin	Wilson	not provided	N/A	Web-based Comments	31627	24
Chin	Winnie	not provided	N/A	Web-based Comments	31635	24
Chinigo	Brittany	not provided	N/A	Web-based Comments	49393	34
CHINOFSKY	LAURA	not provided	N/A	Web-based Comments	20617	24
Chin-Onn	Kenneth	not provided	N/A	Web-based Comments	20010	24
Chiocco	Leslie	not provided	N/A	Web-based Comments	21064	24
Chiodini	Shelley	not provided	N/A	Web-based Comments	28828	24
Chiodo	Mary	not provided	N/A	Web-based Comments	23236	24
Chirico	Ursula	not provided	N/A	Web-based Comments	30978	24
Chirman	Darlene	darlene.chirman@gmail.com	N/A	Web-based comments	6488	N/A
Chirpin	Robert	not provided	N/A	Web-based Comments	27233	24
Chisari	Andrea	not provided	N/A	Web-based Comments	44927, 45001	34
Chisari	Andrea	not provided	N/A	Web-based Comments	7730	24
Chisholm	Amy	not provided	N/A	Web-based Comments	46572	34
Chisholm	Margaret	not provided	N/A	Web-based Comments	22437	24
Chisholm	Roberta	not provided	N/A	Web-based Comments	44339	34
Chism	Catelyn	catchism8@gmail.com	N/A	Web-based Comments	52062	34
Chism	Catelyn	catchism8@gmail.com	N/A	Web-based comments	171	1
Chismar	Nancy	not provided	N/A	Web-based Comments	55593, 55594	34
Chismar	Nancy	not provided	N/A	Web-based Comments	24827	24
Chittenden	Rebekah	not provided	N/A	Web-based Comments	26792	24
Chitwood	Chuck	not provided	N/A	Web-based Comments	11049	24
Chitwood	Ronald & Ceona	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32487	N/A
Chivian	Susanna	not provided	N/A	Web-based Comments	29938	24
Chizmar	RE	not provided	N/A	Web-based Comments	26700	24
Chlebowski	Clint	not provided	N/A	Web-based Comments	11225	24
Chlorou	Anastasia	not provided	N/A	Web-based comments	56808	35
Chmara-Huff	Gwynyth	not provided	N/A	Web-based Comments	15362	24
CHMM,	Alan	not provided	N/A	Web-based comments	2607	N/A
Chmura	Ken	not provided	N/A	Web-based Comments	19968	24
Cho	Louis	not provided	N/A	Web-based Comments	21864	24
Cho	Tony	not provided	N/A	Web-based Comments	30806	24
Choate	Aaron	not provided	N/A	Web-based Comments	50613	N/A
Choate	Evan	not provided	N/A	Web-based Comments	14326	24
Choate	Robin	not provided	N/A	Web-based Comments	27470	24
CHOBERT	Marie	not provided	N/A	Web-based Comments	22738	24
CHOBERT	Marie-Josèl	not provided	N/A	Web-based Comments	54378	34
Chodakauskas	Juana	not provided	N/A	Web-based Comments	18530	24
Chodorow	Catherine	not provided	N/A	Web-based Comments	10266	24
Chodosh	Janie	not provided	N/A	Web-based Comments	49918	34

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Choi	Brenda	not provided	N/A	Web-based Comments	57932, 51615, 51616, 58420	16, 34
Choi	Brenda	not provided	N/A	Web-based Comments	9393	24
Choi	Brenda	not provided	N/A	Web-based Comments	9394	24
Choi	Ilene	not provided	N/A	Web-based Comments	15852	24
Choi	Kelly	not provided	N/A	Web-based Comments	19913	24
Chokas	Greg	gchokas@gmail.com	N/A	Web-based comments	5508	N/A
Chong	Albert	not provided	N/A	Web-based Comments	7208	24
Chong	Jay Tjon Jaw	not provided	N/A	Web-based Comments	46290	34
Chotiner	Renee	not provided	N/A	Web-based Comments	26839	24
Chott	Nancy	chotthomewhereeaglesfly@gmail.com	N/A	Web-based comments	2454	N/A
Choudhury	Galib	not provided	N/A	Web-based Comments	14739	24
Choudhury	Kathryn	not provided	N/A	Web-based Comments	19627	24
Choufour	Yuri	yurichoufour@gmail.com	N/A	Web-based comments	6368	1
Chow	Josi	not provided	N/A	Web-based Comments	18441	24
Chow	Lori	not provided	N/A	Web-based Comments	56518	34
Chow	Yee	not provided	N/A	Web-based Comments	31662	24
Chowdhury	Nabi	not provided	N/A	Web-based Comments	24744	24
Chowen	Carole	not provided	N/A	Web-based Comments	10072	24
Choy	Caitlin	not provided	N/A	Web-based Comments	9710	24
Choy	MaryAnn	not provided	N/A	Web-based Comments	53306	34
Choy	Mel Cup	not provided	N/A	Web-based Comments	51383	34
Choy	Wesley	not provided	N/A	Web-based Comments	31466	24
Chri	Avaro	not provided	N/A	Web-based comments	56770	35
Chris Smenos	C	not provided	N/A	Web-based Comments	9665	24
Chrispin	Isaana	skgink@gmail.com	N/A	Web-based comments	97	1
Chrispin	Lezele	mazeylotus@gmail.com	N/A	Web-based comments	98	1
Chrissos	Ms. H.L. Chris	not provided	N/A	Web-based Comments	24689	24
Christ	MLou	not provided	N/A	Web-based Comments	51516	34
Christ	Silvia	not provided	N/A	Web-based Comments	29005	24
Christ	Silvia	not provided	N/A	Web-based Comments	29006	24
Christara	Helen	not provided	N/A	Web-based comments	56806	35
Christel	Doug	not provided	N/A	Web-based Comments	13294	24
Christensen	Aimee	not provided	N/A	Web-based Comments	58100	16
Christensen	Alison	alisonchris24@gmail.com	N/A	Web-based comments	3814	3
Christensen	Ann	not provided	N/A	Web-based Comments	57961	16
Christensen	Carey	not provided	N/A	Web-based Comments	9785	24
Christensen	Clyde	ccchrismt@gmail.com	N/A	Web-based comments	3652	11
Christensen	Deb	not provided	N/A	Web-based Comments	49101	34
Christensen	Eloise	not provided	N/A	Web-based Comments	58107	16
christensen	freya	not provided	N/A	Web-based Comments	14604	24
christensen	Gail	not provided	N/A	Web-based Comments	14672	24
Christensen	Jan	not provided	N/A	Web-based Comments	56043	34
Christensen	Jay	jaysproducts@gmail.com	N/A	Web-based comments	4036	N/A
Christensen	Kaerli	not provided	N/A	Web-based Comments	18996	24
Christensen	Lily	lilyec24@gmail.com	N/A	Web-based comments	31841	N/A
Christensen	Patricia	not provided	N/A	Web-based Comments	25723	24
Christensen	R.	dragonfly_11@comcast.net	N/A	Web-based comments	3704	1
Christensen	Rebecca	not provided	N/A	Web-based comments	57143	35
Christensen	Richard	not provided	N/A	Web-based comments	4796	N/A
Christensen	Wilton	not provided	N/A	Web-based Comments	31628	24
Christenson	Amy	not provided	N/A	Web-based Comments	58019, 55818	16, 34
Christenson	Craig	not provided	N/A	Web-based Comments	11416	24
Christenson	Cyrus	not provided	N/A	Web-based Comments	11570	24
Christenson	Jill	not provided	N/A	Web-based Comments	17500	24
Christian	Janet	not provided	N/A	Web-based Comments	53886	34
Christian	Kathryn	not provided	N/A	Web-based Comments	53347	34
Christian	Kathryn	not provided	N/A	Web-based Comments	19628	24
Christian	Martha	not provided	N/A	Web-based Comments	23095	24
Christian	Shane	not provided	N/A	Web-based Comments	28565	24
Christian	Wendy	not provided	N/A	Web-based comments	57158	35
CHRISTIANE	FRANCE	not provided	N/A	Web-based Comments	14470	24
Christiansen	Carl	not provided	N/A	Web-based Comments	9802	24
Christiansen	Karen	not provided	N/A	Web-based Comments	19068	24
Christianson	Chris	not provided	N/A	Web-based Comments	10726	24
Christianson	Jon	jonchris@skadden.com	N/A	Web-based comments	3187	12
Christie	Bill	not provided	N/A	Web-based Comments	54041	34
Christie	Tess	not provided	N/A	Web-based Comments	30393	24
Christierson	Peter von	not provided	N/A	Web-based Comments	50700	34
christine	hernandez	not provided	N/A	Web-based Comments	15687	24
CHRISTISON	YVONNE	not provided	N/A	Web-based Comments	46895	34

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Christman	Barbara Kinzle	not provided	N/A	Web-based Comments	58212	16
Christmann	Maria Julia	not provided	N/A	Web-based Comments	22644	24
CHRISTMAS	KATHARINE	not provided	N/A	Web-based Comments	19416	24
Christoff	Stephanie	not provided	N/A	Web-based Comments	29203	24
Christoffersen	Morten	not provided	N/A	Web-based Comments	24677	24
Christopher	Bob	not provided	N/A	Web-based Comments	9229	24
Christopher	Bruce	not provided	N/A	Web-based Comments	9603	24
Christopher	John	not provided	N/A	Web-based Comments	56276	34
Christopher	Sam	not provided	N/A	Web-based Comments	28054	24
Christopher	Sandra	not provided	N/A	Web-based Comments	45670	34
Christopher	Sandra	not provided	N/A	Web-based Comments	28122	24
Christopher	Thane	not provided	N/A	Web-based Comments	30404	24
Christopherson	Denise	denise.christopherson@pocketinet.com	N/A	Web-based comments	5422	N/A
Christophi	Andy	not provided	N/A	Web-based Comments	7871	24
Christopoulos	Elpitha	not provided	N/A	Web-based Comments	13983	24
Christy	Jeff	not provided	N/A	Web-based Comments	17009	24
Christy	Martha	not provided	N/A	Web-based Comments	23096	24
Chronister	Michael	not provided	N/A	Web-based Comments	24046	24
Chrupalla	Silke	not provided	N/A	Web-based Comments	28998	24
Chrystal	Cynthia	not provided	N/A	Web-based Comments	11499	24
Chrzanowski	Lynne	not provided	N/A	Web-based Comments	22123	24
Chrzanowski	Romola	not provided	N/A	Web-based Comments	49987	34
Chu	Edward	not provided	N/A	Web-based Comments	13488	24
Chu	J	not provided	N/A	Web-based Comments	52487	34
Chu	Jonathan	not provided	N/A	Web-based Comments	18278	24
Chu	Ted	yuiqwe1@gmail.com	N/A	Web-based comments	2826	N/A
Chu	Ted	yuiqwe1@gmail.com	N/A	Hand-delivered or oral testimony (personally delivered)	5561	N/A
Chuang	Wesley	not provided	N/A	Web-based Comments	54311	34
Chuang	Wesley	not provided	N/A	Web-based Comments	31467	24
Chui	Bailey	not provided	N/A	Web-based Comments	58685	34
Chung	Annie	not provided	N/A	Web-based Comments	8295	24
Chung	Benny	not provided	N/A	Web-based Comments	49047	34
Chung	Hannah	not provided	N/A	Web-based Comments	15397	24
Chuplis	Cindy	not provided	N/A	Web-based Comments	48326	34
Chupp	T.	not provided	N/A	Web-based Comments	30100	24
Church	Alison	not provided	N/A	Web-based Comments	7404	24
Church	Angela	not provided	N/A	Web-based Comments	7890	24
Church	Janelle	not provided	N/A	Web-based Comments	16555	24
Church	Kel	not provided	N/A	Web-based Comments	54798	34
Church	Larry	larrybchurch@yahoo.com	N/A	Web-based comments	3606	N/A
Churchill	Carol	not provided	N/A	Web-based Comments	58612	34
Churchill	Carol	not provided	N/A	Web-based Comments	9903	24
Churchill	Denise	not provided	N/A	Web-based Comments	12632	24
Churchill	Emily	not provided	N/A	Web-based Comments	14011	24
Churchill	Madison	madie.churchill@gmail.com	N/A	Web-based comments	5323	N/A
Chutich	Michael	not provided	N/A	Web-based Comments	47450	34
Chutich	Michael	not provided	N/A	Web-based Comments	24047	24
Chwastiak	Michele	not provided	N/A	Web-based Comments	24280	24
Chyba	Mike	not provided	N/A	Web-based Comments	49105, 49106	34
Chynoweth	Iris	not provided	N/A	Web-based Comments	58641, 58642	34
Ciancibelli	Allison	not provided	N/A	Web-based Comments	7459	24
Ciancio	Maria	not provided	N/A	Web-based Comments	22585	24
Ciaramella	Susan	not provided	N/A	Web-based Comments	45492	34
Ciasullo	Patricia	not provided	N/A	Web-based Comments	25724	24
Ciaverelli	Tom	not provided	N/A	Web-based Comments	30742	24
ciccarelli	alessandro	not provided	N/A	Web-based Comments	7238	24
Cicchi	Carla	not provided	N/A	Web-based Comments	50578	34
Ciccone	Daren	not provided	N/A	Web-based Comments	11857	24
Ciccone	Jillian	not provided	N/A	Web-based Comments	17556	24
Cichon	Mary	not provided	N/A	Web-based Comments	23237	24
Ciciriello	Federica	not provided	N/A	Web-based Comments	14411	24
Ciembronowicz	Kate	not provided	N/A	Web-based Comments	19370	24
Cieplinski	Debbie	not provided	N/A	Web-based Comments	12314	24
Cierech	Thomas	not provided	N/A	Web-based Comments	30478	24
Ciesla	Susan	not provided	N/A	Web-based Comments	29628	24
Cietek	Phyllis A	not provided	N/A	Web-based Comments	26401	24
Cifaldi	Margret	not provided	N/A	Web-based Comments	22557	24
Cifelli	Alex	not provided	N/A	Web-based Comments	44340	34
Cihak	Kathryn	not provided	N/A	Web-based Comments	19629	24
Cilley	Rachel	not provided	N/A	Web-based Comments	26509	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Ciminello	Brianne	not provided	N/A	Web-based Comments	9533	24
Cimino	Alice	not provided	N/A	Web-based comments	31898	1
Cimino	Andrea	not provided	N/A	Web-based Comments	46661	34
Cimino	Andrea	not provided	N/A	Web-based Comments	7731	24
Cimino	Eve	not provided	N/A	Web-based Comments	53151	34
Cimino	Maryrose	not provided	N/A	Web-based Comments	45515	34
Cimino	Maryrose	not provided	N/A	Web-based Comments	23590	24
Cimino	Stephanie	not provided	N/A	Web-based Comments	29204	24
Cinar	Melda	not provided	N/A	Web-based Comments	23853	24
Cinato	Dorothy	not provided	N/A	Web-based Comments	13254	24
Cincu	Eugen-Anton	not provided	N/A	Web-based Comments	14287	24
Ciocci	Michael	not provided	N/A	Web-based Comments	24048	24
Ciosici	Stefan	not provided	N/A	Web-based Comments	48405, 57811	34
Ciosici	Stefan	not provided	N/A	Web-based Comments	29163	24
Ciotti	Joyce	not provided	N/A	Web-based Comments	47326, 47327	34
Cipolla	Patricia	not provided	N/A	Web-based Comments	25725	24
Cippel	Maureen	not provided	N/A	Web-based Comments	44616	34
Cipriano	Gina	not provided	N/A	Web-based Comments	15051	24
Ciriello	Heather	not provided	N/A	Web-based Comments	15501	24
Cisek	Ed	not provided	N/A	Web-based Comments	13439	24
Ciske	Daniel	not provided	N/A	Web-based Comments	58103	16
Ciske	Sandra	not provided	N/A	Web-based Comments	28123	24
Cislaw	Tanner	not provided	N/A	Web-based comments	716	2
Cisna	Todd	not provided	N/A	Web-based Comments	47752	34
Cisna	Todd	not provided	N/A	Web-based Comments	30715	24
cisneros	julian	not provided	N/A	Web-based Comments	18786	24
Cisneros	Melinda	not provided	N/A	Web-based Comments	23860	24
Cissell	Christopher	not provided	N/A	Web-based Comments	46971, 46972	34
citizen	A	not provided	N/A	Web-based comments	6122	N/A
Citizen	Concerned	not provided	N/A	Web-based comments	4435	N/A
Citizen	Oncerned	not provided	N/A	Web-based Comments	50937	34
Citizens	Clark	cccuinc@yahoo.com	N/A	Web-based comments	5778	N/A
Citron	Jean	not provided	N/A	Web-based Comments	16839	24
Civeira	Bertha	not provided	N/A	Web-based Comments	9004	24
Civitelli	Susan	not provided	N/A	Web-based Comments	29629	24
Cizek	Karen	not provided	N/A	Web-based Comments	19069	24
Clack	Lucy	not provided	N/A	Web-based comments	31953	N/A
Claesson	Robert	not provided	N/A	Web-based Comments	47551, 47552	34
Claggett	Bonnie	not provided	N/A	Web-based Comments	49412, 49413, 49414, 49415	34
Claggett	Bonnie	not provided	N/A	Web-based Comments	9287	24
Clague	Amanda	not provided	N/A	Web-based Comments	7524	24
Claiborne	David	david@sawtoothlaw.com	N/A	Web-based comments	3854	11
Clair	Kelly Jean	not provided	N/A	Web-based Comments	19953	24
claire	loridan	not provided	N/A	Web-based Comments	50990	34
Clampitt	Philip	not provided	N/A	Web-based Comments	26332	24
Clancy	Peter	not provided	N/A	Web-based Comments	50190	34
Clapp	Lisa	not provided	N/A	Web-based Comments	21533	24
Clapper	David	not provided	N/A	Web-based Comments	11972	24
Claps	Michael	not provided	N/A	Web-based Comments	24049	24
Clarey	Martha	not provided	N/A	Web-based Comments	23097	24
Clark	Audrey	not provided	N/A	Web-based Comments	46364, 46365	34
Clark	Barbara	not provided	N/A	Web-based Comments	8656	24
Clark	Brittany	not provided	N/A	Web-based Comments	9568	24
CLARK	CARL	not provided	N/A	Web-based Comments	46849	34
Clark	Chad	not provided	N/A	Web-based Comments	10447	24
Clark	Connie	not provided	N/A	Web-based Comments	54599	34
Clark	Connie	not provided	N/A	Web-based Comments	11298	24
Clark	Dale	Clark1948@Charter.net	N/A	Web-based comments	4573	N/A
Clark	Deborah	not provided	N/A	Web-based Comments	12376	24
Clark	Diane	not provided	N/A	Web-based Comments	12827	24
Clark	Donald	not provided	N/A	Web-based Comments	13053	24
Clark	Donna	not provided	N/A	Web-based Comments	13118	24
Clark	Doug	Dougckfc@charter.net	N/A	Web-based comments	3164	N/A
Clark	E	not provided	N/A	Web-based Comments	47810	34
Clark	Elyse	not provided	N/A	Web-based Comments	13995	24
Clark	Erika	not provided	N/A	Web-based Comments	51147, 51148	34
Clark	Fran	not provided	N/A	Web-based Comments	14459	24
Clark	Frances	not provided	N/A	Web-based Comments	14474	24
Clark	Glenn	not provided	N/A	Web-based Comments	48165	34
Clark	Hamid	not provided	N/A	Web-based Comments	15386	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Clark	Harry	not provided	N/A	Web-based Comments	15461	24
Clark	Hilary	not provided	N/A	Web-based Comments	15693	24
Clark	Irina	not provided	N/A	Web-based Comments	56087	34
Clark	J	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58392	32
Clark	jd	not provided	N/A	Web-based Comments	46066	34
Clark	Jeffrey	not provided	N/A	Web-based Comments	49387	34
Clark	Jennifer	not provided	N/A	Web-based Comments	55255	34
Clark	Jennifer	not provided	N/A	Web-based Comments	17170	24
Clark	Jennifer	not provided	N/A	Web-based Comments	17171	24
Clark	Jerry	not provided	N/A	Web-based Comments	17345	24
Clark	John	not provided	N/A	Web-based Comments	17987	24
Clark	Joseph	not provided	N/A	Web-based Comments	54859	34
Clark	Joseph	not provided	N/A	Web-based Comments	18350	24
Clark	Judith	not provided	N/A	Web-based Comments	18577	24
Clark	Judith	not provided	N/A	Web-based Comments	18578	24
Clark	Juliet	not provided	N/A	Web-based Comments	18913	24
Clark	Katharine	not provided	N/A	Web-based Comments	19417	24
Clark	Kathleen	not provided	N/A	Web-based Comments	19521	24
Clark	Kevin	not provided	N/A	Web-based Comments	20094	24
Clark	Laurel	not provided	N/A	Web-based Comments	20731	24
Clark	Laurie	not provided	N/A	Web-based Comments	20828	24
Clark	Lawrence	not provided	N/A	Web-based Comments	50638	34
Clark	Leon	not provided	N/A	Web-based comments	31907	N/A
Clark	Leonard	not provided	N/A	Web-based Comments	21006	24
Clark	Linda	not provided	N/A	Web-based Comments	21231	24
Clark	Lizanne	not provided	N/A	Web-based Comments	21705	24
Clark	Lorry	not provided	N/A	Web-based Comments	46457, 46458	34
Clark	Louise	leingleton@gmail.com	N/A	Web-based comments	32182	1
Clark	Marilyn	not provided	N/A	Web-based Comments	47110	34
Clark	Marilyn	not provided	N/A	Web-based Comments	22770	24
Clark	Marilyn	not provided	N/A	Web-based Comments	22771	24
Clark	Mary	not provided	N/A	Web-based Comments	23238	24
Clark	Mary Lou	not provided	N/A	Web-based Comments	23539	24
Clark	Miriam	not provided	N/A	Web-based Comments	24546	24
Clark	Nicole	nicoleaclark@gmail.com	N/A	Web-based comments	2808	N/A
Clark	Ott	not provided	N/A	Web-based comments	3232	N/A
Clark	Randall	not provided	N/A	Web-based Comments	26613	24
Clark	Rebecca	not provided	N/A	Web-based Comments	44463	34
Clark	Rebecca	not provided	N/A	Web-based Comments	26716	24
Clark	Rebecca	not provided	N/A	Web-based Comments	26717	24
Clark	Robin	not provided	N/A	Web-based Comments	27471	24
Clark	Robyn	not provided	N/A	Web-based Comments	27546	24
Clark	Roger	not provided	N/A	Web-based Comments	27580	24
Clark	Roselle	not provided	N/A	Web-based Comments	27743	24
Clark	Ryan	not provided	N/A	Web-based Comments	49893	34
Clark	Sandra	not provided	N/A	Web-based Comments	28124	24
Clark	Shirley	not provided	N/A	Web-based Comments	28945	24
Clark	Stephanie	not provided	N/A	Web-based Comments	54365, 54366	34
Clark	Stephanie	not provided	N/A	Web-based Comments	29205	24
Clark	Steven	steeevo40@gmail.com	N/A	Web-based comments	2298	N/A
Clark	Stuart	not provided	N/A	Web-based Comments	45450	34
Clark	Tess	not provided	N/A	Web-based Comments	30394	24
Clark	Tina	not provided	N/A	Web-based Comments	30670	24
Clark	Todd	not provided	N/A	Web-based Comments	54774, 54775	34
Clark	Todd	not provided	N/A	Web-based Comments	30716	24
Clark	Val	not provided	N/A	Web-based Comments	49669	34
clark	valerie	not provided	N/A	Web-based Comments	31017	24
Clark	Vicki	not provided	N/A	Web-based Comments	31124	24
Clark	William	not provided	N/A	Web-based Comments	53474	34
Clark Jr	James A	not provided	N/A	Web-based Comments	16340	24
Clarke	Carrie	not provided	N/A	Web-based Comments	10195	24
Clarke	Christine	not provided	N/A	Web-based Comments	10902	24
Clarke	Dean	not provided	N/A	Web-based Comments	12262	24
Clarke	Deborah	dclarke589@gmail.com	N/A	Web-based comments	51, 56922	1, 35
Clarke	Jennifer	not provided	N/A	Web-based Comments	17172	24
Clarke	Jerry	not provided	N/A	Web-based Comments	17346	24
Clarke	Karen	not provided	N/A	Web-based Comments	19070	24
Clarke	M.	not provided	N/A	Web-based Comments	22209	24
Clarke	Maggie	not provided	N/A	Web-based Comments	22265	24
Clarke	Mary	not provided	N/A	Web-based Comments	23239	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Clarke	Michael and Jeanine	not provided	N/A	Web-based Comments	50783	34
Clarke	Michael and Jeanine	not provided	N/A	Web-based Comments	24258	24
Clarke	Susan	not provided	N/A	Web-based Comments	29630	24
Clarke	Susie	not provided	N/A	Web-based Comments	29960	24
Clark-McKitrick	Blythe	not provided	N/A	Web-based Comments	46109	34
Clark-McKitrick	Blythe	not provided	N/A	Web-based Comments	9223	24
Clarkson	Ann	not provided	N/A	Web-based Comments	58095	16
Clarkson	Nicola	not provided	N/A	Web-based Comments	44743	34
Clarneau	Nola	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32276	N/A
Clary	Marina	not provided	N/A	Web-based Comments	22830	24
Clasper	Bob	not provided	N/A	Web-based Comments	56543	34
Claunch	Ben	bdclaunch@gmail.com	N/A	Web-based comments	5752	N/A
Claunch	Julie	not provided	N/A	Web-based Comments	18824	24
Clausen	Connie	not provided	N/A	Web-based Comments	11299	24
Clausen	Juliana	not provided	N/A	Web-based Comments	18792	24
Clausen	Kristine	not provided	N/A	Web-based Comments	58145	16
Clausen	Victoria	not provided	N/A	Web-based Comments	31188	24
Clausi	Tracey	not provided	N/A	Web-based Comments	56495, 56496	34
Clauson	Jeanne	not provided	N/A	Web-based Comments	16938	24
Claussen	Jim	not provided	N/A	Web-based Comments	17572	24
Clawson	Ben	not provided	N/A	Web-based Comments	8934	24
CLAWSON	CURTIS	clawnet1@gmail.com	N/A	Web-based comments	3569	13
Clay	Gretchen	not provided	N/A	Web-based Comments	15307	24
Clay	Stefanie	not provided	N/A	Web-based Comments	29169	24
Clay	Teresa	not provided	N/A	Web-based Comments	47583, 47584	34
Clayman	J.A.	not provided	N/A	Web-based Comments	44620, 44621	34
Clayman	Julie	not provided	N/A	Web-based Comments	18825	24
Claypool	Margaret	not provided	N/A	Web-based Comments	53621, 53622	34
Claypool	Margaret	not provided	N/A	Web-based Comments	22438	24
Clayton	Gary	not provided	N/A	Web-based Comments	14757	24
Clayton	Marlynn	not provided	N/A	Web-based Comments	23053	24
Clayton	Phillipa	not provided	N/A	Web-based comments	56862	35
Clayton	Ronald	not provided	N/A	Web-based Comments	50368	34
Clayton	Ronald	not provided	N/A	Web-based Comments	27653	24
Clayton	Wayne	not provided	N/A	Web-based comments	3307	13
Claytor	Patricia	not provided	N/A	Web-based Comments	25726	24
Clearwood	Dana	not provided	N/A	Web-based Comments	50557	34
Cleary	Colleen	not provided	N/A	Web-based Comments	55538	34
Cleary	Colleen	not provided	N/A	Web-based Comments	11258	24
Cleaver	Melissa	not provided	N/A	Web-based Comments	23879	24
Clem[unreadable]	James	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58357	N/A
Clemence	Stuart	not provided	N/A	Web-based Comments	29489	24
Clemens	Cheryl	not provided	N/A	Web-based Comments	10627	24
Clemens	David	not provided	N/A	Web-based Comments	11973	24
Clemens	Kerry	not provided	N/A	Web-based Comments	20064	24
Clemens	Richard	not provided	N/A	Web-based Comments	44354	34
Clement	Angela	not provided	N/A	Web-based Comments	7891	24
Clement	Audrey	not provided	N/A	Web-based Comments	48607	34
Clement	Christina K	not provided	N/A	Web-based Comments	10888	24
Clement	Colleen	not provided	N/A	Web-based Comments	11259	24
Clement	Kay	not provided	N/A	Web-based Comments	19818	24
Clement	Laura	not provided	N/A	Web-based Comments	49862, 49863	34
Clement	Myrlann	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32543, 32530	11, 13
Clement	Ray	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58301, 58304	11
Clement	Ryan	ryan@bonneview.com	N/A	US Mail or commercial carrier (UPS, FedEx)	58308	11
Clemente	Margot	not provided	N/A	Web-based Comments	22552	24
Clements	Alice	not provided	N/A	Web-based comments	6695	1
Clemmey	Elizabeth	not provided	N/A	Web-based Comments	50818	34
Clenard	Tammi	not provided	N/A	Web-based Comments	50107	34
Clenard	Tammi	not provided	N/A	Web-based Comments	30145	24
Clendenen	Gail	not provided	N/A	Web-based Comments	45525	34
Clendenen	Gail	not provided	N/A	Web-based Comments	14673	24
Clendenen	Leanne	not provided	N/A	Web-based Comments	20918	24
Clendenon	Megan	not provided	N/A	Web-based Comments	23783	24
Clerc	Cindy	not provided	N/A	Web-based comments	56771	35
Clerie	Pascale	not provided	N/A	Web-based Comments	25624	24
Cleveland	Brenda	not provided	N/A	Web-based comments	57726	35
Cleveland	Cynda Cleveland	not provided	N/A	Web-based comments	57665	35

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Cleveland	Jerry	not provided	N/A	Web-based Comments	17347	24
Cleveland	Jill	not provided	N/A	Web-based Comments	56048	34
CLEVELAND	JOHN	not provided	N/A	Web-based Comments	17988	24
Cleveland	Paula	not provided	N/A	Web-based comments	57631	35
Clevenger	Catherine	not provided	N/A	Web-based Comments	56238	34
Clevenger-Alvizo	Catherine	not provided	N/A	Web-based Comments	56237	34
Clewett	Barbara	not provided	N/A	Web-based Comments	8657	24
Cliff	Rebecca	not provided	N/A	Web-based Comments	44537	34
Clifford	Gene	not provided	N/A	Web-based Comments	14846	24
clifford	morgan	not provided	N/A	Web-based Comments	24665	24
Clifford	Ruth	not provided	N/A	Web-based Comments	27858	24
Clifford	William	not provided	N/A	Web-based Comments	54906	34
Clifford	William	not provided	N/A	Web-based Comments	31518	24
Clifton	Catherine	not provided	N/A	Web-based Comments	10267	24
Clifton	Comateta	not provided	N/A	Web-based Comments	11285	24
Clifton	Helene	not provided	N/A	Web-based Comments	15639	24
Clifton	Wendy	not provided	N/A	Web-based Comments	31414	24
Clinch	Paul	not provided	N/A	Web-based Comments	25983	24
Cline	Catherine	not provided	N/A	Web-based Comments	48842	34
CLINE	MARY	not provided	N/A	Web-based Comments	23240	24
Cline	Terry	not provided	N/A	Web-based Comments	30362	24
Cline	William	not provided	N/A	Web-based Comments	31519	24
Cline-Rew	Liz	not provided	N/A	Web-based Comments	54956	34
Clingman	Leon	not provided	N/A	Web-based Comments	20998	24
Clisson	Marjorie	not provided	N/A	Web-based Comments	48088, 48089, 48090	34
Clisson	Marjorie	not provided	N/A	Web-based Comments	22877	24
Cliver	Keith	not provided	N/A	Web-based Comments	19868	24
Clodfelter	Leigh	not provided	N/A	Web-based Comments	54353	34
Clore	Brent	Bclore@gmail.com	N/A	Web-based comments	1109	1
Close	Marcia	not provided	N/A	Web-based Comments	22362	24
Closson	Scott	not provided	N/A	Web-based Comments	28462	24
Cloud	Cloud	not provided	N/A	Web-based Comments	11233	24
Cloud	Jarrett	not provided	N/A	Web-based comments	57018	35
Cloud	Jarrett	not provided	N/A	Web-based Comments	16763	24
Cloud	Jennifer	not provided	N/A	Web-based Comments	46953	34
Cloud	Michael	not provided	N/A	Web-based Comments	55967	34
Cloud	Michael	not provided	N/A	Web-based Comments	24050	24
Cloud	Peter	not provided	N/A	Web-based Comments	26243	24
Cloud	Tom	not provided	N/A	Web-based Comments	30743	24
Clough	Cyndi	not provided	N/A	Web-based Comments	47802	34
Clough	Cyndi	not provided	N/A	Web-based Comments	11480	24
Clough	Jim	not provided	N/A	Web-based Comments	17573	24
Clough	Lany	not provided	N/A	Web-based Comments	44988	34
Clougher	Jeanne	not provided	N/A	Web-based Comments	16939	24
Clovis	Greg	gclovis@att.net	N/A	Web-based comments	3782	N/A
Clowad	Marina	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4748	N/A
Clower	Randall	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58364	N/A
Clowes	Matt	not provided	N/A	Web-based Comments	55651	34
Clowes	Matt	not provided	N/A	Web-based Comments	23610	24
Cloyes	Dustin	not provided	N/A	Web-based Comments	13391	24
Clucas	Patricia	not provided	N/A	Web-based Comments	25727	24
Cludius	Martha	not provided	N/A	Web-based Comments	54240	34
Clusen	Charles	not provided	N/A	Web-based Comments	49281	34
Clymer	Lois	not provided	N/A	Web-based Comments	44513, 44514	34
Clymer	Lois	not provided	N/A	Web-based Comments	21715	24
Clymore	Lana	not provided	N/A	Web-based Comments	20523	24
CO	Honorable Tiffany Snyder - Mayor Of Ward	not provided	N/A	Web-based Comments	51773	34
Coake	Kimberley	not provided	N/A	Web-based Comments	20212	24
Coalgate	Jerry	not provided	N/A	Web-based Comments	50646	34
Cobb	Alison	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	2141	N/A
Cobb	C	not provided	N/A	Web-based Comments	55145	34
Cobb	Rebecca	not provided	N/A	Web-based Comments	26718	24
cobb	robert	not provided	N/A	Web-based Comments	47250	34
Cobb	Robert	not provided	N/A	Web-based Comments	47251	34
cobb	robert	not provided	N/A	Web-based Comments	27234	24
Cobb	Sandra	not provided	N/A	Web-based Comments	28125	24
Cobb	William	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58799	N/A
Coble	Deborah	not provided	N/A	Web-based Comments	12377	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Coble	Teresa	not provided	N/A	Web-based Comments	50526	34
cobo	sonia	not provided	N/A	Web-based Comments	29058	24
Cobos	Rick	not provided	N/A	Web-based Comments	51544	34
Coburn	Amanda	not provided	N/A	Web-based Comments	49914	34
Coburn	Dan	not provided	N/A	Web-based Comments	50373	34
Coburn	Holly	not provided	N/A	Web-based Comments	15735	24
Coburn	Keith	not provided	N/A	Web-based Comments	19869	24
coburn	susan	not provided	N/A	Web-based Comments	29631	24
Coccari	Alison	not provided	N/A	Web-based Comments	7405	24
Cocci	Roberto	not provided	N/A	Web-based Comments	27460	24
Coccia	Raymond	not provided	N/A	Web-based Comments	26686	24
Cocco	Brian	not provided	N/A	Web-based Comments	9464	24
Cochilla	Brian	not provided	N/A	Web-based Comments	50067, 50068	34
Cochilla	Brian	not provided	N/A	Web-based Comments	9465	24
Cochran	Amalia	not provided	N/A	Web-based Comments	7513	24
Cochran	John	not provided	N/A	Web-based Comments	17989	24
Cochran	Michele	not provided	N/A	Web-based Comments	24281	24
Cochran	Sarah	not provided	N/A	Web-based Comments	28339	24
Cochran	Todd	not provided	N/A	Web-based Comments	30717	24
Cochrane	Ben	not provided	N/A	Web-based Comments	54018	34
Cochrane	John	not provided	N/A	Web-based Comments	54937	34
Cochrane	Julia	not provided	N/A	Web-based Comments	52096	34
COCHRANE	KEVIN	not provided	N/A	Web-based comments	2882	N/A
cochrane	mike	mclvsmc@charter.net	N/A	Web-based comments	4112	N/A
Cochrell	Kody	CochrellK@gmail.com	N/A	Web-based comments	1449	N/A
Cock	Steve De	not provided	N/A	Web-based Comments	47291, 47292	34
Cockerham	Andrea	not provided	N/A	Web-based Comments	7732	24
Cockerham	Dee	not provided	N/A	Web-based Comments	12570	24
Cockett	Nancy	not provided	N/A	Web-based Comments	24828	24
Cocks	Alison	not provided	N/A	Web-based Comments	7406	24
Coco	Erica	not provided	N/A	Web-based Comments	46916	34
Coco	Erica	not provided	N/A	Web-based Comments	14158	24
Coder	William	not provided	N/A	Web-based Comments	31520	24
Cody	T. Stephen	not provided	N/A	Web-based Comments	45140, 45141	34
Coe	Joyce	not provided	N/A	Web-based Comments	51241	34
Coe	Judie	not provided	N/A	Web-based Comments	49605	34
Coe	Martin	not provided	N/A	Web-based Comments	23155	24
Coen	Victor	v.decoen@gmail.com	N/A	Web-based comments	4042	1
Coenen	Claire	not provided	N/A	Web-based Comments	53218, 53219	34
Coetzee	Mona	not provided	N/A	Web-based Comments	53455	34
Coetzee	Tammy	not provided	N/A	Web-based Comments	30149	24
Coffer	Curtis	not provided	N/A	Web-based Comments	11474	24
Coffey	D	not provided	N/A	Web-based Comments	11576	24
Coffey	Patricia	not provided	N/A	Web-based Comments	47750	34
Coffey	Patricia	not provided	N/A	Web-based Comments	25728	24
Coffey	Roger	not provided	N/A	Web-based Comments	56259	34
Coffey	Seth	not provided	N/A	Web-based Comments	58680	34
coffman	brett	not provided	N/A	Web-based Comments	9446	24
Coffman	Cliff	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58394	32
Coffman	Jonah	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	6944	N/A
Coffman	Kathy	not provided	N/A	Web-based Comments	47901	34
Coffman	Kathy	not provided	N/A	Web-based Comments	19690	24
Cogelow	Mary Ann	not provided	N/A	Web-based Comments	23487	24
Coggins	Pamela	not provided	N/A	Web-based Comments	25534	24
Coghlan	Patricia	not provided	N/A	Web-based Comments	25729	24
Cogswell	David	not provided	N/A	Web-based Comments	11974	24
Cohen	Anita	not provided	N/A	Web-based Comments	50976	34
Cohen	Ann and Gerald	not provided	N/A	Web-based Comments	8104	24
Cohen	Bill & Kathy	not provided	N/A	Web-based Comments	9191	24
Cohen	Bonnie	not provided	N/A	Web-based comments	57288	35
Cohen	Bruce	not provided	N/A	Web-based comments	57096	35
Cohen	Carol	not provided	N/A	Web-based Comments	9904	24
Cohen	Charles	not provided	N/A	Web-based Comments	10494	24
Cohen	Charlyn	not provided	N/A	Web-based Comments	10576	24
Cohen	Claire	not provided	N/A	Web-based Comments	44551	34
Cohen	D	not provided	N/A	Web-based comments	56958	35
Cohen	Eleanor	not provided	N/A	Web-based Comments	13626	24
Cohen	Elihu	not provided	N/A	Web-based Comments	13664	24
Cohen	Frederica	not provided	N/A	Web-based Comments	14592	24
Cohen	fritzi	not provided	N/A	Web-based Comments	14608	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Cohen	Gail	not provided	N/A	Web-based Comments	14674	24
COHEN	GARY	not provided	N/A	Web-based Comments	51603	34
cohen	gary	not provided	N/A	Web-based Comments	14758	24
Cohen	George	not provided	N/A	Web-based Comments	14886	24
Cohen	Harriet	not provided	N/A	Web-based Comments	15448	24
Cohen	Holly	not provided	N/A	Web-based Comments	15736	24
Cohen	Isabel and Carl	not provided	N/A	Web-based Comments	15939	24
cohen	Judith	not provided	N/A	Web-based Comments	54411	34
Cohen	Judith	not provided	N/A	Web-based Comments	18579	24
Cohen	Judy	not provided	N/A	Web-based Comments	45238, 45239	34
Cohen	Justin	not provided	N/A	Web-based Comments	52452	34
Cohen	Justin	not provided	N/A	Web-based Comments	18951	24
Cohen	Karin	not provided	N/A	Web-based Comments	19276	24
Cohen	Lindsey	not provided	N/A	Web-based Comments	21491	24
Cohen	Lucian	not provided	N/A	Web-based Comments	21937	24
Cohen	Michael	not provided	N/A	Web-based Comments	24051	24
Cohen	Murry	not provided	N/A	Web-based Comments	24704	24
cohen	naomi	not provided	N/A	Web-based Comments	47500, 47501	34
Cohen	Peggy	not provided	N/A	Web-based Comments	49902	34
Cohen	Peter	not provided	N/A	Web-based Comments	26244	24
Cohen	Phylis	not provided	N/A	Web-based Comments	26378	24
Cohen	Rajal	not provided	N/A	Web-based Comments	52552	34
Cohen	Rochelle	not provided	N/A	Web-based Comments	27556	24
Cohen	Stephen	not provided	N/A	Web-based Comments	29277	24
Cohen	Susan	not provided	N/A	Web-based Comments	29632	24
Cohen	Tova	not provided	N/A	Web-based Comments	48351, 48352	34
Cohen	Tova	not provided	N/A	Web-based Comments	30832	24
Cohen	Wayne	not provided	N/A	Web-based Comments	55131, 55132	34
COHEN MD	ROBERT M	not provided	N/A	Web-based Comments	27426	24
Cohen-Glinick	Gabriel	not provided	N/A	Web-based Comments	14637	24
Cohila	Maria	not provided	N/A	Web-based comments	56807	35
Cohill	Michael	not provided	N/A	Web-based Comments	24052	24
Cohn	Isabella	not provided	N/A	Web-based Comments	15942	24
Cohn	Jacqueline	not provided	N/A	Web-based Comments	46509	34
Cohn	Jacqueline	not provided	N/A	Web-based Comments	16106	24
Cohn	Ken	not provided	N/A	Web-based Comments	19969	24
Cohn	Mendie	not provided	N/A	Web-based Comments	23961	24
cohn	nancy	not provided	N/A	Web-based Comments	24829	24
Cohnen	Eva-Catharina	not provided	N/A	Web-based Comments	14322	24
Cohrs	Ann	not provided	N/A	Web-based Comments	54478	34
Coie	Cal	ccalamary@aol.com	N/A	Web-based comments	6365	N/A
Coke	Joe	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58317, 58319, 58320	N/A
Coker	Benjamin	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4686	N/A
Coker	Betty	not provided	N/A	Web-based Comments	9088	24
Coker	Helena	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4682	N/A
Coker	Pamela	not provided	N/A	Web-based Comments	52463	34
Coker	Pamela	not provided	N/A	Web-based Comments	25535	24
Coker	Sharon	not provided	N/A	Web-based Comments	50322	34
Cokinis	Paul	not provided	N/A	Web-based Comments	45656	34
Colafranceschi	Tina	not provided	N/A	Web-based Comments	49152	34
Colafranceschi	Tina	not provided	N/A	Web-based Comments	30671	24
Colangelo	Annapoorne	not provided	N/A	Web-based Comments	8164	24
Colangelo	Kim	not provided	N/A	Web-based Comments	45253, 45254	34
Colbath	Barrie	not provided	N/A	Web-based Comments	8855	24
Colberg	Edwin	not provided	N/A	Web-based Comments	54187	34
Colberg	Edwin	not provided	N/A	Web-based Comments	13524	24
Colbert	Amanda	MagicFan031@gmail.com	N/A	Web-based comments	6812	N/A
Colbert	Jaimee	not provided	N/A	Web-based Comments	16160	24
Colbert	Michael	not provided	N/A	Web-based Comments	24053	24
Colburn	Pamela	pamelacolburn@gmail.com	N/A	Web-based comments	6473	1
Colby	Hillary	not provided	N/A	Web-based Comments	15711	24
Coldwell	Sherilyn	not provided	N/A	Web-based Comments	28860	24
Cole	Allison	not provided	N/A	Web-based Comments	7460	24
Cole	Angela	not provided	N/A	Web-based Comments	7892	24
Cole	Ann	not provided	N/A	Web-based Comments	8016	24
Cole	B. T.	not provided	N/A	Web-based Comments	8585	24
Cole	Carole Ann	not provided	N/A	Web-based Comments	10107	24
Cole	Charles	not provided	N/A	Web-based Comments	10495	24
Cole	Daniel	not provided	N/A	Web-based Comments	11728	24
Cole	Dori	not provided	N/A	Web-based Comments	49459	34

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Cole	Dori	not provided	N/A	Web-based Comments	13215	24
Cole	Jackie	not provided	N/A	Web-based Comments	51835	34
Cole	Jackie	not provided	N/A	Web-based Comments	16059	24
Cole	Jo	not provided	N/A	Web-based Comments	17639	24
cole	joan	not provided	N/A	Web-based Comments	17678	24
Cole	Joanna	not provided	N/A	Web-based Comments	17785	24
Cole	Laurence	not provided	N/A	Web-based comments	32106	1
Cole	Madaleine	not provided	N/A	Web-based Comments	22232	24
Cole	Nancy	not provided	N/A	Web-based Comments	24830	24
Cole	Rebecca	not provided	N/A	Web-based Comments	26719	24
Cole	Ruth	not provided	N/A	Web-based Comments	27859	24
Cole	Savannah	not provided	N/A	Web-based comments	596	2
Cole	Tracy	not provided	N/A	Web-based Comments	30865	24
Coleman	Amanda	not provided	N/A	Web-based comments	57248	35
Coleman	Anthony	not provided	N/A	Web-based Comments	44656, 44734	34
Coleman	Beth	not provided	N/A	Web-based Comments	9018	24
Coleman	Brittney	not provided	N/A	Web-based Comments	51127	34
COLEMAN	BRITTNEY	not provided	N/A	Web-based Comments	51126	34
Coleman	Chad	chad@coleman-eng.com	N/A	Web-based comments	3519	11
Coleman	Charles	drchuck@pmcpasco.com	N/A	Web-based comments	4014	N/A
Coleman	Constance	not provided	N/A	Web-based Comments	11332	24
Coleman	Courtney	courtneymariecoleman@gmail.com	N/A	Web-based comments	707	N/A
Coleman	David	not provided	N/A	Web-based Comments	11975	24
Coleman	Elizabeth	not provided	N/A	Web-based Comments	13724	24
Coleman	Ellis	not provided	N/A	Web-based Comments	13975	24
Coleman	Jackson	not provided	N/A	Web-based Comments	16079	24
Coleman	Lynne	not provided	N/A	Web-based Comments	22124	24
Coleman	Marsha	marsharose@gmail.com	N/A	Web-based comments	5066	1
Coleman	Mary	not provided	N/A	Web-based Comments	23241	24
Coleman	Matthew	not provided	N/A	Web-based Comments	23639	24
Coleman	Rae	not provided	N/A	Web-based Comments	26570	24
Coleman	Rick	not provided	N/A	Web-based Comments	27086	24
Coleman	Robert	not provided	N/A	Web-based Comments	27235	24
Coleman	Roger	not provided	N/A	Web-based Comments	27581	24
Coleman	Tyler	mrtylercoleman@gmail.com	N/A	Web-based comments	5194	N/A
Coleman-Slack	Kelley	not provided	N/A	Web-based Comments	58012, 48530, 48531	16, 34
Coleman-Slack	Kelley	not provided	N/A	Web-based Comments	19894	24
Coles	Bill	bill.janine@yahoo.com	N/A	Web-based comments	5032	N/A
Coletti	Christopher	not provided	N/A	Web-based Comments	11002	24
Coley	Cynthia	not provided	N/A	Web-based Comments	55624	34
Colgan	Helen	not provided	N/A	Web-based Comments	15600	24
Colgan	Monica	not provided	N/A	Web-based Comments	24619	24
Colgan	Teri	not provided	N/A	Web-based Comments	56152	34
Colgero	Judy	not provided	N/A	Web-based Comments	49358	34
Colin	Karen	not provided	N/A	Web-based Comments	19071	24
Colina	Tisha	not provided	N/A	Web-based comments	57179	35
Collar	Michelle	not provided	N/A	Web-based Comments	55730, 55731, 55732	34
Collar	Michelle	not provided	N/A	Web-based Comments	24329	24
Collard	Linda	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	56619	11
Collard	Max	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32351	13
Collatz	Andrea	not provided	N/A	Web-based Comments	7733	24
Collecchia	Geri	not provided	N/A	Web-based Comments	47852, 47853	34
Collecchia	Geri	not provided	N/A	Web-based Comments	14988	24
COLLER	SABINE	not provided	N/A	Web-based Comments	27972	24
Collett	Derek	not provided	N/A	Web-based Comments	44267, 44268	34
Collett	Teresa	not provided	N/A	Web-based Comments	30265	24
Collette	Anja	not provided	N/A	Web-based Comments	7991	24
Colletto	Andrew	not provided	N/A	Web-based Comments	7810	24
Colley	Belinda	not provided	N/A	Web-based Comments	53853	34
Collier	Angel	not provided	N/A	Web-based Comments	46668	34
Collier	Barbara	not provided	N/A	Web-based Comments	45939	34
Collier	Charles	not provided	N/A	Web-based Comments	10496	24
Collier	Don	not provided	N/A	Web-based Comments	13014	24
Collier	JANET	not provided	N/A	Web-based Comments	16581	24
Collier	Sandra	not provided	N/A	Web-based Comments	28126	24
Collier Family	The	not provided	N/A	Web-based Comments	30408	24
Collin	Michel	not provided	N/A	Web-based Comments	24270	24
Collingham	Dr.	rcollingham@gmail.com	N/A	Web-based comments	4060	N/A
Collins	Amanda	not provided	N/A	Web-based Comments	56250	34
Collins	Ann	not provided	N/A	Web-based Comments	8017	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Collins	Barbara	not provided	N/A	Web-based Comments	8658	24
Collins	Barry	skookumrdr@gmail.com	N/A	Web-based comments	3142	N/A
Collins	Bill	bill.collins@tidewater.com	N/A	Web-based comments	6513	N/A
Collins	Carol	not provided	N/A	Web-based Comments	47162, 47163	34
Collins	Denise	not provided	N/A	Web-based Comments	12633	24
COLLINS	GLENN	not provided	N/A	Web-based Comments	15127	24
Collins	Jared	not provided	N/A	Web-based Comments	16757	24
Collins	Jenny	not provided	N/A	Web-based Comments	17286	24
Collins	Julie	not provided	N/A	Web-based Comments	18826	24
Collins	K.	not provided	N/A	Web-based Comments	54307	34
Collins	Kathleen	not provided	N/A	Web-based Comments	56211	34
Collins	Kathleen	not provided	N/A	Web-based Comments	19522	24
Collins	Laura	not provided	N/A	Web-based Comments	20618	24
Collins	Laura	not provided	N/A	Web-based Comments	20619	24
Collins	Lauren	not provided	N/A	Web-based Comments	53866	34
Collins	Lyle	not provided	N/A	Web-based Comments	22002	24
Collins	Lynnette	not provided	N/A	Web-based Comments	22159	24
Collins	Meredith	not provided	N/A	Web-based comments	57029	35
Collins	Michelle	not provided	N/A	Web-based comments	56974	35
Collins	Patricia	not provided	N/A	Web-based Comments	50708	34
Collins	Paul	not provided	N/A	Web-based Comments	58245	16
Collins	Rachel	not provided	N/A	Web-based Comments	26510	24
Collins	Rita	not provided	N/A	Web-based Comments	27132	24
Collins	Rita	tatteredgossamer@gmail.com	N/A	Web-based comments	5505	1
Collins	Sharon	not provided	N/A	Web-based Comments	28641	24
collins	Stefanie	not provided	N/A	Web-based Comments	29170	24
Collins	William	not provided	N/A	Web-based Comments	53863	34
Collins	Yann	not provided	N/A	Web-based Comments	31654	24
Collis	Ping	not provided	N/A	Web-based comments	57515	35
Collister	Leah	leahcollister@yahoo.com	N/A	Web-based comments	2514	1
Collister	Russen	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32460	13
collodel	Deboarh	not provided	N/A	Web-based Comments	12364	24
Collodel	Deborah	not provided	N/A	Web-based comments	57737	35
Collord	Pamela	not provided	N/A	Web-based Comments	25536	24
Colmenarejo	Monica	not provided	N/A	Web-based Comments	24620	24
Colmenares	Clemencia	not provided	N/A	Web-based Comments	11216	24
Colombo	Becky	not provided	N/A	Web-based Comments	8907	24
Colon	Christen	not provided	N/A	Web-based Comments	10818	24
Colony	Pamela	not provided	N/A	Web-based Comments	47658, 47659	34
Colony	Pamela	not provided	N/A	Web-based Comments	25537	24
Colony	Stephanie	not provided	N/A	Web-based Comments	29206	24
Coloos	Brigitte	not provided	N/A	Web-based Comments	48947	34
Colopy	Cheryl	not provided	N/A	Web-based Comments	58135	16
Colotti	Deborah	not provided	N/A	Web-based Comments	12378	24
Colours	Rebekah	not provided	N/A	Web-based Comments	47306	34
Colson	Lynn	not provided	N/A	Web-based Comments	45168, 45169	34
Colson	Rosemary	not provided	N/A	Web-based Comments	27757	24
Colston	Laura	not provided	N/A	Web-based Comments	45056	34
Colston	Laura	not provided	N/A	Web-based Comments	20620	24
Coltharp	Debbi	not provided	N/A	Web-based Comments	49439	34
Colthurst	Jenny	not provided	N/A	Web-based Comments	17287	24
Colton	Cammy	not provided	N/A	Web-based Comments	51867	34
Colton	Cammy	not provided	N/A	Web-based Comments	9750	24
Colton	Jeff	not provided	N/A	Web-based Comments	52112, 52113	34
Colton	Joseph	not provided	N/A	Web-based Comments	18351	24
Colton	Tim	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	5593	N/A
Columbia	Gail	not provided	N/A	Web-based Comments	14675	24
Columbia	Kate	kate@crsoa.net	N/A	Web-based comments	6533	N/A
Columbia	Valerie	not provided	N/A	Web-based Comments	48862	34
Colvard	Sandra	2nomadz.col@gmail.com	N/A	Web-based comments	5407	N/A
colvin	joann	not provided	N/A	Web-based Comments	17767	24
Colwell	Sharon	not provided	N/A	Web-based Comments	28642	24
Colwill	Kathleen	not provided	N/A	Web-based Comments	19523	24
Colyer	Jacqueline	not provided	N/A	Web-based Comments	52522	34
coman	Mihaela	mihaela9@hotmail.com	N/A	Web-based comments	31901	1
Comanich	Camilla	not provided	N/A	Web-based Comments	45076	34
Combs	D	not provided	N/A	Web-based Comments	54746	34
Combs	Debi	not provided	N/A	Web-based Comments	49474	34
Combs	Debra	not provided	N/A	Web-based Comments	12509	24
Combs	Holly	not provided	N/A	Web-based Comments	15737	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Combs	Jessica	not provided	N/A	Web-based Comments	17413	24
Combs	Kristin	not provided	N/A	Web-based Comments	44857	34
Combs	Mary	not provided	N/A	Web-based Comments	23242	24
Combs	Michelle	combsmichellea@gmail.com	N/A	Web-based comments	980	N/A
Combs	Mitzi	not provided	N/A	Web-based Comments	47334	34
Combs	Vicky	not provided	N/A	Web-based Comments	31163	24
Comella	John	not provided	N/A	Web-based Comments	17990	24
Comer	Kathryn	comer.lindemann@gmail.com	N/A	Web-based comments	2766	N/A
Comer	Patrick	not provided	N/A	Web-based Comments	25895	24
Comings	Jane	not provided	N/A	Web-based Comments	16470	24
Comiskey	Denise	not provided	N/A	Web-based Comments	58547	34
Comiskey	Denise	not provided	N/A	Web-based Comments	12634	24
Comiskey	Thomas	not provided	N/A	Web-based Comments	30479	24
Comm	Perry	not provided	N/A	Web-based comments	56738	35
commey	donna	not provided	N/A	Web-based Comments	13119	24
Commons	Sandy	not provided	N/A	Web-based Comments	28242	24
Comninos	Soheila	not provided	N/A	Web-based Comments	29049	24
Compagnon	Juliet	not provided	N/A	Web-based Comments	18914	24
Compestine	Amy	not provided	N/A	Web-based Comments	7601	24
Compte	Philip	not provided	N/A	Web-based Comments	26333	24
Compton	Ms. Carla	not provided	N/A	Web-based Comments	24687	24
Compton	Patrick	not provided	N/A	Web-based Comments	25896	24
Compton	Robert	not provided	N/A	Web-based Comments	27236	24
Comrack	Janine	not provided	N/A	Web-based Comments	49089	34
Comrada	Jim	j.comrada@comcast.net	N/A	Web-based comments	4802	N/A
Comrie	Tracey	not provided	N/A	Web-based Comments	56464	34
comstock	Cheri	cheri652@gmail.com	N/A	Web-based comments	3245	N/A
Comstock	Gillian	not provided	N/A	Web-based Comments	15036	24
Comstock	Ginger	not provided	N/A	Web-based Comments	15073	24
Comte	Eveline	not provided	N/A	Web-based Comments	14345	24
Comuntzis	Glen	not provided	N/A	Web-based Comments	15112	24
Conaway	Tara	not provided	N/A	Web-based Comments	30200	24
Condit	Philip	not provided	N/A	Web-based Comments	46091	34
Condon	Terry	not provided	N/A	Web-based Comments	30363	24
Condry	Jacque	not provided	N/A	Web-based Comments	16097	24
Cone	Charles	not provided	N/A	Web-based comments	4560	N/A
Confectioner	Vira	not provided	N/A	Web-based Comments	52656, 52657	34
Confectioner	Vira	not provided	N/A	Web-based Comments	31261	24
Conforti	Susan	not provided	N/A	Web-based Comments	50790	34
Congdon	Elizabeth	not provided	N/A	Web-based Comments	48443	34
Congdon	Laura	not provided	N/A	Web-based Comments	54647	34
Congdon	Michael	not provided	N/A	Web-based Comments	55382	34
Congdon	Noelle	not provided	N/A	Web-based Comments	25342	24
Congdon	Russell	not provided	N/A	Web-based Comments	27831	24
Congdon-Ng	jasmine	not provided	N/A	Web-based Comments	44599, 44600	34
Congdon-Ng	Jasmine	not provided	N/A	Web-based Comments	16769	24
Congelosi	Susan	not provided	N/A	Web-based Comments	29633	24
Conger	Marty	conger.marty@gmail.com	N/A	Web-based comments	4320	N/A
Conger	William	not provided	N/A	Web-based Comments	58182, 51741	16, 34
Coniglio	B	not provided	N/A	Web-based Comments	8567	24
Conkel	Patricia	not provided	N/A	Web-based Comments	25730	24
Conkey	Debra	not provided	N/A	Web-based Comments	12510	24
Conklin	Diana	not provided	N/A	Web-based Comments	53128	34
Conklin, Jr	William	not provided	N/A	Web-based Comments	31521	24
Conkrite	Karina	not provided	N/A	Web-based Comments	19293	24
Conlan	Michael	not provided	N/A	Web-based Comments	52044	34
Conlan	Mike	not provided	N/A	Web-based Comments	24439	24
conley	caroline	not provided	N/A	Web-based Comments	10117	24
Conley	Chris	not provided	N/A	Web-based Comments	10727	24
Conley	Geri	not provided	N/A	Web-based Comments	14989	24
Conley	Phyllis	not provided	N/A	Web-based Comments	26385	24
Conley	Robert	bobconley21@comcast.net	N/A	Web-based comments	5271	N/A
Conley	Senseria	not provided	N/A	Web-based Comments	28533	24
Conlon	Suzanne J	not provided	N/A	Web-based Comments	44759	34
Conn	Patrick	not provided	N/A	Web-based Comments	25897	24
Connaught	Gary	not provided	N/A	Web-based Comments	14759	24
Connell	Brendan	not provided	N/A	Web-based Comments	9431	24
Connell	Byron	not provided	N/A	Web-based Comments	9659	24
Connell	Curt	connellcc@comcast.net	N/A	Web-based comments	3376	N/A
Connell	Ladd Connell	not provided	N/A	Web-based Comments	20512	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Connell	Tracey	not provided	N/A	Web-based Comments	30838	24
Connelly	Katie	not provided	N/A	Web-based Comments	19784	24
Connelly	Lillian	not provided	N/A	Web-based Comments	21166	24
Connelly	Liza	not provided	N/A	Web-based Comments	52795, 52796	34
CONNELLY	SALLY	not provided	N/A	Web-based Comments	28006	24
Connelly	Susan	not provided	N/A	Web-based Comments	29634	24
connelly	walter	not provided	N/A	Web-based Comments	31351	24
Conner	Anthony	tonydconner@yahoo.com	N/A	Web-based comments	2637	N/A
Conner	Deborah	not provided	N/A	Web-based comments	57148	35
Conner	Eileen	not provided	N/A	Web-based Comments	51108	34
Conner	Linda	not provided	N/A	Web-based Comments	21232	24
Conner	Shannon	not provided	N/A	Web-based Comments	28582	24
Connerr	Helyn	not provided	N/A	Web-based Comments	15655	24
Connery	Bruce	bruce.a.connery@gmail.com	N/A	Web-based comments	6077	N/A
Conney	Ann	not provided	N/A	Web-based Comments	47230, 47231	34
Connolly	April	not provided	N/A	Web-based Comments	48905	34
Connolly	Catherine	not provided	N/A	Web-based Comments	10268	24
Connolly	Daniel	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	44262	5
Connolly	Jerome	jerryconnolly@msn.com	N/A	Web-based comments	5282	8
Connolly	Kelly	not provided	N/A	Web-based Comments	19914	24
Connolly	Laurie Pisarcik	not provided	N/A	Web-based Comments	54422	34
Connolly	Rhonda	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	44262	5
Connor	Ann Marie	not provided	N/A	Web-based Comments	50264	34
Connor	Ciara	oconnorciara1991@gmail.com	N/A	Web-based comments	209	1
Connor	Sharon	not provided	N/A	Web-based Comments	28643	24
Connor	Silvia	not provided	N/A	Web-based Comments	29007	24
Connor	Tara	not provided	N/A	Web-based Comments	30201	24
Connors	Agned	not provided	N/A	Web-based Comments	7115	24
Connors	Elaine	not provided	N/A	Web-based Comments	13580	24
Connors	James M.	not provided	N/A	Web-based Comments	56038	34
Conrad	Barbara	not provided	N/A	Web-based Comments	8659	24
conrad	J	kconrad1227@gmail.com	N/A	Web-based comments	4211	N/A
Conrad	Lori	not provided	N/A	Web-based Comments	21777	24
Conrad	Marilyn	not provided	N/A	Web-based Comments	54092	34
Conrad	Norm	not provided	N/A	Web-based Comments	55374	34
Conrad	Norm	not provided	N/A	Web-based Comments	25376	24
conrad	Ryan	rconraduw@gmail.com	N/A	Web-based comments	3364	N/A
Conrad	Shirley	not provided	N/A	Web-based Comments	28946	24
Conrad-Antoville	Kristin	a2antoville@gmail.com	N/A	Web-based comments	3663	17
Conrich	Bob	not provided	N/A	Web-based Comments	54223	34
Conroe-Luzius	Leah	not provided	N/A	Web-based Comments	20900	24
Conroy	Beverly Ann	not provided	N/A	Web-based Comments	9152	24
Conroy	Faith	not provided	N/A	Web-based Comments	45022, 45023, 45024	34
Conroy	Faith	not provided	N/A	Web-based Comments	14381	24
Conroy	Laurie	not provided	N/A	Web-based Comments	54370	34
Conroy	Lonnie	not provided	N/A	Web-based Comments	21742	24
Conroy	Patrick	not provided	N/A	Web-based Comments	25898	24
Console	Robert	not provided	N/A	Web-based Comments	27237	24
Constantine	William	not provided	N/A	Web-based Comments	44598	34
Constantinou	Joanna	joanna@itscy.com	N/A	Web-based comments	661	N/A
Constenla	Axel	not provided	N/A	Web-based Comments	8554	24
Contarino	Catherine	not provided	N/A	Web-based Comments	47738, 47739	34
Conti	Richard	conti519@gmail.com	N/A	Web-based comments	905	1
Conti	Susan	not provided	N/A	Web-based comments	57091	35
Contor	Roger	not provided	N/A	Web-based Comments	27582	24
Contreras	Ann	not provided	N/A	Web-based Comments	8018	24
Contreras	Constance	not provided	N/A	Web-based Comments	11333	24
Contreras	Luz	not provided	N/A	Web-based Comments	21985	24
Contreras	Melannie	not provided	N/A	Web-based Comments	54622	34
Convers	Claude	not provided	N/A	Web-based Comments	11172	24
Converse	Blaine	not provided	N/A	Web-based Comments	9212	24
Converse	Catlin	not provided	N/A	Web-based Comments	10403	24
Converse	David	davidjconverse@gmail.com	N/A	Web-based comments	31989	N/A
Conway	Allegra	not provided	N/A	Web-based Comments	7439	24
conway	carole	not provided	N/A	Web-based Comments	10073	24
Conway	Carolyn	not provided	N/A	Web-based Comments	10146	24
conway	maurene	not provided	N/A	Web-based Comments	57975	16
Conyette	Jacqueline	not provided	N/A	Web-based Comments	16107	24
Conyngham	Walker	not provided	N/A	Web-based Comments	58136	16
Coogan	C.	not provided	N/A	Web-based Comments	9689	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Coogan	Peg	not provided	N/A	Web-based Comments	26137	24
Cook	Allison	not provided	N/A	Web-based Comments	7461	24
Cook	Anice	not provided	N/A	Web-based Comments	7959	24
Cook	Barbara	not provided	N/A	Web-based Comments	8660	24
COOK	BETH	not provided	N/A	Web-based Comments	9019	24
Cook	Carla	not provided	N/A	Web-based Comments	48477, 48478	34
Cook	Carol	not provided	N/A	Web-based Comments	45977	34
Cook	Charlie	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32465	13
Cook	Christopher	palousemayor@gmail.com	N/A	Web-based comments	3556	N/A
Cook	Connor	not provided	N/A	Web-based Comments	11325	24
Cook	Craig	not provided	N/A	Web-based Comments	11417	24
Cook	Debra	not provided	N/A	Web-based Comments	12511	24
Cook	Doug	not provided	N/A	Web-based Comments	13295	24
Cook	Gary	not provided	N/A	Web-based Comments	50899	34
Cook	Gary	not provided	N/A	Web-based Comments	14760	24
Cook	Gary	not provided	N/A	Web-based Comments	14761	24
Cook	Geraldine	not provided	N/A	Web-based Comments	14970	24
Cook	Holli	not provided	N/A	Web-based Comments	15723	24
Cook	Ingrid	not provided	N/A	Web-based Comments	15874	24
Cook	Jan	not provided	N/A	Web-based Comments	16389	24
Cook	Jennifer	not provided	N/A	Web-based Comments	55693	34
Cook	Judy	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32462	13
Cook	Kristin	not provided	N/A	Web-based Comments	20371	24
Cook	Michelle	not provided	N/A	Web-based Comments	24330	24
Cook	Necole	not provided	N/A	Web-based comments	57118	35
Cook	Necole	not provided	N/A	Web-based Comments	47194	34
COOK	Necole	not provided	N/A	Web-based Comments	25121	24
Cook	Nena	not provided	N/A	Web-based Comments	25148	24
Cook	Richard	not provided	N/A	Web-based Comments	54915	34
Cook	Richard	not provided	N/A	Web-based Comments	26954	24
Cook	Robert	jrlcook3b@gmail.com	N/A	Web-based comments	2376	N/A
Cook	Robert	not provided	N/A	Web-based Comments	27238	24
Cook	Sam	not provided	N/A	Web-based Comments	28055	24
Cook	Samantha	not provided	N/A	Web-based Comments	28071	24
Cook	Sarah	not provided	N/A	Web-based Comments	46184	34
Cook	Steve	not provided	N/A	Web-based Comments	29357	24
Cook	Steven	not provided	N/A	Web-based Comments	45255	34
Cook	Steven	not provided	N/A	Web-based Comments	29424	24
Cook	Theresa	not provided	N/A	Web-based comments	56949	35
Cook	Virginia	not provided	N/A	Web-based Comments	31275	24
Cooke	Douglas	not provided	N/A	Web-based comments	57038	35
Cooke	Douglas	not provided	N/A	Web-based Comments	46440, 46441	34
Cooke	Douglas	not provided	N/A	Web-based Comments	13323	24
Cooke	Jacqueline	not provided	N/A	Web-based Comments	16108	24
Cooke	James	not provided	N/A	Web-based Comments	58147	16
COOKE	JAY	not provided	N/A	Web-based Comments	16804	24
Cooke	Jeff	not provided	N/A	Web-based Comments	17010	24
Cooke	Jo	not provided	N/A	Web-based comments	57635	35
Cooke	Lori	not provided	N/A	Web-based Comments	21778	24
Cooke	Vik	not provided	N/A	Web-based Comments	31239	24
Cooksley	Shirley	not provided	N/A	Web-based Comments	58474, 58475	34
Cooley	Chad	not provided	N/A	Web-based Comments	10448	24
Cooley	Janet	jcooley46@gmail.com	N/A	Web-based comments	138	N/A
Cooley	Peggy	not provided	N/A	Web-based Comments	26152	24
Cooley	Sandra	not provided	N/A	Web-based Comments	28127	24
Cooley	Zoe	zoe.a.cooley@gmail.com	N/A	Web-based comments	3406	N/A
Cooluris	Helen	not provided	N/A	Web-based Comments	15601	24
Coomber	Chantal	not provided	N/A	Web-based Comments	49527	34
Coombs	Damon	not provided	N/A	Web-based Comments	11645	24
Coombs	Joyce	not provided	N/A	Web-based Comments	49070	34
COONEY	ERIN	not provided	N/A	Web-based Comments	14211	24
Cooney	Tom	not provided	N/A	Web-based Comments	52556	34
Cooney-Polstra	Michaela	not provided	N/A	Web-based Comments	24263	24
COONS	albert	not provided	N/A	Web-based Comments	7209	24
coons	carol	not provided	N/A	Web-based Comments	58533	34
Coontz	Sharron	not provided	N/A	Web-based Comments	47747	34
Cooper	Bruce	boxdorfabc@centurylink.net	N/A	Web-based comments	1956	N/A
Cooper	Charlene	not provided	N/A	Web-based Comments	54076	34
Cooper	Charlene	not provided	N/A	Web-based Comments	10473	24
Cooper	Cheryl	not provided	N/A	Web-based Comments	55699	34

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Cooper	Eric	e792coop@aol.com	N/A	Web-based comments	5259	N/A
Cooper	Gregory	not provided	N/A	Web-based Comments	15272	24
Cooper	Heather	not provided	N/A	Web-based Comments	15502	24
Cooper	Holly	not provided	N/A	Web-based comments	1710	1
Cooper	James	not provided	N/A	Web-based Comments	50515	34
Cooper	James	not provided	N/A	Web-based Comments	16193	24
Cooper	Kathryn Cooper	not provided	N/A	Web-based Comments	54428	34
Cooper	Katja	not provided	N/A	Web-based Comments	19800	24
Cooper	Kelley	not provided	N/A	Web-based Comments	19895	24
Cooper	Lauren	not provided	N/A	Web-based comments	56929	35
Cooper	Marcia	not provided	N/A	Web-based Comments	22363	24
Cooper	Melissa	not provided	N/A	Web-based Comments	23880	24
Cooper	Pam	pkcooper4@hotmail.co	N/A	Web-based comments	146	N/A
Cooper	Rhonda	not provided	N/A	Web-based Comments	26893	24
Cooper	Ruth	not provided	N/A	Web-based Comments	27860	24
Cooper	Sandra	not provided	N/A	Web-based Comments	28128	N/A
Cooper	Susan	not provided	N/A	Web-based Comments	29635	24
Cooper	Suzanne	not provided	N/A	Web-based Comments	29990	24
Cooper	Toby	not provided	N/A	Web-based Comments	30708	24
Cooper	Tony	not provided	N/A	Web-based Comments	30807	24
Cooperative	Flathead	not provided	N/A	Web-based comments	4051	N/A
Cooperative	Lane	debi.wilson@laneelectric.com	N/A	Web-based comments	6475	N/A
Cooperman	Sima	not provided	N/A	Web-based Comments	29018	24
Cope	Marsha	not provided	N/A	Web-based Comments	23066	24
Cope	Sandra	not provided	N/A	Web-based Comments	28129	24
Cope	Thomas	not provided	N/A	Web-based Comments	30480	24
Copeland	Anne	not provided	N/A	Web-based Comments	8181	24
Copeland	Cassondra	not provided	N/A	Web-based Comments	10246	24
Copeland	Jeanette	not provided	N/A	Web-based Comments	52399, 52400	34
Copeland	Jeanette	not provided	N/A	Web-based Comments	16910	24
Copeland	Lisa	not provided	N/A	Web-based Comments	21534	24
Copeland	Lynda	not provided	N/A	Web-based Comments	22015	24
Copeland	Mary	not provided	N/A	Web-based Comments	47221	34
Copeland	Moira	not provided	N/A	Web-based Comments	24588	24
Copeland	Naomi	not provided	N/A	Web-based Comments	25043	24
Copello	Janell	not provided	N/A	Web-based Comments	48242	34
Copello	Janell	not provided	N/A	Web-based Comments	16553	24
Copenagle	Lily	not provided	N/A	Web-based Comments	50036	34
Copenhaver	Elecia	ecopenhaver@bentonrea.org	N/A	Web-based comments	2226	N/A
Copenhefer	Roberta	not provided	N/A	Web-based Comments	54537	34
Copp	Eric	not provided	N/A	Web-based Comments	14094	24
Copper	David	not provided	N/A	Web-based Comments	11976	24
Coppes	Pat	not provided	N/A	Web-based Comments	25639	24
coppi	maria	not provided	N/A	Web-based Comments	22586	24
Coppock	Julie	gocougs9798@yahoo.com	N/A	Web-based comments	6127	N/A
Coppola	Robert	not provided	N/A	Web-based Comments	54701, 54702	34
Coppotelli	Fred	not provided	N/A	Web-based Comments	48668	34
Coppotelli	Heide	not provided	N/A	Web-based Comments	44948	34
Coppotelli	Heide	not provided	N/A	Web-based Comments	15560	24
Coppus	Barbara	not provided	N/A	Web-based Comments	56203	34
coralie	Lafarge	coco63doudou@gmail.com	N/A	Web-based comments	258	2
Corbett	Alec	aleccorbwtt@msn.com	N/A	Web-based comments	2834	1
Corbett	Alec	not provided	N/A	Web-based Comments	54198	34
Corbett	Cecly	not provided	N/A	Web-based Comments	54086, 54087	34
Corbett	Clivonne	not provided	N/A	Web-based Comments	11232	24
Corbett	Jack	not provided	N/A	Web-based Comments	53193	34
Corbett	Joseph	not provided	N/A	Web-based Comments	51455	34
Corbett	Joseph	not provided	N/A	Web-based Comments	18352	24
Corbett	Sister Kathleen	not provided	N/A	Web-based Comments	29034	24
Corbin	Marion	not provided	N/A	Web-based Comments	55343	34
Corbin	Marion	not provided	N/A	Web-based Comments	22850	24
Corbitt	Scott	scottc@lewiston.com	N/A	Web-based comments	2196	N/A
corbo	ralph	not provided	N/A	Web-based Comments	26590	24
Corbridge	Ken	alamar26x@aol.com	N/A	Web-based comments	3443	N/A
Corby	Kathleen	not provided	N/A	Web-based Comments	52614, 52615	34
Corby	Kathleen	not provided	N/A	Web-based Comments	19524	24
Corchs	Andrel	not provided	N/A	Web-based Comments	44474, 44475	34
Corcoran	Jessica	not provided	N/A	Web-based Comments	17414	24
Corcoran	Kelli	not provided	N/A	Web-based Comments	19898	24
Cord	Mary	not provided	N/A	Web-based Comments	50595	34

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Corda	John	not provided	N/A	Web-based Comments	58536	34
Cordell	Penny	not provided	N/A	Web-based Comments	26199	24
Cordenier	Gwendolien	gwendolienc@hotmail.com	N/A	Web-based comments	6314	1
Cordon	Casey	not provided	N/A	Web-based Comments	52427, 52428	34
Cordon	Casey	not provided	N/A	Web-based Comments	10223	24
CORDOVA	KRIS	not provided	N/A	Web-based Comments	20320	24
Coreau	Lea	not provided	N/A	Web-based Comments	20894	24
Coreia	Maria Rute	not provided	N/A	Web-based Comments	22646	24
Corey	Marilee	not provided	N/A	Web-based Comments	47180	34
Corgier	FranâˆšÃŸoise	not provided	N/A	Web-based Comments	14467	24
Coriani	Angelina	not provided	N/A	Web-based Comments	45942	34
Coriell	Fred	fredcoriell@gmail.com	N/A	Web-based comments	6125	N/A
Corkrean	Gretchen	not provided	N/A	Web-based Comments	49978	34
Corkrean	Gretchen	not provided	N/A	Web-based Comments	15308	24
Corkrum	Gordon	not provided	N/A	Web-based Comments	53774	34
Corkrum	James	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	56663	N/A
Corle	Abby	not provided	N/A	Web-based Comments	47540, 47541	34
corley	bert	not provided	N/A	Web-based Comments	9001	24
corliano	Viviane	not provided	N/A	Web-based Comments	31327	24
Corliss	Nan	not provided	N/A	Web-based Comments	50801, 50802	34
Cormier	Andree	not provided	N/A	Web-based Comments	7789	24
Cormier	Stephanie	not provided	N/A	Web-based Comments	29207	24
Cormier	Vicky Ann	not provided	N/A	Web-based Comments	31167	24
Corn	Kevin	kevinjcorn@gmail.com	N/A	Web-based comments	5840	N/A
Corneil	Jeffrey	not provided	N/A	Web-based Comments	52584	34
Cornelia	Jared	not provided	N/A	Web-based Comments	47159, 47160	34
Cornelia	Jared	not provided	N/A	Web-based Comments	16758	24
Cornelius	Don	not provided	N/A	Web-based Comments	49200	34
Cornelius	Sheree	not provided	N/A	Web-based Comments	28849	24
Cornelius	Stacy	not provided	N/A	Web-based Comments	58595	34
Cornelius	Stacy	not provided	N/A	Web-based Comments	29135	24
Corneliusen	Ellen	not provided	N/A	Web-based Comments	13900	24
Cornell	David	not provided	N/A	Web-based Comments	11977	24
Cornell	Linda	not provided	N/A	Web-based Comments	21233	24
Cornell	Matt	not provided	N/A	Web-based Comments	23611	24
Cornell	Wendy	not provided	N/A	Web-based Comments	31415	24
Cornely	John	not provided	N/A	Web-based Comments	48840	34
Cornett	Alyza	not provided	N/A	Web-based Comments	49235	34
Cornett	Gary	not provided	N/A	Web-based Comments	14762	24
Cornett	Savannah	not provided	N/A	Web-based Comments	28448	24
Cornetta	Claire	not provided	N/A	Web-based Comments	11122	24
Cornez	Sandi	not provided	N/A	Web-based Comments	58070, 48843	16, 34
Cornez	Sandi	not provided	N/A	Web-based Comments	28106	24
Cornish	John	not provided	N/A	Web-based Comments	17991	24
Cornish	Julie	not provided	N/A	Web-based comments	56940	35
Cornitius	Debbe	not provided	N/A	Web-based Comments	12303	24
Corona	Laura	not provided	N/A	Web-based Comments	56015	34
Corona	Norma	not provided	N/A	Web-based Comments	25380	24
Corona Pfeiffer	Fia	not provided	N/A	Web-based Comments	14428	24
Coronado	Ramona	not provided	N/A	Web-based Comments	47732	34
Corpe	Alyssa	minakeralyssa@gmail.com	N/A	Web-based comments	827	2
Corr	F	not provided	N/A	Web-based Comments	48325	34
Corr	F	not provided	N/A	Web-based Comments	14372	24
Corradi	Teresa	not provided	N/A	Web-based Comments	30266	24
Corrdin	Will	not provided	N/A	Web-based Comments	31484	24
correa	Hana	not provided	N/A	Web-based Comments	48073	34
Correa	Hana	not provided	N/A	Web-based Comments	15390	24
Correa	Manuel	not provided	N/A	Web-based Comments	52488	34
Correia	Cecilia	not provided	N/A	Web-based Comments	10416	24
correia	claudia	not provided	N/A	Web-based Comments	47007, 47008	34
Correia	Eileen	not provided	N/A	Web-based Comments	53084	34
Correia	M Cecilia	not provided	N/A	Web-based Comments	47946, 47947	34
Correia	M Rute	not provided	N/A	Web-based Comments	45892	34
Correia	Maria Cecilia	not provided	N/A	Web-based Comments	52403	34
Corrie	Gwen	not provided	N/A	Web-based Comments	15348	24
Corriere	Jill Corriere	not provided	N/A	Web-based Comments	46313	34
Corrigan	Jennifer	not provided	N/A	Web-based Comments	45973	34
Corrigan	Jennifer	not provided	N/A	Web-based Comments	17173	24
Corrigan	Sean	not provided	N/A	Web-based Comments	28516	24
Corrill	Elza	not provided	N/A	Web-based Comments	49036	34

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Corrington	Pamela	not provided	N/A	Web-based Comments	54015	34
Corris	Joshua	not provided	N/A	Web-based Comments	45018, 45019	34
Corriveau	Mr. Kevin D.	not provided	N/A	Web-based Comments	24679	24
Corry	Ronit	not provided	N/A	Web-based Comments	27686	24
Corsello	Jack	not provided	N/A	Web-based Comments	16030	24
Corsello	Phil	not provided	N/A	Web-based Comments	26319	24
Corsetti	Lisa	not provided	N/A	Web-based Comments	21535	24
Corsini	David	not provided	N/A	Web-based Comments	11978	24
Corso	John	corso1965@live.com	N/A	Web-based comments	2960	N/A
Cortes	Alejandra	mdelgadi@usc.edu	N/A	Web-based comments	131, 3805	1
Cortez	Andres	not provided	N/A	Web-based Comments	7793	24
Cortez	Anita	not provided	N/A	Web-based Comments	7969	24
Cortez	Renee	not provided	N/A	Web-based Comments	26840	24
Corum	C	cfcgogo-ngo@yahoo.com	N/A	Web-based comments	6269	8
Corvers	Nady	not provided	N/A	Web-based Comments	44507	34
Corvers	Nady	not provided	N/A	Web-based Comments	24776	24
Corwin	Eric	ecorwin@gmail.com	N/A	Web-based comments	2081	N/A
corwin	shelley	not provided	N/A	Web-based Comments	28829	24
Cory	Dee	not provided	N/A	Web-based Comments	12571	24
Cory	Genevieve	not provided	N/A	Web-based Comments	14860	24
cory	r.w.	not provided	N/A	Web-based Comments	26496	24
Corzine	Michelle	not provided	N/A	Web-based Comments	24331	24
Cosby	Angelique	not provided	N/A	Web-based Comments	7945	24
Cosby	David	not provided	N/A	Web-based Comments	51519	34
Cosby	David	not provided	N/A	Web-based Comments	11979	24
Coscia	Carmine	not provided	N/A	Web-based Comments	9877	24
Coscia	Jo	not provided	N/A	Web-based Comments	17640	24
Coselman	Tarrie	not provided	N/A	Web-based Comments	30211	24
Cosentino	Deborah	not provided	N/A	Web-based Comments	12379	24
Cosgriff	Mark	not provided	N/A	Web-based Comments	22909	24
Cosgrove	Donna	not provided	N/A	Web-based Comments	13120	24
Cosgrove	Patrick	not provided	N/A	Web-based Comments	25899	24
coskie	cheryla	not provided	N/A	Web-based Comments	10683	24
Coskun	Bora	not provided	N/A	Web-based Comments	55523	34
Coskun	Bora	not provided	N/A	Web-based Comments	9336	24
Cossa	Fletcher	not provided	N/A	Web-based Comments	14444	24
Cosstick	Michelle	not provided	N/A	Web-based Comments	51941	34
Costa	Cristina	not provided	N/A	Web-based Comments	45950	34
Costa	Demelza	not provided	N/A	Web-based Comments	49042, 49043	34
Costa	Gioia	not provided	N/A	Web-based Comments	15083	24
Costa	Gwen	not provided	N/A	Web-based Comments	15349	24
Costa	James	not provided	N/A	Web-based Comments	58446	34
Costa	Kaile	not provided	N/A	Web-based comments	4984	1
costa	lynn	not provided	N/A	Web-based Comments	48573	34
Costa	Lynn	not provided	N/A	Web-based Comments	48572	34
Costa	Mardene	not provided	N/A	Web-based Comments	22412	24
Costa	Maureen	not provided	N/A	Web-based Comments	52139	34
Costa	Ozzy	not provided	N/A	Web-based Comments	49629	34
Costa	Paulo	not provided	N/A	Web-based Comments	26126	24
Costa	Sandra	not provided	N/A	Web-based comments	56830, 57292	35
Costa	Sandra	not provided	N/A	Web-based Comments	47279, 47280, 47281, 47282	34
Costa	Sandra	not provided	N/A	Web-based Comments	28130	24
Costales	Amanda	not provided	N/A	Web-based Comments	7525	24
Costas	Deborah	not provided	N/A	Web-based Comments	12380	24
Costas-carrion	Dannette	not provided	N/A	Web-based Comments	11829	24
Costello	Beverley	not provided	N/A	Web-based Comments	9113	24
Costello	Brook	not provided	N/A	Web-based Comments	54184	34
Costello	Carol	not provided	N/A	Web-based Comments	46649	34
Costello	Deborah	not provided	N/A	Web-based Comments	12381	24
Costello	Doug	not provided	N/A	Web-based Comments	50087	34
Costello	James	not provided	N/A	Web-based Comments	16194	24
Costello	Thomas	thomasecostello229@gmail.com	N/A	Web-based comments	4953	1
Costigan	Alana	not provided	N/A	Web-based comments	56723	35
Costigan	Cheryl	not provided	N/A	Web-based Comments	52298	34
Costley	Brett	brett.costley@gmail.com	N/A	Web-based comments	2685	N/A
Costoff	Susan	not provided	N/A	Web-based Comments	29636	24
Costolo	Elaine	not provided	N/A	Web-based Comments	53633	34
Coston	Sanders	not provided	N/A	Web-based Comments	28104	24
Cota	Nancy	not provided	N/A	Web-based Comments	24831	24
Cote	Dennis	dennislcote@gmail.com	N/A	Web-based comments	2560	N/A

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Cote	Susan	not provided	N/A	Web-based Comments	52083	34
Cotner	David	not provided	N/A	Web-based Comments	11980	24
Cotten	James	not provided	N/A	Web-based Comments	16195	24
Cotten	Kristina	not provided	N/A	Web-based Comments	20400	24
Cotter	Justina	justinacotter@aol.com	N/A	Web-based comments	2416	N/A
Cotter	Justina	justinacotter@aol.com	N/A	Web-based Comments	50491	34
Cotterell	Karen	not provided	N/A	Web-based Comments	19072	24
Cottle	Martha	not provided	N/A	Web-based Comments	23098	24
cotto	Saphire	not provided	N/A	Web-based comments	6794	1
Cotton	Alan	biopestman@aol.com	N/A	Web-based comments	5224	8
Cotton	Susan	not provided	N/A	Web-based Comments	29637	24
Cottrell	Mark	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32516	13
Cotts	Madeleine	not provided	N/A	Web-based Comments	22235	24
Cotugno	Caroline	not provided	N/A	Web-based Comments	10118	24
Couch	Jean	not provided	N/A	Web-based Comments	16840	24
Couch	Sandra	not provided	N/A	Web-based Comments	44791	34
Couch	Sandra	not provided	N/A	Web-based Comments	28131	24
Coucher	Therese	not provided	N/A	Web-based Comments	54453	34
COUCHOUD	Grard	not provided	N/A	Web-based Comments	15218	24
Coucier	Lisa	not provided	N/A	Web-based Comments	21536	24
Coughlan	Miranda	not provided	N/A	Web-based Comments	54025	34
Coughlin	Christine	not provided	N/A	Web-based Comments	10903	24
Coughlin	Steve	not provided	N/A	Web-based Comments	29358	24
Couillard	Beverlee	not provided	N/A	Web-based Comments	9111	24
Coulson	Michael	not provided	N/A	Web-based Comments	24054	24
Coulter	Anthony	not provided	N/A	Web-based Comments	8329	24
Coulter	Dee	not provided	N/A	Web-based Comments	12572	24
Council	Nina	not provided	N/A	Web-based Comments	49159	34
Council	Rita	not provided	N/A	Web-based Comments	49948	34
Councilman	David	not provided	N/A	Web-based Comments	11981	24
Counterman .	Jesse	not provided	N/A	Web-based Comments	17387	24
Countryman	Bruce	not provided	N/A	Web-based Comments	9604	24
Countryman-Mills	G.	not provided	N/A	Web-based Comments	49153	34
Countryman-Mills	G.	not provided	N/A	Web-based Comments	14623	24
Countryman-Mills	Gayle	not provided	N/A	Web-based Comments	45384	34
Counts	Marlene	not provided	N/A	Web-based Comments	23038	24
Courtland	Katherine	not provided	N/A	Web-based Comments	19439	24
Courtney	Angela	not provided	N/A	Web-based Comments	7893	24
Courtney	Dana	not provided	N/A	Web-based Comments	11688	24
Courtney	Ms	not provided	N/A	Web-based Comments	24684	24
Courtney	Sally	not provided	N/A	Web-based Comments	28007	24
Courtney	Sue	not provided	N/A	Web-based Comments	29516	24
Courts	Ian	not provided	N/A	Web-based Comments	50220, 50221, 50222	34
Courts	John	not provided	N/A	Web-based Comments	17992	24
courts	Sadie	not provided	N/A	Web-based comments	1443	N/A
Cousino	Joyce	not provided	N/A	Web-based Comments	18480	24
Cousins	Stirling	not provided	N/A	Web-based Comments	50823	34
Cousins	Tamara	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58401	32
Cousins	Vera	not provided	N/A	Web-based Comments	31083	24
Coussa	Samir	not provided	N/A	Web-based Comments	53435	34
Coussa	Samir	not provided	N/A	Web-based Comments	28092	24
Coustaty	Annie	not provided	N/A	Web-based Comments	55039	34
coustaty	annie	not provided	N/A	Web-based Comments	8296	24
Cousteau	Jean-Michel	not provided	N/A	Web-based Comments	16931	24
Coutel	Unreadable	not provided	N/A	Web-based Comments	14458	24
Coutts	Jeannie	not provided	N/A	Web-based comments	57517	35
Couture	Andrelle	not provided	N/A	Web-based Comments	47448	34
Couture	Maddie	not provided	N/A	Web-based Comments	22233	24
Couture	Matthew	not provided	N/A	Web-based Comments	23640	24
Couture	Ray	not provided	N/A	Web-based Comments	52527	34
Couture	Ray	not provided	N/A	Web-based Comments	26669	24
Couturier	Christine	not provided	N/A	Web-based Comments	10904	24
Covarrubias	Paola	not provided	N/A	Web-based Comments	47297	34
covell	maryjane	not provided	N/A	Web-based Comments	55137	34
Covelli	Barbara	not provided	N/A	Web-based Comments	8661	24
Covey	John	not provided	N/A	Web-based Comments	17993	24
Covey	Tim	not provided	N/A	Web-based Comments	46489, 46490	34
Covich	Sandra	not provided	N/A	Web-based Comments	28132	24
Covington	Aretta	not provided	N/A	Web-based Comments	8404	24
Covington	Christina	not provided	N/A	Web-based comments	6351	1

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Covington	Laurel	not provided	N/A	Web-based Comments	20732	24
Covington	Linda	not provided	N/A	Web-based Comments	48342	34
Covington-Taft	Leslie	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32504	13
Covino	Robin	not provided	N/A	Web-based Comments	48095	34
Cowan	David	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58760	29
Cowan	Jan	not provided	N/A	Web-based Comments	16390	24
Cowan	Keith	not provided	N/A	Web-based Comments	19870	24
Cowan	Nancy	not provided	N/A	Web-based Comments	24832	24
Cowan	Will	will.cowan11@gmail.com	N/A	Web-based comments	2925	N/A
Cowan Becker	Cathy	not provided	N/A	Web-based Comments	10357	24
Cowden	Sheila	not provided	N/A	Web-based Comments	51574	34
Cowell	Dolores	not provided	N/A	Web-based Comments	58203	16
Cowen	Anna	not provided	N/A	Web-based Comments	55948	34
Cowger	Nancy	not provided	N/A	Web-based Comments	24833	24
Cowie	Virginia	not provided	N/A	Web-based Comments	31276	24
Cowin	Caryn	not provided	N/A	Web-based Comments	55450, 55451	34
Cowin	Caryn	not provided	N/A	Web-based Comments	10220	24
Cowley	Jessie	not provided	N/A	Web-based Comments	49514, 49515	34
Cowling	Katie	not provided	N/A	Web-based Comments	19785	24
Cox	Aaron	not provided	N/A	Web-based Comments	6994	24
Cox	Caitlin	not provided	N/A	Web-based Comments	9711	24
Cox	David	not provided	N/A	Web-based Comments	11982	24
Cox	Don	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58738	N/A
Cox	Edythe	not provided	N/A	Web-based Comments	49968	34
Cox	Holly	not provided	N/A	Web-based Comments	15738	24
Cox	Joseph	not provided	N/A	Web-based Comments	18353	24
Cox	Joseph S.	not provided	N/A	Web-based Comments	53158	34
Cox	Kaysie	not provided	N/A	Web-based Comments	19852	24
Cox	Lanie	not provided	N/A	Web-based Comments	56320	34
Cox	Lanie	not provided	N/A	Web-based Comments	20543	24
Cox	Linda	not provided	N/A	Web-based Comments	21234	24
Cox	Lisa	not provided	N/A	Web-based Comments	21537	24
Cox	Marie	not provided	N/A	Web-based Comments	48802, 48803	34
Cox	Michael	not provided	N/A	Web-based Comments	24055	24
Cox	Patricia	not provided	N/A	Web-based Comments	25731	24
cox	ryane	not provided	N/A	Web-based Comments	27932	24
Cox	Thomas	not provided	N/A	Web-based Comments	45553	34
Cox	Virgene	coxldvm@hotmail.com	N/A	Web-based comments	5681	N/A
Cox	Wylie	not provided	N/A	Web-based Comments	45082	34
coxsey	michael	not provided	N/A	Web-based Comments	47415	34
Coyle	Gregory	not provided	N/A	Web-based Comments	45170	34
Coyle	N	not provided	N/A	Web-based Comments	24728	24
Coyle	Nora	not provided	N/A	Web-based Comments	53580	34
Coyle	Nora	not provided	N/A	Web-based Comments	25354	24
Coyman	Margaret	not provided	N/A	Web-based Comments	46863	34
Coyne	Erin	not provided	N/A	Web-based Comments	14212	24
Coyne	Melanie	not provided	N/A	Web-based Comments	23834	24
Coz	Ann	not provided	N/A	Web-based Comments	46755	34
coz	ann	not provided	N/A	Web-based Comments	8019	24
cozza	laurrie	not provided	N/A	Web-based Comments	20867	24
Cozzens	Lorrie	not provided	N/A	Web-based Comments	21853	24
Craban	Arrowyn	not provided	N/A	Web-based Comments	51099	34
Crabill	Phillip J	not provided	N/A	Web-based Comments	26367	24
Crabtree	Larry	not provided	N/A	Web-based Comments	20573	24
Crabtree	Summer	not provided	N/A	Web-based Comments	48359	34
cracchiola	anthony	not provided	N/A	Web-based Comments	8330	24
Craddock	Anne	not provided	N/A	Web-based Comments	8182	24
Craddock	RB	rbcraddock@mac.com	N/A	Web-based comments	6763	N/A
Craffey	Eileen	not provided	N/A	Web-based Comments	44366	34
Craft	Joe	not provided	N/A	Web-based Comments	17874	24
Craft	Robin	not provided	N/A	Web-based Comments	27472	24
Crafts	William	not provided	N/A	Web-based Comments	54863	34
Crage	Kristin	not provided	N/A	Web-based Comments	45627, 45628	34
Crage	Kristin A.	not provided	N/A	Web-based Comments	20396	24
Cragun	Penny	not provided	N/A	Web-based Comments	26200	24
Craib	Michael	not provided	N/A	Web-based Comments	53260	34
Craig	Ann	not provided	N/A	Web-based Comments	8020	24
Craig	Ashley	acraig1317@gmail.com	N/A	Web-based comments	32034	N/A
Craig	Carol	not provided	N/A	Web-based Comments	47876	34
Craig	Carol	not provided	N/A	Web-based Comments	9905	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Craig	Catherine	not provided	N/A	Web-based Comments	52696	34
Craig	Corynn	not provided	N/A	Web-based Comments	11394	24
Craig	Isobel	not provided	N/A	Web-based Comments	48199	34
Craig	Jeanne	not provided	N/A	Web-based Comments	54771	34
craig	jessica	not provided	N/A	Web-based Comments	17415	24
Craig	Joe	not provided	N/A	Web-based Comments	51784	34
Craig	Kathryn	not provided	N/A	Web-based Comments	47340	34
Craig	Kathryn	not provided	N/A	Web-based Comments	19630	24
Craig	Kim	not provided	N/A	Web-based Comments	46712	34
Craig	Robin	not provided	N/A	Web-based Comments	27473	24
Craigen	June	not provided	N/A	Web-based Comments	18932	24
Craighead	Tom	not provided	N/A	Web-based Comments	30744	24
Craigie	Maria	not provided	N/A	Web-based Comments	47372	34
Crail	Danielle	not provided	N/A	Web-based Comments	11803	24
Crain	Alicia	not provided	N/A	Web-based Comments	7378	24
Crain	Tatum	not provided	N/A	Web-based Comments	30226	24
Craine	Jonathan	not provided	N/A	Web-based Comments	18279	24
Cralle	Beth	not provided	N/A	Web-based Comments	9020	24
Cram	Misty	cramcrackers4@yahoo.com	N/A	Web-based comments	2658	6
Cramblett	Dana	not provided	N/A	Web-based Comments	11689	24
Cramer	Marta	not provided	N/A	Web-based Comments	52020	34
Cramer	Phyllis	not provided	N/A	Web-based Comments	26386	24
Cramer	William	not provided	N/A	Web-based Comments	54215	34
Cramer	William	not provided	N/A	Web-based Comments	31522	24
Crandall	AnaLisa	not provided	N/A	Web-based Comments	45809, 45810	34
Crandall	AnaLisa	not provided	N/A	Web-based Comments	7706	24
CRANDALL	ERNEST	not provided	N/A	Web-based Comments	14247	24
Crane	Donna	not provided	N/A	Web-based Comments	13121	24
crane	jo	not provided	N/A	Web-based Comments	17641	24
Crane	Madeline	not provided	N/A	Web-based Comments	22240	24
Crane	Marcella	not provided	N/A	Web-based Comments	47805	34
Crane	Marcella	not provided	N/A	Web-based Comments	22353	24
Crane	Margaret	not provided	N/A	Web-based Comments	56305	34
Crane	Mark	not provided	N/A	Web-based Comments	51700	34
Crane	Susan	not provided	N/A	Web-based Comments	29638	24
Cranendonk	Robin	not provided	N/A	Web-based Comments	27474	24
Cranford	Connie	not provided	N/A	Web-based Comments	11300	24
Cranmer	Julia	not provided	N/A	Web-based comments	57021	35
Cranmer	Julia	not provided	N/A	Web-based Comments	48626, 48657	34
Cranmer	Julia	not provided	N/A	Web-based Comments	18749	24
Cranmer	Valerie	not provided	N/A	Web-based Comments	45819, 45820	34
Cranwell	Victoria	not provided	N/A	Web-based comments	56917	35
Crary	Aleasa	not provided	N/A	Web-based Comments	46443, 46444	34
Crary	Aleasa	not provided	N/A	Web-based Comments	7219	24
Crater	April	not provided	N/A	Web-based Comments	8379	24
Cratty	Bruce	not provided	N/A	Web-based Comments	48504	34
Cratty	Bruce	not provided	N/A	Web-based Comments	9605	24
Craven	Alex	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4622	N/A
Craven	Amanda	not provided	N/A	Web-based comments	57495	35
Craven	Dorothy	not provided	N/A	Web-based Comments	13255	24
Cravey	Christine	not provided	N/A	Web-based Comments	10905	24
Craw	Jeff	jtcraw57@msn.com	N/A	Web-based comments	3433	13
Crawford	Ange	not provided	N/A	Web-based Comments	50271	34
Crawford	Any	amyc620@gmail.com	N/A	Web-based comments	6325	1
Crawford	Brian	not provided	N/A	Web-based Comments	9466	24
Crawford	Colby	not provided	N/A	Web-based Comments	54157	34
Crawford	David	not provided	N/A	Web-based Comments	11983	24
Crawford	Edward	not provided	N/A	Web-based Comments	13489	24
Crawford	Holly	Hollycrawfordb@hotmail.com	N/A	Web-based comments	1512	1
Crawford	Holly	not provided	N/A	Web-based Comments	55973	34
Crawford	Holly	not provided	N/A	Web-based Comments	15739	24
Crawford	Jason	not provided	N/A	Web-based Comments	16774	24
Crawford	John	not provided	N/A	Web-based Comments	17994	24
Crawford	Morgan	not provided	N/A	Web-based Comments	52516, 52517	34
Crawford	Morgan	not provided	N/A	Web-based Comments	24666	24
Crawford	P.E.	not provided	N/A	Web-based Comments	44802	34
Crawford	Pat	not provided	N/A	Web-based Comments	25640	24
Crawford	Sharon	not provided	N/A	Web-based Comments	28644	24
Crawford	Stephanie	not provided	N/A	Web-based comments	6194	N/A
Crawford	Tom	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4728	N/A

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Crawford	Tracy	not provided	N/A	Web-based Comments	46703	34
Crawford	Valerie	not provided	N/A	Web-based Comments	48926	34
Crawford	Valerie	not provided	N/A	Web-based Comments	31018	24
crawford	will	not provided	N/A	Web-based Comments	31485	24
Cray	David	not provided	N/A	Web-based Comments	11984	24
Creamer	Monique	not provided	N/A	Web-based Comments	24654	24
Crean	Chelsea	not provided	N/A	Web-based comments	57269	35
Crean	Peter	not provided	N/A	Web-based Comments	55190	34
Creech	Shawna	not provided	N/A	Web-based Comments	28760	24
Creer	James	jabcreer@yahoo.com	N/A	Web-based comments	3180	N/A
Creighton	Elizabeth	not provided	N/A	Web-based Comments	13725	24
Creighton	Evelyn	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	56617	N/A
Cremer	Julia	not provided	N/A	Web-based comments	56757	35
Cremin	Bernie	not provided	N/A	Web-based Comments	54554	34
Crenshaw	Robert	not provided	N/A	Web-based Comments	49877	34
Crenson	Ethan	not provided	N/A	Web-based Comments	14281	24
Crescione	Hope	not provided	N/A	Web-based Comments	51701	34
crescione	linda	not provided	N/A	Web-based Comments	21235	24
Crespo	Kathleen	not provided	N/A	Web-based Comments	19525	24
Cress	Cynthia	not provided	N/A	Web-based Comments	11500	24
Cressatti	Lucio	not provided	N/A	Web-based Comments	21949	24
Cresseveur	Jessica	not provided	N/A	Web-based Comments	17416	24
Cressman	AC	not provided	N/A	Web-based Comments	7028	24
Cressman	Clyde	not provided	N/A	Web-based Comments	11234	24
Cresswell	Stewart	not provided	N/A	Web-based Comments	47373, 55920, 55921	34
Creswell	Richard	not provided	N/A	Web-based Comments	50334	34
Crews	Michael	not provided	N/A	Web-based Comments	52582	34
Criddle	Carol	not provided	N/A	Web-based Comments	9906	24
Criddle	Laura	not provided	N/A	Web-based Comments	20621	24
Crider	Ian	not provided	N/A	Web-based Comments	15830	24
Crilley	Judith	not provided	N/A	Web-based Comments	18580	24
Crimbring	William	not provided	N/A	Web-based Comments	31523	24
Crippen	Monte	crippenm@owt.com	N/A	Web-based comments	2884	N/A
Cripps	Phillip	not provided	N/A	Web-based Comments	26359	24
Cripps	Rose	not provided	N/A	Web-based Comments	47509	34
Criqui	Nan	not provided	N/A	Web-based Comments	24785	24
Crisafulli	Alexandra	not provided	N/A	Web-based Comments	54078	34
Crisafulli	Alexandra	not provided	N/A	Web-based Comments	7276	24
Crisanti	Giovanni	not provided	N/A	Web-based Comments	45287	34
Crisman	Kevin	not provided	N/A	Web-based Comments	20095	24
Crist	Kathy	not provided	N/A	Web-based Comments	19691	24
Crist-Whitzel	Janet	not provided	N/A	Web-based Comments	16582	24
Critz	Catherine	not provided	N/A	Web-based Comments	10269	24
Croasdale	Kathlene	not provided	N/A	Web-based Comments	44580	34
Croasdale	Kathlene	not provided	N/A	Web-based Comments	19612	24
Crocitto	Frank	not provided	N/A	Web-based Comments	14525	24
Crocker	Beverly	not provided	N/A	Web-based Comments	9121	24
Crocker	Elizabeth	not provided	N/A	Web-based Comments	13726	24
Crockett	Geoffrey	not provided	N/A	Web-based comments	5285, 5286	N/A
Crockett	Landis	not provided	N/A	Web-based Comments	52694	34
Crockett	Landis	not provided	N/A	Web-based Comments	20535	24
Crockett	Laurel	not provided	N/A	Web-based Comments	20733	24
Crockett	Scott	not provided	N/A	Web-based Comments	45193, 45194	34
Crockett	Scott	not provided	N/A	Web-based Comments	28463	24
Crofts	K	kcrofts@wyoming.com	N/A	Web-based comments	5311	N/A
Croissant	Susan	not provided	N/A	Web-based Comments	46543	34
Croissier	Michelle	mmcroiss@gmail.com	N/A	Web-based comments	1495	1
Croke	Darren	not provided	N/A	Web-based Comments	11894	24
Crolius	Ross	not provided	N/A	Web-based Comments	27786	24
Crom	Alva	not provided	N/A	Web-based Comments	54241, 54242	34
Crompton	Victoria	not provided	N/A	Web-based Comments	48467	34
Crone	Bob	not provided	N/A	Web-based Comments	51182	34
Cronenwett	Judy	not provided	N/A	Web-based Comments	18675	24
Cronin	Cathy	not provided	N/A	Web-based Comments	10358	24
Cronin	Chrissy	not provided	N/A	Web-based Comments	48096	34
Cronin	Elizabeth	not provided	N/A	Web-based Comments	51361	34
Cronin	James	not provided	N/A	Web-based Comments	47211	34
Cronk	Melanie	melaniesteele@live.com	N/A	Web-based comments	3464	10
Crook	Amy	not provided	N/A	Web-based Comments	46759	34
Crook	Maralyn	not provided	N/A	Web-based Comments	53752	34

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Crookham	Kris	not provided	N/A	Web-based Comments	58049	16
Crooks	Carol	not provided	N/A	Web-based Comments	9907	24
Crooks	Deborah	not provided	N/A	Web-based Comments	45304	34
Crooks	Terry	tcrooks@frontiernet.net	N/A	Web-based comments	3207	N/A
crookston	terry	not provided	N/A	Web-based Comments	30364	24
Crooms	Sandy	not provided	N/A	Web-based Comments	28243	24
Crosbie	Malcolm	not provided	N/A	Web-based Comments	22292	24
Crosby	Christina	not provided	N/A	Web-based Comments	47076	34
Crosby	Donald	not provided	N/A	Web-based Comments	13054	24
Crosby	Kathy	not provided	N/A	Web-based Comments	19692	24
Crosby	Michael	not provided	N/A	Web-based Comments	55299	34
Crosby	Sara	not provided	N/A	Web-based Comments	28283	24
crosby	william	not provided	N/A	Web-based Comments	55785	34
Crosetto	Linn	not provided	N/A	Web-based Comments	48304	34
Cross	Bonnie	not provided	N/A	Web-based Comments	9288	24
Cross	Dave	not provided	N/A	Web-based comments	57713	35
Cross	Diane	not provided	N/A	Web-based Comments	53352	34
Cross	Elizabeth	not provided	N/A	Web-based Comments	13727	24
Cross	Heather	not provided	N/A	Web-based Comments	53598	34
Cross	Heather	not provided	N/A	Web-based Comments	15503	24
Cross	Kathryn	not provided	N/A	Web-based Comments	48069	34
Cross	Kathryn	not provided	N/A	Web-based Comments	19631	24
Cross	Mary	not provided	N/A	Web-based Comments	50401	34
Cross	Rita	not provided	N/A	Web-based comments	57714	35
Cross	Russ	not provided	N/A	Web-based Comments	54776	34
Cross	Russ	not provided	N/A	Web-based Comments	27824	24
Cross	Sonia Noemi	not provided	N/A	Web-based Comments	29070	24
Cross	Thea	not provided	N/A	Web-based Comments	30410	24
Cross	Victoria	not provided	N/A	Web-based Comments	44867	34
Cross	Victoria	not provided	N/A	Web-based Comments	31189	24
Crossley	Candace	not provided	N/A	Web-based Comments	9753	24
Crossley	Janet Welsh	not provided	N/A	Web-based Comments	46067	34
Crossman	Cynthia	not provided	N/A	Web-based Comments	11501	24
Crossman	Kathryn	not provided	N/A	Web-based Comments	19632	24
Crothers	Thomas	not provided	N/A	Web-based Comments	30481	24
Crotty	Christopher	not provided	N/A	Web-based Comments	11003	24
Crotwell	Kathleen	not provided	N/A	Web-based Comments	19526	24
Crouch	Anabel	not provided	N/A	Web-based Comments	7701	24
Crouch	Eric	not provided	N/A	Web-based Comments	14095	24
Croucher	Heather	not provided	N/A	Web-based Comments	49039, 49040	34
Crouse	Bob	not provided	N/A	Web-based comments	3154	9
Crouse	Gray	not provided	N/A	Web-based Comments	15220	24
Crouse	Marlene	not provided	N/A	Web-based Comments	23039	24
Crouse-Haas	Pamela	not provided	N/A	Web-based Comments	52717	34
Crow	Michelle	not provided	N/A	Web-based Comments	53608	34
Crow	Michelle	not provided	N/A	Web-based Comments	24332	24
Crow	Reyna	not provided	N/A	Web-based Comments	26881	24
CROW	STEVE	sjcrow71@hotmail.com	N/A	Web-based comments	2037	N/A
Crowder	Jon	not provided	N/A	Web-based Comments	18247	24
Crowder	Linda	not provided	N/A	Web-based Comments	21236	24
Crowe	Edith	not provided	N/A	Web-based Comments	54007	34
Crowe	Joshua	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4634	N/A
Crowe	R. Dougal	not provided	N/A	Web-based Comments	26494	24
Crowfoot	Hilma	not provided	N/A	Web-based Comments	15715	24
Crowley	Angela	not provided	N/A	Web-based Comments	7894	24
Crowley	Jane	not provided	N/A	Web-based Comments	16471	24
Crowley	Joyce	not provided	N/A	Web-based Comments	45309, 45310	34
Crowley	Joyce	not provided	N/A	Web-based Comments	18481	24
Crowley	Lawrence	not provided	N/A	Web-based comments	57314	35
Crowley	Lawrence	not provided	N/A	Web-based Comments	48675	34
Crowley	Marty	not provided	N/A	Web-based Comments	48702, 57949	34, 16
Crowley	Marty	not provided	N/A	Web-based Comments	23190	24
crowley	paul	not provided	N/A	Web-based Comments	25984	24
Crowley	Rita	not provided	N/A	Web-based Comments	27133	24
Crown	Deborah	not provided	N/A	Web-based Comments	12382	24
Crowther	Michaela	not provided	N/A	Web-based Comments	24264	24
croxton	jesse	not provided	N/A	Web-based Comments	17388	24
Croyle	Laura	not provided	N/A	Web-based Comments	20622	24
Crozier	Bonnie	not provided	N/A	Web-based Comments	9289	24
Crudo	Lynn	not provided	N/A	Web-based Comments	22053	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
cruey	Rich	richcruey@yahoo.com	N/A	Web-based comments	4210, 4379	N/A
CRUGER	KURT	not provided	N/A	Web-based Comments	55225	34
CRUGER	KURT	not provided	N/A	Web-based Comments	20433	24
Cruikshank	Anna	not provided	N/A	Web-based Comments	8123	24
Cruise	Heidi	heidicruise@gmail.com	N/A	Web-based comments	5484	1
Cruise	Jonathan	not provided	N/A	Web-based Comments	18280	24
crum	cathy	not provided	N/A	Web-based Comments	53667	34
crum	cathy	not provided	N/A	Web-based Comments	10359	24
Crumble	Leuise	not provided	N/A	Web-based Comments	21126	24
Crume	Alice	not provided	N/A	Web-based Comments	7337	24
Crum-Freund	Lisa	not provided	N/A	Web-based Comments	47068	34
Crum-Freund	Lisa	not provided	N/A	Web-based Comments	21538	24
Crumley	D	not provided	N/A	Web-based comments	3054	N/A
Crump	Deborah	not provided	N/A	Web-based Comments	12383	24
Crump	Donnis	not provided	N/A	Web-based Comments	13203	24
CRUMP	KATE	kate@frigatetravel.com	N/A	Web-based comments	4566	19
Crumpton	Madolyn	not provided	N/A	Web-based Comments	22255	24
Crupi	Kevin	not provided	N/A	Web-based Comments	20096	24
Crusius	Kyle	not provided	N/A	Web-based Comments	20448	24
Crutcher	Renee	not provided	N/A	Web-based Comments	26841	24
Crutcher	Scott	not provided	N/A	Web-based Comments	47412, 47413	34
Crutchley	Ela	not provided	N/A	Web-based Comments	51313, 51314, 51315, 51316	34
Cruttenden	Amanda	not provided	N/A	Web-based Comments	7526	24
Cruz	Carolyn	not provided	N/A	Web-based Comments	10147	24
Cruz	Deborah	not provided	N/A	Web-based Comments	50380	34
Cruz	Marian	not provided	N/A	Web-based Comments	53505, 56070	34
Cruz	Marina	not provided	N/A	Web-based Comments	22831	24
Cruz	Melissa	not provided	N/A	Web-based Comments	51719	34
Cruz	Rui	not provided	N/A	Web-based Comments	27819	24
Crymes	Alan	aecrymes1@msn.com	N/A	Web-based comments	4298	17
Crystal	Lynn	not provided	N/A	Web-based Comments	22054	24
CSAKANY	Caroline	carolinecsakany@gmail.com	N/A	Web-based comments	4338	1
CSAKANY	Cindy	cindy.csakany@gmail.com	N/A	Web-based comments	101, 4334	1
Csenge	Debra	not provided	N/A	Web-based Comments	12512	24
Csillag	Aliette	aliette.csillag123@gmail.com	N/A	Web-based comments	1729	1
csorba	richard	not provided	N/A	Web-based Comments	26955	24
Csuhta	Tom	not provided	N/A	Web-based Comments	30745	24
Cubbedge	Tim	not provided	N/A	Web-based Comments	30600	24
Cubberly	Pamela	not provided	N/A	Web-based Comments	25538	24
Cubeiro	Lisa	not provided	N/A	Web-based Comments	21539	24
Cubeta	Katie	not provided	N/A	Web-based Comments	19786	24
Cuccia-Nilsen	Laura	not provided	N/A	Web-based Comments	56410	34
Cucco	Judith	not provided	N/A	Web-based Comments	18581	24
Cuda	Mary	not provided	N/A	Web-based Comments	23243	24
Cudsko	Patricia	not provided	N/A	Web-based Comments	25732	24
Cuellar	Elizabeth	not provided	N/A	Web-based Comments	48766, 48876	34
Cuellar	Elizabeth	not provided	N/A	Web-based Comments	13728	24
Cuellar	Elizabeth	not provided	N/A	Web-based Comments	13729	24
Cuendett	Philip	not provided	N/A	Web-based Comments	26334	24
CUEVAS	jessica	Jeska.jeska@yahoo.com	N/A	Web-based comments	32233	1
Cuevas	Renita	renita.cuevas@yahoo.com	N/A	Web-based comments	2660	6
Cuezze	Thomas	tcuezze@gmail.com	N/A	Web-based comments	14	N/A
Cuff	Kermit	not provided	N/A	Web-based Comments	54790, 54791	34
Cuff	Kermit	not provided	N/A	Web-based Comments	20054	24
Cuisenaire	Martine	not provided	N/A	Web-based Comments	53967	34
Cuisenaire	Martine	not provided	N/A	Web-based Comments	23187	24
Culbert	Laurette	not provided	N/A	Web-based Comments	20809	24
Culbertson	Denise	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4736	N/A
Culgan	Shane	not provided	N/A	Web-based Comments	28566	24
Culhane	Lesley Pamela	not provided	N/A	Web-based Comments	21053	24
Cull	Margaret	not provided	N/A	Web-based Comments	22439	24
Cullen	Al	not provided	N/A	Web-based Comments	55172	34
Cullen	Al	not provided	N/A	Web-based Comments	7143	24
Cullen	Cheryl	not provided	N/A	Web-based Comments	10628	24
Culley	Erin	not provided	N/A	Web-based Comments	14213	24
Culley	Peg	not provided	N/A	Web-based Comments	26138	24
Culley	Portia	not provided	N/A	Web-based Comments	26431	24
Cullis	Leslie	not provided	N/A	Web-based Comments	47402	34
Culp	Barb	not provided	N/A	Web-based Comments	8600	24
Culp	David	not provided	N/A	Web-based Comments	11985	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Culp	Frances	not provided	N/A	Web-based Comments	14475	24
Culp	Janet	not provided	N/A	Web-based Comments	16583	24
Culver	Marcus	not provided	N/A	Web-based Comments	22398	24
Culver	Susan A.	not provided	N/A	Web-based Comments	29920	24
Culverwell	Reed	not provided	N/A	Web-based Comments	26797	24
Culwell	Debra	not provided	N/A	Web-based comments	57427	35
Cumine	Sally	not provided	N/A	Web-based Comments	28008	24
Cumings	Dawn	not provided	N/A	Web-based Comments	12205	24
Cumming	Christine	not provided	N/A	Web-based Comments	10906	24
Cummings	Brenda	not provided	N/A	Web-based Comments	58246	16
Cummings	Jake	not provided	N/A	Web-based Comments	16164	24
Cummings	Johanna	not provided	N/A	Web-based Comments	17939	24
Cummings	L	not provided	N/A	Web-based Comments	58534	34
Cummings	Linda	not provided	N/A	Web-based Comments	50711, 52925	34
Cummings	Linda	not provided	N/A	Web-based Comments	21237	24
Cummings	Linda	not provided	N/A	Web-based Comments	21238	24
Cummings	RC	not provided	N/A	Web-based Comments	26699	24
Cummings	Robert	plcrjc@gmail.com	N/A	Web-based comments	58809	N/A
Cummins	Milla L	not provided	N/A	Web-based Comments	24515	24
Cummins	Richard	not provided	N/A	Web-based Comments	44364	34
Cundari	Joe	not provided	N/A	Web-based Comments	47958	34
Cundari	Joe	not provided	N/A	Web-based Comments	17875	24
Cundiff	Deborah	not provided	N/A	Web-based Comments	49858	34
Cuneo	Sherrell	not provided	N/A	Web-based Comments	53232	34
Cunningham	Alan	not provided	N/A	Web-based Comments	55620	34
Cunningham	Ann Marie	not provided	N/A	Web-based Comments	8108	24
Cunningham	Barbara	not provided	N/A	Web-based Comments	8662	24
Cunningham	Becky	not provided	N/A	Web-based Comments	50450	34
Cunningham	Carol	not provided	N/A	Web-based Comments	9908	24
cunningham	caroline	not provided	N/A	Web-based Comments	10119	24
Cunningham	Deb	not provided	N/A	Web-based Comments	12288	24
Cunningham	Debra	not provided	N/A	Web-based Comments	53282	34
Cunningham	Jennifer	not provided	N/A	Web-based Comments	48462	34
Cunningham	Jennifer	not provided	N/A	Web-based Comments	17174	24
Cunningham	Karen	not provided	N/A	Web-based comments	57242	35
Cunningham	Lesley	not provided	N/A	Web-based Comments	21041	24
Cunningham	Maggie	not provided	N/A	Web-based Comments	22266	24
Cunningham	Margaret	not provided	N/A	Web-based Comments	22440	24
Cunningham	Maureen	not provided	N/A	Web-based Comments	51381	34
Cunningham	Michele	not provided	N/A	Web-based Comments	24282	24
Cunningham	Paul	pmchmc@aol.com	N/A	Web-based comments	5429	N/A
Cunningham	Storm	not provided	N/A	Web-based Comments	51875	34
Cunningham	Storm	not provided	N/A	Web-based Comments	29485	24
Cup Choy	Mel	not provided	N/A	Web-based Comments	23824	24
Cupelli	Anna	not provided	N/A	Web-based Comments	8124	24
Cupello	Christina	not provided	N/A	Web-based Comments	10848	24
Cupp	Mary Jane	not provided	N/A	Web-based Comments	23522	24
Cuprisin	Sandra	not provided	N/A	Web-based Comments	28133	24
Curci	Debra	not provided	N/A	Web-based Comments	53675	34
Curci	Debra	not provided	N/A	Web-based Comments	12513	24
curci	marjorie	not provided	N/A	Web-based Comments	54075	34
Curia	Peter	not provided	N/A	Web-based Comments	46427, 46428	34
Curia	Peter	not provided	N/A	Web-based Comments	26245	24
Curiale	Ruth	not provided	N/A	Web-based Comments	49023	34
Curie	Mavah	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	5596	1
Curless	Karen	not provided	N/A	Web-based Comments	19073	24
curley	jayme	not provided	N/A	Web-based Comments	44723	34
Curley	Kirsten	not provided	N/A	Web-based Comments	20272	24
Curley	Maureen	not provided	N/A	Web-based Comments	23688	24
Curnow	Connie	not provided	N/A	Web-based Comments	11301	24
Curow	Jerry	not provided	N/A	Web-based Comments	55418	34
Curow	Jerry	not provided	N/A	Web-based Comments	17348	24
Curphey	Tim	not provided	N/A	Web-based Comments	30601	24
Curr	Brian	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32503, 32430	11, 13
Currah	Nancy	not provided	N/A	Web-based Comments	54049	34
Curran	Brendan	not provided	N/A	Web-based Comments	9432	24
Curran	Diana	not provided	N/A	Web-based Comments	12763	24
Curran	Fran	not provided	N/A	Web-based Comments	14460	24
Curran	John	not provided	N/A	Web-based Comments	52833, 52834	34
Curran	John	not provided	N/A	Web-based Comments	17995	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Curran	Susan	not provided	N/A	Web-based Comments	29639	24
Currie	Robert	logancurrie@bendbroadband.com	N/A	Web-based comments	4324	N/A
Currier	Bechi	not provided	N/A	Web-based Comments	49975	34
Currier	Bechi	not provided	N/A	Web-based Comments	8902	24
Curry	Donna	not provided	N/A	Web-based Comments	44410	34
Curry	Donna J	not provided	N/A	Web-based Comments	44409	34
Curry	Janet	not provided	N/A	Web-based Comments	53946	34
Curry	Karen	not provided	N/A	Web-based Comments	50811	34
Curry	Kay	not provided	N/A	Web-based Comments	19819	24
Curry	Robert	not provided	N/A	Web-based Comments	50182	34
Curry	Robert	not provided	N/A	Web-based Comments	27239	24
Curry	Sonya	not provided	N/A	Web-based Comments	46094, 46095	34
Curry	Sonya	not provided	N/A	Web-based Comments	29078	24
Curry	Susan	not provided	N/A	Web-based Comments	55536	34
Curry	Theresa	not provided	N/A	Web-based Comments	30426	24
Curry	Virginia	not provided	N/A	Web-based Comments	31277	24
CURTIL	Sarah	curtil.sarah@gmail.com	N/A	Web-based comments	1891	1
Curtin	Linda	not provided	N/A	Web-based Comments	21239	24
Curtin	Peg	not provided	N/A	Web-based Comments	26139	24
curtin	robert	not provided	N/A	Web-based Comments	27240	24
Curtis	Carol	not provided	N/A	Web-based Comments	48188, 48189	34
Curtis	Carol	not provided	N/A	Web-based Comments	9909	24
Curtis	Cathy	not provided	N/A	Web-based Comments	10360	24
Curtis	Christina	not provided	N/A	Web-based Comments	10849	24
Curtis	Colleen	not provided	N/A	Web-based Comments	44450	34
Curtis	Conor	not provided	N/A	Web-based Comments	11327	24
Curtis	Elisabeth	not provided	N/A	Web-based Comments	13676	24
Curtis	Ellie	not provided	N/A	Web-based comments	32142	1
Curtis	Helen	not provided	N/A	Web-based Comments	48271, 48272, 48273	34
Curtis	Kathryn	not provided	N/A	Web-based Comments	50912	N/A
Curtis	Kristi	not provided	N/A	Web-based comments	5756	1
Curtis	Michael	not provided	N/A	Web-based Comments	24056	24
Curtis	Nick	not provided	N/A	Web-based Comments	25194	24
Curtis	Richard	not provided	N/A	Web-based Comments	50529	34
Curtis	Richard	not provided	N/A	Web-based Comments	26956	24
Curtis	Robert	not provided	N/A	Web-based Comments	27241	24
curtright	nic	not provided	N/A	Web-based Comments	25156	24
Cusack	Chris	not provided	N/A	Web-based Comments	10728	24
Cusano	John	not provided	N/A	Web-based Comments	17996	24
Cush	Dan	not provided	N/A	Web-based Comments	11651	24
Cushing	Denise	not provided	N/A	Web-based Comments	12635	24
Cushing	Michael	not provided	N/A	Web-based Comments	24057	24
Cushing	Nancy Jane	not provided	N/A	Web-based Comments	50781	34
Cushwa	Nancy	not provided	N/A	Web-based Comments	55783	34
Cushwa	Nancy	not provided	N/A	Web-based Comments	24834	24
Cuskey	Heather	not provided	N/A	Web-based Comments	15504	24
Custalow	Allen	not provided	N/A	Web-based Comments	7443	24
Custer	Celeste	not provided	N/A	Web-based Comments	10433	24
Custer	Maren	not provided	N/A	Web-based Comments	22415	24
Cusumano	Richard	not provided	N/A	Web-based Comments	26957	24
Cut	Susan	not provided	N/A	Web-based Comments	29640	24
Cuthbert	Michael	not provided	N/A	Web-based Comments	24058	24
Cuthbertson	Jacqueline	not provided	N/A	Web-based Comments	49232	34
Cuthbertson	Jacqueline	not provided	N/A	Web-based Comments	16109	24
Cutietta	Marybeth	Yellowstonewest@gmail.com	N/A	US Mail or commercial carrier (UPS, FedEx)	58698	11
cutler	edward	not provided	N/A	Web-based Comments	53129	34
cutler	edward	not provided	N/A	Web-based Comments	13490	24
Cutler	Fred	not provided	N/A	Web-based Comments	14568	24
Cutler	Stephen	not provided	N/A	Web-based Comments	29278	24
Cutrera	Mary	not provided	N/A	Web-based Comments	23244	24
Cutter	Krista	not provided	N/A	Web-based Comments	20332	24
Cutter	Sandy	not provided	N/A	Web-based Comments	28244	24
Cutthroats	Snake	snakerivercutthroats@gmail.com	N/A	Web-based comments	6188	8
Cuttler	Elaine	not provided	N/A	Web-based Comments	13581	24
Cuviello	Pat	not provided	N/A	Web-based Comments	53835	34
Cuviello	Pat	not provided	N/A	Web-based Comments	25641	24
Cuza	sandra	not provided	N/A	Web-based Comments	28134	24
Cvitanich	Dominic	not provided	N/A	Web-based comments	32047	N/A
CVT	Erin McDonald	not provided	N/A	Web-based Comments	52572	34
Cybyk	Maria	not provided	N/A	Web-based Comments	22587	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Cyganowski	Nadia	not provided	N/A	Web-based Comments	24751	24
cykler	john	not provided	N/A	Web-based Comments	17997	24
Cyman	Juliana	not provided	N/A	Web-based Comments	46333	34
Cynamon	Michael	not provided	N/A	Web-based Comments	24059	24
Cyr	Amy	not provided	N/A	Web-based Comments	54209	34
Cyr	Anette	not provided	N/A	Web-based Comments	7882	24
Cyriac	Cigy	not provided	N/A	Web-based Comments	47166, 47167	34
Cywinski	David	not provided	N/A	Web-based Comments	11986	24
Czach	Jeff	not provided	N/A	Web-based Comments	56214	34
Czach	Jeff	not provided	N/A	Web-based Comments	17011	24
Czarnik	George	not provided	N/A	Web-based Comments	14887	24
Czeluscinska-Bartosiak	Aleksandra	not provided	N/A	Web-based Comments	7231	24
Czerniawski	Caesar	not provided	N/A	Web-based Comments	9708	24
Czosnykowski	Ed	not provided	N/A	Web-based Comments	13440	24
D	A	not provided	N/A	Web-based Comments	54973	34
D	A	not provided	N/A	Web-based Comments	6955	24
D	C	not provided	N/A	Web-based Comments	9666	24
D	DANIEL	not provided	N/A	Web-based Comments	55605, 55606	34
D	Daniel	not provided	N/A	Web-based Comments	11729	24
D	Elizabeth	not provided	N/A	Web-based Comments	48240, 48241	34
D	J	not provided	N/A	Web-based Comments	15970	24
D	K	not provided	N/A	Web-based comments	57525	35
D	Kate	not provided	N/A	Web-based Comments	45986	34
D	Kris	not provided	N/A	Web-based Comments	54994	34
d	l	not provided	N/A	Web-based Comments	20476	24
D	Marge	not provided	N/A	Web-based Comments	22527	24
D	Mary	not provided	N/A	Web-based Comments	23245	24
D	N	not provided	N/A	Web-based Comments	54099	34
D	N	not provided	N/A	Web-based Comments	24729	24
D	Nik	not provided	N/A	Web-based Comments	25279	24
D	R	not provided	N/A	Web-based Comments	46287, 46288	34
D	Rachel	not provided	N/A	Web-based Comments	26511	24
D	Shellie	not provided	N/A	Web-based Comments	28841	24
D	T	not provided	N/A	Web-based Comments	54850	34
D	W.	not provided	N/A	Web-based Comments	31340	24
D,	Dr.	geodkent@gmail.com	N/A	Web-based comments	5844	N/A
D.	Catherine	not provided	N/A	Web-based Comments	10270	24
D.	Elizabeth	not provided	N/A	Web-based Comments	52871	34
D.	Elizabeth	not provided	N/A	Web-based Comments	13730	24
D.	G.	not provided	N/A	Web-based Comments	55495	34
D.	Jason	not provided	N/A	Web-based comments	4181	N/A
Da Forno	Vincent	not provided	N/A	Web-based Comments	31249	24
Dabajo	Nico	not provided	N/A	Web-based Comments	25211	24
Dabetic	Thomas	not provided	N/A	Web-based Comments	30482	24
Dabrowski	Michael J.	not provided	N/A	Web-based Comments	54398	34
Dabrusin	Karen	not provided	N/A	Web-based Comments	19074	24
Dabrusin	Ross	not provided	N/A	Web-based Comments	27787	24
Dacal	Irene	not provided	N/A	Web-based Comments	15897	24
Dacus	Chris	not provided	N/A	Web-based Comments	52557, 52558	34
Dacus	Chris	not provided	N/A	Web-based Comments	10729	24
Dadd	Sara	not provided	N/A	Web-based comments	57111	35
Daddow	Jean	not provided	N/A	Web-based Comments	16841	24
Daddy	Michelle	not provided	N/A	Web-based Comments	52816	34
Daddy	Michelle	not provided	N/A	Web-based Comments	24333	24
dadlani	deepak	not provided	N/A	Web-based Comments	12588	24
Dagley	Joyce	not provided	N/A	Web-based Comments	18482	24
D'Agostino	Michael	not provided	N/A	Web-based Comments	24060	24
Dahagam	Aditya	not provided	N/A	Web-based Comments	7075	24
Dahavarian	Sophie	not provided	N/A	Web-based Comments	46348, 46349	34
Dahl	Jennifer	not provided	N/A	Web-based Comments	17175	24
Dahl	Mary	not provided	N/A	Web-based Comments	50963	34
Dahl	Shani	not provided	N/A	Web-based Comments	28570	24
Dahl	Sue	not provided	N/A	Web-based Comments	29517	24
Dahl	Terje Berge	not provided	N/A	Web-based Comments	30320	24
Dahlberg	Nancy	not provided	N/A	Web-based Comments	24835	24
Dahlem	Betty	not provided	N/A	Web-based comments	57168	35
Dahlgren	Deborah	not provided	N/A	Web-based Comments	52775	34
Dahlgren	Lillemor	not provided	N/A	Web-based Comments	51037	34
Dahlgren	Lillemor	not provided	N/A	Web-based Comments	21163	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Dahlgren, PhD	Mr. Shelley	not provided	N/A	Web-based Comments	24680	24
Dahlin	Christie	christiemae2@gmail.com	N/A	Web-based comments	1682, 2272	3
Dahlin	Heidi	not provided	N/A	Web-based Comments	15565	24
Dahlman	Jill	not provided	N/A	Web-based Comments	17501	24
Dahlstrand	Lucia	not provided	N/A	Web-based Comments	21932	24
Dahri	Erika	not provided	N/A	Web-based Comments	55235	34
Daidone	Angela	not provided	N/A	Web-based Comments	50661	34
Daidone	Angela	not provided	N/A	Web-based Comments	7895	24
Daigle	Robert	not provided	N/A	Web-based Comments	27242	24
Dail	Michelle	not provided	N/A	Web-based Comments	51378, 51379	34
Dail, Jr.	Randall	not provided	N/A	Web-based Comments	26614	24
Dailey	Debra	not provided	N/A	Web-based Comments	12514	24
Dailey	Kim	not provided	N/A	Web-based Comments	20167	24
Daily	Cleo	not provided	N/A	Web-based Comments	51878	34
Daily	G Allen	not provided	N/A	Web-based Comments	46528	34
Daily	G Allen	not provided	N/A	Web-based Comments	14621	24
Daily	John	not provided	N/A	Web-based Comments	17998	24
Daily	Sabrina	not provided	N/A	Web-based Comments	27978	24
Dainas	Brandon	not provided	N/A	Web-based Comments	9365	24
Daiss	Becky	not provided	N/A	Web-based Comments	55099	34
Daiss	Becky	not provided	N/A	Web-based Comments	8908	24
Daiter	Karen	not provided	N/A	Web-based Comments	19075	24
daitsman	mark	not provided	N/A	Web-based Comments	22910	24
Daiute	Diane	not provided	N/A	Web-based Comments	50459	34
Dal Cais	Sandra	not provided	N/A	Web-based comments	57043	35
Dal Cero	Marianne	not provided	N/A	Web-based Comments	22672	24
Dalbey	Randy	not provided	N/A	Web-based Comments	26632	24
Dale	Felicia	not provided	N/A	Web-based Comments	57815	34
Dale	Michele	not provided	N/A	Web-based Comments	54799	34
DALE	ROB	robndale56@aol.com	N/A	Web-based comments	2280	N/A
Dalessandro	Erin	not provided	N/A	Web-based Comments	45701	34
D'Alessandro	Jenette	not provided	N/A	Web-based Comments	53222	34
D'Alessandro	Jenette	not provided	N/A	Web-based Comments	17124	24
D'Alessandro	Keith	not provided	N/A	Web-based Comments	19871	24
Daley	Cornelia	not provided	N/A	Web-based Comments	11383	24
Daley	Paula	not provided	N/A	Web-based Comments	48318	34
Daley	Suzann	not provided	N/A	Web-based Comments	50654	34
Dalgety	Susan	not provided	N/A	Web-based Comments	58492	34
Dalla Casa	Guido	not provided	N/A	Web-based Comments	15328	24
Dalla Casa	Guido	not provided	N/A	Web-based Comments	15329	24
Dalla Oglio	Tiziana	not provided	N/A	Web-based Comments	30703	24
Dallari	M.cecilia	not provided	N/A	Web-based Comments	48017	34
Dallin	Eric	not provided	N/A	Web-based Comments	58609	34
Dallow	Ashley	not provided	N/A	Web-based comments	56931	35
Dallow	Ashley	not provided	N/A	Web-based Comments	51495, 51496	34
Dallow	Joe	not provided	N/A	Web-based comments	56932	35
Dallow	Julie	not provided	N/A	Web-based comments	56933	35
Dallow	Julie	not provided	N/A	Web-based Comments	44391, 44392	34
Dallow	Steven	not provided	N/A	Web-based comments	56934	35
Dallow	Steven	not provided	N/A	Web-based Comments	55900	34
Dalman	Dustin	not provided	N/A	Web-based Comments	44270	34
Dalmia	Harivansh	not provided	N/A	Web-based Comments	15433	24
Dalnekoff	Cecilia	not provided	N/A	Web-based Comments	10417	24
Daloia	Lisa	not provided	N/A	Web-based Comments	45014	34
Daloia	Lisa	not provided	N/A	Web-based Comments	21540	24
Dalpino	Jane Dalpino	not provided	N/A	Web-based Comments	49117	34
Dalporto	Amy	not provided	N/A	Web-based Comments	45829	34
Dalporto	Amy	not provided	N/A	Web-based Comments	7602	24
Dalsciso	Julie	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58724	N/A
Dalsemer	Terry	not provided	N/A	Web-based Comments	30365	24
Dalton	Ferrill	FerrillDalton@gmail.com	N/A	Web-based comments	5231	N/A
Dalton	John	not provided	N/A	Web-based Comments	17999	24
Dalton	Lee	not provided	N/A	Web-based Comments	45774	34
Dalton	Marsha	not provided	N/A	Web-based Comments	23067	24
Dalton	Mary Ann	not provided	N/A	Web-based Comments	53920	34
Dalton	Suzanne	not provided	N/A	Web-based Comments	54963	34
Dalton	Suzanne	not provided	N/A	Web-based Comments	29991	24
Daly	Ann-Marie	not provided	N/A	Web-based Comments	48182	34
Daly	Christopher	not provided	N/A	Web-based Comments	11004	24
Daly	Christopher	not provided	N/A	Web-based Comments	11005	24

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Daly	Erik	not provided	N/A	Web-based Comments	14182	24
Daly	Julie	not provided	N/A	Web-based Comments	18827	24
Daly	Paul	not provided	N/A	Web-based Comments	45541, 45542	34
Daly	Susan	not provided	N/A	Web-based Comments	58630	34
Dam	Irma Van	not provided	N/A	Web-based Comments	49538	34
Dambrosio	Sandra	not provided	N/A	Web-based Comments	51073	34
D'Ambrosio	Sandrs	not provided	N/A	Web-based Comments	28237	24
Dambrun	Nicole	not provided	N/A	Web-based Comments	25229	24
DAMESEK	HARRIET	not provided	N/A	Web-based Comments	49170	34
Damian	Matilde	not provided	N/A	Web-based Comments	47277, 47278	34
Damian	Matilde	not provided	N/A	Web-based Comments	23604	24
Damico	Janet	not provided	N/A	Web-based Comments	16584	24
Damico	Nicole	nickivision@me.com	N/A	Web-based comments	3873*	N/A
DAMICO	SHARON	not provided	N/A	Web-based Comments	28645	24
D'Amore	Michael	not provided	N/A	Web-based Comments	24061	24
d'amour	roland	not provided	N/A	Web-based Comments	27600	24
Dampf	Ethan	not provided	N/A	Web-based Comments	14282	24
Dampier	Claudia	not provided	N/A	Web-based Comments	11178	24
Damron	Patricia	not provided	N/A	Web-based Comments	25733	24
Dan	Rose De	not provided	N/A	Web-based Comments	51554	34
Dana	Krista	not provided	N/A	Web-based Comments	46997	34
Dancoe	Andrew	not provided	N/A	Web-based comments	57729	35
dander	katherine	not provided	N/A	Web-based Comments	56330, 56331	34
Dane	Aase	not provided	N/A	Web-based Comments	52969	34
Dane	David	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	5591	N/A
Dane	Dorothy	not provided	N/A	Web-based Comments	13256	24
Danehy	Hilary	not provided	N/A	Web-based Comments	46727	34
Danehy	John	jacknoir@mac.com	N/A	Web-based comments	5638	N/A
DANELL-TEPPER	CHRISTINE	not provided	N/A	Web-based Comments	10907	24
Dang	Bickly	not provided	N/A	Web-based Comments	9161	24
D'Angelo	Jennifer	not provided	N/A	Web-based Comments	17176	24
Dangle	Patricia	not provided	N/A	Web-based Comments	55046	34
Dangle	Patricia	not provided	N/A	Web-based Comments	25734	24
daniel	chris	not provided	N/A	Web-based Comments	10730	24
Daniel	Kian	not provided	N/A	Web-based Comments	54671	34
Daniel	Marc	not provided	N/A	Web-based Comments	22330	24
Daniel	Maxine	not provided	N/A	Web-based Comments	23749	24
Daniel	Tom	danielfarms@gmail.com	N/A	Web-based comments	5174	N/A
Danieli	Thomas	not provided	N/A	Web-based Comments	30483	24
Daniels	Carol	not provided	N/A	Web-based Comments	9910	24
Daniels	Courtney	not provided	N/A	Web-based Comments	52704	34
Daniels	Courtney	not provided	N/A	Web-based Comments	11399	24
Daniels	Elliot	not provided	N/A	Web-based Comments	46553, 46554	34
Daniels	Elliot	not provided	N/A	Web-based Comments	13967	24
Daniels	Jane	not provided	N/A	Web-based Comments	58640	34
Daniels	Jordan	not provided	N/A	Web-based Comments	18314	24
Daniels	Karil	not provided	N/A	Web-based Comments	19274	24
Daniels	Kat	badkat7@yahoo.com	N/A	Web-based comments	6578	1
Daniels	Laura	not provided	N/A	Web-based Comments	45482	34
Daniels	Laura	not provided	N/A	Web-based Comments	20623	24
daniels	marilyn	not provided	N/A	Web-based Comments	22772	24
Danielson	Emily	not provided	N/A	Web-based Comments	52283	34
Danielson	Sarah A	not provided	N/A	Web-based Comments	56348	34
Danielson	Sarah A	not provided	N/A	Web-based Comments	28423	24
Danila	Deborah	not provided	N/A	Web-based Comments	12384	24
Danilyuk	Polina	pdanilyuk@gmail.com	N/A	Web-based comments	2787	N/A
Danilyuk	Polina	pdanilyuk@gmail.com	N/A	US Mail or commercial carrier (UPS, FedEx)	31748	N/A
Dankert	David	not provided	N/A	Web-based Comments	11987	24
Dankwort	Rudolf	not provided	N/A	Web-based Comments	45120, 45150	34
Dankworth	Jon	jdankworth9@gmail.com	N/A	Web-based comments	6004	1
Danley	Michelle	not provided	N/A	Web-based Comments	24334	24
DAnna	Marie	not provided	N/A	Web-based Comments	51260	34
Danner	Jen	not provided	N/A	Web-based Comments	53285, 53286	34
Danner	Jen	not provided	N/A	Web-based Comments	17113	24
Danner	Rhonda	not provided	N/A	Web-based Comments	26894	24
Dannhauser	Janice	not provided	N/A	Web-based Comments	16672	24
D'Annunzio	Patrick	not provided	N/A	Web-based Comments	25900	24
Danos	Jacqueline	not provided	N/A	Web-based Comments	16110	24
danowski	k	not provided	N/A	Web-based Comments	51999, 52000	34
danowski	k	not provided	N/A	Web-based Comments	18973	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Dansak	Ken	not provided	N/A	Web-based Comments	19970	24
D'Antonio	Karin	not provided	N/A	Web-based Comments	19277	24
Danzker	Gregory	not provided	N/A	Web-based Comments	15273	24
Daole	Michael	not provided	N/A	Web-based Comments	24062	24
Daoust	Lorraine	not provided	N/A	Web-based Comments	21838	24
Dapra	vera	not provided	N/A	Web-based Comments	48761	34
Darbro	Michelle	not provided	N/A	Web-based Comments	24335	24
Darby	Alex	not provided	N/A	Web-based comments	57135	35
Darby	Chan	not provided	N/A	Web-based Comments	10455	24
Darby	E.	not provided	N/A	Web-based Comments	54345	34
Darby	Mandy	not provided	N/A	Web-based Comments	22304	24
Darby	Shirley	not provided	N/A	Web-based Comments	28947	24
D'Arco	Joe	joe.darco461@gmail.com	N/A	Web-based comments	31882	1
D'Arcy	Margaret and Keith	not provided	N/A	Web-based Comments	22520	24
Dardarian	Jessica	not provided	N/A	Web-based Comments	17417	24
Darden	Ruth	not provided	N/A	Web-based Comments	58125, 55616	16, 34
Darden	Ruth	not provided	N/A	Web-based Comments	27861	24
DARDENNE	Virginie	not provided	N/A	Web-based comments	1579	1
Dare	Cheryl	not provided	N/A	Web-based Comments	45674, 45675	34
Dare	Tracey	not provided	N/A	Web-based Comments	44613	34
Darguesse	Carole	not provided	N/A	Web-based Comments	10074	24
Darin	John	not provided	N/A	Web-based Comments	18000	24
Darish	Susan	not provided	N/A	Web-based Comments	52424	34
Darish	Susan	not provided	N/A	Web-based Comments	29641	24
Darke	Deb	not provided	N/A	Web-based Comments	12289	24
Darling	Carrie	not provided	N/A	Web-based comments	57526	35
Darling	Carrie	not provided	N/A	Web-based Comments	10196	24
Darling	Deann	not provided	N/A	Web-based Comments	58667, 58668	34
Darling Kovanic	Gillian	not provided	N/A	Web-based Comments	15037	24
Darlington	Alyssa	not provided	N/A	Web-based Comments	51955	34
Darlington	Alyssa	not provided	N/A	Web-based Comments	7502	24
Darlington	Beth	not provided	N/A	Web-based Comments	51736, 51737	34
Darlington	Beth	not provided	N/A	Web-based Comments	9021	24
Darlington	Kimble	not provided	N/A	Web-based Comments	49923	34
darlow	david	daviddarlow1@hotmail.com	N/A	Web-based comments	2092	N/A
Darmangeat	Pierre	not provided	N/A	Web-based Comments	53446	34
Darmon	Sylvie	not provided	N/A	Web-based Comments	30083	24
Darnell	Barbara	not provided	N/A	Web-based Comments	49913	34
Darnell	Barbara	not provided	N/A	Web-based Comments	8663	24
Darnell	Don	not provided	N/A	Web-based Comments	13015	24
Darnell	Joanna	not provided	N/A	Web-based Comments	58281	16
Darner	Renee	not provided	N/A	Web-based Comments	26842	24
Darnis	Gisele	not provided	N/A	Web-based Comments	15097	24
Darr	Alison	not provided	N/A	Web-based Comments	7407	24
Darragh	Antonia	not provided	N/A	Web-based Comments	8360	24
Darsie	Deborah	not provided	N/A	Web-based Comments	51630	34
Darsie	Jean	jdarsie@comcast.net	N/A	Web-based comments	6273	N/A
Darsley	Nick	not provided	N/A	Web-based Comments	25195	24
Das	Anita	not provided	N/A	Web-based Comments	53702, 53703	34
Das	Anita	not provided	N/A	Web-based Comments	7970	24
Das	Shiva and Karima	not provided	N/A	Web-based Comments	28971	24
D'Ascoli	Camille	not provided	N/A	Web-based Comments	9739	24
Dasgupta	Sumit	not provided	N/A	Web-based Comments	49486	34
Dash	Amitav	not provided	N/A	Web-based Comments	47273, 48200	34
Dash	Amitav	not provided	N/A	Web-based Comments	7588	24
Dashbach	Patricia	not provided	N/A	Web-based comments	57066	35
Dasi	Ruparamesvari	not provided	N/A	Web-based Comments	27821	24
Dassing	Dwayne	not provided	N/A	Web-based Comments	13396	24
Daub	Ginger	not provided	N/A	Web-based Comments	57783	34
Daub	Mary	not provided	N/A	Web-based Comments	23246	24
Daubel	Cody	codydaubel@outlook.com	N/A	Web-based comments	2505	N/A
Dauble	Dawn	daubled@gmail.com	N/A	Web-based comments	32037	1
Daubner	Linda C	not provided	N/A	Web-based Comments	21469	24
daudier	cm	not provided	N/A	Web-based Comments	56297	34
Daugherty	Amy	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4732	N/A
Daugherty	Rita	not provided	N/A	Web-based Comments	27134	24
Daugherty	Robert	not provided	N/A	Web-based Comments	27243	24
Daughety	Rick	mrwabash@gmail.com	N/A	Web-based comments	5459	N/A
Daughtry	Betty	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58393	N/A
Daughtry	James	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32338	N/A

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Daum	Chris	not provided	N/A	Web-based Comments	52770	34
Daum	Kim	not provided	N/A	Web-based Comments	20168	24
Dautaj	âˆšÃ–sa	not provided	N/A	Web-based comments	56848	35
Davenport	Donald	not provided	N/A	Web-based Comments	13055	24
Davenport	June	not provided	N/A	Web-based Comments	18933	24
Davenport	Mary Beth	not provided	N/A	Web-based Comments	47793	34
Davenport	Patricia B	not provided	N/A	Web-based Comments	48479, 48480	34
Davenport	Patricia B	not provided	N/A	Web-based Comments	25881	24
Davenport	Susan	not provided	N/A	Web-based Comments	29642	24
Davenport	Unreadable	not provided	N/A	Web-based Comments	26818	24
Davey	John	jpdavey3@gmail.com	N/A	Web-based comments	5440	N/A
David	Betty	not provided	N/A	Web-based Comments	9089	24
David	Connie	not provided	N/A	Web-based Comments	11302	24
David	Helen	not provided	N/A	Web-based Comments	15602	24
David	Karen	not provided	N/A	Web-based Comments	19076	24
David	Megan	paul-megan@msn.com	N/A	Web-based comments	5419	N/A
Davideit	Dennis	not provided	N/A	Web-based Comments	12679	24
Davidow	Jacqueline	not provided	N/A	Web-based Comments	16111	24
Davids	Charles	not provided	N/A	Web-based Comments	10497	24
Davidsen	Judith	not provided	N/A	Web-based Comments	18582	24
Davidson	Amber	not provided	N/A	Web-based Comments	7567	24
DAVIDSON	ANNIE	not provided	N/A	Web-based Comments	51641	34
DAVIDSON	ANNIE	not provided	N/A	Web-based Comments	8297	24
Davidson	Carol Ann	not provided	N/A	Web-based Comments	10060	24
Davidson	Charles	phat_hawg@yahoo.com	N/A	Web-based comments	2833	N/A
Davidson	Claire	not provided	N/A	Web-based Comments	11123	24
Davidson	Elizabeth	not provided	N/A	Web-based Comments	47171	34
Davidson	Elizabeth	not provided	N/A	Web-based Comments	13731	24
Davidson	Jacqueline	not provided	N/A	Web-based Comments	16112	24
Davidson	Jennifer	not provided	N/A	Web-based Comments	17177	24
Davidson	Katherine	not provided	N/A	Web-based Comments	19440	24
Davidson	Kathryn	not provided	N/A	Web-based Comments	19633	24
Davidson	Margaret	not provided	N/A	Web-based Comments	22441	24
Davidson	Nora	not provided	N/A	Web-based Comments	25355	24
Davidson	Rochelle	not provided	N/A	Web-based Comments	27557	24
Davidson	Sally	not provided	N/A	Web-based Comments	49156	34
Davidson	Teri	not provided	N/A	Web-based Comments	45733	34
Davidson-Brewer	Tony	not provided	N/A	Web-based Comments	30808	24
Daviduk	Miranda	not provided	N/A	Web-based Comments	58444	34
Davies	Cathy	not provided	N/A	Web-based comments	56872	35
Davies	Cathy	not provided	N/A	Web-based Comments	10361	24
Davies	Charlene	not provided	N/A	Web-based Comments	55296	34
Davies	Dorothy	not provided	N/A	Web-based Comments	52361, 52362	34
Davies	Dorothy	not provided	N/A	Web-based Comments	13257	24
DAVIES	ELISE	not provided	N/A	Web-based Comments	13688	24
Davies	Janet	not provided	N/A	Web-based Comments	16585	24
Davies	Karin	not provided	N/A	Web-based Comments	19278	24
Davies	Kathryn	not provided	N/A	Web-based Comments	19634	24
Davies	Laura	not provided	N/A	Web-based comments	57652	35
Davies	Mark	not provided	N/A	Web-based Comments	22911	24
Davies	Nancy	not provided	N/A	Web-based Comments	24836	24
Davies	Peter	not provided	N/A	Web-based Comments	26246	24
Davies	Sue	not provided	N/A	Web-based Comments	47680	34
Davignon	Mackenzie	not provided	N/A	Web-based comments	57263	35
Davis	Andrea	not provided	N/A	Web-based Comments	7734	24
Davis	Andrew Crystal	not provided	N/A	Web-based Comments	7864	24
Davis	Ann	not provided	N/A	Web-based Comments	8021	24
Davis	Ashlee	not provided	N/A	Web-based Comments	46325, 46326	34
Davis	Brenna	not provided	N/A	Web-based Comments	9434	24
DAVIS	CARLA	not provided	N/A	Web-based Comments	9820	24
Davis	Carol	not provided	N/A	Web-based Comments	54750	34
Davis	Carolyn	not provided	N/A	Web-based Comments	10148	24
Davis	Carolyn	not provided	N/A	Web-based Comments	10149	24
DAVIS	CASEY	caseydavisdesign@gmail.com	N/A	Web-based comments	4154	N/A
Davis	Catherine	not provided	N/A	Web-based Comments	10271	24
Davis	Celia	not provided	N/A	Web-based Comments	10437	24
Davis	Charlene	not provided	N/A	Web-based Comments	48906	34
Davis	Cleve	clevebdavis@gmail.com	N/A	Web-based comments	3688	N/A
Davis	Crystal	not provided	N/A	Web-based Comments	11456	24
Davis	Cynthia	not provided	N/A	Web-based Comments	11502	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Davis	Cynthia	not provided	N/A	Web-based Comments	11503	24
Davis	Daniel	not provided	N/A	Web-based Comments	11730	24
Davis	David	not provided	N/A	Web-based Comments	11988	24
Davis	Debbie	not provided	N/A	Web-based Comments	12315	24
Davis	Deborah	not provided	N/A	Web-based Comments	12385	24
Davis	Debra	not provided	N/A	Web-based Comments	12515	24
Davis	Deirdre	not provided	N/A	Web-based Comments	12592	24
Davis	Donna	not provided	N/A	Web-based Comments	13122	24
Davis	Dorothy	j.d.davis@juno.com	N/A	Web-based comments	4507	N/A
Davis	Elaine	not provided	N/A	Web-based Comments	54326	34
Davis	Elizabeth	not provided	N/A	Web-based Comments	13732	24
Davis	Ellen	not provided	N/A	Web-based Comments	13901	24
Davis	Emilee	nathan.emileedavis@gmail.com	N/A	Web-based comments	32044	N/A
Davis	Gail	not provided	N/A	Web-based Comments	14676	24
Davis	Gary	garydavis1977@me.com	N/A	Web-based comments	3019	N/A
Davis	Hannah	not provided	N/A	Web-based Comments	15398	24
Davis	Heather	not provided	N/A	Web-based Comments	51954, 52701, 52702	34
Davis	Jacqueline	daviscandee1@aol.com	N/A	Web-based comments	2325, 2671	N/A
Davis	Janae	not provided	N/A	Web-based Comments	16457	24
Davis	Jean	not provided	N/A	Web-based Comments	47399	34
Davis	Jeffrey	not provided	N/A	Web-based Comments	17072	24
Davis	Jennifer	not provided	N/A	Web-based Comments	17178	24
Davis	Jerry	not provided	N/A	Web-based Comments	17349	24
Davis	Jessica	not provided	N/A	Web-based Comments	17418	24
Davis	Jim	not provided	N/A	Web-based Comments	17574	24
Davis	Joan	not provided	N/A	Web-based Comments	56568	34
davis	john	not provided	N/A	Web-based Comments	18002	24
Davis	John	not provided	N/A	Web-based Comments	18001	24
davis	johnny	not provided	N/A	Web-based Comments	18232	24
Davis	Jon	not provided	N/A	Web-based Comments	18248	24
Davis	Joyce	not provided	N/A	Web-based Comments	18483	24
Davis	Judith	not provided	N/A	Web-based Comments	18583	24
Davis	Kara shea	not provided	N/A	Web-based Comments	19028	24
Davis	Karen	kadavis9801@gmail.com	N/A	Hand-delivered or oral testimony (personally delivered)	4703, 5545	N/A
Davis	Karen	kadavis9801@gmail.com	N/A	Web-based comments	117	1
Davis	Karen	not provided	N/A	Web-based Comments	19077	24
Davis	Karl	not provided	N/A	Web-based Comments	19296	24
Davis	Kevin	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32425	N/A
Davis	Laura	not provided	N/A	Web-based Comments	20624	24
Davis	Lauren	laurengrummel@gmail.com	N/A	Web-based comments	1214	N/A
Davis	Lee	not provided	N/A	Web-based Comments	20928	24
Davis	Linda	not provided	N/A	Web-based Comments	21240	24
Davis	Linda	not provided	N/A	Web-based Comments	21241	24
Davis	Lisa	lisadavis1155@gmail.com	N/A	Web-based comments	2333, 4080	N/A
Davis	Lisa	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	2255	N/A
Davis	Marilyn	not provided	N/A	Web-based Comments	22773	24
davis	mark	markhowarddavis1@gmail.com	N/A	Web-based comments	6390	N/A
Davis	Mark	mdavis@tidewater.com	N/A	Web-based comments	4099	N/A
Davis	Marydene	not provided	N/A	Web-based Comments	23578	24
Davis	Melissa	not provided	N/A	Web-based Comments	23881	24
Davis	Meredy	not provided	N/A	Web-based Comments	51532	34
davis	Michelle	not provided	N/A	Web-based Comments	24336	24
Davis	Milton	not provided	N/A	Web-based Comments	24518	24
Davis	Nathan	davis.nathan5@gmail.com	N/A	Web-based comments	32050	N/A
Davis	Neal	secretchimp@hotmail.com	N/A	Web-based comments	55	1
Davis	Nicole	not provided	N/A	Web-based Comments	25230	24
Davis	Nina	not provided	N/A	Web-based Comments	49723	34
Davis	Pauline	not provided	N/A	Web-based Comments	52787	34
Davis	Pia	not provided	N/A	Web-based Comments	26402	24
Davis	Ramona	not provided	N/A	Web-based Comments	26601	24
Davis	Richard	not provided	N/A	Web-based Comments	26958	24
Davis	Robin	not provided	N/A	Web-based Comments	45373, 54399	34
Davis	Rosemarie	not provided	N/A	Web-based Comments	27746	24
Davis	Roy	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32401	13
Davis	Ryan	not provided	N/A	Web-based Comments	56271, 56272	34
Davis	Scheree	not provided	N/A	Web-based Comments	28451	24
Davis	Scott	not provided	N/A	Web-based Comments	44991	34
Davis	Scott	not provided	N/A	Web-based Comments	28464	24
Davis	Sharon	not provided	N/A	Web-based Comments	56542	34
Davis	Sharon	not provided	N/A	Web-based Comments	28646	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Davis	Shellee	not provided	N/A	Web-based Comments	28825	24
Davis	Shonna	not provided	N/A	Web-based Comments	44809	34
Davis	Stephanie	not provided	N/A	Web-based Comments	48410	34
Davis	Steven	not provided	N/A	Web-based Comments	29425	24
Davis	Steven	not provided	N/A	Web-based comments	2927	8
Davis	Susan	not provided	N/A	Web-based Comments	29643	24
Davis	Susan	not provided	N/A	Web-based Comments	29644	24
Davis	Suzanna	not provided	N/A	Web-based Comments	29974	24
Davis	Sydney	not provided	N/A	Web-based Comments	30051	24
Davis	Thomas	not provided	N/A	Web-based Comments	30484	24
Davis	Thomas	not provided	N/A	Web-based Comments	58230	16
Davis	Todd	not provided	N/A	Web-based Comments	55645	34
Davis	Tom	tdavis@wsfb.com	N/A	Web-based comments	3040	10
Davis	Vanessa	not provided	N/A	Web-based Comments	31063	24
Davis	Victoria	not provided	N/A	Web-based Comments	31190	24
Davis	Virginia	not provided	N/A	Web-based Comments	58038, 50330	16, 34
Davis	Virginia	not provided	N/A	Web-based Comments	31278	24
Davis	Wayne	not provided	N/A	Web-based Comments	31392	24
Davis	Wendy	not provided	N/A	Web-based Comments	31416	24
Davis	William	not provided	N/A	Web-based Comments	45852	34
Davis-Goff	Annabel	not provided	N/A	Web-based Comments	8157	24
Davison	David	not provided	N/A	Web-based Comments	50556	34
Davison	David	not provided	N/A	Web-based Comments	11989	24
Davison	Jennifer	not provided	N/A	Web-based Comments	56242	34
Davitt	Lori	not provided	N/A	Web-based Comments	21779	24
Davlin	Sharon	not provided	N/A	Web-based Comments	28647	24
Davtyan	Susanna	not provided	N/A	Web-based Comments	29939	24
Dawe	Linda	not provided	N/A	Web-based Comments	21242	24
dawid	anne	not provided	N/A	Web-based Comments	51135	34
Dawid	Anne	not provided	N/A	Web-based Comments	8183	24
Dawid	Annie	not provided	N/A	Web-based Comments	8298	24
Dawsey	Sunny	sunnydwright@hotmail.com	N/A	Web-based comments	2702	N/A
Dawson	Adele	not provided	N/A	Web-based Comments	47706	34
Dawson	Adele	not provided	N/A	Web-based Comments	7065	24
Dawson	Christina M	not provided	N/A	Web-based Comments	10889	24
Dawson	James	not provided	N/A	Web-based Comments	16196	24
Dawson	Karen	not provided	N/A	Web-based Comments	19078	24
Dawson	Kathy	kathy.dawson@gmail.com	N/A	Web-based comments	3554	3
Dawson	Krystale	not provided	N/A	Web-based Comments	20430	24
Dawson	Nancy	not provided	N/A	Web-based Comments	24837	24
Dawson	Nick	not provided	N/A	Web-based comments	57201	35
Dawson	Phyllis	not provided	N/A	Web-based Comments	26387	24
Dax	Robin	not provided	N/A	Web-based Comments	27475	24
Dax	Susan	not provided	N/A	Web-based Comments	29645	24
Day	Arlene	not provided	N/A	Web-based Comments	8425	24
Day	Christopher	not provided	N/A	Web-based Comments	58371	28
Day	D.	not provided	N/A	Web-based Comments	11594	24
Day	Denise	not provided	N/A	Web-based Comments	57886, 58200	16
Day	Douglas	not provided	N/A	Web-based Comments	13324	24
Day	James	not provided	N/A	Web-based Comments	16197	24
Day	Jennifer	not provided	N/A	Web-based Comments	47274, 47275	34
Day	Jonathan	not provided	N/A	Web-based Comments	18281	24
Day	Kathy	not provided	N/A	Web-based Comments	19693	24
Day	Margaret	not provided	N/A	Web-based Comments	52727	34
Day	Mary	not provided	N/A	Web-based Comments	23247	24
Day	Misty	not provided	N/A	Web-based Comments	24570	24
Day	Tawne	not provided	N/A	Web-based Comments	51785	34
Day	Teresa	showcase@scspecialties.com	N/A	Web-based comments	4127	N/A
Day	Valerie	not provided	N/A	Web-based Comments	31019	24
Day	Zoe	not provided	N/A	Web-based Comments	56485	34
Daykin	Laura	not provided	N/A	Web-based Comments	20625	24
Dayton	Gary	not provided	N/A	Web-based Comments	14763	24
Dayton	Lauri	daytonlauri@gmail.com	N/A	US Mail or commercial carrier (UPS, FedEx)	58801	N/A
Dayton	Shulene	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58312	11
de	Tom	tvandewater@yahoo.com	N/A	Web-based comments	4309	N/A
De Agrella	Noble	not provided	N/A	Web-based Comments	25333	24
De Andrade	Luci	not provided	N/A	Web-based Comments	21930	24
de Arteaga	Jose	not provided	N/A	Web-based Comments	18335	24
de Arteaga	Jose	not provided	N/A	Web-based Comments	18336	24
de Avila	Lisa	not provided	N/A	Web-based Comments	21541	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
de Backer	Anne	not provided	N/A	Web-based Comments	8184	24
De Beck	Robert	not provided	N/A	Web-based Comments	27244	24
De Block	Pascale	not provided	N/A	Web-based comments	57709	35
de Bruyn	Cheryn	not provided	N/A	Web-based Comments	10684	24
de Castro	Brian	not provided	N/A	Web-based Comments	9467	24
de Cordoba	Ellen	not provided	N/A	Web-based Comments	13902	24
De Coster	Donna	not provided	N/A	Web-based Comments	13123	24
De Decker	Erwin	not provided	N/A	Web-based Comments	14256	24
de Gil	Deborah	not provided	N/A	Web-based Comments	12386	24
De Greef	Evi	not provided	N/A	Web-based comments	56704	35
de gregorio	ermanno	not provided	N/A	Web-based Comments	14246	24
de gregorio	klef	not provided	N/A	Web-based Comments	20299	24
de gregorio	lino	not provided	N/A	Web-based Comments	21511	24
De Haan	Frank	not provided	N/A	Web-based Comments	14526	24
De Hart	Carol	not provided	N/A	Web-based comments	57648	35
De Jasu	Barry	not provided	N/A	Web-based Comments	8861	24
de Kip	C.	not provided	N/A	Web-based Comments	9690	24
de Kip	Mia	not provided	N/A	Web-based Comments	24005	24
De Koatz	Brian	not provided	N/A	Web-based Comments	9468	24
De Koatz	Carole	not provided	N/A	Web-based Comments	10075	24
DE LA CRETAZ	AVRIL	not provided	N/A	Web-based Comments	8553	24
De la Cruz	Edson	not provided	N/A	Web-based Comments	13480	24
De la Garza Blanca	Laura	not provided	N/A	Web-based Comments	20626	24
De La Giroday	Francois	not provided	N/A	Web-based Comments	14512	24
De la Haye	Jacques	not provided	N/A	Web-based Comments	16142	24
De La Rosa	Arthur	not provided	N/A	Web-based Comments	8458	24
de la Rosa-Young	Maria	not provided	N/A	Web-based Comments	22588	24
de Lange	Els	not provided	N/A	Web-based Comments	13984	24
De Lara	James	not provided	N/A	Web-based Comments	16198	24
De Larco	Chris	not provided	N/A	Web-based Comments	10731	24
De Leon	James	not provided	N/A	Web-based Comments	16199	24
De Luca	Serena	not provided	N/A	Web-based Comments	28538	24
De Maestri	Marie Jo	not provided	N/A	Web-based Comments	22733	24
De Miranda	Rea	not provided	N/A	Web-based Comments	26701	24
De Mirjian	Carolyn	not provided	N/A	Web-based Comments	10150	24
de Mul	Marc	not provided	N/A	Web-based Comments	22331	24
De Mulder	Gis[unreadable]	not provided	N/A	Web-based Comments	15091	24
de Neeve	Fay	not provided	N/A	Web-based Comments	14404	24
de Nijs	Sacha	not provided	N/A	Web-based Comments	27984	24
de nota	michela	not provided	N/A	Web-based Comments	24274	24
DE POLI	GIULIANA	not provided	N/A	Web-based Comments	15104	24
De Prima	R	not provided	N/A	Web-based Comments	26471	24
de Quinonez	Genoveva	not provided	N/A	Web-based Comments	14871	24
de Ruiter	Jessica	not provided	N/A	Web-based Comments	17419	24
De Sena	Lori	not provided	N/A	Web-based Comments	21780	24
De Simone	Anastasia	not provided	N/A	Web-based Comments	7709	24
De Sio	Elisse	not provided	N/A	Web-based Comments	13697	24
De Stefano	Ron	not provided	N/A	Web-based Comments	27617	24
de Tarnowsky	Juliana	not provided	N/A	Web-based Comments	18793	24
de Vengoechea Rudd	Helena	not provided	N/A	Web-based Comments	15634	24
De Ville	Anna	not provided	N/A	Web-based Comments	8125	24
De Vore	Vicki	not provided	N/A	Web-based Comments	31125	24
de Vries	E.	not provided	N/A	Web-based Comments	13420	24
de Vry	James	not provided	N/A	Web-based Comments	16200	24
de Young	Lea	not provided	N/A	Web-based Comments	20895	24
de Zeeuw	Ayla	not provided	N/A	Web-based comments	56821	35
Dea	Robert	not provided	N/A	Web-based Comments	51053	34
Deacon	Julie	not provided	N/A	Web-based Comments	49623	34
Deadman	Florence	not provided	N/A	Web-based Comments	47276	34
Deafenbaugh	Jordan	not provided	N/A	Web-based Comments	18315	24
Deal®	Judit	not provided	N/A	Web-based Comments	18551	24
Deal®	Judit	not provided	N/A	Web-based Comments	18552	24
Deal®	Judit	not provided	N/A	Web-based Comments	48942, 48943	34
Deak	Ernest	not provided	N/A	Web-based Comments	44384	34
Deal	B.J.	not provided	N/A	Web-based Comments	8587	24
Deal	Brandie	not provided	N/A	Web-based Comments	52456	34
Deal	Brandie	not provided	N/A	Web-based Comments	9362	24
Deam	Matt	not provided	N/A	Web-based Comments	23612	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Dean	Betty	not provided	N/A	Web-based Comments	9090	24
Dean	Daniel	not provided	N/A	Web-based Comments	11731	24
Dean	Dave	not provided	N/A	Web-based Comments	11909	24
Dean	Dennis	not provided	N/A	Web-based Comments	12680	24
Dean	John	not provided	N/A	Web-based Comments	18003	24
Dean	Patrica	not provided	N/A	Web-based Comments	50988	34
Dean	Sam	not provided	N/A	Web-based Comments	28056	24
Dean	Sandra	not provided	N/A	Web-based Comments	50563	34
Dean	Sarah	not provided	N/A	Web-based Comments	44939, 44940	34
Dean	Sarah	not provided	N/A	Web-based Comments	28340	24
Dean	Shanna	not provided	N/A	Web-based Comments	28573	24
Dean	Shelagh	not provided	N/A	Web-based Comments	52067	34
Deane	Jeanne	not provided	N/A	Web-based Comments	16940	24
Deane	Trish	not provided	N/A	Web-based Comments	30920	24
Deaner-Rogers	Joel	not provided	N/A	Web-based Comments	17907	24
DeAngelis	M. Alice	not provided	N/A	Web-based Comments	22212	24
DeAngelis	Maria	not provided	N/A	Web-based Comments	22589	24
deangelis	michael	not provided	N/A	Web-based Comments	24063	24
DeAngelo	Vic	not provided	N/A	Web-based Comments	51694	34
DeAngelo	Vic	not provided	N/A	Web-based Comments	31116	24
Deans-Smith	Susan	not provided	N/A	Web-based Comments	49421	34
deans-smith	Susan	not provided	N/A	Web-based Comments	29646	24
Dearborn	Carol	not provided	N/A	Web-based Comments	9911	24
Dearing	Deborah	not provided	N/A	Web-based Comments	12387	24
Dearing	Matt	not provided	N/A	Web-based comments	3324	N/A
DeArmey	Stephanie	not provided	N/A	Web-based Comments	44477	34
DeArmon	Eric	not provided	N/A	Web-based Comments	14096	24
DeArmond	Don	cpmud@reagan.com	N/A	Web-based comments	3167	N/A
Dearnaley	Carol-Ann	not provided	N/A	Web-based Comments	10069	24
Dearth	Justine	not provided	N/A	Web-based comments	57208	35
Deason	Bartley	not provided	N/A	Web-based Comments	53511	34
Deason	Bartley	not provided	N/A	Web-based Comments	8874	24
Deasy	Krista	not provided	N/A	Web-based Comments	48645	34
Deaton	Keith	deatonke@aol.com	N/A	Web-based comments	2650	N/A
Debaille	Caroline	not provided	N/A	Web-based Comments	58471	34
Debarea	connie	not provided	N/A	Web-based Comments	11303	24
Debarge	Michelle	not provided	N/A	Web-based Comments	24337	24
DeBarssi	Tamara	not provided	N/A	Web-based Comments	30118	24
Debbie	Stuart	dstaples220@yahoo.com	N/A	Web-based comments	4295	N/A
Debeck	Wendy	not provided	N/A	Web-based Comments	50940	N/A
DeBehnke	Rebecca	not provided	N/A	Web-based Comments	26720	24
debejare	cheryl	not provided	N/A	Web-based Comments	51808	34
DeBing	Therese	not provided	N/A	Web-based Comments	44852, 44928	34
DeBing	Therese	not provided	N/A	Web-based Comments	30456	24
DeBoer	Jon	not provided	N/A	Web-based Comments	18249	24
Debolt	Ann	not provided	N/A	Web-based Comments	52549, 52550	34
DeBolt	Ann	not provided	N/A	Web-based Comments	8022	24
Deboutin	Morgane	not provided	N/A	Web-based Comments	54687	34
DeBraal	Karen DeBraal	not provided	N/A	Web-based Comments	19258	24
DeBraal	Ronda	not provided	N/A	Web-based Comments	27677	24
DeBreto	Gina	not provided	N/A	Web-based Comments	15052	24
Debriel	Delphine	not provided	N/A	Web-based Comments	48172	34
DeBrito	Bella	not provided	N/A	Web-based Comments	8927	24
Debs	Eugene	not provided	N/A	Web-based Comments	14290	24
DeBuigne	Renee	rdebuigne@gmail.com	N/A	Web-based comments	5435	N/A
DeBusman	Nancy	not provided	N/A	Web-based Comments	50842, 55260	34
DeCamillis	Dori	not provided	N/A	Web-based Comments	13216	24
Decargouet	Yves	not provided	N/A	Web-based Comments	53676	34
Decargouet	Yves	not provided	N/A	Web-based Comments	31680	24
DeCaria	Tina	not provided	N/A	Web-based Comments	30672	24
DeCarla	Tina	not provided	N/A	Web-based Comments	45394, 45395	34
DeCarla	Tina	not provided	N/A	Web-based Comments	30673	24
DeCarlo	Kandi	not provided	N/A	Web-based Comments	19016	24
DeCesare	Dr. Stephen	not provided	N/A	Web-based Comments	13369	24
DeCiccio	Robyn	not provided	N/A	Web-based Comments	27547	24
Deck	Denise	not provided	N/A	Web-based Comments	53783	34
Deckard	Michael	not provided	N/A	Web-based Comments	55878, 55879	34
Deckard	Michael	not provided	N/A	Web-based Comments	24064	24
Decker	Chris	not provided	N/A	Web-based Comments	10732	24
Decker	Janet	not provided	N/A	Web-based Comments	50332	34

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Decker	Ruth	not provided	N/A	Web-based Comments	27862	24
Decker	Terri	not provided	N/A	Web-based Comments	30329	24
Decker-Smith	Janet	not provided	N/A	Web-based Comments	16586	24
Deckman	Mary	not provided	N/A	Web-based Comments	23248	24
Deckman	Tammy	not provided	N/A	Web-based Comments	30150	24
DeClements	Mari	not provided	N/A	Web-based Comments	22569	24
DeClusin	Rachael	not provided	N/A	Web-based comments	57719	35
Decook	Michael	not provided	N/A	Web-based Comments	52499	34
DeCorsey	James	not provided	N/A	Web-based Comments	16201	24
DeCoursey	Al DeCoursey	not provided	N/A	Web-based Comments	7150	24
DeCoursey	Barbara	not provided	N/A	Web-based Comments	8664	24
decoursey	jane	not provided	N/A	Web-based Comments	16472	24
DeCowsky	Greg	not provided	N/A	Web-based Comments	15230	24
Decrausaz	Cassandra	not provided	N/A	Web-based comments	447*	2
DeCristofaro	Jeffrey	not provided	N/A	Web-based comments	57694	35
DeCristofaro	Jeffrey	not provided	N/A	Web-based Comments	17073	24
Deddy	John	not provided	N/A	Web-based Comments	55774, 55775	34
Dede-Kaplan	Sigrid	not provided	N/A	Web-based Comments	28993	24
Dedell	Jacqueline	not provided	N/A	Web-based Comments	16113	24
Dederer	Mary	not provided	N/A	Web-based Comments	54914	34
Dederer	Mary	not provided	N/A	Web-based Comments	23249	24
Dedini	Erika	erikadedini@gmail.com	N/A	Web-based comments	174	1
Dedman	Meg	not provided	N/A	Web-based Comments	23775	24
Dee	Laurice	not provided	N/A	Web-based Comments	20817	24
Dee	Mike	not provided	N/A	Web-based Comments	24440	24
Deeds	Nancy	not provided	N/A	Web-based Comments	24838	24
Deegan	Terrence	not provided	N/A	Web-based Comments	30322	24
Deem	Carol	not provided	N/A	Web-based Comments	50932, 50933	34
Deeman	Dixie	not provided	N/A	Web-based Comments	12978	24
Deems	Robert M	not provided	N/A	Web-based Comments	27427	24
Deerimg	Nancy	not provided	N/A	Web-based Comments	24839	24
Deering	Michelle	not provided	N/A	Web-based Comments	24338	24
Deerr	Susan	not provided	N/A	Web-based Comments	29647	24
Deerwater	Raven	not provided	N/A	Web-based Comments	26659	24
Deerwester	Dawn	not provided	N/A	Web-based Comments	12206	24
Deery	Theresa	not provided	N/A	Web-based Comments	52664	34
Deery	Theresa	not provided	N/A	Web-based Comments	30427	24
Deese	Jo	not provided	N/A	Web-based Comments	17642	24
Deetz	Thomas	not provided	N/A	Web-based Comments	30485	24
DEFELICE	GAIL	not provided	N/A	Web-based Comments	14677	24
Defelice	Monica	not provided	N/A	Web-based Comments	49367	34
Defelice	Monica	not provided	N/A	Web-based Comments	24621	24
DeFelice	Paula	not provided	N/A	Web-based Comments	53546	34
Defense	Natural	not provided	N/A	Web-based comments	4548	24
Deffke	Donna	not provided	N/A	Web-based Comments	13124	24
Defilippo	Christian	not provided	N/A	Web-based Comments	44282	34
DeFilippo	Dagmara	not provided	N/A	Web-based Comments	11616	24
DeFilippo	Pat	not provided	N/A	Web-based Comments	25642	24
Deflorio	Rosemary	not provided	N/A	Web-based Comments	27758	24
DeFlurin	Robert	not provided	N/A	Web-based Comments	46629	34
Deforest	Virginia	not provided	N/A	Web-based Comments	31279	24
Defosse	josee	not provided	N/A	Web-based Comments	18339	24
Defrank	Deb	not provided	N/A	Web-based Comments	44803	34
DeFurio	Debra	not provided	N/A	Web-based Comments	12516	24
DeGabrielle	Camille	not provided	N/A	Web-based comments	6645	N/A
Degagne	Mary Pat	not provided	N/A	Web-based Comments	23544	24
Degardin	Maeva	maeva.degardin@hotmail.fr	N/A	Web-based comments	1213, 6334	1
Degas	Emma	not provided	N/A	Web-based comments	2545	1
DeGeorge	Elizabeth	not provided	N/A	Web-based Comments	13733	24
deGerald	Brenda	not provided	N/A	Web-based Comments	51772	34
DeGooyer	Elise	degooyer@fanwa.org	N/A	Web-based comments	4086	3
DeGoursey	Noreen	not provided	N/A	Web-based Comments	25373	24
DeGrand	Alan	not provided	N/A	Web-based Comments	7159	24
DeGrave	James	not provided	N/A	Web-based Comments	16202	24
DeGraw	Jenny	not provided	N/A	Web-based Comments	17288	24
Deguzman	Genevieve	not provided	N/A	Web-based Comments	54519	34
Deguzman	Mar	not provided	N/A	Web-based comments	57040	35
Dehart	Jennifer	not provided	N/A	Web-based Comments	51405	34
DeHart	Joanne	not provided	N/A	Web-based Comments	17796	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
deHart	Lyssa M.	not provided	N/A	Web-based Comments	22163	24
Dehart	Tisha	not provided	N/A	Web-based Comments	30702	24
DeHaven	Erin	not provided	N/A	Web-based Comments	14214	24
Dehne	Dustin	not provided	N/A	Web-based Comments	13392	24
Dehnert	Monty	not provided	N/A	Web-based Comments	55459	34
Deibert	Erik	not provided	N/A	Web-based Comments	14183	24
Deines	Sandy	not provided	N/A	Web-based Comments	58227	16
deischer	jeffrey	not provided	N/A	Web-based Comments	17074	24
Deitch	Mitzi	not provided	N/A	Web-based Comments	24577	24
Deitcher	Rachel	not provided	N/A	Web-based Comments	26512	24
Deits-Lebehn	Carlene	not provided	N/A	Web-based Comments	9841	24
Deitz	Michelle	not provided	N/A	Web-based Comments	24339	24
DeJaeger	Marla	not provided	N/A	Web-based Comments	23023	24
Dekanich	Annette	not provided	N/A	Web-based Comments	47311	34
Dekker	Beth	not provided	N/A	Web-based Comments	51407	34
DeKoff	Debra and David	not provided	N/A	Web-based Comments	12564	24
DeKoker	Danielle	not provided	N/A	Web-based Comments	11804	24
Del	Sarah	not provided	N/A	Web-based Comments	51951	34
Del Giudice	Christine	not provided	N/A	Web-based Comments	10908	24
Delahoussaye	Sallie	not provided	N/A	Web-based Comments	53510	34
DeLamater	Adair	not provided	N/A	Web-based Comments	7035	24
Delaney	Amy	not provided	N/A	Web-based Comments	45643	34
Delaney	Amy	not provided	N/A	Web-based Comments	7603	24
Delaney	Betty	not provided	N/A	Web-based Comments	9091	24
Delaney	Janet	not provided	N/A	Web-based Comments	48698, 48699	34
Delaney	Janet	not provided	N/A	Web-based Comments	16587	24
Delaney	Jill	not provided	N/A	Web-based Comments	17502	24
Delaney	Linda	not provided	N/A	Web-based Comments	53882, 53883	34
Delaney	Linda	not provided	N/A	Web-based Comments	21243	24
DeLaney	Linda	not provided	N/A	Web-based Comments	21244	24
Delaney	Lorraine	not provided	N/A	Web-based Comments	21839	24
Delaney	Tammy	not provided	N/A	Web-based Comments	30151	24
Delanoy	Katherine	not provided	N/A	Web-based Comments	19441	24
DeLapa / Owen	Paul / Bruce	not provided	N/A	Web-based Comments	26065	24
Delay	Dee	not provided	N/A	Web-based Comments	12573	24
DeLay	Eugene	not provided	N/A	Web-based Comments	14291	24
DELCAMPO	ROBERT	not provided	N/A	Web-based Comments	27245	24
Deldebbio	Kate	not provided	N/A	Web-based Comments	19371	24
DeLecuona	Russell	not provided	N/A	Web-based Comments	27832	24
DeLeone	Barb	not provided	N/A	Web-based Comments	8601	24
Delfine	Rouffignac	delfine.rouffignac@gmail.com	N/A	Web-based comments	427	N/A
Delfino	Sarah	not provided	N/A	Web-based Comments	51952	34
Delgadillo	Irma	not provided	N/A	Web-based comments	6343	1
Delgadillo	Victor	not provided	N/A	Web-based comments	4581	1
Delgado	Barbara	not provided	N/A	Web-based Comments	47522, 47523, 55254	34
Delgado	Crystal	not provided	N/A	Web-based Comments	11457	24
Delgado	Diane	diane_g_715@yahoo.com	N/A	Web-based comments	824	1
Delgado	Dolores	not provided	N/A	Web-based Comments	12992	24
Delgado	Lindsey	not provided	N/A	Web-based Comments	21492	24
Delgado	Marley	marleydelgado.93@gmail.com	N/A	Web-based comments	945	1
Delgado	Roxanne	not provided	N/A	Web-based Comments	47371	34
Delia	Ron	not provided	N/A	Web-based Comments	27618	24
Delia	Tony	not provided	N/A	Web-based Comments	44287, 48715	34
Delibos	John	not provided	N/A	Web-based Comments	49569	34
DELIBOS	JOHN	not provided	N/A	Web-based Comments	18004	24
DeLisle	Dianne	not provided	N/A	Web-based Comments	12934	24
Delisle	Sylvie	not provided	N/A	Web-based Comments	58435, 58436	34
Dell	Ryan	not provided	N/A	Web-based Comments	27907	24
Della Agostino	Carole	not provided	N/A	Web-based Comments	10076	24
Della Badia	Laura	not provided	N/A	Web-based Comments	20627	24
Della Costa	Chloe	not provided	N/A	Web-based Comments	10709	24
della torre	marina	not provided	N/A	Web-based Comments	22832	24
Dellen	Jerry	jerrydairy@cablespeed.com	N/A	Web-based comments	3379	N/A
dellenbaugh	meg	not provided	N/A	Web-based Comments	23776	24
Deller	Heidi	not provided	N/A	Web-based Comments	52819	34
Deller	Heidi	not provided	N/A	Web-based Comments	15566	24
Deller	Susie	not provided	N/A	Web-based Comments	29961	24
delles	susan	not provided	N/A	Web-based Comments	52133, 52134	34
delles	susan	not provided	N/A	Web-based Comments	29648	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Delli Paoli	Jacques	not provided	N/A	Web-based Comments	16143	24
Dellinger	Susan	not provided	N/A	Web-based Comments	45242	34
Delmache	Caroline	caroline.Delmache@gmail.com	N/A	Web-based comments	405, 1192, 1547, 1707, 1840, 2105	1
Delmasis	Julie	not provided	N/A	Web-based Comments	45598	34
DelMastro	Mary Jane	not provided	N/A	Web-based Comments	23523	24
Delme	Lucie	not provided	N/A	Web-based comments	1245	1
Delmer	James	not provided	N/A	Web-based Comments	16203	24
delmonico	carol	cae.delmonico@gmail.com	N/A	Web-based comments	4072	1
DelMonico	Kim	not provided	N/A	Web-based Comments	49966	34
Deloff	D.	not provided	N/A	Web-based Comments	11595	24
DeLoia	Jennifer	not provided	N/A	Web-based Comments	17179	24
DeLoma	Elizabeth	not provided	N/A	Web-based Comments	56016	34
Delong	Derek	derekdelongcc@gmail.com	N/A	Web-based comments	6591	N/A
DeLorenzo	Teresa	not provided	N/A	Web-based Comments	57750	34
DeLoye	Michael	not provided	N/A	Web-based Comments	24065	24
Delphine	Tournier	delphine.tournier@yahoo.fr	N/A	Web-based comments	307, 1804	1
Delporte	Unreadable	not provided	N/A	Web-based Comments	27966	24
Delprincipe	Denise	not provided	N/A	Web-based Comments	55565	34
DelRossi	Megan	not provided	N/A	Web-based Comments	23784	24
DeLuca	Crystal	not provided	N/A	Web-based comments	2666	6
DeLuca	Patricia	not provided	N/A	Web-based Comments	25735	24
DeLucia	Gennaro F.	not provided	N/A	Web-based Comments	52972, 52973	34
Deluna	Marie Claire	not provided	N/A	Web-based Comments	45783	34
DeLuna	William	not provided	N/A	Web-based comments	57378	35
Delvoye	Christelle	not provided	N/A	Web-based Comments	10817	24
DELYRIA	ELIZABETH	not provided	N/A	Web-based Comments	13734	24
demarais	jackie	not provided	N/A	Web-based Comments	16060	24
DeMarco	Ellen	not provided	N/A	Web-based Comments	13903	24
DeMarco	Joseph	not provided	N/A	Web-based Comments	18354	24
Demari	Sara	not provided	N/A	Web-based Comments	28284	24
DeMaris	C	not provided	N/A	Web-based Comments	49585	34
DeMark	Christi	not provided	N/A	Web-based Comments	54134	34
DeMars	Matthew	not provided	N/A	Web-based Comments	23641	24
Demarsin	David	not provided	N/A	Web-based Comments	11990	24
Dembski	Stephanie	not provided	N/A	Web-based Comments	53385	34
Demeester	Unreadable	alicedelina@gmail.com	N/A	Web-based comments	3411	N/A
DeMeritt	John	not provided	N/A	Web-based Comments	18005	24
Demetriou	Eleni	not provided	N/A	Web-based Comments	55291, 55292	34
Demian	Dr.	not provided	N/A	Web-based Comments	50333	N/A
Deming	Diana	not provided	N/A	Web-based Comments	56373	34
Deming	Diana	not provided	N/A	Web-based Comments	12764	24
Demissie	Yonas	y.demissie@wsu.edu	N/A	Web-based comments	6355	N/A
Demmon	Deborah	not provided	N/A	Web-based Comments	12388	24
DeMoll	Christine	not provided	N/A	Web-based Comments	10909	24
Demouy	Vanessa	not provided	N/A	Web-based Comments	31064	24
Dempsey	Alex	not provided	N/A	Web-based Comments	45357	34
DeMuth	Tamara	not provided	N/A	Web-based Comments	30119	24
den denHoed	Els	not provided	N/A	Web-based Comments	13985	24
DeNardis	Antoinette	not provided	N/A	Web-based Comments	8354	24
DeNatale	Joseph	not provided	N/A	Web-based Comments	18355	24
Denbow	Anne	not provided	N/A	Web-based Comments	8185	24
Dencs[unreadable]	Eva	not provided	N/A	Web-based comments	57638	35
Dendler	Kelli	not provided	N/A	Web-based Comments	19899	24
Dengler	Susanne	not provided	N/A	Web-based Comments	29947	24
Denhaan	Bonnie	not provided	N/A	Web-based Comments	9290	24
Denham	Jessica	not provided	N/A	Web-based Comments	17420	24
Denham	Judith	not provided	N/A	Web-based Comments	54231	34
Denham	Judith	not provided	N/A	Web-based Comments	18584	24
Denio	Larry	not provided	N/A	Web-based Comments	20574	24
DeNiro	Julia	not provided	N/A	Web-based Comments	50186	34
DeNiro	Julia	not provided	N/A	Web-based Comments	18750	24
Denis	Jessica	not provided	N/A	Web-based Comments	17421	24
Denis	Laurie	not provided	N/A	Web-based comments	56964	35
Denis	Laurie	not provided	N/A	Web-based Comments	45582	34
Denisevich	Alex	not provided	N/A	Web-based Comments	7243	24
Denison	Pamela	not provided	N/A	Web-based Comments	25539	24
Denman	Joan	not provided	N/A	Web-based Comments	17679	24
Denn	Margaret	not provided	N/A	Web-based Comments	54442	34
Denn	Margaret	not provided	N/A	Web-based Comments	22442	24
Denne	Douglas	not provided	N/A	Web-based Comments	13325	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Dennedy-Frank	Daniel	dan.dennedy.frank@gmail.com	N/A	Web-based comments	3141	N/A
Denney	Heather	not provided	N/A	Web-based Comments	55613, 55614	34
Denney	Heather	not provided	N/A	Web-based Comments	15505	24
Denning	Joanne	not provided	N/A	Web-based Comments	17797	24
Denninger	Sandra	not provided	N/A	Web-based Comments	28135	24
Dennis	Beth	not provided	N/A	Web-based Comments	9022	24
Dennis	Gudrun	not provided	N/A	Web-based comments	57147	35
Dennis	Gudrun	not provided	N/A	Web-based Comments	46510	34
Dennis	Gudrun	not provided	N/A	Web-based Comments	15324	24
Dennis	Kammie	robkamdennis@gmail.com	N/A	Web-based comments	4323	11
Dennis	Kimberly	not provided	N/A	Web-based Comments	20221	24
Dennis	L	not provided	N/A	Web-based Comments	20477	24
Dennis	Marianne	not provided	N/A	Web-based Comments	22673	24
Dennis	Nikki	nmden1@hotmail.com	N/A	Web-based Comments	49429	34
Dennis	Nikki	nmden1@hotmail.com	N/A	Web-based comments	2310	1
Dennis	Steve C	not provided	N/A	Web-based Comments	49066, 49067	34
Dennis	Teresa	not provided	N/A	Web-based Comments	30267	24
Dennis	Trevor	tdennis@live.com	N/A	Web-based comments	2459	N/A
Dennis	William	dedennis@wavecable.com	N/A	Web-based comments	3260	10
Dennison	Joni	not provided	N/A	Web-based Comments	52602, 52603	34
Dennison	Joni	not provided	N/A	Web-based Comments	18307	24
Dennler	Cathy	not provided	N/A	Web-based Comments	10362	24
Denno	Brenda	not provided	N/A	Web-based Comments	51047	34
Denny	Denise	not provided	N/A	Web-based Comments	12636	24
Denny	Rachael	not provided	N/A	Web-based Comments	50694	34
DenOuden	Amy	not provided	N/A	Web-based Comments	7604	24
Denoyelle	Corinne	not provided	N/A	Web-based Comments	11375	24
Densing	Lindsey	not provided	N/A	Web-based Comments	52653	34
Densing	Lindsey	not provided	N/A	Web-based Comments	21493	24
Dent	Amy	not provided	N/A	Web-based comments	56887	35
Denton	April B.	not provided	N/A	Web-based Comments	8391	24
Denton	Debbie	not provided	N/A	Web-based Comments	12316	24
Denton	Michael	not provided	N/A	Web-based Comments	48978, 48979	34
Denton	Michael	not provided	N/A	Web-based Comments	24066	24
Denys	Sally	not provided	N/A	Web-based Comments	28009	24
Deochoa	Malisa	not provided	N/A	Web-based Comments	52481	34
Deora	Karen	not provided	N/A	Web-based Comments	57981, 55197	16, 34
Deora	Karen	not provided	N/A	Web-based Comments	19079	24
DePaola	Andrea	not provided	N/A	Web-based Comments	44559	34
DePaola	Andrea	not provided	N/A	Web-based Comments	7735	24
Depaolis	Rochelle	not provided	N/A	Web-based Comments	27558	24
Depaolo	Lucy	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4669	N/A
Depoisier	Marion	not provided	N/A	Web-based comments	4327	1
Deppong	Genevieve	not provided	N/A	Web-based Comments	14861	24
DePree	Dean	not provided	N/A	Web-based Comments	12263	24
DePreist	Chuck	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58407	N/A
Deptula	Catherine	not provided	N/A	Web-based Comments	53638	34
Deptula	Cathy	not provided	N/A	Web-based Comments	53639	34
Deptula	Cathy	not provided	N/A	Web-based Comments	10363	24
DePue	Mike	not provided	N/A	Web-based Comments	24441	24
Deputy	Glyn	not provided	N/A	Web-based Comments	15177	24
DePuy	Genevieve	not provided	N/A	Web-based comments	1356	N/A
Der	Jacqueline	not provided	N/A	Web-based comments	32024	1
Deran	J S	not provided	N/A	Web-based Comments	16005	24
Derasary	Lara	not provided	N/A	Web-based Comments	54972	34
Derasary	Lara	not provided	N/A	Web-based Comments	20549	24
d'Erasmo	Giovanni	not provided	N/A	Web-based Comments	15086	24
Derbes	Dave	not provided	N/A	Web-based comments	2996	N/A
Derboven	Linda	not provided	N/A	Web-based Comments	21245	24
Derence	Lea	not provided	N/A	Web-based Comments	20896	24
DeRespiris	Christina	not provided	N/A	Web-based Comments	44343	34
DeRespiris	Christina	not provided	N/A	Web-based Comments	10850	24
Dermo	Julie	not provided	N/A	Web-based Comments	54213	34
Derner	G	not provided	N/A	Web-based Comments	14612	24
DeRoy	Al	not provided	N/A	Web-based Comments	7144	24
Derr	Meredith	not provided	N/A	Web-based Comments	49368	34
Derr	Tara	not provided	N/A	Web-based Comments	45379	34
Derrickson	Ray	not provided	N/A	Web-based Comments	26670	24
Derrington	Sean	not provided	N/A	Web-based Comments	48149	34
Dersey	Colin	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4709	N/A

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
DeRusha	Julie	not provided	N/A	Web-based Comments	18828	24
Derwent	Kimberly	not provided	N/A	Web-based Comments	47366	34
Derwent	Kimberly	not provided	N/A	Web-based Comments	20222	24
Dery	Ed	not provided	N/A	Web-based Comments	13441	24
Derzon	James	not provided	N/A	Web-based Comments	16204	24
des Cognets	Carol	not provided	N/A	Web-based Comments	9912	24
Desai	Helen	not provided	N/A	Web-based Comments	15603	24
DeSalvatore	Suzen	not provided	N/A	Web-based Comments	30034	24
DeSalvo	Gloria	not provided	N/A	Web-based Comments	15152	24
Desanto	Carol	not provided	N/A	Web-based Comments	47317	34
DeSarno	Victoria	not provided	N/A	Web-based Comments	31191	24
desaulniers	virginia	not provided	N/A	Web-based Comments	31280	24
Deschaine	Linda	not provided	N/A	Web-based Comments	21246	24
Descreux	coralie	not provided	N/A	Web-based comments	1594	1
DeSecki	Nancy	not provided	N/A	Web-based Comments	44480, 44481	34
Desecki	Nancy	not provided	N/A	Web-based Comments	24840	24
Deshmukh	Gautam	not provided	N/A	Web-based comments	57705	35
Deshotels	James	not provided	N/A	Web-based Comments	16205	24
Desilvestre	Ingrid	not provided	N/A	Web-based Comments	15875	24
DeSimone	Deborah	not provided	N/A	Web-based Comments	12389	24
Desjardins	Andree	not provided	N/A	Web-based Comments	55366, 55367	34
Desjardins	Marc	not provided	N/A	Web-based Comments	55165	34
Desjarlais	Catherine	not provided	N/A	Web-based Comments	10272	24
DesJarlais	Marie	not provided	N/A	Web-based Comments	22701	24
Desmarais	Lauri	not provided	N/A	Web-based Comments	50245	34
desmarais	lauri	not provided	N/A	Web-based Comments	20811	24
DesMeules	Ellen	not provided	N/A	Web-based Comments	13904	24
Desmond	JAMES	not provided	N/A	Web-based Comments	16206	24
Desmond	Jeanette	not provided	N/A	Web-based Comments	44530	34
Desmond	Pamela	not provided	N/A	Web-based Comments	52545	34
Desmond	Pamela	not provided	N/A	Web-based Comments	25540	24
Desmond	Sheila	not provided	N/A	Web-based Comments	50164	34
Desmond	Sheila	not provided	N/A	Web-based Comments	28782	24
DeSorbo	Ralph	not provided	N/A	Web-based Comments	26591	24
Desousa	Sarah	not provided	N/A	Web-based Comments	48776	34
Despont	Ann	not provided	N/A	Web-based Comments	8023	24
Dessert	Amy	not provided	N/A	Web-based Comments	7605	24
Dessornes	Marguerite	not provided	N/A	Web-based Comments	22563	24
Detar	Richard	not provided	N/A	Web-based Comments	51728	34
Detaranto	Joe	not provided	N/A	Web-based Comments	17876	24
Detato	Susan	not provided	N/A	Web-based Comments	52401, 52402	34
Detato	Susan	not provided	N/A	Web-based Comments	29649	24
Detels	Linda	not provided	N/A	Web-based Comments	21247	24
Deters	Ron	not provided	N/A	Web-based Comments	27619	24
Deters	Viola	not provided	N/A	Web-based Comments	31257	24
Detrick	Audrey	not provided	N/A	Web-based Comments	8524	24
dettloff	susan	not provided	N/A	Web-based Comments	29650	24
Detweiler	John	not provided	N/A	Web-based Comments	18006	24
Deupree	Stephanie	not provided	N/A	Web-based Comments	54700	34
Deuter	Karla	not provided	N/A	Web-based Comments	19309	24
Deutsch	Hans	not provided	N/A	Web-based Comments	15425	24
Deutsch	Vivian	not provided	N/A	Web-based Comments	45400	34
Deutsch	Vivian	not provided	N/A	Web-based Comments	31313	24
Deutscher	Barbara	not provided	N/A	Web-based Comments	53913	34
Dev	Saurav	not provided	N/A	Web-based Comments	28447	24
deVall	Sue	not provided	N/A	Web-based Comments	29518	24
DeVany	Mary	mdevany@earthlink.net	N/A	Web-based comments	32226	N/A
Devault	Judy	not provided	N/A	Web-based Comments	18676	24
devega	esteban	not provided	N/A	Web-based Comments	14265	24
Develle	Stephanie	not provided	N/A	Web-based Comments	29208	24
Devens	Monica	not provided	N/A	Web-based Comments	24622	24
Devey	Jennifer	not provided	N/A	Web-based Comments	17180	24
Deville	Lisa	not provided	N/A	Web-based Comments	21542	24
Devin	Alexandra	not provided	N/A	Web-based Comments	7277	24
Devine	Charles	not provided	N/A	Web-based Comments	10498	24
Devine	Connie	not provided	N/A	Web-based comments	57414	35
Devine	Connie	not provided	N/A	Web-based Comments	11304	24
Devine	Conor	not provided	N/A	Web-based Comments	11328	24
DeVine	J	not provided	N/A	Web-based Comments	46245	34
Devine	Karla	not provided	N/A	Web-based Comments	19310	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
DeVine	Kelly	not provided	N/A	Web-based Comments	19915	24
Devine	Neal	not provided	N/A	Web-based Comments	25115	24
Devine	Sarah	not provided	N/A	Web-based Comments	44469	34
Devine	Timothy	goosedevine@yahoo.com	N/A	Web-based comments	2349, 4865	N/A
DeVito	Jean	not provided	N/A	Web-based Comments	16842	24
Devitto	Evan	not provided	N/A	Web-based Comments	14327	24
Devletian	Richard	not provided	N/A	Web-based Comments	26959	24
Devlin	Felicity	not provided	N/A	Web-based Comments	46460	34
Devlin	Katie	not provided	N/A	Web-based Comments	56156	34
Devlin	Susan	not provided	N/A	Web-based Comments	29651	24
Devoney	Bev	not provided	N/A	Web-based Comments	9108	24
Devore	Lisa	not provided	N/A	Web-based Comments	21543	24
DeVore	Rosalie	not provided	N/A	Web-based Comments	27701	24
Devoss	Carol	not provided	N/A	Web-based Comments	9913	24
Devoy	Mary	not provided	N/A	Web-based Comments	18588	N/A
DeVries	Christine	not provided	N/A	Web-based Comments	10910	24
Devries	Jennifer	not provided	N/A	Web-based Comments	46153	34
deWaal	Robert	not provided	N/A	Web-based Comments	27246	24
DeWald	Andrea	not provided	N/A	Web-based Comments	7736	24
Dewalt	Sandy	not provided	N/A	Web-based Comments	55675	34
Dewees	Carol	not provided	N/A	Web-based Comments	45673	34
DeWees	Kathryn	not provided	N/A	Web-based Comments	19635	24
DeWeese	Dannette	not provided	N/A	Web-based Comments	45298	34
Dewey	Debbie	not provided	N/A	Web-based Comments	12317	24
Dewey	Robin	not provided	N/A	Web-based Comments	27476	24
Dewhirst	Dan	not provided	N/A	Web-based Comments	11652	24
Dewinter	Elien	not provided	N/A	Web-based Comments	13662	24
DeWitt	David	not provided	N/A	Web-based Comments	11991	24
DeWitt	DJ	not provided	N/A	Web-based Comments	12984	24
DeWitt	James	not provided	N/A	Web-based Comments	16207	24
DeWitt	John	jld@pocketinet.com	N/A	Web-based comments	2735	N/A
DeWitt	Susan	not provided	N/A	Web-based Comments	53058	34
Dewitt	Susan	not provided	N/A	Web-based Comments	29653	24
DeWitt	Susan	not provided	N/A	Web-based Comments	29652	24
DeWolfe	Pat	not provided	N/A	Web-based Comments	25643	24
DeWoskin	Janet	not provided	N/A	Web-based Comments	51370	34
Dexter	Ellen	not provided	N/A	Web-based Comments	13905	24
Deyarmie	Nancy	not provided	N/A	Web-based Comments	24841	24
Deyoung	Doug	not provided	N/A	Web-based Comments	13296	24
DeYoung	Sonia	not provided	N/A	Web-based Comments	29059	24
Dezendorf	Andrea	not provided	N/A	Web-based Comments	49283	34
Dezendorf	Andrea	not provided	N/A	Web-based Comments	7737	24
dfs	ggfsd	not provided	N/A	Web-based Comments	15012	24
Dharan	Nikhil	not provided	N/A	Web-based Comments	25282	24
Dharma	Amelie	not provided	N/A	Web-based comments	56875	35
dharma	amelie	not provided	N/A	Web-based Comments	7585	24
Dhi	Bo	not provided	N/A	Web-based comments	56794	35
Dhi	Bo	not provided	N/A	Web-based Comments	45938	34
Dhi	Bo	not provided	N/A	Web-based Comments	9225	24
D'hondt	John	not provided	N/A	Web-based Comments	18007	24
Di Benedetto	Rainbow	not provided	N/A	Web-based Comments	26577	24
Di Biase	Gaia	not provided	N/A	Web-based comments	56779	35
Di Domenico	Danielle	not provided	N/A	Web-based Comments	11805	24
Di Flaviano	Mary Ann	not provided	N/A	Web-based Comments	23488	24
Di Gregorio	Christian	not provided	N/A	Web-based Comments	10823	24
Di Julio	Cori	not provided	N/A	Web-based Comments	11369	24
di Mdina	Owanza	not provided	N/A	Web-based Comments	25455	24
Diaconu	Rodica	not provided	N/A	Web-based Comments	27572	24
Diamant	Jill	not provided	N/A	Web-based Comments	17503	24
Diamond	A	not provided	N/A	Web-based Comments	6956	24
Diamond	J	not provided	N/A	Web-based Comments	15971	24
Diamond	Jeff	not provided	N/A	Web-based Comments	17012	24
Diamond	Lynda	not provided	N/A	Web-based Comments	22016	24
Diamond	N.	not provided	N/A	Web-based Comments	47559	34
Diamond	Nichole	not provided	N/A	Web-based Comments	25186	24
Diamond	Stephen	not provided	N/A	Web-based Comments	29279	24
Diamond	William	not provided	N/A	Web-based Comments	31524	24
Dian	Lisa	not provided	N/A	Web-based Comments	45719	34
Dian	Lisa	not provided	N/A	Web-based Comments	21544	24
Diane	Paul	momdadhawkins@gmail.com	N/A	Web-based comments	3756	N/A

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Dianich	A Michael	not provided	N/A	Web-based Comments	6979	24
Dias	Carla	not provided	N/A	Web-based Comments	9821	24
Dias	Hariana	not provided	N/A	Web-based Comments	54395	34
Dias	Hariana	not provided	N/A	Web-based Comments	15432	24
DIAS	Marie	not provided	N/A	Web-based Comments	22702	24
Diaz	Fracmarie Maldonado	not provided	N/A	Web-based Comments	51546, 51547	34
Diaz	Graciela	not provided	N/A	Web-based Comments	53454	34
Diaz	Graciela	not provided	N/A	Web-based Comments	15206	24
Diaz	Gwen	not provided	N/A	Web-based Comments	15350	24
Diaz	Jose	diazjosera@hotmail.com	N/A	Web-based comments	2967	8
Diaz	L.	not provided	N/A	Web-based Comments	20495	24
Diaz	Liliana	not provided	N/A	Web-based Comments	21160	24
Diaz	Lisa	not provided	N/A	Web-based Comments	21545	24
Diaz	Mauricio	not provided	N/A	Web-based Comments	23730	24
Diaz	Memphis	not provided	N/A	Web-based Comments	23959	24
Diaz	Miriam	not provided	N/A	Web-based Comments	24547	24
Diaz	Nellie	not provided	N/A	Web-based comments	2598*	N/A
Diaz	PatrIck	not provided	N/A	Web-based Comments	25901	24
Diaz	Sandra	not provided	N/A	Web-based Comments	28136	24
Diaz	Savannah	not provided	N/A	Web-based Comments	28449	24
Diaz	Susan	not provided	N/A	Web-based Comments	45187	34
Diaz	Susan	not provided	N/A	Web-based Comments	29654	24
Diaz	William	not provided	N/A	Web-based Comments	31525	24
Diaz	Yaritza	madamadiaz@gmail.com	N/A	Web-based comments	6047	1
DiBaggio	Julia	not provided	N/A	Web-based Comments	18751	24
Dibble	Margaret	m-dibble@hotmail.com	N/A	Web-based comments	5728	N/A
dibernardo	diane	not provided	N/A	Web-based Comments	12828	24
DiBlanca	Joseph	not provided	N/A	Web-based Comments	18356	24
DiCarrado	Thomas	not provided	N/A	Web-based Comments	30486	24
DiCato	Leilani	not provided	N/A	Web-based Comments	20975	24
DiCiaccio	Meghann	not provided	N/A	Web-based Comments	54351, 54352	34
DiCicco	Steven	not provided	N/A	Web-based Comments	29426	24
Dicillo	Maria	not provided	N/A	Web-based Comments	22590	24
Dick	Lori	not provided	N/A	Web-based Comments	45615	34
Dick	Lori	not provided	N/A	Web-based Comments	21781	24
Dick	Martha	not provided	N/A	Web-based Comments	23099	24
dickason	carol	not provided	N/A	Web-based Comments	9914	24
Dickens	Phrynette	not provided	N/A	Web-based Comments	44390	34
Dickenson	Marie	not provided	N/A	Web-based Comments	45648	34
Dickerson	Joan	not provided	N/A	Web-based Comments	17680	24
Dickerson	Kathryn	not provided	N/A	Web-based Comments	19636	24
Dickerson	susan	not provided	N/A	Web-based Comments	29655	24
Dickey	Kelley	not provided	N/A	Web-based Comments	53362	34
Dickinson	Amanda	not provided	N/A	Web-based Comments	47405, 47406	34
Dickinson	Amanda	not provided	N/A	Web-based Comments	7527	24
Dickinson	Craig	not provided	N/A	Web-based Comments	11418	24
Dickinson	Cynthia	not provided	N/A	Web-based Comments	11504	24
Dickinson	Daniel and Judith	not provided	N/A	Web-based Comments	48239	34
Dickinson	Douglas	not provided	N/A	Web-based Comments	13326	24
Dickinson	Lauren	not provided	N/A	Web-based Comments	20762	24
Dickinson	Linda	not provided	N/A	Web-based Comments	21248	24
Dickinson	Stephen	not provided	N/A	Web-based Comments	29280	24
Dickinson-Adams	Emily	not provided	N/A	Web-based Comments	52422, 52423	34
Dickinson-Adams	Emily	not provided	N/A	Web-based Comments	14012	24
Dickman	Steve	not provided	N/A	Web-based Comments	29359	24
Dickmann	Kinsey	not provided	N/A	Web-based Comments	55559	34
Dickmann	Kinsey	not provided	N/A	Web-based Comments	20264	24
Dicks	Ursula	not provided	N/A	Web-based Comments	30979	24
Dickson	Leah	not provided	N/A	Web-based Comments	20901	24
dickson	mary	not provided	N/A	Web-based Comments	23250	24
Dickstein	Stephen	not provided	N/A	Web-based Comments	29281	24
Dicoste	Patricia	not provided	N/A	Web-based Comments	25736	24
Dicus	Laura	not provided	N/A	Web-based Comments	20628	24
Diderrich-Miskinis	Jodene	not provided	N/A	Web-based Comments	17844	24
Didier	Alice	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32470	N/A
Didier	Suzanne	not provided	N/A	Web-based Comments	29992	24
Didier, M.D.	Rochelle	not provided	N/A	Web-based Comments	27559	24
Diebold	D.J.	not provided	N/A	Web-based Comments	11604	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Diederichs	Barbara	not provided	N/A	Web-based Comments	8665	24
Diederiks	Nichole	not provided	N/A	Web-based Comments	25187	24
Diedrich	Charlotte	not provided	N/A	Web-based Comments	10555	24
Diehl	Cheryl	not provided	N/A	Web-based Comments	10629	24
Diehl	Daniel	not provided	N/A	Web-based Comments	11732	24
Diehl	Denise	not provided	N/A	Web-based Comments	12637	24
Diehl	Katherine	not provided	N/A	Web-based Comments	19442	24
Diehl	Sarah	not provided	N/A	Web-based Comments	28341	24
Dieken	Katherine	not provided	N/A	Web-based Comments	19443	24
Dielmann	Samira	not provided	N/A	Web-based Comments	28093	24
Diem	Christopher	not provided	N/A	Web-based Comments	11006	24
Diernbach	Diane	not provided	N/A	Web-based Comments	45577, 45578	34
Dies	Nancy	not provided	N/A	Web-based Comments	24842	24
Dieterich	Carolyn	not provided	N/A	Web-based Comments	10151	24
Dieterich	Michele	not provided	N/A	Web-based Comments	44955	34
Dieterich-Hughes	Sandra	not provided	N/A	Web-based Comments	44735	34
Dietrich	Andrea	not provided	N/A	Web-based Comments	7738	24
Dietrich	Janet	not provided	N/A	Web-based Comments	50760	34
Dietrich	Janet	not provided	N/A	Web-based Comments	16588	24
Dietrich	Marianne	not provided	N/A	Web-based Comments	22674	24
Dietrich	Mary	not provided	N/A	Web-based Comments	23251	24
Dietsch	Lilly	not provided	N/A	Web-based Comments	21171	24
Dietz	Glenda	not provided	N/A	Web-based Comments	15121	24
dietz	heidi	not provided	N/A	Web-based Comments	15567	24
Dietz	Kerry	not provided	N/A	Web-based Comments	20065	24
Dietz	N.	not provided	N/A	Web-based comments	6751	1
dietzmann	cynthia	not provided	N/A	Web-based Comments	11505	24
DiFante	Diane	not provided	N/A	Web-based Comments	44523, 44524, 44525	34
DiFante	Diane	not provided	N/A	Web-based Comments	12829	24
DiGaudio	Nancy	not provided	N/A	Web-based Comments	24843	24
Diggle	Gloria	not provided	N/A	Web-based Comments	15153	24
Dighe	Kalindi	not provided	N/A	Web-based Comments	19012	24
DiGiacomo	Alex	not provided	N/A	Web-based Comments	52357	34
Digiacomo	Alexandra	not provided	N/A	Web-based Comments	52433	34
DiGiacomo	Ronald	mrdigiacomo@q.com	N/A	Web-based comments	1275	3
DiGiore	Michael	not provided	N/A	Web-based Comments	24067	24
DiGiovanni Jr	Robert	not provided	N/A	Web-based Comments	27247	24
Dignazio	Teri	not provided	N/A	Web-based Comments	30309	24
Diguls	Jacki	not provided	N/A	Web-based Comments	56256	34
Diguls	Jacki	not provided	N/A	Web-based Comments	16050	24
DiIorio	Lesa	not provided	N/A	Web-based Comments	21036	24
dijk	alexandra van	not provided	N/A	Web-based Comments	54426	34
Dijk	Jh V	not provided	N/A	Web-based Comments	54368, 54369	34
dijk	johan van	not provided	N/A	Web-based Comments	53206, 53207	34
dijk	kira van	not provided	N/A	Web-based Comments	51077	34
dijk	val van	not provided	N/A	Web-based Comments	54989	34
Dikeman	Karen	not provided	N/A	Web-based Comments	19080	24
Dilanian	Cristina	not provided	N/A	Web-based Comments	11441	24
DiLenge	William	bllelk@hotmail.com	N/A	Web-based comments	2887	N/A
dilg	donald	not provided	N/A	Web-based Comments	13056	24
Diliberto	Emanuel	not provided	N/A	Web-based Comments	13999	24
Dill	Carolyn June	not provided	N/A	Web-based Comments	10185	24
DILLARD	CAROL	not provided	N/A	Web-based Comments	9915	24
Dillard	Gavin	not provided	N/A	Web-based Comments	14814	24
Dille	Dawn	not provided	N/A	Web-based Comments	49937, 49938	34
Dille	Dawn	not provided	N/A	Web-based Comments	12207	24
Dilley	Berry	not provided	N/A	Web-based Comments	9000	24
Dilley	Steve	pikadilley2@msn.com	N/A	Web-based comments	5937	N/A
Dillinger	Megan	not provided	N/A	Web-based comments	57527	35
Dillon	Christi	not provided	N/A	Web-based Comments	53731, 53732	34
Dillon	Christi	not provided	N/A	Web-based Comments	10820	24
Dillon	Daniel	not provided	N/A	Web-based Comments	45364	34
Dillon	Howard	not provided	N/A	Web-based Comments	15792	24
Dillon	John	not provided	N/A	Web-based Comments	50915	34
Dillon	Laura	not provided	N/A	Web-based Comments	20629	24
Dillon	Patrick	not provided	N/A	Web-based Comments	25902	24
Dillon	Taryn	not provided	N/A	Web-based Comments	48206, 48207	34
Dillon	Taryn	not provided	N/A	Web-based Comments	30213	24
Dillon	Thomas	not provided	N/A	Web-based Comments	44378	34
DiMaio	Sam	sdimaio@frontier.com	N/A	Web-based comments	4454	N/A

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Dimand	Cynthia	not provided	N/A	Web-based Comments	11506	24
Dimarco	Jennifer	not provided	N/A	Web-based Comments	52437	34
DiMarco	Jerry	not provided	N/A	Web-based comments	3636	N/A
DiMarco	Zack	zacharydimarco@gmail.com	N/A	Web-based comments	32163	1
Dimartino	Penny	not provided	N/A	Web-based Comments	51190	34
DiMauro	Susan	not provided	N/A	Web-based Comments	48184	34
Dimer	Carol	not provided	N/A	Web-based Comments	9916	24
Dimercurio	Victoria	not provided	N/A	Web-based Comments	31192	24
Dimino	Donna	not provided	N/A	Web-based Comments	13125	24
Dimitrijevic	Sanja	not provided	N/A	Web-based Comments	28268	24
Dimmery	Katherine	not provided	N/A	Web-based Comments	19444	24
Dimmick	Sandra	not provided	N/A	Web-based Comments	28137	24
DiMoia	Sue	not provided	N/A	Web-based Comments	44700	34
Dimond	Jerry	jdimond2015@gmail.com	N/A	Web-based comments	4038	N/A
Dimonda	Maria	not provided	N/A	Web-based Comments	53484	34
DiNardi	Kristina	not provided	N/A	Web-based Comments	20401	24
DiNatale	Dini	not provided	N/A	Web-based Comments	12964	24
Dincau	Barbara	not provided	N/A	Web-based Comments	48101, 48102, 48103	34
Dine	Desir	not provided	N/A	Web-based comments	57002	35
Dinell	Alexander	not provided	N/A	Web-based Comments	51864	34
Ding	Sejon	not provided	N/A	Web-based Comments	46578	34
Dingell	David	not provided	N/A	Web-based Comments	46353	34
DINGEMAN	Christine	not provided	N/A	Web-based Comments	10911	24
Dinger	Greg	not provided	N/A	Web-based Comments	15231	24
Dingle	Janet	not provided	N/A	Web-based Comments	53283	34
Dingledine	Mike	not provided	N/A	Web-based Comments	24442	24
Dingwall	Kathryn	not provided	N/A	Web-based Comments	19637	24
Dinino	Mary	not provided	N/A	Web-based Comments	23252	24
Diniz	Maria	not provided	N/A	Web-based Comments	49734	34
Dinkins	Karen	not provided	N/A	Web-based Comments	19081	24
Dinkla	Gerda	not provided	N/A	Web-based Comments	46316	34
Dinnie	Jillian	jcdins@yahoo.com	N/A	Web-based comments	32070	1
Dinolfo	Glen	not provided	N/A	Web-based Comments	15113	24
Dinter	James Van	not provided	N/A	Web-based Comments	58020	16
Dinwoodie	AM	not provided	N/A	Web-based Comments	7509	24
Dinzes	Deborah	not provided	N/A	Web-based Comments	12390	24
Dioletis	Cleo	not provided	N/A	Web-based Comments	11218	24
Dion	Patricia	not provided	N/A	Web-based Comments	25737	24
Dionisio-Bachi	Christine	not provided	N/A	Web-based Comments	10912	24
Diorio	Janet	not provided	N/A	Web-based Comments	48160	34
Dios	Alicia De	not provided	N/A	Web-based Comments	51431	34
Diosdado	Maria	not provided	N/A	Web-based Comments	22591	24
dipaola	marisa	not provided	N/A	Web-based Comments	22864	24
DiPlacido	Deborah	not provided	N/A	Web-based Comments	12391	24
Diran	Richard	not provided	N/A	Web-based Comments	26960	24
Direnzo	Jennifer	not provided	N/A	Web-based Comments	17181	24
Dirnbeck	Eric	not provided	N/A	Web-based Comments	14097	24
Discepola	Louis	not provided	N/A	Web-based Comments	51958	34
Disdier	Ricki	not provided	N/A	Web-based Comments	45685	34
Dishman	Carolyn	not provided	N/A	Web-based Comments	10152	24
Dishman	Patricia	not provided	N/A	Web-based Comments	54880	34
Dishman	Patricia	not provided	N/A	Web-based Comments	25738	24
DiSibio	Carol	not provided	N/A	Web-based Comments	9917	24
Dismang	Gary	not provided	N/A	Web-based Comments	14764	24
Dispenza	Salvatore	not provided	N/A	Web-based Comments	28042	24
Disrud	Angela	not provided	N/A	Web-based Comments	7896	24
DiStasio	Anthony	not provided	N/A	Web-based Comments	8331	24
Dister	David	not provided	N/A	Web-based Comments	11992	24
District	Benton	rachel-little@conservewa.net	N/A	Web-based comments	6177	N/A
Ditieri	Marcia	not provided	N/A	Web-based Comments	22364	24
DiTomaso	Timothy	not provided	N/A	Web-based Comments	30642	24
Dittlinger	Karen	not provided	N/A	Web-based Comments	19082	24
Dittman	Amanda	not provided	N/A	Web-based Comments	47203, 47204	34
Ditullio	Theresa	not provided	N/A	Web-based Comments	53837	34
Ditzler	M Susan	not provided	N/A	Web-based Comments	22207	24
Diva	Pamela	not provided	N/A	Web-based Comments	48918	34
Divenere	Laura	not provided	N/A	Web-based Comments	20630	24
Dixon	Angie	not provided	N/A	Web-based Comments	46841	34
Dixon	Angie	not provided	N/A	Web-based Comments	57931	16
Dixon	Joyce	not provided	N/A	Web-based Comments	56369	34

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Dixon	Ken	not provided	N/A	Web-based Comments	58574	34
Dixon	Lynne	not provided	N/A	Web-based Comments	22125, 22126	24
Dixon	Marie	not provided	N/A	Web-based Comments	48244	34
Dixon	Marie	not provided	N/A	Web-based Comments	22703	24
Dixon	Nanci	not provided	N/A	Web-based Comments	24794	24
Dizes	Ken	ken@srec.org	N/A	Web-based comments	4148	N/A
Djenohan	Max	djenohan@yahoo.com	N/A	Web-based comments	6151	1
Djidji	Carmen	not provided	N/A	Web-based Comments	9867	24
Dlugonski	Melba	not provided	N/A	Web-based Comments	49788	34
Dlugosielski	Noelle	not provided	N/A	Web-based Comments	25343	24
Dlugosz	Janice	not provided	N/A	Web-based Comments	16673	24
Dmitriev-Odier	Ludmila	not provided	N/A	Web-based Comments	21965	24
Doak	Renee	not provided	N/A	Web-based Comments	26843	24
Doane	Gale	not provided	N/A	Web-based Comments	14731	24
Doane	Mary	not provided	N/A	Web-based Comments	47971	34
Doane	Mary	not provided	N/A	Web-based Comments	23253	24
Doane	Sierra	not provided	N/A	Web-based Comments	28987	24
Dobbelaere	Ainga	not provided	N/A	Web-based Comments	48940, 48941	34
Dobbelaere	Susan	not provided	N/A	Web-based Comments	29656	24
Dobbin- Winkler	Kathleen	not provided	N/A	Web-based Comments	19527	24
DOBBS	HENRY	not provided	N/A	Web-based Comments	15662	24
Dobbyn	Dorothy	not provided	N/A	Web-based Comments	13258	24
Dobens	Lynda	not provided	N/A	Web-based Comments	22017	24
Dobereiner	Trish	not provided	N/A	Web-based Comments	30921	24
Dobkevich	Judith	not provided	N/A	Web-based Comments	18585	24
Dobray Ph.D.	Prof. Alan	not provided	N/A	Web-based Comments	26456	24
Dobryakova	Valeria	not provided	N/A	Web-based Comments	53199	34
Dobrzanski	Irene	not provided	N/A	Web-based Comments	15898	24
Dobski	Deborah	not provided	N/A	Web-based Comments	12392	24
Dobson	Deborah	not provided	N/A	Web-based Comments	12393	24
Dobson	Linda	not provided	N/A	Web-based Comments	21249	24
Dobson	Patricia	not provided	N/A	Web-based Comments	25739	24
Dobson	Rachelyn	not provided	N/A	Web-based Comments	26565	24
Docherty	Myrna	not provided	N/A	Web-based Comments	24721	24
DOCK	TERESA	not provided	N/A	Web-based Comments	30268	24
Doctoroff	Aimee	not provided	N/A	Web-based Comments	7132	24
Dodd	Alexandra	not provided	N/A	Web-based Comments	7278	24
Dodd	Belinda	not provided	N/A	Web-based Comments	47116	34
Dodd	Elizabeth	not provided	N/A	Web-based Comments	56583	34
Dodd	Geraldd	not provided	N/A	Web-based Comments	14966	24
Dodd	Josephine	not provided	N/A	Web-based Comments	18409	24
Dodd	Liza	not provided	N/A	Web-based Comments	21700	24
Dodd	Richard	not provided	N/A	Web-based Comments	54753	34
Dodd	Ryan	not provided	N/A	Web-based Comments	27908	24
Dodds	Kathrin	not provided	N/A	Web-based Comments	49406	34
DODDY Lowit	GWEN	not provided	N/A	Web-based Comments	15351	24
Dodge	Brent	brent@brentdodge.com	N/A	Web-based comments	2323	N/A
Dodge	Dana	not provided	N/A	Web-based Comments	48846	34
Dodge	David	not provided	N/A	Web-based Comments	11993	24
Dodge	Elizabeth	not provided	N/A	Web-based Comments	52663	34
Dodge	Elizabeth	not provided	N/A	Web-based Comments	13735	24
Dodge	John	not provided	N/A	Web-based Comments	56557	34
Dodge	Mary	not provided	N/A	Web-based Comments	23254	24
Dodge	Tiffany	not provided	N/A	Web-based Comments	44417	34
Dodson	Carol	not provided	N/A	Web-based Comments	53421	34
Dodson	Doug & Debby	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58359	N/A
Dodson	Emma	not provided	N/A	Web-based comments	56884	35
Dodson	Linda	not provided	N/A	Web-based Comments	21250	24
Dodson	Tom	not provided	N/A	Web-based Comments	48873	34
Dodson	Tom	not provided	N/A	Web-based Comments	30746	24
Dodsworth	Dawn	not provided	N/A	Web-based Comments	58688	34
Dodsworth	Derek	not provided	N/A	Web-based Comments	54839, 54840	34
Doe	Mary	not provided	N/A	Web-based Comments	47693	34
Doe	Sarah	not provided	N/A	Web-based comments	56941	35
Doebel	Norm	not provided	N/A	Web-based Comments	50776	34
Doehne	Carol	not provided	N/A	Web-based Comments	48589	34
Doenecke	Bruce	not provided	N/A	Web-based Comments	9606	24
Doenges	Michael	not provided	N/A	Web-based comments	2581	N/A
Doerfler	Geoff	geoffd4219@gmail.com	N/A	Web-based comments	4164	N/A

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Doering	David	not provided	N/A	Web-based Comments	51139	34
Doeringsfeld	David	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	5553	N/A
Doerr	Anne	not provided	N/A	Web-based Comments	8186	24
Doerr	Janet	not provided	N/A	Web-based Comments	50130	34
Doerwang	Hannah	not provided	N/A	Web-based Comments	15399	24
Doesserich	Diane	not provided	N/A	Web-based Comments	12830	24
Doggere	Clipsy	not provided	N/A	Web-based Comments	11230	24
Doggett	Kathleen	not provided	N/A	Web-based Comments	56488	34
Dogole	Ian	not provided	N/A	Web-based Comments	48649	34
Dogole	Ian	not provided	N/A	Web-based Comments	15831	24
Dogra	Julie	julie.m.nichols@gmail.com	N/A	Web-based comments	787	1
Doherty	Alexis	not provided	N/A	Web-based Comments	7304	24
Doherty	Barbra	not provided	N/A	Web-based Comments	8847	24
Doherty	Jeanne	not provided	N/A	Web-based Comments	45228, 45229	34
Doherty	Jeanne	not provided	N/A	Web-based Comments	16941	24
Doherty	Joanne	not provided	N/A	Web-based comments	57387	35
Doherty	Margaret	not provided	N/A	Web-based Comments	22443	24
DOHERTY	MIKE	not provided	N/A	Web-based Comments	24443	24
Doherty	Sydney	sydneydoherty@comcast.net	N/A	Web-based comments	2520	N/A
Dohrmann	Paul	not provided	N/A	Web-based Comments	25985	24
Doing	Colleen	not provided	N/A	Web-based Comments	11260	24
dolan	brian	not provided	N/A	Web-based Comments	9469	24
Dolan	Heather	not provided	N/A	Web-based Comments	54429	34
Dolan	Lisa	not provided	N/A	Web-based Comments	48398	34
dolan	mike	not provided	N/A	Web-based Comments	24444	24
Dolan	Pam	not provided	N/A	Web-based Comments	25491	24
Dolan	Robert	not provided	N/A	Web-based Comments	27248	24
Dolch	Kristi	not provided	N/A	Web-based Comments	20354	24
Dole	Marie-Claire	not provided	N/A	Web-based Comments	22737	24
Dolezal	Mark	not provided	N/A	Web-based Comments	49226	34
Dolgin	Gary W.	not provided	N/A	Web-based Comments	14810	24
Dolin	Sara	not provided	N/A	Web-based Comments	28285	24
Dolinar	Sarah	not provided	N/A	Web-based Comments	28342	24
dolinka	toby	not provided	N/A	Web-based Comments	30709	24
Dolins	Francine	not provided	N/A	Web-based Comments	52129	34
Dolins	Merelyn	not provided	N/A	Web-based Comments	23986	24
Dolinskas	Suzanna	not provided	N/A	Web-based Comments	29975	24
d'Oliveyra	Peggy	not provided	N/A	Web-based Comments	26153	24
Dollar	BC	not provided	N/A	Web-based Comments	8881	24
Dollar	Ellen	not provided	N/A	Web-based Comments	46377	34
Dollard	Nancy	not provided	N/A	Web-based Comments	52311	34
Dollarhide	Rob	not provided	N/A	Web-based Comments	27171	24
Dollenmayer	Judith	not provided	N/A	Web-based Comments	18586	24
Dolley	Sarah	not provided	N/A	Web-based Comments	28343	24
dolloff	donald	not provided	N/A	Web-based Comments	13057	24
Dolnick	Cody	not provided	N/A	Web-based Comments	55788	34
Dolph	Eric	not provided	N/A	Web-based Comments	47497	34
Dolph	Kris	not provided	N/A	Web-based Comments	51563	34
Dolsby	Craig	craig@trueseals.com	N/A	Web-based comments	3694	N/A
Dolson	David	not provided	N/A	Web-based Comments	58225	16
Dolson	Emily	not provided	N/A	Web-based Comments	14013	24
Dolson	Kathleen	not provided	N/A	Web-based Comments	19528	24
Dolt	Howard	not provided	N/A	Web-based Comments	15793	24
Dom	Joyce	not provided	N/A	Web-based Comments	18484	24
Doman	Heidi	not provided	N/A	Web-based Comments	53721	34
Domb	Doreen	not provided	N/A	Web-based Comments	44684	34
Domb	Doreen	not provided	N/A	Web-based Comments	13207	24
Dominguez	Buena	not provided	N/A	Web-based Comments	46075	34
Dominguez	Buena	not provided	N/A	Web-based Comments	9650	24
Dominguez	Debbie	not provided	N/A	Web-based Comments	12318	24
Dominguez	Laura	not provided	N/A	Web-based Comments	20631	24
Dominguez	Mari	not provided	N/A	Web-based Comments	49241, 49242	34
Dominguez	Mari	not provided	N/A	Web-based Comments	22570	24
Dominguez	Sierra	not provided	N/A	Web-based Comments	28988	24
Dominick	Gail	not provided	N/A	Web-based Comments	47545	34
Domke	Del E	not provided	N/A	Web-based Comments	45103	34
Domke	Ellen	not provided	N/A	Web-based Comments	48383, 48384	34
Domke	Ellen	not provided	N/A	Web-based Comments	13906	24
Domulevicz	Glen	not provided	N/A	Web-based Comments	15114	24
Donaghue	Rosemary	not provided	N/A	Web-based Comments	57765	34

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Donaghy	Howard	not provided	N/A	Web-based Comments	47106	34
Donahey	Amelia	not provided	N/A	Web-based Comments	7577	24
Donahue	Andrew	not provided	N/A	Web-based Comments	7811	24
Donahue	David	not provided	N/A	Web-based Comments	11994	24
Donahue	John	not provided	N/A	Web-based Comments	18008	24
Donahue	Kathleen	not provided	N/A	Web-based Comments	19529	24
Donahue	Madeleine	not provided	N/A	Web-based Comments	56602	34
Donahue	Vonnie	not provided	N/A	Web-based Comments	31334	24
Donahue Lynch	Margaret	not provided	N/A	Web-based Comments	22444	24
Donaldson	Jamie K	not provided	N/A	Web-based Comments	47493	34
Donaldson	Jamie K	not provided	N/A	Web-based Comments	16377	24
Donaldson	Karen	not provided	N/A	Web-based Comments	46087	34
Donaldson	Karen	not provided	N/A	Web-based Comments	19083	24
Donaldson	Patrick	not provided	N/A	Web-based Comments	25903	24
Donaldson	Patrick	not provided	N/A	Web-based Comments	58026	16
Donaldson	Susan	not provided	N/A	Web-based Comments	50255	34
Donaldson	Susan	not provided	N/A	Web-based Comments	29657	24
Dondlinger	Joseph	not provided	N/A	Web-based Comments	18357	24
Donegan	Chuck	not provided	N/A	Web-based Comments	48637	34
Donghy	Howrd	not provided	N/A	Web-based Comments	58286	16
Donkle	Page	not provided	N/A	Web-based Comments	52231	34
Donley	Erin	not provided	N/A	Web-based Comments	14215	24
Donley	Melissa	not provided	N/A	Web-based Comments	44869	34
Donna	Thomas	not provided	N/A	Web-based comments	4289	N/A
Donnell	Bruce	not provided	N/A	Web-based Comments	47570	34
Donnell	Peggy	not provided	N/A	Web-based Comments	26154	24
Donnelly	Bernie	bmpdonnelly@gmail.com	N/A	Web-based comments	5305	N/A
Donnelly	Laurie	not provided	N/A	Web-based Comments	20829	24
Donnelly	Serena	not provided	N/A	Web-based Comments	45574, 45575	34
Donnelly	Stephanie	not provided	N/A	Web-based Comments	29209	24
Donnelly	Stephen	not provided	N/A	Web-based Comments	29282	24
Donnelly	Tamela	not provided	N/A	Web-based Comments	30134	24
Donner	Tim	not provided	N/A	Web-based comments	3623	17
Donnici	Anthony	not provided	N/A	Web-based Comments	8332	24
D'Onofrio	Adam	not provided	N/A	Web-based Comments	49949	34
D'Onofrio	Adam	not provided	N/A	Web-based Comments	7044	24
Donoghue	Sheila	not provided	N/A	Web-based Comments	28783	24
Donohew	Ken	not provided	N/A	Web-based Comments	44829	34
Donohew	Ken	not provided	N/A	Web-based Comments	19971	24
Donohoe	Erika	not provided	N/A	Web-based Comments	46604	34
DONOHOE	JOE	not provided	N/A	Web-based Comments	17877	24
Donohue	Carolyn	not provided	N/A	Web-based Comments	10153	24
Donohue	Ginger	not provided	N/A	Web-based Comments	46601	34
Donohue	Rebecca	not provided	N/A	Web-based Comments	26721	24
DONOVAN	CAHARLENE	not provided	N/A	Web-based Comments	54723	34
Donovan	Elaine	not provided	N/A	Web-based Comments	13582	24
Donovan	Kathleen	not provided	N/A	Web-based comments	57162	35
DONOVAN	MARK	not provided	N/A	Web-based Comments	22912	24
Donovan	Mike	not provided	N/A	Web-based Comments	24445	24
Donovan	Monica	not provided	N/A	Web-based Comments	24623	24
Donovan	Stephan	not provided	N/A	Web-based Comments	45785, 45786	34
Donovan	Stephan	not provided	N/A	Web-based Comments	29189	24
Donovan	Steve	not provided	N/A	Web-based comments	4201	N/A
Dons-Borreguero	Abraham	not provided	N/A	Web-based Comments	7026	24
Donston	Kacey A	not provided	N/A	Web-based Comments	53391	34
Doochin	Dianne	not provided	N/A	Web-based Comments	12935	24
Doolen	Tina	not provided	N/A	Web-based Comments	53849	34
Doolen	Tina	not provided	N/A	Web-based Comments	30674	24
Dooley	Casey	tsuro12@hotmail.com	N/A	Web-based comments	1401	N/A
Dooley	Colleen	not provided	N/A	Web-based Comments	11261	24
doolin	deborah	not provided	N/A	Web-based Comments	12394	24
Doolin	Leslie	not provided	N/A	Web-based Comments	21065	24
Doolittle	Nancy	not provided	N/A	Web-based Comments	24844	24
Dopico	Marie	not provided	N/A	Web-based Comments	46945	34
Dopps	Vicki	not provided	N/A	Web-based Comments	31126	24
Dorale	Pamela	not provided	N/A	Web-based Comments	25541	24
Doran	Chris	not provided	N/A	Web-based Comments	10733	24
Dordick	Gwen	not provided	N/A	Web-based Comments	53478	34
Dordick	Gwen	not provided	N/A	Web-based Comments	15352	24
Dore	Christine	not provided	N/A	Web-based Comments	10913	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Dore[unreadable]	Perry	not provided	N/A	Web-based Comments	26225	24
Dorer	Michael	not provided	N/A	Web-based Comments	24068	24
Dorey	Denise	not provided	N/A	Web-based comments	57395	35
Dorfman	Karen	not provided	N/A	Web-based Comments	19084	24
Dorfman	Penny	not provided	N/A	Web-based Comments	26201	24
Dorgan	Katie	not provided	N/A	Web-based Comments	19787	24
Dorian	The	dmcglannan5@gmail.com	N/A	Web-based comments	2271	3
Dorion	Gale	not provided	N/A	Web-based Comments	14732	24
Doris	Didi	not provided	N/A	Web-based Comments	12953	24
Dorman	Jeff	not provided	N/A	Web-based Comments	46232	34
Dorman	Marsha	not provided	N/A	Web-based Comments	23068	24
Dorman	Richard	70dorman@gmail.com	N/A	Web-based comments	5750	N/A
Dorn	DAVID	not provided	N/A	Web-based Comments	11995	24
Dorn	Kathryn	not provided	N/A	Web-based Comments	19638	24
Dorn	Scott	not provided	N/A	Web-based Comments	58573	34
Dorn	Valerie	not provided	N/A	Web-based Comments	50018, 50019	34
Dorn	Valerie	not provided	N/A	Web-based Comments	31020	24
Dornfeld	Robert	not provided	N/A	Web-based Comments	27249	24
Doroszewicz	Wojtek	not provided	N/A	Web-based Comments	56524	34
DOROW	ERNEST	thepikeking@msn.com	N/A	Web-based comments	2513	N/A
Dorr	Gary	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4235	N/A
Dorr	Kathy	not provided	N/A	Web-based Comments	19694	24
Dorraj	Pat	not provided	N/A	Web-based Comments	25644	24
Dorris	Virginia	not provided	N/A	Web-based Comments	46077	34
Dorsa	Marc	not provided	N/A	Web-based Comments	22332	24
Dorsey	Ann	not provided	N/A	Web-based Comments	8024	24
Dorsey	Judy	not provided	N/A	Web-based Comments	18677	24
Dorsey	Kathryn	not provided	N/A	Web-based Comments	19639	24
Dorsey	Thomas	not provided	N/A	Web-based Comments	52293, 52294	34
Dorsey	Thomas	not provided	N/A	Web-based Comments	30487	24
Dorson	Edward	not provided	N/A	Web-based comments	57036	35
Dos santos	Jamie	not provided	N/A	Web-based Comments	16354	24
Dosch	Mary	not provided	N/A	Web-based Comments	44996, 44997	34
Doshier	Christine	not provided	N/A	Web-based Comments	10914	24
Dosky	Pat	not provided	N/A	Web-based Comments	25645	24
Doss	Harley	not provided	N/A	Web-based Comments	15437	24
doster	clara	not provided	N/A	Web-based Comments	54726	34
dotson	richard	not provided	N/A	Web-based Comments	26961	24
Dotterer	Vicki	not provided	N/A	Web-based Comments	31127	24
Doty	David	not provided	N/A	Web-based Comments	11996	24
Doty	Gregory	not provided	N/A	Web-based Comments	15274	24
Doty	R	not provided	N/A	Web-based Comments	26472	24
Dotzauer	Uwe	not provided	N/A	Web-based Comments	30986	24
Dotzler	Patricia	not provided	N/A	Web-based Comments	25740	24
Douaire	Twyla	not provided	N/A	Web-based Comments	30955	24
Doubleday	Peri	not provided	N/A	Web-based Comments	26221	24
Doucet	Lisha	not provided	N/A	Web-based Comments	52121	34
Doucet	Lisha	not provided	N/A	Web-based Comments	21671	24
Doucette	John	not provided	N/A	Web-based Comments	18009	24
DOUCETTE	ROB	not provided	N/A	Web-based Comments	27172	24
Doud	Carol	not provided	N/A	Web-based comments	57073	35
Doug	Ly	not provided	N/A	Web-based Comments	53133	34
Doug	Lyle	not provided	N/A	Web-based Comments	53868	34
Doug	Lyle	not provided	N/A	Web-based Comments	22003	24
Dougan	Jami	not provided	N/A	Web-based Comments	16350	24
dougher	marilyn	not provided	N/A	Web-based Comments	54592, 54593	34
Dougherty	Cassandra	not provided	N/A	Web-based Comments	10231	24
Dougherty	Eric	not provided	N/A	Web-based Comments	14098	24
Dougherty	Kari	not provided	N/A	Web-based Comments	54126	34
Dougherty	Lyle	not provided	N/A	Web-based Comments	22004	24
Dougherty	Sue	not provided	N/A	Web-based Comments	56142	34
Doughty	Cynthia	not provided	N/A	Web-based Comments	11507	24
Doughty	Karen	not provided	N/A	Web-based Comments	19085	24
Douglas	Dianne	not provided	N/A	Web-based Comments	50244	34
Douglas	Dianne	not provided	N/A	Web-based Comments	12936	24
Douglas	Kenneth	not provided	N/A	Web-based Comments	55978	34
Douglas	Kenneth	not provided	N/A	Web-based Comments	20011	24
Douglas	L	not provided	N/A	Web-based Comments	20478	24
Douglas	Laura	not provided	N/A	Web-based Comments	20632	24
douglas	norman	not provided	N/A	Web-based Comments	25396	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Douglas	T	not provided	N/A	Web-based Comments	30088	24
Douglas	Thomas	not provided	N/A	Web-based Comments	30488	24
Douglas	Virginia	not provided	N/A	Web-based Comments	31281	24
Douglas Lummis	C	not provided	N/A	Web-based Comments	9667	24
Douglass	Amy	not provided	N/A	Web-based Comments	56288	34
Douglass	Amy	not provided	N/A	Web-based Comments	7606	24
Douglass	Karen	not provided	N/A	Web-based Comments	19086	24
Douglass	Sharon	not provided	N/A	Web-based Comments	28648	24
Doukas	Gayle	not provided	N/A	Web-based Comments	14822	24
Doulatshahi	Paulette	not provided	N/A	Web-based Comments	52253	34
Doumen	Kim	not provided	N/A	Web-based Comments	20169	24
doust	james	not provided	N/A	Web-based Comments	16208	24
Dover	Barbara	not provided	N/A	Web-based Comments	8666	24
Dover	Ben	bsdover@msn.com	N/A	Web-based comments	3573	N/A
Dover-Pearl	Morgan	not provided	N/A	Web-based Comments	24667	24
Dovgin	Richard	not provided	N/A	Web-based Comments	26962	24
Dow	Ann	not provided	N/A	Web-based Comments	54193	34
Dow	Ann	not provided	N/A	Web-based Comments	8025	24
dow	dawn	not provided	N/A	Web-based Comments	12208	24
Dow	Isabel	not provided	N/A	Web-based Comments	15933	24
dow	michele	not provided	N/A	Web-based Comments	24283, 24284	24
Dowd	Therese	not provided	N/A	Web-based Comments	30457	24
dowdall	dan	not provided	N/A	Web-based Comments	47862	34
Dowdy	Margaret	not provided	N/A	Web-based Comments	22445	24
Dowek	Maddie	not provided	N/A	Web-based comments	6575	N/A
Dowling	Ashley	not provided	N/A	Web-based comments	57329	35
Dowling	Deborah	not provided	N/A	Web-based Comments	12395	24
Dowling	Glenna	not provided	N/A	Web-based Comments	15143	24
Dowling	Holly	not provided	N/A	Web-based Comments	50726, 53619	34
Dowling	Holly	not provided	N/A	Web-based Comments	15740	24
Down	Arden	not provided	N/A	Web-based Comments	8398	24
Downes	Robert	not provided	N/A	Web-based Comments	27250	24
Downey	Ann	not provided	N/A	Web-based Comments	8026	24
Downey	Deirdre	not provided	N/A	Web-based Comments	55659	34
Downey	Deirdre	not provided	N/A	Web-based Comments	12593	24
Downey	Janet	not provided	N/A	Web-based Comments	53470	34
Downey	Janet	not provided	N/A	Web-based Comments	16589	24
Downing	Casie	not provided	N/A	Web-based Comments	10229	24
Downing	Jennifer	not provided	N/A	Web-based Comments	54042	34
Downing	Mary	not provided	N/A	Web-based Comments	23255	24
Downing	Nancy	not provided	N/A	Web-based Comments	24845	24
Downing	Richard	not provided	N/A	Web-based Comments	26963	24
Downing	Richard	not provided	N/A	Web-based Comments	58202	16
Downing	Rosamund	not provided	N/A	Web-based Comments	50770, 53418	34
Downing	Rosemarie	not provided	N/A	Web-based Comments	27747	24
Downing	Steve	not provided	N/A	Web-based Comments	29360	24
Downing	Tammy	not provided	N/A	Web-based Comments	30152	24
Downing-Warren	Emma	not provided	N/A	Web-based Comments	54581	34
Downs	Erin	not provided	N/A	Web-based Comments	14216	24
DOWNS	LORETTA	not provided	N/A	Web-based Comments	21760	24
Dows	Wena	not provided	N/A	Web-based Comments	31404	24
Dowson	Eleanor	not provided	N/A	Web-based Comments	52724	34
Dowson	Eleanor	not provided	N/A	Web-based Comments	13627	24
Doyka	Christine	not provided	N/A	Web-based Comments	10915	24
Doyle	Grace	not provided	N/A	Web-based comments	57291	35
Doyle	Grace	not provided	N/A	Web-based Comments	15189	24
Doyle	Kathleen	not provided	N/A	Web-based comments	57320	35
Doyle	Kathleen	not provided	N/A	Web-based Comments	15770	24
Doyle	Nora	not provided	N/A	Web-based Comments	25356	24
Doyle	Paula	not provided	N/A	Web-based Comments	26077	24
Doyle	Polly	not provided	N/A	Web-based Comments	45658, 45659	34
Doyne	Nancy	not provided	N/A	Web-based Comments	24846	24
Doyon	Jessyca	not provided	N/A	Web-based Comments	17481	24
Doyon	Lisa	not provided	N/A	Web-based Comments	21546	24
doyon	nancy	not provided	N/A	Web-based Comments	24847	24
Doyon	Sarah	not provided	N/A	Web-based Comments	28344	24
Dozor	Emily	not provided	N/A	Web-based Comments	14014	24
Dr. Duemmer	Manfred	not provided	N/A	Web-based Comments	22307	24
Dr. Herrfeld	Andreas	not provided	N/A	Web-based Comments	7784	24
Dr. Herrfeld	Patricia	not provided	N/A	Web-based Comments	25741	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Dra	Bern	not provided	N/A	Web-based Comments	8981	24
Drabbs	Mary	not provided	N/A	Web-based Comments	23256	24
Drabick	Devon	not provided	N/A	Web-based Comments	12740	24
Drabik	Jeanne	not provided	N/A	Web-based Comments	16942	24
Drabkin	William	not provided	N/A	Web-based Comments	31526	24
Drace	Lindsay	not provided	N/A	Web-based Comments	21480	24
Drache	Kay	not provided	N/A	Web-based Comments	19820	24
Draeger	Ramona	not provided	N/A	Web-based Comments	44553	34
Draeger	Ramona	not provided	N/A	Web-based Comments	26602	24
Dragan	Kim	not provided	N/A	Web-based Comments	20170	24
Dragic	Ana	not provided	N/A	Web-based Comments	48116	34
Dragon	David	not provided	N/A	Web-based Comments	54842	34
Dragon	David	not provided	N/A	Web-based Comments	11997	24
Dragon	Water	not provided	N/A	Web-based Comments	58083	16
Dragovich	Martha	not provided	N/A	Web-based Comments	58284	16
Draheim	Daniel	not provided	N/A	Web-based Comments	56603	34
Drake	Clare	not provided	N/A	Web-based Comments	11159	24
Drake	Elise	not provided	N/A	Web-based Comments	13689	24
Drake	Mary	not provided	N/A	Web-based Comments	45464	34
Drake	Paul Howard and Stacy	not provided	N/A	Web-based Comments	54867	34
Drake	Priscilla	not provided	N/A	Web-based Comments	51743	34
Drake	Priscilla	not provided	N/A	Web-based Comments	26442	24
Draper	Barbara	not provided	N/A	Web-based Comments	8667	24
Draper	Dyan	not provided	N/A	Web-based Comments	49355	34
Draper	Janet	not provided	N/A	Web-based Comments	16590	24
Draper	Marc	not provided	N/A	Web-based Comments	46118, 46119	34
Draper	Sidney	not provided	N/A	Web-based Comments	54361	34
Draper	Simon	not provided	N/A	Web-based Comments	48861	34
Draperich	Caroline	caroline.draperich@gmail.com	N/A	Web-based comments	2868	N/A
Draper-Livengood	Amanda	not provided	N/A	Web-based Comments	7528	24
Drase	Dan	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	5565	N/A
draughon	sheila	not provided	N/A	Web-based Comments	56409	34
draus	sandy	not provided	N/A	Web-based Comments	52251	34
Dravis	Jeffrey	not provided	N/A	Web-based Comments	17075	24
Drayton	Don	dfdrayton@hotmail.com	N/A	Web-based comments	2941	N/A
Dreâˆ šÃ¼ler	Jâˆ šÂºrgen	not provided	N/A	Web-based Comments	16023	24
Dreckshage	Brian	not provided	N/A	Web-based Comments	9470	24
Drecktrah	David	not provided	N/A	Web-based Comments	51839	34
Drecktrah	David	not provided	N/A	Web-based Comments	11998	24
Dredge	Melinda	mattnmelinda@gmail.com	N/A	Web-based comments	3287	13
Drees	Heather aka Heth	not provided	N/A	Web-based Comments	52072	34
Drees	Susan	not provided	N/A	Web-based Comments	46501	34
Drees	Susan	not provided	N/A	Web-based Comments	29658	24
Dreier	Claudia	not provided	N/A	Web-based Comments	51461	34
Dreier	Tamara	not provided	N/A	Web-based Comments	30120	24
Dreiling	Diane	not provided	N/A	Web-based Comments	12831	24
Dreman	Edward	not provided	N/A	Web-based Comments	13491	24
dreman	ruth	not provided	N/A	Web-based Comments	27863	24
Drembus	Joel	not provided	N/A	Web-based Comments	53697, 53698	34
Drembus	Joel	not provided	N/A	Web-based Comments	17908	24
Drembus	Laura	not provided	N/A	Web-based Comments	20633	24
Dremeaux	Myra	not provided	N/A	Web-based Comments	24712	24
Drennen	Karen	not provided	N/A	Web-based Comments	46058	34
Drennen	Karen	not provided	N/A	Web-based Comments	19087	24
drescher	frances	not provided	N/A	Web-based Comments	14476	24
Drescher	Louise	not provided	N/A	Web-based Comments	21883	24
Drescher	William	not provided	N/A	Web-based Comments	31527	24
Dress	James	not provided	N/A	Web-based Comments	16209	24
Dressel	Ashley	not provided	N/A	Web-based Comments	8481	24
Dressendorfer	Pat	not provided	N/A	Web-based Comments	25646	24
Drever	Kevin	not provided	N/A	Web-based Comments	20097	24
Drevland	Randi	not provided	N/A	Web-based Comments	26621	24
Drew	Craig	not provided	N/A	Web-based Comments	11419	24
Drew	Janet	not provided	N/A	Web-based Comments	16591	24
Drewelow	Beth	not provided	N/A	Web-based Comments	47648	34
Drewes	Jean	not provided	N/A	Web-based Comments	50153	34
Drewry	Ellen	not provided	N/A	Web-based Comments	13907	24
Drews	Ingeborg	not provided	N/A	Web-based comments	56801	35
Drews	Jane	not provided	N/A	Web-based Comments	52354	34

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Drews	Jane	not provided	N/A	Web-based Comments	16473	24
Drexler	Herbert	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58756	13
Dreyer	Deborah	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58745	13
Driesen	Drew	not provided	N/A	Web-based Comments	13374	24
Driessen	Lynn	not provided	N/A	Web-based Comments	49222, 49223	34
Driggs	Allan	not provided	N/A	Web-based comments	3539	13
Drinkard	Alex	alexanderdrinkard@gmail.com	N/A	Web-based comments	1535	N/A
Drinkwater	Edward	not provided	N/A	Web-based Comments	13492	24
Drinkwater	Rob	not provided	N/A	Web-based Comments	49328	34
Drinovz	Yvonne	not provided	N/A	Web-based Comments	58437	34
Driscoll	Arthur	not provided	N/A	Web-based Comments	8459	24
Driscoll	Frank	not provided	N/A	Web-based Comments	47774	34
Driscoll	G	not provided	N/A	Web-based Comments	14613	24
Driscoll	G.	not provided	N/A	Web-based Comments	53496	34
Driscoll	J.	not provided	N/A	Web-based Comments	56249	34
Driscoll	Jack	not provided	N/A	Web-based Comments	16031	24
Driscoll	Rosalyn	not provided	N/A	Web-based Comments	27707	24
Driskell	Shelley	not provided	N/A	Web-based Comments	49763, 49764	34
Driskill	Mary	not provided	N/A	Web-based Comments	23257	24
Driver	Cynthia	not provided	N/A	Web-based Comments	11508	24
Drizin	Craig	not provided	N/A	Web-based Comments	55344	34
Drobeck	Susan	not provided	N/A	Web-based Comments	29659	24
Drobny	Dayna	not provided	N/A	Web-based Comments	12256	24
Drockelman	Nancy	not provided	N/A	Web-based comments	57200	35
Drop	Robert	not provided	N/A	Web-based Comments	52820, 52821	34
Drop	Robert	not provided	N/A	Web-based Comments	27251	24
Droppa	Christopher	not provided	N/A	Web-based Comments	11007	24
Drose	Bri	not provided	N/A	Web-based Comments	9452	24
Drosman	Barbara	not provided	N/A	Web-based Comments	50208	34
Droughton	Angela	droughtonangela@gmail.com	N/A	Web-based comments	884	N/A
Drouin	Dale	not provided	N/A	Web-based Comments	11625	24
Droz	Beverly	not provided	N/A	Web-based Comments	9122	24
Drozdyk	Carol	not provided	N/A	Web-based Comments	9918	24
Drucker	Lm	not provided	N/A	Web-based Comments	50088, 50089	34
Drucker	Susan	not provided	N/A	Web-based Comments	53744	34
druckman	susan	not provided	N/A	Web-based Comments	29660	24
Druetzler	James	not provided	N/A	Web-based Comments	16210	24
Druffel	Leslie	leslie.druffel@mcgregor.com	N/A	Web-based comments	2819	N/A
Druffel	Leslie	leslie.druffel@mcgregor.com	N/A	Hand-delivered or oral testimony (personally delivered)	4220	N/A
Druhan	Rhonda	not provided	N/A	Web-based Comments	46022	34
Drumm	Martin	Martin_Drumm@yahoo.com	N/A	Web-based comments	1684	N/A
Drummond	Anna	not provided	N/A	Web-based Comments	45708, 45709	34
Drummond	Anna	not provided	N/A	Web-based Comments	8126	24
Drummond	Grace	not provided	N/A	Web-based Comments	57792	34
drummond	james	not provided	N/A	Web-based comments	5312	8
Drummond	William	not provided	N/A	Web-based Comments	31528	24
Drumright	Chris	not provided	N/A	Web-based Comments	51358, 51359	34
Drury	Bob	not provided	N/A	Web-based Comments	9230	24
Druwing	Bob	not provided	N/A	Web-based Comments	49037	34
Druwing	Bob	not provided	N/A	Web-based Comments	9231	24
Dryburgh	Mary	mary_dryburgh@hotmail.com	N/A	Web-based comments	4504	N/A
Dryden	Marshall	not provided	N/A	Web-based comments	3083	N/A
Dryer	Ellen	not provided	N/A	Web-based Comments	13908	24
Dryer	James	not provided	N/A	Web-based Comments	16211	24
Dryer	Richard	rdryer@comcast.net	N/A	Web-based comments	5199	N/A
Dryer	Valerie	not provided	N/A	Web-based Comments	31021	24
Drysdale	Mil	not provided	N/A	Web-based Comments	55895	34
Drysdale	Mil	not provided	N/A	Web-based Comments	24504	24
du Mont	Lyn	not provided	N/A	Web-based comments	57598	35
du Mont	lyn	not provided	N/A	Web-based Comments	22007	24
Duarte	Deyanira	not provided	N/A	Web-based Comments	12743	24
Dubay	Rene	dubay.rene@gmail.com	N/A	Web-based comments	6316	3
Dubay	Unreadable	not provided	N/A	Web-based Comments	26816	24
Dubey	Aditi	not provided	N/A	Web-based Comments	7074	24
dubin	william & Barabra	not provided	N/A	Web-based Comments	31612	24
Dubinsky	Jesse	not provided	N/A	Web-based Comments	17389	24
dublin	lee	not provided	N/A	Web-based Comments	20929	24
Dubois	Annette	not provided	N/A	Web-based Comments	56574	34
dubois	gilles	not provided	N/A	Web-based Comments	50487	N/A
DuBois	John	not provided	N/A	Web-based Comments	47968	34

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
DuBois	John	not provided	N/A	Web-based Comments	18010	24
Dubois	Sebastien	not provided	N/A	Web-based Comments	28527	24
Dubourgnon	Eric	not provided	N/A	Web-based Comments	52902, 52903	34
Dubourgnon-arsac	Carole	not provided	N/A	Web-based Comments	48173, 48174	34
Dubow	Elyse	not provided	N/A	Web-based Comments	49417	34
duburg anchen	celine	not provided	N/A	Web-based Comments	10443	24
DuCharme	Christy	not provided	N/A	Web-based Comments	11042	24
DuCharme	Christy	not provided	N/A	Web-based Comments	11043	24
Duckett	Mary	not provided	N/A	Web-based Comments	49920	34
Duckworth	Carole	not provided	N/A	Web-based Comments	52682	34
Duckworth	Lisa	not provided	N/A	Web-based Comments	50843	34
Duckworth	Nadine	not provided	N/A	Web-based Comments	24760	24
DuClaud	Monica	not provided	N/A	Web-based Comments	50756	34
DuClaud	Monica	not provided	N/A	Web-based Comments	24624	24
Duclos	Nicole	not provided	N/A	Web-based Comments	25231	24
Duda	Tim	not provided	N/A	Web-based Comments	48629	34
Duda	Tim	not provided	N/A	Web-based Comments	30602	24
Dudan	Don	not provided	N/A	Web-based Comments	13016	24
Dudeck	Michelle	not provided	N/A	Web-based Comments	54119, 54120	34
Dudek	Jan	not provided	N/A	Web-based Comments	16391	24
Dudek	Jill	not provided	N/A	Web-based Comments	17504	24
Dudley	Alexander	not provided	N/A	Web-based Comments	7261	24
Dudley	George	not provided	N/A	Web-based Comments	14888	24
Dudley	Greg	not provided	N/A	Web-based Comments	15232	24
Dudley	Gregory	not provided	N/A	Web-based Comments	50065	34
Dudley	William	not provided	N/A	Web-based Comments	54091	34
Dudley	William	not provided	N/A	Web-based Comments	31529	24
Dudziec	George	not provided	N/A	Web-based Comments	14889	24
Duerden	Claire	not provided	N/A	Web-based Comments	11124	24
Duerr	Michael	not provided	N/A	Web-based Comments	24069	24
Duerre	Michelle	Seattle@seashepherd.org	N/A	Web-based comments	57456, 1562	35, 1
Dufau	Pat	not provided	N/A	Web-based Comments	25647	24
Duff	Joyce	not provided	N/A	Web-based Comments	18485	24
Duffey	Robin	not provided	N/A	Web-based Comments	53996	34
Duffield	George	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32443	32
Duffin	Jackie	not provided	N/A	Web-based Comments	51826, 51827	34
Duffin	Laura	not provided	N/A	Web-based Comments	20634	24
Dufford	Janis	not provided	N/A	Web-based Comments	16738	24
Duffus	Kathleen	not provided	N/A	Web-based Comments	48269	34
Duffus	Kathleen	not provided	N/A	Web-based Comments	19530	24
Duffy	Diana	not provided	N/A	Web-based Comments	44971, 44972	34
Duffy	Diana	not provided	N/A	Web-based Comments	12765	24
Duffy	Ellen	not provided	N/A	Web-based Comments	13909	24
Duffy	Mike	not provided	N/A	Web-based Comments	24446	24
Duffy	Patty	not provided	N/A	Web-based Comments	49533	34
duffy	terry	not provided	N/A	Web-based Comments	47719	34
Duflo	Adam	not provided	N/A	Web-based Comments	7045	24
DuFrane	Darlene	not provided	N/A	Web-based Comments	11879	24
Dufresne	L	not provided	N/A	Web-based Comments	56519	34
Duft	Jill	not provided	N/A	Web-based Comments	17505	24
Dugan	Alexander	not provided	N/A	Web-based Comments	51471	34
Dugan	Deborah	not provided	N/A	Web-based Comments	12396	24
Dugan	Kit	not provided	N/A	Web-based Comments	20285	24
Dugan	Meg	not provided	N/A	Web-based Comments	56009, 56010	34
Dugan	Michelle	not provided	N/A	Web-based Comments	52076	34
Dugan	Michelle	not provided	N/A	Web-based Comments	24340	24
Dugan	Pamela	not provided	N/A	Web-based Comments	45015	34
Dugan	Pamela	not provided	N/A	Web-based Comments	25542	24
Dugan	Robert	not provided	N/A	Web-based Comments	27252	24
Dugaw	Anne	not provided	N/A	Web-based Comments	49091	34
Duggan	Betty	not provided	N/A	Web-based Comments	47882	34
Duggan	Betty	not provided	N/A	Web-based Comments	9092	24
Duggan	Eric	not provided	N/A	Web-based Comments	58015, 44334	16, 34
Duggan	Eric	not provided	N/A	Web-based Comments	14099	24
Dugger	Marvin	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58805	N/A
DUGINA	TATIANA	not provided	N/A	Web-based Comments	30221	24
Dujardin	Kathryn	not provided	N/A	Web-based Comments	51793	34
Dujardin	Kathryn	not provided	N/A	Web-based Comments	19640	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Dujardin	Trudy	not provided	N/A	Web-based Comments	30943	24
Duke	Annette	not provided	N/A	Web-based Comments	8278	24
Duke	Brookley	not provided	N/A	Web-based Comments	9589	24
Duke	Lisa	not provided	N/A	Web-based Comments	46393	34
Duke	Marilyn	not provided	N/A	Web-based Comments	22774	24
Duke	Ronald	not provided	N/A	Web-based Comments	27654	24
Dukelow	Gary	gary@dukelow.com	N/A	Web-based comments	1824	N/A
Dulac	Dawn	not provided	N/A	Web-based Comments	12209	24
Dulc	Susan	not provided	N/A	Web-based Comments	49595	34
Duling	Jerry	jerryduling@gmail.com	N/A	Web-based comments	2864	N/A
Dull	Julie	not provided	N/A	Web-based Comments	18829	24
Dull	Shirley	not provided	N/A	Web-based Comments	28948	24
Dull	Wilma	not provided	N/A	Web-based Comments	31623	24
Duller	Linda	not provided	N/A	Web-based Comments	56480	34
Duman	Bonnie	not provided	N/A	Web-based Comments	9291	24
Dumas	Ambrine	not provided	N/A	Web-based Comments	7573	24
Dumas	Marc	not provided	N/A	Web-based Comments	48460	34
Dumas	Marc	not provided	N/A	Web-based Comments	22333	24
Dumauthioz	Anne	not provided	N/A	Web-based comments	57398	35
Dumke	Sandy	not provided	N/A	Web-based Comments	52761	34
Dumler	Robin	not provided	N/A	Web-based Comments	48984	34
Dumler	Robin	not provided	N/A	Web-based Comments	27477	24
Dumonchelle	Asher	jellyfish7734@gmail.com	N/A	Web-based comments	1059	N/A
Dumont	Brenda	not provided	N/A	Web-based Comments	9395	24
Dumont	Mireille	not provided	N/A	Web-based Comments	53764	34
Dumont	Mireille	not provided	N/A	Web-based Comments	24541	24
Dumser	N.	not provided	N/A	Web-based Comments	24738	24
Dun	William	not provided	N/A	Web-based Comments	31530	24
Dunaev	Alexander	not provided	N/A	Web-based Comments	44818	34
Dunaev	Alexander	not provided	N/A	Web-based Comments	7262	24
Dunal MD MPH	Cathie	not provided	N/A	Web-based Comments	10339	24
Dunbabin	Katie	kcdunbabin@comcast.net	N/A	Web-based comments	5957	1
Dunbar	Betty	not provided	N/A	Web-based Comments	9093	24
Dunbar	Jean	not provided	N/A	Web-based Comments	16843	24
Dunbar	Joseph	not provided	N/A	Web-based Comments	18358	24
Dunbar	Karen	not provided	N/A	Web-based Comments	19088	24
Duncan	Abigail	not provided	N/A	Web-based Comments	7019	24
Duncan	Andrea	not provided	N/A	Web-based Comments	7739	24
Duncan	Dana	not provided	N/A	Web-based Comments	11690	24
Duncan	Denny	not provided	N/A	Web-based Comments	56511	34
Duncan	Diana	not provided	N/A	Web-based Comments	54965	34
Duncan	Donna	not provided	N/A	Web-based Comments	13126	24
Duncan	Graham	not provided	N/A	Web-based Comments	51035	34
Duncan	Graham	not provided	N/A	Web-based Comments	15213	24
Duncan	Janine	not provided	N/A	Web-based Comments	16727	24
Duncan	Jaye	not provided	N/A	Web-based Comments	51280, 51281	34
Duncan	Jaye	not provided	N/A	Web-based Comments	16821	24
Duncan	Joanne	not provided	N/A	Web-based Comments	17798	24
duncan	mara	not provided	N/A	Web-based Comments	22319	N/A
Duncan	Michelle	michellekduncan@gmail.com	N/A	Web-based comments	2782	1
Duncan	Nicholas	muliebk@hotmail.com	N/A	Web-based comments	1917	N/A
Duncan	sarah	wearetheduncans@gmail.com	N/A	Web-based comments	1918	N/A
Duncan	Sue	not provided	N/A	Web-based Comments	49210, 49211	34
Duncan II	E	not provided	N/A	Web-based Comments	13410	24
Dundes	Jane	not provided	N/A	Web-based Comments	16474	24
Dunham	Moneca	not provided	N/A	Web-based Comments	24613	24
Dunham	Susan	not provided	N/A	Web-based Comments	29661	24
Dunham	Suzanne	not provided	N/A	Web-based comments	57240	35
Dunham	Tracey	not provided	N/A	Web-based comments	57011	35
Dunham	William	williamdunham07@gmail.com	N/A	Web-based comments	2936	N/A
Duni	Zoe	not provided	N/A	Web-based Comments	31733	24
Dunivan	Jenny	not provided	N/A	Web-based Comments	17289	24
Dunivant	Terre	not provided	N/A	Web-based Comments	49753	34
Dunk	Fay van	not provided	N/A	Web-based Comments	56227	34
Dunkel	Trevor	not provided	N/A	Web-based Comments	30897	24
Dunkelberger	John	not provided	N/A	Web-based Comments	18011	24
Dunker	Tristan	not provided	N/A	Web-based Comments	30929	24
Dunkerley	Harriet	not provided	N/A	Web-based Comments	15449	24
Dunkley	Julianne	not provided	N/A	Web-based Comments	18804	24
Dunlap	Kip	not provided	N/A	Web-based comments	3727	10

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Dunlap	Kristin	not provided	N/A	Web-based Comments	20372	24
Dunlap	Patricia	not provided	N/A	Web-based Comments	25742	24
Dunn	Betty	not provided	N/A	Web-based Comments	46734	34
Dunn	Brittney	not provided	N/A	Web-based Comments	9573	24
Dunn	Curtis	not provided	N/A	Web-based Comments	49916	34
Dunn	Don	donbdunn@charter.net	N/A	Web-based comments	6192	N/A
Dunn	Gillian	not provided	N/A	Web-based Comments	15038	24
Dunn	Jane	not provided	N/A	Web-based Comments	16475	24
Dunn	John	not provided	N/A	Web-based Comments	45677	34
dunn	kathy	not provided	N/A	Web-based Comments	58412	34
Dunn	Kellen	not provided	N/A	Web-based Comments	52337	34
Dunn	Kelly	not provided	N/A	Web-based Comments	19916	24
Dunn	Lois	not provided	N/A	Web-based Comments	45385	34
Dunn	Margaret	not provided	N/A	Web-based Comments	22446	24
Dunn	Maria	not provided	N/A	Web-based Comments	22592	24
Dunn	Megan	not provided	N/A	Web-based Comments	23785	24
Dunn	Micah	not provided	N/A	Web-based Comments	49300	34
Dunn	Micah	not provided	N/A	Web-based Comments	24010	24
Dunn	Nina	not provided	N/A	Web-based Comments	25304	24
Dunn	Rachel	not provided	N/A	Web-based comments	57692	35
Dunn	Robbin	not provided	N/A	Web-based Comments	27195	24
Dunn	Sara	not provided	N/A	Web-based Comments	57835	34
Dunn	Sherry	not provided	N/A	Web-based Comments	28885	24
Dunn	Timothy	not provided	N/A	Web-based Comments	49248	34
Dunn	Timothy	not provided	N/A	Web-based Comments	30643	24
Dunn	Tracey	not provided	N/A	Web-based Comments	30839	24
Dunn	Tracy	not provided	N/A	Web-based Comments	30866	24
Dunn	Troy	lemonkynin@gmail.com	N/A	Web-based comments	215	N/A
Dunn	Veronica	not provided	N/A	Web-based Comments	31097	24
Dunne	Alan	not provided	N/A	Web-based Comments	46383	34
Dunne	Clement	not provided	N/A	Web-based Comments	11217	24
Dunne	Elizabeth	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	6942	N/A
Dunne	Joanna	not provided	N/A	Web-based Comments	17786	24
Dunning	Carolyn	not provided	N/A	Web-based Comments	10154	24
Dunoyer	Arnaud	not provided	N/A	Web-based Comments	8447	24
Dunphy	Lisa	not provided	N/A	Web-based Comments	46480, 46481	34
Dunson	Debra	not provided	N/A	Web-based Comments	54718	34
Duon	Nicolas	not provided	N/A	Web-based Comments	47474, 47565	34
DuPar	Stephen	not provided	N/A	Web-based Comments	29283	24
Duperre	Amber	not provided	N/A	Web-based Comments	50554	34
DuPre	Carole	not provided	N/A	Web-based Comments	10077	24
Dupre	Rebecca	not provided	N/A	Web-based Comments	26722	24
DuPree	Marjean	not provided	N/A	Web-based Comments	22873	24
Duque	Jimena	not provided	N/A	Web-based Comments	51614	34
Duquette	Carleen	not provided	N/A	Web-based comments	56954	35
Durak	Carolyn	not provided	N/A	Web-based Comments	10155	24
Duran	C. Denise	not provided	N/A	Web-based Comments	9702	24
Duran	Mariah	not provided	N/A	Web-based comments	6928	1
Durand	Sraddha	not provided	N/A	Web-based Comments	29099	24
Durant	Laura Evans	not provided	N/A	Web-based Comments	58413	34
Durbin	Kira	not provided	N/A	Web-based Comments	48552, 48611	34
DURBIN	KIRA	not provided	N/A	Web-based Comments	20265	24
Durbin	Martha	not provided	N/A	Web-based Comments	23100	24
Durda	Jaysen	not provided	N/A	Web-based Comments	16832	24
Durell	Diane	not provided	N/A	Web-based comments	56863	35
Duren	Johanna Van	not provided	N/A	Web-based Comments	46486	34
Durfeey	Adele	not provided	N/A	Web-based Comments	7066	24
Durfey	Jim	jdurfey406@gmail.com	N/A	Web-based comments	3120	N/A
Durgin	Michael	not provided	N/A	Web-based comments	56998	35
Durgin	Patrease	not provided	N/A	Web-based Comments	25687	24
Durham	Joan	not provided	N/A	Web-based Comments	17681	24
Durham	Mark	markdurham@durhambrands.com	N/A	Web-based comments	3581	13
Durkin	Joyce	not provided	N/A	Web-based Comments	18486	24
Durko	Donna	not provided	N/A	Web-based Comments	13127	24
Durland	Hannah	not provided	N/A	Web-based Comments	15400	24
Durland	Melissa	not provided	N/A	Web-based Comments	45702	34
Durling	Rachel	not provided	N/A	Web-based comments	5935	1
Durnan	Kameron	not provided	N/A	Web-based Comments	19015	24
Durnell	Tim	not provided	N/A	Web-based Comments	55177	34

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Durnell	Tim	not provided	N/A	Web-based Comments	30603	24
Durocher	Marianne	not provided	N/A	Web-based Comments	22675	24
Duronio	Angela	not provided	N/A	Web-based Comments	7897	24
Duroux	Valerie	not provided	N/A	Web-based Comments	56148	34
Durrant	Richard	rddurrant@man.com	N/A	Web-based comments	3066	N/A
Durrer	Mary	not provided	N/A	Web-based Comments	23258	24
Durrum	Kathy	not provided	N/A	Web-based Comments	19695	24
Durtschi	Alfred	mark@durtschi.com	N/A	Web-based comments	3311	N/A
Dury	Gaila	not provided	N/A	Web-based Comments	14727	24
Duryea	Carolyn	not provided	N/A	Web-based Comments	53832, 53833	34
Dusanovska	Natalia	not provided	N/A	Web-based Comments	25053	24
Dusanovska	Nataliia	not provided	N/A	Web-based Comments	50015	34
Dusek	Russell	not provided	N/A	Web-based Comments	27833	24
Dusen	Alison Van	not provided	N/A	Web-based Comments	44529	34
Dusenberry	Bethany	not provided	N/A	Web-based Comments	48492	34
Dussia	Mary	not provided	N/A	Web-based comments	57215	35
Dutka	Cindy M.	not provided	N/A	Web-based Comments	11109	24
Dutra	Bruno	not provided	N/A	Web-based Comments	9631	24
Dutschke	Stephen	not provided	N/A	Web-based Comments	53562, 53563	34
Dutschke	Stephen	not provided	N/A	Web-based Comments	29284	24
Dutto	Gail	not provided	N/A	Web-based Comments	14678	24
Dutton	Carol	not provided	N/A	Web-based Comments	9919	24
Dutton	John	not provided	N/A	Web-based Comments	53646, 53647	34
Duval	Ashley	not provided	N/A	Web-based Comments	54806	34
Duval	Chris	not provided	N/A	Web-based Comments	10734	24
Duval	Ella	not provided	N/A	Web-based Comments	13885	24
Duvall	Ethan	ethan0048@live.com	N/A	Web-based comments	1786	1
Duvall	Kate	not provided	N/A	Web-based Comments	19372	24
DuValle	Ruth	not provided	N/A	Web-based Comments	27864	24
Duwa	Kolton	not provided	N/A	Web-based Comments	20305	24
Duyck	Kevin	kevinduyckfarm@aol.com	N/A	Web-based comments	3111	9
DVM	Clare	cfoleyvet@yahoo.com	N/A	Web-based comments	1182	N/A
DVM	Julia N Allen PhD	not provided	N/A	Web-based Comments	57911, 54190	16, 34
DVM	Lee	not provided	N/A	Web-based Comments	20930	24
Dvor[unreadable]	Peter	not provided	N/A	Web-based Comments	26247	24
Dwight	Annie	not provided	N/A	Web-based Comments	8299	24
Dwight	Timothy	not provided	N/A	Web-based Comments	30644	24
Dwire	Janet C.	not provided	N/A	Web-based Comments	16657	24
Dwyer	Anne	not provided	N/A	Web-based Comments	8187	24
Dwyer	Catherine	not provided	N/A	Web-based Comments	10273	24
Dwyer	Kathleen	not provided	N/A	Web-based Comments	19531	24
Dwyer	Virginia	not provided	N/A	Web-based Comments	49160	34
Dwyre	Michael	chipd30@comcast.net	N/A	Web-based comments	5106	N/A
Dyche	Danny	not provided	N/A	Web-based Comments	50496	34
DYCK	CHERYL	not provided	N/A	Web-based Comments	48451	34
Dye	Holly	not provided	N/A	Web-based Comments	15741	24
Dye	N. Jane	not provided	N/A	Web-based Comments	24743	24
Dye	Paul	rexburgrehab@hotmail.com	N/A	Web-based comments	5046	N/A
Dye	Virginia	paulandgin@hotmail.com	N/A	Web-based comments	4028	13
Dyer	Carole	not provided	N/A	Web-based Comments	10078	24
dyer	dena	not provided	N/A	Web-based Comments	12614	24
Dyer	James	not provided	N/A	Web-based Comments	48120	34
Dyer	Marcia	not provided	N/A	Web-based comments	4403	N/A
Dyer	Paul	not provided	N/A	Web-based Comments	44969	34
Dyer	Paula	not provided	N/A	Web-based comments	56865	35
Dyer	Sharon	not provided	N/A	Web-based Comments	28649	24
Dyer	Sylvia	not provided	N/A	Web-based Comments	30063	24
Dygert	Jen	not provided	N/A	Web-based Comments	17114	24
Dyke	Eric Van	not provided	N/A	Web-based Comments	48839	34
Dyke	Ruth	not provided	N/A	Web-based Comments	27865	24
Dykema	Cornelius	not provided	N/A	Web-based Comments	46656	34
Dykes	Francine	not provided	N/A	Web-based Comments	14498	24
Dykoski	William 'Skip'	not provided	N/A	Web-based Comments	44796	34
Dykstra	Tom	not provided	N/A	Web-based Comments	47312	34
Dylewsky	Kate	not provided	N/A	Web-based Comments	19373	24
Dylingowski	Paula	not provided	N/A	Web-based Comments	53659	34
dymond	cheryl	not provided	N/A	Web-based Comments	10630	24
Dynamic	Eric	not provided	N/A	Web-based Comments	14100	24
Dysart	Gretchen	not provided	N/A	Web-based Comments	15309	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Dziadek	Tammy	not provided	N/A	Web-based Comments	30153	24
Dziadek	Tammy	tammydzi@yahoo.com	N/A	Web-based comments	4332	N/A
Dzija	Juliette	not provided	N/A	Web-based Comments	50175, 50176	34
Dzija	Juliette	not provided	N/A	Web-based Comments	18921	24
E	B	not provided	N/A	Web-based Comments	46246	34
E	C	not provided	N/A	Web-based Comments	9668	24
E	C	not provided	N/A	Web-based Comments	9669	24
E	Cassie	not provided	N/A	Web-based Comments	10241	24
E	Deb	not provided	N/A	Web-based Comments	12290	24
e	s	not provided	N/A	Web-based Comments	27939	24
E	Sue	not provided	N/A	Web-based Comments	29519	24
E.	R.	not provided	N/A	Web-based Comments	26488	24
E.	Stephanie	not provided	N/A	Web-based Comments	29210	24
Eacret	David	dteacret@reconomics.com	N/A	US Mail or commercial carrier (UPS, FedEx)	58795	N/A
Eade	Lara	lara.eade5272@gmail.com	N/A	US Mail or commercial carrier (UPS, FedEx)	31755	26
Eade	Lara	lara.eade5272@gmail.com	N/A	Web-based comments	163, 5707	1
Eades	Marianne	not provided	N/A	Web-based Comments	22676	24
Eades	Nick	not provided	N/A	Web-based Comments	55469, 55470	34
Eads	Shirley	not provided	N/A	Web-based Comments	28949	24
Eagle	Dawn	not provided	N/A	Web-based Comments	12210	24
Eagle	Diane	not provided	N/A	Web-based Comments	12832	24
Eagle	Rev.	sedna101@aol.com	N/A	Web-based comments	2409	3
Eagleson	Samantha	not provided	N/A	Web-based Comments	28072	24
Eakin	Stacy	stacyeakin@wildblue.net	N/A	Web-based comments	5647	N/A
Eakin	Twila	not provided	N/A	Web-based Comments	30953	24
Eames	Cheryl	not provided	N/A	Web-based Comments	10631	24
Eames	Frederick	not provided	N/A	Web-based Comments	14595	24
Earey	Christine	not provided	N/A	Web-based Comments	10916	24
Earl	Cameron	not provided	N/A	Web-based comments	6126	1
Earl	John	not provided	N/A	Web-based Comments	18012	24
Earl	Nancy Anne	not provided	N/A	Web-based Comments	25026	24
Earle	Nancy	not provided	N/A	Web-based Comments	44748	34
Earley	Brian	not provided	N/A	Web-based Comments	9471	24
Earley	Debbie	not provided	N/A	Web-based Comments	12319	24
earney	michael	not provided	N/A	Web-based Comments	24070	24
Earnshaw	Shinann	not provided	N/A	Web-based Comments	57784	34
Easley	Karl	not provided	N/A	Web-based Comments	19297	24
Easley	Philomena	not provided	N/A	Web-based Comments	26369	24
Eason	Laura	not provided	N/A	Web-based Comments	20635	24
East	Larry	not provided	N/A	Web-based Comments	20575	24
East	Lawrence	not provided	N/A	Web-based Comments	20874	24
East	Turns to the	not provided	N/A	Web-based Comments	45485	34
Easter	Phyllis	not provided	N/A	Web-based Comments	56149	34
Easter	Sandra	not provided	N/A	Web-based Comments	28138	24
Easterling	Anne	not provided	N/A	Web-based Comments	44846	34
Eastes	Mary	not provided	N/A	Web-based Comments	45954, 45955	34
Eastey	Sally	not provided	N/A	Web-based Comments	28010	24
Eastham	Robert	not provided	N/A	Web-based Comments	46643, 46644	34
Eastlake	Simona	not provided	N/A	Web-based Comments	29022	24
Eastman	Anne	not provided	N/A	Web-based Comments	8188	24
Eastman	Barbara	not provided	N/A	Web-based Comments	8668	24
eastman	robbie	not provided	N/A	Web-based Comments	27193	24
Easton	Eileen	not provided	N/A	Web-based Comments	13541	24
Easton	Mary	not provided	N/A	Web-based Comments	45223	34
Eaton	Chris	not provided	N/A	Web-based Comments	10735	24
Eaton	Daria	not provided	N/A	Web-based Comments	11859	24
Eaton	James	not provided	N/A	Web-based Comments	16212	24
Eaton	Jeannette	not provided	N/A	Web-based Comments	16986	24
Eaton	Kathleen	not provided	N/A	Web-based Comments	52160	34
Eaton	Kathleen	not provided	N/A	Web-based Comments	19532	24
EATON	TERRY	not provided	N/A	Web-based Comments	30366	24
Eatroff	Alicen	not provided	N/A	Web-based Comments	7374	24
Eaves	Kelly	not provided	N/A	Web-based Comments	55109	34
Eaves	Kelly	not provided	N/A	Web-based Comments	19917	24
Ebbe	Kris	not provided	N/A	Web-based Comments	49215	34
Ebeling-Urban	Suzanne	not provided	N/A	Web-based Comments	29993	24
Eber	Franziska	not provided	N/A	Web-based Comments	49478	34
Eber	Franziska	not provided	N/A	Web-based Comments	14565	24
Eber	Franziska	not provided	N/A	Web-based Comments	14566	24
Eberhardt	Dave	not provided	N/A	Web-based comments	5451	N/A

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Eberle	Martha	not provided	N/A	Web-based Comments	50758	34
Eberle	Martha	not provided	N/A	Web-based Comments	23101	24
Eberle	Melvin	not provided	N/A	Web-based Comments	23955	24
Ebers	Tammy	not provided	N/A	Web-based Comments	30154	24
Ebersold	Deborah	not provided	N/A	Web-based Comments	12397	24
Ebersole	Jan	not provided	N/A	Web-based Comments	16392	24
Eberstein	Camille von	not provided	N/A	Web-based Comments	56073	34
Eberts	Terrance	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58338, 2588	5
Ebertz	Jessica	not provided	N/A	Web-based Comments	50133	34
Ebertz-Knop	Carola	not provided	N/A	Web-based Comments	45940	34
Ebey	Christopher	not provided	N/A	Web-based Comments	11008	24
Ebisuzaki	Sue	not provided	N/A	Web-based Comments	29520	24
Ebrahimi	Hamid	not provided	N/A	Web-based Comments	15387	24
Eby	Amber	not provided	N/A	Web-based Comments	7568	24
Echelberger	Charlotte	charechel@yahoo.com	N/A	Web-based comments	3237	N/A
Echenrode	Robert	not provided	N/A	Web-based comments	5988	N/A
Echevarria	Carlos	not provided	N/A	Web-based Comments	47667, 47668	34
Echevarria	Carlos	not provided	N/A	Web-based Comments	9855	24
ECHEVERRY	NATALIA	not provided	N/A	Web-based Comments	55409	34
Echols	Janice	not provided	N/A	Web-based Comments	16674	24
Echols	Nicole	not provided	N/A	Web-based Comments	55882	34
Eck	Jj	not provided	N/A	Web-based Comments	54052	34
Eckardt	Chris	chris.eckardt@yahoo.com	N/A	Web-based comments	2186	N/A
Eckart	Mark	not provided	N/A	Web-based Comments	22913	24
Eckberg	Brenda	not provided	N/A	Web-based Comments	48438, 48439	34
Eckberg	Jenn	not provided	N/A	Web-based Comments	45233	34
Ecker	Chris	not provided	N/A	Web-based Comments	10736	24
Ecker	Lee	lee.a.ecker@gmail.com	N/A	Web-based comments	5310	N/A
Eckert	Bryan	not provided	N/A	Web-based Comments	9636	24
Eckert	Jacqueline	not provided	N/A	Web-based Comments	16114	24
Eckert	Joanna	not provided	N/A	Web-based Comments	17787	24
Eckert	Patti	not provided	N/A	Web-based Comments	44642	34
Eckert	Roxanne	not provided	N/A	Web-based Comments	27800	24
Eckert	Sara	not provided	N/A	Web-based Comments	28286	24
Eckert	Wendy	not provided	N/A	Web-based Comments	31417	24
Eckert	William	not provided	N/A	Web-based Comments	31531	24
Eckhard	Elke	not provided	N/A	Web-based Comments	48958	34
Eckler	John	not provided	N/A	Web-based Comments	46641	34
ECKLES	Diane	not provided	N/A	Web-based Comments	12833	24
Eckles	Sabrina	not provided	N/A	Web-based Comments	53016	34
Eckles	Sabrina	not provided	N/A	Web-based Comments	27979	24
Eckstein	Susan	not provided	N/A	Web-based Comments	29662	24
Eckstrand	Tatyana	not provided	N/A	Web-based Comments	30227	24
Eckstut	Joann	not provided	N/A	Web-based Comments	17768	24
Economides	Cristina Economides	not provided	N/A	Web-based Comments	46102, 46177	34
economos	eugenia	not provided	N/A	Web-based Comments	14300	24
Economou	Constantina	not provided	N/A	Web-based Comments	52887	34
Eda	Judith	not provided	N/A	Web-based Comments	18587	24
Edain	Marianne	not provided	N/A	Web-based Comments	48247	34
Edain	Marianne	not provided	N/A	Web-based Comments	22677	24
Eddington	Marianne	not provided	N/A	Web-based Comments	22678	24
Edds	Wendy	not provided	N/A	Web-based Comments	31418	24
Eddy	Lex	not provided	N/A	Web-based Comments	46251	34
Eddy	Mike	not provided	N/A	Web-based Comments	24447	24
Ede	Sus	not provided	N/A	Web-based Comments	53053, 53054	34
Edelen	Jennifer	not provided	N/A	Web-based Comments	17182	24
Edell	Elaine	not provided	N/A	Web-based Comments	13583	24
edell	miriam	not provided	N/A	Web-based Comments	24548	24
EDELMAN	ANN	not provided	N/A	Web-based Comments	8027	24
Edelman	Eva	not provided	N/A	Web-based Comments	14312	24
Edelman	Paul	not provided	N/A	Web-based Comments	52769	34
Edelman	William	not provided	N/A	Web-based Comments	31532	24
Edelson	Helena	not provided	N/A	Web-based Comments	15635	24
Edelstein	Barbara	not provided	N/A	Web-based Comments	8669	24
Edelstein	Susan	not provided	N/A	Web-based Comments	52098, 52099	34
Edelstein	Susan	not provided	N/A	Web-based Comments	29663	24
Eden	Carolyn	not provided	N/A	Web-based Comments	45512	34
Eden	Carolyn	not provided	N/A	Web-based Comments	10156	24
Eden	Jon	not provided	N/A	Web-based Comments	18250	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Eden	Jonathan	not provided	N/A	Web-based Comments	49172	34
edenfeld	katrina	not provided	N/A	Web-based Comments	19803	24
Edenfield	Kari	not provided	N/A	Web-based Comments	19266	24
Edens	Teresa	not provided	N/A	Web-based Comments	30269	24
edf	sdf	not provided	N/A	Web-based Comments	45323, 54721	34
edfeldt	ralph	dedfeldt@hotmail.com	N/A	Web-based comments	2628	N/A
Edgar	Barrett	not provided	N/A	Web-based Comments	8854	24
Edgar	E.	not provided	N/A	Web-based Comments	49583	34
Edgar	Pat	not provided	N/A	Web-based Comments	54003, 54004	34
Edgecombe	Dermot	not provided	N/A	Web-based Comments	12726	24
Edgemon	Glenn	gedgemon71@gmail.com	N/A	Web-based comments	6728	N/A
Edgemon	Sandi	sdedgemon@gmail.com	N/A	Web-based comments	6707	N/A
Edgemon	Sandi	sedgemon@ci.richland.wa.us	N/A	Web-based comments	6780	N/A
Edgren	Mark	not provided	N/A	Web-based Comments	22914	24
Edick	R	not provided	N/A	Web-based Comments	52285	34
Edinburg	Kelly	not provided	N/A	Web-based Comments	19918	24
Eding	Megan	not provided	N/A	Web-based Comments	48413, 48414	34
Edland	Mary & Bob	not provided	N/A	Web-based Comments	23481	24
Edley	Aaron	not provided	N/A	Web-based Comments	6995	24
Edmison	Sean	not provided	N/A	Web-based Comments	50923	34
Edmiston	Jessica	not provided	N/A	Web-based Comments	17422	24
Edmiston	Ryanne	not provided	N/A	Web-based Comments	27933	24
Edmiston	Sandra	not provided	N/A	Web-based Comments	28139	24
Edmonds	Robert	redmondsjr68@gmail.com	N/A	Web-based comments	5683	N/A
Edmonds	Steven	not provided	N/A	Web-based Comments	46832	34
Edmonds	Teresa	not provided	N/A	Web-based Comments	52846	34
Edmonds	Teresa	not provided	N/A	Web-based Comments	30270	24
Edmondson	Dominique	not provided	N/A	Web-based Comments	48714	34
Edmondson	Jackie	not provided	N/A	Web-based Comments	16061	24
EDMONDSON	JACQUELINE	not provided	N/A	Web-based Comments	56389, 56390, 56391, 56392	34
Edmondson	Nancy	not provided	N/A	Web-based Comments	24848	24
Edmondson	Naomi	not provided	N/A	Web-based Comments	25044	24
Edmondson	Rick	not provided	N/A	Web-based Comments	45540	34
Edmondson	Rick	not provided	N/A	Web-based Comments	27087	24
Edsall	Jane	not provided	N/A	Web-based Comments	52581	34
Edsall	Jane	not provided	N/A	Web-based Comments	16476	24
Edvalson	Patrick	phedvalson@hotmail.com	N/A	Web-based comments	4597	N/A
edward	lauren	not provided	N/A	Web-based Comments	20763	24
edwards	bita	not provided	N/A	Web-based Comments	9205	24
Edwards	Bob	not provided	N/A	Web-based Comments	9232	24
Edwards	Carina	not provided	N/A	Web-based Comments	9795	24
Edwards	Carol	not provided	N/A	Web-based Comments	58694, 58695	34
Edwards	Christian	not provided	N/A	Web-based Comments	57775	34
Edwards	Christopher	247opala@gmail.com	N/A	Web-based comments	2988	N/A
Edwards	Christopher	chrisenyc@gmail.com	N/A	Web-based comments	5304	N/A
Edwards	David	not provided	N/A	Web-based Comments	11999	24
Edwards	David L.	not provided	N/A	Web-based Comments	54341	34
Edwards	Deeanne	not provided	N/A	Web-based Comments	12585	24
Edwards	Donna	not provided	N/A	Web-based Comments	13128	24
Edwards	Enshalise	not provided	N/A	Web-based Comments	14077	24
Edwards	Grazyna	not provided	N/A	Web-based Comments	15222	24
Edwards	Jennifer	not provided	N/A	Web-based Comments	50995	34
Edwards	Jennifer	not provided	N/A	Web-based Comments	17183	24
Edwards	Jeri	not provided	N/A	Web-based Comments	17324	24
Edwards	Jerry	not provided	N/A	Web-based Comments	17350	24
Edwards	John and Phyllis and family	not provided	N/A	Web-based Comments	18215	24
Edwards	Judith	not provided	N/A	Web-based Comments	18589	24
Edwards	Karen	not provided	N/A	Web-based Comments	46961, 46962	34
Edwards	Kathleen	not provided	N/A	Web-based Comments	19533	24
edwards	madeline	not provided	N/A	Web-based Comments	22241	24
Edwards	Mary	not provided	N/A	Web-based Comments	23259	24
Edwards	Maureen	not provided	N/A	Web-based Comments	46318, 47729	34
Edwards	Monique	not provided	N/A	Web-based Comments	44630	34
Edwards	Monique	not provided	N/A	Web-based Comments	24655	24
Edwards	Nancy	not provided	N/A	Web-based Comments	54137	34
Edwards	R.	not provided	N/A	Web-based Comments	26489	24
Edwards	Rebecca	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58729	13
Edwards	Rhonda	not provided	N/A	Web-based Comments	26895	24
Edwards	Rob	not provided	N/A	Web-based Comments	27173	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Edwards	Robert	not provided	N/A	Web-based Comments	27253	24
Edwards	Sheryl	not provided	N/A	Web-based Comments	28919	24
Edwards	Stephanie	not provided	N/A	Web-based Comments	51668	34
Edwards	Vicki	not provided	N/A	Web-based Comments	31128	24
Eells	Margaret	not provided	N/A	Web-based Comments	52108	34
Eells	Margaret	not provided	N/A	Web-based Comments	22447	24
Eells	Victoria	not provided	N/A	Web-based Comments	58418	34
Effertz	Peter	not provided	N/A	Web-based Comments	48208	34
Efimova	Valeriya	not provided	N/A	Web-based Comments	31051	24
Efron	Deborah	not provided	N/A	Web-based Comments	12398	24
Egan	Eve	not provided	N/A	Web-based comments	57411	35
Egan	Katharine	not provided	N/A	Web-based Comments	48651, 48652	34
Egan	Kevin	not provided	N/A	Web-based Comments	20098	24
Egan	Susie	not provided	N/A	Web-based Comments	55502	34
Egan I	Mary	not provided	N/A	Web-based Comments	23260	24
Egazarian	Carolyn	cnenyc240@gmail.com	N/A	Web-based comments	31914	1
Egazarian	Carolyn	not provided	N/A	Web-based Comments	48799	34
Eggenhuizen	Roos	not provided	N/A	Web-based Comments	54849	34
Egger	Charles	not provided	N/A	Web-based comments	57377	35
Egger	Rebecca	not provided	N/A	Web-based Comments	44732	34
Egger	Rebecca	not provided	N/A	Web-based Comments	26723	24
Eggers	Elke	not provided	N/A	Web-based Comments	13879	24
eggers	j.	not provided	N/A	Web-based Comments	16007	24
Eggert-Crowe	Lauren	not provided	N/A	Web-based Comments	58503	34
Eggleston	B	not provided	N/A	Web-based Comments	8568	24
Eggleston	Tricia	not provided	N/A	Web-based Comments	30903	24
Eggleton	Gemma	not provided	N/A	Web-based Comments	55876, 55877	34
Egland Rothe	Christina	not provided	N/A	Web-based Comments	10851	24
Ehler	Noah	not provided	N/A	Web-based Comments	56103, 56104	34
Ehler	Noah	not provided	N/A	Web-based Comments	25328	24
Ehlers	Kit	not provided	N/A	Web-based Comments	20286	24
Ehlers	Lynne	not provided	N/A	Web-based Comments	22127	24
Ehlers	Tyrol	not provided	N/A	Web-based Comments	30966	24
Ehlert	Kurtis	not provided	N/A	Web-based Comments	46477	34
Ehlert	Robin	not provided	N/A	Web-based Comments	27478	24
ehmann	chris	not provided	N/A	Web-based Comments	10737	24
Ehmke	Jessica	not provided	N/A	Web-based Comments	17423	24
Ehnes	Tiffany	not provided	N/A	Web-based Comments	30583	24
Ehr	Marge	not provided	N/A	Web-based Comments	22528	24
Ehrlich	Barbara	not provided	N/A	Web-based Comments	8670	24
Ehrlich	Isaac	not provided	N/A	Web-based Comments	48155, 48156	34
Ehrlich	Isaac	not provided	N/A	Web-based Comments	15931	24
Ehrlich	Sherrie	not provided	N/A	Web-based Comments	28875	24
Eich	Elizabeth	not provided	N/A	Web-based Comments	13736	24
Eich	Ellie	not provided	N/A	Web-based Comments	13963	24
Eichelberger	Racheal	not provided	N/A	Web-based Comments	26505	24
Eichelberger	Tony	not provided	N/A	Web-based Comments	30809	24
Eichenbaum	Ingrid	not provided	N/A	Web-based Comments	56220	34
Eichenbaum	Ingrid	not provided	N/A	Web-based Comments	15876	24
Eicher	Annie	not provided	N/A	Web-based Comments	53595	34
Eichhof	Km	not provided	N/A	Web-based Comments	54441	34
Eichler	Anett	not provided	N/A	Web-based Comments	51320	34
Eicholtz	Dennis	not provided	N/A	Web-based Comments	12681	24
Eickelberg	Bonnie	not provided	N/A	Web-based Comments	9292	24
Eickerman	Vicky	vickyeick@gmail.com	N/A	Web-based comments	5742	N/A
Eickmann	Linda	not provided	N/A	Web-based Comments	21251	24
Eide	Elizabeth	not provided	N/A	Web-based Comments	45683, 45684	34
Eide	Elizabeth	not provided	N/A	Web-based Comments	13737	24
Eide	Mary	not provided	N/A	Web-based Comments	46609	34
Eide	Mary	not provided	N/A	Web-based Comments	23261	24
Eidmann-Hicks	Russell	not provided	N/A	Web-based Comments	27834	24
Eiduke	Allie	not provided	N/A	Web-based Comments	7453	24
Eiesland	Nora	not provided	N/A	Web-based Comments	25357	24
Eiffert	Jen	not provided	N/A	Web-based Comments	48278	34
Eiffert	Jen	not provided	N/A	Web-based Comments	17115	24
Eigel	Rebecca	eigelr@yahoo.com	N/A	Web-based comments	3076	N/A
Eigen	Susan	not provided	N/A	Web-based Comments	54996	34
Eigen	Susan	not provided	N/A	Web-based Comments	29664	24
eigenberg	helen	not provided	N/A	Web-based Comments	15604	24
Eigo	Jim	not provided	N/A	Web-based Comments	17575	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Eikenberry	Jessica	not provided	N/A	Web-based comments	57429	35
Eilert	Stanley	not provided	N/A	Web-based Comments	29155	24
Einerson	Esmee	not provided	N/A	Web-based Comments	14261	24
Einfalt	Janet	not provided	N/A	Web-based Comments	44741, 44742	34
Einfalt	Janet	not provided	N/A	Web-based Comments	16592	24
Einstein	Mimi	not provided	N/A	Web-based comments	57184	35
Eirich	Shelley	not provided	N/A	Web-based comments	6745	1
Eisen	William	not provided	N/A	Web-based Comments	31533	24
Eisenbeis	Elizabeth	not provided	N/A	Web-based Comments	13738	24
Eisenberg	Alex	alexceberg@yahoo.com	N/A	Web-based comments	32207	1
Eisenberg	Amanda	eisenba2@wwu.edu	N/A	Web-based comments	6838	N/A
eisenberg	deborah	not provided	N/A	Web-based Comments	12399	24
Eisenberg	Elliot	not provided	N/A	Web-based Comments	13968	24
Eisenberg	Eric	not provided	N/A	Web-based Comments	14101	24
Eisenberg	Michael	not provided	N/A	Web-based Comments	24071	24
Eisenberg	Paul	not provided	N/A	Web-based Comments	49499, 49500	34
Eisenhower	Beth	not provided	N/A	Web-based Comments	9023	24
Eisenman	Michael	not provided	N/A	Web-based comments	11	N/A
Eisenstadt	Ari	not provided	N/A	Web-based Comments	8405	24
Eisenstaedt	Kevin	not provided	N/A	Web-based Comments	49634, 49635	34
Eisenstark	Andrew	not provided	N/A	Web-based Comments	47022	34
Eisenstein	Jane	not provided	N/A	Web-based Comments	16477	24
Eisenstein	Mara	not provided	N/A	Web-based Comments	22320	24
Eisentrager	Evan	not provided	N/A	Web-based Comments	46478	34
Eisentrager	Evan	not provided	N/A	Web-based Comments	14328	24
Eisner	Karen	not provided	N/A	Web-based Comments	19089	24
Eisner	Sara	not provided	N/A	Web-based Comments	55462	34
Eisner	Sara	not provided	N/A	Web-based Comments	28287	24
Eklund	Glenn	not provided	N/A	Web-based Comments	49453	34
El	Nadezhda	not provided	N/A	Web-based Comments	24749	24
Elalouf	Kathryn	not provided	N/A	Web-based Comments	19641	24
Elamin	Ayser	not provided	N/A	Web-based Comments	8560	24
elbert	jan	not provided	N/A	Web-based Comments	16393	24
Elcome	Cary	not provided	N/A	Web-based Comments	10216	24
Elcsics	Rose	not provided	N/A	Web-based Comments	54981, 54982	34
Elder	Debra	not provided	N/A	Web-based Comments	46642	34
Elder	Frances	not provided	N/A	Web-based Comments	14477	24
Elder	Matt	not provided	N/A	Web-based Comments	23613	24
Elder	Melissa	not provided	N/A	Web-based comments	57064	35
Elder	Melissa	not provided	N/A	Web-based Comments	46636	34
Elder	Melody	not provided	N/A	Web-based Comments	23944	24
Elderton	Lisa	not provided	N/A	Web-based Comments	49275	34
Eldred	Barry and Cecilia	not provided	N/A	Web-based Comments	8868	24
Eldred	Bethany	not provided	N/A	Web-based Comments	9065	24
Eldredge	Mary	not provided	N/A	Web-based Comments	46296	34
Eldridge	Chantal	not provided	N/A	Web-based Comments	10459	24
Eldridge	Karin	not provided	N/A	Web-based Comments	19279	24
Eldridge	Maury	not provided	N/A	Web-based Comments	23733	24
Eldridge	Sara	not provided	N/A	Web-based Comments	50025	34
Elenbaas	Jason	jm.elenbaas@gmail.com	N/A	Web-based comments	3099	N/A
Elesion	Kyrie	not provided	N/A	Web-based Comments	20472	24
Eley	Doris	not provided	N/A	Web-based Comments	51183	34
Eley	Doris	not provided	N/A	Web-based Comments	13228	24
Eley	Patricia	not provided	N/A	Web-based Comments	25743	24
Eli	Eric	not provided	N/A	Web-based Comments	14102	24
Elias	Donald	not provided	N/A	Web-based Comments	13058	24
Elias	Gabriela	not provided	N/A	Web-based Comments	50076	34
Elias	Scott	not provided	N/A	Web-based Comments	28465	24
Eliason	Annette	eliason.annette@gmail.com	N/A	Web-based comments	3357	13
Eliasson	Marguerite	not provided	N/A	Web-based Comments	45368, 45369	34
Eliezer	Caren	not provided	N/A	Web-based Comments	9780	24
Elilas	Gabriel	not provided	N/A	Web-based Comments	54820, 54821	34
Elise	Amanda	amandaelise.ae@gmail.com	N/A	Web-based comments	1266	N/A
Elison	Joseph	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32511	11
Elkins	Carol	not provided	N/A	Web-based Comments	48399	34
Elkins	Carol	not provided	N/A	Web-based Comments	9920	24
Elkins	Francy	not provided	N/A	Web-based Comments	14516	24
Elkins	Melinda	not provided	N/A	Web-based Comments	58483	34
Elkins	Melinda	not provided	N/A	Web-based Comments	23861	24
Elkman	Robin K.	not provided	N/A	Web-based Comments	27541	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Ell	Chris	not provided	N/A	Web-based Comments	10738	24
Ell	Erica	not provided	N/A	Web-based Comments	14159	24
Ellard	Susan	not provided	N/A	Web-based Comments	46405	34
elle	p	not provided	N/A	Web-based Comments	25459	24
Elledge	Douglas	not provided	N/A	Web-based Comments	13327	24
Ellegood	Jen	not provided	N/A	Web-based Comments	17116	24
Ellen	Mary	not provided	N/A	Web-based comments	31993	1
Ellen	Saunders	Ellen_L_Saunders@me.com	N/A	Web-based comments	3609, 4518	N/A
Ellen Ketterson	ellen	not provided	N/A	Web-based Comments	13910	24
Ellenbecker	Ann	not provided	N/A	Web-based Comments	8028	24
Ellenberg	Jane	not provided	N/A	Web-based Comments	16478	24
Eller	Caley	not provided	N/A	Web-based Comments	45985	34
Ellers	Debra	dkellersjd@gmail.com	N/A	Web-based comments	5920	N/A
Ellers	Debra	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	5542	N/A
Ellett	Fritz	not provided	N/A	Web-based comments	3041	9
Ellick	Karen	not provided	N/A	Web-based Comments	19254	24
Ellicott	Alison	not provided	N/A	Web-based Comments	44870, 44871	34
Ellingham	Nancy	not provided	N/A	Web-based Comments	58045	16
Elliott	AnnaLea	not provided	N/A	Web-based Comments	8163	24
Elliott	Benton	not provided	N/A	Web-based Comments	48058, 48059	34
Elliott	Carol	not provided	N/A	Web-based Comments	9921	24
Elliott	Claudia	not provided	N/A	Web-based Comments	11179	24
Elliott	Don	not provided	N/A	Web-based Comments	13017	24
Elliott	Jann	not provided	N/A	Web-based Comments	16749	24
Elliott	Leonard	not provided	N/A	Web-based Comments	58158	16
Elliott	Lynn	not provided	N/A	Web-based Comments	22055	24
Elliott	Lynn	not provided	N/A	Web-based Comments	22056	24
Elliott	Meredith	not provided	N/A	Web-based Comments	23971	24
Elliott	Nancy	nanseeliot@icloud.com	N/A	Web-based comments	3421	N/A
Elliott	Richard	not provided	N/A	Web-based Comments	26964	24
elliott	russ	not provided	N/A	Web-based Comments	27825	24
Elliott	Shannon	not provided	N/A	Web-based Comments	51513, 51514	34
Elliott	Shelbie	not provided	N/A	Web-based Comments	28820	24
Elliott	Tracy	not provided	N/A	Web-based Comments	58591	34
Elliott-Cattell	June	not provided	N/A	Web-based Comments	18934	24
Ellis	Aimee	not provided	N/A	Web-based Comments	51166	34
Ellis	Aimee	not provided	N/A	Web-based Comments	7133	24
ellis	anne	not provided	N/A	Web-based Comments	8189	24
Ellis	Caleb	not provided	N/A	Web-based Comments	9718	24
ellis	cath	not provided	N/A	Web-based Comments	54098	34
Ellis	Charles	not provided	N/A	Web-based Comments	10499	24
Ellis	Debbie	not provided	N/A	Web-based Comments	51973	34
Ellis	Debbie	not provided	N/A	Web-based Comments	12320	24
Ellis	E	ictrees4u@yahoo.com	N/A	Web-based comments	3549	3
Ellis	Harold	not provided	N/A	Web-based Comments	15442	24
Ellis	Isabel	not provided	N/A	Web-based Comments	15934	24
Ellis	J A	not provided	N/A	Web-based Comments	16000	24
Ellis	Jo	not provided	N/A	Web-based comments	57622	35
Ellis	Karen	not provided	N/A	Web-based Comments	19090	24
Ellis	Koll	not provided	N/A	Web-based Comments	45651	34
Ellis	LeAnn	not provided	N/A	Web-based Comments	20913	24
Ellis	Louis	not provided	N/A	Web-based Comments	21865	24
Ellis	Maria	not provided	N/A	Web-based Comments	22593	24
Ellis	Maureen	not provided	N/A	Web-based Comments	45601	34
Ellis	Maureen	not provided	N/A	Web-based Comments	23689	24
Ellis	Robin	not provided	N/A	Web-based Comments	27479	24
Ellis	Sherry	not provided	N/A	Web-based Comments	28886	24
Ellis	Susan	not provided	N/A	Web-based Comments	29665	24
Ellis	Suzanne	not provided	N/A	Web-based Comments	29994	24
Ellison	Deborah	not provided	N/A	Web-based Comments	12400	24
Ellison	L. Louanne	not provided	N/A	Web-based Comments	20503	24
Ellison	Pat	not provided	N/A	Web-based Comments	53344	34
Ellison	Patricia	not provided	N/A	Web-based Comments	53345	34
ellison	rochelle	not provided	N/A	Web-based Comments	27560	24
Ellison	Tyler	not provided	N/A	Web-based Comments	30958	24
Elliston	Diane	not provided	N/A	Web-based Comments	12834	24
Ellman	Olivia	not provided	N/A	Web-based comments	54	1
Ellman	Tanya	not provided	N/A	Web-based Comments	30180	24
Ellois	Austin	not provided	N/A	Web-based Comments	45160	34
Ellois	Austin	not provided	N/A	Web-based Comments	8541	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Ellringer	David	not provided	N/A	Web-based Comments	12000	24
Ellsworth	Kathi	not provided	N/A	Web-based Comments	48074	34
Ellul	Lauren	not provided	N/A	Web-based Comments	20764	24
Elman	David	not provided	N/A	Web-based Comments	12001	24
Elman	Mark	not provided	N/A	Web-based Comments	45767	34
Elman	Mark	not provided	N/A	Web-based Comments	22915	24
Elmasri	Farah	not provided	N/A	Web-based Comments	14390	24
Elmore	Ronald	not provided	N/A	Web-based Comments	27655	24
El-Moslimany	Ann	not provided	N/A	Web-based Comments	8029	24
Elms	Elfie	not provided	N/A	Web-based Comments	49175	34
Elohim	Shemayim	not provided	N/A	Web-based Comments	51845	34
Elparin	Anna	not provided	N/A	Web-based Comments	8127	24
Elparin	Anna Karyn	not provided	N/A	Web-based Comments	8156	24
Elsby	Jen	not provided	N/A	Web-based Comments	52892	34
Else	Carol	not provided	N/A	Web-based Comments	54609	34
Else	Clara L	not provided	N/A	Web-based Comments	11156	24
Elser	Sherry	not provided	N/A	Web-based Comments	28887	24
Elsherbini	Azza	not provided	N/A	Web-based Comments	46310	34
Elsherbini	Azza	not provided	N/A	Web-based Comments	8564	24
Elshoff	Alice	not provided	N/A	Web-based Comments	7338	24
Elshoff	Cal	not provided	N/A	Web-based comments	2075	N/A
Elsner	William	not provided	N/A	Web-based Comments	53384	34
Elsom	Shelby	not provided	N/A	Web-based Comments	56479	34
Elstad	Debra	not provided	N/A	Web-based comments	3957	N/A
Elsten	Bonnie	not provided	N/A	Web-based Comments	9293	24
Elstrom	Rebecca	not provided	N/A	Web-based Comments	26724	24
Elton	Wallace	not provided	N/A	Web-based Comments	50681	34
Eltorai	Mahmoud	not provided	N/A	Web-based Comments	22280	24
Elwell	Chloe	not provided	N/A	Web-based comments	57606	35
Elwell	Herbert	not provided	N/A	Web-based Comments	15679	24
Elwell	Susan	not provided	N/A	Web-based comments	57267	35
Ely	Craig	craigoely@gmail.com	N/A	Web-based comments	5984	N/A
Ely	Richard	not provided	N/A	Web-based Comments	26965	24
Embree	connie	connie.embree@gmail.com	N/A	Web-based comments	32154	11
Embree	Tina	not provided	N/A	Web-based Comments	30675	24
Embrey	Gayle	not provided	N/A	Web-based Comments	14823	24
Embry	Judith	not provided	N/A	Web-based comments	56955	35
Embry	Judith	not provided	N/A	Web-based Comments	18590	24
EMERICH	MARY	not provided	N/A	Web-based Comments	48139, 48216, 48217	34
EMERICH	WALTER	not provided	N/A	Web-based Comments	49888, 49889, 49890	34
Emerle-Sifuentes	Jennifer	not provided	N/A	Web-based Comments	52497, 52498	34
Emerle-Sifuentes	Jennifer	not provided	N/A	Web-based Comments	17184	24
Emerson	Anne	not provided	N/A	Web-based Comments	8190	24
Emerson	Bryan	bemerson2009@gmail.com	N/A	Web-based comments	618	N/A
Emerson	Jan	not provided	N/A	Web-based Comments	16394	24
EMERSON	KIM	not provided	N/A	Web-based Comments	51884	34
Emerson	Lauran	not provided	N/A	Web-based Comments	20726	24
Emerson	Paul	not provided	N/A	Web-based Comments	49377	34
Emerson	Paul	not provided	N/A	Web-based Comments	25986	24
Emerson	Ralph W	not provided	N/A	Web-based Comments	26598	24
Emerson	Susan	not provided	N/A	Web-based Comments	29666	24
Emerson Smith	Leigh	not provided	N/A	Web-based Comments	20963	24
Emery	Edie	not provided	N/A	Web-based Comments	55907	34
Emery	Mary	not provided	N/A	Web-based Comments	23262	24
Emery	Maryann	not provided	N/A	Web-based Comments	23554	24
Emery	Pam	not provided	N/A	Web-based Comments	44722	34
Emery	Pam	not provided	N/A	Web-based Comments	25492	24
emery	roe	not provided	N/A	Web-based Comments	27577	24
Emery	Valerie	not provided	N/A	Web-based Comments	31022	24
Emlet, PAc	Mark	not provided	N/A	Web-based Comments	22916	24
Emmel	Sandra	not provided	N/A	Web-based Comments	28140	24
Emmons	Mary	not provided	N/A	Web-based Comments	51832	34
Emo	Kenneth	not provided	N/A	Web-based Comments	54316	34
Emond	Lise	not provided	N/A	Web-based Comments	21665	24
Emory	Bruce	bcermt@gmail.com	N/A	Web-based comments	4027	N/A
Empereur	Chad	not provided	N/A	Web-based Comments	53075	34
Empson	Nancy	not provided	N/A	Web-based Comments	24849	24
Emptage	Linda	not provided	N/A	Web-based Comments	21252	24
Emrich	Margo	not provided	N/A	Web-based Comments	56323	34
Emry	Meg	not provided	N/A	Web-based Comments	23777	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Emrys	Sarah	not provided	N/A	Web-based Comments	28345	24
Emshoff	Elke	not provided	N/A	Web-based Comments	13880	24
Emsley	Scott	not provided	N/A	Web-based Comments	28466	24
Emtman	Randy	randy.emtman@gmail.com	N/A	Web-based comments	5324	N/A
Enderle	Markus	not provided	N/A	Web-based Comments	23018	24
Enderle	Walter	not provided	N/A	Web-based Comments	31352	24
Endo	Kazuko	silverback-mg@hotmail.co.jp	N/A	Web-based comments	1157	N/A
Endrenyi	Hope	not provided	N/A	Web-based comments	32143	N/A
Endres	John	not provided	N/A	Web-based Comments	50094	34
Endress	Daphne	not provided	N/A	Web-based Comments	50433, 57800	34
Endress	Daphne	not provided	N/A	Web-based Comments	11840	24
Ene	Ioana	not provided	N/A	Web-based Comments	15886	24
Enfield	Martie	not provided	N/A	Web-based Comments	23147	24
Eng	Christina	not provided	N/A	Web-based Comments	10852	24
Eng	Richard	not provided	N/A	Web-based Comments	26966	24
Engel	Carolyn	not provided	N/A	Web-based Comments	10157	24
Engel	Chandra	not provided	N/A	Web-based comments	57283	35
Engel	Cindy	not provided	N/A	Web-based Comments	11072	24
Engel	Jane	not provided	N/A	Web-based Comments	16479	24
Engel	Margie	not provided	N/A	Web-based Comments	22541	24
engel	mercedes	not provided	N/A	Web-based Comments	23965	24
Engelbrecht	Linda	not provided	N/A	Web-based Comments	54874	34
Engelbrecht	Lindi	not provided	N/A	Web-based comments	56827	35
Engelbrecht	Lindi	not provided	N/A	Web-based Comments	21477	24
Engelfried	Nick	not provided	N/A	Web-based Comments	45722, 45723	34
Engelfried	Rolf	not provided	N/A	Web-based Comments	27604	24
Engell	Dana	not provided	N/A	Web-based Comments	11691	24
Engell	John	not provided	N/A	Web-based Comments	50313	34
Engelmann	Katie	katie.engelmann21@gmail.com	N/A	Web-based comments	6716	N/A
Engelmeier	Leslie	not provided	N/A	Web-based Comments	21066	24
england	Allen	Allenengland@yahoo.com	N/A	Web-based comments	2232, 2616	N/A
England	Jeri	not provided	N/A	Web-based Comments	17325	24
England	Renee	not provided	N/A	Web-based Comments	55432	34
Englander	Stephen	not provided	N/A	Web-based Comments	29285	24
Englander	Tiffany	not provided	N/A	Web-based Comments	30584	24
Engle	Constance	not provided	N/A	Web-based Comments	11334	24
Engle	Danielle	not provided	N/A	Web-based Comments	55505	34
Engle	I.	not provided	N/A	Web-based Comments	15826	24
Englebert	Glenn	not provided	N/A	Web-based Comments	15128	24
Engledow	Helen	not provided	N/A	Web-based Comments	52608	34
Englender	Carol	not provided	N/A	Web-based Comments	9922	24
Engler	Pamela	not provided	N/A	Web-based Comments	44488	34
Engler	Pamela	not provided	N/A	Web-based Comments	25543	24
Englert	Philip	not provided	N/A	Web-based Comments	26335	24
ENGLEZOU	EVINNA	not provided	N/A	Web-based Comments	49707	34
English	Hannah	not provided	N/A	Web-based Comments	15401	24
English	Jacqueline	not provided	N/A	Web-based Comments	16115	24
English	Janet	not provided	N/A	Web-based Comments	54259	34
English	Patricia	not provided	N/A	Web-based Comments	25744	24
English	Paulette	not provided	N/A	Web-based Comments	26110	24
English	Robert	not provided	N/A	Web-based Comments	27254	24
English	Shirley	not provided	N/A	Web-based Comments	28950	24
Englund	Klaudia	not provided	N/A	Web-based Comments	47046	34
Englund	Klaudia	not provided	N/A	Web-based Comments	20297	24
Englund	Linda And Dean	not provided	N/A	Web-based Comments	21467	24
Enk	Michael	trouter@q.com	N/A	Web-based comments	3700	8
Enloe	Ellen	not provided	N/A	Web-based Comments	13911	24
Ennis	Ken	not provided	N/A	Web-based Comments	19972	24
Ennis	Mark	not provided	N/A	Web-based Comments	46865	34
Ennis	Ron	not provided	N/A	Web-based Comments	55193	34
Ennis	steven	steve.ennis200040@gmail.com	N/A	Web-based comments	4962	N/A
Enos	Pamela	not provided	N/A	Web-based Comments	25544	24
Enright	Elizabeth	not provided	N/A	Web-based comments	57335	35
Enright	Elizabeth	not provided	N/A	Web-based Comments	13739	24
Enright	Keira	not provided	N/A	Web-based Comments	19866	24
Enright	Todd	not provided	N/A	Web-based Comments	50250	34
Enriquez	Carla	not provided	N/A	Web-based Comments	9822	24
Enriquez	Jennifer	not provided	N/A	Web-based Comments	57873	34
Enser	Mark	not provided	N/A	Web-based Comments	22917	24
Ensign	Deborah	not provided	N/A	Web-based Comments	12401	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Ensign	Dianne	not provided	N/A	Web-based Comments	46587	34
Ensign	Dianne	not provided	N/A	Web-based Comments	12937, 12938	24
Ensign	Dianne	roughskinnednewt@hotmail.com	N/A	Web-based comments	6741	17
Ensman	Tammy	not provided	N/A	Web-based Comments	30155	24
Ensminger	Geraldine	not provided	N/A	Web-based Comments	14971	24
Enstrom	Elsa	not provided	N/A	Web-based Comments	13986	24
Enstrom	Paula	not provided	N/A	Web-based Comments	26078	24
Entel	Marvin	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32325	N/A
Entel	Marvin	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4237	N/A
Entezari	Matthew	not provided	N/A	Web-based Comments	23642	24
Entwhistle	Dianne	not provided	N/A	Web-based Comments	12939	24
Epatko	Mary	not provided	N/A	Web-based comments	57092	35
Epatko	Mary Catherine	not provided	N/A	Web-based Comments	23514	24
Eppel	Jarlath	not provided	N/A	Web-based Comments	16762	24
Epperly	Leon	not provided	N/A	Web-based Comments	48717	34
Epperly	Leon	not provided	N/A	Web-based Comments	20999	24
Eppers	Kathy	not provided	N/A	Web-based comments	57294	35
Eppes	Samantha	not provided	N/A	Web-based Comments	28073	24
Eppp	Thomas	not provided	N/A	Web-based Comments	30489	24
Epstein	Kelly	not provided	N/A	Web-based Comments	58660	34
Epstein	M. S.	not provided	N/A	Web-based Comments	22217	24
Epstein	Mark	not provided	N/A	Web-based Comments	22918	24
Epstein	Mark	not provided	N/A	Web-based Comments	22919	24
epstien	caru	not provided	N/A	Web-based Comments	55268, 55269, 55270	34
Er[unreadabe]npalo	Nea	not provided	N/A	Web-based comments	56748	35
erb	cheryl	not provided	N/A	Web-based Comments	54546	34
Erb	Cheryl	not provided	N/A	Web-based Comments	54547, 54548	34
Erba	Antonino	not provided	N/A	Web-based Comments	8364	24
Erbach	Kurt	not provided	N/A	Web-based Comments	20434	24
Erbeldinger-Bjork	Zuleikha	not provided	N/A	Web-based Comments	31742	24
Erbs	Lori	not provided	N/A	Web-based Comments	54871	34
Erbs	Lori	not provided	N/A	Web-based Comments	21782	24
Erckmann	Lynn	not provided	N/A	Web-based Comments	54618	34
Erdeljac	Joseph	not provided	N/A	Web-based Comments	18359	24
Erdmann	Donette	not provided	N/A	Web-based Comments	52223, 52224	34
Erdmann	Linda	not provided	N/A	Web-based Comments	21253	24
Erdmann	Sherry	not provided	N/A	Web-based Comments	54064	34
Erdmann	Sherry	not provided	N/A	Web-based Comments	28888	24
Erental-Fernandes	Alise	not provided	N/A	Web-based Comments	7396	24
Eret	john	johnleret@gmail.com	N/A	Web-based comments	5257	N/A
Erfert	Elizabeth	not provided	N/A	Web-based Comments	13740	24
Erfort	David	not provided	N/A	Web-based Comments	12002	24
erhorn	walter	not provided	N/A	Web-based Comments	46621, 46622	34
erhorn	walter	not provided	N/A	Web-based Comments	31353	24
Eric	Lec	rainette30@hotmail.fr	N/A	Web-based comments	1785	1
Ericksen	Michelle	michelle.repurpose@gmail.com	N/A	Web-based comments	6330	N/A
Erickson	Alexis	not provided	N/A	Web-based Comments	7305	24
Erickson	Brian	not provided	N/A	Web-based Comments	9472	24
Erickson	Chip	not provided	N/A	Web-based Comments	10702	24
Erickson	David	not provided	N/A	Web-based Comments	12003	24
Erickson	Eleanor	not provided	N/A	Web-based Comments	13628	24
Erickson	Holly	not provided	N/A	Web-based Comments	15742	24
Erickson	John	not provided	N/A	Web-based Comments	56418	34
Erickson	Karen	not provided	N/A	Web-based Comments	19091	24
erickson	ken	kerick5700@gmail.com	N/A	Web-based comments	1329	N/A
Erickson	Linda	not provided	N/A	Web-based Comments	21254	24
Erickson	Lois	not provided	N/A	Web-based Comments	21716	24
Erickson	Mark	not provided	N/A	Web-based Comments	22920	24
Erickson	Matthew	not provided	N/A	Web-based Comments	23643	24
Erickson	Phyllis	caddyshack78@yahoo.com	N/A	Web-based comments	4951	N/A
Erickson	Rob	not provided	N/A	Web-based Comments	27174	24
Erickson	Todd	TErick4326@aol.com	N/A	Web-based comments	4852	N/A
Ericson	Eric	not provided	N/A	Web-based Comments	14103	24
Ericson	Mary Anne	not provided	N/A	Web-based Comments	50803	34
Erikson	Kelly	not provided	N/A	Web-based Comments	19919	24
Eriksson	Charlotte	not provided	N/A	Web-based Comments	54297, 54298	34
Erland	Jessica	not provided	N/A	Web-based Comments	17424	24
Erlandson	Karen	not provided	N/A	Web-based Comments	19092	24
Erlbaum	Sheila	not provided	N/A	Web-based Comments	52100	34
Erlbaum	Sheila	not provided	N/A	Web-based Comments	28784	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Erling	Jeanne	not provided	N/A	Web-based Comments	16943	24
Erman	Robert	not provided	N/A	Web-based Comments	27255	24
Ernesti	Theo	not provided	N/A	Web-based Comments	30418	24
Erpestad	Marnie	not provided	N/A	Web-based Comments	23058	24
ERREA	MACK	not provided	N/A	Web-based Comments	22229	24
Errichetti	Dara	not provided	N/A	Web-based Comments	11846	24
Errickson	Sharon	not provided	N/A	Web-based Comments	28650	24
Errington	Laurel	not provided	N/A	Web-based Comments	20734	24
Erskine	Carolyn	not provided	N/A	Web-based Comments	10158	24
Erskine	John K	not provided	N/A	Web-based Comments	18223	24
Erskine	Lee	not provided	N/A	Web-based comments	57585	35
Ervin	Dr.	cynthervin@msn.com	N/A	Web-based comments	983	3
Erway	Donald	not provided	N/A	Web-based Comments	13059	24
Erwin	Cherie	not provided	N/A	Web-based Comments	52163	34
Erwin	Florence	not provided	N/A	Web-based Comments	14448	24
Erwin	Phyllis	not provided	N/A	Web-based Comments	44976	34
Erwin	Tom	not provided	N/A	Web-based Comments	30747	24
Escamilla	Vanessa	not provided	N/A	Web-based Comments	44984	34
esch	dean	not provided	N/A	Web-based Comments	12264	24
Esche	Rebecca Wish	not provided	N/A	Web-based Comments	56035	34
Eschelman	Marilyn	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32336	N/A
Escobar	Victor	not provided	N/A	Web-based Comments	55101	34
Escobar	Victor	not provided	N/A	Web-based Comments	31169	24
Escue	Jessica	not provided	N/A	Web-based Comments	48361	34
Esden-Tempski	Danika	not provided	N/A	Web-based Comments	11823	24
Esden-Tempski	Danika	not provided	N/A	Web-based Comments	58092	16
Esenwein	Penny	not provided	N/A	Web-based Comments	26202	24
Esher	Shawn	not provided	N/A	Web-based Comments	58691	34
Eskew	Jerry	not provided	N/A	Web-based Comments	55627	34
Esler	Carol	not provided	N/A	Web-based Comments	9923	24
Esnouf	Patricia	not provided	N/A	Web-based Comments	25745	24
Espanol	Karen	not provided	N/A	Web-based Comments	53838	34
Esparza	Maria	not provided	N/A	Web-based Comments	22594	24
Espe	Greg	not provided	N/A	Web-based Comments	54558	34
Espindola	Barbara	not provided	N/A	Web-based Comments	46008	34
Espino	Linda	not provided	N/A	Web-based Comments	48350	34
Espinosa	Nicole	not provided	N/A	Web-based Comments	52920	34
Espinosa	Patricia	not provided	N/A	Web-based Comments	25746	24
Espinosa	Patricia	not provided	N/A	Web-based Comments	25747	24
Espinosa	Tony	not provided	N/A	Web-based Comments	30810	24
Espinoza	Bernadette	not provided	N/A	Web-based Comments	8985	24
Espinoza	Robert	not provided	N/A	Web-based Comments	45716	34
Espinoza	Yaraly	not provided	N/A	Web-based Comments	46280	34
Espinoza	Yaraly	not provided	N/A	Web-based Comments	31656	24
Esposito	Barbara	not provided	N/A	Web-based Comments	8671	24
Esposito	Dan	not provided	N/A	Web-based Comments	51570, 51571	34
Esposito	Dan	not provided	N/A	Web-based Comments	11653	24
Esposito	Edward F	not provided	N/A	Web-based Comments	13521	24
Esposito	Eric	not provided	N/A	Web-based Comments	52843	34
Esposito	Louis	not provided	N/A	Web-based Comments	21866	24
Esposito	Ruth	not provided	N/A	Web-based Comments	27866	24
Esposito	Susan	not provided	N/A	Web-based Comments	29667	24
Esqueda	Olivia	not provided	N/A	Web-based comments	57246	35
Esquibel	Cristen	not provided	N/A	Web-based comments	57407	35
Esquibel	Cristen	not provided	N/A	Web-based Comments	11436	24
Esra	Nijn	not provided	N/A	Web-based Comments	25278	24
Essary Messenbaugh	Courtney	not provided	N/A	Web-based Comments	11400	24
Esser	Karin	not provided	N/A	Web-based Comments	19280	24
Esser	Nicholas	not provided	N/A	Web-based Comments	53423, 53424	34
Esser	Nicholas	not provided	N/A	Web-based Comments	25164	24
Essex	Debbie	not provided	N/A	Web-based Comments	51305	34
Essex	Jonathan	not provided	N/A	Web-based Comments	18282	24
Essig	Melinda	not provided	N/A	Web-based Comments	23862	24
Essman	John	not provided	N/A	Web-based Comments	51476, 51477	34
Essman	Robert	not provided	N/A	Web-based Comments	27256	24
Estarrona	Mikael	not provided	N/A	Web-based Comments	24427	24
Estelle	Renee	not provided	N/A	Web-based Comments	26844	24
Esterline	Debra	not provided	N/A	Web-based Comments	12517	24
Estes	Carl	not provided	N/A	Web-based Comments	44902, 44903	34
Estes	Douglas	not provided	N/A	Web-based Comments	55411	34

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Estes	Douglas	not provided	N/A	Web-based Comments	13328	24
ESTES	MICHAELA	not provided	N/A	Web-based Comments	56352	34
Estes	Michaela	not provided	N/A	Web-based Comments	24265	24
Estes-Brown	Carolyn	not provided	N/A	Web-based Comments	10159	24
Esteve	Gregory	not provided	N/A	Web-based Comments	52053	34
Estey	Cindy	not provided	N/A	Web-based Comments	49407	34
Estok	Karen	not provided	N/A	Web-based Comments	57759, 57760	34
Estrada	Emma	not provided	N/A	Web-based Comments	45911	34
Estrada	Hank	not provided	N/A	Web-based Comments	15391	24
Estrada	Laurie	not provided	N/A	Web-based Comments	20830	24
Estrella	Marlena	not provided	N/A	Web-based Comments	23032	24
Estruch	Mario	not provided	N/A	Web-based Comments	48021, 48022	34
Etges	William J.	not provided	N/A	Web-based Comments	31614	24
Ethier	Linda	not provided	N/A	Web-based comments	57434	35
Ethridge	Diane	not provided	N/A	Web-based Comments	52831	34
Ethridge	Diane	not provided	N/A	Web-based Comments	12835	24
Ethridge	Tina	not provided	N/A	Web-based Comments	53597	34
Etkin	Linnea	not provided	N/A	Web-based Comments	21507	24
ETTER	MARY	not provided	N/A	Web-based Comments	23263	24
Etzel	Bruce	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	2527	N/A
Etzel	Diane	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	2257	N/A
Etzel	Katherine	not provided	N/A	Web-based Comments	19445	24
Eubanks	Russell	not provided	N/A	Web-based Comments	45377	34
Eudy	Elaine	not provided	N/A	Web-based Comments	48356	34
Eudy	Elaine	not provided	N/A	Web-based Comments	13584	24
Eulich	Linda	not provided	N/A	Web-based Comments	21255	24
EULRY	Nathalie	not provided	N/A	Web-based Comments	49840	34
Euripides	V.	not provided	N/A	Web-based Comments	30991	24
Eurquhart	Raymond	not provided	N/A	Web-based Comments	26687	24
Eurs	Albert	not provided	N/A	Web-based Comments	46412	34
Euse	Lynne	not provided	N/A	Web-based Comments	22128	24
Evan	Robert	robertevans910@gmail.com	N/A	US Mail or commercial carrier (UPS, FedEx)	2522	N/A
evan	v	not provided	N/A	Web-based Comments	30987	24
Evangelisti	Enrico	not provided	N/A	Web-based Comments	14074	24
Evans	A	not provided	N/A	Web-based Comments	46942	34
Evans	A. S.	not provided	N/A	Web-based Comments	52142	34
Evans	Amanda	not provided	N/A	Web-based comments	3017	N/A
Evans	Amy & Martin	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32297	N/A
Evans	Anna	not provided	N/A	Web-based comments	3804	1
Evans	Ava	not provided	N/A	Web-based Comments	58599	34
Evans	Becky	not provided	N/A	Web-based Comments	8909	24
Evans	Brenda	not provided	N/A	Web-based Comments	53087, 53088	34
Evans	Brenda	not provided	N/A	Web-based Comments	9396	24
Evans	Brianne	not provided	N/A	Web-based Comments	48127	34
Evans	Bronwen	not provided	N/A	Web-based Comments	58287, 48360	16, 34
Evans	Chad	not provided	N/A	Web-based Comments	48624	34
Evans	Chris	not provided	N/A	Web-based Comments	48977	34
Evans	Christopher	not provided	N/A	Web-based Comments	11009	24
Evans	David	evansdavid@frontier.com	N/A	Web-based comments	5680	N/A
Evans	Della	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	2145	N/A
Evans	Dianne	evansbdc@charter.net	N/A	Web-based comments	4938	N/A
Evans	Donald	not provided	N/A	Web-based Comments	46217	34
Evans	Donald	not provided	N/A	Web-based Comments	13060	24
Evans	Elle	not provided	N/A	Web-based Comments	55684, 55685	34
Evans	Elysse	ejkimber@gmail.com	N/A	Web-based comments	32181	N/A
Evans	H	not provided	N/A	Web-based Comments	15364	24
Evans	Hersha	not provided	N/A	Web-based Comments	15689	24
EVANS	HOLLY	not provided	N/A	Web-based Comments	15743	24
Evans	J.L.	not provided	N/A	Web-based Comments	16018	24
Evans	Jeffrey	not provided	N/A	Web-based Comments	17076	24
Evans	Jo	not provided	N/A	Web-based Comments	53928	34
Evans	Kelle	not provided	N/A	Web-based Comments	45220	34
Evans	Kersti	not provided	N/A	Web-based Comments	20075	24
Evans	Linda	not provided	N/A	Web-based Comments	21256	24
Evans	Louise	not provided	N/A	Web-based Comments	21884	24
Evans	Maggie	maggieevans1998@gmail.com	N/A	Web-based comments	6691	N/A
Evans	Martin	not provided	N/A	Web-based Comments	23156	24
Evans	Michelle	not provided	N/A	Web-based Comments	49097	34
Evans	Michelle	not provided	N/A	Web-based Comments	24341	24
Evans	Monica Ann	not provided	N/A	Web-based Comments	52353	34

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Evans	Pam	not provided	N/A	Web-based Comments	25493	24
Evans	Patricia	not provided	N/A	Web-based Comments	25748	24
Evans	Paul	not provided	N/A	Web-based Comments	54258	34
Evans	Peter	not provided	N/A	Web-based Comments	49380	34
Evans	Peter and Meryl	not provided	N/A	Web-based Comments	26306	24
Evans	Ramona	not provided	N/A	Web-based Comments	26603	24
Evans	Rebecca	not provided	N/A	Web-based Comments	26725	24
Evans	Rod	rke1855@yahoo.com	N/A	Web-based comments	3068	N/A
Evans	Sally Wurster	not provided	N/A	Web-based Comments	45758	34
evans	sandra	not provided	N/A	Web-based Comments	28141	24
Evans	Shirley	not provided	N/A	Web-based Comments	46813	34
Evans	Steven	not provided	N/A	Web-based Comments	29427	24
Evans	Susan	not provided	N/A	Web-based Comments	29668	24
Evans	Susan	not provided	N/A	Web-based Comments	29669	24
Evans	Tania	not provided	N/A	Web-based Comments	56078	34
Evans	Tina	not provided	N/A	Web-based comments	57576	35
Evans	Walter	not provided	N/A	Web-based Comments	31354	24
Evans	William	not provided	N/A	Web-based Comments	31534	24
Evarts	Jay	not provided	N/A	Web-based Comments	16805	24
eveillard	danielle	not provided	N/A	Web-based Comments	11806	24
Evenson	marilyn	not provided	N/A	Web-based Comments	44328, 44329	34
Evenson	Marilyn	not provided	N/A	Web-based Comments	22775	24
Eventide	Lara	not provided	N/A	Web-based Comments	20550	24
Eventoff	Franklin	not provided	N/A	Web-based Comments	14558	24
Everall	Patricia	not provided	N/A	Web-based Comments	25749	24
Everett	John	not provided	N/A	Web-based Comments	48523	34
Everett	John	not provided	N/A	Web-based Comments	18013	24
Everett	Maria	not provided	N/A	Web-based Comments	45499	34
Everett	Maria	not provided	N/A	Web-based Comments	22595	24
Everett	Paula	not provided	N/A	Web-based Comments	26079, 26080	24
Everett	Rita	not provided	N/A	Web-based Comments	27135	24
Everett	Rosemary	not provided	N/A	Web-based Comments	27759	24
Everett	Virginia	not provided	N/A	Web-based Comments	31282	24
Evergreen	Diane	not provided	N/A	Web-based Comments	12836	24
Everhart	Craig	not provided	N/A	Web-based Comments	45092	34
Everingham	Robert	not provided	N/A	Web-based Comments	27257	24
Everitt	Constance	not provided	N/A	Web-based Comments	11335	24
Everitt	Nina	ninaeveritt10@gmail.com	N/A	Web-based comments	4834	N/A
Everling	Nicole	not provided	N/A	Web-based Comments	55182	34
Everling	Nicole	not provided	N/A	Web-based Comments	25232	24
Eversole	April	not provided	N/A	Web-based Comments	8380	24
Evert	Herbert	not provided	N/A	Web-based Comments	15680	24
Evert	Karen	not provided	N/A	Web-based Comments	19093	24
Evert	Muriel	not provided	N/A	Web-based Comments	24695	24
every	kathleen van	not provided	N/A	Web-based Comments	52202	34
Evett	Elisa	not provided	N/A	Web-based Comments	13669	24
Evilsizer	Susan	not provided	N/A	Web-based Comments	29670	24
evin	ceren	not provided	N/A	Web-based Comments	10445	24
Evison	Helen	not provided	N/A	Web-based Comments	15605	24
Evon	Debra	not provided	N/A	Web-based Comments	45646, 45647	34
Evon	Debra	not provided	N/A	Web-based Comments	12518	24
Ewalt	Roger	not provided	N/A	Web-based Comments	27583	24
Ewell	Harleigh	not provided	N/A	Web-based Comments	15435	24
Ewen	Jamie	not provided	N/A	Web-based Comments	48471	34
Ewen	Sallie	not provided	N/A	Web-based Comments	27995	24
Ewer	Leslie	not provided	N/A	Web-based Comments	46560	34
Ewers	Camilla K.	not provided	N/A	Web-based Comments	9737	24
Ewert	Kai	not provided	N/A	Web-based Comments	18999	24
Ewerts	Sylvia	not provided	N/A	Web-based Comments	30064	24
Ewing	Jim	not provided	N/A	Web-based Comments	17576	24
Ewoldt	Shayla	not provided	N/A	Web-based Comments	28766	24
Ex	Myrthe	not provided	N/A	Web-based Comments	24726	24
exparza	brenda	not provided	N/A	Web-based Comments	9397	24
Eyres	Melody	not provided	N/A	Web-based Comments	48469	34
Eyres	Melody	not provided	N/A	Web-based Comments	23945	24
Eyster	Carol Lynne	not provided	N/A	Web-based Comments	49880, 49881	34
Eyster	Carol Lynne	not provided	N/A	Web-based Comments	10063	24
Eza	Tonya	not provided	N/A	Web-based Comments	49752	34
Eza	Tonya	not provided	N/A	Web-based Comments	30820	24
Ezell	Arpita	not provided	N/A	Web-based Comments	8450	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Ezerman	Elizabeth	not provided	N/A	Web-based Comments	50913	34
ezoe	magdalena	not provided	N/A	Web-based Comments	22260	24
Ezra	Christine	not provided	N/A	Web-based Comments	10917	24
F	Amanda	amandamarie1399@gmail.com	N/A	Web-based comments	511	1
f	angie	not provided	N/A	Web-based Comments	7952	24
F	B	not provided	N/A	Web-based Comments	8569	24
F	Denise	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58324	N/A
F	K	not provided	N/A	Web-based Comments	47560, 50618, 53361	34
F	Karen	not provided	N/A	Web-based Comments	19094	24
F	L	not provided	N/A	Web-based Comments	20479	24
F	M	not provided	N/A	Web-based Comments	55175, 55176	34
F	M	not provided	N/A	Web-based Comments	22169	24
F	Mary	not provided	N/A	Web-based Comments	23264	24
f	p	not provided	N/A	Web-based Comments	54319	34
f	p	not provided	N/A	Web-based Comments	25460	24
F	Ryan	not provided	N/A	Web-based Comments	27909	24
F	Veronica	not provided	N/A	Web-based comments	696	1
F.	Angie	not provided	N/A	Web-based Comments	54847	34
F.	C.	not provided	N/A	Web-based Comments	9691	24
F.	Megan	megs_517@hotmail.com	N/A	Web-based comments	1227	N/A
F.	Patricia	not provided	N/A	Web-based Comments	25750	24
F. Jeanne Johnson	Dr.	not provided	N/A	Web-based Comments	13361	24
Faatz	Cindy	not provided	N/A	Web-based Comments	11073	24
Fabbri	Dori	not provided	N/A	Web-based Comments	13217	24
Fabian	Dirk	not provided	N/A	Web-based Comments	58168	16
Fabian	Les	not provided	N/A	Web-based Comments	55467, 55468	34
Fabian	Les	not provided	N/A	Web-based Comments	21028	24
Fabrikant	Reva	not provided	N/A	Web-based Comments	26873	24
Face	Jo	not provided	N/A	Web-based Comments	17643	24
Facella	Mario	not provided	N/A	Web-based Comments	22846	24
Fachet	Patrick	not provided	N/A	Web-based Comments	25904	24
Fachko	D.	not provided	N/A	Web-based Comments	11596	24
Fackler	Bradley	not provided	N/A	Web-based Comments	9353	24
Fadden	Heather	not provided	N/A	Web-based comments	57528	35
Fadden	Heather	not provided	N/A	Web-based Comments	44308	34
Fadem	Linda	not provided	N/A	Web-based Comments	53291	34
Faerber	Chris	not provided	N/A	Web-based comments	56854	35
Faeustle	Kevin	kfaeustle@gmail.com	N/A	Web-based comments	31889	N/A
fagan	katie	not provided	N/A	Web-based Comments	19788	24
Fagan	Lori	not provided	N/A	Web-based Comments	21783	24
Fager	Sharon	not provided	N/A	Web-based Comments	28651	24
Fagerholm	Jeff	vectorfins@gmail.com	N/A	Web-based comments	3666	N/A
Fagerness	Douglas	fagerness.doug@gmail.com	N/A	Web-based comments	2243	N/A
Fagerskog	Trevor	tfagerskog@gmail.com	N/A	Web-based comments	2957	8
Fahey	Edward	not provided	N/A	Web-based Comments	13493	24
Fahey	Kathryn	not provided	N/A	Web-based Comments	19642	24
Fahey	Nancy	not provided	N/A	Web-based Comments	24850	24
Fahlman	Cheryl	not provided	N/A	Web-based Comments	10632	24
Fahrenwald	Gill	not provided	N/A	Web-based Comments	51943	34
Fahrenwald	Gill	not provided	N/A	Web-based Comments	15032	24
Fahrer	Victor	not provided	N/A	Web-based Comments	31170	24
Faich	Ron	not provided	N/A	Web-based Comments	52538, 52539	34
Faich	Ron	not provided	N/A	Web-based Comments	27620	24
Faiella	Nicholas	not provided	N/A	Web-based Comments	25165	24
Faigin	Cecelia	not provided	N/A	Web-based Comments	10409	24
Failla	LiSA	not provided	N/A	Web-based Comments	21547	24
Fails	Annette	not provided	N/A	Web-based Comments	50974	34
Fain	Charlette	not provided	N/A	Web-based Comments	10545	24
Fain	Karen	not provided	N/A	Web-based Comments	19095	24
Fair	Linda	not provided	N/A	Web-based Comments	51041, 51042	34
Fair	Linda	not provided	N/A	Web-based Comments	21257	24
Fair	Pat	not provided	N/A	Web-based Comments	25648	24
Fairbairn	Alan	not provided	N/A	Web-based Comments	7160	24
Fairbank	Daniella	not provided	N/A	Web-based comments	94	1
Fairbank	Megan	not provided	N/A	Web-based Comments	23786	24
Fairbanks	Douglas	dfairbanks@hotmail.com	N/A	Web-based comments	5450	N/A
Fairbanks	Kristy	not provided	N/A	Web-based Comments	20422	24
Fairbanks	Myria	not provided	N/A	Web-based Comments	24716	24
fairchild	carissa	not provided	N/A	Web-based Comments	9799	24
Fairchild	Claudine	not provided	N/A	Web-based Comments	11204	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Fairchild	Jennifer	not provided	N/A	Web-based Comments	55552	34
Fairchild	Jennifer	not provided	N/A	Web-based Comments	17185	24
Faircloth	Diane	not provided	N/A	Web-based Comments	12837	24
Fairhead	Jordan	not provided	N/A	Web-based Comments	18316	24
Fairhurst	Samantha	not provided	N/A	Web-based Comments	53466	34
Fairless	Judy	not provided	N/A	Web-based comments	57669	35
Fairman	Marcia	not provided	N/A	Web-based Comments	22365	24
Fairweather	Susan	not provided	N/A	Web-based Comments	53767	34
Faisal	Maria	not provided	N/A	Web-based Comments	46647	34
Faisy	Veronique	not provided	N/A	Web-based comments	56766	35
Faitz	Andrew	not provided	N/A	Web-based Comments	46257	34
Fakhar	Kim	not provided	N/A	Web-based Comments	20171	24
Falck-Madsen	Judith	not provided	N/A	Web-based Comments	18591	24
Falco	Marie	not provided	N/A	Web-based Comments	22704	24
Falcon	Maureen	not provided	N/A	Web-based Comments	23690	24
Falcon	Ruth Neuwald	not provided	N/A	Web-based Comments	48533	34
Falcon	Ruth Neuwald	not provided	N/A	Web-based Comments	27896	24
Falcon	Sandra	not provided	N/A	Web-based Comments	56257	34
Falcone	Janet	not provided	N/A	Web-based Comments	16593	24
Falconer	Jay	not provided	N/A	Web-based Comments	44935, 44936	34
Falconer	Jay	not provided	N/A	Web-based Comments	16806	24
Fales	Gaynol	not provided	N/A	Web-based Comments	14838	24
Falk	Darlene	not provided	N/A	Web-based Comments	49151	34
Falk	Darlene	not provided	N/A	Web-based Comments	11880	24
Falk	Diane	not provided	N/A	Web-based Comments	44643, 44644	34
Falkenstein	Laurel	not provided	N/A	Web-based Comments	20735	24
Fall	Fred	not provided	N/A	Web-based Comments	14569	24
Faller	Gael	not provided	N/A	Web-based Comments	14656	24
Falletta	Betty Ann	not provided	N/A	Web-based Comments	9105	24
Fallick	Mariah	not provided	N/A	Web-based comments	1720	N/A
Falsetto	Rita	not provided	N/A	Web-based Comments	45869, 45870, 45871, 45872	34
Falsetto	Rita	not provided	N/A	Web-based Comments	27136	24
Falsken	James	not provided	N/A	Web-based Comments	54342	34
Faltin	Meredith	not provided	N/A	Web-based Comments	23972	24
Falzgraf	Nelli	not provided	N/A	Web-based Comments	49882	34
Falzgraf	Nelli	not provided	N/A	Web-based Comments	25143	24
Fan	Helen	not provided	N/A	Web-based comments	6608	1
Fan	Vincent	not provided	N/A	Web-based Comments	31250	24
Fancher	Jon	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	56646	N/A
Fanestil	Abigail Ann	not provided	N/A	Web-based Comments	57992, 50550	16, 34
Fanestil	Abigail Ann	not provided	N/A	Web-based Comments	7025	24
fangmann	Jackylin	fangmann.jackylin@gmail.com	N/A	Web-based comments	594	N/A
Fangue	Karen	not provided	N/A	Web-based Comments	54306	34
Fanniff	Robert	not provided	N/A	Web-based Comments	27258	24
fannin	beverly	not provided	N/A	Web-based Comments	9123	24
Fanning	Megan	not provided	N/A	Web-based comments	57295	35
Fanning	Sean	not provided	N/A	Web-based comments	57296	35
Fannon-Lamkin	Lynette	not provided	N/A	Web-based Comments	56032	34
Faotto	Giuseppina	not provided	N/A	Web-based Comments	15107	24
Farabaugh	Clare	not provided	N/A	Web-based Comments	11160	24
Farber	Carol	not provided	N/A	Web-based Comments	9924	24
Farber	Judy	not provided	N/A	Web-based Comments	18678	24
Farber	Marla	not provided	N/A	Web-based Comments	23024	24
Farhat	Joan E.	not provided	N/A	Web-based Comments	17760	24
Faria	Charles	not provided	N/A	Web-based Comments	10500	24
Farin	Linda	not provided	N/A	Web-based Comments	21258	24
Farina	Roseann	not provided	N/A	Web-based Comments	27738	24
Farkas	Sandra	not provided	N/A	Web-based Comments	28142	24
Farkash	Stephen	not provided	N/A	Web-based Comments	48507	34
Farley	Barry	not provided	N/A	Web-based Comments	44899	34
Farley	Christine	not provided	N/A	Web-based Comments	10918	24
Farley	Denis	not provided	N/A	Web-based Comments	51575	34
Farley	Linda	not provided	N/A	Web-based Comments	21259	24
Farmed	Randy	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32417	11
Farmer	Bonnie	not provided	N/A	Web-based Comments	45797	34
Farmer	Bonnie	not provided	N/A	Web-based Comments	9294	24
Farmer	Bryant	not provided	N/A	Web-based comments	31913	11
Farmer	Clint	clint.farmer@usu.edu	N/A	Web-based comments	4384	N/A
Farmer	Debra	not provided	N/A	Web-based Comments	50824	34

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Farmer	Debra	not provided	N/A	Web-based Comments	12519	24
Farmer	Gail	not provided	N/A	Web-based Comments	55481	34
Farmer	Gail	not provided	N/A	Web-based Comments	14679	24
Farmer	Jane	not provided	N/A	Web-based Comments	16480	24
farmer	linda	not provided	N/A	Web-based Comments	21260	24
farmer	lynne	not provided	N/A	Web-based Comments	22129	24
Farmer	Marinda	not provided	N/A	Web-based Comments	55806	34
Farmer	Marinda	not provided	N/A	Web-based Comments	22844	24
Farmer	Nancy	not provided	N/A	Web-based Comments	50879	34
Farmer	Nancy	not provided	N/A	Web-based Comments	24851	24
Farmer	Pamela	not provided	N/A	Web-based Comments	25545	24
Farms	Hunter	hunterfarms@hcc.net	N/A	Web-based comments	3958	10
Farnell	Ade	not provided	N/A	Web-based comments	56739	35
Farnell	Linda	not provided	N/A	Web-based Comments	21261	24
Farnham	Pamela	not provided	N/A	Web-based Comments	25546	24
Farnsworth	Terry	abellaphotography@ymail.com	N/A	Web-based comments	31905	N/A
Faro	Lee	not provided	N/A	Web-based comments	4437	N/A
Farr	Anne	not provided	N/A	Web-based Comments	8191	24
Farr	Ceren	not provided	N/A	Web-based Comments	49741	34
Farr	Darla	not provided	N/A	Web-based Comments	11870	24
Farrah	Deanna	not provided	N/A	Web-based Comments	12274	24
Farrand-Bernardin	Shannon	not provided	N/A	Web-based Comments	28583	24
Farrell	Courtney	not provided	N/A	Web-based Comments	48881	34
Farrell	Devin	not provided	N/A	Web-based Comments	45654	34
Farrell	Jamie	fishynp@gmail.com	N/A	Web-based comments	3258	N/A
Farrell	Jim	not provided	N/A	Web-based Comments	58636	34
farrell	John	not provided	N/A	Web-based Comments	52640	34
farrell	judy	not provided	N/A	Web-based Comments	51589	34
Farrell	Keely	not provided	N/A	Web-based Comments	53320	34
Farrell	Keely	not provided	N/A	Web-based Comments	19860	24
Farrell	Kevin	not provided	N/A	Web-based Comments	20099	24
farrell	Lauren	not provided	N/A	Web-based Comments	49144	34
Farrell	Phyllis	not provided	N/A	Web-based Comments	46170	34
Farrell	Richard	not provided	N/A	Web-based Comments	26967	24
FARRELL	RONALD	not provided	N/A	Web-based Comments	27656	24
Farrell	Susan	not provided	N/A	Web-based Comments	29671	24
Farrell	Wendy	not provided	N/A	Web-based Comments	49809	34
Farrelly	Audrey	not provided	N/A	Web-based Comments	8525	24
Farrelly	Moira	not provided	N/A	Web-based Comments	46589	34
Farrelly	Moira	not provided	N/A	Web-based Comments	24589	24
Farreny	Ashley	not provided	N/A	Web-based Comments	8482	24
Farreras	Marilyn Galusha	not provided	N/A	Web-based Comments	22823	24
Farrimond	D.	not provided	N/A	Web-based Comments	11597	24
farrington	edwin	etf61dawg@gmail.com	N/A	Web-based comments	4506	N/A
Farris	Gregory	gnf3@cableone.net	N/A	Web-based comments	3563	N/A
Farris	Gregory	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32527	13
Farris	Joan	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32526	13
Farris	Z.	not provided	N/A	Web-based comments	4458	N/A
Farrish	Mary	not provided	N/A	Web-based Comments	23265	24
Farrugia	Christine	not provided	N/A	Web-based Comments	49013	34
Farrugia	Frank	not provided	N/A	Web-based Comments	53073	34
Farrugia	Frank	not provided	N/A	Web-based Comments	14527	24
Farsang	MâˆšÂ°ria	not provided	N/A	Web-based Comments	22224	24
Farthing	Steve	not provided	N/A	Web-based Comments	29361	24
Faruqi	Anisa	not provided	N/A	Web-based Comments	7961	24
Farwell	Geralyn	not provided	N/A	Web-based Comments	14975	24
Farwell	Laura	not provided	N/A	Web-based Comments	20636	24
Faso	Linda	not provided	N/A	Web-based Comments	51426	34
Fass	Arline	not provided	N/A	Web-based Comments	8442	24
Fassihi	Pardees	not provided	N/A	Web-based Comments	25617	24
fassler	cary	not provided	N/A	Web-based Comments	46005	34
Fast	William	not provided	N/A	Web-based Comments	31535	24
Fast	Yvonne	not provided	N/A	Web-based Comments	31692	24
Faste	Linda	not provided	N/A	Web-based Comments	56206, 56207	34
Fastner	Chris	not provided	N/A	Web-based Comments	10739	24
Fath	Marie odile	not provided	N/A	Web-based Comments	54946	34
Faucette	Stephanie	not provided	N/A	Web-based Comments	48706, 48707	34
Faucette	Stephanie	not provided	N/A	Web-based Comments	29211	24
Faucher	Dan	not provided	N/A	Web-based Comments	53048	34

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Faucher	Daniel	not provided	N/A	Web-based Comments	58457	34
Faucher	Nichole	not provided	N/A	Web-based comments	666	N/A
fauchie	florence	not provided	N/A	Web-based comments	1959	1
Fauconnier	Jean-Francois	not provided	N/A	Web-based Comments	16920	24
Faulds	Sandy	sandyfaulds99352@gmail.com	N/A	Web-based comments	6546	N/A
Faulhaber	Margo	not provided	N/A	Web-based Comments	22546	24
Faulkner	Melanie	not provided	N/A	Web-based Comments	23835	24
Fauman-Fichman	Ruth	not provided	N/A	Web-based Comments	55408	34
Faunr	F	not provided	N/A	Web-based Comments	51497, 51498	34
Faust	Jeanne	not provided	N/A	Web-based Comments	58575	34
Faust	Jeanne	not provided	N/A	Web-based Comments	16944	24
Fauvet	Audrey	not provided	N/A	Web-based comments	56758	35
Favia-Garcia	Gianna	not provided	N/A	Web-based Comments	15015	24
Favreau	Patricia	not provided	N/A	Web-based Comments	47395	34
Fawcett	Ann	not provided	N/A	Web-based Comments	54131	34
Fawcett	Ann	not provided	N/A	Web-based Comments	8030	24
Fawell	Thomas	not provided	N/A	Web-based Comments	30490	24
Fay	Mary	mary.fay7@gmail.com	N/A	Web-based comments	4290	N/A
Fayman	Alvin	not provided	N/A	Web-based Comments	7494	24
faytinger	Tim	not provided	N/A	Web-based Comments	55328	34
Fazio	Giovannina	not provided	N/A	Web-based Comments	15088	24
Fazio	Sandra	not provided	N/A	Web-based Comments	28143	24
Feagin	Norma	not provided	N/A	Web-based Comments	25381	24
FEAR	MARGE	not provided	N/A	Web-based Comments	22529	24
Fearnow	Tina	not provided	N/A	Web-based Comments	55532	34
Fechner	Joann	not provided	N/A	Web-based Comments	17769	24
Feck	Charlotte	not provided	N/A	Web-based Comments	45891	34
Fecko	Albert	not provided	N/A	Web-based Comments	7210	24
Feda	Nicholas	not provided	N/A	Web-based Comments	55526	34
Fedelich	Caroll	not provided	N/A	Web-based Comments	10134	24
Feder	Mark	not provided	N/A	Web-based Comments	22921	24
Feder	Melanie	not provided	N/A	Web-based Comments	51644	34
Federman	Barbara	not provided	N/A	Web-based Comments	8672	24
Federman	Steven	not provided	N/A	Web-based Comments	50629	34
Federman	Steven	not provided	N/A	Web-based Comments	29428	24
Fedorow	Dinah	not provided	N/A	Web-based Comments	12963	24
Fedra	Gabriella	not provided	N/A	Web-based Comments	14649	24
Fedyniak	Myra	not provided	N/A	Web-based Comments	24713	24
Feely-Nahem	Erin	not provided	N/A	Web-based Comments	14217	24
Feen	Hildy	not provided	N/A	Web-based Comments	49206	34
Feeney	John	not provided	N/A	Web-based Comments	47974	34
Fegan	Mike	not provided	N/A	Web-based Comments	45142	34
Fehr	Daniel	not provided	N/A	Web-based Comments	11733	24
Fehr	Richard	not provided	N/A	Web-based Comments	53669	34
Feichter	Steffanie	not provided	N/A	Web-based Comments	29179	24
Feichtmeir	Peter	not provided	N/A	Web-based Comments	26248	24
Feierabend	Marla	not provided	N/A	Web-based Comments	23025	24
Feil	Matthew	not provided	N/A	Web-based Comments	23644	24
Feimster	Gary	not provided	N/A	Web-based Comments	14765	24
Feinblatt	P.	not provided	N/A	Web-based Comments	56049	34
Feinblatt	P.	not provided	N/A	Web-based Comments	25471	24
Feinman	Rochelle	not provided	N/A	Web-based Comments	27561	24
Feissel	John	not provided	N/A	Web-based Comments	55952	34
Feissel	John	not provided	N/A	Web-based Comments	18014	24
Feit	Eric	not provided	N/A	Web-based Comments	47154	34
Feit	Sarah	not provided	N/A	Web-based Comments	55444	34
Feit	Susan	not provided	N/A	Web-based Comments	53898	34
Feitler	Mary	not provided	N/A	Web-based Comments	23266	24
Fekete	Andrea	not provided	N/A	Web-based Comments	46520	34
Fekete	Andrea	not provided	N/A	Web-based Comments	7740	24
Fekete	Zita	not provided	N/A	Web-based Comments	31731	24
Feld	Helen	not provided	N/A	Web-based Comments	44793	34
Felder	Danielle	danielle_feld@icloud.com	N/A	Web-based comments	31780	N/A
Feldman	Carlie	not provided	N/A	Web-based Comments	9846	24
Feldman	Irene	not provided	N/A	Web-based Comments	15899	24
Feldman	Jo	not provided	N/A	Web-based Comments	17644	24
Feldman	Laura	lfeldman32101@yahoo.com	N/A	Web-based comments	2777	N/A
Feldman	Mark	not provided	N/A	Web-based Comments	50822	34
Feldman	Mark	not provided	N/A	Web-based Comments	22922	24
Feldman	Mia	miafeldman7@gmail.com	N/A	Web-based comments	4921	N/A

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Feldman	Ovina	not provided	N/A	Web-based Comments	48279	34
Feldman	Tracy	not provided	N/A	Web-based Comments	45181	34
Feldman	Tracy	not provided	N/A	Web-based Comments	30867	24
Feldman	virginia	not provided	N/A	Web-based Comments	31283	24
Feldstein	Stephanie	not provided	N/A	Web-based Comments	53150	34
Feletar	Linda	not provided	N/A	Web-based Comments	21262	24
Felguera	Nadege	not provided	N/A	Web-based Comments	24746	24
Feliccia	James	not provided	N/A	Web-based comments	57088	35
Feliciano	LIDIA E	not provided	N/A	Web-based Comments	21149	24
Feliciano	Lily	not provided	N/A	Web-based Comments	21178	24
Feliciano	Renee	not provided	N/A	Web-based Comments	49654, 49655	34
Felix	Cathy	not provided	N/A	Web-based Comments	10364	24
Felix	Kristin	not provided	N/A	Web-based Comments	55044	34
Fellenius	Karl	not provided	N/A	Web-based Comments	19298	24
Fellner	Sigrid	not provided	N/A	Web-based Comments	28994	24
Fellows	Arthur	not provided	N/A	Web-based Comments	8460	24
Fellows	Leslie	not provided	N/A	Web-based Comments	52149, 52150	34
Felman	Ellen	not provided	N/A	Web-based Comments	13912	24
Felmeth	Deborah	not provided	N/A	Web-based Comments	12402	24
felsovanyi	haydee	not provided	N/A	Web-based Comments	45644	34
Felstead	Paul	not provided	N/A	Web-based Comments	25987	24
Felt	Amanda	not provided	N/A	Web-based Comments	7529	24
Felt	Kathleen	not provided	N/A	Web-based Comments	53831	34
Felton	George	not provided	N/A	Web-based Comments	14890	24
Felton	John	not provided	N/A	Web-based Comments	55332	34
Felton	Margaret	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	56688	N/A
Felton	Stephanie	not provided	N/A	Web-based Comments	53689	34
Felton	Stephanie	not provided	N/A	Web-based Comments	29212	24
Felts	Karen	not provided	N/A	Web-based Comments	19096	24
Felts	Karen D.	not provided	N/A	Web-based Comments	48324	34
Feltz	Cyndie	cyndie.feltz@gmail.com	N/A	Web-based comments	864	1
Femmer	John	not provided	N/A	Web-based Comments	18015	24
Femreite	Bernal	bernienf@charter.net	N/A	Web-based comments	1780	N/A
Fenenbock	Lauren	not provided	N/A	Web-based Comments	56281	34
Fenenbock	Lauren	not provided	N/A	Web-based Comments	20765	24
Feng	NiN	not provided	N/A	Web-based Comments	58649	34
Fenley	Molissa	not provided	N/A	Web-based Comments	24591	24
Fenn	Sherle	not provided	N/A	Web-based Comments	28861	24
Fennell	April	not provided	N/A	Web-based Comments	56126	34
Fennell	April	not provided	N/A	Web-based Comments	8381	24
Fennema	William	not provided	N/A	Web-based Comments	31536	24
Fenner	Angelica	not provided	N/A	Web-based Comments	46395	34
Fenske	Tammy	not provided	N/A	Web-based Comments	30156	24
Fenster	Steven	not provided	N/A	Web-based Comments	45612, 45613	34
Fenster	Steven	not provided	N/A	Web-based Comments	29429	24
Fenter	Evelyn	not provided	N/A	Web-based Comments	50545	34
Fenton	Jeannine	not provided	N/A	Web-based Comments	16997	24
Fenton	Kathleen	not provided	N/A	Web-based Comments	19534	24
Fenwick	Andrea	not provided	N/A	Web-based Comments	7741	24
Feraud	Andrel	not provided	N/A	Web-based Comments	46631	34
Feraud	Unreadable	not provided	N/A	Web-based Comments	7718	24
Ferber	Don	not provided	N/A	Web-based Comments	13018	24
Ferebauer	John	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32388	N/A
Fereday	Jeff	not provided	N/A	Web-based comments	6000	N/A
Fergeson	Cheryl	not provided	N/A	Web-based Comments	47548, 47549	34
Fergeson	Cheryl	not provided	N/A	Web-based Comments	10633	24
Ferguson	Amanda	afergu@gmail.com	N/A	Web-based comments	2779	N/A
Ferguson	Barbara	not provided	N/A	Web-based Comments	8673	24
Ferguson	Carol	not provided	N/A	Web-based Comments	50393	34
Ferguson	Chelsea	chaferguson524@gmail.com	N/A	Web-based comments	566	N/A
Ferguson	Colin	not provided	N/A	Web-based Comments	11252	24
Ferguson	David	not provided	N/A	Web-based Comments	50218	34
Ferguson	Kim	not provided	N/A	Web-based Comments	20172	24
Ferguson	Livia	not provided	N/A	Web-based Comments	55276, 55277	34
Ferguson	Livia	not provided	N/A	Web-based Comments	21676	24
Ferguson	Mike	not provided	N/A	Web-based Comments	24448	24
Ferguson	Neil	not provided	N/A	Web-based Comments	25129	24
Ferguson	Rachel	not provided	N/A	Web-based Comments	26513	24
Ferguson	Scott	not provided	N/A	Web-based Comments	49369, 49370	34
Ferguson	Scott	not provided	N/A	Web-based Comments	28467	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Ferguson	Seth	not provided	N/A	Web-based comments	57317	35
Ferguson	Sibyl	not provided	N/A	Web-based Comments	54521	34
Ferguson	Virginia	not provided	N/A	Web-based Comments	31284	24
Ferguson-Dun	Marta	not provided	N/A	Web-based Comments	23085	24
Ferioli	Gayle	not provided	N/A	Web-based Comments	14824	24
Ferland	Linda	not provided	N/A	Web-based Comments	21263	24
Ferley	Katie	not provided	N/A	Web-based Comments	50793	34
Fermier	Jeanne L.	not provided	N/A	Web-based Comments	16979	24
Fermoil	John	not provided	N/A	Web-based Comments	18016	24
Fernald	Annie	not provided	N/A	Web-based Comments	8300	24
Fernald	Kirk	not provided	N/A	Web-based Comments	20268	24
Fernande	Fournier	not provided	N/A	Web-based Comments	14457	24
FERNANDES	isabelle	not provided	N/A	Web-based Comments	15947	24
Fernandes	Perolina	not provided	N/A	Web-based Comments	55477	34
Fernandez	Angela	not provided	N/A	Web-based Comments	7898	24
Fernandez	Daniel	not provided	N/A	Web-based Comments	11734	24
Fernandez	Elizabeth	not provided	N/A	Web-based Comments	13741	24
Fernandez	Grey	not provided	N/A	Web-based Comments	49048	34
Fernandez	Ivana	not provided	N/A	Web-based Comments	15958	24
Fernandez	Jessica	not provided	N/A	Web-based Comments	17425	24
fernandez	kathleen	not provided	N/A	Web-based Comments	48314	34
Fernandez	Kathleen	not provided	N/A	Web-based Comments	19535	24
Fernandez	Luis Jonathan Pastor	not provided	N/A	Web-based Comments	44403	34
Fernandez	Sam	not provided	N/A	Web-based Comments	56245	34
Fernandez	Val	not provided	N/A	Web-based Comments	30996	24
fernandez	yvette	not provided	N/A	Web-based Comments	31682	24
Fernandez-Sacco	Ellen	not provided	N/A	Web-based Comments	13913	24
Fernandez-Wong	Tracie	not provided	N/A	Web-based Comments	30857	24
Fernando	Christine	not provided	N/A	Web-based Comments	10919	24
Fernyhough	Zoe	not provided	N/A	Web-based comments	57447	35
Ferra	Daniel	danielferra58@gmail.com	N/A	Web-based comments	2153	N/A
Ferraiuolo	Rae	not provided	N/A	Web-based Comments	48722	34
Ferrand	Carolyne	not provided	N/A	Web-based Comments	10186	24
Ferrante	Barbara	not provided	N/A	Web-based Comments	8674	24
Ferrara	James	not provided	N/A	Web-based Comments	16213	24
ferrara	james	not provided	N/A	Web-based Comments	58124	16
Ferrara	Pat	not provided	N/A	Web-based Comments	25649	24
Ferrara	Robert	not provided	N/A	Web-based comments	57326	35
Ferrara	Robert	not provided	N/A	Web-based Comments	27259	24
Ferraris	Alfred	not provided	N/A	Web-based Comments	7320	24
Ferraro	Karen	not provided	N/A	Web-based Comments	19097	24
Ferraro	Lisa	not provided	N/A	Web-based Comments	21548	24
Ferraro	Marissa	not provided	N/A	Web-based Comments	47733	34
Ferre	Ben	not provided	N/A	Web-based Comments	8935	24
Ferre	Corinne	not provided	N/A	Web-based Comments	45227	34
FERREL	DON	DFERREL0719@GMAIL.COM	N/A	Web-based comments	3226	N/A
Ferrel	Laila	not provided	N/A	Web-based Comments	20515	24
Ferrell	Arleen	not provided	N/A	Web-based Comments	46548	34
Ferrell	Judith	not provided	N/A	Web-based comments	57199	35
Ferrell	Judith	not provided	N/A	Web-based Comments	18592	24
Ferrell	Tammy	not provided	N/A	Web-based Comments	30157	24
Ferrell	Vicky	vjfjunk@charter.net	N/A	Web-based comments	4905	N/A
Ferrer	Izabella-Marion	not provided	N/A	Web-based Comments	15966	24
Ferrer-Lava	Danielle	not provided	N/A	Web-based Comments	11807	24
Ferrero	Carl	not provided	N/A	Web-based Comments	9803	24
Ferri	Jessie	not provided	N/A	Web-based Comments	53408, 53409	34
Ferri	Jessie	not provided	N/A	Web-based Comments	17480	24
Ferring	Nancy	not provided	N/A	Web-based Comments	24852	24
Ferrio	Chris	not provided	N/A	Web-based Comments	53244	34
Ferris	Damon	not provided	N/A	Web-based comments	794	2
Ferris	rennie	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4658	N/A
Ferro	Fleur	fleurferro@yahoo.com	N/A	Web-based comments	6186	1
Ferron	Alex	alex@surfridersd.org	N/A	Web-based comments	48, 32150	1
Ferruggia	Rick	rickferruggia916@gmail.com	N/A	Web-based comments	5815	N/A
Ferry	Gwen	not provided	N/A	Web-based Comments	50541	34
Ferry	Mark	not provided	N/A	Web-based comments	56756	35
Ferry	Patti	not provided	N/A	Web-based Comments	25940	24
Ferry	William	not provided	N/A	Web-based Comments	31537	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Fershleiser	Scott	not provided	N/A	Web-based Comments	28468	24
Fesik	Mike	not provided	N/A	Web-based Comments	24449	24
Fetsch	Pamela	not provided	N/A	Web-based Comments	25547	24
Fetterman	Harry	hefetterman@gmail.com	N/A	Web-based comments	5835	N/A
Fetting	Joanne	not provided	N/A	Web-based Comments	55752	34
Fetzer	Lauren	fetzerlauren@gmail.com	N/A	Web-based comments	1027	N/A
Fetzko	Rj	not provided	N/A	Web-based Comments	27164	24
Feuchter	Robert H.	not provided	N/A	Web-based comments	57045	35
FEUER	ALAN	not provided	N/A	Web-based Comments	7161	24
Feuerbacher	Nancy	not provided	N/A	Web-based Comments	24853	24
Feuerstein	Laura	not provided	N/A	Web-based Comments	20637	24
feuerstein	victoria	not provided	N/A	Web-based Comments	44872	34
Feusner	Jamie	not provided	N/A	Web-based Comments	16355	24
Fevurly	Megan	not provided	N/A	Web-based Comments	23787	24
Fexis	Deborah	not provided	N/A	Web-based Comments	55753, 55754	34
Feyzi	Fereshte	not provided	N/A	Web-based Comments	14421	24
Fiala	Terry	not provided	N/A	Web-based Comments	30367	24
Fiandaca	Anastasia	not provided	N/A	Web-based Comments	49395	34
Fibiger	Maria	not provided	N/A	Web-based Comments	22596	24
Fichter	Sarah	not provided	N/A	Web-based Comments	49321	34
Fici	Barbara	not provided	N/A	Web-based Comments	8675	24
Ficke	Anne	not provided	N/A	Web-based Comments	8192	24
Fiddler	Kaleigh	not provided	N/A	Web-based Comments	19010	24
Fidell	Linda	not provided	N/A	Web-based Comments	21264	24
Fie	Stephen	not provided	N/A	Web-based Comments	29286	24
Fiebrandt	Everdina	not provided	N/A	Web-based Comments	14361	24
Fiedler	David	not provided	N/A	Web-based Comments	12004	24
Fiedler	Ed	not provided	N/A	Web-based Comments	54146	34
Fiedler	Ed	not provided	N/A	Web-based Comments	13442	24
Fiedor	Jillian	not provided	N/A	Web-based Comments	55863, 55864	34
Field	Camilla & Matt	not provided	N/A	Web-based Comments	9736	24
Field	Cindi	not provided	N/A	Web-based Comments	11058	24
Field	Jaimie	not provided	N/A	Web-based Comments	16161	24
Field	Jutta	not provided	N/A	Web-based Comments	18970	24
Field	Kimberly	not provided	N/A	Web-based Comments	20223	24
Field	Mitchell	not provided	N/A	Web-based Comments	24571	24
Field	Randi	not provided	N/A	Web-based Comments	26622	24
Field	Tanya	not provided	N/A	Web-based Comments	51262	34
Field	Tanya	not provided	N/A	Web-based Comments	30181	24
Fielder	Aixa	not provided	N/A	Web-based Comments	53308	34
Fielder	Aixa	not provided	N/A	Web-based Comments	7139	24
Fielder	L.	not provided	N/A	Web-based Comments	20496	24
Fieldgrove	Gayle	not provided	N/A	Web-based Comments	48233	34
Fielding	Helen	not provided	N/A	Web-based Comments	15606	24
Fielding	Magdalena	not provided	N/A	Web-based Comments	22261	24
Fieldman	Gale	not provided	N/A	Web-based Comments	14733	24
Fields	Elizabeth	not provided	N/A	Web-based Comments	13742	24
Fields	Holli	not provided	N/A	Web-based Comments	15724	24
Fields	Karla	not provided	N/A	Web-based Comments	19311	24
Fieleke	Andrew	not provided	N/A	Web-based Comments	7812	24
Fiene	Kathleen	NonnieFiene@gmail.com	N/A	Web-based comments	6570	1
Fierens	Harry en Marina	not provided	N/A	Web-based Comments	15464	24
Fierro	Kathie	not provided	N/A	Web-based Comments	48036, 48037	34
Fierro	Tallia	not provided	N/A	Web-based Comments	30112	24
Fierro	Yvonne	not provided	N/A	Web-based Comments	31693	24
Fierro-Clarke	Alexander	not provided	N/A	Web-based Comments	7263	24
Fife	Amy	not provided	N/A	Web-based Comments	7607	24
fife	liz	not provided	N/A	Web-based Comments	21679	24
Fifer	Dolores	not provided	N/A	Web-based Comments	53326	34
Fifer	Dolores	not provided	N/A	Web-based Comments	12993	24
Fifer	Nancy	not provided	N/A	Web-based Comments	24854	24
Figa	Alenka	not provided	N/A	Web-based Comments	7236	24
Fighera	Linda	not provided	N/A	Web-based Comments	54455, 54456	34
Fighera	Linda	not provided	N/A	Web-based Comments	21265	24
figueroa	Kevin	kevinafl13@gmail.com	N/A	Web-based comments	836	2
Figueroa	Mona	not provided	N/A	Web-based Comments	24606	24
Figula	Edward	not provided	N/A	Web-based Comments	13494	24
Fihe	Lauren	not provided	N/A	Web-based Comments	20766	24
Fike	Lisa	not provided	N/A	Web-based comments	57667	35

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Filardi	Jason	not provided	N/A	Web-based Comments	16775	24
Filauri	Joyce	not provided	N/A	Web-based Comments	54482, 54483	34
Filauri	Joyce	not provided	N/A	Web-based Comments	18487	24
File	Peggy	not provided	N/A	Web-based Comments	52788	34
File	Peggy	not provided	N/A	Web-based Comments	26155	24
Filenko	Sergey	not provided	N/A	Web-based Comments	28542	24
Filer	Frances	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	2523	N/A
Filio	Michael	not provided	N/A	Web-based Comments	24072	24
Filip	Ildiko Carmen	not provided	N/A	Web-based Comments	15849	24
Filipek	Jaime	not provided	N/A	Web-based Comments	51935, 51936	34
Filipinyi	Noemi	not provided	N/A	Web-based Comments	25344	24
Filippi	J	not provided	N/A	Web-based Comments	45747, 45748	34
FILLERUP	JAMES	FILLERUP03@GMAIL.COM	N/A	Web-based comments	3964	11
Filley	Josh	not provided	N/A	Web-based Comments	18416	24
Fillmore	Frederick	fred.fillmore@comcast.net	N/A	Web-based comments	4477, 5218	N/A
Fillmore	Jamie	not provided	N/A	Web-based Comments	45402	34
Fillmore	Jamie	not provided	N/A	Web-based Comments	16356	24
Filocamo	Kevin	not provided	N/A	Web-based Comments	20100	24
Filozof	Ruth	not provided	N/A	Web-based Comments	49993	34
Filozof	Ruth	not provided	N/A	Web-based Comments	27867	24
Filson	Donna	not provided	N/A	Web-based Comments	13129	24
Filtz	Howard	not provided	N/A	Web-based Comments	15794	24
Finamore	scott	not provided	N/A	Web-based Comments	28469	24
Finch	Anna	not provided	N/A	Web-based Comments	58179	16
Finch	Marilyn	not provided	N/A	Web-based Comments	22776	24
Fincher	Debbi Fincher	not provided	N/A	Web-based comments	57560	35
Findeis	Unreadable	not provided	N/A	Web-based Comments	30992	24
Findlay	Jim	not provided	N/A	Web-based Comments	17577	24
Findlay	Kathleen	not provided	N/A	Web-based Comments	45237	34
Findlay	Robert	not provided	N/A	Web-based Comments	27260	24
Findley	Gail	not provided	N/A	Web-based Comments	14680	24
Findley	Helen	not provided	N/A	Web-based Comments	46526	34
Findley	Helen	not provided	N/A	Web-based Comments	15607	24
Findling	Sharon	not provided	N/A	Web-based Comments	46602	34
Fine	Brenda	not provided	N/A	Web-based Comments	9398	24
Fine	Cindy	not provided	N/A	Web-based Comments	45419, 45420, 45421	34
Fine	Connie	not provided	N/A	Web-based Comments	11305	24
Fine	Donna	not provided	N/A	Web-based Comments	54244, 54245	34
Fine	Donna	not provided	N/A	Web-based Comments	13130	24
Fine	Jovita	not provided	N/A	Web-based Comments	46949, 46950	34
Fine	Jovita	not provided	N/A	Web-based Comments	18452	24
Fine	Michael	not provided	N/A	Web-based Comments	50394	34
Fine	Michael	not provided	N/A	Web-based Comments	24073	24
Fine	Michael	not provided	N/A	Web-based Comments	24074	24
Fine	Penelope M	not provided	N/A	Web-based Comments	26196	24
Fine Jr	Jerry	not provided	N/A	Web-based Comments	17351	24
Finegan	Amy	not provided	N/A	Web-based Comments	7608	24
Finesilver	Janet	not provided	N/A	Web-based Comments	16594	24
Finger	Peter	not provided	N/A	Web-based Comments	26249	24
Fingerman	Robert	not provided	N/A	Web-based Comments	27261	24
Finiguerra	Lauretta	not provided	N/A	Web-based Comments	20807	24
Fink	Kim	not provided	N/A	Web-based Comments	20173	24
Fink	Patti	not provided	N/A	Web-based Comments	48506	34
Fink	Patti	not provided	N/A	Web-based Comments	25941	24
Finkbeiner	Courtney	not provided	N/A	Web-based Comments	58504	34
Finkbeiner	Courtney	not provided	N/A	Web-based Comments	11401	24
Finkbeiner	Theresa	not provided	N/A	Web-based Comments	30428	24
Finkelstein	Mark	not provided	N/A	Web-based Comments	22923	24
Finlay	Mary Fleming	not provided	N/A	Web-based Comments	23521	24
FINLAY-KOCHANKOWSKI	JEANNIE	not provided	N/A	Web-based Comments	54224	34
FINLAY-KOCHANKOWSKI	JEANNIE	not provided	N/A	Web-based Comments	16991	24
Finlayson	Mary	not provided	N/A	Web-based Comments	23267	24
Finley	Diane	not provided	N/A	Web-based Comments	12838	24
Finley	Sandra	not provided	N/A	Web-based Comments	46397	34
finley	sandra	not provided	N/A	Web-based Comments	28144	24
Finn	Mickey	not provided	N/A	Web-based Comments	56100	34
Finn	Rosalind	not provided	N/A	Web-based Comments	27706	24
Finn	Susanna	not provided	N/A	Web-based Comments	29940	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Finnegan	Cheryl	not provided	N/A	Web-based Comments	10634	24
Finnegan	Darby	finnegd@wwu.edu	N/A	Web-based comments	31963	N/A
Finnegan	Pamela	not provided	N/A	Web-based Comments	51164, 51165	34
Finnegan	Pat	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4724	N/A
Finnegan	Patrick	pmfinnegan@hotmail.com	N/A	Web-based comments	6046	N/A
Finnerty	Dean	deanfinnertyguides@gmail.com	N/A	Web-based comments	5361	N/A
Finney	Bruce	finney@isu.edu	N/A	Web-based comments	2961, 5455	N/A
Finney	Elmer	not provided	N/A	Web-based Comments	13979	24
Finney	Heather	not provided	N/A	Web-based Comments	15506	24
Finney	Jean	not provided	N/A	Web-based Comments	16844	24
Finney	Tanya	not provided	N/A	Web-based Comments	30182	24
Finocchiaro	John	not provided	N/A	Web-based Comments	18017	24
Finstein	Arthur and Lois	not provided	N/A	Web-based Comments	8472	24
Fiore	Angela	not provided	N/A	Web-based comments	56814	35
Fiore	Janet	not provided	N/A	Web-based Comments	50568	34
Fiore	Kari	not provided	N/A	Web-based comments	57458	35
Fiore	Melody	not provided	N/A	Web-based Comments	46210	34
Fiore	Melody	not provided	N/A	Web-based Comments	23946	24
Fiorentino	Diana	not provided	N/A	Web-based Comments	56536	34
Fiorini	Liliana	not provided	N/A	Web-based Comments	21161	24
Fiquemo	Jill	not provided	N/A	Web-based comments	56716	35
Firchow	Eric	not provided	N/A	Web-based Comments	45837	34
Firestone	Lynne	not provided	N/A	Web-based Comments	51710	34
Firestone	Lynne	not provided	N/A	Web-based Comments	22130	24
Firestone	Pamela	not provided	N/A	Web-based Comments	25548	24
Firethorne	Aristana	not provided	N/A	Web-based Comments	55908	34
Firkins	Michael	not provided	N/A	Web-based Comments	24075	24
Firmin	Richard	not provided	N/A	Web-based Comments	26968	24
Firpo	Andrea	not provided	N/A	Web-based Comments	7742	24
Firth	Chaz	not provided	N/A	Web-based Comments	10585	24
Fischer	Abbey	not provided	N/A	Web-based Comments	7008	24
Fischer	Candy	not provided	N/A	Web-based Comments	45396	34
Fischer	Candy	not provided	N/A	Web-based Comments	9768	24
fischer	claudia	not provided	N/A	Web-based Comments	46410, 46485	34
Fischer	David	not provided	N/A	Web-based Comments	52443	34
Fischer	Elaine	not provided	N/A	Web-based Comments	51082, 57751	34
Fischer	Elaine	not provided	N/A	Web-based Comments	13585	24
Fischer	Erin	not provided	N/A	Web-based Comments	14218	24
Fischer	Gabriele	not provided	N/A	Web-based Comments	54823	34
Fischer	Gloria	not provided	N/A	Web-based Comments	52535	34
Fischer	Gloria	not provided	N/A	Web-based Comments	15154	24
Fischer	Joseph	merlotmom2020@gmail.com	N/A	Web-based comments	4376	N/A
Fischer	Matt	not provided	N/A	Web-based Comments	23614	24
Fischer	Michael	not provided	N/A	Web-based Comments	24076	24
Fischer	Quentin	not provided	N/A	Web-based Comments	26461	24
Fischer	Raaja	not provided	N/A	Web-based Comments	26497	24
Fischer	Susan	not provided	N/A	Web-based Comments	54643, 54644	34
Fischer	Tessa	not provided	N/A	Web-based Comments	30396	24
Fischer	Vicki	not provided	N/A	Web-based Comments	51175	34
Fischer	Wendy and Dan	not provided	N/A	Web-based Comments	31459	24
Fischer er	Teresa	not provided	N/A	Web-based Comments	30271	24
Fischoff	Robert	not provided	N/A	Web-based Comments	47519	34
Fischoff	Robert	not provided	N/A	Web-based Comments	27262	24
Fish	Larry	not provided	N/A	Web-based Comments	20576	24
Fish	Margaret	not provided	N/A	Web-based Comments	22448	24
Fish	Michael	mafish509@aol.com	N/A	Web-based comments	2277	N/A
Fishburn	Amy	not provided	N/A	Web-based comments	32170	N/A
Fishelman	Stew	not provided	N/A	Web-based Comments	29482	24
Fisher	Ann	not provided	N/A	Web-based Comments	8031	24
fisher	c	not provided	N/A	Web-based Comments	9670	24
Fisher	Dacey	not provided	N/A	Web-based Comments	11607	24
Fisher	Donna	not provided	N/A	Web-based Comments	13131	24
Fisher	Elaine	not provided	N/A	Web-based Comments	50813	34
Fisher	Elaine	not provided	N/A	Web-based Comments	13586	24
fisher	frederick	r6piscator@hotmail.com	N/A	Web-based comments	4161	N/A
Fisher	Gail	not provided	N/A	Web-based Comments	14681	24
Fisher	Gayle	not provided	N/A	Web-based Comments	14825	24
Fisher	J Gunnar	not provided	N/A	Web-based Comments	16001	N/A
Fisher	James	mrjsfisher@gmail.com	N/A	Web-based comments	32062	1
Fisher	Jini	not provided	N/A	Web-based Comments	47987	34

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Fisher	Johnny	not provided	N/A	Web-based Comments	18233	24
Fisher	Jon	not provided	N/A	Web-based Comments	18251	24
Fisher	Juels	not provided	N/A	Web-based Comments	52668	34
Fisher	Kay	not provided	N/A	Web-based Comments	19821	24
Fisher	Keith	not provided	N/A	Web-based Comments	19872	24
Fisher	Kenneth	not provided	N/A	Web-based Comments	48930, 48931	34
Fisher	Kenneth	not provided	N/A	Web-based Comments	20012	24
Fisher	Kristina	not provided	N/A	Web-based Comments	20402	24
Fisher	Laurie	not provided	N/A	Web-based Comments	47885	34
Fisher	Laurie	not provided	N/A	Web-based Comments	20831	24
fisher	melanie	not provided	N/A	Web-based Comments	23836	24
Fisher	Mike	not provided	N/A	Web-based Comments	24450	24
Fisher	Nancy	not provided	N/A	Web-based Comments	24855	24
Fisher	Patrice	not provided	N/A	Web-based Comments	25690	24
Fisher	Rachel	not provided	N/A	Web-based Comments	26514	24
Fisher	Rob	not provided	N/A	Web-based Comments	27175	24
FISHER	ROBERT	not provided	N/A	Web-based Comments	27263	24
Fisher	Scott	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	2258	N/A
Fisher	Sharon	not provided	N/A	Web-based Comments	52466, 53962, 53963	34
Fisher	Susan	not provided	N/A	Web-based Comments	56134	34
Fisher	Tammy	not provided	N/A	Web-based Comments	30158	24
Fisher	Yvonne	not provided	N/A	Web-based Comments	31694	24
Fisher	zee	not provided	N/A	Web-based Comments	44290, 44291	34
Fishgold	James	not provided	N/A	Web-based Comments	51870, 51871	34
Fishkin	Lana	not provided	N/A	Web-based Comments	20524	24
Fishman	Susan	not provided	N/A	Web-based comments	57325	35
Fishman	Zelma	not provided	N/A	Web-based Comments	57817	34
fishman	zelma	not provided	N/A	Web-based Comments	31726	24
fisk	lisa	not provided	N/A	Web-based Comments	48792	34
fisk	lisa	not provided	N/A	Web-based Comments	21549	24
Fisk	Michele	not provided	N/A	Web-based Comments	24285	24
Fisk	Todd	not provided	N/A	Web-based Comments	51090, 51091	34
Fiske	Constance	not provided	N/A	Web-based Comments	49498	34
Fiske	Constance	not provided	N/A	Web-based Comments	11336	24
Fiske	David	not provided	N/A	Web-based Comments	50616	34
Fiske	David	not provided	N/A	Web-based Comments	12005	24
Fiske	Kelly	not provided	N/A	Web-based Comments	48433	34
Fiskum	Sandra	not provided	N/A	Web-based comments	1502	N/A
Fisler	Mill	not provided	N/A	Web-based Comments	24514	24
Fister	Loreli	not provided	N/A	Web-based Comments	50774	34
Fitch	Randy	not provided	N/A	Web-based Comments	26633	24
Fite	Gregory	not provided	N/A	Web-based Comments	15275	24
Fitrakis	Katherine	not provided	N/A	Web-based Comments	19446	24
Fitz	f	not provided	N/A	Web-based Comments	46615	34
Fitze	Charles	not provided	N/A	Web-based Comments	55857, 55858	34
Fitze	Charles	not provided	N/A	Web-based Comments	10501	24
Fitzgerald	Allie	not provided	N/A	Web-based Comments	54321	34
Fitzgerald	Barb	not provided	N/A	Web-based comments	57061	35
Fitzgerald	Barb	not provided	N/A	Web-based Comments	48349	34
Fitzgerald	Cathy	not provided	N/A	Web-based Comments	10365	24
Fitzgerald	Frankie	not provided	N/A	Web-based comments	6478	1
Fitzgerald	Gerry & Louise	not provided	N/A	Web-based Comments	15006	24
Fitzgerald	Judith	not provided	N/A	Web-based Comments	18593	24
Fitzgerald	Martha	not provided	N/A	Web-based Comments	23102	24
FitzGerald	Melissa	not provided	N/A	Web-based Comments	23882	24
Fitzgerald	Phil	not provided	N/A	Web-based Comments	26320	24
FitzGerald-Beckett	Zoe	not provided	N/A	Web-based Comments	31734	24
fitzgibbon	eve	not provided	N/A	Web-based Comments	14336	24
Fitzmaurice	Caitlin	not provided	N/A	Web-based comments	56968	35
Fitzmaurice	Shannon	not provided	N/A	Web-based Comments	56172	34
Fitzpatrick	Henry	not provided	N/A	Web-based Comments	15663	24
Fitzpatrick	Sharon	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	56627	N/A
Fitzsimmons	Marie	not provided	N/A	Web-based Comments	22705	24
Fitzsimmons	Sara	not provided	N/A	Web-based Comments	28288	24
Fitzwater	Crystal	not provided	N/A	Web-based Comments	11458	24
Fix	Genevieve	not provided	N/A	Web-based Comments	14862	24
Fix	Lisa	not provided	N/A	Web-based Comments	21550	24
Fizzano	Kelli	not provided	N/A	Web-based Comments	47407	34
Flack	Doug	not provided	N/A	Web-based Comments	51550, 55521, 55522	34
Flack	Doug	not provided	N/A	Web-based Comments	13297	24

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Flack	Kae	not provided	N/A	Web-based Comments	58502	34
Flack	Robin	not provided	N/A	Web-based Comments	27480	24
Flaisig	Kay	kgandelf@comcast.net	N/A	Web-based comments	32	N/A
Flake-Bunz	Colette	not provided	N/A	Web-based Comments	11246	24
Flanagan	Alecia	aleciaflan@gmail.com	N/A	Web-based comments	2732	1
Flanagan	Chris	not provided	N/A	Web-based Comments	10740	24
Flanagan	Kevin	not provided	N/A	Web-based comments	3477	13
Flanagan	Lucile B.	not provided	N/A	Web-based Comments	54433	34
Flanagan	Marianne	not provided	N/A	Web-based Comments	46669	34
Flanders	Denise	not provided	N/A	Web-based Comments	12638	24
Flanders	Gail	not provided	N/A	Web-based Comments	45033	34
Flanders	Gail	not provided	N/A	Web-based Comments	14682	24
Flanders-Sundstrom	Audrey	not provided	N/A	Web-based Comments	8526	24
Flanigan	Dan	not provided	N/A	Web-based Comments	11654	24
Flannery	Linda	not provided	N/A	Web-based Comments	21266	24
Flannery	Lori	loriflannery@gmail.com	N/A	Web-based comments	4952	N/A
Flannery	Marcia	not provided	N/A	Web-based Comments	46131, 46132	34
Flannery	marcia	not provided	N/A	Web-based Comments	22366	24
Flashman	Irwin	not provided	N/A	Web-based Comments	15928	24
Flashner	Caren	not provided	N/A	Web-based Comments	9781	24
flaskerud	David	not provided	N/A	Web-based Comments	55430	34
Flather	Dylan	not provided	N/A	Web-based Comments	45166	34
Flatland	Mike	not provided	N/A	Web-based Comments	24451	24
Flatto	Janice	not provided	N/A	Web-based Comments	16675	24
Flebotte	Katharine	not provided	N/A	Web-based Comments	19418	24
Fleck	Allison	not provided	N/A	Web-based Comments	7462	24
Fleck	Lisa	not provided	N/A	Web-based Comments	21551	24
fleck	robert	not provided	N/A	Web-based Comments	27264	24
Flees	Michael	not provided	N/A	Web-based Comments	24077	24
Fleetwood	Marilyn	not provided	N/A	Web-based Comments	22777	24
Fleetwood	Patricia	not provided	N/A	Web-based Comments	25751	24
Flegel	Wade	wjflegel@gmail.com	N/A	Web-based comments	31817	9
Fleischaker	Gail	not provided	N/A	Web-based Comments	14683	24
Fleischhauer	Jo Ann	not provided	N/A	Web-based Comments	17657	24
Fleischman	Pam	not provided	N/A	Web-based Comments	25494	24
Fleisher	Marc	not provided	N/A	Web-based Comments	22334	24
Fleishman	Herman	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4618	N/A
Fleming	Dawn	not provided	N/A	Web-based Comments	12211	24
Fleming	Elizabeth	not provided	N/A	Web-based comments	57593	35
Fleming	Gail	not provided	N/A	Web-based Comments	14684	24
Fleming	Katherine	not provided	N/A	Web-based Comments	19447	24
Fleming	Laura	not provided	N/A	Web-based Comments	49674	34
Fleming	Laura	not provided	N/A	Web-based Comments	20638	24
Fleming	Margarete	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	2839	N/A
Fleming	maria-Francesca	not provided	N/A	Web-based Comments	22648	24
Fleming	Mary Ann	not provided	N/A	Web-based Comments	23489	24
Fleming	Meg	not provided	N/A	Web-based comments	4979	1
Fleming	Melinda	not provided	N/A	Web-based Comments	46083, 50544	34
Fleming	Nancy	not provided	N/A	Web-based Comments	46789, 46790	34
Fleming	Nancy	not provided	N/A	Web-based Comments	24856	24
Fleming	Tony	not provided	N/A	Web-based Comments	30811	24
Flentroy	Tanya	not provided	N/A	Web-based Comments	30183	24
Flesch	Ryan	Ryan.flesch@gmail.com	N/A	Web-based comments	1971	N/A
Fletcher	Barbara	not provided	N/A	Web-based Comments	8676	24
Fletcher	Bonnie	not provided	N/A	Web-based Comments	9295	24
Fletcher	Carol	not provided	N/A	Web-based Comments	9925	24
Fletcher	Cassie	not provided	N/A	Web-based Comments	55770	34
Fletcher	Cassie	not provided	N/A	Web-based Comments	10242	24
Fletcher	Herman	not provided	N/A	Web-based Comments	15684	24
Fletcher	Jeanne	not provided	N/A	Web-based Comments	44765, 44766	34
Fletcher	Jeanne	not provided	N/A	Web-based Comments	16945	24
Fletcher	JIM	not provided	N/A	Web-based Comments	48899, 48900	34
Fletcher	JIM	not provided	N/A	Web-based Comments	17578	24
Fletcher	Joanna	not provided	N/A	Web-based Comments	17788	24
Fletcher	Kristin	not provided	N/A	Web-based Comments	20373	24
Fletcher	Paddy	not provided	N/A	Web-based Comments	50267	34
Fletcher	Paddy	not provided	N/A	Web-based Comments	25479	24
Fletcher	Sarah	not provided	N/A	Web-based Comments	28346	24
Fletcher	Todd	not provided	N/A	Web-based Comments	45012	34
Fleury	Gene	not provided	N/A	Web-based Comments	14847	24

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Flick	Carrie	not provided	N/A	Web-based Comments	10197	24
Flick	M	not provided	N/A	Web-based Comments	47611	34
Fligg	Katherine	not provided	N/A	Web-based Comments	48114	34
Flint	Juliana	not provided	N/A	Web-based Comments	18794	24
Flint	Samuel	not provided	N/A	Web-based Comments	28099	24
Flint	Stephan	flint.stephan@gmail.com	N/A	Web-based comments	5127	N/A
Flint	Tom	tom1flint@gmail.com	N/A	Web-based comments	3697	N/A
Flintoff	Chrissie	not provided	N/A	Web-based Comments	10800	24
Flocco-McMaster	Kathy	not provided	N/A	Web-based Comments	55500, 55501	34
Flocco-McMaster	Kathy	not provided	N/A	Web-based Comments	19696	24
Flock	Margaret	not provided	N/A	Web-based Comments	22449	24
Flodin	R	not provided	N/A	Web-based comments	2643	N/A
Flodin-Hursh	Mary	dendenyakima@charter.net	N/A	Web-based comments	4814	N/A
Flohr	Judit	not provided	N/A	Web-based Comments	18553	24
Flom	Marie	not provided	N/A	Web-based Comments	22706	24
Flood	Danise	not provided	N/A	Web-based Comments	45668	34
Flood	Jacinda	not provided	N/A	Web-based comments	56740	35
Flood	Janice	not provided	N/A	Web-based Comments	55554	34
Flood	Karen	not provided	N/A	Web-based Comments	58571	34
Flood	Kathryn	not provided	N/A	Web-based Comments	19643	24
Flood	Melissa	not provided	N/A	Web-based Comments	58268	16
Flood	Patricia	not provided	N/A	Web-based Comments	25752	24
Flood	Scott	not provided	N/A	Web-based Comments	28470	24
Flood	Sue	not provided	N/A	Web-based Comments	52870	34
Flood	Tom	not provided	N/A	Web-based Comments	30748	24
Florel	Lela	not provided	N/A	Web-based Comments	20977	24
Florence	Carolyn	not provided	N/A	Web-based comments	57330	35
Florence	Israel^I	not provided	N/A	Web-based Comments	44406	34
Florer	Tamara	not provided	N/A	Web-based Comments	53693	34
Flores	Daria	not provided	N/A	Web-based Comments	11860	24
Flores	Everardo	not provided	N/A	Web-based Comments	14360	24
Flores	Gilbert	not provided	N/A	Web-based Comments	15022	24
Flores	Karen	not provided	N/A	Web-based Comments	19098	24
Flores	Linda	not provided	N/A	Web-based Comments	54991	34
Flores	Yshabelle	not provided	N/A	Web-based Comments	31676	24
Flores Ehrlich	Ruth	not provided	N/A	Web-based Comments	27868	24
Florlo	Dawn	not provided	N/A	Web-based Comments	12212	24
Flower	Patt	not provided	N/A	Web-based Comments	25938	24
Flower-Flemming	Penelope	not provided	N/A	Web-based Comments	26189	24
Flowers	Agnieszka	not provided	N/A	Web-based Comments	7117	24
Flowers	Herschel	not provided	N/A	Web-based Comments	15688	24
Flowers	Nancy	not provided	N/A	Web-based Comments	24857	24
Floyd	Cathrine	not provided	N/A	Web-based Comments	55490	34
Floyd	Cathrine Aasen	not provided	N/A	Web-based Comments	55491	34
Floyd	Janelle	not provided	N/A	Web-based Comments	51482	34
Floyd	Janelle	not provided	N/A	Web-based Comments	16556	24
Floyd	Nancy	not provided	N/A	Web-based Comments	24858	24
Floyd	Susan	not provided	N/A	Web-based Comments	29672	24
Flueckiger	Carolyn	not provided	N/A	Web-based comments	57268	35
flueckiger-schlosser	esther	not provided	N/A	Web-based Comments	14272	24
Fluet	Christine	not provided	N/A	Web-based Comments	10920	24
Fluetsch	John A	not provided	N/A	Web-based Comments	53532	34
Fluharty	Cynthia	cef2706@hotmail.com	N/A	Web-based comments	583	2
Flury	Leigh	not provided	N/A	Web-based Comments	20964	24
Fly	Carol	not provided	N/A	Web-based Comments	9926	24
Flyer	Susan	not provided	N/A	Web-based Comments	44929, 44930	34
Flyer	Susan	not provided	N/A	Web-based Comments	29673	24
Flygare	Tovah	not provided	N/A	Web-based Comments	30833	24
Flynn	David	not provided	N/A	Web-based Comments	12006	24
Flynn	Katarina	not provided	N/A	Web-based Comments	54947	34
Flynn	Kevin	not provided	N/A	Web-based Comments	20101	24
Flynn	Marfgaret	not provided	N/A	Web-based Comments	22419	24
Flynn	mary elizabeth	not provided	N/A	Web-based Comments	49442	34
Flynn	Sheila	not provided	N/A	Web-based Comments	28785	24
Flynn	Susan	not provided	N/A	Web-based Comments	29674	24
flynn	wendy	not provided	N/A	Web-based Comments	31419	24
Flynn Woodland	Kathleen	not provided	N/A	Web-based comments	57643	35
Fobes	Deborah	not provided	N/A	Web-based Comments	12403	24
Foehl	Denise	not provided	N/A	Web-based Comments	55391	34
Fogan	Sara	not provided	N/A	Web-based comments	57660	35

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Fogan	Sara	not provided	N/A	Web-based Comments	50896	34
FOGED	CAROLYNN	not provided	N/A	Web-based Comments	10188	24
Fogel	Byron	not provided	N/A	Web-based Comments	9660	24
Fogel	Mindy	not provided	N/A	Web-based Comments	24528	24
Fogleman	Maxwell	not provided	N/A	Web-based Comments	44784, 44785	34
Fogt	Mike	not provided	N/A	Web-based Comments	54391	34
FOGT	MIKE	not provided	N/A	Web-based Comments	24452	24
Fohn	Nancy	not provided	N/A	Web-based Comments	24859	24
Fohn II	John	not provided	N/A	Web-based Comments	18018	24
Foley	Benjamin	benfoleydds@gmail.com	N/A	Web-based comments	5671	N/A
Foley	Catherine	not provided	N/A	Web-based Comments	10274	24
Foley	Mary	not provided	N/A	Web-based Comments	23268	24
Foley	Pat	not provided	N/A	Web-based Comments	25650	24
Foley	Patricia	not provided	N/A	Web-based Comments	53533, 53534	34
Foley	Sandra	not provided	N/A	Web-based Comments	28145	24
Foley	Stephan	not provided	N/A	Web-based Comments	29190	24
foley	susan	not provided	N/A	Web-based Comments	29675	24
Foley Jr	Robert	not provided	N/A	Web-based Comments	27265	24
Foley-Collins	Erin	not provided	N/A	Web-based Comments	51238	34
Foley-Collins	Erin	not provided	N/A	Web-based Comments	14219	24
Folino Gallo	Joseph	not provided	N/A	Web-based Comments	18360	24
Folls	Thea	not provided	N/A	Web-based Comments	30411	24
Folsom	Travis	not provided	N/A	Web-based Comments	30891	24
Foltz	Elijah	not provided	N/A	Web-based Comments	13665	24
Foltz	Mark	spuddybuddy@ubertuber.org	N/A	Web-based comments	6813	N/A
Fomenko	Nancy	not provided	N/A	Web-based Comments	48338	34
Fondahn	Richard	rfondahn@hotmail.com	N/A	Web-based comments	5460	N/A
Fong	D	not provided	N/A	Web-based Comments	11577	24
Fong	Georgie	not provided	N/A	Web-based Comments	14949	24
Fong	Jane	not provided	N/A	Web-based comments	57596	35
Fonseca	Elyse	not provided	N/A	Web-based Comments	13996	24
Fonseca	Lina	not provided	N/A	Web-based Comments	21187	24
Font	Nico	not provided	N/A	Web-based Comments	25212	24
Fontaine	Cheryl	not provided	N/A	Web-based Comments	10635	24
Fontaine	Elaine	not provided	N/A	Web-based Comments	13587	24
Fontanazza	Catherine	not provided	N/A	Web-based Comments	10275	24
Fontanes	Susan	not provided	N/A	Web-based Comments	29676	24
Fontani	Sara	not provided	N/A	Web-based Comments	28289	24
Fonte	Gin	not provided	N/A	Web-based Comments	15044	24
Fontenot	Dawne	not provided	N/A	Web-based Comments	45755	34
Fontenot	Dawne	not provided	N/A	Web-based Comments	12252	24
Foo	Ida	not provided	N/A	Web-based Comments	45048	34
Fooks	Gloria	not provided	N/A	Web-based Comments	46599, 46600	34
Fooks	Gloria	not provided	N/A	Web-based Comments	15155	24
Foot	Jimmy	not provided	N/A	Web-based Comments	53141	34
Foot	Susie	not provided	N/A	Web-based Comments	51023	34
Foot	Susie	not provided	N/A	Web-based Comments	29962	24
Foote	Trudy	not provided	N/A	Web-based Comments	30944	24
foppen	valiant	not provided	N/A	Web-based Comments	55064, 55065	34
Foran	Missy and David	not provided	N/A	Web-based Comments	24569	24
Foran	Rochelle	not provided	N/A	Web-based Comments	27562	24
Forbes	Jane	not provided	N/A	Web-based Comments	16481	24
Forbes	Laurie	not provided	N/A	Web-based Comments	44649	34
Forbes	Laurie	not provided	N/A	Web-based Comments	20832	24
Forbes	Reese	not provided	N/A	Web-based Comments	26799	24
Forbes	Stephanie	not provided	N/A	Web-based Comments	29213	24
Forby	Hannah	not provided	N/A	Web-based comments	57273	35
Ford	Anzie	not provided	N/A	Web-based Comments	55641	34
Ford	Barcy	not provided	N/A	Web-based Comments	8850	24
Ford	Betty	not provided	N/A	Web-based Comments	48621, 48622	34
Ford	Bonnie	not provided	N/A	Web-based Comments	9296	24
Ford	Claudia	not provided	N/A	Web-based Comments	11180	24
Ford	Donna Lee	not provided	N/A	Web-based Comments	13199	24
Ford	Jeff	jford225@mail.com	N/A	Web-based comments	4918	N/A
Ford	Jim	not provided	N/A	Web-based Comments	17579	24
Ford	Jim	not provided	N/A	Web-based Comments	17580	24
Ford	Judith	not provided	N/A	Web-based Comments	48986	34
Ford	Judith	not provided	N/A	Web-based Comments	18594	24
Ford	Julie	not provided	N/A	Web-based Comments	18830	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Ford	Kathy	not provided	N/A	Web-based Comments	51734	34
Ford	Laurie	not provided	N/A	Web-based Comments	54555	34
Ford	Leon	not provided	N/A	Web-based Comments	21000	24
Ford	Linda	not provided	N/A	Web-based Comments	21267	24
Ford	Lyndal	not provided	N/A	Web-based Comments	49895	34
Ford	Matthew	not provided	N/A	Web-based Comments	53386	34
Ford	Melissa	not provided	N/A	Web-based Comments	23883	24
Ford	Patricia	not provided	N/A	Web-based Comments	25753	24
Ford	Phyllis	not provided	N/A	Web-based Comments	49656	34
Ford	Steve	not provided	N/A	Web-based Comments	29362	24
Ford	Susan	not provided	N/A	Web-based Comments	55617, 55618	34
Ford	Susan	not provided	N/A	Web-based Comments	29677	24
Ford	Sylvia	not provided	N/A	Web-based Comments	47333	34
Ford	Viktoria	not provided	N/A	Web-based Comments	31244	24
Forder	Paul	not provided	N/A	Web-based Comments	25988	24
Fordham	Sari	not provided	N/A	Web-based Comments	28432	24
Fordyce	Ehren	not provided	N/A	Web-based Comments	13533	24
Fore	Judy	not provided	N/A	Web-based Comments	18679	24
Fore	Rosemary	not provided	N/A	Web-based Comments	27760	24
Forelli	Chiara	not provided	N/A	Web-based Comments	10694	24
Foreman	Misty	not provided	N/A	Web-based comments	57286	35
foreman	nicole	not provided	N/A	Web-based Comments	25233	24
Foreman	Patricia A	not provided	N/A	Web-based Comments	25878	24
Foreman	Richard	not provided	N/A	Web-based Comments	26969	24
Forero	James	not provided	N/A	Web-based Comments	45771	34
Forero	James	not provided	N/A	Web-based Comments	16214	24
Forester	Adriene	not provided	N/A	Web-based Comments	7091	24
Forestieri	Anne	not provided	N/A	Web-based Comments	8193	24
Foret	L Palmer	not provided	N/A	Web-based Comments	20493	24
Forgan	Jacky	not provided	N/A	Web-based Comments	16082	24
Forgues	Robert	not provided	N/A	Web-based Comments	27266	24
Forgues	Sandra	not provided	N/A	Web-based Comments	46488	34
Fork	Bryan	not provided	N/A	Web-based Comments	9637	24
Forma	John	not provided	N/A	Web-based Comments	18019	24
forman	fay	not provided	N/A	Web-based Comments	52896, 52971	34
forman	fay	not provided	N/A	Web-based Comments	14405	24
Forman	Jan	not provided	N/A	Web-based Comments	16395	24
forman	janet	not provided	N/A	Web-based Comments	46634, 46635	34
forman	janet	not provided	N/A	Web-based Comments	16595	24
Forman	Steven	not provided	N/A	Web-based Comments	29430	24
Formoso	Jennifer	not provided	N/A	Web-based Comments	17186	24
Fornagiel	Valeri	not provided	N/A	Web-based Comments	48369	34
Fornander	David	defornander@gmail.com	N/A	Web-based comments	6655	N/A
Fornataro	Maria	not provided	N/A	Web-based Comments	55480	34
Fornillo	Dawn	not provided	N/A	Web-based Comments	12213	24
Foroy	Beate	not provided	N/A	Web-based Comments	8889	24
Forrest	Kate	not provided	N/A	Web-based Comments	19374	24
Forrest	Patricia	not provided	N/A	Web-based Comments	47797	34
Forrest	Sharon	not provided	N/A	Web-based Comments	28652	24
Forrest	Terry	not provided	N/A	Web-based Comments	30368	24
Forrette	Sheila	not provided	N/A	Web-based Comments	28786	24
Fors	Nate	not provided	N/A	Web-based Comments	25096	24
Forsberg	Peter	not provided	N/A	Web-based Comments	54728	34
Forsberg	Sofie	not provided	N/A	Web-based Comments	56093, 56094	34
Forschler	Frederick	not provided	N/A	Web-based Comments	14596	24
Forschner	Jillian	not provided	N/A	Web-based Comments	53834	34
Forster	Antonia	not provided	N/A	Web-based Comments	46894	34
forster	brigitte	not provided	N/A	Web-based Comments	9555	24
Forsyth	Jeremy	not provided	N/A	Web-based Comments	17314	24
Forti	Nanette	not provided	N/A	Web-based Comments	25033	24
Fortie	Michael	not provided	N/A	Web-based Comments	48879	34
fortie	mike	not provided	N/A	Web-based Comments	24453	24
Fortier	Karen	not provided	N/A	Web-based Comments	45573	34
Fortier	Karen	not provided	N/A	Web-based Comments	19099	24
Fortin	E	not provided	N/A	Web-based comments	2981	8
Fortin	Marguerite	not provided	N/A	Web-based Comments	22564	24
Fortini	Jan	not provided	N/A	Web-based Comments	16396	24
Fortino	Pat	not provided	N/A	Web-based comments	3499	N/A
Fortner	Marty	not provided	N/A	Web-based Comments	48882	34
Fortunak	Sharon	not provided	N/A	Web-based Comments	49238	34

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Forward	Kent	not provided	N/A	Web-based Comments	20040	24
Foschi	Patricia	not provided	N/A	Web-based Comments	49869, 49870	34
Foschi	Patricia	not provided	N/A	Web-based Comments	25754	24
Fosdick	David	tetonia@swbell.net	N/A	Web-based comments	5352	N/A
Foss	Dawn	not provided	N/A	Web-based Comments	12214	24
Foss	Maryann	not provided	N/A	Web-based Comments	47889	34
Fossa	Wendy	not provided	N/A	Web-based Comments	31420	24
Fossard	James	not provided	N/A	Web-based Comments	16215	24
Fosse	Kari	not provided	N/A	Web-based Comments	19267	24
Fosse	Mary	not provided	N/A	Web-based Comments	23269	24
Foster	Alan	not provided	N/A	Web-based Comments	55246	34
Foster	Albert	agfoster@protonmail.com	N/A	Web-based comments	4390	1
Foster	Anthony	not provided	N/A	Web-based Comments	8333	24
Foster	Barbara	not provided	N/A	Web-based Comments	8677	24
Foster	Beverly	not provided	N/A	Web-based Comments	50599	34
Foster	Brent	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32301	13
Foster	Bridget	bridgetafoster@gmail.com	N/A	Web-based comments	4381	1
Foster	Charles	jojoshzach@msn.com	N/A	Web-based comments	5080	N/A
Foster	David	not provided	N/A	Web-based Comments	12007	24
Foster	Dawn	not provided	N/A	Web-based Comments	54594	34
Foster	Dawn	not provided	N/A	Web-based Comments	12215	24
Foster	Delaina	not provided	N/A	Web-based Comments	12595	24
Foster	Elizabeth	not provided	N/A	Web-based Comments	49820	34
Foster	Evelyn	not provided	N/A	Web-based Comments	47155	34
Foster	Hilary	not provided	N/A	Web-based Comments	15694	24
Foster	Holly	not provided	N/A	Web-based Comments	15744	24
Foster	James	jkfost1@aol.com	N/A	Web-based comments	3192	N/A
Foster	Jan	not provided	N/A	Web-based Comments	16397	24
Foster	Jessica	not provided	N/A	Web-based Comments	45075	34
FOSTER	JILLIAN	not provided	N/A	Web-based Comments	17557	24
Foster	Joyce	not provided	N/A	Web-based Comments	18488	24
Foster	Kim	not provided	N/A	Web-based Comments	20174	24
Foster	Lorraine	not provided	N/A	Web-based Comments	58115, 58143, 48830	16, 34
Foster	Lorraine	not provided	N/A	Web-based Comments	21840	24
Foster	Michelle	not provided	N/A	Web-based Comments	44347, 44348	34
Foster	Michelle	not provided	N/A	Web-based Comments	24342	24
Foster	Nicole	not provided	N/A	Web-based Comments	25234	24
Foster	Pat	not provided	N/A	Web-based Comments	54828, 54829	34
Foster	Pat	not provided	N/A	Web-based Comments	25651	24
Foster	Sean	not provided	N/A	Web-based Comments	47513	34
Foster	Sidney	not provided	N/A	Web-based comments	6421	1
Foster	Stephanie	not provided	N/A	Web-based Comments	46820	34
foster	thomas	not provided	N/A	Web-based Comments	30491	24
Foszcz	Roger	not provided	N/A	Web-based Comments	27597	24
Foszcz	Russell	not provided	N/A	Web-based Comments	27835	24
Foszcz	Sara	not provided	N/A	Web-based Comments	28290	24
Fouchard	Jasmin	not provided	N/A	Web-based Comments	56534	34
Foughali	Nadia	not provided	N/A	Web-based Comments	24752	24
Foulds	Diane	not provided	N/A	Web-based Comments	7542	N/A
foulger	mary	not provided	N/A	Web-based Comments	51434	34
Foulger	Paul	not provided	N/A	Web-based Comments	25989	24
Foulk	Ashley	not provided	N/A	Web-based Comments	8483	24
Fountain	Michael	not provided	N/A	Web-based Comments	47603, 47602	34
FOUNTAIN	MICHAEL	not provided	N/A	Web-based Comments	24078	24
Fournier	Eric	not provided	N/A	Web-based Comments	55868, 55869	34
Fournier	Eric	not provided	N/A	Web-based Comments	14104	24
Fournier	Michelle	not provided	N/A	Web-based Comments	53020	34
Fournier	Michelle	not provided	N/A	Web-based Comments	24343	24
Fowkes	Christine	taztec8724@yahoo.com	N/A	Web-based comments	5899	N/A
Fowkes	William	nedfowkes@aol.com	N/A	Web-based comments	6749	N/A
Fowler	Andrea	not provided	N/A	Web-based Comments	7743	24
Fowler	Anne	not provided	N/A	Web-based Comments	8194	24
Fowler	Ashley	not provided	N/A	Web-based Comments	46746	34
Fowler	Beverly	not provided	N/A	Web-based Comments	47661	34
Fowler	Beverly	not provided	N/A	Web-based Comments	9124	24
Fowler	Derome	derome.fowler@gmail.com	N/A	Web-based comments	904	1
Fowler	Duncan	not provided	N/A	Web-based Comments	13388	24
Fowler	Dwight	not provided	N/A	Web-based Comments	13398	24
Fowler	Janet	not provided	N/A	Web-based Comments	16596	24
Fowler	Linda	not provided	N/A	Web-based Comments	44708	34

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Fowler	Linda	not provided	N/A	Web-based Comments	21268	24
Fowler	Marcia	not provided	N/A	Web-based Comments	22367	24
Fowler	Priscilla	not provided	N/A	Web-based Comments	26443	24
Fowler	Russell	not provided	N/A	Web-based Comments	27836	24
Fowler	Sean	not provided	N/A	Web-based comments	56961	35
Fowler	Stephen	not provided	N/A	Web-based Comments	29287	24
Fowler-Wheaton	Deborah	not provided	N/A	Web-based Comments	12404	24
Fowlkes	Lisa	not provided	N/A	Web-based Comments	52714	34
Fowlkes	Lisa	not provided	N/A	Web-based Comments	21552	24
FOWSKI	WALTER	not provided	N/A	Web-based Comments	31355	24
Fox	Charles	not provided	N/A	Web-based Comments	49768	34
Fox	Charles	not provided	N/A	Web-based Comments	10502	24
Fox	Charlotte	not provided	N/A	Web-based comments	57448	35
Fox	Daniel	not provided	N/A	Web-based Comments	11735	24
Fox	Ellen	not provided	N/A	Web-based Comments	13914	24
Fox	Farah	not provided	N/A	Web-based comments	57663	35
Fox	Gene	not provided	N/A	Web-based Comments	46740	34
Fox	Jennifer	not provided	N/A	Web-based Comments	17187	24
Fox	Justin	not provided	N/A	Web-based Comments	18952	24
Fox	Kathleen	not provided	N/A	Web-based Comments	54907	34
Fox	Kathryn	not provided	N/A	Web-based Comments	48697	34
Fox	Kimberly	not provided	N/A	Web-based Comments	20224	24
Fox	Larry	larryleefox@yahoo.com	N/A	Web-based comments	2429	3
Fox	LeAnn	not provided	N/A	Web-based Comments	20914	24
Fox	Lorrie	not provided	N/A	Web-based Comments	21854	24
Fox	Madilyn	not provided	N/A	Web-based Comments	47701	34
Fox	Mark	not provided	N/A	Web-based Comments	48066	34
Fox	Mark	not provided	N/A	Web-based Comments	22924	24
Fox	Mary	not provided	N/A	Web-based Comments	23270	24
Fox	Michael	not provided	N/A	Web-based Comments	24079	24
Fox	Nadia	not provided	N/A	Web-based Comments	24753	24
Fox	Patricia	not provided	N/A	Web-based Comments	25755	24
fox	rachel	not provided	N/A	Web-based Comments	26515	24
Fox	Richard	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	56655	N/A
Fox	Sandy	not provided	N/A	Web-based Comments	51690	34
Fox	Stephanie C.	not provided	N/A	Web-based Comments	29267	24
Fox	Stephen	not provided	N/A	Web-based Comments	29288	24
Fox	Wayne	not provided	N/A	Web-based Comments	46722	34
Fox	William R	not provided	N/A	Web-based Comments	31615	24
Fox-Friedman	Jeanne	not provided	N/A	Web-based Comments	16946	24
Foxton	Trevanne	not provided	N/A	Web-based Comments	30896	24
Foxwell	Lisa	not provided	N/A	Web-based Comments	21553	24
Foy	Laura	not provided	N/A	Web-based Comments	20639	24
Fraad-Wolff	Tess	not provided	N/A	Web-based Comments	53680	34
Fradkin	Allison	not provided	N/A	Web-based Comments	55180, 55181	34
Fradkin	Allison	not provided	N/A	Web-based Comments	7463	24
Fragomeni	Cosimo	not provided	N/A	Web-based Comments	11395	24
Fraidin	Susan	not provided	N/A	Web-based Comments	29678	24
Frain	Elissa	not provided	N/A	Web-based comments	57678	35
Fraker	Laurie	not provided	N/A	Web-based Comments	51409	34
Frale	Darren	not provided	N/A	Web-based Comments	49018	34
Frale	Darren	not provided	N/A	Web-based Comments	11895	24
Fraleigh	Kevin	not provided	N/A	Web-based Comments	54938	34
Fraleigh	Kevin	not provided	N/A	Web-based Comments	20102	24
Fraley	Gayle	not provided	N/A	Web-based Comments	53483	34
Fraley	Michael	not provided	N/A	Web-based Comments	24080	24
Frame	Tracy	not provided	N/A	Web-based Comments	30868	24
Frampton	Jade	not provided	N/A	Web-based comments	5013	1
France	Convection	convectionfr@ecomail.fr	N/A	Web-based comments	624	1
Frances	Barbara	not provided	N/A	Web-based Comments	49960	34
Frances	Barbara	not provided	N/A	Web-based Comments	8678	24
Frances	Linda	not provided	N/A	Web-based Comments	53002	34
Frances	Linda	not provided	N/A	Web-based Comments	21269	24
Frances	Samantha	not provided	N/A	Web-based comments	56732	35
Franceschi	Betti	not provided	N/A	Web-based Comments	9080	24
Franchi	Jeff	not provided	N/A	Web-based Comments	17013	24
Franchi	Joanne	not provided	N/A	Web-based Comments	17799	24
Francin	R	not provided	N/A	Web-based Comments	26473	24
Francis	Ann	not provided	N/A	Web-based Comments	8032	24
Francis	Batbars	not provided	N/A	Web-based Comments	8876	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Francis	Geoff	not provided	N/A	Web-based Comments	55524	34
Francis	James	not provided	N/A	Web-based Comments	16216	24
Francis	Jude	not provided	N/A	Web-based Comments	18541	24
Francis	Julia	not provided	N/A	Web-based Comments	18752	24
Francis	Karen	not provided	N/A	Web-based comments	56923	35
Francis	Larry	not provided	N/A	Web-based Comments	54623	34
Francis	Lorri	not provided	N/A	Web-based Comments	21851	24
Francis	Mark	not provided	N/A	Web-based Comments	22925	24
Francis	Mary Jane	not provided	N/A	Web-based Comments	23524	24
Francis	Robert	robert@francis.net	N/A	Web-based comments	2977	N/A
Francis	Stacey	not provided	N/A	Web-based Comments	29111	24
Francis	Stuart	not provided	N/A	Web-based Comments	29490	24
Francis	Toni	not provided	N/A	Web-based Comments	30793	24
Francisco	Linda	not provided	N/A	Web-based Comments	21270	24
Franck	Charles	not provided	N/A	Web-based Comments	10503	24
franck	faith	not provided	N/A	Web-based Comments	57899	16
Franck	Irene	not provided	N/A	Web-based Comments	15900	24
Franck	Matthew	not provided	N/A	Web-based Comments	44862	34
Franck	Matthew	not provided	N/A	Web-based Comments	23645	24
Franck	Vivian	not provided	N/A	Web-based Comments	31314	24
Franco	Arturo	not provided	N/A	Web-based Comments	47045	34
Franco	Cynthia	not provided	N/A	Web-based Comments	11509	24
Franco	Diana	not provided	N/A	Web-based Comments	12766	24
Franco	Rita	not provided	N/A	Web-based Comments	27137	24
Franco	Tracy	not provided	N/A	Web-based Comments	30869	24
Francy	Nancy M	not provided	N/A	Web-based Comments	25030	24
Franczyk	Catherine	not provided	N/A	Web-based Comments	10276	24
Frandsen	Dawn	not provided	N/A	Web-based Comments	12216	24
Frangos	Kate	not provided	N/A	Web-based Comments	45624, 45625	34
Frank	Christa	not provided	N/A	Web-based Comments	10804	24
Frank	Cindy	not provided	N/A	Web-based Comments	54610	34
Frank	Clint	raft@middlefork.com	N/A	Web-based comments	6484*	N/A
Frank	Cornelia	not provided	N/A	Web-based Comments	11384	24
Frank	Dave	not provided	N/A	Web-based Comments	49028	34
Frank	Dave	not provided	N/A	Web-based Comments	11910	24
Frank	Manuela	not provided	N/A	Web-based Comments	22312	24
Frank	Monica	not provided	N/A	Web-based Comments	24625	24
Frank	Nancy	nancy4710@juno.com	N/A	Web-based comments	2621	N/A
Frank	Robert	not provided	N/A	Web-based Comments	52217	34
Frank	Robert	not provided	N/A	Web-based Comments	27267	24
Frank	Robert	thefranks5@msn.com	N/A	Web-based comments	2101	N/A
Frank	Sandy	not provided	N/A	Web-based Comments	45535	34
Frank	Sharon	not provided	N/A	Web-based Comments	28653	24
Frank	Steve	sbskfrank@gmail.com	N/A	Web-based comments	3480	N/A
Frank	William	lorifrand3@frontier.com	N/A	Web-based comments	4449	N/A
Frank	Yvette	not provided	N/A	Web-based Comments	31683	24
Franke	Silvia	not provided	N/A	Web-based Comments	29008	24
Frankel	Donna	not provided	N/A	Web-based Comments	13132	24
Frankel	Janice	not provided	N/A	Web-based Comments	16676	24
Frankel	Leroy	not provided	N/A	Web-based Comments	46100	34
Frankel	Leroy	not provided	N/A	Web-based Comments	21025	24
Frankel	Linda	not provided	N/A	Web-based Comments	21271	24
Frankenfield	Pat	not provided	N/A	Web-based Comments	25652	24
Frankhouser	Jan	not provided	N/A	Web-based Comments	55395	34
Frankland	Winn	not provided	N/A	Web-based Comments	31634	24
Franklin	C.	not provided	N/A	Web-based comments	5983	N/A
Franklin	Cynthia	not provided	N/A	Web-based Comments	11510	24
Franklin	Debi	not provided	N/A	Web-based Comments	12360	24
franklin	doug	not provided	N/A	Web-based Comments	13298	24
Franklin	Erica	not provided	N/A	Web-based Comments	14160	24
franklin	john	not provided	N/A	Web-based Comments	45596	34
Franklin	John	not provided	N/A	Web-based Comments	45597	34
Franklin	L G	not provided	N/A	Web-based Comments	20492	24
Franklin	Margaret	not provided	N/A	Web-based Comments	53545	34
Franklin	Marshal	not provided	N/A	Web-based Comments	46101	34
Franklin	Mary	mfranklin@stplacid.org	N/A	Web-based comments	3542	3
Franklin	Nancy	not provided	N/A	Web-based Comments	24860	24
Franklin	Nicholas	not provided	N/A	Web-based Comments	25166	24
Franklin	Toni	not provided	N/A	Web-based Comments	30794	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
franklyn	rex	not provided	N/A	Web-based Comments	26876	24
Franks	Larry	pearsonfr@comcast.net	N/A	Web-based comments	2625	N/A
Franks	Larry	pearsonfr@comcast.net	N/A	Web-based Comments	50600	34
Franks	Lauren	not provided	N/A	Web-based Comments	20767	24
Franqui	Leah	not provided	N/A	Web-based Comments	20902	24
Frantz	Brandi	not provided	N/A	Web-based Comments	9360	24
Frantz	Glenn	not provided	N/A	Web-based Comments	15129	24
Frantz	Jeff	not provided	N/A	Web-based Comments	17014	24
Franz	Anna	not provided	N/A	Web-based Comments	8128	24
FRANZ	ELIZABETH	not provided	N/A	Web-based Comments	49954	34
Franz	Robert	Beehivebob@gmail.com	N/A	Web-based comments	3681	N/A
Franz	Sallie	not provided	N/A	Web-based Comments	27996	24
Franz	Sandra	not provided	N/A	Web-based Comments	28146	24
Franzen	Asa Margareta	not provided	N/A	Web-based Comments	8475	24
Franzen	Ellen	not provided	N/A	Web-based Comments	51860	34
Franzen	Maria	not provided	N/A	Web-based Comments	22597	24
Franzen	Timothy	not provided	N/A	Web-based Comments	46741	34
Franzese	Jill	not provided	N/A	Web-based Comments	17506	24
Franzis	Irene	not provided	N/A	Web-based Comments	15901	24
Franzke	M L	not provided	N/A	Web-based Comments	22205	24
Franzmann	Paul	not provided	N/A	Web-based comments	136	N/A
Franzoi	Elena	not provided	N/A	Web-based Comments	13646	24
Franzone	Patricia	not provided	N/A	Web-based Comments	25756	24
Frasca	Marianna	not provided	N/A	Web-based Comments	47283	34
fraser	Ann	not provided	N/A	Web-based Comments	8033	24
Fraser	Barb	not provided	N/A	Web-based Comments	8602	24
fraser	barbara lee	not provided	N/A	Web-based Comments	8841	24
Fraser	Janel	not provided	N/A	Web-based Comments	56486, 56487	34
Fraser	Leah	not provided	N/A	Web-based Comments	47634	34
Fraser	Mark	not provided	N/A	Web-based Comments	22926	24
Fraser	Roxann	not provided	N/A	Web-based comments	57457	35
Fraser	Whitney	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4699	N/A
Frater	Lara	not provided	N/A	Web-based Comments	20551	24
Frattaroli	Frank	not provided	N/A	Web-based Comments	51130	34
Frattaroli	Frank	not provided	N/A	Web-based Comments	14528	24
Fratus	Mike	not provided	N/A	Web-based Comments	24454	24
Fratzke	Kurt	not provided	N/A	Web-based Comments	20435	24
Fraunfelder	Robert	not provided	N/A	Web-based Comments	27268	24
Frausto	Myriam	not provided	N/A	Web-based Comments	24718	24
Frawley	Joy	not provided	N/A	Web-based Comments	52080	34
Fray	Antje	not provided	N/A	Web-based Comments	8351	24
Fray	Linley	not provided	N/A	Web-based comments	57334	35
Fray	Linley	not provided	N/A	Web-based Comments	55959	34
Frazee	Cary	not provided	N/A	Web-based Comments	48541	34
Frazee	Cary	not provided	N/A	Web-based Comments	10217	24
Frazer	Marley	not provided	N/A	Web-based Comments	23049	24
Frazier	Kim	not provided	N/A	Web-based Comments	20175	24
Frazier	Shelley	not provided	N/A	Web-based Comments	45204	34
Frazier	Shelley	not provided	N/A	Web-based Comments	28830	24
Frderick	Ronald	not provided	N/A	Web-based comments	3603	N/A
Freas	Don	d.freas@comcast.net	N/A	Web-based comments	4478	N/A
Freas	Sue-Ann	not provided	N/A	Web-based Comments	29565	24
Frech	Theo	not provided	N/A	Web-based comments	56797	35
Frederick	Brian	not provided	N/A	Web-based Comments	9473	24
Frederick	Jean	not provided	N/A	Web-based Comments	48695, 48696	34
Frederick	Jean	not provided	N/A	Web-based Comments	16845	24
Frederick	Paige	not provided	N/A	Web-based Comments	25481	24
fredericks	sarah	not provided	N/A	Web-based Comments	28347	24
Fredericks	Tom	f1racersenna@aol.com	N/A	Web-based comments	5522	N/A
Fredericksen	Karen	not provided	N/A	Web-based Comments	19100	24
Frederickson	Bryn	not provided	N/A	Web-based Comments	9645	24
Fredricks	Joanne	not provided	N/A	Web-based Comments	48159	34
Freed	Alan	not provided	N/A	Web-based Comments	7162	24
Freed	Mary	not provided	N/A	Web-based Comments	23271	24
Freedland	Nancy	not provided	N/A	Web-based Comments	52718, 52719	34
FREEDLAND	NANCY	not provided	N/A	Web-based Comments	24861	24
Freedman	Allan	not provided	N/A	Web-based Comments	7433	24
Freedman	M	not provided	N/A	Web-based Comments	22170	24
Freedman	Michael	not provided	N/A	Web-based Comments	24081	24
Freedman	Steve	not provided	N/A	Web-based Comments	29363	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Freedom	Tasia	not provided	N/A	Web-based Comments	45519	34
Freels	Carla	not provided	N/A	Web-based Comments	9823	24
Freels	Lorna	not provided	N/A	Web-based Comments	21819	24
Freeman	A	not provided	N/A	Web-based Comments	6957	24
Freeman	Amy	not provided	N/A	Web-based Comments	48340, 48341	34
Freeman	AMY	not provided	N/A	Web-based Comments	7609	24
Freeman	Anne	not provided	N/A	Web-based Comments	8195	24
Freeman	Beth Jane	not provided	N/A	Web-based Comments	9063	24
Freeman	Gregory	not provided	N/A	Web-based Comments	15276	24
Freeman	Harold	not provided	N/A	Web-based Comments	15443	24
Freeman	Jackie	not provided	N/A	Web-based Comments	16062	24
Freeman	Jessica	not provided	N/A	Web-based Comments	47012	34
Freeman	Karen	not provided	N/A	Web-based Comments	52524	34
Freeman	Lincoln	not provided	N/A	Web-based Comments	21189	24
Freeman	Linda	not provided	N/A	Web-based Comments	51880	34
Freeman,	Gary	not provided	N/A	Web-based comments	3797	N/A
Freepons	Darla	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	2970	N/A
Freer	Fred-C	not provided	N/A	Web-based Comments	54704	34
Freese	Brian	not provided	N/A	Web-based Comments	49599	34
Freese	Dan	not provided	N/A	Web-based Comments	11655	24
Freese	Kathy	not provided	N/A	Web-based Comments	19697	24
Freese	Lisanne	not provided	N/A	Web-based Comments	21663, 50470, 50471	34
Freese	Marilyn	not provided	N/A	Web-based Comments	22778	24
Freese	Robin	not provided	N/A	Web-based Comments	27481	24
Freewoman	Faith	not provided	N/A	Web-based Comments	50288	34
FREEWOMAN	FAITH	not provided	N/A	Web-based Comments	14382	24
Fregin	N	not provided	N/A	Web-based Comments	46653, 46654	34
fregin	n	not provided	N/A	Web-based Comments	24730	24
Frei	Brent	brent.frei@terraclear.com	N/A	Web-based comments	3429	N/A
Frei	Glenda	glendafrei@gmail.com	N/A	Web-based comments	3105, 3888	N/A
frei	jenny	not provided	N/A	Web-based Comments	17290	24
Frei	Marianne	not provided	N/A	Web-based Comments	22679	24
Frei	Mark	mark.frei30@gmail.com	N/A	Web-based comments	3112	12
Freiband	Linda	not provided	N/A	Web-based Comments	21272	24
Freiberg	M	not provided	N/A	Web-based Comments	22171	24
Freiberg	Matthew	not provided	N/A	Web-based Comments	23646	24
Freid	David	not provided	N/A	Web-based Comments	12008	24
Freilich	Pam	not provided	N/A	Web-based Comments	25495	24
Freiman	Steven	not provided	N/A	Web-based Comments	29431	24
Freimuth Jr	Erich	not provided	N/A	Web-based Comments	14174	24
Freitag	Angelica	not provided	N/A	Web-based Comments	46068, 46069	34
Freitag	Angelica	not provided	N/A	Web-based Comments	7938	24
Freitag	Mark	not provided	N/A	Web-based Comments	54845, 54846	34
Freitas	Barbara	not provided	N/A	Web-based Comments	8679	24
Freitas	Colonel	not provided	N/A	Web-based Comments	11281	24
Freitas	Mark	markfccim@gmail.com	N/A	Web-based comments	2948	N/A
frelichowski	c. a.	not provided	N/A	Web-based Comments	9700	24
Fremaux	Charlotte	not provided	N/A	Web-based Comments	50800	34
French	A	not provided	N/A	Web-based Comments	6958	24
French	David	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58398	32
French	Dianne	not provided	N/A	Web-based Comments	58232	16
French	Elaine	not provided	N/A	Web-based comments	4392	N/A
French	Elena	not provided	N/A	Web-based Comments	55078, 55079	34
French	Harvey	not provided	N/A	Web-based Comments	15468	24
French	Hod	not provided	N/A	Web-based comments	5243	N/A
French	Julia	not provided	N/A	Web-based Comments	58689	34
French	Kallie	not provided	N/A	Web-based Comments	19013	24
French	Kelly	not provided	N/A	Web-based Comments	19920	24
French	Larry	not provided	N/A	Web-based Comments	51205	34
French	LeeAnn	not provided	N/A	Web-based Comments	47319	34
French	Marjorie	French1071@yahoo.com	N/A	Web-based comments	3199	N/A
French	Nina	not provided	N/A	Web-based Comments	55337	34
French	Yvonne	not provided	N/A	Web-based Comments	31695	24
Freson	Neil	not provided	N/A	Web-based Comments	56230	34
Freson	Neil	not provided	N/A	Web-based Comments	25130	24
Frest	Margaret	not provided	N/A	Web-based Comments	22450	24
Freston	Linda	not provided	N/A	Web-based Comments	21273	24
Fretague	Neil	not provided	N/A	Web-based Comments	25131	24
Frethem	Gail	not provided	N/A	Web-based Comments	50964	34

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Frethem	Gail	not provided	N/A	Web-based Comments	14685	24
Fretz	Steve	not provided	N/A	Web-based Comments	29364	24
Freudenreich	Werner	not provided	N/A	Web-based Comments	49528, 49529	34
Frewin	Angela	not provided	N/A	Web-based Comments	7899	24
Frey	Adrienne	not provided	N/A	Web-based Comments	7095	24
Frey	Alexandra	not provided	N/A	Web-based Comments	7279	24
Frey	Brenda	not provided	N/A	Web-based Comments	50539	N/A
Frey	Brenda	not provided	N/A	Web-based Comments	9399	24
Frey	Julie	not provided	N/A	Web-based Comments	50064	34
Frey	Lorna	not provided	N/A	Web-based Comments	21820	24
Frey	Michael	not provided	N/A	Web-based Comments	24082	24
Freyer	Nancy	not provided	N/A	Web-based Comments	48290	34
Freyer	Paul	not provided	N/A	Web-based Comments	25990	24
Friberg	Twila	not provided	N/A	Web-based Comments	53476	34
Friden	Kerin	not provided	N/A	Web-based Comments	20052	24
Fried	Donald	not provided	N/A	Web-based Comments	13061	24
FRIED	J	not provided	N/A	Web-based Comments	15972	24
Fried	Robert	not provided	N/A	Web-based Comments	27269	24
Fried	Rona	not provided	N/A	Web-based Comments	50626	N/A
Friedberg	Lionel	not provided	N/A	Web-based Comments	47249	34
Friedeborn	Dr. Hildegard	not provided	N/A	Web-based comments	56786	35
Friedlander	Randy	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4697	N/A
Friedman	David	not provided	N/A	Web-based Comments	12009	24
Friedman	Donna	not provided	N/A	Web-based Comments	55947	34
Friedman	Emma	not provided	N/A	Web-based Comments	14054	24
Friedman	Esther	not provided	N/A	Web-based Comments	53332	34
Friedman	Esther	not provided	N/A	Web-based Comments	14273	24
Friedman	Heidi	not provided	N/A	Web-based Comments	15568	24
Friedman	Honey	not provided	N/A	Web-based Comments	15780	24
Friedman	Hugh	not provided	N/A	Web-based Comments	15818	24
Friedman	Jeanne	not provided	N/A	Web-based Comments	16947	24
Friedman	Jeannie	not provided	N/A	Web-based Comments	16992	24
Friedman	Jeffrey	not provided	N/A	Web-based Comments	17077	24
Friedman	Leanne	not provided	N/A	Web-based Comments	20919	24
Friedman	Lynn	not provided	N/A	Web-based Comments	22057	24
Friedman	Michael	not provided	N/A	Web-based Comments	24083	24
Friedman	Rachel	not provided	N/A	Web-based Comments	26516	24
Friedman	Scott	not provided	N/A	Web-based Comments	48227	34
Friedman	Scott	sdfriedman.md@gmail.com	N/A	Web-based comments	32131	N/A
Friedman	Shani	not provided	N/A	Web-based Comments	28571	24
Friedmann	Michael	not provided	N/A	Web-based Comments	24084	24
Friedmann-Cerny	Vivian	not provided	N/A	Web-based Comments	31315	24
Friend	David	not provided	N/A	Web-based Comments	50233	34
Friend	Frank	not provided	N/A	Web-based Comments	14529	24
Friend	Megan	not provided	N/A	Web-based Comments	23788	24
Friend	S	not provided	N/A	Web-based Comments	44405	34
Frier-Dryden	Rosy	not provided	N/A	Web-based Comments	27792	24
Fries	Bobby	not provided	N/A	Web-based Comments	9267	24
fries	laura	not provided	N/A	Web-based Comments	20640	24
Friesen	Debbie	not provided	N/A	Web-based Comments	12321	24
Friestad	John	not provided	N/A	Web-based Comments	50997, 50998, 50999	34
Friestad	John	not provided	N/A	Web-based Comments	18020	24
Friesz	Tracy	fordrattler@charter.net	N/A	Web-based comments	1853	N/A
Frigo	Angela	not provided	N/A	Web-based Comments	54760	34
Friis	Rolf	not provided	N/A	Web-based Comments	27605	24
Fring	Gary	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32289, 56654	N/A
Fripp	Lynette	not provided	N/A	Web-based Comments	22036	24
Frisbie	Rinya	not provided	N/A	Web-based Comments	27122	24
Frisch	Dorothy	not provided	N/A	Web-based Comments	13259	24
Frisella	Michele	not provided	N/A	Web-based Comments	55817	34
Frish	Kristin	kfrish@yahoo.com	N/A	Web-based comments	5083	N/A
Frisk	Crystal	not provided	N/A	Web-based Comments	52794	34
Friswold	Brooke	not provided	N/A	Web-based Comments	48122	34
Fritcher	Rhonda	not provided	N/A	Web-based Comments	26896	24
Fritz	Jane	not provided	N/A	Web-based Comments	16482	24
Fritz	Jane	not provided	N/A	Web-based Comments	16483	24
Fritz	Marilyn	not provided	N/A	Web-based Comments	22779	24
Fritz	Mikki	not provided	N/A	Web-based Comments	24501	24
Fritz	P	not provided	N/A	Web-based Comments	25461	24
Fritz	Paul	not provided	N/A	Web-based Comments	25991	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Friz	j	not provided	N/A	Web-based Comments	15973	24
Froehlich	LaNelle	not provided	N/A	Web-based Comments	20537	24
Froehlich	Stephen	scfroehlich@aol.com	N/A	Web-based comments	5142	N/A
Frohn	Joyce	not provided	N/A	Web-based Comments	18489	24
Froke	Peggy Jo	not provided	N/A	Web-based Comments	26185	24
Fromberg	Jeff	not provided	N/A	Web-based Comments	52966, 52967	34
Fromberg	Jeff	not provided	N/A	Web-based Comments	17015	24
Fromme	Erika	not provided	N/A	Web-based Comments	14192	24
Fromme-Sachs	SInje	not provided	N/A	Web-based Comments	29025	24
Fronce	Linnea	not provided	N/A	Web-based Comments	21508	24
Fronczak	Thomas	not provided	N/A	Web-based Comments	30492	24
Fronczek	Kathleen	not provided	N/A	Web-based comments	57368	35
Frontini	Alessandro	not provided	N/A	Web-based Comments	7239	24
Frost	Andrew	not provided	N/A	Web-based Comments	7813	24
Frost	Heather	not provided	N/A	Web-based comments	4874	1
Frost	Holly	not provided	N/A	Web-based Comments	15745	24
Frost	Jaimie	not provided	N/A	Web-based Comments	16162	24
Frost	Martin	not provided	N/A	Web-based Comments	23157	24
Frost	Mary	not provided	N/A	Web-based Comments	23272	24
Frost	Meghan	not provided	N/A	Web-based Comments	23813	24
Frost	Patricia	not provided	N/A	Web-based Comments	54350	34
Frost	Shayna	not provided	N/A	Web-based Comments	28769	24
Frost	Tom	not provided	N/A	Web-based Comments	44677	34
Frost	Tom	not provided	N/A	Web-based Comments	30749	24
Frostman	Susan	not provided	N/A	Web-based Comments	29679	24
Frounfelter	Earl	not provided	N/A	Web-based Comments	55449	34
Frucci	Lisa	not provided	N/A	Web-based Comments	21554	24
Frucht	Michael	not provided	N/A	Web-based Comments	24085	24
Frusteri	Marianne	not provided	N/A	Web-based Comments	22680	24
Frutig	Sarah	not provided	N/A	Web-based Comments	28348	24
Frutiger	Christina	not provided	N/A	Web-based Comments	10853	24
Fruwirth	Mac	not provided	N/A	Web-based comments	847	1
Fry	Charles	not provided	N/A	Web-based Comments	54877	34
Fry	Charles	not provided	N/A	Web-based Comments	10504	24
Fry	Denise	not provided	N/A	Web-based Comments	44974	34
Fry	Joyce	not provided	N/A	Web-based Comments	18490	24
Fry	Judith	not provided	N/A	Web-based Comments	48319	34
Fry	Judith	not provided	N/A	Web-based Comments	18595	24
Fry	lauren	not provided	N/A	Web-based Comments	51420, 51421	34
fryberger	jeremy	not provided	N/A	Web-based Comments	17315	24
Frye	Richard	not provided	N/A	Web-based Comments	26970	24
Fryer	Sherri	not provided	N/A	Web-based Comments	49798	34
Fryer	Sherri	not provided	N/A	Web-based Comments	28864	24
Ft	Rhaels	not provided	N/A	Web-based Comments	49547	34
Ft	Rhaels	not provided	N/A	Web-based Comments	26882	24
Fu	Caroline	not provided	N/A	Web-based Comments	10120	24
Fuchs	Scott	not provided	N/A	Web-based Comments	28471	24
Fuck off	bizz off	not provided	N/A	Web-based Comments	9206	24
fudemberg	longwillow	not provided	N/A	Web-based Comments	21740	24
Fuentes	Christopher	not provided	N/A	Web-based Comments	46447	34
Fuentes	Ivan	not provided	N/A	Web-based Comments	45397	34
Fuentes	Ivan	not provided	N/A	Web-based Comments	15956	24
Fuentes	Manuel	not provided	N/A	Web-based Comments	22311	24
Fuerst	E.	epfuerst@frontier.com	N/A	Web-based comments	5055	N/A
Fuerst	Gottfriede	not provided	N/A	Web-based Comments	15188	24
Fuerst	Pat	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	5548	N/A
Fuerst	Rukha	not provided	N/A	Web-based comments	3140	N/A
Fugate	Kenneth	not provided	N/A	Web-based Comments	20013	24
Fugate	Peggy	not provided	N/A	Web-based Comments	26156	24
Fuguet	Katherine Darcy	not provided	N/A	Web-based Comments	19497	24
Fujimoto	Hiroko	not provided	N/A	Web-based Comments	15716	24
Fujimoto	Kathy	not provided	N/A	Web-based Comments	51792	34
Fujita-Sacco	Noreen	not provided	N/A	Web-based Comments	47318	34
FUKATA	MOMOKO	not provided	N/A	Web-based Comments	24604	24
Fukuda	Kristina	not provided	N/A	Web-based Comments	44675, 44676	34
Fukuda	Kristina	not provided	N/A	Web-based Comments	20403	24
Fukunaga	Judy	not provided	N/A	Web-based Comments	18680	24
Fularczyk	Margaret	not provided	N/A	Web-based Comments	52855	34
Fularczyk	Margaret	not provided	N/A	Web-based Comments	22451	24
Fulcher	Diane	not provided	N/A	Web-based Comments	12839	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Fulcher	Kaye	not provided	N/A	Web-based Comments	19841	24
Fulcher	Pamela	not provided	N/A	Web-based Comments	47871, 47872	34
Fulcheri	Clio	not provided	N/A	Web-based Comments	11229	24
Fulcomer	Jan	not provided	N/A	Web-based Comments	16398	24
Fuld	Liora	not provided	N/A	Web-based Comments	54371	34
Fulfs	Jack	jackfulfs@pullman.com	N/A	Web-based comments	4916	N/A
Fulgham	Kirsten	not provided	N/A	Web-based Comments	50225, 50226	34
Fulgham	Kirsten	not provided	N/A	Web-based Comments	20273	24
Fullan	Mimi	not provided	N/A	Web-based Comments	54716	34
Fuller	Aleida	not provided	N/A	Web-based Comments	7223	24
Fuller	Alexis	not provided	N/A	Web-based Comments	7306	24
Fuller	Clare	not provided	N/A	Web-based Comments	50967	34
Fuller	Eric	not provided	N/A	Web-based Comments	55164	34
Fuller	Eric	not provided	N/A	Web-based Comments	14105	24
Fuller	Julia	not provided	N/A	Web-based Comments	18753	24
Fuller	Kate	not provided	N/A	Web-based Comments	19375	24
Fuller	Lori	not provided	N/A	Web-based Comments	21784	24
Fuller	Lynn	not provided	N/A	Web-based Comments	22058	24
Fuller	Marilynn	not provided	N/A	Web-based Comments	22825	24
Fuller	Patricia	not provided	N/A	Web-based Comments	53051, 53052	34
Fuller	Richard	not provided	N/A	Web-based comments	3179	N/A
Fuller	Tom	not provided	N/A	Web-based Comments	55588, 56167	34
Fuller	Victoria	not provided	N/A	Web-based Comments	48708	34
Fuller	Victoria	not provided	N/A	Web-based Comments	31193	24
Fullerton	Carol	not provided	N/A	Web-based Comments	9927	24
Fullerton	Kathy	not provided	N/A	Web-based Comments	19698	24
fullerton	Sandra	not provided	N/A	Web-based Comments	28147	24
Fullman	Sandra	not provided	N/A	Web-based Comments	28148	24
Fulmer	Diana	NOPVoices@att.net	N/A	Web-based comments	31840	N/A
Fulmer	Leannah	not provided	N/A	Web-based Comments	52679, 52753	34
Fulmer	Tom	not provided	N/A	Web-based Comments	30750	24
Fulton	Craig	not provided	N/A	Web-based Comments	44577	34
Fulton	Cynthia	not provided	N/A	Web-based Comments	11511	24
Fulton	Don	not provided	N/A	Web-based Comments	13019	24
Fulton	Jacqui	not provided	N/A	Web-based Comments	51555	34
Fulton	Stacey	not provided	N/A	Web-based Comments	49811	34
Fulton	Terri	not provided	N/A	Web-based Comments	49076	34
Fulton	Terri	not provided	N/A	Web-based Comments	30330	24
Fulton	Trevor	not provided	N/A	Web-based Comments	58167	16
Fulwiler	Michael	not provided	N/A	Web-based Comments	24086	24
Fumarolo	Michael	not provided	N/A	Web-based Comments	24087	24
Funk	Adam	not provided	N/A	Web-based Comments	7046	24
Funk	Luanne	not provided	N/A	Web-based Comments	21922	24
Funk	Melinda	not provided	N/A	Web-based Comments	23863	24
Funkhouser	Sylvia	not provided	N/A	Web-based Comments	30065	24
Funt	K.	not provided	N/A	Web-based Comments	18985	24
Fuoto	Georgia	not provided	N/A	Web-based Comments	47437	34
Fuqua	Chad	not provided	N/A	Web-based Comments	47846	34
Fuqua	Chad	not provided	N/A	Web-based Comments	10449	24
Fura	Berina	not provided	N/A	Web-based Comments	8980	24
Furbish	Bre	not provided	N/A	Web-based Comments	9383	24
furlong	john	not provided	N/A	Web-based Comments	18021	24
Furlong	Sharon	not provided	N/A	Web-based Comments	52936	34
Furman	Sharyn	not provided	N/A	Web-based Comments	28738	24
Furminger-Haist	Peggy	not provided	N/A	Web-based Comments	26157	24
Furnish	Shearle	not provided	N/A	Web-based Comments	28774	24
Furniss	Beverly	not provided	N/A	Web-based Comments	9125	24
Furphy	Penelope	not provided	N/A	Web-based Comments	26190	24
Furtado	Amanda	not provided	N/A	Web-based Comments	7530	24
Furtado	Joan	not provided	N/A	Web-based Comments	46020	34
Furtek	Robert	not provided	N/A	Web-based Comments	44424	34
Furuike	Setsuko	not provided	N/A	Web-based Comments	28550	24
Furutate	Midori	not provided	N/A	Web-based Comments	24418	24
Fusaro	John	not provided	N/A	Web-based Comments	18022	24
Fusco	Carol	not provided	N/A	Web-based Comments	9928	24
Fusilier	Gilda	gfusilier@comcast.net	N/A	Web-based Comments	15029	24
Fuss	Joanne	not provided	N/A	Web-based Comments	17800	24
FUSS	PATRICIA	not provided	N/A	Web-based Comments	52899	34
Fuss	Patricia	not provided	N/A	Web-based Comments	25757	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
futch	Debbie bullard	not provided	N/A	Web-based Comments	47591	34
Futhey	Robert	not provided	N/A	Web-based Comments	27270	24
Futrell	Sherrill	not provided	N/A	Web-based Comments	28880	24
Futter	Maria	not provided	N/A	Web-based Comments	22598	24
Fyda	Brian	not provided	N/A	Web-based Comments	9474	24
Fyda	Charlene	not provided	N/A	Web-based Comments	10474	24
Fymbo	Sandra	not provided	N/A	Web-based Comments	28149	24
G	Anna	not provided	N/A	Web-based Comments	8129	24
G	Audrey	not provided	N/A	Web-based comments	1416	1
G	Bella	not provided	N/A	Web-based Comments	8928	24
G	C	not provided	N/A	Web-based Comments	55836	34
G	C	not provided	N/A	Web-based Comments	9671	24
G	Caleb	not provided	N/A	Web-based comments	3589	10
G	Carol	not provided	N/A	Web-based Comments	47307, 47308	34
G	Carol	not provided	N/A	Web-based Comments	9929	24
G	Cris	not provided	N/A	Web-based Comments	11433	24
G	D	not provided	N/A	Web-based Comments	46243	34
G	Deborah	not provided	N/A	Web-based Comments	51628	34
G	E	not provided	N/A	Web-based Comments	13411	24
g	emme	not provided	N/A	Web-based Comments	52851, 52852	34
g	emme	not provided	N/A	Web-based Comments	14066	24
G	Gail	not provided	N/A	Web-based Comments	51340	34
G	Gail	not provided	N/A	Web-based Comments	14686	24
G	H	not provided	N/A	Web-based Comments	45495, 51069	34
G	H	not provided	N/A	Web-based Comments	15365	24
G	Julia	not provided	N/A	Web-based comments	823	2
G	Laura	not provided	N/A	Web-based Comments	20641	24
G	Lisa	not provided	N/A	Web-based Comments	52015	34
g	m	not provided	N/A	Web-based Comments	52965	34
G	M	not provided	N/A	Web-based Comments	55426	34
g	m	not provided	N/A	Web-based Comments	22172	24
G	Mikki	not provided	N/A	Web-based Comments	24502	24
G	Mona	not provided	N/A	Web-based comments	986	2
g	n	not provided	N/A	Web-based Comments	24731	24
G	S	not provided	N/A	Web-based Comments	49011, 49012	34
G	S	not provided	N/A	Web-based Comments	27940	24
G	Steven	not provided	N/A	Web-based comments	150	1
G	Tamara	not provided	N/A	Web-based Comments	48044	34
G	Tamara	not provided	N/A	Web-based Comments	30121	24
G.	Haley	hal.gustafson@gmail.com	N/A	Web-based comments	6268	1
G.	Lisa	not provided	N/A	Web-based Comments	21555	24
G.	W.	not provided	N/A	Web-based Comments	55922	34
G.	W.	not provided	N/A	Web-based Comments	31341	24
Gaba	Brat	not provided	N/A	Web-based Comments	9381	24
Gabbe	Astrid	not provided	N/A	Web-based Comments	8511	24
Gabel	Gerald	not provided	N/A	Web-based Comments	14952	24
Gable	Amy	not provided	N/A	Web-based Comments	7610	24
Gabriele	Kim	not provided	N/A	Web-based Comments	46574	34
Gabriele	Kim	not provided	N/A	Web-based Comments	20176	24
Gabrielle	Maria	not provided	N/A	Web-based Comments	22599	24
Gabrielson	Hannah	hannahgabrielson@gmail.com	N/A	Web-based comments	1671	1
Gabrielson	Hannah	hannahwilkins05@gmail.com	N/A	Web-based comments	5336	1
Gacond	Chantal	not provided	N/A	Web-based Comments	46515	34
Gacond	Chantal	not provided	N/A	Web-based Comments	10460	24
Gad	Toby	not provided	N/A	Web-based Comments	30710	24
Gadd	Cinthia	not provided	N/A	Web-based Comments	11111	24
Gade	Gene	not provided	N/A	Web-based Comments	14848	24
Gadea	Francisco	not provided	N/A	Web-based Comments	47165	34
Gades	Jeff	not provided	N/A	Web-based Comments	17016	24
Gadoth-Goodman	Sharon	not provided	N/A	Web-based Comments	28654	24
Gaertner	Diane	not provided	N/A	Web-based Comments	12840	24
Gaertner	Karen	not provided	N/A	Web-based Comments	19101	24
Gaertner	Marji	not provided	N/A	Web-based Comments	22874	24
Gaetano	Nick	not provided	N/A	Web-based Comments	25196	24
Gaffney	Julie	julgaff@gmail.com	N/A	Web-based comments	3454	13
Gaffney	Kevin	gaffco70@icloud.com	N/A	Web-based comments	2248	N/A
Gaffney	Vicki	not provided	N/A	Web-based Comments	31129	24
Gafney	Patricia	not provided	N/A	Web-based Comments	25758	24
Gage	Bruce	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4685	N/A
Gage	Carol	not provided	N/A	Web-based Comments	9930	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Gagne	M	not provided	N/A	Web-based Comments	22173	24
Gagne	Sylvia	not provided	N/A	Web-based Comments	30066	24
Gagnon	Fran	not provided	N/A	Web-based Comments	14461	24
Gagnon	Holly	not provided	N/A	Web-based Comments	15746	24
Gahm	Tara	not provided	N/A	Web-based Comments	54014	34
Gaiefsky	Cheryl	not provided	N/A	Web-based Comments	48144	34
Gaiefsky	Cheryl	not provided	N/A	Web-based Comments	10636	24
Gail	Nan	not provided	N/A	Web-based Comments	24786	24
Gainard	Kathy	not provided	N/A	Web-based Comments	19699	24
Gainer	judith	not provided	N/A	Web-based Comments	18596	24
Gaines	Alexander	not provided	N/A	Web-based Comments	7264	24
Gaines	Ann	not provided	N/A	Web-based Comments	8034	24
Gaines	David	not provided	N/A	Web-based Comments	12010	24
Gaines	Katerina	not provided	N/A	Web-based Comments	19407	24
Gainey	Ann	not provided	N/A	Web-based Comments	8035	24
Gainislamova	Nailya	not provided	N/A	Web-based Comments	24778	24
Gaiser	[unreadable]	not provided	N/A	Web-based comments	56795	35
Gaiser	[unreadable]	not provided	N/A	Web-based Comments	16021	24
Gaiser	Joerg	not provided	N/A	Web-based Comments	51560, 51561	34
Gaitis	Dawn	not provided	N/A	Web-based Comments	51528	34
Gaitis	Dawn	not provided	N/A	Web-based Comments	12217	24
Gajda	Jack	not provided	N/A	Web-based Comments	16032	24
Gajda	John	not provided	N/A	Web-based Comments	18023	24
Gajdos	Cindy	not provided	N/A	Web-based Comments	11074	24
Gajzago	Andrei	not provided	N/A	Web-based Comments	7791	24
Galai	Mike	galai9@aol.com	N/A	Web-based comments	5483	8
Galanos	Laura	not provided	N/A	Web-based comments	57529	35
Galante	Lawrence	not provided	N/A	Web-based Comments	55566	34
Galante	Nick	not provided	N/A	Web-based Comments	25197	24
Galante	Susan	not provided	N/A	Web-based Comments	44560	34
GALANTE	SUSAN	not provided	N/A	Web-based Comments	29680	24
Galante	Theresa	not provided	N/A	Web-based Comments	58381	28
Galante	Theresa	not provided	N/A	Web-based Comments	30429	24
Galasso	Joanne	not provided	N/A	Web-based Comments	53523	34
Galatis	Chris	not provided	N/A	Web-based Comments	10741	24
GALBRAITH	MARK	not provided	N/A	Web-based Comments	58057	16
Galdo	Querido	not provided	N/A	Web-based Comments	52754, 52755	34
Gale	Kate	not provided	N/A	Web-based Comments	19376	24
Gale	Maradel	not provided	N/A	Web-based Comments	50367	34
Gale	Marla	not provided	N/A	Web-based Comments	23026	24
Gale	Sharlene	not provided	N/A	Web-based Comments	28621	24
Galen	Ron	not provided	N/A	Web-based Comments	27621	24
GALEY	GLORIA	not provided	N/A	Web-based Comments	51538	34
Galgoul	Rachel	not provided	N/A	Web-based Comments	26517	24
Galic	Helen	not provided	N/A	Web-based Comments	15608	24
Galimitakis	Marguerite	not provided	N/A	Web-based Comments	22565	24
Galindo	Jim and Sally	not provided	N/A	Web-based Comments	17618	24
Galindo	Lauryn	not provided	N/A	Web-based Comments	20870	24
Galindo	Thomas	not provided	N/A	Web-based Comments	30493	24
Galka	Joanne	not provided	N/A	Web-based Comments	17801	24
Gall	Barbara	barbaralu3255@gmail.com	N/A	Web-based comments	2562	N/A
Gall	Thenice	not provided	N/A	Web-based Comments	30417	24
Gallagher	Alice	not provided	N/A	Web-based Comments	7339	24
Gallagher	Alice J.	not provided	N/A	Web-based Comments	58650	34
Gallagher	Andrew	not provided	N/A	Web-based Comments	7814	24
Gallagher	Frances	not provided	N/A	Web-based Comments	14478	24
Gallagher	Glenn	not provided	N/A	Web-based Comments	46917	34
Gallagher	Glenn	not provided	N/A	Web-based Comments	15130	24
Gallagher	Julie	not provided	N/A	Web-based Comments	18831	24
Gallagher	Kathleen	not provided	N/A	Web-based Comments	19536	24
Gallagher	Kathy	not provided	N/A	Web-based Comments	19700	24
Gallagher	Kevin	not provided	N/A	Web-based Comments	48553, 48554	34
Gallagher	Kevin	not provided	N/A	Web-based Comments	20103	24
Gallagher	Liz	not provided	N/A	Web-based Comments	21680	24
Gallagher	Margaret	not provided	N/A	Web-based Comments	22452	24
Gallagher	Mary	not provided	N/A	Web-based Comments	23273	24
gallaghrer	joss	not provided	N/A	Web-based Comments	55431	34
Gallahan	Tom	tgallahan@gmail.com	N/A	Web-based comments	3585	N/A
Gallanosa	Kristin	not provided	N/A	Web-based Comments	45631, 45630	34
Gallant	Helena	not provided	N/A	Web-based Comments	15636	24

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Gallante	Frances	not provided	N/A	Web-based Comments	14479	24
GALLARDO	JAVIER ALEJANDRO	not provided	N/A	Web-based Comments	16800	24
Gallaway	Shawn	not provided	N/A	Web-based Comments	28746	24
Gallaway	Tina	not provided	N/A	Web-based Comments	30676	24
Galle	Anne	not provided	N/A	Web-based Comments	8196	24
Gallegos	Enrico	not provided	N/A	Web-based Comments	14075	24
Gallen	Kevin	not provided	N/A	Web-based Comments	20104	24
Gallery	Lynne	not provided	N/A	Web-based Comments	22131	24
Galletti	Marie	not provided	N/A	Web-based Comments	44664	34
Gallicho	Monica McKeown	not provided	N/A	Web-based Comments	51458	34
Gallion	Cynthia	not provided	N/A	Web-based Comments	11512	24
Gallion	Deborah	not provided	N/A	Web-based Comments	12405	24
Gallo	Daniel	not provided	N/A	Web-based Comments	58510	34
Gallo	Daniel	not provided	N/A	Web-based Comments	11736	24
Gallo	Gina	not provided	N/A	Web-based Comments	51531	34
Gallo	Joseph Folino	not provided	N/A	Web-based Comments	53738, 53739	34
Gallo	Michael	not provided	N/A	Web-based Comments	55118	34
Gallo	Nicole	not provided	N/A	Web-based Comments	51797	34
Gallo	Richard	not provided	N/A	Web-based Comments	26971	24
Galloway	Walt & Hollie	not provided	N/A	Web-based Comments	31348	24
Galovan	Peter	not provided	N/A	Web-based Comments	26250	24
Galten	Lawrence	not provided	N/A	Web-based Comments	20875	24
galtier	ghislaine	not provided	N/A	Web-based Comments	52912	34
Galton	Christopher	not provided	N/A	Web-based Comments	11010	24
Galvani	Peter	not provided	N/A	Web-based Comments	54057	34
Galvez	Miguel	not provided	N/A	Web-based Comments	24420	24
Galvin	James	not provided	N/A	Web-based Comments	16217	24
Galvin	Sister Bernie	not provided	N/A	Web-based Comments	29032	24
Galvin	Theresa	not provided	N/A	Web-based Comments	48600	34
Gamache	Aric	getthere30@hotmail.com	N/A	Web-based comments	2132	N/A
Gamache	Brenda	not provided	N/A	Web-based Comments	45533	34
Gambino	Valentina	not provided	N/A	Web-based Comments	31004	24
Gamble	Albert	not provided	N/A	Web-based Comments	53894	34
Gamble	Albert	not provided	N/A	Web-based Comments	7211	24
Gamble	Emmalee	emmalee.gamble@yahoo.com	N/A	Web-based comments	1207	2
Gamble	Fairlee	not provided	N/A	Web-based Comments	48157	34
Gamble	Frederica	not provided	N/A	Web-based Comments	44886	34
Gamble	Frederica	not provided	N/A	Web-based Comments	14593	24
Gamble	John	not provided	N/A	Web-based Comments	18024	24
Gamble	Karen	not provided	N/A	Web-based Comments	52289	34
Gamble	Sandra	not provided	N/A	Web-based Comments	46546, 46547	34
Gameros	Janet	not provided	N/A	Web-based comments	57642	35
Gamett	Brad	brad@lrecoop.com	N/A	Web-based comments	6922, 32198	N/A
Gammon	Chris	not provided	N/A	Web-based Comments	51301, 51302	34
Gamse	Roy	not provided	N/A	Web-based Comments	27806	24
Gamson	Mary	not provided	N/A	Web-based Comments	23274	24
Gandara	Steven	not provided	N/A	Web-based Comments	29432	24
GANDHI	YASH	not provided	N/A	Web-based Comments	31658	24
Gandiaga	Lena	lena_m_hall@hotmail.com	N/A	Web-based comments	6822	N/A
Gandolfo	Deborah	not provided	N/A	Web-based Comments	55004	34
Gandolfo	Laura	not provided	N/A	Web-based Comments	20642	24
Gang	Peter	not provided	N/A	Web-based Comments	44901	34
gangi	stacy	not provided	N/A	Web-based Comments	29136	24
Gangsei	David	not provided	N/A	Web-based Comments	12011	24
ganMoryn	Croitiene	not provided	N/A	Web-based Comments	46545	34
Gannett	Mark	not provided	N/A	Web-based Comments	22927	24
Gannon	Liz	not provided	N/A	Web-based Comments	21681	24
Gannon	Patricia	not provided	N/A	Web-based Comments	25759	24
Gano	Ken	not provided	N/A	Web-based comments	3181	N/A
Ganong	Sarah	not provided	N/A	Web-based Comments	28349	24
Ganster	Lorene	not provided	N/A	Web-based Comments	21754	24
Gantos	Angela	not provided	N/A	Web-based Comments	51756, 51757	34
Gantos	Angela	not provided	N/A	Web-based Comments	7900	24
Gantz	Victoria	not provided	N/A	Web-based Comments	56076	34
Ganzert	Silke	not provided	N/A	Web-based comments	56802	35
Ganzman	Hal	not provided	N/A	Web-based Comments	15376	24
Gapinski	Jenny	not provided	N/A	Web-based comments	57257	35
Gaplin	Ron	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	56648	N/A

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Gaponoff	Sharma	not provided	N/A	Web-based Comments	28622	24
gara	christine	not provided	N/A	Web-based Comments	10921	24
Garagarza	Alfonso	not provided	N/A	Web-based Comments	7317	24
Garb	Fran	not provided	N/A	Web-based Comments	14462	24
Garber	Connie	not provided	N/A	Web-based Comments	11306	24
Garber	Cynthia	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58321	N/A
Garber	Jennifer	not provided	N/A	Web-based Comments	17188	24
Garber	Sandra	not provided	N/A	Web-based Comments	57836	34
Garber	Sandra	not provided	N/A	Web-based Comments	28150	24
Garbett	P	not provided	N/A	Web-based Comments	47362	34
Garbi	Sam	not provided	N/A	Web-based Comments	54590	34
Garbi	U	not provided	N/A	Web-based Comments	52051	34
Garbrick	Kathe	not provided	N/A	Web-based Comments	45295	34
Garbrick	Kathe	not provided	N/A	Web-based Comments	19426	24
Garcia	Abby	not provided	N/A	Web-based Comments	7012	24
Garcia	Almudena	not provided	N/A	Web-based Comments	7487	24
Garcia	Amalia Ramirez	not provided	N/A	Web-based Comments	53165, 53166	34
Garcia	Angela	not provided	N/A	Web-based Comments	7901	24
Garcia	Araceli	not provided	N/A	Web-based Comments	8394	24
Garcia	Armando A.	not provided	N/A	Web-based Comments	53112, 53113	34
Garcia	Armando A.	not provided	N/A	Web-based Comments	8444	24
Garcia	Beverly	not provided	N/A	Web-based Comments	9126	24
Garcia	Brandon	not provided	N/A	Web-based Comments	9366	24
Garcia	Christina	not provided	N/A	Web-based Comments	10854	24
Garcia	D.	not provided	N/A	Web-based Comments	11598	24
Garcia	Deanna	not provided	N/A	Web-based Comments	12275	24
garcia	erin	not provided	N/A	Web-based Comments	14220	24
Garcia	Gillian	not provided	N/A	Web-based Comments	15039	24
Garcia	Iliana	not provided	N/A	Web-based comments	57173	35
Garcia	Jackson	not provided	N/A	Web-based Comments	16080	24
Garcia	Jessica	not provided	N/A	Web-based Comments	46586	34
Garcia	Joan	not provided	N/A	Web-based Comments	49735	34
Garcia	Jose	not provided	N/A	Web-based Comments	18337	24
Garcia	Joshua	not provided	N/A	Web-based Comments	18432	24
Garcia	Juanita	not provided	N/A	Web-based Comments	51417	34
Garcia	Julio	not provided	N/A	Web-based Comments	18924	24
Garcia	Karla	not provided	N/A	Web-based Comments	53985, 53986	34
Garcia	Lisa	not provided	N/A	Web-based Comments	21556	24
Garcia	Maria	not provided	N/A	Web-based Comments	53765	34
Garcia	Maria	not provided	N/A	Web-based Comments	22600	24
Garcia	Myssha	not provided	N/A	Web-based Comments	24727	24
Garcia	Nereyda	not provided	N/A	Web-based Comments	25149	24
Garcia	Nicholas	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4249	N/A
Garcia	Patricia	not provided	N/A	Web-based Comments	25760	24
Garcia	Patty	not provided	N/A	Web-based Comments	25957	24
Garcia	Paula	not provided	N/A	Web-based Comments	26081	24
Garcia	Rhina	not provided	N/A	Web-based Comments	26885	24
Garcia	Sarai	not provided	N/A	Web-based Comments	28427	24
Garcia	Stephanie	not provided	N/A	Web-based comments	547	1
garcia	Valeria	not provided	N/A	Web-based comments	6048	1
Garcia Martinez	Maria Dolores	not provided	N/A	Web-based Comments	22642	24
Garcia-Bunuel	Virginia	not provided	N/A	Web-based Comments	31285	24
Garcia-Johnson	Angela	not provided	N/A	Web-based Comments	7902	24
Garcia-Ramos	Maryangel	maryangel.grg@gmail.com	N/A	Web-based comments	5796	1
Garcin	Mary	not provided	N/A	Web-based Comments	46063, 46064	34
GARCZYNSKI	ROSEMARIE	not provided	N/A	Web-based Comments	51072	34
GARCZYNSKI	ROSEMARIE	not provided	N/A	Web-based Comments	27748	24
Gard	Alice	not provided	N/A	Web-based Comments	7340	24
Gard	Doug	not provided	N/A	Web-based Comments	13299	24
Garday	Alyse	not provided	N/A	Web-based comments	891	1
gardell	janice	not provided	N/A	Web-based Comments	16677	24
Garden	Jenny	not provided	N/A	Web-based Comments	57951	16
Gardenhouse	Cindy	not provided	N/A	Web-based Comments	45745	34
Gardiner	Shayna	not provided	N/A	Web-based Comments	46958	34
Gardiner	Trish	not provided	N/A	Web-based Comments	51708, 51709	34
Gardner	Ann	not provided	N/A	Web-based Comments	8036	24
Gardner	Cyndi	not provided	N/A	Web-based Comments	11481	24
Gardner	David	not provided	N/A	Web-based Comments	12012	24
Gardner	Dr A	not provided	N/A	Web-based Comments	47025	34
Gardner	Dr A	not provided	N/A	Web-based Comments	13354	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Gardner	Gael	not provided	N/A	Web-based Comments	54835	34
Gardner	Joan	not provided	N/A	Web-based Comments	57843	34
Gardner	Kristen	not provided	N/A	Web-based Comments	44566	34
Gardner	Linnea	not provided	N/A	Web-based Comments	21509	24
Gardner	Melissa	not provided	N/A	Web-based Comments	54912	34
Gardner	Michael	not provided	N/A	Web-based Comments	24088	24
Gardner	Paul	not provided	N/A	Web-based Comments	25992	24
gardner	richard	not provided	N/A	Web-based Comments	50833	N/A
Gardner	Richard	not provided	N/A	Web-based Comments	26972	24
Gardner	Ryan	not provided	N/A	Web-based Comments	27910	24
Gardner	Sheryl	not provided	N/A	Web-based Comments	28920	24
Gardner	Susan	not provided	N/A	Web-based Comments	29681	24
Gardner	Thomas	not provided	N/A	Web-based Comments	30494	24
Gardner	Tina	not provided	N/A	Web-based Comments	53718	34
Garetz	Diane	not provided	N/A	Web-based Comments	45100	34
Garey	JG	not provided	N/A	Web-based Comments	17487	24
Garfield	Linda	not provided	N/A	Web-based Comments	21274	24
Garfield	Richard	not provided	N/A	Web-based Comments	26973	24
Garfield	Wesley	not provided	N/A	Web-based Comments	31468	24
Garfinkel	Nina	not provided	N/A	Web-based Comments	51626	34
Garfinkle	David	not provided	N/A	Web-based Comments	12013	24
Gargiulo	Peter	not provided	N/A	Web-based Comments	26251	24
Garibay	Juan Hernandez	not provided	N/A	Web-based Comments	49373	34
Garitty	Michael	not provided	N/A	Web-based Comments	47254, 47255	34
Garitty	Michael	not provided	N/A	Web-based Comments	24089	24
Garland	Caroline	not provided	N/A	Web-based Comments	55115	34
Garland	Pete	not provided	N/A	Web-based Comments	26229	24
Garlena	Sharon	not provided	N/A	Web-based Comments	56375, 56376	34
Garley	Patricia	not provided	N/A	Web-based Comments	25761	24
Garlit	Donald	not provided	N/A	Web-based Comments	13062	24
Garman	Dana	not provided	N/A	Web-based Comments	11692	24
Garmon	Jeff	not provided	N/A	Web-based Comments	53865	34
Garmon	T	not provided	N/A	Web-based Comments	47927	34
Garmus	Diana	not provided	N/A	Web-based Comments	12767	24
Garn	Derek	ddgarn@gmail.com	N/A	Web-based comments	3767	11
Garnant	Cheryl	not provided	N/A	Web-based Comments	10637	24
Garnant	Gregory	not provided	N/A	Web-based Comments	15277	24
Garneau	Kristen	not provided	N/A	Web-based Comments	20342	24
Garner	Daniel	lazygranch.animal@yahoo.com	N/A	Web-based comments	3168	N/A
Garner	Larry	not provided	N/A	Web-based Comments	20577	24
Garner	Lauren	not provided	N/A	Web-based Comments	46682	34
Garner	Lauren	not provided	N/A	Web-based Comments	20768	24
Garner	Robert	not provided	N/A	Web-based Comments	27271	24
Garner	Tina	not provided	N/A	Web-based Comments	58653	34
Garner	Zane	zgarner@uidaho.edu	N/A	Web-based comments	5887	N/A
Garnett	Brent	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58755	13
Garnett	Jennie Leigh	not provided	N/A	Web-based Comments	56531	34
Garnier	jean	not provided	N/A	Web-based Comments	16846	24
Garofalo	Stephanie	not provided	N/A	Web-based Comments	48591, 48592	34
Garofalo	Stephanie	not provided	N/A	Web-based Comments	29214	24
Garonzik	Stephen	not provided	N/A	Web-based Comments	29289	24
Garoutte	Debra	not provided	N/A	Web-based comments	57439	35
Garoutte	Debra	not provided	N/A	Web-based Comments	56345	34
Garr	Margaret	not provided	N/A	Web-based Comments	53180	34
Garrard	Thomas	not provided	N/A	Web-based Comments	30495	24
Garratt	Elizabeth	not provided	N/A	Web-based Comments	13743	24
Garrecht	Jamila	not provided	N/A	Web-based Comments	16378	24
Garret	Nancy	not provided	N/A	Web-based Comments	24862	24
Garretson	Jean	not provided	N/A	Web-based Comments	45425	34
Garrett	Ann	not provided	N/A	Web-based Comments	8037	24
Garrett	Jenn	not provided	N/A	Web-based Comments	17132	24
Garrett	Jo	not provided	N/A	Web-based Comments	17645	24
Garrett	Joyce Lynn	not provided	N/A	Web-based Comments	18523	N/A
Garrett	Katren	not provided	N/A	Web-based Comments	19801	24
Garrett	Madelyn	not provided	N/A	Web-based Comments	22249	24
Garrett	Mary	not provided	N/A	Web-based Comments	23275	24
Garrett	Mary	not provided	N/A	Web-based Comments	23276	24
Garrett	Nina	not provided	N/A	Web-based Comments	25305	24
Garrett	Paul	not provided	N/A	Web-based Comments	25993	24
Garrett	Rebecca	not provided	N/A	Web-based Comments	26726	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Garrett	Rosalie	not provided	N/A	Web-based Comments	27702	24
Garrett	Steve	not provided	N/A	Web-based Comments	57921, 49228	16, 34
Garrett	Suzanne	not provided	N/A	Web-based Comments	51317	34
Garrett	Wanda	not provided	N/A	Web-based Comments	55245	34
Garrioch	Isabella	not provided	N/A	Web-based Comments	15943	24
Garrioch	Susan	not provided	N/A	Web-based Comments	29682	24
Garrison	Anita	not provided	N/A	Web-based Comments	56173, 56174	34
Garrison	Anita	not provided	N/A	Web-based Comments	7971	24
Garrison	Edward	not provided	N/A	Web-based Comments	13495	24
Garrison	Michael	not provided	N/A	Web-based Comments	24090	24
Garrity	Brian	not provided	N/A	Web-based Comments	9475	24
Garton	Christian	not provided	N/A	Web-based Comments	10824	24
Garton	Katie	not provided	N/A	Web-based Comments	19789	24
Garvett	Esther	not provided	N/A	Web-based comments	57503	35
Garvett	Esther	not provided	N/A	Web-based Comments	14274	24
Garvey	Ed & Bev	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58337	N/A
Garvey	Lydia	not provided	N/A	Web-based Comments	46882, 46883	34
Garvick	Andrea	not provided	N/A	Web-based Comments	7744	24
Garvin	Michelle	not provided	N/A	Web-based Comments	24344	24
Garwood	Stephen	not provided	N/A	Web-based Comments	29290	24
Gary	Steven	not provided	N/A	Web-based Comments	29433	24
Garza	Alvaro	not provided	N/A	Web-based Comments	49929, 49930	34
Garza	Melina	not provided	N/A	Web-based Comments	23855	24
Garza	Stefany	not provided	N/A	Web-based Comments	55090	34
Garzel	Claudia	not provided	N/A	Web-based Comments	11181	24
Gasco	Christine	not provided	N/A	Web-based Comments	10922	24
Gasek	Meischa	not provided	N/A	Web-based comments	56959	35
Gashi	Ariana	not provided	N/A	Web-based Comments	8408	24
Gaskins	Bob	not provided	N/A	Web-based Comments	9234	24
Gaskins	Melissa	not provided	N/A	Web-based Comments	45083, 45084	34
Gaskins	Melissa	not provided	N/A	Web-based Comments	23884	24
Gasnikov	Vitaliy	not provided	N/A	Web-based Comments	53055	34
Gasparovic	Joseph	not provided	N/A	Web-based Comments	55171	34
Gasperini	John	not provided	N/A	Web-based comments	57530	35
Gasperoni	John	not provided	N/A	Web-based Comments	53239	34
Gasperoni	John	not provided	N/A	Web-based Comments	18025	24
Gasperov	Vlado	not provided	N/A	Web-based Comments	31332	24
Gassman	David	not provided	N/A	Web-based Comments	51438, 51439	34
Gast	Marilyn	not provided	N/A	Web-based Comments	22780	24
Gast	Rainer	not provided	N/A	Web-based Comments	53438	34
Gasteiro	Doris	not provided	N/A	Web-based Comments	13229	24
gata	kris	not provided	N/A	Web-based Comments	49203	34
Gatchel	Bonny	not provided	N/A	Web-based Comments	9335	24
Gatechair	Janet	not provided	N/A	Web-based Comments	16597	24
Gates	Allen	not provided	N/A	Web-based Comments	7444	24
Gates	Bob	not provided	N/A	Web-based Comments	9235	24
Gates	Joanne	not provided	N/A	Web-based Comments	17802	24
Gathergood	Sharin	not provided	N/A	Web-based Comments	28619	24
Gatov	Philip	not provided	N/A	Web-based Comments	26336	24
Gatto	Dana	not provided	N/A	Web-based Comments	45765	34
Gatto	Dana	not provided	N/A	Web-based Comments	11693	24
Gatto	Raven	not provided	N/A	Web-based Comments	26660	24
gauci	louis	not provided	N/A	Web-based Comments	55540, 55541	34
gauci	louis	not provided	N/A	Web-based Comments	21867	24
Gaudet	Abby	not provided	N/A	Web-based Comments	7013	24
Gaudette	Lynn	not provided	N/A	Web-based Comments	22059	24
Gaudette	Lynne	not provided	N/A	Web-based Comments	44552	34
Gaudette	Lynne	not provided	N/A	Web-based Comments	22132	24
Gaudino	Dr Jim	not provided	N/A	Web-based Comments	13355	24
Gaudsmith	Henry	not provided	N/A	Web-based Comments	45313	34
Gauger	Jane	not provided	N/A	Web-based Comments	16484	24
Gaughan	Maura	not provided	N/A	Web-based comments	591	N/A
Gaukroger	Linda	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32313	N/A
Gaul	Michael	mikegaulco@gmail.com	N/A	Web-based comments	4873	N/A
Gaul	Michael	mikegaulco@gmail.com	N/A	Web-based Comments	58030	16
Gaule	Catherine	not provided	N/A	Web-based Comments	10277	24
Gaulin	Gigi	not provided	N/A	Web-based Comments	15019	24
Gault	Carol	not provided	N/A	Web-based Comments	9931	24
Gaunt	Theresa	not provided	N/A	Web-based Comments	30430	24
Gaunt-Harris	Julie	not provided	N/A	Web-based Comments	18832	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Gauntt	Tom	not provided	N/A	Web-based Comments	55666	34
Gauntt	Tom	not provided	N/A	Web-based Comments	30751	24
Gauss	Dee	not provided	N/A	Web-based Comments	53617	34
Gauthier	Yves	not provided	N/A	Web-based Comments	31681	24
Gautschi	Christa	not provided	N/A	Web-based Comments	10805	24
gavin	christina	not provided	N/A	Web-based Comments	10855	24
Gavin	Tim	tim@dubelyoo.com	N/A	Web-based comments	4088	N/A
Gavison	Sarah	not provided	N/A	Web-based Comments	47568	34
Gawinowicz	Glenn	not provided	N/A	Web-based Comments	15131	24
Gawlik	Jessica	not provided	N/A	Web-based Comments	17426	24
Gay	Emily kempton	not provided	N/A	Web-based Comments	14051	24
Gaylord	Tyra	not provided	N/A	Web-based Comments	48400	34
Gaylord	Tyra	not provided	N/A	Web-based Comments	30965	24
Gaynor	Lucas	not provided	N/A	Web-based Comments	21927	24
Gazerro	Jami	not provided	N/A	Web-based Comments	49561	34
Gazerro	Jami	not provided	N/A	Web-based Comments	16351	24
Gazik	Lynn	not provided	N/A	Web-based Comments	22060	24
Gazori	Shirley	not provided	N/A	Web-based Comments	28951	24
Gazzana	Greg	not provided	N/A	Web-based Comments	15233	24
Gazzola	Linda	not provided	N/A	Web-based Comments	21275	24
Gear	Ross	not provided	N/A	Web-based Comments	27788	24
Gearding	Jeff	not provided	N/A	Web-based Comments	17017	24
Gearin	Kristin	not provided	N/A	Web-based Comments	20374	24
Gearry	Marceline	not provided	N/A	Web-based Comments	48150	34
Gearry	Marceline	not provided	N/A	Web-based Comments	22352	24
Geary	Brent	not provided	N/A	Web-based Comments	9438	24
Geary	Cecile	not provided	N/A	Web-based Comments	10414	24
Geary	Kate	not provided	N/A	Web-based Comments	19377	24
Geason	Ronald	geasonron@gmail.com	N/A	Web-based comments	3098	N/A
Gebhardt	Georgia	not provided	N/A	Web-based Comments	14935	24
Gebhardt	J	not provided	N/A	Web-based Comments	58210	16
Gedo	Terri	not provided	N/A	Web-based Comments	30331	24
Gedrich	Anna	not provided	N/A	Web-based Comments	8130	24
Gee	Dee	not provided	N/A	Web-based Comments	12574	24
Gee	Karen	not provided	N/A	Web-based Comments	19102	24
Gee	Lisa	not provided	N/A	Web-based Comments	21557	24
Geer	Susan	not provided	N/A	Web-based Comments	51515	34
Geer	Taryn	not provided	N/A	Web-based Comments	30214	24
Geer-Alsop	Megan	not provided	N/A	Web-based Comments	23789	24
geest	astrid	not provided	N/A	Web-based Comments	55416	34
Gefre	Lorre	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58797	N/A
gega	janice	not provided	N/A	Web-based Comments	16678	24
Gehri-Bergman	Sandra	not provided	N/A	Web-based Comments	51372	34
Gehri-Bergman	Sandra	not provided	N/A	Web-based Comments	28151	24
Gehring	Ann	gehringann@hotmail.com	N/A	Web-based comments	32060	N/A
Gehring	Patricia	not provided	N/A	Web-based Comments	51265	34
Gehris	Janine	not provided	N/A	Web-based Comments	16728	24
Geib	Nancy	not provided	N/A	Web-based Comments	24863	24
Geier	Eric	not provided	N/A	Web-based Comments	14106	24
Geier	Terry	not provided	N/A	Web-based Comments	30369	24
Geiger	John	not provided	N/A	Web-based Comments	47465, 47466	34
Geiger	Melinda	not provided	N/A	Web-based Comments	23864	24
Geise	Ann	not provided	N/A	Web-based Comments	8038	24
Geiser	Caleb	not provided	N/A	Web-based Comments	9719	24
Geiser	Gary	mosiah4@gmail.com	N/A	Web-based comments	3266	13
Geist	David	not provided	N/A	Web-based Comments	12014	24
Geist	Sandra	not provided	N/A	Web-based Comments	28152	24
Gelabert	Alicia	not provided	N/A	Web-based Comments	7379	24
Gelbart	Susannah	gelbartsusannah@yahoo.com	N/A	Web-based comments	2617	1
Gelbart	Susannah	not provided	N/A	Web-based Comments	44510	34
Gelbart	Susannah	not provided	N/A	Web-based Comments	29945	24
Gelber	Marjorie	not provided	N/A	Web-based Comments	22878	24
Gelfer	Michael	not provided	N/A	Web-based Comments	24091	24
Gelhard	Kate	not provided	N/A	Web-based Comments	53636	34
Gelhard	Kate	not provided	N/A	Web-based Comments	19378	24
Gelhaus	Jennifer	not provided	N/A	Web-based comments	57167	35
Gelin	James Alec	not provided	N/A	Web-based Comments	16341	24
Gelina	Al	not provided	N/A	Web-based Comments	7145	24
Gell	Denise	not provided	N/A	Web-based Comments	12639	24
Geller	Barbara	not provided	N/A	Web-based Comments	8680	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Gellman	Jacob	gellman@bren.ucsb.edu	N/A	Web-based comments	2912	N/A
Geloran	Anne	not provided	N/A	Web-based Comments	8197	24
Gem	Alice	not provided	N/A	Web-based Comments	7341	24
Genandt	Judy	not provided	N/A	Web-based Comments	48236	34
GENASCI	Elaine	not provided	N/A	Web-based Comments	56243	34
Genasci	Elaine	not provided	N/A	Web-based Comments	13588	24
Genaze	Matthew	not provided	N/A	Web-based Comments	50301, 50302	34
Gendron	Bob	not provided	N/A	Web-based Comments	9236	24
Gendron	Bob	not provided	N/A	Web-based Comments	9237	24
Gendvil	Derek	not provided	N/A	Web-based Comments	12719	24
Gendvil	Derek	not provided	N/A	Web-based Comments	57939	16
Genest	Karen	not provided	N/A	Web-based Comments	19103	24
Genet	Staci	not provided	N/A	Web-based Comments	29126	24
Genevich	Genny	not provided	N/A	Web-based Comments	14870	24
Gengo	Julie	not provided	N/A	Web-based Comments	55715	34
Gengo	Julie	not provided	N/A	Web-based Comments	18833	24
Gengo	Lisa	not provided	N/A	Web-based Comments	21558	24
Gennarelli	Jesse	not provided	N/A	Web-based Comments	17390	24
Gennaro	Margaret	not provided	N/A	Web-based Comments	22453	24
Geno	Debbie	not provided	N/A	Web-based Comments	46361	34
Genone	Sherryl	not provided	N/A	Web-based Comments	28915	24
Genosar Roth	Liat	not provided	N/A	Web-based Comments	21143	24
Genovese	Dianna	not provided	N/A	Web-based Comments	12927	24
Genovese	Laura	not provided	N/A	Web-based Comments	46081	34
Gentes	Amy	not provided	N/A	Web-based Comments	46800, 46801	34
Gentes	Kim	not provided	N/A	Web-based Comments	20177	24
Gentes	Mija	not provided	N/A	Web-based Comments	24423	24
Gentile	Allison	not provided	N/A	Web-based Comments	51654	34
Gentile	Andrea	not provided	N/A	Web-based Comments	7745	24
Gentile	Diane	not provided	N/A	Web-based Comments	52277	34
Gentili-Lloyd	Mika	not provided	N/A	Web-based Comments	52360	34
Gentili-Lloyd	Mika	not provided	N/A	Web-based Comments	24425	24
Gentleman	Bridget	not provided	N/A	Web-based Comments	9537	24
Gentry	Don	not provided	N/A	Web-based Comments	13020	24
Gentry	Emery	emerywgentry@gmail.com	N/A	Web-based comments	58849	N/A
Gentry	Julie	not provided	N/A	Web-based Comments	18834	24
Gentry	Rita	not provided	N/A	Web-based Comments	27138	24
Gentry	Rose	not provided	N/A	Web-based Comments	27719	24
Gentry	Sandra	not provided	N/A	Web-based Comments	54423	34
Gentry	Teresa	not provided	N/A	Web-based Comments	30272	24
Genualdi	David	degenualdi@gmail.com	N/A	Web-based comments	5663	N/A
Genuino	Jennifer	not provided	N/A	Web-based Comments	17189	24
Geoghegan	Shelagh	not provided	N/A	Web-based Comments	28819	24
Georganta	Angela	not provided	N/A	Web-based Comments	7903	24
George	Alan	not provided	N/A	Web-based Comments	7163	24
George	Debbie	not provided	N/A	Web-based Comments	12322	24
George	Elaine	not provided	N/A	Web-based Comments	13589	24
george	janelle	not provided	N/A	Web-based Comments	47075	34
George	Janelle	not provided	N/A	Web-based Comments	16557	24
George	Jeannette	not provided	N/A	Web-based Comments	16987	24
George	John	not provided	N/A	Web-based Comments	18026	24
George	Kevin	not provided	N/A	Web-based Comments	20105	24
George	Kim	not provided	N/A	Web-based Comments	47868, 47869	34
George	Kim	not provided	N/A	Web-based Comments	20178	24
George	Sharon	not provided	N/A	Web-based Comments	28655	24
George	Steven	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32323	29
George	Victoria	not provided	N/A	Web-based Comments	51399	34
Georgovska	Jasmina	not provided	N/A	Web-based Comments	16767	24
Geppert	Edward	not provided	N/A	Web-based Comments	13496	24
Geppert	Sharon	not provided	N/A	Web-based Comments	28656	24
Gerace	Sarah	not provided	N/A	Web-based Comments	28350	24
Geraci	Judith	not provided	N/A	Web-based Comments	50315, 51627	34
Geralds	Mary	not provided	N/A	Web-based Comments	23277	24
Gerard	Bryan	not provided	N/A	Web-based Comments	49891	34
Gerard	Ira	not provided	N/A	Web-based Comments	44305	34
Gerard	Ira	not provided	N/A	Web-based Comments	15888	24
Gerard	Sarah	not provided	N/A	Web-based comments	57704	35
Gerard-DiBenedetto	Ira	not provided	N/A	Web-based Comments	44304	34
Gerardy	Georgette	not provided	N/A	Web-based Comments	14930	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Geraud	Carmen	not provided	N/A	Web-based Comments	9868	24
Gerber	Balfour	not provided	N/A	Web-based Comments	8594	24
Gerber	Bryan	not provided	N/A	Web-based comments	5714	N/A
gerber	fredy	not provided	N/A	Web-based Comments	14600	24
Gerdes	Mike	mggerdes89@gmail.com	N/A	US Mail or commercial carrier (UPS, FedEx)	32293	N/A
Gerdes	Mike	mggerdes89@gmail.com	N/A	Web-based comments	4118	N/A
Gerdt	Audrey	not provided	N/A	Web-based Comments	8527	24
Gerecke	Harry	not provided	N/A	Web-based Comments	58441	34
Geretti	Erika	not provided	N/A	Web-based Comments	14193	24
Gergel	Inna	not provided	N/A	Web-based Comments	52859	34
Gergel	Inna	not provided	N/A	Web-based Comments	15884	24
Gergen	Nancy	not provided	N/A	Web-based Comments	24864	24
Gerhart	Sandra	not provided	N/A	Web-based Comments	48014	34
Gerich	Jocelyn	not provided	N/A	Web-based Comments	17837	24
Geringer	Aaron	not provided	N/A	Web-based Comments	6996	24
Gerke	David	not provided	N/A	Web-based Comments	51189	34
Gerken	Holly	not provided	N/A	Web-based comments	57123	35
Gerlach	Barbara	not provided	N/A	Web-based Comments	8681	24
Gerlach	Randy	not provided	N/A	Web-based Comments	26634	24
Gerlach	Trudy	not provided	N/A	Web-based Comments	30945	24
Gerlach	Valerie	not provided	N/A	Web-based Comments	31023	24
Gerling-Perez	Ally	not provided	N/A	Web-based Comments	7479	24
Germaine	Elissa	not provided	N/A	Web-based Comments	13695	24
GERMANN	RICHARD	not provided	N/A	Web-based Comments	26974	24
Germann	Ursula	not provided	N/A	Web-based Comments	30980	24
Germick	Marirose	not provided	N/A	Web-based Comments	22862	24
Gernes	Carole	not provided	N/A	Web-based Comments	10079	24
Gernsbacher	Sara	not provided	N/A	Web-based Comments	28291	24
Gerowe	Judith	not provided	N/A	Web-based Comments	18597	24
gerratana	carol	not provided	N/A	Web-based Comments	9932	24
Gerridge	David W.	not provided	N/A	Web-based Comments	12195	24
Gers	Deborah	not provided	N/A	Web-based Comments	12406	24
Gers	Olivier	not provided	N/A	Web-based Comments	25439	24
Gersh	Dr. Wayne	not provided	N/A	Web-based Comments	13371	24
Gershanoff	Mary	not provided	N/A	Web-based Comments	58369, 52206	28, 34
Gershanoff	Mary Dana	not provided	N/A	Web-based Comments	23516	24
Gershgorin	Aleksey	not provided	N/A	Web-based Comments	7233	24
Gershon	Victoria	not provided	N/A	Web-based Comments	51277	34
GERSHON	VICTORIA	not provided	N/A	Web-based Comments	51276	34
GERSHON	VICTORIA	not provided	N/A	Web-based Comments	31194	24
Gerstein	Philip	not provided	N/A	Web-based Comments	26337	24
Gertsch	Stephen	not provided	N/A	Web-based Comments	29291	24
Gertz	Michael	not provided	N/A	Web-based Comments	24092	24
Gervais	Deborah	not provided	N/A	Web-based Comments	45693	34
Gervais	Stacy	not provided	N/A	Web-based Comments	29137	24
gervase	matthew	mattgervase@yahoo.com	N/A	Web-based comments	4018	N/A
Gervich	Asa	asagervich@gmail.com	N/A	Web-based comments	32152	1
Gesner	Zen	not provided	N/A	Web-based Comments	31727	24
Getchell	Edward	not provided	N/A	Web-based Comments	13497	24
Getchell	Lynette	not provided	N/A	Web-based Comments	22037	24
Getter	Camile	not provided	N/A	Web-based Comments	9734	24
Gettins	Raymond	not provided	N/A	Web-based Comments	26688	24
Getton	Eloise	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	5581	N/A
Getty	Joseph	not provided	N/A	Web-based Comments	18361	24
Getz	Lynda	not provided	N/A	Web-based Comments	22018	24
Gevurtz	Tom	not provided	N/A	Web-based Comments	30752	24
Geyer	Kathy	not provided	N/A	Web-based Comments	19701	24
Geyer	Samuel	samuelcg@charter.net	N/A	US Mail or commercial carrier (UPS, FedEx)	32436	N/A
Geyman	Emily	not provided	N/A	Web-based Comments	14015	24
Gezelman	Barbara	not provided	N/A	Web-based Comments	8682	24
Gfrorer	John	not provided	N/A	Web-based Comments	18027	24
Ghaffari	Mehrnaz	not provided	N/A	Web-based Comments	23821	24
Ghani	Yanty	not provided	N/A	Web-based Comments	31655	24
Ghaznavi	Leila	not provided	N/A	Web-based Comments	20971	24
Gherardi	Lisa	not provided	N/A	Web-based Comments	46988	34
Gherardi	Lisa	not provided	N/A	Web-based Comments	21559	24
Gholz	Barbara	not provided	N/A	Web-based Comments	8683	24
Ghosh	Paela	paelaghosh@hotmail.com	N/A	Web-based comments	1209	N/A
Ghosh	Sudeshna	not provided	N/A	Web-based Comments	29506	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Ghostley	Stephen	not provided	N/A	Web-based Comments	55047	34
Giacalone	Toniann	not provided	N/A	Web-based Comments	30804	24
Giaccardo	Gina	not provided	N/A	Web-based Comments	54493	34
Gianakos	Mary	not provided	N/A	Web-based Comments	56063	34
Giancola	Cheryl	not provided	N/A	Web-based Comments	10638	24
Giangrossi	Diane	not provided	N/A	Web-based Comments	12841	24
Giannetti	Michelle	not provided	N/A	Web-based Comments	24345	24
Giannini	Christine	not provided	N/A	Web-based Comments	51851	34
Giannos	Lisa	not provided	N/A	Web-based Comments	21560	24
Gianotti	Lauriane	not provided	N/A	Web-based comments	56755	35
Giardina	Mark	not provided	N/A	Web-based Comments	22928	24
Giardini	Marilyn	not provided	N/A	Web-based Comments	22781	24
Giardino	Jackie	not provided	N/A	Web-based Comments	16063	24
Giardino	Mary	not provided	N/A	Web-based Comments	23278	24
Giardino	Pam	not provided	N/A	Web-based comments	57673	35
Gibb	Karen	not provided	N/A	Web-based Comments	19104	24
Gibb	Ken	not provided	N/A	Web-based comments	57347	35
Gibb	Ken	not provided	N/A	Web-based Comments	19973	24
Gibb	Kenneth	not provided	N/A	Web-based Comments	53707	34
Gibberman	Pamela	not provided	N/A	Web-based Comments	25549	24
Gibbons	Becky	not provided	N/A	Web-based Comments	8910	24
Gibbons	Brian	not provided	N/A	Web-based Comments	46738	34
Gibbons	Brian	not provided	N/A	Web-based Comments	9476	24
Gibbons	Diane	not provided	N/A	Web-based Comments	12842	24
Gibbons	Ronny	not provided	N/A	Web-based Comments	27692	24
Gibbs	Kathy	not provided	N/A	Web-based Comments	47013	34
Gibbs	Kathy	not provided	N/A	Web-based Comments	19702	24
Gibbs	Keri	not provided	N/A	Web-based Comments	20049	24
Gibler	Marisa	marisa.perdue@gmail.com	N/A	Web-based comments	2976	N/A
Giblin	Thomas	not provided	N/A	Web-based Comments	30496	24
gibson	amanda	manda890@hotmail.com	N/A	Web-based comments	1099	1
Gibson	Anna	not provided	N/A	Web-based Comments	8131	24
Gibson	Brian	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32402	13
gibson	cindy	not provided	N/A	Web-based Comments	11075	24
Gibson	David	not provided	N/A	Web-based Comments	12015	24
Gibson	Jody	not provided	N/A	Web-based Comments	53399	34
Gibson	Joe	not provided	N/A	Web-based Comments	17878	24
Gibson	Karla	not provided	N/A	Web-based Comments	19312	24
Gibson	Kayla	not provided	N/A	Web-based Comments	51250	34
Gibson	Lindsey	not provided	N/A	Web-based Comments	21494	24
Gibson	Lucia	not provided	N/A	Web-based Comments	21933	24
Gibson	Mary	not provided	N/A	Web-based Comments	23279	24
Gibson	Mary Jane	not provided	N/A	Web-based Comments	46330	34
Gibson	Michael	michaelj_gibson@yahoo.com	N/A	Web-based comments	32051	1
Gibson	Pete	not provided	N/A	Web-based Comments	26230	24
Gibson	Raymond	not provided	N/A	Web-based Comments	26689	24
Gibson	Richard	not provided	N/A	Web-based Comments	58248	16
Gibson	Scott	not provided	N/A	Web-based Comments	49114	34
Gibson	Stella	not provided	N/A	Web-based Comments	29183	24
Gibson	Thomas	gibson.thomas@gmail.com	N/A	Web-based comments	1340	N/A
Gick	David	not provided	N/A	Web-based Comments	12016	24
Gicquel	Romane	not provided	N/A	Web-based Comments	27609	24
Giddey	Claudine	not provided	N/A	Web-based Comments	11205	24
Giddings	Ms	amailbox@dbzmail.com	N/A	Web-based comments	1296	N/A
Giddings	Ray	rsjlmules@icloud.com	N/A	Web-based comments	58806	N/A
Giddy	Valerie	not provided	N/A	Web-based Comments	31024	24
Gieg	Anne	not provided	N/A	Web-based Comments	8198	24
Gieg	Doris	not provided	N/A	Web-based Comments	13230	24
Gielgens	Karen	not provided	N/A	Web-based Comments	53681	34
Giencke	Jill	not provided	N/A	Web-based Comments	48654	34
Gierlinger	Gertraud	not provided	N/A	Web-based Comments	15009	24
Giertych	Charlotte	not provided	N/A	Web-based Comments	10556	24
Gies	William	not provided	N/A	Web-based Comments	31538	24
Giesa	James	cougar.jim@charter.net	N/A	Web-based comments	4546	N/A
Giese	Mark M	not provided	N/A	Web-based Comments	49400, 49401	34
Giese	Mark M	not provided	N/A	Web-based Comments	23017	24
Giese	Sharon	not provided	N/A	Web-based comments	57010	35
Gieseking	Melissa	not provided	N/A	Web-based Comments	45390	34
Gieson	Leah	not provided	N/A	Web-based Comments	54305	34
Giethlen	Elisabeth	not provided	N/A	Web-based Comments	13677	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Gifford	Elizabeth	not provided	N/A	Web-based Comments	58625	34
Gifford	James	not provided	N/A	Web-based Comments	16218	24
Gifford	Jeff	not provided	N/A	Web-based Comments	17018	24
Gifford	Martha	not provided	N/A	Web-based Comments	23103	24
Giger	Lesley	not provided	N/A	Web-based Comments	21042	24
Giglio	Mary	not provided	N/A	Web-based Comments	23280	24
Giglione	Rebecca	Beckygiglione@gmail.com	N/A	Web-based comments	1349	2
Gigliotti	Robert E	not provided	N/A	Web-based Comments	27423	24
Giguere	Ed	not provided	N/A	Web-based Comments	13443	24
Gil	Leticia	not provided	N/A	Web-based Comments	21120	24
Gil	Sean	not provided	N/A	Web-based comments	56914	35
Gil	Sheila	not provided	N/A	Web-based Comments	28787	24
Gilarowski	Elizabeth	not provided	N/A	Web-based Comments	52923	34
Gilbank	Jessica	jessicagilbank@yahoo.ca	N/A	Web-based comments	944	N/A
Gilbert	Camille	not provided	N/A	Web-based Comments	49084, 49146	34
Gilbert	Camille	not provided	N/A	Web-based Comments	9740	24
Gilbert	Diana	not provided	N/A	Web-based Comments	51373	34
Gilbert	James	not provided	N/A	Web-based Comments	16219	24
Gilbert	Jennifer	not provided	N/A	Web-based Comments	51754, 51755	34
GILBERT	JO	not provided	N/A	Web-based Comments	17646	24
Gilbert	Katherine	not provided	N/A	Web-based Comments	19448	24
Gilbert	Mary	not provided	N/A	Web-based Comments	23281	24
Gilbert	Sandra	not provided	N/A	Web-based Comments	28153	24
Gilbert	Tracy	not provided	N/A	Web-based Comments	52444	34
Gilberti	Kristin	not provided	N/A	Web-based Comments	20375	24
Gilbertson	Caitlin	not provided	N/A	Web-based comments	5439	1
Gilbert-Stemp	Fiona	not provided	N/A	Web-based Comments	49737	34
Gilchrist	Amber	not provided	N/A	Web-based Comments	44904	34
Gilchrist	Amber	not provided	N/A	Web-based Comments	7569	24
Gilchrist	Cheryl	not provided	N/A	Web-based Comments	10639	24
Gilden	Jerry	not provided	N/A	Web-based Comments	17352	24
Gile	Deborah	deborah.gile@gmail.com	N/A	Web-based comments	4016	N/A
Giles	Al	not provided	N/A	Web-based Comments	7146	24
Giles	C	not provided	N/A	Web-based Comments	54000	34
Giles	C	not provided	N/A	Web-based Comments	9672	24
Giles	Deborah	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	5598	N/A
Giles	Dr.	not provided	N/A	Web-based comments	6879	N/A
Giles	Dr.	not provided	N/A	Web-based comments	6665*	23
Giles	James	not provided	N/A	Web-based Comments	46595	34
Giles	Karen	not provided	N/A	Web-based Comments	19105	24
Giles	Krystina	not provided	N/A	Web-based Comments	20431	24
Giles	Michael	not provided	N/A	Web-based Comments	24093	24
Giles	Monte	mgiles@vcn.com	N/A	Web-based comments	4165	N/A
Giles	Sharon	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58773	N/A
Gilfillan	Natalie	not provided	N/A	Web-based Comments	25063	24
GILGEN	HANS	not provided	N/A	Web-based Comments	15426	24
Gilges	Peggy	not provided	N/A	Web-based Comments	50410, 52712	34
Gilgoff	Nancy	not provided	N/A	Web-based Comments	55840	34
Gilhart	Bonita	not provided	N/A	Web-based Comments	9278	24
Gili	Marga	not provided	N/A	Web-based Comments	22423	24
Giliam	Ros	not provided	N/A	Web-based Comments	27694	24
Giliberti	Frank	not provided	N/A	Web-based Comments	51533	34
Giliberti	Frank	not provided	N/A	Web-based Comments	14530	24
Gililland	Keely	not provided	N/A	Web-based Comments	50331, 52073, 52074, 52075	34
Gililland	Keely	not provided	N/A	Web-based Comments	19861	24
Gill	Gail	not provided	N/A	Web-based Comments	14687	24
Gill	June	not provided	N/A	Web-based Comments	46533	34
Gillenwater	Michael	mwgillenwater@gmail.com	N/A	Web-based comments	4416	19
Gilleo	Anita	not provided	N/A	Web-based Comments	7972	24
Gillespie	Bob	not provided	N/A	Web-based Comments	53387	34
Gillespie	Heather	not provided	N/A	Web-based Comments	15507	24
Gillespie	Heather	not provided	N/A	Web-based Comments	15508	24
Gillespie	Ian	not provided	N/A	Web-based Comments	53612	34
Gillespie	Jean	not provided	N/A	Web-based Comments	16847	24
Gillespie	Matthew	not provided	N/A	Web-based Comments	23647	24
Gillespie MD	Agnes	not provided	N/A	Web-based Comments	7116	24
Gillespy	Nicole	not provided	N/A	Web-based Comments	25235	24
Gillett	Julia	not provided	N/A	Web-based Comments	18754	24
Gillett	Tom	not provided	N/A	Web-based comments	4388	N/A

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Gillette	J	not provided	N/A	Web-based Comments	15974	24
Gillette	Sally	not provided	N/A	Web-based Comments	28011	24
Gillette	Terri	not provided	N/A	Web-based Comments	30332	24
Gillette-Wenner	Cynthia	not provided	N/A	Web-based Comments	11513	24
Gillick	Bernadette	not provided	N/A	Web-based Comments	44401	34
Gilligan	Ainslie	not provided	N/A	Web-based Comments	7138	24
Gilligan	Michael	not provided	N/A	Web-based Comments	24094	24
Gilliland	Pat	not provided	N/A	Web-based Comments	25653	24
Gillin	Brian	not provided	N/A	Web-based Comments	9477	24
Gillis	Claudia	not provided	N/A	Web-based Comments	11182	24
Gillis	Destinee	not provided	N/A	Web-based Comments	12734	24
Gillis	Jonathan	not provided	N/A	Web-based Comments	18283	24
Gillis	Patricia	not provided	N/A	Web-based Comments	45726	34
Gillis	Patricia	not provided	N/A	Web-based Comments	25762	24
Gillson	Eileene	not provided	N/A	Web-based Comments	46187	34
Gillson	Eileene	not provided	N/A	Web-based Comments	13562	24
Gilman	Alexis	not provided	N/A	Web-based Comments	7307	24
Gilman	Hilda	not provided	N/A	Web-based Comments	49765	34
Gilman	Hilda	not provided	N/A	Web-based Comments	15708	24
Gilman	Monica	not provided	N/A	Web-based Comments	50219	34
Gilman	Monica	not provided	N/A	Web-based Comments	24626	24
Gilman	Scott	not provided	N/A	Web-based Comments	44624	34
Gilmartin	Carolann	not provided	N/A	Web-based Comments	10066	24
Gilmore	Lorraine	not provided	N/A	Web-based Comments	46137	34
Gilmore	Maurine	not provided	N/A	Web-based Comments	52233, 52234	34
Gilmore	Ruthy	not provided	N/A	Web-based Comments	27900	24
Gilmore	Sarah	not provided	N/A	Web-based Comments	28351	24
Gilmore	Susan	not provided	N/A	Web-based Comments	29683	24
Gilmore	Thomas	tgilmore66@comcast.net	N/A	Web-based comments	343, 2291	3
Gilmour	Dori	dluzzogilmour@gmail.com	N/A	Web-based comments	4057	N/A
gilmour	Elijah	elijahgilmour11@gmail.com	N/A	Web-based comments	4084	N/A
Gilson	Skip	not provided	N/A	Web-based Comments	48045	34
gimbel	larry	not provided	N/A	Web-based Comments	44316	34
Gimenez	Jorgelia	not provided	N/A	Web-based Comments	18330	24
Gimre	Anita	not provided	N/A	Web-based Comments	7973	24
gina	gina	not provided	N/A	Web-based Comments	52057, 52058	34
Gindele	Abigail	not provided	N/A	Web-based Comments	54169, 54170	34
Gindele	Abigail	not provided	N/A	Web-based Comments	7020	24
Gindt	Jennifer	not provided	N/A	Web-based Comments	17190	24
Gindt	Jennifer	not provided	N/A	Web-based Comments	57895	16
Ginepro	Janet	not provided	N/A	Web-based Comments	51923, 51924	34
Ginepro	Janet	not provided	N/A	Web-based Comments	16598	24
Gingold	Arielle	not provided	N/A	Web-based Comments	8415	24
Gingras	Brian	not provided	N/A	Web-based Comments	9478	24
Giniewicz	Deborah	not provided	N/A	Web-based Comments	12407	24
Ginn	Audrey	not provided	N/A	Web-based Comments	8528	24
Ginn	Sedgie	combopipey@gmail.com	N/A	Web-based comments	2647*	N/A
Ginna	Ken	lagergren@cs.com	N/A	Web-based comments	6620	N/A
Ginter	Gene	not provided	N/A	Web-based Comments	14849	24
Ginther	John	not provided	N/A	Web-based Comments	18028	24
Gioannini	Larry	not provided	N/A	Web-based Comments	20578	24
Gioia	Linda	not provided	N/A	Web-based Comments	21276	24
Gioia	Mark	not provided	N/A	Web-based Comments	22929	24
Giordani	Mark	not provided	N/A	Web-based Comments	22930	24
Giordano	Joe	not provided	N/A	Web-based Comments	17879	24
Giorgi-spore	Rainie	raindropgd@gmail.com	N/A	Web-based comments	5494	1
Giovanazzi	Lisa	not provided	N/A	Web-based Comments	21561	24
Giovanetti	M	not provided	N/A	Web-based Comments	22174	24
Giovenco	Samantha	not provided	N/A	Web-based Comments	28074	24
Giovengo	Patrick	not provided	N/A	Web-based Comments	25905	24
Girard	Anne Marie	not provided	N/A	Web-based Comments	56083	34
Girard	Jennifer	not provided	N/A	Web-based Comments	17191	24
Girard	Mary	not provided	N/A	Web-based Comments	49642, 49643	34
Girard	Noemie	keena.a.f@gmail.com	N/A	Web-based comments	663	1
Girgenti	Lisa	not provided	N/A	Web-based Comments	21562	24
Girman	Jule	not provided	N/A	Web-based Comments	18734	24
Giroday	Francois De La	not provided	N/A	Web-based Comments	53415	34
gironzi	ricardo	not provided	N/A	Web-based Comments	26918	24
giroux	denise	not provided	N/A	Web-based Comments	12640	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
GIRTS	PLATACIS	not provided	N/A	Web-based Comments	26423	24
Giseburt	Katherine	katiemgiseburt@gmail.com	N/A	Web-based comments	5766	1
Gish	Edith	not provided	N/A	Web-based Comments	44707	34
Gish	Edith	not provided	N/A	Web-based Comments	13468	24
Gisi	Dennis	dgisi@johnlscott.com	N/A	Web-based comments	2797	N/A
Gitlitz	Paul	not provided	N/A	Web-based Comments	25994	24
Gitman	Samantha	not provided	N/A	Web-based Comments	55492	34
Gitner	Michael	not provided	N/A	Web-based Comments	24095	24
Gitschier	Jennifer	not provided	N/A	Web-based Comments	46774	34
Gitschier	Jennifer	not provided	N/A	Web-based Comments	17192	24
Giuffre	Christian	not provided	N/A	Web-based Comments	10825	24
Giuliani	Nancy	not provided	N/A	Web-based Comments	24865	24
Giustina	Angie	not provided	N/A	Web-based Comments	7953	24
Giwer	Phyllis	not provided	N/A	Web-based Comments	26388	24
Glaccum	Ellen	not provided	N/A	Web-based Comments	58187	16
Gladfelter	Donald	not provided	N/A	Web-based Comments	13063	24
Gladstone	Ann	not provided	N/A	Web-based Comments	8039	24
Gladstone	Leslie	not provided	N/A	Web-based Comments	45031	34
Glaeske	Lynne	not provided	N/A	Web-based Comments	50590	34
Glaeske	Lynne	not provided	N/A	Web-based Comments	22133	24
Glahn	Catherine	not provided	N/A	Web-based Comments	10278	24
Glancy	Jo	not provided	N/A	Web-based Comments	17647	24
Glans	Marilyn	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32408	13
Glantz	Marcy	not provided	N/A	Web-based Comments	46717	34
Glarum	Susan	not provided	N/A	Web-based Comments	55845	34
Glarum	Susan	not provided	N/A	Web-based Comments	29684	24
Glaser	Kirk	not provided	N/A	Web-based Comments	20269	24
Glaser-Kleier	Diane	not provided	N/A	Web-based Comments	12843	24
Glasgow	Tate	not provided	N/A	Web-based comments	57327	35
Glasman	Wayne	not provided	N/A	Web-based Comments	31393	24
glass	alli	not provided	N/A	Web-based Comments	7452	24
Glass	Jack	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4715	N/A
Glass	Jennifer	not provided	N/A	Web-based Comments	17193	24
Glass	Jonathan	not provided	N/A	Web-based Comments	18284	24
Glass	Jordan	not provided	N/A	Web-based Comments	18317	24
Glass	Perri	not provided	N/A	Web-based Comments	49691	34
Glass	Roxanne	not provided	N/A	Web-based Comments	27801	24
Glasscock	Rita	not provided	N/A	Web-based Comments	54792, 54793	34
Glasscock	Rita	not provided	N/A	Web-based Comments	27139	24
Glasser	Joan	not provided	N/A	Web-based Comments	17682	24
Glasser	Tanya	not provided	N/A	Web-based Comments	48437	34
Glasser	Tanya	not provided	N/A	Web-based Comments	30184	24
Glassgold	Eric	not provided	N/A	Web-based Comments	14107	24
Glassman	Jean	not provided	N/A	Web-based Comments	49558	34
Glassman	Terrence	not provided	N/A	Web-based Comments	30323	24
Glaston	Joe	not provided	N/A	Web-based Comments	44271, 48700	34
Glaston	Joe	not provided	N/A	Web-based Comments	17880	24
Glatleider	Jack	not provided	N/A	Web-based comments	57319	35
Glatt	Stephanie	not provided	N/A	Web-based Comments	46049	34
Glatt	Susi	not provided	N/A	Web-based Comments	29956	24
Glauser	Valerie	not provided	N/A	Web-based Comments	31025	24
Glavina	Vesna	not provided	N/A	Web-based Comments	45417	34
Glaze	Roberta	not provided	N/A	Web-based Comments	48038	34
Glaze	Roberta	not provided	N/A	Web-based Comments	27433	24
Glazer	Jeffrey	not provided	N/A	Web-based Comments	17078	24
Glazer	Jeremiah	not provided	N/A	Web-based Comments	17307	24
Glazer	Lisa Braun	not provided	N/A	Web-based Comments	21661	24
Glazier	Mark	not provided	N/A	Web-based Comments	22931	24
Gleason	Alicia	not provided	N/A	Web-based comments	6234	1
Gleason	Carrie	not provided	N/A	Web-based Comments	47866	34
Gleason	Carrie	not provided	N/A	Web-based Comments	10198	24
Gleason	Debra	not provided	N/A	Web-based Comments	12520	24
gleason	elaine	not provided	N/A	Web-based Comments	13590	24
Gleason	Karen	not provided	N/A	Web-based Comments	55394	34
Glebs	JOHN	not provided	N/A	Web-based Comments	18029	24
Gledhill	Doug	not provided	N/A	Web-based Comments	44853, 44854, 44855	34
Gleed	Andrew	not provided	N/A	Web-based comments	57491	35
Gleeson	Norma	not provided	N/A	Web-based Comments	25382	24
Gleim	Nancy	not provided	N/A	Web-based Comments	24866	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Glein	Susan	not provided	N/A	Web-based Comments	29685	24
Glenda	Jerry	contactjwh@mac.com	N/A	Web-based comments	2127	N/A
Glendenning	Michael	not provided	N/A	Web-based Comments	24096	24
Glenn	Ann	not provided	N/A	Web-based Comments	58414	34
Glenn	Don	not provided	N/A	Web-based Comments	13021	24
Glenn	Gail	not provided	N/A	Web-based Comments	58280	16
Glenn	Jerry	not provided	N/A	Web-based Comments	17353	24
Glenn	Laura	not provided	N/A	Web-based Comments	45152, 45153	34
glenn	laura	not provided	N/A	Web-based Comments	20643	24
Glenn	Lewis	not provided	N/A	Web-based Comments	21128	24
Glenn	Shannon	not provided	N/A	Web-based Comments	44586	34
Glenn	Toni	not provided	N/A	Web-based Comments	54967	34
glenney	christopher	cglenney@hotmail.com	N/A	Web-based comments	31801	N/A
Glesener	Fred	gliffx@gmail.com	N/A	Web-based comments	4374	N/A
Glessner	David	v10dlg@yahoo.com	N/A	Web-based comments	5511	N/A
Glessner	David	v10dlg@yahoo.com	N/A	US Mail or commercial carrier (UPS, FedEx)	58796	N/A
Glessner	Wayne	wayneglessnersr@gmail.com	N/A	Web-based comments	5496	N/A
Glew	Katherine	not provided	N/A	Web-based Comments	19449	24
Gley	Debra	not provided	N/A	Web-based Comments	12521	24
Glick	Allan	not provided	N/A	Web-based Comments	7434	24
Glick	Julie	not provided	N/A	Web-based Comments	44944	34
Glick	Julie	not provided	N/A	Web-based Comments	18835	24
Glidden	Daniel	not provided	N/A	Web-based Comments	11737	24
Glidden	Janet	not provided	N/A	Web-based Comments	16599	24
Gligorijevic	Vera	not provided	N/A	Web-based Comments	31084	24
Glinden	Desiree	not provided	N/A	Web-based Comments	12729	24
Glinkman	Paula	not provided	N/A	Web-based Comments	50984	34
Glinski	Richard	not provided	N/A	Web-based Comments	56548, 56549	34
Glinski	Richard	not provided	N/A	Web-based Comments	26975	24
Glise	Lillian	sayward.glise@gmail.com	N/A	Web-based comments	207	N/A
Gliva	Stephen	not provided	N/A	Web-based Comments	29292	24
Glixman	Diana	not provided	N/A	Web-based Comments	53061	34
Glogovsky	Rachael	not provided	N/A	Web-based Comments	45963, 45964	34
Glogovsky	Rachael	not provided	N/A	Web-based Comments	26500	24
Gloor	James	not provided	N/A	Web-based Comments	16220	24
Gloor	Prisca	not provided	N/A	Web-based Comments	26440	24
Glore	Constance	not provided	N/A	Web-based Comments	11337	24
Glosser	Susan	not provided	N/A	Web-based Comments	29686	24
Gloster	Mary	not provided	N/A	Web-based Comments	23282	24
glover	edwin	not provided	N/A	Web-based Comments	13525	24
Glover	Jeanne	not provided	N/A	Web-based Comments	16948	24
Glover	Julie	not provided	N/A	Web-based Comments	57826	34
Glover	Linda	not provided	N/A	Web-based Comments	21277	24
Glowczenski	Gail	not provided	N/A	Web-based Comments	14688	24
Gluck	Erma	not provided	N/A	Web-based Comments	14245	24
gluckman	geoff	not provided	N/A	Web-based Comments	53665	34
Glyde	Jacqueline	not provided	N/A	Web-based Comments	55883, 55884	34
Glynn	Aileen	not provided	N/A	Web-based Comments	7128	24
Glynn	Barbara	not provided	N/A	Web-based Comments	56436	34
Glynn	Nancy	not provided	N/A	Web-based Comments	24867	24
Gnagni	Rudy	rudy.gnagni@orange.fr	N/A	Web-based comments	514	N/A
Gnanadesikan	Gitanjali	not provided	N/A	Web-based Comments	15101	24
Gnemi	Irene	not provided	N/A	Web-based Comments	44487	34
Gnemi	Irene	not provided	N/A	Web-based Comments	15902	24
Goade	Jennifer	not provided	N/A	Web-based Comments	54444, 54445, 54446	34
Goade Shelton	Madison	not provided	N/A	Web-based Comments	22251	24
Goasdoue	Alexander	not provided	N/A	Web-based Comments	7265	24
Goble	Anna	not provided	N/A	Web-based Comments	56353	34
Goble	Anna	not provided	N/A	Web-based Comments	8132	24
Gocek	Agnieszka	not provided	N/A	Web-based Comments	44431, 44432	34
gockowski	marilyn	not provided	N/A	Web-based Comments	22782	24
Godbey	Maria	not provided	N/A	Web-based Comments	22601	24
Godbey	Vivian	not provided	N/A	Web-based Comments	31316	24
Goddard	Elizabeth	not provided	N/A	Web-based Comments	13744	24
Goden	Gay	not provided	N/A	Web-based Comments	14818	24
Godfrey	Tim	not provided	N/A	Web-based Comments	54033	34
Godfrey	Will	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	4245, 32292	N/A
Godich	Marcia	not provided	N/A	Web-based Comments	22368	24
Godin	Eric	not provided	N/A	Web-based Comments	14108	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Godinez	Barbara	not provided	N/A	Web-based Comments	8684	24
Godlewski	Alison	alisongodlewski@gmail.com	N/A	Web-based comments	3327	N/A
Godlewski	Bryan	not provided	N/A	Web-based comments	4037	N/A
Godley	AD	not provided	N/A	Web-based Comments	49100	34
Godmilow	Jill	not provided	N/A	Web-based Comments	51056	34
Godshall	Daniel	not provided	N/A	Web-based Comments	46434, 46435	34
Godshall	Daniel	not provided	N/A	Web-based Comments	11738	24
Godwin	D	not provided	N/A	Web-based Comments	11578	24
Godwin	Donald	not provided	N/A	Web-based comments	57342	35
Godwin	Melissa	not provided	N/A	Web-based comments	57343	35
Godwin	N Nadine	not provided	N/A	Web-based Comments	50128	34
Godwin	Nadine	not provided	N/A	Web-based Comments	51402	34
Godwin	Nadine	not provided	N/A	Web-based Comments	24761, 24762	24
Goeden	Margaret	not provided	N/A	Web-based Comments	22454	24
Goedhals	Antony	not provided	N/A	Web-based Comments	8372	24
Goehring	Michael	not provided	N/A	Web-based Comments	24097	24
Goeken	Murlin	not provided	N/A	Web-based Comments	49454	34
Goeken	Murlin	not provided	N/A	Web-based Comments	24701	24
Goell	William	not provided	N/A	Web-based comments	57235	35
Goell	William	not provided	N/A	Web-based Comments	44680	34
Goell	William	not provided	N/A	Web-based Comments	31539	24
Goeller	Rosemary	not provided	N/A	Web-based Comments	27761	24
Goetinck	Glenys	not provided	N/A	Web-based Comments	50246	34
Goetinck	Jean	not provided	N/A	Web-based Comments	16848	24
Goetschius	Carol	not provided	N/A	Web-based Comments	44658	34
Goetschius	Lascinda	not provided	N/A	Web-based Comments	53358, 53359	34
Goettling	Sandra	not provided	N/A	Web-based Comments	55875	34
Goetz	Al	lgtz51@gmail.com	N/A	Web-based comments	31893	8
Goetz	Gary	not provided	N/A	Web-based Comments	47886, 47887	34
Goetz	Gary	not provided	N/A	Web-based Comments	14766	24
Goetz	John	not provided	N/A	Web-based Comments	52050	34
Goetz	Lisa	not provided	N/A	Web-based Comments	54614	34
Goetz	Paulette	not provided	N/A	Web-based Comments	26111	24
Goff	Cathy	not provided	N/A	Web-based Comments	45065	34
Goff	Frances	not provided	N/A	Web-based Comments	44892	34
Goff	Gene	not provided	N/A	Web-based Comments	14850	24
Goff	Henry	not provided	N/A	Web-based Comments	45286	34
Goff	Henry	not provided	N/A	Web-based Comments	15664	24
Goff	Laurie	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4259	N/A
Goforth	Tim	tkgoforth@icloud.com	N/A	Web-based comments	2064	N/A
Goggin	Lewisa	not provided	N/A	Web-based comments	57728	35
Gogic	Laurie	laurie.gogic@frontier.com	N/A	Web-based comments	6654	N/A
Gogitsch	Lori	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	5599	N/A
Gogolewski	John	not provided	N/A	Web-based Comments	48347	34
Goheen	Bob	not provided	N/A	Web-based Comments	9238	24
Goin	Cody	not provided	N/A	Web-based Comments	53056, 53057	34
Goin	Cody	not provided	N/A	Web-based Comments	11237	24
Goin	Lynda	not provided	N/A	Web-based Comments	58201	16
Golata	Grace	not provided	N/A	Web-based Comments	15190	24
Gold	Don	not provided	N/A	Web-based Comments	13022	24
Gold	Ferne	not provided	N/A	Web-based Comments	14427	24
gold	jeanette	not provided	N/A	Web-based Comments	16911	24
Gold	Jeff	not provided	N/A	Web-based Comments	17019	24
Gold	Leslie	not provided	N/A	Web-based Comments	21067	24
Gold	Michael	not provided	N/A	Web-based Comments	24098	24
Gold	Paul &	not provided	N/A	Web-based Comments	26064	24
gold	Raelene	raelene@seanet.com	N/A	Web-based comments	6386	N/A
Gold	Ron	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	5547	N/A
Gold	Sandra	not provided	N/A	Web-based Comments	54001	34
Gold	Sandra	not provided	N/A	Web-based Comments	28154	24
Gold	Stacy	not provided	N/A	Web-based Comments	49256, 58421	34
Gold	Stephen	not provided	N/A	Web-based Comments	29293	24
Gold	Vivian	not provided	N/A	Web-based Comments	31317	24
Gold	W	not provided	N/A	Web-based Comments	58449	34
Gold	Warren M.	not provided	N/A	Web-based Comments	31386	24
Gold	Wendy	not provided	N/A	Web-based Comments	31421	24
Goldbas	Cathy	not provided	N/A	Web-based Comments	10366	24
Goldberg	Anne	not provided	N/A	Web-based Comments	47994, 47995	34
Goldberg	Daniel	not provided	N/A	Web-based Comments	45440, 50576	34

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Goldberg	Denise	not provided	N/A	Web-based Comments	12641	24
Goldberg	Joy E.	not provided	N/A	Web-based Comments	18476	24
Goldberg	Lynn	not provided	N/A	Web-based Comments	22061	24
Goldberg	Miriam	not provided	N/A	Web-based Comments	24549	24
Goldberg	Rachel	not provided	N/A	Web-based Comments	26518	24
Goldberg	Susan	not provided	N/A	Web-based comments	57360	35
Goldberg	Susan	not provided	N/A	Web-based Comments	52597	34
Goldberg	Susan	not provided	N/A	Web-based Comments	29687	24
Goldberg	Vanessa	not provided	N/A	Web-based Comments	31065	24
Goldberger	norma	not provided	N/A	Web-based Comments	25383	24
Golden	Beverley	not provided	N/A	Web-based Comments	48638, 48639	34
Golden	Danny	draygolden@gmail.com	N/A	Web-based comments	2672	N/A
Golden	Gabe	not provided	N/A	Web-based Comments	14634	24
Golden	Jeanne	not provided	N/A	Web-based Comments	16949	24
Golden	Maureen	not provided	N/A	Web-based Comments	23691	24
Golden	Renate	not provided	N/A	Web-based Comments	26825	24
Golden	Susan	not provided	N/A	Web-based Comments	54689	34
Goldenberg	Helen	not provided	N/A	Web-based Comments	15609	24
Goldfarb	Barry	not provided	N/A	Web-based Comments	8862	24
Goldfarb	Georgia	not provided	N/A	Web-based Comments	45614	34
Goldhor	Susan	not provided	N/A	Web-based Comments	29688	24
Goldin	Jesse	not provided	N/A	Web-based Comments	17391	24
Golding	Brian	not provided	N/A	Web-based Comments	9479	24
Golding	Heather	not provided	N/A	Web-based Comments	15509	24
Golding	John	not provided	N/A	Web-based Comments	18030	24
Golding	Kelly	not provided	N/A	Web-based Comments	52803	34
Golding	William	not provided	N/A	Web-based Comments	58126, 54360	16, 34
Golding	William	willgolding92@yahoo.com	N/A	Web-based comments	989	3
Goldman	Brenda	not provided	N/A	Web-based Comments	9400	24
Goldman	Eleanor	not provided	N/A	Web-based Comments	13629	24
Goldman	Esti	not provided	N/A	Web-based Comments	14280	24
Goldman	Jane	not provided	N/A	Web-based Comments	16485	24
Goldman	Jill	not provided	N/A	Web-based Comments	45208	34
goldman	jill	not provided	N/A	Web-based Comments	17507	24
Goldman	Lisa	not provided	N/A	Web-based Comments	48001, 48063	34
Goldman	Lisa	not provided	N/A	Web-based Comments	21563	24
Goldman	Mark	not provided	N/A	Web-based Comments	22932	24
Goldman	Merle	not provided	N/A	Web-based Comments	23991	24
Goldner	Bonnie	not provided	N/A	Web-based Comments	9297	24
Goldsby	Tamara	not provided	N/A	Web-based Comments	30122	24
Goldschen	Stacy	not provided	N/A	Web-based Comments	45845	34
Goldsmid	Andrew	not provided	N/A	Web-based Comments	7815	24
Goldsmid	Paula And Charles	not provided	N/A	Web-based Comments	26108	24
Goldsmith	Arthur	not provided	N/A	Web-based Comments	8461	24
Goldsmith	Arthur	not provided	N/A	Web-based Comments	57889	16
Goldsmith	Charles	not provided	N/A	Web-based Comments	47196	34
Goldsmith	Dell	not provided	N/A	Web-based Comments	12605	24
Goldsmith	Ken	not provided	N/A	Web-based Comments	19974	24
Goldsmith	Phil	not provided	N/A	Web-based Comments	26321	24
Goldsmith	Tamara	not provided	N/A	Web-based Comments	30123	24
Goldstein	Allan	not provided	N/A	Web-based Comments	7435	24
GOLDSTEIN	DANIEL	not provided	N/A	Web-based Comments	11739	24
Goldstein	David	not provided	N/A	Web-based Comments	12017	24
Goldstein	James	not provided	N/A	Web-based Comments	16221	24
Goldstein	Jesse	not provided	N/A	Web-based Comments	17392	24
Goldstein	Jody	not provided	N/A	Web-based Comments	49289	34
Goldstein	Steven	not provided	N/A	Web-based Comments	29434	24
Goldstone	M	not provided	N/A	Web-based Comments	22175	24
Goldthwaite	Claire	not provided	N/A	Web-based Comments	11125	24
Golembiewski	Mark	not provided	N/A	Web-based Comments	22933	24
gollam	jinx	not provided	N/A	Web-based Comments	17629	24
Golley	Linda	not provided	N/A	Web-based Comments	52369	34
Golner	Patricia	not provided	N/A	Web-based Comments	25763	24
Gologorsky	Rebecca	not provided	N/A	Web-based Comments	26727	24
Golomb	Elan	not provided	N/A	Web-based Comments	13623	24
gols	robin	not provided	N/A	Web-based Comments	27482	24
Golston	Robin	not provided	N/A	Web-based Comments	27483	24
Goltz	Joe	not provided	N/A	Web-based Comments	54139	34
Gomes	Linda	gomes7055@gmail.com	N/A	Web-based comments	1210	N/A
Gomes	Susan	not provided	N/A	Web-based Comments	47476	34

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Gomes	Susan	not provided	N/A	Web-based Comments	29689	24
Gomez	Angela	not provided	N/A	Web-based comments	656	N/A
Gomez	Annette	not provided	N/A	Web-based Comments	8279	24
Gomez	Brenda	not provided	N/A	Web-based Comments	52474	34
Gomez	Deanna	not provided	N/A	Web-based Comments	12276	24
Gomez	Donna	dgomez5159@icloud.com	N/A	Web-based comments	31994	1
Gomez	Eleanor	not provided	N/A	Web-based Comments	13630	24
Gomez	Francisco	not provided	N/A	Web-based Comments	50118	34
Gomez	Haydee	not provided	N/A	Web-based Comments	15476	24
Gomez	Silvia	not provided	N/A	Web-based Comments	55979	34
Gomez	Silvia	not provided	N/A	Web-based Comments	29009	24
Gomez	Teresa	not provided	N/A	Web-based Comments	47313	34
Gomolka	John	not provided	N/A	Web-based Comments	18031	24
Gomoll	Terry	not provided	N/A	Web-based Comments	30370	24
goncalves	anita	not provided	N/A	Web-based Comments	7974	24
goncalves	Leandro	not provided	N/A	Web-based Comments	20911	24
goncarovs	sandy	not provided	N/A	Web-based Comments	49186	34
Gonce	Samuel	not provided	N/A	Web-based Comments	46878	34
Gonce	Samuel	not provided	N/A	Web-based Comments	28100	24
Gondelman	Robert	not provided	N/A	Web-based Comments	27272	24
Gondos	Nina	not provided	N/A	Web-based Comments	49064	34
Gonnerman	Mike	not provided	N/A	Web-based Comments	24455	24
Gonsalez	Chuck	cdgonsalez@msn.com	N/A	Web-based comments	5981	N/A
Gonsalves	Helder	not provided	N/A	Web-based Comments	15590	24
Gonta	Michael	not provided	N/A	Web-based Comments	24099	24
Gonterman Yoder	Kara	not provided	N/A	Web-based Comments	19021	24
Gonyea	Janell	not provided	N/A	Web-based Comments	47187	34
Gonyer	Pamela	not provided	N/A	Web-based Comments	25550	24
Gonzalez	Renaldo	not provided	N/A	Web-based Comments	26823	24
Gonzalez	Renaldo	not provided	N/A	Web-based Comments	50767, 53369	34
Gonzales	Alfred	not provided	N/A	Web-based Comments	7321	24
Gonzales	Ashlee	not provided	N/A	Web-based Comments	8476	24
Gonzales	Debbie	not provided	N/A	Web-based Comments	46957	34
Gonzales	Gaetane	not provided	N/A	Web-based Comments	45760	34
Gonzales	Gaetane	not provided	N/A	Web-based Comments	14662	24
Gonzales	Maria	not provided	N/A	Web-based Comments	52405	34
Gonzales	Mariah	not provided	N/A	Web-based Comments	22649	24
Gonzales	Wendy	not provided	N/A	Web-based Comments	31422	24
Gonzales Jr.	Frank	not provided	N/A	Web-based Comments	14531	24
Gonzalez	Adriana	not provided	N/A	Web-based Comments	7085	24
Gonzalez	Alan	not provided	N/A	Web-based Comments	51713, 51714	34
Gonzalez	Alexistori	not provided	N/A	Web-based Comments	54926	34
Gonzalez	Brenda	not provided	N/A	Web-based Comments	9401	24
Gonzalez	Claudia	not provided	N/A	Web-based Comments	11183	24
Gonzalez	Debra	not provided	N/A	Web-based Comments	12522	24
Gonzalez	Elisa	not provided	N/A	Web-based Comments	13670	24
Gonzalez	Elissa	eagonza3@gmail.com	N/A	Web-based comments	3706	1
Gonzalez	Gabriella	not provided	N/A	Web-based Comments	14650	24
GONZALEZ	HECTOR	hmgonzo@gmail.com	N/A	Web-based comments	5322, 2926	8
Gonzalez	Jacob	not provided	N/A	Web-based Comments	16086	24
Gonzalez	Joseph	not provided	N/A	Web-based Comments	18362	24
gonzalez	kayla	gonzalezkayla@msn.com	N/A	Web-based comments	32208	1
gonzalez	kristin	not provided	N/A	Web-based Comments	53331	34
Gonzalez	Leslie	not provided	N/A	Web-based Comments	21068	24
Gonzalez	Lizette	lizetteg1365@gmail.com	N/A	Web-based comments	1224	N/A
Gonzalez	Lynne	not provided	N/A	Web-based Comments	22134	24
Gonzalez	Marisa	not provided	N/A	Web-based Comments	46059, 46060	34
Gonzalez	Marisa	not provided	N/A	Web-based Comments	22865	24
Gonzalez	Mike	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4257, 4276	N/A
Gonzalez	Milena	not provided	N/A	Web-based Comments	24510	24
Gonzalez	Nancy	not provided	N/A	Web-based Comments	24868	24
Gonzalez	Rosa	not provided	N/A	Web-based Comments	27695	24
Gonzalez	Veronica	not provided	N/A	Web-based Comments	31098	24
Gonzalez	Yazmin	not provided	N/A	Web-based Comments	52167	34
Gonzalez	Yazmin	not provided	N/A	Web-based Comments	31661	24
Gonzalez-Green	Vanessa	not provided	N/A	Web-based Comments	47243	34
Gooch	Janet	not provided	N/A	Web-based Comments	16600	24
Gooch	Watson	not provided	N/A	Web-based Comments	31389	24
Good	A	not provided	N/A	Web-based Comments	6959	24
Good	Joe	not provided	N/A	Web-based Comments	17881	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Goode	Christopher	not provided	N/A	Web-based Comments	11011	24
Goode	Kate	not provided	N/A	Web-based Comments	19379	24
Goode	Teresa	not provided	N/A	Web-based Comments	30273	24
Goodfellow	Catherine	not provided	N/A	Web-based Comments	10279	24
Goodfellow	Nancy	not provided	N/A	Web-based Comments	24869	24
Goodhart	David	davegoodhart@msn.com	N/A	Web-based comments	31910	N/A
Goodhart	Linda	not provided	N/A	Web-based Comments	21278	24
Goodhue	Elizabeth	not provided	N/A	Web-based Comments	13745	24
Goodhue	Janet	not provided	N/A	Web-based Comments	16601	24
Goodin	Ben	not provided	N/A	Web-based Comments	8936	24
Goodin	Ben	not provided	N/A	Web-based Comments	58023	16
Goodin	Dale	not provided	N/A	Web-based Comments	53126	34
Goodin	Dale	not provided	N/A	Web-based Comments	11626	24
Gooding	Sharon	not provided	N/A	Web-based Comments	45842, 45843	34
Goodlander	Lisa	not provided	N/A	Web-based Comments	47785	34
Goodman	Beverly	not provided	N/A	Web-based Comments	9127	24
Goodman	Daisy	not provided	N/A	Web-based Comments	11620	24
Goodman	Ellen	not provided	N/A	Web-based Comments	45609	34
Goodman	Greg	not provided	N/A	Web-based Comments	15234	24
Goodman	Laney	not provided	N/A	Web-based Comments	20538	24
Goodman	Lorelle	not provided	N/A	Web-based Comments	21748	24
Goodman	Marilyn	not provided	N/A	Web-based Comments	22783	24
Goodman	Mark	not provided	N/A	Web-based Comments	22934	24
Goodman	Mary	not provided	N/A	Web-based Comments	23283	24
Goodman	Pamela	not provided	N/A	Web-based Comments	44459, 44460	34
Goodman	Pamela	not provided	N/A	Web-based Comments	25551	24
Goodman	Robert	not provided	N/A	Web-based Comments	27273	24
Goodrich	D'Arcy	not provided	N/A	Web-based Comments	55636	34
Goodrich	Jerry	not provided	N/A	Web-based Comments	17354	24
Goodrich	Kristen	not provided	N/A	Web-based comments	57137	35
Goodrich	Lisa	not provided	N/A	Web-based Comments	53733	34
Goodrich	Susan	not provided	N/A	Web-based comments	4050	N/A
goodridge	karen	not provided	N/A	Web-based Comments	19106	24
goodspeed	helen	not provided	N/A	Web-based Comments	15610	24
Goodstein	Christine	not provided	N/A	Web-based Comments	10923	24
Goodwin	Deborah	not provided	N/A	Web-based Comments	12408	24
Goodwin	Debra	not provided	N/A	Web-based Comments	49284	34
Goodwin	Emlyn	not provided	N/A	Web-based Comments	14053	24
Goodwin	Erica	not provided	N/A	Web-based Comments	45921, 45922	34
Goodwin	Evan	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58712	13
Goodwin	Greg	not provided	N/A	Web-based Comments	15235	24
Goodwin	Jerry	not provided	N/A	Web-based Comments	17355	24
Goodwin	lee	not provided	N/A	Web-based Comments	20931	24
Goodwin	Lisa	not provided	N/A	Web-based Comments	21564	24
Goodwin	Nancy	not provided	N/A	Web-based Comments	24870	24
Goodwin	Shaun	not provided	N/A	Web-based Comments	28740	24
Goodwin	Sonia	not provided	N/A	Web-based Comments	29060	24
Goodwin	Suzannah	not provided	N/A	Web-based comments	56904	35
Goodwin	Suzannah	not provided	N/A	Web-based Comments	29977	24
Goodwyn	Kahlil	not provided	N/A	Web-based Comments	18998	24
Goody	Jessica	not provided	N/A	Web-based Comments	48579	34
Goody	Jessica	not provided	N/A	Web-based Comments	17427	24
Goodykoont	Carrie	not provided	N/A	Web-based Comments	10199	24
Goor	Anita	not provided	N/A	Web-based Comments	7975	24
Goor	Jared	not provided	N/A	Web-based Comments	53406	34
Goos	Erika	not provided	N/A	Web-based Comments	14194	24
Goossens	Paul	not provided	N/A	Web-based Comments	25995	24
Goot	Yvette	not provided	N/A	Web-based Comments	54668	34
Goot	Yvette	not provided	N/A	Web-based Comments	31684	24
Goozee	Christina	not provided	N/A	Web-based Comments	51040	34
Goppert	Donald	not provided	N/A	Web-based Comments	50817, 56367	34
Gorak	Martha	not provided	N/A	Web-based Comments	23104	24
Goran	Susan	not provided	N/A	Web-based Comments	29690	24
Gorchels	Kay	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58711	N/A
Gordin	Patricia	not provided	N/A	Web-based Comments	25764	24
Gordon	Annette	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32555	N/A
Gordon	Ashley	not provided	N/A	Web-based comments	32202	1
Gordon	Bonnie	not provided	N/A	Web-based Comments	9298	24
Gordon	Carol	not provided	N/A	Web-based Comments	9933	24
Gordon	Cynthia	nyc2shop@gmail.com	N/A	Web-based comments	4612	N/A

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Gordon	David	not provided	N/A	Web-based comments	6134	N/A
Gordon	Delia	not provided	N/A	Web-based Comments	12600	24
Gordon	Edyne	not provided	N/A	Web-based Comments	13529	24
Gordon	Elizabeth	not provided	N/A	Web-based Comments	13746	24
Gordon	Elliot	not provided	N/A	Web-based Comments	13969	24
Gordon	Ingrid	not provided	N/A	Web-based Comments	15877	24
Gordon	J W	not provided	N/A	Web-based Comments	58166	16
gordon	jan	not provided	N/A	Web-based Comments	16399	24
gordon	jeffrey	not provided	N/A	Web-based Comments	17079	24
Gordon	Judith	not provided	N/A	Web-based Comments	18599	24
GORDON	JUDITH	not provided	N/A	Web-based Comments	18598	24
Gordon	June	not provided	N/A	Web-based Comments	18935	24
Gordon	Katalin	not provided	N/A	Web-based Comments	19357	24
Gordon	Lisa	not provided	N/A	Web-based Comments	21565	24
Gordon	Lonnie	not provided	N/A	Web-based Comments	50907	34
Gordon	Lynn	not provided	N/A	Web-based Comments	22062	24
Gordon	Marcia	not provided	N/A	Web-based Comments	22369	24
Gordon	Marion	not provided	N/A	Web-based Comments	22851	24
Gordon	Nancy	not provided	N/A	Web-based Comments	24871	24
Gordon	Patricia	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58770	N/A
Gordon	Peggy	not provided	N/A	Web-based Comments	26158	24
Gordon	Rinna	not provided	N/A	Web-based Comments	27121	24
Gordon	Rosalie	not provided	N/A	Web-based comments	3501	N/A
Gordon	Suzanne	not provided	N/A	Web-based Comments	29995	24
Gordon	Zena	not provided	N/A	Web-based comments	56900	35
Gordon-Pike	Cheryl	not provided	N/A	Web-based Comments	49800	34
Gordon-Pike	Cheryl	not provided	N/A	Web-based Comments	10640	24
Gordon-Watson	Lynne	not provided	N/A	Web-based Comments	22135	24
Gore	Duke	not provided	N/A	Web-based Comments	13385	24
Gore	James	Tealdux@hotmail.com	N/A	Web-based comments	2891	N/A
Gore	Jesse	not provided	N/A	Web-based Comments	17393	24
Gore	Robert	not provided	N/A	Web-based Comments	27274	24
Gorecki	Jean	not provided	N/A	Web-based Comments	16849	24
Gorelick	Dara	not provided	N/A	Web-based Comments	53401, 53402	34
Goren	Kim	not provided	N/A	Web-based Comments	20179	24
Gorham	Jody	not provided	N/A	Web-based Comments	17864	24
Gorman	Bonnie	not provided	N/A	Web-based Comments	9299	24
Gorman	Christina	not provided	N/A	Web-based Comments	10856	24
Gorman	David	not provided	N/A	Web-based Comments	12018	24
Gorman	Laura	not provided	N/A	Web-based Comments	20644	24
Gorman	Margaret	not provided	N/A	Web-based Comments	22455	24
Gorman	MJ	not provided	N/A	Web-based Comments	24578	24
Gorman	Robert	not provided	N/A	Web-based Comments	27275	24
Gorman	Shawna	not provided	N/A	Web-based Comments	28761	24
Gorman	Stacey	not provided	N/A	Web-based Comments	29112	24
Gorman	Stacey	Stacey.Gorman@sky.com	N/A	Web-based comments	6515	1
Gorrigan	Louse	not provided	N/A	Web-based Comments	21910	24
Gorrin	Joseph	not provided	N/A	Web-based Comments	18363	24
Gorsetman	Mark	not provided	N/A	Web-based Comments	50413	34
Gorsetman	Mark	not provided	N/A	Web-based Comments	22935	24
Gorski	Kevin	not provided	N/A	Web-based Comments	20106	24
Goscilo	Margaret	not provided	N/A	Web-based Comments	22456	24
Goslant	Carol	not provided	N/A	Web-based Comments	9934	24
Goslant	Clare	not provided	N/A	Web-based Comments	11161	24
Goslin	Diana	not provided	N/A	Web-based Comments	12768	24
Goslin	Linda	not provided	N/A	Web-based Comments	52063	34
Gosney	Clay	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58343	N/A
Gosney	William	not provided	N/A	Web-based Comments	31540	24
Goss	Alice	not provided	N/A	Web-based Comments	50270	34
Goss	Charles	not provided	N/A	Web-based Comments	10505	24
Goss	Phillip	not provided	N/A	Web-based Comments	26360	24
Gossard	Ben & Karen	not provided	N/A	Web-based Comments	8953	24
Gosse	Payton	not provided	N/A	Web-based Comments	26130	24
Gossens	Tristan	not provided	N/A	Web-based comments	2905	8
Gotaskie	Vickie	not provided	N/A	Web-based Comments	31157	24
Gotch	Dan	not provided	N/A	Web-based Comments	53902	34
Gotch	Dan	not provided	N/A	Web-based Comments	11656	24
Gotjen	Elizabeth	not provided	N/A	Web-based Comments	13747	24
Gottemoller	Peter	not provided	N/A	Web-based Comments	26252	24
Gottert	Abbie	not provided	N/A	Web-based comments	56741	35

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Gottesman	Judith	not provided	N/A	Web-based Comments	46372	34
Gottfried	Susan	not provided	N/A	Web-based Comments	50610, 50609	34
Gottfried	Susan	not provided	N/A	Web-based Comments	29691	24
Gottlieb	Ira	not provided	N/A	Web-based Comments	15889	24
Gottlieb	Jonathan	not provided	N/A	Web-based Comments	18285	24
Gottlieb	Marcus	not provided	N/A	Web-based Comments	55698	34
Gottlieb	Michael	not provided	N/A	Web-based Comments	24100	24
Gotts	James & Cynthia	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58794	N/A
Gottula	Eileen	gottula@frontier.com	N/A	Web-based comments	4863	N/A
Gotvald	Mark	not provided	N/A	Web-based Comments	22936	24
Goubert	Debrin	not provided	N/A	Web-based Comments	12566	24
Gough	Debbie	not provided	N/A	Web-based Comments	12323	24
Gough	Jason	not provided	N/A	Web-based Comments	16776	24
Gough	Lucy	not provided	N/A	Web-based Comments	21953	24
Gough	Roseanne	not provided	N/A	Web-based Comments	53993, 53994	34
Gough	Roseanne	not provided	N/A	Web-based Comments	27741	24
Goulart	Monica	not provided	N/A	Web-based Comments	24627	24
Gould	Burnham	not provided	N/A	Web-based Comments	9654	24
Gould	Catherine	not provided	N/A	Web-based Comments	55211	34
Gould	Franklin	not provided	N/A	Web-based Comments	14559	24
Gould	Hilary	not provided	N/A	Web-based Comments	15695	24
Gould	Jacqueline	not provided	N/A	Web-based Comments	48143	34
Gould	Jacqueline	not provided	N/A	Web-based Comments	16116	24
Gould	Kelly	not provided	N/A	Web-based Comments	19921	24
Gould	Leslie	not provided	N/A	Web-based Comments	21069	24
Gould	Marian	not provided	N/A	Web-based Comments	22656	24
Gould	Mel	not provided	N/A	Web-based Comments	23825	24
Gould	Steve & Nancy	not provided	N/A	Web-based Comments	29416	24
Goulden	Jeff	not provided	N/A	Web-based Comments	17020	24
Goulden	Julia	not provided	N/A	Web-based comments	57706	35
Gould-Martin	Katherine	not provided	N/A	Web-based Comments	48738	34
Gould-Martin	Katherine	not provided	N/A	Web-based Comments	19450	24
Goulet	Michel	not provided	N/A	Web-based Comments	24271	24
Goulet	Stephanie	not provided	N/A	Web-based Comments	29215	24
Gounaris	Stacy	not provided	N/A	Web-based Comments	46836	34
Goundrey	Sandra	not provided	N/A	Web-based Comments	51278, 51279	34
Gourley	Steven	not provided	N/A	Web-based comments	57136	35
Gourville	Tracy	not provided	N/A	Web-based Comments	53971	34
Goussev	Staci	not provided	N/A	Web-based Comments	29127	24
Gove	G W	not provided	N/A	Web-based comments	56960	35
Govea	Johnny	not provided	N/A	Web-based Comments	18234	24
Gover	Pat and Gary	not provided	N/A	Web-based Comments	25681	24
Governale	Jill	not provided	N/A	Web-based Comments	17508	24
Goverts	Irene	not provided	N/A	Web-based Comments	15903	24
Govito	Destry	not provided	N/A	Web-based Comments	44632	34
Govito	Stacey	not provided	N/A	Web-based Comments	56550	34
Gow	Harry	not provided	N/A	Web-based Comments	51470	34
Gowani	Nancy	not provided	N/A	Web-based Comments	24872	24
Gowans	Coleen	not provided	N/A	Web-based Comments	11243	24
Gowar	Cecilia	not provided	N/A	Web-based Comments	10418	24
Goyette	Jeanne	not provided	N/A	Web-based Comments	16950	24
Goyette	Roland	not provided	N/A	Web-based Comments	50644, 50645	34
Goyette	Roland	not provided	N/A	Web-based Comments	27601	24
Gozubuyuk	Aylin Esm	not provided	N/A	Web-based Comments	8559	24
Gr[unreadable]	Mona	not provided	N/A	Web-based Comments	52907	34
Gr[unreadable]nhagen	Heike	not provided	N/A	Web-based Comments	15586	24
Graae	Linda	not provided	N/A	Web-based Comments	21279	24
Graauw	Nicole de	not provided	N/A	Web-based Comments	58468	34
Grabara	Hannah	not provided	N/A	Web-based comments	57241	35
Grable	Lotus	not provided	N/A	Web-based Comments	21859	24
Grabsch	Dagmar	not provided	N/A	Web-based Comments	11612	24
Grace	Amy	not provided	N/A	Web-based Comments	7611	24
Grace	Anita	not provided	N/A	Web-based Comments	7976	24
Grace	Bill	billgrace17@gmail.com	N/A	Web-based comments	246	3
Grace	Carrie	not provided	N/A	Web-based Comments	10200	24
Grace	George	not provided	N/A	Web-based Comments	49926, 49927	34
Grace	George	not provided	N/A	Web-based Comments	14891	24
Grace	Kristin	not provided	N/A	Web-based Comments	20376	24
Grace	Lise	not provided	N/A	Web-based Comments	21666	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Grace	Molly	mollynelms714@gmail.com	N/A	Web-based comments	5674	1
Grace	Nicholas	not provided	N/A	Web-based Comments	25167	24
Grace	Pema	not provided	N/A	Web-based comments	811	N/A
Grace	Sharon	sharongrace@centurylink.net	N/A	Web-based comments	6882*, 6935	N/A
Gracia	Divina	not provided	N/A	Web-based Comments	12974	24
Gradison	sheila	not provided	N/A	Web-based Comments	28788	24
Gradoni	Peter	not provided	N/A	Web-based Comments	58621	34
Gradoni	Peter	not provided	N/A	Web-based Comments	26253	24
Grady	Calissa	not provided	N/A	Web-based Comments	9722	24
Grady	Dee	not provided	N/A	Web-based Comments	12575	24
Grady	Elizabeth	not provided	N/A	Web-based Comments	13748	24
Grady MacRae	Carol	not provided	N/A	Web-based Comments	9935	24
Graeber	Heather	not provided	N/A	Web-based Comments	15510	24
Graetz	Kay	not provided	N/A	Web-based Comments	19822	24
Graf	Amy	not provided	N/A	Web-based Comments	7612	24
Graf	Holly	not provided	N/A	Web-based Comments	54768	34
Graf	Jacob	not provided	N/A	Web-based Comments	16087	24
Graf	Karen	not provided	N/A	Web-based Comments	19107	24
Grafakou	Kalliopi	not provided	N/A	Web-based Comments	53746, 53747	34
Grafe	Norma	not provided	N/A	Web-based Comments	25384	24
Graff	Gail	not provided	N/A	Web-based Comments	14689	24
Graff	Janet	not provided	N/A	Web-based Comments	16602	24
Graff	Leslie	not provided	N/A	Web-based Comments	51788	34
Graff	Wanda	not provided	N/A	Web-based Comments	55487, 55488	34
Graff	Wanda	not provided	N/A	Web-based Comments	31374	24
Graffagnino	Mary Ann	not provided	N/A	Web-based Comments	23490	24
Grafwallner	Saskia	not provided	N/A	Web-based Comments	28442	24
Grage	Leona	not provided	N/A	Web-based Comments	21003	24
Graham	Amanda	not provided	N/A	Web-based Comments	7531	24
Graham	Charlie	not provided	N/A	Web-based Comments	45814	34
Graham	Charlotte	not provided	N/A	Web-based Comments	10557	24
Graham	Donna	not provided	N/A	Web-based Comments	13133	24
Graham	Douglas	not provided	N/A	Web-based Comments	13329	24
Graham	Emily	not provided	N/A	Web-based Comments	14016	24
Graham	Gianina	not provided	N/A	Web-based Comments	54633	34
Graham	Holly	not provided	N/A	Web-based Comments	15747	24
Graham	Howard	not provided	N/A	Web-based Comments	15795	24
Graham	John	not provided	N/A	Web-based Comments	18032	24
Graham	Lee	not provided	N/A	Web-based Comments	53486	34
Graham	Linda	not provided	N/A	Web-based Comments	50285	34
Graham	Lisa	not provided	N/A	Web-based Comments	48035	34
Graham	Lynn	not provided	N/A	Web-based Comments	53615	34
Graham	Lynn	not provided	N/A	Web-based Comments	22063	24
Graham	Lynn	not provided	N/A	Web-based Comments	22064	24
Graham	M. Eileen	not provided	N/A	Web-based Comments	22213	24
Graham	Margaret	not provided	N/A	Web-based Comments	56292	34
Graham	Margaret	not provided	N/A	Web-based Comments	22457	24
Graham	Nikki	not provided	N/A	Web-based Comments	25285	24
Graham	Randie	not provided	N/A	Web-based Comments	55162	34
Graham	Robbie	not provided	N/A	Web-based Comments	45359	34
Graham	Susan	not provided	N/A	Web-based Comments	29693	24
GRAHAM	SUSAN	not provided	N/A	Web-based Comments	29692	24
Graham	Tyler	not provided	N/A	Web-based Comments	30959	24
Graham	Yvonne	not provided	N/A	Web-based Comments	31696	24
Grahmann	Beverly	not provided	N/A	Web-based Comments	9128	24
Grainger	Elizabeth	not provided	N/A	Web-based Comments	13749	24
Grajczyk	Joyce	not provided	N/A	Web-based Comments	51386	34
Gram	Anita	not provided	N/A	Web-based Comments	54349	34
Grambauer	Macaire	not provided	N/A	Web-based Comments	55124	34
grammar	thomas	not provided	N/A	Web-based Comments	30497	24
Grams	Yvonne	not provided	N/A	Web-based Comments	49778	34
Grana	Julie	not provided	N/A	Web-based Comments	18836	24
Granato	Linda	not provided	N/A	Web-based Comments	21280	24
Grancher	Thomas	tomgrancher@gmail.com	N/A	Web-based comments	3417	13
Grandfield	Kate	not provided	N/A	Web-based Comments	19380	24
grandgenett	thelma	not provided	N/A	Web-based Comments	30415	24
Grandinetti	Monica	not provided	N/A	Web-based Comments	50841	34
Grandjean Van Kerckhoven	Anne Marie	not provided	N/A	Web-based Comments	8264	24
grando	carl	carl_j_grando@hughes.net	N/A	Web-based comments	1410	N/A

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Grandoit	Elaine	not provided	N/A	Web-based Comments	13591	24
Graney	Tonya	not provided	N/A	Web-based Comments	30821	24
Granger	Jim	not provided	N/A	Web-based Comments	17581	24
Graniello	Luciano	not provided	N/A	Web-based Comments	52822, 52823, 52824, 52825, 52897	34
GRANIERI	ELAINE	not provided	N/A	Web-based Comments	13592	24
Granillo	Kathleen	not provided	N/A	Web-based Comments	19537	24
Granlund	Fred	not provided	N/A	Web-based Comments	44764	34
Grannell	William	not provided	N/A	Web-based Comments	31541	24
Granofsky	Gabrielle	not provided	N/A	Web-based Comments	14654	24
Grant	Alan	not provided	N/A	Web-based Comments	7164	24
Grant	Alexander	not provided	N/A	Web-based Comments	7266	24
Grant	David	not provided	N/A	Web-based Comments	58140	16
grant	elizabeth	not provided	N/A	Web-based Comments	49220	34
Grant	Farrah	not provided	N/A	Web-based Comments	14394	24
Grant	Francine	not provided	N/A	Web-based Comments	48025	34
Grant	Francine	not provided	N/A	Web-based Comments	14499	24
Grant	G	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	56621	32
Grant	George	not provided	N/A	Web-based Comments	44733	34
Grant	Glenn	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	2524, 58331	N/A
Grant	Ian	not provided	N/A	Web-based Comments	15832	24
Grant	Jill	not provided	N/A	Web-based Comments	55762	34
Grant	Jillian	not provided	N/A	Web-based Comments	17558	24
Grant	Kayleigh	not provided	N/A	Web-based comments	230	N/A
Grant	Keith	not provided	N/A	Web-based Comments	19873	24
Grant	Mary	not provided	N/A	Web-based Comments	23284	24
Grant	Nina	not provided	N/A	Web-based Comments	25306	24
Grant	Robert	not provided	N/A	Web-based Comments	27276	24
Grant	Ron	not provided	N/A	Web-based comments	5727	N/A
Grant	Sue	not provided	N/A	Web-based Comments	56300	34
Grant	Tiffany	not provided	N/A	Web-based Comments	50724, 50723	34
Grant	Tiffany	not provided	N/A	Web-based Comments	30585	24
Granucci	Gia	not provided	N/A	Web-based Comments	55347	34
Granvillani	Suzi	not provided	N/A	Web-based Comments	30037	24
Granville	Robert	granvillemd1@gmail.com	N/A	Web-based comments	5404	N/A
Graper	Barbara	not provided	N/A	Web-based Comments	8685	24
Gras	Jason	jgras2010@gmail.com	N/A	Web-based comments	3439	N/A
Gras	Kari	kari@togetHRconsulting.com	N/A	Web-based comments	6203	N/A
Grashof	Nick	not provided	N/A	Web-based Comments	25198	24
Grasmack	Ellen	not provided	N/A	Web-based Comments	13915	24
Grassia	F S	not provided	N/A	Web-based Comments	45416	34
Grassia	Sebastian	not provided	N/A	Web-based Comments	55184	34
Grassman	Mark	not provided	N/A	Web-based Comments	52031	34
Grassman	Mark	not provided	N/A	Web-based Comments	22937	24
Grasso	Jen	not provided	N/A	Web-based Comments	17117	24
Grathwohl	Jeff	not provided	N/A	Web-based Comments	17021	24
Gratis	TheresaM	not provided	N/A	Web-based Comments	30455	24
Grattage-Costa	Lynn	not provided	N/A	Web-based Comments	22065	24
Grattan	Angela	not provided	N/A	Web-based Comments	7904	24
Grau	Angela	not provided	N/A	Web-based Comments	7905	24
Grau	Jane	not provided	N/A	Web-based Comments	16486	24
Grauer	James and Rita	not provided	N/A	Web-based Comments	56357	34
Grauer	James and Rita	not provided	N/A	Web-based Comments	16342	24
Grause	jerry	not provided	N/A	Web-based Comments	17356	24
Gravance	Rochelle	not provided	N/A	Web-based Comments	45202, 45203, 57908	34, 16
Gravance	Rochelle	not provided	N/A	Web-based Comments	27563	24
Gravelle	Bill	not provided	N/A	Web-based Comments	9167	24
Graver	Chuck	not provided	N/A	Web-based Comments	55831, 55832	34
Graver	Chuck	not provided	N/A	Web-based Comments	11050	24
Graves	Ann	not provided	N/A	Web-based Comments	51976	34
Graves	Ann	not provided	N/A	Web-based Comments	8040	24
Graves	Carol	not provided	N/A	Web-based Comments	9936	24
Graves	Caryn	caryn@lmi.net	N/A	Web-based comments	2063	N/A
Graves	Caryn	not provided	N/A	Web-based Comments	52350, 52351	34
Graves	Caryn	not provided	N/A	Web-based Comments	10221	24
Graves	Holly	not provided	N/A	Web-based Comments	15748	24
Graves	Jan	not provided	N/A	Web-based Comments	58217	16
Graves	Michelle	not provided	N/A	Web-based Comments	48429, 48430	34
Graves-Lis	Diane	not provided	N/A	Web-based Comments	12844	24
Gravette	Kristina	not provided	N/A	Web-based Comments	51636, 51637	34

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Gravina	Muriel	not provided	N/A	Web-based Comments	24696	24
Gravunder	Paul	not provided	N/A	Web-based Comments	25996	24
Gray	Ashley	not provided	N/A	Web-based comments	1820	N/A
Gray	Brian	not provided	N/A	Web-based Comments	9480	24
Gray	Chris	not provided	N/A	Web-based Comments	50828	34
Gray	Claudia	not provided	N/A	Web-based Comments	11184	24
Gray	Danielle	not provided	N/A	Web-based Comments	11808	24
Gray	Debra	not provided	N/A	Web-based Comments	56310	34
Gray	Helen	not provided	N/A	Web-based Comments	15611	24
Gray	Hod	not provided	N/A	Web-based Comments	15721	24
Gray	Jeanne	not provided	N/A	Web-based Comments	16951	24
Gray	Jennifer	not provided	N/A	Web-based Comments	17194	24
Gray	Kathelin	not provided	N/A	Web-based Comments	19428	24
Gray	Kathleen	not provided	N/A	Web-based Comments	57766	34
Gray	Kathlyn	not provided	N/A	Web-based Comments	19614	24
Gray	Laura	laurag@divefish.com	N/A	Web-based comments	2861	N/A
Gray	Laurie	not provided	N/A	Web-based Comments	20833	24
Gray	Leda	not provided	N/A	Web-based Comments	57824	34
Gray	Lisa	not provided	N/A	Web-based Comments	49262, 49263	34
Gray	Lizabeth	not provided	N/A	Web-based Comments	21704	24
Gray	Lorraine	not provided	N/A	Web-based Comments	58560	34
Gray	Lorraine	not provided	N/A	Web-based Comments	21841	24
Gray	Louise	not provided	N/A	Web-based Comments	21885	24
Gray	Matthew	not provided	N/A	Web-based Comments	44662, 44663, 57918	34, 16
Gray	Melody	not provided	N/A	Web-based Comments	23947	24
gray	mike	not provided	N/A	Web-based Comments	44647	34
Gray	Nadine	not provided	N/A	Web-based Comments	24763	24
gray	Natasha	ngraypa@gmail.com	N/A	Web-based comments	105	1
Gray	Patrick	not provided	N/A	Web-based Comments	58051, 55740	16, 34
Gray	Patrick	not provided	N/A	Web-based Comments	25906	24
Gray	S.	zanbang@gmail.com	N/A	Web-based comments	2200	N/A
Gray	Sarah	not provided	N/A	Web-based comments	57716	35
Gray	Sarah	not provided	N/A	Web-based Comments	28352	24
Gray	Steve	not provided	N/A	Web-based Comments	50327	34
Gray	Susan	susanbethgray@gmail.com	N/A	Web-based comments	2380	N/A
Gray	Thalia	not provided	N/A	Web-based Comments	30400	24
Gray	Todd	not provided	N/A	Web-based Comments	54459	34
Gray	Todd	not provided	N/A	Web-based Comments	30718	24
Gray	Tony	not provided	N/A	Web-based Comments	30812	24
Gray II	Charles	not provided	N/A	Web-based Comments	10506	24
Graybill	Ann E.	not provided	N/A	Web-based Comments	8107	24
Grayum	Gretchen	not provided	N/A	Web-based Comments	15310	24
Graziano	Marilyn	not provided	N/A	Web-based comments	56906	35
Grazioli	Monica	not provided	N/A	Web-based Comments	24628	24
Gre	Margaret	not provided	N/A	Web-based comments	5048	N/A
Greathouse	Rachel	not provided	N/A	Web-based Comments	26519	24
Grebis	Jennifer	not provided	N/A	Web-based Comments	17195	24
Grecchi	Giulio	not provided	N/A	Web-based Comments	49592	34
Grech	Rhyan	not provided	N/A	Web-based Comments	52222	34
Grech	Rhyan	not provided	N/A	Web-based Comments	26911	24
Greco	Claudia	not provided	N/A	Web-based Comments	55550	34
Greco	Dolores	not provided	N/A	Web-based Comments	12994	24
Greco	EJ	not provided	N/A	Web-based Comments	13565	24
Greco	Jose	not provided	N/A	Web-based Comments	45936	34
Greco	Jose	not provided	N/A	Web-based Comments	18338	24
Greco	Julie	not provided	N/A	Web-based Comments	18837	24
Greco	Michael	not provided	N/A	Web-based Comments	24101	24
Greco	Rose	not provided	N/A	Web-based Comments	27720	24
Greeene	Esther	not provided	N/A	Web-based Comments	14275	24
Green	Alex	not provided	N/A	Web-based Comments	52873, 52874	34
Green	Amanda	not provided	N/A	Web-based Comments	7532	24
Green	Amy	not provided	N/A	Web-based Comments	7613	24
Green	Ann	not provided	N/A	Web-based Comments	8041	24
Green	Arden	not provided	N/A	Web-based Comments	47528	34
Green	Arden	not provided	N/A	Web-based Comments	8399	24
Green	Barbara	not provided	N/A	Web-based Comments	8686	24
Green	Carolyn	not provided	N/A	Web-based Comments	10160	24
Green	Carolyn Green	not provided	N/A	Web-based Comments	51259	34
Green	Diane	not provided	N/A	Web-based comments	57142	35

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Green	Emma	not provided	N/A	Web-based Comments	14055	24
Green	Gemma	not provided	N/A	Web-based comments	56861	35
Green	Geraldine	not provided	N/A	Web-based Comments	45607, 45686	34
Green	Isobel	not provided	N/A	Web-based comments	56867	35
Green	James	not provided	N/A	Web-based Comments	16222	24
Green	Jamie	not provided	N/A	Web-based Comments	46803, 46804	34
Green	Jamie	not provided	N/A	Web-based Comments	16357	24
Green	Jeff	not provided	N/A	Web-based Comments	17022	24
green	joe	not provided	N/A	Web-based Comments	17882	24
Green	Kate	not provided	N/A	Web-based comments	56942	35
Green	Kerstin	not provided	N/A	Web-based Comments	20077	24
Green	Kristi	not provided	N/A	Web-based Comments	52211	34
Green	Kristin	not provided	N/A	Web-based Comments	52212	34
Green	Marci	lonmarci@gmail.com	N/A	Web-based comments	2615	N/A
Green	Mary	not provided	N/A	Web-based Comments	23285	24
Green	Matt	12tobias@gmail.com	N/A	Web-based comments	3034	N/A
Green	Matt	not provided	N/A	Web-based Comments	23615	24
Green	Nicole	not provided	N/A	Web-based Comments	25236	24
Green	Philip	not provided	N/A	Web-based Comments	26338	24
Green	R	not provided	N/A	Web-based Comments	47696, 47697	34
Green	Rax	not provided	N/A	Web-based Comments	44355	34
Green	Rax	not provided	N/A	Web-based Comments	26662	24
Green	Rhonda	not provided	N/A	Web-based Comments	48026, 48027	34
Green	Seth	not provided	N/A	Web-based Comments	51422	34
Green	Shelly	not provided	N/A	Web-based Comments	48821	34
Green	Shelly	not provided	N/A	Web-based Comments	28845	24
Green	Stefanie	not provided	N/A	Web-based Comments	29171	24
Green	Stephen	not provided	N/A	Web-based Comments	44885	34
Green	Stephen	not provided	N/A	Web-based Comments	29294	24
Green	Wendy	not provided	N/A	Web-based Comments	53356	34
Green	Wendy	not provided	N/A	Web-based Comments	31423	24
Green, Ph.D.	Vicki	not provided	N/A	Web-based Comments	31130	24
Greenall	Julie	not provided	N/A	Web-based Comments	18838	24
Greenawalt	Bob	not provided	N/A	Web-based Comments	9239	24
Greenberg	Anne	not provided	N/A	Web-based Comments	8199	24
Greenberg	Corinne	not provided	N/A	Web-based Comments	11376	24
Greenberg	Donald	not provided	N/A	Web-based Comments	13064	24
Greenberg	Janice	not provided	N/A	Web-based Comments	52453	34
Greenberg	Jay	not provided	N/A	Web-based Comments	16807	24
Greenberg	Jill	not provided	N/A	Web-based Comments	17509	24
Greenberg	Ke	not provided	N/A	Web-based Comments	19856	24
Greenberg	Linda	not provided	N/A	Web-based Comments	21281	24
Greenberg	Ronnie	not provided	N/A	Web-based Comments	27691	24
Greenberg	Stephen	not provided	N/A	Web-based Comments	52932	34
Greenberg	Stephen	not provided	N/A	Web-based Comments	29295	24
Greenboam	Bob	not provided	N/A	Web-based Comments	45433	34
Greenboam	Penny and Bob	not provided	N/A	Web-based Comments	50721	34
Greenburg	Margaret	not provided	N/A	Web-based Comments	22458	24
Greenburg	Stu	not provided	N/A	Web-based Comments	29488	24
Greendeer	Taryn	not provided	N/A	Web-based Comments	30215	24
Greene	Anne	not provided	N/A	Web-based Comments	50277	34
Greene	Anne	not provided	N/A	Web-based Comments	8200	24
Greene	Barb	bgreen@flyingfocus.org	N/A	Web-based comments	3699	17
Greene	Bruce	not provided	N/A	Web-based Comments	9607	24
Greene	Dominic	not provided	N/A	Web-based Comments	13000	24
Greene	Jeanine	not provided	N/A	Web-based Comments	16926	24
Greene	Jeanne	not provided	N/A	Web-based Comments	52886	34
Greene	Jeff	not provided	N/A	Web-based Comments	17023	24
Greene	Linda	not provided	N/A	Web-based comments	57358	35
Greene	Steven	not provided	N/A	Web-based Comments	52124	34
Greene	Susan	not provided	N/A	Web-based Comments	29694	24
Greene	Terri	not provided	N/A	Web-based Comments	48643	34
Greene	Terri	not provided	N/A	Web-based Comments	30333	24
Greene MD	Peter	not provided	N/A	Web-based Comments	26254	24
Greenen	Brian	brian.greenen@gmail.com	N/A	Web-based comments	32117	8
Greenfield	Carol	not provided	N/A	Web-based Comments	55734	34
Greenfield	Julie	not provided	N/A	Web-based Comments	18839	24
Greenhalgh	Diana	not provided	N/A	Web-based Comments	12769	24
GREENLEE	ART	not provided	N/A	Web-based Comments	52611, 52612	34

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Greenlee	Art	not provided	N/A	Web-based Comments	8451	24
Greenlee	Victoria	not provided	N/A	Web-based Comments	48412	34
Greeno	Robert	colappre@reagan.com	N/A	Web-based comments	3214	N/A
greenspan	Val	not provided	N/A	Web-based Comments	30997	24
Greenstein	Caroline	not provided	N/A	Web-based Comments	10121	24
Greenstein	Rob	not provided	N/A	Web-based Comments	27176	24
Greenwald	Beatrice	not provided	N/A	Web-based Comments	51735	34
Greenwald	David	not provided	N/A	Web-based Comments	12019, 12020	24
Greenwald	Green	not provided	N/A	Web-based Comments	15223	24
Greenwood	Barbara	not provided	N/A	Web-based Comments	49165	34
Greenwood	Barbara	not provided	N/A	Web-based Comments	8687	24
Greenwood	Elaine	not provided	N/A	Web-based comments	57531	35
Greenwood	Jean	not provided	N/A	Web-based Comments	16850	24
GREENWOOD	PAMELA	not provided	N/A	Web-based Comments	25552	24
Greenwood Sr	Paul	not provided	N/A	Web-based Comments	25997	24
Greenwood-Ericksen	Adams	not provided	N/A	Web-based Comments	7063	24
Greer	James	not provided	N/A	Web-based Comments	16223	24
Greer	Jamie	not provided	N/A	Web-based Comments	52739, 52740	34
Greer	Jamie	not provided	N/A	Web-based Comments	16358	24
Gregerman	Helene	not provided	N/A	Web-based Comments	15640	24
gregersen	david	not provided	N/A	Web-based Comments	49077	34
Gregersen	Matt	not provided	N/A	Web-based Comments	23616	24
Gregg	Aileen	not provided	N/A	Web-based Comments	56138	34
Gregg	Carol	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	31749	N/A
Gregg	Joan	not provided	N/A	Web-based Comments	17683	24
Gregg	K R	not provided	N/A	Web-based Comments	51549	34
Gregg	Linda	not provided	N/A	Web-based Comments	21282	24
Gregg	Rachel	not provided	N/A	Web-based Comments	53441	34
Gregg	Rachel	not provided	N/A	Web-based Comments	26520	24
Grego	Ben	not provided	N/A	Web-based Comments	51486, 51485	34
Gregorich	Penny	not provided	N/A	Web-based Comments	26203	24
Gregorio	Penny	not provided	N/A	Web-based Comments	26204	24
Gregory	Amy	age@myuw.net	N/A	Web-based comments	32107	N/A
Gregory	Anne	not provided	N/A	Web-based Comments	48210, 48211	34
Gregory	Anne	not provided	N/A	Web-based Comments	8201	24
Gregory	Faye	not provided	N/A	Web-based Comments	51270	34
Gregory	Faye	not provided	N/A	Web-based Comments	14407	24
Gregory	Gary	not provided	N/A	Web-based Comments	55445	34
Gregory	Kris	not provided	N/A	Web-based Comments	49033	34
Gregory	Kris	not provided	N/A	Web-based Comments	20321	24
Gregory	MaryAnn	not provided	N/A	Web-based Comments	23555	24
Gregory	Melissa	not provided	N/A	Web-based Comments	23885	24
Gregory	Patricia	not provided	N/A	Web-based Comments	52345	34
Gregory	Patricia	not provided	N/A	Web-based Comments	25765	24
Gregory	Paul	not provided	N/A	Web-based Comments	25998	24
Gregory	Phyllis	not provided	N/A	Web-based Comments	26389	24
gregory	probyn	not provided	N/A	Web-based Comments	26455	24
Greguez	Lliam & Beva	not provided	N/A	Web-based Comments	21709	24
Greig	Fiona	not provided	N/A	Web-based Comments	14434	24
Greinig	Karl	not provided	N/A	Web-based Comments	19299	24
Greinke	Pamylle	not provided	N/A	Web-based Comments	45442	34
Greinke	Pamylle	not provided	N/A	Web-based Comments	25605	24
Greiss	Patricia	not provided	N/A	Web-based Comments	53691	34
Greiss	Patricia	not provided	N/A	Web-based Comments	25766	24
Greitzer	Helen	not provided	N/A	Web-based Comments	15612	24
Grekin	Paul	not provided	N/A	Web-based Comments	25999	24
Grenard	Mark Hayduke	not provided	N/A	Web-based Comments	48575, 48576	34
Grengs	Patrick	pixelate@mathsavers.com	N/A	US Mail or commercial carrier (UPS, FedEx)	3191, 32348	N/A
Grengs	Patrick	pixelate@mathsavers.com	N/A	Web-based comments	3191	N/A
Grenier	Debra	not provided	N/A	Web-based Comments	12523	24
grenu	madeleine	not provided	N/A	Web-based Comments	22236	24
Grenzow	S	not provided	N/A	Web-based Comments	27941	24
Gress	Laurel	not provided	N/A	Web-based Comments	50427	34
Gress	Laurel	not provided	N/A	Web-based Comments	20736	24
Grether	Gregory	not provided	N/A	Web-based Comments	15278	24
Gretz	Bonnie	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	5534	N/A
Greuel	Bridget	not provided	N/A	Web-based Comments	53501	34
Grey	Eva	not provided	N/A	Web-based Comments	50044	34
Grey	Valerie	not provided	N/A	Web-based Comments	31026	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Gribble	Trina	not provided	N/A	Web-based Comments	30910	24
Gribosky	Philip	not provided	N/A	Web-based Comments	26339	24
Griepsma	Debi	not provided	N/A	Web-based comments	57514	35
Griepsma	Debi	not provided	N/A	Web-based Comments	44876, 44877	34
Griepsma	Debi	not provided	N/A	Web-based Comments	12361	24
Grieser	Pamela	not provided	N/A	Web-based Comments	25553	24
Grieves	Kathy	not provided	N/A	Web-based Comments	51100	34
grieves	kathy	not provided	N/A	Web-based Comments	19703	24
Griffeth	Jackie	not provided	N/A	Web-based Comments	45411, 45412	34
Griffeth	Jackie	not provided	N/A	Web-based Comments	16064	24
Griffin	Amanda	not provided	N/A	Web-based Comments	48867	34
Griffin	Amanda	not provided	N/A	Web-based Comments	7533	24
Griffin	Arlene	not provided	N/A	Web-based Comments	8426	24
Griffin	Carol	not provided	N/A	Web-based Comments	9937	24
Griffin	Denise	not provided	N/A	Web-based Comments	56359, 57757	34
Griffin	Denise	not provided	N/A	Web-based Comments	12642, 12643	24
Griffin	Dondi	not provided	N/A	Web-based Comments	13096	24
Griffin	Georgia	not provided	N/A	Web-based Comments	14936	24
Griffin	Glenn and Sandra	not provided	N/A	Web-based Comments	54308	34
Griffin	Joan	not provided	N/A	Web-based Comments	47877	34
Griffin	Joan	not provided	N/A	Web-based Comments	17684	24
Griffin	Joseph	not provided	N/A	Web-based Comments	18364	24
Griffin	Lynne	not provided	N/A	Web-based Comments	22136	24
Griffin	Margaret	not provided	N/A	Web-based Comments	22459	24
griffin	Mark	not provided	N/A	Web-based Comments	22938	24
Griffin	Nancy	not provided	N/A	Web-based Comments	24873	24
Griffin	Rex	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4729	N/A
Griffin	Roy	not provided	N/A	Web-based Comments	27807	24
Griffis	Roger	griffistk@aol.com	N/A	Web-based comments	6383	8
Griffith	April	not provided	N/A	Web-based Comments	8382	24
Griffith	Betty	not provided	N/A	Web-based Comments	48956	34
Griffith	David	not provided	N/A	Web-based Comments	12021	24
griffith	j	not provided	N/A	Web-based Comments	49539	34
Griffith	Julie	not provided	N/A	Web-based Comments	44821, 44822	34
Griffith	Michael	mikegeetx@yahoo.com	N/A	Web-based comments	4808, 4811	N/A
Griffith	Mike	mlgriffith@frii.com	N/A	Web-based comments	1427	N/A
Griffith	Nancy	not provided	N/A	Web-based Comments	24874	24
Griffith	Randy	not provided	N/A	Web-based Comments	26635	24
Griffith	Ryan	not provided	N/A	Web-based Comments	27911	24
Griffith	Steve	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	5589	N/A
Griffiths	Rosemarie	not provided	N/A	Web-based Comments	47628, 47629	34
Griffiths	Ruth	not provided	N/A	Web-based Comments	27869	24
Grifo	Jeanne	not provided	N/A	Web-based comments	57555	35
Griggs	David	not provided	N/A	Web-based Comments	54150	34
Grignon	Eugenia	not provided	N/A	Web-based Comments	14301	24
Grigoriou	Vasileios	not provided	N/A	Web-based Comments	55013	34
Grigoriou	Vasileios	not provided	N/A	Web-based Comments	31074	24
Grijalva	Antonio	not provided	N/A	Web-based Comments	8368	24
Grill	Chris	not provided	N/A	Web-based Comments	10742	24
Grill	Marianne	not provided	N/A	Web-based Comments	48481	34
Grillo di Ricaldone	Alberto Emanuele	not provided	N/A	Web-based Comments	7217	24
Grimes	James	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32522	N/A
Grimes	Jane	not provided	N/A	Web-based Comments	16487	24
Grimes	Thomas	not provided	N/A	Web-based Comments	47767	34
Grimes	William	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4667	N/A
Grimmer	Teri	not provided	N/A	Web-based Comments	30310	24
Grimsinger	Ray	not provided	N/A	Web-based Comments	55325	34
Grimwood	Jaime	not provided	N/A	Web-based Comments	16156	24
Grin	Maria	not provided	N/A	Web-based Comments	22602	24
Grindeland	Mary	not provided	N/A	Web-based Comments	23286	24
Griswold	Dave	not provided	N/A	Web-based Comments	54584	34
Griswold	Dean	not provided	N/A	Web-based Comments	56193	34
Griswold	Kathy	not provided	N/A	Web-based Comments	19704	24
Griswold	Randall	not provided	N/A	Web-based Comments	26615	24
Griswold	Robert	robertggriswold@gmail.com	N/A	Web-based comments	6775	N/A
Griswold	Tracy	not provided	N/A	Web-based Comments	30870	24
Grob	Douglas	not provided	N/A	Web-based comments	4555	N/A
Grobelny	Julie	not provided	N/A	Web-based Comments	55151	34
Grocholl	Fran	not provided	N/A	Web-based Comments	48808	34

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Grodin	Ann	not provided	N/A	Web-based Comments	8042	24
Groenendaal	Susanne	not provided	N/A	Web-based Comments	29948	24
Groenink	Jeanet	not provided	N/A	Web-based Comments	54958	34
Groff	Linda	not provided	N/A	Web-based Comments	21283	24
Groff	Sharon	sagroff49@gmail.com	N/A	Web-based comments	5111	N/A
Grohman	Paul	not provided	N/A	Web-based Comments	26000	24
Groisser	David	not provided	N/A	Web-based Comments	12022	24
Grojean	Alison	not provided	N/A	Web-based Comments	7408	24
Grolitzer	Rita	not provided	N/A	Web-based Comments	27140	24
Groll	William	not provided	N/A	Web-based Comments	47457	34
Groll	William	not provided	N/A	Web-based Comments	31542	24
Gromoll	Norda	not provided	N/A	Web-based Comments	25371	24
Grondin	Amanda	not provided	N/A	Web-based Comments	7534	24
Grondin	Amanda	not provided	N/A	Web-based Comments	58229	16
Grondin	Amy	ajgrondin@gmail.com	N/A	Web-based comments	2665	N/A
Grondin	Amy	ajgrondin@gmail.com	N/A	Hand-delivered or oral testimony (personally delivered)	4260, 4742	N/A
Grondin	Amy Grondin	not provided	N/A	Web-based comments	57471	35
Grondin	Melissa	not provided	N/A	Web-based Comments	51398	34
Grondin	Melissa	not provided	N/A	Web-based Comments	23886	24
Grone	Alexis	not provided	N/A	Web-based Comments	54357	34
Grone	Alexis	not provided	N/A	Web-based Comments	7308	24
Gronemeyer	Kimberly	not provided	N/A	Web-based Comments	20225	24
groom	diane	not provided	N/A	Web-based Comments	47727, 47728	34
Grooms	Susan	not provided	N/A	Web-based Comments	29695	24
Groppe	Jay	not provided	N/A	Web-based Comments	48489	34
Grosdanopulos	Sera	not provided	N/A	Web-based Comments	28536	24
Grose	Harriet	not provided	N/A	Web-based Comments	15450	24
Groseclose	Cindy	not provided	N/A	Web-based Comments	11076	24
Grosfeld	Nancy	not provided	N/A	Web-based Comments	54165	34
Grosfeld	Nancy	not provided	N/A	Web-based Comments	24875	24
Grosh	William	not provided	N/A	Web-based Comments	49467, 49468	34
Groshong	Victoria	not provided	N/A	Web-based Comments	54531	34
Groshong	Victoria	not provided	N/A	Web-based Comments	31195	24
Grosinger	Paul	not provided	N/A	Web-based Comments	26001	24
Gross	Amanda	not provided	N/A	Web-based Comments	7535	24
Gross	Barbara	not provided	N/A	Web-based Comments	8688	24
Gross	Barbara	not provided	N/A	Web-based Comments	58004	16
Gross	Carol	not provided	N/A	Web-based Comments	46637	34
Gross	David	not provided	N/A	Web-based Comments	12023	24
Gross	Elaine	not provided	N/A	Web-based Comments	13593	24
Gross	Howard	not provided	N/A	Web-based Comments	15796	24
Gross	Julie	not provided	N/A	Web-based comments	57117	35
Gross	Julie	not provided	N/A	Web-based Comments	18840	24
Gross	Nik	not provided	N/A	Web-based Comments	25280	24
Gross	Pamela	not provided	N/A	Web-based Comments	54646	34
Gross	Stefanie	not provided	N/A	Web-based Comments	53171, 53172	34
Grosse	Kati	not provided	N/A	Web-based Comments	51606	34
Grosse	Kati	not provided	N/A	Web-based Comments	19779	24
Grosse	Kristi	not provided	N/A	Web-based Comments	47637	34
Grossi	Joanne	not provided	N/A	Web-based Comments	17803	24
Grossman	Cindy	not provided	N/A	Web-based Comments	11077	24
grossman	darlene	not provided	N/A	Web-based Comments	11881	24
Grossman	Joan	not provided	N/A	Web-based Comments	45657	34
Grossman	Kathleen	not provided	N/A	Web-based Comments	19538	24
Grossman	Leanne	not provided	N/A	Web-based Comments	54812	34
Grossman	Lev	not provided	N/A	Web-based Comments	21127	24
Grossman	Noah	not provided	N/A	Web-based Comments	48795, 48796	34
Grossman	Noah	not provided	N/A	Web-based Comments	25329	24
Grossman	Susan	not provided	N/A	Web-based Comments	29696	24
Grossmann	Hilary	not provided	N/A	Web-based Comments	15696	24
Grossmann	Patricia	not provided	N/A	Web-based Comments	25767	24
Grotbo	Mark	mgrotbo@ravallielectric.com	N/A	Web-based comments	4369, 4675	N/A
Grotbo	Mark	mgrotbo@ravallielectric.com	N/A	Hand-delivered or oral testimony (personally delivered)	4675	N/A
Grote	Dorlis	not provided	N/A	Web-based Comments	13245	24
Grote	Lara	not provided	N/A	Web-based Comments	20552	24
Grotheer	Erik	not provided	N/A	Web-based Comments	14184	24
Grout	Philip	not provided	N/A	Web-based Comments	26340	24
Grove	Barbara	not provided	N/A	Web-based Comments	8689	24
Grove	Brenda	brenda.grove@villanova.edu	N/A	Web-based comments	2162	3

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Grove	Earl	not provided	N/A	Web-based Comments	53861	34
Grove	Earl	not provided	N/A	Web-based Comments	13426	24
Grove	Ellen	not provided	N/A	Web-based Comments	45661	34
Grove	Jane	not provided	N/A	Web-based Comments	16488	24
Grove	Karen	not provided	N/A	Web-based Comments	19108	24
Grove	Laura	not provided	N/A	Web-based Comments	48455	34
Grove	Phyllis	not provided	N/A	Web-based Comments	45570, 45571	34
Grove	Phyllis	not provided	N/A	Web-based Comments	26390	24
Grove	Richard	not provided	N/A	Web-based Comments	26976	24
Grover	Justin	jg513jg@yahoo.com	N/A	Web-based comments	6482	N/A
Grover	Warren	wagrover@fretel.com	N/A	Web-based comments	31911	N/A
Groves	John	not provided	N/A	Web-based Comments	18033	24
Groves	Steven	not provided	N/A	Web-based Comments	56481	34
Grubb	Scott	not provided	N/A	Web-based Comments	28472	24
Grubbs	Donna	not provided	N/A	Web-based Comments	46754	34
Grubbs	Donna	not provided	N/A	Web-based Comments	13134	24
Grube	John	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32406, 32477, 44264	11, 13
Grube	Linda	not provided	N/A	Web-based Comments	21284	24
Gruber	Ana	not provided	N/A	Web-based Comments	7691	24
Gruber	James	not provided	N/A	Web-based Comments	16224	24
gruber	karen	not provided	N/A	Web-based Comments	19109	24
Gruber	Katie	not provided	N/A	Web-based Comments	19790	24
Gruchalla	Claudia	not provided	N/A	Web-based Comments	11185	24
Gruden	MaryAnn	not provided	N/A	Web-based Comments	23556	24
GRUEBMEYER	JUDY	not provided	N/A	Web-based Comments	18681	24
Gruebmeyer	Kristin	not provided	N/A	Web-based Comments	20377	24
Gruener	Daphne	not provided	N/A	Web-based Comments	11841	24
Gruenlinger	Melanie	not provided	N/A	Web-based Comments	54069	34
Gruenthal	Kathryn	not provided	N/A	Web-based Comments	48633	34
gruenwald	marlena	not provided	N/A	Web-based Comments	23033	24
Gruhlke	Jeanne Marie	not provided	N/A	Web-based Comments	16980	24
Gruling	Justina	not provided	N/A	Web-based Comments	55677	34
Gruling	Justina	not provided	N/A	Web-based Comments	18964	24
Grunberg	Adele	not provided	N/A	Web-based Comments	7067	24
Grunberger	Dorit	not provided	N/A	Web-based Comments	13242	24
Grundfest	Jill	not provided	N/A	Web-based Comments	50663	34
Grundy	Sarah	not provided	N/A	Web-based Comments	28353	24
Grundy	Sarah	sarah@mazeylotus.com	N/A	Web-based comments	96	1
Gruneau	Charlotte	not provided	N/A	Web-based comments	3843	1
Gruninger	Theresa	not provided	N/A	Web-based comments	57204	35
Grup	John	not provided	N/A	Web-based Comments	18034	24
Gruse	Karl	not provided	N/A	Web-based Comments	19300	24
Grush	Leslie	not provided	N/A	Web-based Comments	21070	24
Grussing	LuVerne	grussing@nezpercesystems.com	N/A	Web-based comments	31896	N/A
Grutzmacher	Lisa	not provided	N/A	Web-based Comments	50382	34
Gruver	Chere	not provided	N/A	Web-based Comments	10598	24
Gruwell	Darlene	not provided	N/A	Web-based Comments	11882	24
Gruwell	Joel	not provided	N/A	Web-based Comments	48932	34
Gruwell	Joel	not provided	N/A	Web-based Comments	17909	24
Gruye	David	not provided	N/A	Web-based Comments	12024	24
Grycova	Marie	not provided	N/A	Web-based Comments	55218, 55219	34
Gryska	Margaret	not provided	N/A	Web-based Comments	55926, 55927	34
Gryska	Peggy	not provided	N/A	Web-based Comments	26159	24
Grzegorzewski	Mark	not provided	N/A	Web-based Comments	56277	34
Grzegorzewski	Mark	not provided	N/A	Web-based Comments	22939	24
Guaitoli	Gianluca	not provided	N/A	Web-based Comments	15014	24
Gualtieri	Edward	not provided	N/A	Web-based Comments	13498	24
Guandique	Carolina	not provided	N/A	Web-based Comments	10111	24
Guaraldi	Thomas	not provided	N/A	Web-based Comments	55744	34
Guaraldi	Thomas A	not provided	N/A	Web-based Comments	30568	24
Guard	Mary	not provided	N/A	Web-based Comments	44771	34
Guard	Mary	not provided	N/A	Web-based Comments	23287	24
Guarino	Ann	not provided	N/A	Web-based Comments	8043	24
Guarino	DOlores	not provided	N/A	Web-based Comments	53842	34
Guarniere	Gary	not provided	N/A	Web-based Comments	14767	24
guaschino	maria grazia	not provided	N/A	Web-based Comments	22643	24
Guatelli	Dachia	not provided	N/A	Web-based comments	57289	35
Gucci	Daniele	not provided	N/A	Web-based Comments	11797	24
Gucker	Amelia	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4239	N/A

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Guckian	Michael	not provided	N/A	Web-based Comments	54454	34
Gudmundson	Lori	not provided	N/A	Web-based Comments	45178, 45179	34
Gudmundsson	[unreadable]	not provided	N/A	Web-based Comments	14632	24
Gudz	Betsy	not provided	N/A	Web-based Comments	50792, 55870	34
Gudzevich	Deborah	not provided	N/A	Web-based Comments	47031, 47032	34
Gudzevich	Deborah	not provided	N/A	Web-based Comments	12409	24
Guecia	Audra	not provided	N/A	Web-based Comments	8521	24
Guenther	Lavaune	not provided	N/A	Web-based Comments	20871	24
guern	j	not provided	N/A	Web-based Comments	15975	24
Guerra	Laura	not provided	N/A	Web-based Comments	20645	24
Guerrero	Erin	not provided	N/A	Web-based comments	807	2
Guerrero	Peter	not provided	N/A	Web-based Comments	26255	24
Guerrie	Cheryl	not provided	N/A	Web-based Comments	10641	24
Guest	Trevor	ins@guestgroup.com	N/A	Web-based comments	6798	N/A
Guethlen	Bob and Diane	not provided	N/A	Web-based Comments	9261	24
Guevara	Pedro	not provided	N/A	Web-based Comments	26134	24
Guevara	Richard	not provided	N/A	Web-based Comments	26977	24
Guffey	Judy	not provided	N/A	Web-based Comments	18682	24
Gugel	Valleen	not provided	N/A	Web-based comments	57442	35
Guglielmi	Sofie	not provided	N/A	Web-based Comments	29046	24
Gugliotta	Rita	not provided	N/A	Web-based Comments	56279	34
Guichardo	Marcel	not provided	N/A	Web-based Comments	22351	24
Guidotti	Sveva	not provided	N/A	Web-based comments	56813	35
Guidry	Christy	christy1125@msn.com	N/A	Web-based comments	5089	N/A
Guiducci	Angie	not provided	N/A	Web-based comments	57710	35
Guier	Richard	not provided	N/A	Web-based Comments	52953	34
Guild	Susan	not provided	N/A	Web-based Comments	29697	24
Guilford	James	not provided	N/A	Web-based comments	2662	6
Guillaume	Claire	not provided	N/A	Web-based Comments	51798	34
Guillen	RL	guilrl@yahoo.com	N/A	Web-based comments	2689	N/A
Guillet	Mary	not provided	N/A	Web-based Comments	51362	34
Guillory	Chris	not provided	N/A	Web-based Comments	47823, 47824, 57923	34, 16
Guillory	Chris	not provided	N/A	Web-based Comments	10743	24
Guillotel	Steven	not provided	N/A	Web-based Comments	29435	24
Guilmette	Madeline	not provided	N/A	Web-based Comments	58453	34
Guimond	Alain	not provided	N/A	Web-based Comments	47613	34
Guimond	Mark & Kay	not provided	N/A	Web-based Comments	23013	24
Guiney	Dennis	not provided	N/A	Web-based Comments	12682	24
Guiney	Kelley	not provided	N/A	Web-based Comments	52052	34
Guiney	Kelley	not provided	N/A	Web-based Comments	19896	24
Guinness	Kathleen	not provided	N/A	Web-based Comments	19539	24
Guinther	Penny	not provided	N/A	Web-based Comments	26205	24
Guisinger	Tim	not provided	N/A	Web-based Comments	30604	24
Guiter	Anatasia	not provided	N/A	Web-based Comments	7713	24
Guleke	David	not provided	N/A	Web-based Comments	12025	24
Gulick	Thomas	not provided	N/A	Web-based Comments	30498	24
Gullett	Orva M	not provided	N/A	Web-based Comments	52468	34
Gullett	Rachel	not provided	N/A	Web-based Comments	26521	24
Gullickson	Anna	not provided	N/A	Web-based Comments	50024	34
Gulliver	Zoe	not provided	N/A	Web-based Comments	31735	24
Gullo	Paula	not provided	N/A	Web-based Comments	26082	24
Gumienny	Jill	not provided	N/A	Web-based Comments	17510	24
Gumina	Greg	not provided	N/A	Web-based Comments	15236	24
Gumina	Susan	not provided	N/A	Web-based Comments	29698	24
Gumond	Alain	not provided	N/A	Web-based Comments	51778, 51779	34
Gunay	Zeki	not provided	N/A	Web-based Comments	31725	24
Gunderman	Lucien	julu1@frontier.com	N/A	Web-based comments	3075	9
Gundernse	Brigitta	not provided	N/A	Web-based Comments	9554	24
Gundersen	Bruce	not provided	N/A	Web-based Comments	9608	24
Gunderson	Kari	not provided	N/A	Web-based Comments	50403	34
Gunkel	J	not provided	N/A	Web-based Comments	15976	24
Gunlin	Mark	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58769	N/A
Gunn	Jenny	not provided	N/A	Web-based Comments	51848, 51849	34
Gunn	Judith	not provided	N/A	Web-based Comments	18600	24
Gunn-Hamilton	Alan	not provided	N/A	Web-based Comments	7165	24
gunter	elyse	not provided	N/A	Web-based Comments	13997	24
Gunter	Stephanie	not provided	N/A	Web-based Comments	29216	24
gunther	ken	not provided	N/A	Web-based Comments	56312	34
Gunther	Mary	not provided	N/A	Web-based Comments	48052	34
Gunther	Peter	not provided	N/A	Web-based Comments	56299	34

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Gunther Fellows	Laurie	not provided	N/A	Web-based Comments	20834	24
Gupta	Gauri	gaurigupta0403@gmail.com	N/A	Web-based comments	5807	1
Gupta	Rani	not provided	N/A	Web-based Comments	26647	24
Gupta	Somudro	not provided	N/A	Web-based Comments	29052	24
Guptill	Dan	joananddang@msn.com	N/A	Web-based comments	3664	N/A
Gura	Joanne	not provided	N/A	Web-based Comments	46766	34
Gurarie	David E	not provided	N/A	Web-based Comments	12188	24
Gurdin	J. Barry	not provided	N/A	Web-based Comments	52295	34
Guren	David	not provided	N/A	Web-based Comments	12026	24
Gurke	Carmen	not provided	N/A	Web-based Comments	9869	24
Gurley	David E.	not provided	N/A	Web-based Comments	12189	24
Gurney	Hugh	not provided	N/A	Web-based Comments	15819	24
Gurney	Williaml	not provided	N/A	Web-based Comments	31618	24
Gurtek	Brent	not provided	N/A	Web-based Comments	9439	24
Gurtner	Ellen	not provided	N/A	Web-based Comments	13916	24
Guse	Kevin	not provided	N/A	Web-based Comments	20107	24
gushleff	gerald	not provided	N/A	Web-based Comments	14953	24
Gusick	Breanna	not provided	N/A	Web-based Comments	9384	24
Gussow	Joan	not provided	N/A	Web-based Comments	17685	N/A
Gustafson	Amy	not provided	N/A	Web-based Comments	7614	24
Gustafson	Carly	not provided	N/A	Web-based Comments	9860	24
Gustafson	Dee	gustafson.dee@gmail.com	N/A	Web-based comments	3414	N/A
Gustafson	Fawn	not provided	N/A	Web-based Comments	14399	24
Gustafson	Jan	not provided	N/A	Web-based Comments	44333	34
Gustafson	Nicole	not provided	N/A	Web-based Comments	25237	24
Gustaveson	Britt	not provided	N/A	Web-based Comments	50733	34
gustin	bernadette	not provided	N/A	Web-based Comments	8986	24
Gustin	Elizabeth	not provided	N/A	Web-based Comments	13750	24
Gustoson	Laura	not provided	N/A	Web-based Comments	47649	34
Guterres	Eugenia	not provided	N/A	Web-based Comments	46888, 50992	34
Gutgsell	Billie	not provided	N/A	Web-based Comments	9194	24
Guthrie	Christopher	cguthriester@gmail.com	N/A	Web-based comments	6128	1
Guthrie	Janet	not provided	N/A	Web-based Comments	16603	24
Guthrie	Katherine	not provided	N/A	Web-based Comments	19451	24
Gutierrez	Alma	not provided	N/A	Web-based Comments	7485	24
Gutierrez	Edmund	not provided	N/A	Web-based Comments	13475	24
Gutierrez	Jenna	not provided	N/A	Web-based Comments	45275, 45276	34
Gutierrez	Mary	not provided	N/A	Web-based Comments	23288	24
Gutierrez	Maximillian F. O.	not provided	N/A	Web-based Comments	23746	24
Gutkowski	Christine	not provided	N/A	Web-based Comments	10924	24
Gutshall	Tamra	not provided	N/A	Web-based Comments	30167	24
Guy	Elaine	not provided	N/A	Web-based Comments	44527	34
Guy	Josh	not provided	N/A	Web-based Comments	55117	34
Guy	Josh	not provided	N/A	Web-based Comments	18417	24
Guy	Margaret	not provided	N/A	Web-based Comments	54572	34
Guymon	Marvin	not provided	N/A	Web-based Comments	23196	24
Guyonvarch	Nathalie	not provided	N/A	Web-based Comments	50906	34
Guzak	Karen	KarenGuzak@gmail.com	N/A	Web-based comments	2761	1
Guzik	Heather	not provided	N/A	Web-based Comments	46491	34
Guzman	Genevieve	not provided	N/A	Web-based Comments	54992	34
Guzman	Genevieve	not provided	N/A	Web-based Comments	14863	24
Guzman	Lourdes	not provided	N/A	Web-based Comments	56563	34
Guzman	Lourdes	not provided	N/A	Web-based Comments	21908	24
Guzman	Mario	not provided	N/A	Web-based Comments	22847	24
Guzman	Mary Edel	not provided	N/A	Web-based Comments	23517	24
Guzman	Sandra	not provided	N/A	Web-based comments	4091	N/A
guzynski	elizabeth	not provided	N/A	Web-based Comments	13751	24
Gwynn	Elizabeth	not provided	N/A	Web-based Comments	13752	24
Gwynn	Maureen	not provided	N/A	Web-based Comments	23692	24
Gx	Perry	not provided	N/A	Web-based Comments	53822, 53823	34
Gydus	Jennie	not provided	N/A	Web-based Comments	17145	24
Gyllesten	Linda	not provided	N/A	Web-based Comments	21285	24
H	B	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58389	32
H	B	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	4786	18
H	Caitlyn	not provided	N/A	Web-based comments	855	N/A
H	Carole	not provided	N/A	Web-based Comments	45511	34
H	Carole	not provided	N/A	Web-based Comments	10080	24
H	Carole	not provided	N/A	Web-based Comments	58067	16
H	Clarisse	not provided	N/A	Web-based Comments	54744	34
h	d	not provided	N/A	Web-based Comments	54318	34

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
H	D	not provided	N/A	Web-based Comments	11579	24
h	don	not provided	N/A	Web-based Comments	13023	24
H	Emma	not provided	N/A	Web-based comments	3779	1
H	Heather	not provided	N/A	Web-based Comments	51333	34
H	Heather	not provided	N/A	Web-based Comments	15511	24
H	K	not provided	N/A	Web-based Comments	18974	24
H	Kim	not provided	N/A	Web-based comments	1993	1
h	lauren	leletsinger@gmail.com	N/A	Web-based comments	1293	2
h	m	not provided	N/A	Web-based Comments	22176	24
H	Marcellene	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4253	N/A
H	Mary	not provided	N/A	Web-based Comments	23289	24
H	N	not provided	N/A	Web-based Comments	51740	34
H	N	not provided	N/A	Web-based Comments	24732	24
h	reem	not provided	N/A	Web-based Comments	49504	34
H	T	not provided	N/A	Web-based Comments	30089	24
H	Tran	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	4793	18
H	Vik	not provided	N/A	Web-based Comments	31240	24
H	Will	not provided	N/A	Web-based Comments	31486	24
H.	F.	not provided	N/A	Web-based Comments	14373	24
H.	G.	not provided	N/A	Web-based Comments	14624	24
H.	Janet	not provided	N/A	Web-based Comments	49894	34
H.	Janet	not provided	N/A	Web-based Comments	16604	24
H.	John	not provided	N/A	Web-based comments	3574	16
H.	Sarah	not provided	N/A	Web-based comments	1343	N/A
H[unreadable]lsmann	Benedikt	not provided	N/A	Web-based Comments	8954	24
H[unreadable]rhager	Melanie	not provided	N/A	Web-based comments	57707	35
Ha	Kathi	not provided	N/A	Web-based Comments	19498	24
Ha	Sabrina	not provided	N/A	Web-based comments	56800	35
Haa	Janet	not provided	N/A	Web-based Comments	51338	34
Haag	Andrea	not provided	N/A	Web-based Comments	7746	24
HaaHeim	Carolyn	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58300	11
Haaland	Monica	not provided	N/A	Web-based Comments	24629	24
Haam	Lori	not provided	N/A	Web-based Comments	56202	34
Haan	Thomas de	not provided	N/A	Web-based Comments	47610	34
Haas	Elizabeth	not provided	N/A	Web-based Comments	13753	24
Haas	Eric	not provided	N/A	Web-based Comments	44388	34
haas	george	georgehhaas@hotmail.com	N/A	Web-based comments	2286	N/A
Haas	Linda	not provided	N/A	Web-based Comments	21286	24
Haas	Pamela	not provided	N/A	Web-based Comments	25554	24
Haataja	Riikka	not provided	N/A	Web-based comments	56749	35
Haavind	Sarah	not provided	N/A	Web-based Comments	54201	34
Haavisto	Pirkko	not provided	N/A	Web-based Comments	26416	24
Habben	Nicholas	not provided	N/A	Web-based Comments	44863	34
Habecker	Sue	not provided	N/A	Web-based Comments	45221	34
Habecker	Sue	not provided	N/A	Web-based Comments	29521	24
Habel	Adam	adamhabel1998@gmail.com	N/A	Web-based comments	1216	N/A
Habenicht	Brian	not provided	N/A	Web-based Comments	56385	34
Haberbush	Jill	not provided	N/A	Web-based comments	57375	35
Haberlin	Sally	not provided	N/A	Web-based Comments	28012	24
Haberman	David	not provided	N/A	Web-based Comments	12027	24
Habick	William	not provided	N/A	Web-based Comments	31543	24
habis	sara	not provided	N/A	Web-based Comments	53191	34
Haboucha	Shane	not provided	N/A	Web-based Comments	28567	24
Hache	Marlene	not provided	N/A	Web-based comments	57482	35
Hachmann-Sarmiento	Barbara	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4681	N/A
Hack	Mary	not provided	N/A	Web-based Comments	23290	24
Hack	Todd	not provided	N/A	Web-based Comments	30719	24
Hacker	Arlynn	arlynnh@hotmail.com	N/A	Web-based comments	31971	N/A
Hacker	Linda	not provided	N/A	Web-based Comments	21287	24
Hacker	Stephanie	not provided	N/A	Web-based Comments	29217	24
Hacker	Sue	not provided	N/A	Web-based Comments	29522	24
Hacker	Terri	not provided	N/A	Web-based Comments	30334	24
Hackett	Alex	not provided	N/A	Web-based Comments	57940	16
Hackett	Bonnie	not provided	N/A	Web-based Comments	9300	24
Hackett	David	not provided	N/A	Web-based comments	31767	1
Hackett	Marcia C.	not provided	N/A	Web-based Comments	22389	24
Hackler	Laura	not provided	N/A	Web-based Comments	47524, 47525	34
Hackler	Laura	not provided	N/A	Web-based Comments	20646	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Hacklin	Cathy	not provided	N/A	Web-based Comments	10367	24
Hackney	Stephen	not provided	N/A	Web-based Comments	46869	34
Hackney	Stephen	not provided	N/A	Web-based Comments	29296	24
Hackney	William	not provided	N/A	Web-based Comments	31544	24
Hadd	L. Leilani	not provided	N/A	Web-based Comments	20502	24
Haddad	Gita	not provided	N/A	Web-based Comments	15100	24
Haddad	Natalie	not provided	N/A	Web-based Comments	48580, 48581	34
Haddad	Reem	not provided	N/A	Web-based Comments	50047	34
haddad	reem	not provided	N/A	Web-based Comments	26798	24
Hadden	Marion	not provided	N/A	Web-based Comments	22852	24
Haddix	Keven	not provided	N/A	Web-based Comments	20079	24
Haddock	Brenda	not provided	N/A	Web-based Comments	50876	34
Haddock	Brenda	not provided	N/A	Web-based Comments	9402	24
Haddox	Inge	not provided	N/A	Web-based Comments	54490	34
Hadfield	Stefan	not provided	N/A	Web-based Comments	49606, 49607	34
Hadjinian	Daniel	not provided	N/A	Web-based Comments	11740	24
Hadland	Gwen	not provided	N/A	Web-based Comments	58009	16
Hadley	D.	not provided	N/A	Web-based Comments	57853	34
Hadley	D.	not provided	N/A	Web-based Comments	11599	24
Hadley	Kathy	kathyfree17@aol.com	N/A	Web-based comments	3060	N/A
HADLEY	RON	not provided	N/A	Web-based comments	2600	N/A
Hadsall	Donna	not provided	N/A	Web-based Comments	13135	24
Haeberle	Jacob	haebjaco@isu.edu	N/A	Web-based comments	3865	N/A
Haebig	Susan	not provided	N/A	Web-based Comments	29699	24
haegele	william	not provided	N/A	Web-based Comments	31545	24
Haemmerle	Joseph	not provided	N/A	Web-based Comments	18365	24
Haenisch	Alexandra	not provided	N/A	Web-based Comments	53044	34
Haertel	Melissa	not provided	N/A	Web-based Comments	23887	24
Hafer	Sarah	not provided	N/A	Web-based Comments	53589, 53590, 57974	34, 16
Hafer	Sarah	not provided	N/A	Web-based Comments	28354	24
Hafey	Catherine	not provided	N/A	Web-based Comments	47142, 47143	34
Hafey	Catherine	not provided	N/A	Web-based Comments	10280	24
Hafez	Melissa	not provided	N/A	Web-based Comments	52898	34
Haffenberg	Liza	not provided	N/A	Web-based Comments	21701	24
haffner	alexandra	not provided	N/A	Web-based Comments	51008	34
Haflich	Anne	not provided	N/A	Web-based Comments	51704, 51705	34
Hafner	Amanda	not provided	N/A	Web-based Comments	7536	24
Hafner	Axel	not provided	N/A	Web-based Comments	8555	24
Hafner	Jacqueline	not provided	N/A	Web-based Comments	58528	34
Hafner	Nancy	not provided	N/A	Web-based Comments	24876	24
Hafner	Sharon	not provided	N/A	Web-based Comments	46871	34
Hagan	Martha	haganmartha@gmail.com	N/A	Web-based comments	1818	N/A
Hagar	Arthur	not provided	N/A	Web-based Comments	44536	34
Hagedorn	Don	not provided	N/A	Web-based Comments	13024	24
Hagedorn	Traci	not provided	N/A	Web-based comments	57281	35
Hageman	Lisa	not provided	N/A	Web-based Comments	21566	24
Hagemann	Henry	not provided	N/A	Web-based Comments	15665	24
Hagen	Cleo	not provided	N/A	Web-based Comments	45868	34
Hagen	Dave	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	5541	N/A
Hagen	Emma	not provided	N/A	Web-based Comments	14056	24
Hagen	John	not provided	N/A	Web-based Comments	49524	34
Hagen	Julie	not provided	N/A	Web-based Comments	52046, 52047	34
Hagen	Julie	not provided	N/A	Web-based Comments	18841	24
Hagen	Randall	not provided	N/A	Web-based Comments	26616	24
Hagen	Stephanie	not provided	N/A	Web-based Comments	58429	34
Hagen	Valerie	not provided	N/A	Web-based Comments	46628	34
Hager	Jennifer	not provided	N/A	Web-based Comments	17196	24
Hager	Jon	not provided	N/A	Web-based Comments	45123, 45124	34
Hager	Jon	not provided	N/A	Web-based Comments	18252	24
Haggard	Judy	not provided	N/A	Web-based Comments	47343, 50642	34
Haggerty	Janice	not provided	N/A	Web-based Comments	58644	34
Haggerty	Janice	not provided	N/A	Web-based Comments	16679	24
Haggin	Bart	not provided	N/A	Web-based Comments	8870	24
Haggins	Helen	not provided	N/A	Web-based Comments	51883	34
Hague	Michael	not provided	N/A	Web-based Comments	45524	34
Hahn	Cindi	not provided	N/A	Web-based Comments	11059	24
Hahn	Genna	not provided	N/A	Web-based Comments	14869	24
Hahn	Jeanne	not provided	N/A	Web-based Comments	16952	24
Hahn	Joy	not provided	N/A	Web-based Comments	18460	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Hahn	Mary	not provided	N/A	Web-based Comments	55639	34
Hahn	Patricia	not provided	N/A	Web-based Comments	25768	24
Hahn	Todd	not provided	N/A	Web-based Comments	30720	24
Haider	Sean	not provided	N/A	Web-based Comments	28517	24
Haidinger	Shirley	not provided	N/A	Web-based Comments	28952	24
Haidrani	Layla	not provided	N/A	Web-based Comments	20891	24
Haidrani	Salma	not provided	N/A	Web-based Comments	28041	24
Haig	Brenda	not provided	N/A	Web-based Comments	9403	24
Haig	Glenn	not provided	N/A	Web-based Comments	56192	34
Haigermoser	Steffi	not provided	N/A	Web-based Comments	46315	34
Haigh	Jan	haighspam@frontier.com	N/A	Web-based comments	58842	N/A
Haigh-Smith	Astrid	not provided	N/A	Web-based Comments	8512	24
Hailey-Moss	Marian	not provided	N/A	Web-based Comments	22657	24
Haimet	Christian	not provided	N/A	Web-based Comments	10826	24
Haine	Sarah	not provided	N/A	Web-based Comments	28355	24
Haines	Kyle	not provided	N/A	Web-based Comments	20449	24
Hair	Karla	not provided	N/A	Web-based Comments	47102	34
Hair	Ursula	not provided	N/A	Web-based Comments	56269	34
Hairston	Rachel	not provided	N/A	Web-based Comments	26522	24
Hake	Shea	not provided	N/A	Web-based Comments	28771	24
Hake	Steve	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58703	29
Halajian	Joseph	not provided	N/A	Web-based Comments	48138	34
Halay	Elaine	not provided	N/A	Web-based Comments	13594	24
Halbert	Ellen	not provided	N/A	Web-based Comments	50513	34
Halbisen	Karen	not provided	N/A	Web-based Comments	19110	24
Hale	Corinne	not provided	N/A	Web-based Comments	48760	34
Hale	Jim	not provided	N/A	Web-based Comments	17582	24
Hale	Karen Etter	not provided	N/A	Web-based Comments	19259	24
Hale	Katie	not provided	N/A	Web-based Comments	55348	34
Hale	Katie	not provided	N/A	Web-based Comments	19791	24
Hale	R	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	4788	18
Hale	Sandra	halesandra5@gmail.com	N/A	Web-based comments	5423	N/A
Hale	Shirley	not provided	N/A	Web-based Comments	28953	24
Hale	Valli	not provided	N/A	Web-based Comments	44673, 44674	34
Hale	William	not provided	N/A	Web-based Comments	31546	24
Hale Jr.	Frank	not provided	N/A	Web-based Comments	14532	24
Hale Jr.	Frank	not provided	N/A	Web-based Comments	58603, 58604	34
Haley	Deb	not provided	N/A	Web-based Comments	12291	24
Haley	James	not provided	N/A	Web-based Comments	16225	24
Haley	Jim	not provided	N/A	Web-based Comments	46593	34
Haley	Lauren	not provided	N/A	Web-based Comments	20769	24
Haley	Stacia	not provided	N/A	Web-based Comments	57883, 50203	16, 34
Haley	Susan	not provided	N/A	Web-based Comments	29700	24
Halfin	Clara	not provided	N/A	Web-based Comments	57756	34
Halfin	Robert	not provided	N/A	Web-based Comments	48228	34
Halick	Michael	not provided	N/A	Web-based Comments	24102	24
Haling	Kim	not provided	N/A	Web-based Comments	48193, 48194	34
Haling	Kim	not provided	N/A	Web-based Comments	20180	24
hall	adrian	not provided	N/A	Web-based Comments	7080	24
Hall	Andrea	not provided	N/A	Web-based Comments	52410	34
Hall	Beth	not provided	N/A	Web-based Comments	50287	34
Hall	Beth	not provided	N/A	Web-based Comments	9024	24
Hall	Betsy	not provided	N/A	Web-based Comments	9072	24
Hall	Carol	not provided	N/A	Web-based Comments	44517, 44518, 52810	34
Hall	Cate	not provided	N/A	Web-based Comments	10248	24
Hall	Cecil	not provided	N/A	Web-based Comments	10412	24
Hall	Chris	not provided	N/A	Web-based Comments	10744	24
Hall	Christopher	not provided	N/A	Web-based Comments	49182, 49183	34
Hall	Cory	not provided	N/A	Web-based Comments	51985, 51986	34
Hall	Cory	not provided	N/A	Web-based Comments	11392	24
hall	craig	not provided	N/A	Web-based comments	4313	N/A
Hall	Dave	dave.hall08@yahoo.com	N/A	Web-based comments	6321	N/A
HALL	DAVID	DAVIE1970@CABLEONE.NET	N/A	Web-based comments	5306	N/A
Hall	David	not provided	N/A	Web-based comments	6543	N/A
Hall	David	not provided	N/A	Web-based Comments	52269	34
Hall	David	not provided	N/A	Web-based Comments	12028	24
Hall	Dinorah	not provided	N/A	Web-based Comments	49959	34
Hall	Dinorah	not provided	N/A	Web-based Comments	12965	24
Hall	Dorothy	not provided	N/A	Web-based Comments	13260	24
Hall	Eliza	not provided	N/A	Web-based Comments	13698	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Hall	Ellen	not provided	N/A	Web-based Comments	44545	34
Hall	Gary	not provided	N/A	Web-based Comments	14768	24
Hall	Gerri	not provided	N/A	Web-based Comments	51392	34
Hall	Gina	not provided	N/A	Web-based Comments	15053	24
Hall	Grace	not provided	N/A	Web-based Comments	51918, 51919	34
Hall	Gwendolyn	not provided	N/A	Web-based Comments	15359	24
Hall	Holly	not provided	N/A	Web-based Comments	15749	24
Hall	James	not provided	N/A	Web-based Comments	16226	24
Hall	Jan	not provided	N/A	Web-based Comments	16400	24
Hall	Janice	not provided	N/A	Web-based Comments	16680	24
Hall	Jeff	not provided	N/A	Web-based comments	57366	35
Hall	Jennifer	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4674	N/A
Hall	Johnny	not provided	N/A	Web-based Comments	53059, 53060	34
Hall	Johnny	not provided	N/A	Web-based Comments	18235	24
Hall	Judith	not provided	N/A	Web-based Comments	55308	34
Hall	Judy	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	2847	N/A
Hall	Karen	not provided	N/A	Web-based Comments	19111	24
Hall	Kathy	not provided	N/A	Web-based Comments	58211	16
Hall	Keith	not provided	N/A	Web-based Comments	48701	34
HALL	Kim	not provided	N/A	Web-based Comments	20181	24
Hall	Laurel	not provided	N/A	Web-based Comments	20737	24
Hall	Lex	not provided	N/A	Web-based Comments	21130	24
Hall	Lola	not provided	N/A	Web-based Comments	21736	24
Hall	Mary	not provided	N/A	Web-based Comments	45496	34
Hall	Mary	not provided	N/A	Web-based Comments	23291	24
Hall	Michael	not provided	N/A	Web-based Comments	24103	24
Hall	Natalie	not provided	N/A	Web-based Comments	25064	24
Hall	Pamela	not provided	N/A	Web-based Comments	25555	24
Hall	Rene	not provided	N/A	Web-based Comments	26829	24
Hall	Robert	not provided	N/A	Web-based Comments	48753	34
Hall	Roger	not provided	N/A	Web-based Comments	27584	24
Hall	Ryan	not provided	N/A	Web-based Comments	55561, 55562	34
Hall	Sandra	not provided	N/A	Web-based Comments	28155	24
hall	sandy	not provided	N/A	Web-based Comments	28245	24
Hall	Sheryl	not provided	N/A	Web-based Comments	28921	24
Hall	Silvia	not provided	N/A	Web-based Comments	52316	34
Hall	Silvia	not provided	N/A	Web-based Comments	29010	24
Hall	Stacie	not provided	N/A	Web-based Comments	29130	24
Hall	Stacy	not provided	N/A	Web-based Comments	51596	34
Hall	Steven	not provided	N/A	Web-based Comments	29436	24
Hall	Sue	not provided	N/A	Web-based Comments	48672, 48673	34
Hall	Sue	not provided	N/A	Web-based Comments	29523	24
Hall	Susan	hall.sue60@me.com	N/A	Web-based comments	5113	N/A
Hall	Suzanne	not provided	N/A	Web-based comments	4497	11
Hall	Teresa	not provided	N/A	Web-based Comments	30274	24
Hall	Terry	not provided	N/A	Web-based Comments	30371	24
Hallal	Kathleen	not provided	N/A	Web-based Comments	19540	24
Hallanger	Lawrence	not provided	N/A	Web-based Comments	47970	34
Hallanger	Lawrence	not provided	N/A	Web-based Comments	20876	24
Hallas	Melissa	melissahallas@gmail.com	N/A	Web-based comments	32075	N/A
Halle	Nicholas	nickhalle@gmail.com	N/A	Web-based comments	31822	8
Hallead	Gerald	not provided	N/A	Web-based Comments	14954	24
Haller	Dave	dhaller@basinpacific.com	N/A	Web-based comments	3063	N/A
Haller	Keith	not provided	N/A	Web-based Comments	19874	24
Haller	Maryann	not provided	N/A	Web-based Comments	23557	24
Hallet	Bonnie	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	44256	N/A
Hallett	Scott	not provided	N/A	Web-based Comments	28473	24
Hallett	Scott and Susan	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	2846	N/A
Halliday	Deb	not provided	N/A	Web-based Comments	12292	24
Halliday	Elizabeth	not provided	N/A	Web-based Comments	13754	24
Halliday	Nancy	not provided	N/A	Web-based Comments	24877	24
Halliday	Paul	not provided	N/A	Web-based Comments	53991	34
Halligan	Marcia	not provided	N/A	Web-based Comments	22370	24
Halligan	Michele	not provided	N/A	Web-based Comments	50863	34
Halligan	Michele	not provided	N/A	Web-based Comments	24286	24
Halligan	Sue	not provided	N/A	Web-based Comments	49838, 49839	34
Halligan	Sue	not provided	N/A	Web-based Comments	29524	24
Hallinan	Edward	not provided	N/A	Web-based Comments	13499	24
hallisey	judine	not provided	N/A	Web-based Comments	18550	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Hallman	Dianne	not provided	N/A	Web-based comments	1724	N/A
Hallman	Janice	not provided	N/A	Web-based Comments	16681	24
Halloran	Ellen	not provided	N/A	Web-based Comments	13917	24
Halloran	Michael	not provided	N/A	Web-based Comments	57893, 52503	16, 34
Halloran	Michael	not provided	N/A	Web-based Comments	24104	24
Halls	Brittany	not provided	N/A	Web-based Comments	9569	24
Hallsett	Candice	not provided	N/A	Web-based comments	56962	35
Halm	Michael	not provided	N/A	Web-based Comments	53804	34
Halonen	John	not provided	N/A	Web-based Comments	18035	24
Halperen	Sidney	not provided	N/A	Web-based Comments	53493	34
Halperin	DaliaRuth	not provided	N/A	Web-based comments	57739	35
Halperin	DaliaRuth	not provided	N/A	Web-based Comments	11639	24
Halperin	David	not provided	N/A	Web-based Comments	12029	24
Halperin	Megan	not provided	N/A	Web-based Comments	23790	24
Halperin	Willa	not provided	N/A	Web-based Comments	31494	24
Halpern	David	not provided	N/A	Web-based Comments	12030	24
Halpern	Harvey	not provided	N/A	Web-based Comments	50784	34
Halpern	Harvey	not provided	N/A	Web-based Comments	15469	24
Halpern	Lisa	not provided	N/A	Web-based Comments	49779	34
Halsell	Claudia	not provided	N/A	Web-based Comments	11186	24
Halstead	Charles	chuckhalstead@hotmail.com	N/A	Web-based comments	5782	N/A
Halverson	Yancette	not provided	N/A	Web-based Comments	31653	24
Halvorsen	Verlaine	not provided	N/A	Web-based Comments	44379	34
Halvorsen	Verlaine	not provided	N/A	Web-based Comments	31091	24
Halvorson Wolver	Heather	not provided	N/A	Web-based Comments	15512	24
Ham	Christine	cham9014@gmail.com	N/A	Web-based comments	2870	N/A
Ham	Christine	ham007@hotmail.co.uk	N/A	Web-based comments	90	N/A
Ham	Christine	not provided	N/A	Web-based comments	57691	35
Ham	Christine	not provided	N/A	Web-based Comments	10925	24
Ham	Jenny	ham117@hotmail.co.uk	N/A	Web-based comments	130, 2871, 56841	35
Ham	Jenny	not provided	N/A	Web-based Comments	17291	24
Ham	Michele	not provided	N/A	Web-based Comments	24287	24
Hamaker	Jen	jenhamaker1@gmail.com	N/A	Web-based comments	3604	9
Haman	Debbie	not provided	N/A	Web-based Comments	48520	34
Hamann	Farrell	not provided	N/A	Web-based Comments	14396	24
Hamann	Susan	not provided	N/A	Web-based Comments	29701	24
Hamboyan Harrison	T	not provided	N/A	Web-based Comments	30090	24
Hambrick	Vicki	not provided	N/A	Web-based Comments	56408	34
Hambrick	Vicki	not provided	N/A	Web-based Comments	31131	24
Hambridge	Yvonne	not provided	N/A	Web-based Comments	31697	24
Hamby	Joy	not provided	N/A	Web-based Comments	18461	24
Hamer	Mary Ann	not provided	N/A	Web-based Comments	23491	24
Hamer	Michele	not provided	N/A	Web-based comments	56719	35
Hamer	Suzanne	not provided	N/A	Web-based Comments	44894, 44895, 57907	34, 16
Hamer	Suzanne	not provided	N/A	Web-based Comments	29996	24
Hamer	Suzanne	tedsuza@gmail.com	N/A	Web-based comments	632	N/A
Hames	Lex	not provided	N/A	Web-based Comments	54864	34
Hames	Lex	not provided	N/A	Web-based Comments	21131	24
Hamfler	Nanna	not provided	N/A	Web-based Comments	25035	24
Hamid	Carlye	not provided	N/A	Web-based comments	57161	35
Hamill	Nancy A	not provided	N/A	Web-based Comments	25024	24
Hamilton	Anne	not provided	N/A	Web-based Comments	56117	34
Hamilton	Ben	not provided	N/A	Web-based Comments	8937	24
Hamilton	Bonnie	not provided	N/A	Web-based Comments	56472	34
Hamilton	Bonnie	not provided	N/A	Web-based Comments	9301	24
Hamilton	Cathy	not provided	N/A	Web-based Comments	10368	24
Hamilton	Christopher	not provided	N/A	Web-based Comments	50299	N/A
Hamilton	Deborah	not provided	N/A	Web-based Comments	12410	24
Hamilton	Glenda	not provided	N/A	Web-based Comments	15122	24
Hamilton	Hazel	not provided	N/A	Web-based Comments	15486	24
Hamilton	James	not provided	N/A	Web-based Comments	16227	24
Hamilton	Jan	not provided	N/A	Web-based Comments	48775	34
Hamilton	Juli	not provided	N/A	Web-based Comments	18738	24
Hamilton	Keith	not provided	N/A	Web-based Comments	53843	34
Hamilton	Larry	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58735	13
Hamilton	Mary	not provided	N/A	Web-based Comments	23292	24
Hamilton	Mary and G. R.	not provided	N/A	Web-based Comments	23485	24
Hamilton	Mary Ann	not provided	N/A	Web-based Comments	23492	24
Hamilton	Melanie	not provided	N/A	Web-based Comments	51478	34
Hamilton	Nina	not provided	N/A	Web-based Comments	25307	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Hamilton	Pamela	not provided	N/A	Web-based Comments	25556	24
Hamilton	Peggy	hamgarn@gmail.com	N/A	Web-based comments	4117	N/A
Hamilton	Robert	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32312	11
Hamilton	SAGE	not provided	N/A	Web-based Comments	27990	24
Hamilton	Sarah	not provided	N/A	Web-based Comments	28356	24
Hamilton	Shanna	shamilton@owgl.org	N/A	Web-based comments	2768, 5537	N/A
Hamilton	Shari	not provided	N/A	Web-based Comments	52260	34
Hamilton	Shari	not provided	N/A	Web-based Comments	28611	24
Hamilton	Teresa	not provided	N/A	Web-based Comments	30275	24
Hamilton	Thomas	not provided	N/A	Web-based Comments	30499	24
Hamilton	Thomy	not provided	N/A	Web-based Comments	30571	24
Hamilton	Traci	not provided	N/A	Web-based Comments	30851	24
Hamilton	Vikki	not provided	N/A	Web-based Comments	31241	24
Hamley	Marcia	not provided	N/A	Web-based Comments	22371	24
Hamlin	Robin	not provided	N/A	Web-based Comments	27484	24
Hamm	Billy	not provided	N/A	Web-based Comments	9197	24
Hamm	Dennis	not provided	N/A	Web-based Comments	45059	34
Hamm	Shae	not provided	N/A	Web-based Comments	28555	24
Hamm	Sharon	not provided	N/A	Web-based Comments	28657	24
Hamm	Wendy	not provided	N/A	Web-based Comments	51722	34
Hamman	Judith	not provided	N/A	Web-based Comments	18601	24
Hamman	Sabrina	not provided	N/A	Web-based comments	725	N/A
Hammaren	Evelyn	not provided	N/A	Web-based Comments	14349	24
Hammarlund	John	ljhammarlund@gmail.com	N/A	Web-based comments	5214	8
Hammer	Dorothy	not provided	N/A	Web-based Comments	13261	24
Hammer	Douglas	not provided	N/A	Web-based Comments	13330	24
Hammer	Randy	not provided	N/A	Web-based Comments	54363	34
Hammerli	Nathaniel	not provided	N/A	Web-based Comments	25108	24
Hammermeister	Lisa	not provided	N/A	Web-based Comments	21567	24
Hammerschidt	Rudy	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58311	N/A
Hammerschmidt	Susan	not provided	N/A	Web-based Comments	55242	34
Hammerstad	Charles	not provided	N/A	Web-based Comments	55603	34
Hammerstad	Charles	not provided	N/A	Web-based Comments	10507	24
HAMMOCK	BRITTNEY	not provided	N/A	Web-based Comments	44421	34
HAMMOCK	BRITTNEY	not provided	N/A	Web-based Comments	9574	24
HAMMOCK	CHARLES	not provided	N/A	Web-based Comments	54681, 54682	34
HAMMOCK	CHARLES	not provided	N/A	Web-based Comments	10508	24
Hammond	Gretchen	not provided	N/A	Web-based Comments	15311	24
Hammond	Karen	not provided	N/A	Web-based Comments	19112, 19113	24
Hammond	Keith	not provided	N/A	Web-based Comments	19875	24
Hammond	Monica	not provided	N/A	Web-based Comments	46378	34
Hammond	Robert	not provided	N/A	Web-based Comments	44442	34
Hammond	Robert	not provided	N/A	Web-based Comments	27277	24
Hammond	Sabrina	not provided	N/A	Web-based Comments	27980	24
Hammond	Sally	not provided	N/A	Web-based Comments	46239, 46792	34
Hammond	Sally	not provided	N/A	Web-based Comments	28013	24
Hammond	Stephanie	not provided	N/A	Web-based Comments	29218	24
Hammond	Tim	not provided	N/A	Web-based Comments	30605	24
Hammond	Ysa	not provided	N/A	Web-based Comments	31675	24
Hammond-Dziak	Ronda	not provided	N/A	Web-based Comments	27678	24
Hammons	Bob	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58352	N/A
Hamoy	Liza	not provided	N/A	Web-based Comments	21702	24
Hampel	Susan	not provided	N/A	Web-based Comments	29702	24
Hampton	Greg	not provided	N/A	Web-based Comments	52182	34
Hampton	Greg	not provided	N/A	Web-based Comments	15237	24
Hampton	Jeri anne	not provided	N/A	Web-based Comments	44381	34
Hamre	Anne	not provided	N/A	Web-based Comments	8202	24
Hamrock	Lora	not provided	N/A	Web-based comments	57613	35
Han	Richard	not provided	N/A	Web-based comments	57211	35
Han	Richard	not provided	N/A	Web-based Comments	26978	24
Hanas	Diane	not provided	N/A	Web-based Comments	12845	24
Hanauer	Rachel	not provided	N/A	Web-based Comments	26523	24
Hanbey	Jocelyn	not provided	N/A	Web-based Comments	17838	24
Hancher	Jacqueline	not provided	N/A	Web-based Comments	16117	24
Hancher	Lawren	not provided	N/A	Web-based Comments	20873	24
Hanck	Nancy	not provided	N/A	Web-based Comments	24878	24
Hancock	Ceceia	not provided	N/A	Web-based Comments	10408	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Hancock	Dennis	Pokyd@msn.com	N/A	Web-based comments	4153	11
Hancock	Heath	not provided	N/A	Web-based Comments	48745, 48746	34
Hancock	James	not provided	N/A	Web-based Comments	16228	24
Hancock	Jonathan	not provided	N/A	Web-based Comments	44861	34
Hancock	Jonathan	not provided	N/A	Web-based Comments	18286	24
Hancock	L.Scott	lordgrizzly@gamil.com	N/A	Web-based comments	3707	N/A
Hancock	Maryann	not provided	N/A	Web-based comments	6644	N/A
Hancock	Peter	not provided	N/A	Web-based Comments	49751	34
Hancock	Rickey	not provided	N/A	Web-based Comments	27109	24
Hand	Bernadette	not provided	N/A	Web-based Comments	8987	24
Hand	David	not provided	N/A	Web-based Comments	46418	34
Hand	David	not provided	N/A	Web-based Comments	12031	24
Hand	Debra	not provided	N/A	Web-based Comments	46148, 46149	34
Hand	Debra	not provided	N/A	Web-based Comments	12524	24
Hand	Ed	not provided	N/A	Web-based Comments	13444	24
Hand	Judith	not provided	N/A	Web-based Comments	47325	34
Hand	Sue	not provided	N/A	Web-based Comments	29525	24
Hand	Victoria	not provided	N/A	Web-based Comments	31196	24
Handa	Sharon	not provided	N/A	Web-based Comments	28658	24
Handel	Jane	not provided	N/A	Web-based Comments	46103	34
Handel	Meryl	not provided	N/A	Web-based Comments	23999	24
Handelsman	Robert	not provided	N/A	Web-based Comments	52713	34
Handley	Carolyn	not provided	N/A	Web-based Comments	53162	34
Handley	Carolyn	not provided	N/A	Web-based Comments	10161	24
Handley	Edward	not provided	N/A	Web-based Comments	49639	34
Handley	Edward	not provided	N/A	Web-based Comments	13500	24
Handley	Margaret	not provided	N/A	Web-based Comments	22460	24
Hands	Donna	not provided	N/A	Web-based Comments	13136	24
Handsaker	Heidi	not provided	N/A	Web-based Comments	15569	24
Handwerker	Steven	not provided	N/A	Web-based Comments	29437	24
Haneman	Ronald	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58767	N/A
Haner	Madison	not provided	N/A	Web-based comments	31925	1
Hanes	Matt	not provided	N/A	Web-based Comments	23617	24
hang	khai	not provided	N/A	Web-based Comments	20150	24
Hanham	Kate	not provided	N/A	Web-based Comments	19381	24
Hani	Ki	not provided	N/A	Web-based Comments	20153	24
Hanifan	Anastasia	not provided	N/A	Web-based Comments	48309	34
Hanifan	Anastasia	not provided	N/A	Web-based Comments	7710	24
Haniff	Vanna	not provided	N/A	Web-based comments	57039	35
Hanke	Kacie	Kaciehanke@yahoo.com	N/A	Web-based comments	1336	1
Hanke	Kim	not provided	N/A	Web-based Comments	53656	34
Hankey	Mary	not provided	N/A	Web-based Comments	23293	24
Hankins	Caneta	not provided	N/A	Web-based Comments	9771	24
Hankins	Jeff	not provided	N/A	Web-based Comments	17024	24
Hankins	Julie	not provided	N/A	Web-based Comments	18842	24
Hankinson	Kathryn	not provided	N/A	Web-based Comments	19644	24
Hanks	Derek	derek.hanks@fallriverelectric.com	N/A	US Mail or commercial carrier (UPS, FedEx)	32494	13
Hanks	Derek	derek.hanks@fallriverelectric.com	N/A	Web-based comments	3558	11
Hanks	Laura	not provided	N/A	Web-based Comments	48561, 48562, 58189	34, 16
Hanks	Laura	not provided	N/A	Web-based Comments	20647	24
Hanlon	Emily	not provided	N/A	Web-based Comments	14017	24
Hanlon	G	not provided	N/A	Web-based Comments	14614	24
Hanlon	John	not provided	N/A	Web-based Comments	18036	24
hanlon	Juliet	not provided	N/A	Web-based Comments	18915	24
Hanly	Heather	not provided	N/A	Web-based Comments	47059	34
Hanmer	Noah	not provided	N/A	Web-based Comments	25330	24
Hann	Gary	not provided	N/A	Web-based Comments	58207	16
Hanna	Carolyn	not provided	N/A	Web-based Comments	46925	34
Hanna	John	not provided	N/A	Web-based Comments	18037	24
Hannah	Mark	not provided	N/A	Web-based Comments	46551	34
Hannah	Nancy	nancyhannah75@gmail.com	N/A	Web-based comments	4140	3
Hanna-Kroeze	Judith	not provided	N/A	Web-based Comments	18602	24
Hannay	Kathryn	not provided	N/A	Web-based Comments	55637	34
Hannigan	Bob	hanniganjb@comcast.net	N/A	Web-based comments	4446	N/A
Hannigan	Bob	not provided	N/A	Web-based Comments	54230	34
Hannum	Christine	not provided	N/A	Web-based Comments	10926	24
Hannwacker	Frank	not provided	N/A	Web-based Comments	14533	24
Hanover	Marsha	not provided	N/A	Web-based Comments	23069	24
Hanrahan	Heather	heather.hanrahan@wk.com	N/A	Web-based comments	32011	1
Hanrahan	Philip	not provided	N/A	Web-based Comments	49364, 50294	34

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Hanrahan	Philip	not provided	N/A	Web-based Comments	26341	24
Hanscom	Brad	not provided	N/A	Web-based Comments	52885	34
Hanscom	Brad	not provided	N/A	Web-based Comments	9340	24
Hanse	Joan	not provided	N/A	Web-based Comments	17686	24
Hansel	Ron	not provided	N/A	Web-based Comments	45131	34
Hansel	Ron	not provided	N/A	Web-based Comments	27622	24
Hansell	Connor	not provided	N/A	Web-based Comments	11326	24
Hansell	Judith	not provided	N/A	Web-based Comments	52733	34
Hansell	Warwick	not provided	N/A	Web-based Comments	31387	24
Hansell	Warwick	not provided	N/A	Web-based Comments	31388	24
Hanselman	Maryann	not provided	N/A	Web-based Comments	23558	24
Hansen	Amy	not provided	N/A	Web-based Comments	47574, 47575, 47576, 47577, 47578	34
Hansen	Amy	not provided	N/A	Web-based Comments	7615	24
Hansen	Amy	not provided	N/A	Web-based Comments	7616	24
Hansen	Angela	not provided	N/A	Web-based Comments	7906	24
Hansen	Ann	not provided	N/A	Web-based Comments	8044	24
Hansen	Araya	not provided	N/A	Web-based Comments	8396	24
Hansen	Britta	not provided	N/A	Web-based Comments	9566	24
Hansen	Bud	not provided	N/A	Web-based Comments	9649	24
Hansen	Christopher	not provided	N/A	Web-based Comments	11012	24
Hansen	Clifford	not provided	N/A	Web-based Comments	11220	24
Hansen	Dameon	not provided	N/A	Web-based Comments	11644	24
Hansen	David	dvhansen@churchofjesuschrist.org	N/A	Web-based comments	3977	N/A
Hansen	Jay	jay.hanson@fallriverelectric .com	N/A	US Mail or commercial carrier (UPS, FedEx)	32498	13
Hansen	Jeff	not provided	N/A	Web-based Comments	17025	24
Hansen	Jim	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32380	30
Hansen	Jordy	jhansen466@gmail.com	N/A	Web-based comments	6937	1
Hansen	Julie	not provided	N/A	Web-based Comments	44838	34
Hansen	Katherine	not provided	N/A	Web-based Comments	58242	16
Hansen	Kim Marie	not provided	N/A	Web-based Comments	20210	24
Hansen	Lucy	not provided	N/A	Web-based Comments	21954	24
Hansen	Marilyn	not provided	N/A	Web-based Comments	22784	24
Hansen	Marilyn	not provided	N/A	Web-based Comments	22785	24
Hansen	Mark	mhansen@d401.k12.id.us	N/A	Web-based comments	3094	N/A
Hansen	Mike	not provided	N/A	Web-based Comments	24456	24
Hansen	Noelle	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32458	11
HANSEN	PAUL	not provided	N/A	Web-based Comments	26003	24
Hansen	Stacey	renegadefox@icloud.com	N/A	Web-based comments	237	N/A
Hansen	Stacey	renegadefox@icloud.com	N/A	Web-based comments	900	1
Hansford	Heidi	not provided	N/A	Web-based Comments	54103	34
Hanshaw	Pat	not provided	N/A	Web-based Comments	25654	24
Hanson	Annette	not provided	N/A	Web-based Comments	47786, 47787	34
Hanson	Annette	not provided	N/A	Web-based Comments	8280	24
Hanson	Art	not provided	N/A	Web-based Comments	8452	24
Hanson	Barbara	not provided	N/A	Web-based Comments	8690	24
Hanson	Carol	not provided	N/A	Web-based Comments	9938	24
Hanson	Hazel	not provided	N/A	Web-based comments	6078	N/A
Hanson	Heather	not provided	N/A	Web-based Comments	15513	24
Hanson	Holly	not provided	N/A	Web-based Comments	15750	24
Hanson	Jay	tetonjay@silverstar.com	N/A	Web-based comments	3468	N/A
Hanson	Jean	not provided	N/A	Web-based Comments	47183	34
Hanson	Jean W	not provided	N/A	Web-based Comments	16905	24
Hanson	John	johnlhanson@Hotmail.com	N/A	Web-based comments	29	N/A
Hanson	Kathy	not provided	N/A	Web-based Comments	46735	34
Hanson	Kinee	not provided	N/A	Web-based Comments	20263	24
Hanson	Marie	not provided	N/A	Web-based Comments	22707	24
Hanson	Marilyn	not provided	N/A	Web-based Comments	52590	34
Hanson	Mark	mark.hanson.ret@gmail.com	N/A	Web-based comments	2372	N/A
Hanson	Maxine	not provided	N/A	Web-based Comments	23750	24
Hanson	Phil	not provided	N/A	Web-based Comments	50732	34
Hanson	Phil	not provided	N/A	Web-based Comments	26322	24
Hanson	Phillip	not provided	N/A	Web-based Comments	26361	24
hanson	reid	not provided	N/A	Web-based Comments	26815	24
Hanson	Richard	dickhanson@charter.net	N/A	Web-based comments	16	N/A
Hanson	Ryan	not provided	N/A	Web-based Comments	54262	34
Hanson	Ryan	not provided	N/A	Web-based Comments	27912	24
Hanson	Sarah	not provided	N/A	Web-based Comments	50013	34
Hanson	Sarah	not provided	N/A	Web-based Comments	28357	24
Hanson	Tyler	not provided	N/A	Web-based comments	5158	N/A

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Hantel	Johanna	not provided	N/A	Web-based Comments	52117	34
Hantel	Johanna	not provided	N/A	Web-based Comments	17940	24
Hanton	Mandy	not provided	N/A	Web-based Comments	46033, 46034	34
Hanton	Mandy	not provided	N/A	Web-based Comments	22305	24
Hanus	Jeffry	not provided	N/A	Web-based Comments	49942	34
Hanzelova	Anna	not provided	N/A	Web-based Comments	49531, 49532	34
Happel	Charles	not provided	N/A	Web-based Comments	10509	24
Harada	Jane	not provided	N/A	Web-based Comments	16489	24
Harband	Katherine	not provided	N/A	Web-based Comments	19452	24
Harber	Cathy	not provided	N/A	Web-based Comments	10369	24
Harbeson	Charlotte	not provided	N/A	Web-based Comments	46905, 46906	34
Harbin	Spencer	not provided	N/A	Web-based Comments	54263	34
Harbster	Christine	not provided	N/A	Web-based Comments	10927	24
Harcke	Virginia	not provided	N/A	Web-based Comments	31286	24
Hard	Gwendolyn	not provided	N/A	Web-based Comments	15360	24
Hardacre	Roberta	not provided	N/A	Web-based Comments	27434	24
Hardee	April	not provided	N/A	Web-based Comments	51369	34
Hardee	April	not provided	N/A	Web-based Comments	8383	24
Hardee	David	not provided	N/A	Web-based Comments	50571	34
Hardee	David	not provided	N/A	Web-based Comments	12032	24
Hardeman	Joanna	not provided	N/A	Web-based Comments	47423	34
Harder	Kate	not provided	N/A	Web-based Comments	47126, 47127	34
Harder	Kate	not provided	N/A	Web-based Comments	19382	24
Hardesty	Lesley	not provided	N/A	Web-based Comments	21043	24
Hardesty	Suzanne	not provided	N/A	Web-based Comments	29997	24
Hardie	Alexandra	not provided	N/A	Web-based Comments	7280	24
Hardie	Leslie	not provided	N/A	Web-based Comments	21071	24
Hardin	Brenda	not provided	N/A	Web-based Comments	9404	24
Hardin	Diane	not provided	N/A	Web-based Comments	12846	24
Hardin	Whitney	not provided	N/A	Web-based Comments	31472	24
Harding	Ann	not provided	N/A	Web-based Comments	8045	24
Harding	Brent	bhharding@comcast.net	N/A	Web-based comments	5837	8
Harding	Cheryl	not provided	N/A	Web-based Comments	10642	24
Harding	Connie	not provided	N/A	Web-based Comments	11307	24
Harding	Johanna	not provided	N/A	Web-based Comments	17941	24
Harding	Julia	not provided	N/A	Web-based comments	56902	35
Harding	Kelly	Kelly.harding@tidewater.com	N/A	Web-based comments	4126	N/A
Harding	Kim	not provided	N/A	Web-based Comments	20182	24
Harding	Lisa	not provided	N/A	Web-based Comments	46355	34
Harding	Mr.	joelaharding@yahoo.com	N/A	Web-based comments	3016	N/A
Harding	Natasha	not provided	N/A	Web-based Comments	25082	24
Harding	Sarah	not provided	N/A	Web-based comments	56898	35
Hardin-Levine	Carolyn	not provided	N/A	Web-based Comments	10162	24
Hardis	Marilyn	not provided	N/A	Web-based Comments	22786	24
Hardtke	Marcus	not provided	N/A	Web-based Comments	22399	24
Hardwick	Nancy	not provided	N/A	Web-based Comments	24879	24
Hardy	Constance	not provided	N/A	Web-based Comments	11338	24
Hardy	David	not provided	N/A	Web-based Comments	51974, 51975	34
Hardy	Diane	not provided	N/A	Web-based Comments	12847	24
Hardy	John	not provided	N/A	Web-based Comments	45717, 45718	34
Hardy	Linda	not provided	N/A	Web-based Comments	21288	24
Hardy	Ruth	not provided	N/A	Web-based Comments	27870	24
Hardziej	Mary	not provided	N/A	Web-based Comments	49420	34
Hardziej	Mary	not provided	N/A	Web-based Comments	23294	24
Hare	Jan	frizzy.mom@gmail.com	N/A	Web-based comments	239	N/A
Hare	Lindsey	not provided	N/A	Web-based Comments	21495	24
Harej	Katie	not provided	N/A	Web-based Comments	19792	24
Hareston	Elizabeth	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58409	32
Hargartner	Florence	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32394	N/A
Hargas	Margaret	not provided	N/A	Web-based Comments	22461	24
Hargesheimer	Kelly	not provided	N/A	Web-based Comments	19922	24
Hargrave	Alice	not provided	N/A	Web-based Comments	7342	24
Hargrave	Debra	not provided	N/A	Web-based Comments	12525	24
Hargrave	Karen	not provided	N/A	Web-based Comments	19114	24
Hargraves	Brenda	brendahargraves15@gmail.com	N/A	Web-based comments	4062	N/A
HARGREAVES	JAY	not provided	N/A	Web-based Comments	16808	24
Hargrove	Barbara	not provided	N/A	Web-based Comments	58592	34
Hargrove	Oren	not provided	N/A	Web-based Comments	25448	24
Hargus	Louis	not provided	N/A	Web-based Comments	21868	24
Harig	Carl	not provided	N/A	Web-based Comments	9804	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Harjo	Judy	not provided	N/A	Web-based Comments	18683	24
Harju	Merja	not provided	N/A	Web-based Comments	23990	24
Harke	Yvonne	not provided	N/A	Web-based Comments	31698	24
harker	christine	not provided	N/A	Web-based Comments	10928	24
Harker	Eldon	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32339	13
Harker	Jana	not provided	N/A	Web-based Comments	46788	34
Harker	Jana	not provided	N/A	Web-based Comments	16448	24
harkin	beth	not provided	N/A	Web-based Comments	9025	24
Harkins	Zona	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32427	13
Harlan	Melissa	not provided	N/A	Web-based Comments	51913	34
Harlan	Melissa	not provided	N/A	Web-based Comments	23888	24
Harland	Donald	not provided	N/A	Web-based Comments	51403, 51404	34
Harles	Mahin	not provided	N/A	Web-based Comments	22279	24
Harless	Sue	not provided	N/A	Web-based Comments	29526	24
Harlow	Debora	not provided	N/A	Web-based Comments	12365	24
Harlow	Patricia	not provided	N/A	Web-based Comments	25769	24
Harlow	Patricia	not provided	N/A	Web-based Comments	25770	24
Harman	Dustin	not provided	N/A	Web-based Comments	13393	24
Harman	Michael	not provided	N/A	Web-based Comments	24105	24
Harman	Susan	not provided	N/A	Web-based Comments	51180	34
Harmand	Brice	not provided	N/A	Web-based Comments	56188	34
Harmatz	Jen	not provided	N/A	Web-based Comments	17118	24
Harmatz	Jennifer	not provided	N/A	Web-based Comments	51894	34
HARMER	CORLISS	not provided	N/A	Web-based Comments	54692	34
Harmon	Bruce	not provided	N/A	Web-based Comments	9609	24
Harmon	Gail	not provided	N/A	Web-based Comments	45429	34
Harmon	Lucy	not provided	N/A	Web-based Comments	50452, 57803	34
Harmon	Marlene	not provided	N/A	Web-based Comments	23040	24
Harmon	Nicole	not provided	N/A	Web-based Comments	25238	24
Harmon	Scout	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4683	N/A
Harmon	Susan	not provided	N/A	Web-based Comments	51374, 51375	34
Harmon	Tommy	not provided	N/A	Web-based Comments	30789	24
Harmony	Ti	not provided	N/A	Web-based Comments	30575	24
Harms	Daniel	not provided	N/A	Web-based Comments	11741	24
Harms	Kara	not provided	N/A	Web-based Comments	45856	34
Harms	Steve	not provided	N/A	Web-based Comments	29365	24
harned	william	not provided	N/A	Web-based Comments	47473	34
HARNEDY	Kacy	not provided	N/A	Web-based Comments	49502, 49501	34
Harney	Angela	not provided	N/A	Web-based Comments	7907	24
Harold	Steve	coolhluke37@yahoo.com	N/A	Web-based comments	3130	N/A
Harper	Alan	not provided	N/A	Web-based Comments	7166	24
Harper	Barbara	not provided	N/A	Web-based Comments	47431, 47432	34
Harper	Barbara	not provided	N/A	Web-based Comments	8691	24
Harper	Charesa	not provided	N/A	Web-based Comments	54168	34
Harper	Charesa	not provided	N/A	Web-based Comments	10464	24
Harper	Dennis	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4240	N/A
Harper	Eric	not provided	N/A	Web-based Comments	14109	24
Harper	Henry	not provided	N/A	Web-based Comments	15666	24
Harper	Jacqueline	not provided	N/A	Web-based Comments	49103	34
Harper	Joseph	not provided	N/A	Web-based Comments	18366	24
Harper	Karen	not provided	N/A	Web-based Comments	45641	34
Harper	Kim	not provided	N/A	Web-based comments	57601	35
Harper	Kim	not provided	N/A	Web-based Comments	20183	24
Harper	Marilynn	not provided	N/A	Web-based Comments	22826	24
Harper	Pamela	not provided	N/A	Web-based Comments	25557	24
Harper	Renee	not provided	N/A	Web-based Comments	26845	24
Harper	Robin	not provided	N/A	Web-based Comments	27485	24
Harper	Russell	rharper@cityoflewiston.org	N/A	Web-based comments	2554	N/A
Harper	Sean	not provided	N/A	Web-based Comments	51094	34
Harper	Sherylee	not provided	N/A	Web-based Comments	28931	24
HARPER	THOMAS	tjharper3@aol.com	N/A	Web-based comments	4495	N/A
Harr	Kendal	not provided	N/A	Web-based Comments	19997	24
Harr	Silva	not provided	N/A	Web-based Comments	29000	24
Harrel	Ilene	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32479	N/A
Harrell	Linda	not provided	N/A	Web-based Comments	21289	24
Harrelson	Katherine	not provided	N/A	Web-based Comments	19453	24
Harrigan	Koren	not provided	N/A	Web-based Comments	20308	24
Harriman	Christopher	christopherharriman@gmail.com	N/A	Web-based comments	2402	N/A
Harrington	Ashley	not provided	N/A	Web-based Comments	8484	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Harrington	Blaire	harringtonbe@gmail.com	N/A	Web-based comments	32122	1
Harrington	Bradford	not provided	N/A	Web-based Comments	9350	24
Harrington	Karen	not provided	N/A	Web-based Comments	46517	34
Harrington	Karen	not provided	N/A	Web-based Comments	19115	24
Harrington	Sue	not provided	N/A	Web-based Comments	29527	24
harrington	tyler	not provided	N/A	Web-based Comments	46714	34
harrington	tyler	not provided	N/A	Web-based Comments	30960	24
Harris	Alex	not provided	N/A	Web-based Comments	7244	24
Harris	Alexander	alex.harris24@gmail.com	N/A	Web-based comments	6132	N/A
Harris	B	not provided	N/A	Web-based Comments	47736	34
Harris	Caroline	not provided	N/A	Web-based Comments	10122	24
Harris	Cathy	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32399	13
Harris	Christopher	not provided	N/A	Web-based Comments	11013	24
Harris	Cindy	not provided	N/A	Web-based Comments	51329	34
Harris	Clare	not provided	N/A	Web-based Comments	44470, 44471	34
Harris	D. C.	not provided	N/A	Web-based Comments	54615, 54616	34
Harris	David	not provided	N/A	Web-based Comments	12033	24
Harris	Dawn	not provided	N/A	Web-based Comments	49903	34
Harris	Dawn	not provided	N/A	Web-based Comments	12218	24
Harris	Debbie	not provided	N/A	Web-based comments	2575	N/A
Harris	Devin	devinharris@hotmail.com	N/A	Web-based comments	2709	N/A
Harris	Emily	not provided	N/A	Web-based Comments	14018	24
Harris	Evelyn	not provided	N/A	Web-based Comments	14350	24
Harris	Frances	not provided	N/A	Web-based Comments	50317, 51657	34
Harris	Frankie	not provided	N/A	Web-based Comments	14554	24
Harris	Fred	not provided	N/A	Web-based Comments	14570	24
Harris	Freya	not provided	N/A	Web-based Comments	55452	34
Harris	Holly	not provided	N/A	Web-based Comments	44696	34
Harris	J. M.	not provided	N/A	Web-based Comments	16013	24
Harris	Jenna	not provided	N/A	Web-based Comments	47975	34
Harris	Jenna	not provided	N/A	Web-based Comments	17138	24
Harris	Jennifer	not provided	N/A	Web-based Comments	56056, 56057	34
Harris	Jennifer	not provided	N/A	Web-based Comments	17197	24
Harris	Joan	not provided	N/A	Web-based Comments	17687	24
Harris	John	not provided	N/A	Web-based Comments	18039	24
HARRIS	JOHN	not provided	N/A	Web-based Comments	18038	24
Harris	Julie	not provided	N/A	Web-based Comments	57885, 47920	16, 34
Harris	Julie	not provided	N/A	Web-based Comments	18843	24
Harris	Karen	not provided	N/A	Web-based Comments	19116	24
Harris	Kimberley	not provided	N/A	Web-based Comments	49279	34
harris	kym	not provided	N/A	Web-based Comments	57818	34
Harris	Kym	not provided	N/A	Web-based Comments	20466	24
Harris	L.	not provided	N/A	Web-based Comments	50968	34
Harris	Laurel	not provided	N/A	Web-based Comments	20738	24
Harris	Laurie	not provided	N/A	Web-based Comments	20835	24
Harris	Linda	not provided	N/A	Web-based Comments	21290	24
harris	lois	not provided	N/A	Web-based Comments	21717	24
Harris	Lorin	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32501	13
Harris	Lynn	not provided	N/A	Web-based Comments	44648	34
Harris	Margaret	not provided	N/A	Web-based Comments	22462	24
Harris	Margie	margie.harris@gmail.com	N/A	Web-based comments	3347	11
Harris	Mark	m586264@aol.com	N/A	Web-based Comments	23015	N/A
Harris	Mary	not provided	N/A	Web-based Comments	50586	34
Harris	Michael	not provided	N/A	Web-based Comments	50086	34
Harris	Michael	not provided	N/A	Web-based Comments	24106	24
Harris	Michael	not provided	N/A	Web-based Comments	24107	24
Harris	Nancy	not provided	N/A	Web-based Comments	24880	24
Harris	Perry	pharris2018@gmail.com	N/A	Web-based comments	2688	N/A
Harris	Robert	not provided	N/A	Web-based Comments	27278	24
Harris	Robert	not provided	N/A	Web-based Comments	27279	24
Harris	Robert F	not provided	N/A	Web-based Comments	27424	24
Harris	Roy	not provided	N/A	Web-based Comments	27808	24
Harris	Sarah	not provided	N/A	Web-based Comments	28358	24
Harris	Scott	not provided	N/A	Web-based comments	2172	N/A
Harris	Shari	not provided	N/A	Web-based Comments	28612	24
Harris	Sheryl	not provided	N/A	Web-based Comments	52448	34
Harris	Shirlene	not provided	N/A	Web-based Comments	53142, 53143	34
Harris	Shirley	not provided	N/A	Web-based Comments	50753, 53234	34
Harris	Shirley	not provided	N/A	Web-based Comments	28954	24
Harris	Talfryn	not provided	N/A	Web-based Comments	30110	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Harris	Ted	not provided	N/A	Web-based Comments	48075	34
Harris	Tom	not provided	N/A	Web-based Comments	30753	24
Harris	William	williamwharris63@gmail.com	N/A	Web-based comments	5656	N/A
Harris	Wright	not provided	N/A	Web-based Comments	31642	24
Harris Jr	J M	not provided	N/A	Web-based Comments	55995, 55996	34
Harris Jr	Louis C	not provided	N/A	Web-based Comments	52931	34
Harrison	Barbara	not provided	N/A	Web-based Comments	8692	24
Harrison	Cathy	not provided	N/A	Web-based Comments	10370	24
Harrison	David	not provided	N/A	Web-based Comments	50519	34
Harrison	Deb	not provided	N/A	Web-based Comments	12293	24
Harrison	Ester	not provided	N/A	Web-based Comments	50465	34
Harrison	Gregg	not provided	N/A	Web-based Comments	15261	24
Harrison	Hannah	not provided	N/A	Web-based Comments	15402	24
Harrison	Jeane	not provided	N/A	Web-based Comments	48497, 48498	34
Harrison	Jeane	not provided	N/A	Web-based Comments	16906	24
Harrison	Jen	not provided	N/A	Web-based Comments	51134	34
Harrison	Jen	not provided	N/A	Web-based Comments	17119	24
Harrison	Judy	not provided	N/A	Web-based Comments	18684	24
Harrison	Kathy	not provided	N/A	Web-based Comments	19705	24
Harrison	Marty	not provided	N/A	Web-based Comments	23191	24
Harrison	Mary	not provided	N/A	Web-based Comments	56270	34
Harrison	Pamela	not provided	N/A	Web-based Comments	45665	34
Harrison	Patricia	not provided	N/A	Web-based Comments	25771	24
Harrison	Randy	not provided	N/A	Web-based Comments	56240, 56241	34
Harrison	Randy	not provided	N/A	Web-based Comments	26636	24
Harrison	Robin	not provided	N/A	Web-based Comments	27486	24
Harrison	Roger	not provided	N/A	Web-based Comments	27585	24
Harrison	Sally	not provided	N/A	Web-based Comments	28014	24
Harrison	Scott	not provided	N/A	Web-based Comments	54921, 54922	34
Harrison	Scott	not provided	N/A	Web-based Comments	28474	24
Harrison	Susan	not provided	N/A	Web-based Comments	52946	34
Harrison	Susan	not provided	N/A	Web-based Comments	29703	24
Harrison	T Hamboyan	not provided	N/A	Web-based Comments	47088	34
Harrison	Thomas	not provided	N/A	Web-based Comments	30500	24
Harrison-Jorgensen	Colleen	not provided	N/A	Web-based Comments	11262	24
Harroff	Judith	not provided	N/A	Web-based Comments	18603	24
Harrold	Jodi	not provided	N/A	Web-based Comments	53328	34
Harry	Carl	carlharry71@gmail.com	N/A	Web-based comments	2456	N/A
Harry	Jill	not provided	N/A	Web-based Comments	17511	24
Harry	Sherry	not provided	N/A	Web-based Comments	46356	34
Harsh	Deborah	not provided	N/A	Web-based comments	2156	1
Harshbarger	Brooke	brookehbarger@gmail.com	N/A	US Mail or commercial carrier (UPS, FedEx)	32278	N/A
Harshbarger	Brooke	brookehbarger@gmail.com	N/A	Web-based comments	2218, 2220	1
Hart	Barbara	not provided	N/A	Web-based Comments	50621	34
Hart	Barbara	not provided	N/A	Web-based Comments	8693	24
Hart	Benjamin	not provided	N/A	Web-based Comments	8965	24
Hart	Carol	carol.nchs@gmail.com	N/A	Web-based comments	6934	N/A
Hart	Carole	not provided	N/A	Web-based Comments	10081	24
Hart	Cindy	not provided	N/A	Web-based Comments	53796	34
Hart	Cindy	not provided	N/A	Web-based Comments	11078	24
Hart	Crystal	not provided	N/A	Web-based Comments	51666	34
hart	crystal	not provided	N/A	Web-based Comments	11459	24
Hart	David	not provided	N/A	Web-based Comments	12034	24
Hart	Debbie	lynn207@yahoo.com	N/A	Web-based comments	58851	N/A
HART	DENNIS	not provided	N/A	Web-based Comments	12683	24
Hart	Donna	not provided	N/A	Web-based Comments	53725	34
Hart	Donna	not provided	N/A	Web-based Comments	13137	24
Hart	Emma	not provided	N/A	Web-based comments	1067	N/A
hart	eric	not provided	N/A	Web-based Comments	14110	24
Hart	Eric	not provided	N/A	Web-based Comments	14111	24
Hart	Hayley	not provided	N/A	Web-based Comments	15478	24
hart	janet	not provided	N/A	Web-based Comments	16605	24
Hart	Kathryn	not provided	N/A	Web-based Comments	19645	24
hart	kathy	not provided	N/A	Web-based Comments	19706	24
Hart	Linda	not provided	N/A	Web-based Comments	44544	34
Hart	Linda	not provided	N/A	Web-based Comments	21291	24
Hart	Marian	not provided	N/A	Web-based Comments	22658	24
Hart	Mary M	not provided	N/A	Web-based Comments	50849	34
Hart	Maureen	not provided	N/A	Web-based comments	57572	35
Hart	Robin	not provided	N/A	Web-based Comments	27487	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Hart	Sally	not provided	N/A	Web-based Comments	46433, 48966	34
Hart	Sandra	not provided	N/A	Web-based Comments	28156	24
Harte	Kelsey	not provided	N/A	Web-based comments	56718	35
Harte	Mary	not provided	N/A	Web-based Comments	23295	24
Hartenstine	Dennis	not provided	N/A	Web-based Comments	54225	34
Harter	James	not provided	N/A	Web-based Comments	16229	24
Harter	James	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58345	N/A
Harter	Patti	not provided	N/A	Web-based Comments	51721	34
Hartgraves	Paula	not provided	N/A	Web-based Comments	48719	34
Hartgraves	Paula	not provided	N/A	Web-based Comments	26083	24
Harting	Danyela	not provided	N/A	Web-based Comments	11839	24
Hartle	Mary Jo	not provided	N/A	Web-based Comments	23529	24
Hartley	James	not provided	N/A	Web-based comments	57597	35
Hartley	James	not provided	N/A	Web-based Comments	48396	34
Hartley	James	not provided	N/A	Web-based Comments	16230	24
Hartley	Lauren	lstanulishartley@gmail.com	N/A	Web-based comments	5664	1
Hartley	Nancy	not provided	N/A	Web-based Comments	24881	24
Hartley	Ross	rch@runbox.com	N/A	Web-based comments	3568	N/A
Hartlieb	Matthew	not provided	N/A	Web-based comments	57511	35
Hartman	Alex	alexhartman81@gmail.com	N/A	Web-based comments	5883	N/A
Hartman	Brenda	not provided	N/A	Web-based Comments	46671	34
Hartman	Evan	not provided	N/A	Web-based Comments	14329	24
Hartman	Gail	not provided	N/A	Web-based Comments	14690	24
Hartman	George	not provided	N/A	Web-based Comments	14892	24
Hartman	Jennifer	not provided	N/A	Web-based Comments	48328	34
Hartman	Jonathan	not provided	N/A	Web-based Comments	18287	24
Hartman	Mary	hartsisk@frontier.com	N/A	Web-based comments	5026	N/A
Hartman	Nancy	not provided	N/A	Web-based Comments	24882	24
Hartman	Nancy	not provided	N/A	Web-based Comments	24883	24
Hartman	Patricia	not provided	N/A	Web-based Comments	25772	24
Hartman	Penny	not provided	N/A	Web-based Comments	26206	24
Hartman	Richard	not provided	N/A	Web-based Comments	26979	24
Hartman	Susan	not provided	N/A	Web-based Comments	29704	24
Hartmann	Dr.	lorrainehartmann@comcast.net	N/A	Web-based comments	350	3
Hartmann	Lorraine	not provided	N/A	Web-based Comments	53881	34
Hartmann	Michael	not provided	N/A	Web-based Comments	24108	24
Hartmann	Sarah	not provided	N/A	Web-based Comments	28359	24
Hartness	Carole	not provided	N/A	Web-based Comments	49318	34
Hartojo	Erfin	not provided	N/A	Web-based Comments	14080	24
Hartsell	Brandy	not provided	N/A	Web-based Comments	9378	24
Hartshorn	Marcia	not provided	N/A	Web-based Comments	54605	34
Hartson	Jeff	not provided	N/A	Web-based comments	17	N/A
Hartstein	Roy	not provided	N/A	Web-based Comments	27809	24
Hartstone	Jayne	not provided	N/A	Web-based Comments	16828	24
Hartung	Bridgette	not provided	N/A	Web-based Comments	45671	34
Hartung	Bridgette	not provided	N/A	Web-based Comments	9545	24
Hartung	iLah	not provided	N/A	Web-based Comments	15845	24
Hartung	Lauren	not provided	N/A	Web-based Comments	53062	34
Hartung	Nancy	zhartung@gmail.com	N/A	Web-based comments	4087	N/A
Hartung	Roxanne	not provided	N/A	Web-based Comments	53931	34
HARTWIG	BERNARD	not provided	N/A	Web-based Comments	8993	24
Hartwig	Lara	lara_hartwig@hotmail.com	N/A	Web-based comments	3205	1
harty	florence	not provided	N/A	Web-based Comments	14449	24
Hartz	Brendan	not provided	N/A	Web-based Comments	49361	34
Hartz	Shelley	not provided	N/A	Web-based Comments	55711	34
Hartz	Shelley	not provided	N/A	Web-based Comments	28831	24
Hartzman	Peter	not provided	N/A	Web-based Comments	26256	24
Harupa	Tara	tarantagle@hotmail.com	N/A	Web-based comments	92	1
Harvey	Amy	not provided	N/A	Web-based Comments	7617	24
Harvey	Garrilynn	not provided	N/A	Web-based Comments	47329	34
Harvey	Garrilynn	not provided	N/A	Web-based Comments	14743	24
Harvey	Geoffrey	geoffreylharvey@gmail.com	N/A	Web-based comments	4588	N/A
Harvey	Jazmine	not provided	N/A	Web-based Comments	16833	24
Harvey	Jeff	not provided	N/A	Web-based Comments	17026	24
Harvey	Jo	not provided	N/A	Web-based Comments	45821	34
Harvey	Kathy	not provided	N/A	Web-based Comments	19707	24
Harvey	Korry	not provided	N/A	Web-based Comments	58292	16
Harvey	Kristin	not provided	N/A	Web-based Comments	20378	24
Harvey	Mark and Judy	not provided	N/A	Web-based Comments	23014	24
Harvey	Richard	not provided	N/A	Web-based Comments	26980	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Harvey	Sarah	not provided	N/A	Web-based Comments	28360	24
Harvey	Tami	not provided	N/A	Web-based Comments	30137	24
Harvey	Tim	not provided	N/A	Web-based Comments	30606	24
Harvey	Timothae	not provided	N/A	Web-based Comments	30637	24
Harwell	Hugh	not provided	N/A	Web-based Comments	45079	34
Harwell	Janet	not provided	N/A	Web-based Comments	16606	24
Harwood	Sharon	not provided	N/A	Web-based Comments	28659	24
Hasan	Terry	not provided	N/A	Web-based Comments	30372	24
Hasbach	Corinna	not provided	N/A	Web-based Comments	58104	16
Hasbrook	Elaine	not provided	N/A	Web-based Comments	13595	24
Hasbrouck	Katie	not provided	N/A	Web-based Comments	19793	24
hasenhuttl	claudia	not provided	N/A	Web-based Comments	54735	34
hasenhuttl	claudia	not provided	N/A	Web-based Comments	11187	24
Hasenoehrl	Mary	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32288	N/A
Hashem	Diane	not provided	N/A	Web-based Comments	12848	24
Haskel	Keith	not provided	N/A	Web-based Comments	19876	24
Haskell	Christine	not provided	N/A	Web-based Comments	10929	24
HASKELL	E	not provided	N/A	Web-based Comments	13412	24
Haskell	Lilli	not provided	N/A	Web-based Comments	21164	24
Haskell	Michael	not provided	N/A	Web-based Comments	48837	34
Haskin	Catherine	not provided	N/A	Web-based Comments	10281	24
Haskins	David	not provided	N/A	Web-based Comments	12035	24
Haskins	Paul	not provided	N/A	Web-based Comments	26004	24
Haskins	Tanner	not provided	N/A	Web-based comments	31844	N/A
Haslag	Robert	not provided	N/A	Web-based Comments	27280	24
Haslehurst	Rose	not provided	N/A	Web-based Comments	27721	24
Hassal-Abbey	Nyarie	not provided	N/A	Web-based Comments	25410	24
Hassan	Dena	not provided	N/A	Web-based Comments	12615	24
Hassan	Heather	not provided	N/A	Web-based Comments	15514	24
Hasselfelt	Sandra	not provided	N/A	Web-based Comments	28157	24
Hassig	William	not provided	N/A	Web-based Comments	31547	24
Hassinger	Richard	not provided	N/A	Web-based Comments	26981	24
Hasted	Sarah	not provided	N/A	Web-based Comments	52774	34
Hasted	Sarah	not provided	N/A	Web-based Comments	28361	24
Hasten	Oasis	not provided	N/A	Web-based Comments	25418	24
HASTINGS	JOHN	not provided	N/A	Web-based Comments	57924	16
Hatch	Heather	not provided	N/A	Web-based Comments	46496	34
Hatch	Lindalee	not provided	N/A	Web-based Comments	21475	24
Hatch	Madison	madisonhatch7@gmail.com	N/A	Web-based comments	1231	N/A
Hatcher	Barbara	not provided	N/A	Web-based Comments	56079	34
Hatcher	Cindy	not provided	N/A	Web-based Comments	11079	24
Hatcher	David	not provided	N/A	Web-based Comments	52340	34
Hatcher	Joan	not provided	N/A	Web-based Comments	17688	24
Hatcher	Meda	not provided	N/A	Web-based Comments	23773	24
hatchett	james	not provided	N/A	Web-based Comments	46701, 46702	34
hatchett	james	not provided	N/A	Web-based Comments	16231	24
Hatchett	Jerry	not provided	N/A	Web-based Comments	17357	24
Hatfield	Meredith	not provided	N/A	Web-based Comments	23973	24
Hathaway	Jenifer	not provided	N/A	Web-based Comments	17126	24
Hathaway	Laura	not provided	N/A	Web-based Comments	20648	24
Hathaway	Mallory	not provided	N/A	Web-based Comments	22299	24
Hathaway	Melissa	not provided	N/A	Web-based Comments	52458	34
Hathaway	Melissa	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32506	11
Hathaway	Rayla	rayla.hathaway@fallriverelectric.com	N/A	Web-based comments	3460	13
Hathaway	Samantha	not provided	N/A	Web-based Comments	28075	24
Hathorn	Sam	not provided	N/A	Web-based Comments	28057	24
Hatlestad	Janis	not provided	N/A	Web-based Comments	16739	24
Hatley	Greta	not provided	N/A	Web-based Comments	15303	24
Hatley	Leah	not provided	N/A	Web-based Comments	20903	24
Hattel	Brice	bricehattel@gmail.com	N/A	Web-based comments	4523	N/A
Hattemer	Carol	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	44257	N/A
Hatten	Jan	not provided	N/A	Web-based Comments	16401	24
Hatton	Tia	not provided	N/A	Web-based Comments	30576	24
Hauber	Barclay	not provided	N/A	Web-based Comments	58255	16
Hauck	Dennis	not provided	N/A	Web-based Comments	12684	24
Hauck	Molly	not provided	N/A	Web-based comments	57097	35
Hauck	Molly	not provided	N/A	Web-based Comments	47124	34
Hauck	Molly	not provided	N/A	Web-based Comments	24594	24
Hauck	Shirley	sarahsfh@hotmail.com	N/A	Web-based comments	1415	1

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Haudebourg	MichâˆšÂ®le	not provided	N/A	Web-based Comments	24011	24
Hauenstein	Cathleen	not provided	N/A	Web-based Comments	10340	24
Haug	Susan	not provided	N/A	Web-based Comments	29705	24
Haugaard	Margarita	not provided	N/A	Web-based Comments	22525	24
Hauge	Douglas	not provided	N/A	Web-based Comments	13331	24
Hauge	Jennifer	not provided	N/A	Web-based Comments	48472	34
Hauge	Vickie	not provided	N/A	Web-based Comments	31158	24
Haugen	Lisa	not provided	N/A	Web-based Comments	58194	16
Haukebo	Lindsay	not provided	N/A	Web-based Comments	21481	24
Haun	Sarah	not provided	N/A	Web-based Comments	28362	24
Haunhorst	Martin	not provided	N/A	Web-based Comments	46040, 46041	34
Haupstein	Karin	not provided	N/A	Web-based Comments	19281	24
Haupt	J.	not provided	N/A	Web-based Comments	16008	24
Hausburg	Paige	not provided	N/A	Web-based Comments	25482	24
Hauser	Karen	not provided	N/A	Web-based Comments	49847	34
Hausladen	Joan	not provided	N/A	Web-based Comments	17689	24
hausman	benson	not provided	N/A	Web-based Comments	8977	24
Hausman	Van	not provided	N/A	Web-based Comments	31059	24
Haut	Lisa	not provided	N/A	Web-based comments	2373	N/A
Hautzinger	Emily	not provided	N/A	Web-based comments	57238	35
Havas	Eva	not provided	N/A	Web-based Comments	14313	24
Havassy	Nancy	not provided	N/A	Web-based Comments	24884	24
havell	nancy	not provided	N/A	Web-based Comments	24885	24
Haverfield	Tiffany	not provided	N/A	Web-based Comments	44920	34
Haverfield	Tiffany	not provided	N/A	Web-based Comments	30586	24
Haverkamp	Kathy	not provided	N/A	Web-based Comments	52436	34
haverkamp	kathy	not provided	N/A	Web-based Comments	19708	24
Haverland	Micki	not provided	N/A	Web-based Comments	24414	24
Haverstick	Brett	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4719	N/A
Havey	Maureen	not provided	N/A	Web-based Comments	50483, 50484	34
Havner	Brendan	not provided	N/A	Web-based Comments	46339, 46340	34
Havner	Brendan	not provided	N/A	Web-based Comments	9433	24
Hawes	Beth	not provided	N/A	Web-based Comments	9026	24
hawes	rich	not provided	N/A	Web-based Comments	50109	34
Hawk	Candace	not provided	N/A	Web-based Comments	52239	34
Hawk	Gary	kestrelgwh@gmail.com	N/A	US Mail or commercial carrier (UPS, FedEx)	2144	N/A
Hawk	John	not provided	N/A	Web-based Comments	18040	24
Hawk	Lisa	not provided	N/A	Web-based Comments	21568	24
Hawk	Marcia	not provided	N/A	Web-based Comments	22372	24
Hawk	Spirit-Eagle	not provided	N/A	Web-based Comments	29097	24
Hawkes	James	jhdryfarm@yahoo.com	N/A	Web-based comments	3408	13
Hawkes	Patricia	not provided	N/A	Web-based Comments	25773	24
Hawkes	Tim	not provided	N/A	Web-based Comments	30607	24
Hawkins	A J	not provided	N/A	Web-based Comments	51283	34
Hawkins	A J	not provided	N/A	Web-based Comments	6978	24
Hawkins	Breanna	not provided	N/A	Web-based Comments	9385	24
Hawkins	Don	not provided	N/A	Web-based Comments	13025	24
Hawkins	Donna	not provided	N/A	Web-based Comments	49192	34
Hawkins	Gwendolyn	not provided	N/A	Web-based comments	57532	35
Hawkins	Jo Ann Sharrie	not provided	N/A	Web-based Comments	53847	34
Hawkins	Julie	not provided	N/A	Web-based Comments	18844	24
Hawkins	Kevin	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4733	N/A
Hawkins	Marta	not provided	N/A	Web-based Comments	23086	24
Hawkins	Mitchell	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32328	N/A
Hawkins	Natalie	not provided	N/A	Web-based Comments	25065	24
Hawkins	Savannah	not provided	N/A	Web-based Comments	47912	34
Hawkins	Savannah	not provided	N/A	Web-based Comments	28450	24
Hawkins	Sharon	not provided	N/A	Web-based Comments	28660	24
Hawkinson	Colby	not provided	N/A	Web-based Comments	58237	16
Hawks	Dan	not provided	N/A	Web-based Comments	11657	24
Hawksley	Caitlin	not provided	N/A	Web-based Comments	9712	24
Hawley	Ann	not provided	N/A	Web-based Comments	55489	34
Hawley	Daniel	not provided	N/A	Web-based Comments	11742	24
hawley	erica	not provided	N/A	Web-based Comments	14161	24
Hawley	Kyle	not provided	N/A	Web-based Comments	20450	24
Hawn	Anne	not provided	N/A	Web-based Comments	8203	24
Haws	Deborah	not provided	N/A	Web-based Comments	12411	24
Hawthorn	Pat	not provided	N/A	Web-based Comments	46350, 46351	34
Hawthorn	Pat	not provided	N/A	Web-based Comments	25655	24
Hawthorne	Hayley	not provided	N/A	Web-based Comments	15479	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Haxton	Timothy	not provided	N/A	Web-based Comments	30645	24
Hay	Alys	not provided	N/A	Web-based Comments	7497	24
Hay	Jeff And Karen	not provided	N/A	Web-based Comments	55257	34
Hay	Karen and Jeff	not provided	N/A	Web-based Comments	19257	24
Hayashi	Steven	not provided	N/A	Web-based Comments	29438	24
Hayashida	Malika	not provided	N/A	Web-based Comments	22295	24
Hayden	Cheryl	not provided	N/A	Web-based Comments	10643	24
Hayden	Emily	not provided	N/A	Web-based Comments	50158	34
Hayden	Geni	not provided	N/A	Web-based Comments	14867	24
Hayden	Mark	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	5575	N/A
Hayden	Mary	hayden.mary.k@gmail.com	N/A	Web-based comments	3649	N/A
Hayden	Mary	not provided	N/A	Web-based Comments	23296	24
Hayden	Michael	not provided	N/A	Web-based Comments	24109	24
Hayden	Nancy	not provided	N/A	Web-based Comments	44749, 44750	34
Hayden	Nancy	not provided	N/A	Web-based Comments	24886	24
Hayden	Nancy	not provided	N/A	Web-based Comments	24887	24
Hayden	Randy	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4255	N/A
Hayden	Robert	rehayden2000@aim.com	N/A	Web-based comments	3815	3
Hayden	William	not provided	N/A	Web-based Comments	51950	34
Haydon	Noah	not provided	N/A	Web-based Comments	53203, 53204	34
Hayenga	Jon	not provided	N/A	Web-based Comments	18253	24
Hayes	Alycia	not provided	N/A	Web-based comments	831	N/A
Hayes	Christine	not provided	N/A	Web-based Comments	52731	34
Hayes	Christine	not provided	N/A	Web-based Comments	10930	24
Hayes	David	not provided	N/A	Web-based comments	3518	N/A
Hayes	Doreen	not provided	N/A	Web-based Comments	13208	24
Hayes	Dylan	not provided	N/A	Web-based Comments	13406	24
Hayes	Helen	not provided	N/A	Web-based Comments	15613	24
Hayes	Jennifer	not provided	N/A	Web-based Comments	47665, 47666	34
Hayes	Jennifer	not provided	N/A	Web-based Comments	17198	24
Hayes	Jessica	not provided	N/A	Web-based comments	56979	35
hayes	john	not provided	N/A	Web-based Comments	18043	24
Hayes	John	not provided	N/A	Web-based Comments	18041	24
Hayes	John	not provided	N/A	Web-based Comments	18042	24
Hayes	Judith	not provided	N/A	Web-based Comments	48683	34
Hayes	Karen J	not provided	N/A	Web-based Comments	53101	34
Hayes	Kathryn	not provided	N/A	Web-based comments	4469	N/A
Hayes	Kirtan	not provided	N/A	Web-based Comments	52418	34
Hayes	Linda	not provided	N/A	Web-based Comments	21292	24
Hayes	Lindsey	not provided	N/A	Web-based Comments	21496	24
Hayes	Nadean	not provided	N/A	Web-based Comments	24745	24
Hayes	Nancy	not provided	N/A	Web-based Comments	24888	24
HAYES	RANDY	not provided	N/A	Web-based Comments	46538	34
Hayes	Sara	not provided	N/A	Web-based Comments	28292	24
Hayes	Susan	not provided	N/A	Web-based Comments	56273	34
Hayes	Thea	not provided	N/A	Web-based Comments	50832	34
Hayes	William	not provided	N/A	Web-based Comments	52741, 52742, 52743	34
Hayet	Rose	not provided	N/A	Web-based Comments	27722	24
Haynes	Bertha	not provided	N/A	Web-based comments	57237	35
Haynes	Debra	not provided	N/A	Web-based Comments	45463	34
Haynes	Judith	not provided	N/A	Web-based Comments	18604	24
Haynes	Kailee	not provided	N/A	Web-based Comments	19001	24
Haynes	Taryn	not provided	N/A	Web-based Comments	30216	24
Hays	Justin	jhayspalisades@yahoo.com	N/A	Web-based comments	3634	N/A
Hays	Victoria	not provided	N/A	Web-based Comments	31197	24
Hayward	Mark	not provided	N/A	Web-based Comments	47600	34
Hayward	Mary	not provided	N/A	Web-based Comments	23297	24
Hayward	Meredith	not provided	N/A	Web-based Comments	44952, 44953	34
Hayward	Michelle	not provided	N/A	Web-based Comments	53449	34
Hayward	Michelle	not provided	N/A	Web-based Comments	24346	24
Hayward	Susan	not provided	N/A	Web-based Comments	29706	24
Hayward	Warren	not provided	N/A	Web-based Comments	31381	24
Haywood	Karen	not provided	N/A	Web-based Comments	19117	24
Haywood	Susan	susansaphone2@yahoo.com	N/A	Web-based comments	4183	N/A
Hayworth	Amy	not provided	N/A	Web-based Comments	52686	34
Hazard	Joel	not provided	N/A	Web-based Comments	17910	24
Hazell	Arthur	not provided	N/A	Web-based Comments	8462	24
Hazell	Heather	not provided	N/A	Web-based Comments	15515	24
Hazelleaf	Thomas	not provided	N/A	Web-based Comments	30501	24
Hazeltine	Laura	not provided	N/A	Web-based Comments	20649	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Hazelton	Michael	not provided	N/A	Web-based Comments	55287, 55288	34
Hazelton	Michael	not provided	N/A	Web-based Comments	24111	24
Hazen	Chelsea	chels.hazen@gmail.com	N/A	Web-based comments	1024	1
Hazen	Pamela	not provided	N/A	Web-based Comments	25558	24
Hazlehurst	Charle	not provided	N/A	Web-based Comments	10467	24
Hazlett	Stephanie	not provided	N/A	Web-based comments	57188	35
Hazynski	Chris	not provided	N/A	Web-based Comments	44318	34
Heacock	Donald	not provided	N/A	Web-based Comments	13065	24
Heacock	Robert	heacock1@mindspring.com	N/A	Web-based comments	3	N/A
Head	James	not provided	N/A	Web-based Comments	16232	24
Head	Jim	not provided	N/A	Web-based Comments	45240, 45241	34
Head	Kris	not provided	N/A	Web-based Comments	45213, 45214, 45215, 45216	34
Head	Kris	not provided	N/A	Web-based Comments	20322	24
Head	Renolda	not provided	N/A	Web-based Comments	26864	24
Head	Susan	not provided	N/A	Web-based Comments	44744, 44745	34
Head	Valerie	not provided	N/A	Web-based Comments	31027	24
Headifen	Ramona	not provided	N/A	Web-based Comments	26604	24
Headley	Linda	not provided	N/A	Web-based Comments	21293	24
Healey	Shannon	not provided	N/A	Web-based Comments	28584	24
Healey	Sharon	not provided	N/A	Web-based Comments	28661	24
Healingline	Helgaleena	not provided	N/A	Web-based Comments	54905	34
Healingline	Helgaleena	not provided	N/A	Web-based Comments	15647	24
Healy	Jennifer	not provided	N/A	Web-based Comments	17199	24
Heaney	Gerald	not provided	N/A	Web-based Comments	14955	24
Heaney	William	not provided	N/A	Web-based Comments	31548	24
Heaps	Lynell	not provided	N/A	Web-based Comments	22033	24
HEARD	E J	not provided	N/A	Web-based Comments	58648	34
Heard	Melissa	not provided	N/A	Web-based Comments	23889	24
Hearle, Ph.D.	Kevin	not provided	N/A	Web-based Comments	20108	24
Hearon	Andrea	ahearon34@gmail.com	N/A	Web-based comments	1747	1
Heart	A	not provided	N/A	Web-based Comments	6960	24
Hearthstone	Bonnie	not provided	N/A	Web-based Comments	9302	24
Heartsong	Beloved	not provided	N/A	Web-based Comments	8930	24
Heaslet	Rusty	not provided	N/A	Web-based comments	1783	N/A
Heath	Elizabeth	not provided	N/A	Web-based Comments	13755	24
Heath	Linda	not provided	N/A	Web-based Comments	51576, 51577	34
Heath	Linda	not provided	N/A	Web-based Comments	21294	24
Heath	Linda	not provided	N/A	Web-based Comments	21295	24
Heath	Susan	not provided	N/A	Web-based Comments	52546, 52547, 58102	16, 34
Heatherly	Debra	not provided	N/A	Web-based Comments	56021	34
Heaton	Karen	not provided	N/A	Web-based Comments	19118	24
Heaton	Keith	not provided	N/A	Web-based Comments	45049	34
Heaton	Sam	not provided	N/A	Web-based Comments	28058	24
Heaton	Virginia	not provided	N/A	Web-based Comments	31287	24
Heavyrunner	Mia	not provided	N/A	Web-based Comments	24006	24
Hebberger	Jo	not provided	N/A	Web-based Comments	17648	24
Hebert	Joan	not provided	N/A	Web-based Comments	17690	24
Hebold	Mary	not provided	N/A	Web-based Comments	52270, 52271, 52272, 52273	34
Hebron	Theresa	not provided	N/A	Web-based Comments	30431	24
Hecht	Deborah	not provided	N/A	Web-based Comments	12412	24
Hecht	Martin	not provided	N/A	Web-based Comments	47858	34
Hecht	Martin	not provided	N/A	Web-based Comments	23158	24
Hecht	Peter	not provided	N/A	Web-based Comments	26257	24
Heck	Elizabeth	not provided	N/A	Web-based Comments	13756	24
Heck	Karin	not provided	N/A	Web-based Comments	19282	24
Heck	Kerry	not provided	N/A	Web-based Comments	58602	34
Heck	Kerry	not provided	N/A	Web-based Comments	20066	24
Heck	Matthew	not provided	N/A	Web-based Comments	23648	24
Heck	Nancy	not provided	N/A	Web-based Comments	52286, 52287	34
Heck	Nancy	not provided	N/A	Web-based Comments	24889	24
Heck	U	not provided	N/A	Web-based Comments	51536, 51537	34
Heck	Zechariah	not provided	N/A	Web-based Comments	45840	34
Hecke	C.	not provided	N/A	Web-based Comments	9692	24
Heckel	Joanne	not provided	N/A	Web-based Comments	17804	24
Hecker	Dave	not provided	N/A	Web-based comments	2798	N/A
Hecker	Dave	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4238	N/A
heckerling	joan	not provided	N/A	Web-based Comments	17691	24
Heckner	Liz	not provided	N/A	Web-based Comments	21682	24
Hector	Kathryn	not provided	N/A	Web-based Comments	54697	34
Hed Vincent	A.K.	not provided	N/A	Web-based Comments	6988	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Hedenstad	Jill	not provided	N/A	Web-based Comments	17512	24
Hedger	Curtis	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	56678	32
Hedger	Lloyd	not provided	N/A	Web-based Comments	58164, 44859	16, 34
Hedges	Ken	not provided	N/A	Web-based Comments	19975	24
Hedges	Laura	not provided	N/A	Web-based comments	56925	35
Hedlund	Dalva	not provided	N/A	Web-based Comments	11643	24
Hedlund	Winifred	not provided	N/A	Web-based Comments	31630	24
Hedrick	Donine	not provided	N/A	Web-based Comments	13097	24
Heer	Ruth E	not provided	N/A	Web-based Comments	27895	24
Heerdt	William	not provided	N/A	Web-based Comments	31549	24
Heermans	James	not provided	N/A	Web-based Comments	16233	24
Heesch	Karen	not provided	N/A	Web-based Comments	19119	24
Heever	Willem van den	not provided	N/A	Web-based Comments	46289	34
Heffernan	Sandra	not provided	N/A	Web-based Comments	49389	34
Heffron	jos	not provided	N/A	Web-based Comments	18331	24
Heffron	Josh	not provided	N/A	Web-based Comments	55652, 55653, 55654, 55655, 55656, 55657	34
Heffron	Josh	not provided	N/A	Web-based Comments	18418	24
Heflin	Nora	not provided	N/A	Web-based Comments	25358	24
Hegarty	Elizabeth	not provided	N/A	Web-based Comments	13757	24
Hegarty	John	not provided	N/A	Web-based Comments	18044	24
Hegarty	Valerie	not provided	N/A	Web-based Comments	31028	24
Hegeman	Dr Eli	not provided	N/A	Web-based Comments	55302	34
Hegemeyer	Michael	not provided	N/A	Web-based Comments	54405	34
Heger	Cheryl	not provided	N/A	Web-based Comments	10644	24
Hegh	Elaine	not provided	N/A	Web-based Comments	13596	24
Hegland	Patricia	not provided	N/A	Web-based Comments	52480	34
Heher	Harry T	not provided	N/A	Web-based Comments	15465	24
Heiberger	Andrew	not provided	N/A	Web-based Comments	7816	24
Heid	Kermit	not provided	N/A	Web-based Comments	20055	24
Heide	Andra	not provided	N/A	Web-based Comments	7721	24
Heidecker	Joseph	not provided	N/A	Web-based Comments	44546	34
Heidel	Ed	not provided	N/A	Web-based Comments	13445	24
Heideman	Deacon	deacon.h@hotmail.com	N/A	Web-based comments	4389	N/A
Heideman	Erin	e2h2@hotmail.com	N/A	Web-based comments	2725	N/A
Heideman	Loren	not provided	N/A	Web-based comments	3046	N/A
Heidemann	Gaille	not provided	N/A	Web-based Comments	14728	24
Heiden	Jessica	not provided	N/A	Web-based Comments	53548, 53549	34
Heiden	Jessica	not provided	N/A	Web-based Comments	17428	24
Heigh	Bill	not provided	N/A	Web-based comments	2676	6
Heijn	Laurie	not provided	N/A	Web-based Comments	20836	24
Heikkila	Erika	not provided	N/A	Web-based comments	56751	35
Heikkila	Lauri	not provided	N/A	Web-based Comments	20812	24
heilman	dannielle	not provided	N/A	Web-based Comments	49908	34
heilman	dannielle	not provided	N/A	Web-based Comments	11831	24
Heilman	Dionne	not provided	N/A	Web-based Comments	48758	34
Heilman	Dionne	not provided	N/A	Web-based Comments	12966	24
Heilman	Joan	not provided	N/A	Web-based Comments	17692	24
Heilman	June	not provided	N/A	Web-based Comments	51380	34
Heilman	June	not provided	N/A	Web-based Comments	18936	24
Heim	Kirk	not provided	N/A	Web-based Comments	20270	24
Heim	Sandra	not provided	N/A	Web-based Comments	28158	24
Heiman	Jeremy	not provided	N/A	Web-based Comments	17316	24
Heiman	Wendy	not provided	N/A	Web-based Comments	31424	24
Heimanson	Richard	not provided	N/A	Web-based Comments	26982	24
Heimbigner	Bonnie	not provided	N/A	Web-based Comments	58054	16
Heimbinder	Michael	not provided	N/A	Web-based Comments	24112	24
Heimdahl	Fitzie	not provided	N/A	Web-based Comments	47855, 47856	34
Heimdahl Gibson	Lori	not provided	N/A	Web-based Comments	21785	24
Heimerdinger	Cathryn	not provided	N/A	Web-based Comments	10346	24
Hein	Anna	not provided	N/A	Web-based comments	56696	35
Hein	Christine	not provided	N/A	Web-based Comments	10931	24
Hein	Gregory	not provided	N/A	Web-based Comments	15279	24
Hein	Jerald	not provided	N/A	Web-based Comments	45749	34
Hein	Joelle	not provided	N/A	Web-based Comments	17931	24
Hein	Kate	not provided	N/A	Web-based Comments	19383	24
Heine	Jill	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4722	N/A
Heinecke	Fred and Cheryl	not provided	N/A	Web-based Comments	14583	24
HEINEKEN	MARK	not provided	N/A	Web-based Comments	22940	24
Heinen	Mary Ellen	not provided	N/A	Web-based Comments	23519	24
Heiner	Paul	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58728	13

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Heiniger	Monika	not provided	N/A	Web-based Comments	24647	24
Heinle	Caroline	not provided	N/A	Web-based comments	57013	35
HEINLE	JANET	not provided	N/A	Web-based Comments	16607	24
Heinlein	Richard	not provided	N/A	Web-based Comments	56014	34
Heinly	Bridgett	not provided	N/A	Web-based comments	57708	35
Heinly	Bridgett	not provided	N/A	Web-based Comments	52864, 52865	34
Heinly	Bridgett	not provided	N/A	Web-based Comments	9544	24
Heintz	Deb	deb.heintz@gmail.com	N/A	Web-based comments	1894	N/A
Heintz	Nancy	not provided	N/A	Web-based Comments	24890	24
Heintzelman	Jane	not provided	N/A	Web-based Comments	16490	24
Heinz	Julie	not provided	N/A	Web-based Comments	18845	24
Heinzelman	Stephen	not provided	N/A	Web-based Comments	29297	24
Heinzen	Richard and Katerina	not provided	N/A	Web-based Comments	27078	24
Heinzig	Dennis	not provided	N/A	Web-based Comments	12685	24
Heisdorffer	Trish	not provided	N/A	Web-based Comments	30922	24
Heise	Jacqueline A.	not provided	N/A	Web-based Comments	45572	34
Heise	Steffen	not provided	N/A	Web-based Comments	54372, 54373	34
Heiser	Tanya	not provided	N/A	Web-based Comments	30185	24
Heiser	Terry	not provided	N/A	Web-based Comments	30373	24
Heisler	Angeline	not provided	N/A	Web-based Comments	46304	34
Heisler	Jane	rroberts8001@msn.com	N/A	Web-based comments	3027, 2475	N/A
Heisler	Kathy	not provided	N/A	Web-based Comments	19709	24
Heissenbuettel	Hanna	not provided	N/A	Web-based Comments	15393	24
Heist	Roberta	not provided	N/A	Web-based Comments	27435	24
Heithaus	Melissa	not provided	N/A	Web-based Comments	50508, 50509	34
Heitkemper	Chris	not provided	N/A	Web-based Comments	10745	24
Heitz	Janis	not provided	N/A	Web-based Comments	16740	24
heitzeg	steve	not provided	N/A	Web-based Comments	29366	24
Helart	Tina	not provided	N/A	Web-based Comments	30677	24
Helbig	Ed	not provided	N/A	Web-based Comments	13446	24
Held	Johanna	not provided	N/A	Web-based Comments	17942	24
Held-Warmkessel	Jeanne	not provided	N/A	Web-based comments	57685	35
Held-Warmkessel	Jeanne	not provided	N/A	Web-based Comments	47650, 47651	34
Held-Warmkessel	Jeanne	not provided	N/A	Web-based Comments	16953	24
Helems	Rebecca	not provided	N/A	Web-based Comments	26728	24
Helen	Jon	goudeau.helen@yahoo.com	N/A	Web-based comments	4417	11
Helene	Erika	not provided	N/A	Web-based Comments	14195	24
Helenius	Mikko	not provided	N/A	Web-based Comments	24503	24
Helfand	Rosalind	not provided	N/A	Web-based Comments	46472	34
Helfrich	Grace	not provided	N/A	Web-based Comments	15191	24
Helgason	Lesle	not provided	N/A	Web-based Comments	49269	34
Helgason	Lesle	not provided	N/A	Web-based Comments	21038	24
Helgedalen	Walter	not provided	N/A	Web-based Comments	31356	24
Heliczer	Cassandra	not provided	N/A	Web-based Comments	10232	24
Heller	Andy	not provided	N/A	Web-based Comments	7872	24
Heller	James	not provided	N/A	Web-based Comments	16234	24
Heller	Michael	not provided	N/A	Web-based Comments	24113	24
Hellickson	Lori	not provided	N/A	Web-based comments	2334	N/A
Hellier	Barbara	not provided	N/A	Web-based comments	32092	N/A
Hellin	Andrea	not provided	N/A	Web-based Comments	7747	24
Hellinger	Andrew	not provided	N/A	Web-based Comments	7817	24
Hellinger	Donovan	yougoathead@gmail.com	N/A	Web-based comments	5936	N/A
Hellmuth	Cynthia	not provided	N/A	Web-based Comments	52171	34
Hellweg	Janet	not provided	N/A	Web-based Comments	54541, 54542	34
Hellweg	Janet	not provided	N/A	Web-based Comments	16608	24
Hellwig	Karen	not provided	N/A	Web-based Comments	19120	24
Helly	Miranda	not provided	N/A	Web-based Comments	52016	34
Helly	Miranda	not provided	N/A	Web-based Comments	24537	24
Hellyer	Heather	not provided	N/A	Web-based Comments	50268	34
Helm	Carla	not provided	N/A	Web-based Comments	9824	24
Helm	Jacquelyn	not provided	N/A	Web-based Comments	16139	24
Helm	Tom	seedsource5@gmail.com	N/A	Web-based comments	5206	N/A
helman	eliot	not provided	N/A	Web-based Comments	13668	24
Helmer	Laurice	not provided	N/A	Web-based Comments	50234, 50235	34
Helmeyer	Laurel	not provided	N/A	Web-based Comments	20739	24
Helmick	Robert	not provided	N/A	Web-based Comments	47021	34
Helms	John	not provided	N/A	Web-based Comments	18045	24
Helsel	Richard	not provided	N/A	Web-based Comments	26983	24
Helton	H	not provided	N/A	Web-based Comments	49897, 49898	34

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Helvie	Robert	not provided	N/A	Web-based Comments	49312	34
Helvie	Robert	not provided	N/A	Web-based Comments	27281	24
Helzer	Grace	not provided	N/A	Web-based Comments	50890, 54943	34
Hembel	Christina	not provided	N/A	Web-based Comments	10857	24
Hemenez	Jeffrey	not provided	N/A	Web-based Comments	54634	34
Hemenez	Jeffrey	not provided	N/A	Web-based Comments	17080	24
Hemingway	Britlin	not provided	N/A	Web-based Comments	9561	24
Hemingway	Holly	not provided	N/A	Web-based Comments	15751	24
Hemken	Tom	not provided	N/A	Web-based Comments	30754	24
Hemm	James	not provided	N/A	Web-based Comments	16235	24
hemmila	rodney	not provided	N/A	Web-based Comments	27574	24
Hemmingsen	Jim	not provided	N/A	Web-based Comments	57950, 53870	16, 34
Hempel	Bettina	not provided	N/A	Web-based Comments	58568, 58569	34
Hemphill	Patricia Joan	not provided	N/A	Web-based Comments	25885	24
Hemphill	Robert	not provided	N/A	Web-based Comments	27282	24
Hemzacek	Elizabeth	not provided	N/A	Web-based Comments	46996	34
Hemzacek	Elizabeth	not provided	N/A	Web-based Comments	13758	24
Henager	Charles	chenager1166@charter.net	N/A	Web-based comments	5099	N/A
Henckel	Paul	henckel@yahoo.com	N/A	Web-based comments	4455, 4531	N/A
hendershot	tamara	not provided	N/A	Web-based Comments	54037	34
Henderson	Alice	not provided	N/A	Web-based Comments	7343	24
Henderson	Alice	not provided	N/A	Web-based Comments	7344	24
Henderson	Brian	not provided	N/A	Web-based Comments	53095	34
Henderson	Carla	not provided	N/A	Web-based Comments	9825	24
Henderson	Ceacy	not provided	N/A	Web-based Comments	10407	24
Henderson	Debbie	not provided	N/A	Web-based Comments	12324	24
Henderson	Debra	not provided	N/A	Web-based Comments	46487	34
Henderson	Edward	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32491	N/A
Henderson	Emma	not provided	N/A	Web-based Comments	49713	34
Henderson	Ginny	not provided	N/A	Web-based Comments	15079	24
Henderson	Gwen	not provided	N/A	Web-based Comments	15353	24
Henderson	James Michael "MIke"	not provided	N/A	Web-based Comments	16345	24
Henderson	Jennifer	gardenbear88@hotmail.com	N/A	Web-based comments	2000	N/A
Henderson	Kelly	not provided	N/A	Web-based Comments	19923	24
Henderson	Kristia	not provided	N/A	Web-based comments	57408	35
Henderson	Lynn	not provided	N/A	Web-based Comments	22066	24
Henderson	Mae Ann	not provided	N/A	Web-based Comments	22257	24
Henderson	Mark	mjh0808@cwc.edu	N/A	Web-based comments	2877, 3828	1
Henderson	Michael	not provided	N/A	Web-based Comments	52262	34
Henderson	Michelle	not provided	N/A	Web-based Comments	47744	34
Henderson	Nancy	not provided	N/A	Web-based Comments	24891	24
Henderson	Parrie	not provided	N/A	Web-based Comments	25619	24
Henderson	R	not provided	N/A	Web-based comments	31887	1
Henderson	Steven	not provided	N/A	Web-based Comments	49174	34
Henderson	Wayne	not provided	N/A	Web-based Comments	31394	24
HENDERSON MILLS	PEG	not provided	N/A	Web-based Comments	26140	24
Hendrell	Lynda	not provided	N/A	Web-based Comments	22019	24
Hendrick	Heide	heidehendrick@gmail.com	N/A	Web-based comments	1124	2
Hendrick	James	not provided	N/A	Web-based Comments	58476	34
Hendrick	Janet	not provided	N/A	Web-based Comments	16609	24
Hendricks	DIANE	not provided	N/A	Web-based Comments	50649	34
Hendricks	Ruth	not provided	N/A	Web-based Comments	27871	24
Hendricksen	Bob	bob_d_h@hotmail.com	N/A	Web-based comments	3209	N/A
Hendrie	Richard	not provided	N/A	Web-based Comments	26984	24
Hendriks	Charles	not provided	N/A	Web-based Comments	10510	24
Hendrix	Linda	not provided	N/A	Web-based Comments	55087	34
Hendrix	W.	hendrixwf@gmail.com	N/A	Web-based comments	4602	N/A
Hendry	Dawn	not provided	N/A	Web-based Comments	12219	24
Henefelt	Kirsten	not provided	N/A	Web-based Comments	20274	24
Henke	Philip	not provided	N/A	Web-based Comments	49714	34
Henkel	Luke	luke.henkel@gmail.com	N/A	Web-based comments	2270	3
Henkel-Green	Merideth	not provided	N/A	Web-based Comments	23988	24
Henley	Cheryl	not provided	N/A	Web-based Comments	10645	24
Henley	Courtney	not provided	N/A	Web-based Comments	50785	34
Henley	Courtney	not provided	N/A	Web-based Comments	11402	24
Henley	Michele	not provided	N/A	Web-based Comments	46230	34
HENLEY	PAMELA	not provided	N/A	Web-based Comments	56226	34
Henling	Daniel	not provided	N/A	Web-based Comments	45920	34
Henneman	Chip	not provided	N/A	Web-based Comments	10703	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Hennenhoefee	Lea	not provided	N/A	Web-based Comments	54024	34
Hennessy	Fabio	not provided	N/A	Web-based Comments	57887	16
Hennessy	Kathleen	not provided	N/A	Web-based Comments	45173	34
Hennessy	Peter	not provided	N/A	Web-based Comments	46408	34
Hennessy	Peter	not provided	N/A	Web-based Comments	26258	24
Henning	David	not provided	N/A	Web-based Comments	52842	34
Henning	Grace	not provided	N/A	Web-based Comments	15192	24
Henning	Jacqueline	not provided	N/A	Web-based Comments	16118	24
Henning	Linda	not provided	N/A	Web-based Comments	21296	24
Henning	N	not provided	N/A	Web-based Comments	24733	24
Henninger	Patricia	not provided	N/A	Web-based Comments	25774	24
Hennings	Herb	not provided	N/A	Web-based Comments	15675	24
Henriksen	James	not provided	N/A	Web-based Comments	16236	24
Henriksen	Lene	not provided	N/A	Web-based Comments	47296	34
Henriksen	Lene	not provided	N/A	Web-based Comments	20982	24
Henriksson	Marita	not provided	N/A	Web-based Comments	22871	24
Henriques	Claudio	not provided	N/A	Web-based Comments	11207	24
Henriques	Heloisa	not provided	N/A	Web-based Comments	15653	24
Henry	Amy	not provided	N/A	Web-based Comments	50169	34
Henry	Amy	not provided	N/A	Web-based Comments	7618	24
Henry	Ann	not provided	N/A	Web-based Comments	54637	34
Henry	Barbara	not provided	N/A	Web-based Comments	8694	24
Henry	Brett	not provided	N/A	Web-based Comments	9447	24
Henry	Carole	not provided	N/A	Web-based Comments	52543	34
Henry	Dale	not provided	N/A	Web-based Comments	11627	24
Henry	David	not provided	N/A	Web-based Comments	52153	34
Henry	Ellen	not provided	N/A	Web-based Comments	13918	24
Henry	Gordon	not provided	N/A	Web-based Comments	46966	34
Henry	Grayson	not provided	N/A	Web-based Comments	15221	24
Henry	Jessica	jessicajhenry@gmail.com	N/A	Web-based comments	1444	1
Henry	June	not provided	N/A	Web-based Comments	18937	24
Henry	Margaret	not provided	N/A	Web-based Comments	22463	24
HENRY	MARILEE	not provided	N/A	Web-based Comments	44731	34
HENRY	MARILEE	not provided	N/A	Web-based Comments	22755	24
Henry	Mark	not provided	N/A	Web-based Comments	54010	34
Henry	Sarah	not provided	N/A	Web-based Comments	28363	24
Henry	wendy	not provided	N/A	Web-based Comments	49124	34
henry	wendy	not provided	N/A	Web-based Comments	31425	24
Henry	William	whs3@yahoo.com	N/A	Web-based comments	3696	N/A
Hens	Wilma	not provided	N/A	Web-based Comments	52878	34
Henschke	Diane	not provided	N/A	Web-based Comments	44332	34
Hensley	Bobbie	not provided	N/A	Web-based Comments	46837	34
Hensley	Bobbie	not provided	N/A	Web-based Comments	9264	24
Hensley	Catherine	not provided	N/A	Web-based Comments	10282	24
Hensley	Teresa	not provided	N/A	Web-based Comments	30276	24
Hensman	Kathleen	not provided	N/A	Web-based Comments	19541	24
Henson	Rachelle	not provided	N/A	Web-based Comments	26561	24
Henz	Martin	not provided	N/A	Web-based Comments	23159	24
Henze	Peter	not provided	N/A	Web-based Comments	26259	24
Hepfer	Anne	not provided	N/A	Web-based Comments	52105, 52106	34
Hepfer	Anne	not provided	N/A	Web-based Comments	8204	24
Hepler	Juanita	not provided	N/A	Web-based Comments	18532	24
Hepp	Nancy	not provided	N/A	Web-based Comments	24892	24
Hepworth	Amy	not provided	N/A	Web-based Comments	7619	24
HERA	-	not provided	N/A	Web-based Comments	6948	24
Hera	Eva	not provided	N/A	Web-based Comments	50884	34
Herberg	John	not provided	N/A	Web-based Comments	50316	34
Herbert	Annabelle	not provided	N/A	Web-based Comments	52147, 58059	34, 16
Herbert	Annabelle	not provided	N/A	Web-based Comments	8160	24
Herbert	Branon	not provided	N/A	Web-based Comments	58523	34
Herbert	Michael	not provided	N/A	Web-based Comments	50053	34
Herbert	Sandrine	not provided	N/A	Web-based Comments	54709	34
Herbert	Susan	not provided	N/A	Web-based Comments	29707	24
Herbert	Wendy	not provided	N/A	Web-based Comments	31426	24
Herbes	Ann	not provided	N/A	Web-based Comments	8046	24
Herbito	Venedel	not provided	N/A	Web-based Comments	31078	24
Herboso	Leire	not provided	N/A	Web-based Comments	45493, 45494	34
Herbst	Teri	not provided	N/A	Web-based Comments	45851	34
Herbst	Tori	not provided	N/A	Web-based Comments	54432	34
Herbst	Tori	not provided	N/A	Web-based Comments	30828	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Herburger	Lennis	lherburger@hotmail.com	N/A	Web-based comments	3159	N/A
Herchenroder	Michael	not provided	N/A	Web-based Comments	24114	24
Hercher	Denise	not provided	N/A	Web-based Comments	45713, 45714	34
Herdman	Priscilla	not provided	N/A	Web-based Comments	26444	24
Heriot Dehart	Jody L	not provided	N/A	Web-based Comments	17872	24
Herke	Cameron	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58707	29
Herke	John	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58705	29
Herke	Lisa	lherke@mail.com	N/A	Web-based comments	2789	N/A
Herke	Mark	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58744	N/A
Herkenrath	Dagmar	not provided	N/A	Web-based Comments	11613	24
Herlihy	John	jhagmarketing@gmail.com	N/A	Web-based comments	4443	N/A
Herlinger	Nancy	not provided	N/A	Web-based Comments	47089, 47090	34
Herman	Alexandria	not provided	N/A	Web-based Comments	7297	24
Herman	Hattie	not provided	N/A	Web-based Comments	54013	34
Herman	Jeff	not provided	N/A	Web-based Comments	17027	24
Herman	Michael	not provided	N/A	Web-based Comments	24115	24
Herman	Sara	not provided	N/A	Web-based Comments	48929	34
herman	talia	not provided	N/A	Web-based Comments	30111	24
Herman	Thomas	not provided	N/A	Web-based Comments	30502	24
Hermann	Bernie	bernie208@live.com	N/A	Web-based comments	3166	N/A
Hermann	Birgit	not provided	N/A	Web-based Comments	9200	24
HERMANN	Fabrice	not provided	N/A	Web-based Comments	14379	24
Hermanns	David	not provided	N/A	Web-based Comments	53475	34
Hermann-Wu	Ailsa	not provided	N/A	Web-based Comments	55187	34
Hermann-Wu	Ailsa	not provided	N/A	Web-based Comments	7131	24
Hermann-Wu	Kate	not provided	N/A	Web-based Comments	46594	34
Hermann-Wu	Kate	not provided	N/A	Web-based Comments	19384	24
Hermes	Gerald	not provided	N/A	Web-based Comments	52081	34
Hermes	Hermes	not provided	N/A	Web-based Comments	15685	24
Hermes	William	not provided	N/A	Web-based Comments	31550	24
Hermeyer	Dave	not provided	N/A	Web-based Comments	11911	24
Hermosillo	Nicholas	not provided	N/A	Web-based Comments	25168	24
Hermsen	Kailee	kaileehermsen@gmail.com	N/A	Web-based comments	5464	N/A
HernâˆšÂ°ndez Bueno	Angels	not provided	N/A	Web-based Comments	7949	24
Hernandez	Chance	not provided	N/A	Web-based Comments	10456	24
hernandez	chelsea	not provided	N/A	Web-based Comments	46104	34
Hernandez	Chris	not provided	N/A	Web-based Comments	10746	24
Hernandez	Connie	not provided	N/A	Web-based Comments	11308	24
Hernandez	Courtney	not provided	N/A	Web-based Comments	49381, 49382	34
Hernandez	Gina	not provided	N/A	Web-based Comments	15054	24
Hernandez	Hettie	not provided	N/A	Web-based Comments	15690	24
Hernandez	Leticia	letty.hdez@yahoo.com	N/A	Web-based comments	931	N/A
Hernandez	Maria L	not provided	N/A	Web-based Comments	22645	24
Hernandez	Stephanie	not provided	N/A	Web-based Comments	29219	24
Hernandez	Thomas	not provided	N/A	Web-based Comments	49812, 49813	34
Hernandez-Wolfe	Pilar	not provided	N/A	Web-based Comments	50378	34
Hernday	Ann	not provided	N/A	Web-based Comments	8047	24
Herndobler	Beth	not provided	N/A	Web-based Comments	9027	24
Herndon	Laura	not provided	N/A	Web-based Comments	20650	24
Hernoe	Therese	not provided	N/A	Web-based Comments	53766	34
Hernstadt	Cyrus	cyrus@hernstadt.com	N/A	Web-based comments	871	1
HERO	ROBIN	not provided	N/A	Web-based Comments	55103, 55104	34
Hero	Robin	not provided	N/A	Web-based Comments	27488	24
Herold	Ana	not provided	N/A	Web-based Comments	7692	24
Herold	Diana	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58303	32
Herr	Catherine	not provided	N/A	Web-based Comments	10283	24
Herr	valerie	not provided	N/A	Web-based Comments	31029	24
Herrera	Nadia	not provided	N/A	Web-based Comments	24754	24
Herrera	Noelia	not provided	N/A	Web-based Comments	25341	24
Herrera	Sandra	not provided	N/A	Web-based Comments	53953	34
Herrera	Tony	tonyherrera527@gmail.com	N/A	Web-based comments	2039	1
Herres	Thomas	tomh@fhsupply.com	N/A	Web-based comments	32043*	N/A
Herrick	Genevieve	not provided	N/A	Web-based Comments	14864	24
Herrick	Jocelynn	not provided	N/A	Web-based Comments	17843	24
Herrick	Virginia	not provided	N/A	Web-based Comments	31288	24
Herring	Lynn	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4710	N/A
Herring	Patti	not provided	N/A	Web-based Comments	51945	34
Herringshaw	Nadene	not provided	N/A	Web-based Comments	24747	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Herrington	Linda	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58353	N/A
Herrington	Marna	not provided	N/A	Web-based Comments	53930	34
Herriott	Sue	not provided	N/A	Web-based Comments	55893	34
Herrmann	Rachel	not provided	N/A	Web-based Comments	26524	24
Herrmann	Rose	not provided	N/A	Web-based Comments	56458	34
Herrs	Marilyn	not provided	N/A	Web-based Comments	22787	24
Herschel	Cornelia	not provided	N/A	Web-based Comments	44464	34
Herseth	Freda	not provided	N/A	Web-based Comments	14584	24
Hersh	Joel	not provided	N/A	Web-based Comments	17911	24
Hersh	Liz	not provided	N/A	Web-based Comments	21683	24
Hershey	Antoinette	not provided	N/A	Web-based Comments	53936, 53937	34
Hershey-Lear	Chandra	not provided	N/A	Web-based Comments	58552	34
Hershleder	Howard	not provided	N/A	Web-based Comments	15797	24
Hershowitz	Elaina	not provided	N/A	Web-based Comments	13569	24
Herson	Gail	not provided	N/A	Web-based Comments	14691	24
Hersum	Terry	not provided	N/A	Web-based Comments	30374	24
Herther	James	not provided	N/A	Web-based Comments	16237	24
Herting	Susanne	not provided	N/A	Web-based Comments	29949	24
Hertlein	Angela	not provided	N/A	Web-based comments	32244	1
Hertzog	Christine	not provided	N/A	Web-based Comments	50648	N/A
Hervert	Carla	not provided	N/A	Web-based Comments	44724	34
Hervert	Carla	not provided	N/A	Web-based Comments	9826	24
Hervey	Jeanne	not provided	N/A	Web-based Comments	16954	24
Herwig	Gary	not provided	N/A	Web-based Comments	55156	34
Herwig	Gary	not provided	N/A	Web-based Comments	14769	24
Herwill	Alice	not provided	N/A	Web-based Comments	7345	24
Herzer	Susan	not provided	N/A	Web-based Comments	29708	24
Herzing	Stacey	not provided	N/A	Web-based Comments	29113	24
Herzog	Michael	not provided	N/A	Web-based Comments	24116	24
Herzog	Robert	not provided	N/A	Web-based Comments	27283	24
Herzog	Tina	not provided	N/A	Web-based Comments	45113, 45114	34
Hesch	Zorah	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	6941	N/A
Hesler	Lori	not provided	N/A	Web-based Comments	21786	24
Heslesky	Cullen	c.hedlesky@gmail.com	N/A	Web-based comments	1680	1
Hess	Carla	not provided	N/A	Web-based Comments	9827	24
Hess	Erica	ericajh54@gmail.com	N/A	Web-based comments	1022	N/A
Hess	Gerald	not provided	N/A	Web-based Comments	14956	24
Hess	Irene	not provided	N/A	Web-based comments	2795	N/A
Hess	Jeanette	not provided	N/A	Web-based Comments	16912	24
Hess	Jeff	not provided	N/A	Web-based Comments	17028	24
Hess	Kevin	gonefishin82@Yahoo.com	N/A	Web-based comments	5667	8
Hess	Lauren	lauren.hess12@gmail.com	N/A	Web-based comments	914	1
Hess	Lauren	not provided	N/A	Web-based Comments	49572	34
Hess	Pamela	not provided	N/A	Web-based Comments	25559	24
Hess	Rachel	not provided	N/A	Web-based Comments	46773	34
Hess	Rachel	not provided	N/A	Web-based Comments	26525	24
Hess	Terry	not provided	N/A	Web-based Comments	30375	24
Hesse	Alan J.	not provided	N/A	Web-based Comments	7199	24
Hesse	Molly	hesse_molly@yahoo.com	N/A	Web-based comments	1283	N/A
Hesse	Sharon	not provided	N/A	Web-based Comments	46897, 46914, 46915	34
Hesse & Doug Dyer	Susanne	not provided	N/A	Web-based Comments	29950	24
Hesselager	Barbro	not provided	N/A	Web-based Comments	8848	24
Hesselink	Joanne	not provided	N/A	Web-based Comments	46276, 46277	34
Hesselink	Joanne	not provided	N/A	Web-based Comments	17805	24
Hession	Sherry	not provided	N/A	Web-based Comments	28889	24
Hester	Rachel	not provided	N/A	Web-based Comments	48965	34
Hester	Rachel	not provided	N/A	Web-based Comments	26526	24
Hetem	Judith	not provided	N/A	Web-based Comments	54096	34
Hetrick	Wes	not provided	N/A	Web-based Comments	31460	24
Hettig	Kathy	not provided	N/A	Web-based Comments	19710	24
hetzel	ken	not provided	N/A	Web-based Comments	19976	24
Hetzner	Thea	not provided	N/A	Web-based Comments	54808	34
Heuer	Donna	not provided	N/A	Web-based Comments	13138	24
Heuer	Hilary	not provided	N/A	Web-based Comments	15697	24
Heuler	Karen	not provided	N/A	Web-based Comments	19121	24
heuman	carol	not provided	N/A	Web-based Comments	56136	34
Heuman	Carol	not provided	N/A	Web-based Comments	56135	34
heuschling	rik	not provided	N/A	Web-based Comments	54573	34
Heuser	Marilyn	not provided	N/A	Web-based Comments	55800	34
Heverly	Dwinell	not provided	N/A	Web-based Comments	13403	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Hewett	Rosemary	not provided	N/A	Web-based Comments	27762	24
Hewitt	Anne-Marie	not provided	N/A	Web-based Comments	52811	34
Hewitt	Carol	not provided	N/A	Web-based Comments	9939	24
Hewitt	Montie	not provided	N/A	Web-based comments	132	1
Hews	Claire	not provided	N/A	Web-based Comments	11126	24
hexon	janese	not provided	N/A	Web-based Comments	55001	34
Hexum	Carol	ttime4hex@frontier.com	N/A	Web-based comments	2158	N/A
Hey	Hey	not provided	N/A	Web-based Comments	54873	34
Hey	Hi	not provided	N/A	Web-based Comments	54286	34
Heydet	Sharon	not provided	N/A	Web-based Comments	28662	24
Heyl	Larry	not provided	N/A	Web-based Comments	20579	24
Heyland	Cheryl	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32463	13
Heymans	Rachel	not provided	N/A	Web-based Comments	54278	34
Heyn	Pia	not provided	N/A	Web-based Comments	26403	24
Heyneman	Amy	not provided	N/A	Web-based Comments	57980, 50002	16, 34
Heyneman	Amy	not provided	N/A	Web-based Comments	7620	24
Heyneman	John	not provided	N/A	Web-based Comments	47542, 47543	34
Heyneman	John	not provided	N/A	Web-based Comments	18046	24
Hh	Nancy	not provided	N/A	Web-based Comments	51483	34
Hi	Hey	not provided	N/A	Web-based Comments	49628	34
Hi	Hi there	not provided	N/A	Web-based Comments	49128	34
Hiatt	Carole	not provided	N/A	Web-based Comments	48892	34
Hibala	Alex	ajaxx87@gmail.com	N/A	Web-based comments	5872	N/A
Hibbs	Mike	not provided	N/A	Web-based comments	2670	6
Hibel	Amy	not provided	N/A	Web-based Comments	49409	34
Hickert	Alyssa	not provided	N/A	Web-based Comments	7503	24
Hickey	Joan	not provided	N/A	Web-based Comments	17693	24
Hickey	Kathleen	not provided	N/A	Web-based Comments	19542	24
Hickey	Konstanze	not provided	N/A	Web-based Comments	20307	24
Hickey	Lauren	not provided	N/A	Web-based Comments	20770	24
Hickey	Mike	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4693	N/A
Hickey	Patrick	not provided	N/A	Web-based Comments	48262	34
Hickey	Ruth Ann	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4690	N/A
HICKLIN	JAMES	not provided	N/A	Web-based Comments	16238	24
Hicklin	Mary	not provided	N/A	Web-based Comments	46111	34
Hickman	Carol	not provided	N/A	Web-based Comments	9940	24
Hickman	Elaine	elaine.hickman@gmail.com	N/A	Web-based comments	6345	3
Hickman	Elizabeth	not provided	N/A	Web-based Comments	51695	34
Hickman	Elizabeth	not provided	N/A	Web-based Comments	13759	24
Hickman	Leslie	not provided	N/A	Web-based comments	4191	N/A
Hickmet	Sabina	not provided	N/A	Web-based Comments	27970	24
Hicks	Audrey	cpcke1957@gmail.com	N/A	Web-based comments	5864	1
Hicks	Barbara	not provided	N/A	Web-based Comments	8695	24
Hicks	Brian	not provided	N/A	Web-based Comments	45691	34
Hicks	Cynthia	not provided	N/A	Web-based Comments	52459, 52460, 52461, 52462	34
Hicks	Cynthia	not provided	N/A	Web-based Comments	11514	24
Hicks	Janet	not provided	N/A	Web-based Comments	16610	24
Hicks	Janine	not provided	N/A	Web-based Comments	16729	24
Hicks	Leslie	not provided	N/A	Web-based Comments	21072	24
Hicks	Robert	not provided	N/A	Web-based Comments	27284	24
Hicks	Robin	not provided	N/A	Web-based Comments	27489	24
Hicks	Will	not provided	N/A	Web-based Comments	31487	24
Hicom	Steph	not provided	N/A	Web-based comments	57182	35
Hider	Esther	not provided	N/A	Web-based Comments	14276	24
Hieber	Richard	not provided	N/A	Web-based Comments	44362, 44363	34
Hieber	Richard	not provided	N/A	Web-based Comments	26985	24
Hiestand	Kathryn	not provided	N/A	Web-based Comments	19646	24
Hiestand	Kathryn L	not provided	N/A	Web-based Comments	50279	34
Hiestand	Nancy	not provided	N/A	Web-based Comments	24893	24
Higashi	Kylie	not provided	N/A	Web-based Comments	49614	34
Higashi	Kylie	not provided	N/A	Web-based Comments	20464	24
Higbee	Laura	not provided	N/A	Web-based Comments	20651	24
Higby	Laurie	not provided	N/A	Web-based Comments	58526	34
Higdon	Matthew	not provided	N/A	Web-based Comments	23649	24
Higgin	Ka	not provided	N/A	Web-based Comments	18990	24
Higginbotham	Fred	osagehick@outlook.com	N/A	Web-based comments	6572	N/A
Higginbotham	Ryan	not provided	N/A	Web-based comments	2536	N/A
Higgins	Andrea	not provided	N/A	Web-based Comments	7748	24
Higgins	Aryn	not provided	N/A	Web-based comments	57453	35

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Higgins	Bruce	not provided	N/A	Web-based Comments	9610	24
Higgins	Bruce	not provided	N/A	Web-based Comments	9611	24
Higgins	Derrel	derrelhiggins@gmail.com	N/A	Web-based comments	4516	N/A
Higgins	Hanna	not provided	N/A	Web-based Comments	51783	34
Higgins	Janice	not provided	N/A	Web-based Comments	48691, 48692	34
Higgins	Joan	not provided	N/A	Web-based Comments	17694	24
Higgins	john	john_j_higgins_dds@yahoo.com	N/A	Web-based comments	5950	N/A
Higgins	Lindi	not provided	N/A	Web-based Comments	56321, 56322	34
Higgins	Mary	not provided	N/A	Web-based Comments	23298	24
Higgins	Wendy	wendy@lodgeatcolumbiapoint.com	N/A	Web-based comments	2824	N/A
Higgs	Ocrun	not provided	N/A	Web-based Comments	25421	24
High	Ellesa	not provided	N/A	Web-based Comments	45078	34
Highfield	Sarah	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4225	N/A
Highland	Nadine	n.highland@charter.net	N/A	Web-based comments	1952	N/A
Hight	Mary Ann	not provided	N/A	Web-based Comments	23493	24
Highton	Patrick	not provided	N/A	Web-based comments	56860	35
Highton	Ruth	not provided	N/A	Web-based comments	57700	35
Hightower	Lori	not provided	N/A	Web-based Comments	21787	24
Hightower	Vicki	not provided	N/A	Web-based Comments	31132	24
Higson	Howard	not provided	N/A	Web-based Comments	55847, 55848	34
Higson	Howard	not provided	N/A	Web-based Comments	15798	24
Hilaire	Patricia St.	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	56668	N/A
HILAND	CLYDE	knine2009@hotmail.com	N/A	Web-based comments	4815	N/A
Hilbert	Harrison	hshilbert1@gmail.com	N/A	Web-based comments	5501	N/A
HILBERT	Harrison	not provided	N/A	Web-based Comments	57910, 57935	16
hildal	merethe	not provided	N/A	Web-based Comments	23987	24
Hildebrand	Charmaine	not provided	N/A	Web-based Comments	49940	34
Hildebrand	Charmaine	not provided	N/A	Web-based Comments	10580	24
Hildebrand	Valerie	not provided	N/A	Web-based Comments	54852	34
Hildebrand	Valerie	not provided	N/A	Web-based Comments	31030	24
Hildebrandt	Dagmar	not provided	N/A	Web-based comments	56784	35
Hildebrandt	Dagmar	not provided	N/A	Web-based Comments	45966, 46043	34
Hildebrandt	Dagmar	not provided	N/A	Web-based Comments	11614	24
Hildebrandt	Marilyn	not provided	N/A	Web-based Comments	50575	N/A
Hildebrandt	Marysue	not provided	N/A	Web-based Comments	23593	24
Hildebrandt	Michelle	not provided	N/A	Web-based Comments	55133	34
Hildeman	Carrie	not provided	N/A	Web-based Comments	10201	24
Hilder	Margaret	not provided	N/A	Web-based Comments	22464	24
Hile	Amy	not provided	N/A	Web-based Comments	56591	34
Hile	Amy	not provided	N/A	Web-based Comments	7621	24
Hileman	Dan	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58342	N/A
Hileman	Judy	not provided	N/A	Web-based Comments	18685	24
Hilf	Lawrence	not provided	N/A	Web-based Comments	58379	28
Hilf	Linda	not provided	N/A	Web-based Comments	47349	34
Hilfiker	Becky	not provided	N/A	Web-based Comments	49487	34
Hill	Barbara	not provided	N/A	Web-based Comments	8696	24
Hill	Bonnie	not provided	N/A	Web-based Comments	50337	34
Hill	Bonnie	not provided	N/A	Web-based Comments	9303	24
Hill	Carol	not provided	N/A	Web-based Comments	48886	34
Hill	Constance	not provided	N/A	Web-based Comments	11339	24
Hill	Craig	chill@crenorthwest.com	N/A	Web-based comments	5903	N/A
Hill	David	not provided	N/A	Web-based Comments	12036	24
Hill	David & Jean	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58354	N/A
Hill	Debbie	not provided	N/A	Web-based Comments	12325	24
Hill	Don	not provided	N/A	Web-based Comments	13026	24
Hill	Dorothy	dorothyhill8@gmail.com	N/A	Web-based comments	3363	N/A
Hill	Eloise	not provided	N/A	Web-based Comments	13980	24
Hill	Frank	not provided	N/A	Web-based Comments	14534	24
Hill	George	georgehill32@yahoo.com	N/A	Web-based comments	4604	11
Hill	Gloria	not provided	N/A	Web-based Comments	54891	34
Hill	Gracie	hillgracie@gmail.com	N/A	Web-based comments	5666	N/A
Hill	Helen	helen@streetroots.org	N/A	Web-based comments	1931*	N/A
Hill	Jack	not provided	N/A	Web-based Comments	16033	24
Hill	Jennifer	not provided	N/A	Web-based Comments	49071, 49072	34
Hill	jennifer	not provided	N/A	Web-based Comments	17200	24
Hill	Jennifer	not provided	N/A	Web-based Comments	17201	24
Hill	John	not provided	N/A	Web-based Comments	18047	24
Hill	Justin	not provided	N/A	Web-based Comments	18953	24
Hill	Kalvaneshia	not provided	N/A	Web-based Comments	19014	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Hill	Lana	not provided	N/A	Web-based Comments	20525	24
Hill	Lenny	not provided	N/A	Web-based comments	3223	N/A
Hill	Lisa	not provided	N/A	Web-based Comments	50147	34
Hill	Marilyn	not provided	N/A	Web-based Comments	22788	24
HILL	MARTHA	not provided	N/A	Web-based Comments	23105	24
Hill	Maureen	not provided	N/A	Web-based Comments	23693	24
Hill	Michael and Barbara	not provided	N/A	Web-based Comments	58046, 55842	16, 34
Hill	Molly	not provided	N/A	Web-based Comments	24595	24
Hill	O	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	44261	32
Hill	Pamela	not provided	N/A	Web-based Comments	46114	34
hill	penny	not provided	N/A	Web-based Comments	26207	24
Hill	Rebecca	not provided	N/A	Web-based Comments	26729	24
Hill	Rise	not provided	N/A	Web-based Comments	27124	24
Hill	Samantha	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	4771	18
Hill	Scott	not provided	N/A	Web-based Comments	28475	24
Hill	Shannon	Shannon.Hill@fallriverelectric.com	N/A	US Mail or commercial carrier (UPS, FedEx)	32508	13
Hill	Shannon	Shannon.Hill@fallriverelectric.com	N/A	Web-based comments	3829	13
hill	sharon	not provided	N/A	Web-based Comments	28663	24
Hill	Sherry	not provided	N/A	Web-based Comments	28890	24
Hill	Susan	not provided	N/A	Web-based Comments	29709	24
Hille	Susan	not provided	N/A	Web-based Comments	29710	24
Hillegass	John	not provided	N/A	Web-based Comments	18048	24
Hiller	Brigitte	not provided	N/A	Web-based Comments	9556	24
Hiller	Lee	not provided	N/A	Web-based Comments	20932	24
Hillery-Lucas	Nancy	not provided	N/A	Web-based Comments	24894	24
Hilles	Leslie	not provided	N/A	Web-based Comments	21073	24
Hilliard	Jim & Kathleen	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58391	32
Hilliard	Miriam	not provided	N/A	Web-based Comments	24550	24
Hilliker	Erik	not provided	N/A	Web-based Comments	14185	24
Hillilane	Tom	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	56628	N/A
Hillman	Tami	not provided	N/A	Web-based Comments	45163	34
Hillooly	Niele	not provided	N/A	Web-based Comments	25272	24
Hills	Claudette	not provided	N/A	Web-based Comments	51545	34
Hills	Jeanette	not provided	N/A	Web-based Comments	16913	24
Hills	Kelly	not provided	N/A	Web-based comments	56710	35
Hilmes	John	john@proag.net	N/A	Web-based comments	3305	N/A
Hilmes	Tim	tjhilmes@hotmail.com	N/A	Web-based comments	3261	N/A
Hilzer	Leda	not provided	N/A	Web-based Comments	20922	24
Himelewski	Valerie	not provided	N/A	Web-based Comments	31031	24
Himes	Ann	not provided	N/A	Web-based Comments	8048	24
Himpfen	Brandon	not provided	N/A	Web-based Comments	9367	24
Hinckley	Patricia	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32285	N/A
Hinckley Baglia	Jennifer	not provided	N/A	Web-based Comments	17202	24
Hindermann	Nancy	not provided	N/A	Web-based Comments	54801	34
Hindin	Barb	not provided	N/A	Web-based Comments	8603	24
Hinds	E.	not provided	N/A	Web-based Comments	13421	24
Hinds	Mary	not provided	N/A	Web-based Comments	50728	34
hinds	minori	not provided	N/A	Web-based Comments	24535	24
Hiner	Laurence	laurencehiner@gmail.com	N/A	Web-based comments	5518	N/A
Hiner	Laurence	not provided	N/A	Web-based Comments	20799	24
Hines	Amanda	not provided	N/A	Web-based Comments	7537	24
Hines	Carole	not provided	N/A	Web-based Comments	53031	34
Hines	Jamie	not provided	N/A	Web-based Comments	47038, 47039	34
Hines	Jamie	not provided	N/A	Web-based Comments	16359	24
hines	joanne	not provided	N/A	Web-based Comments	17806	24
Hines	Michele	not provided	N/A	Web-based Comments	45537, 45538	34
Hines	Michele	not provided	N/A	Web-based Comments	24288	24
Hinkelman	Carol	not provided	N/A	Web-based Comments	45531	34
Hinkelman	Carol	not provided	N/A	Web-based Comments	9941	24
Hinkelman	Tate	not provided	N/A	Web-based Comments	30220	24
Hinkle	Harry	not provided	N/A	Web-based Comments	13642	24
Hinkle	Janice	not provided	N/A	Web-based Comments	48963	34
Hinkley	Sue	not provided	N/A	Web-based Comments	29528	24
Hinnenkamp	Edward	edkarenh@yahoo.com	N/A	Web-based comments	3185	N/A
Hinnenkamp	Karen	mamahinn@yahoo.com	N/A	Web-based comments	3281	N/A
Hinnenkamp	Richard	richardacolfax@gmail.com	N/A	Web-based comments	3436*	N/A
Hinnrichs-Dahms	Holly	not provided	N/A	Web-based Comments	15752	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Hinsberger	Wendy	not provided	N/A	Web-based Comments	53375	34
Hinshaw	Michael	not provided	N/A	Web-based Comments	24117	24
Hinshaw	Tammera	not provided	N/A	Web-based Comments	54173	34
Hinshaw	Tammera	not provided	N/A	Web-based Comments	30144	24
Hinson	Katherine	not provided	N/A	Web-based comments	57339	35
Hinson	Katherine	not provided	N/A	Web-based Comments	49850, 49851	34
Hinson	Katherine	not provided	N/A	Web-based Comments	19454	24
Hinton	Jim	jhranches@gmail.com	N/A	Web-based comments	4960	N/A
Hinton	Karla	not provided	N/A	Web-based Comments	51916	34
Hinze	Brant	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32358	N/A
Hinze	Willie	not provided	N/A	Web-based Comments	31619	24
Hipol	Jay-R	not provided	N/A	Web-based Comments	47811	34
hipp	james	not provided	N/A	Web-based Comments	49074	34
Hipp	Louanne	not provided	N/A	Web-based Comments	58652	34
Hippenstiel	David	not provided	N/A	Web-based Comments	12037	24
Hippenstiel	Jon	not provided	N/A	Web-based Comments	18254	24
Hipszky	Ginger	not provided	N/A	Web-based Comments	15074	24
Hipworth	Danielle	not provided	N/A	Web-based Comments	11809	24
Hirako	Mari	not provided	N/A	Web-based Comments	22571	24
Hiremath	Theresa	not provided	N/A	Web-based Comments	30432	24
Hirman	Meg	not provided	N/A	Web-based Comments	23778	24
Hirsch	Harriet	not provided	N/A	Web-based Comments	15451	24
Hirsch	Jaclyn	not provided	N/A	Web-based Comments	16084	24
hirsch	melinda	not provided	N/A	Web-based Comments	50749	34
Hirsch	Nathan	nathanhirsch@yahoo.com	N/A	Web-based comments	3025	8
Hirsch	Stephen	not provided	N/A	Web-based Comments	29298	24
Hirsch	Stephen	not provided	N/A	Web-based Comments	29299	24
Hirschfeld	Natasha	not provided	N/A	Web-based Comments	25083	24
Hirschman	Mark	not provided	N/A	Web-based Comments	50201	34
Hirschman	Mark	not provided	N/A	Web-based Comments	22941	24
Hirschman	Ross	not provided	N/A	Web-based Comments	54883	34
Hirschman	Ross	not provided	N/A	Web-based Comments	27789	24
Hirshoren	Harriet	not provided	N/A	Web-based Comments	45914	34
Hirst	Karen	not provided	N/A	Web-based Comments	54578, 54579	34
Hirt	Barbara	not provided	N/A	Web-based Comments	8697	24
Hirt	Deb	not provided	N/A	Web-based Comments	48320, 48321	34
Hirt	Deb	not provided	N/A	Web-based Comments	12294	24
Hirth	Carol	not provided	N/A	Web-based Comments	9942	24
Hirth	Sharon	not provided	N/A	Web-based Comments	28664	24
Hirtle	John	not provided	N/A	Web-based Comments	18049	24
Hiser	Mrs.	lindajhiser@gmail.com	N/A	Web-based comments	33	N/A
Hiser	Richard	rickhiser@gmail.com	N/A	Web-based comments	53	N/A
Hisle-gorman	Beth	not provided	N/A	Web-based Comments	9028	24
Hissom	Jill	not provided	N/A	Web-based Comments	45689	34
Hister	Jonah	not provided	N/A	Web-based Comments	18270	24
Hitchcock	Teresa	not provided	N/A	Web-based Comments	30277	24
Hitchie	Carol	not provided	N/A	Web-based Comments	50639	34
Hitchin	Barri	not provided	N/A	Web-based Comments	56493, 56494	34
Hite	Deborah	debhite@ptd.net	N/A	Web-based comments	1395*	N/A
Hite	William	not provided	N/A	Web-based Comments	31551	24
Hitz	Mary Buford	not provided	N/A	Web-based Comments	23511	24
Hiuck	Carol	not provided	N/A	Web-based Comments	9943	24
Hively	Deborah	not provided	N/A	Web-based Comments	12413	24
Hixson	Becky	not provided	N/A	Web-based Comments	53506	34
Hjelle	Kristin	not provided	N/A	Web-based Comments	50814	34
Hladis	Iva	not provided	N/A	Web-based Comments	15953	24
HLAT	Mike	not provided	N/A	Web-based Comments	54094, 54095	34
Hlis	Michael	not provided	N/A	Web-based Comments	24118	24
Hlodnicki	Bruce	not provided	N/A	Web-based Comments	50754, 50755	34
Hlodnicki	Bruce	not provided	N/A	Web-based Comments	9612	24
Ho	Ba	not provided	N/A	Web-based Comments	8589	24
Ho	Lisa	not provided	N/A	Web-based Comments	21569	24
Ho	Ted	not provided	N/A	Web-based Comments	30243	24
Hoadley	Carol	not provided	N/A	Web-based comments	57589	35
Hoak	Gail	not provided	N/A	Web-based Comments	14692	24
Hoang	Lynn	not provided	N/A	Web-based Comments	47753	34
hoang	lynn	not provided	N/A	Web-based Comments	22067	24
Hoar	Yvonne	not provided	N/A	Web-based Comments	55349	34
Hoare	Patricia	not provided	N/A	Web-based Comments	25775	24
Hoban	Esme	not provided	N/A	Web-based Comments	14258	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Hoban	Mike	mkhoban@hotmail.com	N/A	Web-based comments	1694, 2432, 2773	N/A
Hoban	Stephanie	not provided	N/A	Web-based Comments	29220	24
Hobbensiefken	Diane	not provided	N/A	Web-based Comments	12849	24
Hobbie	Michael	not provided	N/A	Web-based Comments	24119	24
Hobbs	Carol	not provided	N/A	Web-based Comments	9944	24
Hobbs	Carolyn	not provided	N/A	Web-based Comments	10163	24
Hobbs	Deb	not provided	N/A	Web-based Comments	12295	24
Hobbs	Jana	not provided	N/A	Web-based Comments	51124	34
Hobbs	Jane	not provided	N/A	Web-based Comments	16491	24
Hobbs	Joan	not provided	N/A	Web-based Comments	57919, 50342	16, 34
Hobbs	Joan	not provided	N/A	Web-based Comments	17695	24
Hobbs	Katherine	not provided	N/A	Web-based Comments	19455	24
Hobbs	Ralph	not provided	N/A	Web-based Comments	49698	34
Hober	Zachary	not provided	N/A	Web-based Comments	31712	24
Hoberg	Matthew	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	6946	N/A
Hoberman	Lawrence	not provided	N/A	Web-based Comments	20877	24
HOBGOOD	CYNTHIA	not provided	N/A	Web-based Comments	56471	34
Hobica	Grace	not provided	N/A	Web-based Comments	15193	24
Hobin	Frank	not provided	N/A	Web-based Comments	14535	24
HOBSON	G.	not provided	N/A	Web-based comments	2381	N/A
hobson	kelvin	not provided	N/A	Web-based Comments	46285	34
Hoburg	Mindy	not provided	N/A	Web-based Comments	24529	24
Hocevar	Renee	not provided	N/A	Web-based Comments	26846	24
Hoch	Christiana	not provided	N/A	Web-based Comments	10832	24
hochendoner	bernard	not provided	N/A	Web-based Comments	51414	34
Hochendoner	Bernard	not provided	N/A	Web-based Comments	8994	24
Hochendoner	Kelly and Ralph	not provided	N/A	Web-based Comments	19952	24
Hochmair	Elke	not provided	N/A	Web-based Comments	13881	24
Hochman	Mark	not provided	N/A	Web-based Comments	22942	24
Hochstatter	Ryan	not provided	N/A	Web-based Comments	27913	24
Hocker	Steve	not provided	N/A	Web-based Comments	29367	24
Hocking	Judith	not provided	N/A	Web-based Comments	18605	24
Hocking	Zora	not provided	N/A	Web-based Comments	49087, 49088	34
Hocshain	Jennifer	jlhocshain@yahoo.com	N/A	Web-based comments	1048	N/A
Hoddinott	Mary	not provided	N/A	Web-based Comments	23299	24
Hodel	Joyce	not provided	N/A	Web-based Comments	18491	24
Hodge	Christopher	not provided	N/A	Web-based Comments	11014	24
Hodge	Lawrence	not provided	N/A	Web-based Comments	20878	24
Hodge	Susan	not provided	N/A	Web-based Comments	29711	24
Hodges	Bennie	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	2968	N/A
Hodges	Christina	not provided	N/A	Web-based Comments	10858	24
Hodges	Connie	not provided	N/A	Web-based Comments	55066	34
Hodges	Connie	not provided	N/A	Web-based Comments	11309	24
Hodges	Diantha	not provided	N/A	Web-based Comments	12950	24
Hodges	Elnora	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	2969	N/A
Hodges	Karen	not provided	N/A	Web-based Comments	19122	24
Hodges	Sharon	not provided	N/A	Web-based Comments	28665	24
Hodges	Sherri	not provided	N/A	Web-based Comments	46677	34
hodges	Sherri	not provided	N/A	Web-based Comments	28865	24
hodges	sherrri	not provided	N/A	Web-based Comments	46676	34
Hodges	Suzanne	not provided	N/A	Web-based Comments	29998	24
Hodgin	Richard	not provided	N/A	Web-based Comments	47434	34
Hodgkins	Deborah	not provided	N/A	Web-based Comments	12414	24
Hodgson	Angela	not provided	N/A	Web-based Comments	7908	24
Hodgson	Eleanor	not provided	N/A	Web-based Comments	57833	34
Hodgson	Karen	not provided	N/A	Web-based Comments	19123	24
Hodgson	Mark	not provided	N/A	Web-based Comments	22943	24
Hodgson	Mary	not provided	N/A	Web-based Comments	23300	24
Hodgson	Mary	not provided	N/A	Web-based Comments	23301	24
Hodgson	Susan	not provided	N/A	Web-based Comments	51043, 51044	34
Hodson	Sally	not provided	N/A	Web-based Comments	47757	34
Hoeffner	Beth	not provided	N/A	Web-based Comments	9029	24
Hoehne	Alex	not provided	N/A	Web-based Comments	7245	24
Hoehne	Michelle	not provided	N/A	Web-based Comments	24347	24
Hoekstra	Nicole	not provided	N/A	Web-based Comments	46121, 46122	34
Hoekstra	Robert	not provided	N/A	Web-based Comments	27285	N/A
Hoekstra	Robert	not provided	N/A	Web-based Comments	50791	34
Hoekstra	Tim	not provided	N/A	Web-based Comments	51600	34
Hoekstra	Tim	not provided	N/A	Web-based Comments	30608	24
Hoeltzel	Les	not provided	N/A	Web-based Comments	21029	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Hoelzeman	Elisa	not provided	N/A	Web-based Comments	13671	24
Hoenig	Irwin	not provided	N/A	Web-based Comments	50189	34
Hoenig	Irwin	not provided	N/A	Web-based Comments	21914	24
Hoeprich	Stephen	not provided	N/A	Web-based Comments	29300	24
Hoerlein	Sara	not provided	N/A	Web-based Comments	46015	34
Hoetzlein	Therese	not provided	N/A	Web-based Comments	30458	24
hoex	christine	not provided	N/A	Web-based Comments	10932	24
Hoey	Amanda	ahoey@owgl.org	N/A	Web-based comments	2423, 4708	N/A
Hof	Annette	not provided	N/A	Web-based Comments	8281	24
Hofer	Daniel	not provided	N/A	Web-based Comments	11743	24
Hofer	Sherry	not provided	N/A	Web-based comments	236, 5618	1
Hofer	Sylvia	not provided	N/A	Web-based Comments	30067	24
Hoff	Colleen	not provided	N/A	Web-based Comments	11263	24
Hoff	Jefferson	not provided	N/A	Web-based Comments	17061	24
Hoff	Marilyn	not provided	N/A	Web-based Comments	22789	24
Hoff	Mary	not provided	N/A	Web-based Comments	23302	24
Hoffer	Aaron	not provided	N/A	Web-based Comments	6997	24
hoffman	andrew	not provided	N/A	Web-based Comments	7818	24
Hoffman	Catherine	not provided	N/A	Web-based Comments	10284	24
Hoffman	Deborah	not provided	N/A	Web-based Comments	12415	24
Hoffman	Jane	not provided	N/A	Web-based Comments	54686	34
Hoffman	Jeff	not provided	N/A	Web-based Comments	45422, 45423	34
Hoffman	Lisa	not provided	N/A	Web-based comments	57284	35
Hoffman	Michael	not provided	N/A	Web-based Comments	24120	24
Hoffman	Michelle	not provided	N/A	Web-based Comments	24348	24
Hoffman	Rachel	not provided	N/A	Web-based Comments	26527	24
Hoffman	Robert	not provided	N/A	Web-based Comments	27286	24
Hoffman	Sharon	not provided	N/A	Web-based Comments	28666	24
Hoffman	Sheri	not provided	N/A	Web-based Comments	28853	24
Hoffman	Steven	not provided	N/A	Web-based Comments	48593	34
hoffman	steven	not provided	N/A	Web-based Comments	29439	24
Hoffman	Steven	not provided	N/A	Web-based Comments	29440	24
Hoffman	Tara	not provided	N/A	Web-based Comments	48987	34
Hoffmann	Deborah	not provided	N/A	Web-based Comments	12416	24
Hofheins	Paul	not provided	N/A	Web-based Comments	26005	24
Hofing	Amy	not provided	N/A	Web-based Comments	7622	24
Hofland	John	JHOFLAND@EXCITE.COM	N/A	Web-based comments	5721	N/A
Hofman	Peter	not provided	N/A	Web-based Comments	26260	24
Hofmann	Deborah	not provided	N/A	Web-based Comments	12417	24
hofmann	janine	not provided	N/A	Web-based Comments	16730	24
Hofmann	Joyce	not provided	N/A	Web-based Comments	18492	24
Hofmann	Michelle	not provided	N/A	Web-based Comments	45544	34
Hofmann	Tim	not provided	N/A	Web-based Comments	30609	24
Hogan	James	not provided	N/A	Web-based Comments	16239	24
Hogan	John	not provided	N/A	Web-based Comments	18050	24
Hogan	Patrick	phogan@d401.k12.id.us	N/A	Web-based comments	3481	N/A
Hogan	Peter	not provided	N/A	Web-based Comments	26261	24
Hogan	Rhonda	not provided	N/A	Web-based Comments	26897	24
Hogg	Juliet	not provided	N/A	Web-based Comments	18916	24
Hogg	Vicky	not provided	N/A	Web-based comments	56857	35
hogge	Jon	jhogge@uidaho.edu	N/A	Web-based comments	3791	N/A
Hoglund	Richard	not provided	N/A	Web-based Comments	26986	24
Hoh	Shirley	not provided	N/A	Web-based Comments	28955	24
Hohe	Karen	not provided	N/A	Web-based Comments	19124	24
Hoheisel	Philip	not provided	N/A	Web-based Comments	26342	24
Hohenshelt	Felicity	not provided	N/A	Web-based Comments	45392	34
Hohenshelt	Felicity	not provided	N/A	Web-based Comments	14419	24
Hohlfeld	Carolina	not provided	N/A	Web-based Comments	10112	24
Hoinacki	Rich	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32275*	N/A
Hoisington	Matt	not provided	N/A	Web-based Comments	23618	24
Hojnacki	Sean	not provided	N/A	Web-based Comments	28518	24
Holabird	Rhoda	not provided	N/A	Web-based Comments	26887	24
Holbert	John C	not provided	N/A	Web-based Comments	18218	24
Holbert	William	not provided	N/A	Web-based Comments	31552	24
Holbrook	Sandra	not provided	N/A	Web-based Comments	49553, 49554	34
Holbrook	Sandra	not provided	N/A	Web-based Comments	28159	24
Holby	Hazel	not provided	N/A	Web-based Comments	15487	24
Holck	Karen	not provided	N/A	Web-based Comments	19125	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Holcomb	Gary	not provided	N/A	Web-based Comments	14770	24
Holcomb	Richard	not provided	N/A	Web-based Comments	26987	24
Holcomb	Robin	not provided	N/A	Web-based Comments	27490	24
Holcombe	Cassie	not provided	N/A	Web-based Comments	48671	34
holcombe	cassie	not provided	N/A	Web-based Comments	10243	24
Holcomb-Knowles	Cathleen	not provided	N/A	Web-based comments	57131	35
Holden	Cathy	not provided	N/A	Web-based Comments	47205, 47206	34
Holden	Cathy	not provided	N/A	Web-based Comments	10371	24
Holden	Nelda	not provided	N/A	Web-based Comments	53911, 53912	34
Holden	Suzanne	not provided	N/A	Web-based Comments	29999	24
Holder	Carl	holdercarl@hotmail.com	N/A	Web-based comments	3717	N/A
Holder	Cheryl	not provided	N/A	Web-based Comments	10646	24
Holder	Janet	not provided	N/A	Web-based Comments	16611	24
Holder	Lehman	not provided	N/A	Web-based Comments	20958, 20959	24
Holder	Lehman	tripsguy@aol.com	N/A	Web-based comments	1278	N/A
Holder	Marie	not provided	N/A	Web-based Comments	22708	24
Holder	Raymond	not provided	N/A	Web-based Comments	26690	24
Holding	Rachael	not provided	N/A	Web-based Comments	26501	24
Holdren	Jill	not provided	N/A	Web-based Comments	17513	24
Holdsworth	Ariel	not provided	N/A	Web-based Comments	8412	24
Hole	Jennifer	not provided	N/A	Web-based Comments	17203	24
Holesworth	William	bholesworth@gmail.com	N/A	Web-based comments	4158	N/A
Holford	Peter	not provided	N/A	Web-based Comments	26262	24
Holford	Sharon	not provided	N/A	Web-based Comments	54529	34
Holguin	Stacy	not provided	N/A	Web-based Comments	29138	24
Hollack	Janet	not provided	N/A	Web-based Comments	16612	24
Hollahan	Jim	jim.hollahan@gmail.com	N/A	Web-based comments	5192	8
Holland	Cristina	not provided	N/A	Web-based Comments	11442	24
holland	david	not provided	N/A	Web-based Comments	12038	24
Holland	Dianna	not provided	N/A	Web-based Comments	53514	34
Holland	Dianna	not provided	N/A	Web-based Comments	12928	24
Holland	Jenny	not provided	N/A	Web-based Comments	17292	24
Holland	Kam	not provided	N/A	Web-based comments	57724	35
Holland	Kate	not provided	N/A	Web-based Comments	19385	24
Holland	Martha	not provided	N/A	Web-based Comments	23106	24
Holland	Nancy	not provided	N/A	Web-based Comments	44873	34
Holland	Richard	not provided	N/A	Web-based Comments	26988	24
Holland	Sasha	not provided	N/A	Web-based Comments	46829	34
Holland	Susan	not provided	N/A	Web-based Comments	52646	34
Holland	Valerie	not provided	N/A	Web-based Comments	50690	34
Hollander	Myrna	not provided	N/A	Web-based Comments	24722	24
HOLLAR	JEFFREY	not provided	N/A	Web-based Comments	51351	34
Hollar	Rondane	not provided	N/A	Web-based Comments	27680	24
Holleman	Frank	holl2759@bellsouth.net	N/A	Web-based comments	4569	8
Holleman	Nancy	not provided	N/A	Web-based Comments	24895	24
Hollenbaugh	Fonda	not provided	N/A	Web-based Comments	47420	34
Holleran	Martin	not provided	N/A	Web-based Comments	23160	24
Hollerbach	Robert	not provided	N/A	Web-based Comments	27287	24
Holley	Clay	clayholley@hotmail.com	N/A	Web-based comments	5215	N/A
Holley	Thomas	not provided	N/A	Web-based Comments	55199	34
Holliday	Jennifer	not provided	N/A	Web-based Comments	50349	34
Holliday	Stacey	not provided	N/A	Web-based Comments	29114	24
Hollie	Paula	not provided	N/A	Web-based Comments	44850	34
hollingsworth	judy	not provided	N/A	Web-based Comments	18686	24
Hollinrake	Mark	not provided	N/A	Web-based Comments	22944	24
Hollins	Sterling	not provided	N/A	Web-based Comments	29352	24
Hollis	Sam	not provided	N/A	Web-based comments	803	2
Hollis	Sarah	not provided	N/A	Web-based Comments	28364	24
Hollis-Franklyn	Candace	not provided	N/A	Web-based Comments	55515	34
Hollister	Doyle	not provided	N/A	Web-based Comments	13351	24
Hollo	Thompson	not provided	N/A	Web-based Comments	56508	34
Hollomon	Carol	not provided	N/A	Web-based Comments	9945	24
Hollon	Bob	not provided	N/A	Web-based Comments	9240	24
Holloway	David	not provided	N/A	Web-based Comments	45089	34
Holloway	David	not provided	N/A	Web-based Comments	12039	24
Holloway	Megan	megan.holloway80@gmail.com	N/A	Web-based comments	4364	N/A
Holloway	Pearl	not provided	N/A	Web-based Comments	26131	24
Holloway	Rendon	not provided	N/A	Web-based Comments	26828	24
holloway	saundra	not provided	N/A	Web-based Comments	45989	34
Holloway	Saundra	not provided	N/A	Web-based Comments	57825	34

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Holloway	Spencer	not provided	N/A	Web-based Comments	55886	34
Holloway	Spencer	not provided	N/A	Web-based Comments	29095	24
Hollowell	Heather	not provided	N/A	Web-based Comments	15516	24
Holm	Cristin	not provided	N/A	Web-based Comments	11439	24
Holm	Jerald	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4659	N/A
Holm	Lisa	not provided	N/A	Web-based Comments	21570	24
Holm	Mary	not provided	N/A	Web-based Comments	23303	24
Holm	Monika	not provided	N/A	Web-based Comments	24648	24
Holman	Clarisse	not provided	N/A	Web-based Comments	11170	24
Holman	Shirley	not provided	N/A	Web-based Comments	28956	24
Holman	Stephanie	not provided	N/A	Web-based comments	57666	35
Holman-Bryant	Vicki	not provided	N/A	Web-based Comments	31133	24
Holme	Brie	not provided	N/A	Web-based Comments	9547	24
Holme	Frances	not provided	N/A	Web-based Comments	14480	24
Holmes	Amanda	not provided	N/A	Web-based Comments	7538	24
Holmes	Ben	not provided	N/A	Web-based Comments	8938	24
Holmes	Brad	not provided	N/A	Web-based Comments	55965	34
Holmes	Dorothy	not provided	N/A	Web-based Comments	13262	24
Holmes	Jack	not provided	N/A	Web-based comments	56899	35
Holmes	Jack	not provided	N/A	Web-based Comments	49135, 49136	34
Holmes	Jaycee	not provided	N/A	Web-based comments	1589	1
Holmes	Keana	not provided	N/A	Web-based Comments	19858	24
Holmes	Lorna	not provided	N/A	Web-based Comments	21821	24
Holmes	Marni	not provided	N/A	Web-based Comments	23057	24
Holmes	Matthew	not provided	N/A	Web-based Comments	23650	24
Holmes	Michelle	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32304	N/A
Holmes	Penny	not provided	N/A	Web-based Comments	26208	24
Holmes	Ronald	rlsholmes@yahoo.com	N/A	Web-based comments	3001	6
Holmes	Sam	not provided	N/A	Web-based Comments	28059	24
Holmes-Anderson	Lucille	not provided	N/A	Web-based Comments	21941	24
Holmgren	Jeanette	not provided	N/A	Web-based Comments	53433	34
Holmgren	Jeanette	not provided	N/A	Web-based Comments	16914	24
Holmquist	Jill	not provided	N/A	Web-based Comments	17514	24
Holmquist	Kirsten	not provided	N/A	Web-based Comments	58605	34
Holmquist	Kirsten	not provided	N/A	Web-based Comments	20275	24
Holmquist	Wendy	not provided	N/A	Web-based Comments	31427	24
Holmstrom	Connor	connor.holmstrom@gmail.com	N/A	Web-based comments	6407	1
holoch	naomi	not provided	N/A	Web-based Comments	25045	24
Holoduek Jr	John C	not provided	N/A	Web-based Comments	18219	24
Holoway	Grace	not provided	N/A	Web-based comments	56725	35
Holoway	Grace	not provided	N/A	Web-based Comments	47483	34
Holowczak	Barbara	not provided	N/A	Web-based Comments	51763	34
Holowczak	Barbara	not provided	N/A	Web-based Comments	8698	24
Holroyd	Rick	not provided	N/A	Web-based Comments	27088	24
Holscher	Tine	not provided	N/A	Web-based Comments	45294	34
Holschuh	Tom	th7419@outlook.com	N/A	Web-based comments	3755	N/A
Holstrom	Michael	not provided	N/A	Web-based Comments	24121	24
Holt	Alan	not provided	N/A	Web-based Comments	7167	24
Holt	Babette	not provided	N/A	Web-based Comments	54407	34
Holt	Bill	not provided	N/A	Web-based Comments	9168	24
Holt	Dave	not provided	N/A	Web-based Comments	53679	34
Holt	Debi	not provided	N/A	Web-based Comments	12362	24
Holt	Lynne	not provided	N/A	Web-based Comments	22137	24
HOLT	MICHAEL	not provided	N/A	Web-based Comments	24122	24
Holt	Penny	not provided	N/A	Web-based Comments	26209	24
Holt	Randi	not provided	N/A	Web-based Comments	52365, 52366	34
Holt	Sandra	not provided	N/A	Web-based Comments	28160	24
HOLT	SONYA	not provided	N/A	Web-based Comments	29079	24
Holt	Sue	not provided	N/A	Web-based Comments	49886	34
Holter	Ross	ross.holter@gmail.com	N/A	Web-based comments	5910	N/A
Holth	Jesse	not provided	N/A	Web-based Comments	17394	24
Holton	Donna	not provided	N/A	Web-based Comments	13139	24
Holtrop	Kristina	not provided	N/A	Web-based comments	2825	N/A
Holtz	Lynette	not provided	N/A	Web-based Comments	52065	34
Holtz	Mary Ann	not provided	N/A	Web-based Comments	23494	24
Holtzman	Jon	not provided	N/A	Web-based Comments	18255	24
Holtzman	Julie	not provided	N/A	Web-based Comments	52300	34
Holtzman	Lawrence	not provided	N/A	Web-based Comments	55599	34
Holub	Terry	not provided	N/A	Web-based Comments	30376	24
Holup	Sara	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32495	N/A

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Holup	Wendy	not provided	N/A	Web-based Comments	50820	34
Holy	Dominique	not provided	N/A	Web-based Comments	51290	34
Holzberg	Steven	not provided	N/A	Web-based Comments	29441	24
Holzendorf	Victoria	not provided	N/A	Web-based Comments	54040	34
Holzendorf	Victoria	not provided	N/A	Web-based Comments	31198	24
Holzer	Rebecca	not provided	N/A	Web-based Comments	26730	24
Holzman	Catherine	not provided	N/A	Web-based Comments	53335	34
Holzman	MayaLisa	not provided	N/A	Web-based Comments	23762	24
Homacki	Pat	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32274*	N/A
Homer	Deanna	not provided	N/A	Web-based Comments	12277	24
Homsey	Ellen	not provided	N/A	Web-based Comments	48650	34
Homsey	Ellen	not provided	N/A	Web-based Comments	13919	24
Hon	Nancy	not provided	N/A	Web-based Comments	24896	24
Honan	Mair	not provided	N/A	Web-based Comments	22285	24
Honda	Mike	not provided	N/A	Web-based Comments	24457	24
Honda	Satomi	not provided	N/A	Web-based Comments	56500	34
Hondo	Michele	not provided	N/A	Web-based Comments	24289	24
Honea	Nancy	not provided	N/A	Web-based Comments	24897	24
Honens	Paul	not provided	N/A	Web-based Comments	26006	24
Honey	Sue	not provided	N/A	Web-based Comments	29529	24
Honeycutt	Cinthia	not provided	N/A	Web-based Comments	11112	24
Honeycutt	Kristi	not provided	N/A	Web-based Comments	20355	24
Honeyman	Bruce	not provided	N/A	Web-based Comments	49503	34
Hong	Celeste	not provided	N/A	Web-based Comments	51517, 51518	34
Hong	Malina	not provided	N/A	Web-based Comments	22296	24
Honig	Mr. Aaron	not provided	N/A	Web-based Comments	58101	16
Honish	Robert	not provided	N/A	Web-based Comments	54496	34
HONKOMP	DENNIS	not provided	N/A	Web-based Comments	55737	34
Honore	Stephanie	not provided	N/A	Web-based Comments	29221	24
Hontz	Mary	not provided	N/A	Web-based Comments	23304	24
Hoo	Lanlan	not provided	N/A	Web-based Comments	20545	24
Hood	Carolinah	not provided	N/A	Web-based Comments	53299	34
Hood	Jane	not provided	N/A	Web-based Comments	16492	24
Hood	Mary	not provided	N/A	Web-based Comments	51436, 51437	34
Hood	Mary	not provided	N/A	Web-based Comments	23305	24
Hood	Nick	not provided	N/A	Web-based Comments	25199	24
Hood	Peter and Joan	not provided	N/A	Web-based Comments	26304	24
Hood	Scott	jscotthood@gmail.com	N/A	Web-based comments	4040	N/A
Hood	Susan	not provided	N/A	Web-based Comments	29712	24
Hoodwin	Marcia	not provided	N/A	Web-based Comments	22373	24
Hoogenboom	Jan	not provided	N/A	Web-based Comments	16402	24
Hoogerwerf	Theresa	not provided	N/A	Web-based Comments	30433	24
Hoogerwerf	Willemijntje	not provided	N/A	Web-based Comments	31497	24
Hooker	Bishop Thomas H.	not provided	N/A	Web-based Comments	9204	24
Hooker	Thomas	not provided	N/A	Web-based Comments	30503	24
Hooley	Mary	not provided	N/A	Web-based Comments	55146	34
Hoot	Lois	not provided	N/A	Web-based Comments	21718	24
Hoot	Melvin	not provided	N/A	Web-based Comments	56221	34
Hooten	Dustin	not provided	N/A	Web-based Comments	13394	24
Hoover	Anna	not provided	N/A	Web-based Comments	50161	34
Hoover	Connie	not provided	N/A	Web-based Comments	11310	24
Hoover	Gary	not provided	N/A	Web-based Comments	14771	24
Hoover	Lana	not provided	N/A	Web-based Comments	53942	34
Hoover	Madison	not provided	N/A	Web-based Comments	22252	24
Hoover	Michael	not provided	N/A	Web-based Comments	24123	24
Hoover	Susan	not provided	N/A	Web-based Comments	55904	34
Hoover	Thomas	not provided	N/A	Web-based Comments	45932	34
Hope	Andrew	not provided	N/A	Web-based comments	56809	35
Hope	Laurie	not provided	N/A	Web-based Comments	20837	24
Hope	Phillip	not provided	N/A	Web-based Comments	26362	24
Hopen	Andrew	not provided	N/A	Web-based Comments	46413	34
Hopes	Matthew	not provided	N/A	Web-based comments	56870	35
Hopkins	Jimi	not provided	N/A	Web-based Comments	47344	34
Hopkins	Joseph	fishfinder.jh@gmail.com	N/A	Web-based comments	2262	N/A
Hopkins	Karen	not provided	N/A	Web-based Comments	46407	34
Hopkins	Lisa	not provided	N/A	Web-based Comments	49883	34
Hopkins	Lisa	not provided	N/A	Web-based Comments	21571	24
HOPKINS	MAXIN	not provided	N/A	Web-based Comments	23747	24
Hopkins	Natasha	not provided	N/A	Web-based Comments	25084	24
Hopkins	Rob	rh65271@gmail.com	N/A	Web-based comments	1806	N/A

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Hopkins	Sonia	not provided	N/A	Web-based Comments	29061	24
Hopkins	Stephen	not provided	N/A	Web-based Comments	48316	34
hopkins	stephen	not provided	N/A	Web-based Comments	29301	24
Hopkins	Susan	not provided	N/A	Web-based Comments	29713	24
hopkins	suz	not provided	N/A	Web-based Comments	29969	24
Hopkinson	NATASHA	not provided	N/A	Web-based Comments	25085	24
Hopler	Russ	not provided	N/A	Web-based Comments	27826	24
Hoppe	Cedric	not provided	N/A	Web-based Comments	10426	24
hoppe	judith	not provided	N/A	Web-based Comments	18606	24
Horchheimer	Christine	not provided	N/A	Web-based Comments	10933	24
Horejsi	John	not provided	N/A	Web-based Comments	18051	24
Horgan	Cindy	not provided	N/A	Web-based comments	57049	35
Horine	Angela	not provided	N/A	Web-based Comments	7909	24
Horkitz	Lauri	not provided	N/A	Web-based Comments	20813	24
Horlbeck	Eric	not provided	N/A	Web-based Comments	14112	24
Hormann	Anne	not provided	N/A	Web-based Comments	8205	24
Hormel	Michael	not provided	N/A	Web-based Comments	24124	24
horn	audrey	not provided	N/A	Web-based Comments	8529	24
horn	esther	not provided	N/A	Web-based Comments	14277	24
Horn	Harry Van	not provided	N/A	Web-based Comments	55185	34
Horn	Imogen	not provided	N/A	Web-based Comments	15864	24
Horn	Onno van	not provided	N/A	Web-based Comments	46150	34
Horn	Wilma Van	not provided	N/A	Web-based Comments	44645, 44646	34
Hornbuckle	Jovohn	not provided	N/A	Web-based Comments	18454	24
Horne	Brandy	not provided	N/A	Web-based Comments	48422	34
Horne	Brandy	not provided	N/A	Web-based Comments	9379	24
Horne	Kathleen	not provided	N/A	Web-based Comments	19543	24
Horne	Robert	not provided	N/A	Web-based Comments	27288	24
Horne	Sandra	not provided	N/A	Web-based Comments	28161	24
Hornemann	Jâˆšâˆ,rg	not provided	N/A	Web-based Comments	16022	24
Horner	Adelia	not provided	N/A	Web-based Comments	7072	24
Horner	Alice	not provided	N/A	Web-based Comments	7346	24
Horner	Jerry	not provided	N/A	Web-based Comments	17358	24
Horner	John	not provided	N/A	Web-based Comments	18052	24
Horner	Joshua	not provided	N/A	Web-based Comments	47558	34
Horner	Joshua	not provided	N/A	Web-based Comments	18433	24
Hornick	Diana	not provided	N/A	Web-based Comments	12770	24
Hornick	Eran	not provided	N/A	Web-based comments	57658	35
Horning	Eric	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32334	N/A
Hornsby	Al	not provided	N/A	Web-based Comments	7147	24
Hornstein	Dave	not provided	N/A	Web-based Comments	11912	24
Hornung	Jane	not provided	N/A	Web-based Comments	16493	24
Horowitz	Adam	not provided	N/A	Web-based Comments	7047	24
Horowitz	Bruce	ripelandscapes@gmail.com	N/A	Web-based comments	32005	N/A
Horowitz	Diana	not provided	N/A	Web-based Comments	12771	24
Horowitz	Laura	not provided	N/A	Web-based Comments	20652	24
Horrocks	Chris	options4freedom@yahoo.com	N/A	Web-based comments	3550	N/A
Horski	Sandra	not provided	N/A	Web-based Comments	28162	N/A
Horsmon	Jennifer	not provided	N/A	Web-based Comments	17204	24
Horst	Fritz	fchorst1@gmail.com	N/A	Web-based comments	32052	N/A
Horstman	Kara	not provided	N/A	Web-based Comments	19022	24
Horton	C	not provided	N/A	Web-based Comments	54416, 54417	34
Horton	Christine	not provided	N/A	Web-based Comments	10934	24
Horton	Dan	not provided	N/A	Web-based Comments	45969	34
horton	dan	not provided	N/A	Web-based Comments	11658	24
Horton	Deanna	not provided	N/A	Web-based Comments	45077	34
Horton	Deanna	not provided	N/A	Web-based Comments	12278	24
Horton	George	not provided	N/A	Web-based Comments	14893	24
Horton	Jennifer	not provided	N/A	Web-based Comments	17205	24
horton	karen	not provided	N/A	Web-based Comments	57967, 51631	16, 34
horton	karen	not provided	N/A	Web-based Comments	19126	24
Horton	Katherine	not provided	N/A	Web-based Comments	19456	24
Horton	LaShon	not provided	N/A	Web-based Comments	20601	24
horton	ron	jackinaraft@gmail.com	N/A	Web-based comments	2935	N/A
Hortsch	Stephanie	not provided	N/A	Web-based Comments	45500	34
Horty	Su	not provided	N/A	Web-based Comments	29502	24
Horvat	Karla	not provided	N/A	Web-based Comments	19313	24
Horvitz	Jane	not provided	N/A	Web-based Comments	16494	24
Horwath	Pat	not provided	N/A	Web-based Comments	25656	24
Horwitch	Michelle	not provided	N/A	Web-based Comments	24349	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Horwitz	Martin	not provided	N/A	Web-based Comments	56596	34
Horwitz	Martin	not provided	N/A	Web-based Comments	23161	24
Horwood	Sue	not provided	N/A	Web-based Comments	49705, 49706	34
Hosburgh	Jacob	busterchopz@gmail.com	N/A	Web-based comments	816	N/A
Hoshiko	Derek	not provided	N/A	Web-based Comments	12720	24
Hoskie	Gary	not provided	N/A	Web-based Comments	49719	34
Hoskins	Steven	man4sno@comcast.net	N/A	Web-based comments	3939	11
Hosler	Jacob	not provided	N/A	Web-based Comments	16088	24
Hosoume	Kimi	not provided	N/A	Web-based Comments	20258	24
Hosta	Denise	not provided	N/A	Web-based Comments	49247	34
Hosterman	Carl	not provided	N/A	Web-based Comments	9805	24
Hostetler	Heather	not provided	N/A	Web-based Comments	51492	34
Hostler	Ann	not provided	N/A	Web-based Comments	8049	24
Hostler	Paul	not provided	N/A	Web-based Comments	26007	24
HOST-SIMON	Jennifer	not provided	N/A	Web-based Comments	17206	24
Hotard	Catherine	not provided	N/A	Web-based Comments	10285	24
Hotsko	Kenton	kenton_hots@hotmail.com	N/A	Web-based comments	1770	N/A
hottel	gene and jodi	not provided	N/A	Web-based Comments	14857	24
Hottenstein	Tara	not provided	N/A	Web-based Comments	30202	24
Hottle	Charles	not provided	N/A	Web-based Comments	10511	24
Houbre	Amy	not provided	N/A	Web-based Comments	44687	34
Houck	Cyndi	not provided	N/A	Web-based Comments	11482	24
Houck	Roanne	not provided	N/A	Web-based Comments	27167	24
Houdashelt	Mark	not provided	N/A	Web-based Comments	50716, 50717	34
Houdashelt	Mark	not provided	N/A	Web-based Comments	22945	24
Houde	Joannie	not provided	N/A	Web-based Comments	17834	24
houeix	christine	not provided	N/A	Web-based Comments	54249	34
Hough	Dennis	not provided	N/A	Web-based Comments	12686	24
Hough	Robert	ceramicsandmore@tds.net	N/A	Web-based comments	31864	N/A
Hougham	Tom	not provided	N/A	Web-based Comments	50185	34
Hough-Neighbor	Joyce	not provided	N/A	Web-based Comments	18493	24
Houghtaling	Edward and Carol	not provided	N/A	Web-based Comments	13520	24
Houghton	Abigail	not provided	N/A	Web-based Comments	7021	24
Houghton	N	not provided	N/A	Web-based Comments	50482	34
Houghton	N	not provided	N/A	Web-based Comments	24734	24
Houghton	Valerie	not provided	N/A	Web-based comments	57744	35
Houha	Cherlyn	not provided	N/A	Web-based Comments	10610	24
Houlette	Ryan	not provided	N/A	Web-based Comments	27914	24
Houlihan	Jane	not provided	N/A	Web-based Comments	16495	24
Houllahan	Roberta	not provided	N/A	Web-based Comments	27436	24
Houmann	Stefan	not provided	N/A	Web-based Comments	29164	24
Houmes	Cleda	not provided	N/A	Web-based Comments	51137	34
Hour	Barbara	not provided	N/A	Web-based Comments	8699	24
Hourihan	Mariah	not provided	N/A	Web-based Comments	22650	24
House	Darrell	not provided	N/A	Web-based Comments	11893	24
Houser	Alan	not provided	N/A	Web-based Comments	7168	24
Houser	Elizabeth	not provided	N/A	Web-based Comments	13760	24
Houston	Les	not provided	N/A	Web-based Comments	21030	24
Houston	Meghan	not provided	N/A	Web-based Comments	55802	34
Houston	Meghan	not provided	N/A	Web-based Comments	23814	24
Houtsma	James	not provided	N/A	Web-based Comments	16240	24
Houwers	Linda	not provided	N/A	Web-based Comments	46314	34
Hovekamp	Larry	not provided	N/A	Web-based Comments	20580	24
Hoven	Debra	not provided	N/A	Web-based Comments	12526	24
HOVER	KIMBERLY	not provided	N/A	Web-based Comments	45508	34
Hoving	Melissa	not provided	N/A	Web-based Comments	23890	24
Hovorka	Rita	not provided	N/A	Web-based Comments	27141	24
How	Joan	not provided	N/A	Web-based Comments	44508, 44509	34
How	Joan	not provided	N/A	Web-based Comments	17696	24
Howard	Alice	not provided	N/A	Web-based Comments	7347	24
Howard	Ally	not provided	N/A	Web-based Comments	7480	24
Howard	Brette	lteinhorn@yahoo.com	N/A	Web-based comments	32246	1
Howard	Carl	not provided	N/A	Web-based Comments	49575	34
Howard	Connie	not provided	N/A	Web-based Comments	11311	24
Howard	Dave	not provided	N/A	Web-based Comments	49229	34
Howard	Erin	not provided	N/A	Web-based Comments	49982, 49983	34
Howard	Erin	not provided	N/A	Web-based Comments	14221	24
Howard	Greg	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32381	30
Howard	Julie	not provided	N/A	Web-based Comments	50786	34
Howard	Laurie	not provided	N/A	Web-based Comments	20838	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Howard	Linda	not provided	N/A	Web-based Comments	53970	34
Howard	Linda	not provided	N/A	Web-based Comments	21297	24
Howard	Nancy	not provided	N/A	Web-based Comments	56251	34
Howard	Pat	not provided	N/A	Web-based Comments	58208	16
Howard	Paul	not provided	N/A	Web-based Comments	45034, 50521	34
Howard	Radphord-Leon	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58356	N/A
Howard	Richard	not provided	N/A	Web-based comments	3197	N/A
Howard	Ronald	not provided	N/A	Web-based Comments	50012	34
Howard	Ruth	not provided	N/A	Web-based Comments	53453	34
Howard	Ruth	not provided	N/A	Web-based Comments	27872	24
Howard	Susan	not provided	N/A	Web-based Comments	29714	24
Howarth	James	not provided	N/A	Web-based Comments	45526, 50579	34
howatt	bill and laurel	not provided	N/A	Web-based Comments	9193	24
Howe	Jared	not provided	N/A	Web-based Comments	52419	34
Howe	Rebecca	not provided	N/A	Web-based Comments	26731	24
Howe	Robin	not provided	N/A	Web-based Comments	27491	24
Howell	Aaron	not provided	N/A	Web-based comments	2005	1
Howell	Arlene	arleneh60@gmail.com	N/A	Web-based comments	3059	N/A
Howell	Bruce	not provided	N/A	Web-based Comments	9613	24
Howell	Cynthia	not provided	N/A	Web-based Comments	54693	34
Howell	George	not provided	N/A	Web-based Comments	14894	24
Howell	James	not provided	N/A	Web-based Comments	16241	24
Howell	Joe	not provided	N/A	Web-based Comments	17883	24
Howell	Linda	not provided	N/A	Web-based Comments	21298	24
Howell	Lisa	not provided	N/A	Web-based Comments	48851	34
howell	mark	not provided	N/A	Web-based Comments	22946	24
Howell	Melissa	not provided	N/A	Web-based Comments	47176	34
Howell	Melissa	not provided	N/A	Web-based Comments	23891	24
Howell	Trudi	not provided	N/A	Web-based Comments	30940	24
Howes	Connie	not provided	N/A	Web-based Comments	11312	24
Howes	Kim	not provided	N/A	Web-based Comments	20184	24
Howie	Linda	not provided	N/A	Web-based Comments	21299	24
Howland	Julia	julieahowland@gmail.com	N/A	Web-based comments	4946	1
Howland	Taggart	not provided	N/A	Web-based Comments	30106	24
Howlett	Christian	not provided	N/A	Web-based Comments	10827	24
Howman	Dave	not provided	N/A	Web-based Comments	11913	24
Howren	Kat	not provided	N/A	Web-based Comments	55719	34
Howren	Kat	not provided	N/A	Web-based Comments	19347	24
howsam	judy	not provided	N/A	Web-based Comments	18687	24
Howse	Fran	not provided	N/A	Web-based Comments	45119	34
Howze	Damon	not provided	N/A	Web-based Comments	11646	24
Hoyer	Robert	not provided	N/A	Web-based Comments	27289	24
Hoyle	Diane	not provided	N/A	Web-based Comments	12850	24
Hoyt	B	not provided	N/A	Web-based Comments	8570	24
Hoyt	Larissa	not provided	N/A	Web-based Comments	20561	24
Hoyt	Lindsay	not provided	N/A	Web-based Comments	21482	24
Hrabe	Patricia	not provided	N/A	Web-based Comments	25776	24
Hritz	Ann Marie	not provided	N/A	Web-based Comments	8109	24
Hrobuchak	David	hrobuchakd@aol.com	N/A	Web-based comments	5319	N/A
Hrobuchak	David	not provided	N/A	Web-based Comments	12040	24
Hruska	T	not provided	N/A	Web-based Comments	47267	34
Hruska	Theresa	not provided	N/A	Web-based Comments	30434	24
Hruza	Jennifer	not provided	N/A	Web-based Comments	56454	34
Hryc	Michele	not provided	N/A	Web-based Comments	50049	34
Hrycuna	Chuck and Kathleen	not provided	N/A	Web-based Comments	11055	24
Hsieh	Janice	not provided	N/A	Web-based Comments	16682	24
Hsu	Clara	cnh1000@live.com	N/A	Web-based comments	2583	N/A
Huang	Enoch	eshuang@alumni.princeton.edu	N/A	Web-based comments	5412	8
Huang	Grace	not provided	N/A	Web-based Comments	49010	34
huang	lynette	not provided	N/A	Web-based Comments	22038	24
Huang	SiYao	not provided	N/A	Web-based Comments	29036	24
HUANG	VIRGINIA	not provided	N/A	Web-based Comments	31289	24
Hubach	Cynthia	not provided	N/A	Web-based Comments	52138	34
Hubbard	Dave	dchubbard15@gmail.com	N/A	Web-based comments	6001	N/A
Hubbard	Emma	elhubb97@gmail.com	N/A	Web-based comments	1223	1
Hubbard	James	not provided	N/A	Web-based Comments	15185	24
Hubbard	Pam	not provided	N/A	Web-based Comments	25496	24
Hubbard	Ron L.	not provided	N/A	Web-based Comments	56459	34

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Hubbird	Carol	not provided	N/A	Web-based Comments	56507	34
Hubenthal	D	not provided	N/A	Web-based Comments	11580	24
Huber	Charles	not provided	N/A	Web-based Comments	44934	34
Huber	Cottie	not provided	N/A	Web-based Comments	46199, 46200	34
Huber	Diane	not provided	N/A	Web-based Comments	51742	34
Huber	Diane	not provided	N/A	Web-based Comments	12851	24
Huber	Dr Susan	not provided	N/A	Web-based Comments	13360	24
Huber	Esther	not provided	N/A	Web-based Comments	46492	34
Huber	Leann Gail Wells	not provided	N/A	Web-based Comments	45690	34
Huberman	Kara	not provided	N/A	Web-based Comments	19023	24
Hubert	Robin	not provided	N/A	Web-based Comments	27492	24
huberty	patricia	not provided	N/A	Web-based Comments	25777	24
Huble	Carolin	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	4790	18
Hubler	Miles	mileshubler@gmail.com	N/A	Web-based comments	582	N/A
Huckabay	Mary Ann	not provided	N/A	Web-based Comments	23495	24
Huckel	Mark	not provided	N/A	Web-based Comments	22947	24
Huckins	Jay	not provided	N/A	Web-based comments	57454	35
Huculak	Stanislaw	not provided	N/A	Web-based Comments	29151	24
Hudak	Lindsey	not provided	N/A	Web-based Comments	21497	24
Hudas	Yvonne	not provided	N/A	Web-based Comments	31699	24
Huddleston	Molly	not provided	N/A	Web-based Comments	24596	24
Huddleston	Nala	not provided	N/A	Web-based comments	31842	1
Huddlestone	Laura	not provided	N/A	Web-based Comments	55812	34
HUDGENS	MARK	mhudgens@me.com	N/A	Web-based comments	6199	N/A
Hudson	Alice	not provided	N/A	Web-based Comments	7348	24
Hudson	Anne	not provided	N/A	Web-based Comments	8206	24
Hudson	Dorothy	dhudson@harbornet.com	N/A	Web-based comments	31	N/A
Hudson	Justin	not provided	N/A	Web-based Comments	49327	34
Hudson	Kennon	not provided	N/A	Web-based Comments	20035	24
Hudson	Timothy	not provided	N/A	Web-based Comments	30646	24
Hudzinski	David	not provided	N/A	Web-based Comments	12041	24
Hueber	Glenda	not provided	N/A	Web-based Comments	15123	24
Huebner	Brett	not provided	N/A	Web-based Comments	9448	24
Huebner	Carol	not provided	N/A	Web-based Comments	48662	34
Huebner	Laurel	not provided	N/A	Web-based Comments	20740	24
Huenefeld	Carl	not provided	N/A	Web-based Comments	45290	34
Huenefeld	Carl	not provided	N/A	Web-based Comments	9806	24
Huenefeld	Mary-Alyce	not provided	N/A	Web-based Comments	45739	34
Huening	Maries	not provided	N/A	Web-based Comments	22744	24
Huening	Vincent	not provided	N/A	Web-based Comments	31251	24
Huerta	Carolynn	not provided	N/A	Web-based Comments	10189	24
Huertas	Andres	not provided	N/A	Web-based Comments	7794	24
Huey	Pat	not provided	N/A	Web-based Comments	56052	34
Hufeld	Sheila	not provided	N/A	Web-based Comments	28789	24
Huff	Cheryl	not provided	N/A	Web-based Comments	10647	24
Huff	Daniel	huffdan292@gmail.com	N/A	Web-based comments	2353	N/A
Huff	Harmon	not provided	N/A	Web-based Comments	54252, 54253	34
Huff	Harmon	not provided	N/A	Web-based Comments	15439	24
Huff	Mari	not provided	N/A	Web-based Comments	49356, 49357	34
Huff	Robert	not provided	N/A	Web-based comments	5353	N/A
Huff	Terry	not provided	N/A	Web-based Comments	30377	24
Huffine	Diane	not provided	N/A	Web-based Comments	12852	24
Huffine	Nancy	not provided	N/A	Web-based Comments	24898	24
Huffine	Rachel	not provided	N/A	Web-based Comments	26528	24
Huffman	Christopher	not provided	N/A	Web-based Comments	11015	24
Huffman	Denny	not provided	N/A	Web-based comments	5339	N/A
Huffman	James	not provided	N/A	Web-based Comments	46540	34
Huffman	James	not provided	N/A	Web-based Comments	16242	24
Huffman	Melodie	not provided	N/A	Web-based Comments	45115, 45116	34
Huffman	Melodie	not provided	N/A	Web-based Comments	23937	24
Huffman	Melody	not provided	N/A	Web-based Comments	53376	34
Huffman	Melody	not provided	N/A	Web-based Comments	23948	24
Huffman	Steve	not provided	N/A	Web-based Comments	29368	24
Hufford	William	not provided	N/A	Web-based Comments	31553	24
Hufnagel	Glenn	not provided	N/A	Web-based comments	57060	35
Hufnagel	Glenn	not provided	N/A	Web-based Comments	47915	34
Hug	Jalelah	not provided	N/A	Web-based Comments	16167	24
Huggins	Marie	not provided	N/A	Web-based Comments	22709	24
Hughes	Andy	not provided	N/A	Web-based Comments	7873	24
Hughes	Angela	not provided	N/A	Web-based Comments	7910	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Hughes	Barbara	not provided	N/A	Web-based Comments	54402, 54403	34
Hughes	Barbara	not provided	N/A	Web-based Comments	8700	24
Hughes	Bill	not provided	N/A	Web-based Comments	9169	24
Hughes	Bonnie	not provided	N/A	Web-based Comments	50207	34
Hughes	Colin	colin@hughesriver.com	N/A	Web-based comments	6699	N/A
Hughes	Curtis	not provided	N/A	Web-based Comments	11475	24
Hughes	Diane	not provided	N/A	Web-based Comments	12853	24
Hughes	Eugene	not provided	N/A	Web-based Comments	14292	24
Hughes	James	not provided	N/A	Web-based Comments	16243	24
Hughes	Jan	not provided	N/A	Web-based Comments	16403	24
Hughes	Jason	not provided	N/A	Web-based Comments	56098	34
Hughes	Jason	not provided	N/A	Web-based Comments	16777	24
Hughes	Jeannine	not provided	N/A	Web-based Comments	16998	24
Hughes	Jerry	info@hughesriver.com	N/A	Web-based comments	31845	N/A
Hughes	Joan	not provided	N/A	Web-based Comments	51253	34
Hughes	Joan	not provided	N/A	Web-based Comments	17697	24
Hughes	John	not provided	N/A	Web-based Comments	58524	34
Hughes	Jonathan	jonathan@sledgear.com	N/A	Web-based comments	6164	N/A
Hughes	Kate	not provided	N/A	Web-based Comments	52064	34
Hughes	Katherine	not provided	N/A	Web-based Comments	19457	24
Hughes	Kelvin	not provided	N/A	Web-based Comments	19960	24
Hughes	Kevin	not provided	N/A	Web-based Comments	49054, 49055	34
Hughes	Kevin	not provided	N/A	Web-based Comments	20109	24
Hughes	Kim	not provided	N/A	Web-based Comments	44628	34
Hughes	Kimberly	not provided	N/A	Web-based Comments	45185	34
Hughes	Linda	not provided	N/A	Web-based comments	57682	35
Hughes	Lindsey	not provided	N/A	Web-based Comments	21498	24
Hughes	Lisa	not provided	N/A	Web-based Comments	52778, 52779, 52853	34
Hughes	Mary	not provided	N/A	Web-based Comments	23306	24
Hughes	Mel	not provided	N/A	Web-based Comments	23826	24
HUGHES	MICHAEL	not provided	N/A	Web-based Comments	50707	34
Hughes	Nadezdha	not provided	N/A	Web-based Comments	24748	24
Hughes	Peggy	not provided	N/A	Web-based Comments	51081	34
Hughes	Rich	not provided	N/A	Web-based Comments	53231	34
Hughes	Robert	not provided	N/A	Web-based Comments	24110	24
Hughes	Robert	not provided	N/A	Web-based Comments	27290	24
Hughes	Rosemary	not provided	N/A	Web-based Comments	50140	34
Hughes	Rosemary	not provided	N/A	Web-based Comments	27763	24
Hughes	Sean	not provided	N/A	Web-based Comments	53184	34
hughes	vicki	not provided	N/A	Web-based Comments	31134	24
Hughes	William	not provided	N/A	Web-based Comments	31554	24
Hughey	Richard	not provided	N/A	Web-based Comments	51834	34
Hui	Eric	not provided	N/A	Web-based Comments	54374	34
Hui	Eric	not provided	N/A	Web-based Comments	14113	24
Huijsman	Ton	not provided	N/A	Web-based Comments	30790	24
Hu̇lsmann	Benedikt	not provided	N/A	Web-based Comments	55528	34
Huising	karina	not provided	N/A	Web-based Comments	46495	34
Huisman	Robert	not provided	N/A	Web-based Comments	54586	34
Hukvari	Charlotte	charlottehukvari@outlook.com	N/A	Web-based comments	580	N/A
Hulbert	Dawn	not provided	N/A	Web-based Comments	12220	24
Hulboy	Diana	not provided	N/A	Web-based Comments	12772	24
Hulden	Jodie	not provided	N/A	Web-based Comments	17855	24
hull	charles	clhull.42@gmail.com	N/A	Web-based comments	3162	N/A
Hull	Cynthia	not provided	N/A	Web-based Comments	11515	24
Hull	D.K. Hodges	not provided	N/A	Web-based Comments	54796	34
Hull	Gary	not provided	N/A	Web-based Comments	14772	24
Hull	John	not provided	N/A	Web-based comments	4039	N/A
Hull	Juanita	not provided	N/A	Web-based Comments	18533	24
Hull	Kathleen J	not provided	N/A	Web-based Comments	19611	24
Hull	Lise	not provided	N/A	Web-based Comments	48175, 48176	34
Hull	Lise	not provided	N/A	Web-based Comments	21667	24
Hulley	Linn	not provided	N/A	Web-based Comments	21505	24
Hulon	Kives	not provided	N/A	Web-based Comments	20295	24
Huls	Troy	trhuls65@gmail.com	N/A	Web-based comments	2720	N/A
Hulse	Blaine	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32437	N/A
Hulsopple	Lynda	not provided	N/A	Web-based Comments	22020	24
Hultgren	Raso	not provided	N/A	Web-based Comments	26657	24
Hulth	Sa	not provided	N/A	Web-based Comments	6949	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Hultquist	Ian	ianhultquist35@gmail.com	N/A	Web-based comments	1526	N/A
Humann	Heinz	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58742	29
Humbert	Jennifer	not provided	N/A	Web-based Comments	45125, 50523	34
Humblet	Anne Martine	not provided	N/A	Web-based Comments	8265	24
Hume	Beth	not provided	N/A	Web-based Comments	9030	24
Hume	Kirsty	not provided	N/A	Web-based Comments	20284	24
Hume	Ted	not provided	N/A	Web-based Comments	30244	24
Humiston	Kathleen	not provided	N/A	Web-based Comments	19544	24
Humiston	Kjerstine	not provided	N/A	Web-based Comments	20296	24
Humke	Ken	not provided	N/A	Web-based Comments	54997	34
Hummel	Erica	not provided	N/A	Web-based Comments	14162	24
Hummel	Erica D	not provided	N/A	Web-based Comments	53528, 53529	34
Hummel	Kay	kayhum@cableone.net	N/A	Web-based comments	6011	N/A
Hummel	Valoree	hummelcvk@gmail.com	N/A	Web-based comments	5121	N/A
Hummon	Charlotte	not provided	N/A	Web-based Comments	10558	24
Hummon	David	dbhummon@msn.com	N/A	Web-based comments	5938	N/A
Humphrey	Carol	not provided	N/A	Web-based Comments	9946	24
Humphrey	Eva	not provided	N/A	Web-based Comments	14314	24
Humphrey	Jay	not provided	N/A	Web-based Comments	16809	24
Humphrey	Jay Humphrey	not provided	N/A	Web-based Comments	52415	34
Humphrey	Nancy	not provided	N/A	Web-based Comments	49828	34
Humphreys	Hannah-Jean	not provided	N/A	Web-based Comments	15419	24
Humphreys	Roberta	not provided	N/A	Web-based Comments	27437	24
Humphries	John	not provided	N/A	Web-based Comments	18053	24
Humphries	Susan	not provided	N/A	Web-based Comments	29715	24
Hundt	Angela	not provided	N/A	Web-based Comments	7911	24
Hungerford	Andrea	not provided	N/A	Web-based Comments	7749	24
Hungerford	Chasity	not provided	N/A	Web-based Comments	58165, 52530	16, 34
Hunka	Juliane	not provided	N/A	Web-based Comments	53451	34
Hunkler	Lisa	not provided	N/A	Web-based Comments	47531	34
Hunkler	Lisa	not provided	N/A	Web-based Comments	21572	24
hunnell	jack	jackehunnell@gmail.com	N/A	Web-based comments	5201	N/A
Hunnewell	Sarah	not provided	N/A	Web-based Comments	28365	24
Hunrichs	Paul	not provided	N/A	Web-based Comments	53906, 53907	34
Hunt	Brad & Tonya	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	56666	13
Hunt	Cyndi	not provided	N/A	Web-based Comments	11483	24
Hunt	David J	not provided	N/A	Web-based Comments	50689	34
Hunt	Debra	not provided	N/A	Web-based Comments	50414	34
Hunt	Donald	not provided	N/A	Web-based Comments	13066	24
Hunt	Elizabeth	not provided	N/A	Web-based Comments	13761	24
Hunt	Ellen	not provided	N/A	Web-based Comments	13920	24
Hunt	Gayle	not provided	N/A	Web-based Comments	49265	34
Hunt	Jno	not provided	N/A	Web-based Comments	17635	24
Hunt	Kathleen	jai@samadhi-yoga.com	N/A	Web-based comments	2467	1
Hunt	Lesley	not provided	N/A	Web-based Comments	21044	24
Hunt	Mary	not provided	N/A	Web-based Comments	54216, 54217	34
Hunt	Mel	not provided	N/A	Web-based Comments	55289, 55290	34
Hunt	Peter	not provided	N/A	Web-based Comments	26263	24
Hunt	Sharon	not provided	N/A	Web-based Comments	28667	24
Hunt	Stacei	not provided	N/A	Web-based Comments	29106	24
Hunt	Stephanie H.	not provided	N/A	Web-based Comments	29268	24
Hunt	Stephen	not provided	N/A	Web-based Comments	29302	24
Hunt	Stephen	upacreek2310@gmail.com	N/A	Web-based comments	4034	N/A
Hunter	Annastasia	not provided	N/A	Web-based Comments	8165	24
Hunter	Catherine	not provided	N/A	Web-based Comments	10286	24
Hunter	Craig	not provided	N/A	Web-based Comments	11420	24
Hunter	Diane	not provided	N/A	Web-based Comments	12854	24
Hunter	Don	not provided	N/A	Web-based Comments	13027	24
Hunter	Karen	not provided	N/A	Web-based Comments	49287	34
Hunter	Kylara	not provided	N/A	Web-based Comments	49418	34
Hunter	Kylara	not provided	N/A	Web-based Comments	20444	24
Hunter	Leslie	not provided	N/A	Web-based Comments	21074	24
HUNTER	MARGIE	not provided	N/A	Web-based Comments	22542	24
Hunter	Michael	not provided	N/A	Web-based Comments	58583	34
Hunter	North-Marie	not provided	N/A	Web-based Comments	25401	24
Hunter	Patricia	not provided	N/A	Web-based Comments	58565	34
Hunter	Sean	not provided	N/A	Web-based Comments	28519	24
Hunter	Shannon	not provided	N/A	Web-based Comments	58637, 58638	34
Hunter	Shannon	not provided	N/A	Web-based Comments	28585	24
Hunter	Shannon	shannonhunter11@gmail.com	N/A	Web-based comments	3997	1

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Hunter	Sonja	not provided	N/A	Web-based Comments	29073	24
HUNTER	STEPHEN	not provided	N/A	Web-based Comments	29303	24
Hunter	Wendy	not provided	N/A	Web-based Comments	31428	24
Huntington	Nancy	not provided	N/A	Web-based Comments	53916	34
Huntoon	Kristin	not provided	N/A	Web-based Comments	20379	24
Huntsman	Carol	not provided	N/A	Web-based Comments	9947	24
Huntsman	Chad	chadh@depatco.com	N/A	Web-based comments	58812	N/A
Huntsperger	Thomas	not provided	N/A	Web-based Comments	30504	24
Hunziker	Jane	not provided	N/A	Web-based Comments	16496	24
Hunziker	Robert	hunziker@pocketinet.com	N/A	US Mail or commercial carrier (UPS, FedEx)	2841	N/A
Huolman	Dr. Minna	not provided	N/A	Web-based Comments	13365	24
Hupperts	Connie	not provided	N/A	Web-based Comments	11313	24
Huq	Rehana	not provided	N/A	Web-based Comments	26813	24
Hur	Michelle	not provided	N/A	Web-based Comments	51503	34
Hur	Michelle	not provided	N/A	Web-based Comments	24350	24
Hurd	Lorna	not provided	N/A	Web-based Comments	21822	24
Hurd	Sarah	not provided	N/A	Web-based Comments	58564	34
Hurley	Kevin	not provided	N/A	Web-based Comments	20110	24
Hurley	Maria	not provided	N/A	Web-based Comments	45569	34
Hurley	Mary	not provided	N/A	Web-based Comments	23307	24
Hurley	MC	not provided	N/A	Web-based Comments	23769	24
Hurschik	Kimberly	not provided	N/A	Web-based Comments	53082	34
Hurst	Mark	not provided	N/A	Web-based Comments	49679	34
Hurst	Patricia	not provided	N/A	Web-based Comments	25778	24
Hurt	Luc	not provided	N/A	Web-based Comments	48191	34
Hurtt	Kimberly	not provided	N/A	Web-based Comments	54501	34
Hurtt	Kimberly	not provided	N/A	Web-based Comments	20226	24
Hurwitz	Art	not provided	N/A	Web-based Comments	8453	24
Hurwitz	Jeffrey	not provided	N/A	Web-based Comments	51748	34
Hurwitz	Jeffrey	not provided	N/A	Web-based Comments	17081	24
Husby	jason	not provided	N/A	Web-based Comments	44326, 44327	34
Husby	jason	not provided	N/A	Web-based Comments	16778	24
Huse	jim	not provided	N/A	Web-based Comments	17583	24
Husfelt	Melanie	not provided	N/A	Web-based Comments	53729	34
Husk	Laurel	not provided	N/A	Web-based Comments	20741	24
Huskins	Edward	not provided	N/A	Web-based Comments	55305	34
Huskisson	Irene	not provided	N/A	Web-based Comments	45448	34
Huson	Noel	noelwhudson1@hotmail.com	N/A	Web-based comments	2909, 31853	N/A
Huss	Gary	not provided	N/A	Web-based Comments	49922	34
Huss	Pam	not provided	N/A	Web-based Comments	25497	24
Hussain	Dina	not provided	N/A	Web-based Comments	12958	24
HUSSAR	ERIC	ech@mid-pennenergy.com	N/A	Web-based comments	5183	N/A
Hussenbux	Marian	not provided	N/A	Web-based Comments	50429, 50430	34
Hussenbux	Marian	not provided	N/A	Web-based Comments	22659	24
Hussey	Laird	robbiehussey15@gmail.com	N/A	Web-based comments	973	2
Huston	Lyn	not provided	N/A	Web-based Comments	22008	24
Hut	Donna	not provided	N/A	Web-based Comments	13140	24
Hutcherson	Sarah	not provided	N/A	Web-based comments	2985	8
Hutcheson	Garrett	not provided	N/A	Web-based Comments	14741	24
Hutcheson	Martha	not provided	N/A	Web-based comments	57113	35
Hutchings	Lee	not provided	N/A	Web-based Comments	20933	24
Hutchins	Dean	not provided	N/A	Web-based Comments	12265	24
Hutchins	Douglas	hutchdo@yahoo.com	N/A	Web-based comments	3300	13
Hutchins	Katherine	not provided	N/A	Web-based Comments	19458	24
Hutchins	Kathleen	not provided	N/A	Web-based Comments	45490	34
Hutchins	Philip	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58793	N/A
Hutchinson	Amy	not provided	N/A	Web-based Comments	7623	24
Hutchinson	Linda	not provided	N/A	Web-based Comments	21300	24
Hutchinson	Margaret	not provided	N/A	Web-based Comments	22465	24
Hutchinson	Noelene	not provided	N/A	Web-based Comments	25340	24
Hutchinson	Sandra	not provided	N/A	Web-based Comments	56064	34
Hutchinson	Sandra	not provided	N/A	Web-based Comments	28163	24
Hutchison	Dwight	not provided	N/A	Web-based Comments	13399	24
Hutchison	Jack	not provided	N/A	Web-based Comments	16034	24
Hutchison	James	not provided	N/A	Web-based Comments	46854	34
Hutchison	Jim	not provided	N/A	Web-based comments	3202	N/A
Hutchison	Judith	not provided	N/A	Web-based Comments	18607	24
Huth	Graciela	not provided	N/A	Web-based Comments	15207	24
Hutson	Dixie	not provided	N/A	Web-based comments	4846	N/A
Hutson	HL	not provided	N/A	Web-based Comments	15719	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Hutt	Evelyn	not provided	N/A	Web-based Comments	14351	24
Huttenmaier	MILDRED	not provided	N/A	Web-based Comments	24508	24
Huttinger	Roberta	not provided	N/A	Web-based Comments	27438	24
Huttner	Joseph	not provided	N/A	Web-based Comments	46442	34
Huttner	Joseph	not provided	N/A	Web-based Comments	18367	24
Hutton	Charlee	not provided	N/A	Web-based comments	57359	35
Hutton	Thomas	not provided	N/A	Web-based Comments	30505	24
Hutzel	Laura	not provided	N/A	Web-based Comments	20653	24
Huwe	Angelica	not provided	N/A	Web-based Comments	7939	24
Huwe	Mike	not provided	N/A	Web-based Comments	24458	24
Huxtable	Johnna	not provided	N/A	Web-based Comments	18229	24
Huyser	Wil	not provided	N/A	Web-based Comments	31477	24
Huzenis	Audrey	not provided	N/A	Web-based Comments	48988	34
Huzij	Thomas	not provided	N/A	Web-based Comments	30506	24
HYatt	Carol	carol@hyattff.com	N/A	Web-based comments	2504	N/A
Hyatt	Mary	dandmhyatt0628@gmail.com	N/A	Web-based comments	79	N/A
Hyche	Kenneth	not provided	N/A	Web-based Comments	20014	24
Hyde	debra	not provided	N/A	Web-based Comments	12527	24
Hyde	Elizabeth	not provided	N/A	Web-based Comments	49505	34
Hyde	Elizabeth	not provided	N/A	Web-based Comments	13762	24
Hyde	Karen	not provided	N/A	Web-based Comments	19127	24
Hyde	Mary Jane	not provided	N/A	Web-based Comments	23525	24
Hyde	Steve	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	56620	13
Hyde	Susan	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32400	13
Hyer	Nick	not provided	N/A	Web-based Comments	25200	24
Hyland	Karyn	not provided	N/A	Web-based Comments	48509, 48510	34
Hylden	Jeffrey	not provided	N/A	Web-based comments	5250	N/A
Hyman	Kayla	not provided	N/A	Web-based Comments	46500	34
Hyman	Kayla	not provided	N/A	Web-based Comments	19845	24
Hymas	Jamie	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32347	13
Hymas	Jay	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32354	13
Hymas	Rena	mrshymas@gmail.com	N/A	Web-based comments	3461	13
Hymer	Monica	not provided	N/A	Web-based Comments	24630	24
Hymowitz	Lori	not provided	N/A	Web-based Comments	21788	24
Hynd	Rachel	not provided	N/A	Web-based Comments	26529	24
Hyne	Stan	not provided	N/A	Web-based Comments	29148	24
Hynes	Samantha	not provided	N/A	Web-based Comments	28076	24
Hynous	Dorothy	not provided	N/A	Web-based Comments	52482	34
Hysmith	Stephanie	not provided	N/A	Web-based Comments	29222	24
Hyzer	Virginia	not provided	N/A	Web-based Comments	31290	24
I	A	not provided	N/A	Web-based Comments	6961	24
I.	Kate	not provided	N/A	Web-based Comments	19386	24
Iacob	Noa	not provided	N/A	Web-based Comments	25326	24
Iacobone	Luca	not provided	N/A	Web-based Comments	21926	24
Iacone	Shari	not provided	N/A	Web-based Comments	47538	34
Iademarco	Candrah	not provided	N/A	Web-based Comments	9767	24
iafrate	Unreadable	not provided	N/A	Web-based Comments	29102	24
Ianc	Maria	not provided	N/A	Web-based comments	56846	35
Ianc	Maria	not provided	N/A	Web-based Comments	22603	24
Ianeva	Eva	not provided	N/A	Web-based Comments	45088	34
Ianniello	Phyllis	not provided	N/A	Web-based Comments	26391	24
Iannizzotto	Deborah	not provided	N/A	Web-based Comments	51872	34
Ibach	Christine	not provided	N/A	Web-based Comments	47590	34
Ibarra	Daniel	not provided	N/A	Web-based Comments	11744	24
Ibarra	Jorge	not provided	N/A	Web-based Comments	18327	24
Ibarra	Jorge	not provided	N/A	Web-based Comments	18328	24
Ibarra	Rafael	not provided	N/A	Web-based Comments	26574	24
Ice	Mary Kennedy	not provided	N/A	Web-based Comments	45030	34
Ichards	John	not provided	N/A	Web-based comments	58823	N/A
ichikawa	jeri	not provided	N/A	Web-based Comments	50295	34
Iddins	Donald	not provided	N/A	Web-based Comments	13067	24
Iddles	C	not provided	N/A	Web-based Comments	9673	24
Ide	Karolyn	not provided	N/A	Web-based Comments	19328	24
Ifrah	Danielle	not provided	N/A	Web-based Comments	11810	24
Igard	Jodi	not provided	N/A	Web-based Comments	52808	34
Iglesia	Gabriel De La	not provided	N/A	Web-based Comments	53571	34
Ignacio	Erin	eapueblo@gmail.com	N/A	Web-based comments	1095	N/A
Ignatenkovas	Vida	not provided	N/A	Web-based Comments	31235	24
Ihmann	Diana	not provided	N/A	Web-based Comments	12773	24
Ihmann	Lyle	not provided	N/A	Web-based Comments	22005	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
II	James Beeler	not provided	N/A	Web-based Comments	48054	34
II	Ludwig S. McIntyre	not provided	N/A	Web-based Comments	46292	34
II	Riley Canada	not provided	N/A	Web-based Comments	48485, 48486	34
III	Charles	cdevens@gwkinvest.com	N/A	Web-based comments	2942	8
III	Gordon Parker	not provided	N/A	Web-based Comments	49271	34
III	Hugh Curtler	not provided	N/A	Web-based Comments	47571	34
III	Robert S Walker	not provided	N/A	Web-based Comments	54596	34
III	Trigg Wright	not provided	N/A	Web-based Comments	56020	34
Ikeue	Fiorella	not provided	N/A	Web-based Comments	47491	34
Iles	Rebecca	not provided	N/A	Web-based Comments	26732	24
ILewicz	Robert	rilewicz@atlanticbb.net	N/A	Web-based comments	3165	N/A
Ilieva	Stefanka	not provided	N/A	Web-based Comments	29176	24
Ilioff	Barry	not provided	N/A	Web-based Comments	8863	24
illiano	neil	not provided	N/A	Web-based Comments	25132	24
Ilsen	Eve	not provided	N/A	Web-based Comments	14337	24
Ilten	Ruth	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58701	N/A
Iluna	Mana	not provided	N/A	Web-based Comments	57927	16
Imai	tracee	not provided	N/A	Web-based Comments	46579	34
Imani	Partow	not provided	N/A	Web-based Comments	25620	24
Imlay	Marc and Alice	not provided	N/A	Web-based Comments	22349	24
ImMasche	Sonia	not provided	N/A	Web-based Comments	29062	24
Imparato	Ellade	not provided	N/A	Web-based Comments	13890	24
Inabinet	Sam	not provided	N/A	Web-based Comments	50718, 50719	34
Inabinet	Sam	not provided	N/A	Web-based Comments	28060	24
Inabnit	Catherine	not provided	N/A	Web-based Comments	10287	24
InAustin	Jenn	not provided	N/A	Web-based Comments	17133	24
Incze	C.A.	not provided	N/A	Web-based Comments	58433	34
Incze	C.A.	not provided	N/A	Web-based Comments	9704	24
Indermuehle	Eric	not provided	N/A	Web-based Comments	56595	34
Infield	Maryan	not provided	N/A	Web-based Comments	55861	34
Ingalls	Jeff	jingalls82@yahoo.com	N/A	Web-based comments	2951	8
ingalsbe	tony	t_ingalsbe@hotmail.com	N/A	Web-based comments	1914	N/A
Ingenito	Carol	not provided	N/A	Web-based Comments	9948	24
Ingenito	Donna	not provided	N/A	Web-based Comments	13141	24
Ingerman	David	not provided	N/A	Web-based Comments	50742	34
Ingham	Katy	not provided	N/A	Web-based Comments	19806	24
INGHAM	Robert	not provided	N/A	Web-based Comments	58508	34
Ingleby	Harry	not provided	N/A	Web-based Comments	47504, 47505	34
Inglett	Kelly	not provided	N/A	Web-based Comments	19924	24
Inglis	Sally	not provided	N/A	Web-based Comments	28015	24
Ingram	Fiona	not provided	N/A	Web-based Comments	14435	24
Ingram	Judith	not provided	N/A	Web-based Comments	18608	24
Ingram	Judith	not provided	N/A	Web-based Comments	18609	24
Ingram	Mary Ann	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	2589	N/A
Ingram	Ryan	not provided	N/A	Web-based Comments	27915	24
Ingram-Rich	Robina	not provided	N/A	Web-based Comments	27543	24
Ingrande-Edwards	Hei-Lee	not provided	N/A	Web-based Comments	15588	24
Inkel	Denise	not provided	N/A	Web-based Comments	49324, 49325	34
Inkel	Denise	not provided	N/A	Web-based Comments	12644	24
Inlender	Rosina	not provided	N/A	Web-based Comments	27779	24
Innes	Cindy	not provided	N/A	Web-based Comments	11080	24
Insana	Frank	not provided	N/A	Web-based Comments	14536	24
Insardi	Nina	not provided	N/A	Web-based Comments	47462	34
Insardi	Nina	not provided	N/A	Web-based Comments	25308	24
Inskeep	James	not provided	N/A	Web-based Comments	16244	24
Insler	Harris	not provided	N/A	Web-based Comments	15457	24
Insley	William	not provided	N/A	Web-based Comments	51052	34
Insprucker	LouAnne	not provided	N/A	Web-based Comments	48441	34
Intemann	Raymond	not provided	N/A	Web-based Comments	55414	34
Intemann	Raymond	not provided	N/A	Web-based Comments	26691	24
Inuc	Ivana	not provided	N/A	Web-based Comments	15959	24
Inzerillo	Marla	not provided	N/A	Web-based Comments	23027	24
Inzero	Connie	not provided	N/A	Web-based comments	57008	35
Ioanes	Claudia	not provided	N/A	Web-based Comments	11188	24
Ioannidou	Giovanna	not provided	N/A	Web-based Comments	15084	24
Ioannou	Anastasia	not provided	N/A	Web-based Comments	50442, 50443	34
Ionina	Kate	not provided	N/A	Web-based Comments	19387	24
Iorio	Amanda	not provided	N/A	Web-based Comments	7539	24
Iovino	Teresa	not provided	N/A	Web-based Comments	49081, 49082	34
Iovino	Teresa	not provided	N/A	Web-based Comments	30278	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Ipp	Sallyann	not provided	N/A	Web-based comments	57350	35
Ippolito	Anthony	not provided	N/A	Web-based Comments	8334	24
Ippolito	Suzette	not provided	N/A	Web-based Comments	30035	24
Ipsen	Catherine	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	2138	N/A
Iq	Hasan	not provided	N/A	Web-based comments	56803	35
Iraci	Pam	not provided	N/A	Web-based Comments	54199	34
Irby	Rana	not provided	N/A	Web-based Comments	26611	24
Ireland	Andrew	not provided	N/A	Web-based Comments	7819	24
Ireland	Michael	not provided	N/A	Web-based Comments	24125	24
Irick	Kare	not provided	N/A	Web-based comments	57183	35
Irish	Wendy	not provided	N/A	Web-based Comments	31429	24
Irk	Bill	not provided	N/A	Web-based Comments	9170	24
Irrigation	Squirrel	rab7@msn.com	N/A	Web-based comments	4958	N/A
Irvin	Aaron	not provided	N/A	Web-based Comments	6998	24
Irvin	Michelle	not provided	N/A	Web-based Comments	48333	34
Irvine	Gael	not provided	N/A	Web-based comments	57498	35
Irvine	Gael	not provided	N/A	Web-based Comments	14657	24
Irving	Judy	not provided	N/A	Web-based Comments	46842, 46843	34
Irwin	Franklin	not provided	N/A	Web-based Comments	14560	24
Irwin	Hale	not provided	N/A	Web-based Comments	15379	24
Irwin	Julie	not provided	N/A	Web-based Comments	18846	24
irwin	marion	not provided	N/A	Web-based Comments	52685	34
Irwin	Monica	not provided	N/A	Web-based Comments	24631	24
Irwin	Pat	not provided	N/A	Web-based Comments	25657	24
Irwin	Sarah	not provided	N/A	Web-based Comments	28366	24
Irwin	Shannon	not provided	N/A	Web-based Comments	48204	34
Irwin	Tanner	tanner@designbyti.com	N/A	Web-based comments	6436	N/A
Irwin	Tom	not provided	N/A	Web-based Comments	30755	24
is	John	not provided	N/A	Web-based Comments	18054	24
Isaac	Sheldon	not provided	N/A	Web-based Comments	28822	24
Isaacs	Freyda	not provided	N/A	Web-based Comments	46035	34
Isaacson	Chris	not provided	N/A	Web-based Comments	46214, 46215	34
Isaacson	Chris	not provided	N/A	Web-based Comments	10747	24
Isaacson	Melinda	not provided	N/A	Web-based Comments	23865	24
Isaacson	Rosalie	not provided	N/A	Web-based Comments	45316	34
Isabel	Jessica	not provided	N/A	Web-based Comments	17429	24
Isaksen	Ingrid	not provided	N/A	Web-based Comments	15878	24
Isaly	Ellen	not provided	N/A	Web-based Comments	13921	24
Isaman	Robin	not provided	N/A	Web-based Comments	27493	24
Isbell	John	not provided	N/A	Web-based Comments	51133	34
Isbill	Jennifer	not provided	N/A	Web-based Comments	17207	24
Isely	Zephyr	not provided	N/A	Web-based Comments	31729	24
Ishaya	Sindhuma	not provided	N/A	Web-based Comments	58294	16
Isherwood	Lindsay	not provided	N/A	Web-based comments	57661	35
Iskra	Matthew	not provided	N/A	Web-based Comments	23651	24
Isley	Phoebe	not provided	N/A	Web-based Comments	26373	24
Isley	Stan	not provided	N/A	Web-based Comments	29149	24
Isley	Stan	stanisley@charter.net	N/A	Web-based comments	2057	N/A
ISOLA	ALLEN	not provided	N/A	Web-based Comments	7445	24
Isolani	Tasha	not provided	N/A	Web-based Comments	30217	24
Israel	Lesley	not provided	N/A	Web-based Comments	21045	24
Israel	Miriam	not provided	N/A	Web-based Comments	56047	34
Itkin	Marianne	not provided	N/A	Web-based Comments	22681	24
Ito	Barbara	not provided	N/A	Web-based Comments	8701	24
Ittner	Mary Sue	not provided	N/A	Web-based Comments	23549	24
Itzoe	Frank	not provided	N/A	Web-based Comments	14537	24
Iudice	Kathleen	not provided	N/A	Web-based Comments	19545	24
IV	Edward	ivbabcock@yahoo.com	N/A	Web-based comments	52	N/A
Ivanoff	Rick	not provided	N/A	Web-based Comments	27089	24
Ivanov	Natasha	not provided	N/A	Web-based Comments	25086	24
Ivanova	Elena	mahivara@hotmail.com	N/A	Web-based comments	1198	N/A
Ivanova	Zara	not provided	N/A	Web-based Comments	47731	34
Ivanovic	Ramona	not provided	N/A	Web-based Comments	26605	24
Ivanovski	Antonio	not provided	N/A	Web-based Comments	8369	24
Ivany	Linda	not provided	N/A	Web-based Comments	21301	24
Ivens	Rosalind	not provided	N/A	Web-based Comments	51643	34
Iversen	Torill	not provided	N/A	Web-based Comments	30830	24
Iverson	Barb	not provided	N/A	Web-based comments	4920	9
ives	Cora	cora.ives@icloud.com	N/A	Web-based comments	5802	N/A

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
ives	harwood	not provided	N/A	Web-based Comments	15474	24
Ives	Ron	not provided	N/A	Web-based Comments	27623	24
Ivey	Clayton	not provided	N/A	Web-based Comments	11214	24
IVEY	DANA	not provided	N/A	Web-based Comments	11694	24
Ivey	Gary	not provided	N/A	Web-based Comments	47904	34
Ivey	Gary	not provided	N/A	Web-based Comments	14773	24
Ivie	Cecyl	not provided	N/A	Web-based Comments	57777	34
Ivory	Steven	not provided	N/A	Web-based Comments	29442	24
Iwahashi	Howard	not provided	N/A	Web-based Comments	15799	24
Iwakawa	Yasuhisa	not provided	N/A	Web-based Comments	31660	24
iwanicki	pamela	not provided	N/A	Web-based Comments	25560	24
Izdebski	Julian	not provided	N/A	Web-based Comments	18787	24
Izer	Robin	not provided	N/A	Web-based Comments	27494	24
Izzo	John	not provided	N/A	Web-based Comments	18055	24
Izzo	Martha	not provided	N/A	Web-based Comments	47812	34
J	Conner	cj.ski.kayak@gmail.com	N/A	Web-based comments	3670	N/A
J	Danielle	not provided	N/A	Web-based Comments	11811	24
J	Florence	not provided	N/A	Web-based comments	1212	1
J	Theresa	not provided	N/A	Web-based comments	5480	N/A
J.	L.	not provided	N/A	Web-based Comments	20497	24
J.	Sandy	not provided	N/A	Web-based Comments	28246	24
J. Cassinelli	Robert	not provided	N/A	Web-based Comments	27291	24
Ja	Tia	not provided	N/A	Web-based Comments	48959	34
Jaason	Kaari	not provided	N/A	Web-based Comments	55474	34
Jabbary	Sazna	not provided	N/A	Web-based Comments	58505, 58506	34
Jablonka	Mia	not provided	N/A	Web-based Comments	24007	24
Jablonski	Alexandra	not provided	N/A	Web-based Comments	7281	24
JACECKO	KATHLEEN	not provided	N/A	Web-based Comments	19546	24
Jache	Elizabeth	not provided	N/A	Web-based Comments	48322	34
Jack	Janice	not provided	N/A	Web-based Comments	16683	24
Jackel	Stephanie	not provided	N/A	Web-based Comments	29223	24
Jackiw	Victoria	not provided	N/A	Web-based Comments	31199	24
Jackle	MaryEllen	not provided	N/A	Web-based Comments	23580	24
Jackman	George	not provided	N/A	Web-based Comments	44992	34
Jacks	Elin	not provided	N/A	Web-based Comments	51534	34
Jackson	Aaron	not provided	N/A	Web-based Comments	6999	24
Jackson	Allison	allijxn@gmail.com	N/A	Web-based comments	1972	N/A
Jackson	Chris	not provided	N/A	Web-based Comments	54274	34
Jackson	Christina	not provided	N/A	Web-based Comments	46352	34
Jackson	Christina	not provided	N/A	Web-based Comments	10859	24
Jackson	Clay	clayj@n7qnm.net	N/A	Web-based comments	4968	N/A
Jackson	D	not provided	N/A	Web-based Comments	58488	34
Jackson	Darron	not provided	N/A	Web-based Comments	11899	24
Jackson	David	drjackso69@gmail.com	N/A	Web-based comments	4515	N/A
Jackson	Deb	not provided	N/A	Web-based Comments	12296	24
Jackson	Diane	not provided	N/A	Web-based Comments	12855	24
Jackson	Elizabeth	not provided	N/A	Web-based Comments	13763	24
Jackson	Ginny	not provided	N/A	Web-based Comments	15080	24
Jackson	Graham	not provided	N/A	Web-based Comments	15214	24
Jackson	Grant	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32419	11
jackson	hannah	not provided	N/A	Web-based Comments	15403	24
Jackson	Jan	not provided	N/A	Web-based Comments	47414	34
Jackson	Jane	not provided	N/A	Web-based Comments	16497	24
Jackson	Jennifer	not provided	N/A	Web-based Comments	49972	34
Jackson	Jennifer	not provided	N/A	Web-based Comments	17208	24
Jackson	Jerry	JerryInChelan@gmail.com	N/A	Web-based comments	2497	N/A
Jackson	John	not provided	N/A	Web-based Comments	18056	24
Jackson	Kari	not provided	N/A	Web-based Comments	53919	34
Jackson	Kari	not provided	N/A	Web-based Comments	19268	24
Jackson	Karren	not provided	N/A	Web-based Comments	19332	24
Jackson	Kat	not provided	N/A	Web-based comments	56882	35
jackson	kathleen	not provided	N/A	Web-based Comments	19547	24
Jackson	Link	not provided	N/A	Web-based comments	4405	N/A
Jackson	Madison	not provided	N/A	Web-based Comments	51953	34
Jackson	Madison	not provided	N/A	Web-based Comments	22253	24
Jackson	Marvin	mljackson@clarkston.com	N/A	Web-based comments	4283	N/A
Jackson	Melanie	not provided	N/A	Web-based Comments	23837	24
Jackson	Melissa	not provided	N/A	Web-based Comments	23892	24
Jackson	Perry	not provided	N/A	Web-based Comments	26226	24
jackson	richard	not provided	N/A	Web-based Comments	26989	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Jackson	Sasha	not provided	N/A	Web-based Comments	28435	24
Jackson	Shane	not provided	N/A	Web-based Comments	49408	34
Jackson	Shawn	not provided	N/A	Web-based Comments	28747	24
Jackson-Miller	Marie-Louise	not provided	N/A	Web-based Comments	22742	24
Jacob	Jill Bohr	not provided	N/A	Web-based Comments	51054, 51055	34
Jacob	Joe	not provided	N/A	Web-based Comments	17884	24
Jacob	Julie	not provided	N/A	Web-based Comments	18847	24
Jacob	Ronald	not provided	N/A	Web-based Comments	45833	34
Jacob	Ronald	not provided	N/A	Web-based Comments	27658	24
Jacobi	Athena	not provided	N/A	Web-based Comments	8516	24
Jacobi	Kevin	not provided	N/A	Web-based comments	57570	35
Jacobs	Angela	not provided	N/A	Web-based comments	56836	35
Jacobs	Anza	not provided	N/A	Web-based Comments	44691, 44692	34
Jacobs	Corliss	not provided	N/A	Web-based Comments	11381	24
Jacobs	Eric	not provided	N/A	Web-based Comments	56363	34
Jacobs	Glenn	not provided	N/A	Web-based Comments	52624	34
Jacobs	Joanne	not provided	N/A	Web-based Comments	17808	24
Jacobs	JoAnne	not provided	N/A	Web-based Comments	17807	24
Jacobs	Josh	not provided	N/A	Web-based comments	603	1
Jacobs	Kathryn	not provided	N/A	Web-based Comments	45098	34
Jacobs	Kathryn	not provided	N/A	Web-based Comments	19647	24
Jacobs	Kathy	not provided	N/A	Web-based Comments	55808, 55809	34
Jacobs	Kim	not provided	N/A	Web-based Comments	20185	24
Jacobs	Lauren	not provided	N/A	Web-based Comments	20771	24
Jacobs	Louisa	not provided	N/A	Web-based Comments	52002	34
Jacobs	Nancy	not provided	N/A	Web-based Comments	50598	34
Jacobs	Nancy	not provided	N/A	Web-based Comments	24899	24
Jacobs	Shannon	not provided	N/A	Web-based Comments	28586	24
Jacobs	Vickie	not provided	N/A	Web-based Comments	53987	34
Jacobs	Victoria	not provided	N/A	Web-based Comments	31200	24
Jacobsen	Barbara	not provided	N/A	Web-based Comments	8702	24
Jacobsen	Stephen	not provided	N/A	Web-based Comments	29304	24
Jacobskind	Barbara	not provided	N/A	Web-based Comments	8703	24
Jacobson	Ann	not provided	N/A	Web-based Comments	8050	24
Jacobson	Don	not provided	N/A	Web-based Comments	48274	34
Jacobson	Gael	not provided	N/A	Web-based Comments	14658	24
Jacobson	Joan	not provided	N/A	Web-based Comments	17698	24
Jacobson	Mark	mljaketrout@yahoo.com	N/A	Web-based comments	4491	N/A
Jacobson	Robert	not provided	N/A	Web-based Comments	49173	34
Jacobson	Sarah	not provided	N/A	Web-based Comments	28367	24
jacobson	t	not provided	N/A	Web-based Comments	30091	24
Jacobsson	Pia	not provided	N/A	Web-based Comments	26404	24
Jacobus	Jolie	not provided	N/A	Web-based Comments	47530	34
Jacobus	Jolie	not provided	N/A	Web-based Comments	18240	24
Jacques	Andrelle-Ann	not provided	N/A	Web-based Comments	45362	34
Jacques	Cynthia	not provided	N/A	Web-based Comments	11516	24
Jacques	Karen	not provided	N/A	Web-based Comments	50606	34
Jacques	Karen	not provided	N/A	Web-based Comments	19128	24
Jacques	Sally	not provided	N/A	Web-based Comments	46454	34
Jacquiau	Florence	not provided	N/A	Web-based comments	56776	35
Jacu	Rebecca	not provided	N/A	Web-based Comments	26733	24
Jaderberg	Diane	not provided	N/A	Web-based Comments	12856	24
Jaeal Akhrem	Quadar	not provided	N/A	Web-based Comments	26460	24
Jaeckel	Avery	not provided	N/A	Web-based Comments	58186	16
Jaeckel	Brad	not provided	N/A	Web-based Comments	58180	16
Jaeckel	Kathleen	not provided	N/A	Web-based Comments	58192	16
Jaeger	Betsy	not provided	N/A	Web-based Comments	9073	24
Jaeger	Carolyne	not provided	N/A	Web-based Comments	10187	24
Jaegers	Martha	not provided	N/A	Web-based Comments	23107	24
Jaerling	Petra	not provided	N/A	Web-based Comments	26309	24
Jafek	Bev	not provided	N/A	Web-based Comments	53189	34
Jafek	Bev	not provided	N/A	Web-based Comments	9109	24
Jaffe	Jacob	not provided	N/A	Web-based Comments	16089	24
Jaffee	Daniel	not provided	N/A	Web-based comments	4552	N/A
Jaffee	Daniel	not provided	N/A	Web-based Comments	56556	34
Jageman	Harry	harryrjag@gmail.com	N/A	Web-based comments	2494* – No attachment with submission, co-lead agencies reached out but did not receive a response. Also submitted testimony at public meeting, letter 4711.	N/A
Jageman	Harry	harryrjag@gmail.com	N/A	Hand-delivered or oral testimony (personally delivered)	4711	N/A

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Jager	Ashley	not provided	N/A	Web-based Comments	47004	34
Jager	Ashley	not provided	N/A	Web-based Comments	8485	24
Jagiello	Carol	not provided	N/A	Web-based Comments	48007, 50623	34
Jagiello	Carol	not provided	N/A	Web-based Comments	9949	24
Jagim	Gina	not provided	N/A	Web-based Comments	15055	24
Jaglo	Chris	not provided	N/A	Web-based Comments	10748	24
Jagneaux	Sheryl	not provided	N/A	Web-based Comments	28922	24
jahan	ely	not provided	N/A	Web-based Comments	13992	24
Jahn	Karina	not provided	N/A	Web-based Comments	46061	34
Jahn	Valerie	not provided	N/A	Web-based Comments	31032	24
Jahns	Manuela	not provided	N/A	Web-based Comments	22313	24
Jahos	Ellen	not provided	N/A	Web-based Comments	13922	24
Jain	Paula	not provided	N/A	Web-based Comments	51219, 51220	34
Jakaj	Cindy	not provided	N/A	Web-based Comments	11081	24
Jakeman	Molly	not provided	N/A	Web-based Comments	51698	34
Jakoby	John	not provided	N/A	Web-based Comments	18057	24
Jakopak	Peggy	not provided	N/A	Web-based Comments	56589	34
Jakopak	Peggy	not provided	N/A	Web-based Comments	26160	24
Jakse	Greta	not provided	N/A	Web-based Comments	44587	34
Jakubanis	Jessica	not provided	N/A	Web-based Comments	54243	34
Jakubanis	Jessica	not provided	N/A	Web-based Comments	17430	24
Jakusz	Darlene	not provided	N/A	Web-based Comments	44625, 44626	34
Jakusz	Darlene	not provided	N/A	Web-based Comments	11883	24
Jamaìl^	Yasmina	not provided	N/A	Web-based Comments	55012	34
Jamal	Kate	not provided	N/A	Web-based Comments	52505	34
Jamerson	Carole	not provided	N/A	Web-based Comments	50365	34
James	Adele	not provided	N/A	Web-based Comments	7068	24
James	Alexandra	not provided	N/A	Web-based Comments	7282	24
James	Anne	not provided	N/A	Web-based Comments	54695	34
James	Anne	not provided	N/A	Web-based Comments	8207	24
James	Anthony	not provided	N/A	Web-based Comments	54757	34
James	Christine	not provided	N/A	Web-based Comments	10935	24
James	Derek	not provided	N/A	Web-based Comments	44614, 44615	34
James	Ian	not provided	N/A	Web-based Comments	54434	34
James	Ian	not provided	N/A	Web-based Comments	15833	24
James	Karen	not provided	N/A	Web-based Comments	19129	24
James	Kim	not provided	N/A	Web-based Comments	46739	34
James	Kim	not provided	N/A	Web-based Comments	20186	24
james	maralyn	not provided	N/A	Web-based Comments	52933	34
James	Maralyn	not provided	N/A	Web-based Comments	22325	24
James	Michael	not provided	N/A	Web-based Comments	24126	24
James	Nancy	not provided	N/A	Web-based Comments	51158	34
James	Nick	not provided	N/A	Web-based Comments	25201	24
James	Nora	not provided	N/A	Web-based Comments	25359	24
james	Peter	not provided	N/A	Web-based comments	32178	1
James	Phil	not provided	N/A	Web-based Comments	26323	24
James	Rex	not provided	N/A	Web-based Comments	26877	24
James	Russell	not provided	N/A	Web-based Comments	27837	24
James	Thomas	jamestown817@outlook.com	N/A	Web-based comments	58835	N/A
James	Thorly	not provided	N/A	Web-based Comments	30572	24
James	Virginia	not provided	N/A	Web-based Comments	31291	24
Jameson	Anne	not provided	N/A	Web-based Comments	44284	34
James-Pincince	Kristin	not provided	N/A	Web-based Comments	20380	24
Jamiel	Greg	not provided	N/A	Web-based Comments	50135	34
Jamil	Athir	not provided	N/A	Web-based Comments	8517	24
Jamison	Angela	not provided	N/A	Web-based Comments	7912	24
Jamison	Cheryl	not provided	N/A	Web-based Comments	10648	24
Jamison	Vanessa	not provided	N/A	Web-based Comments	53228, 53229	34
Jancic	Dr.	mjancic@comcast.net	N/A	Web-based comments	4082	3
Janczuk	Stan	not provided	N/A	Web-based Comments	46445	34
Janda	Jack	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4619	N/A
Janda	Jill	not provided	N/A	Web-based Comments	46197	34
Jandl	Kal	not provided	N/A	Web-based Comments	55909	34
Jandoli	Richard	not provided	N/A	Web-based Comments	26990	24
Jandourek	Alexia	not provided	N/A	Web-based Comments	7301	24
Jane	Bobette	not provided	N/A	Web-based Comments	9274	24
Jane	Bonita	not provided	N/A	Web-based Comments	49113	34
Jane	Serah	not provided	N/A	Web-based Comments	54730, 54731	34
Janet	Winston	bratwin1@gamil.som	N/A	Web-based comments	2061	N/A

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Janicek	Stephanie	not provided	N/A	Web-based comments	6804	N/A
Janicki	Ellaine	not provided	N/A	Web-based comments	57501	35
Janicki	Ellaine	not provided	N/A	Web-based Comments	13891	24
Janik	Joel	not provided	N/A	Web-based Comments	17912	24
Janka	Pamela	not provided	N/A	Web-based Comments	25561	24
Janke	Eilene	not provided	N/A	Web-based Comments	49441	34
Janke	Eilene	not provided	N/A	Web-based Comments	13563	24
Jankelow	Michele	not provided	N/A	Web-based comments	57623	35
Jankovic	Hristina	not provided	N/A	Web-based Comments	58537	34
Jankovic	Thomas	not provided	N/A	Web-based Comments	45020	34
Jannicelli	Barbara	not provided	N/A	Web-based Comments	8704	24
Janove	Lois	not provided	N/A	Web-based Comments	21719	24
Janowitz-Price	Beverly	not provided	N/A	Web-based Comments	9129	24
Jansen	Marietta	not provided	N/A	Web-based Comments	22746	24
Jansen	Nick	not provided	N/A	Web-based Comments	25202	24
Jansen	Robert	not provided	N/A	Web-based Comments	27292	N/A
Janson	Sharon	not provided	N/A	Web-based Comments	28668	24
Janson-Smith	Kim	not provided	N/A	Web-based Comments	51857	34
Janssen	Barbara	not provided	N/A	Web-based Comments	8705	24
Janssen	Heiko	not provided	N/A	Web-based Comments	15587	24
Janssen	Hillie	not provided	N/A	Web-based Comments	47309	34
Janssen	Leah	not provided	N/A	Web-based Comments	20904	24
Janton	Renee	not provided	N/A	Web-based Comments	26847	24
Janus	Royann	royannjanus@yahoo.com	N/A	Web-based comments	2865	N/A
Janzen	Gayle	not provided	N/A	Web-based Comments	57851	34
janzer	mary	not provided	N/A	Web-based Comments	23308	24
Janzick	Stan	not provided	N/A	Web-based Comments	29150	24
Japack	Michael	not provided	N/A	Web-based Comments	24127	24
Jaquith	Martha	not provided	N/A	Web-based Comments	23108	24
JARA	JOHANNA	not provided	N/A	Web-based Comments	51879	34
Jara	Kathleen	not provided	N/A	Web-based comments	56971	35
Jaramillo	Lori	lori_jaramillo@rocketmail.com	N/A	Web-based comments	57230, 1167	35, 1
Jaramillo	Yomaira	not provided	N/A	Web-based Comments	46521	34
Jarboe	Jolynn	not provided	N/A	Web-based Comments	48578	34
Jarczyk	JP	not provided	N/A	Web-based Comments	18525	24
Jardim	Jenna M	not provided	N/A	Web-based Comments	17142	24
Jardine	Cindy	jardine5@cableone.net	N/A	Web-based comments	4561, 4567	N/A
Jarmuth	Sandra	not provided	N/A	Web-based Comments	50500	34
Jarnagin	Bert	not provided	N/A	Web-based Comments	50516	34
Jarocki	Gail	not provided	N/A	Web-based Comments	14693	24
Jarocki	Paul	not provided	N/A	Web-based Comments	26008	24
Jarosh	Jana	not provided	N/A	Web-based Comments	16449	24
Jarrard	Sue	not provided	N/A	Web-based Comments	51140, 51141	34
Jarratt	Heidi	not provided	N/A	Web-based Comments	15570	24
Jarrett	Janice	not provided	N/A	Web-based Comments	16684	24
JARRETT	JIM	JJ@CENTRALINDUSTRIALSALES.COM	N/A	Web-based comments	2608	N/A
Jarrett	Sue	not provided	N/A	Web-based comments	57748	35
Jarrett	vera	not provided	N/A	Web-based Comments	31085	24
Jarusinsky	Dawn	not provided	N/A	Web-based Comments	50704	34
Jarusinsky	Dawn	not provided	N/A	Web-based Comments	12221	24
Jarvey	Catherine	not provided	N/A	Web-based Comments	10288	24
jarvis	kristina	not provided	N/A	Web-based Comments	20404	24
Jarvis	Simone	not provided	N/A	Web-based Comments	47242	34
Jarvis	Tony	not provided	N/A	Web-based Comments	47369, 47370	34
Jasen	William	eaj52@msn.com	N/A	Web-based comments	3404	N/A
jasinski	Chris	not provided	N/A	Web-based Comments	10749	24
Jasiorowska	Maya	not provided	N/A	Web-based Comments	23759	24
Jasiukiewicz	Anna	not provided	N/A	Web-based Comments	44437, 44438	34
Jasiukiewicz	Anna	not provided	N/A	Web-based Comments	8133	24
Jaskoski	Helen	not provided	N/A	Web-based Comments	15614	24
Jason	Eman	not provided	N/A	Web-based Comments	45688	34
Jasper	Alan	not provided	N/A	Web-based Comments	44573	34
Jasper	Alan	not provided	N/A	Web-based Comments	7169	24
Jasper	Jan	not provided	N/A	Web-based Comments	16404	24
Jasper	Jan	not provided	N/A	Web-based Comments	57900	16
Jastromb	Virginia	not provided	N/A	Web-based Comments	47125	34
Jastromb	Virginia	not provided	N/A	Web-based Comments	31292	24
Jaszczak	Erin	not provided	N/A	Web-based comments	57743	35
Jaudzemis	Thomas	not provided	N/A	Web-based Comments	30507	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Javier	Linda	not provided	N/A	Web-based Comments	21302	24
Javinsky	Elizabeth	not provided	N/A	Web-based Comments	13764	24
Javurek	Deborah	not provided	N/A	Web-based Comments	55486	34
Jaworski	Katia	not provided	N/A	Web-based Comments	19780	24
jay	bonnie	not provided	N/A	Web-based Comments	56587	34
Jay	Brian	not provided	N/A	Web-based Comments	56194	34
Jay	Brian	not provided	N/A	Web-based Comments	9481	24
Jay	Jackie	not provided	N/A	Web-based Comments	46168	34
Jay	Ravidass	not provided	N/A	Web-based Comments	55215	34
Jayasekera	Rukmani	not provided	N/A	Web-based Comments	27820	24
Jay-Carroll	Katherine	not provided	N/A	Web-based Comments	19459	24
Jaymes	Shari	not provided	N/A	Web-based Comments	28613	24
Jayne	Catherine	not provided	N/A	Web-based Comments	58557	34
JAYSON	Patricia	not provided	N/A	Web-based Comments	25779	24
Jeager	Martin	not provided	N/A	Web-based Comments	23162	24
Jean	Elena	elena.routledge@gmail.com	N/A	Web-based comments	6061	1
Jean	Jerry	not provided	N/A	Web-based Comments	17359	24
Jean	Laurence Saint	not provided	N/A	Web-based Comments	54121, 54122	34
Jean	Richard	not provided	N/A	Web-based Comments	26991	24
Jean	Tara	tara.jean013@gmail.com	N/A	Web-based comments	682	N/A
Jean	Thomas	not provided	N/A	Web-based comments	58846	N/A
Jeansonne	Mark	mjeanson@iterm.com	N/A	Web-based comments	3422	N/A
Jeansonne	Victoria	not provided	N/A	Web-based Comments	31201	24
Jeaverfelt	Anette	not provided	N/A	Web-based comments	57605	35
Jedlicka	Nikki	not provided	N/A	Web-based Comments	44495	34
Jefferies	Rita	not provided	N/A	Web-based Comments	27142	24
Jeffers	Jacqueline	not provided	N/A	Web-based Comments	54299	34
Jeffers	Jacqueline	not provided	N/A	Web-based Comments	16119	24
Jeffery	Mary Jane	not provided	N/A	Web-based Comments	23526	24
Jeffrey	James	not provided	N/A	Web-based Comments	16245	24
Jeffrey	Mary	not provided	N/A	Web-based Comments	23309	24
Jeffrey	TP	not provided	N/A	Web-based Comments	30834	24
Jeffrey, without prejudice UCC 1-207	Monroe Edwin	not provided	N/A	Web-based Comments	24659	24
Jeffreys	Curt	not provided	N/A	Web-based Comments	11472	24
Jeffreys	Donna	not provided	N/A	Web-based Comments	49730	34
jeffreys	zachary	not provided	N/A	Web-based Comments	55747	34
Jeffreys	Zachary	not provided	N/A	Web-based Comments	55746	34
jeffreys	Zachary	not provided	N/A	Web-based Comments	31713	24
Jeffries	Lynne	not provided	N/A	Web-based Comments	22138	24
Jeffries	T	not provided	N/A	Web-based Comments	30092	24
Jefko	Lisa	not provided	N/A	Web-based Comments	21573	24
Jehle	Anne	not provided	N/A	Web-based Comments	51010	34
Jeleva	Jasmina	not provided	N/A	Web-based Comments	16768	24
jelonnek	monika	not provided	N/A	Web-based Comments	24649	24
Jemes	Ashley	not provided	N/A	Web-based comments	768	1
JENCK	DONALD	DONNIE@JENCKFARMS.COM	N/A	Web-based comments	3043	9
JENKEL	PETER	not provided	N/A	Web-based Comments	26264	24
Jenkins	Al	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	5563	N/A
jenkins	bill	not provided	N/A	Web-based Comments	48565, 48566	34
Jenkins	Bruce	not provided	N/A	Web-based Comments	9614	24
Jenkins	Elizabeth	not provided	N/A	Web-based Comments	13765	24
Jenkins	Felton	afeltonj@hotmail.com	N/A	Web-based comments	32146	4
Jenkins	Felton	Felton@TrimaranCapital.net	N/A	US Mail or commercial carrier (UPS, FedEx)	58804	N/A
Jenkins	Gerolyn	not provided	N/A	Web-based Comments	14993	24
Jenkins	Irv	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32483	N/A
Jenkins	Jacqueline	not provided	N/A	Web-based Comments	47646	34
Jenkins	Janis	not provided	N/A	Web-based Comments	16741	24
Jenkins	Johanna	not provided	N/A	Web-based Comments	17943	24
Jenkins	Julie	not provided	N/A	Web-based Comments	18848	24
Jenkins	K	not provided	N/A	Web-based Comments	50880	34
Jenkins	Linda	not provided	N/A	Web-based Comments	58021, 53315	16, 34
Jenkins	Linda	not provided	N/A	Web-based Comments	21303	24
Jenkins	Louise	not provided	N/A	Web-based Comments	21886	24
Jenkins	Nicholson	not provided	N/A	Web-based Comments	25190	24
Jenkins	Pam	not provided	N/A	Web-based Comments	25498	24
Jenkins	Robin	not provided	N/A	Web-based Comments	50336, 51118	34
Jenkins	Sharon	not provided	N/A	Web-based Comments	28669	24
jenkins	shirley	not provided	N/A	Web-based Comments	28957	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Jenkins	Stacey	not provided	N/A	Web-based Comments	56068	34
Jenkins	Susan	not provided	N/A	Web-based Comments	55163	34
Jenkins	Susan	not provided	N/A	Web-based Comments	29716	24
Jenkins	Theodora	not provided	N/A	Web-based Comments	30419	24
Jenkins	Tim	tim.jenkins@fallriverelectric.com	N/A	Web-based comments	3446	N/A
Jenkins	Tim	tim.jenkins@fallriverelectric.com	N/A	US Mail or commercial carrier (UPS, FedEx)	32514, 32433	13, 11
Jenners	Andrew	not provided	N/A	Web-based Comments	7820	24
Jennier	Gwen	not provided	N/A	Web-based Comments	47067	34
Jennings	Beverly	not provided	N/A	Web-based Comments	9130	24
Jennings	Brandon	not provided	N/A	Web-based Comments	9368	24
Jennings	Chelsea	not provided	N/A	Web-based comments	57198	35
Jennings	Joseph	not provided	N/A	Web-based Comments	49444	34
Jennings	Josephine	not provided	N/A	Web-based Comments	18410	24
Jennings	Ryan	not provided	N/A	Web-based Comments	27916	24
Jennings-Hammond	Sandy	not provided	N/A	Web-based Comments	28247	24
Jennis-Sauppe	Eileen	not provided	N/A	Web-based Comments	51925	34
Jennis-Sauppe	Eileen	not provided	N/A	Web-based Comments	13542	24
Jenny-Reynolds	April	not provided	N/A	Web-based Comments	8384	24
Jensen	Andrew	jensand3@isu.edu	N/A	Web-based comments	32055	N/A
Jensen	Angela	not provided	N/A	Web-based Comments	7913	24
Jensen	Angela	not provided	N/A	Web-based Comments	57879, 58007	16
Jensen	Beth	not provided	N/A	Web-based Comments	51829	34
Jensen	Bruce	not provided	N/A	Web-based Comments	53538	34
Jensen	Carol	not provided	N/A	Web-based Comments	48381	34
Jensen	Chad	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4631	N/A
Jensen	Clyde	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32545	13
Jensen	Craig	not provided	N/A	Web-based Comments	48072	34
Jensen	Frank	not provided	N/A	Web-based Comments	14538	24
Jensen	Gayland	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32507	13
Jensen	Gordon	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32529	13
Jensen	Hanne Overgaard	not provided	N/A	Web-based Comments	15421	24
Jensen	Jean	not provided	N/A	Web-based Comments	50981	34
Jensen	Jerald	not provided	N/A	Web-based Comments	17301	24
Jensen	Joel	not provided	N/A	Web-based Comments	45636	34
Jensen	John	not provided	N/A	Web-based comments	2931	N/A
Jensen	June	not provided	N/A	Web-based Comments	45983	34
Jensen	June	not provided	N/A	Web-based Comments	18938	24
Jensen	Kacy	not provided	N/A	Web-based Comments	18993	24
Jensen	Karen	not provided	N/A	Web-based Comments	19130	24
Jensen	Katherine	not provided	N/A	Web-based Comments	19460	24
Jensen	Katie	not provided	N/A	Web-based Comments	19794	24
Jensen	Ken	not provided	N/A	Web-based Comments	19977	24
Jensen	Kevin	not provided	N/A	Web-based Comments	20111	24
Jensen	Lauris	not provided	N/A	Web-based Comments	20866	24
Jensen	Leslie	not provided	N/A	Web-based Comments	21075	24
Jensen	Linda	linda74jensen@gmail.com	N/A	Web-based comments	6395	1
Jensen	Magdalena	not provided	N/A	Web-based Comments	53450	34
Jensen	Philip	phjn123@gmail.com	N/A	Web-based comments	2639	N/A
Jensen	Robert	not provided	N/A	Web-based Comments	57898	16
Jensen	Sherry	not provided	N/A	Web-based Comments	28891	24
Jenson	Jamie	not provided	N/A	Web-based Comments	16360	24
Jeppson	Brandon	bcjeppson@gmail.com	N/A	Web-based comments	5314	N/A
Jeppson	Jayden	not provided	N/A	Web-based comments	5038	N/A
Jeppson	Julie	pdjeppson@gmail.com	N/A	Web-based comments	2700	N/A
Jeppson	paul	pjeppson7@gmail.com	N/A	Web-based comments	5006	N/A
Jepsen	Daniel	jeps3448@gmail.com	N/A	Web-based comments	6433	N/A
Jeremy	Emerson	not provided	N/A	Web-based Comments	14001	24
Jerez	Maribel	not provided	N/A	Web-based Comments	22698	24
Jergens	Jovy	not provided	N/A	Web-based Comments	44666	34
Jerista	Adele	adele.jerista@gmail.com	N/A	Web-based comments	6165	N/A
JERMAIN	FRANCES	not provided	N/A	Web-based Comments	48968	34
Jerman	Linda	not provided	N/A	Web-based Comments	21304	24
Jern	Jessica	not provided	N/A	Web-based Comments	52323	34
Jern	Jessica	not provided	N/A	Web-based Comments	17431	24
Jernquist	Harriet	not provided	N/A	Web-based Comments	15452	24
Jerro	Bonnie	not provided	N/A	Web-based comments	3617	N/A
Jerugim	Lora	not provided	N/A	Web-based Comments	21744	24
Jesaitis	Lynne	not provided	N/A	Web-based Comments	22139	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Jess	Terry	not provided	N/A	Web-based Comments	57945, 50562	16, 34
Jesse	Chuck	not provided	N/A	Web-based Comments	11051	24
Jessler	Darynne	not provided	N/A	Web-based Comments	52669	34
Jessup	Patricia	not provided	N/A	Web-based comments	5044	N/A
jet	retro	not provided	N/A	Web-based Comments	48243	34
Jeter	Randal	not provided	N/A	Web-based Comments	49029	34
Jetkiewicz	Kellye	not provided	N/A	Web-based Comments	46146	34
Jett	Rachael Alvarez	not provided	N/A	Web-based Comments	55428	34
Jett	Rachel	not provided	N/A	Web-based Comments	46519	34
Jevitt	Gary	not provided	N/A	Web-based Comments	14774	24
Jewelers	Julie	not provided	N/A	Web-based Comments	18849	24
Jewell	Nikki	not provided	N/A	Web-based Comments	25286	24
Jewett	Nora	planetsong763@gmail.com	N/A	Web-based comments	2473	1
Jex-Pearce	Tracey	not provided	N/A	Web-based Comments	30840	24
Jezak	Sam	samjezak@gmail.com	N/A	Web-based comments	677	N/A
Jezerinac	Shawn	not provided	N/A	Web-based Comments	28748	24
Jezorek	Heather	not provided	N/A	Web-based Comments	15517	24
Jimenez	Alex	not provided	N/A	Web-based comments	4580	1
Jimenez	Edgard	not provided	N/A	Web-based Comments	13465	24
Jimenez	Richard	not provided	N/A	Web-based Comments	26992	24
Jimenez National Congressional Scholar	Reverend Nathan	not provided	N/A	Web-based Comments	26875	24
Jinks	Wanda	not provided	N/A	Web-based Comments	31375	24
Jiong Hao	Soh	not provided	N/A	Web-based Comments	29047	24
Jirotka	Marina	not provided	N/A	Web-based Comments	48028, 48029	34
Jivan	Mohib	not provided	N/A	Web-based Comments	24586	24
Job	Dorraine	not provided	N/A	Web-based Comments	13283	24
Joba	Jane	not provided	N/A	Web-based Comments	16498	24
Jocius	Kevin	not provided	N/A	Web-based Comments	20112	24
Jodar	Kimberlie	not provided	N/A	Web-based Comments	55206	34
Jodi igard	Jodi	not provided	N/A	Web-based Comments	17846	24
joendrup	jette	not provided	N/A	Web-based Comments	17484	24
Joersz	Shirley	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32442	N/A
Joesink-Mandeville	Sylvia	not provided	N/A	Web-based Comments	30068	24
Johannsen	Mary	not provided	N/A	Web-based Comments	56397, 56398	34
Johannsen	Mary	not provided	N/A	Web-based Comments	23310	24
Johansen	Charlotte	not provided	N/A	Web-based Comments	54375	34
Johansen	Cinda	not provided	N/A	Web-based Comments	11056	24
Johansen	Gina	not provided	N/A	Web-based Comments	46268	34
Johansen	Kristen	not provided	N/A	Web-based Comments	20343	24
Johansen	P	not provided	N/A	Web-based Comments	25462	24
Johansen	Poul	not provided	N/A	Web-based Comments	26432	24
Johansen	Shawna	not provided	N/A	Web-based Comments	47632	34
johanson	erica	not provided	N/A	Web-based Comments	52478, 52479	34
Johanson	Erica	not provided	N/A	Web-based Comments	14163	24
Johansson	Bengt Arne	not provided	N/A	Web-based Comments	8955	24
Johansson	Bernt	not provided	N/A	Web-based Comments	52175	34
Johansson	Ingrid	not provided	N/A	Web-based Comments	58445	34
John	Brian	not provided	N/A	Web-based Comments	55507	34
John	Clay St	not provided	N/A	Web-based Comments	48300, 55503	34
John	Kathryn St.	not provided	N/A	Web-based Comments	46165, 46166	34
John	Tommy	Tommymrjohn@gmail.com	N/A	Web-based comments	5472	8
Johndon	Lauren	not provided	N/A	Web-based Comments	20772	24
John-Kodish	Anne St	not provided	N/A	Web-based Comments	51494	34
Johns	Andrew	not provided	N/A	Web-based Comments	51468	34
johns	andrew	not provided	N/A	Web-based Comments	7821	24
Johns	Cindy	not provided	N/A	Web-based Comments	11082	24
Johns	Mark	not provided	N/A	Web-based Comments	52995, 52996	34
Johns	Mark	not provided	N/A	Web-based Comments	22948	24
Johns	Mary Lee	not provided	N/A	Web-based Comments	48067, 48068	34
Johns	Robin	not provided	N/A	Web-based Comments	27495	24
Johnsen	Aleksander	not provided	N/A	Web-based Comments	7230	24
Johnsen	Carol	not provided	N/A	Web-based Comments	9950	24
Johnsen	Kurt	kjohnsen@mrdells.com	N/A	Web-based comments	3655	13
Johnson	Adam	not provided	N/A	Web-based Comments	7048	24
Johnson	Aimee	not provided	N/A	Web-based Comments	7134	24
johnson	alice	not provided	N/A	Web-based Comments	7349	24
Johnson	Allison	not provided	N/A	Web-based Comments	7464	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Johnson	Amy	not provided	N/A	Web-based Comments	7624	24
Johnson	Andy	not provided	N/A	Web-based Comments	7874	24
Johnson	Andy	not provided	N/A	Web-based Comments	7875	24
Johnson	Ann	not provided	N/A	Web-based Comments	8051	24
Johnson	Anya	not provided	N/A	Web-based Comments	8374	24
Johnson	Barbara	not provided	N/A	Web-based Comments	8706	24
Johnson	Becky	not provided	N/A	Web-based Comments	46255	34
Johnson	Bion	not provided	N/A	Web-based Comments	49544	34
Johnson	Brad	not provided	N/A	Web-based Comments	9341	24
Johnson	Brandt	not provided	N/A	Web-based Comments	49647	34
Johnson	Brenda	not provided	N/A	Web-based Comments	46848	34
Johnson	Brenda	not provided	N/A	Web-based Comments	9405	24
Johnson	Bryan	fishtraphunt@gmail.com	N/A	Web-based comments	2919	8
Johnson	Carmen	not provided	N/A	Web-based Comments	9870	24
Johnson	Carol	not provided	N/A	Web-based Comments	9951	24
Johnson	Carolann	not provided	N/A	Web-based Comments	10067	24
Johnson	Carole	not provided	N/A	Web-based Comments	47408	34
Johnson	Carole	not provided	N/A	Web-based Comments	10082	24
Johnson	Carrie	not provided	N/A	Web-based Comments	45756, 45757	34
Johnson	Cathy	not provided	N/A	Web-based Comments	47428, 47429, 54291	34
Johnson	Cathy	not provided	N/A	Web-based Comments	10372	24
Johnson	Chad	not provided	N/A	Web-based Comments	51895	34
Johnson	Chad	not provided	N/A	Web-based Comments	10450	24
Johnson	Charles	not provided	N/A	Web-based Comments	10512	24
Johnson	Cheryl	laakerilehti@hotmail.com	N/A	Web-based comments	2774	N/A
Johnson	Cheryl	not provided	N/A	Web-based Comments	10649	24
Johnson	Chris	not provided	N/A	Web-based Comments	58250	16
Johnson	Cindy	not provided	N/A	Web-based Comments	11083	24
Johnson	Claire	not provided	N/A	Web-based Comments	11127	24
Johnson	Clay	not provided	N/A	Web-based Comments	11210	24
Johnson	Courtney	not provided	N/A	Web-based comments	56967	35
Johnson	Curtis	not provided	N/A	Web-based Comments	11476	24
Johnson	Dana	not provided	N/A	Web-based Comments	45355	34
Johnson	Dave	cdj@wsu.edu	N/A	Web-based comments	32090	N/A
Johnson	David	not provided	N/A	Web-based Comments	12042	24
Johnson	David	not provided	N/A	Web-based Comments	12043	24
Johnson	Debbie	not provided	N/A	Web-based Comments	12326	24
Johnson	Deborah	not provided	N/A	Web-based comments	57443	35
Johnson	Deborah	not provided	N/A	Web-based Comments	12418	24
Johnson	Debra	not provided	N/A	Web-based Comments	12528	24
Johnson	Delia	not provided	N/A	Web-based Comments	12601	24
JOHNSON	DELORES	not provided	N/A	Web-based Comments	54088	34
Johnson	Donna	not provided	N/A	Web-based Comments	13142	24
Johnson	Dwight	not provided	N/A	Web-based Comments	13400	N/A
Johnson	Elaine	not provided	N/A	Web-based Comments	13597	24
Johnson	Elizabeth	not provided	N/A	Web-based Comments	13766	24
Johnson	Eric	not provided	N/A	Web-based Comments	47115	34
Johnson	Erik	not provided	N/A	Web-based Comments	58185	16
Johnson	Evan	not provided	N/A	Web-based Comments	14330	24
Johnson	G.	not provided	N/A	Web-based Comments	14625	24
Johnson	G. G.	not provided	N/A	Web-based Comments	14631	24
Johnson	Gary	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58766	N/A
Johnson	GeriAnn	not provided	N/A	Web-based Comments	14992	24
Johnson	Gloria	not provided	N/A	Web-based Comments	15156	24
Johnson	Gregg	not provided	N/A	Web-based Comments	15262	24
Johnson	Haley	not provided	N/A	Web-based Comments	15380	24
Johnson	HL	not provided	N/A	Web-based Comments	55916, 55917	34
Johnson	Holly	not provided	N/A	Web-based Comments	15753	24
Johnson	Irene	not provided	N/A	Web-based Comments	15904	24
Johnson	Iver	not provided	N/A	Web-based Comments	15960	24
Johnson	Jackie	not provided	N/A	Web-based Comments	16065	24
Johnson	Jamie	not provided	N/A	Web-based Comments	47123	34
JOHNSON	JAMIE	not provided	N/A	Web-based Comments	48145	34
Johnson	Jamie	not provided	N/A	Web-based Comments	16361	24
Johnson	Jamie	not provided	N/A	Web-based comments	5017	1
Johnson	Janet	not provided	N/A	Web-based Comments	16613	24
Johnson	Janice	not provided	N/A	Web-based Comments	47368	34
Johnson	Jann	not provided	N/A	Web-based Comments	16750	24
Johnson	Jay	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58349	N/A
Johnson	Jean	smolts@msn.com	N/A	Web-based comments	2191	N/A

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
JOHNSON	JEFFREY	not provided	N/A	Web-based Comments	17082	24
Johnson	Jenifer	not provided	N/A	Web-based Comments	45957, 45958	34
Johnson	Jenifer	not provided	N/A	Web-based Comments	17127	24
Johnson	Jessica	not provided	N/A	Web-based comments	57080	35
Johnson	Jessica	not provided	N/A	Web-based Comments	17432	24
Johnson	Jill	not provided	N/A	Web-based Comments	57999	16
Johnson	Joan	not provided	N/A	Web-based Comments	49576	34
JOHNSON	JOANNE	not provided	N/A	Web-based Comments	17809	24
Johnson	Jonna	not provided	N/A	Web-based Comments	18311	24
johnson	Joyce	not provided	N/A	Web-based Comments	46411	34
Johnson	Joyce	not provided	N/A	Web-based Comments	18494	24
Johnson	Judith	not provided	N/A	Web-based Comments	18610	24
johnson	Judy	not provided	N/A	Web-based Comments	44445	34
Johnson	Judy	not provided	N/A	Web-based Comments	18688	24
Johnson	Julia	not provided	N/A	Web-based Comments	18755	24
Johnson	Kara	not provided	N/A	Web-based Comments	44349	34
Johnson	Karen	not provided	N/A	Web-based Comments	19131	24
Johnson	Karl	not provided	N/A	Web-based Comments	19301	24
Johnson	Karolina	not provided	N/A	Web-based Comments	49829	34
Johnson	Karolina	not provided	N/A	Web-based Comments	19325	24
Johnson	Karon	not provided	N/A	Web-based Comments	19331	24
Johnson	Kathleen	not provided	N/A	Web-based Comments	19548	24
Johnson	Kathleen	not provided	N/A	Web-based Comments	19549	24
Johnson	Kathy	not provided	N/A	Web-based Comments	19711	24
Johnson	Kay	not provided	N/A	Web-based Comments	53720	34
Johnson	Keith	not provided	N/A	Web-based Comments	19877	24
Johnson	Kenneth W	not provided	N/A	Web-based Comments	20034	24
Johnson	Kim	not provided	N/A	Web-based Comments	55093	34
Johnson	Kim	not provided	N/A	Web-based Comments	20187	24
Johnson	Kimberly	not provided	N/A	Web-based Comments	20227	24
johnson	kimm	kjohn1219@aol.com	N/A	Web-based comments	2320	N/A
Johnson	Kirk	not provided	N/A	Web-based Comments	50866	34
Johnson	Lanie	not provided	N/A	Web-based Comments	20544	24
Johnson	Lanni	lanni.johnson@frontier.com	N/A	Web-based comments	2751	N/A
Johnson	Laura	not provided	N/A	Web-based Comments	20654	24
Johnson	Leigh	not provided	N/A	Web-based Comments	58681, 58682	34
Johnson	LeWard	not provided	N/A	Web-based Comments	51078	34
Johnson	Lily	not provided	N/A	Web-based Comments	21179	24
Johnson	Linda	lljbrownspt@gmail.com	N/A	Web-based comments	3631	3
Johnson	Linda	not provided	N/A	Web-based Comments	48823, 48824	34
Johnson	Linda	not provided	N/A	Web-based Comments	21305	24
Johnson	Linda	not provided	N/A	Web-based Comments	21306	24
Johnson	Linda	not provided	N/A	Web-based Comments	21307	24
Johnson	Linn	not provided	N/A	Web-based Comments	21506	24
Johnson	Lisa	not provided	N/A	Web-based Comments	49394	34
Johnson	Lisa	not provided	N/A	Web-based Comments	21574	24
Johnson	Liz	not provided	N/A	Web-based Comments	45248	34
Johnson	Liz	not provided	N/A	Web-based Comments	21684	24
Johnson	Lorraine	lorraine.d.johnson@gmail.com	N/A	Web-based comments	355, 2293	3
Johnson	Lorraine	not provided	N/A	Web-based Comments	21842	24
Johnson	Lorraine D.	not provided	N/A	Web-based Comments	51890, 51891	34
Johnson	M.E.	not provided	N/A	Web-based Comments	22221	24
Johnson	Mara	not provided	N/A	Web-based Comments	22321	24
Johnson	Marelyn	not provided	N/A	Web-based Comments	22414	24
Johnson	Margaret	not provided	N/A	Web-based Comments	53555	34
Johnson	Marilyn	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	56683	32
Johnson	Mark	not provided	N/A	Web-based Comments	22949	24
johnson	mary	not provided	N/A	Web-based Comments	55400	34
Johnson	Mary	not provided	N/A	Web-based Comments	53976, 53977	34
Johnson	Matt	not provided	N/A	Web-based Comments	55804	34
Johnson	Melissa	not provided	N/A	Web-based Comments	23893	24
Johnson	Michele	not provided	N/A	Web-based Comments	54178	34
Johnson	Michele	not provided	N/A	Web-based Comments	24290	24
Johnson	Nancy	najohnso@operamail.com	N/A	Web-based comments	2428	3
Johnson	Nancy	not provided	N/A	Web-based Comments	52442	34
Johnson	Nancy	not provided	N/A	Web-based Comments	24900	24
Johnson	Nancy	not provided	N/A	Web-based Comments	24901	24
johnson	p	not provided	N/A	Web-based Comments	25463	24
Johnson	P	not provided	N/A	Web-based Comments	25464	24
Johnson	Pamela	not provided	N/A	Web-based Comments	25562	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Johnson	Patricia	not provided	N/A	Web-based Comments	25780	24
Johnson	Patti	not provided	N/A	Web-based Comments	49239, 49240	34
Johnson	Patti	not provided	N/A	Web-based Comments	25942	24
Johnson	Patty	not provided	N/A	Web-based comments	2236	N/A
Johnson	Paul	not provided	N/A	Web-based Comments	26009	24
Johnson	Peggy	not provided	N/A	Web-based Comments	26161	24
Johnson	Penny	not provided	N/A	Web-based Comments	47336	34
Johnson	Peter	not provided	N/A	Web-based Comments	26265	24
Johnson	Phyllis	not provided	N/A	Web-based Comments	26392	24
Johnson	Preston	not provided	N/A	Web-based Comments	26437	24
Johnson	Rachel	not provided	N/A	Web-based Comments	26530	24
Johnson	Rachel	not provided	N/A	Web-based Comments	26531	24
Johnson	Rae	not provided	N/A	Web-based Comments	26571	24
Johnson	Randy	not provided	N/A	Web-based Comments	26637	24
Johnson	Rebecca	not provided	N/A	Web-based Comments	26734	24
Johnson	Rebecca A Behar	not provided	N/A	Web-based Comments	47988	34
Johnson	Reid	not provided	N/A	Web-based Comments	53711	34
Johnson	Rheta	not provided	N/A	Web-based Comments	26884	24
Johnson	Rhonda	not provided	N/A	Web-based Comments	52809, 52882	34
Johnson	Rhonda	not provided	N/A	Web-based Comments	26898	24
Johnson	Richard	not provided	N/A	Web-based Comments	52276	34
Johnson	Richard	not provided	N/A	Web-based Comments	26993	24
Johnson	Rita	not provided	N/A	Web-based Comments	27143	24
Johnson	Robert	not provided	N/A	Web-based Comments	47445	34
Johnson	Robert	not provided	N/A	Web-based Comments	27293	24
Johnson	Robert	not provided	N/A	Web-based Comments	27294	24
Johnson	Robert	not provided	N/A	Web-based Comments	27295	24
Johnson	Robert Rex	not provided	N/A	Web-based Comments	27428	24
Johnson	Roger	not provided	N/A	Web-based Comments	27586	24
Johnson	Rolf	not provided	N/A	Web-based Comments	27606	24
Johnson	Ronald	not provided	N/A	Web-based Comments	27659	24
Johnson	Roy	not provided	N/A	Web-based Comments	51334	34
Johnson	Ruth	not provided	N/A	Web-based Comments	27873	24
Johnson	Sandy	not provided	N/A	Web-based Comments	56289	34
Johnson	Sandy	not provided	N/A	Web-based Comments	28248	24
Johnson	Shannan	not provided	N/A	Web-based Comments	28576	24
Johnson	Sharon	not provided	N/A	Web-based Comments	28670	24
Johnson	Shawn	not provided	N/A	Web-based Comments	28749	24
Johnson	Sheila	not provided	N/A	Web-based Comments	28790	24
Johnson	Sierra	not provided	N/A	Web-based Comments	28989	24
Johnson	Stacey	not provided	N/A	Web-based Comments	45602	34
Johnson	Stephanie	not provided	N/A	Web-based Comments	29224	24
Johnson	Stephen	not provided	N/A	Web-based Comments	29305	24
Johnson	Stephen a	not provided	N/A	Web-based Comments	49494	34
Johnson	Stephen a	not provided	N/A	Web-based Comments	29348	24
Johnson	Susan	not provided	N/A	Web-based Comments	29717	24
Johnson	Suzanne	hookorcrook19@gmail.com	N/A	Web-based comments	5635	N/A
Johnson	Teresa	not provided	N/A	Web-based comments	57677	35
Johnson	Teresa	not provided	N/A	Web-based Comments	50653	34
Johnson	Theresa	not provided	N/A	Web-based Comments	54665	34
JOHNSON	THOMAS	not provided	N/A	Web-based Comments	30508	24
Johnson	Tim	tug_timmy@yahoo.com	N/A	Web-based comments	2455	N/A
Johnson	Todd	not provided	N/A	Web-based Comments	30721	24
Johnson	Tom	not provided	N/A	Web-based Comments	54058	34
Johnson	Tyler	flacojohnson@gmail.com	N/A	Web-based comments	1781	1
Johnson	Vicki	not provided	N/A	Web-based Comments	31135	24
Johnson	Victor	vvjclodf@fastmail.fm	N/A	Web-based comments	6565	N/A
Johnson	Wade	not provided	N/A	Web-based Comments	31343	24
Johnson	Wendy	not provided	N/A	Web-based Comments	31430	24
Johnson	Will	not provided	N/A	Web-based comments	875	N/A
Johnson	William	not provided	N/A	Web-based Comments	55951	34
Johnson	Yvonne	not provided	N/A	Web-based Comments	31700	24
Johnston	Alison	not provided	N/A	Web-based Comments	7409	24
Johnston	Ana	not provided	N/A	Web-based Comments	48212, 48213	34
Johnston	Bradley	not provided	N/A	Web-based Comments	9354	24
Johnston	Carol	not provided	N/A	Web-based Comments	9952	24
Johnston	Christa	not provided	N/A	Web-based Comments	10806	24
Johnston	Christine	not provided	N/A	Web-based Comments	10936	24
Johnston	Elizabeth	not provided	N/A	Web-based Comments	48010	34
Johnston	Everett	not provided	N/A	Web-based Comments	14362	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Johnston	Gail	not provided	N/A	Web-based Comments	14694	24
Johnston	Jean	not provided	N/A	Web-based Comments	16851	24
Johnston	Mark	not provided	N/A	Web-based Comments	22950	24
Johnston	Mark	not provided	N/A	Web-based Comments	22951	24
Johnston	Michael A.	not provided	N/A	Web-based Comments	24257	24
Johnston	Rebecca	not provided	N/A	Web-based Comments	26735	24
Johnston	Steve	not provided	N/A	Web-based Comments	29369	24
Johnston	Sue	not provided	N/A	Web-based Comments	53609	34
Johnston	Sue	not provided	N/A	Web-based Comments	29530	24
Johnston	Tracy	not provided	N/A	Web-based Comments	30871	24
Johnston	Virginia	not provided	N/A	Web-based Comments	50215, 50216	34
Johnstone	Bruce	bjohnstone1@cableone.net	N/A	Web-based comments	5384	N/A
Johnstone	Cheryl	not provided	N/A	Web-based Comments	10650	24
Johnstone	Jody	not provided	N/A	Web-based Comments	17865	24
Johnstone	Margaret	not provided	N/A	Web-based Comments	22466	24
Jokelson	Daniel	not provided	N/A	Web-based Comments	49508	34
Jokelson	Daniel	not provided	N/A	Web-based Comments	11745	24
Jolley	Chris Wayne	not provided	N/A	Web-based Comments	10798	24
Jolley	Dee	not provided	N/A	Web-based Comments	55555	34
Jolley	Janine	vacationteton@gmail.com	N/A	Web-based comments	3295	N/A
Jolly	Ben	not provided	N/A	Web-based comments	57233	35
Jolly	Rob	not provided	N/A	Web-based Comments	27177	24
Joly	Vincent	not provided	N/A	Web-based Comments	31252	24
Jonas	Clarissa	not provided	N/A	Web-based Comments	11169	24
Jonas	Daniel	djonas1352@gmail.com	N/A	Web-based comments	4977	N/A
Jonas	Susan	not provided	N/A	Web-based Comments	29718	24
Jonassen	Ariane	not provided	N/A	Web-based Comments	51360	34
Joncus	Andrew	not provided	N/A	Web-based Comments	46967, 46968	34
Joneleit	Malin	not provided	N/A	Web-based comments	57659	35
Jones	Alexandra	not provided	N/A	Web-based Comments	52805	34
Jones	Alison	not provided	N/A	Web-based comments	32139	1
Jones	Ally	not provided	N/A	Web-based Comments	7481	24
Jones	Amanda	not provided	N/A	Web-based Comments	7540	24
Jones	Amelia	not provided	N/A	Web-based Comments	7578	24
Jones	Andrew	not provided	N/A	Web-based Comments	7822	24
Jones	Angela	not provided	N/A	Web-based Comments	45724, 45725	34
Jones	Angela	not provided	N/A	Web-based Comments	7914	24
Jones	Angie Grosland	not provided	N/A	Web-based Comments	44887	34
Jones	Anna	not provided	N/A	Web-based Comments	8134	24
Jones	Anne	not provided	N/A	Web-based Comments	8208	24
Jones	Anthony	tjones@rmecon.net	N/A	Web-based comments	31808	N/A
Jones	Ashley	not provided	N/A	Web-based Comments	8486	24
Jones	Beryl	not provided	N/A	Web-based Comments	54246	34
Jones	Beth	not provided	N/A	Web-based Comments	46120	34
Jones	Betti	not provided	N/A	Web-based Comments	53188	34
Jones	Betti	not provided	N/A	Web-based Comments	9081	24
JONES	BILL	not provided	N/A	Web-based Comments	9171	24
Jones	Brad	not provided	N/A	Web-based Comments	49796	34
JONES	BRENDA	not provided	N/A	Web-based Comments	9406	24
Jones	Brian	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	5613	N/A
Jones	Brian	not provided	N/A	Web-based Comments	9482	24
Jones	Caitlin	not provided	N/A	Web-based Comments	56520	34
Jones	Carole	not provided	N/A	Web-based Comments	46167	34
Jones	Carole	not provided	N/A	Web-based Comments	10083	24
Jones	Chris	asjcjones@mn.com	N/A	Web-based comments	5266	8
Jones	Chris	jpaul7@q.com	N/A	Web-based comments	32042	N/A
Jones	Christine	not provided	N/A	Web-based Comments	10937	24
Jones	Clint	not provided	N/A	Web-based Comments	46070, 46071	34
Jones	Daniel	not provided	N/A	Web-based Comments	11746	24
Jones	Dardanella	not provided	N/A	Web-based Comments	11856	24
Jones	Debbie	not provided	N/A	Web-based Comments	12327	24
Jones	Desiree Jones	not provided	N/A	Web-based comments	57649	35
Jones	Diane	idahosweethome@gmail.com	N/A	Web-based comments	2312	N/A
Jones	Donna	not provided	N/A	Web-based Comments	51156	34
Jones	Donna	not provided	N/A	Web-based Comments	13143	24
Jones	Dr. Jo	not provided	N/A	Web-based Comments	13363	24
Jones	Eric	not provided	N/A	Web-based Comments	49403, 49404	34
Jones	Evan	not provided	N/A	Web-based Comments	14331	24
Jones	Fawn	not provided	N/A	Web-based Comments	14400	24
Jones	Gary	not provided	N/A	Web-based Comments	14775	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Jones	Gaynor	not provided	N/A	Web-based Comments	14839	24
Jones	Gene	not provided	N/A	Web-based Comments	46054, 46055	34
jones	gennie	not provided	N/A	Web-based Comments	45478	34
Jones	Graham	grahamesjones@gmail.com	N/A	Web-based comments	2938	8
Jones	Hailey	jonesh34@wwu.edu	N/A	Web-based comments	6389* - – No attachment with submission, co-lead agencies reached out but did not receive a response.	N/A
Jones	Heather	not provided	N/A	Web-based Comments	55200	34
Jones	Jacquelin	not provided	N/A	Web-based Comments	16100	24
Jones	Jacqueline	not provided	N/A	Web-based Comments	16120	24
Jones	James	not provided	N/A	Web-based Comments	16246	24
Jones	Jan	not provided	N/A	Web-based Comments	46464	34
Jones	Jan	not provided	N/A	Web-based Comments	16405	24
Jones	Jane	not provided	N/A	Web-based Comments	54320	34
Jones	Jane	not provided	N/A	Web-based Comments	16499	24
Jones	Jeannine	not provided	N/A	Web-based Comments	16999	24
Jones	Jeffrey	not provided	N/A	Web-based Comments	17083	24
Jones	Jennifer	not provided	N/A	Web-based Comments	45002	34
Jones	Jessalynn	not provided	N/A	Web-based Comments	54987	34
Jones	Jo	not provided	N/A	Web-based Comments	48042	34
Jones	Joannie	not provided	N/A	Web-based Comments	17835	24
Jones	John	not provided	N/A	Web-based Comments	18058	24
Jones	Judy	not provided	N/A	Web-based Comments	18689	24
Jones	K.	not provided	N/A	Web-based comments	6009	N/A
Jones	Kaija	not provided	N/A	Web-based Comments	48567	34
Jones	Karen	not provided	N/A	Web-based Comments	19132	24
Jones	Karen	not provided	N/A	Web-based Comments	19133	24
Jones	Karen	not provided	N/A	Web-based Comments	19134	24
Jones	Karl	not provided	N/A	Web-based Comments	58122	16
Jones	Kathrine	not provided	N/A	Web-based Comments	19616	24
Jones	Kathy	not provided	N/A	Web-based Comments	19712	24
Jones	Keith	not provided	N/A	Web-based Comments	19878	24
Jones	Kerry	not provided	N/A	Web-based Comments	20067	24
Jones	Kim	kim.jonesdesign@gmail.com	N/A	Web-based comments	31832	1
Jones	Kim	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	5566	N/A
Jones	Kyle	not provided	N/A	Web-based Comments	44954	34
Jones	Kyle	not provided	N/A	Web-based Comments	20451	24
Jones	Leah	not provided	N/A	Web-based Comments	52736	34
Jones	Linda	not provided	N/A	Web-based Comments	54632	34
Jones	Linda	not provided	N/A	Web-based Comments	21308	24
Jones	Linda B.	not provided	N/A	Web-based Comments	21468	24
Jones	Lynne	not provided	N/A	Web-based Comments	53573, 53574	34
Jones	Lynne	not provided	N/A	Web-based Comments	22140	24
Jones	Mark	2kbfarm@gmail.com	N/A	Web-based comments	3812	N/A
Jones	Mary	not provided	N/A	Web-based Comments	23312	24
JONES	MARY	not provided	N/A	Web-based Comments	23311	24
Jones	Mary Ann	not provided	N/A	Web-based Comments	52309	34
Jones	Mary K	not provided	N/A	Web-based Comments	23532	24
Jones	May	not provided	N/A	Web-based Comments	23754	24
Jones	Melissa	not provided	N/A	Web-based comments	57155	35
Jones	Michelle	not provided	N/A	Web-based Comments	56407	34
Jones	Michelle	not provided	N/A	Web-based Comments	24351	24
jones	myles	not provided	N/A	Web-based Comments	24705	24
Jones	Nancy	not provided	N/A	Web-based Comments	24902	24
Jones	Nanette	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	4268	N/A
Jones	Nanette	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4621, 4759	N/A
Jones	Neal	not provided	N/A	Web-based Comments	25116	24
Jones	Nicky	not provided	N/A	Web-based Comments	25210	24
Jones	Ninette	Sealiondefensebrigade@gmail.com	N/A	Web-based comments	5764*	N/A
Jones	Pat	not provided	N/A	Web-based Comments	25658	24
Jones	Patricia	not provided	N/A	Web-based Comments	25781	24
Jones	Patricia	not provided	N/A	Web-based Comments	25782	24
Jones	Perry	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4246	N/A
Jones	Petra	not provided	N/A	Web-based Comments	48091	34
Jones	Petra	not provided	N/A	Web-based Comments	26310	24
Jones	Philip	not provided	N/A	Web-based Comments	56491	34
Jones	R	not provided	N/A	Web-based Comments	26474	24
Jones	R. David	not provided	N/A	Web-based Comments	26493	24
Jones	Rebecca	not provided	N/A	Web-based Comments	26736	24
Jones	Rev. Allan B.	not provided	N/A	Web-based Comments	26870	24
jones	rhonda	not provided	N/A	Web-based Comments	45326	34

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
jones	richard	not provided	N/A	Web-based Comments	26994	24
Jones	Rick	not provided	N/A	Web-based Comments	27090	24
Jones	Robert	not provided	N/A	Web-based Comments	46062	34
Jones	Robert	not provided	N/A	Web-based Comments	27296	24
Jones	Robert	not provided	N/A	Web-based Comments	27297	24
Jones	Ron D	not provided	N/A	Web-based Comments	58025	16
Jones	Ronald	not provided	N/A	Web-based Comments	27660	24
Jones	Rose	not provided	N/A	Web-based Comments	27723	24
Jones	Rosemarie	not provided	N/A	Web-based Comments	27749	24
Jones	S	not provided	N/A	Web-based Comments	27942	24
Jones	S. Preston	not provided	N/A	Web-based Comments	27965	24
Jones	Sandra	not provided	N/A	Web-based Comments	49330	34
jones	seth	not provided	N/A	Web-based Comments	28545	24
Jones	Shannon	not provided	N/A	Web-based Comments	28587	24
Jones	Sharon	not provided	N/A	Web-based Comments	28671	24
Jones	Sherri	not provided	N/A	Web-based Comments	28866	24
Jones	Sid	not provided	N/A	Web-based Comments	28981	24
jones	sj	not provided	N/A	Web-based Comments	53763	34
Jones	Stacey	not provided	N/A	Web-based Comments	48897, 48898	34
Jones	Stephanie	not provided	N/A	Web-based Comments	46626	34
Jones	Steve	sjones@2ndhomes.com	N/A	Web-based comments	6625	N/A
Jones	Thomas	not provided	N/A	Web-based Comments	30509	24
Jones	Tod	not provided	N/A	Web-based Comments	49794	34
Jones	Vikki	not provided	N/A	Web-based Comments	45978	34
Jones	Zakariah	not provided	N/A	Web-based Comments	31721	24
Jones II	Myles	not provided	N/A	Web-based Comments	24706	24
Jones, informed & thus outraged expat	Beth	not provided	N/A	Web-based Comments	9031	N/A
Jones-Giampalo	Mary	not provided	N/A	Web-based Comments	23313	24
Jones-Wilson	Jaida	not provided	N/A	Web-based Comments	16154	24
Jonsson	Martina	not provided	N/A	Web-based Comments	46673	34
Jontos	Robert	rjontos1@gmail.com	N/A	Web-based comments	5203	8
Joos	Sandra	joosgalefamily@comcast.net	N/A	Web-based comments	3690	17
Joos	Sandra	not provided	N/A	Web-based Comments	58580, 58040	34, 16
Joos	Sandra	not provided	N/A	Web-based Comments	28164	24
Jordan	Alfonzo	not provided	N/A	Web-based Comments	7318	24
Jordan	Allan	not provided	N/A	Web-based Comments	7436	24
Jordan	Anna	jexcursion@msn.com	N/A	Web-based comments	5701	10
Jordan	Barbara	not provided	N/A	Web-based Comments	8707	24
Jordan	Barbara	not provided	N/A	Web-based Comments	8708	24
Jordan	Carl	carlj.nvatu@gmail.com	N/A	Web-based comments	5942	8
Jordan	Corinne	not provided	N/A	Web-based Comments	55030, 55031	34
Jordan	Darlene	not provided	N/A	Web-based Comments	11884	24
Jordan	Dorothy	not provided	N/A	Web-based Comments	50619	34
Jordan	Dorothy	not provided	N/A	Web-based Comments	13263	24
Jordan	James	not provided	N/A	Web-based Comments	58160	16
Jordan	Kimberly	not provided	N/A	Web-based Comments	47725, 47726	34
jordan	lee	not provided	N/A	Web-based Comments	20934	24
Jordan	Lois	not provided	N/A	Web-based Comments	21720	24
jordan	machel	not provided	N/A	Web-based Comments	22227	24
Jordan	Marion	not provided	N/A	Web-based Comments	22853	24
Jordan	Michelle	not provided	N/A	Web-based Comments	24352	24
Jordan	Rebecca	not provided	N/A	Web-based Comments	26737	24
Jordan	S.	not provided	N/A	Web-based Comments	27955	24
Jordan	Susan	not provided	N/A	Web-based Comments	48332	34
Jordan	Susan	not provided	N/A	Web-based Comments	29719	24
Jordan	Tegan	not provided	N/A	Web-based Comments	30252	24
Jordan-Guzman	Rosa	not provided	N/A	Web-based Comments	53381	34
Jordon	Colby	jcjordon03@gmail.com	N/A	Web-based comments	1262	1
jorgensen	alena	not provided	N/A	Web-based Comments	7234	24
Jorgensen	Bob	not provided	N/A	Web-based Comments	9241	24
Jorgensen	Danyelle	not provided	N/A	Web-based Comments	46174	34
Jorgensen	Janette	not provided	N/A	Web-based Comments	16658	24
Jorgensen	Kristine	not provided	N/A	Web-based Comments	20412	24
Jorgensen	Michelle	not provided	N/A	Web-based Comments	24353	24
Jorgensen	Michelle	not provided	N/A	Web-based Comments	24354	24
Jorgensen	Richard	not provided	N/A	Web-based Comments	26995	24
Jorgensen	Walter	not provided	N/A	Web-based Comments	31357	24
Jory	Susan	not provided	N/A	Web-based Comments	29720	24
Jorz	Martha	not provided	N/A	Web-based Comments	23109	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Jose	Phyllis	not provided	N/A	Web-based Comments	26393	24
Joseph	Ellie	not provided	N/A	Web-based Comments	13964	24
Joseph	Jill	not provided	N/A	Web-based Comments	17515	24
Joseph Burch	Robert	not provided	N/A	Web-based Comments	27298	24
Josephine	Noguer	josephine.noguer@gmail.com	N/A	Web-based comments	1753	1
Josephson	Darren	DEJosephson@gmail.com	N/A	Web-based comments	4901	11
josephson	stephen	not provided	N/A	Web-based Comments	29306	24
Joshi	Manisha	not provided	N/A	Web-based Comments	22308	24
Joshi	Yashika	not provided	N/A	Web-based Comments	31659	24
Joss	Lisa	not provided	N/A	Web-based Comments	21575	24
Josser	Elias	not provided	N/A	Web-based Comments	53144	34
Joste	Richard	not provided	N/A	Web-based Comments	26996	24
Jotwani	Sunil	not provided	N/A	Web-based Comments	29574	24
JOUANIN	Dominique	not provided	N/A	Web-based Comments	13005	24
Jouett	Marceau	not provided	N/A	Web-based Comments	54691	34
Jounson	Kassity	not provided	N/A	Web-based comments	57305	35
Jovanovich	Amanda	not provided	N/A	Web-based Comments	46012	34
Jowdy	Joe	not provided	N/A	Web-based Comments	47941	34
Jowdy Friedman	Karen	not provided	N/A	Web-based Comments	19135	24
Joy	Francis	not provided	N/A	Web-based Comments	14505	24
joyce	Eleanor	not provided	N/A	Web-based Comments	13631	24
joyce	kathleen	not provided	N/A	Web-based Comments	54026, 54027	34
joyce	kolasa	not provided	N/A	Web-based Comments	20303	24
Joyce	Mary Anne	not provided	N/A	Web-based Comments	23505	24
Joyce	Nancy	not provided	N/A	Web-based Comments	24903	24
Joyce	S	not provided	N/A	Web-based Comments	27943	24
Joyce	Stephen	not provided	N/A	Web-based Comments	44547, 44548, 44549	34
Joyce	Susan	not provided	N/A	Web-based Comments	29721	24
Joyntner	Roberta	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4677	N/A
Juarez	Adrian	not provided	N/A	Web-based Comments	7081	24
Juarez	Laura	not provided	N/A	Web-based Comments	20655	24
Juba	Anne	not provided	N/A	Web-based Comments	8209	24
Jubb	Cathy	not provided	N/A	Web-based Comments	10373	24
Jucha	Scott	not provided	N/A	Web-based Comments	28476	24
Judd	Dawn	not provided	N/A	Web-based Comments	12222	24
Judd	Larry	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	56640	N/A
Judge	Brookie	not provided	N/A	Web-based Comments	44319	34
Judge	Mary A	not provided	N/A	Web-based Comments	23482	24
Judge	Melissa	not provided	N/A	Web-based Comments	23894	24
Judge	Patrick R.	not provided	N/A	Web-based Comments	25933	24
Judge	Susan	not provided	N/A	Web-based Comments	29722	24
Judice	Pat	not provided	N/A	Web-based Comments	50881	34
Judson	Claudia	not provided	N/A	Web-based Comments	11189	24
Judson	Gilbert	not provided	N/A	Web-based Comments	15023	24
Judy	Karol	not provided	N/A	Web-based Comments	44856	34
Judy	Mary	not provided	N/A	Web-based Comments	53771	34
Judy	Mary	not provided	N/A	Web-based Comments	23314	24
Judy	Paul	not provided	N/A	Web-based Comments	50485	34
Juhl	Brandon	brandon.juhl@gmail.com	N/A	Web-based comments	3124	N/A
Juhl	Brandon	not provided	N/A	Web-based Comments	49016	34
Juhl	Brandon	not provided	N/A	Web-based Comments	9369	24
Julian	Jerrilyn	not provided	N/A	Web-based Comments	17337	24
Julian	Judith	not provided	N/A	Web-based Comments	45539	34
Julian	Judith	not provided	N/A	Web-based Comments	18611	24
juliano	claudia	not provided	N/A	Web-based Comments	11190	24
Juliano	Linda	not provided	N/A	Web-based Comments	21309	24
Juliano	Regina	not provided	N/A	Web-based Comments	51295, 51296	34
Julie	Steve	steve.urrutia@sunnysideschools.org	N/A	Web-based comments	4939	5
Julien	Anna	not provided	N/A	Web-based Comments	8135	24
Julienne	Mary	not provided	N/A	Web-based Comments	23315	24
Juliusson	Marguerite	not provided	N/A	Web-based Comments	55694	34
Juliusson	Marguerite	not provided	N/A	Web-based Comments	22566	24
Jumonville	John	not provided	N/A	Web-based Comments	50007	34
Jumonville	John	not provided	N/A	Web-based Comments	18059	24
Juncker	Suzy	not provided	N/A	Web-based Comments	54815, 54816, 54817	34
June	Ken	jserjean@calpoly.edu	N/A	Web-based comments	3980	N/A
Juneau	Wendy	not provided	N/A	Web-based Comments	31431	24
Junek	Mary	not provided	N/A	Web-based Comments	48754	34
Junek	Mary	not provided	N/A	Web-based Comments	23316	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Jung	A	not provided	N/A	Web-based Comments	6962, 6963	24
Jung	Aeron	not provided	N/A	Web-based Comments	7110	24
Jung	Jeff	not provided	N/A	Web-based Comments	17029	24
jung	scott	not provided	N/A	Web-based Comments	28477	24
Junge	Scott	aattocs@gmail.com	N/A	Web-based comments	4431	20
Jungerheld	Mari Ann	not provided	N/A	Web-based Comments	56108, 56109	34
Jungkuntz	Amanda	not provided	N/A	Web-based Comments	46284	34
Jungman	Ann	not provided	N/A	Web-based Comments	44506	34
junior	Lawrence Dillard	not provided	N/A	Web-based Comments	49030, 49031	34
Junker	Chris	not provided	N/A	Web-based Comments	10750	24
Junkin	Michael	not provided	N/A	Web-based Comments	24128	24
Junqueira	Patricia	not provided	N/A	Web-based Comments	25783	24
Juntermanns	Helle	not provided	N/A	Web-based Comments	15650	24
Jupp	Philip	not provided	N/A	Web-based Comments	26343	24
Juracka	Kathleen	not provided	N/A	Web-based Comments	19550	24
Juracka	Robert	not provided	N/A	Web-based Comments	27299	24
Juracka	Robert and Louise	not provided	N/A	Web-based Comments	53099	34
Jurbala	Rick	Sandshot69@Yahoo.com	N/A	Web-based comments	2567	N/A
Jurczewski	Carol	not provided	N/A	Web-based Comments	57869	34
Jurgens	Rebecca	landsart1@aol.com	N/A	Web-based comments	5475	1
Jurgenstein	Rainer	not provided	N/A	Web-based Comments	26579	24
Jurkowski	Melissa	not provided	N/A	Web-based Comments	46416, 46417	34
Jurlando	Cecilia	not provided	N/A	Web-based Comments	10419	24
Jursa	Rob	not provided	N/A	Web-based Comments	55008, 55009	34
Just	Linda	not provided	N/A	Web-based Comments	21310	24
Justice	Jessica	jessicajjustice@msn.com	N/A	Web-based comments	31983	1
Justin	Randi	not provided	N/A	Web-based Comments	26623	24
Justus-Rusconi	Valerie	not provided	N/A	Web-based Comments	31033	24
Jylli	Tiina	not provided	N/A	Web-based Comments	30595	24
K	Anna	not provided	N/A	Web-based Comments	8136	24
K	C	not provided	N/A	Web-based Comments	45332	34
K	Charlotte	not provided	N/A	Web-based Comments	54591	34
K	Charlotte	not provided	N/A	Web-based Comments	10559	24
K	Col	not provided	N/A	Web-based comments	5238	N/A
K	Colleen	not provided	N/A	Web-based Comments	47377	34
K	DAVID	not provided	N/A	Web-based Comments	12044	24
K	DOLORES	not provided	N/A	Web-based Comments	46686	34
K	Ed	not provided	N/A	Web-based Comments	13447	24
K	Haley	not provided	N/A	Web-based Comments	15381	24
K	J	not provided	N/A	Web-based Comments	44847	34
K	J	not provided	N/A	Web-based Comments	15977	24
K	J	not provided	N/A	Web-based Comments	15978	24
K	Kate	not provided	N/A	Web-based Comments	19388	24
K	Laura	not provided	N/A	Web-based Comments	46981	34
K	Lee	not provided	N/A	Web-based Comments	20935	24
K	M	mkericks1222@gmail.com	N/A	Web-based comments	4178	N/A
K	Melissa	not provided	N/A	Web-based Comments	52875, 52876, 52877	34
K	Melissa	not provided	N/A	Web-based Comments	23895	24
k	natalie	not provided	N/A	Web-based Comments	25066	24
k	r	not provided	N/A	Web-based Comments	26475	24
k	stephanie	not provided	N/A	Web-based Comments	29225	24
K	Sydney	not provided	N/A	Web-based comments	1116, 1117	2
K	W	not provided	N/A	Web-based Comments	31337	24
K.	Micky & Dave	not provided	N/A	Web-based Comments	24416	24
K.	Miriam	not provided	N/A	Web-based Comments	24551	24
k.	natmitch	not provided	N/A	Web-based Comments	25109	24
K.	Saran	not provided	N/A	Web-based comments	57583	35
K.	Saran	not provided	N/A	Web-based Comments	28429	24
Kaakkuriniemi	Vesa	not provided	N/A	Web-based Comments	31110	24
Kabat	Ellen	not provided	N/A	Web-based Comments	53824	34
Kabat	Ellen	not provided	N/A	Web-based Comments	13923	24
Kabernagel	Laura	not provided	N/A	Web-based Comments	20656	24
Kachele	Drew & Kathy	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58347	N/A
Kachioutea	Katerina	not provided	N/A	Web-based Comments	44472	34
Kachioutea	Katerina	not provided	N/A	Web-based Comments	19408	24
Kachmar	Lori	not provided	N/A	Web-based Comments	21789	24
Kacos	Robin	not provided	N/A	Web-based Comments	27496	24
Kacser	Linda	not provided	N/A	Web-based Comments	21311	24
Kacskos	Cheryl	not provided	N/A	Web-based Comments	10651	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Kaczmarek	Penelope	not provided	N/A	Web-based Comments	45880	34
Kaczmarek	Polly	not provided	N/A	Web-based Comments	55974, 55975	34
Kadaj	Lila	not provided	N/A	Web-based Comments	21155	24
Kadar	Patricia	not provided	N/A	Web-based Comments	53125	34
Kade	Allison	not provided	N/A	Web-based Comments	7465	24
Kadet	Laurie	not provided	N/A	Web-based Comments	20839	24
Kadioglu	Direnc	not provided	N/A	Web-based Comments	12968	24
Kadish	I. Michael	not provided	N/A	Web-based Comments	15827	24
Kadium	Tara	not provided	N/A	Web-based Comments	30203	24
Kadoya	Michael	not provided	N/A	Web-based Comments	54269, 54270, 54271	34
Kadrich	Peter	not provided	N/A	Web-based Comments	53422	34
Kaefer	Jenny	not provided	N/A	Web-based Comments	17293	24
Kaegi	Christine	not provided	N/A	Web-based Comments	10938	24
Kaehler	Knut	not provided	N/A	Web-based Comments	20302	24
Kaehn	S.	not provided	N/A	Web-based Comments	55399	34
Kaehn	S.	not provided	N/A	Web-based Comments	27956	24
Kaelling	Verena	not provided	N/A	Web-based Comments	31089	24
Kaemerer	Casey	not provided	N/A	Web-based Comments	10224	24
Kaemerer	Casey	not provided	N/A	Web-based Comments	10225	24
Kaenya-Jakus	Katalin	not provided	N/A	Web-based Comments	19358	24
Kaess	Nicole	not provided	N/A	Web-based Comments	25239	24
Kaess	Nicole	not provided	N/A	Web-based Comments	25240	24
Kaeufer	Edward	not provided	N/A	Web-based Comments	49549	34
Kaeufer	Edward	not provided	N/A	Web-based Comments	13501	24
Kaffer	Kathryn	not provided	N/A	Web-based comments	57689	35
Kaffer	Kathryn	not provided	N/A	Web-based Comments	53357	34
Kafton	Pamela	not provided	N/A	Web-based Comments	25563	24
Kagan	David	not provided	N/A	Web-based Comments	50449, 57802	34
Kagen-Yanowitz	Steviann	not provided	N/A	Web-based Comments	48235	34
Kahigian	Peter	not provided	N/A	Web-based Comments	55803	34
Kahill	Suzanne	not provided	N/A	Web-based Comments	30000	24
Kahle	Melissa	not provided	N/A	Web-based Comments	23896	24
Kahler	Tom	not provided	N/A	Web-based Comments	52636	34
Kahn	Douglas	not provided	N/A	Web-based Comments	47626	34
Kahn	Gabriel	gabrielvkahn@gmail.com	N/A	Web-based comments	6863	N/A
Kahn	Michael	not provided	N/A	Web-based Comments	24129	24
Kahn	Nancy	not provided	N/A	Web-based Comments	24904	24
Kahn	Onie	not provided	N/A	Web-based Comments	48780	34
kahraman	nida	not provided	N/A	Web-based Comments	50558	34
Kahraman	Nida	not provided	N/A	Web-based Comments	25269	24
Kai	Marianne	not provided	N/A	Web-based Comments	54745	34
Kai	Marianne	not provided	N/A	Web-based Comments	22682	24
Kai	Marsha	not provided	N/A	Web-based Comments	46205	34
Kai	Marsha	not provided	N/A	Web-based Comments	23070	24
Kain	Philip	not provided	N/A	Web-based Comments	26344	24
Kaintz	John	not provided	N/A	Web-based Comments	55830	34
Kairet	Sarah	not provided	N/A	Web-based Comments	28368	24
Kaiser	Diana	not provided	N/A	Web-based Comments	12774	24
Kaiser	Helen	not provided	N/A	Web-based Comments	15615	24
Kaiser	Karen	not provided	N/A	Web-based Comments	19136	24
Kaiser	Kathy	not provided	N/A	Web-based Comments	52593	34
Kaiser	Robert	not provided	N/A	Web-based Comments	27300	24
Kakiba-Russell	Karyn	not provided	N/A	Web-based Comments	19336	24
Kakudo	Marilyn	not provided	N/A	Web-based Comments	22790	24
Kakuk	Shawn	not provided	N/A	Web-based Comments	28750	24
Kalabakas	Maggie	not provided	N/A	Web-based Comments	52900, 52901	34
Kalabakas	Maggie	not provided	N/A	Web-based Comments	22267	24
Kalamatas	Kristin	not provided	N/A	Web-based Comments	48097	34
kalan	susan	not provided	N/A	Web-based Comments	56318	34
Kalb	Ingrid	not provided	N/A	Web-based Comments	15879	24
Kalbac	P. L.	not provided	N/A	Web-based Comments	25476	24
Kalbfleisch	Hamilton	not provided	N/A	Web-based Comments	15388	24
Kalbfleisch	Jon	not provided	N/A	Web-based Comments	18256	24
Kalblein	Amy	not provided	N/A	Web-based Comments	55236	34
Kalebaugh	Shannon	not provided	N/A	Web-based Comments	47808	34
Kaleel	Joe	not provided	N/A	Web-based Comments	17885	24
Kalemkerian	Lori	not provided	N/A	Web-based Comments	46234	34
Kalenik	Ben	not provided	N/A	Web-based Comments	8939	24
Kaler	Larry	not provided	N/A	Web-based Comments	20581	24
Kalergi	Helena	not provided	N/A	Web-based Comments	15637	24

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Kalig	Mava	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4745	N/A
KAlik	Antal	not provided	N/A	Web-based Comments	8321	24
Kalili	Christina	not provided	N/A	Web-based Comments	10860	24
Kalimian	Brian	not provided	N/A	Web-based Comments	48670	34
Kalimian	Brian	not provided	N/A	Web-based Comments	9483	24
Kalinay	Sarah	not provided	N/A	Web-based Comments	53645	34
Kalinay	Sarah	not provided	N/A	Web-based Comments	28369	24
Kalinski	Ray	not provided	N/A	Web-based Comments	26671	24
Kalis	Pamela	not provided	N/A	Web-based Comments	25564	24
Kalish	Ann	not provided	N/A	Web-based Comments	8052	24
Kalish	Mia	not provided	N/A	Web-based Comments	50617	34
Kallan	Denise	not provided	N/A	Web-based Comments	12645	24
Kalland	Carrell	not provided	N/A	Web-based Comments	10190	24
Kallenbach	Cheryl	not provided	N/A	Web-based Comments	57985, 51160	16, 34
Kallenbach	Cheryl	not provided	N/A	Web-based Comments	10652	24
Kallenbach	Kate	not provided	N/A	Web-based Comments	19389	24
Kallerman	Patrick	pkallerman@gmail.com	N/A	Web-based comments	2920	8
Kallevik	Kolb[unreadable]	not provided	N/A	Web-based Comments	20304	24
Kalman	Jeffrey	not provided	N/A	Web-based Comments	17084	24
kalmenson	Karen Lyons	not provided	N/A	Web-based Comments	46172	34
Kalnins	Dagmara	not provided	N/A	Web-based Comments	49941	34
Kalodukas	Astra	not provided	N/A	Web-based Comments	8507	24
Kalodukas	Astra Kalodukas	not provided	N/A	Web-based Comments	52183	34
Kaltenberg	Michael	not provided	N/A	Web-based Comments	24130	24
Kalukin	Andrew	not provided	N/A	Web-based Comments	7823	24
kalur	jerome	not provided	N/A	Web-based Comments	17332	24
Kam	Annie	not provided	N/A	Web-based Comments	8301	24
Kamali	Maryam	not provided	N/A	Web-based Comments	46912	34
Kamas	Catherine	not provided	N/A	Web-based Comments	10289	24
Kamath	Shanta	not provided	N/A	Web-based Comments	51564	34
Kami	Eric	ericwconrad@gmail.com	N/A	Web-based comments	4441	11
Kaminski	John	not provided	N/A	Web-based Comments	18060	24
Kaminski	Judith	not provided	N/A	Web-based Comments	18612	24
Kaminsky	Ray	not provided	N/A	Web-based Comments	47664	34
Kaminsky	Shirley	not provided	N/A	Web-based Comments	28958	24
Kamler	Lucinda	not provided	N/A	Web-based Comments	52987	34
Kammer	Jean	not provided	N/A	Web-based Comments	48337	34
Kammer	Jean	not provided	N/A	Web-based Comments	16852	24
Kammer	Judy	not provided	N/A	Web-based Comments	18690	24
Kammerud	Lance	not provided	N/A	Web-based Comments	52518, 52519	34
Kammerud	Lance	not provided	N/A	Web-based Comments	20529	24
Kammerzell	Cheryl	cheryl.kammerzell@gmail.com	N/A	Web-based comments	3708	N/A
Kammerzell	Tom	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4746	N/A
Kammiller	Susan	not provided	N/A	Web-based Comments	29723	24
Kamo	Kathryn	not provided	N/A	Web-based Comments	19648	24
Kamo	Kathy	not provided	N/A	Web-based Comments	54255	34
Kampe	Linda	not provided	N/A	Web-based Comments	21312	24
Kamper	Barbara	not provided	N/A	Web-based Comments	8709	24
Kamradt	Cassie	not provided	N/A	Web-based Comments	10244	24
kanaan	alistair	not provided	N/A	Web-based Comments	7425	24
Kanagy	Julie	not provided	N/A	Web-based Comments	18850	24
Kane	Barbara	not provided	N/A	Web-based Comments	50585	34
kane	brian	not provided	N/A	Web-based Comments	9484	24
Kane	Brooke	not provided	N/A	Web-based Comments	9582	24
Kane	Dan	not provided	N/A	Web-based Comments	47065	34
Kane	Dan	not provided	N/A	Web-based Comments	11659	24
Kane	Erika	not provided	N/A	Web-based Comments	45121	34
Kane	Karen	not provided	N/A	Web-based Comments	19137	24
Kane	Kevin	not provided	N/A	Web-based Comments	53202	34
Kane	Lynne	not provided	N/A	Web-based Comments	56377	34
Kane	Lynne	not provided	N/A	Web-based Comments	22141	24
Kane	Misti	not provided	N/A	Web-based Comments	45146	34
Kane	Pamela	not provided	N/A	Web-based comments	57017	35
Kane	Pamela	not provided	N/A	Web-based Comments	47923, 47924	34
Kane	Pamela	not provided	N/A	Web-based Comments	25565	24
kane	patrick	kanepat@hotmail.com	N/A	Web-based comments	5018	N/A
Kane	Susan	not provided	N/A	Web-based Comments	49619, 54204, 54205	34
Kang	Sharon	not provided	N/A	Web-based Comments	28672	24
Kanganis	Polly	not provided	N/A	Web-based Comments	26424	24
Kankaansivu	Laila	not provided	N/A	Web-based Comments	20516	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
kanner	sandra	not provided	N/A	Web-based Comments	28165	24
Kanoff	Julie	not provided	N/A	Web-based Comments	18851	24
Kanter	Laura	not provided	N/A	Web-based Comments	20657	24
Kanter	Laura	not provided	N/A	Web-based Comments	20658	24
Kantola	Angela	not provided	N/A	Web-based Comments	7915	24
Kantor	Julie	not provided	N/A	Web-based Comments	18852	24
Kantor	Mike and Aleta	not provided	N/A	Web-based Comments	24498	24
Kantz	Karen	not provided	N/A	Web-based Comments	19138	24
Kanyid	David	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58346	N/A
Kanz	Isabelle	not provided	N/A	Web-based Comments	52711	34
KAPELL	DAVID	not provided	N/A	Web-based Comments	12045	24
Kaplan	Adam	not provided	N/A	Web-based Comments	7049	24
Kaplan	Dori	not provided	N/A	Web-based Comments	13218	24
Kaplan	Eliot	not provided	N/A	Web-based Comments	46286	34
Kaplan	Ellen	not provided	N/A	Web-based Comments	13924	24
Kaplan	Fred	not provided	N/A	Web-based Comments	14571	24
Kaplan	Harriet	not provided	N/A	Web-based Comments	54435	34
Kaplan	Janice	not provided	N/A	Web-based Comments	16685	24
Kaplan	Jill	not provided	N/A	Web-based Comments	17516	24
kaplan	michele	not provided	N/A	Web-based Comments	24291	24
Kaplan	Paulette	not provided	N/A	Web-based Comments	26112	24
Kaplan	Stephanie	not provided	N/A	Web-based Comments	29226	24
Kaplan	Suzan	not provided	N/A	Web-based Comments	29970	24
Kapoor	Tara	not provided	N/A	Web-based Comments	46886	34
Kapp	Ryan	not provided	N/A	Web-based Comments	27917	24
Kappelmann	Barbara	not provided	N/A	Web-based Comments	8710	24
Kappus	mike	not provided	N/A	Web-based Comments	24459	24
Kapsalis	Terri	not provided	N/A	Web-based Comments	30335	24
Kapustka	Franklin	not provided	N/A	Web-based Comments	14561	24
Karabadzhakyan	Lusine	not provided	N/A	Web-based Comments	55546, 55547	34
Karabadzhakyan	Lusine	not provided	N/A	Web-based Comments	21983	24
Karairou	Irene	not provided	N/A	Web-based Comments	15905	24
Karakatsanis	Sarantis	not provided	N/A	Web-based Comments	28430	24
Karakoc	Nazli	not provided	N/A	Web-based Comments	25114	24
Karasek	Marc	not provided	N/A	Web-based Comments	22335	24
Karasick	S	not provided	N/A	Web-based Comments	27944	24
Karbhari	Corinne	not provided	N/A	Web-based Comments	52818	34
Kardiak	Jennifer	not provided	N/A	Web-based Comments	49994	34
Kardiak	Jennifer	not provided	N/A	Web-based Comments	17209	24
Kardicky	Jon	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32277	N/A
Kardos	Theresa	not provided	N/A	Web-based Comments	30435	24
Karen	Karen	not provided	N/A	Web-based Comments	45666	34
Karger	Victoria	torikarger04@gmail.com	N/A	Web-based comments	598	2
Karges	Robert	not provided	N/A	Web-based Comments	27301	24
Karimi	Ana	not provided	N/A	Web-based Comments	7693	24
Karim-Nejad	Ladan	karimnejad.ladan@live.com	N/A	Web-based comments	31999	1
Karjalainen PhD, RN	Terry	not provided	N/A	Web-based Comments	30378	24
Karli	Robert	not provided	N/A	Web-based Comments	27302	24
Karlin	Brien	not provided	N/A	Web-based Comments	58032	16
Karlovich	David	not provided	N/A	Web-based Comments	12046	24
Karlovich	Michael	not provided	N/A	Web-based Comments	24131	24
Karlowski	Steven	not provided	N/A	Web-based Comments	29443	24
karlson	fred	not provided	N/A	Web-based Comments	56184	34
Karlson	fred	not provided	N/A	Web-based Comments	56185	34
Karlson	Fred	not provided	N/A	Web-based Comments	14572	24
Karlsson	Annika	not provided	N/A	Web-based Comments	8315	24
karlsson	rolf	not provided	N/A	Web-based Comments	27607	24
Karman	Robb Thomas	not provided	N/A	Web-based Comments	27192	24
Karn	Kathi	not provided	N/A	Web-based Comments	19499	24
Karolczak	Libby	not provided	N/A	Web-based Comments	47755	34
Karp	Chuck	not provided	N/A	Web-based Comments	47760	34
Karp	Paul	not provided	N/A	Web-based Comments	26010	24
Karpel	Janice	not provided	N/A	Web-based Comments	44943	34
Karpenick	Janice	not provided	N/A	Web-based Comments	16686	24
Karpov	Clarinda	not provided	N/A	Web-based Comments	44937	34
Karras	Gabrielle	not provided	N/A	Web-based Comments	50878	34
KARREN	JUSTINE	not provided	N/A	Web-based Comments	58463	34
Karro	Robert	rskarro@gmail.com	N/A	Web-based comments	2634	N/A
Karsh	Jeremy	not provided	N/A	Web-based Comments	17317	24
KARSLAKE	Sharon	not provided	N/A	Web-based Comments	28673	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Karste	Karen	not provided	N/A	Web-based Comments	19139	24
Karstens	Kai	kai.karstens@gmail.com	N/A	Web-based comments	3447	13
Karten	David	not provided	N/A	Web-based Comments	12047	24
Karuba	Marcia	not provided	N/A	Web-based Comments	22374	24
Karvouna	Sofia	not provided	N/A	Web-based Comments	55478, 55479	34
Karzen	Eileen	not provided	N/A	Web-based Comments	53935	34
Karzen	Eileen	not provided	N/A	Web-based Comments	13543	24
Kasabian	Elizabeth	not provided	N/A	Web-based Comments	13767	24
kasbarian	a	not provided	N/A	Web-based Comments	6964	24
Kaselle	Marion	not provided	N/A	Web-based Comments	52306	34
Kaselle	Marion	not provided	N/A	Web-based Comments	22854	24
Kasey	C	not provided	N/A	Web-based Comments	52024, 52025	34
Kasey	C.	not provided	N/A	Web-based Comments	9693	24
Kashinsky	Deborah	not provided	N/A	Web-based Comments	12419	24
Kaske	Jennifer	not provided	N/A	Web-based Comments	17210	24
Kaslander	Carol	not provided	N/A	Web-based Comments	9953	24
Kasnicka	Cindy	not provided	N/A	Web-based Comments	11084	24
Kasparian	Armen	not provided	N/A	Web-based Comments	8445	24
Kasper	Joan	not provided	N/A	Web-based Comments	17699	24
Kasprowicz	Jennifer	not provided	N/A	Web-based Comments	17211	24
kassay	R	not provided	N/A	Web-based comments	2932	8
Kassel	Kerul	not provided	N/A	Web-based Comments	20078	24
Kassman	Hilary	not provided	N/A	Web-based Comments	15698	24
Kassoff	Jason	not provided	N/A	Web-based Comments	16779	24
Kassy	Karen	not provided	N/A	Web-based comments	5003	N/A
Kast	Rachael	not provided	N/A	Web-based Comments	26502	24
Kastel	Diane	not provided	N/A	Web-based comments	57679	35
KASTEL	DIANE	not provided	N/A	Web-based Comments	57795	34
KASTELINE	DAVID	not provided	N/A	Web-based Comments	12048	24
Kasten	Tesla	teslakasten@gmail.com	N/A	Web-based comments	5859	1
Kastigar	Lise	not provided	N/A	Web-based Comments	21668	24
Kastler	Bill	not provided	N/A	Web-based Comments	9172	24
Kastlie	Vicki & Rod	not provided	N/A	Web-based Comments	31155	24
Kastner	Margean	not provided	N/A	Web-based Comments	22536	24
Kastner	Mary	not provided	N/A	Web-based Comments	23317	24
Kastner	Ruth	not provided	N/A	Web-based Comments	27874	24
Kasunic	Dorothy	not provided	N/A	Web-based Comments	13264	24
Kat	Mb	not provided	N/A	Web-based Comments	23768	24
Katayama	Julie	not provided	N/A	Web-based Comments	18853	24
KATAYAMA	MILES	not provided	N/A	Web-based Comments	24512	24
Katcher	Jeremy	not provided	N/A	Web-based Comments	17318	24
Kates	Carol	not provided	N/A	Web-based Comments	9954	24
Kates	Cordelia	not provided	N/A	Web-based Comments	11361	24
Kates	Daisy	not provided	N/A	Web-based Comments	11621	24
Katkin	Alan	not provided	N/A	Web-based Comments	7170	24
Kato	Pearl	not provided	N/A	Web-based Comments	54974	34
Katona	Jason	not provided	N/A	Web-based Comments	51266	34
KATOVICH	PAUL	paulk@highlinegrain.com	N/A	Web-based comments	2500	N/A
Katrak	Karen A	not provided	N/A	Web-based Comments	19256	24
Katsaros	Amanda	not provided	N/A	Web-based Comments	7541	24
Katsarou	Litsa	not provided	N/A	Web-based Comments	21674	24
Katsouros	Tracey	not provided	N/A	Web-based Comments	52179, 52180	34
Katsouros	Tracey	not provided	N/A	Web-based Comments	30841	24
Katsufrakis	Danai	not provided	N/A	Web-based Comments	11716	24
Kattenhorn	Dolores	not provided	N/A	Web-based Comments	49038	34
Katz	Alan	not provided	N/A	Web-based Comments	7171	24
Katz	David	not provided	N/A	Web-based Comments	12049	24
Katz	Donna	not provided	N/A	Web-based Comments	13144	24
Katz	Elissa	not provided	N/A	Web-based Comments	58608	34
Katz	Joel	not provided	N/A	Web-based Comments	17913	24
Katz	Leslie	not provided	N/A	Web-based Comments	21076	24
Katz	Melissa	not provided	N/A	Web-based Comments	23897	24
Katz	Paula	not provided	N/A	Web-based Comments	26084	24
Katz	Randy	not provided	N/A	Web-based Comments	26638	24
KATZ	ROBERTA	not provided	N/A	Web-based Comments	27439	24
Katz	Samantha	not provided	N/A	Web-based Comments	28077	24
Katz	Sara	not provided	N/A	Web-based Comments	28293	24
Katz	Suzan	not provided	N/A	Web-based Comments	29971	24
Katz	Tamara	not provided	N/A	Web-based Comments	30124	24
Katz rose	Elana	not provided	N/A	Web-based Comments	13624	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Katzban	Gerry	not provided	N/A	Web-based Comments	15000	24
Katzen	James	not provided	N/A	Web-based Comments	16247	24
Katzenstein	Robin	not provided	N/A	Web-based Comments	44415	34
Katzenstein	Robin	not provided	N/A	Web-based Comments	27497	24
katzer	alan	not provided	N/A	Web-based Comments	7172	24
Kauffman	Kimberly	not provided	N/A	Web-based Comments	49566, 49567	34
Kauffman	Luz	not provided	N/A	Web-based Comments	21986	24
Kauffman	Maryann	not provided	N/A	Web-based Comments	23559	24
Kauffmann	Faith	not provided	N/A	Web-based Comments	14383	24
Kauffold	Don	not provided	N/A	Web-based Comments	13028	24
Kaufman	Andrea	not provided	N/A	Web-based Comments	56380, 56381	34
Kaufman	Andrea	not provided	N/A	Web-based Comments	7750	24
Kaufman	George	not provided	N/A	Web-based Comments	14895	24
Kaufman	Gretchen	not provided	N/A	Web-based Comments	50451	34
Kaufman	Jeff	gleanerguy2@yahoo.com	N/A	Web-based comments	5882	N/A
Kaufman	Jillonne	not provided	N/A	Web-based Comments	17562	24
Kaufman	Joseph	not provided	N/A	Web-based Comments	52201	34
Kaufman	Katy	not provided	N/A	Web-based Comments	19807	24
Kaufman	Laura	not provided	N/A	Web-based Comments	20659	24
Kaufman	Marilee	not provided	N/A	Web-based Comments	22756	24
Kaufman	Michelle	not provided	N/A	Web-based Comments	54470	34
Kaufman	Michelle	not provided	N/A	Web-based Comments	24355	24
Kaufman	Trudi	not provided	N/A	Web-based comments	3673	13
Kaufmann	Anne	not provided	N/A	Web-based Comments	48946	34
kaufmann	debra	not provided	N/A	Web-based Comments	12529	24
Kaufmann	Theresa	not provided	N/A	Web-based Comments	50886	34
Kaulbach	Katharine	not provided	N/A	Web-based Comments	19419	24
Kaushik	Nagender	not provided	N/A	Web-based Comments	56580	34
Kaushik	Nagender	not provided	N/A	Web-based Comments	24777	24
Kauth	William	wkauth@aol.com	N/A	Web-based comments	31873	N/A
Kautz	Felicia	not provided	N/A	Web-based Comments	14415	24
kavan	philip	not provided	N/A	Web-based Comments	52157	34
Kavar	Mojca	not provided	N/A	Web-based Comments	51046	34
Kavas	Lisa M. Mintz	not provided	N/A	Web-based Comments	53983	34
Kawa	Barbara	not provided	N/A	Web-based Comments	55234	34
Kawahara	Joel	joelkaw@earthlink.net	N/A	Web-based comments	5380	N/A
Kawahara	Joel	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4624	N/A
kawaler	lydia	not provided	N/A	Web-based Comments	21991	24
Kawamoto	Shamballa	not provided	N/A	Web-based Comments	28561	24
Kawayoshi	JoAnn	not provided	N/A	Web-based Comments	17770	24
KAWECKI	Paul	not provided	N/A	Web-based Comments	26011	24
Kawlewski	Angela	not provided	N/A	Web-based Comments	47010	34
Kawszan	Karen	not provided	N/A	Web-based Comments	55537	34
Kawszan	Karen	not provided	N/A	Web-based Comments	19140	24
Kay	Anthony	anthonyrkay@gmail.com	N/A	Web-based comments	5341	N/A
Kay	Bob	booksr4bk2@charter.net	N/A	Web-based comments	5037	N/A
Kay	Camdon	camdonkay@gmail.com	N/A	Web-based comments	2965	N/A
Kay	Chelsea	chelsea.zimmerman@gmail.com	N/A	Web-based comments	740	N/A
Kay	Joel	not provided	N/A	Web-based Comments	58035, 56328	16, 34
Kay	John	not provided	N/A	Web-based Comments	18061	24
Kay	Mindy	not provided	N/A	Web-based Comments	24530	24
Kay	S.	not provided	N/A	Web-based Comments	27957	24
Kay	Sara	not provided	N/A	Web-based comments	56930	35
Kay	Sarah	not provided	N/A	Web-based comments	6258	1
Kay	Sasha	not provided	N/A	Web-based Comments	28436	24
Kay	Tom	not provided	N/A	Web-based Comments	30756	24
Kayama	Hitomi	not provided	N/A	Web-based Comments	15718	24
Kaye	Anthony	not provided	N/A	Web-based Comments	54527, 54528	34
Kaye	Autumn	not provided	N/A	Web-based Comments	8545	24
Kaye	Deborah	not provided	N/A	Web-based Comments	12420	24
Kaye	Julie	not provided	N/A	Web-based Comments	18854	24
Kaye	Tom	not provided	N/A	Web-based comments	56957	35
Kaylen	Sharon	not provided	N/A	Web-based Comments	28674	24
Kaynar	Marlies	not provided	N/A	Web-based Comments	55271	34
Kaysinger	Kathleen	not provided	N/A	Web-based Comments	19551	24
Kazak	Ilene	not provided	N/A	Web-based Comments	46262, 46263	34
Kazak	Ilene	not provided	N/A	Web-based Comments	15853	24
Kazen	Ivan	not provided	N/A	Web-based Comments	15957	24
Kazin	Gary	not provided	N/A	Web-based Comments	14776	24
Kean	Nancy	not provided	N/A	Web-based Comments	44993	34

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Kean	Patricia	not provided	N/A	Web-based Comments	25784	24
Kearford	David	david@kearford.com	N/A	Web-based comments	5690	8
KEARNEY	Dee	not provided	N/A	Web-based Comments	12576	24
Kearney	Dorothy	not provided	N/A	Web-based Comments	56465	34
Kearney	Mary	not provided	N/A	Web-based Comments	23318	24
Kearns	Deborah	not provided	N/A	Web-based Comments	12421	24
Kearns	Dustin	not provided	N/A	Web-based Comments	57996	16
Kearns	Kathy	not provided	N/A	Web-based Comments	19713	24
Kearns	Kent	kfskent@gmail.com	N/A	Web-based comments	3560	11
Kearns	Leslie	not provided	N/A	Web-based Comments	21077	24
Kearns	Meredith	not provided	N/A	Web-based Comments	23974	24
kearns	patric	not provided	N/A	Web-based Comments	25688	24
Kearsley	Aaron	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32485, 32379	11, 13
keast	heather	not provided	N/A	Web-based Comments	15518	24
keating	c	not provided	N/A	Web-based Comments	56347	34
Keating	C	not provided	N/A	Web-based Comments	9674	24
Keating	Kathy	not provided	N/A	Web-based Comments	55642	34
Keating	Michelle	not provided	N/A	Web-based Comments	50042	34
Keating	Michelle	not provided	N/A	Web-based Comments	24356	24
Keating-Secular	Karen	not provided	N/A	Web-based Comments	19141	24
Keaton	Kilty	kiltykeaton@gmail.com	N/A	Web-based comments	5744	1
Keats	Paul	not provided	N/A	Web-based Comments	26012	24
Keatts	Tom	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32291	N/A
Keay	Jeff	not provided	N/A	Web-based comments	4013	11
Kebisek	Kenneth	not provided	N/A	Web-based Comments	20015	24
Keck	Roy	roykeck@charter.net	N/A	Web-based comments	6787	N/A
Keckalo	Sabrina	not provided	N/A	Web-based Comments	51324	34
Keckler	Jeanne	not provided	N/A	Web-based Comments	16955	24
Keddy	Michelle	not provided	N/A	Web-based Comments	24357	24
Keefe	George	georgewanc@gmail.com	N/A	Web-based comments	282	3
Keefe	Kristen	not provided	N/A	Web-based Comments	55222, 55223	34
Keefe	Marie	not provided	N/A	Web-based Comments	22710	24
Keefer	Joyce	jkeefer@21priceright.com	N/A	Web-based comments	4061	N/A
Keefer	Mary	mbk@joycekeefer.com	N/A	Web-based comments	5007	N/A
Keefer	Wanda	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4244, 4671	N/A
Keefer	Wanda	wkeefer516@gmail.com	N/A	Web-based comments	5969	N/A
Keeler	Dorothy	not provided	N/A	Web-based Comments	51663	34
Keeler	Dorothy	not provided	N/A	Web-based Comments	13265	24
Keeler	Mary	not provided	N/A	Web-based Comments	52528	34
Keeley	Dan	djkeeley@stpaultel.com	N/A	Web-based comments	3085	N/A
Keeling	Anna	not provided	N/A	Web-based Comments	8137	24
Keeling	Ray	not provided	N/A	Web-based Comments	54789	34
Keeling	Ray	not provided	N/A	Web-based Comments	26672	24
KEEM	DONNA	not provided	N/A	Web-based Comments	13145	24
Keen	Damon	dcll1960@gmail.com	N/A	Web-based comments	5057	N/A
Keen	Jaye	not provided	N/A	Web-based Comments	16822	24
Keenan	Alan	not provided	N/A	Web-based Comments	7173	24
Keenan	Amy	not provided	N/A	Web-based comments	57331	35
Keenan	Amy	not provided	N/A	Web-based Comments	7625	24
Keenan	Ann	not provided	N/A	Web-based Comments	8053	24
Keenan	Bernadette	not provided	N/A	Web-based Comments	8988	24
Keenan	Elizabeth	not provided	N/A	Web-based Comments	13768	24
Keenan	Elizabeth	not provided	N/A	Web-based Comments	13769	24
Keenan	Erin	not provided	N/A	Web-based Comments	14222	24
Keenan	James	not provided	N/A	Web-based Comments	53120, 53121	34
Keenan	James	not provided	N/A	Web-based Comments	16248	24
Keenan	Marjory	not provided	N/A	Web-based Comments	22890	24
Keene	Margaret	not provided	N/A	Web-based Comments	58066, 52638	16, 34
Keene	Stephanie	not provided	N/A	Web-based Comments	29227	24
Keenliside	Thomas	not provided	N/A	Web-based Comments	30510	24
Keepers	Tiffany	not provided	N/A	Web-based Comments	30587	24
Keesee	Kellie	not provided	N/A	Web-based Comments	19905	24
Keeshen	Rebecca	not provided	N/A	Web-based Comments	26738	24
keezer	geoffrey	not provided	N/A	Web-based Comments	14875	24
Keffaber	Paul	not provided	N/A	Web-based Comments	26013	24
Kegelman	Julia	not provided	N/A	Web-based Comments	18756	24
Kegler	Lori	not provided	N/A	Web-based Comments	55706, 55707	34
Kegler	Lori	not provided	N/A	Web-based Comments	21790	24
Kegley	Albert	albertkegley@gmail.com	N/A	Web-based comments	2431, 6877	N/A
Kehas	A	not provided	N/A	Web-based Comments	6965	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Kehl	Mike	not provided	N/A	Web-based Comments	49932	34
Kehl	Mike	not provided	N/A	Web-based Comments	24460	24
Keifner	Shannon	not provided	N/A	Web-based Comments	51198	34
Keil	Katharina	not provided	N/A	Web-based Comments	19411	24
Keil	Stephanie	not provided	N/A	Web-based Comments	29228	24
Keil	Steve	not provided	N/A	Web-based Comments	29370	24
Keim	Steve	not provided	N/A	Web-based Comments	29371	24
Keim	Steven	not provided	N/A	Web-based Comments	44906	34
Keinath	Marilyn	not provided	N/A	Web-based Comments	22791	24
Keirn	Sharon	not provided	N/A	Web-based Comments	28675	24
Keiser	Robert	not provided	N/A	Web-based Comments	53678	34
Keiter	John	not provided	N/A	Web-based Comments	18062	24
Keiter	Nancy	not provided	N/A	Web-based comments	57074	35
Keith	Allison	not provided	N/A	Web-based Comments	49525	34
Keith	Colleen	not provided	N/A	Web-based Comments	49821	34
Keith	David	not provided	N/A	Web-based Comments	12050	24
Keith	Debbie	not provided	N/A	Web-based Comments	12328	24
Keith	Jackie	not provided	N/A	Web-based Comments	16066	24
Keith	Penelope	not provided	N/A	Web-based Comments	26191	24
Keithler	Mary	not provided	N/A	Web-based Comments	49469	34
Keithline	Joy	not provided	N/A	Web-based Comments	54722	34
Keithly	Steve	flyfishkeithly@yahoo.com	N/A	Web-based comments	2991	N/A
Kekas	Victoria	not provided	N/A	Web-based Comments	31202	24
Kekule	Diana	not provided	N/A	Web-based Comments	45802, 45803	34
Keleher	Nancy	not provided	N/A	Web-based Comments	24905	24
Keleman	Marijana	not provided	N/A	Web-based Comments	53134, 53135	34
Keleman	Milana	not provided	N/A	Web-based Comments	53220, 53221	34
Kelkar	Shruti	not provided	N/A	Web-based Comments	28975	24
Kellen	Deborah	not provided	N/A	Web-based comments	706	2
Kellen-Taylor	Dr M	not provided	N/A	Web-based Comments	48762	34
Keller	Anita	not provided	N/A	Web-based Comments	50092	34
Keller	Brad	not provided	N/A	Web-based Comments	50588	34
Keller	Eileen	not provided	N/A	Web-based Comments	13544	24
Keller	Kathy	not provided	N/A	Web-based Comments	19714	24
Keller	Kim	not provided	N/A	Web-based Comments	20188	24
Keller	Kim	not provided	N/A	Web-based Comments	20189	24
Keller	Lucinda	not provided	N/A	Web-based Comments	21944	24
Keller	Sophia	not provided	N/A	Web-based Comments	52513	34
Keller	Sue	not provided	N/A	Web-based Comments	29531	24
Keller	Vicky	vkeller_2000@yahoo.com	N/A	Web-based comments	4975	N/A
Kellett	Mary	not provided	N/A	Web-based Comments	23319	24
Kelley	Carol	not provided	N/A	Web-based Comments	9955	24
Kelley	David	not provided	N/A	Web-based Comments	50021	34
Kelley	David	not provided	N/A	Web-based Comments	12051	24
Kelley	Dawn	not provided	N/A	Web-based Comments	12223	24
Kelley	Denise	not provided	N/A	Web-based comments	57287	35
kelley	dorinda	not provided	N/A	Web-based Comments	44864	34
Kelley	Dorinda	not provided	N/A	Web-based Comments	13221	24
kelley	glenna	glennarae39@gmail.com	N/A	Web-based comments	3570	N/A
Kelley	Gordon	not provided	N/A	Web-based Comments	15180	24
Kelley	Kristi	not provided	N/A	Web-based Comments	20356	24
Kelley	Margaret	not provided	N/A	Web-based Comments	22467	24
Kelley	Nathalie	natkellz@gmail.com	N/A	Web-based comments	5967	1
Kelley	Rachel	not provided	N/A	Web-based Comments	48522	34
Kelley	Sheila	not provided	N/A	Web-based Comments	28791	24
Kelley	Thea	not provided	N/A	Web-based Comments	30412	24
Kellgreen	Theresa	not provided	N/A	Web-based Comments	30436	24
Kellingley	Krystina	not provided	N/A	Web-based Comments	48084	34
Kellman	Steven G.	not provided	N/A	Web-based Comments	29480	24
Kellner	Thomas	not provided	N/A	Web-based Comments	30511	24
Kellogg	Chever	not provided	N/A	Web-based Comments	10690	24
Kellogg	Jill	not provided	N/A	Web-based comments	4359	N/A
Kellogg	Keith	not provided	N/A	Web-based Comments	49326	34
Kellogg	Patricia E	not provided	N/A	Web-based Comments	25883	24
Kellum	Jennifer	not provided	N/A	Web-based comments	57690	35
Kelly	Alice	not provided	N/A	Web-based Comments	7350	24
Kelly	Angela	not provided	N/A	Web-based Comments	51905, 54703	34
Kelly	Barbara	not provided	N/A	Web-based Comments	47761, 47762	34
Kelly	Barbara	not provided	N/A	Web-based Comments	8711	24
Kelly	Beverly	not provided	N/A	Web-based Comments	9131	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Kelly	Cathleen	not provided	N/A	Web-based Comments	10341	24
kelly	Coco	coco_show@hotmail.com	N/A	Web-based comments	1359	N/A
Kelly	Colleen	not provided	N/A	Web-based Comments	11264	24
Kelly	Cynthia	not provided	N/A	Web-based Comments	11517	24
Kelly	Danielle	not provided	N/A	Web-based comments	5432	1
Kelly	Doe	not provided	N/A	Web-based Comments	12988	24
Kelly	Elizabeth	not provided	N/A	Web-based Comments	13770	24
Kelly	Felice	felice.kelly@gmail.com	N/A	Web-based comments	6662	N/A
Kelly	Felicia	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	5558	N/A
Kelly	Frances	not provided	N/A	Web-based Comments	14481	24
Kelly	Grace	not provided	N/A	Web-based Comments	15194	24
Kelly	James	not provided	N/A	Web-based Comments	16249	24
Kelly	Jennifer	hobotrollope@hotmail.com	N/A	Web-based comments	5997	N/A
Kelly	Jim and Nina	not provided	N/A	Web-based Comments	17619	24
Kelly	Joyce	not provided	N/A	Web-based Comments	18495	24
Kelly	Kathy	not provided	N/A	Web-based Comments	19715	24
Kelly	Les	not provided	N/A	Web-based Comments	21031	24
Kelly	Linda	not provided	N/A	Web-based Comments	21313	24
Kelly	Lucy	not provided	N/A	Web-based Comments	45944	34
Kelly	Lucy	not provided	N/A	Web-based Comments	21955	24
Kelly	Maeva	not provided	N/A	Web-based Comments	45320	34
Kelly	Maeva	not provided	N/A	Web-based comments	3817, 3821, 3832, 5706, 5705	1
Kelly	Maria	not provided	N/A	Web-based Comments	46731	34
Kelly	Michelle	not provided	N/A	Web-based Comments	24358	24
Kelly	Pat	not provided	N/A	Web-based Comments	51968	34
Kelly	Patrick	not provided	N/A	Web-based Comments	25907	24
Kelly	Ralph	not provided	N/A	Web-based Comments	26592	24
Kelly	Rebecca	not provided	N/A	Web-based Comments	26739	24
Kelly	Shana	kellshan@hotmail.com	N/A	Web-based comments	5512*	N/A
Kelly	Shana	kellshan@hotmail.com	N/A	Hand-delivered or oral testimony (personally delivered)	5597	N/A
kelly	shana	not provided	N/A	Web-based Comments	48616	34
kelly	shana	rethinkcaptivity@gmail.com	N/A	Web-based comments	1727	1
Kelly	Theresa	not provided	N/A	Web-based comments	57205	35
Kelly	Theresa	not provided	N/A	Web-based Comments	30437	24
Kelly	Tim	1icetime@gmail.com	N/A	Web-based comments	199	N/A
Kelly	Tracy	not provided	N/A	Web-based Comments	30872	24
Kelly	Wayne	not provided	N/A	Web-based Comments	58661	34
Kelm	Heather	kelmkids@gmail.com	N/A	Web-based comments	932	2
Kelner	Robert	not provided	N/A	Web-based Comments	27303	24
Kelsberg	Jane	not provided	N/A	Web-based Comments	16500	24
Kelso	Carolyn	not provided	N/A	Web-based Comments	48343, 48344	34
Kelso	Carolyn	not provided	N/A	Web-based Comments	10164	24
Kelso	Kerry C.	not provided	N/A	Web-based Comments	20074	24
Kelso-Haines	Sue	not provided	N/A	Web-based Comments	29532	N/A
kelson	elizabeth	not provided	N/A	Web-based Comments	51525	34
Kelson	Elizabeth	not provided	N/A	Web-based Comments	13771	24
Keltz	Denese	not provided	N/A	Web-based Comments	12622	24
Kem	Allie	akem399@gmail.com	N/A	Web-based comments	1010	1
Kemble	Marcia	not provided	N/A	Web-based Comments	22375	24
Kemble-Teller	Evanna	not provided	N/A	Web-based Comments	51510	34
Kemink	Hanna	not provided	N/A	Web-based Comments	47684, 47685	34
Kemink	Hanna	not provided	N/A	Web-based Comments	15394	24
Kemish	Arthur	not provided	N/A	Web-based Comments	51885	34
Kemmerer	Carol	not provided	N/A	Web-based Comments	9956	24
Kemp	Douglas	not provided	N/A	Web-based Comments	13332	24
Kemp	Jane	not provided	N/A	Web-based Comments	46921	34
Kemp	Kyle	not provided	N/A	Web-based Comments	20452	24
Kemp	Marcus	not provided	N/A	Web-based Comments	22400	24
Kemp	Michelle	not provided	N/A	Web-based Comments	55147	34
Kempe	Juanita	not provided	N/A	Web-based Comments	18534	24
Kemsih	Arthur	not provided	N/A	Web-based Comments	8463	24
Kendall	Andrea	not provided	N/A	Web-based Comments	7751	24
Kendall	Brian	not provided	N/A	Web-based Comments	9485	24
Kendall	Lois	not provided	N/A	Web-based Comments	21721	24
Kendall	Michael	not provided	N/A	Web-based comments	2024	N/A
Kendall	Michael	not provided	N/A	Web-based Comments	24132	24
Kendall	William T.	not provided	N/A	Web-based Comments	54900	34
Kenderesi	Diane	not provided	N/A	Web-based comments	4610	N/A
Kendler	Jenny	not provided	N/A	Web-based Comments	17294	24
Kendrick	Aixa	not provided	N/A	Web-based Comments	7140	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Kendrick	Cindy	not provided	N/A	Web-based Comments	11085	24
Kendrick	Joanne	not provided	N/A	Web-based Comments	17810	24
Kendrick	Kathleen	not provided	N/A	Web-based Comments	58273	16
Kendrick	Missy	not provided	N/A	Web-based Comments	49660	34
Kendrick	Missy	not provided	N/A	Web-based Comments	24568	24
Kendrick	Thomas	not provided	N/A	Web-based Comments	47835	34
Kendy	Arthur	not provided	N/A	Web-based Comments	46264	34
Kenepp	Nancy	not provided	N/A	Web-based Comments	24906	24
Kengor	Brett	not provided	N/A	Web-based Comments	9449	24
Kenion	Lisa	not provided	N/A	Web-based Comments	21576	24
Kenna	Aaron	not provided	N/A	Web-based Comments	51307, 51308, 51309	34
Kennedy	Barbara	not provided	N/A	Web-based Comments	8712	24
Kennedy	Claire	not provided	N/A	Web-based Comments	53723	34
Kennedy	Colleen	not provided	N/A	Web-based Comments	57754	34
Kennedy	Colleen	not provided	N/A	Web-based Comments	11265	24
Kennedy	Constance	not provided	N/A	Web-based Comments	11340	24
Kennedy	Donald	not provided	N/A	Web-based Comments	13068	24
Kennedy	Gillian	not provided	N/A	Web-based Comments	15040	24
Kennedy	Hannelore	not provided	N/A	Web-based Comments	15422	24
Kennedy	John	not provided	N/A	Web-based Comments	18063	24
Kennedy	Jonathan	not provided	N/A	Web-based Comments	49574	34
Kennedy	Jonathan	not provided	N/A	Web-based Comments	18288	24
Kennedy	Josh	not provided	N/A	Web-based Comments	18419	24
Kennedy	Karen	not provided	N/A	Web-based Comments	48292, 48293, 52255	34
Kennedy	Karen	not provided	N/A	Web-based Comments	19142	24
Kennedy	Kelsey	not provided	N/A	Web-based Comments	48303	34
Kennedy	Kelsey	not provided	N/A	Web-based Comments	19957	24
Kennedy	Kristine	not provided	N/A	Web-based Comments	20413	24
Kennedy	Lorrae	not provided	N/A	Web-based Comments	21830	24
Kennedy	Lynn	not provided	N/A	Web-based Comments	22068	24
Kennedy	Mary Carol	not provided	N/A	Web-based Comments	23513	24
Kennedy	Michael R	not provided	N/A	Web-based Comments	24262	24
Kennedy	Patricia	not provided	N/A	Web-based Comments	49661	34
Kennedy	Rachel	rachelerinkennedy@gmail.com	N/A	Web-based comments	1925	4
Kennedy	Robert	not provided	N/A	Web-based Comments	27304	24
Kennedy	Sara	not provided	N/A	Web-based Comments	48747, 48748	34
Kennedy	Scott	not provided	N/A	Web-based Comments	50224	34
Kennedy	Scott	not provided	N/A	Web-based Comments	28478	24
Kennedy	Will	not provided	N/A	Web-based Comments	31488	24
Kenner	Kate	not provided	N/A	Web-based comments	57671	35
Kenner	Kate	not provided	N/A	Web-based Comments	19390	24
Kenneweg	Brian	not provided	N/A	Web-based Comments	9486	24
Kenney	A. L.	not provided	N/A	Web-based Comments	6987	24
Kenney	Allison	not provided	N/A	Web-based comments	552	N/A
Kenney	Dawn	not provided	N/A	Web-based Comments	12224	24
Kenney	Debbie	not provided	N/A	Web-based Comments	12329	24
Kenney	Ellen	not provided	N/A	Web-based comments	57086	35
Kenney	Jo	not provided	N/A	Web-based Comments	17649	24
Kenney	Martha J.	not provided	N/A	Web-based Comments	23142	24
Kenney	Michael	not provided	N/A	Web-based Comments	24133	24
Kenney	Sherri	not provided	N/A	Web-based Comments	28867	24
Kenngott	Karen	not provided	N/A	Web-based Comments	55427	34
Kennington	Kathryn	kkennington@uecoop.com	N/A	Web-based comments	5896	N/A
Kennison	David	not provided	N/A	Web-based Comments	12052	24
KENNISON	PAUL	not provided	N/A	Web-based Comments	26014	24
Kennon	Gail P	not provided	N/A	Web-based Comments	14726	24
Kenny	Bonnie	not provided	N/A	Web-based Comments	53730	34
Kenny	Joan	not provided	N/A	Web-based Comments	17700	24
Kenny	Patricia	not provided	N/A	Web-based Comments	25785	24
Kenosky	Dianne	not provided	N/A	Web-based Comments	12940	24
Kenosky	Joseph	not provided	N/A	Web-based Comments	18368	24
Kenosky	Michael	not provided	N/A	Web-based Comments	24134	24
Kensil	Matt	not provided	N/A	Web-based comments	908	N/A
Kent	Anthony	not provided	N/A	Web-based Comments	8335	24
Kent	Barbara Mahony	not provided	N/A	Web-based Comments	8842	24
Kent	Diane	not provided	N/A	Web-based comments	57336	35
Kent	Diane	not provided	N/A	Web-based Comments	52449	34
Kent	Diane	not provided	N/A	Web-based Comments	12857	24
Kent	Ellen	not provided	N/A	Web-based Comments	13925	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Kent	Karen	not provided	N/A	Web-based Comments	58594	34
Kent	Robert	rj.kent@hotmail.com	N/A	Web-based comments	5934	N/A
Kent	Rosemary	not provided	N/A	Web-based Comments	50972	34
kent	steve	not provided	N/A	Web-based Comments	29372	24
Kent	Tim	not provided	N/A	Web-based Comments	30610	24
Kent-Berman	Meredith	not provided	N/A	Web-based Comments	47271	34
Kent-Berman	Meredith	not provided	N/A	Web-based Comments	23975	24
Kentfield	Maren	not provided	N/A	Web-based Comments	53648	34
Kenvin	Janet	not provided	N/A	Web-based Comments	16614	24
Kenyon	Abby	not provided	N/A	Web-based Comments	7014	24
Kenyon	Carol	not provided	N/A	Web-based Comments	9957	24
Kenyon	Cody	not provided	N/A	Web-based Comments	58193	16
kenyon	dawn	not provided	N/A	Web-based Comments	12225	24
Kenyon	Leslie	not provided	N/A	Web-based Comments	21078	24
Kenyon	Lucy	not provided	N/A	Web-based Comments	53114	34
kenzer	mark	not provided	N/A	Web-based Comments	22952	24
Kenzig	Kimberly	not provided	N/A	Web-based Comments	20228	24
Kep	Paul	not provided	N/A	Web-based Comments	50498	N/A
Kepes	Lorna	not provided	N/A	Web-based Comments	21823	24
Kepic	Lawrence	not provided	N/A	Web-based Comments	20879	24
Kepley	Pam	kepleypam@gmail.com	N/A	Web-based comments	894	1
Keppel	Mary	not provided	N/A	Web-based Comments	23320	24
Kerber	Krista	not provided	N/A	Web-based Comments	20333	24
Kerg	Kathleen	not provided	N/A	Web-based Comments	55229	34
Kerkow	Carol	rbkerkow@msn.com	N/A	Web-based comments	4029	N/A
Kermer	Catherine	not provided	N/A	Web-based Comments	10290	24
Kermiet	Chris	not provided	N/A	Web-based Comments	44823	34
Kermiet	Chris	not provided	N/A	Web-based Comments	10751	24
Kern	Alicia	not provided	N/A	Web-based Comments	56061	34
Kern	Christine	not provided	N/A	Web-based Comments	10939	24
Kern	Edward	not provided	N/A	Web-based Comments	13502	24
Kern	Jeffrey	not provided	N/A	Web-based Comments	17085	24
Kern	Marie	not provided	N/A	Web-based Comments	22711	24
Kern	Sarah	sarah.m.i.kern@gmail.com	N/A	Web-based comments	6271	1
Kern	Tanya	not provided	N/A	Web-based Comments	30186	24
Kernan	Peter	peterk511@gmail.com	N/A	Web-based comments	4980	N/A
Kerns	Loretta	not provided	N/A	Web-based Comments	21761	24
Kerr	Anthony	not provided	N/A	Web-based Comments	8336	24
Kerr	Darin	driggskids@silverstar.com	N/A	Web-based comments	3394	13
Kerr	Gayle	not provided	N/A	Web-based Comments	14826	24
Kerr	Jan	not provided	N/A	Web-based Comments	16406	24
Kerr	Judi	not provided	N/A	Web-based Comments	18545	24
KERR	Laurie	lauriekerr@pacifier.com	N/A	Web-based comments	1669	N/A
kerr	lisa	not provided	N/A	Web-based Comments	21577	24
Kerr	Lori	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	5560	N/A
Kerr	Lynda	not provided	N/A	Web-based Comments	22021	24
Kerr	Noel	noelrk49@gmail.com	N/A	Web-based comments	5717	N/A
Kerr	Phil	not provided	N/A	Web-based Comments	26324	24
Kerr	Rebecca	not provided	N/A	Web-based Comments	26740	24
Kerr	Sandra	not provided	N/A	Web-based Comments	28166	24
Kerr	Vicki	not provided	N/A	Web-based Comments	31136	24
Kerrebijn	Paula	not provided	N/A	Web-based Comments	26085	24
Kerrigan	Warren	not provided	N/A	Web-based Comments	31382	24
Kerschke	Valorie	not provided	N/A	Web-based Comments	46138, 46139	34
Kerschke	Valorie	not provided	N/A	Web-based Comments	31055	24
Kerslake	Bob	bobkerslake@msn.com	N/A	Web-based comments	3836	N/A
Kerslake	Bob	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32466	N/A
Kersulis	Tonia	not provided	N/A	Web-based comments	57571	35
Kerwin	Kevin	not provided	N/A	Web-based Comments	50397	34
Keser	Rosalee	not provided	N/A	Web-based Comments	27700	24
Kesich	John	not provided	N/A	Web-based Comments	18064	24
Keske	Carrie	not provided	N/A	Web-based Comments	10202	24
Keskitalo	Candace	not provided	N/A	Web-based Comments	9754	24
Kessinger	Beth	not provided	N/A	Web-based Comments	48432	34
Kessinger	Beth	not provided	N/A	Web-based Comments	9032	24
Kessler	Harrie	not provided	N/A	Web-based Comments	52192	34
Kessler	Jesse	not provided	N/A	Web-based Comments	52537, 52610	34
Kessler	Jesse	not provided	N/A	Web-based Comments	17395	24
Kessler	Mindi	not provided	N/A	Web-based Comments	24526	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Kessler	Roberta	not provided	N/A	Web-based Comments	52862	34
Kessler	Roberta	not provided	N/A	Web-based Comments	27440	24
Kessler	Susan	not provided	N/A	Web-based Comments	29724	24
Kessler	Thomas	not provided	N/A	Web-based Comments	30512	24
Kessler	Wayne	not provided	N/A	Web-based Comments	31395	24
Kestelyn	Kathleen	not provided	N/A	Web-based Comments	19552	24
Kester	Heather	not provided	N/A	Web-based Comments	15519	24
Kester	Miriam	not provided	N/A	Web-based Comments	24552	24
Kestner	Ethan	not provided	N/A	Web-based Comments	55220, 55221	34
Ketcham Devlin	Summer	not provided	N/A	Web-based Comments	29571	24
Ketcherside	Sharon	not provided	N/A	Web-based Comments	56405	34
Ketchie	Teri	not provided	N/A	Web-based Comments	30311	24
Ketchum	Eloise	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4721	N/A
Ketelaar	Linda	not provided	N/A	Web-based Comments	21314	24
Ketels	Rose	not provided	N/A	Web-based Comments	27724	24
Kett	Georga	not provided	N/A	Web-based Comments	49045, 49046	34
Ketterer	Andrew	not provided	N/A	Web-based Comments	7824	24
Kettlestrings	Dylan	not provided	N/A	Web-based Comments	46266	34
Ketz-Robinson	Elizabeth	not provided	N/A	Web-based Comments	13772	24
Keup	Astrid	not provided	N/A	Web-based Comments	53017	34
Kever	Julianne	not provided	N/A	Web-based Comments	18805	24
Kevorkian	Kristine	not provided	N/A	Web-based Comments	46542	34
Kevorkian	Kristine	not provided	N/A	Web-based Comments	20414	24
Kew	Jane	not provided	N/A	Web-based Comments	16501	24
Keyes	Dolores	not provided	N/A	Web-based Comments	50490	34
Keyes	Josh	not provided	N/A	Web-based Comments	18420	24
Keyes	Kelsey	not provided	N/A	Web-based Comments	19958	24
Keyes	Teresa	not provided	N/A	Web-based Comments	30279	24
keys	catherine	not provided	N/A	Web-based Comments	55392	34
Keys	Kay	not provided	N/A	Web-based Comments	19823	24
Khachatryan	Khachatur	not provided	N/A	Web-based Comments	20149	24
Khachatryan	Kristine	not provided	N/A	Web-based Comments	20415	24
Khachatryan	Manyak	not provided	N/A	Web-based Comments	22315	24
Khadpe	Jay	not provided	N/A	Web-based Comments	16810	24
Khaja	Rania	not provided	N/A	Web-based Comments	26650	24
Khajavi	Barbara	not provided	N/A	Web-based Comments	8713	24
Khakee	A G	not provided	N/A	Web-based Comments	6977	24
Khalife	Edward	not provided	N/A	Web-based comments	56835	35
Khalsa	NS	not provided	N/A	Web-based Comments	25404	24
Khalsa	OngKar	not provided	N/A	Web-based Comments	25445	24
Khalsa	Satya Kaur	not provided	N/A	Web-based Comments	28445	24
Khalsa	Simran K	not provided	N/A	Web-based Comments	54452	34
Khan	Asmah	not provided	N/A	Web-based Comments	8505	24
Khan	Jennifer Anne	not provided	N/A	Web-based Comments	52848	34
Khan	Kamran	not provided	N/A	Web-based Comments	58674, 58675	34
Khan	Rani	not provided	N/A	Web-based Comments	26648	24
Khan	Shamsa	not provided	N/A	Web-based Comments	46186	34
Khan	Sulmaan	not provided	N/A	Web-based comments	56972	35
Kharsah	Cheri	not provided	N/A	Web-based Comments	10603	24
Khatchadourian	Sonia	not provided	N/A	Web-based Comments	29063	24
Khazri	Sabine	not provided	N/A	Web-based Comments	27973	24
Khazzam	Victoria	not provided	N/A	Web-based Comments	31203	24
Kheir	Odette	not provided	N/A	Web-based Comments	25423	24
Khin	Teyzardanti	not provided	N/A	Web-based Comments	30398	24
Khlyabich	Petr	not provided	N/A	Web-based Comments	58610, 58611	34
Khlyabich	Petr	not provided	N/A	Web-based Comments	26307	24
Khoe	Corwin	not provided	N/A	Web-based Comments	11389	24
Khosravi	Rashid	not provided	N/A	Web-based Comments	26654	24
Khoury	Ada	not provided	N/A	Web-based Comments	7033	24
Khoury	Mona	not provided	N/A	Web-based Comments	24607	24
Khurasee	Chinanan	not provided	N/A	Web-based Comments	10698	24
Kiaer	Sean	not provided	N/A	Web-based Comments	51817	34
Kiamco	Jessica	not provided	N/A	Web-based Comments	17433	24
Kiba	Amy	not provided	N/A	Web-based Comments	44806	34
Kiba	Amy	not provided	N/A	Web-based Comments	7626	24
Kibbey	ELIZABETH	not provided	N/A	Web-based Comments	13773	24
Kibel	Laney	laneykibel@hotmail.com	N/A	Web-based comments	3595	N/A
Kicinski	Sandra	not provided	N/A	Web-based Comments	28167	24
Kidd	John	not provided	N/A	Web-based Comments	18065	24
Kidd	Sandra	not provided	N/A	Web-based Comments	28168	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Kidner	Colin	not provided	N/A	Web-based Comments	11253	24
Kiec	Danny	not provided	N/A	Web-based Comments	11834	24
Kiechel-White	Kay	not provided	N/A	Web-based Comments	19824	24
Kiefer	Russell	srkiefer@cableone.net	N/A	Web-based comments	6544	N/A
KIEFFER	Christian	not provided	N/A	Web-based Comments	10828	24
Kieffer	Maryanna	not provided	N/A	Web-based Comments	23566	24
Kieffer	Ramsay	not provided	N/A	Web-based Comments	48539	34
Kiel	Carolyn	not provided	N/A	Web-based Comments	10165	24
Kiel	Ken	not provided	N/A	Web-based Comments	19978	24
Kiely	LaVive	not provided	N/A	Web-based Comments	20872	24
Kienpointner	Astrid	not provided	N/A	Web-based Comments	8513	24
Kienzle	Mike	not provided	N/A	Web-based Comments	24461	24
Kieran	Mark	doyouhearcolors@gmail.com	N/A	Web-based comments	2484	1
Kiernan	Elizabeth	not provided	N/A	Web-based Comments	49110	34
Kiernan	Elizabeth	not provided	N/A	Web-based Comments	13774	24
Kiesel	Constance	not provided	N/A	Web-based Comments	48923	34
kiesling	jon	not provided	N/A	Web-based Comments	55728, 55729	34
kiesling	jon	not provided	N/A	Web-based Comments	18257	24
Kiesow	Erin	not provided	N/A	Web-based Comments	44987	34
Kiesow	Mark	not provided	N/A	Web-based Comments	46821	34
Kiessling	Nicolas	kiesslin@yahoo.com	N/A	Web-based comments	4398	N/A
Kifer	L	not provided	N/A	Web-based Comments	20480	24
Kilbon	Shelley	not provided	N/A	Web-based Comments	28832	24
Kilborn	Dian	not provided	N/A	Web-based Comments	12749	24
Kilburn	Liz	not provided	N/A	Web-based Comments	21685	24
Kilcher	Andrea	not provided	N/A	Web-based Comments	53170	34
Kilcullen	Edward	not provided	N/A	Web-based Comments	13503	24
Kilduff	Amy	not provided	N/A	Web-based Comments	7627	24
Kilduff	Cara	not provided	N/A	Web-based Comments	9775	24
Kile	Sharon	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	2840	N/A
Kilgore	Nancy	not provided	N/A	Web-based Comments	44709	34
Kilgore	Nancy	not provided	N/A	Web-based Comments	24907	24
Kilgore	Susan	not provided	N/A	Web-based Comments	56560	34
Kilgore	Susan	not provided	N/A	Web-based Comments	29725	24
Kilgore	William	not provided	N/A	Web-based comments	5016	19
Kilgour	William	not provided	N/A	Web-based Comments	31555	24
Killam	Allison	not provided	N/A	Web-based Comments	7466	24
Killebrew	Ann	not provided	N/A	Web-based Comments	8054	24
Killeen	Kevin	not provided	N/A	Web-based Comments	20113	24
KILLEEN	ROBERT	not provided	N/A	Web-based Comments	27305	24
Killigrew	Robert	not provided	N/A	Web-based Comments	27306	24
Killingsworth	Rick	catchus@bendcable.com	N/A	Web-based comments	5313	8
Killingsworth	Vanessa	not provided	N/A	Web-based Comments	31066	24
Killion	Steven	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32450	29
Killion	Wendy	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32438	29
Kilpatrick	Dianne	not provided	N/A	Web-based Comments	12941	24
Kilpatrick	Wilma	not provided	N/A	Web-based Comments	31624	24
Kilroy	Dianna	not provided	N/A	Web-based Comments	12929	24
Kim	Anna	not provided	N/A	Web-based Comments	8138	24
Kim	Audrey	not provided	N/A	Web-based Comments	8530	24
Kim	Autumn	not provided	N/A	Web-based Comments	8546	24
Kim	Debbie	not provided	N/A	Web-based Comments	12330	24
Kim	Earl	not provided	N/A	Web-based Comments	13427	24
Kim	Jean	not provided	N/A	Web-based Comments	44611	34
Kim	John	not provided	N/A	Web-based Comments	48306	34
KIM	PAUL	not provided	N/A	Web-based Comments	26015	24
Kim	Sarah	not provided	N/A	Web-based Comments	51987	34
Kim	Sarah	not provided	N/A	Web-based Comments	28370	24
Kimball	Anne	not provided	N/A	Web-based Comments	8210	24
Kimball	Hubert	not provided	N/A	Web-based Comments	15814	24
Kimball	Larry	not provided	N/A	Web-based Comments	55244	34
Kimbauer	Elli	not provided	N/A	Web-based Comments	13962	24
Kimble	Dawn	not provided	N/A	Web-based Comments	12226	24
Kimerlin	Julie Kimerlin	not provided	N/A	Web-based comments	57469	35
Kimeu	Laura	not provided	N/A	Web-based Comments	45915, 45916, 45917	34
Kimmel	Donald	not provided	N/A	Web-based Comments	13069	24
Kimmel	Kevin	not provided	N/A	Web-based Comments	47883	34
Kimmel	Kevin	not provided	N/A	Web-based Comments	20114	24
Kimple	Lauren	not provided	N/A	Web-based Comments	20773	24
Kimzey	Jacqueline	not provided	N/A	Web-based Comments	52221	34

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Kinast	Leopold	not provided	N/A	Web-based Comments	49347	34
Kincaid	Lori	not provided	N/A	Web-based Comments	50631	34
Kincannon	Lisa	not provided	N/A	Web-based Comments	21578	24
kincer	m	not provided	N/A	Web-based Comments	52003, 52004	34
kincer	m	not provided	N/A	Web-based Comments	22177	24
Kincheloe	Connie	rckinch@bridgemail.com	N/A	Web-based comments	3984	11
Kindall	Michael	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4262	N/A
Kindel	Karen	not provided	N/A	Web-based Comments	47069	34
kindel	karen	not provided	N/A	Web-based Comments	19143	24
Kinder	Tanya	not provided	N/A	Web-based Comments	30187	24
Kindgren	Michael	not provided	N/A	Web-based Comments	24135	24
Kindland	Suzanne	not provided	N/A	Web-based Comments	45813	34
Kindred	Rebecca	not provided	N/A	Web-based Comments	45154	34
Kindred	Rebecca	not provided	N/A	Web-based Comments	26741	24
King	Alice	not provided	N/A	Web-based Comments	7351	24
King	Betty	not provided	N/A	Web-based Comments	9094	24
king	carol	not provided	N/A	Web-based Comments	44531	34
King	Carolyn	not provided	N/A	Web-based Comments	51699	34
King	Carolyn	not provided	N/A	Web-based Comments	10166	24
King	Catherine	not provided	N/A	Web-based Comments	10291	24
King	Chris	not provided	N/A	Web-based Comments	52715, 52716	34
King	Chris	not provided	N/A	Web-based Comments	10752	24
King	Chris	not provided	N/A	Web-based Comments	10753	24
King	Christen	not provided	N/A	Web-based Comments	52122	34
King	David	kingdw46@gmai.com	N/A	Web-based comments	5154	N/A
King	David	not provided	N/A	Web-based Comments	12053	24
king	dawn	not provided	N/A	Web-based Comments	12227	24
King	dawn king	not provided	N/A	Web-based Comments	47907	34
King	Dr. Tammy	not provided	N/A	Web-based Comments	47710	34
King	Dr. Tammy	not provided	N/A	Web-based Comments	13370	24
King	Fawn	not provided	N/A	Web-based Comments	54598	34
King	Fawn	not provided	N/A	Web-based Comments	14401	24
King	Gracie	not provided	N/A	Web-based Comments	50659	34
King	Gregory	not provided	N/A	Web-based Comments	15280	24
King	Hannah	not provided	N/A	Web-based Comments	15404	24
King	Jean	not provided	N/A	Web-based Comments	56593, 56594	34
King	Jean	not provided	N/A	Web-based Comments	16853	24
King	Jinni	not provided	N/A	Web-based Comments	17628	24
King	Joyce	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32489	N/A
King	Judith	not provided	N/A	Web-based comments	57154	35
King	Karen	not provided	N/A	Web-based comments	57568	35
King	Karen	not provided	N/A	Web-based Comments	51453	34
King	Kari	not provided	N/A	Web-based Comments	19269	24
King	Kari Sue	not provided	N/A	Web-based Comments	47909, 47910	34
king	kathleen	not provided	N/A	Web-based Comments	19553	24
KING	KERRY	not provided	N/A	Web-based Comments	20068	24
King	Kristy	not provided	N/A	Web-based Comments	20423	24
King	Kristy	not provided	N/A	Web-based Comments	20424	24
King	Leslie	not provided	N/A	Web-based Comments	21079	24
King	Lidian	not provided	N/A	Web-based Comments	21150	24
King	Linda	not provided	N/A	Web-based Comments	21315	24
King	Margaret B	not provided	N/A	Web-based Comments	22522	24
King	Marilyn	not provided	N/A	Web-based Comments	22792	24
King	Melissa	not provided	N/A	Web-based comments	57105	35
King	Michael	not provided	N/A	Web-based Comments	51625	34
King	Michael	not provided	N/A	Web-based Comments	24136	24
king	Michelle	michelleking22@icloud.com	N/A	Web-based comments	32101	1
King	Pamela	not provided	N/A	Web-based Comments	25566	24
King	Peter	pbking10@outlook.com	N/A	Web-based comments	5227	8
King	Robert	not provided	N/A	Web-based Comments	27307	24
King	Sara	not provided	N/A	Web-based Comments	28294	24
King	Stacey	not provided	N/A	Web-based Comments	29115	24
King	Susan	not provided	N/A	Web-based Comments	47989, 47990	34
King	Susan	not provided	N/A	Web-based Comments	29726	24
King	Taylor	not provided	N/A	Web-based Comments	30234	24
King	Tricia	not provided	N/A	Web-based Comments	30904	24
King	William	not provided	N/A	Web-based Comments	31556	24
Kingett	Kathie	not provided	N/A	Web-based Comments	50674	34
Kingett	Kathie	not provided	N/A	Web-based Comments	19503	24
Kington	Kimmel	not provided	N/A	Web-based Comments	20261	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Kiniry	Ed	not provided	N/A	Web-based Comments	13448	24
Kinkaid	David	not provided	N/A	Web-based Comments	12054	24
KINKEAD	TIMOTHY	not provided	N/A	Web-based Comments	30647	24
Kinnamon	Song	not provided	N/A	Web-based Comments	58645, 58646	34
Kinnamon	Song	not provided	N/A	Web-based Comments	29056	24
Kinney	Ann	not provided	N/A	Web-based Comments	8055	24
Kinney	Beth	not provided	N/A	Web-based Comments	9033	24
Kinney	Christina	tkinney@hotmail.com	N/A	Web-based comments	5490	1
kinney	Isabelle	aliciacarr03@gmail.com	N/A	Web-based comments	5510	1
Kinney	Jim	not provided	N/A	Web-based Comments	17584	24
Kinney	Kelly	not provided	N/A	Web-based comments	57116	35
Kinney	Liam	momentsofeloquence@gmail.com	N/A	Web-based comments	5514	1
KINNEY	LORETTA	not provided	N/A	Web-based Comments	47694	34
KINNEY	LORETTA	not provided	N/A	Web-based Comments	21762	24
Kinney	Mary	not provided	N/A	Web-based Comments	23321	24
Kinney	Ray	kennyr@casco.net	N/A	Web-based comments	2771	N/A
Kinnison	Norma	not provided	N/A	Web-based Comments	25385	24
Kinsch	Patty	not provided	N/A	Web-based Comments	25958	24
Kinsel	Linda	not provided	N/A	Web-based Comments	21316	24
Kinser	Wayne	not provided	N/A	Web-based Comments	31396	24
Kinsey	Barbara	not provided	N/A	Web-based Comments	8714	24
Kinsey	Jeff	not provided	N/A	Web-based Comments	51000	34
Kinsey	Jeff	not provided	N/A	Web-based Comments	17030	24
Kinsey	S	not provided	N/A	Web-based Comments	53978	34
Kinsley	Jack	not provided	N/A	Web-based Comments	16035	24
Kinslinger	Elizabeth	not provided	N/A	Web-based Comments	13775	24
Kinslow	Janis	not provided	N/A	Web-based Comments	46876	34
Kinslow	Janis	not provided	N/A	Web-based Comments	16742	24
Kinsman	Judy	not provided	N/A	Web-based Comments	52472	34
Kinsman	Judy	not provided	N/A	Web-based Comments	18691	24
Kinsman	Lillian	not provided	N/A	Web-based Comments	21167	24
Kinter	Charlyn	not provided	N/A	Web-based Comments	10577	24
Kintz	Robert	not provided	N/A	Web-based Comments	27308	24
Kinzer	Kieth	kkinzer@moscow.com	N/A	Web-based comments	3155	N/A
Kipchak	Ismet	not provided	N/A	Web-based Comments	15952	24
kipilman	jeff	not provided	N/A	Web-based Comments	51942	34
Kipling	Caroline	not provided	N/A	Web-based Comments	50022, 50023	34
Kiplinger	Susan	not provided	N/A	Web-based Comments	45321	34
Kiplinger	Susan	not provided	N/A	Web-based Comments	29727	24
Kippel	Ellen	not provided	N/A	Web-based Comments	48500	34
Kiralis	Jeff	not provided	N/A	Web-based Comments	49559	34
Kiralis	Jeff	not provided	N/A	Web-based Comments	17031	24
kirby	kim	not provided	N/A	Web-based Comments	20190	24
Kirby	S	not provided	N/A	Web-based Comments	27945	24
Kirby	Sasha	not provided	N/A	Web-based Comments	28437	24
Kirby	Stephen	not provided	N/A	Web-based Comments	29307	24
Kirby	Suzanne	not provided	N/A	Web-based Comments	30001	24
kirchhoff	joana	not provided	N/A	Web-based Comments	58249, 58282	16
Kirchner	John	not provided	N/A	Web-based Comments	52184, 52185	34
Kirchner	John	not provided	N/A	Web-based Comments	18066	24
Kirchner	Rich	not provided	N/A	Web-based Comments	45043	34
Kirchoff	Amy	not provided	N/A	Web-based Comments	7628	24
Kirk	Faith	not provided	N/A	Web-based Comments	14384	24
Kirk	Jenny	not provided	N/A	Web-based comments	57068	35
Kirk	Jessica	not provided	N/A	Web-based Comments	17434	24
Kirk	Judith	not provided	N/A	Web-based Comments	18613	24
Kirk	Karen	not provided	N/A	Web-based Comments	19144	24
Kirk	Nancy	not provided	N/A	Web-based Comments	24908	24
Kirk	Thomas S.	not provided	N/A	Web-based Comments	30570	24
Kirk	Vivian	not provided	N/A	Web-based Comments	55697	34
Kirk	Vivian	not provided	N/A	Web-based Comments	31318	24
Kirkbride	Debbie	not provided	N/A	Web-based Comments	12331	24
Kirkland	Kristy	not provided	N/A	Web-based Comments	53208, 53209	34
Kirkman	Greg	not provided	N/A	Web-based Comments	55928	34
Kirkpatrick	Jessica	kirkpatrick.jesse@gmail.com	N/A	Web-based comments	184	N/A
Kirkpatrick	Peggie	not provided	N/A	Web-based Comments	48831	34
Kirks	James	not provided	N/A	Web-based Comments	51752	34
Kirkwood	Bonnie	not provided	N/A	Web-based Comments	9304	24
Kirkwood	Geoffrey	not provided	N/A	Web-based Comments	14876	24
Kirsch	Eric	ekirsch@centurytel.net	N/A	Web-based comments	2427	N/A

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Kirsch	Richard	not provided	N/A	Web-based comments	3380	N/A
Kirsh	Julie	not provided	N/A	Web-based Comments	18855	24
Kirsh	Stuart	not provided	N/A	Web-based Comments	29491	24
Kirshbaum	David	dkirshbaum1@gmail.com	N/A	Web-based comments	6397	N/A
Kirshner	Susan	not provided	N/A	Web-based Comments	29728	24
Kirshon	Bryan	not provided	N/A	Web-based comments	57152	35
Kirtley	Chelsea	not provided	N/A	Web-based Comments	10587	24
Kirwan	John	not provided	N/A	Web-based Comments	18067	24
Kiselica	Elli	not provided	N/A	Web-based comments	1055	N/A
Kiselica	Emma	emma.kiselica5@gmail.com	N/A	Web-based comments	1046	N/A
Kiser	Allison	not provided	N/A	Web-based Comments	51997	34
Kiser	Scott	kisersd@gmail.com	N/A	Web-based comments	1821	N/A
Kishpaugh	Charles	not provided	N/A	Web-based Comments	10513	24
Kisieleski	Sandra	not provided	N/A	Web-based Comments	28169	24
Kisinger	Patricia	not provided	N/A	Web-based Comments	56456	34
Kisinyo-Locher	Clara	not provided	N/A	Web-based Comments	11155	24
Kisling	Donna	not provided	N/A	Web-based Comments	13146	24
Kisner	Elizabeth	not provided	N/A	Web-based Comments	13776	24
Kiss	Ilonka	not provided	N/A	Web-based comments	56789	35
kissane	sharon	not provided	N/A	Web-based Comments	28676	24
Kissel	Bonnie	not provided	N/A	Web-based Comments	9305	24
Kissel	Natalie	not provided	N/A	Web-based Comments	25067	24
Kissel	Patrick	not provided	N/A	Web-based Comments	25908	24
Kissilove	Betty	not provided	N/A	Web-based Comments	53404	34
Kissilove	Betty	not provided	N/A	Web-based Comments	9095	24
Kister	Karl	EIS@soov.org	N/A	Web-based comments	5874	1
Kit	Victor	not provided	N/A	Web-based Comments	47224	34
Kita	Mary	not provided	N/A	Web-based Comments	23322	24
Kitchen	Elizabeth	not provided	N/A	Web-based Comments	13777	24
kitchen	linda	not provided	N/A	Web-based Comments	56283	34
Kite	Devaun	not provided	N/A	Web-based Comments	12736	24
Kite	M F	not provided	N/A	Web-based Comments	22204	24
Kite	Richard	not provided	N/A	Web-based Comments	48475, 48476	34
Kite	Richard	not provided	N/A	Web-based Comments	26997	24
Kitson	Jamie	not provided	N/A	Web-based Comments	16362	24
Kittel	Gloria	not provided	N/A	Web-based Comments	15157	24
Kittell	Kaitlyn	not provided	N/A	Web-based Comments	52783, 52784	34
Kittelson	Ramona	not provided	N/A	Web-based Comments	26606	24
Kittinger	Kate	not provided	N/A	Web-based Comments	19391	24
Kittredge	Dan and Lilly	not provided	N/A	Web-based Comments	11684	24
Kittrell	Kerry	not provided	N/A	Web-based Comments	20069	24
Kitts	Margaret	not provided	N/A	Web-based Comments	50307	34
Kiwacz	Leslie	not provided	N/A	Web-based Comments	21080	24
Kiyokawa	Becca	rgkiyokawa@gmail.com	N/A	Web-based comments	3867	N/A
Kizildag	Halme	not provided	N/A	Web-based Comments	15385	24
Kiziria	Dodona	not provided	N/A	Web-based Comments	45925	34
Kj[unreadable]	Lone	not provided	N/A	Web-based Comments	21739	24
Kl[unreadable]ber	Rosemarie	not provided	N/A	Web-based Comments	27750	24
Klaassen	Wes	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4679	N/A
Klaber	Nica	not provided	N/A	Web-based Comments	25157	24
Klabin	Julie	not provided	N/A	Web-based Comments	18856	24
Klacik	John	not provided	N/A	Web-based Comments	44783	34
Kladke	Robin	not provided	N/A	Web-based Comments	50893, 54129	34
Klafta	Kevin	not provided	N/A	Web-based Comments	20115	24
Klagge	Alan	aklagge@ida.net	N/A	Web-based comments	6008	N/A
Klagge	Alan	not provided	N/A	Web-based Comments	52438, 52439	34
Klagge	Linda	not provided	N/A	Web-based comments	6041	N/A
Klagge	Linda	not provided	N/A	Web-based Comments	48833, 48834	34
Klagge	Linda	not provided	N/A	Web-based Comments	21317	24
Klahn	Kat	not provided	N/A	Web-based Comments	19348	24
Klapperich	Hunter	not provided	N/A	Web-based Comments	15822	24
Klasen	Mary Anne	not provided	N/A	Web-based Comments	23506	24
Klass	David	not provided	N/A	Web-based Comments	50514	34
Klass	Laura	not provided	N/A	Web-based Comments	20660	24
Klass	Naomi	not provided	N/A	Web-based Comments	50567, 50566	34
Klass	Naomi	not provided	N/A	Web-based Comments	25046	24
Klatt	Nancy	jnremuda@gmail.com	N/A	Web-based comments	3049	9
Klatt	Roxanne	not provided	N/A	Web-based Comments	27802	24
Klaudt	Hans	not provided	N/A	Web-based Comments	15427	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Klaus	Deborah	not provided	N/A	Web-based Comments	12422	24
Klausing	Michael	not provided	N/A	Web-based Comments	56168	34
Klaver	I.	not provided	N/A	Web-based Comments	55323	34
Kledzik	Theresa	not provided	N/A	Web-based Comments	54275	34
klee	peggy	not provided	N/A	Web-based Comments	26162	24
Klein	Amber	arklein0917@gmail.com	N/A	Web-based comments	822	1
Klein	Anne	not provided	N/A	Web-based Comments	8211	24
Klein	Austin	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32453	11
Klein	Barbara	not provided	N/A	Web-based Comments	8715	24
Klein	Bill	not provided	N/A	Web-based Comments	49096	34
Klein	Charlotte	not provided	N/A	Web-based Comments	10560	24
Klein	Colleen	not provided	N/A	Web-based Comments	11266	24
Klein	Darla	not provided	N/A	Web-based Comments	11871	24
Klein	Diane	not provided	N/A	Web-based Comments	12858	24
Klein	Irene	not provided	N/A	Web-based Comments	51036	34
Klein	James	not provided	N/A	Web-based Comments	50679	34
Klein	James	not provided	N/A	Web-based Comments	16250	24
Klein	Jeanne	not provided	N/A	Web-based Comments	16956	24
Klein	Judy	not provided	N/A	Web-based Comments	18692	24
Klein	Kelyn	not provided	N/A	Web-based Comments	19961	24
Klein	Lauren	not provided	N/A	Web-based Comments	20774	24
klein	leslie	not provided	N/A	Web-based Comments	56449	34
Klein	Leslie	not provided	N/A	Web-based Comments	56448	34
klein	leslie	not provided	N/A	Web-based Comments	21081	24
Klein	Linda	not provided	N/A	Web-based Comments	47086, 47087, 55032, 55033	34
Klein	Linda	not provided	N/A	Web-based Comments	21318	24
Klein	Lizzy	not provided	N/A	Web-based Comments	21707	24
Klein	Luke	not provided	N/A	Web-based Comments	51048, 51049	34
Klein	Maggie	not provided	N/A	Web-based Comments	47508	34
Klein	Phil	not provided	N/A	Web-based Comments	26325	24
Klein	Renee	not provided	N/A	Web-based Comments	52583	34
Klein	Sue	not provided	N/A	Web-based Comments	29533	24
Klein	William	not provided	N/A	Web-based Comments	58467	34
Kleinbach	Mary	not provided	N/A	Web-based Comments	49020	34
Kleinhandler	Kelly	not provided	N/A	Web-based Comments	19925	24
Kleinsmith	Shelley	not provided	N/A	Web-based Comments	28833	24
klemann	jeffrey	not provided	N/A	Web-based Comments	17086	24
Klemm	Edwina	not provided	N/A	Web-based Comments	13528	24
Klemm	Jerry	hgklemm@cableone.net	N/A	Web-based comments	5424	N/A
Klempin	Serena	not provided	N/A	Web-based Comments	48183	34
Klempin	Serena	not provided	N/A	Web-based Comments	28539	24
Klepadlo	Clarice	not provided	N/A	Web-based Comments	11168	24
Klepek	Lisa	not provided	N/A	Web-based Comments	47330, 47331	34
Klerer	Leona	not provided	N/A	Web-based Comments	21004	24
Kleysteuber	Connie	not provided	N/A	Web-based Comments	11314	24
Kliche	Diana	not provided	N/A	Web-based Comments	12775	24
Kliese	Kathleen	not provided	N/A	Web-based Comments	19554	24
Klikunas	Len	not provided	N/A	Web-based Comments	57922	16
Klimas	Christie	not provided	N/A	Web-based Comments	10837	24
Klimek	Ewelina	not provided	N/A	Web-based Comments	44561	34
Klimek	Ewelina	not provided	N/A	Web-based Comments	14368	24
Klimo	Scott	not provided	N/A	Web-based Comments	28479	24
Kline	Adam	not provided	N/A	Web-based Comments	7050	24
Kline	Allan	not provided	N/A	Web-based Comments	50996	34
Kline	Danny	not provided	N/A	Web-based Comments	11835	24
Kline	Gerald	not provided	N/A	Web-based Comments	58511, 58512	34
Kline	James	not provided	N/A	Web-based Comments	16251	24
Kline	Linda	not provided	N/A	Web-based Comments	21319	24
Kline	Melissa	not provided	N/A	Web-based Comments	23898	24
Kline	Norma	not provided	N/A	Web-based Comments	25386	24
kline	susan	not provided	N/A	Web-based Comments	29729	24
Kline	Tim	not provided	N/A	Web-based Comments	30611	24
Kline	Tim	not provided	N/A	Web-based Comments	30612	24
Kling	Joseph	not provided	N/A	Web-based comments	2040	N/A
Klingbeil	Rebecca	not provided	N/A	Web-based Comments	26742	24
Klinge	Harlin	not provided	N/A	Web-based Comments	15438	24
Klingel	Andrew	not provided	N/A	Web-based Comments	7825	24
Klingensmith	David	not provided	N/A	Web-based Comments	47495	34
Klingensmith	David	not provided	N/A	Web-based Comments	12055	24
Klinger	Eric	not provided	N/A	Web-based Comments	14114	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Klinger	Karla	not provided	N/A	Web-based Comments	50035	34
Klinkel	Jason	not provided	N/A	Web-based Comments	51248	34
Klinkel	Jason	not provided	N/A	Web-based Comments	16780	24
Klisch	Norma	not provided	N/A	Web-based Comments	53792	34
Klitz	Kevin	not provided	N/A	Web-based Comments	20116	24
Kljuce	Marija	not provided	N/A	Web-based Comments	53465	34
Kljuce	Marija	not provided	N/A	Web-based Comments	22750	24
Klock	William	not provided	N/A	Web-based Comments	45884, 50532	34
Klock	William	not provided	N/A	Web-based Comments	31557	24
Kloepfer	Elizabeth	not provided	N/A	Web-based Comments	54552	34
Kloepper	Lauren	not provided	N/A	Web-based Comments	20775	24
Klopp	Basey	not provided	N/A	Web-based Comments	8875	24
Klopp	Basey	not provided	N/A	Web-based Comments	57912	16
Klose	Susann	not provided	N/A	Web-based Comments	29935	24
Klos-Huber	Toni	not provided	N/A	Web-based Comments	49615, 49616	34
Kloss	Patricia	not provided	N/A	Web-based Comments	25786	24
Klosterman	Pete	not provided	N/A	Web-based Comments	26231	24
klotz	pat	not provided	N/A	Web-based Comments	25659	24
klotzer	natalie	not provided	N/A	Web-based Comments	25068	24
Klucsar	Barbara	not provided	N/A	Web-based Comments	8716	24
Kluepfel	Rosemary	not provided	N/A	Web-based Comments	27764	24
Klug	John	jtklug@earthlink.net	N/A	Web-based comments	5278	N/A
Klug	Robin	not provided	N/A	Web-based Comments	27498	24
Klugel	Jodie	not provided	N/A	Web-based Comments	17856	24
Klugiewicz	Mark	not provided	N/A	Web-based Comments	55542, 55543	34
Klugiewicz	Mark	not provided	N/A	Web-based Comments	22953	24
Klumb	Carole	not provided	N/A	Web-based Comments	55723, 55724	34
Klumb	Carole	not provided	N/A	Web-based Comments	10084	24
Klunder	Christine	not provided	N/A	Web-based Comments	10940	24
Klune	Nancy	not provided	N/A	Web-based Comments	24909	24
Klusaritz	Thomas	not provided	N/A	Web-based Comments	30513	24
Kluz	Terrance	not provided	N/A	Web-based Comments	30321	24
Kmonk	Nancy	not provided	N/A	Web-based Comments	51149	34
Kmonk	Nancy	not provided	N/A	Web-based Comments	24910	24
Knaak	Eric	not provided	N/A	Web-based Comments	14115	24
Knaisch	Ellen	not provided	N/A	Web-based Comments	53809	34
Knaisch	Ellen	not provided	N/A	Web-based Comments	13926	24
Knapp	Bonita	not provided	N/A	Web-based Comments	9279	24
knapp	debra	not provided	N/A	Web-based Comments	12530	24
Knapp	Jim	not provided	N/A	Web-based comments	57134	35
Knapp	Linda	not provided	N/A	Web-based Comments	21320	24
Knapp	Virginia	not provided	N/A	Web-based Comments	46664, 46665	34
Knapp	Virginia	not provided	N/A	Web-based Comments	31293	24
Knauber	Terri	not provided	N/A	Web-based Comments	55364	34
Knauber	Terri	not provided	N/A	Web-based Comments	30336	24
Knauber	William	not provided	N/A	Web-based Comments	44761	34
Knauber	William	not provided	N/A	Web-based Comments	31558	24
Knaz	Julia	not provided	N/A	Web-based Comments	56592	34
Knecht	Jill	not provided	N/A	Web-based Comments	17517	24
Knegt	Yas	not provided	N/A	Web-based Comments	31657	24
Kneidl	Joshua	not provided	N/A	Web-based Comments	18434	24
Knickerbocker	Steve	not provided	N/A	Web-based Comments	29373	24
kniep	ryan	rkniep@smwireless.net	N/A	Web-based comments	5117	13
Knife	Robert	nflcass@aol.com	N/A	Web-based comments	4868	N/A
Knight	Gloria	not provided	N/A	Web-based Comments	15158	24
Knight	Haven	not provided	N/A	Web-based Comments	15475	24
Knight	Jono	not provided	N/A	Web-based Comments	18312	24
Knight	Julia	not provided	N/A	Web-based Comments	49476	34
Knight	Julia	not provided	N/A	Web-based Comments	18757	24
Knight	Karen	not provided	N/A	Web-based Comments	19145	24
Knight	Kenneth	bushco@hotmail.com	N/A	Web-based comments	5100	N/A
Knight	Mark	not provided	N/A	Web-based Comments	53933, 53934	34
Knight	Patricia	not provided	N/A	Web-based Comments	25787	24
Knight	Tina	not provided	N/A	Web-based Comments	30678	24
knightly	david	not provided	N/A	Web-based Comments	53290	34
Knightly	David	not provided	N/A	Web-based Comments	12056	24
Knightly	Mary	not provided	N/A	Web-based Comments	23323	24
Knights	Autumn	not provided	N/A	Web-based Comments	45322	34
Knipe	Diane	not provided	N/A	Web-based Comments	12859	24
Knipp	Donna	knipp.donna@gmail.com	N/A	Web-based comments	2463	1

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
knittel	susanna	not provided	N/A	Web-based Comments	50954	34
Knoblock	Alicia	not provided	N/A	Web-based Comments	7380	24
Knoebel	Beverley	not provided	N/A	Web-based Comments	9114	24
Knoetig	Cornelia	not provided	N/A	Web-based Comments	11385	24
Knoles	Dennis	drknoles@gmail.com	N/A	Web-based comments	3934	11
Knoll	Carolyn	not provided	N/A	Web-based Comments	51343, 51344	34
Knoll	Carolyn	not provided	N/A	Web-based Comments	10167	24
Knoll	Tricia	not provided	N/A	Web-based Comments	30905	24
Knollmiller	Jeffrey	not provided	N/A	Web-based Comments	17087	24
Knopf	Alexander	not provided	N/A	Web-based Comments	45151	34
Knopp	Kristeene	not provided	N/A	Web-based Comments	48124, 48125	34
Knopp	Kristeene	not provided	N/A	Web-based Comments	20337	24
Knoten	John And Judy	not provided	N/A	Web-based Comments	50347, 51388	34
Knott	James	not provided	N/A	Web-based Comments	47817, 47818	34
Knott	Tom F	not provided	N/A	Web-based Comments	30787	24
Knowles	Cybele	not provided	N/A	Web-based Comments	44623	34
Knowles	Kristy	not provided	N/A	Web-based Comments	49776	34
Knowles	Linda	not provided	N/A	Web-based Comments	51112	34
Knowles	Lorelette	not provided	N/A	Web-based Comments	46959	34
Knowles	Lotti	not provided	N/A	Web-based Comments	21858	24
Knowlton	Brittney	not provided	N/A	Web-based comments	57681	35
Knowlton	Robert	not provided	N/A	Web-based Comments	27309	24
Knox	Alistair	not provided	N/A	Web-based Comments	7426	24
Knox	Clinton	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	56651	32
Knox	Elena	not provided	N/A	Web-based Comments	13647	24
Knox	Mayumi	not provided	N/A	Web-based Comments	23765	24
Knox	Oliver Emmett	not provided	N/A	Web-based comments	57058	35
Knox	Oliver Emmett	not provided	N/A	Web-based Comments	25434	24
Knox	Peter	not provided	N/A	Web-based Comments	54347	34
Knox	Steve	not provided	N/A	Web-based Comments	29374	24
Knox	Suzannah	not provided	N/A	Web-based Comments	29978	24
Knox	Van	not provided	N/A	Web-based Comments	56132	34
Knox	Van	not provided	N/A	Web-based Comments	31060	24
Knudsen	Gretchen	not provided	N/A	Web-based Comments	15312	24
Knudsen	Monty	not provided	N/A	Web-based Comments	24662	24
KNUDSON	ERIC	not provided	N/A	Web-based Comments	14116	24
Knudson	Mark	not provided	N/A	Web-based Comments	22954	24
knudtsen	karen	karenlynnefox@yahoo.com	N/A	Web-based comments	6184	N/A
Knurek	Sarah	not provided	N/A	Web-based Comments	28371	24
Knuteson	Mary	not provided	N/A	Web-based Comments	23324	24
Knuth	Lilly	not provided	N/A	Web-based Comments	48329	34
Knutsen	Maureen	not provided	N/A	Web-based Comments	23694	24
Knutsen	Susan	not provided	N/A	Web-based Comments	49179	34
Knutson	K.	kknutsonwa@gmail.com	N/A	Web-based comments	5096	N/A
Knutson	Pete	pete@lokifish.com	N/A	Web-based comments	2940	N/A
Knutzen	Steve	not provided	N/A	Web-based Comments	44695	34
Knuutinen	Ira	not provided	N/A	Web-based Comments	15890	24
Knyphausen	Julia	not provided	N/A	Web-based Comments	18758	24
Ko	Conrad	not provided	N/A	Web-based Comments	11330	24
Ko	Sa	not provided	N/A	Web-based comments	56777	35
Koabel	Linda	not provided	N/A	Web-based Comments	21321	24
Kobayashi	Anne	not provided	N/A	Web-based Comments	8212	24
Kobler	Marie	not provided	N/A	Web-based Comments	22712	24
Kobrenski	Richard	not provided	N/A	Web-based Comments	26998	24
Koby	Arlene	not provided	N/A	Web-based Comments	8427	24
Koch	Ad	not provided	N/A	Web-based Comments	56086	34
Koch	Ad	not provided	N/A	Web-based Comments	7031	24
Koch	Disja	not provided	N/A	Web-based Comments	12972	24
Koch	Jacqueline	Jacqueline@waptus.com	N/A	Web-based comments	1969	N/A
Koch	Jacqueline	Jacqueline@waptus.com	N/A	Hand-delivered or oral testimony (personally delivered)	4664	N/A
Koch	Joann	not provided	N/A	Web-based Comments	53961	34
Koch	Joann	not provided	N/A	Web-based Comments	17771	24
Koch	Judith A.	not provided	N/A	Web-based Comments	18664	24
Koch	Kim	not provided	N/A	Web-based Comments	48237	34
Koch	Melissa	melibeekoch@gmail.com	N/A	Web-based comments	2784	N/A
Koch	Melissa	melibeekoch@gmail.com	N/A	Hand-delivered or oral testimony (personally delivered)	5539	N/A
Koch	Peter	not provided	N/A	Web-based Comments	54564	34
Koch	Ted	ted_koch@yahoo.com	N/A	Web-based comments	2544	N/A
Koch	Tonada	not provided	N/A	Web-based Comments	30791	24
Koch	Trina	trina97462@yahoo.com	N/A	Web-based comments	3048	9

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Koch	Veronica R	not provided	N/A	Web-based Comments	31105	24
Koch	Victoria	not provided	N/A	Web-based Comments	31204	24
Kochinsky	Dr Lyle	not provided	N/A	Web-based Comments	13358	24
Kocincki	Lindsey	not provided	N/A	Web-based Comments	21499	24
Kockro	Sven	not provided	N/A	Web-based Comments	50099	34
Kodzis	Sam	not provided	N/A	Web-based Comments	28061	24
Koechner	Donna	not provided	N/A	Web-based Comments	13147	24
Koeffler	Desirae	not provided	N/A	Web-based Comments	12728	24
Koehl	Lisa	not provided	N/A	Web-based comments	57140	35
Koehl	Lisa	not provided	N/A	Web-based Comments	51222, 51223	34
koehler	carol	not provided	N/A	Web-based Comments	9958	24
Koehler	Francine	not provided	N/A	Web-based Comments	14500	24
Koehler	Sue Ellen	not provided	N/A	Web-based Comments	52281	34
Koehly	Judy	koehlycarl@hotmail.com	N/A	Web-based comments	3991	13
Koehn	Blake	not provided	N/A	Web-based Comments	9214	24
Koehn	Deborah	not provided	N/A	Web-based Comments	12423	24
Koehn	Frances	not provided	N/A	Web-based Comments	14482	24
koehnen	thomas	not provided	N/A	Web-based Comments	30514	24
Koel	Kirsten	not provided	N/A	Web-based Comments	55057	34
Koeller	David	not provided	N/A	Web-based Comments	12057	24
Koenig	Karen	not provided	N/A	Web-based Comments	45516	34
Koenig	Karen	not provided	N/A	Web-based Comments	19146	24
Koenig	Kathleen	not provided	N/A	Web-based Comments	19555	24
Koenig	Micha	not provided	N/A	Web-based Comments	24012	24
Koenig	Rosalie	not provided	N/A	Web-based Comments	27703	24
Koepfer	Adelheid	not provided	N/A	Web-based Comments	55170	34
Koepfer	Adelheid	not provided	N/A	Web-based Comments	7071	24
Koerber	Lucas	not provided	N/A	Web-based Comments	21928	24
Koerner	Chris	not provided	N/A	Web-based Comments	10754	24
Koerner	Christopher	not provided	N/A	Web-based Comments	47529	34
Koerner	John	not provided	N/A	Web-based Comments	18068	24
Koerner	Ron	not provided	N/A	Web-based Comments	27624	24
Koessel	Karl	not provided	N/A	Web-based Comments	19302	24
Koessel	Karl	not provided	N/A	Web-based Comments	19303	24
Koester	Tanya	not provided	N/A	Web-based Comments	54494, 54495	34
Koester	Tanya	not provided	N/A	Web-based Comments	30188	24
Koff	Marilyn	not provided	N/A	Web-based Comments	57917, 45302	16, 34
Koff	Marilyn	not provided	N/A	Web-based Comments	22793	24
Koffler	Douglas	not provided	N/A	Web-based Comments	51499	34
Kofler	Michelle	not provided	N/A	Web-based Comments	56444	34
Kofsky	Lauren	not provided	N/A	Web-based Comments	20776	24
Kogan	Eugene	not provided	N/A	Web-based Comments	14293	24
Kogen	Barry	not provided	N/A	Web-based comments	57513	35
Koger	Patti	not provided	N/A	Web-based Comments	51591, 51592	34
Koger	Patti	not provided	N/A	Web-based Comments	25943	24
Kogut	Gene	not provided	N/A	Web-based Comments	14851	24
Kohl	Dianea	not provided	N/A	Web-based Comments	12925	24
Kohl	Teresa	not provided	N/A	Web-based Comments	30280	24
Kohler	Amala	not provided	N/A	Web-based Comments	7512	24
Kohler	Amala Sibylle	not provided	N/A	Web-based Comments	55475, 55476	34
Kohler	Amala Sibylle	not provided	N/A	Web-based comments	56798	35
Kohler	Joe	batavia61715@yahoo.com	N/A	Web-based comments	4000	N/A
Kohler	Lilly	not provided	N/A	Web-based comments	56799	35
Kohler	Lilly	not provided	N/A	Web-based Comments	21172	24
Kohler	Lisa	not provided	N/A	Web-based Comments	21579	24
Kohler	William Lee	not provided	N/A	Web-based Comments	58003	16
Kohlmeier	Christine	not provided	N/A	Web-based comments	57063	35
Kohn	Deborah	not provided	N/A	Web-based Comments	50540	34
Kohn	Jessica	not provided	N/A	Web-based Comments	52705	34
Kohn	Laura	not provided	N/A	Web-based Comments	20661	24
Koivisto	Ellen	not provided	N/A	Web-based Comments	48818, 48819	34
Kok	Richard	not provided	N/A	Web-based Comments	53045	34
Kokal	Kristin	not provided	N/A	Web-based Comments	20381	24
Kokaly	Melissa	not provided	N/A	Web-based Comments	44641	34
Kokenge	Troy	not provided	N/A	Web-based Comments	30936	24
kokesh	Elisabeth	elisabethkokesh@yahoo.com	N/A	Web-based comments	6026	1
Kokowski	Diane	not provided	N/A	Web-based Comments	12860	24
Kokura	Judy	not provided	N/A	Web-based Comments	18693	24
Kolak	Mary	not provided	N/A	Web-based Comments	23325	24
Kolb	Marcia	not provided	N/A	Web-based Comments	52768	34

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Kolber	Hillary	not provided	N/A	Web-based Comments	15712	24
Kolberg	Vicki	not provided	N/A	Web-based Comments	31137	24
Kolchins	Patricia	not provided	N/A	Web-based Comments	25788	24
Kolesar	Lynda	not provided	N/A	Web-based Comments	22022	24
Kolff	Kees	kkolff@olympus.net	N/A	Web-based comments	4347	1
Kolinac	Kevin	not provided	N/A	Web-based Comments	20117	24
Kolken	Robert Van	not provided	N/A	Web-based Comments	51858	34
Kollasch	Mariah	mariah.kollasch@gmail.com	N/A	Web-based comments	6230	1
Kollenburg	Jim	not provided	N/A	Web-based Comments	17585	24
Kollex-Fontanges	Astrid	not provided	N/A	Web-based Comments	8514	24
Kolliner	Nancy	not provided	N/A	Web-based Comments	24911	24
Kollman	Linda	not provided	N/A	Web-based Comments	46935, 46936	34
KOLLMAN	LINDA	not provided	N/A	Web-based Comments	21322	24
Kollman	Megan	not provided	N/A	Web-based comments	6292	1
Kolodny	Stephen	not provided	N/A	Web-based Comments	47539	34
Kolomiets	Oleksandr	not provided	N/A	Web-based Comments	25428	24
Kolovou	Anna	not provided	N/A	Web-based Comments	8139	24
Kolvyn	Mazell	not provided	N/A	Web-based Comments	23767	24
Kolwicz	Robin	not provided	N/A	Web-based Comments	27499	24
Komara	M	not provided	N/A	Web-based Comments	22178	24
Komisak	Terry	not provided	N/A	Web-based Comments	30379	24
Komisarof	Jeffrey	not provided	N/A	Web-based Comments	17088	24
Komishock Jr.	Paul	not provided	N/A	Web-based Comments	55045	34
Kommerstad-Reiche	Carol	not provided	N/A	Web-based Comments	9959	24
Kommidi	Rashmika	not provided	N/A	Web-based Comments	26656	24
Koncal	Christine	cakoncal@msn.com	N/A	Web-based comments	27	N/A
Konchar	Mitchell	not provided	N/A	Web-based Comments	24572	24
Konczal	Eddie	not provided	N/A	Web-based Comments	44966, 50512	34
Kondreck	Janine	not provided	N/A	Web-based Comments	16731	24
Koneval	Maureen	not provided	N/A	Web-based Comments	23695	24
Kong	Vanessa	not provided	N/A	Web-based Comments	31067	24
Konieczny	Lynn	not provided	N/A	Web-based Comments	22069	24
Konig	Joseph	not provided	N/A	Web-based Comments	18369	24
KONIGSBERG	PAULA	not provided	N/A	Web-based Comments	26086	24
Koning	Alexander	not provided	N/A	Web-based Comments	7267	24
Koning	Gary	not provided	N/A	Web-based Comments	14777	24
Kono	Kevin	not provided	N/A	Web-based Comments	20118	24
Konstantopoulou	Nantia	not provided	N/A	Web-based Comments	25040	24
Konstanty	Kristin	not provided	N/A	Web-based Comments	48556, 48557	34
Kont	Apl	not provided	N/A	Web-based Comments	8375	24
Koo	Christine	not provided	N/A	Web-based Comments	10941	24
KOONCE	JAMES	not provided	N/A	Web-based Comments	16252	24
Koonce	Rheama	not provided	N/A	Web-based Comments	50300	N/A
Koonce	Rheama	not provided	N/A	Web-based Comments	26883	24
Koonce	Russell	not provided	N/A	Web-based Comments	27838	24
koopman	elizabeth	not provided	N/A	Web-based Comments	13778	24
Koopmans	Robert	not provided	N/A	Web-based Comments	27310	24
Kopec	John	not provided	N/A	Web-based Comments	18069	24
Kopp	Johanna	not provided	N/A	Web-based Comments	17944	24
Kopp	Leta	not provided	N/A	Web-based Comments	21118	24
Kopp	Steve	stevekopp@hotmail.com	N/A	Web-based comments	5337	N/A
Koppel	Carolyn	not provided	N/A	Web-based comments	57587	35
Koppelman	Lillian	not provided	N/A	Web-based Comments	21168	24
Koran	Jessica	not provided	N/A	Web-based Comments	17435	24
Koran	Kathleen	not provided	N/A	Web-based Comments	19556	24
KORDAS	EDMUND	not provided	N/A	Web-based Comments	52991	34
korel	melek	not provided	N/A	Web-based Comments	48847	34
Koren	Brenda	not provided	N/A	Web-based Comments	9407	24
Korhonen	Gloria	not provided	N/A	Web-based Comments	15159	24
Korhut	Olya	not provided	N/A	Web-based Comments	51121	34
Koritz	Mark	not provided	N/A	Web-based Comments	44482, 44483	34
Koritz	Mark	not provided	N/A	Web-based Comments	22955	24
Korman	Scott	not provided	N/A	Web-based Comments	28480	24
Korn	Meryle A.	not provided	N/A	Web-based Comments	58196, 46830	16, 34
Korn	Meryle A.	not provided	N/A	Web-based Comments	24001	24
Korn	Meryle A. Korn	not provided	N/A	Web-based comments	57557	35
Kornbluh	Martin	not provided	N/A	Web-based Comments	23163	24
Kornegger	Peggy	not provided	N/A	Web-based Comments	26163	24
Kornfeld	Laurel	not provided	N/A	Web-based Comments	20742	24
Kornfeld	Richard	not provided	N/A	Web-based Comments	49015	34

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Kornreich	David	not provided	N/A	Web-based Comments	12058	24
Kornrich	Bill	not provided	N/A	Web-based Comments	51745	34
Kornse	Lisa	not provided	N/A	Web-based Comments	21580	24
Korobkov	Andrey	not provided	N/A	Web-based Comments	7866	24
Korr	David	not provided	N/A	Web-based Comments	12059	24
Korshunova	Anna	not provided	N/A	Web-based Comments	8140	24
Korsmo	Chris & Neil	not provided	N/A	Web-based Comments	10797	24
Korso	Marlene	not provided	N/A	Web-based Comments	45044	34
Korso	Marlene	not provided	N/A	Web-based Comments	23041	24
Korte	Kayla	not provided	N/A	Web-based Comments	19846	24
Kortjohn	Patricia	not provided	N/A	Web-based Comments	50782	34
Kortright	Jill	not provided	N/A	Web-based Comments	17518	24
Kory	Maya	not provided	N/A	Web-based Comments	23760	24
Kory	Robin	not provided	N/A	Web-based Comments	27500	24
Kosa	Kim	kdunlapst@gmail.com	N/A	Web-based comments	4412	N/A
Kosak	Donald	not provided	N/A	Web-based Comments	47471, 47472	34
Koschinski	Sven	not provided	N/A	Web-based Comments	48086, 48087	34
Koschinski	Sven	not provided	N/A	Web-based Comments	30044	24
Kosec	Dawn	not provided	N/A	Web-based Comments	52799, 52800	34
Kosec	Dawn	not provided	N/A	Web-based Comments	12228	24
Kosem	Timothy	not provided	N/A	Web-based Comments	30648	24
Koshmrl	Mike	mkoshmrl@heacoxlaw.com	N/A	Web-based comments	5405	N/A
Koshofer	Bonnie	not provided	N/A	Web-based Comments	9306	24
Kosiancic	Christina	not provided	N/A	Web-based Comments	10861	24
Kosinski	Michelle	not provided	N/A	Web-based Comments	46471	34
Kosiorek	J	not provided	N/A	Web-based Comments	52720	34
Koski	Marci	not provided	N/A	Web-based Comments	53701	34
Koslen	Teri	not provided	N/A	Web-based Comments	30312	24
Koslofsky	Joanne	not provided	N/A	Web-based Comments	17811	24
Kosmicki	Lily	not provided	N/A	Web-based Comments	54884, 54885	34
Kosmicki	Lily	not provided	N/A	Web-based Comments	21180	24
Kosobucki	Lyla	not provided	N/A	Web-based Comments	21997	24
Kosow	Jane	not provided	N/A	Web-based Comments	16502	24
Kosowicz	Aleks	not provided	N/A	Web-based Comments	50656, 57838	34
Kosowicz	Aleks	not provided	N/A	Web-based Comments	7229	24
Kossman	Diane	not provided	N/A	Web-based Comments	52915	34
Kost	Kim	not provided	N/A	Web-based Comments	49137	34
Kostelec	Martin	not provided	N/A	Web-based Comments	23164	24
Koster	Linda	not provided	N/A	Web-based comments	56823	35
Kostic	David	not provided	N/A	Web-based Comments	12060	24
Kostruba	Gene	not provided	N/A	Web-based Comments	14852	24
Kostyniuk	Bill	not provided	N/A	Web-based Comments	49122	34
Koszelak	Norman	not provided	N/A	Web-based Comments	52625	34
Kotch	Jill	not provided	N/A	Web-based Comments	17519	24
Kothbauer	Helmut	not provided	N/A	Web-based Comments	15652	24
Kotin	Muriel	not provided	N/A	Web-based Comments	24697	24
Kotowski	Elisabeth	not provided	N/A	Web-based Comments	57806	34
Kotsis	Eleni	not provided	N/A	Web-based Comments	55888, 55889	34
Kotsis	Eleni	not provided	N/A	Web-based Comments	13656	24
Kotz	Karen	not provided	N/A	Web-based Comments	19147	24
Kotze	Caroline	not provided	N/A	Web-based Comments	10123	24
Kotzian	Julia	not provided	N/A	Web-based Comments	56516	34
Kouba	Nadine	not provided	N/A	Web-based Comments	24764	24
Kouider-Hacene	Mehdi	kouidermehdi@outlook.fr	N/A	Web-based comments	3896	1
koulermos	liz	not provided	N/A	Web-based Comments	21686	24
koury	chris	not provided	N/A	Web-based Comments	54296	34
Koury	Christopher	not provided	N/A	Web-based Comments	11016	24
Kovac	Joseph	not provided	N/A	Web-based Comments	18370	24
Kovacs	Lois	not provided	N/A	Web-based Comments	21722	24
Kovacs	Natalie	not provided	N/A	Web-based Comments	25069	24
Kovalcik	Nicholas	not provided	N/A	Web-based Comments	51060	34
Kovalcik	Nicholas	not provided	N/A	Web-based Comments	25169	24
Kovalo	John C.	not provided	N/A	Web-based Comments	18220	24
Kovar	Jo Ann	not provided	N/A	Web-based Comments	17658	24
Kovarik	Kerry	not provided	N/A	Web-based Comments	48013	34
Kovash	Chris	not provided	N/A	Web-based Comments	51255	34
Kovatis	Ron	not provided	N/A	Web-based Comments	27625	24
Kovats	A B	not provided	N/A	Web-based Comments	48832	34
Koveleski	John	not provided	N/A	Web-based Comments	18070	24
Kovich	Jenni	not provided	N/A	Web-based Comments	56570, 56571	34

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Kovshun	Rita	not provided	N/A	Web-based Comments	51263, 51264	34
Kovshun	Rita	not provided	N/A	Web-based Comments	27144	24
Kowalchick	Kathy	not provided	N/A	Web-based Comments	55574	34
Kowalchick	Kathy	not provided	N/A	Web-based Comments	19716	24
Kowalczyk	Judy	not provided	N/A	Web-based Comments	18694	24
Kowalewski	James	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58344	N/A
Kowalkowski	Hellen	not provided	N/A	Web-based comments	56910	35
Kowall	Betty	not provided	N/A	Web-based Comments	53360	34
Kowalske	Holly	not provided	N/A	Web-based Comments	15754	24
Kowalski	Carole	not provided	N/A	Web-based Comments	45426, 45427	34
Kowalski	Paul	not provided	N/A	Web-based Comments	54021, 54022	34
Kowalski	Ray	not provided	N/A	Web-based Comments	55933, 55934	34
Kozakow	Andrew	not provided	N/A	Web-based Comments	54755, 54756	34
kozanitas	cheryl	not provided	N/A	Web-based Comments	10653	24
Kozar	Randy	not provided	N/A	Web-based Comments	53556	34
Kozhanov	Pavel	not provided	N/A	Web-based Comments	51777	34
Koziel	R Damian	not provided	N/A	Web-based Comments	26486	24
Kozinski	Susan	not provided	N/A	Web-based Comments	29730	24
Kozlik	James M.	not provided	N/A	Web-based Comments	16344	24
Kozlosky	Donald	not provided	N/A	Web-based Comments	13070	24
Kozlowski	Pam	not provided	N/A	Web-based Comments	25499	24
Kozlowski	Ted	not provided	N/A	Web-based Comments	30245	24
Kozma	Jeff	not provided	N/A	Web-based Comments	17032	24
Kozma	Jeffrey	not provided	N/A	Web-based Comments	47093	34
kozoll	Scott	not provided	N/A	Web-based Comments	28481	24
Kraczkiewicz	Ernesta	not provided	N/A	Web-based Comments	14251	24
Kraemer	John	not provided	N/A	Web-based Comments	18071	24
Kraeszig	Mary	not provided	N/A	Web-based Comments	50581	34
Kraft	Cherie	not provided	N/A	Web-based Comments	10607	24
Kragh	Dorte	not provided	N/A	Web-based Comments	13285	24
Kragness	Richard	richkragness@hotmail.com	N/A	Web-based comments	3407	13
Kraimer	Rebecca	not provided	N/A	Web-based Comments	26743	24
Krajewski	Robert	not provided	N/A	Web-based Comments	27311	24
Krajnc	Miro	not provided	N/A	Web-based comments	56837	35
Krajnc	Susan	not provided	N/A	Web-based Comments	48085	34
Krakowj	Jessica	not provided	N/A	Web-based Comments	17436	24
Krall	Michael	not provided	N/A	Web-based Comments	24137	24
Kralovic	Shannon	not provided	N/A	Web-based Comments	28588	24
Kram	Linda	not provided	N/A	Web-based Comments	46358	34
Kramarz	Karen	not provided	N/A	Web-based Comments	50715	34
Kramchak	Garry	not provided	N/A	Web-based Comments	14744	24
Kramer	Drew	not provided	N/A	Web-based Comments	13375	24
kramer	Jeffrey	not provided	N/A	Web-based Comments	55897, 55898	34
Kramer	Julie	not provided	N/A	Web-based Comments	18857	24
Kramer	Kathy	not provided	N/A	Web-based Comments	52467	34
Kramer	Kelly	not provided	N/A	Web-based Comments	19926	24
Kramer	Laurel	not provided	N/A	Web-based Comments	20743	24
Kramer	Laurie	not provided	N/A	Web-based Comments	20840	24
Kramer	Leslie	not provided	N/A	Web-based Comments	21082	24
Kramer	Sister Margaret	not provided	N/A	Web-based Comments	29035	24
Kramer	Ute	not provided	N/A	Web-based comments	56907	35
Kramer	Zachary	zack_kramer@hotmail.com	N/A	Web-based comments	5373	N/A
Kramer-Druzycka	Susanne	not provided	N/A	Web-based comments	56829	35
Kramer-Smith	Lara	not provided	N/A	Web-based Comments	44998, 44999	34
Krampe	Claude	not provided	N/A	Web-based Comments	11173	24
Krampf	Jeffrey	not provided	N/A	Web-based Comments	17089	24
Kranjc	Blaz	not provided	N/A	Web-based Comments	9221	24
Kranowski	Steven	not provided	N/A	Web-based Comments	46690	34
Kranowski	Steven	not provided	N/A	Web-based Comments	29444	24
Krantz	Diana	not provided	N/A	Web-based Comments	12776	24
Krantz	Marquam	not provided	N/A	Web-based Comments	48863	34
Kranz	Anita	not provided	N/A	Web-based Comments	49484	34
Kranz	Jason	kranzjason@gmail.com	N/A	Web-based comments	5691	N/A
Krapf	Debbie	not provided	N/A	Web-based Comments	12332	24
Krash	Kallyn	not provided	N/A	Web-based Comments	44921	34
Krasicka	Karolina	not provided	N/A	Web-based Comments	19326	24
Krasko	Nola	not provided	N/A	Web-based Comments	25346	24
Krassenstein	Diane	not provided	N/A	Web-based Comments	12861	24
Kraus	Andrea	not provided	N/A	Web-based Comments	7752	24
Kraus	Barbara	not provided	N/A	Web-based Comments	8717	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Kraus	Betsy	not provided	N/A	Web-based Comments	46188	34
Kraus	Cathy	not provided	N/A	Web-based Comments	10374	24
Kraus	Marion	not provided	N/A	Web-based Comments	47298	34
Kraus	Marion	not provided	N/A	Web-based Comments	22855	24
Kraus	Michael	not provided	N/A	Web-based Comments	48870	34
Kraus	Richard	not provided	N/A	Web-based Comments	26999	24
Krause	Al	not provided	N/A	Web-based Comments	7148	24
Krause	Cheryl	not provided	N/A	Web-based Comments	53485	34
KRAUSE	DAVID	not provided	N/A	Web-based Comments	45312	34
krause	doug	not provided	N/A	Web-based Comments	52942, 52943	34
krause	doug	not provided	N/A	Web-based Comments	13300	24
Krause	Garith	garithkart@comcast.net	N/A	Web-based comments	6555	N/A
Krause	Henry	not provided	N/A	Web-based Comments	15667	24
Krause	Jodi	not provided	N/A	Web-based Comments	17847	24
krause	karen	not provided	N/A	Web-based Comments	19148	24
Krause	Krystal	not provided	N/A	Web-based Comments	54043, 54044	34
Krause	Krystal	not provided	N/A	Web-based Comments	20429	24
Krause	Liana	not provided	N/A	Web-based Comments	21140	24
Krause	Ramona	not provided	N/A	Web-based Comments	26607	24
Krause	Sandra	not provided	N/A	Web-based Comments	53708	34
Krause	Susan	not provided	N/A	Web-based Comments	29731	24
Krauss	Steven	not provided	N/A	Web-based Comments	29445	24
Krausz	Lisa	not provided	N/A	Web-based Comments	21581	24
Kraut	Paul	MAKnPAK@Gmail.com	N/A	Web-based comments	2230	N/A
Krauter	Marsha	not provided	N/A	Web-based Comments	23071	24
Kravcov Malcolm	Karen	not provided	N/A	Web-based Comments	19149	24
Kravetz	Darla	not provided	N/A	Web-based Comments	48435	34
Kravetz	Darla	not provided	N/A	Web-based Comments	11872	24
Kraviz	Jean	not provided	N/A	Web-based Comments	16854	24
Krchnavi	Kimala	not provided	N/A	Web-based Comments	47638	34
Kreager	Anita	not provided	N/A	Web-based Comments	47381	34
Kreager	Charissa	not provided	N/A	Web-based Comments	10465	24
Krebes	Elizabeth	not provided	N/A	Web-based Comments	13779	24
Krebill	Kerry	not provided	N/A	Web-based Comments	53710	34
Krebs	Kirk	not provided	N/A	Web-based Comments	45649	34
Krebs	Norman	not provided	N/A	Web-based Comments	25397	24
Kregel	Victor	not provided	N/A	Web-based Comments	31171	24
Kreger	Art	artk_midstate@fairpoint.net	N/A	Web-based comments	3933	10
Kreger	Jennifer	not provided	N/A	Web-based Comments	17212	24
Kreger	Krispin	not provided	N/A	Web-based comments	6440	1
Kreger	Valerie	not provided	N/A	Web-based Comments	31034	24
Krehbiel	Gretchen	not provided	N/A	Web-based Comments	15313	24
Krehbiel	Robb	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4273	N/A
Kreider	Tawn	tmakreider@gmail.com	N/A	Web-based comments	2006	1
Kreiner-Smith	Jill	not provided	N/A	Web-based Comments	17520	24
Kreis	Richard	globaloro@yahoo.com	N/A	Web-based comments	4877	N/A
KREISER	JUSTIN	not provided	N/A	Web-based Comments	44374	34
KREISER	JUSTIN	not provided	N/A	Web-based Comments	18954	24
KREISER	KELLY	not provided	N/A	Web-based Comments	49342	34
KREISER	KELLY	not provided	N/A	Web-based Comments	19927	24
kreitz	cynthia	not provided	N/A	Web-based Comments	11518	24
Krekeler	Nancy	not provided	N/A	Web-based Comments	51472	34
Kreklau	Nicole	not provided	N/A	Web-based Comments	57753	34
Krell	Elinore	not provided	N/A	Web-based Comments	58585, 58586	34
Krell-Bates	Diane	not provided	N/A	Web-based Comments	12862	24
Kremmers	Bill	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4758	N/A
Kremplova	Jitka	not provided	N/A	Web-based Comments	17630	24
Krems	Susan	not provided	N/A	Web-based Comments	29732	24
Kress	Chloe	not provided	N/A	Web-based Comments	49217, 49218	34
Kress	Chloe	not provided	N/A	Web-based Comments	10710	24
Kresta	Georgia	not provided	N/A	Web-based Comments	14937	24
Kretchmar	Katherine	not provided	N/A	Web-based Comments	19461	24
Kretmar	Gerald	not provided	N/A	Web-based Comments	53279	34
Kretmar	Gerald	not provided	N/A	Web-based Comments	14957	24
Kretzer	Michelle	not provided	N/A	Web-based Comments	51493	34
Kreuser	Deborah	not provided	N/A	Web-based Comments	12424	24
krichbaum	jeanie	kricbarb@isu.edu	N/A	Web-based comments	31920	N/A
Krieg	Phillip	not provided	N/A	Web-based Comments	26363	24
Krieger	Barbara	not provided	N/A	Web-based Comments	58006, 58276	16

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Krieman	Megan	not provided	N/A	Web-based Comments	23791	24
Krifka	Kassandra	not provided	N/A	Web-based Comments	19344	24
Krikorian	Linnell	not provided	N/A	Web-based Comments	58579	34
Krikorian	Linnell	not provided	N/A	Web-based Comments	21510	24
Krikorian	Lynn	not provided	N/A	Web-based Comments	46098	34
Krikorian	Lynn	not provided	N/A	Web-based Comments	22070	24
Krikorian	Sharon	not provided	N/A	Web-based Comments	28677	24
Kring	Juli	not provided	N/A	Web-based Comments	50671, 50672	34
Krinke	Jennifer	not provided	N/A	Web-based Comments	17213	24
Kripli	Paul	not provided	N/A	Web-based Comments	46179	34
Kriser	Drew	drewkriser@gmail.com	N/A	Web-based comments	4423	11
Kriser	Tamra	tamrakriser@gmail.com	N/A	Web-based comments	4420	11
Kriss	Evan Jane	not provided	N/A	Web-based Comments	50511	34
Kriss	Evan Jane	not provided	N/A	Web-based Comments	14334	24
Kristan	Michael	not provided	N/A	Web-based Comments	24138	24
Kristoff	Diane	not provided	N/A	Web-based Comments	12863	24
Kritz	Kleo Baruth	not provided	N/A	Web-based Comments	20301	24
Kritzman	Ellen	not provided	N/A	Web-based Comments	9184	24
Krizek	Leann	not provided	N/A	Web-based comments	57391	35
Krljic	M	not provided	N/A	Web-based Comments	55144	34
Kroeger	Catherine	not provided	N/A	Web-based Comments	10292	24
Kroeger	Steven	not provided	N/A	Web-based Comments	51254	34
Kroeger-Mappes	Joy	not provided	N/A	Web-based Comments	46639	34
Kroger	Christine	not provided	N/A	Web-based Comments	10942	24
Kroger	Frank	not provided	N/A	Web-based Comments	55901	34
Kroh	Sinead	not provided	N/A	Web-based comments	56780	35
Krohmer	Rose	not provided	N/A	Web-based Comments	55686	34
Krohn	Colleen	not provided	N/A	Web-based Comments	11267	24
Krohn	Diane	not provided	N/A	Web-based Comments	12864	24
Kroin	Lisa	not provided	N/A	Web-based Comments	21582	24
Kroll	Ben	cougarcruiser2@gmail.com	N/A	Web-based comments	1928	N/A
Kroll	Courtney	courtney.kroll@gmail.com	N/A	Web-based comments	1009	1
Kroll	Jim	jimk@inlandpower.com	N/A	Web-based comments	2492	7
Kroll	Lukas	not provided	N/A	Web-based comments	56782	35
Kroll	Spencer	spencekroll@gmail.com	N/A	Web-based comments	1112	N/A
Krom	Linda	not provided	N/A	Web-based Comments	21323	24
Kroman	Jason	jdkroman@hotmail.com	N/A	Web-based comments	3321	N/A
Kron	Kathy	not provided	N/A	Web-based Comments	19717	24
Kronen	Andrew	not provided	N/A	Web-based Comments	47079	34
Kronenberg	Jessica	not provided	N/A	Web-based Comments	54977	34
Kronewetter	Glen	not provided	N/A	Web-based Comments	15115	24
Krongold	Karen	not provided	N/A	Web-based Comments	19150	24
Kroninger	Ellen	not provided	N/A	Web-based Comments	54312	34
Kroop	Jeffrey	not provided	N/A	Web-based Comments	52938	34
Kroosz	Linda	not provided	N/A	Web-based Comments	21324	24
Kropczynski	Jan	not provided	N/A	Web-based Comments	47223	34
Krouse	Andrew	not provided	N/A	Web-based comments	57197	35
Krucek	Cheryl	not provided	N/A	Web-based Comments	10654	24
Kruckenberg	Mindy	not provided	N/A	Web-based Comments	24531	24
Krueger	Debbie	not provided	N/A	Web-based Comments	12333	24
Krueger	Dennis	not provided	N/A	Web-based Comments	12687	24
Krueger	Matthew	mattjoman@gmail.com	N/A	Web-based comments	5816	8
Krueger	Michelle	not provided	N/A	Web-based Comments	44833	34
Krueger	Michelle	not provided	N/A	Web-based Comments	24359	24
Krug	Catherine	not provided	N/A	Web-based Comments	10293	24
Kruger	Dori	not provided	N/A	Web-based Comments	13219	24
Kruger	Henry	not provided	N/A	Web-based Comments	53425, 53426	34
kruger	nik	not provided	N/A	Web-based Comments	51462	34
Kruger	Walter	not provided	N/A	Web-based Comments	31358	24
Krugman	Miriam	not provided	N/A	Web-based Comments	24553	24
Krupicka	Kristen	not provided	N/A	Web-based Comments	20344	24
Krupin	Paul	paul@Presari.com	N/A	Web-based comments	5094	N/A
Krupinski	K	not provided	N/A	Web-based comments	57740	35
Krupinski	Keith	not provided	N/A	Web-based Comments	19879	24
Krupnick	Jane	not provided	N/A	Web-based Comments	16503	24
Krupnick	Wendy	not provided	N/A	Web-based Comments	31432	24
Kruppa	Muriel K	not provided	N/A	Web-based Comments	24700	24
Kruschke	Pamela	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32441	33
Kruse	Ruth	not provided	N/A	Web-based Comments	27875	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Kruskal	Jocelyn	not provided	N/A	Web-based Comments	17839	24
Kruspe	Anastasia	not provided	N/A	Web-based Comments	7711	24
Krusyna	Linda	not provided	N/A	Web-based Comments	21325	24
Krutzke	Sonia	not provided	N/A	Web-based Comments	56541	34
Krygowski	Richard	not provided	N/A	Web-based Comments	27000	24
Krysinski	Brian	not provided	N/A	Web-based Comments	9487	24
Krywko	Kevin	not provided	N/A	Web-based Comments	20119	24
Krzesicki	Jenna	not provided	N/A	Web-based Comments	52054	34
Krzmarzick	Alicia	amkrzmarzick@gmail.com	N/A	Web-based comments	6681	1
Ku	Hai	lisa991@pm.me	N/A	Web-based comments	58850	N/A
Kubat	Margaret	not provided	N/A	Web-based Comments	22468	24
Kubli	Kacee	not provided	N/A	Web-based comments	57431	35
Kubrak	Dennis	not provided	N/A	Web-based Comments	12688	24
Kucera	Cathleen	not provided	N/A	Web-based Comments	10342	24
Kucewicz	Leo	not provided	N/A	Web-based Comments	20995	24
Kuciej	Walter	not provided	N/A	Web-based Comments	58178	16
Kucinskas	Lucia	not provided	N/A	Web-based Comments	21934	24
Kudabeck	Lauren	not provided	N/A	Web-based Comments	20777	24
Kudrich	Diana	not provided	N/A	Web-based Comments	53329	34
Kudrich	Diana	not provided	N/A	Web-based Comments	12777	24
Kuech	Janet	not provided	N/A	Web-based Comments	16615	24
Kuegeman	Sofia	not provided	N/A	Web-based Comments	29041	24
Kuehn	Richard	redman53_2001@yahoo.com	N/A	Web-based comments	144	N/A
Kuehnel	Robert	not provided	N/A	Web-based Comments	27312	24
Kuehnhoff	April	not provided	N/A	Web-based Comments	8385	24
Kuelbs	Elizabeth	not provided	N/A	Web-based Comments	13780	24
Kuelper	Carol	not provided	N/A	Web-based Comments	55997	34
Kuelper	Carol	not provided	N/A	Web-based Comments	9960	24
Kuen	Elaine	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4626	N/A
Kugal	Risa	not provided	N/A	Web-based comments	57042	35
Kuhlman	Lewis	not provided	N/A	Web-based Comments	21129	24
Kuhlmann	Jennifer R.	not provided	N/A	Web-based Comments	57964	16
Kuhlmey	Carey	not provided	N/A	Web-based Comments	9786	24
Kuhlow	Carrol	not provided	N/A	Web-based Comments	10211	24
Kuhn	Antonia	not provided	N/A	Web-based Comments	55319	34
kuhn	gary	not provided	N/A	Web-based Comments	14778	24
Kuhn	Greg	not provided	N/A	Web-based comments	6174	1
Kuhn	Kelly	not provided	N/A	Web-based Comments	19928	24
Kuhns	Don & Sandy	not provided	N/A	Web-based Comments	13046	24
KUHNS	Randall	not provided	N/A	Web-based Comments	50916	34
Kuhns	Sandy	not provided	N/A	Web-based Comments	28249	24
Kuhr	Logan	not provided	N/A	Web-based Comments	21712	24
Kuiper	Cygnus	not provided	N/A	Web-based Comments	11479	24
Kujala	Karen	not provided	N/A	Web-based Comments	19151	24
Kujawski	Kristie	not provided	N/A	Web-based Comments	20364	24
Kukkonen	Holly	not provided	N/A	Web-based Comments	15755	24
Kukowitsch	Pauline	not provided	N/A	Web-based comments	4015	1
Kula	Sheryl	not provided	N/A	Web-based Comments	28923	24
Kulakoff	David	not provided	N/A	Web-based Comments	12061	24
Kulcsalroval	Klalra	not provided	N/A	Web-based Comments	47360, 47361	34
Kulesza	Boguslaw	not provided	N/A	Web-based Comments	9276	24
kulkarni	Bhagyesh	bhagyeshkulkarni10@gmail.com	N/A	Web-based comments	601	N/A
Kull	Liz	not provided	N/A	Web-based Comments	21687	24
Kullander	Annelie	not provided	N/A	Web-based Comments	8268	24
Kullgren	Anna	not provided	N/A	Web-based Comments	52181	34
Kulp	Jeff	not provided	N/A	Web-based Comments	17033	24
Kulwicki	Cara	not provided	N/A	Web-based Comments	9776	24
Kumar	Chetan	not provided	N/A	Web-based Comments	10687	24
Kumar	keren	not provided	N/A	Web-based Comments	20048	24
Kumar	Tulika	not provided	N/A	Web-based Comments	49609, 49610	34
Kumiega	Lindsay	not provided	N/A	Web-based comments	57072	35
Kummer	Helen	not provided	N/A	Web-based Comments	15616	24
Kummer	Ilene	not provided	N/A	Web-based Comments	15854	24
Kummer	Marian	not provided	N/A	Web-based Comments	45481	34
Kump	Angela	not provided	N/A	Web-based Comments	7916	24
Kunasz	Adela	not provided	N/A	Web-based Comments	7064	24
Kundrot	Jennifer	not provided	N/A	Web-based Comments	17214	24
Kung	Giar-Ann	not provided	N/A	Web-based Comments	15017	24
Kung	Jack	not provided	N/A	Web-based Comments	53662, 53663	34
Kung	Jack	not provided	N/A	Web-based Comments	16036	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Kunhardt	Tom	not provided	N/A	Web-based Comments	30757	24
Kunitake	Caroline	not provided	N/A	Web-based Comments	10124	24
Kunkel	Kristin	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32333	N/A
Kunkel	Lauren	not provided	N/A	Web-based Comments	20778	24
Kunkel	Michael	not provided	N/A	Web-based Comments	24139	24
Kunkler	Tracey	not provided	N/A	Web-based Comments	30842	24
Kunsch	Lisa	not provided	N/A	Web-based Comments	21583	24
Kunselman	Dianna	not provided	N/A	Web-based Comments	55210	34
Kunstler	Karen	not provided	N/A	Web-based Comments	19152	24
kunstman	suzanne	not provided	N/A	Web-based Comments	30002	24
Kuntz	Laurie	not provided	N/A	Web-based Comments	50858	34
Kuntz	Lucille	not provided	N/A	Web-based Comments	21942	24
Kunver	Sheetal	not provided	N/A	Web-based Comments	28778	24
Kunz	Beverly	not provided	N/A	Web-based Comments	9132	24
Kunz	Cathy and Will	not provided	N/A	Web-based Comments	10401	24
Kunz	Cheri	not provided	N/A	Web-based Comments	54649, 54650	34
Kunz	Jacob	jakedkunz@gmail.com	N/A	Web-based comments	3462	N/A
Kunz	Jeff	not provided	N/A	Web-based Comments	49305	34
Kunzle	Marjorie	not provided	N/A	Web-based Comments	22879	24
Kunzman	John	not provided	N/A	Web-based Comments	18072	24
Kuper	Lori	not provided	N/A	Web-based Comments	21791	24
Kupete	Sanija	sunnykupete@gmail.com	N/A	Web-based comments	742	N/A
Kupferschmid	Mary	not provided	N/A	Web-based Comments	45545	34
Kupper	Ann	not provided	N/A	Web-based Comments	8056	24
Kurichh	Rajni	not provided	N/A	Web-based Comments	26582	24
Kuritzky	Sandra	not provided	N/A	Web-based Comments	28170	24
Kurki	Ari	not provided	N/A	Web-based Comments	8406	24
Kurman	Alexandra	not provided	N/A	Web-based Comments	7283	24
Kurth	Scot	not provided	N/A	Web-based Comments	28452	24
Kurtyn	Liuba	not provided	N/A	Web-based Comments	21675	24
Kurtz	Ken	not provided	N/A	Web-based Comments	19979	24
Kurtz	Kevin	not provided	N/A	Web-based Comments	20120	24
Kurtz	Lydia	not provided	N/A	Web-based Comments	21992	24
Kurtz	Maya	not provided	N/A	Web-based Comments	56344	34
Kurtz	Maya	not provided	N/A	Web-based Comments	23761	24
Kurtz	Thomas	not provided	N/A	Web-based Comments	30515	24
KURTZ	WILLIAM&ELLEN	not provided	N/A	Web-based Comments	31617	24
Kurz	Aaron	not provided	N/A	Web-based Comments	7000	24
Kurz	Daniel	not provided	N/A	Web-based Comments	11747	24
Kurz	David	not provided	N/A	Web-based Comments	51524	34
Kurz	Robert	not provided	N/A	Web-based Comments	27313	24
Kurzawa	Roger	rkurzawa628@gmail.com	N/A	Web-based comments	4049	N/A
Kurzer	David	not provided	N/A	Web-based Comments	12062	24
Kurzman	Pat	not provided	N/A	Web-based Comments	25660	24
Kurzweil	Andrew	not provided	N/A	Web-based Comments	47996	34
Kusakabe	Claire	not provided	N/A	Web-based Comments	54858	34
Kusakabe	Claire	not provided	N/A	Web-based Comments	11128	24
Kusel	Jane	not provided	N/A	Web-based Comments	16504	24
Kush	David	not provided	N/A	Web-based Comments	12063	24
Kushner	Annedore	not provided	N/A	Web-based Comments	8267	24
Kushner	Judy	not provided	N/A	Web-based Comments	18695	24
Kushner	Naomi	not provided	N/A	Web-based Comments	55384	34
Kusi	Jo	not provided	N/A	Web-based Comments	17650	24
Kuss	Cameron	not provided	N/A	Web-based Comments	9731	24
Kuster	Eric	not provided	N/A	Web-based Comments	14117	24
Kuster	Samuel	not provided	N/A	Web-based Comments	28101	24
Kustich	Rick	not provided	N/A	Web-based comments	2980	N/A
Kusuma	Jane	not provided	N/A	Web-based Comments	46691	34
Kuszajewski	Edward	not provided	N/A	Web-based Comments	13504	24
Kutach	Jeff	not provided	N/A	Web-based Comments	46306, 46307, 46308	34
Kutach	Jeff	not provided	N/A	Web-based Comments	17034	24
Kutchen	Jan	not provided	N/A	Web-based Comments	16407	24
Kutchins	Keith	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4233, 4263, 4620, 4648, 4702, 6947	N/A
Kuthe	Kate	not provided	N/A	Web-based Comments	58149	16
Kuticka	Sheri	not provided	N/A	Web-based Comments	28854	24
Kutilek	Michael	not provided	N/A	Web-based Comments	50499, 50505	34
Kutilek	Michael	not provided	N/A	Web-based Comments	24140	24
Kutish	David	not provided	N/A	Web-based Comments	12064	24
Kutler	Toby	not provided	N/A	Web-based Comments	30711	24
Kutter	Ellen	not provided	N/A	Web-based Comments	58374	28

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Kutz	Susan	not provided	N/A	Web-based Comments	45468	34
Kutz	Susan	not provided	N/A	Web-based Comments	29733	24
Kutzschbach	Fatima	not provided	N/A	Web-based comments	56832	35
Kuurstra	Selma	not provided	N/A	Web-based Comments	28531	24
Kuykendall	Carol	not provided	N/A	Web-based Comments	9961	24
Kuzma	Laura	not provided	N/A	Web-based Comments	45805	34
Kuzmicz	Raelynn	raelynnkuzmicz@gmail.com	N/A	Web-based comments	1140	1
Kuznier	Janys	not provided	N/A	Web-based Comments	16755	24
Kwan	Dawn	not provided	N/A	Web-based Comments	12229	24
Kwasnowski	Jill	not provided	N/A	Web-based comments	57321	35
Kwentus	Heidi	not provided	N/A	Web-based Comments	15571	24
Kwiatkowski	Jane	not provided	N/A	Web-based Comments	51079	34
Kwiatkowski	Jane	not provided	N/A	Web-based Comments	16505	24
Kwit	Marv	not provided	N/A	Web-based Comments	23194	24
Kwitt	Michael	not provided	N/A	Web-based Comments	24141	24
Kwon	Lisa	not provided	N/A	Web-based Comments	21584	24
Kydd-Sumberg	Colleen	not provided	N/A	Web-based Comments	57816	34
Kydd-Sumberg	Colleen	not provided	N/A	Web-based Comments	11268	24
Kyer	Melissa	not provided	N/A	Web-based Comments	45672	34
Kyes	Karin	not provided	N/A	Web-based Comments	49448, 49449	34
Kyes	Karin	not provided	N/A	Web-based Comments	19283	24
Kylander-Johnson	Sara	not provided	N/A	Web-based Comments	28295	24
Kyle	Shawn	not provided	N/A	Web-based Comments	28751	24
Kyriacou	Nancy	not provided	N/A	Web-based Comments	24912	24
Kyrk	John	not provided	N/A	Web-based Comments	18073	24
L	A	not provided	N/A	Web-based Comments	6966	24
L	Andrew	not provided	N/A	Web-based comments	3835	1
L	Arlene	not provided	N/A	Web-based Comments	49658	34
L	D	not provided	N/A	Web-based Comments	55625	34
L	DM	not provided	N/A	Web-based Comments	12986	24
L	Elise	not provided	N/A	Web-based Comments	13690	24
L	Emily	not provided	N/A	Web-based Comments	47867	34
L	Fred	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58395	32
L	Holly	not provided	N/A	Web-based Comments	15756	24
l	k	not provided	N/A	Web-based Comments	18976	24
L	K	not provided	N/A	Web-based Comments	18975	24
L	Keith	not provided	N/A	Web-based Comments	51003	34
L	L	not provided	N/A	Web-based Comments	48953	34
L	V	not provided	N/A	Web-based Comments	30988	24
L	Wanda	not provided	N/A	Web-based Comments	48224	34
L Amadi	T	not provided	N/A	Web-based Comments	30093	24
L Knight	Diane	not provided	N/A	Web-based Comments	12865	24
L.	Dr.	not provided	N/A	Web-based comments	32172	N/A
L.	Florence	not provided	N/A	Web-based Comments	50948, 50949	34
L.	JJ	not provided	N/A	Web-based Comments	57782	34
L.	Kay	not provided	N/A	Web-based Comments	19825	24
L.	Ken	not provided	N/A	Web-based Comments	44443	34
L.	Ron	not provided	N/A	Web-based Comments	27626	24
L. Alvarado	Gloria	not provided	N/A	Web-based Comments	15160	24
L[unreadable]	Danko	not provided	N/A	Web-based Comments	11826	24
La	Kaitlin	kaitlinberger@gmail.com	N/A	Web-based comments	965	1
La	Le	dlvleora@gmail.com	N/A	Web-based comments	31933	N/A
La Bonte	Kaitlin	not provided	N/A	Web-based comments	57433	35
La Mattina	Adriana	not provided	N/A	Web-based Comments	7086	24
La Mont	Sandra	not provided	N/A	Web-based Comments	28171	24
La Presle	Claire	not provided	N/A	Web-based Comments	11129	24
La Stella	John	not provided	N/A	Web-based Comments	18074	24
Laabs	Sharon	not provided	N/A	Web-based Comments	58376	28
Laano	Laakea	not provided	N/A	Web-based Comments	49333	34
Laano	Laakea	not provided	N/A	Web-based Comments	20507	24
Laasch	Eva	not provided	N/A	Web-based Comments	51487	34
Laase	Sandra	not provided	N/A	Web-based Comments	28172	24
Laatsch	Susan	not provided	N/A	Web-based Comments	29734	24
Labadie	Howard	not provided	N/A	Web-based Comments	58631	34
LaBarge	Alison	not provided	N/A	Web-based Comments	7410	24
LaBarge	Randy	randellob@charter.net	N/A	Web-based comments	2507	N/A
Labaton	Evelyn	not provided	N/A	Web-based Comments	14352	24
Labbe	Amelia	not provided	N/A	Web-based Comments	7579	24
Labelle	Ruth	not provided	N/A	Web-based Comments	27876	24
Laber	Ryan	not provided	N/A	Web-based Comments	27918	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Labey	Georgia	not provided	N/A	Web-based Comments	14938	24
Labiosa	Eleanor	not provided	N/A	Web-based Comments	13632	24
LaBissoniere	Britt	not provided	N/A	Web-based Comments	54504	34
Labontâ	Guylaine	not provided	N/A	Web-based Comments	15346	24
Labor	Michael	not provided	N/A	Web-based Comments	54970	34
LaBorde	Lucie	not provided	N/A	Web-based Comments	21940	24
Labriola	Maria	not provided	N/A	Web-based Comments	22604	24
LaBuda	April	not provided	N/A	Web-based Comments	8386	24
Labus	Stel	not provided	N/A	Web-based Comments	29181	24
Lacagnina	Susannah	not provided	N/A	Web-based Comments	55799	34
LaCaille	Larry	not provided	N/A	Web-based Comments	20582	24
Lacey	Brian	brian2760@att.net	N/A	Web-based comments	3669	N/A
Lachance	Franchesca	not provided	N/A	Web-based Comments	14496	24
Lachance	Seph (unreadable)	not provided	N/A	Web-based Comments	29103	24
Lachenauer	Miriam	not provided	N/A	Web-based Comments	24554	24
Lachman	Suzanne	not provided	N/A	Web-based Comments	30003	24
Lack	Gail	not provided	N/A	Web-based Comments	14695	24
Lackey	Mercedes	not provided	N/A	Web-based Comments	23966	24
Lackey	Paul	not provided	N/A	Web-based Comments	26016	24
Lackey	Teresa	ktlackey@bendcable.com	N/A	Web-based comments	2653	6
Lackmann	Karin	not provided	N/A	Web-based Comments	19284	24
Laclaire	Joy	not provided	N/A	Web-based Comments	52168	34
LaClaire	Joy	not provided	N/A	Web-based Comments	58024	16
Lacombe	Lindsey	not provided	N/A	Web-based comments	57566	35
Lacroix	Karyn	not provided	N/A	Web-based Comments	48895	34
Lacy	Kaleb	not provided	N/A	Web-based Comments	51500	34
Lacy	Kris	not provided	N/A	Web-based Comments	46282, 46283	34
Lacy	Kris	not provided	N/A	Web-based Comments	20323	24
Lacy	Liz	not provided	N/A	Web-based Comments	21688	24
LACY	MR.LYNNWARD	not provided	N/A	Web-based Comments	24681	24
Lacy	Paige	not provided	N/A	Web-based Comments	25483	24
Ladd	.L	not provided	N/A	Web-based Comments	50826	34
Ladd	Catherine	not provided	N/A	Web-based Comments	10294	24
Ladiana	Elizabeth	not provided	N/A	Web-based Comments	56455	34
Ladiana	Elizabeth	not provided	N/A	Web-based Comments	13781	24
Ladley	John F. & Karen M.	not provided	N/A	Web-based Comments	18221	24
Laemke	Matthias	not provided	N/A	Web-based Comments	23676	24
Laenen	Ann	not provided	N/A	Web-based Comments	8057	24
Lafaver	Barbara	not provided	N/A	Web-based Comments	50386, 50391	34
LAFFERTY	JAMES	nittgritty@yahoo.com	N/A	Web-based comments	1976	N/A
Lafita	Isabel	not provided	N/A	Web-based Comments	15935	24
LaFlamme	Jeff	not provided	N/A	Web-based Comments	17035	24
LaFleur	Dalicia	not provided	N/A	Web-based Comments	11640	24
Lafleur	Donnette	not provided	N/A	Web-based Comments	51868, 51869	34
LaFleur	Joseph	not provided	N/A	Web-based Comments	18371	24
lafond	david j.	not provided	N/A	Web-based Comments	58654, 58655	34
lafond	david j.	not provided	N/A	Web-based Comments	12190	24
LaFontaine	Lilliana	not provided	N/A	Web-based Comments	50080	34
LaFontaine	Paul	not provided	N/A	Web-based Comments	55357, 55358	34
Lagasse	Kevin	kevinlagassesr@gmail.com	N/A	Web-based comments	5821	N/A
LaGassey	Michael	not provided	N/A	Web-based Comments	53115, 53116	34
Lagatta	Mj	not provided	N/A	Web-based Comments	44302	34
Lagerberg	Rose	not provided	N/A	Web-based Comments	50486	34
Lagerstam	Todd	not provided	N/A	Web-based Comments	30722	24
lagerwall	Arn	a.lagerwall@gmail.com	N/A	Web-based comments	5519	1
Lagerwall	Evren	evrenfinn@gmail.com	N/A	Web-based comments	5507	1
Lago	Elisabetta	not provided	N/A	Web-based Comments	13685	24
Lagos	Karla	not provided	N/A	Web-based Comments	19314	24
LaGrave	N.	not provided	N/A	Web-based comments	3029	8
Lagrone	Amy	not provided	N/A	Web-based Comments	7629	24
Lagrone	Amy	not provided	N/A	Web-based Comments	7630	24
Lague	Rich	not provided	N/A	Web-based Comments	49988	34
LAHAIE	ANN MARIE	not provided	N/A	Web-based Comments	8110	24
Lahey	Diana	not provided	N/A	Web-based Comments	12778	24
Lahovitch	Mary	not provided	N/A	Web-based Comments	53110, 53111, 58427	34
lahovitch	mary	not provided	N/A	Web-based Comments	23326	24
Lahr	Cheryl	not provided	N/A	Web-based Comments	10655	24
Lahr	Doris	not provided	N/A	Web-based Comments	13231	1
Lahti	Roger	not provided	N/A	Web-based comments	2656	N/A
LaHue	Lynda	not provided	N/A	Web-based Comments	22023	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Lahy	Carol	not provided	N/A	Web-based Comments	9962	24
lai	dagmar	not provided	N/A	Web-based Comments	11615	24
Laib	Christa	not provided	N/A	Web-based Comments	10807	24
Laicher	Alfons	not provided	N/A	Web-based Comments	7316	24
Laidler	Anna	not provided	N/A	Web-based Comments	46937	34
Laieski	Caleb	not provided	N/A	Web-based Comments	47959	34
Laik	Jeff	not provided	N/A	Web-based Comments	50572	34
Laik	Judith	not provided	N/A	Web-based Comments	55563	34
Lain	Emily	not provided	N/A	Web-based Comments	46474	34
Lain	Emily	not provided	N/A	Web-based Comments	14019	24
Laird	Brittany	not provided	N/A	Web-based comments	57567	35
laird	michelle	not provided	N/A	Web-based Comments	24360	24
Laird	Theresa	not provided	N/A	Web-based Comments	30438	24
Laird	Victoria	not provided	N/A	Web-based Comments	31205	24
Lakatos	Tanya	not provided	N/A	Web-based Comments	50329	34
Lake	Aedan	not provided	N/A	Web-based Comments	7109	24
Lake	Daphne	not provided	N/A	Web-based Comments	11842	24
Lake	Kizzi van	not provided	N/A	Web-based Comments	44608	34
Lake	Michele	not provided	N/A	Web-based Comments	24292	24
Lake	Sue	not provided	N/A	Web-based Comments	29534	24
Lakey	Julia	jlakey@centurytel.net	N/A	Web-based comments	3537	3
Lakin	Carol	not provided	N/A	Web-based Comments	9963	24
Lakovitch	Chuck	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58749	13
Lalanne	Oceane	messoceane@live.fr	N/A	Web-based comments	1219	2
Lalli	Wendy	not provided	N/A	Web-based Comments	31433	24
Lallman	Bill	not provided	N/A	Web-based Comments	9173	24
LaLonde-Norman	Aimee	not provided	N/A	Web-based Comments	51068	34
Lalwani	Taj	not provided	N/A	Web-based Comments	48825, 48826	34
Lam	Susan	not provided	N/A	Web-based Comments	29735	24
LaMagna	Leticia	not provided	N/A	Web-based Comments	54438	34
Lamagna	Leticia	not provided	N/A	Web-based Comments	21121	24
LaMagna-Arnold	Mary	not provided	N/A	Web-based Comments	23327	24
Lamar	Kate	not provided	N/A	Web-based Comments	19392	24
Lamb	Alicia	not provided	N/A	Web-based Comments	7381	24
Lamb	Barbara	not provided	N/A	Web-based Comments	8718	24
Lamb	Barbara	not provided	N/A	Web-based Comments	57979	16
Lamb	C	not provided	N/A	Web-based Comments	53604, 53605	34
lamb	c	not provided	N/A	Web-based Comments	9675	24
Lamb	Cheryl	not provided	N/A	Web-based Comments	53830	34
Lamb	Cheryl	not provided	N/A	Web-based Comments	10656	24
Lamb	Elsie Wattson	not provided	N/A	Web-based Comments	50309	34
Lamb	Herb	not provided	N/A	Web-based Comments	15676	24
Lamb	Joni	not provided	N/A	Web-based Comments	18308	24
Lambdin	Karen	not provided	N/A	Web-based Comments	19153	24
Lambeau	Catherine	not provided	N/A	Web-based Comments	45593	34
Lambert	Beverly	not provided	N/A	Web-based Comments	52243, 52244, 52245	34
Lambert	Carol	not provided	N/A	Web-based Comments	50725	34
Lambert	Donald	not provided	N/A	Web-based Comments	13071	24
Lambert	Ed	not provided	N/A	Web-based Comments	13449	24
Lambert	Frances Marlene	not provided	N/A	Web-based Comments	14494	24
Lambert	John	not provided	N/A	Web-based Comments	52650	34
lambert	Judy	not provided	N/A	Web-based comments	2055	N/A
Lambert	Kay	not provided	N/A	Web-based Comments	45793	34
Lambert	Nancy	not provided	N/A	Web-based Comments	49511	34
Lambert	Niel	not provided	N/A	Web-based Comments	50547	34
Lambert	Niel	not provided	N/A	Web-based Comments	25270	24
Lambert	Patisu	not provided	N/A	Web-based Comments	25685	24
Lambert	Sandra	not provided	N/A	Web-based Comments	48729	34
lambert	sylvyane	not provided	N/A	Web-based Comments	30084	24
Lambert	Wendy	not provided	N/A	Web-based Comments	31434	24
Lambeth	Larry	not provided	N/A	Web-based Comments	50847	34
Lambiase	Tacy	not provided	N/A	Web-based Comments	30103	24
Lambkin	Sonya	not provided	N/A	Web-based comments	57109	35
Lambros	Kathryn	not provided	N/A	Web-based Comments	54419	34
LambWilson	Glenda	not provided	N/A	Web-based Comments	15124	24
Lamere	Alexis	not provided	N/A	Web-based Comments	48713	34
LaMere	Alexis	not provided	N/A	Web-based Comments	7309	24
Lamesse	Bruce	not provided	N/A	Web-based Comments	9615	24
Lamia	Tina	not provided	N/A	Web-based Comments	51408	34
Lamitie-King	Karen	not provided	N/A	Web-based Comments	19154	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Lamke	Richard	not provided	N/A	Web-based Comments	47718	34
Lamke	Richard	not provided	N/A	Web-based Comments	27001	24
Lammers	Matt	not provided	N/A	Web-based Comments	23619	24
lammlein	lynn	not provided	N/A	Web-based Comments	22071	24
Lamons	Kristina	not provided	N/A	Web-based Comments	56022	34
LaMont	Erika	not provided	N/A	Web-based Comments	14196	24
Lamontagne	Caitlin	not provided	N/A	Web-based Comments	9713	24
Lamoreaux	Andi	not provided	N/A	Web-based Comments	7716	24
Lamoreaux	Kristy	not provided	N/A	Web-based Comments	51548	34
Lamoree	Candace	not provided	N/A	Web-based Comments	55791	34
Lamorte	Bill	not provided	N/A	Web-based Comments	48584	34
Lamothe	Lisa	not provided	N/A	Web-based comments	56724	35
Lamparella	Aubrae	not provided	N/A	Web-based Comments	58489, 58490	34
Lampe	Fred	not provided	N/A	Web-based Comments	14573	24
Lampkin	Olga	not provided	N/A	Web-based Comments	47103	34
Lampon	Vanessa	not provided	N/A	Web-based comments	56838	35
Lamprey	Pacific	not provided	N/A	Web-based comments	21	N/A
Lampson	John	not provided	N/A	Web-based Comments	48703	34
Lamson	Glen	not provided	N/A	Web-based comments	5276	N/A
Lamuniere	Suzanne	not provided	N/A	Web-based Comments	30004	24
Lamy	Chantal	not provided	N/A	Web-based Comments	47769, 47770	34
Lanagan	Pamela	not provided	N/A	Web-based Comments	52700	34
Lanahan	Fred	not provided	N/A	Web-based Comments	14574	24
Lancaster	Caleb	not provided	N/A	Web-based Comments	9720	24
Lancia	Debra	not provided	N/A	Web-based Comments	12531	24
Lancione	Linda	not provided	N/A	Web-based Comments	21326	24
Land	Kelly	not provided	N/A	Web-based Comments	19929	24
Landau	Charles	not provided	N/A	Web-based Comments	46085	34
Landau	Doug	not provided	N/A	Web-based Comments	45102	34
landau	Doug	not provided	N/A	Web-based Comments	13301	24
Landau	Judith	not provided	N/A	Web-based Comments	58177	16
Landay, TSSF, MA.	Sister Avril Pauline	not provided	N/A	Web-based Comments	29031	24
Lande	Robin	not provided	N/A	Web-based Comments	27501	24
Landeen	Clint	not provided	N/A	Web-based Comments	11226	24
Landeen	Gayle	landeens1952@gmail.com	N/A	Web-based comments	3705	N/A
Lander	HB	not provided	N/A	Web-based Comments	15492	24
Lander	Jackie	not provided	N/A	Web-based comments	56879	35
Landers	Gayle	not provided	N/A	Web-based Comments	14827	24
Landers	Heather	not provided	N/A	Web-based Comments	15520	24
Landers	Kimie	not provided	N/A	Web-based Comments	20259	24
Landgraf-Neuhaus	Gabriella	not provided	N/A	Web-based Comments	14651	24
Landgrebe	Gary	not provided	N/A	Web-based Comments	50686	34
Landgrebe	Gary and Seraphina	not provided	N/A	Web-based Comments	14809	24
Landi	Dennis	not provided	N/A	Web-based Comments	53147, 53148	34
Landis	Jesse	not provided	N/A	Web-based Comments	17396	24
Landis	Kyle	not provided	N/A	Web-based Comments	20453	24
Landis	Luella	not provided	N/A	Web-based Comments	21967	24
Landis	Moira	not provided	N/A	Web-based Comments	55628	34
Landman	Douglas	not provided	N/A	Web-based Comments	44465	34
landman	Holly	not provided	N/A	Web-based Comments	46140, 46141	34
Landman	Stefanie	not provided	N/A	Web-based Comments	45606	34
Landon	Christine	not provided	N/A	Web-based Comments	10943	24
Landon	Lynne	not provided	N/A	Web-based Comments	22142	24
Landress	Julia	not provided	N/A	Web-based Comments	18759	24
Landrum	Karen	not provided	N/A	Web-based Comments	19155	24
Landry	Justin	not provided	N/A	Web-based Comments	18955	24
Landry	Margaret	not provided	N/A	Web-based Comments	22469	24
Landry	Ryan	not provided	N/A	Web-based Comments	27919	24
Landsberg	Carol	not provided	N/A	Web-based Comments	57848	34
Landsberg	Marisa	not provided	N/A	Web-based Comments	56403	34
Lane	Anne	not provided	N/A	Web-based Comments	8213	24
Lane	Beth	not provided	N/A	Web-based Comments	51352	34
Lane	Brenda	lanestable@gmail.com	N/A	Web-based comments	3748	N/A
Lane	Caroline	not provided	N/A	Web-based Comments	52916	34
Lane	Chester	not provided	N/A	Web-based Comments	10686	24
Lane	Dianne	not provided	N/A	Web-based Comments	12942	24
Lane	Eric	not provided	N/A	Web-based Comments	14118	24
Lane	Gary	riverrats04@gmail.com	N/A	Web-based comments	2800	N/A
lane	jean	not provided	N/A	Web-based Comments	16855	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
lane	jeff	not provided	N/A	Web-based Comments	17036	24
Lane	Kathleen	not provided	N/A	Web-based Comments	19557	24
Lane	Laura	not provided	N/A	Web-based Comments	54523	34
Lane	Mindy	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32518	N/A
Lane	Patrick	not provided	N/A	Web-based Comments	25909	24
Lane	Priscilla	not provided	N/A	Web-based Comments	26445	24
Lane	Robert	robert.aaron.lane@gmail.com	N/A	Web-based comments	1249	N/A
Lane	Sandra	not provided	N/A	Web-based Comments	47954	34
Lane	Sandra	not provided	N/A	Web-based Comments	28173	24
Lane	Stephanie	not provided	N/A	Web-based Comments	29229	24
Lane	Susan	not provided	N/A	Web-based Comments	29736	24
Lane	Tim	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	56661, 32519	N/A
lane	william	not provided	N/A	Web-based Comments	54292	34
Lane R.N.	Mindy	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	56662	N/A
Lanfranchi	Lisa	not provided	N/A	Web-based comments	1472	1
Lang	April	not provided	N/A	Web-based Comments	44601	34
Lang	Carine	not provided	N/A	Web-based Comments	9796	24
Lang	Diane	not provided	N/A	Web-based Comments	48261	34
LANG	Dominique	not provided	N/A	Web-based Comments	13006	24
Lang	Erika	not provided	N/A	Web-based Comments	14197	24
Lang	kar	not provided	N/A	Web-based Comments	51984, 51983	34
Lang	kar	not provided	N/A	Web-based Comments	19019	24
lang	ken	not provided	N/A	Web-based Comments	46038	34
Lang	Liana	not provided	N/A	Web-based Comments	46881, 50699	34
Lang	Liana	not provided	N/A	Web-based Comments	21141	24
Lang	Lynn C.	not provided	N/A	Web-based Comments	22111	24
Lang	Nathan	not provided	N/A	Web-based Comments	25100	24
Lang	Pat	not provided	N/A	Web-based Comments	25661	24
Lang	Patricia	not provided	N/A	Web-based Comments	46592	34
Lang	Patricia	not provided	N/A	Web-based Comments	25789	24
Lang	Sabine	not provided	N/A	Web-based Comments	27974	24
Langan	Barbara	not provided	N/A	Web-based Comments	51770	34
Langan	Eileen	not provided	N/A	Web-based Comments	55568, 55569, 55570	34
Langas	Randi	not provided	N/A	Web-based Comments	26624	24
Lange	Chris	not provided	N/A	Web-based Comments	10755	24
LANGE	DAVID	DLANGE68@GMAIL.COM	N/A	Web-based comments	5897	N/A
Lange	Dennis	not provided	N/A	Web-based Comments	12689	24
Lange	Hannah	not provided	N/A	Web-based Comments	15405	24
Lange	Marlena	not provided	N/A	Web-based Comments	44807, 44882	34
LANGe	Marlena	not provided	N/A	Web-based Comments	23034	24
Lange	Sabine	not provided	N/A	Web-based comments	56791	35
Lange	Susan	not provided	N/A	Web-based Comments	45087	34
Lange	Theresa	not provided	N/A	Web-based Comments	54739, 54740	34
Lange	Theresa	not provided	N/A	Web-based Comments	30439	24
Langefors	Beatrice	not provided	N/A	Web-based Comments	8891	24
Langelier	Karen	not provided	N/A	Web-based Comments	48456, 48457	34
Langelier	Karen	not provided	N/A	Web-based Comments	19156	24
LANGELOTTI	ALEXIS	not provided	N/A	Web-based Comments	51523	34
Langen	Cliff Von	not provided	N/A	Web-based Comments	47235	34
Langendorfer	Tyler	not provided	N/A	Web-based Comments	30961	24
Langenkamp	Ashlee	not provided	N/A	Web-based Comments	8477	24
Langer-Gault	Karen	not provided	N/A	Web-based Comments	19157	24
Langevin	M.J.	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	56612	N/A
Langford	Charles	not provided	N/A	Web-based Comments	45592	34
Langford	Charles	not provided	N/A	Web-based Comments	10514	24
Langford	Clinton B.	not provided	N/A	Web-based Comments	11228	24
Langford	Jean	not provided	N/A	Web-based Comments	50920	34
Langford	Jean	not provided	N/A	Web-based Comments	16856	24
Langham	Melissa	not provided	N/A	Web-based Comments	23899	24
langland	karen	not provided	N/A	Web-based Comments	19158	24
Langland	Laureen	not provided	N/A	Web-based Comments	20727	24
Langley	Erika	not provided	N/A	Web-based Comments	49657	34
Langley	Wayne	not provided	N/A	Web-based Comments	56031	34
Langley	Wayne	not provided	N/A	Web-based Comments	31397	24
langmead	greta	not provided	N/A	Web-based Comments	15304	24
Langmuir	Jonathan	not provided	N/A	Web-based Comments	18289	24
Langstaff	Alvin	not provided	N/A	Web-based comments	4973	N/A
Langston	Zed	not provided	N/A	Web-based Comments	54708	34
Langstraat	Amanda	not provided	N/A	Web-based comments	57632	35
Lanka	Mike	not provided	N/A	Web-based Comments	24462	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Lankford	Clayann	not provided	N/A	Web-based Comments	49542	34
Lankster	Kori	not provided	N/A	Web-based Comments	20309	24
Lanphear	Leslie	not provided	N/A	Web-based comments	57024	35
Lanphear	Leslie	not provided	N/A	Web-based Comments	21083	24
Lanphier-garcia	Stacy	not provided	N/A	Web-based Comments	29139	24
Lansdale	Karen	not provided	N/A	Web-based Comments	19159	24
Lansdon	Lynne	not provided	N/A	Web-based Comments	58278	16
Lanskaya	Natalie	not provided	N/A	Web-based Comments	25070	24
Lanskey	Marcus	not provided	N/A	Web-based Comments	22401	24
Lanteigne	Aimee	amlante55@gmail.com	N/A	Web-based comments	3204	N/A
Lantow	Susan	not provided	N/A	Web-based Comments	29737	24
Lantsbery	Christine	not provided	N/A	Web-based Comments	58684	34
Lantsbery	Christine	not provided	N/A	Web-based Comments	10944	24
Lantz	Jamie	not provided	N/A	Web-based Comments	16363	24
Lantz	Leo	not provided	N/A	Web-based Comments	20996	24
Lanus	Howard	not provided	N/A	Web-based Comments	15800	24
lanzoni	jane	not provided	N/A	Web-based Comments	16506	24
Laos	Cheri	not provided	N/A	Web-based Comments	54888	34
LaPadula	Marco	not provided	N/A	Web-based Comments	22392	24
Lapic	Jeffrey	not provided	N/A	Web-based Comments	17090	24
Lapides	Nate	not provided	N/A	Web-based Comments	25097	24
Lapidus	Barbara	not provided	N/A	Web-based Comments	8719	24
Lapierre	Debbie	not provided	N/A	Web-based comments	57174	35
LaPlante	Angela	not provided	N/A	Web-based Comments	7917	24
laplante	sharron	not provided	N/A	Web-based Comments	28735	24
Laplante	Virginia	not provided	N/A	Web-based Comments	51341	34
Lapof	Katy	not provided	N/A	Web-based Comments	46204	34
LaPointe	Drena	not provided	N/A	Web-based Comments	48750, 48751	34
LaPointe	Drena	not provided	N/A	Web-based Comments	13372	24
LaPolla	John	not provided	N/A	Web-based comments	57082	35
LAPORTA	ROBBIN	not provided	N/A	Web-based Comments	46568	34
LaPorta	Robbin	not provided	N/A	Web-based Comments	27196	24
Laporte	Candace	not provided	N/A	Web-based Comments	49397, 49398	34
LaPorte	Candace	not provided	N/A	Web-based Comments	9755	24
LaPorte	Michele	not provided	N/A	Web-based Comments	46299, 46300	34
LaPorte	Michele	not provided	N/A	Web-based Comments	24293	24
Lapp	Janina	not provided	N/A	Web-based Comments	16724	24
Lappin	James	not provided	N/A	Web-based Comments	16253	24
Lappin	Marianne	not provided	N/A	Web-based Comments	22683	24
Lapsley	Ed	elapsley@cableone.net	N/A	Web-based comments	2202	N/A
Lara	Dan	not provided	N/A	Web-based Comments	11660	24
Lara	James De	not provided	N/A	Web-based Comments	55356	34
Lara Leon	Ruby	not provided	N/A	Web-based Comments	27815	24
Lardeur	Nicole	not provided	N/A	Web-based Comments	25241	24
Lardiere-Grison	Darlene	not provided	N/A	Web-based Comments	11885	24
Largmann	Merrie	not provided	N/A	Web-based Comments	23992	24
Larimer	Adrienne	not provided	N/A	Web-based Comments	7096	24
Larimer	Bernadette	not provided	N/A	Web-based Comments	44489	34
Larimer	Larry and Elaine J.	not provided	N/A	Web-based Comments	20595	24
Larimore	Reid	not provided	N/A	Web-based Comments	49261	34
Lario	Rocio	not provided	N/A	Web-based Comments	27565	24
Larish	Linda	not provided	N/A	Web-based Comments	21327	24
Larivey	Dan	not provided	N/A	Web-based Comments	50211, 50212	34
Larkin	Carol	calarkin45@gmail.com	N/A	Web-based comments	3646	N/A
Larkin	David	not provided	N/A	Web-based comments	2378	N/A
Larkin	Jackie	not provided	N/A	Web-based Comments	16067	24
Larkin	Kelly	not provided	N/A	Web-based Comments	53278	34
Larkin	Samuel	samlarkin17@gmail.com	N/A	Web-based comments	5058	N/A
Larkin	Steve	not provided	N/A	Web-based Comments	29375	24
Larkin-Gilmore	Juliet	juliet.larkingilmore@gmail.com	N/A	Web-based comments	688	N/A
Larkins	Christina	not provided	N/A	Web-based Comments	49690	34
Larky	Steven	not provided	N/A	Web-based Comments	29446	24
Larner	Herbert	not provided	N/A	Web-based Comments	15681	24
Larocca	Katherine	not provided	N/A	Web-based Comments	19462	24
LaRocca	Lulu	not provided	N/A	Web-based Comments	21979	24
LaRoche	Montana	molaroche13@gmail.com	N/A	Web-based comments	668	N/A
Larose	Kalia	not provided	N/A	Web-based Comments	55825	34
LaRose	Yvette	not provided	N/A	Web-based Comments	50131	34
LaRosee	Angie	angie@aveafp.com	N/A	Web-based comments	4292	N/A
Larrain	francesca	not provided	N/A	Web-based Comments	14495	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
LARREDE	Dominique	not provided	N/A	Web-based Comments	13007	24
Larry	Andrea	not provided	N/A	Web-based comments	4141	N/A
Larsen	Ady	not provided	N/A	Web-based Comments	7107	24
Larsen	Brent	not provided	N/A	Web-based Comments	48555	34
Larsen	David	not provided	N/A	Web-based Comments	12065	24
Larsen	Hans	not provided	N/A	Web-based Comments	15428	24
Larsen	Janice	not provided	N/A	Web-based Comments	16687	24
Larsen	Jennifer	not provided	N/A	Web-based Comments	56029	34
Larsen	Louise	not provided	N/A	Web-based Comments	47461	34
Larsen	Nancy	not provided	N/A	Web-based Comments	24913	24
Larsen	Shelley	not provided	N/A	Web-based Comments	28834	24
Larsen	Tim	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32362	13
Larson	Barbara	not provided	N/A	Web-based Comments	8720	24
Larson	Bonnie	not provided	N/A	Web-based Comments	9307	24
Larson	Brian	not provided	N/A	Web-based Comments	48180	34
Larson	Bruce	larsonbn19@gmail.com	N/A	Web-based comments	5052*	N/A
Larson	Candace	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4662	N/A
Larson	carrielynn	not provided	N/A	Web-based Comments	10209	24
Larson	Darcie	darcielarson@yahoo.com	N/A	Web-based comments	4144	N/A
Larson	Don	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	56650	N/A
Larson	Elaine	not provided	N/A	Web-based Comments	13598	24
Larson	Elizabeth	not provided	N/A	Web-based Comments	13782	24
Larson	Eugenia	not provided	N/A	Web-based Comments	14302	24
Larson	Gary	not provided	N/A	Web-based Comments	14779	24
Larson	Gayle	not provided	N/A	Web-based Comments	14828	24
Larson	Gregg	gregg.larson@mcg.com	N/A	Web-based comments	6767	N/A
Larson	Heide	not provided	N/A	Web-based Comments	15561	24
Larson	Jane	not provided	N/A	Web-based Comments	16507	24
Larson	Jean	not provided	N/A	Web-based comments	57409	35
Larson	Jenowa	jgl4571@gmail.com	N/A	Web-based comments	6458	1
Larson	K[unreadable]	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32416	11
Larson	Kade	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32432	13
Larson	Kathleen	not provided	N/A	Web-based Comments	44542	34
Larson	Keith	not provided	N/A	Web-based Comments	19880	24
Larson	Ken	not provided	N/A	Web-based Comments	19980	24
Larson	Kris	not provided	N/A	Web-based Comments	20324	24
Larson	Lenora	not provided	N/A	Web-based Comments	46573	34
Larson	R A	not provided	N/A	Web-based Comments	53900, 53901	34
Larson	Richard	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	56684	32
Larson	Sam	not provided	N/A	Web-based Comments	28062	24
Larson	Sandra	not provided	N/A	Web-based Comments	28174	24
Larson	Stacey	not provided	N/A	Web-based Comments	29116	24
Larson	Steve	sllarso@uw.edu	N/A	Web-based comments	2582	N/A
Larsson	Louise	not provided	N/A	Web-based Comments	54651	34
LaRue	Chris	not provided	N/A	Web-based Comments	48916	34
LaRue	Erik	not provided	N/A	Web-based Comments	55094, 55095	34
LaRue	Erik	not provided	N/A	Web-based Comments	14186	24
LaRue	Erik	pacific2626@gmail.com	N/A	Web-based comments	249, 2412	3
Larue	M	not provided	N/A	Web-based Comments	48976	34
LaRue	T	not provided	N/A	Web-based Comments	55520	34
Lasahn	J	not provided	N/A	Web-based Comments	15979	24
LAsche	Rei	reirosenquist@gmail.com	N/A	Web-based comments	2441	3
Laschet	Ramona	not provided	N/A	Web-based Comments	47049	34
LaSchiava	Dona	not provided	N/A	Web-based Comments	52777	34
Lascinda	Lascinda	not provided	N/A	Web-based Comments	20599	24
Lash	Arnold	not provided	N/A	Web-based Comments	8448	24
Lash	Eileen	not provided	N/A	Web-based Comments	13545	24
Lash	Gregory	not provided	N/A	Web-based Comments	15281	24
Lasher	Shawnee	not provided	N/A	Web-based Comments	28764	24
Laskey	Stephen	not provided	N/A	Web-based Comments	29308	24
Lasko	Judy	not provided	N/A	Web-based Comments	18696	24
Lasky	Eleanor	not provided	N/A	Web-based Comments	13633	24
Laslett	Lawrence	not provided	N/A	Web-based Comments	20880	24
Lasley	Angelica	not provided	N/A	Web-based Comments	48957	34
Lasley	Barbara	not provided	N/A	Web-based Comments	8721	24
Laslie	Maude	not provided	N/A	Web-based Comments	23679	24
Lasorsa	Maria	not provided	N/A	Web-based Comments	22605	24
Laspisa	Cecilia	not provided	N/A	Web-based Comments	45536	34
Laspisa	Cecilia	not provided	N/A	Web-based Comments	10420	24
Lassandrello	Noreen	not provided	N/A	Web-based Comments	54160	34

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Lassandrello	Noreen	not provided	N/A	Web-based Comments	25374	24
Lasse	Audrey	not provided	N/A	Web-based Comments	8531	24
Lastella	Sophie	not provided	N/A	Web-based Comments	54770	34
Latek	Stephen	not provided	N/A	Web-based Comments	29309	24
Latham	Alida	not provided	N/A	Web-based Comments	7390	24
Latham	Lisa	not provided	N/A	Web-based Comments	21585	24
Lathrop	Jeffrey	not provided	N/A	Web-based Comments	17091	24
Latierra	Carolyn	not provided	N/A	Web-based Comments	46366	34
Latiker	Mark	not provided	N/A	Web-based Comments	22956	24
Latimer	Pamela	not provided	N/A	Web-based Comments	54865	34
Latinette	Ian	not provided	N/A	Web-based Comments	45388	34
Latka	Vladimir	not provided	N/A	Web-based Comments	53198	34
LaTour	Mere	not provided	N/A	Web-based Comments	23968	24
Latranche	Gilbert	not provided	N/A	Web-based Comments	55379, 55380, 55381	34
Latta	George	not provided	N/A	Web-based Comments	44797	34
Latta	Sharon	not provided	N/A	Web-based Comments	53517	34
Latta, M.D., MBA	George	not provided	N/A	Web-based Comments	14896	24
Lattime	Holly	not provided	N/A	Web-based Comments	15757	24
Lattuada	Laura Lattuada	not provided	N/A	Web-based Comments	52540, 52541	34
Lau	Fiona	not provided	N/A	Web-based Comments	54281	34
Laub	Vicki	not provided	N/A	Web-based Comments	53801	34
Laubach	Derek	not provided	N/A	Web-based Comments	12721	24
Laubach	Karen	not provided	N/A	Web-based Comments	19160	24
Laubscher	Wayne	not provided	N/A	Web-based Comments	31398	24
Lauchner	Janine	not provided	N/A	Web-based Comments	16732	24
Laudari	Skye	not provided	N/A	Web-based Comments	29038	24
Laudeman	Christina	not provided	N/A	Web-based Comments	54210, 54211	34
Laudeman	Randy	not provided	N/A	Web-based Comments	56212, 56213	34
Laudeman	Randy	not provided	N/A	Web-based Comments	26639	24
Lauder	David	not provided	N/A	Web-based Comments	46640	34
Lauderdale	Julie	not provided	N/A	Web-based Comments	44541	34
Lauer	Marcy	not provided	N/A	Web-based Comments	22406	24
Lauer	Patricia	not provided	N/A	Web-based Comments	25790	24
Lauer	Richard	not provided	N/A	Web-based Comments	27002	24
Laufer	Jillana	not provided	N/A	Web-based Comments	47681	34
Laufer	Jillana	not provided	N/A	Web-based Comments	17555	24
Laufer	Liina	not provided	N/A	Web-based Comments	21154	24
Lauffer	Ann	not provided	N/A	Web-based Comments	8058	24
laughery	robert	doclaughery@gmail.com	N/A	Web-based comments	2071	N/A
Laughlin	Diane	not provided	N/A	Web-based Comments	12866	24
Laughlin	Trevor	not provided	N/A	Web-based Comments	30898	24
laughon	charlotte	not provided	N/A	Web-based Comments	56195, 56196	34
Laughy	Linwood	lochsalaughy@yahoo.com	N/A	Web-based comments	6611	N/A
Launois	Chris Pan	not provided	N/A	Web-based Comments	58500	34
Launois	Pan	not provided	N/A	Web-based Comments	25607	24
Laupheimer	Ron	not provided	N/A	Web-based Comments	27627	24
Laureano	Ricky	ridnwavzric@yahoo.com	N/A	Web-based comments	912	N/A
Laurence	K.	not provided	N/A	Web-based Comments	54893	34
Laurencell	Carol	not provided	N/A	Web-based Comments	46220	34
Laurenitis	Diana	not provided	N/A	Web-based Comments	12779	24
Laurent	Ronchi	louveto83@live.fr	N/A	Web-based comments	1569	1
Laurino	Graciela	not provided	N/A	Web-based Comments	15208	24
Lauro	Lisa Di	not provided	N/A	Web-based Comments	47305	34
Laurson	Gail	not provided	N/A	Web-based Comments	14696	24
Lauryn	Dawn	not provided	N/A	Web-based Comments	12230	24
Lauscher-Dreess	Gabriele	not provided	N/A	Web-based Comments	14645	24
Lautaro	Gabriel	not provided	N/A	Web-based Comments	45817	34
Lautaro	Gabriel	not provided	N/A	Web-based Comments	14638	24
Lauterbach	Peter	not provided	N/A	Web-based Comments	26266	24
Lautsch	Anita	not provided	N/A	Web-based comments	56730	35
LAUX	DAVID	not provided	N/A	Web-based Comments	12066	24
Lauxmann	Timothy	not provided	N/A	Web-based Comments	30649	24
Lauzon	Charlene	not provided	N/A	Web-based Comments	46756, 46757	34
Lauzon	Charlene	not provided	N/A	Web-based Comments	10475	24
LaVallee	Aaron	not provided	N/A	Web-based Comments	7001	24
Lavelle	Gerri	not provided	N/A	Web-based Comments	14994	24
Lavelle	Karlene	not provided	N/A	Web-based Comments	19321	24
Lavelle	Kim	not provided	N/A	Web-based Comments	20191	24
Lavelle	Susan	not provided	N/A	Web-based Comments	29738	24
Lavender	Anthony	not provided	N/A	Web-based Comments	8337	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Lavender	Barbara	not provided	N/A	Web-based Comments	51645	34
Lavender	David	not provided	N/A	Web-based Comments	12067	24
Laverghetta	Antonio	not provided	N/A	Web-based Comments	49003	34
LaVerne	Tim	not provided	N/A	Web-based Comments	30613	24
LaVertu	Laura	not provided	N/A	Web-based Comments	48419	34
LaVertu	Laura	not provided	N/A	Web-based Comments	20662	24
Laverty	Laurence	not provided	N/A	Web-based Comments	44794	34
lavin	julianna	not provided	N/A	Web-based Comments	18800	24
Lavinder	Gary	not provided	N/A	Web-based Comments	14780	24
lavine	janis	not provided	N/A	Web-based Comments	16743	24
Lavish	Jessica	not provided	N/A	Web-based Comments	17437	24
LaVonne	Nadine	not provided	N/A	Web-based Comments	24765	24
Lavorel	Sophie	not provided	N/A	Web-based Comments	44436	34
Lavy	Fred	not provided	N/A	Web-based Comments	52592	34
Law	Lynn	not provided	N/A	Web-based Comments	47458	34
Law	Randa	not provided	N/A	Web-based Comments	44730	34
Law	River	not provided	N/A	Web-based Comments	27162	24
law	robert	not provided	N/A	Web-based Comments	27314	24
Lawell	Julie	not provided	N/A	Web-based Comments	45780	34
lawford	Rhonda	not provided	N/A	Web-based Comments	26899	24
Lawien	Mary	not provided	N/A	Web-based Comments	23328	24
Lawler	Emily	not provided	N/A	Web-based Comments	14020	24
Lawler	Martha	not provided	N/A	Web-based Comments	23110	24
Lawler	Michael	not provided	N/A	Web-based Comments	24142	24
lawler	sandy	not provided	N/A	Web-based Comments	53333	34
Lawless	Austin	not provided	N/A	Web-based Comments	8542	24
Lawless	Kathleen	not provided	N/A	Web-based Comments	54191, 54192	34
Lawless	Kathy	not provided	N/A	Web-based Comments	19718	24
Lawlor	Catherine	not provided	N/A	Web-based Comments	10295	24
Lawnicki	Tim	not provided	N/A	Web-based Comments	45196	34
Lawnicki	Tim	not provided	N/A	Web-based Comments	30614	24
Lawrence	Alan	not provided	N/A	Web-based Comments	58535	34
Lawrence	Amanda	not provided	N/A	Web-based Comments	56559	34
Lawrence	Amelia	not provided	N/A	Web-based Comments	7580	24
Lawrence	brandon	not provided	N/A	Web-based Comments	9370	24
Lawrence	Christopher	not provided	N/A	Web-based Comments	48425	34
Lawrence	Darren	not provided	N/A	Web-based Comments	11896	24
Lawrence	H. Marie	not provided	N/A	Web-based Comments	15370	24
Lawrence	Harmony	not provided	N/A	Web-based Comments	15440	24
Lawrence	Harriet	not provided	N/A	Web-based Comments	15453	24
Lawrence	Jamie	not provided	N/A	Web-based Comments	16364	24
Lawrence	Jeff	not provided	N/A	Web-based Comments	17037	24
Lawrence	Julia	not provided	N/A	Web-based Comments	18760	24
Lawrence	Laura	not provided	N/A	Web-based Comments	20663	24
Lawrence	Lisa	not provided	N/A	Web-based Comments	21586	24
Lawrence	M.E.	not provided	N/A	Web-based Comments	22222	24
Lawrence	Mary	not provided	N/A	Web-based Comments	23329	24
Lawrence	Michael	237lawrence@bentonrea.com	N/A	Web-based comments	2100	N/A
Lawrence	Michael	not provided	N/A	Web-based Comments	51604	34
Lawrence	Monika	mayor@clarkston-wa.com	N/A	Web-based comments	2561, 6028	N/A
Lawrence	Shan	not provided	N/A	Web-based Comments	48880	34
Lawrence	Suzy	not provided	N/A	Web-based Comments	30039	24
Lawrence	Tammy	not provided	N/A	Web-based Comments	30159	24
Lawrence	Vicky	not provided	N/A	Web-based Comments	31164	24
Lawrence	Vint	not provided	N/A	Web-based Comments	31256	24
Lawrence-Markarian	Robert	not provided	N/A	Web-based Comments	58274	16
Laws	Cheryl	not provided	N/A	Web-based Comments	10657	24
Laws	David & Judith	not provided	N/A	Web-based Comments	12185	24
Laws	kathy	not provided	N/A	Web-based Comments	45430, 45431	34
Lawsen	Guy	not provided	N/A	Web-based Comments	15338	24
Lawson	Aleilah	not provided	N/A	Web-based Comments	58277	16
Lawson	Danelle	not provided	N/A	Web-based Comments	51033	34
Lawson	Frank	frank.lawson@eweb.org	N/A	Web-based comments	2237, 32290	N/A
Lawson	Heather	grandviewcondo24@gmail.com	N/A	Web-based comments	3271	N/A
Lawson	Jodi	not provided	N/A	Web-based comments	2883, 6377	1
Lawson	John	not provided	N/A	Web-based Comments	18075	24
Lawson	Joseph	not provided	N/A	Web-based Comments	18372	24
Lawson	Mary	not provided	N/A	Web-based Comments	23330	24
Lawson	Paul	leighpl57@gmail.com	N/A	Web-based comments	6160	N/A

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Lawson	Rebeccea	not provided	N/A	Web-based Comments	26791	24
Lawson	Riley	not provided	N/A	Web-based Comments	46638	34
Lawson	Stephen	not provided	N/A	Web-based Comments	29310	24
Laxier	Scott	not provided	N/A	Web-based Comments	28482	24
Lay	Geoff	not provided	N/A	Web-based Comments	14873	24
lay	june	not provided	N/A	Web-based Comments	47073	34
Laybourn	Jim	not provided	N/A	Web-based Comments	17586	24
Layden	Patricia	not provided	N/A	Web-based Comments	58666	34
Layden	Patricia	not provided	N/A	Web-based Comments	25791	24
Layer	Joseph	not provided	N/A	Web-based Comments	18373	24
Layne	Allister	not provided	N/A	Web-based Comments	52227, 52228	34
Layne	Allister	not provided	N/A	Web-based Comments	7478	24
Layne	Misti	not provided	N/A	Web-based Comments	51542	34
Layne	Tobey	not provided	N/A	Web-based Comments	30705	24
Layton	Jessica	not provided	N/A	Web-based comments	57533	35
Lazar	Andrea	not provided	N/A	Web-based Comments	7753	24
Lazar	Jane	not provided	N/A	Web-based Comments	16508	24
Lazarus	David	not provided	N/A	Web-based Comments	12068	24
Lazarus	Molly	not provided	N/A	Web-based Comments	24597	24
Lazell	Mavis	not provided	N/A	Web-based Comments	23735	24
Lazenby	Julie	not provided	N/A	Web-based Comments	18858	24
Lazenby	Morgan	not provided	N/A	Web-based Comments	51393, 51394	34
Lazenby	Morgan	not provided	N/A	Web-based Comments	24668	24
Lazic	Jelena	not provided	N/A	Web-based Comments	48859	34
Lazin	Andrew	not provided	N/A	Web-based Comments	55123	34
Lazin	Andrew	not provided	N/A	Web-based Comments	7826	24
Lazos	Lauren	not provided	N/A	Web-based Comments	55960	34
Lazos	Lauren	not provided	N/A	Web-based Comments	20779	24
Lazzarini	Howard	not provided	N/A	Web-based Comments	50028	34
Lazzeri	Jon	not provided	N/A	Web-based Comments	18258	24
Lazzeri	Patrizia	not provided	N/A	Web-based Comments	25935	24
Le	Jamie	not provided	N/A	Web-based Comments	47158	34
Le	Jamie	not provided	N/A	Web-based Comments	16365	24
Le	Nic	not provided	N/A	Web-based Comments	47704	34
Le	Susan	not provided	N/A	Web-based Comments	29739	24
Le Beau	Josette	not provided	N/A	Web-based Comments	18414	24
Le Cocq	Linda	not provided	N/A	Web-based comments	56893	35
Le Cun	Isabelle	not provided	N/A	Web-based Comments	15948	24
Le Guillou	Corinne	not provided	N/A	Web-based comments	56760	35
Le Haen	Pitty	not provided	N/A	Web-based Comments	26418	24
Le masson	Eric	not provided	N/A	Web-based Comments	14119	24
Le Roi	Linda	not provided	N/A	Web-based Comments	21328	24
Lea	Lucinda	not provided	N/A	Web-based Comments	21945	24
Leach	Eric	not provided	N/A	Web-based Comments	14120	24
Leach	Lynda	not provided	N/A	Web-based Comments	22024	24
Leach	Richard	not provided	N/A	Web-based Comments	27003	24
Leach	Yvonne	not provided	N/A	Web-based Comments	47601, 49582	34
Leadaman	Rob	not provided	N/A	Web-based Comments	27178	24
Leadbitter	Martin	not provided	N/A	Web-based Comments	23165	24
Leadem	Carole	not provided	N/A	Web-based Comments	10085	24
Leader	Karen	not provided	N/A	Web-based Comments	19161	24
Leader	Laura	not provided	N/A	Web-based Comments	20664	24
Leahy	Daniel	not provided	N/A	Web-based Comments	11748	24
Leak	Cheryl	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32457	13
Leak	Glen	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32510	13
Leake	Courtney	courtney.leake@gmail.com	N/A	Web-based comments	32046	1
Leannah	Mike	not provided	N/A	Web-based Comments	53140	34
Leap	Virginia	not provided	N/A	Web-based Comments	31294	24
Lear	Kirsten	not provided	N/A	Web-based Comments	20276	24
Learitt	Mark	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32407	13
Leary	Joanna	not provided	N/A	Web-based Comments	17789	24
Leas	Rebecca	not provided	N/A	Web-based Comments	26744	24
Lease	Anthony	not provided	N/A	Web-based Comments	8338	24
Leask	Helen	not provided	N/A	Web-based Comments	46002	34
Leask	Kirsten	not provided	N/A	Web-based comments	56880	35
Leask	Kirsten	not provided	N/A	Web-based Comments	20277	24
Leath	Jan	not provided	N/A	Web-based Comments	16408	24
Leatham	Robbie	not provided	N/A	Web-based Comments	27194	24
Leathem	Carla	not provided	N/A	Web-based Comments	9828	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Leavell	Janet	not provided	N/A	Web-based Comments	16616	24
Leavenworth	William	not provided	N/A	Web-based Comments	50534	34
Leavitt	Chip	not provided	N/A	Web-based Comments	10704	24
Leavitt	Claire	not provided	N/A	Web-based Comments	11130	24
Leavitt	David	not provided	N/A	Web-based Comments	12069	24
Leavitt	Demetria	not provided	N/A	Web-based Comments	12612	24
Leavitt	Dennis	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32509	13
Leavitt	Dixie	not provided	N/A	Web-based Comments	54151	34
Leavitt	Donna	not provided	N/A	Web-based Comments	51151, 51152	34
Leavitt	Donna	not provided	N/A	Web-based Comments	13148	24
Leavitt	Jared	not provided	N/A	Web-based Comments	16759	24
Leavitt	Susan	not provided	N/A	Web-based Comments	29740	24
Leavitt	Wilder	not provided	N/A	Web-based Comments	31480	24
Lebakken	Kristina	not provided	N/A	Web-based Comments	50257	34
Lebedeva	Veronika	not provided	N/A	Web-based Comments	31106	24
Lebedzinski	Nancy	not provided	N/A	Web-based Comments	24914	24
Lebel	Agathe	not provided	N/A	Web-based Comments	48177	34
Lebel	Doreen	not provided	N/A	Web-based Comments	13209	24
LeBlanc	Cherie	not provided	N/A	Web-based Comments	10608	24
LeBlanc	Edward	not provided	N/A	Web-based Comments	45913	34
LeBlanc	Edward	not provided	N/A	Web-based Comments	13505	24
Leblanc	G.	not provided	N/A	Web-based Comments	14626	24
LeBlanc	Jamie	not provided	N/A	Web-based Comments	16366	24
Leblanc	Joe	not provided	N/A	Web-based Comments	17887	24
LeBlanc	Joe	not provided	N/A	Web-based Comments	17886	24
LeBlanc	Lauren	not provided	N/A	Web-based Comments	20780	24
LeBlanc	Lisa	not provided	N/A	Web-based Comments	21587	24
LeBlanc	Michael	not provided	N/A	Web-based Comments	24143	24
LEBLOND	Jean-Michel	not provided	N/A	Web-based Comments	53460, 53461	34
Lebo	Harlan	not provided	N/A	Web-based Comments	15434	24
lebow	jeanne	not provided	N/A	Web-based Comments	16957	24
Lebow	Roger	not provided	N/A	Web-based Comments	27587	24
Leccese	Monica	not provided	N/A	Web-based Comments	44301	34
Lechicky	Sonia	not provided	N/A	Web-based Comments	29064	24
Lechmaier	Patti	not provided	N/A	Web-based Comments	25944	24
Lechsinska	Ari	not provided	N/A	Web-based Comments	55050	34
Lechtanski	Cheryl	not provided	N/A	Web-based Comments	10658	24
Leckrone	Kristen	not provided	N/A	Web-based Comments	20345	24
LeClair	Susan	not provided	N/A	Web-based Comments	29741	24
LeCluyse	Megan	not provided	N/A	Web-based Comments	23792	24
L'ecuyer	Danielle	not provided	N/A	Web-based Comments	48822	34
L'ecuyer	Danielle	not provided	N/A	Web-based Comments	11812	24
Ledden	Dennis	not provided	N/A	Web-based Comments	58118, 44788	16, 34
Lederman	Gayle	not provided	N/A	Web-based Comments	14829	24
Lederman	Kenneth	not provided	N/A	Web-based Comments	20016	24
Ledesma	Audrey	not provided	N/A	Web-based Comments	8532	24
Ledford	Sandra	not provided	N/A	Web-based Comments	28175	24
Ledgerwood	Richard	dick.Ledgerwood@gmail.com	N/A	Web-based comments	2817	N/A
Ledig	Kathy	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58786	N/A
Ledner	Wendy	not provided	N/A	Web-based Comments	31435	24
LeDuc	Diane	not provided	N/A	Web-based Comments	12867	24
Lee	Adam	not provided	N/A	Web-based Comments	58079	16
Lee	Anabela	not provided	N/A	Web-based Comments	7702	24
Lee	Annika	not provided	N/A	Web-based comments	57264	35
Lee	Ava	not provided	N/A	Web-based Comments	8547	24
Lee	B	not provided	N/A	Web-based Comments	8571	24
lee	bob	not provided	N/A	Web-based Comments	9242	24
Lee	C	wendolamite@hotmail.com	N/A	Web-based comments	3400	N/A
lee	carol	not provided	N/A	Web-based Comments	51685	34
Lee	Carol	not provided	N/A	Web-based Comments	9964	24
Lee	Cheryl	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	56606	13
Lee	Crystal	not provided	N/A	Web-based Comments	11460	24
Lee	Daniel	not provided	N/A	Web-based Comments	47064	34
Lee	Danny	leed@inlandpower.com	N/A	Web-based comments	4026	7
Lee	Dawn	not provided	N/A	Web-based Comments	47789, 47790	34
Lee	Dawn	not provided	N/A	Web-based Comments	12231	24
Lee	Deborah	not provided	N/A	Web-based Comments	12425	24
Lee	Deborah	not provided	N/A	Web-based Comments	12426	24
Lee	Deborah	not provided	N/A	Web-based Comments	12427	24
Lee	Deborah Lee	not provided	N/A	Web-based Comments	12497	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Lee	Denise	not provided	N/A	Web-based Comments	49659	34
Lee	Diana	not provided	N/A	Web-based Comments	54466, 54467	34
Lee	Diana	not provided	N/A	Web-based Comments	12780	24
Lee	Don	not provided	N/A	Web-based Comments	13029	24
Lee	Dorothy	not provided	N/A	Web-based Comments	13266	24
Lee	Ethan	ethanlee2@gmail.com	N/A	Web-based comments	3318	N/A
lee	eva	not provided	N/A	Web-based Comments	47009	34
Lee	Hannah	not provided	N/A	Web-based Comments	15406	24
Lee	Harvey S.	not provided	N/A	Web-based Comments	15473	24
Lee	Hyun	not provided	N/A	Web-based Comments	56059, 56060	34
LEe	Hyun	not provided	N/A	Web-based Comments	15824	24
Lee	Irene	not provided	N/A	Web-based Comments	15906	24
Lee	Jane	not provided	N/A	Web-based Comments	16509	24
Lee	Jeanine	not provided	N/A	Web-based Comments	16927	24
Lee	Jennifer	not provided	N/A	Web-based comments	5474	1
Lee	Jessica	not provided	N/A	Web-based Comments	17438	24
Lee	John	not provided	N/A	Web-based Comments	18076	24
Lee	Jonathan	not provided	N/A	Web-based Comments	52264	34
Lee	Judy	not provided	N/A	Web-based Comments	49727	34
Lee	Kathleen	not provided	N/A	Web-based Comments	58005, 45900	16, 34
Lee	Kathleen	not provided	N/A	Web-based Comments	19558	24
Lee	Kelsea	not provided	N/A	Web-based comments	57534	35
lee	l	not provided	N/A	Web-based Comments	20481	24
Lee	Laurie	not provided	N/A	Web-based Comments	20841	24
Lee	Marilyn	not provided	N/A	Web-based Comments	56053	34
Lee	Marti	not provided	N/A	Web-based Comments	23144	24
Lee	Melody	not provided	N/A	Web-based Comments	23949	24
Lee	Meredith	not provided	N/A	Web-based Comments	23976	24
Lee	Michael	not provided	N/A	Web-based Comments	56551, 56552	34
Lee	Michael	not provided	N/A	Web-based Comments	24144	24
Lee	Mike	not provided	N/A	Web-based Comments	24463	24
Lee	Monika	not provided	N/A	Web-based Comments	24650	24
Lee	N.	not provided	N/A	Web-based Comments	24739	24
Lee	Nita	not provided	N/A	Web-based Comments	45599, 45600	34
Lee	Paul	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32556	N/A
Lee	Rex	not provided	N/A	Web-based Comments	26878	24
Lee	Richard	not provided	N/A	Web-based Comments	47156	34
Lee	Richard	not provided	N/A	Web-based Comments	27004	24
Lee	Robert	not provided	N/A	Web-based Comments	27315	24
Lee	Sandra	not provided	N/A	Web-based Comments	28176	24
Lee	Sherrie	not provided	N/A	Web-based Comments	45451	34
Lee	Sherrie	not provided	N/A	Web-based Comments	28876	24
Lee	Stephanie	not provided	N/A	Web-based Comments	29230	24
Lee	Susie	not provided	N/A	Web-based Comments	48687, 48688	34
Lee	Susie	not provided	N/A	Web-based Comments	29963	24
Lee	Tara	not provided	N/A	Web-based Comments	51018	34
Lee	Tiana	not provided	N/A	Web-based Comments	49739	34
Lee	Trina	not provided	N/A	Web-based Comments	46633	34
Lee	Trina	not provided	N/A	Web-based Comments	30911	24
Lee	Vivian	not provided	N/A	Web-based Comments	31319	24
Lee	William	w.lee17@yahoo.com	N/A	Web-based comments	2913	N/A
Lee	xDawn	not provided	N/A	Web-based Comments	31647	24
Lee	Yvonne	not provided	N/A	Web-based comments	553	N/A
Lee-Allen	Kelli	not provided	N/A	Web-based Comments	56415	34
Lee-Allen	Kelli	not provided	N/A	Web-based Comments	19900	24
Leech	Amanda	not provided	N/A	Web-based Comments	55939	34
Leech	Ruba	not provided	N/A	Web-based Comments	48601	34
Leed	Mark	markleed02@gmail.com	N/A	Web-based comments	6558	N/A
Leedham	Suzy	not provided	N/A	Web-based Comments	47287	34
LEEDING	DEBBIE	not provided	N/A	Web-based Comments	12334	24
Leeds	Kimberly	not provided	N/A	Web-based Comments	20229	24
Leeds	Vicki	not provided	N/A	Web-based Comments	52162	34
Leeds	Vicki	not provided	N/A	Web-based Comments	31138	24
Leedy	Joseph	not provided	N/A	Web-based Comments	18374	24
Lee-Faith	Nicole	not provided	N/A	Web-based Comments	50798	34
Lee-Faith	Nicole	not provided	N/A	Web-based Comments	25242	24
Leeman	Sophie	sophieleeman1@gmail.com	N/A	Web-based comments	1431	1
Leenay	Anna	not provided	N/A	Web-based Comments	8141	24
Leenen	Liz	not provided	N/A	Web-based comments	56826	35
Leese	Trevor	not provided	N/A	Web-based Comments	30899	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Leesekamp	Kristine	not provided	N/A	Web-based Comments	45176	34
Leesekamp	Kristine	not provided	N/A	Web-based Comments	20416	24
Leeson	Melanie	not provided	N/A	Web-based Comments	23838	24
Leete	Jody	not provided	N/A	Web-based Comments	17866	24
Leeuwen	Conny Van	not provided	N/A	Web-based Comments	49480, 49481	34
leeyim	h	not provided	N/A	Web-based Comments	15366	24
Lefcourt	Philip	not provided	N/A	Web-based Comments	26345	24
Lefebvre	Anne	not provided	N/A	Web-based Comments	45979	34
Leffler	Francoise	not provided	N/A	Web-based Comments	14514	24
Lefford	Maggie	not provided	N/A	Web-based Comments	22268	24
Lefkowitz	Jay	not provided	N/A	Web-based Comments	16811	24
Lefler	Susan	not provided	N/A	Web-based Comments	29742	24
LeFort	Andrew	not provided	N/A	Web-based Comments	7827	24
Leftwich	Dana	not provided	N/A	Web-based Comments	11695	24
Legasey	Sandra	not provided	N/A	Web-based Comments	28177	24
Legaspi	Tanirose	not provided	N/A	Web-based Comments	30173	24
Legeckas	Thomas	not provided	N/A	Web-based Comments	30516	24
Legene	Anne	not provided	N/A	Web-based Comments	45799	34
Legene	Anne	not provided	N/A	Web-based Comments	8214	24
Leger	Elaine St	not provided	N/A	Web-based Comments	44499, 44500	34
Legg	Benjamin	not provided	N/A	Web-based Comments	8966	N/A
Leggett	Dee	not provided	N/A	Web-based Comments	12577	24
Leggett	Marjy	MarjyL@charter.net	N/A	Web-based comments	31962	N/A
LeGrande	Judith	not provided	N/A	Web-based Comments	44729	34
Legrande	Michael	not provided	N/A	Web-based Comments	24145	24
Legrottaglie	Christine	not provided	N/A	Web-based Comments	10945	24
LeGrow	Justin	not provided	N/A	Web-based Comments	44446, 44447	34
LeGrow	Justin	not provided	N/A	Web-based Comments	18956	24
Lehane	Gregory	not provided	N/A	Web-based Comments	15282	24
Lehman	Alice	not provided	N/A	Web-based Comments	7352	24
Lehman	Cynthia	not provided	N/A	Web-based Comments	11519	24
Lehman	Loretta	not provided	N/A	Web-based Comments	54897	34
Lehman	Loretta	not provided	N/A	Web-based Comments	21763	24
Lehman	Naomi	not provided	N/A	Web-based Comments	25047	24
Lehman	Paula	not provided	N/A	Web-based Comments	26087	24
Lehmann	Tanja	not provided	N/A	Web-based Comments	49710, 49711	34
Lehmann	Tanja	not provided	N/A	Web-based Comments	30174	24
lehnar	l	not provided	N/A	Web-based Comments	53803	34
Lehr	Patty	not provided	N/A	Web-based Comments	25959	24
Lehrter	Bill	not provided	N/A	Web-based comments	5940	N/A
leibik	susam	not provided	N/A	Web-based Comments	53808	34
Leibovitz	Cathy	not provided	N/A	Web-based Comments	10375	24
Leibowitz	Ariel	not provided	N/A	Web-based Comments	8413	24
Leibowitz	Susan	not provided	N/A	Web-based Comments	29743	24
Leicht	Michael	not provided	N/A	Web-based Comments	24146	24
Leifker	Karen	not provided	N/A	Web-based comments	57492	35
Leifling	M	not provided	N/A	Web-based Comments	49123	34
Leigh	Bonita Leigh	not provided	N/A	Web-based Comments	55963	34
Leigh	Deborah	not provided	N/A	Web-based Comments	12428	24
Leigh	Meredith	Mleigh007@gmail.com	N/A	Web-based comments	3533	1
Leigh	Tahoe	not provided	N/A	Web-based Comments	30108	24
Leighton	Tim	not provided	N/A	Web-based Comments	51109	34
Leikam	Bill	not provided	N/A	Web-based Comments	9174	24
Leiman	Andrea	not provided	N/A	Web-based Comments	7754	24
Lein	Kristin	not provided	N/A	Web-based Comments	20382	24
Leinbach	Duane	duaneleinbach@hotmail.com	N/A	Web-based comments	4315	N/A
leino	marja	not provided	N/A	Web-based Comments	22872	24
Leinwand	Allen	not provided	N/A	Web-based Comments	7446	24
Leinweber	Carol	not provided	N/A	Web-based Comments	9965	24
Leinweber	Georgie	LITTERBOX@STJOHNCABLE.COM	N/A	Web-based comments	6135	N/A
Leiseroff	Miriam	not provided	N/A	Web-based Comments	48112	34
Leister	Charles	not provided	N/A	Web-based Comments	10515	24
Leitao	Elizabeth	not provided	N/A	Web-based Comments	13783	24
Leitch	Mary Ann	not provided	N/A	Web-based Comments	50454	34
leite	angela	not provided	N/A	Web-based Comments	7918	24
Leite-Cortes	Marcella	not provided	N/A	Web-based Comments	22354	24
Leiter	Travis	not provided	N/A	Web-based Comments	30892	24
Leithauser	Marie	not provided	N/A	Web-based Comments	22713	24
Leithwood	Jesse	not provided	N/A	Web-based Comments	54824, 54825	34
Leithwood	Jesse	not provided	N/A	Web-based Comments	17397	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Leiting	Nancy	not provided	N/A	Web-based Comments	24915	24
Leitner	Joel	not provided	N/A	Web-based Comments	17914	24
Leitner	Maryann	not provided	N/A	Web-based Comments	23560	24
Leitner	Shannon	not provided	N/A	Web-based Comments	45550, 45551	34
Leitner	Shannon	not provided	N/A	Web-based Comments	28589	24
Leitzell	Gerald	not provided	N/A	Web-based Comments	45267	34
Leitzke	Tamara	not provided	N/A	Web-based comments	57440	35
Lekan	Ed	not provided	N/A	Web-based Comments	13450	24
Lekkas	Demetrios	not provided	N/A	Web-based Comments	44360, 44361	34
Leland	Ann	not provided	N/A	Web-based Comments	8059	24
Leland	Laurie	not provided	N/A	Web-based Comments	20842	24
Leland	Lora	not provided	N/A	Web-based Comments	57810	34
Leland	Lora	not provided	N/A	Web-based Comments	21745	24
Lelger	Magaly	not provided	N/A	Web-based Comments	54698, 54699	34
Lelo de Larrea	Amalia	not provided	N/A	Web-based Comments	7514	24
Lelyveld	Gail	not provided	N/A	Web-based Comments	14697	24
Lemaire	Nicole	not provided	N/A	Web-based Comments	25243	24
Lemanski	Mary	not provided	N/A	Web-based Comments	23331	24
LeMay	Brent	not provided	N/A	Web-based Comments	9440	24
Lembo	Barbara	not provided	N/A	Web-based Comments	8722	24
Lemen	Brandylyn	not provided	N/A	Web-based Comments	45901	34
Lemes	Michael	not provided	N/A	Web-based Comments	48039	34
Lemieux Jr	Edward	not provided	N/A	Web-based Comments	13506	24
LEMKUIL	RITA	not provided	N/A	Web-based Comments	27145	24
Lemley	Amy	not provided	N/A	Web-based Comments	51473	34
Lemmie	Charmaine	not provided	N/A	Web-based Comments	47609	34
Lemmon	Cassandria	not provided	N/A	Web-based Comments	49602	34
Lemoin	L	not provided	N/A	Web-based Comments	20482	24
LeMoine	Elizabeth	not provided	N/A	Web-based Comments	13784	24
Lemoine	Kathryn	not provided	N/A	Web-based Comments	19649	24
Lemon	Amanita	not provided	N/A	Web-based Comments	7562	24
Lemonik	B	not provided	N/A	Web-based Comments	55442	34
Lemonik	B. R.	not provided	N/A	Web-based Comments	46357	34
Lemonik	B. R.	not provided	N/A	Web-based Comments	8584	24
Lemons	Melissa	not provided	N/A	Web-based Comments	23900	24
Lemont	Susan	not provided	N/A	Web-based Comments	29744	24
Lemus	Betty	not provided	N/A	Web-based Comments	9096	24
Lena	Mastroprimiano	not provided	N/A	Web-based Comments	53201	34
Lenahan	Mary Pat	not provided	N/A	Web-based Comments	23545	24
Lenard	Dena	not provided	N/A	Web-based Comments	54795	34
Lenau	Bruce	not provided	N/A	Web-based Comments	9616	24
Lenchner	Nicholas	not provided	N/A	Web-based Comments	45584, 45585	34
Lenchner	Nicholas	not provided	N/A	Web-based Comments	25170	24
Lendl-Lander	Lisa	not provided	N/A	Web-based Comments	56383	34
L'Enfant	Lee	not provided	N/A	Web-based Comments	20936	24
Lengel	Dennis	not provided	N/A	Web-based Comments	12690	24
Lengel	Elizabeth	not provided	N/A	Web-based Comments	57903, 49716	16, 34
Lengel	Elizabeth	not provided	N/A	Web-based Comments	13785	24
Lenhart	Margot	not provided	N/A	Web-based Comments	22553	24
Lenier	Doug	not provided	N/A	Web-based Comments	13302	24
Lennon	Matthew	not provided	N/A	Web-based Comments	53303	34
lennox	patti	not provided	N/A	Web-based Comments	25945	24
Lenoir	Blake	not provided	N/A	Web-based Comments	58639	34
Lenoir	Blake	not provided	N/A	Web-based Comments	9215	24
Lenox	Charlotte	not provided	N/A	Web-based Comments	49035, 50445	34
Lensa	Delainee	not provided	N/A	Web-based comments	57299	35
Lensky	Donna	not provided	N/A	Web-based Comments	13149	24
Lenssen	Barbara	not provided	N/A	Web-based Comments	8723	24
Lent	Chad	not provided	N/A	Web-based Comments	10451	24
Lent	Dina	not provided	N/A	Web-based Comments	12959	24
Lentine	Maria	not provided	N/A	Web-based Comments	22606	24
Lentz	Hugh	not provided	N/A	Web-based Comments	54536	34
Lentz	Hugh	not provided	N/A	Web-based Comments	58238	16
Lentz	Jerry	not provided	N/A	Web-based Comments	17360	24
Lenz	Andrew	not provided	N/A	Web-based Comments	58635	34
Lenzen	Patricia	not provided	N/A	Web-based Comments	25792	24
Lenzen-Debad	Vallie	not provided	N/A	Web-based Comments	31053	24
Leon	Candi	not provided	N/A	Web-based Comments	9762	24
Leon	Chemaine	not provided	N/A	Web-based Comments	10593	24
Leon	Judy	not provided	N/A	Web-based Comments	18697	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Leon	Mary A	not provided	N/A	Web-based Comments	45005	34
Leon	Mary A	not provided	N/A	Web-based Comments	23483	24
Leonard	C	not provided	N/A	Web-based Comments	46745	34
Leonard	Candie	not provided	N/A	Web-based Comments	9765	24
Leonard	Christa	not provided	N/A	Web-based Comments	10808	24
Leonard	Cindy	not provided	N/A	Web-based Comments	11086	24
Leonard	John	not provided	N/A	Web-based Comments	18077	24
leonard	keiko	not provided	N/A	Web-based Comments	19864	24
Leonard	Lark	not provided	N/A	Web-based Comments	20563	24
Leonard	Matthew	not provided	N/A	Web-based Comments	50102	34
Leonard	Valerle	not provided	N/A	Web-based Comments	54448, 54449	34
Leonard	Valerle	not provided	N/A	Web-based Comments	31052	24
Leonard	Vally	not provided	N/A	Web-based Comments	31054	24
Leonardo	Sherry	not provided	N/A	Web-based Comments	28892	24
Leonberger	Laura	not provided	N/A	Web-based Comments	20665	24
Leone	Francine	not provided	N/A	Web-based Comments	14501	24
Leone	Juanita	not provided	N/A	Web-based Comments	47393	34
Leone	Julia	not provided	N/A	Web-based Comments	18761	24
Leong	Moana	not provided	N/A	Web-based Comments	24582	24
Leoni	Luisa	not provided	N/A	Web-based Comments	21973	24
Leonis	Carol	not provided	N/A	Web-based Comments	46256	34
Leonis	Carol	not provided	N/A	Web-based Comments	9966	24
Leonorovitz	Eric	not provided	N/A	Web-based Comments	14121	24
Leontescu	Elizabeth	not provided	N/A	Web-based Comments	13786	24
Leotta	Kathy	not provided	N/A	Web-based Comments	19719	24
LEOW	DEBRA	not provided	N/A	Web-based Comments	12532	24
Leow	Millicent	not provided	N/A	Web-based Comments	24516	24
LePage	Bruce	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32352	N/A
LePage	Corrine	not provided	N/A	Web-based Comments	11388	24
Lepera	Margaret	not provided	N/A	Web-based Comments	22470	24
Lepore	Megan	not provided	N/A	Web-based Comments	49199	34
Lepple	Christopher	not provided	N/A	Web-based Comments	11017	24
Leppo	Robert	not provided	N/A	Web-based Comments	51191	34
Lequient	Magali	not provided	N/A	Web-based Comments	58614	34
Lequin	Michelle	not provided	N/A	Web-based Comments	50634	34
Lequin	Michelle	not provided	N/A	Web-based Comments	24361	24
Lercara	Sharinne	not provided	N/A	Web-based Comments	28620	24
Lerma	Stella	not provided	N/A	Web-based Comments	29184	24
Lerner	Byron	not provided	N/A	Web-based Comments	9661	24
Lerner	Emily	not provided	N/A	Web-based Comments	14021	24
Lerner	Lynne	not provided	N/A	Web-based Comments	22143	24
Lerner	Michael	not provided	N/A	Web-based Comments	46261	34
Lerner	Michelle	not provided	N/A	Web-based Comments	24362	24
Lerner	Sara	not provided	N/A	Web-based Comments	28296	24
Leroux	Unreadable	not provided	N/A	Web-based Comments	17661	24
Leroux	Unreadable	not provided	N/A	Web-based Comments	18332	24
Leroy	Amy	not provided	N/A	Web-based Comments	7631	24
Lerwill	Anasuya	not provided	N/A	Web-based Comments	50854, 50853	34
Lerwill	John	not provided	N/A	Web-based Comments	50632, 50633	34
Lesem	Ken	not provided	N/A	Web-based Comments	19981	24
Lesh	Eleanor	not provided	N/A	Web-based Comments	13634	24
Lesh	Eugene	not provided	N/A	Web-based Comments	14294	24
Lesher	Annabel	not provided	N/A	Web-based Comments	8158	24
Leshine	Roxanne	not provided	N/A	Web-based Comments	47410, 47475	34
Lesinski	Pete	not provided	N/A	Web-based Comments	26232	24
Leske	Jim	not provided	N/A	Web-based Comments	54172	34
Leske	Jim	not provided	N/A	Web-based Comments	17587	24
Lesko	Kyle	not provided	N/A	Web-based Comments	20454	24
Lesko	Scott	not provided	N/A	Web-based Comments	28483	24
Lesley	Brookman	not provided	N/A	Web-based Comments	49313	34
Lesley	Edwin	eclesley@gmail.com	N/A	Web-based comments	5334	N/A
Lesley	Mike	not provided	N/A	Web-based Comments	24464	24
Leslie	Amy	amyannleslie@gmail.com	N/A	Web-based comments	4303	N/A
Leslie	Christiane	not provided	N/A	Web-based Comments	10834	24
Leslie	Curt	not provided	N/A	Web-based comments	3842	N/A
Leslie	Kathy	not provided	N/A	Web-based Comments	19720	24
Leslie	M. Virginia	not provided	N/A	Web-based Comments	22219	24
Lesperance	Adina	not provided	N/A	Web-based Comments	47751	34
Lesperance	Joy	not provided	N/A	Web-based Comments	18462	24
Lessard	Lynn	not provided	N/A	Web-based Comments	22072	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Lesser	Diane	not provided	N/A	Web-based Comments	12868	24
Lesser	Margo	not provided	N/A	Web-based Comments	50594	34
Lesser	Tamara	not provided	N/A	Web-based Comments	48416, 48417	34
lester	alex	not provided	N/A	Web-based Comments	53434	34
lester	alex	not provided	N/A	Web-based Comments	7246	24
Lester	Bethany	not provided	N/A	Web-based Comments	54940	34
Lester	Bethany	not provided	N/A	Web-based Comments	9066	24
Lester	Carole	not provided	N/A	Web-based comments	57580	35
Lester	Mary	not provided	N/A	Web-based Comments	47799, 47800, 47801	34
Lester	Mary	not provided	N/A	Web-based Comments	23332	24
Lester	SusanKay	not provided	N/A	Web-based Comments	49191	34
Lester-Granger	Sabrina	not provided	N/A	Web-based Comments	27981	24
Letellier	Brenda	not provided	N/A	Web-based Comments	9408	24
Letellier	Michelle	not provided	N/A	Web-based Comments	24363	24
Letendre	Michael	not provided	N/A	Web-based Comments	24147	24
LETH	GWEN	gleth9626@charter.net	N/A	Web-based comments	6159	N/A
Lethbridge	Susan	not provided	N/A	Web-based Comments	29745	24
LeTourneau	Alice	not provided	N/A	Web-based Comments	50892	34
LeTourneau	Alice	not provided	N/A	Web-based Comments	7353	24
Letscher	Joslen	not provided	N/A	Web-based Comments	18444	24
Letsinger	Morris	not provided	N/A	Web-based Comments	24675	24
Letson	Mike	mletson2@msn.com	N/A	Web-based comments	3449	N/A
Lettieri	Tammy	not provided	N/A	Web-based Comments	30160	24
Lettner	Graham	not provided	N/A	Web-based Comments	54029	34
Leuenberger	Carol	not provided	N/A	Web-based Comments	58590	34
Leuenberger	Carol	not provided	N/A	Web-based Comments	9967	24
LEUNG	CHING MAN MANDY	not provided	N/A	Web-based Comments	10699	24
Leung	Hilary	not provided	N/A	Web-based Comments	15699	24
Leung	Peony	not provided	N/A	Web-based Comments	26219	24
Leung	Phoebe	not provided	N/A	Web-based comments	5736	1
LeValley	Lon	not provided	N/A	Web-based Comments	47900	34
Levedahl	Barbara	not provided	N/A	Web-based Comments	47238	34
Levedahl	Barbara	not provided	N/A	Web-based Comments	8724	24
LeVee	Penny	not provided	N/A	Web-based Comments	26210	24
Leveille	Cory	not provided	N/A	Web-based Comments	11393	24
Levensaler	Kurt	not provided	N/A	Web-based Comments	20436	24
Leventer	Jerry	not provided	N/A	Web-based Comments	17361	24
Leventhal	Rona	not provided	N/A	Web-based Comments	54694	34
Leventhal	Rona	not provided	N/A	Web-based Comments	27642	24
Leventis	Angela	not provided	N/A	Web-based Comments	45045, 45046	34
LeVeque	Linda	not provided	N/A	Web-based Comments	21329	24
Lever	Michelle	not provided	N/A	Web-based Comments	46244	34
Leverette	Briana	not provided	N/A	Web-based Comments	9529	24
Leveroni	Matthew	mleveroni14@gmail.com	N/A	Web-based comments	31890	1
Leverton	Julie	not provided	N/A	Web-based Comments	18859	24
Levesque	Amanda	not provided	N/A	Web-based Comments	53700	34
Levesque	Amanda	not provided	N/A	Web-based Comments	7543	24
Leveton	Lajeanne	not provided	N/A	Web-based Comments	20519	24
Levi	Salena	not provided	N/A	Web-based Comments	27994	24
Levicke	Jeff	not provided	N/A	Web-based Comments	17038	24
Levin	Allison	not provided	N/A	Web-based Comments	46831	34
Levin	Beth	not provided	N/A	Web-based Comments	53584	34
Levin	Beth	not provided	N/A	Web-based Comments	9034	24
levin	julie	not provided	N/A	Web-based Comments	45135, 45136	34
Levin	Margaret	not provided	N/A	Web-based Comments	22471	24
Levin	mark	not provided	N/A	Web-based Comments	49264	34
levin	mark	not provided	N/A	Web-based Comments	22957	24
Levine	Adam	not provided	N/A	Web-based Comments	55231	34
levine	alene	not provided	N/A	Web-based Comments	7235	24
levine	arlene	not provided	N/A	Web-based Comments	8428	24
Levine	C Jay	not provided	N/A	Web-based Comments	50006	34
Levine	Cee Jay	not provided	N/A	Web-based Comments	10428	24
Levine	Ellen	not provided	N/A	Web-based Comments	48482	34
LEVINE	EMILY	not provided	N/A	Web-based Comments	14022	24
Levine	Grace	not provided	N/A	Web-based Comments	15195	24
Levine	Jaime	jslev36@gmail.com	N/A	Web-based comments	4595	1
Levine	kathy	not provided	N/A	Web-based Comments	19721	24
Levine	Laurice	not provided	N/A	Web-based Comments	20818	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Levine	Marjorie	not provided	N/A	Web-based Comments	22880	24
Levine	Matthew	not provided	N/A	Web-based Comments	23652	24
Levine	Nancy	not provided	N/A	Web-based Comments	24916	24
Levine	Nicholas	not provided	N/A	Web-based Comments	25171	24
Levine	Phyllis	not provided	N/A	Web-based Comments	26394	24
Levine	Rhoda	not provided	N/A	Web-based Comments	26888	24
LeVine	Sharon	not provided	N/A	Web-based Comments	47120, 47121	34
Levine	Shira	not provided	N/A	Web-based Comments	28935	24
Levinson	David	not provided	N/A	Web-based Comments	12070	24
Levinson	Gilda	not provided	N/A	Web-based Comments	15028	24
Levinton	Judith	not provided	N/A	Web-based Comments	18614	24
Levinzon	Paulina	not provided	N/A	Web-based Comments	46360	34
Levitt	Jacob	not provided	N/A	Web-based Comments	16090	24
Levitt	Lacey	not provided	N/A	Web-based Comments	54123	34
Levitt	Lacey	not provided	N/A	Web-based Comments	20508	24
Levitt	Mary	not provided	N/A	Web-based Comments	23333	24
Levitt	Vera	not provided	N/A	Web-based Comments	47321, 47322	34
Levitus	Walt	not provided	N/A	Web-based Comments	31347	24
LeVon	Ryan	not provided	N/A	Web-based Comments	27920	24
LeVous	P.	not provided	N/A	Web-based Comments	25472	24
Levy	Anne	not provided	N/A	Web-based Comments	8215	24
Levy	Cathy	not provided	N/A	Web-based Comments	10376	24
Levy	Claire	not provided	N/A	Web-based Comments	11131	24
Levy	Elisabeth	not provided	N/A	Web-based Comments	13678	24
Levy	Eliza	not provided	N/A	Web-based Comments	13699	24
Levy	Elizabeth	not provided	N/A	Web-based Comments	13787	24
Levy	howard	not provided	N/A	Web-based Comments	15801	24
Levy	Julian	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4278	N/A
Levy	Katherine	not provided	N/A	Web-based Comments	19463	24
Levy	R	not provided	N/A	Web-based Comments	26476	24
Levy	Robert Brian	not provided	N/A	Web-based Comments	53867	34
Levy	Robert Brian	not provided	N/A	Web-based Comments	27422	24
Levy	Scott	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4625, 5608	N/A
Lewandowski	Michael	not provided	N/A	Web-based Comments	24148	24
lewandowski	tim	not provided	N/A	Web-based Comments	30615	24
Lewbin	David	not provided	N/A	Web-based Comments	12071	24
Lewert	Charles	not provided	N/A	Web-based Comments	10516	24
Lewis	Andrea	not provided	N/A	Web-based Comments	7755	24
Lewis	Andrew	not provided	N/A	Web-based Comments	7828	24
Lewis	Ava	not provided	N/A	Web-based Comments	8548	24
Lewis	Beverly	not provided	N/A	Web-based Comments	9133	24
Lewis	Bonda	not provided	N/A	Web-based Comments	51684	34
Lewis	Brenda	not provided	N/A	Web-based Comments	9409	24
Lewis	Carol	not provided	N/A	Web-based Comments	9968	24
Lewis	Cheryl	not provided	N/A	Web-based Comments	44702, 44779	34
Lewis	Cynthia	not provided	N/A	Web-based Comments	49802, 49803	34
Lewis	Cynthia	not provided	N/A	Web-based Comments	11520	24
Lewis	Diana	not provided	N/A	Web-based Comments	48628	34
Lewis	Dina	not provided	N/A	Web-based Comments	12960	24
LEWIS	DONNA	not provided	N/A	Web-based Comments	13150	24
Lewis	Erma	not provided	N/A	Web-based Comments	56337, 56338, 56339	34
Lewis	Felicia	not provided	N/A	Web-based Comments	14416	24
Lewis	Gary	not provided	N/A	Web-based comments	3783	N/A
Lewis	Gary	not provided	N/A	Web-based Comments	14781	24
lewis	gerald	not provided	N/A	Web-based Comments	14958	24
Lewis	Heather	not provided	N/A	Web-based Comments	15521	24
Lewis	Henry	not provided	N/A	Web-based Comments	15668	24
lewis	j	not provided	N/A	Web-based Comments	15980	24
Lewis	Janie	not provided	N/A	Web-based Comments	16715	24
Lewis	Jeff	not provided	N/A	Web-based Comments	17039	24
Lewis	Jessica	lewijess86@gmail.com	N/A	Web-based comments	1092	N/A
Lewis	Joan	not provided	N/A	Web-based Comments	54234, 54235	34
Lewis	Joan	not provided	N/A	Web-based Comments	17701	24
Lewis	Jody	not provided	N/A	Web-based Comments	54913	34
Lewis	Jody	not provided	N/A	Web-based Comments	17867	24
Lewis	John	not provided	N/A	Web-based Comments	18078	24
Lewis	Joyce	not provided	N/A	Web-based Comments	57752	34
Lewis	Judy	not provided	N/A	Web-based comments	3793	N/A
Lewis	Kathleen	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4680	N/A
Lewis	Kathleen	not provided	N/A	Web-based Comments	19559	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
LEWIS	KELLY	not provided	N/A	Web-based Comments	19930	24
Lewis	Kristin	not provided	N/A	Web-based Comments	47105	34
Lewis	Kristin	not provided	N/A	Web-based Comments	20383	24
Lewis	Lindsey	not provided	N/A	Web-based Comments	21500	24
Lewis	Lisa	not provided	N/A	Web-based Comments	21588	24
Lewis	Lisa	not provided	N/A	Web-based Comments	21589	24
LEWIS	LISA	not provided	N/A	Web-based Comments	21590	24
Lewis	Michele	not provided	N/A	Web-based Comments	54474, 54475	34
Lewis	Mike	not provided	N/A	Web-based Comments	24465	24
Lewis	Mrs.	kerryjolewis@gmail.com	N/A	Web-based comments	4409	N/A
Lewis	Nancy	not provided	N/A	Web-based Comments	49130	34
Lewis	Nancy	not provided	N/A	Web-based Comments	24917	24
Lewis	Nora	not provided	N/A	Web-based Comments	55125	34
Lewis	Nora	not provided	N/A	Web-based Comments	25360	24
Lewis	Nora	not provided	N/A	Web-based Comments	25361	24
LEWIS	NORMAN	not provided	N/A	Web-based Comments	25398	24
Lewis	Patricia	not provided	N/A	Web-based Comments	47350	34
Lewis	Patricia	not provided	N/A	Web-based Comments	25793	24
Lewis	Patricia	not provided	N/A	Web-based Comments	25794	24
Lewis	Patrick	not provided	N/A	Web-based Comments	25910	24
Lewis	Paul	not provided	N/A	Web-based Comments	26017	24
Lewis	Rachael	not provided	N/A	Web-based Comments	26503	24
Lewis	Rebecca	not provided	N/A	Web-based Comments	26745	24
Lewis	Rena	not provided	N/A	Web-based Comments	53655	34
Lewis	Richard	not provided	N/A	Web-based Comments	27005	24
Lewis	Samm	not provided	N/A	Web-based comments	57412	35
Lewis	Samm	not provided	N/A	Web-based Comments	28094	24
Lewis	Samm	sammarye@gmail.com	N/A	Web-based comments	6864	1
Lewis	Sammarye	not provided	N/A	Web-based Comments	52881	34
Lewis	Shirley	not provided	N/A	Web-based comments	57239	35
Lewis	Stephanie	not provided	N/A	Web-based Comments	29231	24
Lewis	Susan	not provided	N/A	Web-based Comments	45224, 45225	34
Lewis	Tallia	tallialewis@gmail.com	N/A	Web-based comments	1893	N/A
Lewis-Sattel	Josephine	not provided	N/A	Web-based Comments	45303	34
Lewitke	Michael	not provided	N/A	Web-based Comments	24149	24
Lewkowicz	Nancy	not provided	N/A	Web-based Comments	24918	24
Ley	Juliana	not provided	N/A	Web-based Comments	47735	34
Ley	Juliana	not provided	N/A	Web-based Comments	18795	24
Leyh	Marjorie	not provided	N/A	Web-based Comments	22881	24
Lezotte	Eric	not provided	N/A	Web-based Comments	14122	24
Lezotte	Ruth	not provided	N/A	Web-based Comments	27877	24
LHebreux	Renèe	not provided	N/A	Web-based Comments	45279	34
Lheureux	Jole	not provided	N/A	Web-based Comments	46449	34
LHeureux	Jole	not provided	N/A	Web-based Comments	18238	24
Li	Dorri	not provided	N/A	Web-based Comments	46072	34
Li	Jasmine	not provided	N/A	Web-based Comments	44688	34
Liang	Alicia	not provided	N/A	Web-based Comments	47122	34
Liang	Cyrene	not provided	N/A	Web-based Comments	11569	24
Lianzi	Theresa	not provided	N/A	Web-based Comments	45521	34
Lianzi	Theresa	not provided	N/A	Web-based Comments	30440	24
Liao	Alex	not provided	N/A	Web-based Comments	7247	24
Liao	Mike	not provided	N/A	Web-based Comments	24466	24
Libby	Kathleen	not provided	N/A	Web-based Comments	46938	34
Libby	Kathleen	not provided	N/A	Web-based Comments	19560	24
Libengood	Patricia	not provided	N/A	Web-based Comments	25795	24
Liberge	Marcel	not provided	N/A	Web-based Comments	52420, 52421, 57977	34, 16
Liberty	Sandra	not provided	N/A	Web-based Comments	28178	24
Libeskind	Deborah	not provided	N/A	Web-based Comments	12429	24
Libman	Joel	not provided	N/A	Web-based Comments	56440	34
Libman	Joel	not provided	N/A	Web-based Comments	17915	24
Libowitz	Lisa	not provided	N/A	Web-based Comments	21591	24
Libutti	Amanda	not provided	N/A	Web-based Comments	7544	24
Licciardi	Gerardo	not provided	N/A	Web-based Comments	14981	24
Lichstein	Debra	not provided	N/A	Web-based Comments	48148	34
Lichter	Lennie	not provided	N/A	Web-based Comments	20984	24
Lickel	Bill	wjlickel@gmail.com	N/A	Web-based comments	5207	N/A
Lidard	Tim	not provided	N/A	Web-based Comments	30616	24
Liday	Jim	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	56667	13
Liddell	Jessica	not provided	N/A	Web-based Comments	46907, 46908	34
Liddell	Jessica	not provided	N/A	Web-based Comments	17439	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Liddick	Shawn	not provided	N/A	Web-based Comments	28752	24
LIDDLE	LESLEY	liddlelesley@gmail.com	N/A	Web-based comments	2622	1
Liden	Robert	not provided	N/A	Web-based Comments	27316	24
Lidicker	Naomi	not provided	N/A	Web-based Comments	25048	24
Lieb	James	not provided	N/A	Web-based Comments	54473	34
Liebelt	Les	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	56644	N/A
Lieber	Kurt	not provided	N/A	Web-based Comments	46645	34
Lieberman	Aaron	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4227	N/A
Lieberman	Laura	not provided	N/A	Web-based Comments	44473	34
Lieberman	Lynne	not provided	N/A	Web-based Comments	22144	24
Lieberman	Rebecca	not provided	N/A	Web-based Comments	26746	24
Liebert	Jonah	not provided	N/A	Web-based Comments	18271	24
Liebert	Veronica	not provided	N/A	Web-based Comments	53118	34
Liebert	Veronica	not provided	N/A	Web-based Comments	31099	24
Liebeskind	Al	not provided	N/A	Web-based Comments	49041	34
Liechty	Alana	not provided	N/A	Web-based Comments	7200	24
Liederer	Bianca	not provided	N/A	Web-based Comments	9155	24
Liedike	Robert	not provided	N/A	Web-based Comments	45074	34
Lien	Garth	lienmachines2@gmail.com	N/A	Web-based comments	2646	N/A
Lien	Jessica	not provided	N/A	Web-based Comments	17440	24
lienhard	judith	not provided	N/A	Web-based Comments	18615	24
Lies	Joshua	not provided	N/A	Web-based Comments	18435	24
Lietka	Jennifer	not provided	N/A	Web-based Comments	47460	34
Lietz	Kirsten	not provided	N/A	Web-based Comments	20278	24
Lieurance	Francelia	not provided	N/A	Web-based Comments	53324, 53325	34
Lieurance	Francelia	not provided	N/A	Web-based Comments	14471	24
Life	Caroline	not provided	N/A	Web-based Comments	10125	24
Liff	Christine	not provided	N/A	Web-based Comments	10946	24
Liford	Ashley	not provided	N/A	Web-based comments	57216	35
Lifson-Leu	Amy	not provided	N/A	Web-based Comments	7632	24
Liggio	Eleanor	not provided	N/A	Web-based Comments	54484	34
Light	Allie	not provided	N/A	Web-based Comments	7454	24
Light	Deborah	not provided	N/A	Web-based Comments	12430	24
Light	Gregory	not provided	N/A	Web-based Comments	15283	24
Light	Julie	not provided	N/A	Web-based Comments	18860	24
Lighter	Nan	not provided	N/A	Web-based Comments	24787	24
Lightner	Larry	lightnerlarry@cableone.net	N/A	Web-based comments	2117, 4908	11
Lightoot	Jacqueline	not provided	N/A	Web-based Comments	16121	24
Ligorelli	Teresa	not provided	N/A	Web-based Comments	30281	24
Ligotti	Nor	not provided	N/A	Web-based Comments	25352	24
Ligouri	Jeff	not provided	N/A	Web-based Comments	17040	24
Likens	Jessica	not provided	N/A	Web-based Comments	17441	24
Lilith	Ms	not provided	N/A	Web-based Comments	24685	24
Lilja	Natalie	not provided	N/A	Web-based Comments	25071	24
Liljedahl	Josh	jmliljed@gmail.com	N/A	Web-based comments	5830	8
Lill	Catherine	not provided	N/A	Web-based Comments	10296	24
Lill	Nancy Enz	not provided	N/A	Web-based Comments	58259	16
Lillard	J	not provided	N/A	Web-based Comments	15981	24
Lilleberg	Allen	not provided	N/A	Web-based Comments	58662	34
Lilleberg	Carol	not provided	N/A	Web-based Comments	9969	24
Lillestrand	Kortney	not provided	N/A	Web-based Comments	20314	24
Lilley	Kathryn	not provided	N/A	Web-based Comments	19650	24
Lilley	Susan	not provided	N/A	Web-based Comments	29746	24
Lillie	Chuck	not provided	N/A	Web-based Comments	11052	24
Lilling	Glenda	not provided	N/A	Web-based Comments	46482	34
Lilly	Marilyn	not provided	N/A	Web-based Comments	22794	24
Lilly	Richard	not provided	N/A	Web-based Comments	27006	24
Lillywhite	Lesley	not provided	N/A	Web-based Comments	46252	34
Lily	Deb	not provided	N/A	Web-based Comments	50152	34
Lim	judy	not provided	N/A	Web-based Comments	18698	24
Lim	Lester	not provided	N/A	Web-based Comments	21116	24
Lim	Nigel	not provided	N/A	Web-based Comments	25274	24
Lim	Robin	not provided	N/A	Web-based Comments	53190	34
Lim	Yee Yean	not provided	N/A	Web-based Comments	31663	24
Lima	Chris	not provided	N/A	Web-based Comments	58572, 58084	16, 34
Lima	Chris	not provided	N/A	Web-based Comments	10756	24
Lima	Ruth	not provided	N/A	Web-based Comments	27878	24
Lima	Thais	not provided	N/A	Web-based Comments	30399	24
Limbach	John	not provided	N/A	Web-based Comments	44714	34
Limberg	Leslie	not provided	N/A	Web-based Comments	21084	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Limbocker	Allan & Patsy	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58341	N/A
Limoges	Robynne	not provided	N/A	Web-based Comments	27553	24
Limoli	Roberta	not provided	N/A	Web-based Comments	27441	24
Limonadi	Shahaneh	not provided	N/A	Web-based Comments	44589, 44590	34
Limp	Kathy	not provided	N/A	Web-based Comments	19722	24
Limperis	Stephen	not provided	N/A	Web-based Comments	29311	24
Limyao	Amy	not provided	N/A	Web-based Comments	7633	24
Lin	Casey	not provided	N/A	Web-based Comments	10226	24
Lin	Chingyi	not provided	N/A	Web-based Comments	53674	34
Lin	Chingyi	not provided	N/A	Web-based Comments	10701	24
Lin	Emily	not provided	N/A	Web-based Comments	14023	24
Lina	Charles and Christine	not provided	N/A	Web-based Comments	10544	24
LINA	Sophie	not provided	N/A	Web-based Comments	29087	24
Linabury	Sandra	not provided	N/A	Web-based Comments	55977	34
Lincoln	Deb	not provided	N/A	Web-based Comments	12297	24
Lincoln	Holly	not provided	N/A	Web-based Comments	15758	24
lincoln	janet	not provided	N/A	Web-based Comments	16617	24
Lincoln	John	not provided	N/A	Web-based Comments	18079	24
Lincoln	Matt and Lindsay	not provided	N/A	Web-based Comments	23628	24
Lincoln	Rebecca	not provided	N/A	Web-based Comments	26747	24
Lincoln	Ron	not provided	N/A	Web-based Comments	27628	24
Lincoln	Sandy	not provided	N/A	Web-based Comments	28250	24
Lind	Britt	not provided	N/A	Web-based Comments	56473	34
Lind	Britt	not provided	N/A	Web-based Comments	9563	24
Linda	Donald	dlparks398@gmail.com	N/A	Web-based comments	6435	N/A
Linda	Lauren	not provided	N/A	Web-based Comments	20781	24
Lindaas	Alyssa	not provided	N/A	Web-based Comments	7504	24
Lindain	Vince	not provided	N/A	Web-based Comments	31246	24
Lindauer	Brooke	not provided	N/A	Web-based Comments	9583	24
Lindbak	Sara	not provided	N/A	Web-based Comments	28297	24
Lindberg	Christian	not provided	N/A	Web-based Comments	10829	24
lindberg	david	not provided	N/A	Web-based Comments	12072	24
Lindbergh	Renee	not provided	N/A	Web-based Comments	26848	24
Linde	Caryn	carynjack@gmail.com	N/A	Web-based comments	5265	N/A
Linde	Janet	not provided	N/A	Web-based Comments	16618	24
Lindeke	Lianne	not provided	N/A	Web-based Comments	52344	34
Lindekugel-Thurman	Virginia	not provided	N/A	Web-based Comments	46561	34
Lindell	Marlene	not provided	N/A	Web-based Comments	23042	24
Lindemann	Erica	not provided	N/A	Web-based Comments	52760	34
Lindemann	Mary Ann	not provided	N/A	Web-based Comments	23496	24
Linden	Dianna	not provided	N/A	Web-based Comments	12930	24
Linden	Joanne	not provided	N/A	Web-based Comments	17812	24
Linden	Susan	not provided	N/A	Web-based Comments	29747	24
Lindenbacher	Dany	not provided	N/A	Web-based Comments	54149	34
Linder	Adria	not provided	N/A	Web-based Comments	7077	24
Linder	Carol	not provided	N/A	Web-based Comments	9970	24
Linder	Nancy	not provided	N/A	Web-based Comments	24919	24
Linder	Patty	not provided	N/A	Web-based Comments	25960	24
linderman	maggie	not provided	N/A	Web-based Comments	22269	24
Lindgren	Barbro	not provided	N/A	Web-based Comments	8849	24
Lindgren	Connie	not provided	N/A	Web-based Comments	45506	34
Lindgren	Connie	not provided	N/A	Web-based Comments	11315	24
Lindgren	Jean	not provided	N/A	Web-based Comments	50372, 52325	34
Lindgren	Jean	not provided	N/A	Web-based Comments	16857	24
Lindholdt	Paul	paullindholdt@gmail.com	N/A	Web-based comments	4021	N/A
Lindhorst	Corine	not provided	N/A	Web-based Comments	46359	34
Lindley	Gail	not provided	N/A	Web-based Comments	55209	34
Lindner	Joyce	not provided	N/A	Web-based Comments	57764	34
Lindner	Leah	leahjoylove@gmail.com	N/A	Web-based comments	6465	1
Lindorff	Elizabeth	not provided	N/A	Web-based comments	57004	35
Lindsay	Cathy	not provided	N/A	Web-based Comments	48560	34
Lindsay	David	not provided	N/A	Web-based Comments	58263	16
Lindsay	James	not provided	N/A	Web-based Comments	47676, 47677	34
Lindsay	Jim	not provided	N/A	Web-based Comments	17588	24
Lindsay	Kathryn S P	not provided	N/A	Web-based Comments	48362	34
Lindsay	Linda	not provided	N/A	Web-based Comments	47496	34
lindsay	nancy	not provided	N/A	Web-based Comments	24920	24
Lindsey	Doug	not provided	N/A	Web-based Comments	56189	34

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Lindsey	K.	not provided	N/A	Web-based Comments	18986	24
Lindsey	Karen	not provided	N/A	Web-based Comments	19162	24
Lindsey	Rachel	not provided	N/A	Web-based Comments	26532	24
Lindsey	Sarah	not provided	N/A	Web-based Comments	47426	34
Lindsey	Sarah	not provided	N/A	Web-based Comments	28372	24
Lindsey	Stephen	not provided	N/A	Web-based Comments	29312	24
Lindstrom	Steven	not provided	N/A	Web-based Comments	29447	24
Lindwood	S.	not provided	N/A	Web-based Comments	27958	24
Linehan	Maryann	not provided	N/A	Web-based Comments	23561	24
Linehan	Maxene	not provided	N/A	Web-based Comments	23745	24
Linehan	Victoria	not provided	N/A	Web-based Comments	31206	24
Linerud	Tim	not provided	N/A	Web-based Comments	30617	24
Linet	Elaine	not provided	N/A	Web-based Comments	13599	24
Linhart	June	not provided	N/A	Web-based Comments	44860, 58425	34
Linhart	June	not provided	N/A	Web-based Comments	18939	24
Lininger	Betty	not provided	N/A	Web-based Comments	51385	34
Lininger	Christine	not provided	N/A	Web-based Comments	10948	N/A
Lininger	Christine	not provided	N/A	Web-based Comments	10947	24
Lininger	Steve	not provided	N/A	Web-based Comments	29376	24
Link	Arnie	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58768	N/A
Link	Laura	not provided	N/A	Web-based Comments	20666	24
Linke	Linda	not provided	N/A	Web-based Comments	21330	24
Linker	Alice	twolinkers1960@gmail.com	N/A	Web-based comments	3841	N/A
Linker	Linda	not provided	N/A	Web-based Comments	52014	34
Linkin	Vicki	not provided	N/A	Web-based Comments	31139	24
Link-New	Virgene	not provided	N/A	Web-based Comments	50664, 50665, 50666, 57841	34
Link-New	Virgene	not provided	N/A	Web-based Comments	31262	24
Linn	Alan	not provided	N/A	Web-based Comments	7174	24
Linn	David	dplinn@coastaccess.com	N/A	Web-based comments	6441	N/A
Linn	David	not provided	N/A	Web-based Comments	49253	34
Linn	Karen	not provided	N/A	Web-based Comments	58626	34
Linn	Karen	not provided	N/A	Web-based Comments	19163	24
Linn	Rose	not provided	N/A	Web-based Comments	27725	24
Linnard	Carolyn	not provided	N/A	Web-based Comments	10168	24
LINNERSON	Gail	not provided	N/A	Web-based Comments	49950, 49951	34
Linnerson	Gail	not provided	N/A	Web-based Comments	14698	24
Linney	Lucinda	not provided	N/A	Web-based Comments	21946	24
Linsenmeyer	Christina	not provided	N/A	Web-based Comments	10862	24
Linsky	Rick	not provided	N/A	Web-based Comments	27091	24
Lionetti	Marc	not provided	N/A	Web-based Comments	22336	24
Lion-Storm	Nancy	not provided	N/A	Web-based Comments	55081	34
Lios	Bev	not provided	N/A	Web-based Comments	49666, 49667	34
Lipcsey	Todd	not provided	N/A	Web-based Comments	30723	24
Lipe	Jeanette	not provided	N/A	Web-based Comments	16915	24
Lipham	Tiffany	not provided	N/A	Web-based Comments	30588	24
Lipka	Francine	not provided	N/A	Web-based Comments	14502	24
Lipka	Jordan	not provided	N/A	Web-based Comments	18318	24
Lipman	Deborah	not provided	N/A	Web-based comments	56995	35
Lipman	Deborah	not provided	N/A	Web-based Comments	55134	34
Lipman	Deborah	not provided	N/A	Web-based Comments	12431	24
Lipman	Stephen	not provided	N/A	Web-based Comments	29313	24
Lipofsky	judith	not provided	N/A	Web-based Comments	18616	24
Lippert	Connie	not provided	N/A	Web-based Comments	11316	24
Lippert	Regina DeFalco	not provided	N/A	Web-based Comments	26811	24
Lippert	Timothy	not provided	N/A	Web-based Comments	44990	34
Lippert	Timothy	not provided	N/A	Web-based Comments	30650	24
Lippin	Sally	not provided	N/A	Web-based Comments	51445	34
Lippincott	Steve	not provided	N/A	Web-based Comments	29377	24
Lippman	Donna Robin	not provided	N/A	Web-based Comments	13200	24
Lippman	Jane	not provided	N/A	Web-based Comments	16510	24
Lippmann	Becky	not provided	N/A	Web-based Comments	8911	24
Lippmann	Rebecca	not provided	N/A	Web-based Comments	54998	34
Lipscomb	David	davidlipscomb@comcast.net	N/A	Web-based comments	3026	8
Lipsey	Joseph	not provided	N/A	Web-based Comments	18375	24
Lipsky	Dorothy	not provided	N/A	Web-based Comments	13267	24
Lipsky	Richard	not provided	N/A	Web-based Comments	27007	24
Lipson	Steven	not provided	N/A	Web-based Comments	29448	24
Lipson	Virginia	not provided	N/A	Web-based Comments	31295	24
Liptak	Linda	not provided	N/A	Web-based Comments	21331	24
Lipton	Melanie	not provided	N/A	Web-based Comments	46469	34

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Lipton	Melanie	not provided	N/A	Web-based Comments	23839	24
Lira	Kristen	not provided	N/A	Web-based Comments	56463	34
Lira	Stefon	not provided	N/A	Web-based Comments	51427	34
Lira	Stefon	not provided	N/A	Web-based Comments	29180	24
Lirette	Nicole	not provided	N/A	Web-based Comments	25244	24
Lis	Vera	not provided	N/A	Web-based Comments	48975	34
Lis	Vera	not provided	N/A	Web-based Comments	31086	24
Lisafeld	Monica	not provided	N/A	Web-based Comments	24632	24
Lischer	Jane	not provided	N/A	Web-based Comments	48524	34
Lish	Christopher	not provided	N/A	Web-based comments	5173	N/A
Lish	Christopher	not provided	N/A	Web-based Comments	54538	34
Lish	Jeannine	not provided	N/A	Web-based Comments	58290	16
Lisi	Marcia	not provided	N/A	Web-based Comments	22376	24
Lisiewski	Kitrina	not provided	N/A	Web-based Comments	51441, 51442	34
Liska	Alan	not provided	N/A	Web-based Comments	7175	24
Lisowski	John	not provided	N/A	Web-based Comments	51423	34
Liss	Cynthia	not provided	N/A	Web-based Comments	52193, 52194	34
Liss	Cynthia	not provided	N/A	Web-based Comments	11521	24
Liss	John	not provided	N/A	Web-based Comments	53042	34
Liss	John	not provided	N/A	Web-based Comments	18080	24
lissauer	j	not provided	N/A	Web-based Comments	15982	24
Lisse	Joan	not provided	N/A	Web-based Comments	49026	34
List	Kathleen	not provided	N/A	Web-based Comments	19561	24
Litchfield	Dan	not provided	N/A	Web-based Comments	11661	24
Litchfield	John	not provided	N/A	Web-based Comments	18081	24
Lite	Nitza	not provided	N/A	Web-based Comments	25322	24
Litscher	Wm.	wblitsch@gmail.com	N/A	Web-based comments	6301	N/A
Litster	Cheryl	not provided	N/A	Web-based Comments	10659	24
Litten	Edna	not provided	N/A	Web-based Comments	13478	24
Litten	Reuben	not provided	N/A	Web-based Comments	26867	24
Little	Alan	not provided	N/A	Web-based Comments	7176	24
Little	Amy	not provided	N/A	Web-based Comments	7634	24
Little	Anne	not provided	N/A	Web-based Comments	8216	24
Little	Brett	not provided	N/A	Web-based Comments	9450	24
Little	Christina	not provided	N/A	Web-based Comments	54488	34
Little	Christina	not provided	N/A	Web-based Comments	10863	24
Little	Courtney	not provided	N/A	Web-based Comments	11403	24
Little	D.	not provided	N/A	Web-based comments	3078	12
little	Derek	dereklpt@gmail.com	N/A	Web-based comments	843	N/A
Little	Derek	not provided	N/A	Web-based Comments	12722	24
Little	Erin	eclittle1320@gmail.com	N/A	Web-based comments	1086	1
Little	George	not provided	N/A	Web-based Comments	14897	24
Little	Jennifer	not provided	N/A	Web-based Comments	17215	24
Little	John	not provided	N/A	Web-based Comments	18082	24
Little	John	not provided	N/A	Web-based Comments	18083	24
Little	Kathryn	not provided	N/A	Web-based Comments	51400	34
Little	Veleida	not provided	N/A	Web-based Comments	31076	24
LittleCub	BobbyKat	not provided	N/A	Web-based Comments	9273	24
Littledale	Colleen	not provided	N/A	Web-based Comments	47335	34
Littlefield	Julie	not provided	N/A	Web-based comments	57653	35
Littlefield	Nancy	nlcumorah@yahoo.com	N/A	Web-based comments	3272	11
Littleman	Tina	not provided	N/A	Web-based Comments	45246	34
littleman	Tina	not provided	N/A	Web-based Comments	30679	24
Littlewood	Ann	annlittlewood3@gmail.com	N/A	Web-based comments	4001	N/A
littman	annette	not provided	N/A	Web-based Comments	8282	24
littman	stephen	not provided	N/A	Web-based Comments	29314	24
Litton	Florence	not provided	N/A	Web-based Comments	14450	24
Litvin	Irina	not provided	N/A	Web-based comments	57535	35
Litz	Nora	not provided	N/A	Web-based Comments	25362	24
Liu	Anna	not provided	N/A	Web-based Comments	8142	24
Liu	Hannah	not provided	N/A	Web-based Comments	47403	34
Liu	Hannah	not provided	N/A	Web-based Comments	15407	24
Liu	Sharon	not provided	N/A	Web-based Comments	45680	34
Liuzza	Lauren	not provided	N/A	Web-based Comments	20782	24
lively	Ira	livelydet@yahoo.com	N/A	Web-based comments	1926	N/A
Lively	Martina	not provided	N/A	Web-based Comments	23182	24
Liversidge	Anne	not provided	N/A	Web-based Comments	50856	34
Livesay	Laura	not provided	N/A	Web-based Comments	20667	24
Livesay	Val	not provided	N/A	Web-based Comments	47348	34
Livesey-Fassel	Elaine	not provided	N/A	Web-based Comments	13600	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Livesley	Kathie	not provided	N/A	Web-based Comments	19504	24
LIVGREN	MARTIN	not provided	N/A	Web-based Comments	23166	24
Livingston	Penni	not provided	N/A	Web-based Comments	50377	34
Livingston	Sarah	not provided	N/A	Web-based Comments	28373	24
Livingston	Tawnee	not provided	N/A	Web-based Comments	30228	24
Livoti	Veronique	not provided	N/A	Web-based comments	57680	35
Lizak	J.B.	not provided	N/A	Web-based Comments	54576, 54577	34
Lizie	Mary	not provided	N/A	Web-based Comments	23334	24
Lizie	Mary E	not provided	N/A	Web-based Comments	53864	34
Llamas	Teresa	not provided	N/A	Web-based Comments	30282	24
Llanos	Liann	not provided	N/A	Web-based Comments	21142	24
Llewellyn	Indra	not provided	N/A	Web-based Comments	54737	34
Llewellyn	Stevyn	not provided	N/A	Web-based Comments	29481	24
Llinas	Stephanie	not provided	N/A	Web-based Comments	56127	34
Llinas	Stephanie	not provided	N/A	Web-based Comments	29232	24
Lloyd	Cyndi	not provided	N/A	Web-based Comments	11484	24
Lloyd	Diane	not provided	N/A	Web-based Comments	12869	24
Lloyd	George	not provided	N/A	Web-based Comments	14898	24
Lloyd	Jennifer	not provided	N/A	Web-based comments	57639	35
Lloyd	Jennifer	not provided	N/A	Web-based Comments	17216	24
Lloyd	Joe	jlloydkibe@gmail.com	N/A	Web-based comments	4574	N/A
Lloyd	Polly	plloyd221985@gmail.com	N/A	Web-based comments	5973	N/A
Lloyd	R	not provided	N/A	Web-based Comments	26477	24
Lloyd	Sharon	not provided	N/A	Web-based Comments	28678	24
Lloyd	Trevor	not provided	N/A	Web-based Comments	45370	34
Lloyd	Valerie	not provided	N/A	Web-based Comments	48109, 48110	34
llull	christian	not provided	N/A	Web-based Comments	10830	24
Lo	Jen	not provided	N/A	Web-based Comments	47365	34
Loa	Laurie	not provided	N/A	Web-based Comments	20843	24
Loacker	James	not provided	N/A	Web-based Comments	52659	34
Loats	Carol	not provided	N/A	Web-based Comments	9971	24
Lobashova	Elena	not provided	N/A	Web-based Comments	13648	24
Lobban	Lilly	not provided	N/A	Web-based Comments	21173	24
Lobdell	Donna	not provided	N/A	Web-based Comments	13151	24
LoBiondo	Gina	not provided	N/A	Web-based Comments	45510	34
Locarnini	Daniel	not provided	N/A	Web-based Comments	11749	24
Locelso	Cristina	not provided	N/A	Web-based Comments	11443	24
Loch	Christopher	not provided	N/A	Web-based Comments	52509	34
Lochridge	Jeffrey	bronzeloch@yahoo.com	N/A	Web-based comments	3488	N/A
LoCicero-Walsh	Jessica	not provided	N/A	Web-based Comments	17442	24
Locke	Marcia	not provided	N/A	Web-based comments	5212	N/A
Locke	Mona	not provided	N/A	Web-based Comments	24608	24
Lockey	Elaine	not provided	N/A	Web-based Comments	13601	24
Lockhart	Jim	not provided	N/A	Web-based Comments	17589	24
Lockridge	Kay	not provided	N/A	Web-based Comments	19826	24
Lockwood	Gretchen	not provided	N/A	Web-based Comments	15314	24
Lockwood	Linda	not provided	N/A	Web-based Comments	21332	24
Lockwood	Nina	not provided	N/A	Web-based Comments	25309	24
Lockwood-Koehn	Teighlor	not provided	N/A	Web-based comments	56982	35
lodanosky	joseph	not provided	N/A	Web-based Comments	18376	24
Loe	Steve	not provided	N/A	Web-based Comments	29378	24
Loebach	Michaela	not provided	N/A	Web-based Comments	24266	24
Loebel-Fried	Caren	not provided	N/A	Web-based Comments	9782	24
Loecker	Joan	not provided	N/A	Web-based Comments	17702	24
Loehlein	Kenneth	not provided	N/A	Web-based Comments	49823	34
Loehr	Sharon	not provided	N/A	Web-based Comments	28679	24
Loeken	Janiese	not provided	N/A	Web-based Comments	16723	24
Loer	Jean	not provided	N/A	Web-based Comments	16858	24
loera	Ann	not provided	N/A	Web-based Comments	8060	24
Loerke	Alison	not provided	N/A	Web-based Comments	7411	24
Loeschke	Paul	not provided	N/A	Web-based Comments	26018	24
Loeser	Karen	not provided	N/A	Web-based Comments	45923	34
Loet	Jean	not provided	N/A	Web-based Comments	16859	24
Loewen	Collin	not provided	N/A	Web-based Comments	11280	24
loewenstein	Cathy	not provided	N/A	Web-based Comments	54624	34
Loewer	Leopold	not provided	N/A	Web-based Comments	21019	24
Loewer	Vera	not provided	N/A	Web-based Comments	51391	34
Loewer-Torrez	Cynthia	not provided	N/A	Web-based Comments	11522	24
Lofstrom	Gunilla	not provided	N/A	Web-based Comments	49323	34
Loftin	Laura	not provided	N/A	Web-based Comments	20668	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Loftin	Nancy	not provided	N/A	Web-based Comments	53374	34
Loftis	Paula	not provided	N/A	Web-based Comments	58380, 48667	28, 34
Lofton	K.	not provided	N/A	Web-based Comments	18987	24
Logan	Corina	not provided	N/A	Web-based Comments	11370	24
Logan	Donna	not provided	N/A	Web-based Comments	49390, 49391	34
Logan	Douglas	douglas.m.logan@gmail.com	N/A	Web-based comments	6845	N/A
Logan	Elaine	not provided	N/A	Web-based Comments	13602	24
Logan	Jeralyn	not provided	N/A	Web-based Comments	17304	24
Logan	Michele	not provided	N/A	Web-based Comments	24294	24
logan	t	not provided	N/A	Web-based Comments	30094	24
LOGSDON	KAREN	not provided	N/A	Web-based Comments	19164	24
Loh	Lois	not provided	N/A	Web-based Comments	21723	24
Lohan	Susan	not provided	N/A	Web-based Comments	29748	24
lohli	arline	not provided	N/A	Web-based Comments	52654, 52655	34
Lohman	Ann	Lohmanfarms@frontier.com	N/A	Web-based comments	3520	N/A
Lohman	Lori	not provided	N/A	Web-based Comments	21792	24
Lohman	Wendy	not provided	N/A	Web-based Comments	31436	24
Lohr	Margaret	not provided	N/A	Web-based Comments	44789	34
Lohr	Marie	not provided	N/A	Web-based Comments	22714	24
Lohrer	Travis	not provided	N/A	Web-based comments	1977	1
Lohwasser	Diane	not provided	N/A	Web-based Comments	12870	24
Lojo	Rosemary	not provided	N/A	Web-based Comments	49477	34
Lokensgard	Linda	not provided	N/A	Web-based Comments	21333	24
Lokka	Duke	not provided	N/A	Web-based Comments	13386	24
Lokken	Mary	not provided	N/A	Web-based Comments	23335	24
Lolli	Mark	not provided	N/A	Web-based Comments	22958	24
Lomas	Leslie	not provided	N/A	Web-based Comments	21085	24
Lomax	Brandy	not provided	N/A	Web-based comments	2011	N/A
Lomax	Zeia	not provided	N/A	Web-based Comments	31724	24
Lombard	H	not provided	N/A	Web-based Comments	15367	24
Lombard	Jean	not provided	N/A	Web-based Comments	16860	24
Lombard	Mary	not provided	N/A	Web-based Comments	23336	24
Lombard	Richard	not provided	N/A	Web-based Comments	46607	34
Lombardi	Carolyn	not provided	N/A	Web-based Comments	10169	24
Lombardi	Jessica	not provided	N/A	Web-based Comments	56111, 56112	34
LOMBARDI	MARIE	not provided	N/A	Web-based Comments	22715	24
Lombardi	Michael	not provided	N/A	Web-based Comments	46502, 46503	34
Lombardi	Michael	not provided	N/A	Web-based Comments	24150	24
Lombardozzi	Vivian	not provided	N/A	Web-based Comments	31320	24
LoMeo	Laura	not provided	N/A	Web-based Comments	44701	34
Lommel	Lois	not provided	N/A	Web-based Comments	21724	24
Lomon	Deirdre	not provided	N/A	Web-based Comments	51738	34
Lonczak	Gary	not provided	N/A	Web-based Comments	14782	24
London	Joy	not provided	N/A	Web-based Comments	18463	24
Lonergan	Janis	not provided	N/A	Web-based Comments	16744	24
Loney	Sandy	not provided	N/A	Web-based Comments	46415	34
Loney	Sandy	not provided	N/A	Web-based Comments	28251	24
Long	Alfred	not provided	N/A	Web-based Comments	7322	24
Long	Ann	not provided	N/A	Web-based Comments	8061	24
Long	Anthony	anthonylong4111@gmail.com	N/A	Web-based comments	3056	N/A
Long	Carolyn	not provided	N/A	Web-based Comments	51720	34
Long	Craig	Omnicron701@yahoo.com	N/A	Web-based comments	635	N/A
Long	James	not provided	N/A	Web-based comments	57164	35
Long	Jim	not provided	N/A	Web-based Comments	50673	34
Long	Joan	not provided	N/A	Web-based Comments	17703	24
long	judith	not provided	N/A	Web-based Comments	18617	24
Long	Kathy	not provided	N/A	Web-based Comments	51479	34
Long	Kathy	not provided	N/A	Web-based Comments	19723	24
long	kenneth	not provided	N/A	Web-based Comments	20017	24
Long	Kit	not provided	N/A	Web-based Comments	53313	34
Long	Kristi	not provided	N/A	Web-based Comments	44368	34
Long	Larisa	not provided	N/A	Web-based Comments	47813, 47814	34
Long	Laura	not provided	N/A	Web-based Comments	52889, 52890	34
Long	Laura	not provided	N/A	Web-based Comments	20669	24
Long	Leland	not provided	N/A	Web-based Comments	56466	34
Long	Lisa	not provided	N/A	Web-based Comments	57837	34
Long	Lisa	not provided	N/A	Web-based Comments	21592	24
Long	Marilyn	not provided	N/A	Web-based Comments	22795	24
Long	Melody	not provided	N/A	Web-based Comments	23950	24

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Long	Meredith	not provided	N/A	Web-based Comments	23977	24
LONG	NED	not provided	N/A	Web-based Comments	25122	24
Long	Paula	not provided	N/A	Web-based Comments	26088	24
Long	Paula	not provided	N/A	Web-based Comments	26089	24
Long	Petrina	not provided	N/A	Web-based Comments	26315	24
Long	Steve	not provided	N/A	Web-based Comments	29379	24
Long	Susan	not provided	N/A	Web-based Comments	29749	24
Long	Toni	not provided	N/A	Web-based Comments	30795	24
Longanecker	Danny	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58326	N/A
Longanecker	Julie	not provided	N/A	Web-based Comments	18861	24
Longanecker	Will	not provided	N/A	Web-based Comments	31489	24
Longardner	Rebecca	not provided	N/A	Web-based Comments	26748	24
Longchamp	Peter	not provided	N/A	Web-based Comments	26267	24
Longenbach	Robin	not provided	N/A	Web-based Comments	56044	34
Longenecker	Thomas	not provided	N/A	Web-based Comments	30517	24
Longever	Jordan	not provided	N/A	Web-based Comments	18319	24
Longo	Dawn	not provided	N/A	Web-based Comments	47051, 47052	34
Longo	Dawn	not provided	N/A	Web-based Comments	12232	24
Longshore	Martha	not provided	N/A	Web-based Comments	23111	24
Longstreth	Arlene	not provided	N/A	Web-based Comments	8429	24
longsworth	jon	not provided	N/A	Web-based Comments	18259	24
Longwood	Sara	not provided	N/A	Web-based Comments	50900	34
Longyear	Sharon	not provided	N/A	Web-based Comments	46123, 46124	34
Longyear	Sharon	not provided	N/A	Web-based Comments	28680	24
Lonstad	Peggy	not provided	N/A	Web-based Comments	26164	24
Lonzisero	Carissa	not provided	N/A	Web-based comments	3103	N/A
Lonzisero	Michelle	ajl@prontomail.com	N/A	Web-based comments	3101, 3102	N/A
Loo	Chris	not provided	N/A	Web-based Comments	53254, 53255	34
Loo	Henry	loo@ida.net	N/A	Web-based comments	31924	N/A
Looby	Joan	not provided	N/A	Web-based Comments	17704	24
Looij	Yvonne van de	not provided	N/A	Web-based Comments	53037, 53038, 53039	34
Look	Lois	not provided	N/A	Web-based Comments	21725	24
Loomba	Mary	not provided	N/A	Web-based Comments	23337	24
Loomis	Gregry	not provided	N/A	Web-based Comments	15301	24
Loomis	Jennifer	not provided	N/A	Web-based Comments	17217	24
Loomis	Julia Dorsey	not provided	N/A	Web-based Comments	18785	24
Loomis	Margaret	not provided	N/A	Web-based Comments	46387	34
Loomis	Steve	sdloomis@stjohncable.com	N/A	Web-based comments	4391	N/A
Loomis	Susan	not provided	N/A	Web-based Comments	48800	34
Looney	Barbara	not provided	N/A	Web-based Comments	8725	24
Looney	Charles	not provided	N/A	Web-based Comments	58063	16
Looper	Ella	not provided	N/A	Web-based Comments	13886	24
Looram	Peter	not provided	N/A	Web-based Comments	26268	24
Looser	Joshua	not provided	N/A	Web-based Comments	18436	24
Looze	Donna	donnalooze@gmail.com	N/A	Web-based comments	6200	N/A
Lopane	Mel	not provided	N/A	Web-based Comments	49601	34
Lopane	Mel	not provided	N/A	Web-based Comments	23827	24
lopena	al	not provided	N/A	Web-based Comments	52232	34
lopes	maria	not provided	N/A	Web-based Comments	22607	24
Lopes	Susana	not provided	N/A	Web-based Comments	29931	24
Lopez	Armando	not provided	N/A	Web-based Comments	8443	24
Lopez	Covi	not provided	N/A	Web-based Comments	45186	34
Lopez	Guy	not provided	N/A	Web-based Comments	15339	24
Lopez	I M	not provided	N/A	Web-based Comments	15825	24
Lopez	Janelly	not provided	N/A	Web-based Comments	16559	24
Lopez	Jeff	not provided	N/A	Web-based Comments	17041	24
Lopez	LeeAnn	not provided	N/A	Web-based Comments	20956	24
Lopez	Maria	not provided	N/A	Web-based Comments	22608	24
Lopez	Mathilde	mathlopez35@gmail.com	N/A	Web-based comments	281, 1473, 78	1
lopez	nicolas	not provided	N/A	Web-based Comments	25218	24
Lopez	Pablo	pablo.lopez1127@gmail.com	N/A	Web-based comments	943	N/A
Lopez	Ralph	not provided	N/A	Web-based Comments	26593	24
Lopez	Ricardo	not provided	N/A	Web-based Comments	26919	24
Lopez	Sarah	not provided	N/A	Web-based Comments	28374	24
Lopez	Susan D.	not provided	N/A	Web-based Comments	29925	24
Lopez	Susie	not provided	N/A	Web-based Comments	53467	34
lopez	thomas	not provided	N/A	Web-based Comments	30518	24
Lopez	Vincent	not provided	N/A	Web-based Comments	45610	34
Lopez-Iturri	Peio	not provided	N/A	Web-based comments	56843	35
Lopresto	Mark	not provided	N/A	Web-based Comments	22959	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Lorain	Mary	not provided	N/A	Web-based Comments	23338	24
Lorbeer	Susanne	not provided	N/A	Web-based Comments	29951	24
Lorch	Frank	not provided	N/A	Web-based Comments	14539	24
Lord	Amy	not provided	N/A	Web-based Comments	7635	24
Lord	Carolyn	not provided	N/A	Web-based Comments	10170	24
Lord	Herbert	not provided	N/A	Web-based Comments	56239	34
Lorent	Camille	camille.lorent38@gmail.com	N/A	Web-based comments	1179	2
Lorentzen	Robin	not provided	N/A	Web-based Comments	57934, 44961	16, 34
Lorenz	Bettina	not provided	N/A	Web-based Comments	53106	34
Lorenz	Deborah	not provided	N/A	Web-based Comments	12432	24
Lorenz	Heidi	not provided	N/A	Web-based Comments	15572	24
Lorenz	Laird	not provided	N/A	Web-based Comments	53736, 53737	34
Lorenzi	Varenka	not provided	N/A	Web-based Comments	50951	34
Lorenzini	Stefano	not provided	N/A	Web-based Comments	56578	34
Loretta	Vincent	not provided	N/A	Web-based Comments	31253	24
Lorey	Jeanene	not provided	N/A	Web-based Comments	44576	34
loria	kate	not provided	N/A	Web-based Comments	19393	24
Loridan	Claire	not provided	N/A	Web-based Comments	11132	24
lorig	constance	not provided	N/A	Web-based Comments	11341	24
lorimer	joel	not provided	N/A	Web-based Comments	56585	34
Loring	Doreen	not provided	N/A	Web-based Comments	56581	34
Lorrain	Erika	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	31754	N/A
Lorring	Dawn	not provided	N/A	Web-based Comments	12233	24
Losey	Robb	not provided	N/A	Web-based Comments	46382	34
Loss	David	not provided	N/A	Web-based Comments	12073	24
Lothian	Elizabeth	not provided	N/A	Web-based Comments	13788	24
Lothspeich	Robert	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32322	N/A
Lotito	Mark	not provided	N/A	Web-based Comments	52476, 52477	34
Lotito-Schuh	Anne	not provided	N/A	Web-based Comments	8217	24
Lott	Brett	lott.brett@gmail.com	N/A	Web-based comments	4457	N/A
Lott	Cindy	not provided	N/A	Web-based Comments	11087	24
Lott	John	not provided	N/A	Web-based comments	3345	N/A
Lott	Kelly	not provided	N/A	Web-based Comments	19931	24
lotz	judith	not provided	N/A	Web-based Comments	45818	34
Loucks	Cynthia	not provided	N/A	Web-based Comments	52359	34
Loucks	Cynthia	not provided	N/A	Web-based Comments	11523	24
Loud	Doris	not provided	N/A	Web-based Comments	13232	24
Louden	Maggie	not provided	N/A	Web-based Comments	22270	24
Louden	Susan L	not provided	N/A	Web-based Comments	29929	24
Loudis	Catherine	not provided	N/A	Web-based Comments	10297	24
Lough	Garth	not provided	N/A	Web-based Comments	14749	24
Loughbom	Diane	not provided	N/A	Web-based Comments	12871	24
Lougheed	Chris	not provided	N/A	Web-based Comments	10757	24
Loughlin	Kathleen	not provided	N/A	Web-based Comments	19562	24
Loughmiller	Phillip	not provided	N/A	Web-based Comments	26364	24
Loughran	Colleen	not provided	N/A	Web-based Comments	11269	24
Loughton	Dorothy	not provided	N/A	Web-based Comments	13268	24
Loui	Rachel	not provided	N/A	Web-based Comments	26533	24
Louie	Angelique	not provided	N/A	Web-based Comments	7946	24
Louie	Steven	not provided	N/A	Web-based Comments	29449	24
louis	dianne	not provided	N/A	Web-based Comments	12943	24
Louis	Dorothy	not provided	N/A	Web-based Comments	51607	34
Louis	Jeanette	not provided	N/A	Web-based Comments	16916	24
Louis	Rochelle	not provided	N/A	Web-based Comments	27564	24
Loukides	Judith S.	not provided	N/A	Web-based comments	57006	35
Lounibos	Jennifer	not provided	N/A	Web-based Comments	17218	24
Lounsbury	James	not provided	N/A	Web-based Comments	16254	24
Lounsbury	Mary	not provided	N/A	Web-based Comments	23339	24
Lourie	Sandra	not provided	N/A	Web-based Comments	28179	24
Louviere	Jacob	not provided	N/A	Web-based Comments	47873	34
Louviere	Jacob	not provided	N/A	Web-based Comments	16091	24
Lovato	Gilbert	not provided	N/A	Web-based Comments	15024	24
Love	Charlene	not provided	N/A	Web-based Comments	10476	24
Love	Gemariah	not provided	N/A	Web-based Comments	14843	24
Love	Jennifer	not provided	N/A	Web-based Comments	17219	24
Love	Marigold	not provided	N/A	Web-based Comments	22749	24
Love	Mary	not provided	N/A	Web-based Comments	23340	24
Love	Michelle	not provided	N/A	Web-based Comments	24364	24
Love	Rodney	not provided	N/A	Web-based Comments	44377	34
Love	Sofia	not provided	N/A	Web-based Comments	29042	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Love	Sofia	not provided	N/A	Web-based Comments	57965	16
Love	Sproule	not provided	N/A	Web-based Comments	50950	34
Lovejoy	Nancy	NL.99336@YAHOO.COM	N/A	Web-based comments	2597	N/A
Lovelady	Delorse	not provided	N/A	Web-based Comments	12611	24
Loveland	Jim	not provided	N/A	Web-based Comments	45491	34
Loveland	Jim	not provided	N/A	Web-based Comments	17590	24
Loveless	Peggy	not provided	N/A	Web-based Comments	49688	34
Loveless	Peggy	not provided	N/A	Web-based Comments	26165	24
Lovell	Alyssa	not provided	N/A	Web-based Comments	7505	24
Lovell	Douglas	not provided	N/A	Web-based comments	57637	35
Lovell	M.	not provided	N/A	Web-based Comments	58265	16
Lovell	Sharon	not provided	N/A	Web-based Comments	28681	24
Loveman	Christine	not provided	N/A	Web-based Comments	10949	24
Loven	David	not provided	N/A	Web-based Comments	12074	24
Lovering	Christina	not provided	N/A	Web-based Comments	10864	24
Loverso	Elizabeth	not provided	N/A	Web-based Comments	13789	24
Lovett	Delores	not provided	N/A	Web-based Comments	12608	24
Lovins	Terri	terlovins@gmail.com	N/A	Web-based comments	59	1
Low	David	not provided	N/A	Web-based Comments	12075	24
Low	Grant	not provided	N/A	Web-based Comments	51202	34
Low	Loretta	not provided	N/A	Web-based Comments	56105	34
Low	Loretta	not provided	N/A	Web-based Comments	21764	24
Low	Sammy	not provided	N/A	Web-based Comments	57963	16
Lowdermilk	Chris	not provided	N/A	Web-based Comments	10758	24
Lowe	Amanda	not provided	N/A	Web-based Comments	51664	34
Lowe	Amanda	not provided	N/A	Web-based Comments	7545	24
Lowe	Barbara	not provided	N/A	Web-based Comments	8726	24
Lowe	Christopher	not provided	N/A	Web-based Comments	11018	24
Lowe	Cynthia	not provided	N/A	Web-based Comments	11524	24
Lowe	James	not provided	N/A	Web-based Comments	52297	34
Lowe	James	not provided	N/A	Web-based Comments	16255	24
Lowe	Janice	not provided	N/A	Web-based Comments	16688	24
LOWE	JAVEY	not provided	N/A	Web-based Comments	16795	24
Lowe	Kay	not provided	N/A	Web-based Comments	19827	24
Lowe	Kimberly	not provided	N/A	Web-based Comments	49073	34
Lowe	Leah	not provided	N/A	Web-based Comments	20905	24
Lowe	Margot	not provided	N/A	Web-based Comments	58434	34
lowe	patience	not provided	N/A	Web-based Comments	25684	24
Lowe	Rob	not provided	N/A	Web-based Comments	27179	24
lowe	Sinead	sinead.lowe@gmail.com	N/A	Web-based comments	705	1
Lowe	susan	not provided	N/A	Web-based Comments	29750	24
Lowenthal	Mark	not provided	N/A	Web-based Comments	22960	24
Lowenthal	Steven	not provided	N/A	Web-based Comments	29450	24
Lower	Ben	not provided	N/A	Web-based Comments	8940	24
Lowery	Marlene	not provided	N/A	Web-based Comments	23043	24
Lowery	Mike	not provided	N/A	Web-based Comments	24467	24
Lowman	Catherine	not provided	N/A	Web-based comments	57129	35
Lowrey	Herb	not provided	N/A	Web-based Comments	52982	34
Lowrey	Jan	not provided	N/A	Web-based Comments	53989	34
Lowrey	Josephine	not provided	N/A	Web-based Comments	56275	34
Lowrie	Mark	not provided	N/A	Web-based Comments	22961	24
Lowry	Deborah	not provided	N/A	Web-based Comments	12433	24
Lowry	Kelly	not provided	N/A	Web-based Comments	19932	24
Lowry	Kristen	not provided	N/A	Web-based Comments	58634	34
Lowry	Lorraine	not provided	N/A	Web-based Comments	55789	34
Lowry	Lyn	not provided	N/A	Web-based Comments	22009	24
Lowry	Marsha	not provided	N/A	Web-based Comments	53277	34
Lox	Fern	not provided	N/A	Web-based Comments	14423	24
Loxley	Steve	not provided	N/A	Web-based Comments	29380	24
Loyd	Susanne	not provided	N/A	Web-based Comments	29952	24
Loyd	Tracey	not provided	N/A	Web-based Comments	58291, 54574	16, 34
Loyland	Susan	not provided	N/A	Web-based Comments	29751	24
Loza	Jayne	not provided	N/A	Web-based Comments	16829	24
Lozano	Donna	not provided	N/A	Web-based Comments	54285	34
Lozano	Donna	not provided	N/A	Web-based Comments	13152	24
Lozano	Jhon	not provided	N/A	Web-based Comments	17488	24
Lozano	Luis	not provided	N/A	Web-based Comments	21970	24
Lozon	Kristina	not provided	N/A	Web-based Comments	58553	34
Lozon	Kristina	not provided	N/A	Web-based Comments	20405	24
Lozon	Rob	not provided	N/A	Web-based Comments	44538	34

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Lozon	Rob	not provided	N/A	Web-based Comments	27180	24
Lp	Chlo?	chloe.lepage09@gmail.com	N/A	Web-based comments	62, 1522	1
Lualhati	Malaya	malaya.lualhati@gmail.com	N/A	Web-based comments	31785	N/A
Lubeach	Mike	mikeroe@bellsouth.net	N/A	Web-based comments	5360	N/A
Lubin	thalia	not provided	N/A	Web-based Comments	48008	34
lubin	thalia	not provided	N/A	Web-based Comments	30401	24
Lubin Rausher	Hilary	not provided	N/A	Web-based Comments	15700	24
Lubinsky	Sharyn	not provided	N/A	Web-based Comments	48850	34
Luboff	David	not provided	N/A	Web-based Comments	50014	34
Lubonovich	D.J.	not provided	N/A	Web-based Comments	53428, 53429	34
Lubonovich	D.J.	not provided	N/A	Web-based Comments	11605	24
Lubs	Matthew	not provided	N/A	Web-based Comments	23653	24
Luby	Jacquie	not provided	N/A	Web-based Comments	16147	24
Luca	Doris Alina	not provided	N/A	Web-based Comments	13241	24
Lucaciu	Lidia	not provided	N/A	Web-based Comments	54047	34
Lucaciu	Lidia	not provided	N/A	Web-based Comments	21148	24
Lucas	John	not provided	N/A	Web-based Comments	18084	24
Lucas	Kathleen	not provided	N/A	Web-based Comments	49931	34
Lucas	Kathleen	not provided	N/A	Web-based Comments	19563	24
Lucas	Laura	not provided	N/A	Web-based Comments	51552	34
Lucas	Mary Lamb	not provided	N/A	Web-based Comments	23535	24
Lucas	Mrs. J. Temple	not provided	N/A	Web-based Comments	46409	34
Lucas	Nina	not provided	N/A	Web-based Comments	25310	24
Lucas	Paul	not provided	N/A	Web-based Comments	26019	24
Lucas	Robert	not provided	N/A	Web-based Comments	45296	34
Lucas	steve	not provided	N/A	Web-based Comments	29381	24
Lucas	Tamara	not provided	N/A	Web-based Comments	30125	24
Lucci Jr	John	not provided	N/A	Web-based Comments	18085	24
Luccock	Mary Ann	not provided	N/A	Web-based Comments	23497	24
Luccock	Philip	not provided	N/A	Web-based Comments	26346	24
Luce	Carrie	not provided	N/A	Web-based Comments	46753	34
luce	carrie	not provided	N/A	Web-based Comments	10203	24
LUCE	CHARLES	not provided	N/A	Web-based Comments	10517	24
LUCERO	MICHAEL	not provided	N/A	Web-based Comments	54948	34
Lucero	Paola Alejandra	not provided	N/A	Web-based Comments	25613	24
Lucero-Love	Marsha	not provided	N/A	Web-based Comments	50249	34
Luchsinger	Frank	not provided	N/A	Web-based Comments	44975	34
Luchterhand	Erika	not provided	N/A	Web-based Comments	14198	24
Lucian	Lena	not provided	N/A	Web-based Comments	53212	34
lucianna	mark	not provided	N/A	Web-based Comments	52130	34
Lucie	Delmee	not provided	N/A	Web-based comments	1846	1
Lucier	Rebecca	not provided	N/A	Web-based comments	56717	35
Lucio	Rachel	not provided	N/A	Web-based Comments	58683	34
Lucio	Robert	not provided	N/A	Web-based Comments	27317	24
Luck	Diane	not provided	N/A	Web-based Comments	57978, 50001	16, 34
Luck	Patricia	not provided	N/A	Web-based Comments	25796	24
lucrezi	chiara	not provided	N/A	Web-based Comments	10695	24
Lucy	Kathy	not provided	N/A	Web-based Comments	19724	24
Ludemann-speelmans	Myra	not provided	N/A	Web-based Comments	24714	24
ludolphi	nicolette	not provided	N/A	Web-based Comments	49689	34
ludolphi	nicolette	not provided	N/A	Web-based Comments	25267	24
LUDTKE	TERRI	not provided	N/A	Web-based Comments	30337	24
Ludvigsen	Mona	not provided	N/A	Web-based Comments	24609	24
Ludwig	Margaret and Rolf	not provided	N/A	Web-based Comments	22521	24
Luebbers	Michael	not provided	N/A	Web-based Comments	24151	24
Luebke	Dana	not provided	N/A	Web-based Comments	11696	24
Luehrmann	Paul	not provided	N/A	Web-based Comments	53925	34
Luenebrink	Lara	not provided	N/A	Web-based Comments	20553	24
Luery	Carol	not provided	N/A	Web-based Comments	9972	24
Luetteke	Noreen	not provided	N/A	Web-based Comments	25375	24
Luft	Alicia Ann	not provided	N/A	Web-based Comments	7387	24
Lugo	Armando	not provided	N/A	Web-based Comments	51543	34
Lugo	Laura	not provided	N/A	Web-based Comments	20670	24
Lugo	Marcus	not provided	N/A	Web-based Comments	52512	34
Lugo	Melissa	not provided	N/A	Web-based Comments	23901	24
LUHRING	CARL	not provided	N/A	Web-based Comments	51718	34
Luijken	Betty-Lou	not provided	N/A	Web-based comments	56819	35
Luiza Corina	Luiza Corina	not provided	N/A	Web-based Comments	21975	24
Lujan	Maria	not provided	N/A	Web-based Comments	22609	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Luk	Andrew J.	not provided	N/A	Web-based Comments	52391	34
Lukachy	Tami	not provided	N/A	Web-based Comments	30138	24
Lukacova	Mariana	not provided	N/A	Web-based Comments	22664	24
Lukas	J	not provided	N/A	Web-based Comments	15983	24
Lukas	Joe	jlukas@3rivers.net	N/A	Web-based comments	6031	N/A
Lukas	Joe	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4712	N/A
Lukaszewicz	Anna	not provided	N/A	Web-based Comments	51852, 51853	34
Luke	Fred	not provided	N/A	Web-based Comments	14575	24
Luke	Jaedra	not provided	N/A	Web-based Comments	45465, 45466	34
Luke	Jaedra	not provided	N/A	Web-based Comments	16152	24
Luke	Linda	not provided	N/A	Web-based Comments	21334	24
Luke	Rosemary	not provided	N/A	Web-based Comments	27765	24
Luken	Marjorie	not provided	N/A	Web-based Comments	22882	24
Lukensmeyer	Pat	not provided	N/A	Web-based Comments	50059	34
Lukensmeyer	Pat	not provided	N/A	Web-based Comments	25662	24
Lukes	Zachary	not provided	N/A	Web-based Comments	31714	24
Lukich	Lyn	not provided	N/A	Web-based Comments	22010	24
Lukowitz	Wendy	not provided	N/A	Web-based Comments	52136	34
Lukowitz	Wendy	not provided	N/A	Web-based Comments	31437	24
Lull	Dawn	not provided	N/A	Web-based Comments	44296	34
Lull	Dawn	not provided	N/A	Web-based Comments	12234	24
Lum	C	not provided	N/A	Web-based Comments	9676	24
Lum	Stephen	not provided	N/A	Web-based Comments	29315	24
Luman	Trudy	not provided	N/A	Web-based Comments	30946	24
Lump	Jaime	not provided	N/A	Web-based comments	57428	35
Luna	Albert	not provided	N/A	Web-based Comments	7212	24
Luna	Bianca	not provided	N/A	Web-based Comments	9156	24
Luna	Carlos	not provided	N/A	Web-based Comments	9856	24
Luna	Donna	not provided	N/A	Web-based Comments	48912	34
Luna	Oralia	not provided	N/A	Web-based Comments	25446	24
Lunario	Judith	not provided	N/A	Web-based Comments	18618	24
Lund	Cindi	not provided	N/A	Web-based Comments	11060	24
Lund	Urszula	not provided	N/A	Web-based Comments	48767	34
Lund	Urszula	not provided	N/A	Web-based Comments	30982	24
Lundblad	Karen	not provided	N/A	Web-based Comments	19165, 19166	24
Lundeen	Bill	not provided	N/A	Web-based Comments	57831	34
Lundell	Alicia	not provided	N/A	Web-based Comments	51993, 51994	34
Lundgren	Johnny	not provided	N/A	Web-based Comments	18236	24
Lundgren	Sally	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58327	N/A
Lundgren	Scott	not provided	N/A	Web-based Comments	28484	24
Lundheim	Vanassa	not provided	N/A	Web-based Comments	48049, 48050, 48051	34
Lundheim	Vanassa	not provided	N/A	Web-based Comments	31061	24
Lundholm	Mark	not provided	N/A	Web-based comments	4944	N/A
Lundin	Annmari	not provided	N/A	Web-based Comments	8318	24
Lundquist	John	not provided	N/A	Web-based Comments	18086	24
Lundquist	Judy	not provided	N/A	Web-based Comments	18699	24
Lundquist	Liz	not provided	N/A	Web-based Comments	21689	24
Lundquist	Sue	not provided	N/A	Web-based Comments	46097	34
Lundquist	Sue	not provided	N/A	Web-based Comments	29535	24
Lundstrom	Peter	not provided	N/A	Web-based Comments	26269	24
Lundvall	Karen	not provided	N/A	Web-based Comments	48115	34
Lundvall	Karen	not provided	N/A	Web-based Comments	19167	24
Lundy	Kathleen	not provided	N/A	Web-based Comments	19564	24
Lunger	Rhonda	not provided	N/A	Web-based Comments	26900	24
Luning	Karen	not provided	N/A	Web-based Comments	19168	24
Lunsford	Coleen	not provided	N/A	Web-based Comments	11244	24
lunsford	jimmie	not provided	N/A	Web-based Comments	54035	34
lunsford	jimmie	not provided	N/A	Web-based Comments	17624	24
Lunsik	Phyllis	not provided	N/A	Web-based Comments	26395	24
Lunson	Tina	not provided	N/A	Web-based Comments	57842	34
Lunz	Jackie	not provided	N/A	Web-based Comments	53895, 53896	34
Lunz	Jackie	not provided	N/A	Web-based Comments	16068	24
Lunzer	Madeline	not provided	N/A	Web-based Comments	22242	24
Luong	Annie	not provided	N/A	Web-based Comments	8302	24
Luostari	Alexandria	not provided	N/A	Web-based Comments	45107	34
Luostari	Alexandria	not provided	N/A	Web-based Comments	7298	24
Luparello	Rocio	not provided	N/A	Web-based Comments	47888	34
Luparia	Lauren	not provided	N/A	Web-based Comments	20783	24
Lupenko	Andy	not provided	N/A	Web-based Comments	7876	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Lupenski	Stephanie	not provided	N/A	Web-based Comments	29233	24
Luper	James	not provided	N/A	Web-based comments	5924	N/A
Lupowitz	Peri	not provided	N/A	Web-based Comments	26222	24
Lupton	Patrick	not provided	N/A	Web-based Comments	25911	24
Lurie	Ilene	not provided	N/A	Web-based Comments	15855	24
Lurtz	Jamie	not provided	N/A	Web-based Comments	47682	34
Lurye	Robert	not provided	N/A	Web-based Comments	27318	24
Lusby-Denham	Anne	not provided	N/A	Web-based Comments	8218	24
Lusch	Mark	not provided	N/A	Web-based Comments	22962	24
Lusche	Jean	not provided	N/A	Web-based Comments	16861	24
Lusher	Josh	not provided	N/A	Web-based Comments	44365	34
Lusk	Leonard	leonardddlusk@yahoo.com	N/A	Web-based comments	2652	N/A
Lussenhop	Martha	mlussenhop@bendbroadband.com	N/A	Web-based comments	2799	N/A
Luster	Brian	not provided	N/A	Web-based Comments	9488	24
Luster	Linda	not provided	N/A	Web-based Comments	46580	34
Luster	Linda	not provided	N/A	Web-based Comments	21335	24
Lustgarden	steve	not provided	N/A	Web-based Comments	48230	34
Lusthoff	Donald	not provided	N/A	Web-based Comments	58288	16
Lute	Sharon	sharon.lute@charter.net	N/A	US Mail or commercial carrier (UPS, FedEx)	58781	N/A
Luther	Doris	not provided	N/A	Web-based Comments	13233	24
Luther	Laura	not provided	N/A	Web-based Comments	46238	34
Luttmann	Rick	not provided	N/A	Web-based Comments	27092	24
lutton	Genevieve	not provided	N/A	Web-based Comments	14865	24
Lutton	William	not provided	N/A	Web-based Comments	47587	34
Luttrell	Matthew	matthewsluttrell@gmail.com	N/A	Web-based comments	2644	N/A
Lutz	Dave	not provided	N/A	Web-based Comments	11914	24
Lutz	Diane	not provided	N/A	Web-based Comments	48985	34
Lutz	Elizabeth	not provided	N/A	Web-based Comments	13790	24
Lutz	Gabriela	gabriela.lutz.mobile@gmail.com	N/A	Web-based comments	1159	1
Lutz	Jennifer	lutz.j@comcast.net	N/A	Web-based comments	6217	N/A
Lutz	Trish	not provided	N/A	Web-based Comments	30923	24
Lutzker	Daniel	not provided	N/A	Web-based Comments	11750	24
Luu	Jane	not provided	N/A	Web-based Comments	52759	34
Luu	Jayson	not provided	N/A	Web-based Comments	57906	16
Lux	Kerry	not provided	N/A	Web-based Comments	20070	24
Luxbacher	Joseph	not provided	N/A	Web-based Comments	18377	24
Luxton	Lynne	not provided	N/A	Web-based Comments	22145	24
lx	anne	not provided	N/A	Web-based Comments	8219	24
Lyall	Andrew	not provided	N/A	Web-based Comments	55632, 55633	34
Lyall	Andrew	not provided	N/A	Web-based Comments	7829	24
Lyall	Frank	falyall@yahoo.com	N/A	Web-based comments	6938	N/A
Lyda	Mary	not provided	N/A	Web-based Comments	52338, 52339	34
Lyda	Mary	not provided	N/A	Web-based Comments	23341	24
Lydecker	Joy	not provided	N/A	Web-based comments	57150	35
Lyell	Kim	not provided	N/A	Web-based Comments	20192	24
Lyerly	Linda	not provided	N/A	Web-based Comments	21336	24
Lyford	Charlene	not provided	N/A	Web-based Comments	10477	24
Lyle	David	not provided	N/A	Web-based comments	57300	35
Lyles	Nancy	not provided	N/A	Web-based Comments	51364	34
Lyles	Thomas	not provided	N/A	Web-based Comments	30519	24
Lyman	Amber	amber_herzog@hotmail.com	N/A	Web-based comments	6483	N/A
Lyman	Lindy	not provided	N/A	Web-based Comments	21502	24
Lyman	Mike	not provided	N/A	Web-based comments	57493	35
Lyman	Teresa	not provided	N/A	Web-based Comments	30283	24
Lymar	Petter	not provided	N/A	Web-based Comments	26316	24
Lynch	Andrea	not provided	N/A	Web-based Comments	52475	34
Lynch	Annie	not provided	N/A	Web-based comments	1142	1
Lynch	Carolann	not provided	N/A	Web-based Comments	10068	24
Lynch	Deborah	not provided	N/A	Web-based Comments	12434	24
Lynch	Dennis	not provided	N/A	Web-based Comments	12691	24
Lynch	Diane	not provided	N/A	Web-based Comments	12872	24
Lynch	Edward	not provided	N/A	Web-based Comments	13507	24
LYNCH	ELIZABETH	not provided	N/A	Web-based Comments	13791	24
Lynch	Janette	not provided	N/A	Web-based Comments	16659	24
Lynch	Jaremy	not provided	N/A	Web-based Comments	52330	34
Lynch	Jaremy	not provided	N/A	Web-based Comments	16761	24
Lynch	Jeanne	not provided	N/A	Web-based Comments	54978	34
Lynch	Jennifer	not provided	N/A	Web-based Comments	17220	24
Lynch	Linda	not provided	N/A	Web-based Comments	48436	34
Lynch	Linda	not provided	N/A	Web-based Comments	21337	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Lynch	Martha	not provided	N/A	Web-based Comments	23112	24
Lynch	Maureen	not provided	N/A	Web-based Comments	48544, 48545	34
Lynch	Maureen	not provided	N/A	Web-based Comments	23696	24
Lynch	Rachel	not provided	N/A	Web-based Comments	26534	24
Lynch	Robert	rslynch@rslynchaty.com	N/A	Web-based comments	31861	N/A
Lynch	Sharon	not provided	N/A	Web-based Comments	28682	24
Lynch	Stephen	not provided	N/A	Web-based Comments	56510	34
Lynch	Susan	not provided	N/A	Web-based Comments	29752	24
Lynch	Susan	not provided	N/A	Web-based Comments	29753	24
Lynch	Tina	not provided	N/A	Web-based Comments	30680	24
Lynch	Tom	not provided	N/A	Web-based Comments	30758	24
Lyngen	Pamela	not provided	N/A	Web-based Comments	25567	24
Lynn	Bonnie	not provided	N/A	Web-based Comments	9308	24
Lynn	Bonnie	not provided	N/A	Web-based Comments	9309	24
Lynn	Dawn	not provided	N/A	Web-based Comments	51886	34
Lynn	Deborah	not provided	N/A	Web-based Comments	12435	24
Lynn	Heidi	not provided	N/A	Web-based Comments	15573	24
Lynn	Lorna	not provided	N/A	Web-based Comments	21824	24
Lynn	Samantha	samanthanicolelynn@gmail.com	N/A	Web-based comments	607	N/A
Lynn	Sandra	not provided	N/A	Web-based Comments	28180	24
Lynn	Stuart	not provided	N/A	Web-based Comments	29492	24
Lynn-Bequette	Shawn	not provided	N/A	Web-based Comments	56313	34
Lynne	M	not provided	N/A	Web-based Comments	22179	24
Lyon	Angela Treat	not provided	N/A	Web-based Comments	7936	24
Lyon	Janet	not provided	N/A	Web-based Comments	49943, 49944	34
Lyon	Leonard	not provided	N/A	Web-based Comments	21007	24
Lyon	Marsha	not provided	N/A	Web-based Comments	23072	24
lyons	avis	not provided	N/A	Web-based Comments	8550	24
Lyons	Deborah	not provided	N/A	Web-based Comments	12436	24
Lyons	Deborah J	not provided	N/A	Web-based Comments	12496	24
Lyons	Elizabeth	not provided	N/A	Web-based Comments	13792	24
Lyons	Jenna	not provided	N/A	Web-based Comments	17139	24
Lyons	Laura	not provided	N/A	Web-based Comments	20671	24
Lyons	Martha	not provided	N/A	Web-based Comments	23113	24
Lyons	Mary	not provided	N/A	Web-based Comments	23342	24
Lyons	Pamela	not provided	N/A	Web-based Comments	45509	34
Lyons	Robert	not provided	N/A	Web-based Comments	27319	24
Lyons	Steve	not provided	N/A	Web-based Comments	54196	34
Lyons	Tryna	not provided	N/A	Web-based Comments	49864	34
Lyons	Tryna	not provided	N/A	Web-based Comments	30949	24
LYS	DAN	WPburden@aol.com	N/A	Web-based comments	32214	N/A
Lyscik	Shayla	not provided	N/A	Web-based Comments	28767	24
Lystig	Rebecca	not provided	N/A	Web-based Comments	26749	24
Lytchakov	Vladimir	not provided	N/A	Web-based Comments	31331	24
Lytle	Christine	not provided	N/A	Web-based Comments	55383	34
Lytle	Denise	not provided	N/A	Web-based comments	57012	35
Lytle	Denise	not provided	N/A	Web-based Comments	53005, 53006	34
Lytle	Denise	not provided	N/A	Web-based Comments	12646	24
Lytle	Gail	not provided	N/A	Web-based Comments	14699	24
Lytle	John	not provided	N/A	Web-based Comments	18087	24
Lytle	Matthew	not provided	N/A	Web-based Comments	46853	34
Lyttle	Antony	not provided	N/A	Web-based Comments	8373	24
M	A	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	4773	18
M	Amy	not provided	N/A	Web-based Comments	49196	34
M	Amy	not provided	N/A	Web-based Comments	7636	24
M	Ann	not provided	N/A	Web-based Comments	8062	24
M	Anne	not provided	N/A	Web-based Comments	8220	24
M	Ashley	ashley.meaux@hotmail.com	N/A	Web-based comments	874	1
M	Bree	not provided	N/A	Web-based Comments	44941, 44942	34
M	C	not provided	N/A	Web-based Comments	9677	24
M	C	not provided	N/A	Web-based Comments	9678	24
M	Claire	not provided	N/A	Web-based Comments	11133	24
M	D	not provided	N/A	Web-based Comments	49814	34
M	D	not provided	N/A	Web-based Comments	11581	24
M	Ellen	not provided	N/A	Web-based Comments	50855	34
M	Frances	not provided	N/A	Web-based Comments	50179	34
M	Frances	not provided	N/A	Web-based Comments	14483	24
m	g	not provided	N/A	Web-based Comments	58111	16
M	Geof	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58776	N/A
M	J	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	5527	18

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
M	Jamie	jamie.mangieri@gmail.com	N/A	Web-based comments	854	N/A
M	Jill	not provided	N/A	Web-based Comments	55649, 55650	34
M	Joanna	not provided	N/A	Web-based Comments	17790	24
M	June	not provided	N/A	Web-based Comments	18940	24
M	K	not provided	N/A	Web-based Comments	18977	24
M	L	not provided	N/A	Web-based Comments	52828, 52829	34
M	L	not provided	N/A	Web-based Comments	20483	24
M	Larry	not provided	N/A	Web-based Comments	44746	34
M	N	not provided	N/A	Web-based Comments	24735	24
M	R	not provided	N/A	Web-based Comments	26478	24
M	Rachelle	not provided	N/A	Web-based Comments	26562	24
M	S	not provided	N/A	Web-based comments	57693	35
M	Sarah	not provided	N/A	Web-based Comments	51006, 51007	34
m	shira	not provided	N/A	Web-based Comments	28936	24
M	W	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	5531	21
M Savage	Ricardo	not provided	N/A	Web-based Comments	26920	24
M.	C.	not provided	N/A	Web-based Comments	49225	34
M.	Doug	kd7suf@arrl.net	N/A	Web-based comments	31836	N/A
M.	H	not provided	N/A	Web-based comments	6632	1
M.	Heather	not provided	N/A	Web-based comments	3322	11
M.	Henry	not provided	N/A	Web-based Comments	49865	34
M.	Kare	not provided	N/A	Web-based Comments	49662	34
M.	Kare	not provided	N/A	Web-based Comments	19030	24
M.	Nancy	not provided	N/A	Web-based Comments	47631	34
M.	Patti	not provided	N/A	Web-based Comments	51688, 51689	34
M.	Suzanne	not provided	N/A	Web-based Comments	50859	34
M.	Suzanne	not provided	N/A	Web-based Comments	30005	24
M.A.	Melinda	paradise5265@gmail.com	N/A	Web-based comments	3862	N/A
M.D.	Richard	rsugdenmd@gmail.com	N/A	Web-based comments	2515, 3506	N/A
Ma	Celia	not provided	N/A	Web-based Comments	10438	24
Ma	Kevin	not provided	N/A	Web-based Comments	20121	24
Ma	Raymond	raymondma123@gmail.com	N/A	Web-based comments	31955	1
Maas	Rowena	not provided	N/A	Web-based Comments	58472, 58473	34
Maass	Anna	not provided	N/A	Web-based Comments	8143	24
Maass	Chandra	not provided	N/A	Web-based Comments	10457	24
Mabbott	MaryAnn	not provided	N/A	Web-based Comments	23562	24
Mabel	Joe	not provided	N/A	Web-based Comments	17888	24
Mabey	Munro	not provided	N/A	Web-based Comments	24693	24
Mabrey	William	rrtujim@gmail.com	N/A	Web-based comments	5303	8
Mabry	Belinda	not provided	N/A	Web-based Comments	8925	24
Mabry	Monica	not provided	N/A	Web-based Comments	24633	24
Mac Bean	William	not provided	N/A	Web-based Comments	31559	24
Mac Laughlin	Alfredo	not provided	N/A	Web-based Comments	7324	24
Mac Nish	Robert	not provided	N/A	Web-based Comments	27320	24
Mac Reamoinn	Laoise	not provided	N/A	Web-based Comments	20547	24
Macallister	Lisa	not provided	N/A	Web-based Comments	21593	24
Macalpine	Barbara	not provided	N/A	Web-based Comments	45117	34
Macan	Catherine	not provided	N/A	Web-based Comments	45335, 45336	34
Macan	Catherine	not provided	N/A	Web-based Comments	10298	24
MacArthur	June	not provided	N/A	Web-based Comments	58028	16
MacArthur	Ron	not provided	N/A	Web-based Comments	58078	16
Macartney	Bill	not provided	N/A	Web-based Comments	9175	24
Macartney	Bill	not provided	N/A	Web-based Comments	57944	16
Macary	Jean	not provided	N/A	Web-based Comments	16862	24
Macbeth	Douglas	macbeth.1@osu.edu	N/A	Web-based comments	5465	N/A
MacBrayne	Pamela	not provided	N/A	Web-based Comments	25568	24
MacBryde	Bruce	not provided	N/A	Web-based Comments	57809	34
MacButch	Scott	scott@ecotonephoto.com	N/A	Web-based comments	3616	N/A
MacCaonugha-Snyder	Morgan	not provided	N/A	Web-based Comments	52627, 52628	34
MacClellan	michael	not provided	N/A	Web-based Comments	24152	24
MacConaugha-Snyder	Morgan	not provided	N/A	Web-based Comments	24669	24
Macconnell	Darcy	not provided	N/A	Web-based Comments	11853	24
MacDermott	Tracey	not provided	N/A	Web-based Comments	30843	24
MacDiarmid	John	johnmmacdiarmid@gmail.com	N/A	Web-based comments	5466	N/A
Macdonald	Angus M	not provided	N/A	Web-based Comments	54664	34
MacDonald	Connie	not provided	N/A	Web-based Comments	11317	24
MacDonald	Janette	not provided	N/A	Web-based Comments	46807, 46808	34
MacDonald	Janette	not provided	N/A	Web-based Comments	16660	24
MacDonald	Jeffrey	not provided	N/A	Web-based Comments	17092	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
MacDonald	JoAnn	not provided	N/A	Web-based Comments	17772	24
MacDonald	Jody	not provided	N/A	Web-based Comments	17868	24
MacDonald	Nilah M.	not provided	N/A	Web-based Comments	25293	24
MacDonald	Reann	not provided	N/A	Web-based Comments	26702	24
MacDonald	Susan	not provided	N/A	Web-based Comments	29754	24
MacDonald	Tracey	not provided	N/A	Web-based Comments	58619	34
MacDonald	Tracey	not provided	N/A	Web-based Comments	30844	24
MacDonell	Megan	not provided	N/A	Web-based Comments	55205	34
MacDougall	David	not provided	N/A	Web-based comments	57559	35
MacDougall	Scott	not provided	N/A	Web-based Comments	28485	24
Mace	Pat	not provided	N/A	Web-based Comments	48631, 48632	34
mace	pat	not provided	N/A	Web-based Comments	25663	24
Mace	Sam	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4248, 4647	N/A
MacEachern	Ruth Anne	not provided	N/A	Web-based Comments	55274	34
Macek	Timothy	tim_macek@hotmail.com	N/A	Web-based comments	5269	8
MacElhiney	Michael	not provided	N/A	Web-based Comments	54848	34
MacEwen	Patricia	not provided	N/A	Web-based Comments	25797	24
Macey	Emma	not provided	N/A	Web-based Comments	14057	24
MacFarland	Elizabeth	not provided	N/A	Web-based comments	57696	35
MacFarlane	Bonnie	not provided	N/A	Web-based Comments	9310	24
MacFarlane	Elizabeth	not provided	N/A	Web-based Comments	13793	24
MacFarlane	Nancy	not provided	N/A	Web-based Comments	24921	24
MacGregor	Jacob	not provided	N/A	Web-based Comments	16092	24
MacGregor	Susan	not provided	N/A	Web-based Comments	55324	34
machado	Maria	not provided	N/A	Web-based Comments	47425	34
MACHADO	MARIA	not provided	N/A	Web-based Comments	22610	24
Machado	Michael	not provided	N/A	Web-based Comments	55672, 55673	34
Machado	Michael	not provided	N/A	Web-based Comments	24153	24
Machugin	Sandy	not provided	N/A	Web-based Comments	28252	24
Machutt	Pamela	not provided	N/A	Web-based Comments	25569	24
Macia	Samantha	not provided	N/A	Web-based Comments	28078	24
Macias	Gianna	not provided	N/A	Web-based Comments	15016	24
Maciel	Marie	not provided	N/A	Web-based Comments	22716	24
Maciel	Sarah	not provided	N/A	Web-based comments	57619	35
MacInnes	Bob	not provided	N/A	Web-based Comments	9243	24
MacIsaac	Sarah	not provided	N/A	Web-based Comments	28375	24
maciulewicz	karen	not provided	N/A	Web-based Comments	19169	24
Mack	April	not provided	N/A	Web-based Comments	8387	24
Mack	Chris	not provided	N/A	Web-based Comments	10759	24
Mack	Heather	not provided	N/A	Web-based Comments	15522	24
Mack	Janet	not provided	N/A	Web-based Comments	16619	24
Mack	Jean	not provided	N/A	Web-based Comments	16863	24
Mack	Kathleen	not provided	N/A	Web-based Comments	19565	24
Mack	Sara	smack3187@gmail.com	N/A	Web-based comments	1065	N/A
Mack	Tom	not provided	N/A	Web-based Comments	30759	24
Mackay	Rex	rtjmac@msn.com	N/A	Web-based comments	4122	N/A
Mackel	Becky	mackel@q.com	N/A	Web-based comments	2664	6
MacKelvie	Elizabeth	not provided	N/A	Web-based Comments	44276	34
MacKelvie	Elizabeth	not provided	N/A	Web-based Comments	13794	24
MacKenn	Lee	not provided	N/A	Web-based Comments	55186	34
MacKenn	Lee	not provided	N/A	Web-based Comments	20937	24
Mackenzie	Alasdair	not provided	N/A	Web-based Comments	7204	24
MacKenzie	Joan	not provided	N/A	Web-based Comments	17705	24
Mackenzie	Judith	not provided	N/A	Web-based Comments	18619	24
Mackenzie	Kathryn	not provided	N/A	Web-based Comments	19651	24
MacKenzie	Laurie	not provided	N/A	Web-based Comments	20844	24
MacKenzie	Linda	not provided	N/A	Web-based Comments	21338	24
MacKenzie	Lisa	lisamackenzie11@gmail.com	N/A	Web-based comments	6774	N/A
MacKenzie	Michelle	not provided	N/A	Web-based Comments	53379, 53380	34
Mackey	Jane	not provided	N/A	Web-based Comments	16511	24
mackey	jim	not provided	N/A	Web-based Comments	17591	24
MacKey	John	not provided	N/A	Web-based Comments	48790	34
Mackey	Wendy	not provided	N/A	Web-based Comments	31438	24
Macki--	S	not provided	N/A	Web-based Comments	27946	24
Mackie	Craig	beachbum@nehalemtel.net	N/A	Web-based comments	4851	N/A
Mackiewicz	Frances	not provided	N/A	Web-based Comments	53672, 53673	34
Mackiewicz	Frances	not provided	N/A	Web-based Comments	14484	24
MacKinnon	Bonnie Lynn	not provided	N/A	Web-based Comments	46504	34
MacKinnon	Bonnie Lynn	not provided	N/A	Web-based Comments	9333	24
Mackinnon	Richard	not provided	N/A	Web-based comments	57676	35

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Mackison	George	not provided	N/A	Web-based Comments	14899	24
Mackle	Mary	not provided	N/A	Web-based Comments	44606	34
Macklem	Traci	not provided	N/A	Web-based Comments	30852	24
Mackler	Donald	not provided	N/A	Web-based Comments	55881	34
Mackler	Donald	not provided	N/A	Web-based Comments	13072	24
Macklin	Karen	not provided	N/A	Web-based Comments	19170	24
Macklom	Karen	not provided	N/A	Web-based Comments	19171	24
Macknight	Maria	not provided	N/A	Web-based Comments	22611	24
MacKown	Linda	not provided	N/A	Web-based Comments	21339	24
MacKrell	L	not provided	N/A	Web-based Comments	51969, 51970	34
Maclaren	Alex	not provided	N/A	Web-based Comments	7248	24
MacLaren	Amanda	not provided	N/A	Web-based comments	56891	35
MacLaren	Hannah	not provided	N/A	Web-based Comments	51926	34
MacLean	John	not provided	N/A	Web-based Comments	18088	24
Macleod	Cynthia	not provided	N/A	Web-based Comments	11525	24
Macleod	Jane	not provided	N/A	Web-based Comments	16512	24
Macleod	Maryanne	not provided	N/A	Web-based Comments	23571	24
MacLeod	Soozi	not provided	N/A	Web-based Comments	29080	24
MacLeod	Tristan	not provided	N/A	Web-based Comments	30930	24
MACLEOD	YANN	not provided	N/A	Web-based Comments	47272	34
MacLeod-Lambert	Ann	not provided	N/A	Web-based Comments	50703	34
Maclise	Lauren	not provided	N/A	Web-based Comments	20784	24
Maclowry	Scott	not provided	N/A	Web-based Comments	49322	34
Maclowry	Scott	not provided	N/A	Web-based Comments	28486	24
Maclure	Carole	not provided	N/A	Web-based Comments	10086	24
MacMartin	Gordon	not provided	N/A	Web-based Comments	15181	24
MacMillan	Debra	not provided	N/A	Web-based Comments	12533	24
MacNaughton	Geoff	not provided	N/A	Web-based Comments	14874	24
MacNeil	d'Anne	not provided	N/A	Web-based Comments	47838	34
MacNeil	d'Anne	not provided	N/A	Web-based Comments	11828	24
Macon	Amanda	not provided	N/A	Web-based Comments	58133	16
MacPhail	Kristyn	not provided	N/A	Web-based Comments	52836, 52837	34
MacPhail	Kristyn	not provided	N/A	Web-based Comments	20426	24
MacPherson	Dave	not provided	N/A	Web-based Comments	11915	24
Macpherson	Linda	not provided	N/A	Web-based Comments	51917	34
MacRaith	Bonnie	not provided	N/A	Web-based Comments	50825, 57791	34
Macraith	Bonnie	not provided	N/A	Web-based Comments	9311	24
Macura	Louise	not provided	N/A	Web-based Comments	52651, 52652	34
MacWhinney	Brian	not provided	N/A	Web-based Comments	9489	24
Macy	Chris	not provided	N/A	Web-based Comments	44539	34
Macy	Gaye	not provided	N/A	Web-based Comments	50959, 50960	34
Macy	Michelle	not provided	N/A	Web-based Comments	53724	34
Macy	Michelle	not provided	N/A	Web-based Comments	24365	24
Madagan	Sharon	not provided	N/A	Web-based Comments	28683	24
Madarang	Loretta	not provided	N/A	Web-based Comments	21765	24
Madarasz	Ellen	not provided	N/A	Web-based Comments	50865	34
Maday	Christine	not provided	N/A	Web-based Comments	10950	24
Madden	Annoe	not provided	N/A	Web-based Comments	8319	24
Madden	James	not provided	N/A	Web-based Comments	16256	24
Madden	Jill	not provided	N/A	Web-based Comments	17521	24
madden	kendra	not provided	N/A	Web-based Comments	19999	24
Madden	Susan	not provided	N/A	Web-based Comments	48599	34
Madden	Susanne	not provided	N/A	Web-based Comments	45629	34
maddock	maureen	not provided	N/A	Web-based Comments	23697	24
MADDOCK	TODD	tlmaddock@gmail.com	N/A	Web-based comments	2171	N/A
Maddox	Sandra	not provided	N/A	Web-based Comments	28181	24
Maddox-Wagers	Catalina	not provided	N/A	Web-based Comments	10247	24
Maddux	Margie	not provided	N/A	Web-based Comments	49512	34
Madeco-Smith	Mary	not provided	N/A	Web-based Comments	23343	24
MADELEINE	LENORE	not provided	N/A	Web-based Comments	20987	24
Mades	Natalie	not provided	N/A	Web-based Comments	46879	34
Mades	Natalie	not provided	N/A	Web-based Comments	25072	24
Madigan	Jill	not provided	N/A	Web-based Comments	17522	24
Madigan	Maureen	not provided	N/A	Web-based Comments	56266, 56267	34
Madigan	Sally	not provided	N/A	Web-based Comments	44570	34
Madison	Julian	not provided	N/A	Web-based Comments	49104	34
Madison	Mary-Carol	not provided	N/A	Web-based Comments	23577	24
Madison	Russell	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	56642	N/A
Madjaric	Berenice	not provided	N/A	Web-based Comments	8979	24
MADOLE	GARY	not provided	N/A	Web-based Comments	48336	34

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Madril	Celestina	not provided	N/A	Web-based Comments	10435	24
Madsen	Blake	blake@madfam.us	N/A	Web-based comments	5720	11
Madsen	Craig	not provided	N/A	Web-based Comments	11421	24
Madsen	Jill	jillianne129@yahoo.com	N/A	Web-based comments	1342	1
Madsen	Jill	not provided	N/A	Web-based Comments	47795, 47796	34
Madsen	Jill	not provided	N/A	Web-based Comments	17523	24
Madsen	Richard	cm3dcraig@gmail.com	N/A	Web-based comments	3310	N/A
Madsen	Sarah	sarahjmadsen@me.com	N/A	Web-based comments	6688	N/A
Madsen	Susan	not provided	N/A	Web-based Comments	29755	24
Madson	Cindy	not provided	N/A	Web-based Comments	11088	24
Mae	Rev. Dr. Mae EliseCannon	not provided	N/A	Web-based comments	57722	35
Mae	Tara	not provided	N/A	Web-based Comments	45792	34
Mae	Tara	not provided	N/A	Web-based Comments	30204	24
Maedl	Gary	not provided	N/A	Web-based comments	56997	35
Maene	ilse	not provided	N/A	Web-based Comments	47411	34
Maestro	Vince	vincemaestro320@yahoo.com.au	N/A	Web-based comments	3691	1
Maez	Marcy	not provided	N/A	Web-based Comments	22407	24
Magalhaes	Enia	not provided	N/A	Web-based Comments	49699, 49700	34
Magalhaes	Enia	not provided	N/A	Web-based Comments	14070	24
Magallon	Andrew and Camille	not provided	N/A	Web-based Comments	7862	24
Magallon	T	not provided	N/A	Web-based Comments	30095	24
Magana	Maria	not provided	N/A	Web-based Comments	22612	24
Magana	Susan	not provided	N/A	Web-based Comments	52998	34
Magarahan	James	not provided	N/A	Web-based Comments	16257	24
Magdaleno	Jennipher	not provided	N/A	Web-based comments	242	1
Magee	Gloria	not provided	N/A	Web-based comments	1861	1
Magee	John	not provided	N/A	Web-based Comments	18089	24
Maggard	Dale	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4695	N/A
MAGHAKIAN	MICHAEL	not provided	N/A	Web-based Comments	24154	24
Magid	Joseph	not provided	N/A	Web-based Comments	18378	24
Magill	Alison	not provided	N/A	Web-based comments	56839	35
Magill	Kay	not provided	N/A	Web-based Comments	19828	24
Maginnis	Robert	bobmagi@att.net	N/A	Web-based comments	4163	N/A
Magjuire	Lucie	not provided	N/A	Web-based comments	56769	35
Magleby	Shelley	sherees1949@gmail.com	N/A	Web-based comments	2510	N/A
Magliola	Lawrence	not provided	N/A	Web-based Comments	51831	34
Magliola	Lawrence	not provided	N/A	Web-based Comments	20881	24
Magner	Ticia	not provided	N/A	Web-based Comments	30580	24
Magness	Carole	not provided	N/A	Web-based Comments	10087	24
Magnuson	Cynthia	cmcindyidaho@gmail.com	N/A	Web-based comments	5124	N/A
Magnuson	Kayla	not provided	N/A	Web-based Comments	47614	34
Magone	Cecil	not provided	N/A	Web-based Comments	49745	34
Magorian	Alice	not provided	N/A	Web-based Comments	7354	24
Magpantay	Yolanda	not provided	N/A	Web-based Comments	31669	24
magro	tom	not provided	N/A	Web-based Comments	30760	24
Magruder	Christi	not provided	N/A	Web-based Comments	10821	24
Magruder	Graeme	not provided	N/A	Web-based Comments	15210	24
Magruder	Karen	not provided	N/A	Web-based Comments	19172	24
Mags	Bob	not provided	N/A	Web-based Comments	9244	24
magson	david	not provided	N/A	Web-based Comments	52037, 52038	34
Maguire	Joel	not provided	N/A	Web-based Comments	17916	24
Maguire	Marsha	not provided	N/A	Web-based Comments	23073	24
Maguire	Mary	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32535	11
Maguire	Stephan	not provided	N/A	Web-based Comments	29191	24
Magyar	Jackie	not provided	N/A	Web-based Comments	16069	24
Mah	Albert	not provided	N/A	Web-based Comments	45861	34
Mahadevan	Mina	not provided	N/A	Web-based Comments	24525	24
Mahaffey	Corinne	not provided	N/A	Web-based Comments	11377	24
Mahalic	Mj	not provided	N/A	Web-based Comments	24579	24
Mahaney	Eric	not provided	N/A	Web-based Comments	14123	24
mahar	penelope	not provided	N/A	Web-based Comments	26192	24
Maharajh Stone	Alanna	not provided	N/A	Web-based Comments	7202	24
Mahder	Debbie	not provided	N/A	Web-based Comments	49083	34
Maheigan	Edward	not provided	N/A	Web-based comments	56980	35
Maher	Helen	not provided	N/A	Web-based Comments	15617	24
Maher	Judy	not provided	N/A	Web-based Comments	54990	34
Maher	Sue	not provided	N/A	Web-based Comments	29536	24
Mahle	Peggy	not provided	N/A	Web-based Comments	26166	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Mahlis	Larry	not provided	N/A	Web-based Comments	48004	34
Mahoney	Jarrett	jmahoney912@yahoo.com	N/A	Web-based comments	5425	N/A
Mahoney	L A	not provided	N/A	Web-based Comments	20490	24
Mahoney	Robert	not provided	N/A	Web-based Comments	27321	24
Mahoney	Stephen	not provided	N/A	Web-based Comments	29316	24
Mahoney	William	not provided	N/A	Web-based Comments	47270	34
Mahony	Debra	not provided	N/A	Web-based Comments	56579	34
Mahrley	Jacqueline	not provided	N/A	Web-based Comments	16122	24
mahy	sara	not provided	N/A	Web-based Comments	28298	24
Mai	Liza	not provided	N/A	Web-based Comments	50902	34
Maiden	Brian	briankmaiden@gmail.com	N/A	Web-based comments	4528	N/A
Maiden	Glenn	maiden.ge@gmail.com	N/A	Web-based comments	2137	N/A
Maiden	Linda	Lemaiden@charter.net	N/A	Web-based comments	2136	N/A
Maidment	Barry	not provided	N/A	Web-based Comments	8864	24
Maier	Deborah	not provided	N/A	Web-based Comments	45331	34
Mailhoit	Amy	not provided	N/A	Web-based Comments	7637	24
Maillet	David	not provided	N/A	Web-based Comments	48720, 48721	34
Main	Linda	not provided	N/A	Web-based Comments	21340	24
Mains	Janet	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	56689	N/A
Mainz	Paul	not provided	N/A	Web-based comments	57573	35
Mair	Julia	not provided	N/A	Web-based Comments	18762	24
Mairlot	Roger	not provided	N/A	Web-based Comments	27588	24
Maish	Sally	not provided	N/A	Web-based Comments	53670	34
Maish	Sally	not provided	N/A	Web-based Comments	28016	24
Maisky	Lily	not provided	N/A	Web-based Comments	48858	34
Maisky	Lily	not provided	N/A	Web-based Comments	21181	24
Majerowicz	Eugene	not provided	N/A	Web-based Comments	14295	24
Major	Sally-Ann	not provided	N/A	Web-based Comments	46780	34
MAKA	JANUSZ	not provided	N/A	Web-based Comments	44452	34
Makarski	Michelle M.	not provided	N/A	Web-based Comments	24411	24
Makay	James	not provided	N/A	Web-based Comments	55514	34
Maki	LenaMae	not provided	N/A	Web-based Comments	20981	24
Maki	Marilyn	not provided	N/A	Web-based Comments	22796	24
Makosky	Susan	not provided	N/A	Web-based Comments	29756	24
Makowski	Jane	not provided	N/A	Web-based Comments	48752	34
Makurat	Joan	not provided	N/A	Web-based Comments	49296	34
Makurat	Joan	not provided	N/A	Web-based Comments	17706	24
Malagon	Mauricio	not provided	N/A	Web-based Comments	23731	24
malaka	christine	not provided	N/A	Web-based Comments	10951	24
Malan-Thompson	Kathleen	not provided	N/A	Web-based Comments	19566	24
Malasky	Kathy	not provided	N/A	Web-based Comments	19725	24
Malaspino	Michelle	not provided	N/A	Web-based Comments	46549	34
Malaspino	Michelle	not provided	N/A	Web-based Comments	24366	24
Malcher	Denise	not provided	N/A	Web-based Comments	12647	24
Malchman	David	not provided	N/A	Web-based Comments	12076	24
Malcolm	Karen Kravcov	not provided	N/A	Web-based Comments	52879	34
Malcolm	Mary	not provided	N/A	Web-based Comments	47061	34
Malecha	Grace	not provided	N/A	Web-based Comments	15196	24
Maledon	Maureen	not provided	N/A	Web-based Comments	23698	24
Maletta	Mr.	JMaletta@portjeffschools.org	N/A	Web-based comments	2974	N/A
Malew	Barbara	not provided	N/A	Web-based Comments	8727	24
Maley	Michael	not provided	N/A	Web-based Comments	24155	24
Malik	Bailey	baileymalik84@gmail.com	N/A	Web-based comments	686	N/A
Malik	Freedom	not provided	N/A	Web-based Comments	14601	24
Malin	Catherine	not provided	N/A	Web-based Comments	10299	24
Malin	Richard	not provided	N/A	Web-based Comments	27008	24
Malizzia	Chrissy	cmalizzia@gmail.com	N/A	Web-based comments	6293	1
Mallard	Ron	not provided	N/A	Web-based Comments	52868	34
Mallard	Ron	not provided	N/A	Web-based Comments	27629	24
Mallet	Hector	not provided	N/A	Web-based Comments	15555	24
Malley	Sarah O	not provided	N/A	Web-based Comments	54838	34
Malley	Susan	not provided	N/A	Web-based Comments	29757	24
Mallory	Patricia	not provided	N/A	Web-based Comments	54556, 54557	34
mallow	ann	not provided	N/A	Web-based Comments	8063	24
Mallows	Sarah	not provided	N/A	Web-based Comments	49523	34
Malloy	Erin	not provided	N/A	Web-based comments	56984	35
Malloy	Erin	not provided	N/A	Web-based Comments	56090, 56091	34
Malmstroem	Karsten	not provided	N/A	Web-based Comments	19333	24
Malo	Chris	not provided	N/A	Web-based Comments	10760	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Malok	Eddie	not provided	N/A	Web-based Comments	13458	24
MALONE	CASSIE	not provided	N/A	Web-based Comments	44468	34
Malone	Dawn	not provided	N/A	Web-based Comments	46940	34
Malone	Doug	not provided	N/A	Web-based Comments	13303	24
Malone	Jim	not provided	N/A	Web-based Comments	45943	34
Malone	Jim	not provided	N/A	Web-based Comments	17592	24
Malone	Michael	not provided	N/A	Web-based Comments	24156	24
Malone	Sheila	not provided	N/A	Web-based Comments	28792	24
Malone	Stacey	not provided	N/A	Web-based Comments	29117	24
Malone-Leroy	Aralena	not provided	N/A	Web-based Comments	8395	24
Maloney	Bonnie	not provided	N/A	Web-based Comments	55499	34
Maloney	Courtney	not provided	N/A	Web-based Comments	11404	24
Maloney	James	not provided	N/A	Web-based Comments	16258	24
maloney	jim	not provided	N/A	Web-based Comments	17594	24
Maloney	Jim	not provided	N/A	Web-based Comments	17593	24
Maloney	Marge	not provided	N/A	Web-based Comments	22530	24
Maloney	Philip	not provided	N/A	Web-based Comments	26347	24
Maloney	Rebecca	not provided	N/A	Web-based Comments	26750	24
Maloney-Tarvers	Linda V	not provided	N/A	Web-based Comments	21473	24
Malory	G	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	3972	18
Malpage	Rosanne	not provided	N/A	Web-based Comments	49360	34
Malsheimer	Fran	not provided	N/A	Web-based Comments	44453	34
malsheimer	fran	not provided	N/A	Web-based Comments	14463	24
Maltseva	Elena	not provided	N/A	Web-based Comments	13649	24
Malven	Tania	not provided	N/A	Web-based Comments	58548	34
Malven	Tania	not provided	N/A	Web-based Comments	30171	24
Malyon	Ann	not provided	N/A	Web-based Comments	50537, 50538	34
Mamdani	Tahera	not provided	N/A	Web-based Comments	53274	34
Mamdani	Tahera	not provided	N/A	Web-based Comments	30107	24
Mamich	Susan	not provided	N/A	Web-based Comments	29758	24
man	cave	not provided	N/A	Web-based Comments	10405	24
mancini	laurel	not provided	N/A	Web-based Comments	20744	24
Manda	Mark	not provided	N/A	Web-based Comments	22963	24
Mandarino	Lisa	not provided	N/A	Web-based Comments	21594	24
Mandel	Alan	not provided	N/A	Web-based Comments	7177	24
Mandel	Bonnie	not provided	N/A	Web-based Comments	49450	34
Mandel	Bonnie	not provided	N/A	Web-based Comments	9312	24
Mandel	Gina	not provided	N/A	Web-based Comments	15056	24
Mandel	Tatiana	not provided	N/A	Web-based Comments	48619, 48620	34
Mandel	Tatiana	not provided	N/A	Web-based Comments	30222	24
Mandell	Sheila	not provided	N/A	Web-based Comments	28793	24
Mandell-Rice	Bonnie	not provided	N/A	Web-based Comments	52695	34
Mandseth	Jonelle	not provided	N/A	Web-based comments	56742	35
Manduca	Alicia	not provided	N/A	Web-based comments	57688	35
Manduca	Carol	not provided	N/A	Web-based comments	56885	35
Mandzuk	Maggie	not provided	N/A	Web-based Comments	22271	24
manek	r	not provided	N/A	Web-based Comments	26479	24
Manen	Angelique	not provided	N/A	Web-based Comments	48031	34
Maner	Monie	not provided	N/A	Web-based Comments	24644	24
Manering	Monica	not provided	N/A	Web-based Comments	55421	34
Mang	justin	not provided	N/A	Web-based Comments	18957	24
Mangam	Susan	not provided	N/A	Web-based Comments	56388	34
Mangan	Deborah	not provided	N/A	Web-based Comments	12437	24
Mangan	Frederick	fkmangan@hotmail.com	N/A	Web-based comments	4011	N/A
Manganaro	Carole	not provided	N/A	Web-based Comments	10088	24
Manganello	Marilyn	not provided	N/A	Web-based Comments	22797	24
mangarella	peter	pmangarella44@gmail.com	N/A	Web-based comments	4460, 5220	N/A
Mangeot	Paul	rbannon01@yahoo.com	N/A	Web-based comments	2947	8
Mangeot	Tarra	tmangeot77@yahoo.com	N/A	Web-based comments	2949	8
manges	Eugene	not provided	N/A	Web-based Comments	14296	24
Mangham	James W.	not provided	N/A	Web-based Comments	16348	24
Mangili	Alessandro	not provided	N/A	Web-based Comments	7240	24
Mangili	Matthew	not provided	N/A	Web-based Comments	23654	24
Mangold	Paul	not provided	N/A	Web-based Comments	26020	24
Mangum	V	not provided	N/A	Web-based Comments	57846	34
Mangum	V	not provided	N/A	Web-based Comments	30989	24
Mangus	Tracey	not provided	N/A	Web-based Comments	54142	34
Mangus	Tracey	not provided	N/A	Web-based Comments	30845	24
Manik	Daniel	not provided	N/A	Web-based Comments	11751	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Manion	Laura	not provided	N/A	Web-based Comments	20672	24
Manke	Girard	not provided	N/A	Web-based Comments	15089	24
Mankes	Leslie	not provided	N/A	Web-based Comments	54896	34
Mankowski	Sarah	not provided	N/A	Web-based Comments	28376	24
Manley	Lesa	lesamanley@yahoo.com	N/A	Web-based comments	6148	N/A
Mann	Brianna	not provided	N/A	Web-based Comments	9531	24
Mann	Carey	not provided	N/A	Web-based comments	6616	1
Mann	Deborah	not provided	N/A	Web-based Comments	12438	24
Mann	Doreen	not provided	N/A	Web-based Comments	13210	24
Mann	Edith	not provided	N/A	Web-based Comments	13469	24
Mann	Jennifer	not provided	N/A	Web-based Comments	17221	24
Mann	Lisa	not provided	N/A	Web-based Comments	21595	24
mann	mary	not provided	N/A	Web-based Comments	23344	24
Mann	Roger	not provided	N/A	Web-based comments	56901	35
Manning	Alexa	not provided	N/A	Web-based Comments	47139	34
Manning	John	not provided	N/A	Web-based Comments	18090	24
Manning	Joseph	not provided	N/A	Web-based Comments	56124	34
Manning	Laura	not provided	N/A	Web-based Comments	20673	24
Manning	Laurie	not provided	N/A	Web-based Comments	20845	24
Manning	Richard	not provided	N/A	Web-based Comments	27009	24
Manning-Brown	Helen	not provided	N/A	Web-based Comments	48060, 48061	34
Mannion	Debbie	not provided	N/A	Web-based Comments	47268	34
Mannix	Jill	not provided	N/A	Web-based Comments	52371	34
Mannix	Jill	not provided	N/A	Web-based Comments	17524	24
Manno	Angela	not provided	N/A	Web-based Comments	50660	34
Manno	Sarah	not provided	N/A	Web-based Comments	28377	24
Mannolini	Audrey	not provided	N/A	Web-based Comments	45619	34
manns	steve	not provided	N/A	Web-based Comments	29382	24
Mannsfeld	Bjoern	not provided	N/A	Web-based Comments	9209	24
Manobianco	Daniel	not provided	N/A	Web-based Comments	45632, 45633, 45634	34
Manochio	Cate	not provided	N/A	Web-based Comments	10249	24
Manor	Christine	not provided	N/A	Web-based Comments	10952	24
Manos	Christina	not provided	N/A	Web-based Comments	44629	34
Mansbridge	Janis	not provided	N/A	Web-based Comments	16745	24
mansell	diane	not provided	N/A	Web-based Comments	12873	24
mansell	mark	mark@saracon.net	N/A	Web-based comments	3878	N/A
mansell	Tanner	not provided	N/A	Web-based comments	4853	N/A
Mansfield	John	not provided	N/A	Web-based Comments	18091	24
Mansfield	Linda	not provided	N/A	Web-based Comments	21341	24
Mansfield	Lise K.	not provided	N/A	Web-based Comments	55587	34
Mansi	Sandra	not provided	N/A	Web-based Comments	28182	24
Manske	C S	not provided	N/A	Web-based Comments	9688	24
Manslow	Marcella	not provided	N/A	Web-based Comments	22355	24
Manson	Marsha	not provided	N/A	Web-based comments	58828	N/A
Mansor	Maxine	not provided	N/A	Web-based Comments	23751	24
Mansour	Donna	not provided	N/A	Web-based comments	57413	35
Mansour	Nadia	nadiamadeleinem@gmail.com	N/A	Web-based comments	1353	1
Mansour	Nadine	nadinezm@gmail.com	N/A	Web-based comments	57396, 437	35, 1
Mansour	Nadine	not provided	N/A	Web-based Comments	24766	24
Mantee	Susan Davis	not provided	N/A	Web-based Comments	46021	34
Mantle-Douglas	Rachel	not provided	N/A	Web-based Comments	26535	24
Manviller	Home	not provided	N/A	Web-based Comments	15777	24
Manviller	Jason	not provided	N/A	Web-based Comments	50043	34
Manwaring	Brett	brett@brettmanwaring.com	N/A	Web-based comments	3390	N/A
Manzanares Soriano	Claudia	not provided	N/A	Web-based comments	56818	35
Manze	Owen	not provided	N/A	Web-based Comments	25456	24
Mapes	Liz	not provided	N/A	Web-based Comments	46235	34
Mappin	Wes	not provided	N/A	Web-based Comments	49465, 49466	34
Mappin	Wesley	not provided	N/A	Web-based Comments	31469	24
Marabetta	Cortney	not provided	N/A	Web-based Comments	47563	34
Marachi	Christine	not provided	N/A	Web-based Comments	10953	24
Marak	Christopher	not provided	N/A	Web-based Comments	11019	24
Maralyn	Ray	maralyndover@yahoo.com	N/A	Web-based comments	4849	N/A
Marancik	David	not provided	N/A	Web-based Comments	12077	24
Marando	Ann	not provided	N/A	Web-based Comments	8064	24
Maranowski	Erica	not provided	N/A	Web-based Comments	48382	34
Maranowski	Erica	not provided	N/A	Web-based Comments	14164	24
Marashinsky	Amy Sophia	not provided	N/A	Web-based Comments	7684	24
Marault	Gene	not provided	N/A	Web-based Comments	14853	24
Maraventano	Judith	not provided	N/A	Web-based Comments	18620	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Marceau	Paul	not provided	N/A	Web-based Comments	26021	24
Marceau	Thomas	tembro4@gmail.com	N/A	Web-based comments	3122	N/A
Marceaux	Cherie	not provided	N/A	Web-based Comments	55148	34
Marceron	Dennis	not provided	N/A	Web-based Comments	12692	24
March	Donna	not provided	N/A	Web-based Comments	13153	24
March	Lowell Anne	not provided	N/A	Web-based Comments	21912	24
March	Robert	not provided	N/A	Web-based Comments	27322	24
Marchand	Amelia	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4700	N/A
Marchand	Deborah	not provided	N/A	Web-based Comments	12439	24
Marchese	Franca	not provided	N/A	Web-based Comments	14469	24
Marchesin	Mathieu	not provided	N/A	Web-based comments	798	1
Marchman	Sharon	not provided	N/A	Web-based Comments	46013	34
Marchock	Judith	not provided	N/A	Web-based Comments	18621	24
Marciano	Michael	not provided	N/A	Web-based Comments	24157	24
Marcinko	Robert	rmarcink@dcdi.net	N/A	Web-based comments	3703	N/A
Marco	Christina Di	not provided	N/A	Web-based Comments	55938	34
Marconi	Cindy	not provided	N/A	Web-based Comments	11089	24
Marcos	Patricia	not provided	N/A	Web-based Comments	25798	24
Marcotte	Diane	not provided	N/A	Web-based Comments	12874	24
Marcus	Ann	not provided	N/A	Web-based Comments	48640	34
Marcus	Deborah	not provided	N/A	Web-based Comments	12440	24
Marcus	Denise	not provided	N/A	Web-based Comments	12648	24
Marcus	Diane	not provided	N/A	Web-based comments	57260	35
marcus	Heather	not provided	N/A	Web-based Comments	15523	24
Marcus	Martin	not provided	N/A	Web-based Comments	49115	34
Marcus	Martin	not provided	N/A	Web-based Comments	23167	24
Marcus	Melissa	Bellelouve.Marcus3@gmail.com	N/A	Web-based comments	3658	17
marcus	sybil	not provided	N/A	Web-based Comments	30047	24
Marcus	Syd	not provided	N/A	Web-based comments	57261	35
Marczak	Holly	not provided	N/A	Web-based Comments	15759	24
Marderosian	Ara	not provided	N/A	Web-based Comments	8392	24
Mardones	Nano	not provided	N/A	Web-based Comments	51326	34
Marek	Becky	not provided	N/A	Web-based Comments	8912	24
Marek	Michael	not provided	N/A	Web-based Comments	24158	24
Maren	Kelsey	not provided	N/A	Web-based Comments	46913	34
marencik	evelyn	not provided	N/A	Web-based Comments	14353	24
Margaryan	Lilit	not provided	N/A	Web-based Comments	21162	24
Margo	JoAnn	not provided	N/A	Web-based Comments	17773	24
Margo	JoAnn	tjmargo@outlook.com	N/A	Web-based comments	3833	1
Margolis	Barbara	not provided	N/A	Web-based Comments	8728	24
Margolis	Gloria	not provided	N/A	Web-based Comments	15161	24
Margolis	Laurence	not provided	N/A	Web-based Comments	56000, 56001	34
Margolis	Martin	not provided	N/A	Web-based Comments	23168	24
Maria	Karuna Di	not provided	N/A	Web-based Comments	55238	34
Maria	Li	not provided	N/A	Web-based Comments	21137	24
Mariani	Christine	not provided	N/A	Web-based Comments	10954	24
Mariano	Susan	not provided	N/A	Web-based Comments	54652	34
Marichal	Marie	not provided	N/A	Web-based Comments	22717	24
Marie	Ann	not provided	N/A	Web-based Comments	47175	34
Marie	Ann	not provided	N/A	Web-based Comments	8065	24
Marie	Catherine	not provided	N/A	Web-based Comments	10300	24
marie	eve	not provided	N/A	Web-based Comments	14338	24
Marie	Nina	nquevedo2215@gmail.com	N/A	Web-based comments	690	1
marie	Souhaut	not provided	N/A	Web-based comments	6689	1
Marie	Sylvia	not provided	N/A	Web-based Comments	30069	24
Marien	Veronique	not provided	N/A	Web-based Comments	31108	24
Marienthal	Jacob	not provided	N/A	Web-based Comments	16093	24
Mariglia	Francesco	not provided	N/A	Web-based Comments	49797	34
Marilyn	The	mmcornwell@live.com	N/A	Hand-delivered or oral testimony (personally delivered)	4279	N/A
Marilyn	The	mmcornwell@live.com	N/A	Web-based comments	1990	3
Marin	Rebecca	not provided	N/A	Web-based Comments	26751	24
Marina	Aida	not provided	N/A	Web-based Comments	7126	24
MARINELLI	PATRICIA	not provided	N/A	Web-based Comments	25799	24
marini	massimo	not provided	N/A	Web-based Comments	23599	24
Marino	Haley	not provided	N/A	Web-based Comments	15382	24
Marino	Jane	not provided	N/A	Web-based Comments	16513	24
Marino	L	not provided	N/A	Web-based Comments	55935	34
Marinucci	Louise	not provided	N/A	Web-based Comments	21887	24
Marion	Carolyn	not provided	N/A	Web-based Comments	49758, 49759	34
Marion	Dorothy	not provided	N/A	Web-based Comments	13269	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Mariott	Jerri	not provided	N/A	Web-based Comments	17335	24
Marish	Elad	not provided	N/A	Web-based Comments	13568	24
Marjala	Kozmo	not provided	N/A	Web-based Comments	20316	24
Marjorie	Gourg	marjorie.gourg@live.fr	N/A	Web-based comments	254	1
Mark	Dara	not provided	N/A	Web-based Comments	47482	34
Mark	David	not provided	N/A	Web-based Comments	12078	24
Mark	Peter	not provided	N/A	Web-based Comments	26270	24
Markey	Alice	not provided	N/A	Web-based Comments	48253	34
Markham	Dave	handerson@cec-co.com	N/A	US Mail or commercial carrier (UPS, FedEx)	32412	N/A
Markham	Dave	handerson@cec-co.com	N/A	Web-based comments	3220	6
Markham	Julia	markham_julie@hotmail.com	N/A	Web-based comments	5172	N/A
Markham	Maryrose	not provided	N/A	Web-based Comments	23591	24
Markoe	Kevin	not provided	N/A	Web-based Comments	47000	34
Markoff	Antonina	not provided	N/A	Web-based Comments	8363	24
Markoff	Luba	not provided	N/A	Web-based Comments	21923	24
Markotich	Gary	not provided	N/A	Web-based Comments	46398, 46399	34
Markotich	Gary	not provided	N/A	Web-based Comments	14783	24
Markovic	Robert	not provided	N/A	Web-based Comments	27323	24
Markovich	Jennifer	not provided	N/A	Web-based Comments	17222	24
Markovich	Nick	markovichpc@comcast.net	N/A	Web-based comments	4464	20
Markow	Ann and Paul	not provided	N/A	Web-based Comments	8105	24
marks	diane	not provided	N/A	Web-based Comments	57819	34
marks	diane	not provided	N/A	Web-based Comments	12875	24
Marks	Elise	not provided	N/A	Web-based Comments	13691	24
Marks	Gail	not provided	N/A	Web-based Comments	55763	34
Marks	Gregory	not provided	N/A	Web-based Comments	15284	24
Markushewski	Edward	not provided	N/A	Web-based Comments	53643, 53644	34
Markushewski	Edward	not provided	N/A	Web-based Comments	13508	24
Markuson	Sandra	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	5585	N/A
Marlborough	Anne Clair	not provided	N/A	Web-based Comments	8261	24
Marlene	Gary	robsonfarming@silverstar.com	N/A	Web-based comments	3484	11
Marler	Bob	not provided	N/A	Web-based Comments	9245	24
Marley	Sandra	not provided	N/A	Web-based Comments	51009	34
Marley	Yvonne	not provided	N/A	Web-based Comments	31701	24
Marlow	Janie	not provided	N/A	Web-based Comments	48135	34
Marmorino	Angela	not provided	N/A	Web-based Comments	7919	24
Marmur	Mildred	not provided	N/A	Web-based Comments	24509	24
Marne	Marielle	not provided	N/A	Web-based Comments	51842	34
Marne	Marielle	not provided	N/A	Web-based Comments	22741	24
Marnin	Bryer	not provided	N/A	Web-based Comments	9644	24
Marno	John	john@rfnsoftware.com	N/A	Web-based comments	3559, 3553	13
Marochino	Kellie	not provided	N/A	Web-based Comments	46825	34
Maron-Friend	Judith	not provided	N/A	Web-based Comments	52385	34
Maron-Friend	Judith	not provided	N/A	Web-based Comments	18622	24
Marotta	Tracy	not provided	N/A	Web-based Comments	30873	24
Marquand	Jean Le	not provided	N/A	Web-based Comments	53437	34
Marquardt	Gary	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32318	N/A
Marquardt	Larry	not provided	N/A	Web-based Comments	20583	24
Marquardt	Mona	not provided	N/A	Web-based Comments	24610	24
Marquardt	Paul	not provided	N/A	Web-based Comments	26022	24
Marquart	Frances	not provided	N/A	Web-based Comments	52008	34
Marquette	Christine	not provided	N/A	Web-based Comments	53066	34
Marquette	Christine	not provided	N/A	Web-based Comments	10955	24
Marquette	David	not provided	N/A	Web-based Comments	12079	24
Marquette	Emily	not provided	N/A	Web-based comments	1668	1
Marquez	Sam and Connie	not provided	N/A	Web-based Comments	47692	34
Marquis	Bruce	not provided	N/A	Web-based Comments	9617	24
Marr	Betty	not provided	N/A	Web-based Comments	9097	24
Marr	Nancy	not provided	N/A	Web-based Comments	24922, 24923	24
marr	patrick	not provided	N/A	Web-based Comments	25912	24
Marr	Rhonda	not provided	N/A	Web-based Comments	46815	34
Marra	Albert	not provided	N/A	Web-based Comments	7213	24
Marraffino	Leonard S	not provided	N/A	Web-based Comments	21014	24
Marrero	Daria	not provided	N/A	Web-based Comments	11861	24
Marret	Fiedler	not provided	N/A	Web-based Comments	14429	24
Marriott	Jane	not provided	N/A	Web-based Comments	54765	34
Marriott	Lisa	not provided	N/A	Web-based Comments	21596	24
Marro	John	not provided	N/A	Web-based Comments	50763, 53348	34
Marro	John	not provided	N/A	Web-based Comments	18092	24
Marrs	Chrstopher	not provided	N/A	Web-based Comments	58247	16

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Marrs	Cynthia	not provided	N/A	Web-based Comments	52732	34
Marrs	Cynthia	not provided	N/A	Web-based Comments	11526	24
marrs	randy	not provided	N/A	Web-based Comments	26640	24
Marsala	Joe	not provided	N/A	Web-based Comments	45781, 45782	34
Marsala	Joseph	not provided	N/A	Web-based Comments	18379	24
marsau	rox	not provided	N/A	Web-based Comments	27796	24
Marschall	Sean	not provided	N/A	Web-based Comments	28520	24
Marsden	Claire	not provided	N/A	Web-based Comments	55674	34
Marsden	Claire	not provided	N/A	Web-based Comments	11134	24
Marsee	Chelsea	not provided	N/A	Web-based Comments	10588	24
Marsh	Claire	not provided	N/A	Web-based Comments	11135	24
Marsh	Frank	not provided	N/A	Web-based Comments	14540	24
Marsh	George	not provided	N/A	Web-based Comments	14900	24
Marsh	Heather	not provided	N/A	Web-based Comments	58011	16
Marsh	Judith	not provided	N/A	Web-based Comments	18623	24
Marsh	Marie	not provided	N/A	Web-based Comments	22718	24
Marsh	Marion	not provided	N/A	Web-based Comments	22856	24
Marsh	Roger	not provided	N/A	Web-based Comments	27589	24
Marsh	Sherry	not provided	N/A	Web-based Comments	56400, 56401	34
Marsh	Sherry	not provided	N/A	Web-based Comments	28893	24
Marsh	Susan	not provided	N/A	Web-based Comments	54545	34
Marshall	Amber	not provided	N/A	Web-based Comments	53769	34
Marshall	Angela	not provided	N/A	Web-based Comments	7920	24
Marshall	Anita	not provided	N/A	Web-based Comments	49984, 49985	34
Marshall	Beth	not provided	N/A	Web-based Comments	46371	34
Marshall	Beth	not provided	N/A	Web-based Comments	58031	16
Marshall	Bill	not provided	N/A	Web-based Comments	9176	24
Marshall	Carol	not provided	N/A	Web-based Comments	9973	24
Marshall	Caroline	not provided	N/A	Web-based Comments	10126	24
Marshall	Cindy	not provided	N/A	Web-based Comments	53363	34
Marshall	Daniel	dmarshalldo@alpinedermclinic.com	N/A	Web-based comments	3273	13
Marshall	David	not provided	N/A	Web-based Comments	12080	24
marshall	dolly	not provided	N/A	Web-based Comments	12990	24
Marshall	Edward	not provided	N/A	Web-based Comments	49961, 49962	34
Marshall	Erin	not provided	N/A	Web-based Comments	52835	34
Marshall	Erin	not provided	N/A	Web-based Comments	14223	24
Marshall	Jaime	not provided	N/A	Web-based Comments	16157	24
Marshall	Jason Paul	not provided	N/A	Web-based Comments	16793	24
Marshall	Jeff	buckeye909@gmail.com	N/A	Web-based comments	2344	N/A
Marshall	Jennifer	not provided	N/A	Web-based Comments	17223	24
Marshall	John	jl.marshall@comcast.net	N/A	Web-based comments	3621	17
Marshall	Karen	not provided	N/A	Web-based Comments	19173	24
Marshall	Laura	not provided	N/A	Web-based Comments	20674	24
Marshall	Linda	not provided	N/A	Web-based Comments	21342	24
Marshall	Mark	not provided	N/A	Web-based Comments	22964	24
Marshall	Mona	not provided	N/A	Web-based Comments	52504	34
Marshall	Nancy	not provided	N/A	Web-based Comments	49252	34
Marshall	Nancy	not provided	N/A	Web-based Comments	24924	24
Marshall	Ron	not provided	N/A	Web-based Comments	55839	34
Marshall	Shannon	not provided	N/A	Web-based Comments	28590	24
marshall	stephen	not provided	N/A	Web-based Comments	56125	34
Marshall	William	Bottlecapllc@comcast.net	N/A	Web-based comments	5385	11
Marshall	William	not provided	N/A	Web-based Comments	31560	24
Marshland	Susanna	not provided	N/A	Web-based Comments	29941	24
Marson	Alice	not provided	N/A	Web-based Comments	7355	24
Marston	Daniel	not provided	N/A	Web-based Comments	11752	24
Marston	Duane	not provided	N/A	Web-based Comments	13382	24
Marston	Pam	not provided	N/A	Web-based Comments	25500	24
Mart	Helene	not provided	N/A	Web-based Comments	15641	24
Martell	Carlos	not provided	N/A	Web-based Comments	9857	24
Martell	Kelly	not provided	N/A	Web-based Comments	19933	24
Martella	Diane	not provided	N/A	Web-based Comments	47881	34
Martellaro	Karen	not provided	N/A	Web-based Comments	19174	24
Martelli	Lisa	not provided	N/A	Web-based Comments	21597	24
marten	Donna	spotlikesit@hotmail.com	N/A	Web-based comments	1243	2
Marten	Jordan	not provided	N/A	Web-based comments	5847	1
Marten	Richard S.	not provided	N/A	Web-based Comments	55293	34
Martens	Bianka	not provided	N/A	Web-based Comments	9160	24
Martens	Martina	not provided	N/A	Web-based Comments	23183	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Martens	Su	not provided	N/A	Web-based Comments	29503	24
Martens	William	not provided	N/A	Web-based Comments	31561	24
Martens	Wynn	not provided	N/A	Web-based Comments	31645	24
Marter	Nicole	not provided	N/A	Web-based Comments	56365	34
Marth	Jamey	not provided	N/A	Web-based Comments	51236	34
Marth	Kurt	not provided	N/A	Web-based Comments	20437	24
Martien	Rebecca	not provided	N/A	Web-based Comments	54560	34
MARTILLO	ROXANA	not provided	N/A	Web-based Comments	53684	34
Martin	A	not provided	N/A	Web-based Comments	6967	24
Martin	Abby	not provided	N/A	Web-based Comments	7015	24
Martin	Adam	not provided	N/A	Web-based Comments	7051	24
MARTIN	ALLISON	not provided	N/A	Web-based Comments	50492	34
Martin	Andrew	not provided	N/A	Web-based Comments	7830	24
Martin	Ashley	not provided	N/A	Web-based Comments	55577	34
Martin	Ashley	not provided	N/A	Web-based Comments	8487	24
martin	asuncion	not provided	N/A	Web-based Comments	8515	24
Martin	Ben	not provided	N/A	Web-based Comments	8941	24
Martin	Betty & Elizabeth	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32330	N/A
Martin	Bill	willismart3518@gmail.com	N/A	Web-based comments	2982	8
MARTIN	BRENDA	not provided	N/A	Web-based Comments	44795	34
Martin	Carl	not provided	N/A	Web-based Comments	9807	24
Martin	Carol	not provided	N/A	Web-based Comments	9974	24
Martin	Carol	not provided	N/A	Web-based Comments	9975	24
Martin	Cathy	not provided	N/A	Web-based Comments	48238	34
Martin	Cathy	not provided	N/A	Web-based Comments	10377	24
martin	cheryl	not provided	N/A	Web-based Comments	10660	24
Martin	Chloe	not provided	N/A	Web-based Comments	10711	24
Martin	Chris	not provided	N/A	Web-based Comments	10761	24
Martin	Colleen Wysser -	not provided	N/A	Web-based Comments	51587	34
Martin	Crozer	not provided	N/A	Web-based Comments	11453	24
Martin	Daniel	not provided	N/A	Web-based Comments	11753	24
Martin	Danielle	not provided	N/A	Web-based Comments	11813	24
Martin	Darrel R.	not provided	N/A	Web-based Comments	50946	34
martin	deanna	not provided	N/A	Web-based Comments	12279	24
Martin	Deborah	not provided	N/A	Web-based Comments	12441	24
Martin	Elena	not provided	N/A	Web-based Comments	13650	24
Martin	Flor de Maria	not provided	N/A	Web-based Comments	14445	24
Martin	Fred	not provided	N/A	Web-based Comments	52093	34
Martin	Fred	not provided	N/A	Web-based Comments	14576	24
Martin	Gale	not provided	N/A	Web-based Comments	14734	24
Martin	George	not provided	N/A	Web-based comments	3315* – No attachment with submission. No contact information provided so co-agencies could not follow up.	N/A
Martin	Geralyn	not provided	N/A	Web-based Comments	14976	24
Martin	Gregory	not provided	N/A	Web-based Comments	15285	24
Martin	H. Celeste	not provided	N/A	Web-based Comments	15371	24
Martin	Jaime	not provided	N/A	Web-based Comments	16158	24
Martin	James	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4656	N/A
Martin	James	not provided	N/A	Web-based Comments	50574	34
MARTIN	JANE	not provided	N/A	Web-based Comments	16514	24
Martin	Jeanne	not provided	N/A	Web-based Comments	16958	24
Martin	Jennifer	not provided	N/A	Web-based Comments	45850	34
Martin	Jenny and Randal	not provided	N/A	Web-based Comments	17300	24
martin	Jill	not provided	N/A	Web-based Comments	17525	24
Martin	Joncile	not provided	N/A	Web-based Comments	18303	24
Martin	Joy	not provided	N/A	Web-based Comments	18464	24
Martin	Juan	not provided	N/A	Web-based Comments	45993, 45994	34
Martin	Julie	not provided	N/A	Web-based Comments	49001, 51535	34
Martin	Julie	not provided	N/A	Web-based Comments	18862	24
Martin	Julie	not provided	N/A	Web-based Comments	18863	24
Martin	Julie	not provided	N/A	Web-based Comments	18864	24
Martin	Karen	not provided	N/A	Web-based Comments	51339	34
Martin	Kathleen	not provided	N/A	Web-based Comments	56161	34
Martin	Kathleen	not provided	N/A	Web-based Comments	19567	24
Martin	Kay	not provided	N/A	Web-based Comments	19829	24
Martin	Ken	not provided	N/A	Web-based Comments	45234	34
MARTIN	KENNETH	not provided	N/A	Web-based Comments	20018	24
Martin	L.	not provided	N/A	Web-based Comments	54012	34
Martin	L.	not provided	N/A	Web-based Comments	20498	24
Martin	L.	not provided	N/A	Web-based Comments	20499	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Martin	Lawrence De	not provided	N/A	Web-based Comments	50497	34
Martin	Leslie	not provided	N/A	Web-based Comments	46206	34
Martin	Lewis	not provided	N/A	Web-based comments	3123	8
Martin	Linda	not provided	N/A	Web-based Comments	46809	34
Martin	Linda	not provided	N/A	Web-based Comments	21343	24
Martin	Linda	not provided	N/A	Web-based Comments	21344	24
Martin	Linda	not provided	N/A	Web-based Comments	21345	24
Martin	Liza	not provided	N/A	Web-based Comments	44579	34
Martin	Liza	not provided	N/A	Web-based Comments	21703	24
Martin	Louis	not provided	N/A	Web-based Comments	21869	24
Martin	Lucinda	not provided	N/A	Web-based Comments	21947	24
Martin	Luis Alfonso	not provided	N/A	Web-based Comments	21972	24
Martin	lydia	not provided	N/A	Web-based Comments	21993	24
Martin	Marilyn	not provided	N/A	Web-based Comments	22798, 50796	34
Martin	Mary	not provided	N/A	Web-based Comments	23345	24
Martin	Mary	not provided	N/A	Web-based Comments	23346	24
martin	maureen	not provided	N/A	Web-based Comments	23699	24
martin	melodie	not provided	N/A	Web-based Comments	23938	24
Martin	Michael	not provided	N/A	Web-based Comments	24159	24
Martin	Michael	not provided	N/A	Web-based Comments	24160	24
Martin	Nancy	not provided	N/A	Web-based Comments	54450	34
Martin	Pamela	not provided	N/A	Web-based Comments	25570	24
Martin	Pat	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	56645	N/A
martin	patricia	not provided	N/A	Web-based Comments	25800	24
martin	patricia	not provided	N/A	Web-based Comments	25801	24
Martin	Patrick	not provided	N/A	Web-based Comments	47903	34
Martin	Patrick	not provided	N/A	Web-based Comments	25913	24
Martin	Patrick	not provided	N/A	Web-based Comments	25914	24
Martin	Paula	not provided	N/A	Web-based Comments	26090	24
Martin	Robert	not provided	N/A	Web-based Comments	27324	24
Martin	Rodney	not provided	N/A	Web-based Comments	49815	34
Martin	Rodney	not provided	N/A	Web-based Comments	27575	24
Martin	Rose	not provided	N/A	Web-based Comments	27726	24
Martin	Rosi	not provided	N/A	Web-based Comments	27775	24
Martin	Ruth	not provided	N/A	Web-based comments	56869	35
Martin	Shawn	shawnemartin@sbcglobal.net	N/A	Web-based comments	5395	N/A
Martin	Steve	not provided	N/A	Web-based Comments	29383	24
MARTIN	SUSAN	not provided	N/A	Web-based Comments	29759	24
MARTIN	SUSIE	not provided	N/A	Web-based Comments	29964	24
Martin	Tyler	not provided	N/A	Web-based Comments	30962	24
Martin	Tyson	not provided	N/A	Web-based Comments	30967	24
Martin	Valerie	not provided	N/A	Web-based Comments	31035	24
Martin	Zonda	not provided	N/A	Web-based Comments	54639	34
Martin III	Robert	not provided	N/A	Web-based Comments	27325	24
Martin Martin	Esmeralda	not provided	N/A	Web-based Comments	14262	24
Martin-Dent	Ron	not provided	N/A	Web-based Comments	50701	34
Martineau	Alice Anne	not provided	N/A	Web-based Comments	7373	24
Martineau	Catherine	not provided	N/A	Web-based Comments	10301	24
Martineau	Genevieve	not provided	N/A	Web-based Comments	14866	24
Martinell	Allen	not provided	N/A	Web-based comments	5389	N/A
Martinelli	Julia	not provided	N/A	Web-based Comments	18763	24
Martinelli	Silva	not provided	N/A	Web-based Comments	29001	24
Martinez	Adriana	not provided	N/A	Web-based Comments	7087	24
martinez	birgitta	not provided	N/A	Web-based Comments	9203	24
Martinez	Carol	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	2842	N/A
Martinez	Claudia	not provided	N/A	Web-based Comments	11191	24
Martinez	Debbie	not provided	N/A	Web-based Comments	54002	34
Martinez	Donna	not provided	N/A	Web-based Comments	13154	24
Martinez	Erika	not provided	N/A	Web-based Comments	14199	24
Martinez	Humberto	not provided	N/A	Web-based Comments	15821	24
Martinez	Irene	not provided	N/A	Web-based Comments	52993	34
Martinez	Irene	not provided	N/A	Web-based Comments	15907	24
Martinez	Janie	not provided	N/A	Web-based Comments	16716	24
martinez	john a	not provided	N/A	Web-based Comments	18214	24
Martinez	Keiko	not provided	N/A	Web-based Comments	19865	24
Martinez	Laura	not provided	N/A	Web-based Comments	52500, 52501	34
Martinez	Linda	not provided	N/A	Web-based Comments	47400	34
Martinez	Lorraine	not provided	N/A	Web-based Comments	52857, 52858	34
Martinez	Lorraine	not provided	N/A	Web-based Comments	21843	24
Martinez	Maria A	not provided	N/A	Web-based Comments	22639	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Martinez	Martina	martinakcc@gmail.com	N/A	Web-based comments	3177	N/A
Martinez	Oscar	not provided	N/A	Web-based Comments	55956, 55957	34
Martinez	Pete	not provided	N/A	Web-based Comments	26233	24
Martinez	Priscilla	not provided	N/A	Web-based Comments	50834, 50835	34
Martinez	Priscilla	not provided	N/A	Web-based Comments	26446	24
Martinez	Priscilla	not provided	N/A	Web-based Comments	26447	24
Martinez-Plachta	Lara	not provided	N/A	Web-based Comments	49270	34
Martini	Daniel And Denise	not provided	N/A	Web-based Comments	50261, 50262	34
Martini	Daniel and Denise	not provided	N/A	Web-based Comments	11792	24
Martini	Denise	not provided	N/A	Web-based Comments	58139	16
Martino	Blain	not provided	N/A	Web-based Comments	55232	34
Martino	Blain	not provided	N/A	Web-based Comments	9211	24
Martino	Leslie	not provided	N/A	Web-based Comments	21086	24
Martinovic	Margaret	not provided	N/A	Web-based Comments	22472	24
Martins	Daniela	not provided	N/A	Web-based Comments	11795	24
Martins	Isabel	not provided	N/A	Web-based Comments	52959	34
Martinson	Donna	not provided	N/A	Web-based Comments	13155	24
Martinson	Julianne	jmartinson8@gmail.com	N/A	Web-based comments	1989	1
Martinuk	Mj	not provided	N/A	Web-based Comments	44466	34
Martinuk	MJ	not provided	N/A	Web-based Comments	24580	24
Martire	Sandra	not provided	N/A	Web-based Comments	28183	24
Martling	Kenn	not provided	N/A	Web-based Comments	20003	24
Martone	Caitlin	not provided	N/A	Web-based comments	57304	35
Martone	Irene	not provided	N/A	Web-based Comments	15908	24
Martucci	Janet	not provided	N/A	Web-based Comments	45264	34
Martz	Valerie	not provided	N/A	Web-based Comments	31036	24
Maruki-Fox	Setsuko	not provided	N/A	Web-based Comments	57894	16
Marunich	Nathana	not provided	N/A	Web-based Comments	51629	34
Maruzo	Hope	not provided	N/A	Web-based Comments	15786	24
Marvin	R.	farmerrn@gmail.com	N/A	Web-based comments	3995	N/A
Marx	Brenda	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58731	13
Marx	Christina	not provided	N/A	Web-based Comments	10865	24
Marx	Christy	not provided	N/A	Web-based Comments	11044	24
Marx	Janet	not provided	N/A	Web-based Comments	16620, 47345	34
marx	stephen	not provided	N/A	Web-based Comments	29317	24
Marx	Todd	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58730	13
Mary	Joan	not provided	N/A	Web-based Comments	17707	24
Mary	Patrick	pclark@judgememorial.com	N/A	Web-based comments	4123	11
Mary	Steve	marysteve@palouse.net	N/A	Web-based comments	6083	N/A
MaryAnna Foskett	MaryAnna	not provided	N/A	Web-based Comments	23567	24
Marzec	Aleksandra	not provided	N/A	Web-based Comments	7232	24
Marzol	Dean	not provided	N/A	Web-based Comments	12266	24
Marzulla	RW	not provided	N/A	Web-based Comments	27901	24
Mas	Alexander	not provided	N/A	Web-based Comments	7268	24
Mas	Dee	not provided	N/A	Web-based Comments	12578	24
masar	jacki	not provided	N/A	Web-based Comments	16051	24
Mascelli	Mary	not provided	N/A	Web-based comments	57108	35
Maschke	Jonathan	not provided	N/A	Web-based Comments	18290	24
Mascolino	Susan	not provided	N/A	Web-based Comments	29760	24
Masen-Smith	Jacob	not provided	N/A	Web-based Comments	58234	16
Mashock	Mike	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	2843	N/A
Masi	Noah	not provided	N/A	Web-based Comments	25331	24
Masitalo	Kuunani	mkuunani@gmail.com	N/A	Web-based comments	1034	2
Maslin	Cheryl	not provided	N/A	Web-based Comments	50060	34
Maslin	Linda	not provided	N/A	Web-based Comments	21346	24
Maslov	Marc	not provided	N/A	Web-based Comments	22337	24
Mason	Barbara	not provided	N/A	Web-based Comments	8729	24
Mason	Barbara	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32548	11
Mason	Carol	not provided	N/A	Web-based Comments	9976	24
Mason	Constance	not provided	N/A	Web-based Comments	11342	24
Mason	Dawn	not provided	N/A	Web-based comments	57078	35
Mason	Dawn	not provided	N/A	Web-based Comments	12235	24
Mason	Diane	not provided	N/A	Web-based Comments	12876	24
Mason	Donna	not provided	N/A	Web-based Comments	13156	24
Mason	Elliot	not provided	N/A	Web-based Comments	48623	34
Mason	Gail	gmmrad143@gmail.com	N/A	Web-based comments	1932	N/A
Mason	Jacqueline	not provided	N/A	Web-based Comments	16123	24
Mason	Jeffrey	not provided	N/A	Web-based Comments	17093	24
Mason	Jim	not provided	N/A	Web-based Comments	17595	24
Mason	Kathy	not provided	N/A	Web-based Comments	19726	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Mason	Kit	not provided	N/A	Web-based Comments	20287	24
Mason	Linda	not provided	N/A	Web-based Comments	51097	34
Mason	Mary	not provided	N/A	Web-based Comments	23347	24
Mason	Mavis	may.ron007@hotmail.com	N/A	Web-based comments	2872	N/A
Mason	Maxine	not provided	N/A	Web-based comments	56699	35
mason	susan	not provided	N/A	Web-based Comments	29761	24
Mason	Susannah	not provided	N/A	Web-based Comments	50383	34
Mason	Terri	not provided	N/A	Web-based Comments	30338	24
Mason	Victor	not provided	N/A	Web-based Comments	31172	24
Masonis	Robert	rmasonis@msn.com	N/A	Web-based comments	5888	8
Masri	Holly	not provided	N/A	Web-based Comments	15760	24
massa	martine	not provided	N/A	Web-based Comments	55463	34
Massanari	Patricia	not provided	N/A	Web-based Comments	25802	24
Massanelli	Jessica	not provided	N/A	Web-based Comments	17443	24
Massarelli	Roseann	not provided	N/A	Web-based Comments	27739	24
Massaro	Meg	not provided	N/A	Web-based Comments	23779	24
Massaro	Patrice	not provided	N/A	Web-based Comments	25691	24
Massaro	Sherry	not provided	N/A	Web-based Comments	28894	24
Masselam	Venus	not provided	N/A	Web-based Comments	31081	24
Masser	Joel	not provided	N/A	Web-based Comments	49371, 49372	34
Massera	Chaitanya	not provided	N/A	Web-based Comments	10454	24
Massey	Carolyn	not provided	N/A	Web-based Comments	10171	24
Massie	Sherry	not provided	N/A	Web-based Comments	48636	34
Massie	Sherry	not provided	N/A	Web-based Comments	28895	24
Massman	John	not provided	N/A	Web-based Comments	18093	24
Masson	Jill	not provided	N/A	Web-based Comments	17526	24
MASSON	Sophie	sophiemasson88300@hotmail.fr	N/A	Web-based comments	1645	1
Massoni	Betty	not provided	N/A	Web-based Comments	46868	34
Mast	Candace	not provided	N/A	Web-based Comments	9756	24
Mast	Deborah	not provided	N/A	Web-based Comments	12442	24
Mastaloudis	Angela	not provided	N/A	Web-based Comments	7921	24
Mastandrea	Karen	not provided	N/A	Web-based Comments	19175	24
Masteller	Kristin	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	5533	N/A
Masten	Ken	not provided	N/A	Web-based comments	3051	9
masters	kara	not provided	N/A	Web-based Comments	19024	24
Masters	Mary	not provided	N/A	Web-based Comments	23348	24
Masters	Shehrever	not provided	N/A	Web-based Comments	52103	34
Masterson	Sarah	not provided	N/A	Web-based Comments	52381	34
Masto	Marc	not provided	N/A	Web-based Comments	22338	24
mastri	francis	not provided	N/A	Web-based Comments	46844, 46845	34
Mastro	Cynthia	not provided	N/A	Web-based Comments	56573	34
MASUDA	CAROL	not provided	N/A	Web-based Comments	52580	34
Masullo	Anne	not provided	N/A	Web-based Comments	8221	24
Mat	Ali	not provided	N/A	Web-based Comments	7325	24
Mata	Marina	not provided	N/A	Web-based Comments	22833	24
Matar	Adam	not provided	N/A	Web-based Comments	55924	34
Matar	Adam	not provided	N/A	Web-based Comments	7052	24
Mate	Karen	not provided	N/A	Web-based Comments	19176	24
Mate	Sergio	not provided	N/A	Web-based Comments	46979	34
Mateen	Haley	haleymateen@gmail.com	N/A	Web-based comments	6406	1
Mateja	Katherine	not provided	N/A	Web-based Comments	19464	24
Matera	Stephen	not provided	N/A	Web-based Comments	57905	16
Materi	Deborah	not provided	N/A	Web-based Comments	12443	24
Materi	Sandra	not provided	N/A	Web-based Comments	28184	24
Materna	Gayle	not provided	N/A	Web-based Comments	14830	24
Mates	Susan	not provided	N/A	Web-based Comments	29762	24
Mathena	Mary	not provided	N/A	Web-based Comments	23349	24
Matheny	Albert R.	not provided	N/A	Web-based Comments	7214	24
Matheny	Vicki	not provided	N/A	Web-based Comments	31140	24
Matheny	Victor	not provided	N/A	Web-based Comments	31173	24
Mather	Elizabeth	not provided	N/A	Web-based Comments	13795	24
Mather	Royceann	not provided	N/A	Web-based Comments	27812	24
Mathern	Sandra	not provided	N/A	Web-based Comments	28185	24
Mathes	Barbara	not provided	N/A	Web-based Comments	8730	24
Mathes	Jean	not provided	N/A	Web-based Comments	51229	34
Mathes	Jean	not provided	N/A	Web-based Comments	16864	24
Matheson	Lauren Gabriella	not provided	N/A	Web-based Comments	54766	34
Matheus	Lisa	not provided	N/A	Web-based Comments	21598	24
Matheus	Michelle	not provided	N/A	Web-based Comments	24367	24
Mathew	Erika	not provided	N/A	Web-based Comments	14200	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Mathew	Royce	not provided	N/A	Web-based Comments	53235	34
Mathews	Cathy	not provided	N/A	Web-based Comments	56298	34
Mathews	Christine	not provided	N/A	Web-based Comments	10956	24
Mathews	Dian	not provided	N/A	Web-based Comments	12750	24
Mathews	Dominique	not provided	N/A	Web-based Comments	13008	24
Mathews	Holger	not provided	N/A	Web-based Comments	54132	34
Mathews	Holger	not provided	N/A	Web-based Comments	15722	24
mathews	janie	not provided	N/A	Web-based Comments	16717	24
Mathews	Jerry	jerrym@slp.cc	N/A	Web-based comments	3291	13
Mathews	Jon	jon.mathews@q.com	N/A	Web-based comments	3591	N/A
Mathews	Karen	not provided	N/A	Web-based Comments	19177	24
Mathewson	David	not provided	N/A	Web-based Comments	12081	24
Mathieson	Claire	not provided	N/A	Web-based Comments	47759	34
Mathieson	Claire	not provided	N/A	Web-based Comments	11136	24
Mathieson	Elizabeth	not provided	N/A	Web-based Comments	13796	24
Mathieu	Mindy	not provided	N/A	Web-based Comments	54934	34
Mathis	Tammy	not provided	N/A	Web-based comments	57107	35
Mathisen	Laura	not provided	N/A	Web-based Comments	20675	24
Mathur	Pooja	not provided	N/A	Web-based Comments	26429	24
mathy	sophie	not provided	N/A	Web-based Comments	44358	34
mathy	sophie	not provided	N/A	Web-based Comments	29088	24
Matias	Meagan	not provided	N/A	Web-based comments	57258	35
Matilal	Subhajit	not provided	N/A	Web-based Comments	55259	34
Matkovic	Roberta	not provided	N/A	Web-based Comments	27442	24
Matney	Cheryl	not provided	N/A	Web-based Comments	53316	34
Matney	Cheryl	not provided	N/A	Web-based Comments	10661	24
Matos	Allison	not provided	N/A	Web-based Comments	56228	34
Matos	Samuel	not provided	N/A	Web-based Comments	54498	34
Matosich	Helen	not provided	N/A	Web-based Comments	15618	24
Matson	John	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	2972	N/A
Matsuda	Martha	not provided	N/A	Web-based Comments	23114	24
Matsuda	Megumi	not provided	N/A	Web-based Comments	23818	24
Matsumoto	Mari	not provided	N/A	Web-based Comments	22572	24
Matsuo	June	not provided	N/A	Web-based Comments	56024	34
Matsuo	Takae	not provided	N/A	Web-based Comments	30109	24
Matta	Dawn	not provided	N/A	Web-based Comments	49974	34
Matta	Dawn	not provided	N/A	Web-based Comments	12236	24
Mattan	Steve	not provided	N/A	Web-based Comments	29384	24
mattefs	Matthew	matthewmattefs@gmail.com	N/A	Web-based comments	22	N/A
Mattern	Eleanor	not provided	N/A	Web-based Comments	53795	34
Matteson	Nanou	not provided	N/A	Web-based Comments	25038	24
Matteson	Patricia	not provided	N/A	Web-based Comments	25803	24
Matthews	Carole	not provided	N/A	Web-based Comments	10089	24
Matthews	Gail	not provided	N/A	Web-based Comments	55351	34
Matthews	Jamie	not provided	N/A	Web-based Comments	16367	24
Matthews	Jen	shopbox33@gmail.com	N/A	Web-based comments	2371	N/A
Matthews	Julian	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4243, 5610	N/A
Matthews	Karen	not provided	N/A	Web-based Comments	19178	24
Matthews	Lisa	not provided	N/A	Web-based Comments	52883	34
Matthews	Louise	not provided	N/A	Web-based Comments	49005	34
Matthews	Marilyn	not provided	N/A	Web-based Comments	22799	24
Matthews-Brunson	Diane	not provided	N/A	Web-based Comments	12877	24
Matthys	Dolores	not provided	N/A	Web-based Comments	57820	34
Mattice	Eleanor	not provided	N/A	Web-based Comments	58213	16
Mattingly	Georgia	not provided	N/A	Web-based Comments	46902, 46903	34
Mattison	Leroy	not provided	N/A	Web-based Comments	21026	24
Mattison	Priscilla	not provided	N/A	Web-based Comments	50407, 50408	34
Mattison	Priscilla	not provided	N/A	Web-based Comments	26448	24
Mattison	Susan	not provided	N/A	Web-based Comments	29763	24
Mattke	Jean	not provided	N/A	Web-based Comments	46680	34
Mattke	Jean	not provided	N/A	Web-based Comments	16865	24
Mattock	Suzanne	not provided	N/A	Web-based Comments	50488	34
Mattock	Suzanne	not provided	N/A	Web-based Comments	30006	24
Mattoon	Chase	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32357	N/A
Mattos	Claudio	not provided	N/A	Web-based Comments	11208	24
Mattson	Nancy	not provided	N/A	Web-based Comments	52238	34
Mattsson	Jeff	not provided	N/A	Web-based Comments	17042	24
Matturro	Laura	not provided	N/A	Web-based Comments	20676	24
Maturo	Vicki	not provided	N/A	Web-based Comments	31141	24
Matusow	Steve	not provided	N/A	Web-based Comments	29385	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Matusz	Judy	not provided	N/A	Web-based Comments	18700	24
Matuszak	David	not provided	N/A	Web-based Comments	12082	24
Matz	Barbara	not provided	N/A	Web-based Comments	8731	24
matz	pat	not provided	N/A	Web-based Comments	25664	24
MAUGHAN	CHRISTINA	CHRISTINA_MAUGHAN@HOTMAIL.COM	N/A	Web-based comments	3960	5
Maughan	Lorrin	urbancritter@hotmail.com	N/A	Web-based comments	6615	N/A
Mauldin	Vi	not provided	N/A	Web-based Comments	31113	24
Maupin	George	not provided	N/A	Web-based Comments	14901	24
Maupin	Kory	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32384, 32496	13
Maupin	Kory	not provided	N/A	Web-based comments	3479	13
Maurer	Darlene	not provided	N/A	Web-based Comments	11886	24
Maurer	Dorothy	not provided	N/A	Web-based Comments	13270	24
Maurer	John	not provided	N/A	Web-based Comments	18094	24
Maurer	Lucy	not provided	N/A	Web-based Comments	47269	34
Maurer	Susan	not provided	N/A	Web-based Comments	29764	24
Maurer	Tim	not provided	N/A	Web-based comments	57385	35
Maurer	Tim	not provided	N/A	Web-based Comments	30618	24
Maurice	Ken	not provided	N/A	Web-based Comments	56284	34
Mauriello	Megan	not provided	N/A	Web-based Comments	54322	34
Mauriello	Megan	not provided	N/A	Web-based Comments	23793	24
MAURINE	CAMILLE	not provided	N/A	Web-based Comments	9741	24
Mausner	Emily	not provided	N/A	Web-based Comments	14024	24
Mauti	Nancy	not provided	N/A	Web-based Comments	24925	24
Mautner	Helene	not provided	N/A	Web-based Comments	15642	24
Mautner	Michael	not provided	N/A	Web-based Comments	24161	24
Mavestrand	Randi	not provided	N/A	Web-based Comments	26625	24
Mavor	Susan	not provided	N/A	Web-based Comments	29765	24
Mavroides	Sally	not provided	N/A	Web-based Comments	28017	24
Mavros	Elena	not provided	N/A	Web-based Comments	13651	24
Mavrov	Dimitar	mitaka_619@abv.bg	N/A	Web-based comments	602	N/A
Mavrovouniotis	Gretchen	not provided	N/A	Web-based Comments	15315	24
Mawby-Baker	Jo	not provided	N/A	Web-based Comments	51964, 51965	34
Mawhorter	Carol	not provided	N/A	Web-based Comments	9977	24
Mawhorter	Jerry	not provided	N/A	Web-based Comments	17362	24
maxa	karen	not provided	N/A	Web-based Comments	19179	24
maxfield	casee	not provided	N/A	Web-based Comments	45352	34
maxfield	casee	not provided	N/A	Web-based Comments	10222	24
Maxin	Stuart	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4652	N/A
Maxine	Randy	not provided	N/A	Web-based comments	4948	N/A
Maxson	Mary	not provided	N/A	Web-based Comments	23350	24
Maxson	Sharon	not provided	N/A	Web-based Comments	52394	34
Maxwell	John	jtmaxwell08@gmail.com	N/A	Web-based comments	5177	N/A
Maxwell	Kathy	not provided	N/A	Web-based Comments	19727	24
Maxwell	Margaret	not provided	N/A	Web-based Comments	22473	24
Maxwell	Matthew	not provided	N/A	Web-based Comments	23655	24
Maxwell	Sarah	not provided	N/A	Web-based Comments	28378	24
May	Angela	not provided	N/A	Web-based Comments	55214	34
May	Carol	not provided	N/A	Web-based Comments	49884	34
May	Carol	not provided	N/A	Web-based Comments	9978	24
May	Chase	not provided	N/A	Web-based Comments	10583	24
May	Dana	not provided	N/A	Web-based Comments	11697	24
May	Dee	not provided	N/A	Web-based Comments	12579	24
May	Doris	not provided	N/A	Web-based Comments	13234	24
May	Geraldine	not provided	N/A	Web-based Comments	14972	24
May	Gillian	not provided	N/A	Web-based Comments	15041	24
May	Jennifer	not provided	N/A	Web-based Comments	17224	24
May	Joyce	not provided	N/A	Web-based Comments	18496	24
May	Julie	not provided	N/A	Web-based Comments	18865	24
May	Karen	not provided	N/A	Web-based Comments	19180	24
May	Kenneth	not provided	N/A	Web-based Comments	20019	24
May	Linda	not provided	N/A	Web-based Comments	21347	24
May	Paul	not provided	N/A	Web-based Comments	48019	34
May	Roger	not provided	N/A	Web-based Comments	27590	24
MayberryJensen	Debby	not provided	N/A	Web-based Comments	47908	34
MAYBURY	JOHN	not provided	N/A	Web-based Comments	18095	24
Maycock	Julia	not provided	N/A	Web-based Comments	18764	24
Mayer	Chantal	not provided	N/A	Web-based Comments	54800	34
Mayer	Chip	not provided	N/A	Web-based Comments	10705	24
Mayer	David Mayer	not provided	N/A	Web-based Comments	47391	34
Mayer	Diana	not provided	N/A	Web-based Comments	12781	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Mayer	Evy	not provided	N/A	Web-based Comments	14365	24
Mayer	Helen	not provided	N/A	Web-based Comments	15619	24
Mayer	Janet	not provided	N/A	Web-based Comments	16621	24
Mayer	Judy	not provided	N/A	Web-based Comments	18701	24
Mayer	Ken	not provided	N/A	Web-based Comments	19982	24
Mayer	Lauren	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	31752	26
Mayer	Rene'	not provided	N/A	Web-based Comments	26833	24
Mayer	Sandra	not provided	N/A	Web-based Comments	28186	24
Mayer	Susan	not provided	N/A	Web-based Comments	53251, 57769	34
Mayer	Toni	not provided	N/A	Web-based Comments	30796	24
Mayerat	Robin	not provided	N/A	Web-based Comments	49872	34
Mayeri	Beverly	not provided	N/A	Web-based Comments	9134	24
Mayers	Carole	not provided	N/A	Web-based Comments	10090	24
Mayes	Diana	not provided	N/A	Web-based Comments	12782	24
Mayes	K	not provided	N/A	Web-based Comments	18978	24
Mayhew	Joanne	not provided	N/A	Web-based Comments	17813	24
Maykranz	Mark	mmaykranz@hotmail.com	N/A	Web-based comments	3463	N/A
Mayle	Holly	Hollymayle1237@gmail.com	N/A	Web-based comments	1242	N/A
Maylor	Cassie	cmmaylor@gmail.com	N/A	Web-based comments	6413	1
Maynard	Julia	not provided	N/A	Web-based Comments	18765	24
maynard	katherine	not provided	N/A	Web-based Comments	51732, 51733	34
Maynard	Katherine	not provided	N/A	Web-based Comments	19465	24
Maynard	Kim	not provided	N/A	Web-based Comments	20193	24
Maynard	William	not provided	N/A	Web-based Comments	31562	24
Mayne	Pamela	not provided	N/A	Web-based Comments	46505	34
Mayo	Celia	not provided	N/A	Web-based Comments	10439	24
Mayo	Lynette	not provided	N/A	Web-based Comments	22039	24
Mayr	Troy	not provided	N/A	Web-based Comments	30937	24
Mayrent	Randi	not provided	N/A	Web-based Comments	26626	24
Mayrhofer	Rachel	rachel_outlook@hotmail.com	N/A	Web-based comments	5397	1
Mays	June	not provided	N/A	Web-based Comments	18941	24
Maz	David	not provided	N/A	Web-based Comments	12083	24
Mazairz	Robert	not provided	N/A	Web-based Comments	27326	24
Mazar	A Nicole	not provided	N/A	Web-based Comments	6980	24
Mazariegos	Catalina	not provided	N/A	Web-based Comments	54008	34
Mazariegos	David	not provided	N/A	Web-based Comments	54832, 54833	34
Mazariegos	David	not provided	N/A	Web-based Comments	12084	24
Mazariegos	Rodolfo	not provided	N/A	Web-based Comments	54684	34
Mazen	Joann	not provided	N/A	Web-based Comments	58486, 58487	34
Mazer	Sharon	not provided	N/A	Web-based Comments	28684	24
Mazias	Melissa	not provided	N/A	Web-based Comments	49687	34
Mazias	Melissa	not provided	N/A	Web-based Comments	23902	24
MAZIK	KIM	kmazik@cox.net	N/A	Web-based comments	1973	N/A
mazur	paula	not provided	N/A	Web-based Comments	26091	24
Mazza	Valentina	not provided	N/A	Web-based Comments	46158	34
Mazza	Valentina	not provided	N/A	Web-based Comments	31005	24
Mazzacano	Celeste Searles	not provided	N/A	Web-based Comments	50819	34
Mazzarella	Kenny	not provided	N/A	Web-based Comments	44814	34
Mazzola	Lisa	not provided	N/A	Web-based Comments	52598, 52599, 52600	34
Mazzola	Lisa	not provided	N/A	Web-based Comments	21599	24
Mazzone	Anne	not provided	N/A	Web-based Comments	49044	34
Mazzone	Anne	not provided	N/A	Web-based Comments	8222	24
Mazzouccolo	Kathleen	not provided	N/A	Web-based Comments	19568	24
Mc Cracken	Lorie	not provided	N/A	Web-based Comments	21813	24
Mc Credie	Brian	not provided	N/A	Web-based Comments	9490	24
Mc Intosh	Richard	not provided	N/A	Web-based Comments	27010	24
Mc Laughlin	Judie	not provided	N/A	Web-based Comments	18548	24
Mc Vey	Judy	not provided	N/A	Web-based Comments	18702	24
McAdams	John	not provided	N/A	Web-based Comments	18096	24
mcafee	nico	not provided	N/A	Web-based Comments	51224, 51225	34
mcafee	nico	not provided	N/A	Web-based Comments	25213	24
McAfee	Sage	lone.foxxii@gmail.com	N/A	Web-based comments	648	N/A
Mcaleenan	Marian	not provided	N/A	Web-based Comments	22660	24
McAleenan	Marian F.	not provided	N/A	Web-based Comments	22663	24
McAleer	Kevin	not provided	N/A	Web-based Comments	53010	34
McAleer	Kevin	not provided	N/A	Web-based Comments	20122	24
McAlister	Kevin W.	not provided	N/A	Web-based Comments	44725, 44726	34
McAlister	Rick	not provided	N/A	Web-based Comments	27093	24
McAlister	Suzann	not provided	N/A	Web-based Comments	49742	34
McAllister	Crystal	not provided	N/A	Web-based Comments	11461	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
McAllister	steven	not provided	N/A	Web-based Comments	29451	24
Mcalpine	Andrew	not provided	N/A	Web-based Comments	7831	24
McAnally	Jennifer	not provided	N/A	Web-based Comments	17225	24
McAndrew	Jason	jason.mcandrew@umatillaelectric.com	N/A	Web-based comments	4304	N/A
McAndrews	Monica	not provided	N/A	Web-based Comments	24634	24
McAnulty	Rick	not provided	N/A	Web-based Comments	27094	24
Mcara	Siobhan	not provided	N/A	Web-based Comments	29026	24
McArtor	Robert	not provided	N/A	Web-based Comments	27327	24
McAuliffe	Bryan	not provided	N/A	Web-based Comments	56489	34
McAuliffe	Elizabeth	not provided	N/A	Web-based Comments	13797	24
McAuliffe	Mary	not provided	N/A	Web-based Comments	53810	34
McAuliffe	Mary	not provided	N/A	Web-based Comments	23351	24
McBride	Colleen	not provided	N/A	Web-based comments	57536	35
McBride	Diana	not provided	N/A	Web-based Comments	12783	24
Mcbride	John	not provided	N/A	Web-based Comments	18097	24
McBride	Leigh	not provided	N/A	Web-based Comments	20965	24
McBride	Marcine	not provided	N/A	Web-based Comments	45197	34
McBride	Nancy	not provided	N/A	Web-based Comments	54503	34
McBride	Nancy	not provided	N/A	Web-based Comments	24926	24
McBride	Pamela	not provided	N/A	Web-based Comments	25571	24
McBride	Tim	not provided	N/A	Web-based Comments	30619	24
Mcbrown	Shaeril	not provided	N/A	Web-based Comments	28556	24
Mccabe	Beth	not provided	N/A	Web-based Comments	9035	24
McCabe	Lori	not provided	N/A	Web-based Comments	21793	24
McCabe	Margaret	not provided	N/A	Web-based Comments	22474	24
McCabe	Sarah	not provided	N/A	Web-based Comments	55578	34
McCaffree	Diana	not provided	N/A	Web-based Comments	12784	24
McCahill	Jay	not provided	N/A	Web-based Comments	16812	24
McCalister	Janet	not provided	N/A	Web-based Comments	45061, 45062	34
McCall	Elaine	choochookitty@yahoo.com	N/A	Web-based comments	6536	N/A
McCall	Jasmine	not provided	N/A	Web-based Comments	58678, 58679	34
McCall	Judith	not provided	N/A	Web-based Comments	18624	24
McCall	Laine	not provided	N/A	Web-based comments	57275	35
McCall	Matthew	mwm.mccall@gmail.com	N/A	Web-based comments	32228	N/A
McCall	Patrick	not provided	N/A	Web-based Comments	25915	24
McCallion	Sarah	not provided	N/A	Web-based Comments	55433	34
McCallister	Lisa	not provided	N/A	Web-based Comments	46777	34
McCallister	William	not provided	N/A	Web-based Comments	31563	24
McCallum	Sarah	not provided	N/A	Web-based Comments	28379	24
McCammick	Michelle	not provided	N/A	Web-based Comments	24368	24
McCamy	Charles	charlesmccamy@gmail.com	N/A	Web-based comments	5825	N/A
McCandless	Elizabeth	not provided	N/A	Web-based Comments	47561	34
Mccandless	Elizabeth	not provided	N/A	Web-based Comments	13798	24
McCandless	Garry	not provided	N/A	Web-based Comments	14745	24
McCane	Barbara	not provided	N/A	Web-based Comments	53032	34
McCanless	Shannon	not provided	N/A	Web-based Comments	28591	24
Mccanlies	Katherine	not provided	N/A	Web-based Comments	19466	24
McCann	Ann Kuter	not provided	N/A	Web-based Comments	52114	34
McCann	Annie	not provided	N/A	Web-based Comments	58424	34
McCann	Annie	not provided	N/A	Web-based Comments	8303	24
McCann	Ellen	not provided	N/A	Web-based comments	57369	35
McCann	Ellen	not provided	N/A	Web-based Comments	44848, 44849	34
McCann	Ellen	not provided	N/A	Web-based Comments	13927	24
McCann	Kathleen	not provided	N/A	Web-based Comments	19569	24
McCann	Margaret	not provided	N/A	Web-based Comments	22475	24
Mccann	Rosslyn	not provided	N/A	Web-based Comments	27791	24
McCanna	Richard	not provided	N/A	Web-based Comments	27011	24
McCartan	Megan	not provided	N/A	Web-based Comments	23794	24
McCarter	Angel	not provided	N/A	Web-based Comments	7884	24
Mccarter	Melissa	not provided	N/A	Web-based Comments	55764	34
McCarthy	Barb	not provided	N/A	Web-based Comments	8604	24
McCarthy	Bryan	not provided	N/A	Web-based Comments	9638	24
McCarthy	Cynthia	not provided	N/A	Web-based Comments	55669	34
McCarthy	Cynthia	not provided	N/A	Web-based Comments	11527	24
McCarthy	Debbie	not provided	N/A	Web-based Comments	45306, 45307	34
McCarthy	Debbie	not provided	N/A	Web-based Comments	12335	24
McCarthy	Deborah	not provided	N/A	Web-based Comments	56460	34
McCarthy	Donna	not provided	N/A	Web-based Comments	50527	34
McCarthy	Forrest	forrestmccarthy@hotmail.com	N/A	Web-based comments	4468	N/A

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
McCarthy	Gerry	not provided	N/A	Web-based Comments	15001	24
Mccarthy	Helen	not provided	N/A	Web-based Comments	15620	24
McCarthy	James	jimimacster@gmail.com	N/A	Web-based comments	31807	N/A
McCarthy	Jeff	not provided	N/A	Web-based Comments	17043	24
McCarthy	Jenny	not provided	N/A	Web-based Comments	17295	24
mccarthy	kathy	not provided	N/A	Web-based Comments	19728	24
McCarthy	Linda	not provided	N/A	Web-based Comments	21348	24
McCarthy	Maureen	not provided	N/A	Web-based Comments	23700	24
McCarthy	Michael	not provided	N/A	Web-based Comments	55867	34
McCarthy	Michelle	hiilawe@gmail.com	N/A	Web-based comments	3742	1
McCarthy	Paula	not provided	N/A	Web-based Comments	51289	34
McCarthy	Sandra	not provided	N/A	Web-based Comments	51731, 55226, 55227	34
McCarthy	Sandra	not provided	N/A	Web-based Comments	28187	24
McCarthy	Susan	not provided	N/A	Web-based Comments	46388	34
McCarthy	Susan	not provided	N/A	Web-based Comments	29766	24
McCartin	Mike	not provided	N/A	Web-based Comments	24468	24
Mccartney	Bea	not provided	N/A	Web-based Comments	8884	24
McCartney	Dorothy	not provided	N/A	Web-based Comments	13271	24
McCartney	Teresa	not provided	N/A	Web-based Comments	45042	34
McCartney	Teresa	not provided	N/A	Web-based Comments	30284	24
McCarty	Amy	not provided	N/A	Web-based Comments	53997	34
McCarty	Chris	not provided	N/A	Web-based Comments	10762	24
McCauley	Dion	not provided	N/A	Web-based Comments	54778	34
McCauley	Kyle	not provided	N/A	Web-based Comments	20455	24
McCauley	P.	not provided	N/A	Web-based Comments	25473	24
McCauley	Wm.	not provided	N/A	Web-based Comments	31637	24
McChesney	Kathryn	not provided	N/A	Web-based Comments	19652	24
McChesney	Patricia	not provided	N/A	Web-based Comments	25804	24
McClain	Carol Shepherd	not provided	N/A	Web-based Comments	50525	34
McClain	Sharon	not provided	N/A	Web-based Comments	28685	24
McClean	Michael	not provided	N/A	Web-based Comments	24162	24
McCleary	Tiffany	not provided	N/A	Web-based Comments	58087, 53889	16, 34
McCleland	Debra	not provided	N/A	Web-based Comments	12534	24
McClellan	Joyce	not provided	N/A	Web-based Comments	18497	24
McClelland	Darren	darren@seattleserver.com	N/A	Web-based comments	4415	N/A
McClelland	Elizabeth	not provided	N/A	Web-based Comments	51887, 51888	34
McClendon	Polly	not provided	N/A	Web-based Comments	26425	24
McClintock	B.A.	not provided	N/A	Web-based Comments	8586	24
McClintock	Gloria	not provided	N/A	Web-based Comments	15162	24
McClintock	Stephanie	smcclintock@ugcpnw.com	N/A	Web-based comments	6540	N/A
McClintock	Vickie	not provided	N/A	Web-based Comments	53389	34
McCloskey	Diane	not provided	N/A	Web-based Comments	12878	24
McCloskey	Eileen	not provided	N/A	Web-based Comments	13546	24
McCloskey	Melanie	not provided	N/A	Web-based Comments	23840	24
McCloskey	Stephen	not provided	N/A	Web-based comments	56988	35
McClung	Judy	not provided	N/A	Web-based Comments	18703	24
McClure	Craig	not provided	N/A	Web-based Comments	51123	34
McClure	Jimalee	not provided	N/A	Web-based Comments	17623	24
McClure	Leslie	not provided	N/A	Web-based Comments	21087	24
McClure	Marianne	not provided	N/A	Web-based Comments	47999	34
McClure	Susan	not provided	N/A	Web-based Comments	51509	34
McClure	Susan	not provided	N/A	Web-based Comments	29767	24
McClurg	Daviann	not provided	N/A	Web-based Comments	11926	24
McCluskey	Karla	not provided	N/A	Web-based Comments	53117	34
McCollim	Jeff	not provided	N/A	Web-based Comments	49193, 49194	34
McCollom	Cynthia	not provided	N/A	Web-based Comments	11528	24
McCollom	Jean	not provided	N/A	Web-based Comments	16866	24
McCollum	Tamar	not provided	N/A	Web-based Comments	48781	34
McComas	Barney	not provided	N/A	Web-based Comments	8852	24
McComas	Kathy	not provided	N/A	Web-based Comments	48515	34
McComas	Kathy	not provided	N/A	Web-based Comments	19729	24
McCombs	Annie	not provided	N/A	Web-based Comments	50601	34
McCombs	Robert	not provided	N/A	Web-based Comments	27328	24
McConkey	Kimberly	not provided	N/A	Web-based Comments	51233	34
McConnell	Cass	not provided	N/A	Web-based Comments	10230	24
Mcconnell	Claudia	claudia27g@gmail.com	N/A	Web-based comments	58814	N/A
McConnell	Denise	not provided	N/A	Web-based Comments	48355	34
McConnell	Ellen	not provided	N/A	Web-based Comments	53581	34
Mcconnell	Joann	not provided	N/A	Web-based Comments	17774	24
McConnell	Kelly	not provided	N/A	Web-based Comments	19934	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
McConnell	Robert and Jane	not provided	N/A	Web-based Comments	27421	24
McConnell	Rod	not provided	N/A	Web-based Comments	27569	24
McConnochie	Jordan	not provided	N/A	Web-based Comments	18320	24
McCool	Mike	not provided	N/A	Web-based Comments	24469	24
McCord	Callie	not provided	N/A	Web-based comments	777	N/A
McCorison	Lisa	not provided	N/A	Web-based Comments	52382	34
McCorkle	Marshall	not provided	N/A	Web-based Comments	23082	24
McCorkle	Robert	not provided	N/A	Web-based Comments	27329	24
McCormac	Candy	candyemccormac@gmail.com	N/A	Web-based comments	4180	N/A
McCormack	Regina	not provided	N/A	Web-based Comments	26804	24
Mccormick	Corey	not provided	N/A	Web-based Comments	11364	24
McCormick	Dawn	not provided	N/A	Web-based Comments	12237	24
McCormick	Devin	not provided	N/A	Web-based Comments	54619, 54620	34
McCormick	Joanne	not provided	N/A	Web-based Comments	17814	24
McCormick	Kate	not provided	N/A	Web-based Comments	19394	24
McCormick	Kim	not provided	N/A	Web-based Comments	20194	24
Mccormick	Michael	mikessecondwind@outlook.com	N/A	Web-based comments	1994	N/A
Mccormick	Nancy	not provided	N/A	Web-based Comments	24927	24
McCormick	Sandra	not provided	N/A	Web-based Comments	28188	24
McCormick	Snow	not provided	N/A	Web-based comments	4514	1
McCormick,	Frank	ASIHcons@gmail.com	N/A	Web-based comments	6926	N/A
McCorry	Eileen	not provided	N/A	Web-based Comments	50924	34
McCorry	Eileen	not provided	N/A	Web-based Comments	13547	24
McCorry	K.J.	not provided	N/A	Web-based Comments	18989	24
McCoubrie	Elise	not provided	N/A	Web-based Comments	51686, 51687	34
McCoubrie	Elise	not provided	N/A	Web-based Comments	13692	24
McCourt	Beverlee	not provided	N/A	Web-based Comments	9112	24
McCourt	Margaret	not provided	N/A	Web-based Comments	49221	34
McCourt	Nancy	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	2140	N/A
McCourt-Bincoletto	Sibeal	not provided	N/A	Web-based Comments	44393	34
McCowan	Tracy	not provided	N/A	Web-based Comments	30874	24
McCown	Lisa	not provided	N/A	Web-based Comments	21600	24
McCoy	Amanda	not provided	N/A	Web-based Comments	7546	24
McCoy	Amy	not provided	N/A	Web-based Comments	7638	24
McCoy	Darilynn	not provided	N/A	Web-based Comments	11865	24
Mccoy	Ed	not provided	N/A	Web-based Comments	13451	24
McCoy	Hazel	not provided	N/A	Web-based Comments	49770	34
McCoy	Mary	not provided	N/A	Web-based Comments	23352	24
McCoy	Melinda	melindamccoy1@aol.com	N/A	Web-based Comments	46265	34
McCoy	Melinda	not provided	N/A	Web-based comments	3657	N/A
McCoy	Tom and Nancy	not provided	N/A	Web-based Comments	30786	24
McCoy	Virginia	not provided	N/A	Web-based comments	57346	35
Mccoy	Virginia	not provided	N/A	Web-based Comments	54511	34
McCrae	Keith	keith.mccrae@gmail.com	N/A	Web-based comments	31849	8
McCrary	Richard	not provided	N/A	Web-based Comments	53146	34
McCray	April McCray	not provided	N/A	Web-based comments	57470	35
McCray	Candy	not provided	N/A	Web-based Comments	9769	24
McCray	Kailah	not provided	N/A	Web-based comments	57488	35
Mccrea	Riley	not provided	N/A	Web-based Comments	27117	24
McCready	Tamara	not provided	N/A	Web-based Comments	48517	34
McCready	Tami	not provided	N/A	Web-based Comments	48516	34
mccready	tami	not provided	N/A	Web-based Comments	30139	24
McCreary	Jan	not provided	N/A	Web-based Comments	48604, 48605	34
McCreary	Jan	not provided	N/A	Web-based Comments	16409	24
McCreary	Steph	steph@tewawomenunited.org	N/A	Web-based comments	3978	1
McCrery	Michael	not provided	N/A	Web-based Comments	24163	24
McCrillis	H	not provided	N/A	Web-based Comments	51948	34
McCrillis	Heather	not provided	N/A	Web-based Comments	49316	34
McCrohan	Mary	not provided	N/A	Web-based Comments	23353	24
McCrory	Laura	not provided	N/A	Web-based Comments	20677	24
McCrosky	Linda	not provided	N/A	Web-based Comments	54918, 54919	34
mccrum	carol	not provided	N/A	Web-based Comments	9979	24
McCue	Patricia	not provided	N/A	Web-based Comments	25805	24
McCue	Wm	not provided	N/A	Web-based comments	3846	N/A
McCuen	Annie	not provided	N/A	Web-based Comments	8304	24
McCuen	Annie	not provided	N/A	Web-based Comments	57955	16
McCullagh	Angela	not provided	N/A	Web-based Comments	7922	24
McCulley	Michelle	not provided	N/A	Web-based Comments	24369	24
McCulloch	Jamie	not provided	N/A	Web-based Comments	16368	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
McCullough	Debra	not provided	N/A	Web-based Comments	45376	34
McCullough	Debra	not provided	N/A	Web-based Comments	12535	24
Mccullough	Elizabeth	not provided	N/A	Web-based Comments	13800	24
McCullough	Elizabeth	not provided	N/A	Web-based Comments	13799	24
Mccullough	Marie	not provided	N/A	Web-based Comments	22719	24
McCullough	Maureen	not provided	N/A	Web-based Comments	51228	34
McCullough	Maureen	not provided	N/A	Web-based Comments	23701	24
McCullough	Nancy	not provided	N/A	Web-based Comments	24928	24
McCullough	Tammy	not provided	N/A	Web-based Comments	48582	34
McCullough	William	not provided	N/A	Web-based Comments	31564	24
McCullough, Jr	William E	not provided	N/A	Web-based Comments	48869	34
Mccully	Mimi	not provided	N/A	Web-based Comments	24521	24
McCune	Bonnie	not provided	N/A	Web-based Comments	9313	24
Mccurrie-Gibson	Maureen	not provided	N/A	Web-based Comments	23702	24
McCurry	Evelyn	not provided	N/A	Web-based Comments	50901	34
McCurry	Gordon	not provided	N/A	Web-based Comments	15182	24
McCutcheon	Meghan	not provided	N/A	Web-based Comments	46608	34
McCutcheon	Meghan	not provided	N/A	Web-based Comments	23815	24
McCutcheon	Meredith	not provided	N/A	Web-based Comments	56101	34
McCutcheon	Ron	not provided	N/A	Web-based Comments	27630	24
McDade	Christine	not provided	N/A	Web-based Comments	10957	24
mcdade	dolly	not provided	N/A	Web-based Comments	12991	24
McDade	Shereen	not provided	N/A	Web-based Comments	28851	24
McDANIEL	DANNY	not provided	N/A	Web-based Comments	11837	24
MCDANIEL	DANNY	not provided	N/A	Web-based Comments	11836	24
McDaniel	Hilary	not provided	N/A	Web-based Comments	15701	24
Mcdaniel	Jeanne	not provided	N/A	Web-based Comments	16959	24
McDaniel	Jennifer	not provided	N/A	Web-based Comments	51299	34
McDaniel	Les	not provided	N/A	Web-based Comments	21032	24
McDaniel	Lisa	not provided	N/A	Web-based Comments	54451	34
Mcdaniel	Melissa	not provided	N/A	Web-based Comments	23903	24
McDaniel	Paul	not provided	N/A	Web-based Comments	52826	34
McDaniel	Skot	not provided	N/A	Web-based Comments	29037	24
McDaniels	J	not provided	N/A	Web-based Comments	57877	34
McDaniels	Stacey	not provided	N/A	Web-based Comments	29118	24
McDermet	Stewart and Kristen	not provided	N/A	Web-based Comments	29484	24
McDermott	J	not provided	N/A	Web-based Comments	55510	34
McDermott	John	not provided	N/A	Web-based Comments	18098	24
McDermott	Marianne	not provided	N/A	Web-based Comments	22684	24
McDermott	Marley	not provided	N/A	Web-based Comments	23050	24
McDermott	Ruthann	not provided	N/A	Web-based Comments	53560, 57773	34
McDermott	Ruthann	not provided	N/A	Web-based Comments	27897	24
McDermott	Sally	not provided	N/A	Web-based Comments	28018	24
McDermott	Wendy	not provided	N/A	Web-based Comments	57878	N/A
McDevitt	Linda	not provided	N/A	Web-based Comments	21349	24
McDevitt	William	not provided	N/A	Web-based Comments	31565	24
McDonagh	Janet	not provided	N/A	Web-based Comments	55548	34
McDonal	Frances	not provided	N/A	Web-based Comments	14485	24
McDonald	Alison	not provided	N/A	Web-based Comments	56546	34
Mcdonald	Andrew	not provided	N/A	Web-based Comments	7832	24
McDonald	Anne	not provided	N/A	Web-based Comments	8223	24
McDonald	Betty	not provided	N/A	Web-based Comments	9098	24
McDonald	Bridget	not provided	N/A	Web-based Comments	9538	24
Mcdonald	Carol	not provided	N/A	Web-based Comments	9980	24
McDonald	Emily	not provided	N/A	Web-based Comments	14025	24
McDonald	Georgia	not provided	N/A	Web-based Comments	14939	24
McDonald	Graeme	not provided	N/A	Web-based Comments	53025	34
McDonald	Graeme	not provided	N/A	Web-based Comments	15211	24
McDonald	Holly	not provided	N/A	Web-based Comments	50815	34
McDonald	Jeanette	not provided	N/A	Web-based Comments	16917	24
McDonald	Jess	not provided	N/A	Web-based Comments	54264	34
McDonald	Judy	not provided	N/A	Web-based Comments	18704	24
McDonald	Judy	not provided	N/A	Web-based Comments	18705	24
McDonald	Julia	not provided	N/A	Web-based comments	5932	1
McDonald	Kathleen	kgf116@hotmail.com	N/A	Web-based comments	5869	N/A
McDonald	Kathleen	not provided	N/A	Web-based Comments	19570	24
McDonald	Kaye	not provided	N/A	Web-based Comments	19842	24
McDonald	Kerry	not provided	N/A	Web-based Comments	20071	24
McDonald	Kimberly	not provided	N/A	Web-based Comments	53502	34

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Mcdonald	Maureen	not provided	N/A	Web-based Comments	48511	34
MCDONALD	MAUREEN	not provided	N/A	Web-based Comments	23703	24
McDonald	Michael	not provided	N/A	Web-based Comments	24164	24
McDonald	Patricia	not provided	N/A	Web-based Comments	25806	24
McDonald	Sk	ssmcdon2@hotmail.com	N/A	Web-based comments	5115	N/A
McDonald RVT	Erin	not provided	N/A	Web-based Comments	14224	24
Mcdonald-Chan	Lesa	not provided	N/A	Web-based Comments	21037	24
McDonell	Alexander	not provided	N/A	Web-based Comments	7269	24
Mcdonell	Tasha Mcdonell	not provided	N/A	Web-based comments	57475	35
McDonnell	Ben	not provided	N/A	Web-based Comments	8942	24
Mcdonnell	Caroline	not provided	N/A	Web-based comments	56911	35
McDonnell	Janet	not provided	N/A	Web-based Comments	16622	24
Mcdonough	Dennis	not provided	N/A	Web-based Comments	12693	24
McDonough	Frank	not provided	N/A	Web-based Comments	14541	24
McDonough	Joan	not provided	N/A	Web-based Comments	17708	24
McDonough	Joseph	not provided	N/A	Web-based Comments	51961	34
McDonough	Rebecca	not provided	N/A	Web-based Comments	52132	34
McDonough	Rebecca	not provided	N/A	Web-based Comments	26752	24
McDonough	Shelley	not provided	N/A	Web-based Comments	28835	24
McDougal	Graeme	not provided	N/A	Web-based Comments	49736	34
McDougal	Linda	not provided	N/A	Web-based Comments	21350	24
McDougal	Suzanna	not provided	N/A	Web-based Comments	29976	24
McDougall	Joan	not provided	N/A	Web-based Comments	17709	24
McDow	Cathy	not provided	N/A	Web-based Comments	10378	24
McDow	David	not provided	N/A	Web-based Comments	12085	24
McDowall	Betty	not provided	N/A	Web-based Comments	55429	34
McDowell	Greg	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	56685	N/A
McEachern	Catharine	not provided	N/A	Web-based Comments	10251	24
McEachronTaylor	LindaLee	not provided	N/A	Web-based Comments	21476	24
Mceldowney	Michelle	not provided	N/A	Web-based Comments	24370	24
McElhaney	Lori	not provided	N/A	Web-based Comments	21794	24
McElhinney	Becky	not provided	N/A	Web-based Comments	8913	24
McElhinney	Seth	not provided	N/A	Web-based Comments	28546	24
McElroy	Christine	not provided	N/A	Web-based Comments	10958	24
McElroy	Joan	not provided	N/A	Web-based Comments	17710	24
McElveen	Alan	not provided	N/A	Web-based Comments	7178	24
McElveen	Cheryl	not provided	N/A	Web-based Comments	10662	24
McEntire	James	jmcentire1@wavecable.com	N/A	Web-based comments	6153	N/A
McEvoy	Macallagh	not provided	N/A	Web-based Comments	22226	24
McEwan	Diane	not provided	N/A	Web-based Comments	45560	34
McEwan	Diane	not provided	N/A	Web-based Comments	12879	24
McEwen	Barbara	not provided	N/A	Web-based Comments	8732	24
McEwen	Kathryn	not provided	N/A	Web-based Comments	49286	34
McFadden	Florence	not provided	N/A	Web-based Comments	14451	24
McFadden	Norm	normandjanet@gmail.com	N/A	Web-based comments	1505	N/A
McFadden	Sandra	msmacattack@msn.com	N/A	Web-based comments	3172	N/A
McFadden	Stephanie	not provided	N/A	Web-based Comments	29234	24
McFadden	Susan	not provided	N/A	Web-based Comments	29768	24
McFadin	Marla	not provided	N/A	Web-based Comments	23028	24
McFail	Michael	not provided	N/A	Web-based Comments	24165	24
McFall	Alice	not provided	N/A	Web-based Comments	7356	24
McFarland	Kate	not provided	N/A	Web-based Comments	44528	34
McFarland	Mary Ann	not provided	N/A	Web-based Comments	23498	24
McFarland	S.M.	not provided	N/A	Web-based Comments	51786	34
McFarland	Susan	not provided	N/A	Web-based Comments	29769	24
McFarlane	Ann	not provided	N/A	Web-based Comments	8066	24
McFeeters	Rich	not provided	N/A	Web-based Comments	26923	24
McFerran	Michele	not provided	N/A	Web-based Comments	49965	34
McGahee	Emily	not provided	N/A	Web-based Comments	14026	24
McGann	Marilyn	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58313	N/A
McGarr	Kathleen	not provided	N/A	Web-based comments	57397	35
McGarr	Kathleen	not provided	N/A	Web-based Comments	19571	24
McGaughey	Mary	not provided	N/A	Web-based Comments	55751	34
McGaw	Melissa	not provided	N/A	Web-based Comments	23904	24
McGee	Brian	not provided	N/A	Web-based Comments	9491	24
McGee	Chris	not provided	N/A	Web-based Comments	10763	24
McGee	Deb	not provided	N/A	Web-based Comments	12298	24
McGee	Dennis	not provided	N/A	Web-based Comments	48093	34
McGee	Dennis	not provided	N/A	Web-based Comments	12694	24
McGee	James	not provided	N/A	Web-based Comments	16259	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
mcgee	jamie	not provided	N/A	Web-based Comments	46162	34
McGee	Jj	not provided	N/A	Web-based comments	57202	35
McGee	Matt	matt@mattmcgee.com	N/A	Web-based comments	2104	N/A
McGee	Sarah	not provided	N/A	Web-based Comments	53109	34
McGee	Terence	not provided	N/A	Web-based Comments	30256	24
McGee	Timothy	not provided	N/A	Web-based Comments	30651	24
McGettigan	Sharon	not provided	N/A	Web-based Comments	28686	24
McGhinnis	Kathy	not provided	N/A	Web-based Comments	19730	24
McGill	Aimee	not provided	N/A	Web-based Comments	7135	24
McGill	Ann C	not provided	N/A	Web-based Comments	8106	24
McGill	Bonnie	not provided	N/A	Web-based Comments	9314	24
Mcgill	Flora	not provided	N/A	Web-based Comments	14447	24
Mcgill	Ron	not provided	N/A	Web-based Comments	27631	24
McGinley	Dale	not provided	N/A	Web-based Comments	11628	24
Mcginley	Margo	not provided	N/A	Web-based Comments	22547	24
McGinley	Michael	not provided	N/A	Web-based Comments	24166	24
McGinn	Susan	not provided	N/A	Web-based Comments	29770	24
McGinnis	Margaret	not provided	N/A	Web-based comments	56966	35
McGinnis	Margaret	not provided	N/A	Web-based Comments	22476	24
McGinnis	Patrick	not provided	N/A	Web-based Comments	25916	24
McGinty	Alison	not provided	N/A	Web-based Comments	7412	24
McGinty	Paul	not provided	N/A	Web-based Comments	26023	24
McGivern	Mike	not provided	N/A	Web-based Comments	57982	16
McGlaughlin	Paige	not provided	N/A	Web-based Comments	25484	24
Mcglocklin	Lecil	not provided	N/A	Web-based Comments	54807	34
Mcglocklin	Lecil	not provided	N/A	Web-based Comments	20921	24
McGlothlen	Gloria	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58322, 58323	N/A
McGonigal	Joan	not provided	N/A	Web-based Comments	17711	24
Mcgoon	Linda	not provided	N/A	Web-based Comments	21351	24
McGorrin	Miriam	not provided	N/A	Web-based comments	57537	35
Mcgovern	Donlon	not provided	N/A	Web-based Comments	13098	24
McGovern	Donlon	not provided	N/A	Web-based Comments	57930	16
McGovern	Mary	not provided	N/A	Web-based Comments	23354	24
McGovern	Timothy	not provided	N/A	Web-based Comments	30652	24
McGowan	Elizabeth	not provided	N/A	Web-based Comments	13801	24
McGowan	Julie	not provided	N/A	Web-based Comments	18866	24
McGowan	Kevin	not provided	N/A	Web-based Comments	20123	24
McGowan	Kris	not provided	N/A	Web-based Comments	20325	24
McGowan	Lorna	not provided	N/A	Web-based Comments	21825	24
McGowan	Louise	not provided	N/A	Web-based Comments	21888	24
McGowan	Michael	not provided	N/A	Web-based Comments	24167	24
McGowan	Wendy	not provided	N/A	Web-based Comments	55107	34
McGowan-Guida	Denise	not provided	N/A	Web-based Comments	12649	24
McGowen	Angela	not provided	N/A	Web-based Comments	53214, 53215	34
McGrath	Devin	not provided	N/A	Web-based Comments	12738	24
McGrath	Jill	not provided	N/A	Web-based Comments	58491	34
McGrath	Jill	not provided	N/A	Web-based Comments	17527	24
McGrath	Joan	not provided	N/A	Web-based Comments	46420	34
McGrath	Joan	not provided	N/A	Web-based Comments	17712	24
McGrath	John	jmcanineservices@aol.com	N/A	Web-based comments	6225	N/A
McGrath	Karen	not provided	N/A	Web-based Comments	19181	24
McGrath	Maurice	not provided	N/A	Web-based Comments	23728	24
McGrath	Renee	not provided	N/A	Web-based Comments	47185, 47186	34
McGrath	Renee	not provided	N/A	Web-based Comments	26849	24
McGrath	Sandra	not provided	N/A	Web-based Comments	28189	24
McGrath	Thomas	not provided	N/A	Web-based Comments	30520	24
McGrath	Tracey	not provided	N/A	Web-based Comments	30846	24
McGraw	Cheryl	not provided	N/A	Web-based Comments	10663	24
McGraw	Donald	not provided	N/A	Web-based Comments	54067	34
McGraw	Donald	not provided	N/A	Web-based Comments	13073	24
McGraw	Kevin	not provided	N/A	Web-based Comments	20124	24
McGreal	Bridget	not provided	N/A	Web-based Comments	9539	24
McGreevy	Ed	campmcgreevy@gmail.com	N/A	Web-based comments	5417	N/A
McGregor	Alex	alex@mcgregor.com	N/A	Web-based comments	2821	N/A
McGregor	Alex	alex@mcgregor.com	N/A	Hand-delivered or oral testimony (personally delivered)	4629	N/A
McGregor	Debi	not provided	N/A	Web-based Comments	57844	34
McGregor	Denise	not provided	N/A	Web-based Comments	55201	34
McGregor	Hilary	not provided	N/A	Web-based Comments	48386	34
McGregor	Sharon	not provided	N/A	Web-based Comments	46026, 46027	34
Mcgregor	Sharon	not provided	N/A	Web-based Comments	28687	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
McGuffey	Lucy	not provided	N/A	Web-based Comments	45611	34
McGuffey	Lucy	not provided	N/A	Web-based Comments	21956	24
McGUINNESS	KAREN	not provided	N/A	Web-based Comments	49540	34
McGUINNESS	KAREN	not provided	N/A	Web-based Comments	19182	24
McGuire	Daniel	not provided	N/A	Web-based Comments	53582	34
McGuire	Daniel	not provided	N/A	Web-based Comments	11754	24
McGuire	Ellie	not provided	N/A	Web-based Comments	52310	34
McGuire	Jessica	not provided	N/A	Web-based Comments	48919	34
McGuire	John	not provided	N/A	Web-based comments	6592*	N/A
McGuire	Kasha	lion_sss@mac.com	N/A	Web-based comments	32115	N/A
McGuire	Louise	not provided	N/A	Web-based Comments	21889	24
McGuire	Patricia	not provided	N/A	Web-based Comments	25807	24
mcguire	s.	not provided	N/A	Web-based Comments	27959	24
McGuire	Shannon	not provided	N/A	Web-based comments	57270	35
mcguire	theresa	not provided	N/A	Web-based Comments	30441	24
Mcgurk	Carole	not provided	N/A	Web-based Comments	10091	24
McGurrin	Joseph	joemcgurrin1@gmail.com	N/A	Web-based comments	5053	8
McGushin	Colleen	not provided	N/A	Web-based Comments	11270	24
mchale	mike	not provided	N/A	Web-based Comments	24470	24
McHendry	Kathleen	not provided	N/A	Web-based Comments	53217	34
McHendry	Kathleen	not provided	N/A	Web-based Comments	19572	24
McHenry	Beth	not provided	N/A	Web-based Comments	9036	24
McHenry	Steve	not provided	N/A	Web-based Comments	29386	24
McHenry	Sue	not provided	N/A	Web-based Comments	50428, 53098	34
McHugh	Heather	not provided	N/A	Web-based Comments	45787, 45788	34
McHugh	Maureen	not provided	N/A	Web-based Comments	23704	24
McIlhenny	Sydney	not provided	N/A	Web-based Comments	30052	24
McIlroy-Hawley	Bebhinn	not provided	N/A	Web-based Comments	8899	24
McInelly	B	bemac1313@gmail.com	N/A	Web-based comments	3718	N/A
McInerney	Anton	not provided	N/A	Web-based Comments	8357	24
McInerney	Anton McInerney	not provided	N/A	Web-based Comments	46977	34
mcinnes	d	not provided	N/A	Web-based Comments	11582	24
Mcinnis	Ray	not provided	N/A	Web-based Comments	26673	24
McIntee	Jodie	not provided	N/A	Web-based Comments	17857	24
Mcintire	Susan	not provided	N/A	Web-based Comments	29771	24
McIntosh	JoAnn	not provided	N/A	Web-based Comments	17775	24
McIntosh	Marsha	not provided	N/A	Web-based Comments	55576	34
Mcintosh	Marsha	not provided	N/A	Web-based Comments	23074	24
McIntosh	Pam	not provided	N/A	Web-based Comments	25501	24
McIntosh	Sheila	not provided	N/A	Web-based Comments	28794	24
McIntyre	Barbara	not provided	N/A	Web-based Comments	50082	34
mcintyre	charlotte	not provided	N/A	Web-based Comments	10561	24
McIntyre	Gail	not provided	N/A	Web-based Comments	14700	24
McIntyre	Jack	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	5549	N/A
McIntyre	Jessica	not provided	N/A	Web-based Comments	49509	34
McIntyre	Kathy	not provided	N/A	Web-based Comments	19731	24
Mcintyre	Kenneth	not provided	N/A	Web-based Comments	20020	24
McIntyre	Micah	not provided	N/A	Web-based Comments	52737	34
Mcintyre	Rene	not provided	N/A	Web-based Comments	26830	24
Mcintyre	Sharon	not provided	N/A	Web-based Comments	28688	24
McIntyre	Wiley	not provided	N/A	Web-based Comments	31481	24
McIver	Jim	jdmcive@gmail.com	N/A	Web-based comments	2078	N/A
McIver	Jim	jdmcive@gmail.com	N/A	US Mail or commercial carrier (UPS, FedEx)	4226	N/A
McIver	Marlene	not provided	N/A	Web-based Comments	46362	34
McJunkin	Diane	not provided	N/A	Web-based Comments	53569	34
McKain	Sue	not provided	N/A	Web-based Comments	29537	24
McKay	Claire	not provided	N/A	Web-based Comments	11137	24
Mckay	Jeff	not provided	N/A	Web-based Comments	17044	24
McKay	Jolene	not provided	N/A	Web-based Comments	18239	24
McKay	M	not provided	N/A	Web-based Comments	22180	24
Mckay	Megan	not provided	N/A	Web-based Comments	23795	24
McKay	Michele	not provided	N/A	Web-based comments	2430	N/A
McKeag	Elizabeth	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4223	N/A
McKechnie	Karen	not provided	N/A	Web-based Comments	50620	N/A
MCKEE	BARBARA	not provided	N/A	Web-based Comments	8733	24
Mckee	Brigette	not provided	N/A	Web-based Comments	9549	24
McKee	Brigitte	not provided	N/A	Web-based Comments	9557	24
McKee	David	not provided	N/A	Web-based Comments	12086	24
Mckee	Julie	not provided	N/A	Web-based Comments	18867	24
MCKEE	LARY	not provided	N/A	Web-based Comments	58129, 57801	16, 34

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
McKee	Mike	not provided	N/A	Web-based Comments	24471	24
Mckee	Patrick	not provided	N/A	Web-based Comments	25917	24
McKee	Ruth	not provided	N/A	Web-based Comments	27879	24
McKee	Sally	not provided	N/A	Web-based Comments	28019	24
McKee	Wendy	not provided	N/A	Web-based Comments	31439	24
McKeel	Jane	not provided	N/A	Web-based Comments	16515	24
McKeel	Jennifer	not provided	N/A	Web-based Comments	56598	34
McKeen	Kara	not provided	N/A	Web-based Comments	19025	24
McKeever	John	not provided	N/A	Web-based Comments	18099	24
McKeighen	Daniel	not provided	N/A	Web-based Comments	11755	24
McKelvey	Don	not provided	N/A	Web-based Comments	50303, 50304	34
McKelvie	Clark	not provided	N/A	Web-based Comments	11171	24
McKelvie	Kevin	not provided	N/A	Web-based Comments	20125	24
Mckenna	Andy	od2merlin@hotmail.com	N/A	Web-based comments	2149	N/A
McKenna	Brian	not provided	N/A	Web-based Comments	9492	24
mckenna	caephren	not provided	N/A	Web-based Comments	47894, 47895, 47896	34
mckenna	caephren	not provided	N/A	Web-based Comments	9707	24
McKenna	Casey	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	56690	N/A
McKenna	Duane	not provided	N/A	Web-based Comments	13383	24
McKenna	Jacci	not provided	N/A	Web-based Comments	16024	24
McKenna	James	not provided	N/A	Web-based Comments	16260	24
Mckenna	Jerry	not provided	N/A	Web-based Comments	17363	24
McKenna	Marci	not provided	N/A	Web-based Comments	22358	24
McKenna	Pamala	not provided	N/A	Web-based Comments	44834	34
McKenna	Pamala	not provided	N/A	Web-based Comments	25521	24
McKenney	Kathryn	not provided	N/A	Web-based Comments	19653	24
McKenzie	Daniel	dgm3rd@gmail.com	N/A	Web-based comments	4346	N/A
McKenzie	Joe	not provided	N/A	Web-based Comments	17889	24
mckenzie	mary	not provided	N/A	Web-based Comments	23355	24
McKenzie	Robert	not provided	N/A	Web-based Comments	27330	24
McKenzie	Valerie	not provided	N/A	Web-based Comments	48612	34
McKeown Gallicho	Monica	not provided	N/A	Web-based Comments	24635	24
McKey	Monica	not provided	N/A	Web-based Comments	24636	24
McKibben	Mike	not provided	N/A	Web-based comments	3136	8
McKibbin	Alan	not provided	N/A	Web-based Comments	7179	24
McKillip	Linda	not provided	N/A	Web-based Comments	21352	24
McKillop	Lisa	not provided	N/A	Web-based Comments	21601	24
McKinley	Alex	almckinley@hotmail.com	N/A	Web-based comments	5912	N/A
Mckinley	Kala	not provided	N/A	Web-based Comments	19008	24
Mckinley	Patti	not provided	N/A	Web-based Comments	25946	24
McKinney	Laura	not provided	N/A	Web-based Comments	20678	24
McKinney	Sarah	not provided	N/A	Web-based Comments	28380	24
McKinney	Tyson	not provided	N/A	Web-based Comments	30968	24
McKinney	William	not provided	N/A	Web-based Comments	31566	24
McKinnis	Diane	not provided	N/A	Web-based Comments	12880	24
McKnight	Ellen	not provided	N/A	Web-based Comments	13928	24
McKnight	Shoshanah	not provided	N/A	Web-based Comments	28973	24
McKnight	Stanley	not provided	N/A	Web-based Comments	29156	24
McLain	Rhonda	not provided	N/A	Web-based Comments	26901	24
McLain	Tom	not provided	N/A	Web-based Comments	45769	34
McLane	Kathleen	not provided	N/A	Web-based Comments	19573	24
McLane	Larry	not provided	N/A	Web-based comments	5258	N/A
McLane	Richard	not provided	N/A	Web-based Comments	27012	24
McLaren	Justis	justismclaren@gmail.com	N/A	Web-based comments	2303	N/A
McLaren	Nona	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58408	32
McLaskey	Michelle	not provided	N/A	Web-based Comments	24371	24
McLaughlin	Christine	not provided	N/A	Web-based Comments	10959	24
McLaughlin	Diane	not provided	N/A	Web-based Comments	53156	34
McLaughlin	Jeanie	not provided	N/A	Web-based Comments	16922	24
McLaughlin	John	wildlife.wwu@gmail.com	N/A	Web-based comments	32237	N/A
McLaughlin	Julia	not provided	N/A	Web-based Comments	50411	34
Mclaughlin	Karen	not provided	N/A	Web-based Comments	19183	24
McLaughlin	Keara	not provided	N/A	Web-based comments	57221	35
McLaughlin	Laurie	not provided	N/A	Web-based Comments	46190	34
McLaughlin	Michael	not provided	N/A	Web-based Comments	50743	34
McLaughlin	Michael	not provided	N/A	Web-based Comments	24168	24
McLaughlin	Robert	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	2259, 58358, 58362	N/A
McLaughlin	Shane	not provided	N/A	Web-based Comments	28568	24
McLaughlin	Timothy	not provided	N/A	Web-based Comments	30653	24
McLean	David	not provided	N/A	Web-based Comments	12087	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
McLean	Heather	not provided	N/A	Web-based comments	57100	35
McLean	Karen	not provided	N/A	Web-based Comments	49506, 49507	34
McLean	Karen	not provided	N/A	Web-based Comments	19184	24
McLean	Karen	not provided	N/A	Web-based Comments	19185	24
Mclean	Leslie	not provided	N/A	Web-based Comments	48598	34
McLean	Nancy	not provided	N/A	Web-based comments	57512	35
McLean	Nancy	not provided	N/A	Web-based Comments	24929	24
McLeese	Michelle	not provided	N/A	Web-based Comments	24372	24
McLellan	Charles	not provided	N/A	Web-based Comments	10518	24
McLellan	Clare	not provided	N/A	Web-based Comments	46016, 46017	34
McLellan	Judy	not provided	N/A	Web-based Comments	18706	24
McLellan	Julia	not provided	N/A	Web-based Comments	54497	34
McLellan	Steven	not provided	N/A	Web-based Comments	44462	34
McLemore	Shawnee	not provided	N/A	Web-based Comments	28765	24
McLendon	Donna	not provided	N/A	Web-based Comments	55212	34
McLeod	Eileen	not provided	N/A	Web-based Comments	13548	24
McLeod	Lynn	not provided	N/A	Web-based Comments	22073	24
Mclintock	Danna	not provided	N/A	Web-based Comments	58519, 58520	34
McLravy	R.	rcharlesmclravy@gmail.com	N/A	Web-based comments	4499	N/A
McLuckie	Sandra	not provided	N/A	Web-based Comments	28190	24
McMahan	Alexa	not provided	N/A	Web-based Comments	54635	34
McMahan	Alexa	not provided	N/A	Web-based Comments	7257	24
McMahan	Barbara	not provided	N/A	Web-based Comments	46835	34
McMahan	Michael	not provided	N/A	Web-based Comments	52412	34
McMahan	Michael	not provided	N/A	Web-based Comments	24169	24
McMahill	Jane	not provided	N/A	Web-based Comments	16516	24
McMahon	Annie	not provided	N/A	Web-based Comments	8305	24
McMahon	Nancy	not provided	N/A	Web-based Comments	47647	34
McMahon	Nancy	not provided	N/A	Web-based Comments	24930	24
McMakin	William	not provided	N/A	Web-based Comments	51789	34
McManus	Candace	not provided	N/A	Web-based Comments	9757	24
McMasters	Debbie	not provided	N/A	Web-based Comments	12336	24
McMath	Kathy	not provided	N/A	Web-based Comments	19732	24
McMclaughlin	Nancy	not provided	N/A	Web-based Comments	54851	34
McMclaughlin	Nancy	not provided	N/A	Web-based Comments	24931	24
McMillan	Joanne	not provided	N/A	Web-based Comments	17815	24
McMillan	Lana	not provided	N/A	Web-based Comments	20526	24
MCMILLAN	MARILYN	not provided	N/A	Web-based Comments	22800	24
McMillan	Sydney	not provided	N/A	Web-based Comments	44314, 44315	34
mcmillen	ingrid	not provided	N/A	Web-based Comments	15880	24
McMillen	Marie	not provided	N/A	Web-based Comments	22720	24
McMinn	R	gmcminn198@gmail.com	N/A	Web-based comments	3317	11
McMorrow	Philip	not provided	N/A	Web-based Comments	26348	24
McMullen	Annette	not provided	N/A	Web-based Comments	46870	34
McMullen	Colleen	not provided	N/A	Web-based Comments	45040, 45041	34
McMullen	Colleen	not provided	N/A	Web-based Comments	11271	24
McMullen	Jeff	not provided	N/A	Web-based Comments	17045	24
McMullen	Marilyn	not provided	N/A	Web-based Comments	22801	24
McMullin	Kari	not provided	N/A	Web-based Comments	19270	24
McMullin	Linda	not provided	N/A	Web-based Comments	21353	24
McMullins	Rhodna	not provided	N/A	Web-based comments	57265	35
McMurray	Britt	not provided	N/A	Web-based Comments	9564	24
Mcmurray	Mrs	not provided	N/A	Web-based comments	4993	1
McMurray	Vickie	not provided	N/A	Web-based Comments	49149, 49150	34
McMurrian	Wesley	not provided	N/A	Web-based Comments	58159	16
McMurtry	Abby	not provided	N/A	Web-based Comments	58209	16
McMurtry	Paul	not provided	N/A	Web-based Comments	58153	16
McNair	Connie	not provided	N/A	Web-based Comments	11318	24
McNair	Meredith	not provided	N/A	Web-based Comments	23978	24
McNair	Roberta	not provided	N/A	Web-based Comments	46556	34
Mcnair	Zoe	not provided	N/A	Web-based Comments	31736	24
Mcnalley	Hannah	not provided	N/A	Web-based comments	57594	35
McNamara	Anita	not provided	N/A	Web-based Comments	52398, 57953	34, 16
McNamara	Anita	not provided	N/A	Web-based Comments	7977	24
McNamara	Catherine	not provided	N/A	Web-based Comments	51111	34
McNamara	Catherine	not provided	N/A	Web-based Comments	10302	24
McNamara	Cynthia	not provided	N/A	Web-based Comments	50925	34
McNamara	Cynthia	not provided	N/A	Web-based Comments	11529	24
McNamara	Lynda	not provided	N/A	Web-based Comments	22025	24
McNamara	Patrick	patrickmcn429@gmail.com	N/A	Web-based comments	929*	2

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
McNamara	Sarah	not provided	N/A	Web-based comments	57185	35
Mcnamee	Alex	not provided	N/A	Web-based comments	56713	35
McNamee	Brenna	not provided	N/A	Web-based Comments	9435	24
McNaughton	Nicholas	not provided	N/A	Web-based Comments	56396	34
McNaull	Sarah	not provided	N/A	Web-based Comments	28381	24
McNay	Linda	not provided	N/A	Web-based Comments	55453	34
McNeill	Steve	not provided	N/A	Web-based Comments	58148, 55149	16, 34
McNeirney	Ellen	not provided	N/A	Web-based Comments	51944	34
McNeive	Mary	not provided	N/A	Web-based Comments	23356	24
McNellis	Gerald	not provided	N/A	Web-based Comments	14959	24
McNeny	Lindsey	not provided	N/A	Web-based Comments	21501	24
McNiel	Betty	not provided	N/A	Web-based Comments	9099	24
McNiff	Rebekah	not provided	N/A	Web-based Comments	26793	24
Mcnitzky	Nina	not provided	N/A	Web-based Comments	25311	24
Mcnulty	Joseph	not provided	N/A	Web-based Comments	18380	24
McNulty	Louise	not provided	N/A	Web-based Comments	21890	24
McNulty	Mary	not provided	N/A	Web-based Comments	23357	24
Mcnulty	Shannon	not provided	N/A	Web-based Comments	28592	24
McPhee	Camille	not provided	N/A	Web-based Comments	44910	34
McPhee	Camille	not provided	N/A	Web-based Comments	9742	24
McPherson	Alan	not provided	N/A	Web-based Comments	49446	34
McPherson	Kate	not provided	N/A	Web-based comments	57000	35
McPherson	Linda	not provided	N/A	Web-based Comments	21354	24
Mcpherson	Shane	not provided	N/A	Web-based Comments	58298	16
McPugh	Kathleen	not provided	N/A	Web-based Comments	19574	24
McQuade	Elizabeth	not provided	N/A	Web-based Comments	13802	24
McQuaid	Chantal	not provided	N/A	Web-based Comments	46305	34
McQuaide	Jim	not provided	N/A	Web-based Comments	17596	24
McQuaig	John	john@mcqw.com	N/A	Web-based comments	3238	N/A
McQuarrie	Dallas	not provided	N/A	Web-based Comments	11641	24
McQueen	Heather	not provided	N/A	Web-based Comments	15524	24
McQuinn	Audrianna	not provided	N/A	Web-based Comments	8535	24
McQuitty	Amy	not provided	N/A	Web-based Comments	50608	34
McQuitty	Amy	not provided	N/A	Web-based Comments	7639	24
McQuitty	Mark	not provided	N/A	Web-based Comments	45909	34
McQuivey	Bryce	bmcquiv3@uoregon.edu	N/A	Web-based comments	723	N/A
McQuown	Dorothy	not provided	N/A	Web-based Comments	13272	24
Mcrae	Ella	not provided	N/A	Web-based Comments	13887	24
McRae	Stacey	not provided	N/A	Web-based comments	57382	35
McRae	Stacey	not provided	N/A	Web-based Comments	29119	24
McRae	Susan	not provided	N/A	Web-based Comments	50314	34
Mcright	Blue	not provided	N/A	Web-based Comments	9222	24
McRill	Cheryl	not provided	N/A	Web-based Comments	50549	N/A
McRill	Susan	not provided	N/A	Web-based Comments	29772	24
McRoberts	Drew	drewmcbob19@gmail.com	N/A	Web-based comments	3768	N/A
McRory	Mary	not provided	N/A	Web-based Comments	23358	24
McShane	Suzy	not provided	N/A	Web-based Comments	30040	24
Mcshean	Gordon	not provided	N/A	Web-based Comments	15183	24
McSpadden	William	not provided	N/A	Web-based Comments	31567	24
McSwain	J.A.	not provided	N/A	Web-based Comments	16014	24
mcsweeney	charles	not provided	N/A	Web-based Comments	54507, 54508	34
McSweeney	Charles	not provided	N/A	Web-based Comments	10519	24
MCSWEENEY	DAVID O.	not provided	N/A	Web-based Comments	12193	24
McSwigan	Melissa	not provided	N/A	Web-based Comments	23905, 23906	24
McTague	Melissa	not provided	N/A	Web-based Comments	23907	24
Mctigue	Patricia	not provided	N/A	Web-based Comments	54563	34
mctigue	patricia	not provided	N/A	Web-based Comments	25808	24
McVay	Tom	not provided	N/A	Web-based Comments	47829	34
McVeigh	Eleanor	not provided	N/A	Web-based Comments	13635	24
McVein	Barbara J.	not provided	N/A	Web-based Comments	52110	34
Mcvicker	Alexandra	not provided	N/A	Web-based Comments	7284	24
McWhorter	Gregg	not provided	N/A	Web-based Comments	15263	24
McWilliams	Cynthia	not provided	N/A	Web-based Comments	50768	34
McWilliams	Jason	jeepshovel@yahoo.com	N/A	Web-based comments	867	1
McWilliams	Kathleen	not provided	N/A	Web-based Comments	19575	24
McWilliams	Kathryn A.	not provided	N/A	Web-based Comments	56264, 56265	34
McWilliams	Kathryn A.	not provided	N/A	Web-based Comments	19674	24
McWilliams	Michelle	not provided	N/A	Web-based Comments	54711	34
MD	audrey urbano	not provided	N/A	Web-based Comments	50978, 50979	34
MD	Justin	jmontoya72@hotmail.com	N/A	Web-based comments	5753	N/A

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
MD	Kjersten Gmeiner	not provided	N/A	Web-based Comments	52559	34
MD	Peter Greene	not provided	N/A	Web-based Comments	55152, 55153	34
MD	Rael Nidess	not provided	N/A	Web-based Comments	58543, 58544	34
MD	Rhonda D. Wright	not provided	N/A	Web-based Comments	56147	34
MD	sharron laplante	not provided	N/A	Web-based Comments	52706	34
MD	William Goell	not provided	N/A	Web-based Comments	44681	34
Me[unreadable]	Tomasita	not provided	N/A	Web-based comments	57399	35
Meacham	Stephanie	not provided	N/A	Web-based Comments	53770	34
Meacheam	Joyan	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32421	N/A
Mead	Caroline	not provided	N/A	Web-based Comments	10127	24
Mead	Joanne	not provided	N/A	Web-based Comments	17816	24
Mead	Julee	not provided	N/A	Web-based Comments	18735	24
Mead	Kim	not provided	N/A	Web-based Comments	20195	24
Mead	Nancy	not provided	N/A	Web-based Comments	24932	24
Mead	Stephen	not provided	N/A	Web-based Comments	29318	24
Mead	Susan	not provided	N/A	Web-based Comments	54189	34
Meade	Audrey	not provided	N/A	Web-based Comments	8533	24
Meade	David	not provided	N/A	Web-based Comments	48170	34
Meade	Pattie	not provided	N/A	Web-based Comments	25955	24
Meador	Toni	not provided	N/A	Web-based Comments	30797	24
Meadows	Brian	not provided	N/A	Web-based Comments	9493	24
Meadows	Bronnie	not provided	N/A	Web-based Comments	9579	24
Meadows	Clegg	meadows110@cableone.net	N/A	Web-based comments	2240	N/A
Meadows	Donna	not provided	N/A	Web-based Comments	47424	34
Meadows	Edward	not provided	N/A	Web-based Comments	13509	24
Meadows	Erin	not provided	N/A	Web-based Comments	14225	24
Meadows	Lee	not provided	N/A	Web-based Comments	51336	34
Meadows	Lisa	not provided	N/A	Web-based Comments	21602	24
Meadows	Lynette	not provided	N/A	Web-based Comments	22040	24
Meadows	Marcy	not provided	N/A	Web-based Comments	22408	24
Meads	Kerry	not provided	N/A	Web-based Comments	54654	34
Meagher	Joanne	not provided	N/A	Web-based Comments	17817	24
Mealng, Ph.D.	F. Mark	not provided	N/A	Web-based Comments	14375	24
Means	Lynda	not provided	N/A	Web-based Comments	22026	24
Mears	George	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32398	N/A
Mebane	Marge	not provided	N/A	Web-based Comments	22531	24
Meccia	KristiL.	not provided	N/A	Web-based Comments	20365	24
Mechem	Glen	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32524	13
mechem	rachele	not provided	N/A	Web-based Comments	26559	24
Mechling	Jennifer	not provided	N/A	Web-based comments	57126	35
Mecking	Tina	not provided	N/A	Web-based Comments	30681	24
Meckling	Gregory	not provided	N/A	Web-based Comments	15286	24
Medbury	Theresa	not provided	N/A	Web-based Comments	48245	34
Medearis	Daniela	lovenature1966@hotmail.com	N/A	Web-based comments	1803	1
Medeiros	Adam	adam.medeiros@icloud.com	N/A	Web-based comments	135	N/A
Medina	Ignacio	imedina3112@gmail.com	N/A	Web-based comments	3989	N/A
Medina	Kathleen	not provided	N/A	Web-based Comments	51824, 51825	34
Medina	Sandra	not provided	N/A	Web-based Comments	28191	24
Medina	Wendy	not provided	N/A	Web-based Comments	51959	34
Medley	Vicki	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4663	N/A
Medlock	David	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4241	N/A
Medoff	Judith	not provided	N/A	Web-based Comments	18625	24
Medri	Stefano	not provided	N/A	Web-based Comments	29177	24
Meech	Linda	not provided	N/A	Web-based Comments	21355	24
Meecham	Amanda	not provided	N/A	Web-based Comments	7547	24
Meehan	Don	not provided	N/A	Web-based Comments	46846, 46847	34
Meehan	Ellie	not provided	N/A	Web-based Comments	49810	34
Meehan	Sheila	not provided	N/A	Web-based Comments	28795	24
Meehan	Toni	not provided	N/A	Web-based Comments	45285	34
Meek	Blaine	bmeek@agrinw.com	N/A	Web-based comments	1985	N/A
Meek	Earle	not provided	N/A	Web-based Comments	13430	24
Meek	Nick	not provided	N/A	Web-based Comments	25203	24
Meeker	Anne	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58772	N/A
Meeks	Melinda	not provided	N/A	Web-based Comments	45751	34
Meeks	Sherrill	not provided	N/A	Web-based Comments	28881	24
Meeks	Thomas	not provided	N/A	Web-based Comments	30521	24
Meersand	Ken	not provided	N/A	Web-based Comments	19983	24
Meersschaut	Annie Van den	not provided	N/A	Web-based Comments	55019, 55020	34
Meert	Rosemary	not provided	N/A	Web-based Comments	54855	34
Meert	Rosemary	not provided	N/A	Web-based Comments	27766	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Mees	Lisa	not provided	N/A	Web-based Comments	21603	24
Megela	Debra	not provided	N/A	Web-based Comments	49007	34
Megenuph	Megan	not provided	N/A	Web-based comments	57229	35
Meglasson	Walt	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	2844	N/A
Meglio	Bianca Di	not provided	N/A	Web-based Comments	46776	34
Meheen	Dave	dmmeheen@gmail.com	N/A	Web-based comments	4063	N/A
Mehle	Anthony	not provided	N/A	Web-based Comments	8339	24
Mehlenbacher	Alan	almehlenbacher@gmail.com	N/A	Web-based comments	3128	N/A
Mehring	Gwen	not provided	N/A	Web-based Comments	15354	24
Mehrotra	Siddharth	not provided	N/A	Web-based Comments	28982	24
Mehta	Milan	not provided	N/A	Web-based Comments	49856, 49857	34
Mehta	Milan	not provided	N/A	Web-based Comments	24505	24
MEHTA	RANI	not provided	N/A	Web-based Comments	26649	24
Mehta	Subhash	not provided	N/A	Web-based Comments	29505	24
Meier	Alan	not provided	N/A	Web-based Comments	7180	24
Meier	Bruce	ajijicvegas00@gmail.com	N/A	Web-based comments	1270	N/A
Meier	Dan	not provided	N/A	Web-based Comments	11662	24
Meier	Danielle	not provided	N/A	Web-based Comments	11814	24
Meier	Jill	not provided	N/A	Web-based Comments	57987	16
Meier	Landon	not provided	N/A	Web-based Comments	20536	24
Meier	Robert	not provided	N/A	Web-based Comments	48529	34
Meierotto	Joan	not provided	N/A	Web-based Comments	17713	24
Meigard	Lena	not provided	N/A	Web-based Comments	20979	24
Meighan	Sir	not provided	N/A	Web-based comments	876	N/A
Meikle	Doug	not provided	N/A	Web-based Comments	52092	34
meikle	doug	not provided	N/A	Web-based Comments	13304	24
Meikle	Louise	not provided	N/A	Web-based Comments	21891	24
Meindl	Cynthia	not provided	N/A	Web-based Comments	11530	24
Meinerding	Tony	not provided	N/A	Web-based Comments	30813	24
Meinert	Margaret	not provided	N/A	Web-based Comments	49061	34
Meinert	Margaret	not provided	N/A	Web-based Comments	22477	24
meinke	avory	not provided	N/A	Web-based Comments	8552	24
Meira	Kristin	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4264, 4688, 4730	N/A
meireles	diana	not provided	N/A	Web-based Comments	12785	24
Meiri	Cindy	not provided	N/A	Web-based Comments	11090	24
Meisel	Myron	not provided	N/A	Web-based Comments	45889, 45890	34
Meisel	myron	not provided	N/A	Web-based Comments	24724	24
Meisenbach	Jovinita	not provided	N/A	Web-based Comments	18451	24
Meissner	Louis	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32549	N/A
Meister	Kristena	not provided	N/A	Web-based comments	57282	35
Mejia	Janette	not provided	N/A	Web-based comments	57734	35
Mejia	Janette	not provided	N/A	Web-based Comments	16661	24
Mejia	Lily	not provided	N/A	Web-based Comments	21182	24
Mejia Contact	Marianna	not provided	N/A	Web-based Comments	22668	24
Mejias Wagner	Patricio	not provided	N/A	Web-based Comments	25888	24
Melamed	Paul	not provided	N/A	Web-based Comments	26024	24
Melche	Julia	not provided	N/A	Web-based Comments	18766	24
Meldahl	Bee	not provided	N/A	Web-based Comments	8921	24
Melde	Peter	petemelde@hotmail.com	N/A	Web-based comments	32058	8
Meldman	Gloria	not provided	N/A	Web-based Comments	15163	24
Melegos	Susan	not provided	N/A	Web-based comments	56711	35
Melegos	Susan	not provided	N/A	Web-based Comments	29773	24
Melehes	Thomas	not provided	N/A	Web-based comments	3469	N/A
Melendez	Eric	not provided	N/A	Web-based Comments	51927	34
Melendez	Gabriela	not provided	N/A	Web-based Comments	14643	24
Melendez	Mike	not provided	N/A	Web-based comments	57106	35
Meli	Barbara	not provided	N/A	Web-based Comments	8734	24
Meli	Mary Ellen	not provided	N/A	Web-based Comments	53588	34
Melia-Chiappetta	Eileen	not provided	N/A	Web-based Comments	54580	34
Melia-Chiappetta	Eileen	not provided	N/A	Web-based Comments	13549	24
Melincoff	MICHAEL	not provided	N/A	Web-based Comments	24170	24
Melinosky	Diane	not provided	N/A	Web-based comments	57007	35
Melita	Deborah	not provided	N/A	Web-based Comments	12444	24
Melius	Dan	not provided	N/A	Web-based Comments	47114	34
Mell	Richard	not provided	N/A	Web-based Comments	27013	24
Mellen	linda	not provided	N/A	Web-based Comments	21356	24
Mellencamp	Timothy	not provided	N/A	Web-based Comments	30654	24
Mellin	Norman	not provided	N/A	Web-based Comments	25399	24
Mellini	Pat	not provided	N/A	Web-based Comments	25665	24
Mello	Dawn	not provided	N/A	Web-based Comments	45744	34

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Mello	Elizabeth	not provided	N/A	Web-based Comments	13803	24
Melloh	James	not provided	N/A	Web-based Comments	16261	24
MELNYK	MARY	not provided	N/A	Web-based Comments	23359	24
Melo	Elizabeth	not provided	N/A	Web-based Comments	13804	24
Melody	Patricia	not provided	N/A	Web-based Comments	25809	24
Melof	Theresa	not provided	N/A	Web-based Comments	49536	34
Melof	Theresa	not provided	N/A	Web-based Comments	30442	24
Melton	Alyssa	not provided	N/A	Web-based Comments	7506	24
Melton	Jean	not provided	N/A	Web-based Comments	16867	24
Melton	Jennifer	not provided	N/A	Web-based Comments	45126	34
Melton	Jim	not provided	N/A	Web-based Comments	17597	24
MELTON	NANCY	not provided	N/A	Web-based Comments	47078	34
Meltzer	Amy	not provided	N/A	Web-based Comments	7640	24
Meltzer	Rachel	not provided	N/A	Web-based Comments	48301, 48302	34
Meltzer	Rachel	not provided	N/A	Web-based Comments	26536	24
Melville	Terri	not provided	N/A	Web-based Comments	30339	24
Melvoin	RIchard	rickmelvoin@gmail.com	N/A	Web-based comments	5873	8
Melwani	Simran	not provided	N/A	Web-based Comments	55264	34
Menache	Lucy	not provided	N/A	Web-based Comments	54857	34
Menard	Jana	not provided	N/A	Web-based Comments	16450	24
Menchaca	Perry	OpenNOF@Gmail.com	N/A	Web-based comments	764	N/A
Mencik	Jitka	not provided	N/A	Web-based Comments	52392	34
Menco	Bert	not provided	N/A	Web-based Comments	54656	34
Menco	Bert	not provided	N/A	Web-based Comments	9002	24
Mendell	C.	not provided	N/A	Web-based Comments	9694	24
Mendelsohn	Donna	not provided	N/A	Web-based Comments	13157	24
Mendelsohn	Michele	not provided	N/A	Web-based Comments	24295	24
Mendelsohn	Susan	not provided	N/A	Web-based Comments	47040, 47041	34
Menden	Sandy	not provided	N/A	Web-based Comments	28253	24
mendenhall	justine	not provided	N/A	Web-based Comments	18967	24
Mendenhall	Lynn	not provided	N/A	Web-based Comments	22074	24
Mendes	Davina	not provided	N/A	Web-based Comments	12197	24
Mendes	Maria	memendes@hotmail.com	N/A	Web-based comments	5791	N/A
mendez	Angelina	not provided	N/A	Web-based Comments	56296	34
Mendez	Angelina	not provided	N/A	Web-based Comments	7942	24
Mendez	Loriane	lorianemendez.loy@gmail.com	N/A	Web-based comments	133	1
mendez	sarah	sarahmndzr@gmail.com	N/A	Web-based comments	872	1
Mendez	Virginia	not provided	N/A	Web-based Comments	31296	24
Mendieta	Vince	not provided	N/A	Web-based comments	57308	35
Mendieta	Vince	not provided	N/A	Web-based Comments	47382	34
Mendieta	Vince	not provided	N/A	Web-based Comments	31247	24
Mendini	Sheri	sherimendini@gmail.com	N/A	Web-based comments	3410	11
Mendoza	Christopher	not provided	N/A	Web-based Comments	51415	34
Mendoza	Dale	not provided	N/A	Web-based Comments	11629	24
Mendoza	Destiny	not provided	N/A	Web-based Comments	48146	34
Mendoza	Herminia	not provided	N/A	Web-based Comments	15686	24
Mendoza	Miranda	not provided	N/A	Web-based Comments	24538	24
Mendoza	Nancy	not provided	N/A	Web-based Comments	56153, 56154	34
Mendoza	Rosa	not provided	N/A	Web-based Comments	27696	24
Mendoza-Price	Caitlin	not provided	N/A	Web-based Comments	55091	34
Menear	Jan	not provided	N/A	Web-based Comments	16410	24
Meneese	William	not provided	N/A	Web-based Comments	31568	24
Meneguzzo	Dawne	not provided	N/A	Web-based Comments	47383	34
Menetrey	Elizabeth	not provided	N/A	Web-based Comments	45522	34
Mengel	Tim and Tammi	not provided	N/A	Web-based Comments	30634	24
Menges	Liz	not provided	N/A	Web-based Comments	21690	24
Menin	Andrea	ag.menin@gmail.com	N/A	Web-based comments	5015	N/A
Menlove	Asa	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	5574	N/A
Mennel-Bell	Mari	not provided	N/A	Web-based Comments	49801	34
Mennel-Bell	Mari	not provided	N/A	Web-based Comments	22573	24
MENNERICK	JAMES	not provided	N/A	Web-based Comments	16262	24
Mensforth	Elizabeth	not provided	N/A	Web-based Comments	13805	24
Mensing	Douglas	not provided	N/A	Web-based Comments	13333	24
Menta	Patrizia	not provided	N/A	Web-based Comments	25936	24
MENTEC	Ludovic LE	not provided	N/A	Web-based Comments	52906	34
Menue	Xam	not provided	N/A	Web-based comments	393	1
Menzel	Silke	not provided	N/A	Web-based Comments	28999	24
Meola	Patrick	not provided	N/A	Web-based Comments	25918	24
Meoli	Viviana	not provided	N/A	Web-based Comments	31325	24
Meranus	Leonard	not provided	N/A	Web-based Comments	21008	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Merbaum	Neal	not provided	N/A	Web-based Comments	25117	24
Mercadante	Emily	not provided	N/A	Web-based Comments	14027	24
Mercado	Franco	not provided	N/A	Web-based Comments	14511	24
Mercer	Judith	not provided	N/A	Web-based Comments	52688	34
Mercer	Richard	not provided	N/A	Web-based Comments	48169	34
Merceron	Shanna	not provided	N/A	Web-based Comments	28574	24
Merchant	Deb	not provided	N/A	Web-based Comments	57758	34
Mercier	Lyssa	not provided	N/A	Web-based Comments	22162	24
Mercker	Mike	not provided	N/A	Web-based Comments	54608	34
Merckx	Guy	not provided	N/A	Web-based Comments	15340	24
MERCURE	LINDA	not provided	N/A	Web-based Comments	21357	24
Merendino	Caleb	caleb.j.merendino@gmail.com	N/A	Web-based comments	5014	N/A
Merendino	Caleb	not provided	N/A	Web-based Comments	55051	34
Merendino	Caleb	not provided	N/A	Web-based Comments	9721	24
Merg	Kurt	skylad@zoho.com	N/A	Web-based comments	4492	N/A
Merigold	Linda	not provided	N/A	Web-based Comments	51940	34
Meriwether	Don B.	not provided	N/A	Web-based Comments	54917	34
Merkel	Alison	not provided	N/A	Web-based Comments	7413	24
merker	fran	not provided	N/A	Web-based Comments	14464	24
Merkulova	Ana	not provided	N/A	Web-based Comments	7694	24
Merle	Lynn	not provided	N/A	Web-based Comments	47897	34
Merle	Lynn	not provided	N/A	Web-based Comments	22075	24
Merlesena	Michael	not provided	N/A	Web-based Comments	24171	24
Merli	Giusi	not provided	N/A	Web-based Comments	15108	24
Merline	Laurie	not provided	N/A	Web-based Comments	20846	24
Merlo	Diamantina	not provided	N/A	Web-based Comments	12747	24
Mermier	Christine	not provided	N/A	Web-based Comments	10960	24
Merrell	Georgia	not provided	N/A	Web-based Comments	14940	24
Merriam	Brittany	not provided	N/A	Web-based Comments	45288	34
Merrick	Claire	not provided	N/A	Web-based Comments	11138	24
Merrick	Gwen	gamerrick@startmail.com	N/A	Web-based comments	1901	5
Merrick	Kevin	govie58@frontier.com	N/A	Web-based comments	2518, 4167	N/A
Merrigan	Anita	not provided	N/A	Web-based Comments	7978	24
Merrill	Beth	not provided	N/A	Web-based Comments	9037	24
Merrill	Dick	not provided	N/A	Web-based Comments	12951	24
Merrill	Jerry	Mayor@rexburg.org	N/A	Web-based comments	3377	N/A
Merrill	Jessica	not provided	N/A	Web-based comments	57009	35
Merrill	Jessica	not provided	N/A	Web-based Comments	17444	24
Merrill	Margaret	not provided	N/A	Web-based Comments	22478	24
Merrill	Toddy	not provided	N/A	Web-based Comments	51067	34
merriman	Diana	not provided	N/A	Web-based comments	3543	N/A
Merriman	Ray	rmerriman4600@gmail.com	N/A	Web-based comments	31973	N/A
Merry	Dana	not provided	N/A	Web-based Comments	11698	24
Merry	William	not provided	N/A	Web-based Comments	31569	24
Merryfield-Becker	Melinda	not provided	N/A	Web-based Comments	23866	24
Merten	Ulrich	not provided	N/A	Web-based Comments	30970	24
Mertens	Patrick	not provided	N/A	Web-based Comments	52060	34
Mertz	Mary	not provided	N/A	Web-based Comments	23360	24
Merz	Alexis	not provided	N/A	Web-based Comments	7310	24
Merz	Elizabeth	not provided	N/A	Web-based Comments	13806	24
Merz	Teresa	not provided	N/A	Web-based Comments	30285	24
Merzario	Lou	not provided	N/A	Web-based Comments	21860	24
Merzi	A	not provided	N/A	Web-based Comments	6968	24
Mesa	Barbara	not provided	N/A	Web-based Comments	8735	24
Mesenbring	Rev.	dmesenbring@gmail.com	N/A	Web-based comments	3545	3
Meskin	Dr. Kira	not provided	N/A	Web-based Comments	13364	24
Mesney	Barbara	not provided	N/A	Web-based Comments	49924	34
Mesney	Barbara	not provided	N/A	Web-based Comments	8736	24
Messamore	Tina	not provided	N/A	Web-based Comments	30682	24
Messer	Gretchen	not provided	N/A	Web-based Comments	15316	24
MESSER	JOHN	not provided	N/A	Web-based Comments	18100	24
Messerschmitt	Susan	not provided	N/A	Web-based Comments	29774	24
Messick	Scott	not provided	N/A	Web-based Comments	28487	24
Messina	Jen	not provided	N/A	Web-based Comments	17120	24
Messina	Michael	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	5551	N/A
Messineo	James	not provided	N/A	Web-based Comments	16263	24
MESTDAGH	Patrick & Ondine	not provided	N/A	Web-based Comments	25931	24
Meszaros	Elizabeth	not provided	N/A	Web-based Comments	13807	24
Metcalf	Edna	not provided	N/A	Web-based Comments	45694	34

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Metcalf	Martha	not provided	N/A	Web-based Comments	56416	34
Metcalf	Mary	not provided	N/A	Web-based Comments	52944	34
Metcalf	Mary	not provided	N/A	Web-based Comments	23361	24
Metcalf	Virginia	not provided	N/A	Web-based Comments	50771	34
Metente	Radu	not provided	N/A	Web-based Comments	26568	24
Meter	Shana Van	not provided	N/A	Web-based Comments	47478, 47479	34
METEVIER	CHRISTOPHER	not provided	N/A	Web-based Comments	11020	24
Methvin	Barbara	not provided	N/A	Web-based Comments	8737	24
Metnetsky	Linda	not provided	N/A	Web-based Comments	21358	24
Mets	Anja	not provided	N/A	Web-based Comments	7992	24
Mettier	Pam	not provided	N/A	Web-based Comments	25502	24
Metz	Cassandra	not provided	N/A	Web-based Comments	10233	24
Metz	Willy	not provided	N/A	Web-based Comments	31622	24
Metzener	Judith	not provided	N/A	Web-based Comments	18626	24
Metzger	C D	not provided	N/A	Web-based Comments	9685	24
Metzger	Carol	not provided	N/A	Web-based Comments	9981	24
Metzger	Luke	not provided	N/A	Web-based Comments	50897	34
Metzger	Luke	not provided	N/A	Web-based Comments	21977	24
Metzner	Kristine	not provided	N/A	Web-based Comments	49946	34
Meuer	Rita	not provided	N/A	Web-based Comments	27146	24
Mew	Jeremiah	not provided	N/A	Web-based Comments	17308	24
Meyer	Alexandra	not provided	N/A	Web-based Comments	55460, 55461	34
Meyer	Alice	not provided	N/A	Web-based Comments	48891	34
Meyer	Ari	not provided	N/A	Web-based Comments	8407	24
Meyer	Carson	not provided	N/A	Web-based Comments	10213	24
Meyer	Christa	not provided	N/A	Web-based Comments	10809	24
Meyer	Christina	not provided	N/A	Web-based Comments	10866	24
Meyer	Colonel	not provided	N/A	Web-based Comments	11282	24
Meyer	David	not provided	N/A	Web-based Comments	12088	24
Meyer	Denise	not provided	N/A	Web-based Comments	12650	24
Meyer	Diane	not provided	N/A	Web-based Comments	12881	24
Meyer	eileen	not provided	N/A	Web-based Comments	13550	24
Meyer	Elizabeth	not provided	N/A	Web-based Comments	13808	24
Meyer	Eric	not provided	N/A	Web-based Comments	44369, 44370	34
Meyer	Eric	not provided	N/A	Web-based Comments	14124	24
Meyer	Ilona	not provided	N/A	Web-based comments	57220	35
Meyer	Jan	not provided	N/A	Web-based Comments	16411	24
Meyer	Jerry	not provided	N/A	Web-based Comments	17364	24
Meyer	Lara	not provided	N/A	Web-based Comments	46998, 46999	34
Meyer	Lesley	not provided	N/A	Web-based Comments	21046	24
Meyer	Lew	not provided	N/A	Web-based Comments	48532	34
Meyer	Lisa	not provided	N/A	Web-based Comments	21604	24
Meyer	Lucas	lmeyer1868@gmail.com	N/A	Web-based comments	763	2
Meyer	Lynn	not provided	N/A	Web-based Comments	45529, 45530	34
Meyer	Marc	not provided	N/A	Web-based Comments	22339	24
Meyer	Melissa	not provided	N/A	Web-based Comments	55517, 55518	34
Meyer	Patrick	not provided	N/A	Web-based Comments	25919	24
Meyer	Paul	fieldog@msn.com	N/A	Web-based comments	2563	N/A
Meyer	Robert	not provided	N/A	Web-based Comments	48256, 56166	34
Meyer	Robert	not provided	N/A	Web-based Comments	27331	24
Meyer	Sheila	not provided	N/A	Web-based comments	57277	35
Meyer	Twyla	not provided	N/A	Web-based Comments	54534	34
Meyer	Twyla	not provided	N/A	Web-based Comments	30956	24
Meyer jr	Harold	not provided	N/A	Web-based Comments	55341, 55342	34
Meyer,	Harold Adolph	not provided	N/A	Web-based comments	57502	35
Meyer, ND	Patricia J.	not provided	N/A	Web-based Comments	25884	24
Meyerholz	Susan	not provided	N/A	Web-based Comments	29775	24
Meyers	Amy	not provided	N/A	Web-based Comments	7641	24
Meyers	C	not provided	N/A	Web-based Comments	55247	34
Meyers	Christina	not provided	N/A	Web-based Comments	53575	34
Meyers	Gary	not provided	N/A	Web-based Comments	46816	34
Meyers	Margaret	not provided	N/A	Web-based Comments	22479	24
meyers	Michael	not provided	N/A	Web-based comments	5403	8
Meyers	Sarah	not provided	N/A	Web-based Comments	58382	28
Meyers	Steve	not provided	N/A	Web-based comments	31784	N/A
meyuhas	mark	not provided	N/A	Web-based Comments	22965	24
Miaoulis	Maria	not provided	N/A	Web-based Comments	22613	24
Miazga	Veronica	not provided	N/A	Web-based Comments	31100	24
Micek	Patricia Ann	not provided	N/A	Web-based Comments	25880	24
Miceli	Megan	not provided	N/A	Web-based Comments	49109	34

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Miceli	Megan	not provided	N/A	Web-based Comments	23796	24
Michael	Edward	Michaeled223@comcast.net	N/A	Web-based comments	5170	N/A
Michael	Edward	not provided	N/A	Web-based Comments	53163	34
Michael	Mary	not provided	N/A	Web-based Comments	49906	34
Michael	Rebecca	not provided	N/A	Web-based Comments	26753	24
Michael	Sharon	not provided	N/A	Web-based Comments	54155, 54156	34
Michael	Veronica	not provided	N/A	Web-based Comments	46555	34
Michael	Veronica	not provided	N/A	Web-based Comments	31101	24
Michaels	Brenda	not provided	N/A	Web-based Comments	56041, 56042	34
Michaels	Brenda	not provided	N/A	Web-based Comments	9410	24
Michaels	Cb	not provided	N/A	Web-based Comments	56222, 56223	34
michaels	cb	not provided	N/A	Web-based Comments	10406	24
Michaels	Jonathan	not provided	N/A	Web-based Comments	52446	34
Michaels	Megan	not provided	N/A	Web-based Comments	23797	24
Michaels	Yuma	not provided	N/A	Web-based Comments	31678	24
Michaelsen	Tina	not provided	N/A	Web-based Comments	30683	24
Michaelson	Kathy	not provided	N/A	Web-based Comments	19733	24
Michaels-Tyner	Michelle	not provided	N/A	Web-based Comments	50528	34
Michalik	John	not provided	N/A	Web-based Comments	18101	24
Michalos	Effie	not provided	N/A	Web-based Comments	47258	34
Michalsky	Lee	not provided	N/A	Web-based Comments	20938	24
Michaud	Catherine	not provided	N/A	Web-based Comments	10303	24
MICHAUD	Donna	not provided	N/A	Web-based Comments	13158	24
Michaud	Lizann	not provided	N/A	Web-based Comments	50370	34
Michaud	Mary	not provided	N/A	Web-based Comments	23362	24
Michaud	Noreen	not provided	N/A	Web-based Comments	53242	34
michel	bruno	not provided	N/A	Web-based Comments	9632	24
Michel	Curtis	not provided	N/A	Web-based comments	5399	8
Michel	Debora	not provided	N/A	Web-based Comments	12366	24
Michel	James	not provided	N/A	Web-based Comments	16264	24
MIchel	Laurise	not provided	N/A	Web-based Comments	47353	34
Michel	Madelon	not provided	N/A	Web-based Comments	57832	34
Michell	Dean	not provided	N/A	Web-based Comments	58477	34
Michell	Nancy	not provided	N/A	Web-based Comments	53819	34
Michelsen	Lee	not provided	N/A	Web-based Comments	20939	24
Michelson	Sue	not provided	N/A	Web-based Comments	29538	24
Michener	Julie	not provided	N/A	Web-based comments	3110	5
Michetti	Leslie	not provided	N/A	Web-based Comments	47037	34
Michetti	Leslie	not provided	N/A	Web-based Comments	21088	24
Michie	Nancy	not provided	N/A	Web-based Comments	51332	34
MichI	Marie	not provided	N/A	Web-based comments	57125	35
Michl	Marie	not provided	N/A	Web-based Comments	47080, 47081	34
Michlin	Barry	not provided	N/A	Web-based Comments	8865	24
Miciunas	Donna	not provided	N/A	Web-based Comments	13159	24
Mick	Dolores	not provided	N/A	Web-based Comments	12995	24
Mick	Judith	not provided	N/A	Web-based Comments	55331	34
Mick	Judith	not provided	N/A	Web-based Comments	18627	24
Mick	Lawrence	not provided	N/A	Web-based Comments	20882	24
Mick	Rick	not provided	N/A	Web-based Comments	53488, 53489, 53490, 53491, 53492	34
Mick	Westin	mick@minutemanpress.com	N/A	Web-based comments	2892	N/A
Mickelsen	Carol	not provided	N/A	Web-based Comments	9982	24
Mickelsen	David	not provided	N/A	Web-based Comments	12089	24
Mickelsen	Patti	not provided	N/A	Web-based Comments	56095	34
Mickelsen	Stephanie	sjwmick@yahoo.com	N/A	Web-based comments	3333	N/A
Mickelwait	Krissa	krisanabeth@gmail.com	N/A	Web-based comments	5751	1
Micolucci	Chris	not provided	N/A	Web-based Comments	10764	24
Middlebrooks	Melodie	not provided	N/A	Web-based Comments	23939	24
Middlehurst	Bea	not provided	N/A	Web-based Comments	8885	24
Middlehurst	Clare	not provided	N/A	Web-based Comments	11162	24
Middour	Sandra	not provided	N/A	Web-based Comments	55575	34
Middour	Sandra	not provided	N/A	Web-based Comments	28192	24
Midkiff	Sherri	not provided	N/A	Web-based Comments	28868	24
Midler	Irene	not provided	N/A	Web-based comments	57362	35
Miedema	Ethan	ethan.miedema@gmail.com	N/A	Web-based comments	5780	1
Miehe	Stephanie	not provided	N/A	Web-based Comments	29235	24
Mielarczyk	Henry	not provided	N/A	Web-based Comments	15669	24
Miele	Danielle	not provided	N/A	Web-based Comments	11815	24
mielke	b	not provided	N/A	Web-based Comments	45974	34
Mielke	B	not provided	N/A	Web-based Comments	8572	24
Mielke	BB	not provided	N/A	Web-based Comments	51836	34

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
mielke	jeanine	not provided	N/A	Web-based Comments	45594	34
Mielke	Jeanine	not provided	N/A	Web-based Comments	45595	34
Mielke	Jeanine	not provided	N/A	Web-based Comments	16928	24
Mielniczuk	Allison	not provided	N/A	Web-based Comments	47397, 47398	34
Mielniczuk	Allison	not provided	N/A	Web-based Comments	7467	24
Mientus	Marian Liza	not provided	N/A	Web-based Comments	56033	34
Mier	Pedro	not provided	N/A	Web-based Comments	50004, 50005	34
Mier	Pedro	not provided	N/A	Web-based Comments	26135	24
Mieras	Dean	not provided	N/A	Web-based Comments	12267	24
mieszala	mike	not provided	N/A	Web-based Comments	24472	24
Miettinen	Anne	not provided	N/A	Web-based Comments	48885	34
Miettinen	Anne	not provided	N/A	Web-based Comments	8224	24
Migatz	Michael	not provided	N/A	Web-based Comments	24172	24
Miglani	Neale	not provided	N/A	Web-based Comments	54969	34
Mihaela	Adnana	not provided	N/A	Web-based Comments	54710	34
Mihaela	Adnana	not provided	N/A	Web-based Comments	7076	24
Miiller	Victor	not provided	N/A	Web-based Comments	31174	24
Mika	Gaia	not provided	N/A	Web-based Comments	14663	24
mika	nicole	not provided	N/A	Web-based Comments	25245	24
Mike	Whitley	whitley.mike@clynch.con	N/A	Web-based comments	6288	1
Mikkelsen	Sally	not provided	N/A	Web-based Comments	50506	34
mikmuluk	sherriann	not provided	N/A	Web-based Comments	28874	24
Miknaitis	Gajus	not provided	N/A	Web-based Comments	14729	24
Mikolay	Vincent	vincent.mikolay@gmail.com	N/A	Web-based comments	880	N/A
Mikula	Kristen	not provided	N/A	Web-based Comments	53074	34
Mikula	Kristen	not provided	N/A	Web-based Comments	20346	24
Mikulic	Barbara and Steve	not provided	N/A	Web-based Comments	52670	34
Milam	Dennis	not provided	N/A	Web-based Comments	53876	34
Milam	Kevin	not provided	N/A	Web-based Comments	54337, 54338	34
Milam	Mary	not provided	N/A	Web-based comments	57610	35
Milan	Craig	not provided	N/A	Web-based Comments	11422	24
Milaney	Kirsten	not provided	N/A	Web-based Comments	51268, 51269	34
Milano	Carol	not provided	N/A	Web-based Comments	9983	24
Milano	Karen	not provided	N/A	Web-based Comments	46506	34
Milanowski	Tanya	not provided	N/A	Web-based Comments	30189	24
Milark	Hollis	not provided	N/A	Web-based Comments	15726	24
Milas	Fritz	not provided	N/A	Web-based Comments	14607	24
Milchen	Selma	not provided	N/A	Web-based Comments	28532	24
Mildner	Maria	not provided	N/A	Web-based Comments	22614	24
Mildner	Marie	not provided	N/A	Web-based Comments	56205	34
Miles	Drew	not provided	N/A	Web-based Comments	13376	24
miles	Hope	hopemiles12@gmail.com	N/A	Web-based comments	6232	1
Miles	James	not provided	N/A	Web-based Comments	16265	24
Miles	Jeff	Jeff.miles@charter.net	N/A	Web-based comments	1338	N/A
Miles	Karen	not provided	N/A	Web-based Comments	44703	34
Miles	Lynne	not provided	N/A	Web-based Comments	49451	34
Miles	Lynne	not provided	N/A	Web-based Comments	22146	24
Miles	Mark	not provided	N/A	Web-based Comments	22966	24
Miles	Paul	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32411	13
Miles	Pui	not provided	N/A	Web-based Comments	56469	34
Miles	Robert	not provided	N/A	Web-based Comments	53430	34
Miles	Robert	not provided	N/A	Web-based Comments	27332	24
Miletic	Snezana	not provided	N/A	Web-based Comments	53442	34
Milewski	Nancy	not provided	N/A	Web-based Comments	49139	34
Milford	Elizabeth	not provided	N/A	Web-based Comments	13809	24
Milford	Joan	not provided	N/A	Web-based Comments	17714	24
Milhaupt	Shannon	not provided	N/A	Web-based Comments	47111	34
Milhaupt	Shannon	not provided	N/A	Web-based Comments	28593	24
Militello	Jessica	not provided	N/A	Web-based Comments	17445	24
Milkes	Linda	not provided	N/A	Web-based Comments	21359	24
Milkowski	Deborah	not provided	N/A	Web-based Comments	12445	24
Milkowski	George	not provided	N/A	Web-based Comments	56332	34
Milkowski	George	not provided	N/A	Web-based Comments	14902	24
Mill	B	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	4770	18
Millan	Iliana	not provided	N/A	Web-based Comments	49032	34
millar	leslie	not provided	N/A	Web-based Comments	50297	34
Millay	Jacki	not provided	N/A	Web-based Comments	48501	34
Millemaci	Linda	not provided	N/A	Web-based Comments	21360	24
Millen	Celeste	not provided	N/A	Web-based Comments	10434	24
Millenacker	Michelle	not provided	N/A	Web-based Comments	24373	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Millensifer	Aimee	not provided	N/A	Web-based Comments	51419	34
Miller	Amelia	not provided	N/A	Web-based Comments	7581	24
Miller	Angela	not provided	N/A	Web-based Comments	7923	24
Miller	Barbara	not provided	N/A	Web-based Comments	55966	34
Miller	Barbara	not provided	N/A	Web-based Comments	8738	24
Miller	Barbara	not provided	N/A	Web-based Comments	8739	24
Miller	Barbara	not provided	N/A	Web-based Comments	8740	24
Miller	Betty	not provided	N/A	Web-based Comments	9100	24
Miller	Bob	not provided	N/A	Web-based Comments	48921	34
Miller	Brad	not provided	N/A	Web-based Comments	9342	24
Miller	Brad	not provided	N/A	Web-based Comments	9343	24
Miller	Breannah	not provided	N/A	Web-based comments	57099	35
Miller	Brenda	not provided	N/A	Web-based comments	57712	35
Miller	Brenda	not provided	N/A	Web-based Comments	48265, 48266	34
Miller	Brian	not provided	N/A	Web-based Comments	44543, 55681, 55682	34
Miller	Brian	not provided	N/A	Web-based Comments	9494	24
Miller	Bruce	not provided	N/A	Web-based Comments	9618	24
Miller	C.	not provided	N/A	Web-based Comments	9695	24
Miller	Caitlin	c.alexander.miller@gmail.com	N/A	Web-based comments	1396	1
MILLER	CANDICE	not provided	N/A	Web-based Comments	54248	34
Miller	Carmen	not provided	N/A	Web-based Comments	9871	24
Miller	Carol	not provided	N/A	Web-based Comments	51025, 51026	34
Miller	Carol	not provided	N/A	Web-based Comments	9984	24
Miller	Carol	not provided	N/A	Web-based Comments	9985	24
Miller	Carol	not provided	N/A	Web-based Comments	9986	24
Miller	Carol	not provided	N/A	Web-based Comments	9987	24
Miller	Caroline	not provided	N/A	Web-based Comments	49392	34
Miller	Caroline	not provided	N/A	Web-based Comments	10128	24
Miller	Charles	not provided	N/A	Web-based Comments	10520	24
Miller	Chloe	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	4777, 4781, 4783, 5526	18
Miller	Chris	cam32112@gmail.com	N/A	Web-based comments	6847	N/A
Miller	Christine	not provided	N/A	Web-based Comments	10961	24
Miller	Christopher	not provided	N/A	Web-based Comments	11021	24
Miller	Christopher R	not provided	N/A	Web-based Comments	11038	24
Miller	Claudia Lee	not provided	N/A	Web-based Comments	47232	34
Miller	Claudia Lee	not provided	N/A	Web-based Comments	11202	24
Miller	Corinne	not provided	N/A	Web-based Comments	54177	34
Miller	David	not provided	N/A	Web-based Comments	12090	24
Miller	Debra	not provided	N/A	Web-based Comments	12536	24
Miller	Debra Miller	not provided	N/A	Web-based Comments	49177, 49178	34
Miller	Dennis	dennis@artmil.com	N/A	Web-based comments	4113	N/A
Miller	Dennis	not provided	N/A	Web-based Comments	51444	34
Miller	Dennis	not provided	N/A	Web-based Comments	12695	24
Miller	Dianne	not provided	N/A	Web-based Comments	12944	24
Miller	Douglas	not provided	N/A	Web-based Comments	55721	34
Miller	Eileen	not provided	N/A	Web-based Comments	13551	24
Miller	Elizabeth	not provided	N/A	Web-based Comments	13810	24
Miller	Elizabeth	not provided	N/A	Web-based Comments	13811	24
Miller	Ellen	not provided	N/A	Web-based Comments	13929	24
Miller	Ellen	not provided	N/A	Web-based Comments	13930	24
Miller	Emily	not provided	N/A	Web-based Comments	14028	24
Miller	Emma	not provided	N/A	Web-based Comments	14058	24
Miller	Eric	eric@BentonREA.com	N/A	Web-based comments	6735	N/A
Miller	Fran	not provided	N/A	Web-based Comments	14465	24
Miller	Francisa	not provided	N/A	Web-based Comments	14507	24
Miller	Gail	not provided	N/A	Web-based Comments	14701	24
Miller	Garrett	millergarrett89@gmail.com	N/A	Web-based comments	6139	N/A
Miller	Gary	not provided	N/A	Web-based Comments	14784	24
Miller	Gene	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4764	N/A
Miller	Georgette	not provided	N/A	Web-based Comments	14931	24
Miller	Greg	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32349	13
Miller	Gregory	not provided	N/A	Web-based Comments	15287	24
Miller	Helen	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32353	13
Miller	Ian	soulcedar@yahoo.com	N/A	Web-based comments	2705	N/A
Miller	Jack	not provided	N/A	Web-based Comments	16037	24
Miller	Jamie	not provided	N/A	Web-based comments	57417	35
Miller	Jane	not provided	N/A	Web-based Comments	50643	34
Miller	Jane	not provided	N/A	Web-based Comments	16517	24
Miller	Jason	not provided	N/A	Web-based Comments	16781	24
Miller	Jennifer	not provided	N/A	Web-based Comments	49578	34

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Miller	Jennifer	not provided	N/A	Web-based Comments	17226	24
Miller	Jennifer	not provided	N/A	Web-based Comments	17227	24
Miller	Jennifer L	not provided	N/A	Web-based Comments	17282	24
Miller	Joan	not provided	N/A	Web-based Comments	44945, 49587, 50697	34
Miller	Joe	not provided	N/A	Web-based comments	5253	8
Miller	John	not provided	N/A	Web-based Comments	56179	34
Miller	John	not provided	N/A	Web-based Comments	18102	24
Miller	John	not provided	N/A	Web-based Comments	18103	24
Miller	John	not provided	N/A	Web-based Comments	57929	16
Miller	Jonathan	not provided	N/A	Web-based Comments	18291	24
Miller	Joyce	not provided	N/A	Web-based Comments	18498	24
Miller	Julie	not provided	N/A	Web-based Comments	18868	24
Miller	Kat	not provided	N/A	Web-based Comments	19349	24
Miller	Katherine	not provided	N/A	Web-based Comments	19467	24
Miller	Kelly	not provided	N/A	Web-based Comments	51840, 51841	34
Miller	Ken	kvmiller2@outlook.com	N/A	Web-based comments	2125	N/A
Miller	Kerby	not provided	N/A	Web-based Comments	52637	34
Miller	Kristin	not provided	N/A	Web-based Comments	20384	24
Miller	Kristine	not provided	N/A	Web-based Comments	52199	34
Miller	Lesley	not provided	N/A	Web-based Comments	21047	24
Miller	Leslie	not provided	N/A	Web-based Comments	21089	24
Miller	Lester	not provided	N/A	Web-based Comments	49633	34
Miller	Linda	kvmiller@pocketinet.com	N/A	Web-based comments	2126	N/A
Miller	Linda	not provided	N/A	Web-based Comments	50003	34
Miller	Linda	not provided	N/A	Web-based Comments	21361	24
Miller	Lisa	not provided	N/A	Web-based Comments	21605	24
Miller	Lynn	not provided	N/A	Web-based Comments	54166	34
Miller	Lynne	not provided	N/A	Web-based Comments	22147	24
Miller	M	not provided	N/A	Web-based Comments	22181	24
Miller	Magen	not provided	N/A	Web-based comments	57316	35
Miller	Marcia	not provided	N/A	Web-based Comments	22377	24
Miller	Maria	not provided	N/A	Web-based Comments	22615	24
Miller	Marlene	not provided	N/A	Web-based Comments	23044	24
Miller	Marvin	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32525	13
Miller	Mary	not provided	N/A	Web-based Comments	23363	24
Miller	Matthew	not provided	N/A	Web-based Comments	48388	34
Miller	Megan	not provided	N/A	Web-based Comments	52049	34
Miller	Melissa	not provided	N/A	Web-based Comments	56366	34
miller	melissa	not provided	N/A	Web-based Comments	23908	24
Miller	Michael	mjmillermd@att.net	N/A	Web-based comments	5287	N/A
Miller	Michael	not provided	N/A	Web-based Comments	52135	34
Miller	Michael	not provided	N/A	Web-based Comments	24173	24
Miller	Michael	not provided	N/A	Web-based Comments	24174	24
Miller	Nancy	not provided	N/A	Web-based Comments	24933	24
Miller	Nicole	not provided	N/A	Web-based Comments	25246	24
Miller	P	not provided	N/A	Web-based Comments	25465	24
Miller	Pamela	not provided	N/A	Web-based comments	57298	35
Miller	Pamela	not provided	N/A	Web-based Comments	53011, 53012	34
Miller	Pamela	not provided	N/A	Web-based Comments	25572	24
Miller	Pamela	not provided	N/A	Web-based Comments	25573	24
Miller	Patti	not provided	N/A	Web-based Comments	25947	24
Miller	Phoebe	not provided	N/A	Web-based Comments	26374	24
Miller	Rebecca	not provided	N/A	Web-based Comments	52506	34
Miller	Richard	not provided	N/A	Web-based Comments	51529	34
Miller	Rick	not provided	N/A	Web-based Comments	27095	24
Miller	Robert	not provided	N/A	Web-based Comments	45445, 54152	34
Miller	Robert	not provided	N/A	Web-based Comments	27333	24
Miller	Robert	not provided	N/A	Web-based Comments	27334	24
Miller	Robert & Cheryl	not provided	N/A	Web-based Comments	27419	24
Miller	Robert And Cheryl	not provided	N/A	Web-based Comments	27420	24
Miller	Rollie	contact@vec.co	N/A	Web-based comments	6437	N/A
Miller	Sara	not provided	N/A	Web-based Comments	53949	34
Miller	Sara	not provided	N/A	Web-based Comments	28299	24
Miller	Sara jane	not provided	N/A	Web-based Comments	28321	24
Miller	Scott	not provided	N/A	Web-based Comments	52021, 52022	34
Miller	Sheila	not provided	N/A	Web-based Comments	53887, 57855	34
Miller	Sheila	not provided	N/A	Web-based Comments	28796	24
Miller	Sherry and Tom	not provided	N/A	Web-based Comments	28914	24
Miller	Shirlee	not provided	N/A	Web-based Comments	28937	24
Miller	Shirley	not provided	N/A	Web-based Comments	28959	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Miller	Spencer	spenceandmarcy@charter.net	N/A	Web-based comments	2555, 2556	N/A
Miller	Stan	not provided	N/A	Web-based Comments	55216	34
Miller	Steve	not provided	N/A	Web-based Comments	47686	34
Miller	Steve	spmiller7@comcast.net	N/A	Web-based comments	2638	N/A
Miller	Steven	not provided	N/A	Web-based Comments	56181	34
Miller	Steven	not provided	N/A	Web-based Comments	29452	24
Miller	Susan	not provided	N/A	Web-based Comments	51395, 51396	34
Miller	Susan	not provided	N/A	Web-based Comments	29776	24
Miller	Susan	not provided	N/A	Web-based Comments	29777	24
Miller	Suzanne	not provided	N/A	Web-based Comments	30007	24
Miller	Theresa	not provided	N/A	Web-based Comments	46171	34
Miller	Timothy	not provided	N/A	Web-based Comments	51357	34
Miller	Timothy	not provided	N/A	Web-based Comments	30655	24
Miller	Travis	not provided	N/A	Web-based Comments	30893	24
Miller	Trevor	not provided	N/A	Web-based Comments	30900	24
Miller	Vicky	not provided	N/A	Web-based Comments	31165	24
Miller	Victoria	not provided	N/A	Web-based Comments	31207	24
Miller	Virginia	not provided	N/A	Web-based Comments	58275	16
Miller	Wanda	not provided	N/A	Web-based Comments	31376	24
Miller	William	not provided	N/A	Web-based Comments	50637	34
Miller	William	not provided	N/A	Web-based Comments	31570	24
Miller Jr	Michael	not provided	N/A	Web-based Comments	24175	24
Miller-Brasure	Nola	not provided	N/A	Web-based Comments	25347	24
Miller-Lyons	Judy	not provided	N/A	Web-based Comments	18707	24
Millette	Ashley	not provided	N/A	Web-based Comments	8488	24
Millette	Sandy	not provided	N/A	Web-based Comments	28254	24
Millholland	Hope	not provided	N/A	Web-based Comments	15787	24
Millhollen	Pilar	not provided	N/A	Web-based Comments	26411	24
Millican	Diane	not provided	N/A	Web-based Comments	12882	24
Milligan	Keith	not provided	N/A	Web-based Comments	19881	24
Milligan	Ned	not provided	N/A	Web-based Comments	25123	24
Milligan	Todd	not provided	N/A	Web-based Comments	30724	24
Milligan & Westmoreland	Charles & Henry	not provided	N/A	Web-based Comments	10543	24
Milliken	Elizabeth	not provided	N/A	Web-based Comments	49243	34
Milliken	Ralph	not provided	N/A	Web-based Comments	26594	24
Millikin	Erin	not provided	N/A	Web-based Comments	14226	24
Milliman	Donald	not provided	N/A	Web-based Comments	13074	24
Milling	Ryan	ryan4493@gmail.com	N/A	Web-based comments	6086	N/A
millington	F	not provided	N/A	Web-based comments	1211	N/A
Millner	Marjorie	not provided	N/A	Web-based Comments	50894	34
Milloy	Barbara	not provided	N/A	Web-based Comments	8741	24
Milloy	Sean	not provided	N/A	Web-based Comments	28521	24
Milloy	Wayne	not provided	N/A	Web-based Comments	31399	24
Mills	Adam	Laramills7@gmail.com	N/A	Web-based comments	3391	N/A
Mills	Adam	not provided	N/A	Web-based Comments	51822, 51823	34
Mills	Adam	not provided	N/A	Web-based Comments	7053	24
Mills	Charles	not provided	N/A	Web-based Comments	48967	34
Mills	David	not provided	N/A	Web-based Comments	12091	24
Mills	Deborah	not provided	N/A	Web-based Comments	12446	24
Mills	J	not provided	N/A	Web-based comments	5189	N/A
Mills	Josh	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4272	N/A
Mills	Keitha	not provided	N/A	Web-based Comments	19889	24
Mills	Lesia	not provided	N/A	Web-based Comments	44636	34
Mills	Margaret A	not provided	N/A	Web-based Comments	54544	34
Mills	Marlene Maes	not provided	N/A	Web-based Comments	23048	24
MILLS	Mary	not provided	N/A	Web-based Comments	23364	24
Mills	Rhondda	not provided	N/A	Web-based Comments	46169	34
Mills	Shirley	not provided	N/A	Web-based Comments	44826, 44827, 44828	34
mills	shirley	not provided	N/A	Web-based Comments	28960	24
Mills-Lott	Hayley	not provided	N/A	Web-based Comments	49766	34
Millstein	Roberta	not provided	N/A	Web-based Comments	27443	24
Millu	Janis	ijanis51@yahoo.com	N/A	Web-based comments	2481	1
Millu	Janis	not provided	N/A	Web-based Comments	53531	34
Milne	Geoff	not provided	N/A	Web-based Comments	55208	34
MILNE	KAY	not provided	N/A	Web-based Comments	56162	34
Milnes	Matthew	not provided	N/A	Web-based Comments	47606	34
Milo	Chezare	not provided	N/A	Web-based Comments	10693	24
Miloe	Cherry	not provided	N/A	Web-based Comments	10611	24
Milore	Olga	not provided	N/A	Web-based Comments	51080	34

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
milot	inez	not provided	N/A	Web-based Comments	15867	24
Milton	Carol	not provided	N/A	Web-based comments	57650	35
Minamide	Jenice	not provided	N/A	Web-based Comments	47303, 47304	34
Minamide	Jenice	not provided	N/A	Web-based Comments	17125	24
Minault	Kent	not provided	N/A	Web-based Comments	46446	34
mincin	ken	not provided	N/A	Web-based Comments	19984	24
Mindich	Chip	not provided	N/A	Web-based Comments	10706	24
Mindock	David	not provided	N/A	Web-based Comments	12092	24
Mineck	Steve	not provided	N/A	Web-based Comments	29387	24
Miner	Chris	not provided	N/A	Web-based Comments	10765	24
Miner	Rev Dr Curt	not provided	N/A	Web-based Comments	26868	24
Minerovic	Constance	not provided	N/A	Web-based Comments	11343	24
Mingos	Dave	not provided	N/A	Web-based Comments	11916	24
Minic	Marija	not provided	N/A	Web-based Comments	51652, 51653	34
Minic	Marija	not provided	N/A	Web-based Comments	22751	24
Minick	Audrey	not provided	N/A	Web-based Comments	51261	34
Minieri	cheryl	not provided	N/A	Web-based Comments	10664	24
Minikes	Howard	not provided	N/A	Web-based Comments	15802	24
Miniscalco	Emma	not provided	N/A	Web-based Comments	14059	24
Mink	Daniel	not provided	N/A	Web-based Comments	48378, 48379	34
Mink	Daniel	not provided	N/A	Web-based Comments	11756	24
Minkler	Bonnie	not provided	N/A	Web-based comments	57538	35
Minnick	Robert	not provided	N/A	Web-based Comments	27335	24
Minnis	Annette	not provided	N/A	Web-based Comments	8283	24
Minoff	Ann	not provided	N/A	Web-based Comments	54673	34
Minor	Carmen	not provided	N/A	Web-based Comments	48694	34
Minor	Eddy	not provided	N/A	Web-based Comments	13461	24
Minor	Sherry	not provided	N/A	Web-based Comments	28896	24
Minsky	Nina	not provided	N/A	Web-based Comments	51179	34
Minsky	Nina	not provided	N/A	Web-based Comments	25312	24
Minsky	Nina	not provided	N/A	Web-based Comments	25313	24
Mintah	Lois	not provided	N/A	Web-based Comments	51163	34
Mintz	Jenjifer	not provided	N/A	Web-based Comments	17131	24
Mintz	Neil	not provided	N/A	Web-based Comments	25133	24
Mir	Nazish	nazishdc@aol.com	N/A	Web-based comments	5960	N/A
Mir	Nazish	not provided	N/A	Web-based Comments	25113	24
Mirabile	Gina	not provided	N/A	Web-based Comments	15057	24
Miracle	Marisa	not provided	N/A	Web-based Comments	22866	24
Miracola	Jessica	not provided	N/A	Web-based Comments	17446	24
Miranda	Carmen	not provided	N/A	Web-based Comments	47480	34
Miranda	Carmen	not provided	N/A	Web-based Comments	9872	24
Miranda	Claudia	not provided	N/A	Web-based Comments	11192	24
Miranda	Gustavo	gustavo_mrivera@yahoo.com.mx	N/A	Web-based comments	866	N/A
Miranda	Lisa	not provided	N/A	Web-based Comments	55248	34
Miranda	Lori	not provided	N/A	Web-based Comments	21795	24
Miranda	Maria	not provided	N/A	Web-based Comments	22616	24
Miranda	Melissa	not provided	N/A	Web-based Comments	53076, 53077	34
Miranda	Rocio	not provided	N/A	Web-based Comments	53027	34
Miranda	Roel	not provided	N/A	Web-based Comments	46885	34
Miritescu	Adriana	not provided	N/A	Web-based Comments	58461	34
Mirkovic	Ana	not provided	N/A	Web-based Comments	49594	34
Mirkovic	Dragana	not provided	N/A	Web-based Comments	49848, 49849	34
Mirmak	Dorothy	not provided	N/A	Web-based Comments	13273	24
Miro	Julie	not provided	N/A	Web-based Comments	18869	24
Mirro	James	not provided	N/A	Web-based Comments	16266	24
Mirshak	Adele	not provided	N/A	Web-based Comments	7069	24
Mirviss	Marisa	mirvissm@gmail.com	N/A	Web-based comments	5288	8
Miscavige	Joanna	not provided	N/A	Web-based Comments	17791	24
Misek	Jolie	not provided	N/A	Web-based Comments	18241	24
Misenar	Burm	not provided	N/A	Web-based Comments	9653	24
Miskolczy	Bonnie	not provided	N/A	Web-based Comments	48521	34
Misner	Kerry	not provided	N/A	Web-based comments	57581	35
Misoski	Stefan	not provided	N/A	Web-based Comments	29165	24
Missagh	Niky	not provided	N/A	Web-based Comments	25292	24
Mister	Sherry	not provided	N/A	Web-based Comments	28897	24
Mistretta	Jill	not provided	N/A	Web-based Comments	52045	34
Mistretta	Jill	not provided	N/A	Web-based Comments	17528	24
Mistrot	Diane	not provided	N/A	Web-based Comments	12883	24
Mitchel	John	not provided	N/A	Web-based Comments	18104	24
Mitchell	Arthur	not provided	N/A	Web-based Comments	44422	34

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Mitchell	Ayanna	not provided	N/A	Web-based Comments	8556	24
Mitchell	Ayla	not provided	N/A	Web-based comments	6907	1
Mitchell	Beverly	not provided	N/A	Web-based Comments	9135	24
Mitchell	Brett	not provided	N/A	Web-based Comments	52388	34
Mitchell	Brian	not provided	N/A	Web-based Comments	9495	24
Mitchell	Carine	not provided	N/A	Web-based Comments	9797	24
Mitchell	Carol	not provided	N/A	Web-based Comments	9988	24
Mitchell	Cheryl	not provided	N/A	Web-based Comments	50851	34
Mitchell	Cheryl	not provided	N/A	Web-based Comments	10665	24
Mitchell	Christine	not provided	N/A	Web-based Comments	55910, 55911	34
Mitchell	Crystal	not provided	N/A	Web-based Comments	11462	24
Mitchell	Desiree	not provided	N/A	Web-based Comments	12730	24
Mitchell	Ellen	not provided	N/A	Web-based Comments	47490	34
Mitchell	Irvina	not provided	N/A	Web-based Comments	47783	34
Mitchell	James	not provided	N/A	Web-based Comments	16267	24
Mitchell	Jan	not provided	N/A	Web-based Comments	16412	24
Mitchell	Jessica	not provided	N/A	Web-based Comments	17447	24
Mitchell	Jonathan	not provided	N/A	Web-based Comments	55988	34
Mitchell	Jonathan	not provided	N/A	Web-based Comments	18292	24
Mitchell	Julie	not provided	N/A	Web-based Comments	18870	24
Mitchell	Kathleen	not provided	N/A	Web-based Comments	19576	24
Mitchell	Kenneth	not provided	N/A	Web-based Comments	20021	24
Mitchell	Kent	not provided	N/A	Web-based Comments	20041	24
Mitchell	Kristina	not provided	N/A	Web-based Comments	20406	24
Mitchell	Lenise	not provided	N/A	Web-based Comments	20983	24
Mitchell	Linda	not provided	N/A	Web-based Comments	52190, 52191	34
Mitchell	Lori	not provided	N/A	Web-based Comments	21796	24
Mitchell	Mal	not provided	N/A	Web-based Comments	22288	24
Mitchell	Mariah	not provided	N/A	Web-based Comments	22651	24
Mitchell	Michelle	not provided	N/A	Web-based Comments	45161	34
Mitchell	Michelle	not provided	N/A	Web-based Comments	24374	24
Mitchell	Patrick J	not provided	N/A	Web-based Comments	25932	24
Mitchell	Peter	not provided	N/A	Web-based Comments	44683	34
Mitchell	Priscilla	not provided	N/A	Web-based Comments	26449	24
Mitchell	Robin	not provided	N/A	Web-based Comments	27502	24
Mitchell	Ruby	not provided	N/A	Web-based Comments	49250, 49251	34
Mitchell	Sandra	smitchel@alscott.com	N/A	Web-based comments	5379* – No attachment with submission, co-lead agencies reached out but did not receive a response	N/A
Mitchell	Stephen	not provided	N/A	Web-based Comments	54648	34
Mitchell	Stephen	not provided	N/A	Web-based Comments	29319	24
Mitchell	Susan	not provided	N/A	Web-based Comments	29778	24
Mitchell	Susannah	not provided	N/A	Web-based Comments	29946	24
Mitchell	Thomas	not provided	N/A	Web-based Comments	30522	24
Mitchell	Thomas	not provided	N/A	Web-based Comments	30523	24
Mitchell	Trip	not provided	N/A	Web-based Comments	30918	24
Mitchell	Valory	not provided	N/A	Web-based Comments	31058	24
Mitchell	Yolanda	not provided	N/A	Web-based Comments	31670	24
Mitchell	Zoe	not provided	N/A	Web-based comments	5070	1
Mitchell,	Ronald	mitchellr31@gmail.com	N/A	Web-based comments	2222	5
Mitchell-Shihabi	Jessica	not provided	N/A	Web-based Comments	17448	24
Mitcheltree	Cody	not provided	N/A	Web-based Comments	11238	24
Mitcheson	John	not provided	N/A	Web-based Comments	18105	24
Mitose	Kazuko	not provided	N/A	Web-based Comments	53270	34
Mitose	Kazuko	not provided	N/A	Web-based Comments	19854	24
Mitro	Eileen	not provided	N/A	Web-based Comments	13552	24
Mitsch	Chris	not provided	N/A	Web-based Comments	10766	24
Mitsuka	Joan	not provided	N/A	Web-based Comments	51377	34
Mittelhaeuser	Mary	not provided	N/A	Web-based Comments	23365	24
Mittelstaedt	Andrea	not provided	N/A	Web-based Comments	7756	24
Mittelstaedt	Douglas	not provided	N/A	Web-based Comments	13334	24
mittenthal	suzanne	not provided	N/A	Web-based Comments	30008	24
mitteremeier	Cristina	cgmitt@me.com	N/A	Web-based comments	31888	N/A
Mitu	Camelia	not provided	N/A	Web-based Comments	47396	34
Mitu	Camelia	not provided	N/A	Web-based Comments	9730	24
Miura	Hope	not provided	N/A	Web-based Comments	15788	24
Miville	Sharon	not provided	N/A	Web-based Comments	28689	24
Mixon	Eugenia	not provided	N/A	Web-based comments	57302	35
Mixon	Phillip	not provided	N/A	Web-based Comments	26365	24
Miyagawa	Lana	not provided	N/A	Web-based Comments	20527	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Mizell	Keely	not provided	N/A	Web-based Comments	50938, 50939	34
Mizell	Keely	not provided	N/A	Web-based Comments	19862	24
Mizuki	Michelle	not provided	N/A	Web-based Comments	54334, 54335	34
Mizutani	Joann Mizutani	not provided	N/A	Web-based Comments	54803	34
Mj	Lttl	not provided	N/A	Web-based Comments	21915	24
Mjolsness	Kent	not provided	N/A	Web-based Comments	47633	34
Mjolsness	Kent	not provided	N/A	Web-based Comments	20042	24
Mjos	Brita	not provided	N/A	Web-based Comments	46692	34
Mladjan	Michael	not provided	N/A	Web-based Comments	24176	24
MLaotte	Shelby	not provided	N/A	Web-based Comments	28821	24
Mlawski	Leslie	not provided	N/A	Web-based Comments	21090	24
Mlsna	Alicia	not provided	N/A	Web-based Comments	7382	24
Mlynarek	Mallory	not provided	N/A	Web-based Comments	44582	34
Mlynczak	Raymond	not provided	N/A	Web-based Comments	53100	34
Mm	Hm	not provided	N/A	Web-based Comments	47934	34
MM	HM	not provided	N/A	Web-based Comments	15720	24
Mnatsakanian	Marietta	not provided	N/A	Web-based Comments	22747	24
Mo	Vicki	not provided	N/A	Web-based Comments	31142	24
Moad	Jane	not provided	N/A	Web-based Comments	16518	24
moats	paula	not provided	N/A	Web-based Comments	53507, 53508	34
Moberly	Dr. Elizabeth	not provided	N/A	Web-based Comments	13362	24
Mobley	Livia	not provided	N/A	Web-based Comments	21677	24
Moceri	Eileen	not provided	N/A	Web-based Comments	46534	34
Moceri	Eileen	not provided	N/A	Web-based Comments	13553	24
Moden	Rebecca	not provided	N/A	Web-based Comments	26754	24
Moderacki	Deidre	not provided	N/A	Web-based Comments	50564, 50565	34
Moderow	Juliet	not provided	N/A	Web-based Comments	18917	24
Modoni	Ulla	umodoni@web.de	N/A	Web-based comments	539	1
Moedritzer	Matthew	moedritzer.m@gmail.com	N/A	Web-based comments	5155	8
Moellenhoff	Elizabeth	not provided	N/A	Web-based Comments	13812	24
Moeller	Laura	not provided	N/A	Web-based Comments	20679	24
Moeller	Michael	not provided	N/A	Web-based Comments	24177	24
Moen	Daniel	not provided	N/A	Web-based Comments	11757	24
MOERSFELDER	EDWARD	EMMWINDYHILL@YAHOO.COM	N/A	Web-based comments	5946	N/A
Moersfelder	Stephanie	smoersfelder@yahoo.com	N/A	Web-based comments	5745	19
Moessner	Marianne	not provided	N/A	Web-based Comments	22685	24
Moff	Carol	not provided	N/A	Web-based Comments	9989	24
Moffat	Russell	not provided	N/A	Web-based Comments	27839	24
Moffett	Allison	not provided	N/A	Web-based Comments	7468	24
Moffett	Mark	not provided	N/A	Web-based comments	1165	1
Mofford	Robert & Glenda	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	56672	N/A
Mofsenson	Joel	moffy@aol.com	N/A	Web-based comments	4481	N/A
Mogab	Elissa	not provided	N/A	Web-based Comments	51501	34
Mogavero	Richard	not provided	N/A	Web-based Comments	27014	24
mogollon	luisa fernanda	not provided	N/A	Web-based Comments	21974	24
Mohammed	Javid	not provided	N/A	Web-based Comments	16796	24
Mohl	Dan	not provided	N/A	Web-based Comments	11663	24
Mohning	Kathleen	not provided	N/A	Web-based Comments	48251, 48252	34
Mohning	Kathleen	not provided	N/A	Web-based Comments	19577	24
Moholt	Silje	not provided	N/A	Web-based Comments	28997	24
Mohr	Carole	not provided	N/A	Web-based Comments	10092	24
Mohr	Meredith	not provided	N/A	Web-based Comments	49383	34
Mohseni	Leila	not provided	N/A	Web-based Comments	55435	34
Mohseni	Leila	not provided	N/A	Web-based Comments	20972	24
Moilanen	Erin	not provided	N/A	Web-based Comments	14227	24
Moiso	James	not provided	N/A	Web-based Comments	16268	24
Moissant	Helen	not provided	N/A	Web-based Comments	58270, 48370, 48371, 48372, 48373, 48374, 48375	16, 34
Moissant	Helen	not provided	N/A	Web-based Comments	15621	24
Moix	Jennifer	not provided	N/A	Web-based Comments	17228	24
Mojica	Linda	not provided	N/A	Web-based Comments	54761	34
Mokelke	Susan	not provided	N/A	Web-based Comments	29779	24
Mola	Nicole	not provided	N/A	Web-based Comments	55953, 55954, 55955	34
Mola	Nicole	not provided	N/A	Web-based Comments	25247	24
Moldal	David	davemoldal@hotmail.com	N/A	Web-based comments	6860	N/A
Mole	Leonard	not provided	N/A	Web-based Comments	21009	24
Molendijk-Schipper	Lenie	not provided	N/A	Web-based Comments	44269	34
Moleta	Andrew	not provided	N/A	Web-based Comments	50168	34
Molgora	Bianca	not provided	N/A	Web-based Comments	9157	24
Moli	Amir	not provided	N/A	Web-based comments	1363	N/A
Molina	Anna	not provided	N/A	Web-based Comments	8144	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Molina	Daniel	dmolinarizo@gmail.com	N/A	Web-based comments	564	2
Molina	Leonor	not provided	N/A	Web-based Comments	21018	24
Molina	Nelson	not provided	N/A	Web-based Comments	46216	34
molinero	cynthia	not provided	N/A	Web-based Comments	44865	34
molinero	cynthia	not provided	N/A	Web-based Comments	11531	24
Molitor	Ute	not provided	N/A	Web-based Comments	30983	24
Mollenhauer	Paul	not provided	N/A	Web-based Comments	26025	24
Molligi	Cathy	not provided	N/A	Web-based Comments	10379	24
Moll-Nevins	Melissa	not provided	N/A	Web-based Comments	50069	34
Molloy	Cathy	not provided	N/A	Web-based Comments	10380	24
Molloy	Karen	not provided	N/A	Web-based Comments	50090	34
Molloy	Mark	not provided	N/A	Web-based Comments	53820, 53821	34
Molloy	Mark	not provided	N/A	Web-based Comments	22967	24
Molloy	Mary	not provided	N/A	Web-based Comments	23366	24
Molnar	Katharine	not provided	N/A	Web-based Comments	19420	24
Molseed	Mary	not provided	N/A	Web-based Comments	23367	24
MOLT	MELODI	melodimolt1972@gmail.com	N/A	Web-based comments	6438	N/A
Molund	Maria	not provided	N/A	Web-based Comments	22617	24
Molyneaux	Tom	not provided	N/A	Web-based Comments	46155	34
Momm	Alice	not provided	N/A	Web-based Comments	7357	24
Monaco	Carol	not provided	N/A	Web-based Comments	9990	24
Monahan	Jane	not provided	N/A	Web-based Comments	16519	24
Monahan	Kristin	not provided	N/A	Web-based Comments	48996, 48997	34
Monahan	Liam	not provided	N/A	Web-based Comments	21139	24
Monahan	Margaret	not provided	N/A	Web-based Comments	22480	24
Monahan	Rev. Joellynn	not provided	N/A	Web-based Comments	26871	24
Monahan	Steven	not provided	N/A	Web-based Comments	29453	24
Monard	Sandra	not provided	N/A	Web-based Comments	28193	24
Monasevitch	Nina	not provided	N/A	Web-based comments	57426	35
Monasevitch	Nina	not provided	N/A	Web-based Comments	45457	34
Monasevitch	Nina	not provided	N/A	Web-based Comments	25314	24
Monchil	Allen	not provided	N/A	Web-based Comments	7447	24
Mondazze	gina	not provided	N/A	Web-based Comments	51693	34
Monderie	Anne	not provided	N/A	Web-based Comments	55272, 55273	34
Mondragon	Michelle	not provided	N/A	Web-based Comments	56590	34
Mondragon	Michelle	not provided	N/A	Web-based Comments	24375	24
Mondragon	Millie	not provided	N/A	Web-based Comments	51062	34
Monell	Janet	not provided	N/A	Web-based Comments	16623	24
Money	Donna	not provided	N/A	Web-based Comments	47446	34
Money	Helen	not provided	N/A	Web-based Comments	50993	34
Moneymaker	Daniel	danmoneymaker51@comcast.net	N/A	Web-based comments	5655	N/A
Monfette	Aggie	not provided	N/A	Web-based Comments	57857, 57858	34
Monfort	Alison	not provided	N/A	Web-based Comments	7414	24
Monforti	Nicole	not provided	N/A	Web-based Comments	53513	34
Monge.	Thomas	not provided	N/A	Web-based Comments	46982	34
Monger	Becky	not provided	N/A	Web-based Comments	46389, 46390	34
Monger	Becky	not provided	N/A	Web-based Comments	8914	24
Monica	Francoise La	not provided	N/A	Web-based Comments	50085	34
Monie	Sherry	not provided	N/A	Web-based Comments	51197	34
Monier	Claire	not provided	N/A	Web-based Comments	11139	24
Monk	Christina	not provided	N/A	Web-based comments	56892	35
Monnet	Myrian	not provided	N/A	Web-based Comments	52197	34
Monnet	Myrian	not provided	N/A	Web-based Comments	24719	24
monning	Helga	not provided	N/A	Web-based Comments	15646	24
Monrean	John	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58779	N/A
Monro	Mel	not provided	N/A	Web-based Comments	48878	34
Monroe	Chris	not provided	N/A	Web-based Comments	47246, 47247	34
Monroe	Cord	not provided	N/A	Web-based Comments	11359	24
Monroe	James	not provided	N/A	Web-based comments	57402	35
Monroe	James	not provided	N/A	Web-based Comments	44840, 44841	34
Monroe	James R	not provided	N/A	Web-based Comments	16346	24
Monroe	Walker	not provided	N/A	Web-based Comments	53938	34
Monsarrat	Alexei	amonsarrat@gmail.com	N/A	Web-based comments	6205	1
Monsell	Kristen	not provided	N/A	Web-based Comments	52771	34
Monso	Conchita	not provided	N/A	Web-based Comments	11287	24
Monson	Todd	not provided	N/A	Web-based Comments	47149	34
Monson	Todd	not provided	N/A	Web-based Comments	30725	24
Mont	Lyn du	not provided	N/A	Web-based Comments	47071, 47072	34
Montagna	lo	not provided	N/A	Web-based Comments	15885	24
Montague	Carol	not provided	N/A	Web-based Comments	9991	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Montague	David	not provided	N/A	Web-based comments	4900	N/A
Montague	Sharon	not provided	N/A	Web-based Comments	28690	24
Montague	Susan	not provided	N/A	Web-based Comments	51638	34
Montague-Judd	Danielle	not provided	N/A	Web-based Comments	47521	34
Montapert	anthony	not provided	N/A	Web-based Comments	55611, 55612	34
Montapert	Anthony	not provided	N/A	Web-based Comments	8340	24
Montarou	Anne	not provided	N/A	Web-based Comments	45700	34
Montarou	Anne	not provided	N/A	Web-based Comments	8225	24
Montealegre	Jesus	not provided	N/A	Web-based Comments	17482	24
MONTEE	PATRICIA	not provided	N/A	Web-based Comments	25810	24
Monteiro	Ana	not provided	N/A	Web-based Comments	47300	34
Monteiro	Ana Teresa	not provided	N/A	Web-based Comments	7700	24
Monteiro	Paulo	not provided	N/A	Web-based Comments	26127	24
Monteiro	Susan	not provided	N/A	Web-based Comments	29780	24
Montejo	Jeff	not provided	N/A	Web-based Comments	17046	24
Monteleon	Marjorie	not provided	N/A	Web-based Comments	22883	24
Monterio	Tia	not provided	N/A	Web-based Comments	46941	34
Montero	Debby	not provided	N/A	Web-based Comments	12356	24
Montes	Mike	not provided	N/A	Web-based Comments	46173	34
Montes	Mike	not provided	N/A	Web-based Comments	24473	24
Mont-Eton	Elaine	not provided	N/A	Web-based Comments	13603	24
Mont-Eton	Jean	not provided	N/A	Web-based Comments	16868	24
Mont-Eton	Michele	not provided	N/A	Web-based Comments	50112	34
Mont-Eton	Michele	not provided	N/A	Web-based Comments	24296	24
Montgomerey	Elizabeth	not provided	N/A	Web-based Comments	13813	24
Montgomery	Carl	cmontyid@gmail.com	N/A	Web-based comments	3536	N/A
Montgomery	Christen	not provided	N/A	Web-based Comments	10819	24
Montgomery	Edith	not provided	N/A	Web-based Comments	51157	34
Montgomery	Erin	not provided	N/A	Web-based Comments	14228	24
Montgomery	Hillary	not provided	N/A	Web-based Comments	15713	24
Montgomery	Leland	not provided	N/A	Web-based Comments	49834	34
MONTGOMERY	STEPHEN	not provided	N/A	Web-based Comments	46344	34
Monti	Chris	not provided	N/A	Web-based Comments	54038	34
Montoya	Thomasine	not provided	N/A	Web-based Comments	47929	34
MONY	MICHAEL	not provided	N/A	Web-based Comments	24178	24
Moody	Anne	not provided	N/A	Web-based Comments	45980	34
Moody	Ian and Janeane	not provided	N/A	Web-based Comments	55096	34
Moody	Michelle and Stanley	not provided	N/A	Web-based Comments	24409	24
Moody	Peggy	not provided	N/A	Web-based Comments	26167	24
Moody	william	not provided	N/A	Web-based Comments	50437	34
Moody-Ulmer	Margaret	not provided	N/A	Web-based Comments	22481	24
Moon	Jennifer	not provided	N/A	Web-based Comments	58171	16
Moon	Jim	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58336	N/A
Moon	John	not provided	N/A	Web-based Comments	18106	24
Moon	Lauri	not provided	N/A	Web-based Comments	20814	24
Moon	Rick	not provided	N/A	Web-based Comments	53339	34
Mooney	Bernard	not provided	N/A	Web-based Comments	8995	24
Mooney	Glenn	not provided	N/A	Web-based Comments	15132	24
Mooney	Holly	not provided	N/A	Web-based Comments	15761	24
Mooney	M	not provided	N/A	Web-based Comments	55052	34
Mooney	Marina	not provided	N/A	Web-based Comments	56028	34
Mooney	Marina	not provided	N/A	Web-based Comments	22834	24
Moonlight	Ardis	not provided	N/A	Web-based Comments	8400	24
Moor	Judith	not provided	N/A	Web-based Comments	49726	34
Moore	Alice	not provided	N/A	Web-based Comments	7358	24
Moore	Briana	not provided	N/A	Web-based Comments	58454	34
Moore	Carole	not provided	N/A	Web-based Comments	10093	24
Moore	Cheryl	not provided	N/A	Web-based Comments	10666	24
Moore	Christine	not provided	N/A	Web-based Comments	51342	34
Moore	Christine	not provided	N/A	Web-based Comments	10962	24
Moore	Cristina	not provided	N/A	Web-based Comments	11444	24
Moore	D	not provided	N/A	Web-based Comments	46802	34
Moore	David	dmoorx@gmail.com	N/A	Web-based comments	3830* – No attachment with submission, co-lead agencies reached out	N/A
Moore	Dawn	not provided	N/A	Web-based Comments	12238	24
MOORE	DIANE	not provided	N/A	Web-based Comments	52029	34
Moore	Edith	not provided	N/A	Web-based Comments	13470	24
Moore	Elizabeth	not provided	N/A	Web-based Comments	54339	34
Moore	Elizabeth	not provided	N/A	Web-based Comments	13814	24
Moore	Gary	not provided	N/A	Web-based Comments	46439	34

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Moore	Gayle	not provided	N/A	Web-based Comments	14831	24
Moore	Heidi	not provided	N/A	Web-based Comments	15574	24
MOORE	HENRY	not provided	N/A	Web-based Comments	15670	24
Moore	Hugh	not provided	N/A	Web-based Comments	15820	24
moore	janet	not provided	N/A	Web-based Comments	16624	24
Moore	Janine	not provided	N/A	Web-based Comments	16733	24
Moore	Jeannine	not provided	N/A	Web-based Comments	17000	24
Moore	Joelene	not provided	N/A	Web-based Comments	17930	24
Moore	Jonathan	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4760	N/A
Moore	Josie	not provided	N/A	Web-based Comments	18442	24
Moore	Joyce	not provided	N/A	Web-based Comments	18499	24
Moore	Jubilith	not provided	N/A	Web-based Comments	18536	24
Moore	Judy	not provided	N/A	Web-based Comments	58665	34
Moore	Karen	not provided	N/A	Web-based Comments	46557, 46662	34
Moore	Kathy	klmoore7045@gmail.com	N/A	Web-based comments	241	N/A
Moore	Kenlyn	not provided	N/A	Web-based Comments	52200	34
Moore	Kristine	not provided	N/A	Web-based Comments	20417	24
Moore	Lorraine	not provided	N/A	Web-based Comments	21844	24
Moore	Malcolm	not provided	N/A	Web-based Comments	22293	24
moore	maxine	maxiermoore@yahoo.com	N/A	Web-based comments	4142	N/A
Moore	Nancy	not provided	N/A	Web-based Comments	24934	24
Moore	Peggy	not provided	N/A	Web-based Comments	26168	24
Moore	Philip	not provided	N/A	Web-based Comments	26349	24
Moore	Rachel	relainemoore@yahoo.com	N/A	Web-based comments	6890	1
Moore	Robert	rwmoore5324@gmail.com	N/A	Web-based comments	4187	N/A
Moore	Ronald	not provided	N/A	Web-based Comments	46943	34
Moore	Sadie	not provided	N/A	Web-based Comments	27986	24
Moore	Shawn	not provided	N/A	Web-based Comments	48693	34
Moore	Sherrie	not provided	N/A	Web-based Comments	50469	34
Moore	Sherrie	not provided	N/A	Web-based Comments	28877	24
Moore	susan	not provided	N/A	Web-based Comments	45428	34
Moore	Susan	not provided	N/A	Web-based Comments	29781	24
Moore	Susan barbara	not provided	N/A	Web-based Comments	29923	24
Moore	Susanna	not provided	N/A	Web-based Comments	29942	24
Moore	Suzanne	not provided	N/A	Web-based Comments	30009	24
Moore	Teresa	not provided	N/A	Web-based Comments	30286	24
Moore	Terri	not provided	N/A	Web-based Comments	30340	24
Moore	Thomas	not provided	N/A	Web-based comments	5819	N/A
Moore	Tim	not provided	N/A	Web-based Comments	30620	24
moore	tony	not provided	N/A	Web-based Comments	30814	24
Moore	Travis	not provided	N/A	Web-based Comments	30894	24
Moore	William	not provided	N/A	Web-based Comments	31571	24
Moorefield	Helen	not provided	N/A	Web-based Comments	15622	24
Mooshie	Marilyn	not provided	N/A	Web-based Comments	53685, 53686	34
Mooshie	Marilyn	not provided	N/A	Web-based Comments	22802	24
Moot	Kathryn	not provided	N/A	Web-based Comments	48954	34
mor	mon	not provided	N/A	Web-based Comments	24605	24
Mora	Jesus	not provided	N/A	Web-based Comments	17483	24
Mora	John	not provided	N/A	Web-based Comments	18107	24
Mora	Julio	not provided	N/A	Web-based comments	57025	35
Mora	Lauren	not provided	N/A	Web-based Comments	20785	24
Mora	Lauren	not provided	N/A	Web-based Comments	20786	24
Mora	Sharon	not provided	N/A	Web-based Comments	48827, 48828	34
Mora Black	Tayira	not provided	N/A	Web-based Comments	30232	24
Morache	Jette	not provided	N/A	Web-based comments	5225	N/A
Moraghan	Mike	not provided	N/A	Web-based Comments	24474	24
Moraiti	Vicky	not provided	N/A	Web-based Comments	31166	24
Morales	Ana	not provided	N/A	Web-based Comments	7695	24
Morales	Annajean	not provided	N/A	Web-based Comments	8162	24
Morales	C.	not provided	N/A	Web-based Comments	9696	24
Morales	C.	not provided	N/A	Web-based Comments	9697	24
Morales	Elizabeth	not provided	N/A	Web-based Comments	13815	24
Morales	Emily	not provided	N/A	Web-based Comments	51092, 51093	34
Morales	Emily	not provided	N/A	Web-based Comments	14029	24
Morales	karyn	karyn_jaimes@hotmail.com	N/A	Web-based comments	6393	1
Morales	Maria	not provided	N/A	Web-based Comments	51843, 51844	34
Morales	Marisa	not provided	N/A	Web-based Comments	22867	24
Morales	Marisol	not provided	N/A	Web-based Comments	47169	34
morales	rose	not provided	N/A	Web-based Comments	27727	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Morales	Sandra	not provided	N/A	Web-based Comments	56065	34
Morales	Treena	morgmela@isu.edu	N/A	Web-based comments	3667	N/A
Moran	Deborah	not provided	N/A	Web-based Comments	12447	24
Moran	Emma	not provided	N/A	Web-based Comments	14060	24
Moran	Fintan	not provided	N/A	Web-based Comments	14431	24
Moran	Frances	not provided	N/A	Web-based Comments	14486, 14487	24
Moran	Frankie	not provided	N/A	Web-based Comments	14555	24
Moran	James	not provided	N/A	Web-based Comments	16269	24
Moran	Jim	not provided	N/A	Web-based comments	3241	8
Moran	Judith	not provided	N/A	Web-based Comments	18628	24
Moran	Judy	not provided	N/A	Web-based comments	57144	35
Moran	Judy	not provided	N/A	Web-based Comments	46493, 46494	34
Moran	Judy	not provided	N/A	Web-based Comments	18708	24
Moran	Kathy	not provided	N/A	Web-based Comments	19734	24
Moran	Linda	not provided	N/A	Web-based Comments	21362	24
Moran	Scout	not provided	N/A	Web-based Comments	28513	24
Moran	Shelley	not provided	N/A	Web-based Comments	28836	24
morander	kellyann	not provided	N/A	Web-based Comments	19954	24
Moranville	Stacy	not provided	N/A	Web-based Comments	29140	24
Moraski	Kathleen	not provided	N/A	Web-based Comments	19578	24
Mordan	Mary	not provided	N/A	Web-based Comments	23368	24
Mordini-Bluhm	Casey	not provided	N/A	Web-based Comments	10227	24
More	Chris	not provided	N/A	Web-based Comments	10767	24
Moreau	Catherine	not provided	N/A	Web-based Comments	10304	24
Morehead	Victoria	not provided	N/A	Web-based Comments	31208	24
Morel	Will	not provided	N/A	Web-based Comments	31490	24
Moreland	Patricia	not provided	N/A	Web-based Comments	25811	24
Morell	Dario	not provided	N/A	Web-based Comments	11867	24
morelli	alberto	not provided	N/A	Web-based Comments	7215	24
morelli	Silvia	not provided	N/A	Web-based Comments	29011	24
Morello	Dai	not provided	N/A	Web-based Comments	11619	24
Morello	Phyl	not provided	N/A	Web-based Comments	26377	24
Morem	Judith	not provided	N/A	Web-based Comments	18629	24
Moreno	Carolina	not provided	N/A	Web-based Comments	48514	34
Moreno	Carolina	not provided	N/A	Web-based Comments	10113	24
Moreno	Christine	not provided	N/A	Web-based Comments	10963	24
Moreno	Dianne	not provided	N/A	Web-based Comments	50097	34
Moreno	Gina	not provided	N/A	Web-based Comments	15058	24
Moreno	Heather	not provided	N/A	Web-based Comments	15525	24
Moreno	Ivonne	not provided	N/A	Web-based Comments	15961	24
Moreno	Lisa	not provided	N/A	Web-based Comments	21606	24
Moreno	Louis	not provided	N/A	Web-based Comments	21870	24
Moreno	Maggie	not provided	N/A	Web-based Comments	22272	24
Moreno	Mayelly	not provided	N/A	Web-based Comments	50167	34
Moreno	Ruben	not provided	N/A	Web-based comments	6815	1
Moreno	Zach	not provided	N/A	Web-based Comments	31708	24
Moreno-Bosketti	Estela	not provided	N/A	Web-based Comments	14266	24
Moreton	Shannon	not provided	N/A	Web-based Comments	28594	24
moretti	emilia	not provided	N/A	Web-based Comments	14002	24
Morey	Lorilie	not provided	N/A	Web-based Comments	48178	34
Morfitt	Doreen	not provided	N/A	Web-based Comments	13211	24
Morgan	Betty	not provided	N/A	Web-based Comments	54662	34
Morgan	Bill	not provided	N/A	Web-based Comments	9177	24
Morgan	Brenda	not provided	N/A	Web-based Comments	9411	24
Morgan	C.	not provided	N/A	Web-based Comments	55388	34
Morgan	Carter	not provided	N/A	Web-based Comments	10214	24
Morgan	Crystal	not provided	N/A	Web-based Comments	58462	34
Morgan	Dan	not provided	N/A	Web-based Comments	52838	34
morgan	david	not provided	N/A	Web-based Comments	58589	34
Morgan	Ellen	not provided	N/A	Web-based Comments	48231	34
Morgan	Ellen	not provided	N/A	Web-based Comments	13931	24
Morgan	Joan	not provided	N/A	Web-based Comments	17715	24
Morgan	John	not provided	N/A	Web-based Comments	18108	24
Morgan	Julia	not provided	N/A	Web-based Comments	18767	24
Morgan	Julie	not provided	N/A	Web-based Comments	45354	34
Morgan	Katie	not provided	N/A	Web-based Comments	19795	24
Morgan	Lauri	not provided	N/A	Web-based Comments	20815	24
Morgan	Lesley	not provided	N/A	Web-based Comments	47973	34
Morgan	Lura	not provided	N/A	Web-based comments	5677	N/A

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Morgan	Margaret	not provided	N/A	Web-based Comments	22482	24
Morgan	Mel	not provided	N/A	Web-based comments	57266	35
Morgan	Mel	not provided	N/A	Web-based Comments	46406	34
Morgan	Merrilee	not provided	N/A	Web-based Comments	23993	24
Morgan	Nancy	not provided	N/A	Web-based Comments	24935	24
Morgan	Nerissa	not provided	N/A	Web-based Comments	51459, 51460	34
Morgan	Nerissa	not provided	N/A	Web-based Comments	25151	24
Morgan	Paula	not provided	N/A	Web-based Comments	50683	34
Morgan	Paula	not provided	N/A	Web-based Comments	26092	24
Morgan	Richard	not provided	N/A	Web-based Comments	50839	34
Morgan	Rosemarie	not provided	N/A	Web-based Comments	27751	24
Morgan	Sally	not provided	N/A	Web-based Comments	28020	24
Morgan	Samantha	not provided	N/A	Web-based Comments	28079	24
Morgan	Starla	not provided	N/A	Web-based Comments	53964	34
Morgan	Starla	not provided	N/A	Web-based Comments	29159	24
Morgan	Terry	tcfunfarm@gmail.com	N/A	Web-based comments	2406	N/A
Morgan	Tiffany	not provided	N/A	Web-based Comments	30589	24
Morgan	Yuki	snowshinobi.11@gmail.com	N/A	Web-based comments	1132	N/A
Morgan Vogt	Lucy	not provided	N/A	Web-based Comments	21957	24
Morgan-Hickey	Diana	not provided	N/A	Web-based Comments	49002	34
Morgan-Roth	Marie	not provided	N/A	Web-based Comments	54083	34
Morganstern	Stephen	not provided	N/A	Web-based Comments	29320	24
Morgenstern	Dorothea	not provided	N/A	Web-based Comments	13247	24
Morgenstern	Jack	not provided	N/A	Web-based Comments	16038	24
Morgenstern	M.L.	not provided	N/A	Web-based Comments	22223	24
Morgenthaler	Jeffery	not provided	N/A	Web-based Comments	17064	24
Moriarty	John	not provided	N/A	Web-based Comments	18109	24
Moriarty	Myles	not provided	N/A	Web-based Comments	24707	24
Moriarty	Theodora	not provided	N/A	Web-based Comments	56420	34
Morin	Carla	not provided	N/A	Web-based Comments	9829	24
Morin	Florian	morinflorian@gmail.com	N/A	Web-based comments	116	1
Morin	Julie	not provided	N/A	Web-based Comments	18871	24
Morita	Kiva	not provided	N/A	Web-based Comments	20294	24
Moritz	Jules	not provided	N/A	Web-based Comments	18737	24
Mork	Kari	not provided	N/A	Web-based Comments	19271	24
Mork	Stuart	not provided	N/A	Web-based comments	4418	8
Morken	Sigrun	not provided	N/A	Web-based Comments	28995	24
Morley	Dennis	not provided	N/A	Web-based Comments	12696	24
Morley	Julaine	not provided	N/A	Web-based Comments	18733	24
Morningstar	Linda	not provided	N/A	Web-based Comments	21363	24
Morningstar	Samuel	not provided	N/A	Web-based Comments	45032	34
Moro	Robin	not provided	N/A	Web-based Comments	27503	24
Moroney	Becky	not provided	N/A	Web-based Comments	56066	34
moroney	becky	not provided	N/A	Web-based Comments	8915	24
Morphew	Karol	not provided	N/A	Web-based Comments	50318	34
Morr	Lynell	not provided	N/A	Web-based Comments	53069, 53070	34
Morr	Rachel	not provided	N/A	Web-based Comments	44669	34
Morr	Rachel	not provided	N/A	Web-based Comments	26537	24
Morrell	Gary	not provided	N/A	Web-based Comments	14785	24
Morrell	Lori	not provided	N/A	Web-based Comments	21797	24
Morrell	Mrs	not provided	N/A	Web-based comments	57703	35
MORRELL	STEVE	not provided	N/A	Web-based Comments	29388	24
Morrell	Vanessa	not provided	N/A	Web-based Comments	31068	24
Morringello	Gerri	not provided	N/A	Web-based Comments	14995	24
Morris	Alexis	not provided	N/A	Web-based Comments	48053	34
Morris	Catherine	not provided	N/A	Web-based comments	3216	N/A
Morris	Catherine	not provided	N/A	Web-based Comments	51401	34
Morris	Cathy	not provided	N/A	Web-based Comments	10381	24
Morris	Chrys	not provided	N/A	Web-based Comments	11048	24
Morris	Claude	not provided	N/A	Web-based Comments	44738	34
Morris	Darlene	not provided	N/A	Web-based Comments	50577	34
Morris	Dena	not provided	N/A	Web-based Comments	12616	24
Morris	Eleanor	not provided	N/A	Web-based Comments	13636	24
Morris	Florence	not provided	N/A	Web-based Comments	47470	34
morris	gary	not provided	N/A	Web-based Comments	14786	24
Morris	Jane	not provided	N/A	Web-based Comments	49686	34
Morris	Jean	not provided	N/A	Web-based Comments	16869	24
Morris	Jim	jim.morris@wmfdp.com	N/A	Web-based comments	5468	N/A
Morris	John	not provided	N/A	Web-based Comments	18110	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Morris	Julie	not provided	N/A	Web-based Comments	18872	24
Morris	Keith	not provided	N/A	Web-based Comments	19882	24
Morris	Kelley	not provided	N/A	Web-based comments	57612	35
Morris	Kirstin	not provided	N/A	Web-based Comments	20282	24
Morris	Lauren	not provided	N/A	Web-based comments	57611	35
Morris	Lori	not provided	N/A	Web-based Comments	21798	24
Morris	Lucretia	not provided	N/A	Web-based Comments	21950	24
Morris	Margaret	not provided	N/A	Web-based Comments	22483	24
Morris	Mary	not provided	N/A	Web-based Comments	23369	24
Morris	Mary	not provided	N/A	Web-based Comments	23370	24
Morris	Michele	not provided	N/A	Web-based Comments	24297	24
Morris	Mike	not provided	N/A	Web-based Comments	24475	24
Morris	Patricia	not provided	N/A	Web-based Comments	50412	34
Morris	Patty	not provided	N/A	Web-based Comments	45520	34
Morris	Patty	not provided	N/A	Web-based Comments	25961	24
MORRIS	PEGGY	not provided	N/A	Web-based Comments	48181	34
Morris	Penny	not provided	N/A	Web-based Comments	26211	24
MORRIS	PETER	not provided	N/A	Web-based Comments	46694	34
Morris	Rachel	rachel@betterworldgrantwriters.com	N/A	Web-based comments	32158	N/A
Morris	Rosemarie	not provided	N/A	Web-based Comments	27752	24
Morris	Sharon	not provided	N/A	Web-based Comments	50477, 50478	34
Morris	Sharon	not provided	N/A	Web-based Comments	28691	24
Morris	Steven	not provided	N/A	Web-based Comments	51642	34
Morris	Steven	not provided	N/A	Web-based Comments	29454	24
Morris	Sue and John	not provided	N/A	Web-based Comments	29563	24
Morris	Sylvia M	not provided	N/A	Web-based Comments	30080	24
Morris	Theresa	not provided	N/A	Web-based Comments	53065	34
Morris	Victoria	not provided	N/A	Web-based Comments	31209	24
Morriseau	Will	not provided	N/A	Web-based Comments	47363, 47364	34
Morrision	Don	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4637	N/A
Morrison	Barb	not provided	N/A	Web-based Comments	52745, 52746	34
Morrison	Barb	not provided	N/A	Web-based Comments	8605	24
Morrison	Bobby	not provided	N/A	Web-based Comments	52282	34
Morrison	Cody	not provided	N/A	Web-based Comments	11239	24
Morrison	David	not provided	N/A	Web-based Comments	12093	24
Morrison	Don	not provided	N/A	Web-based Comments	58199	16
Morrison	Fred	lamontbud@juno.com	N/A	Web-based comments	3498	11
Morrison	Glenn	not provided	N/A	Web-based Comments	15133	24
Morrison	Gloria	not provided	N/A	Web-based Comments	15164	24
Morrison	Harvey	hmorrisoncm@gmail.com	N/A	Email	32266	N/A
Morrison	Heather	not provided	N/A	Web-based Comments	15526	24
Morrison	Jared	jmlcsw@gmail.com	N/A	Web-based comments	3497	11
Morrison	Julia	not provided	N/A	Web-based Comments	18768	24
Morrison	Pamela	not provided	N/A	Web-based Comments	25574	24
Morrison	Richard	not provided	N/A	Web-based Comments	27015	24
morrison	Ruth	not provided	N/A	Web-based Comments	46952	34
morrison	shelley	shelleymorrison1@gmail.com	N/A	Web-based comments	4841	N/A
Morrison	Shelli	not provided	N/A	Web-based Comments	49593	34
Morrison	Tonya	not provided	N/A	Web-based Comments	47066, 54332	34
Morrison	Tonya	not provided	N/A	Web-based Comments	30822	24
Morrison-Penland	Carrie	not provided	N/A	Web-based Comments	50747	34
Morrissey	Ashley	not provided	N/A	Web-based Comments	8489	24
Morrissey	Christine	not provided	N/A	Web-based Comments	44747	34
Morrissey	Dan	not provided	N/A	Web-based Comments	11664	24
Morrissey	Ed	not provided	N/A	Web-based comments	56912	35
Morrissey	Kyla	not provided	N/A	Web-based Comments	20443	24
Morrow	Ben	not provided	N/A	Web-based Comments	8943	24
Morrow	Cheryl	not provided	N/A	Web-based comments	57276	35
Morrow	MaryAnne	not provided	N/A	Web-based Comments	45479	34
Morrow	MaryAnne	not provided	N/A	Web-based Comments	23572	24
Morrow	Robert	not provided	N/A	Web-based Comments	27336	24
Morrow	Teresa	not provided	N/A	Web-based Comments	30287	24
Morrow	Terissa	not provided	N/A	Web-based Comments	30319	24
Morrow	Vicki	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58748	13
Morsch	Peggy	not provided	N/A	Web-based Comments	26169	24
Morscheck	Fred	fred.morscheck@mcgregor.com	N/A	Web-based comments	2820	N/A
Morscheck	Fred	fred.morscheck@mcgregor.com	N/A	Hand-delivered or oral testimony (personally delivered)	5536	N/A
Morse	Allison	not provided	N/A	Web-based Comments	7469	24
Morse	Cynthia	not provided	N/A	Web-based Comments	11532	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Morse	Doug	not provided	N/A	Web-based Comments	13305	24
Morse	Gregory	not provided	N/A	Web-based Comments	15288	24
Morse	Jane	not provided	N/A	Web-based Comments	52056	34
Morse	John	jdmorse@mbavancouverlaw.com	N/A	Web-based comments	57487, 251	35, 1
Morse	Mary	not provided	N/A	Web-based comments	57312	35
Morse	Susan	not provided	N/A	Web-based comments	57701	35
Morsey	Paul	not provided	N/A	Web-based Comments	26026	24
Mortensen	John	not provided	N/A	Web-based Comments	18111	24
Mortensen	Kristi	not provided	N/A	Web-based Comments	20357	24
Mortensen	Leon	not provided	N/A	Web-based comments	3807	N/A
Mortensen	Lisa	dmmlem@gmail.com	N/A	Web-based comments	2815	N/A
Morteo	Angelita	not provided	N/A	Web-based Comments	53992	34
Morteo	Angelita	not provided	N/A	Web-based Comments	7947	24
Mortimer	Courtney	not provided	N/A	Web-based comments	56707	35
Mortimer	Rob	not provided	N/A	Web-based Comments	27181	24
Mortimer	Scott	not provided	N/A	Web-based Comments	28488	24
Mortinson	Shelley	not provided	N/A	Web-based Comments	28837	24
Morton	Carrie	not provided	N/A	Web-based Comments	58283	16
Morton	Julie	not provided	N/A	Web-based Comments	44320	34
Morton	Rhonda	not provided	N/A	Web-based Comments	26902	24
morton	robin	not provided	N/A	Web-based Comments	55991	34
Morvan	Juliette	morvan.juu@gmail.com	N/A	Web-based comments	293	1
morzenti	eugenia	not provided	N/A	Web-based Comments	14303	24
Moschopoulos	Charity	not provided	N/A	Web-based Comments	49166	34
Moschopoulos	Charity	not provided	N/A	Web-based Comments	10466	24
Mosconi	Carmen	not provided	N/A	Web-based Comments	9873	24
Moscowitz	Joyce	not provided	N/A	Web-based Comments	18500	24
Moseley	Kathy	not provided	N/A	Web-based Comments	19735	24
Moseley	Lauren	not provided	N/A	Web-based Comments	20787	24
Moseman	Christina	not provided	N/A	Web-based Comments	10867	24
Moseman	Elizabeth	not provided	N/A	Web-based Comments	13816	24
Moser	Eve	not provided	N/A	Web-based Comments	14339	24
Moser	Janet	not provided	N/A	Web-based Comments	55092	34
Moser	Janet	not provided	N/A	Web-based Comments	16625	24
Moser	Paul	not provided	N/A	Web-based Comments	26027	24
Moser	Rhonda	not provided	N/A	Web-based comments	57234	35
Moser	Rich	not provided	N/A	Web-based Comments	46429, 46430	34
Moses	C.	clmoses46@yahoo.com	N/A	Web-based comments	3384	13
moses	Sally	not provided	N/A	Web-based Comments	54362	34
Moses	Susan	not provided	N/A	Web-based Comments	29782	24
Mosgeller	Barbara	not provided	N/A	Web-based Comments	8742	24
Mosher	Kathryn	not provided	N/A	Web-based Comments	52832	34
Mosher	Kathryn	not provided	N/A	Web-based Comments	19654	24
Mosher	Melissa	not provided	N/A	Web-based Comments	23909	24
Moskal	Maryanna	not provided	N/A	Web-based Comments	23568	24
Moskal	Matt	Moskalmatt@gmail.com	N/A	Web-based comments	2966	N/A
Moskowitz	David	theconservationangler@gmail.com	N/A	Web-based comments	6931*	N/A
Mosley	Dwayne	mosley_40@hotmail.com	N/A	Web-based comments	3095	N/A
Mosley	Dwayne	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32350	N/A
Moss	Anita	not provided	N/A	Web-based Comments	51282	34
Moss	Anthony	not provided	N/A	Web-based Comments	8341	24
Moss	Carol	not provided	N/A	Web-based Comments	45358	34
Moss	Eric	not provided	N/A	Web-based Comments	14125	24
Moss	Gail	not provided	N/A	Web-based Comments	14702	24
Moss	Marci	not provided	N/A	Web-based Comments	55821, 55822	34
Moss	Maureen	not provided	N/A	Web-based Comments	23705	24
Moss	Paul	not provided	N/A	Web-based Comments	47942, 48078	34
Moss	Paul	not provided	N/A	Web-based Comments	26028	24
Moss	Sarah Ann	not provided	N/A	Web-based Comments	28424	24
Moss	Sharon	not provided	N/A	Web-based Comments	51170, 51171	34
Moss	Steven	not provided	N/A	Web-based Comments	29455	24
Mossaides	Paula	not provided	N/A	Web-based Comments	26093	24
Mossar	Dena	not provided	N/A	Web-based Comments	12617	24
Mossen	Jeff	not provided	N/A	Web-based Comments	17047	24
Moss-Racusin	Lauren	not provided	N/A	Web-based Comments	52012, 52013	34
Moss-Racusin	Lauren	not provided	N/A	Web-based Comments	20788	24
Moss-Sprague	Mary	not provided	N/A	Web-based Comments	23371	24
Mosston	Leora	not provided	N/A	Web-based Comments	21021	24
MOSTEK	SANDRA	not provided	N/A	Web-based Comments	28194	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Mosteller	Anne	not provided	N/A	Web-based comments	57539	35
Mostoller	George	not provided	N/A	Web-based Comments	14903	24
Mostoller	John	jmostoller@paynewest.com	N/A	Web-based comments	2730	N/A
Mostov	Elizabeth	not provided	N/A	Web-based Comments	53245	34
Mostovenko	Mariya	marijams97@icloud.com	N/A	Web-based comments	1133	2
Moszyk	John	not provided	N/A	Web-based Comments	55230	34
Mothershead	E	not provided	N/A	Web-based Comments	13413	24
Mothley	Drucilla	not provided	N/A	Web-based Comments	13380	24
Moths	Pam	not provided	N/A	Web-based Comments	25503	24
Motley	Ruth	not provided	N/A	Web-based Comments	46065	34
Motsinger	Kathleen	not provided	N/A	Web-based Comments	46793	34
Motsinger	Kathy	not provided	N/A	Web-based Comments	19736	24
Mott	Corrie	not provided	N/A	Web-based Comments	58509	34
Mott	Jessica	jmott427@gmail.com	N/A	Web-based comments	850	N/A
Mott	Kim	not provided	N/A	Web-based Comments	49791	34
Mott	Lisa	not provided	N/A	Web-based Comments	21607	24
Mott	Tracy	not provided	N/A	Web-based Comments	51702	34
Motta	Denise	not provided	N/A	Web-based Comments	44592	34
Motta	Denise	not provided	N/A	Web-based Comments	12651	24
Motta	Jessica	not provided	N/A	Web-based Comments	17449	24
Motta	Michael	not provided	N/A	Web-based Comments	47834	34
Motta	Sharesa	not provided	N/A	Web-based Comments	28610	24
Mottl	Robb	not provided	N/A	Web-based Comments	58042	16
Mottola	Britt	not provided	N/A	Web-based Comments	9565	24
Motz	Ashley	not provided	N/A	Web-based Comments	54272	34
Moul	Jillian	not provided	N/A	Web-based Comments	17559	24
Moulard	Mathilde	moulardmathilde@gmail.com	N/A	Web-based comments	1553	N/A
Moulesong	Jon	not provided	N/A	Web-based Comments	53553, 53554	34
Moulthrop	Glenna	gmoulthrop@charter.net	N/A	Web-based comments	2170	N/A
Moulton	Erin	not provided	N/A	Web-based Comments	14229	24
MOUND	Wilf	not provided	N/A	Web-based Comments	31482	24
Mouneimne	Amie	amie_mouneimne@yahoo.com	N/A	Web-based comments	31959	1
Mounier	Jacques	not provided	N/A	Web-based Comments	16144	24
MOUNT	ELIZABETH	not provided	N/A	Web-based Comments	13817	24
Mounteer	Renee	not provided	N/A	Web-based Comments	26850	24
Mountford	Mark	not provided	N/A	Web-based Comments	22968	24
Mountjoy	Bruce	not provided	N/A	Web-based Comments	9619	24
Mountjoy	Jan	not provided	N/A	Web-based Comments	16413	24
Mountjoy	Jan	not provided	N/A	Web-based Comments	16414	24
Mourar	Steve	not provided	N/A	Web-based Comments	29389	24
Moureilles	Tony	not provided	N/A	Web-based Comments	30815	24
Mouser	Shirley	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	56679	N/A
Moussas	Cynthua	not provided	N/A	Web-based Comments	11568	24
Moutier	Elena	not provided	N/A	Web-based Comments	13652	24
Mouzourakis	Nicholas	not provided	N/A	Web-based Comments	25172	24
Movitch	Dana	not provided	N/A	Web-based Comments	11699	24
Movius	Desly	not provided	N/A	Web-based Comments	12731	24
Movsesyan	Greg	not provided	N/A	Web-based Comments	15238	24
Mowen	Kelly	not provided	N/A	Web-based Comments	19935	24
Mower	Amy	not provided	N/A	Web-based Comments	7642	24
Moy	Albert	not provided	N/A	Web-based Comments	56526	34
moy	fern	not provided	N/A	Web-based Comments	14424	24
Moy	Gene	not provided	N/A	Web-based Comments	47675	34
Moy	John	not provided	N/A	Web-based Comments	18112	24
Moy	Kristine	not provided	N/A	Web-based Comments	52186	34
Moy	Kristine	not provided	N/A	Web-based Comments	20418	24
Moy	Michael	not provided	N/A	Web-based Comments	24179	24
Moya	Roxana	not provided	N/A	Web-based Comments	27797	24
Moycik	Mary	not provided	N/A	Web-based Comments	23372	24
Moyer	Brian	not provided	N/A	Web-based Comments	9496	24
Moyer	Bruce	not provided	N/A	Web-based Comments	9620	24
Moyer	Ellen	not provided	N/A	Web-based Comments	45761, 45762	34
Moyer	Ellen	not provided	N/A	Web-based Comments	13932	24
Moyer	Ken	not provided	N/A	Web-based Comments	19985	24
Moyer	Phoebe	not provided	N/A	Web-based Comments	26375	24
Moyer	Susan	not provided	N/A	Web-based Comments	29783	24
Moyle	Eric	not provided	N/A	Web-based Comments	46699, 46700	34
Moyle	Rebecca	rebeccamoyle@gmail.com	N/A	Web-based comments	3612	N/A
Moysiuk	Nancy	not provided	N/A	Web-based Comments	54388	34
MOZDEN	SHARON	not provided	N/A	Web-based Comments	28692	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
MPH	Cathie Dunal MD	not provided	N/A	Web-based Comments	53365	34
Mracek	Pavel	not provided	N/A	Web-based Comments	26129	24
Mraz	Tim	mertzes@gmail.com	N/A	Web-based comments	4282	N/A
M'rite	Camille	scam-kast@hotmail.fr	N/A	Web-based comments	487	1
Mroczek	Janet	not provided	N/A	Web-based Comments	16626	24
Mrozienski	Cheryl	not provided	N/A	Web-based Comments	10667	24
Mu	George	not provided	N/A	Web-based Comments	14904	24
Mucino	Alberto	not provided	N/A	Web-based Comments	7216	24
Muck	Manuela	not provided	N/A	Web-based Comments	22314	24
Muckle	Stephen	not provided	N/A	Web-based Comments	50447	34
Mudd	John	not provided	N/A	Web-based Comments	18113	24
Mudrick	Stephen	not provided	N/A	Web-based Comments	29321	24
Mueller	Christine	not provided	N/A	Web-based Comments	10964	24
Mueller	Davi	not provided	N/A	Web-based Comments	47622	34
Mueller	Frances	not provided	N/A	Web-based Comments	14488	24
Mueller	Johanna	not provided	N/A	Web-based Comments	17945	24
Mueller	Judith	not provided	N/A	Web-based Comments	18630	24
Mueller	Karsten	not provided	N/A	Web-based Comments	48434	34
Mueller	Karsten	not provided	N/A	Web-based Comments	19334	24
Mueller	Lynda	not provided	N/A	Web-based Comments	22027	24
Mueller	Marilyn	not provided	N/A	Web-based Comments	53606	34
Mueller	Sigrun	not provided	N/A	Web-based Comments	28996	24
Mueller	Tara	not provided	N/A	Web-based Comments	30205	24
Mueller	Teresa	not provided	N/A	Web-based Comments	30288	24
Mueller-Crispin	Deanna	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4749	N/A
Mufdi	George	not provided	N/A	Web-based Comments	14905	24
Muggiati	Anna	not provided	N/A	Web-based Comments	8145	24
Mugglestone	Lindsay	not provided	N/A	Web-based Comments	48816	34
Mugglestone	Lindsay	not provided	N/A	Web-based Comments	21483	24
Muhar	jana Mariposa	not provided	N/A	Web-based Comments	16455	24
Muhl	Richard	not provided	N/A	Web-based Comments	27016	24
Muhleck	Laura	not provided	N/A	Web-based Comments	55525	34
Muhr	Daniel	not provided	N/A	Web-based Comments	11758	24
Muhs	Rocio	not provided	N/A	Web-based Comments	58072, 44989	16, 34
Muhs	Rocio	not provided	N/A	Web-based Comments	27566	24
Muir	Neihlee	n.muir@ymail.com	N/A	Web-based comments	3355	13
Muise	Gabriella Erdelyi	not provided	N/A	Web-based Comments	56140	34
mujica	bernardo alayza	not provided	N/A	Web-based Comments	54462, 54463, 54464	34
Mukai	Marianne	not provided	N/A	Web-based Comments	22686	24
Mukherjee	Joy	not provided	N/A	Web-based Comments	56522, 56523	34
Mulato	Jill	not provided	N/A	Web-based Comments	17529	24
Mulberry	Prem	not provided	N/A	Web-based Comments	26435	24
Mulcare	James	not provided	N/A	Web-based Comments	16270	24
Mulcare	James	xsecretsx@cableone.net	N/A	Web-based Comments	58013, 48368, 48427	16, 34
Mulcare	James	xsecretsx@cableone.net	N/A	Web-based comments	2306, 57496	35
Mulder	Joel	not provided	N/A	Web-based Comments	54183	34
Mulder	Joni	not provided	N/A	Web-based Comments	44883, 44884	34
Mulhall	Kathleen	not provided	N/A	Web-based Comments	19579	24
Mulhall	Kelly	not provided	N/A	Web-based Comments	19936	24
Mulheron	Gina	not provided	N/A	Web-based Comments	15059	24
Mulholland	Diane	not provided	N/A	Web-based Comments	12884	24
Mulka	Linda	not provided	N/A	Web-based Comments	21364	24
mullarkey	t	not provided	N/A	Web-based Comments	30096	24
Mullee	Bill	bmullee@gmail.com	N/A	Web-based comments	1539	1
Mullee	Christina	chalieaj@gmail.com	N/A	Web-based comments	229	1
Mullee	Daryl	mulleedaryl@yahoo.com	N/A	Web-based comments	1144	N/A
Mullein	Tui	not provided	N/A	Web-based Comments	49921	34
Mullein	Tui	not provided	N/A	Web-based Comments	30951	24
Mullen	Andrea	not provided	N/A	Web-based Comments	7757	24
Mullen	Edna	not provided	N/A	Web-based Comments	13479	24
Mullen	Timothy	not provided	N/A	Web-based Comments	49551	34
Mullen	Timothy	not provided	N/A	Web-based Comments	30656	24
Mullens	Martha	not provided	N/A	Web-based Comments	23115	24
Muller	Annie	annie4208m@gmail.com	N/A	Web-based comments	5695, 6137	N/A
Muller	Frank	curdog1@charter.net	N/A	Web-based comments	3605	N/A
Muller	Linda	not provided	N/A	Web-based Comments	51988	34
Muller	Linda	not provided	N/A	Web-based Comments	21365	24
Muller	Paige	muller.paige1310@gmail.com	N/A	Web-based comments	31974	1
Muller	Steve	not provided	N/A	Web-based Comments	29390	24
Muller-Thym	Alessandra	not provided	N/A	Web-based Comments	7237	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Mullett	Laurie	not provided	N/A	Web-based Comments	20847	24
Mullie	Christine	not provided	N/A	Web-based Comments	45764	34
Mulligan	Hilary	not provided	N/A	Web-based Comments	15702	24
Mulligan	Jl	not provided	N/A	Web-based Comments	48594, 48595	34
Mulligan	JL	not provided	N/A	Web-based Comments	17633	24
Mulligan	Michael	not provided	N/A	Web-based Comments	24180	24
mullin	jennifer	not provided	N/A	Web-based Comments	17229	24
Mullin	Tom	not provided	N/A	Web-based Comments	30761	24
Mullineaux	Andrew	not provided	N/A	Web-based Comments	7833	24
Mullineaux	Dixie	not provided	N/A	Web-based Comments	12979	24
Mullinger	Catheryn	not provided	N/A	Web-based Comments	10335	24
Mullins	Denise	not provided	N/A	Web-based Comments	52131	34
Mullins	Glenn	not provided	N/A	Web-based Comments	51581	34
Mullins	James	not provided	N/A	Web-based Comments	16271	24
Mullins	Sarah	not provided	N/A	Web-based Comments	51186	34
Mullins	Sarah	not provided	N/A	Web-based Comments	28382	24
Mullins	Susan	not provided	N/A	Web-based Comments	29784	24
Mullins	V	not provided	N/A	Web-based Comments	55135	34
Mull-Scotty	Jennie	not provided	N/A	Web-based Comments	52019	34
Mulqueen	Pauline	not provided	N/A	Web-based Comments	26121	24
Mulrey	Nancy	not provided	N/A	Web-based comments	57504	35
Mulrey	Nancy	not provided	N/A	Web-based Comments	24936	24
Mulroy	Rhonda	not provided	N/A	Web-based Comments	26903	24
Mulvey	Donna	not provided	N/A	Web-based Comments	13160	24
Mulvey	Trisha	not provided	N/A	Web-based Comments	30926	24
Mulvihill	Sharon	not provided	N/A	Web-based Comments	28693	24
Mulvihill-Decke	Mary Ann	not provided	N/A	Web-based Comments	23499	24
Mumford	Sheilah	not provided	N/A	Web-based Comments	28817	24
Mumley	Anita	not provided	N/A	Web-based Comments	7979	24
Mumm	Jerry	mummj@byui.edu	N/A	Web-based comments	32157	11
Mumm Felnagle	Debby	not provided	N/A	Web-based Comments	12357	24
Mummery	Donna	not provided	N/A	Web-based Comments	13161	24
Mumola	Dianne	not provided	N/A	Web-based Comments	12945	24
Munchausen	Rebecca	not provided	N/A	Web-based Comments	26755	24
Munck	Howard	not provided	N/A	Web-based Comments	15803	24
Mundal	Sarah	not provided	N/A	Web-based Comments	28383	24
Munderback	Lisa	not provided	N/A	Web-based Comments	21608	24
Mundy	Jaye	not provided	N/A	Web-based Comments	16823	24
Mundy	Ken	not provided	N/A	Web-based Comments	49447	34
Mundy	Ken	not provided	N/A	Web-based Comments	19986	24
Mungai	Joseph	not provided	N/A	Web-based Comments	18381	24
Mungia	Bailey	not provided	N/A	Web-based Comments	8591	24
Munhall	Michael	not provided	N/A	Web-based Comments	24181	24
Munìfoz	Ana Maria	not provided	N/A	Web-based Comments	45292	34
Munitz	Anne	not provided	N/A	Web-based Comments	8226	24
Munn	Erica	not provided	N/A	Web-based Comments	46577	34
Munn	Erica	not provided	N/A	Web-based Comments	14165	24
Munn	Jill	not provided	N/A	Web-based Comments	17530	24
Munn	Maureen	not provided	N/A	Web-based Comments	23706	24
Munn	Ryan	ryan@rmunnfarms.com	N/A	Web-based comments	2745	N/A
Munn	Wanda	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58727	N/A
Munnelly	Amy	not provided	N/A	Web-based Comments	46798, 46799	34
Munno	John	not provided	N/A	Web-based Comments	18114	24
Munno	Nicolas	not provided	N/A	Web-based Comments	25219	24
Munoz	Julie	not provided	N/A	Web-based Comments	48446	34
Munoz-Cowan	Peter	not provided	N/A	Web-based Comments	26271	24
munro	elva	not provided	N/A	Web-based Comments	52570	34
Munro	Michele	not provided	N/A	Web-based Comments	24298	24
Muns	Emily	not provided	N/A	Web-based Comments	14030	24
Munsey	PEggy	not provided	N/A	Web-based Comments	49534	34
Munson	Sheila	not provided	N/A	Web-based Comments	28797	24
Mur	Te	not provided	N/A	Web-based Comments	50751	34
Muradian	Becky	not provided	N/A	Web-based Comments	8916	24
Muramatsu	Amy Tamura	not provided	N/A	Web-based Comments	7685	24
Muraro	Deb	not provided	N/A	Web-based Comments	12299	24
Muratalla	Eric	munster83@hotmail.com	N/A	Web-based comments	6359	N/A
Muratore	Anthony	not provided	N/A	Web-based Comments	53241	34
murawski	marie	not provided	N/A	Web-based Comments	22721	24
Murch	Annette	not provided	N/A	Web-based Comments	8284	24
Murchison	Virginia	not provided	N/A	Web-based Comments	45133	34

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Murdoch	Denise	not provided	N/A	Web-based Comments	12652	24
Murdoch	John	murdjohn2@yahoo.com	N/A	Web-based comments	3870	N/A
Murdock	Cher	not provided	N/A	Web-based Comments	10596	24
Murdock	Katherine	not provided	N/A	Web-based Comments	19468	24
Murdock	Lauren	not provided	N/A	Web-based Comments	48991	34
Murdock	Lauren	not provided	N/A	Web-based Comments	20789	24
Murduck	David	not provided	N/A	Web-based Comments	12094	24
Muren	Zara	not provided	N/A	Web-based Comments	31722	24
Murff	Steven	not provided	N/A	Web-based Comments	29456	24
Murgo	Mary	not provided	N/A	Web-based Comments	23373	24
Murguia	Natasha	not provided	N/A	Web-based Comments	25087	24
Murik	Sam	not provided	N/A	Web-based Comments	28063	24
Murillo	Alejandra	not provided	N/A	Web-based Comments	7225	24
Muritu	Barbara	not provided	N/A	Web-based Comments	8743	24
Murken	Kendall	not provided	N/A	Web-based Comments	19998	24
Murphey	Kelly	not provided	N/A	Web-based Comments	19937	24
Murphree	Gaen	not provided	N/A	Web-based Comments	14661	24
Murphy	Amanda	not provided	N/A	Web-based Comments	7548	24
Murphy	Amber	not provided	N/A	Web-based Comments	48741	34
Murphy	Amber	not provided	N/A	Web-based Comments	7570	24
Murphy	Ambur	not provided	N/A	Web-based Comments	7574	24
Murphy	Bonnie	not provided	N/A	Web-based Comments	48674	34
Murphy	Brigid	not provided	N/A	Web-based Comments	9551	24
Murphy	Cassie A.	not provided	N/A	Web-based Comments	10245	24
Murphy	Cindy	not provided	N/A	Web-based Comments	49663, 51791	34
Murphy	Cynthia	not provided	N/A	Web-based Comments	11533	24
Murphy	Dacia	not provided	N/A	Web-based Comments	44774, 44775	34
Murphy	Dacia	not provided	N/A	Web-based Comments	11608	24
Murphy	Dan	not provided	N/A	Web-based Comments	58130	16
Murphy	Dana	not provided	N/A	Web-based Comments	50965	34
Murphy	Desmond	not provided	N/A	Web-based Comments	12733	24
Murphy	diana	not provided	N/A	Web-based Comments	12786	24
Murphy	Elizabeth	not provided	N/A	Web-based Comments	13818	24
Murphy	Ellen	not provided	N/A	Web-based Comments	55993, 55994	34
Murphy	Ernest	not provided	N/A	Web-based Comments	14248	24
murphy	harry	Hamurphy3@gmail.com	N/A	Web-based comments	4844	N/A
Murphy	James	not provided	N/A	Web-based Comments	16272	24
Murphy	James	not provided	N/A	Web-based Comments	57952	16
Murphy	Janelle	not provided	N/A	Web-based Comments	50063	34
Murphy	Jeanie	murphyjeanie@hotmail.com	N/A	Web-based comments	2426*	N/A
Murphy	Jeannine	not provided	N/A	Web-based Comments	50183	34
Murphy	Jim	not provided	N/A	Web-based Comments	44900	34
Murphy	John	jmurphyedh@comcast.net	N/A	Web-based comments	3512	8
Murphy	John	ljmurphy064@gmail.com	N/A	US Mail or commercial carrier (UPS, FedEx)	32371	N/A
Murphy	Kat	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	5552	N/A
Murphy	Kathleen	katfishsalmonco@gmail.com	N/A	Web-based comments	2908*	N/A
Murphy	Kathleen M	not provided	N/A	Web-based Comments	48908	34
Murphy	Keith	not provided	N/A	Web-based Comments	19883	24
Murphy	Kerri	not provided	N/A	Web-based Comments	20057	24
Murphy	Linda	not provided	N/A	Web-based Comments	56051	34
Murphy	Linda	not provided	N/A	Web-based Comments	21366	24
Murphy	Liz	not provided	N/A	Web-based Comments	21691	24
Murphy	Lucinda	not provided	N/A	Web-based Comments	48305	34
Murphy	Lucinda	not provided	N/A	Web-based Comments	21948	24
Murphy	Lynn	not provided	N/A	Web-based Comments	22076	24
Murphy	Margaret	not provided	N/A	Web-based Comments	22484	24
Murphy	Marge	not provided	N/A	Web-based Comments	22532	24
Murphy	Mary	not provided	N/A	Web-based Comments	23374	24
Murphy	Maryann	not provided	N/A	Web-based Comments	52126	34
Murphy	Melanie	not provided	N/A	Web-based Comments	23841	24
Murphy	Monica	not provided	N/A	Web-based Comments	52358	34
Murphy	Murphy	not provided	N/A	Web-based Comments	24702	24
Murphy	Natalie	not provided	N/A	Web-based Comments	25073	24
Murphy	Nathan	nate.murphy34@gmail.com	N/A	Web-based comments	5919	N/A
Murphy	Patricia	not provided	N/A	Web-based Comments	48009	34
Murphy	Patricia	not provided	N/A	Web-based Comments	25812	24
Murphy	Robert	not provided	N/A	Web-based Comments	27337	24
Murphy	Samantha	not provided	N/A	Web-based Comments	28080	24
Murphy	Sharon	not provided	N/A	Web-based Comments	28694	24
Murphy	Sherrie	not provided	N/A	Web-based Comments	28878	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Murphy	Stuart	not provided	N/A	Web-based Comments	29493	24
Murphy	Sue	not provided	N/A	Web-based Comments	29539	24
Murphy	Susan	not provided	N/A	Web-based Comments	29785	24
Murphy	Tim	not provided	N/A	Web-based Comments	30621	24
Murphy Ouellette	Jean	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	5554	N/A
Murphy secrist	Heather	not provided	N/A	Web-based Comments	15527	24
Murphy-Pettee	Cookie	not provided	N/A	Web-based Comments	11357	24
Murr	Kerstin	not provided	N/A	Web-based Comments	44511	34
Murray	Andrea	not provided	N/A	Web-based Comments	7758	24
murray	ben	not provided	N/A	Web-based Comments	8944	24
Murray	Cathren	not provided	N/A	Web-based Comments	10345	24
Murray	Chris	chrismurray92@gmail.com	N/A	Web-based comments	6347	N/A
Murray	Craig	not provided	N/A	Web-based Comments	53167, 53168	34
Murray	Craig	not provided	N/A	Web-based Comments	11423	24
Murray	Cristy	doglady8@gmail.com	N/A	Web-based Comments	45109	34
Murray	Cristy	doglady8@gmail.com	N/A	Web-based comments	3607	17
Murray	Cristy	not provided	N/A	Web-based Comments	11452	24
murray	dan	not provided	N/A	Web-based Comments	11665	24
Murray	Dara	not provided	N/A	Web-based Comments	11847	24
Murray	Frank	not provided	N/A	Web-based Comments	14542	24
Murray	Gina	not provided	N/A	Web-based Comments	15060	24
Murray	Jennifer	not provided	N/A	Web-based Comments	50162, 52250	34
Murray	Jerry	not provided	N/A	Web-based Comments	17365	24
Murray	Joan	not provided	N/A	Web-based Comments	17716	24
Murray	Kenneth	not provided	N/A	Web-based Comments	20022	24
Murray	Kristen	not provided	N/A	Web-based Comments	20347	24
Murray	Linda	not provided	N/A	Web-based Comments	21367	24
Murray	Lynn and Vince	not provided	N/A	Web-based Comments	22110	24
Murray	M.	not provided	N/A	Web-based Comments	22210	24
Murray	Marilee	not provided	N/A	Web-based Comments	22757	24
Murray	Mary	not provided	N/A	Web-based Comments	51117	34
Murray	Nancy	not provided	N/A	Web-based Comments	24937	24
murray	priscilla	not provided	N/A	Web-based Comments	26450	24
Murray	Randolph	not provided	N/A	Web-based Comments	26629	24
Murray	Suzanne	not provided	N/A	Web-based Comments	30010	24
Murrill	Sara	not provided	N/A	Web-based Comments	28300	24
Murrmann	Anita	not provided	N/A	Web-based Comments	7980	24
Murrock	Eric	not provided	N/A	Web-based Comments	49516	34
murrow	stacey	not provided	N/A	Web-based Comments	29120	24
Murstig	Rob	langsethnw@msn.com	N/A	Web-based comments	4824	N/A
Musante	Marie	not provided	N/A	Web-based Comments	22722	24
Muscat	Cynthia	not provided	N/A	Web-based Comments	11534	24
Muscato	Michael	not provided	N/A	Web-based Comments	55127	34
Muse	Vicki	not provided	N/A	Web-based Comments	31143	24
Musgrove	Jeanne	not provided	N/A	Web-based Comments	16960	24
Musick	Pat	not provided	N/A	Web-based Comments	25666	24
Muskett-Geake	Alexia	not provided	N/A	Web-based Comments	7302	24
Musleve	Benita	not provided	N/A	Web-based Comments	8957	24
Must Be Given To Gops	Severe Penalties For Trump Defender$	not provided	N/A	Web-based Comments	28553	24
Mustaine	Bev	not provided	N/A	Web-based Comments	52683	34
Musto	Michelle	mamusto26@gmail.com	N/A	Web-based comments	645	N/A
Mustoe	Tony	not provided	N/A	Web-based Comments	30816	24
muszynski	gloria	not provided	N/A	Web-based Comments	54962	34
muszynski	gloria	not provided	N/A	Web-based Comments	15165	24
mutter	maria	not provided	N/A	Web-based Comments	47935, 47936, 47937	34
Muzecka	Kasia	not provided	N/A	Web-based Comments	19343	24
Muzychka	Rebecca	not provided	N/A	Web-based Comments	51908	34
Muzychka	Rebecca	not provided	N/A	Web-based Comments	26756	24
muzzell	marina	not provided	N/A	Web-based Comments	22835	24
Muzzy	Coralie	corktjm@comcast.net	N/A	Web-based comments	387	3
Myers	Allen	not provided	N/A	Web-based Comments	49845, 49846	34
Myers	Carol	not provided	N/A	Web-based Comments	9992	24
Myers	Charlotte	not provided	N/A	Web-based Comments	10562	24
Myers	Dawn	not provided	N/A	Web-based Comments	51209	34
Myers	Elena	not provided	N/A	Web-based Comments	13653	24
Myers	Eliza	not provided	N/A	Web-based Comments	44550	34
Myers	Emma	eemyers9@gmail.com	N/A	Web-based comments	32247	1
Myers	Ford	not provided	N/A	Web-based Comments	14455	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Myers	Janice L	not provided	N/A	Web-based Comments	44278	34
Myers	Janice L	not provided	N/A	Web-based Comments	16712	24
Myers	Jason	jmyers@agrinw.com	N/A	Web-based comments	1851	N/A
Myers	Jeanette	not provided	N/A	Web-based Comments	16918	24
myers	Jerry	jmyersicr@gmail.com	N/A	Web-based comments	6029	N/A
Myers	Joe	joe.f.m@icloud.com	N/A	Web-based comments	3313	N/A
Myers	John	not provided	N/A	Web-based Comments	18115	24
Myers	Julie	not provided	N/A	Web-based Comments	18873	24
Myers	Kathryn	kwm125@aol.com	N/A	Web-based comments	3438	N/A
Myers	Kelly	not provided	N/A	Web-based Comments	19938	24
Myers	L	not provided	N/A	Web-based Comments	20484	24
Myers	Mark	not provided	N/A	Web-based Comments	22969	24
Myers	Monica	not provided	N/A	Web-based Comments	44751	34
Myers	Monica	not provided	N/A	Web-based Comments	24637	24
Myers	Nancy	not provided	N/A	Web-based Comments	24938	24
Myers	Rhonda	not provided	N/A	Web-based Comments	26904	24
Myers	Robert	not provided	N/A	Web-based Comments	27338	24
Myers	Sarah	not provided	N/A	Web-based Comments	28384	24
Myers	Stephanie	not provided	N/A	Web-based Comments	47050	34
Myers	Terry	jntmyers@gmail.com	N/A	Web-based comments	3190	N/A
Myers	Wendi	not provided	N/A	Web-based Comments	49158	34
Myerscough	Regina	not provided	N/A	Web-based Comments	26805	24
Mygatt	Rachel	not provided	N/A	Web-based Comments	26538	24
Mykolayevych	Nadia	not provided	N/A	Web-based Comments	50098	34
Mykolayevych	Nadia	not provided	N/A	Web-based Comments	24755	24
Mylander	Gayle	not provided	N/A	Web-based Comments	14832	24
Myles	Paula	not provided	N/A	Web-based Comments	55761	34
Mylod	Charlie	not provided	N/A	Web-based Comments	10548	24
Mynar	James	not provided	N/A	Web-based Comments	16273	24
Mynko	Teresa	not provided	N/A	Web-based Comments	46708	34
Myones	Zach	not provided	N/A	Web-based Comments	52430, 52432	34
Myones	Zachary Roberts	not provided	N/A	Web-based Comments	52431, 52493, 52494	34
Myrtle	Twizted	not provided	N/A	Web-based Comments	45319	34
Myrtle	Twizted	not provided	N/A	Web-based Comments	30954	24
Myrvaagnes	Naomi	not provided	N/A	Web-based Comments	25049	24
Mysing-Gubala	Mary	not provided	N/A	Web-based Comments	23375	24
Myung	Virginia	not provided	N/A	Web-based Comments	31297	24
N	A	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	4765	N/A
n	cathy	not provided	N/A	Web-based Comments	10382	24
N	Dipali	not provided	N/A	Web-based Comments	12967	24
N	G	not provided	N/A	Web-based Comments	49636	34
N	G	not provided	N/A	Web-based Comments	14615	24
N	J	not provided	N/A	Web-based Comments	15984	24
N	M	not provided	N/A	Web-based Comments	47057	34
n	mary	not provided	N/A	Web-based Comments	46926	34
N	Michelle	not provided	N/A	Web-based Comments	53975	34
n	r	not provided	N/A	Web-based Comments	26480	24
N	Soraya	not provided	N/A	Web-based Comments	29092	24
N.	Elisabeth	not provided	N/A	Web-based Comments	52983	34
N.	Kris	prin@phoenixfi.com	N/A	Web-based comments	2179	N/A
Naaf	Walter	not provided	N/A	Web-based Comments	31359	24
Nace	Shea	not provided	N/A	Web-based Comments	49315	34
Nachazel	Jane	not provided	N/A	Web-based Comments	16520	24
Nacheman	Elinor	not provided	N/A	Web-based Comments	13667	24
Nachlinger	Sylvia	not provided	N/A	Web-based Comments	30070	24
Nacva	Courtney	not provided	N/A	Web-based comments	57138	35
Nadeau	Constance	not provided	N/A	Web-based Comments	11344	24
Nadeau	Jean	not provided	N/A	Web-based Comments	16870	24
Nadeau	Stefanie	not provided	N/A	Web-based Comments	29172	24
Nadel	Barbara	not provided	N/A	Web-based Comments	8744	24
Nadel	Barbara S.	not provided	N/A	Web-based Comments	45834	34
Nadel	Joshua	not provided	N/A	Web-based Comments	44372	34
nadel	robin	not provided	N/A	Web-based Comments	27504	24
Naderpoor	Yousuf	not provided	N/A	Web-based Comments	31674	24
Nadle	Jon	not provided	N/A	Web-based Comments	51833	34
Nadler	Amy	not provided	N/A	Web-based Comments	7643	24
Nadler	Jeff	not provided	N/A	Web-based Comments	17048	24
Nadreau	Patricia	not provided	N/A	Web-based Comments	53539, 53540	34
Naegele	Alice	not provided	N/A	Web-based Comments	51218	34
Naeseth	Joan	not provided	N/A	Web-based Comments	17717	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Naffziger	alexandra	not provided	N/A	Web-based Comments	7285	24
Nafziger	Marjorie	not provided	N/A	Web-based Comments	51930	34
Nafziger	Nikki	not provided	N/A	Web-based Comments	57812	34
Nafziger	Nikki	not provided	N/A	Web-based Comments	25287	24
Nag	Dwaipayan	dwaipayannag@yahoo.com	N/A	Web-based comments	700	N/A
Nagel	Byron	not provided	N/A	Web-based Comments	9662	24
Nagel	Clinton	not provided	N/A	Web-based Comments	45699	34
Nagel	Dennis	not provided	N/A	Web-based Comments	53773	34
nagel	dennis	not provided	N/A	Web-based Comments	12697	24
Nagel	Stephanie	not provided	N/A	Web-based Comments	47580	34
Naghavi	Sahand	not provided	N/A	Web-based Comments	27991	24
Nagvekar	Ankita	not provided	N/A	Web-based Comments	7996	24
Nagy	S	not provided	N/A	Web-based Comments	27947	24
Nagy-DeRosa	Kathleen	not provided	N/A	Web-based Comments	50328, 51980	34
Nagyfy	Desiree	not provided	N/A	Web-based Comments	57962, 53918	16, 34
Nagy-Gyorgy Jr.	Louis	not provided	N/A	Web-based Comments	21871	24
nahmias	mona	not provided	N/A	Web-based Comments	51828	34
Naidich	Sandra	not provided	N/A	Web-based Comments	46270, 46271	34
Naidich	Sandra	not provided	N/A	Web-based Comments	28195	24
Nail	Janet	janet@janetnail.com	N/A	Web-based comments	6428	N/A
Naiman	Karen	not provided	N/A	Web-based Comments	55310, 55311, 55312	34
Nair	Sri	not provided	N/A	Web-based Comments	29100	24
Nair	Tarun	not provided	N/A	Web-based Comments	53754, 53755	34
naive	jurissah	not provided	N/A	Web-based Comments	55792	34
Najemy	John	not provided	N/A	Web-based comments	57050	35
Najemy	John	not provided	N/A	Web-based Comments	52086, 52087	34
Najemy	John	not provided	N/A	Web-based Comments	18116	24
Naji	Eric	not provided	N/A	Web-based comments	57301	35
Naji	Eric	not provided	N/A	Web-based Comments	48534, 48535	34
Naji	Eric	not provided	N/A	Web-based Comments	14126	24
Najimi	Mj	not provided	N/A	Web-based Comments	46683	34
NAJIMI	MJ	not provided	N/A	Web-based Comments	24581	24
Nakagawa	Jason	not provided	N/A	Web-based Comments	47453	34
Nakahara	Sadako	not provided	N/A	Web-based Comments	27985	24
Nakai	Junko	not provided	N/A	Web-based Comments	56569	34
nakajima	hiroyuki	hiro3725himawar@gmail.com	N/A	Web-based comments	622	N/A
nakajima	hiroyuki	not provided	N/A	Web-based Comments	15717	24
Nakama	Christy	not provided	N/A	Web-based Comments	53427	34
Nakamaru	Kelly	not provided	N/A	Web-based Comments	19939	24
Nakamura	Cecilia	not provided	N/A	Web-based Comments	10421	24
Nakhai	Mandana	not provided	N/A	Web-based Comments	22302	24
Nakonieczny	Tomasz	not provided	N/A	Web-based Comments	49695	34
Nalbach	David	not provided	N/A	Web-based Comments	12095	24
Nalder	Christina	not provided	N/A	Web-based Comments	10868	24
Nalevanko	John	not provided	N/A	Web-based Comments	18117	24
Nam	S.	not provided	N/A	Web-based Comments	53825, 53826	34
Nansen	Richard	rick@tetonwaterinc.com	N/A	Web-based comments	3304	13
Naples	Jean	not provided	N/A	Web-based Comments	50604, 50605	34
Napolitano	Karen	not provided	N/A	Web-based Comments	19186	24
Napolitano	Katherine	not provided	N/A	Web-based Comments	19469	24
Napolitano	Marie	not provided	N/A	Web-based Comments	54208	34
Napombhejara	Jerry	not provided	N/A	Web-based Comments	53243	34
Napombhejara	Jerry	not provided	N/A	Web-based Comments	17366	24
Narbutovskih	Anna	not provided	N/A	Web-based Comments	56445, 56446	34
Narcisse	April	not provided	N/A	Web-based Comments	8388	24
Nardone	Don	not provided	N/A	Web-based Comments	54869	34
Nardone	Don	not provided	N/A	Web-based Comments	13030	24
NARDONE	PATRICIA	not provided	N/A	Web-based Comments	45513	34
Nardone	Susan	not provided	N/A	Web-based Comments	29786	24
Narigon	Amelia	not provided	N/A	Web-based Comments	58632	34
Narigon	Amelia	not provided	N/A	Web-based Comments	7582	24
Narkoff	Cynthia	not provided	N/A	Web-based Comments	54068	34
Narkoff	Cynthia	not provided	N/A	Web-based Comments	11535	24
Narlock	Larry	not provided	N/A	Web-based Comments	20584	24
Narvios	Tem	not provided	N/A	Web-based Comments	44957	34
Narvios	Tem	not provided	N/A	Web-based Comments	30253	24
Naser	Gida	not provided	N/A	Web-based Comments	15018	24
NASH	HEYWARD	not provided	N/A	Web-based Comments	55558	34
NASH	HEYWARD	not provided	N/A	Web-based Comments	15691	24
Nasif	Marcelo	not provided	N/A	Web-based Comments	47553, 47554	34

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Nasif	Maria	not provided	N/A	Web-based Comments	45863	34
Naslund	Nancy	not provided	N/A	Web-based Comments	48246	34
Nason	Chad	not provided	N/A	Web-based Comments	58161	16
Nason	Sara	not provided	N/A	Web-based Comments	58163	16
nasr	sammy	not provided	N/A	Web-based Comments	28095	24
Nassif	Gus	not provided	N/A	Web-based Comments	15334	24
nasus	ahmed	not provided	N/A	Web-based Comments	7121	24
Natale	Anthony	not provided	N/A	Web-based Comments	8342	24
Natanson	Carol	not provided	N/A	Web-based Comments	9993	24
Nath	Utkarsh	not provided	N/A	Web-based Comments	55278, 55279	34
Nath	Utkarsh	not provided	N/A	Web-based Comments	30984	24
Nathalie	Guyonvarch	not provided	N/A	Web-based Comments	50533	34
Nathan	Kathryn	not provided	N/A	Web-based Comments	19655	24
nathan	nicole	not provided	N/A	Web-based Comments	25248	24
Nattrass	Suzanne	not provided	N/A	Web-based Comments	30011	24
Nauert	Diane	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	5609	N/A
Naulty	Keith	whoolybugger@gmail.com	N/A	Web-based comments	1437	N/A
Naumann	Adrienne	not provided	N/A	Web-based Comments	7097	24
Naumoff	Carrie Ann	not provided	N/A	Web-based Comments	10208	24
Naumovitz	Debra	not provided	N/A	Web-based Comments	12537	24
Nauta	Megan	not provided	N/A	Web-based comments	57232	35
Navan	Gloria	not provided	N/A	Web-based Comments	15166	24
Navarro	Eleanor	not provided	N/A	Web-based Comments	13637	24
Navarro	Laisha	not provided	N/A	Web-based Comments	20518	24
Navarro	Lezlie	not provided	N/A	Web-based Comments	21134	24
Navarro	Maria	not provided	N/A	Web-based comments	57272	35
Nave	Brenda	not provided	N/A	Web-based Comments	9412	24
Navidomskis	Michael	mickeynavi3@gmail.com	N/A	Web-based comments	6143	N/A
Navis	Dawn	not provided	N/A	Web-based Comments	12239	24
Navros	Olga	not provided	N/A	Web-based Comments	47683	34
Naylon	Julie	not provided	N/A	Web-based Comments	18874	24
Naylor	Mary	not provided	N/A	Web-based Comments	23376	24
Naylor	Sophia	not provided	N/A	Web-based Comments	29082	24
Naymick	Renee	not provided	N/A	Web-based Comments	26851	24
Nazareth	Abigail	not provided	N/A	Web-based Comments	7022	24
Nazarian	Vera	not provided	N/A	Web-based Comments	31087	24
Nazario	Alexis	not provided	N/A	Web-based Comments	44888	34
Nazarko	Kaitlin	not provided	N/A	Web-based Comments	19003	24
Nazor	Craig	not provided	N/A	Web-based Comments	46322	34
nazzaro	maria	not provided	N/A	Web-based Comments	48682	34
Nazzaro	Patricia	not provided	N/A	Web-based Comments	52728	34
Nazzaro	Patricia	not provided	N/A	Web-based Comments	25813	24
Ndoye	Elizabeth	not provided	N/A	Web-based Comments	13819	24
Neagle	Nicholas	not provided	N/A	Web-based Comments	25173	24
Neal	Andrea	not provided	N/A	Web-based Comments	7759	24
Neal	Charles	not provided	N/A	Web-based Comments	10521	24
Neal	Chris	not provided	N/A	Web-based Comments	10768	24
Neal	Chuck	not provided	N/A	Web-based Comments	52384	34
Neal	E.	not provided	N/A	Web-based Comments	44568, 44569	34
Neal	E.	not provided	N/A	Web-based Comments	13422	24
Neal	G	not provided	N/A	Web-based Comments	14616	24
Neal	Michael	not provided	N/A	Web-based Comments	24182	24
Neale	Barbara	not provided	N/A	Web-based Comments	8746	24
Nealey	Elizabeth	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4678	N/A
Nealy	Carol	not provided	N/A	Web-based Comments	49290	34
Nearhoff	Jeanne	not provided	N/A	Web-based Comments	16961	24
Nearing	Sue	not provided	N/A	Web-based Comments	29540	24
Neasloney	Larry	laneasloney@gmail.com	N/A	Web-based comments	6014	8
Neath	Jeanne	not provided	N/A	Web-based Comments	16962	24
Nebeker	Mistelle	mastifacre@gmail.com	N/A	Web-based comments	4174	N/A
Nebel	Antje	not provided	N/A	Web-based Comments	8352	24
Nebel	Bob	not provided	N/A	Web-based Comments	48431	34
Nebel	Stacey	not provided	N/A	Web-based Comments	45663	34
Nebolsine	Cynthia	not provided	N/A	Web-based Comments	11536	24
Nedeau	E.	ELDEN1948@AOL.com	N/A	Web-based comments	4876	8
Nedeff	Elizabeth	not provided	N/A	Web-based Comments	47605	34
Nedeff	Liz	not provided	N/A	Web-based Comments	57991	16
Nedelcovic	Ines	not provided	N/A	Web-based Comments	49195	34
Nedeljkovic	Vesna	not provided	N/A	Web-based Comments	31112	24
Needler	Gavin	not provided	N/A	Web-based Comments	14815	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Needles	Phil	not provided	N/A	Web-based Comments	50355	34
Neel	E Ann	not provided	N/A	Web-based Comments	52484	34
Neer	Michael	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	56656	N/A
Neering	Len	not provided	N/A	Web-based Comments	56247	34
Neese	Sandy	not provided	N/A	Web-based Comments	28255	24
Neevel	Hilary	not provided	N/A	Web-based Comments	58068	16
Neff	Cathy	not provided	N/A	Web-based Comments	10383	24
Neff	Grace	not provided	N/A	Web-based Comments	56341	34
Neff	Grace	not provided	N/A	Web-based Comments	15197	24
Nefkens	Gesina	not provided	N/A	Web-based Comments	15011	24
nefkens	molly	not provided	N/A	Web-based Comments	24598	24
Nefsky	Melvyn	not provided	N/A	Web-based Comments	45404	34
Negash	Eyob	not provided	N/A	Web-based Comments	14369	24
Negru	Delia	not provided	N/A	Web-based Comments	51356	34
Neher	Dan	not provided	N/A	Web-based Comments	11666	24
Neidhardt	Dara	not provided	N/A	Web-based Comments	11848	24
Neidich	Theresa	not provided	N/A	Web-based Comments	30443	24
NEIGHBOR	KEVIN	not provided	N/A	Web-based Comments	20126	24
Neihart	Janet	not provided	N/A	Web-based Comments	45129, 45130	34
Neihart	Janet	not provided	N/A	Web-based Comments	16627	24
Neihenke	Norbert	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32281	N/A
Neill	Laurie	not provided	N/A	Web-based Comments	54287	34
Neill	Laurie	not provided	N/A	Web-based Comments	20848	24
Neill	Terri	not provided	N/A	Web-based Comments	45543	34
Neill	Toni	not provided	N/A	Web-based Comments	30798	24
Neill	William	not provided	N/A	Web-based Comments	31572	24
Neilsen	Mary	not provided	N/A	Web-based Comments	23377	24
Neilson	Laura	not provided	N/A	Web-based Comments	20681	24
Neiman	e	not provided	N/A	Web-based Comments	51107	34
Neiman	Jordan	not provided	N/A	Web-based Comments	47582	34
Neiman	Jordan	not provided	N/A	Web-based Comments	18321	24
Neininger	Michael	not provided	N/A	Web-based Comments	47875	34
Neininger	Michael	not provided	N/A	Web-based Comments	24183	24
Neirick	Jay	not provided	N/A	Web-based Comments	16813	24
Neitzel	Yvonne	not provided	N/A	Web-based comments	1903	N/A
Nekoranik	Sophia	not provided	N/A	Web-based Comments	29083	24
Nelly	Gavignet	not provided	N/A	Web-based comments	56761	35
Nelly	Gavignet	not provided	N/A	Web-based Comments	14812	24
Nelsen	Jeff	not provided	N/A	Web-based Comments	51521	34
Nelson	Amy	not provided	N/A	Web-based Comments	7644	24
Nelson	Amy	not provided	N/A	Web-based Comments	7645	24
Nelson	Amy	not provided	N/A	Web-based Comments	7646	24
Nelson	Anna	anna.kristine.nelson@gmail.com	N/A	Web-based comments	353	3
Nelson	Ardis	not provided	N/A	Web-based Comments	8401	24
Nelson	Brad	not provided	N/A	Web-based Comments	44637, 44638	34
Nelson	Brian	not provided	N/A	Web-based Comments	9497	24
Nelson	Bruce	not provided	N/A	Web-based Comments	9621	24
Nelson	Clayton	not provided	N/A	Web-based Comments	11215	24
Nelson	Cornel	not provided	N/A	Web-based Comments	11382	24
Nelson	Cynthia	not provided	N/A	Web-based Comments	11537	24
Nelson	David	david.nelson.moscow@gmail.com	N/A	Web-based comments	5375	N/A
Nelson	David	not provided	N/A	Web-based Comments	52891	34
Nelson	Dean	not provided	N/A	Web-based comments	6476	N/A
Nelson	Deborah	not provided	N/A	Web-based Comments	12448	24
Nelson	Dee	not provided	N/A	Web-based Comments	12580	24
Nelson	Doloris	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	2590	N/A
Nelson	Donald	nelson3_cities@hotmail.com	N/A	Web-based comments	4990	N/A
Nelson	Donna	not provided	N/A	Web-based Comments	13162	24
Nelson	Earl	not provided	N/A	Web-based Comments	45703	34
Nelson	Eric	not provided	N/A	Web-based Comments	14127	24
Nelson	Frank	f.e.nelson75@googlemail.com	N/A	Web-based comments	5382	N/A
nelson	franklin	not provided	N/A	Web-based Comments	14562	24
Nelson	Gary	not provided	N/A	Web-based Comments	44444	34
Nelson	Gary	not provided	N/A	Web-based Comments	14787	24
Nelson	Ian	not provided	N/A	Web-based Comments	15834	24
Nelson	Iral	icnelson1927@gmail.com	N/A	Web-based comments	5109	N/A
Nelson	Isaac	isaac.nelson1999@gmail.com	N/A	Web-based comments	2756	N/A
Nelson	J	not provided	N/A	Web-based Comments	15985	24
Nelson	James	not provided	N/A	Web-based Comments	54254	34
Nelson	James	not provided	N/A	Web-based Comments	16274	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Nelson	Jane	not provided	N/A	Web-based Comments	16521	24
Nelson	Jason	not provided	N/A	Web-based Comments	16782	24
Nelson	Jean	cnjnelson2000@msn.com	N/A	Email	32265	N/A
Nelson	Jean	cnjnelson2000@msn.com	N/A	US Mail or commercial carrier (UPS, FedEx)	58782	N/A
Nelson	Jennifer	not provided	N/A	Web-based Comments	48739	34
Nelson	John	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	2591	N/A
Nelson	John	not provided	N/A	Web-based Comments	18118	24
Nelson	John	not provided	N/A	Web-based Comments	18119	24
Nelson	Joseph	not provided	N/A	Web-based Comments	18382	24
NELSON	JOYCE	not provided	N/A	Web-based Comments	18501	24
Nelson	Judith	not provided	N/A	Web-based Comments	47449	34
Nelson	Julianne	not provided	N/A	Web-based Comments	49892	34
Nelson	Karen	not provided	N/A	Web-based Comments	52088	34
NELSON	KAREN	not provided	N/A	Web-based Comments	19187	24
Nelson	Katherine	not provided	N/A	Web-based Comments	53547	34
Nelson	Kathleen	kateyn@comcast.net	N/A	Web-based comments	6352	3
Nelson	Kerri Lunetta	not provided	N/A	Web-based Comments	54984	34
Nelson	Kimberly	not provided	N/A	Web-based Comments	20230	24
Nelson	L	not provided	N/A	Web-based Comments	20485	24
Nelson	Lars	not provided	N/A	Web-based comments	5945	N/A
Nelson	Len	emailljn@gmail.com	N/A	Web-based comments	3369	N/A
Nelson	Lisa	not provided	N/A	Web-based Comments	44321	34
Nelson	Lynn	not provided	N/A	Web-based Comments	22077	24
Nelson	Marian	not provided	N/A	Web-based comments	4989	N/A
Nelson	Marianne	not provided	N/A	Web-based Comments	22687	24
Nelson	Mark L	not provided	N/A	Web-based Comments	23016	24
Nelson	Michael	not provided	N/A	Web-based Comments	48922	34
Nelson	Michael	not provided	N/A	Web-based Comments	24184	24
Nelson	Michelle	not provided	N/A	Web-based Comments	47359	34
Nelson	Michelle	not provided	N/A	Web-based Comments	24376	24
Nelson	Milton and Shirley	not provided	N/A	Web-based Comments	24519	24
NELSON	MRS	joyswildsong@gmail.com	N/A	Web-based comments	4894	N/A
Nelson	NaTaya	not provided	N/A	Web-based Comments	25095	24
Nelson	Nicola	not provided	N/A	Web-based Comments	25214	24
Nelson	Paige	paigenelson7236@gmail.com	N/A	Web-based comments	3186	12
Nelson	Pamela	not provided	N/A	Web-based Comments	50887	34
Nelson	Pamela	pamela05n@yahoo.com	N/A	Web-based comments	2330	N/A
Nelson	Patricia	not provided	N/A	Web-based Comments	25814	24
Nelson	Paul	not provided	N/A	Web-based comments	2804	N/A
Nelson	Paul	not provided	N/A	Web-based Comments	26029	24
Nelson	Peggy	not provided	N/A	Web-based Comments	54561	34
Nelson	Peter	not provided	N/A	Web-based Comments	26272	24
Nelson	Rachel	not provided	N/A	Web-based Comments	26539	24
Nelson	Richard	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32473	N/A
Nelson	Riley	not provided	N/A	Web-based Comments	54293	34
Nelson	Ryan	not provided	N/A	Web-based Comments	45667	34
Nelson	Sabrina	not provided	N/A	Web-based comments	1981	N/A
Nelson	Sam	not provided	N/A	Web-based Comments	28064	24
Nelson	Stephen	not provided	N/A	Web-based Comments	29322	24
Nelson	Steven	not provided	N/A	Web-based Comments	29457	24
Nelson	Susan	Nelson.susan@hotmail.com	N/A	Web-based comments	3289	N/A
Nelson	Thomas	not provided	N/A	Web-based Comments	45456, 45532	34
Nelson	Thomas	not provided	N/A	Web-based Comments	30524	24
Nelson	Virginia	not provided	N/A	Web-based Comments	31298	24
Nelson	William	not provided	N/A	Web-based Comments	31573	24
Nemeth	Cipra	not provided	N/A	Web-based Comments	11113	24
Nemeth	Lisa	not provided	N/A	Web-based Comments	46228	34
Nemeth	Melissa	not provided	N/A	Web-based Comments	23910	24
Nemeth	Mitchell	not provided	N/A	Web-based Comments	24573	24
Nemmes	Syn	not provided	N/A	Web-based Comments	30085	24
Nemzer	Eileen	not provided	N/A	Web-based Comments	51443	34
Nennie	Piet de	not provided	N/A	Web-based Comments	51085, 51086	34
Nephew	Rob	not provided	N/A	Web-based Comments	27182	24
Nepola	Rick	not provided	N/A	Web-based Comments	27096	24
Nepove	Stephen	not provided	N/A	Web-based Comments	29323	24
Neral	David	not provided	N/A	Web-based Comments	45182, 45183	34
Neral	David	not provided	N/A	Web-based Comments	12096	24
Nerenstone	Marti	not provided	N/A	Web-based Comments	23145	24
Nerhus	Brennan	not provided	N/A	Web-based Comments	49789, 49790	34
Nerwick	Randall	not provided	N/A	Web-based Comments	49560	34

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Nesbitt	Thomas	tdnesbitt999@gmail.com	N/A	Web-based comments	3784	N/A
Neset	Gerd Hilde	not provided	N/A	Web-based Comments	14982	24
Nesland	Kendra	not provided	N/A	Web-based Comments	20000	24
Nesler	Amy Nesler	not provided	N/A	Web-based comments	57466	35
ness	chris	not provided	N/A	Web-based Comments	10769	24
Ness	Gina	not provided	N/A	Web-based Comments	48098	34
Ness	Gina	not provided	N/A	Web-based Comments	15061	24
Ness	Laurie	Pennifurs.mom@gmail.com	N/A	Web-based comments	6617	N/A
Neste	George	not provided	N/A	Web-based Comments	56244	34
Neste	Lisa	not provided	N/A	Web-based comments	57741	35
Neste	Lisa	not provided	N/A	Web-based Comments	48512, 48513	34
Nestor	Mike	not provided	N/A	Web-based Comments	51634, 51635	34
nethercutt	tony	tonynethercutt@gmail.com	N/A	Web-based comments	31871	N/A
nethu	tera	not provided	N/A	Web-based Comments	30255	24
Nettesheim	Catherine	not provided	N/A	Web-based Comments	10305	24
Nettleton	John	not provided	N/A	Web-based Comments	52071	34
Nettleton	John	not provided	N/A	Web-based Comments	18120	24
Neubauer	Erin	not provided	N/A	Web-based Comments	48424	34
Neubauer	Karen	not provided	N/A	Web-based Comments	19188	24
Neuber	Christa	not provided	N/A	Web-based Comments	49907	34
Neuber	Christa	not provided	N/A	Web-based Comments	10810	24
Neufeld	Sarah	sarah.neufeld8@gmail.com	N/A	Web-based comments	4934	N/A
Neugebauer	Whitney	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4705	N/A
Neumann	Becky	not provided	N/A	Web-based Comments	8917	24
Neumann	Carol M.	not provided	N/A	Web-based Comments	10064	24
Neumann	Nancy	not provided	N/A	Web-based Comments	53176	34
Neumann	Nancy	not provided	N/A	Web-based Comments	24939	24
Neuman-Scott	Mark	not provided	N/A	Web-based Comments	22970	24
Neus	Marleen	not provided	N/A	Web-based Comments	52813, 52814	34
Neus	Marleen	not provided	N/A	Web-based Comments	23030	24
Neus-Bradley	Cynthia	not provided	N/A	Web-based Comments	11538	24
Neuschaefer	Kate	not provided	N/A	Web-based Comments	52319	34
Neuschaefer	Kate	not provided	N/A	Web-based Comments	19395	24
Neustadter	Carol	not provided	N/A	Web-based Comments	9994	24
Neususess	Anna	not provided	N/A	Web-based Comments	47581	34
Neuzil	Denise	not provided	N/A	Web-based Comments	53417	34
Nevans	Ann	not provided	N/A	Web-based Comments	8067	24
nevel	cecilia	not provided	N/A	Web-based Comments	47200, 47201, 47202	34
nevel	cecilia	not provided	N/A	Web-based Comments	10422	24
Nevill	Julie Ann	not provided	N/A	Web-based Comments	18910	24
Neville	Marie	not provided	N/A	Web-based Comments	49755	34
Neville	Marie	not provided	N/A	Web-based Comments	22723	24
Neville	Paula	not provided	N/A	Web-based Comments	26094	24
Neville	Richard	not provided	N/A	Web-based Comments	27017	24
Nevins	Shawn	not provided	N/A	Web-based Comments	28753	24
Nevins	Suzanne	not provided	N/A	Web-based Comments	44411	34
Nevshehir	Christina	not provided	N/A	Web-based Comments	10869	24
New	B.	bnew1@live.com	N/A	Web-based comments	1111	N/A
New	Patricia	not provided	N/A	Web-based Comments	25815	24
Newash	Judith	not provided	N/A	Web-based Comments	18631	24
Newberg	Stephen	not provided	N/A	Web-based Comments	29324	24
Newberg	Stuart	not provided	N/A	Web-based Comments	29494	24
Newberry	Carla	not provided	N/A	Web-based Comments	9830	24
Newberry	Roxie	not provided	N/A	Web-based Comments	51376	34
Newbigging	Roberta	not provided	N/A	Web-based Comments	27444	24
Newbury	Nancy	not provided	N/A	Web-based Comments	48570, 48571	34
Newcomb	Ryan	not provided	N/A	Web-based Comments	58050	16
Newcomer	Barbara	not provided	N/A	Web-based Comments	8747	24
Newcomer	Crystal	not provided	N/A	Web-based Comments	11463	24
newell	scott	not provided	N/A	Web-based Comments	50651	34
Newhouse	Beth	not provided	N/A	Web-based Comments	9038	24
Newhouse	Julie	not provided	N/A	Web-based Comments	18875	24
Newhouser	Taffi	not provided	N/A	Web-based Comments	55894	34
Newlin	Sue and Paul	not provided	N/A	Web-based Comments	29564	24
Newman	Cary	cglanewman@gmail.com	N/A	Web-based comments	2203	N/A
Newman	Donna	not provided	N/A	Web-based Comments	57862	34
Newman	George	not provided	N/A	Web-based Comments	14906	24
Newman	Kathy	kathynewman@gmail.com	N/A	Web-based comments	6589	N/A
Newman	Kathy	not provided	N/A	Web-based Comments	52471	34
Newman	Kathy	not provided	N/A	Web-based Comments	19737	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Newman	Robert	not provided	N/A	Web-based Comments	54670	34
Newman	Robert	not provided	N/A	Web-based Comments	27339	24
newman	roberta e.	not provided	N/A	Web-based Comments	45776	34
newman	roberta e.	not provided	N/A	Web-based Comments	27459	24
Newman	Sally	not provided	N/A	Web-based Comments	28021	24
Newman	Samantha	not provided	N/A	Web-based Comments	56110	34
Newman	Samuel	not provided	N/A	Web-based Comments	54510	34
Newman	Sharon	not provided	N/A	Web-based Comments	55007	34
Newman	Sharon	not provided	N/A	Web-based Comments	28695	24
Newmark	Leone	not provided	N/A	Web-based Comments	58065	16
Newport	Michael	not provided	N/A	Web-based Comments	24185	24
Newport	Rose	not provided	N/A	Web-based Comments	27728	24
Newsom	Robert	not provided	N/A	Web-based Comments	27340	24
Newsome	Julie	newsjuli@isu.edu	N/A	Web-based comments	4299	N/A
Newton	Adrienne	not provided	N/A	Web-based Comments	7098	24
Newton	Fran	not provided	N/A	Web-based comments	57636	35
Newton	Ivy Rose	not provided	N/A	Web-based Comments	15964	24
Newton	Judith	not provided	N/A	Web-based Comments	18632	24
Newton	Judith	not provided	N/A	Web-based Comments	18633	24
Newton	Judith	not provided	N/A	Web-based Comments	18634	24
Newton	Laurie	not provided	N/A	Web-based comments	57101	35
Newton	Linda	not provided	N/A	Web-based Comments	21368	24
Newton	Margaret	not provided	N/A	Web-based Comments	22485	24
Newton	Stephanie	not provided	N/A	Web-based Comments	55852	34
Newton	Susan	not provided	N/A	Web-based Comments	52847	34
Neyman	Ivy	not provided	N/A	Web-based Comments	15963	24
Nez	Natasha	not provided	N/A	Web-based Comments	25088	24
Neznamov	Maria	not provided	N/A	Web-based Comments	22618	24
Nezolosky	Stephen	not provided	N/A	Web-based Comments	29325	24
Ng	Audrey	not provided	N/A	Web-based Comments	8534	24
Ngarian	Susanni	not provided	N/A	Web-based Comments	29955	24
Ngo	Thinh	not provided	N/A	Web-based Comments	54784	34
Ngo	Thinh	not provided	N/A	Web-based Comments	30464	24
Nguyen	Andrew	not provided	N/A	Web-based Comments	55168	34
Nguyen	Guy	not provided	N/A	Web-based Comments	53677	34
Nguyen	Jesica	not provided	N/A	Web-based Comments	17378	24
Nguyen	Kaylee	not provided	N/A	Web-based Comments	19848	24
NGUYEN	KIM	not provided	N/A	Web-based Comments	20196	24
Nguyen	Ryan	not provided	N/A	Web-based Comments	51815	34
Nguyen	Tracy	not provided	N/A	Web-based Comments	30875	24
Nguyen	Trang	not provided	N/A	Web-based Comments	30889	24
Nia	Dou	not provided	N/A	Web-based Comments	13286	24
Niatum	Duane	not provided	N/A	Web-based Comments	58047	16
Niccolai	Michele	not provided	N/A	Web-based Comments	44938	34
Nichandros	Eric	not provided	N/A	Web-based Comments	14128	24
Nicholas	Anna	not provided	N/A	Web-based Comments	8146	24
Nicholas	Christa	not provided	N/A	Web-based Comments	10811	24
Nicholas	Greg	not provided	N/A	Web-based Comments	47663	34
Nicholas	Jill	not provided	N/A	Web-based Comments	17531	24
Nicholas	Julie A	not provided	N/A	Web-based Comments	48118	34
Nicholas	Kathleen	not provided	N/A	Web-based Comments	51979	34
Nicholas	Kathleen	not provided	N/A	Web-based Comments	19580	24
Nicholes	Linda	not provided	N/A	Web-based Comments	57794	34
NIcholls	Nance	not provided	N/A	Web-based Comments	24792	24
Nicholls	Teresa	not provided	N/A	Web-based Comments	30289	24
Nichols	Andy	not provided	N/A	Web-based Comments	58296	16
Nichols	Beverly	beverlynichols58@yahoo.com	N/A	Web-based comments	5443	N/A
Nichols	Beverly	not provided	N/A	Web-based Comments	56204	34
Nichols	Beverly	not provided	N/A	Web-based Comments	9136	24
Nichols	Curtis	not provided	N/A	Web-based Comments	11477	24
nichols	cynthia	not provided	N/A	Web-based Comments	11539	24
Nichols	David	not provided	N/A	Web-based Comments	12097	24
Nichols	Dorothy	not provided	N/A	Web-based Comments	13274	24
Nichols	Ed	not provided	N/A	Web-based Comments	13452	24
Nichols	Guy	not provided	N/A	Web-based Comments	15341	24
Nichols	Jamie	not provided	N/A	Web-based Comments	16369	24
Nichols	Jason	not provided	N/A	Web-based Comments	16783	24
Nichols	Joe	not provided	N/A	Web-based Comments	54233	34
Nichols	Kylee	not provided	N/A	Web-based Comments	20463	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Nichols	Laura	not provided	N/A	Web-based comments	575	N/A
Nichols	Lucy	not provided	N/A	Web-based Comments	21958	24
Nichols	Mari	not provided	N/A	Web-based Comments	22574	24
Nichols	Nora	not provided	N/A	Web-based Comments	25363	24
Nichols	Rozae	not provided	N/A	Web-based Comments	27813	24
Nichols	Susan	not provided	N/A	Web-based Comments	55665	34
Nichols	Susanita	not provided	N/A	Web-based Comments	29934	24
Nichols	Vicki	not provided	N/A	Web-based Comments	31144	24
Nichols-Blount	Camille	not provided	N/A	Web-based Comments	9743	24
Nicholson	Carol	not provided	N/A	Web-based Comments	9995	24
Nicholson	Heather	heatherfold@yahoo.com	N/A	Web-based comments	32091	N/A
nicholson	Jennifer	jennynic68@yahoo.com	N/A	Web-based comments	31954	1
Nicholson	Kim	not provided	N/A	Web-based Comments	20197	24
Nicholson	L.B.	not provided	N/A	Web-based Comments	20504	24
Nicholson	Lorna	not provided	N/A	Web-based Comments	21826	24
Nicholson	Louise	not provided	N/A	Web-based Comments	21892	24
Nicholson	Ruth	not provided	N/A	Web-based Comments	27880	24
Nickel	Craig	not provided	N/A	Web-based Comments	11424	24
Nickel	Karen	not provided	N/A	Web-based Comments	19189	24
Nickels	Nancie and William	not provided	N/A	Web-based Comments	24796	24
Nickelson	Thomas	not provided	N/A	Web-based Comments	30525	24
Nickey	John	not provided	N/A	Web-based Comments	51490, 51491	34
Nickey	John H	not provided	N/A	Web-based Comments	18222	24
Nickles	Carolyn	not provided	N/A	Web-based Comments	10172	24
Nicklin	Jenny	not provided	N/A	Web-based Comments	17296	24
Nickols	TRUDY	not provided	N/A	Web-based Comments	30947	24
Nicoara	Adrian	not provided	N/A	Web-based Comments	7082	24
Nicol	Amanda	not provided	N/A	Web-based Comments	7549	24
Nicol	Christopher	not provided	N/A	Web-based Comments	11022	24
Nicol	Stuart	not provided	N/A	Web-based Comments	29495	24
Nicola	Nikki	not provided	N/A	Web-based Comments	50657	34
Nicolai	Jane	not provided	N/A	Web-based Comments	58188	16
Nicolai	Nicola	not provided	N/A	Web-based Comments	55352, 55353	34
Nicolai	Nicola	not provided	N/A	Web-based Comments	25215	24
Nicolaou	Wendy	not provided	N/A	Web-based Comments	56302	34
Nicolo	Gina	not provided	N/A	Web-based comments	57020	35
Nicolosi	Chris	not provided	N/A	Web-based Comments	47384	34
Nidess, M.D.	Rael	not provided	N/A	Web-based Comments	26573	24
Niebel	Stuart	not provided	N/A	Web-based Comments	29496	24
Niego	Sara	not provided	N/A	Web-based Comments	46178	34
Niego	Sara	not provided	N/A	Web-based Comments	28301	24
Niehaus	Celeate	not provided	N/A	Web-based Comments	10430	24
Nieland	Carolyn	not provided	N/A	Web-based Comments	52587, 57786	34
Nieland	Thomas	not provided	N/A	Web-based Comments	52254, 57779	34
Nieland	Thomas	not provided	N/A	Web-based Comments	30526	24
Nielsen	Christina	not provided	N/A	Web-based Comments	10870	24
Nielsen	David	not provided	N/A	Web-based Comments	12098	24
Nielsen	Hanne J.	not provided	N/A	Web-based Comments	15420	24
Nielsen	Kirsten	not provided	N/A	Web-based Comments	54386, 54387	34
Nielsen	Paul	not provided	N/A	Web-based Comments	26030	24
Nielsen	Peter	not provided	N/A	Web-based Comments	26273	24
Nielsen	Robin	not provided	N/A	Web-based Comments	27505	24
Nielsen	William	not provided	N/A	Web-based Comments	31574	24
Nielson	Charlotte	not provided	N/A	Web-based Comments	53503, 53504	34
Nielson	Greg	not provided	N/A	Web-based Comments	15239	24
Nieman	Valerie	valnieman@gmail.com	N/A	Web-based comments	5381	N/A
Nieman	Whitney	not provided	N/A	Web-based Comments	31473	24
Niemann	Josephine	not provided	N/A	Web-based Comments	18411	24
Niemeir	Nancy	not provided	N/A	Web-based Comments	24940	24
Niemeyer	Jerry	not provided	N/A	Web-based Comments	46909	34
Niemeyer	Stacy	not provided	N/A	Web-based Comments	50177	34
Niemeyer	Stacy	not provided	N/A	Web-based Comments	29141	24
Niemeyer	wendy	not provided	N/A	Web-based Comments	52520, 52521	34
Nierat	Luc	not provided	N/A	Web-based Comments	21924	24
Nierenberg	Susan	not provided	N/A	Web-based Comments	29787	24
nierstedt	william	not provided	N/A	Web-based Comments	50546	34
Nies	Randy	not provided	N/A	Web-based Comments	58516	34
Niese	Patrick	not provided	N/A	Web-based Comments	25920	24
Niesen	Andreas	not provided	N/A	Web-based Comments	7785	24
Nieves	Domingo	not provided	N/A	Web-based Comments	12999	24

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NIGH	JACKIE	not provided	N/A	Web-based Comments	16070	24
Nightingale	Jill	not provided	N/A	Web-based Comments	17532	24
Nihipali	Michele	not provided	N/A	Web-based Comments	24299	24
Nihsen	Dixie	not provided	N/A	Web-based Comments	49519	34
Nihsen	Dixie	not provided	N/A	Web-based Comments	12980	24
Nijjer	Jagjit	not provided	N/A	Web-based Comments	44612	34
Nijs	Sacha De	not provided	N/A	Web-based Comments	48295	34
Nikolskaya	Svetlana	not provided	N/A	Web-based Comments	30046	24
Nilenders	Barbara	not provided	N/A	Web-based Comments	8748	24
Niles	Dan	not provided	N/A	Web-based Comments	11667	24
Nillo	Christina	not provided	N/A	Web-based Comments	10871	24
Nilsson	Maia	not provided	N/A	Web-based Comments	22281	24
Nilsson	Yvonne	not provided	N/A	Web-based Comments	31702	24
Nimmich	Nancy	not provided	N/A	Web-based Comments	24941	24
Nimmo	Duncan and Dilys	not provided	N/A	Web-based Comments	13390	24
Nimmons	Rebecca	not provided	N/A	Web-based Comments	26757	24
Nimmons	Rebecca	not provided	N/A	Web-based Comments	58141	16
Nims	Cara	not provided	N/A	Web-based Comments	44344	34
Nims	Cara	not provided	N/A	Web-based Comments	9777	24
Nina	Donna	not provided	N/A	Web-based Comments	13163	24
Nipper	Rebecca	not provided	N/A	Web-based Comments	48606	34
Nisbet	Maryjacquetta	not provided	N/A	Web-based Comments	23586	24
Nistad	Kimberly	not provided	N/A	Web-based Comments	49795	34
Niswonger	Kristin	not provided	N/A	Web-based Comments	20385	24
nitz	jennifer	not provided	N/A	Web-based Comments	58718, 50417	16, 34
Nitz	Jennifer	not provided	N/A	Web-based Comments	17230	24
Nitz	Natasha	not provided	N/A	Web-based Comments	25089	24
Nitzan	Ann	not provided	N/A	Web-based Comments	8068	24
nitzan	ben	not provided	N/A	Web-based Comments	8945	24
NITZBERG	BERNA	not provided	N/A	Web-based Comments	8982	24
Nix	Chassie	not provided	N/A	Web-based Comments	10584	24
Nix	John	not provided	N/A	Web-based Comments	18121	24
Nixen	Pete	not provided	N/A	Web-based Comments	26234	24
Nixon	Dana	not provided	N/A	Web-based Comments	11700	24
Nixon	Dave	davenixon@comcast.net	N/A	Web-based comments	2486, 2853	N/A
Nixon	Dawn	not provided	N/A	Web-based Comments	12240	24
Nixon	Diane	not provided	N/A	Web-based Comments	48415	34
Nixon	Pamela	rbnixon51@hotmail.com	N/A	Web-based comments	3530	11
Nixon	Robert	rbnixon51@gmail.com	N/A	Web-based comments	3521	13
Nixon	Shelley	not provided	N/A	Web-based Comments	54941	34
Nizza	Simona	not provided	N/A	Web-based Comments	29023	24
Noack	Michael	not provided	N/A	Web-based Comments	51239	34
Noble	AJ	not provided	N/A	Web-based Comments	54214	34
Noble	Arthur	not provided	N/A	Web-based Comments	56358	34
Noble	Arthur	not provided	N/A	Web-based Comments	8464	24
Noble	David	not provided	N/A	Web-based Comments	12099	24
Noble	Frank	not provided	N/A	Web-based Comments	57891	16
Noble	J	not provided	N/A	Web-based Comments	48334	34
Noble	J	not provided	N/A	Web-based Comments	15986	24
Noble	Jacqueline	not provided	N/A	Web-based Comments	16124	24
Noble	John	JLNoble0321@email.msn.com	N/A	Web-based comments	3057	N/A
Noble	Kevin	linkink@rcn.com	N/A	Web-based comments	6828	N/A
Noble	Mrs. Liz and Mr. Ken	not provided	N/A	Web-based Comments	24682	24
Noble	Ruth	not provided	N/A	Web-based Comments	27881	24
Noblett	Jeanine	not provided	N/A	Web-based Comments	16929	24
nobrega	robert	not provided	N/A	Web-based Comments	48264	34
Nocentini	Lucia	not provided	N/A	Web-based Comments	21935	24
Noda	Kyoko	mikio.shidou.t@gmail.com	N/A	Web-based comments	1051	N/A
Nodzak	Beverly	not provided	N/A	Web-based Comments	9137	24
Noe	Hilary	not provided	N/A	Web-based Comments	15703	24
Noecker	Mark	not provided	N/A	Web-based Comments	22971	24
Noel	Lynn	not provided	N/A	Web-based Comments	50312	34
Noel	Michelle	not provided	N/A	Web-based Comments	24377	24
Noel	Nancy	not provided	N/A	Web-based Comments	51901	34
Noelle	Ms. Erin	not provided	N/A	Web-based Comments	24688	24
Noerenberg	Kathy	not provided	N/A	Web-based Comments	19738	24
Noeske	Kyle	not provided	N/A	Web-based Comments	20456	24
Noffke	Sydney	not provided	N/A	Web-based Comments	30053	24
Noga	Lee	auto.nut@charter.net	N/A	Web-based comments	2129	N/A

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Nogles	Tammy	not provided	N/A	Web-based Comments	49434, 49435	34
Nogles	Tammy	not provided	N/A	Web-based Comments	30161	24
Noguerol	Ramiro	not provided	N/A	Web-based Comments	48815	34
Noguerol	Ramiro	not provided	N/A	Web-based Comments	26599	24
Noir	Luc Le	not provided	N/A	Web-based Comments	47976	34
Nolan	Ela	not provided	N/A	Web-based Comments	13567	24
Nolan	Jack	jacknolan62@comcast.net	N/A	Web-based comments	6311	1
Nolan	Jacob	not provided	N/A	Web-based Comments	16094	24
Nolan	Jean	not provided	N/A	Web-based Comments	16871	24
Nolan	Judy	not provided	N/A	Web-based Comments	18709	24
Nolan	Maureen	not provided	N/A	Web-based Comments	51799	34
Nolan	Maureen	not provided	N/A	Web-based Comments	23707	24
Noland	John	not provided	N/A	Web-based Comments	18122	24
Noland	Sherry	not provided	N/A	Web-based Comments	28898	24
Noland	Tina	not provided	N/A	Web-based Comments	30684	24
Nolasco	Chris	not provided	N/A	Web-based Comments	57880	16
Nolasco	Jason	not provided	N/A	Web-based Comments	16784	24
Nolasco	Victor	not provided	N/A	Web-based Comments	31175	24
Nolin	Rod	not provided	N/A	Web-based comments	2130	N/A
Noll	Kat	not provided	N/A	Web-based Comments	19350	24
Noll	Richard	not provided	N/A	Web-based Comments	27018	24
Noll	Toni	not provided	N/A	Web-based Comments	30799	24
Nollet	Estelle	not provided	N/A	Web-based comments	56767	35
Nolta	Louise	not provided	N/A	Web-based Comments	21893	24
Nolte	Joann	not provided	N/A	Web-based Comments	44758	34
Nolte	Joann	not provided	N/A	Web-based Comments	17776	24
Nolte	Susan	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4670	N/A
Nolter	Robert	not provided	N/A	Web-based Comments	27341	24
Nolting	Sharon	not provided	N/A	Web-based Comments	49085, 49086	34
Nommesen	Inna	not provided	N/A	Web-based comments	57371	35
Nongbri	Janet	not provided	N/A	Web-based Comments	55733	34
Nonneman	Elaine	not provided	N/A	Web-based Comments	13604	24
Noon	Gail	not provided	N/A	Web-based Comments	50799	34
Noon	Gail	not provided	N/A	Web-based Comments	14703	24
Noonan	Caitlin	not provided	N/A	Web-based Comments	9714	24
Noonan	Nancy Anne	not provided	N/A	Web-based Comments	25027	24
Noor	Shareef	not provided	N/A	Web-based Comments	28607	24
Noordyk	James	not provided	N/A	Web-based Comments	48357, 48358	34
Noordyk	James	not provided	N/A	Web-based Comments	16275	24
Nooth	Andrea	not provided	N/A	Web-based Comments	48444	34
Noppen	Jake	jakesgt@hotmail.com	N/A	Web-based comments	5898	N/A
Noppen	Peter Van	not provided	N/A	Web-based Comments	46782	34
Norberg	Lester	not provided	N/A	Web-based Comments	21117	24
Nord	Randall	not provided	N/A	Web-based Comments	56378, 56379	34
Nord	Randall	not provided	N/A	Web-based Comments	26617	24
Nord	Stephanie	not provided	N/A	Web-based Comments	54980	34
Nord	Stephanie	not provided	N/A	Web-based Comments	29236	24
Nordberg	Valerie	not provided	N/A	Web-based Comments	51045	34
Nordberg	Valerie	not provided	N/A	Web-based Comments	31037	24
Nordeman	Valerie	not provided	N/A	Web-based Comments	46452	34
NORDEMAN	VALERIE	not provided	N/A	Web-based Comments	31038	24
Norden	Michael	not provided	N/A	Web-based Comments	46709	34
Nordenholz	K	not provided	N/A	Web-based Comments	18979	24
Norderval	Kristin	nordervalk@mac.com	N/A	Web-based comments	2483	1
Nordgren	Sandra	not provided	N/A	Web-based Comments	28196	24
Nordhaug	Mathilde	not provided	N/A	Web-based Comments	23602	24
Nordhof	Pamela	not provided	N/A	Web-based Comments	25575	24
Nordin	Lillian	not provided	N/A	Web-based Comments	44478	34
Nordin	Lillian	not provided	N/A	Web-based Comments	21169	24
Nordlie	Eric	not provided	N/A	Web-based Comments	14129	24
Nordlof	Gail	not provided	N/A	Web-based Comments	14704	24
Nordlund	Diana	not provided	N/A	Web-based Comments	51193	34
nordlund	james	not provided	N/A	Web-based Comments	52240	34
Noreikat	Sylviane	not provided	N/A	Web-based Comments	30081	24
Norell	Judith	not provided	N/A	Web-based Comments	18635	24
Noren	Allen	not provided	N/A	Web-based Comments	52177	34
Noren	Elizabeth	not provided	N/A	Web-based Comments	55701	34
Noren	richard	r.noren@frontier.com	N/A	Web-based comments	46	N/A
Noreuil	Josh	not provided	N/A	Web-based Comments	18421	24
Norheim	Randy	randno1@juno.com	N/A	Web-based comments	2201	N/A

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Norine	catherine	not provided	N/A	Web-based Comments	10306	24
Norling	Jane	not provided	N/A	Web-based Comments	16522	24
Norman	Brenda	not provided	N/A	Web-based Comments	45885	34
Norman	Camille	not provided	N/A	Web-based Comments	53414	34
Norman	Camille	not provided	N/A	Web-based Comments	9744	24
Norman	Catherine	not provided	N/A	Web-based Comments	10307	24
Norman	Christine	not provided	N/A	Web-based Comments	49955	34
Norman	Georgia	not provided	N/A	Web-based Comments	14941	24
norman	hal	not provided	N/A	Web-based Comments	15377	24
Norman	Kay	not provided	N/A	Web-based Comments	19830	24
Norman	Marcus	not provided	N/A	Web-based comments	4857	N/A
Norman	Melissa	not provided	N/A	Web-based Comments	23911	24
Normandeau	Meagan	not provided	N/A	Web-based comments	56715	35
Noroyan	Annabell	not provided	N/A	Web-based Comments	8159	24
Norrgard	Lois	not provided	N/A	Web-based Comments	21726	24
Norris	Andrea	not provided	N/A	Web-based Comments	7760	24
Norris	Brenda	not provided	N/A	Web-based Comments	9413	24
Norris	Gordon	not provided	N/A	Web-based Comments	48973	34
norris	jan	not provided	N/A	Web-based Comments	16415	24
Norris	Linda	not provided	N/A	Web-based Comments	21369	24
Norris	Manly	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4645	N/A
Norris	Megan	not provided	N/A	Web-based Comments	46080	34
Norris	Megan	not provided	N/A	Web-based Comments	23798	24
Norris	Rachel	not provided	N/A	Web-based Comments	56199	34
Norris	S.	not provided	N/A	Web-based Comments	45380, 45381	34
Norris	S.	not provided	N/A	Web-based Comments	27960	24
Norris	Shaun	not provided	N/A	Web-based Comments	47527	34
norris	Shaun	not provided	N/A	Web-based Comments	28741	24
Norris	Susan	not provided	N/A	Web-based Comments	29788	24
North	Ellen	not provided	N/A	Web-based Comments	13933	24
Northam	Robert	not provided	N/A	Web-based Comments	27342	24
Northen	Ed	northen1@cox.net	N/A	Web-based comments	5758	8
Northrop	Dan	not provided	N/A	Web-based Comments	11668	24
Northway	Maren	not provided	N/A	Web-based Comments	22416	24
Northwood	Carly	not provided	N/A	Web-based Comments	49171	34
Norton	Bob	not provided	N/A	Web-based Comments	9246	24
Norton	Donna	not provided	N/A	Web-based Comments	13164	24
Norton	Holly	not provided	N/A	Web-based Comments	51337	34
Norton	Megan	not provided	N/A	Web-based Comments	23799	24
Norton	Rhonda	not provided	N/A	Web-based Comments	26905	24
Norup	Paul	not provided	N/A	Web-based Comments	26031	24
Norvell	Christa	gorgemom22@yahoo.com	N/A	Web-based comments	3086	N/A
Norwood	Beth	not provided	N/A	Web-based Comments	9039	24
Norwood	Glenys	not provided	N/A	Web-based Comments	15146	24
Norwood	Julie	not provided	N/A	Web-based comments	56894	35
Norwood	Julie	not provided	N/A	Web-based Comments	51312	34
Nosbaum	Jeffrey	not provided	N/A	Web-based Comments	17094	24
not provided	A	not provided	N/A	Web-based comments	6701	1
not provided	Aarohn	beyer.aarohn2015@gmail.com	N/A	Web-based comments	5050	N/A
not provided	Aaron	aaronpenvose@gmail.com	N/A	Web-based comments	6221	N/A
not provided	Abbey	abbz4ya@yahoo.com	N/A	Web-based comments	788	N/A
not provided	Abby	kurtzabby96@gmail.com	N/A	Web-based comments	1536	N/A
not provided	Abela	not provided	N/A	Web-based comments	2067	1
not provided	Abhijeet	not provided	N/A	Web-based comments	729	1
not provided	Adam	apexadam@hotmail.com	N/A	Web-based comments	3121	N/A
not provided	Adam	earthtoadam@icloud.com	N/A	Web-based comments	4314	N/A
not provided	Adam	engelburgg@gmail.com	N/A	Web-based comments	6702*	N/A
not provided	Adam	not provided	N/A	Web-based comments	6862	1
not provided	Addie	not provided	N/A	Web-based comments	6452	N/A
not provided	addy	addymasters300@gmail.com	N/A	Web-based comments	809	N/A
not provided	Adelaide	not provided	N/A	Web-based comments	4339	1
not provided	Adriana	adriana.mirafiore@hotmail.com	N/A	Web-based comments	1827	1
not provided	Agasse	agasse.celine@gmail.com	N/A	Web-based comments	1761	1
not provided	Alan	not provided	N/A	Web-based comments	3571	N/A
not provided	Alannah	not provided	N/A	Web-based comments	637	1
not provided	Alberto	alberto.artero.lloixa@gmail.com	N/A	Web-based comments	3660	N/A
not provided	Aleksa	bohlinaleksa978@gmail.com	N/A	Web-based comments	1063	N/A
not provided	Alex	alexghowerton@hotmail.com	N/A	Web-based comments	1347	N/A
not provided	Alex	not provided	N/A	Web-based comments	617, 6113	1
not provided	Alexa	alexaspier@hotmail.com	N/A	Web-based comments	4866, 5787	1

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
not provided	Alexandra	alexandragm91@gmail.com	N/A	Web-based comments	6213	1
not provided	Alexandra	fey710@hotmail.com	N/A	Web-based comments	400	1
not provided	Alexandra	not provided	N/A	Web-based comments	3823	1
not provided	Alexis	not provided	N/A	Web-based comments	576*	N/A
not provided	Alexis	not provided	N/A	Web-based comments	910	1
not provided	Alice	alicebirnbaum92@gmail.com	N/A	Web-based comments	441	N/A
not provided	Alice	alicevg@live.fr	N/A	Web-based comments	1442	1
not provided	Alice	not provided	N/A	Web-based comments	5818	1
not provided	Alice	underu@hotmail.fr	N/A	Web-based comments	147	1
not provided	Alicia	not provided	N/A	Web-based comments	1564	1
not provided	Alina	not provided	N/A	Web-based comments	6240	N/A
not provided	Aliz?e	not provided	N/A	Web-based comments	1613	1
not provided	Allie	not provided	N/A	Web-based comments	368	1
not provided	Allison	allijacks@yahoo.com	N/A	Web-based comments	5858	N/A
not provided	AloÃ¨se	aloise.ca@gmail.com	N/A	Web-based comments	3562, 6705*, 155	1
not provided	Aloise	not provided	N/A	Web-based comments	2675	N/A
not provided	Aloise	not provided	N/A	Web-based comments	1453	1
not provided	Alyssa	alyssaano13@gmail.com	N/A	Web-based comments	987	N/A
not provided	Alyssa	not provided	N/A	Web-based comments	817	2
not provided	Alyzyryean	alyzyryean@yahoo.com	N/A	Web-based comments	5768	1
not provided	Am?lie	amelie.mazenc@gmail.com	N/A	Web-based comments	336	1
not provided	Amanda	amanda.faglie16@yahoo.com	N/A	Web-based comments	671	2
not provided	Amanda	not provided	N/A	Web-based comments	1247, 6095	1
not provided	Amanda	placentapower@gmail.com	N/A	Web-based comments	6417	1
not provided	Amandine	not provided	N/A	Web-based comments	1186	1
not provided	Amelie	not provided	N/A	Web-based comments	940	1
not provided	Ammons	jimretired42@gmail.com	N/A	Web-based comments	5169	N/A
not provided	Amy	amy@actionnetwork.org	N/A	Web-based comments	2223	N/A
not provided	Amy	missamygreenaway@hotmail.co.uk	N/A	Web-based comments	2986	1
not provided	Amy	not provided	N/A	Web-based comments	6746	1
not provided	Ana	not provided	N/A	Web-based comments	1954	1
not provided	Ana?l	not provided	N/A	Web-based comments	1738	1
not provided	Anais	not provided	N/A	Web-based comments	1617	1
not provided	Anamoutou	jessicaanamoutou@outlook.fr	N/A	Web-based comments	4372	1
not provided	Anders	lagrangian@gmail.com	N/A	Web-based comments	4302	N/A
not provided	Andr?a	not provided	N/A	Web-based comments	341	1
not provided	Andrea	not provided	N/A	Web-based comments	31824	N/A
not provided	Andrea	not provided	N/A	Web-based comments	1417	1
not provided	Andrew	ajkonecny@gmail.com	N/A	Web-based comments	58811	N/A
not provided	Andrew	andrew.bergstrom88@gmail.com	N/A	Web-based comments	32021	1
not provided	Andrew	not provided	N/A	Web-based comments	1391	N/A
not provided	Andriana	not provided	N/A	Web-based comments	6336	1
not provided	Andy	not provided	N/A	Web-based comments	5959	N/A
not provided	Anfossi	not provided	N/A	Web-based comments	2068	1
not provided	Angel	not provided	N/A	Web-based comments	6837	1
not provided	Angela	not provided	N/A	Web-based comments	960	1
not provided	Angie	not provided	N/A	Web-based comments	1341	N/A
not provided	Anika	anika.nixdorf@gmail.com	N/A	Web-based comments	6755	1
not provided	Anjelica	not provided	N/A	Web-based comments	6889	1
not provided	Ann	not provided	N/A	Web-based comments	3853	1
not provided	Anna	annabisheva23@gmail.com	N/A	Web-based comments	621	N/A
not provided	Anna	not provided	N/A	Web-based comments	693, 954	N/A
not provided	Anna	not provided	N/A	Web-based comments	313, 5755	1
not provided	Annaelle	guilon.annaelle@gmail.com	N/A	Web-based comments	318	1
not provided	Anne	anne.philippe@hotmail.fr	N/A	Web-based comments	450	1
not provided	Anne	not provided	N/A	Web-based comments	411	N/A
not provided	Anonymous	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	56658, 56692	N/A
not provided	Anthony	not provided	N/A	Web-based comments	5351	N/A
not provided	Anya	not provided	N/A	Web-based comments	5071	N/A
not provided	Apolline	not provided	N/A	Web-based comments	1248	1
not provided	April	aprilapple@tumwater.net	N/A	Web-based comments	3247	N/A
not provided	AR	not provided	N/A	Web-based comments	31787	1
not provided	Ari	Aflores0809@gmail.com	N/A	Web-based comments	32256	1
not provided	Armony	armonybroussard@gmail.com	N/A	Web-based comments	522	1
not provided	Ashley	ashleybt26@yahoo.com	N/A	Web-based comments	5761	1
not provided	Ashley	garcia.ash23@gmail.com	N/A	Web-based comments	31848	1
not provided	Aubrey	briebeth@gmail.com	N/A	Web-based comments	5004	1
not provided	Aude	audegueveneu@gmail.com	N/A	Web-based comments	397	2

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
not provided	Audii	fournieraude@hotmail.fr	N/A	Web-based comments	4333, 4898, 6610	1
not provided	Audrey	hello.audalisque@gmail.com	N/A	Web-based comments	290	1
not provided	Audrey	josserand.audrey@gmail.com	N/A	Web-based comments	913	1
not provided	Audrey	not provided	N/A	Web-based comments	1950	N/A
not provided	Audrey	not provided	N/A	Web-based comments	844, 1385	2
not provided	Aur?lie	poupa.aurelie@gmail.com	N/A	Web-based comments	1430, 1337	1
not provided	aurelie	not provided	N/A	Web-based comments	162	1
not provided	Aurelie	not provided	N/A	Web-based comments	1887	1
not provided	Auriol	not provided	N/A	Web-based comments	212	1
not provided	Avery	not provided	N/A	Web-based comments	1082	N/A
not provided	Ax?le	not provided	N/A	Web-based comments	543	1
not provided	Aya	aygul-usa@yandex.ru	N/A	Web-based comments	1136	N/A
not provided	Ayla	aylamaria@gmail.com	N/A	Web-based comments	32081	1
not provided	Aymeric	a.herniot@laposte.net	N/A	Web-based comments	436	1
not provided	B?r?nice	berenice.reischek@laposte.net	N/A	Web-based comments	403	1
not provided	B?reng?re	berangere.chalvet@gmail.com	N/A	Web-based comments	279	1
not provided	B2	not provided	N/A	Web-based comments	1255, 2261	N/A
not provided	Bachelier	oceane.bachelier49@gmail.com	N/A	Web-based comments	356	1
not provided	Banks	not provided	N/A	Web-based comments	2350	1
not provided	Barbara	not provided	N/A	Web-based comments	2493	1
not provided	Barbara	rababs2000@yahoo.de	N/A	Web-based comments	5954	1
not provided	Baron	helene.eabaron@wanadoo.fr	N/A	Web-based comments	500	1
not provided	Barron	barron@barronmind.com	N/A	Web-based comments	2728	N/A
not provided	Barry	not provided	N/A	Web-based comments	2219	N/A
not provided	BD	not provided	N/A	Web-based comments	31995	N/A
not provided	Beatriz	orellana.beatriz.88@gmail.com	N/A	Web-based comments	32209	1
not provided	Beba	bebavincenzi73@gmail.com	N/A	Web-based comments	5931	1
not provided	bebang	not provided	N/A	Web-based comments	1379	1
not provided	Becky	not provided	N/A	Web-based comments	69, 6783	1
not provided	Beisso	not provided	N/A	Web-based comments	1939	1
not provided	Beka	doterrabeka@gmail.com	N/A	Web-based comments	32195	1
not provided	Ben	nel01010@gmail.com	N/A	Web-based comments	2009, 2010, 2609	N/A
not provided	Benjamin	not provided	N/A	Web-based comments	5481	1
not provided	Betty	not provided	N/A	Web-based comments	2763	N/A
not provided	Bianca	not provided	N/A	Web-based comments	694	1
not provided	Bilitis	not provided	N/A	Web-based comments	6253	1
not provided	Bill	not provided	N/A	Web-based comments	1528	N/A
not provided	Bill	whollen1@msn.com	N/A	Web-based comments	4930	N/A
not provided	Blaire	not provided	N/A	Web-based comments	6197	1
not provided	Blake	blakelassahn@gmail.com	N/A	Web-based comments	1056	N/A
not provided	Blandenier	not provided	N/A	Web-based comments	1544	1
not provided	BNV	not provided	N/A	Web-based comments	2229	N/A
not provided	Bob	nomad56belaire@gmail.com	N/A	Web-based comments	4903	N/A
not provided	Bob	not provided	N/A	Web-based comments	2692, 6300	N/A
not provided	Boccacini	not provided	N/A	Web-based comments	2184	1
not provided	Boildieu	not provided	N/A	Web-based comments	4419	1
not provided	Bosi	clara.bosi@outlook.fr	N/A	Web-based comments	351	1
not provided	Bottero	paulinebottero508@gmail.com	N/A	Web-based comments	509	2
not provided	Bourquin	not provided	N/A	Web-based comments	3802	1
not provided	Bree	breeemayo@yahoo.com	N/A	Web-based comments	1049	1
not provided	Brenda	matildaschnozbogner@gmail.com	N/A	Web-based comments	3292	N/A
not provided	Brendan	brendancogan@gmail.com	N/A	Web-based comments	1440	N/A
not provided	brent	not provided	N/A	Web-based comments	3516	N/A
not provided	Brent	not provided	N/A	Web-based comments	3868	N/A
not provided	Brent	rolltide707@gmail.com	N/A	Web-based comments	915	1
not provided	Bridgid	asighonawhim@gmail.com	N/A	Web-based comments	2077	N/A
not provided	Brigitte	not provided	N/A	Web-based comments	1433	1
not provided	Brisbarre	nadege.brisbarre@gmail.com	N/A	Web-based comments	1287	1
not provided	Britt	not provided	N/A	Web-based comments	1076	N/A
not provided	Britt	not provided	N/A	Web-based comments	5161	1
not provided	Brittany	aaron43098@aim.com	N/A	Web-based comments	6183	1
not provided	Brittany	brittany@changeist.org	N/A	Web-based comments	1291	1
not provided	Brittany	not provided	N/A	Web-based comments	6782	1
not provided	Brooke	not provided	N/A	Web-based comments	2282, 2283, 4912, 6635, 6709	1
not provided	Brother	not provided	N/A	Web-based comments	1492	1
not provided	Broudin	maxime.broudin@live.fr	N/A	Web-based comments	1624	N/A
not provided	Bruce	not provided	N/A	Web-based comments	1992, 3457	N/A
not provided	Brulet	not provided	N/A	Web-based comments	2215	1

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
not provided	Bruno	bruno.cador@gmail.com	N/A	Web-based comments	1555	N/A
not provided	Bryan	not provided	N/A	Web-based comments	6651	N/A
not provided	Bryan	not provided	N/A	Web-based comments	3022	8
not provided	bryan	not provided	N/A	Web-based comments	1791	1
not provided	Bubba	bubbabennett5@gmail.com	N/A	Web-based comments	31827	1
not provided	Burnet	not provided	N/A	Web-based comments	2183	1
not provided	C	c3garman@gmail.com	N/A	Web-based comments	730	N/A
not provided	Caillon	not provided	N/A	Web-based comments	1264	1
not provided	Caleb	cdmccall@live.com	N/A	Web-based comments	32113	N/A
not provided	Calee	not provided	N/A	Web-based comments	4847	1
not provided	Callie	not provided	N/A	Web-based comments	5985	N/A
not provided	Cam	not provided	N/A	Web-based comments	304	1
not provided	Cameron	cmully@yahoo.com	N/A	Web-based comments	32082	1
not provided	Camille	cmslambert1@gmail.com	N/A	Web-based comments	321	1
not provided	Camille	not provided	N/A	Web-based comments	433, 434	N/A
not provided	Camille	not provided	N/A	Web-based comments	1678, 32148	1
not provided	Cammee	cocoandbug@gmail.com	N/A	Web-based comments	5665	1
not provided	Cammeron	not provided	N/A	Web-based comments	6305	1
not provided	Cara	not provided	N/A	Web-based comments	221	N/A
not provided	Carey	sageyh@yahoo.com	N/A	Web-based comments	2003	N/A
not provided	Carim	not provided	N/A	Web-based comments	452	1
not provided	Carine	bocquet.carine@wanadoo.fr	N/A	Web-based comments	333	1
not provided	Carol	not provided	N/A	Web-based comments	2673	N/A
not provided	Carol	orcharding@yahoo.com	N/A	Web-based comments	2415, 58808	N/A
not provided	Caroline	carolinenot77@gmail.com	N/A	Web-based comments	366	N/A
not provided	Caroline	not provided	N/A	Web-based comments	372	2
not provided	Caroline	not provided	N/A	Web-based comments	373	1
not provided	Carrie	not provided	N/A	Web-based comments	6342	1
not provided	Casey	not provided	N/A	Web-based comments	65	N/A
not provided	Cassady	not provided	N/A	Web-based comments	210	1
not provided	Cassidy	not provided	N/A	Web-based comments	31810	1
not provided	Cate	not provided	N/A	Web-based comments	31996	1
not provided	Catherine	catferrera@icloud.com	N/A	Web-based comments	32175	1
not provided	Catherine	not provided	N/A	Web-based comments	2079	1
not provided	Catherine	tcschini@roadrunner.com	N/A	Web-based comments	32068	1
not provided	Cathy	mrscatherineread@gmail.com	N/A	Web-based comments	1191	1
not provided	Cathy	not provided	N/A	Web-based comments	477, 1077, 1151, 1476, 1858, 2155, 2239	1
not provided	Cavaiani	cav@myidahomail.com	N/A	Web-based comments	5256	N/A
not provided	Cazin	not provided	N/A	Web-based comments	1830, 2018	1
not provided	Cecile	c.gomez53@laposte.net	N/A	Web-based comments	503	1
not provided	Celine	celine.grussy@gmail.com	N/A	Web-based comments	442	1
not provided	Celine	not provided	N/A	Web-based comments	430	1
not provided	Cestino	not provided	N/A	Web-based comments	1744	1
not provided	Chapron	not provided	N/A	Web-based comments	2066	1
not provided	Char	volkswagging@yahoo.com	N/A	Web-based comments	2989	N/A
not provided	Charlie	not provided	N/A	Web-based comments	300	1
not provided	Cheryl	not provided	N/A	Web-based comments	3765	N/A
not provided	Cheyenne	chizan.k@hotmail.con	N/A	Web-based comments	1251	N/A
not provided	Chlo?	not provided	N/A	Web-based comments	311, 125, 1206, 1463	2, 1
not provided	Chloe	canada2017ca@gmail.com	N/A	Web-based comments	317	1
not provided	Chloe	chloe.lepage.nz@gmail.com	N/A	Web-based comments	263, 957, 1428, 1966, 2112, 2213	1
not provided	Chloe	chloereyes7@gmail.com	N/A	Web-based comments	6422	1
not provided	Chloe	not provided	N/A	Web-based comments	4831	N/A
not provided	Chris	not provided	N/A	Web-based comments	3723	N/A
not provided	Chris	not provided	N/A	Web-based comments	6742	1
not provided	Christian	not provided	N/A	Web-based comments	6286	1
not provided	Christina	christina5ford@gmail.com	N/A	Web-based comments	32088	1
not provided	Christina	not provided	N/A	Web-based comments	820	N/A
not provided	Christina	not provided	N/A	Web-based comments	1005	1
not provided	Christine	not provided	N/A	Web-based comments	756	N/A
not provided	Christopher	not provided	N/A	Web-based comments	3794	N/A
not provided	Christopher	not provided	N/A	Web-based comments	711	2
not provided	Christopher	not provided	N/A	Web-based comments	6466	1
not provided	Cilou	cilou@crusineacademie.com	N/A	Web-based comments	367	1
not provided	Cindy	cindy_lemon@yahoo.com	N/A	Web-based comments	3388	N/A
not provided	cj	cjhuntno6@yahoo.com	N/A	Web-based comments	3104	N/A
not provided	CJ	not provided	N/A	Web-based comments	6629	1
not provided	Claire	clairegio9@gmail.com	N/A	Web-based comments	6496	1
not provided	Claire	lamande.claire@gmail.com	N/A	Web-based comments	68	1

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
not provided	Claire	not provided	N/A	Web-based comments	2802, 6082	N/A
not provided	Claire	not provided	N/A	Web-based comments	89, 1454, 4330	1
not provided	Clara	clara.navarre04@gmail.com	N/A	Web-based comments	57, 287	1, 2
not provided	Clara	not provided	N/A	Web-based comments	122, 1636, 1677	1
not provided	Claudia	claudiacrosier66@gmail.com	N/A	Web-based comments	1515	N/A
not provided	Claudia	not provided	N/A	Web-based comments	537	N/A
not provided	Clement	not provided	N/A	Web-based comments	338	1
not provided	Clotilde	not provided	N/A	Web-based comments	480	1
not provided	Codi	not provided	N/A	Web-based comments	6066	1
not provided	Coenen	marjorie_coenen@hotmail.com	N/A	Web-based comments	1365	1
not provided	Colin	cdurfe02@gmail.com	N/A	Web-based comments	2580	N/A
not provided	Coline	coline.caumont@gmail.com	N/A	Web-based comments	1533, 695	1
not provided	Coline	not provided	N/A	Web-based comments	1438	1
not provided	Colleen	not provided	N/A	Web-based comments	6439	1
not provided	Collins	not provided	N/A	Web-based comments	2317	1
not provided	Comby	not provided	N/A	Web-based comments	533	1
not provided	Coralie	coraliedurand46@gmail.com	N/A	Web-based comments	495	1
not provided	Coralie	menantcoralie@gmail.com	N/A	Web-based comments	492, 1279	1
not provided	cornitte	m.cornitte@gmail.com	N/A	Web-based comments	1642	1
not provided	Corrine	crinnyt28@gmail.com	N/A	Web-based comments	1069	1
not provided	Corrine	not provided	N/A	Web-based comments	5703	1
not provided	Cory	not provided	N/A	Web-based comments	6560, 6895	1
not provided	Cosson	not provided	N/A	Web-based comments	1831	1
not provided	courtial	not provided	N/A	Web-based comments	2019	1
not provided	Craig	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	56637	N/A
not provided	Crystal	crose.1432@gmail.com	N/A	Web-based comments	31980	1
not provided	Curtis	biker_k2001@yahoo.com	N/A	Web-based comments	3773	N/A
not provided	Cynthia	ccollori83@yahoo.com	N/A	Web-based comments	599	2
not provided	Cyril	not provided	N/A	Web-based comments	1822	1
not provided	Cyrille	not provided	N/A	Web-based comments	1254	1
not provided	Da	not provided	N/A	Web-based comments	5164	N/A
not provided	Daelyn	not provided	N/A	Web-based comments	6525	1
not provided	Dagny	dagnydeutchman@gmail.com	N/A	Web-based comments	6036	N/A
not provided	Dahlia	mkprncess@aol.com	N/A	Web-based comments	203	N/A
not provided	Dalila	not provided	N/A	Web-based comments	5731	1
not provided	Dalton	jonesdalton46@gmail.com	N/A	Web-based comments	5226	N/A
not provided	Dan	danbdavison@msn.com	N/A	Web-based comments	2699	N/A
not provided	Dan	mercer566@gmail.com	N/A	Web-based comments	6474	1
not provided	Dana	not provided	N/A	Web-based comments	388	1
not provided	Dana	solaeros@gmail.com	N/A	Web-based comments	3472	N/A
not provided	Danielle	not provided	N/A	Web-based comments	1021, 4147	N/A
not provided	Danielle	not provided	N/A	Web-based comments	2051	2
not provided	darian	not provided	N/A	Web-based comments	31964	1
not provided	Darla	boreys7@msn.com	N/A	Web-based comments	2577	N/A
not provided	Darla	not provided	N/A	Web-based comments	6594	N/A
not provided	Dave	daveweir9@gmail.com	N/A	Web-based comments	140	1
not provided	Dave	not provided	N/A	Web-based comments	32130	N/A
not provided	Dave	not provided	N/A	Web-based comments	2930	8
not provided	David	not provided	N/A	Web-based comments	3082, 3362	N/A
not provided	Debbie	debbiejhn54@gmail.com	N/A	Web-based comments	5630	N/A
not provided	Delfina	delfinaetchart@hotmail.com	N/A	Web-based comments	3118	1
not provided	Delfine	not provided	N/A	Web-based comments	1606	1
not provided	Dennis	not provided	N/A	Web-based comments	2914	N/A
not provided	Desalvo	desalvo.nathalie@orange.fr	N/A	Web-based comments	253, 549, 1161	1
not provided	Desalvo	not provided	N/A	Web-based comments	1377	1
not provided	DESAUTEL	tdes71@gmail.com	N/A	Web-based comments	515	2
not provided	Desiree	desi7690@yahoo.com	N/A	Web-based comments	205	N/A
not provided	Dewey	not provided	N/A	Web-based comments	609	1
not provided	DGG	davidg6789@aol.com	N/A	Web-based comments	5785	N/A
not provided	Diana	not provided	N/A	Web-based comments	559	2
not provided	Disha	dishans93@gmail.com	N/A	Web-based comments	32177	1
not provided	DKH	not provided	N/A	Web-based comments	329	1
not provided	Don	not provided	N/A	Web-based comments	4797	N/A
not provided	Donny	erieffIt@gmail.com	N/A	Web-based comments	4864	N/A
not provided	Dorothy	not provided	N/A	Web-based comments	3144	N/A
not provided	Doug	not provided	N/A	Web-based comments	4799	N/A
not provided	Dream	not provided	N/A	Web-based comments	1154	2
not provided	Drew	DREW.C.KILLIAN@GMAIL.COM	N/A	Web-based comments	2978	5
not provided	DROMAIN	not provided	N/A	Web-based comments	1587	1
not provided	Duane	dmgonefishing@gmail.com	N/A	Web-based comments	5249	N/A

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
not provided	Dudley	not provided	N/A	Web-based comments	3750*	1
not provided	Dulieu	not provided	N/A	Web-based comments	5771	N/A
not provided	Dylan	not provided	N/A	Web-based comments	4371	1
not provided	Eduardo	not provided	N/A	Web-based comments	3000	8
not provided	Eilema	eilemadfr0@outlook.fr	N/A	Web-based comments	1204	1
not provided	Elena	elenanataliaede@gmail.com	N/A	Web-based comments	6216	N/A
not provided	Elena	elenazlambertson@gmail.com	N/A	Web-based comments	1073	1
not provided	Elena	elouisiade@live.fr	N/A	Web-based comments	1374	1
not provided	Elena	jackaverybello@gmail.com	N/A	Web-based comments	1706	1
not provided	Eleonore	lefebvre.eleonore@outlook.fr	N/A	Web-based comments	516	2
not provided	Elisa	not provided	N/A	Web-based comments	6508	22
not provided	Elisabeth	babeth3007@hotmail.fr	N/A	Web-based comments	315	1
not provided	Elisabeth	elihebert50@hotmail.com	N/A	Web-based comments	1506	1
not provided	Elizabeth	laughinginslowmotion@gmail.com	N/A	Web-based comments	32132	1
not provided	Elle	not provided	N/A	Web-based comments	276	1
not provided	Ellie	not provided	N/A	Web-based comments	2382	1
not provided	ElliottMoffett	moffett007@gmail.com	N/A	Web-based comments	6816	N/A
not provided	Elly	evonwehren@gmail.com	N/A	Web-based comments	2046	N/A
not provided	Elo?se	teboul.elo@wanadoo.fr	N/A	Web-based comments	409	1
not provided	Elsbeth	not provided	N/A	Web-based comments	3213	N/A
not provided	Elvia	ecruzgarcia@ucsb.edu	N/A	Web-based comments	32171	1
not provided	Em	not provided	N/A	Web-based comments	413	1
not provided	Emeline	emelinedavid@free.fr	N/A	Web-based comments	1725	1
not provided	Emile	emileheritier@gmail.com	N/A	Web-based comments	1469	N/A
not provided	Emilie	cambray.emilie@hotmail.fr	N/A	Web-based comments	1532	1
not provided	Emilie	emilie.martin0087@gmail.com	N/A	Web-based comments	256	1
not provided	Emilie	miliemua@gmail.com	N/A	Web-based comments	312	1
not provided	Emily	not provided	N/A	Web-based comments	1102, 5716	N/A
not provided	Emily	not provided	N/A	Web-based comments	1130, 32048	1
not provided	Emma	not provided	N/A	Web-based comments	6208	1
not provided	Emmanuelle	manou.buono@gmail.com	N/A	Web-based comments	358	1
not provided	Emmett	not provided	N/A	Web-based comments	4879	1
not provided	Emy	not provided	N/A	Web-based comments	2803	1
not provided	Eric	not provided	N/A	Web-based comments	4891	N/A
not provided	Erica	ermellon@gmail.com	N/A	Web-based comments	31990	1
not provided	Ericka	not provided	N/A	Web-based comments	32219	1
not provided	Erik	erik.corellai@gmail.com	N/A	Web-based comments	3645	1
not provided	Erika	erika.alas@yahoo.com	N/A	Web-based comments	6509	1
not provided	Erika	not provided	N/A	Web-based comments	4214	N/A
not provided	Erika	not provided	N/A	Web-based comments	1521	1
not provided	Erin	em4carroll@gmail.com	N/A	Web-based comments	6317	1
not provided	Erin	erinrutherford815@gmail.com	N/A	Web-based comments	1721	1
not provided	Erin	eschwing21@gmail.com	N/A	Web-based comments	970	N/A
not provided	Erin	guyerinys@gmail.com	N/A	Web-based comments	31957	1
not provided	Erin	not provided	N/A	Web-based comments	213	N/A
not provided	Estelle	not provided	N/A	Web-based comments	1674	1
not provided	Ethan	ethandyer04@gmail.com	N/A	Web-based comments	947	2
not provided	Eulalie	eulalie.ricou@laposte.net	N/A	Web-based comments	378	1
not provided	Evgenia	not provided	N/A	Web-based comments	1358	1
not provided	EW	e.wickliffe3@gmail.com	N/A	Web-based comments	3096	9
not provided	Fabian	fabian92zx@gmail.com	N/A	Web-based comments	6754	1
not provided	Fanny	loprestifanny@hotmail.com	N/A	Web-based comments	526	1
not provided	Fanny	not provided	N/A	Web-based comments	337, 523, 1387	1
not provided	Felix	not provided	N/A	Web-based comments	32151	1
not provided	Fillot	caroline_fillot@hotmail.fr	N/A	Web-based comments	444	1
not provided	Fleig	jessicafleig06@gmail.com	N/A	Web-based comments	127	1
not provided	Flore	florepineau63@gmail.com	N/A	Web-based comments	1194	1
not provided	Florence	not provided	N/A	Web-based comments	3249	N/A
not provided	Florence	not provided	N/A	Web-based comments	226	1
not provided	florenne	not provided	N/A	Web-based comments	636	N/A
not provided	Florine	florine.dellus.bts@gmail.com	N/A	Web-based comments	451, 453	1
not provided	Fourel	not provided	N/A	Web-based comments	472	2
not provided	Francesca	francescastonum@gmail.com	N/A	Web-based comments	1592	N/A
not provided	frank	not provided	N/A	Web-based comments	5202	N/A
not provided	Frank	not provided	N/A	Web-based comments	2471	1
not provided	Franny	not provided	N/A	Web-based comments	1332	N/A
not provided	Frederic	not provided	N/A	Web-based comments	1728	1
not provided	Friedman	not provided	N/A	Web-based comments	1011	N/A
not provided	Frn	fournieraude@hotmail.fe	N/A	Web-based comments	5823	1
not provided	G	gagrtz@gmail.com	N/A	Web-based comments	1028	N/A

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
not provided	Gabriella	not provided	N/A	Web-based comments	779	1
not provided	Gaetan	not provided	N/A	Web-based comments	396	1
not provided	Gage	redtj97@yahoo.con	N/A	Web-based comments	5427	8
not provided	Gail	gailbas@hotmail.com	N/A	Web-based comments	5120	N/A
not provided	Gamal	tennisbaan.hoesje@gmail.com	N/A	Web-based comments	895	N/A
not provided	Garcia	not provided	N/A	Web-based comments	1459	N/A
not provided	Garnache	garnache.benjamin@gmail.com	N/A	Web-based comments	267	2
not provided	Garnier	not provided	N/A	Web-based comments	1940	1
not provided	Gastaud	not provided	N/A	Web-based comments	1832	1
not provided	gb	not provided	N/A	Web-based comments	6852	N/A
not provided	George	not provided	N/A	Web-based comments	6790	N/A
not provided	Gey	not provided	N/A	Web-based comments	1733	1
not provided	Ghione	not provided	N/A	Web-based comments	2017	1
not provided	Gibbs	not provided	N/A	Web-based comments	605	1
not provided	Gillian	not provided	N/A	Web-based comments	6494	1
not provided	Gina	not provided	N/A	Web-based comments	4943	1
not provided	Glammom	not provided	N/A	Web-based comments	5159	N/A
not provided	Gloris	not provided	N/A	Web-based comments	32183	1
not provided	Gokul	not provided	N/A	Web-based comments	834	N/A
not provided	gowa	ionlywearblue@gmail.com	N/A	Web-based comments	6378	1
not provided	Graffeo	claire.graffeo@hotmail.fr	N/A	Web-based comments	325, 1402, 1685	1
not provided	Graffeo	not provided	N/A	Web-based comments	322	1
not provided	Gronier	not provided	N/A	Web-based comments	1574	1
not provided	Guillop?	coralie.nguyenvan@outlook.fr	N/A	Web-based comments	346	1
not provided	Gunjali	gunjalichowdhari@gmail.com	N/A	Web-based comments	1565	N/A
not provided	Gus	not provided	N/A	Web-based comments	771	2
not provided	Gustavo	holagrb@gmail.com	N/A	Web-based comments	3334	N/A
not provided	Guy	guy.geay0408@orange.fr	N/A	Web-based comments	275	1
not provided	Gwenn	not provided	N/A	Web-based comments	1758	1
not provided	Haley	haleymitchell@ymail.com	N/A	Web-based comments	5345	1
not provided	Haley	haleytoon93@gmail.com	N/A	Web-based comments	5846	N/A
not provided	Haley	not provided	N/A	Web-based comments	152	1
not provided	Halie	s_halie@yahoo.com	N/A	Web-based comments	1215	N/A
not provided	Hannah	not provided	N/A	Web-based comments	647	N/A
not provided	Harla	harmoeny@gmail.com	N/A	Web-based comments	32118	1
not provided	Harry	harry.r33@gmail.com	N/A	Web-based comments	4966	N/A
not provided	Hayley	hayleyshannon25@gmail.com	N/A	Web-based comments	6337	N/A
not provided	Hazel	not provided	N/A	Web-based comments	1372	1
not provided	Heather	not provided	N/A	Web-based comments	32078	27
not provided	Heidi	not provided	N/A	Web-based comments	5138	1
not provided	Helen	hellahelen@hotmail.com	N/A	Web-based comments	6920	1
not provided	Henry	not provided	N/A	Web-based comments	428	N/A
not provided	Herbelot	marineherbelot974@gmail.com	N/A	Web-based comments	1367	N/A
not provided	Holmes	darrlv2@hotmail.com	N/A	Web-based comments	4994	N/A
not provided	Hopper	robyn@johnphillipsjr.com	N/A	Web-based comments	924	1
not provided	HosseinRSH	hosseinhrs82@gmail.com	N/A	Web-based comments	1162	N/A
not provided	Hunter	not provided	N/A	Web-based comments	6168	1
not provided	Ian	siekmani@gmail.com	N/A	Web-based comments	687*	1
not provided	ICUA	willhartindc@hotmail.com	N/A	Web-based comments	4385	6
not provided	Ilsa	not provided	N/A	Web-based comments	157	1
not provided	Ines	schira.ines@gmail.com	N/A	Web-based comments	941	1
not provided	Ingrid	not provided	N/A	Web-based comments	5848	1
not provided	Irina	irinaprescura@gmail.com	N/A	Web-based comments	5772	1
not provided	Isa	not provided	N/A	Web-based comments	6370	1
not provided	Isabelle	isaleclair@wanadoo.fr	N/A	Web-based comments	271	1
not provided	Isea	isea_@hotmail.com	N/A	Web-based comments	1007	1
not provided	Ishka	meatnotmeeat@gmail.com	N/A	Web-based comments	32064	N/A
not provided	J	jmangan182@hotmail.com	N/A	Web-based comments	32186	1
not provided	J	not provided	N/A	Web-based comments	114, 6256	1
not provided	J35	not provided	N/A	Web-based comments	20	N/A
not provided	Jack	not provided	N/A	Web-based comments	1750	1
not provided	Jackie	jawaldron@brighthouse.com	N/A	Web-based comments	1094	N/A
not provided	Jacklynn	jsutherland124@gmail.com	N/A	Web-based comments	974	1
not provided	Jacob	not provided	N/A	Web-based comments	5123	N/A
not provided	Jacqueline	not provided	N/A	Web-based comments	1865	N/A
not provided	Jacqueline	not provided	N/A	Web-based comments	1866	1
not provided	Jahnavi	bonesandfeathers@gmail.com	N/A	Web-based comments	32242	1
not provided	Jake	not provided	N/A	Web-based comments	2478, 3764	N/A
not provided	James	not provided	N/A	Web-based comments	60, 5011, 5713, 6833	N/A
not provided	James	SweeneyJames624@gmail.com	N/A	Web-based comments	5332	N/A

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
not provided	Jamie	not provided	N/A	Web-based comments	6876	1
not provided	Jammie	not provided	N/A	Web-based comments	792	N/A
not provided	Jan?	not provided	N/A	Web-based comments	1039	2
not provided	Jane	not provided	N/A	Web-based comments	958	N/A
not provided	Janelle	not provided	N/A	Web-based comments	4563	1
not provided	Janet	not provided	N/A	Web-based comments	225	N/A
not provided	Janet	wildwiljan@aol.cm	N/A	Web-based comments	58848	N/A
not provided	Janna	not provided	N/A	Web-based comments	6348	N/A
not provided	JapieSneeubal	not provided	N/A	Web-based comments	780	N/A
not provided	Jared	manwaringshorts@gmail.com	N/A	Web-based comments	4407	N/A
not provided	Jasmine	not provided	N/A	Web-based comments	1907	1
not provided	Jason	fishsqueeze@gmail.com	N/A	Web-based comments	2873	N/A
not provided	Javin	not provided	N/A	Web-based comments	32038	1
not provided	Jay	not provided	N/A	Web-based comments	3296	N/A
not provided	Jazz	jazzdantas7@gmail.com	N/A	Web-based comments	852	N/A
not provided	JB	not provided	N/A	Web-based comments	2832	N/A
not provided	J-B	allain.jean-baptiste@hotmail.fr	N/A	Web-based comments	408	1
not provided	Jeaffrey	not provided	N/A	Web-based comments	2352	1
not provided	Jean	not provided	N/A	Web-based comments	2879, 4963	N/A
not provided	Jean-jacques	not provided	N/A	Web-based comments	5141	1
not provided	Jeanne	jeannedelneste20061998@gmail.com	N/A	Web-based comments	266	1
not provided	Jeanne	not provided	N/A	Web-based comments	456	N/A
not provided	Jen	lovetosail24@gmail.com	N/A	Web-based comments	5738	1
not provided	Jen	not provided	N/A	Web-based comments	610, 3922	N/A
not provided	Jenaya	not provided	N/A	Web-based comments	32173	1
not provided	Jenna	not provided	N/A	Web-based comments	857, 6120	1
not provided	Jennifer	jen.is_azn@yahoo.com	N/A	Web-based comments	4575	1
not provided	Jennifer	jenushka@hotmail.com	N/A	Web-based comments	926	1
not provided	jennifer	mllejenblanchard@gmail.com	N/A	Web-based comments	476	1
not provided	Jennifer	not provided	N/A	Web-based comments	1346, 5719	1
not provided	Jenny	andjennytoo@gmail.com	N/A	Web-based comments	928	1
not provided	Jeremie	not provided	N/A	Web-based comments	180	1
not provided	Jeremie	nrg1412@hotmail.com	N/A	Web-based comments	489	1
not provided	Jerry	not provided	N/A	Web-based comments	535	N/A
not provided	Jess	jlpayton.cria@gmail.com	N/A	Web-based comments	1930	1
not provided	Jesse	jmixer@yahoo.com	N/A	Web-based comments	31938	1
not provided	Jesse	not provided	N/A	Web-based comments	3087	N/A
not provided	Jessi	jessirabachuk@yahoo.com	N/A	Web-based comments	1294	1
not provided	Jessica	jessica.hupin@gmail.com	N/A	Web-based comments	348, 1156	1
not provided	Jessica	jessica.olla@hotmail.fr	N/A	Web-based comments	458, 1150, 1418, 1460, 1552, 1726, 3857, 58818	1
not provided	Jessica	kennedy@mymail.mines.edu	N/A	Web-based comments	2418	N/A
not provided	Jessica	not provided	N/A	Web-based comments	3601	N/A
not provided	jessica	not provided	N/A	Web-based comments	1773	1
not provided	Jessica	not provided	N/A	Web-based comments	1441, 1933, 3695, 5814, 6033, 6284, 6423, 6520	1
not provided	jim	not provided	N/A	Web-based comments	5998	N/A
not provided	Jim	not provided	N/A	Web-based comments	4540	N/A
not provided	Joane	not provided	N/A	Web-based comments	381	1
not provided	JoAnn	not provided	N/A	Web-based comments	3274	N/A
not provided	Joanne	not provided	N/A	Web-based comments	6196	1
not provided	Joel.Pitman	captainjoel63@hotmail.com	N/A	Web-based comments	4104	N/A
not provided	Johanna	johanna.jaegle@gmail.com	N/A	Web-based comments	513	1
not provided	Johanna	not provided	N/A	Web-based comments	58820	1
not provided	John	jfix3371@charter.net	N/A	Web-based comments	2084	N/A
not provided	John	not provided	N/A	Web-based comments	2244, 2289	N/A
not provided	JohnHoffman	hoffjm53@gmail.com	N/A	Web-based comments	3058	N/A
not provided	Johnson	not provided	N/A	Web-based comments	2400	1
not provided	Jon	jfchamplin@cableone.net	N/A	Web-based comments	3283	N/A
not provided	Jon	jonstegenga@gmail.com	N/A	Web-based comments	6593	1
not provided	Jon	not provided	N/A	Web-based comments	4804	N/A
not provided	Jonathan	jonp002@hotmail.com	N/A	Web-based comments	1175	N/A
not provided	Jones	not provided	N/A	Web-based comments	2264, 2316	1
not provided	Jordan	not provided	N/A	Web-based comments	1126	1
not provided	Jordan	shnierj@gmail.com	N/A	Web-based comments	2895	N/A
not provided	Josefien	josefienboonman@gmail.com	N/A	Web-based comments	1143	N/A
not provided	Joseph	not provided	N/A	Web-based comments	5803	N/A
not provided	Josh	joahandcork@gmail.com	N/A	Web-based comments	6633	N/A
not provided	Josh	not provided	N/A	Web-based comments	2549	N/A
not provided	Josh	scorpionf89@yahoo.com	N/A	Web-based comments	4004	N/A
not provided	Jou	clara.joubert86@gmail.com	N/A	Web-based comments	486	1
not provided	Jou	not provided	N/A	Web-based comments	1220	1

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
not provided	Joug	not provided	N/A	Web-based comments	390	1
not provided	Joujou	clarajoujou@gmail.com	N/A	Web-based comments	483	1
not provided	Jp	not provided	N/A	Web-based comments	674	N/A
not provided	Judith	judycthomas@outlook.com	N/A	Web-based comments	4843	1
not provided	Judy	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4751	N/A
not provided	Judy	not provided	N/A	Web-based comments	6510	N/A
not provided	juelaine	not provided	N/A	Web-based comments	3286	N/A
not provided	Julia	not provided	N/A	Web-based comments	6254	N/A
not provided	Julianne	julianne.m.dirks@gmail.com	N/A	Web-based comments	2437	N/A
not provided	Julie	fauvel_julie@yahoo.fr	N/A	Web-based comments	463	1
not provided	Julie	julie181196@gmail.com	N/A	Web-based comments	406	1
not provided	Julie	julie-marine44@hotmail.fr	N/A	Web-based comments	264	1
not provided	Julie	not provided	N/A	Web-based comments	58	N/A
not provided	Julie	not provided	N/A	Web-based comments	1572, 2044	1
not provided	Julie	popotin2019@gmail.com	N/A	Web-based comments	524	1
not provided	Julie	titepunkeuz@hotmail.com	N/A	Web-based comments	294	N/A
not provided	June	ejagiles3@yahoo.com	N/A	Web-based comments	3415	N/A
not provided	June	june-of-filth@hotmail.fr	N/A	Web-based comments	1608	1
not provided	Juniper	juniper.iren@gmail.com	N/A	Web-based comments	2788	N/A
not provided	Justin	clementjustin27@gmail.com	N/A	Web-based comments	569	N/A
not provided	Justine	nysjusti@gmail.com	N/A	Web-based comments	339	1
not provided	Kaelan	godzilla1694@hotmail.com	N/A	Web-based comments	5453	N/A
not provided	Kaija	not provided	N/A	Web-based comments	6522	N/A
not provided	Kaitlin	not provided	N/A	Web-based comments	6444	1
not provided	Kanaychowa	not provided	N/A	Web-based comments	5163	N/A
not provided	Karen	not provided	N/A	Web-based comments	5747	1
not provided	Kari	not provided	N/A	Web-based comments	825	2
not provided	Kate	not provided	N/A	Web-based comments	1369	N/A
not provided	Kate	not provided	N/A	Web-based comments	1759, 5710, 32089	1
not provided	Katherine	not provided	N/A	Web-based comments	2181	N/A
not provided	Kathryn	not provided	N/A	Web-based comments	5808	N/A
not provided	Kathryn	not provided	N/A	Web-based comments	6021	1
not provided	Kati	kpkatibug@gmail.com	N/A	Web-based comments	31937	1
not provided	Katie	katie.lambrecht@gmail.com	N/A	Web-based comments	6724	N/A
not provided	Katie	not provided	N/A	Web-based comments	228, 6872	1
not provided	Katrina	not provided	N/A	Web-based comments	6708	8
not provided	Kay	not provided	N/A	Web-based comments	1273	2
not provided	Kayla	not provided	N/A	Web-based comments	736	N/A
not provided	Kaylin	brendonismysavior9467@gmail.com	N/A	Web-based comments	6244	1
not provided	Kaylin	kaylinhedlund@yahoo.com	N/A	Web-based comments	219	1
not provided	KB	not provided	N/A	Web-based comments	4132	N/A
not provided	Kelley	kelleysmith.ohm@gmail.com	N/A	Web-based comments	31852	1
not provided	Kelli	not provided	N/A	Web-based comments	2035	N/A
not provided	Kelly	daultonreed@sbcglobal.net	N/A	Web-based comments	5856	1
not provided	Kelly	not provided	N/A	Web-based comments	1498	N/A
not provided	Kelly	not provided	N/A	Web-based comments	4995, 6486	1
not provided	Kelsey	not provided	N/A	Web-based comments	177	1
not provided	Kendra	kendranelson@go.byuh.edu	N/A	Web-based comments	5414	1
not provided	Kendra	kgirl07@gmail.com	N/A	Web-based comments	179	1
not provided	Kerri	Kmm212@zips.uakron.edu	N/A	Web-based comments	1352	1
not provided	Kevin	falconorca@gmail.com	N/A	Web-based comments	31899	1
not provided	Kevin	kevin.cote@tidewater.com	N/A	Web-based comments	4373	N/A
not provided	Kevin	not provided	N/A	Web-based comments	1274	N/A
not provided	Kim	bracke_kim@yahoo.com	N/A	Web-based comments	760	N/A
not provided	Kim	kimmysbenaon@gmail.com	N/A	Web-based comments	5503	1
not provided	Kim	seipel17@gmail.com	N/A	Web-based comments	1312	N/A
not provided	Kim	seipel17@gmail.com	N/A	Web-based comments	3730	1
not provided	King	not provided	N/A	Web-based comments	531	1
not provided	Kinsey	kinsey815@yahoo.com	N/A	Web-based comments	1115	1
not provided	Kirah	kirahbradshaw99@yahoo.co.uk	N/A	Web-based comments	631	1
not provided	Kiwii	not provided	N/A	Web-based comments	927	1
not provided	Kris	gswim18@gmail.com	N/A	Web-based comments	31945	N/A
not provided	Kris	not provided	N/A	Web-based comments	32200	1
not provided	Kross	chriskatsikas05@gmail.com	N/A	Web-based comments	5820	N/A
not provided	L?a	lea.leglay@icloud.com	N/A	Web-based comments	269	1
not provided	L?a	lea-ponneau@hotmail.fr	N/A	Web-based comments	469	1
not provided	Lacey	laceymariekc@gmail.com	N/A	Web-based comments	1147	2
not provided	Lacy	not provided	N/A	Web-based comments	1833	1
not provided	Laetitia	laetitia.bire@laposte.net	N/A	Web-based comments	362	1

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
not provided	Lara	not provided	N/A	Web-based comments	6819	N/A
not provided	Larry	larrydhill63@gmail.com	N/A	Web-based comments	4045	N/A
not provided	Lars	not provided	N/A	Web-based comments	185	1
not provided	Laura	laura.soumoy@hotmail.fr	N/A	Web-based comments	295	1
not provided	Laura	laurabarbe@hotmail.fr	N/A	Web-based comments	462	1
not provided	Laura	laurabonnet.94@gmail.com	N/A	Web-based comments	886	1
not provided	Laura	lauramcortez94@gmail.com	N/A	Web-based comments	1026	N/A
not provided	Laura	laurat33@gmail.com	N/A	Web-based comments	1518	1
not provided	Laura	lquenzer14@gmail.com	N/A	Web-based comments	835	1
not provided	Laura	malgogne.laura@yahoo.fr	N/A	Web-based comments	330	1
not provided	Laura	not provided	N/A	Web-based comments	1344	N/A
not provided	Laura	not provided	N/A	Web-based comments	1280, 1597	1
not provided	Laure	not provided	N/A	Web-based comments	6523	1
not provided	Laure	tigerazzura@gmail.com	N/A	Web-based comments	1593	N/A
not provided	Lauren	laurenleligne@gmail.com	N/A	Web-based comments	360	1
not provided	Lauren	laurenteel@verizon.net	N/A	Web-based comments	32138	1
not provided	Lauren	not provided	N/A	Web-based comments	5999	1
not provided	Lauren	willow338@gmail.com	N/A	Web-based comments	861	N/A
not provided	Laurena	lauurena.rouget@gmail.com	N/A	Web-based comments	1664	1
not provided	Laurene	laurene.merland@gmail.com	N/A	Web-based comments	1957	1
not provided	Laurette	l.ollivieri@yahoo.fr	N/A	Web-based comments	464	1
not provided	Laurie	not provided	N/A	Web-based comments	2021, 2022	1
not provided	Laurine	laurinelam@hotmail.fr	N/A	Web-based comments	303	1
not provided	Lbaldwin	lbaldwin77@msn.com	N/A	Web-based comments	32017	1
not provided	Leah	not provided	N/A	Web-based comments	5065	1
not provided	Leigh	glitterbombyaya44@gmail.com	N/A	Web-based comments	922	1
not provided	Lena	lenamichel888@gmail.con	N/A	Web-based comments	331	N/A
not provided	Leo	not provided	N/A	Web-based comments	5708, 6129	1
not provided	Leo	r.leo734@gmail.com	N/A	Web-based comments	6354	1
not provided	Leona	not provided	N/A	Web-based comments	1066	N/A
not provided	Leonie	leonieboumard@gmail.com	N/A	Web-based comments	482	1
not provided	Levinshon	not provided	N/A	Web-based comments	2216	1
not provided	Lilith	debusillet.lilith@ntymail.com	N/A	Web-based comments	1110	1
not provided	Lincoln	not provided	N/A	Web-based comments	2979	N/A
not provided	Linda	lindamariephotog@gmail.com	N/A	Web-based comments	849	1
not provided	Linda	not provided	N/A	Web-based comments	5810	N/A
not provided	Linden	lindencotemshs@gmail.com	N/A	Web-based comments	6324	1
not provided	Lindsay	not provided	N/A	Web-based comments	431	1
not provided	Lindsey	not provided	N/A	Web-based comments	6338	1
not provided	Line	not provided	N/A	Web-based comments	2811	1
not provided	Lisa	not provided	N/A	Web-based comments	32159	1
not provided	Lisa	teamd@centurylink.net	N/A	Web-based comments	32103	N/A
not provided	Lita	not provided	N/A	Web-based comments	1947	N/A
not provided	Liz	l.suarez@miamiskindr.com	N/A	Web-based comments	1250	N/A
not provided	Liza	ljbwilson@gmail.com	N/A	Web-based comments	5879	11
not provided	Lizard	bkeelz@yahoo.com	N/A	Web-based comments	31876	N/A
not provided	LN	not provided	N/A	Web-based comments	1292	2
not provided	Lola	loladarouk@hotmail.fr	N/A	Web-based comments	1651	1
not provided	Lola	vivnature@hotmail.fr	N/A	Web-based comments	485	2
not provided	Loly	not provided	N/A	Web-based comments	349	1
not provided	Lonnie	not provided	N/A	Web-based comments	3330	N/A
not provided	Loree	loree28@hotmail.com	N/A	Web-based comments	6758	N/A
not provided	Lorie	not provided	N/A	Web-based comments	3236	N/A
not provided	Lorin	not provided	N/A	Web-based comments	31891	1
not provided	Lotta	lottasuikkanen@icloud.com	N/A	Web-based comments	885	N/A
not provided	Lottiaux	not provided	N/A	Web-based comments	510	1
not provided	Lou	not provided	N/A	Web-based comments	1537	1
not provided	Louise	lou.gommeaux@hotmail.fr	N/A	Web-based comments	1961	1
not provided	Luca	luca_rsb@hotmail.com	N/A	Web-based comments	31884	1
not provided	Lucas	not provided	N/A	Web-based comments	6501	1
not provided	Luci	luciwilson@u.boisestate.edu	N/A	Web-based comments	1031	1
not provided	Lucie	not provided	N/A	Web-based comments	702, 1567, 2185	1
not provided	Lucille	luoz@hotmail.fr	N/A	Web-based comments	939	1
not provided	Lucky	rrrobynfish@yahoo.com	N/A	Web-based comments	911, 925	1
not provided	Lucrecia	ludonata88@gmail.com	N/A	Web-based comments	1045	N/A
not provided	Lucy	lucielinossier@gmail.com	N/A	Web-based comments	1756	1
not provided	Lucy	not provided	N/A	Web-based comments	3851	N/A
not provided	Lucy	not provided	N/A	Web-based comments	32074	1
not provided	ludivine	lostludivine@gmail.com	N/A	Web-based comments	283	1

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
not provided	Ludivine	ludivine.loiseau45@hotmail.fr	N/A	Web-based comments	470	2
not provided	Ludivine	ludivine.rabier@orange.fr	N/A	Web-based comments	273	1
not provided	Luke	bl3ssth3f4ll13@gmail.com	N/A	Web-based comments	1114	N/A
not provided	Luna	jshawrk800@gmail.com	N/A	Web-based comments	168	1
not provided	Luna	lunamabresch@gmail.com	N/A	Web-based comments	6604	1
not provided	Lynda	not provided	N/A	Web-based comments	4120	N/A
not provided	M	not provided	N/A	Web-based comments	881	N/A
not provided	M?lanie	not provided	N/A	Web-based comments	968	1
not provided	M?lissa	mely64230@hotmail.fr	N/A	Web-based comments	262	1
not provided	M?lodie	m.oberson214@hotmail.com	N/A	Web-based comments	278	1
not provided	Ma?l	maelhercepro@gmail.com	N/A	Web-based comments	306	1
not provided	Ma?lane	not provided	N/A	Web-based comments	389	1
not provided	Ma?va	not provided	N/A	Web-based comments	1769	1
not provided	Mac	not provided	N/A	Web-based comments	5232	N/A
not provided	Madeline	maddiefeaisme@yahoo.com	N/A	Web-based comments	1712	1
not provided	Madeline	not provided	N/A	Web-based comments	5145	1
not provided	Madison	not provided	N/A	Web-based comments	6332	1
not provided	Maeva	not provided	N/A	Web-based comments	3233	N/A
not provided	Maeva	not provided	N/A	Web-based comments	3751, 3757, 3759, 3763	1
not provided	Maggie	not provided	N/A	Web-based comments	6392	1
not provided	Maggie	sugar33magnolia@gmail.com	N/A	Web-based comments	2103	N/A
not provided	Mailys	mailys.vaillie@gmail.com	N/A	Web-based comments	310	1
not provided	Maisy	not provided	N/A	Web-based comments	103	1
not provided	Maite	kate_71@hotmail.fr	N/A	Web-based comments	340	1
not provided	Mannier	not provided	N/A	Web-based comments	1474	1
not provided	Manon	manindenniel@hotmail.fr	N/A	Web-based comments	320	1
not provided	Manon	manon.sappa@outlook.fr	N/A	Web-based comments	465, 1308, 1445, 1525	1
not provided	Manon	manon00767@hotmail.fr	N/A	Web-based comments	255, 1373	1
not provided	Manon	not provided	N/A	Web-based comments	438, 507, 845	1
not provided	Marc	miller21451@gmx.com	N/A	Web-based comments	4096	N/A
not provided	Marc	not provided	N/A	Web-based comments	3852	1
not provided	Marcello	marchsticks@yahoo.com	N/A	Web-based comments	995	N/A
not provided	Margarita	not provided	N/A	Web-based comments	938	N/A
not provided	Marge	not provided	N/A	Web-based comments	2195	N/A
not provided	Margie	not provided	N/A	Web-based comments	5871	1
not provided	Mari	not provided	N/A	Web-based comments	471	1
not provided	Marie	jeantismarie@gmail.com	N/A	Web-based comments	357	1
not provided	Marie	m.igewa@hotmail.fr	N/A	Web-based comments	402	1
not provided	Marie	m.ladsous@hotmail.com	N/A	Web-based comments	334	1
not provided	Marie	marie.mathieu001@orange.fr	N/A	Web-based comments	404	1
not provided	Marie	not provided	N/A	Web-based comments	1513	N/A
not provided	Marie	not provided	N/A	Web-based comments	457, 1626	1
not provided	Marie	orthwein.marie@gmail.com	N/A	Web-based comments	501	1
not provided	Marie-Sarah	msm.mericat@gmail.com	N/A	Web-based comments	288	1
not provided	Marilyn	marilynalas@yahoo.com	N/A	Web-based comments	6451	1
not provided	Marilyn	not provided	N/A	Web-based comments	6503	1
not provided	Marina	fuxa.marina@gmail.com	N/A	Web-based comments	383	1
not provided	Marina	not provided	N/A	Web-based comments	776	N/A
not provided	Marina	not provided	N/A	Web-based comments	4331	1
not provided	Marine	ljuliemarine@gmail.com	N/A	Web-based comments	274	1
not provided	Marine	marine.chiffoleau@hotmail.fr	N/A	Web-based comments	1181	1
not provided	Marine	not provided	N/A	Web-based comments	1813	N/A
not provided	Marine	not provided	N/A	Web-based comments	504, 1730	1
not provided	Marine	qmarine2610@gmail.com	N/A	Web-based comments	488	2
not provided	Marine	richard.l.marine@gmail.com	N/A	Web-based comments	439, 1307	1
not provided	Marion	ma.emp@outlook.fr	N/A	Web-based comments	497	1
not provided	Marion	marion.cavailles@wanadoo.fr	N/A	Web-based comments	1177	1
not provided	Marion	marionbuchy@hotmail.fr	N/A	Web-based comments	499	1
not provided	Marion	not provided	N/A	Web-based comments	1638, 1705	1
not provided	marion	pollier.marion@gmail.com	N/A	Web-based comments	361	1
not provided	Marissa	marissacunningham21@icloud.com	N/A	Web-based comments	1221	2
not provided	Marjorie	not provided	N/A	Web-based comments	328	1
not provided	Mark	mobug55@yahoo.com	N/A	Web-based comments	1713	N/A
not provided	Mark	not provided	N/A	Web-based comments	3820, 4584	N/A
not provided	Mark	not provided	N/A	Web-based comments	58844	32
not provided	Martha	not provided	N/A	Web-based comments	2472	1
not provided	Martins	not provided	N/A	Web-based comments	2182	1
not provided	Mary	not provided	N/A	Web-based comments	364, 630	1
not provided	Maryam	not provided	N/A	Web-based comments	5437	1
not provided	MaryRose	Maryrose.castro30@gmail.com	N/A	Web-based comments	979	2

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
not provided	mathie	mathierequena@gmail.com	N/A	Web-based comments	324, 528, 1615	1
not provided	mathieu	matmatgamingdu46@gmail.com	N/A	Web-based comments	2082	1
not provided	Mathilde	elephanta_510@hotmail.com	N/A	Web-based comments	527	1
not provided	Mathilde	not provided	N/A	Web-based comments	1640	1
not provided	Mathis	not provided	N/A	Web-based comments	1629	1
not provided	Matilda	not provided	N/A	Web-based comments	416	1
not provided	Matt	matt.swaffer@mbshome.com	N/A	Web-based comments	2649, 6396	N/A
not provided	Matt	mbpnielson@aol.com	N/A	Web-based comments	3811	N/A
not provided	Matt	not provided	N/A	Web-based comments	1052, 2697, 5308	N/A
not provided	Matt	not provided	N/A	Web-based comments	3693	1
not provided	Matthew	matthewdia17@gmail.com	N/A	Web-based comments	562	2
not provided	Matthew	whiteh2o.boyd@gmail.com	N/A	Web-based comments	4501	N/A
not provided	Maud	strappazzon.maud@gmail.com	N/A	Web-based comments	525	2
not provided	Maude	not provided	N/A	Web-based comments	1612	1
not provided	Maurer	management@moosecreekinn.com	N/A	Web-based comments	3483	N/A
not provided	Maxime	m.rossi34440@laposte.net	N/A	Web-based comments	628	1
not provided	Meagan	meaganhitch@gmail.com	N/A	Web-based comments	3053	N/A
not provided	Megan	megan.muredalexis@gmail.com	N/A	Web-based comments	468	1
not provided	Megan	not provided	N/A	Web-based comments	722	N/A
not provided	Megan	not provided	N/A	Web-based comments	565, 1152	2
not provided	Meghan	not provided	N/A	Web-based comments	31802	1
not provided	Meher	not provided	N/A	Web-based comments	1609	N/A
not provided	Mel	not provided	N/A	Web-based comments	1790	1
not provided	Melanie	choubix@live.fr	N/A	Web-based comments	289	1
not provided	Melanie	melanie.bourquin@audisport.ch	N/A	Web-based comments	3459, 2805	1
not provided	Melanie	melanie.sanchez018@gmail.com	N/A	Web-based comments	546, 1327	1, 2
not provided	Melanie	not provided	N/A	Web-based comments	1735, 6328	1
not provided	Melina	melinastokes@shaw.ca	N/A	Web-based comments	5759	1
not provided	Melinda	mindy.thompson19@gmail.com	N/A	Web-based comments	4591	1
not provided	Melissa	allairemelissa@lilo.org	N/A	Web-based comments	419	1
not provided	Melissa	not provided	N/A	Web-based comments	1033	N/A
not provided	melodie	melodie71@live.fr	N/A	Web-based comments	1003	1
not provided	Menard	menard.mathilde1@gmail.com	N/A	Web-based comments	1795	1
not provided	Merari	mj5002@yahoo.com	N/A	Web-based comments	365	1
not provided	Metzinger	metzinger.noemie@hotmail.com	N/A	Web-based comments	1573	1
not provided	Meyer	not provided	N/A	Web-based comments	2016	1
not provided	Mia	not provided	N/A	Web-based comments	30	N/A
not provided	Mia	not provided	N/A	Web-based comments	6052, 32259	1
not provided	Michael	not provided	N/A	Web-based comments	536, 4525	1
not provided	Mike	mike.fotheringham@yahoo.com	N/A	Web-based comments	1354	1
not provided	Mike	not provided	N/A	Web-based comments	4536, 32166	N/A
not provided	Mil?ne	milene.aubert.perso@gmail.com	N/A	Web-based comments	1628	1
not provided	Molly	medischner@gmail.com	N/A	Web-based comments	4428	N/A
not provided	Molly	mollyjayephillips@gmail.com	N/A	Web-based comments	759	1
not provided	Mona	monamecham@hotmail.com	N/A	Web-based comments	6136	N/A
not provided	Monique	not provided	N/A	Web-based comments	1195	N/A
not provided	Morgan	mbrown012@rsdmo.org	N/A	Web-based comments	6736	1
not provided	Morgan	morgan@littlegypsy.fr	N/A	Web-based comments	323	1
not provided	Morgane	morgane.denier@hotmail.fr	N/A	Web-based comments	521	1
not provided	Morgane	morgane@littlegypsy.fr	N/A	Web-based comments	392, 37, 425, 484, 608, 689, 697	2, 1
not provided	Morgane	morgane7332@gmail.com	N/A	Web-based comments	1300, 354, 1425	1
not provided	Morgane	morgane77340@hotmail.com	N/A	Web-based comments	534, 1497	1
not provided	Mukti	mukti.nirava@gmail.com	N/A	Web-based comments	481	1
not provided	Muriel	m_halaoui@yahoo.fr	N/A	Web-based comments	1456	1
not provided	Nadia	n.karim03@gmail.com	N/A	Web-based comments	2857	1
not provided	Nadia	nadia.musio@gmail.com	N/A	Web-based comments	466	1
not provided	Nadira	nadiramandy@yahoo.com	N/A	Web-based comments	5921	1
not provided	Nancy	not provided	N/A	Web-based comments	2918, 6517	N/A
not provided	Nancy	not provided	N/A	Web-based comments	31967	1
not provided	Natalie	natalieglawrence92@gmail.com	N/A	Web-based comments	371, 2809	N/A
not provided	Natalie	not provided	N/A	Web-based comments	32203	N/A
not provided	Natalie	not provided	N/A	Web-based comments	6612	1
not provided	Nate	nateizq@yahoo.com	N/A	Web-based comments	1854	N/A
not provided	Nathan	nathan.cant@live.com	N/A	Web-based comments	32153	1
not provided	Nathen	not provided	N/A	Web-based comments	32057	N/A
not provided	native	not provided	N/A	Web-based comments	4862	N/A
not provided	Natosha	not provided	N/A	Web-based comments	6656	1
not provided	Navpreet	navpreetkaursandhu71@gmail.com	N/A	Web-based comments	5790	1

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
not provided	Nellie	not provided	N/A	Web-based comments	2698	N/A
not provided	Nelly	not provided	N/A	Web-based comments	1974	1
not provided	Nelson	not provided	N/A	Web-based comments	3881	N/A
not provided	Nemond	nemondraphael@gmail.com	N/A	Web-based comments	2717, 260, 1501, 1634, 1784, 1897, 4961, 6069	1
not provided	Nguyen	not provided	N/A	Web-based comments	1742	1
not provided	Nian	not provided	N/A	Web-based comments	573	1
not provided	Nic	not provided	N/A	Web-based comments	32013	N/A
not provided	Nick	us-patriot@live.com	N/A	Web-based comments	2706	N/A
not provided	Nicki	redwings_2010@yahoo.com	N/A	Web-based comments	1105	1
not provided	Nicolas	niconos13@hotmail.fr	N/A	Web-based comments	2813	1
not provided	nicolas	not provided	N/A	Web-based comments	1630	1
not provided	Nicole	not provided	N/A	Web-based comments	5885	1
not provided	Nienna	not provided	N/A	Web-based comments	2135	N/A
not provided	Nina	lorrelladroguir@gmail.com	N/A	Web-based comments	1787	1
not provided	Nina	nina.hanna@live.com	N/A	Web-based comments	58817	N/A
not provided	Nina	nina.lemeux@hotmail.fr	N/A	Web-based comments	327	1
not provided	Nina	nina44rchrd@gmail.com	N/A	Web-based comments	1779	1
not provided	Nina	not provided	N/A	Web-based comments	31927	1
not provided	No?mie	not provided	N/A	Web-based comments	291, 1189, 1580	1
not provided	Noel	not provided	N/A	Web-based comments	1837	1
not provided	Noemie	not provided	N/A	Web-based comments	5709	1
not provided	Nolwenn	nolwenn.bringerbello@gmail.com	N/A	Web-based comments	401	1
not provided	Oceane	not provided	N/A	Web-based comments	1622	1
not provided	Olivia	not provided	N/A	Web-based comments	1421	1
not provided	Olivia	oliviageffroy83@gmail.com	N/A	Web-based comments	1607	1
not provided	Omalley	not provided	N/A	Web-based comments	2603	1
not provided	Opal	not provided	N/A	Web-based comments	6531	N/A
not provided	Osulivan	not provided	N/A	Web-based comments	2263	1
not provided	Oua	not provided	N/A	Web-based comments	1455	1
not provided	Paige	not provided	N/A	Web-based comments	31837	1
not provided	Pailine	pauline.boulanger1994@orange.fr	N/A	Web-based comments	459	1
not provided	Painter	not provided	N/A	Web-based comments	4899	N/A
not provided	Paisley	Plogan@oxy.edu	N/A	Web-based comments	5398	1
not provided	Pamela	not provided	N/A	Web-based comments	75	N/A
not provided	Pamela	pjl1005@yahoo.com	N/A	Web-based comments	1246	N/A
not provided	Paola	not provided	N/A	Web-based comments	805	1
not provided	Pascual	not provided	N/A	Web-based comments	1446	1
not provided	Pat	patd67@gmail.com	N/A	Web-based comments	2651	N/A
not provided	Patricia	expidite57@yahoo.com	N/A	Web-based comments	6020	N/A
not provided	Patricia	not provided	N/A	Web-based comments	2713	N/A
not provided	Patrick	not provided	N/A	Web-based comments	717	N/A
not provided	patrick	not provided	N/A	Web-based comments	376	1
not provided	Paula	paula.taioli@hotmail.com	N/A	Web-based comments	593	1
not provided	Pauline	meoliine@gmail.com	N/A	Web-based comments	502	1
not provided	Perrine	not provided	N/A	Web-based comments	305	1
not provided	Perrine	perrine.corcelette@gmail.com	N/A	Web-based comments	2812	1
not provided	Peyrot	gey.meredith@gmail.com	N/A	Web-based comments	124, 1138	1
not provided	Phil	not provided	N/A	Web-based comments	2566	N/A
not provided	Philip	not provided	N/A	Web-based comments	3855	N/A
not provided	Philippe	philleclair@wanadoo.fr	N/A	Web-based comments	272	1
not provided	Phoebe	not provided	N/A	Web-based comments	627	2
not provided	Pinhero	pinhero1129@gmail.com	N/A	Web-based comments	3270	N/A
not provided	PIOT	emilie.piot@hotmail.fr	N/A	Web-based comments	1801	1
not provided	Podgornaia	not provided	N/A	Web-based comments	1941	1
not provided	Poggi	mcpoggi@free.fr	N/A	Web-based comments	1855	1
not provided	Pons	not provided	N/A	Web-based comments	1584, 2115	1
not provided	Potts	not provided	N/A	Web-based comments	3710	N/A
not provided	Prune	prunerd16@gmail.com	N/A	Web-based comments	352	2
not provided	Py	py.capucine@hotmail.fr	N/A	Web-based comments	1772	1
not provided	PYC	not provided	N/A	Web-based comments	32114	1
not provided	R	not provided	N/A	Web-based comments	32041	1
not provided	Rachael	not provided	N/A	Web-based comments	6104	1
not provided	Rachel	not provided	N/A	Web-based comments	6471, 6706	1
not provided	Rachel	rachelkovar@ymail.com	N/A	Web-based comments	1040	1
not provided	Rachnaa	revhunen@gmail.com	N/A	Web-based comments	833	1
not provided	Raquel	raquelgois@gmail.com	N/A	Web-based comments	6035	1
not provided	Ray	not provided	N/A	Web-based comments	4002	N/A
not provided	RCarter	racheloliviacarter@gmail.com	N/A	Web-based comments	990	1
not provided	Rebecca	bec.oceans@gmail.com	N/A	Web-based comments	32254	1

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
not provided	Rebecca	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58314	N/A
not provided	Regina	havenvh@hotmail.com	N/A	Web-based comments	3494	13
not provided	reid	breid@fallshollowdevelopment.com	N/A	Web-based comments	3427	N/A
not provided	Remita	not provided	N/A	Web-based comments	440	1
not provided	Renault	not provided	N/A	Web-based comments	2114	1
not provided	Rich	not provided	N/A	Web-based comments	2048	N/A
not provided	Richere	not provided	N/A	Web-based comments	978	N/A
not provided	Ricky	ricky_jones20@hotmail.co.uk	N/A	Web-based comments	1360	1
not provided	Riley	not provided	N/A	Web-based comments	4402	1
not provided	Rima	not provided	N/A	Web-based comments	31897	N/A
not provided	Rits	not provided	N/A	Web-based comments	4942	1
not provided	RK	not provided	N/A	Web-based comments	5196	8
not provided	Robert	not provided	N/A	Web-based comments	5805, 32229	1
not provided	robin	not provided	N/A	Web-based comments	5274	N/A
not provided	Robyn	robynfrandemo@gmail.com	N/A	Web-based comments	1023	N/A
not provided	RodgerHarp	not provided	N/A	Web-based comments	3687	N/A
not provided	Roeland	roelmartijn@gmail.com	N/A	Web-based comments	91	N/A
not provided	Roger	not provided	N/A	Web-based comments	49	N/A
not provided	Roi	not provided	N/A	Web-based comments	532	1
not provided	Rolo	robynrama1@gmail.com	N/A	Web-based comments	917	1
not provided	Romakn	rchouhani@me.com	N/A	Web-based comments	474	2
not provided	Romina	romina.yamashiro84@gmail.com	N/A	Hand-delivered or oral testimony (personally delivered)	4725	1
not provided	Romina	romina.yamashiro84@gmail.com	N/A	Web-based comments	87	1
not provided	Romina	ryamashiro@cervipedic.com	N/A	Web-based comments	88	1
not provided	Ron	not provided	N/A	Web-based comments	2498	N/A
not provided	Rose	not provided	N/A	Web-based comments	2020	1
not provided	Rosemary	rconnelli@gmail.com	N/A	Web-based comments	32096	1
not provided	Rosemary	rfletes68@gmail.com	N/A	Web-based comments	1922	1
not provided	Rossi	elodierossi34440@live.fr	N/A	Web-based comments	625	1
not provided	Roux	dizzislash@hotmail.com	N/A	Web-based comments	1714	1
not provided	Roxy	not provided	N/A	Web-based comments	6535	1
not provided	Ruth	ruth-hi95@hotmail.co.uk	N/A	Web-based comments	3668	1
not provided	Rutherford	not provided	N/A	Web-based comments	2604	1
not provided	Ruzanna	ruzannasahakyanx@gmail.com	N/A	Web-based comments	883	N/A
not provided	Ryan	not provided	N/A	Web-based comments	949, 1127	N/A
not provided	Ryder	not provided	N/A	Web-based comments	6206	1
not provided	Sabrina	not provided	N/A	Web-based comments	6518	1
not provided	Sabrina	sabrina.bemrose17@gmail.com	N/A	Web-based comments	6081	1
not provided	Sajno	claire.sajno@orange.fr	N/A	Web-based comments	5426	N/A
not provided	Sam	cookiebiscuit@gmail.com	N/A	Web-based comments	659	N/A
not provided	Sam	not provided	N/A	Web-based comments	1032	N/A
not provided	Sam	not provided	N/A	Web-based comments	1375	1
not provided	Sam	Samcmacks@gmail.com	N/A	Web-based comments	31970	1
not provided	Samantha	greatlyblessed8@gmail.com	N/A	Web-based comments	1199	1
not provided	Samantha	miss-samdu94@live.fr	N/A	Web-based comments	316	1
not provided	Samantha	not provided	N/A	Web-based comments	1185	1
not provided	Samantha	samanthajhale@gmail.com	N/A	Web-based comments	3203	N/A
not provided	Samara	not provided	N/A	Web-based comments	31770	1
not provided	Samuels	not provided	N/A	Web-based comments	2401	1
not provided	Sanders	howmad68@gmail.com	N/A	Web-based comments	3276	N/A
not provided	Sandra	not provided	N/A	Web-based comments	6908	1
not provided	Sandra	vivier.sandro@gmail.com	N/A	Web-based comments	386	1
not provided	Sandy	not provided	N/A	Web-based comments	193	N/A
not provided	Sandy	not provided	N/A	Web-based comments	3092	12
not provided	Sandy	not provided	N/A	Web-based comments	896	1
not provided	Saniez	chaa.saniez@gmail.com	N/A	Web-based comments	261	1
not provided	Sanran	sanrangulsen@gmail.com	N/A	Web-based comments	6477	1
not provided	Sara	not provided	N/A	Web-based comments	44, 1061, 6788	N/A
not provided	Sarah	lesjumeauxdu07@hotmail.fr	N/A	Web-based comments	568	1
not provided	Sarah	not provided	N/A	Web-based comments	1450	N/A
not provided	Sarah	not provided	N/A	Web-based comments	3423	8
not provided	Sarah	not provided	N/A	Web-based comments	143, 280, 902, 1160, 6121	1
not provided	Sarah	saracoh@outlook.fr	N/A	Web-based comments	1749	1
not provided	Sarah	sarahthomp02@gmail.com	N/A	Web-based comments	5408	1
not provided	Sarra	not provided	N/A	Web-based comments	208	1
not provided	Sauce	harmonie.sauce@outlook.fr	N/A	Web-based comments	286	2
not provided	Saugier	Milou.margue@hotmail.fr	N/A	Web-based comments	475	1
not provided	Savannah	savannah.prinzo@gmail.com	N/A	Web-based comments	982	N/A
not provided	SAVETHEORC	not provided	N/A	Web-based comments	1763	1

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
not provided	Scarcella	not provided	N/A	Web-based comments	2152	1
not provided	Scarlett	not provided	N/A	Web-based comments	1701	1
not provided	Schlatter	lorisschlatter@gmail.com	N/A	Web-based comments	1487	1
not provided	Scott	not provided	N/A	Web-based comments	2207, 4992, 5632	N/A
not provided	Scott	not provided	N/A	Web-based comments	6309	1
not provided	SDamour	suzy_72@hotmail.fr	N/A	Web-based comments	1934	1
not provided	Seanie	not provided	N/A	Web-based comments	3788	1
not provided	Serena	stierra97@gmail.com	N/A	Web-based comments	6762	1
not provided	SEVENO	not provided	N/A	Web-based comments	1852	1
not provided	Severine	severineloret38@gmail.com	N/A	Web-based comments	508	1
not provided	Shae	not provided	N/A	Web-based comments	660	N/A
not provided	Shar	not provided	N/A	Web-based comments	5894	N/A
not provided	Sharon	sharonwenham36@gmail.com	N/A	Web-based comments	893	1
not provided	Shayla	shayladawnpatten@gmail.com	N/A	Web-based comments	6726	N/A
not provided	Shelby	not provided	N/A	Web-based comments	6499	1
not provided	Shelby	shelby.anne.yee@gmail.com	N/A	Web-based comments	6710	1
not provided	Shelley	one.red.hed@gmail.com	N/A	Web-based comments	5040	N/A
not provided	silvia	silviavdh@gmail.com	N/A	Web-based comments	862	N/A
not provided	Simpson	not provided	N/A	Web-based comments	2351	1
not provided	Sinead	not provided	N/A	Web-based comments	6107	1
not provided	sk	not provided	N/A	Web-based comments	1259	2
not provided	Sofia	sofiadelvillar@hotmail.com	N/A	Web-based comments	6017	1
not provided	sophie	not provided	N/A	Web-based comments	1792	1
not provided	Sophie	not provided	N/A	Web-based comments	493	1
not provided	Sophie	sophie.miami@yahoo.com	N/A	Web-based comments	1765	1
not provided	Spencer	johns944@wwu.edu	N/A	Web-based comments	6485	N/A
not provided	St?phanie	stephanie.daccriscio@gmail.com	N/A	Web-based comments	424	1
not provided	Staci	not provided	N/A	Web-based comments	4917	1
not provided	Stacie	not provided	N/A	Web-based comments	4800	N/A
not provided	Stephan	mosteph00@gmail.com	N/A	Web-based comments	176	N/A
not provided	Stephanie	not provided	N/A	Web-based comments	5130	N/A
not provided	Stephanie	Stephaniejbreslin@gmail.com	N/A	Web-based comments	1357	N/A
not provided	Stephanie	stephy.le@outlook.com	N/A	Web-based comments	738	N/A
not provided	Stephen	stephenbtlr@gmail.com	N/A	Web-based comments	606	N/A
not provided	Steve	not provided	N/A	Web-based comments	4185, 4471	N/A
not provided	steve	not provided	N/A	Web-based comments	5712	1
not provided	Stu	not provided	N/A	Web-based comments	2862	N/A
not provided	Sue	not provided	N/A	Web-based comments	3746	N/A
not provided	Summer	not provided	N/A	Web-based comments	32136	1
not provided	Summer	pamelalorraine@live.com	N/A	Web-based comments	901	1
not provided	Summer	summerstratton39@gmail.com	N/A	Web-based comments	3801	1
not provided	Susan	not provided	N/A	Web-based comments	681, 3173	N/A
not provided	Suzy	suzycouratin@gmail.com	N/A	Web-based comments	384	1
not provided	Syd	sshera@icloud.com	N/A	Web-based comments	32119	1
not provided	Tamara	not provided	N/A	Web-based comments	6826	1
not provided	Tammy	not provided	N/A	Web-based comments	4861	N/A
not provided	Tana	tanahelean@gmail.com	N/A	Web-based comments	32003	1
not provided	Tanner	not provided	N/A	Web-based comments	32213	1
not provided	Tara	tarastotsinc@gmail.com	N/A	Web-based comments	95	1
not provided	Tarl	tarl_o@msn.com	N/A	Web-based comments	878	N/A
not provided	Tasha	tashajames94@yahoo.com	N/A	Web-based comments	1240	N/A
not provided	Taylor	not provided	N/A	Web-based comments	611, 6057	1
not provided	Taylor	tay96@me.com	N/A	Web-based comments	1306	N/A
not provided	taylor	taylorgsherman@gmail.com	N/A	Web-based comments	6059	1
not provided	Temoana	fromoorea@hotmail.com	N/A	Web-based comments	4888	N/A
not provided	Teresa	iowasunshine0@hotmail.com	N/A	Web-based comments	4991	N/A
not provided	Teri	not provided	N/A	Web-based comments	3418	N/A
not provided	Terry	not provided	N/A	Web-based comments	2169	N/A
not provided	Tess	not provided	N/A	Web-based comments	1838	1
not provided	Tessa	not provided	N/A	Web-based comments	923	2
not provided	That	not provided	N/A	Web-based comments	5335	N/A
not provided	Tiffanie	t.dore@live.fr	N/A	Web-based comments	461	2
not provided	Timothy	not provided	N/A	Web-based comments	4509	8
not provided	Tina	ferrontina@gmail.com	N/A	Web-based comments	6677	1
not provided	Tiny	not provided	N/A	Web-based comments	2304	1
not provided	Tma?	not provided	N/A	Web-based comments	1504	1
not provided	Tobi	tsalver@gmail.com	N/A	Web-based comments	31900	1
not provided	Tommy	not provided	N/A	Web-based comments	2147	1
not provided	Tony	not provided	N/A	Web-based comments	1006	1
not provided	Tracy	tracywendt@gmail.com	N/A	Web-based comments	4064	N/A

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
not provided	Travis	travisrobinson360@gmail.com	N/A	Web-based comments	907	2
not provided	Trevor	not provided	N/A	Web-based comments	2924	N/A
not provided	Tricia	not provided	N/A	Web-based comments	556	1
not provided	Trina	tdiaz14@att.net	N/A	Web-based comments	600	N/A
not provided	Tristan	mongodin.tristan@gmail.com	N/A	Web-based comments	63, 265, 959, 1429, 1523, 1967, 2113, 2214	1
not provided	Tyrell	not provided	N/A	Web-based comments	2540	1
not provided	Unreadable	cedricbourquin86@gmail.com	N/A	Web-based comments	5139	1
not provided	Unreadable	konann0621@yahoo.co.jp	N/A	Web-based comments	544	N/A
not provided	Unreadable	labouhume.c@hotmail.com	N/A	Web-based comments	296, 1079, 1265	1
not provided	Unreadable	marinn.sakura@gmail.com	N/A	Web-based comments	713	N/A
not provided	Unreadable	natukina1212@gmail.com	N/A	Web-based comments	548	N/A
not provided	Unreadable	not provided	N/A	Web-based comments	538, 1741	1
not provided	Unreadable	not provided	N/A	Web-based comments	32248	1
not provided	Urvoy	not provided	N/A	Web-based comments	518	1
not provided	Vailie	not provided	N/A	Web-based comments	1362	1
not provided	Val	not provided	N/A	Web-based comments	1768	1
not provided	Val?rie	not provided	N/A	Web-based comments	1475	1
not provided	Valerie	labouhume.c@gmail.com	N/A	Web-based comments	1434	1
not provided	Valou	valentine.gola@hotmail.fr	N/A	Web-based comments	385	1
not provided	Valsesia	e.valsesia@gmail.com	N/A	Web-based comments	1734	1
not provided	Vanessa	not provided	N/A	Web-based comments	670	2
not provided	Vanessa	not provided	N/A	Web-based comments	529, 2014	1
not provided	Vaulerin	not provided	N/A	Web-based comments	1583	1
not provided	Verieu	not provided	N/A	Web-based comments	375, 1190, 1529, 1605, 1984, 2045	1
not provided	Veronica	not provided	N/A	Web-based comments	563	1
not provided	Veronika	not provided	N/A	Web-based comments	672	N/A
not provided	Victor	gadvict@gmail.com	N/A	Web-based comments	1494	N/A
not provided	Victor	not provided	N/A	Web-based comments	6350, 31850	1
not provided	Victoria	not provided	N/A	Web-based comments	692	N/A
not provided	Victoria	vborys2256@gmail.com	N/A	Web-based comments	784	2
not provided	Vidal	a.vidal10@laposte.net	N/A	Web-based comments	344	2
not provided	Violet	not provided	N/A	Web-based comments	6614	1
not provided	Virginie	virgiremy@live.fr	N/A	Web-based comments	380, 496	1
not provided	Viviana	vivianadavid786@gmail.com	N/A	Web-based comments	906	2
not provided	Wanley	waniel16@yahoo.com	N/A	Web-based comments	775	1
not provided	Waugh	not provided	N/A	Web-based Comments	58598	34
not provided	Wendy	not provided	N/A	Web-based comments	997	N/A
not provided	Wendy	wendydebeck@gmail.com	N/A	Web-based comments	5081	N/A
not provided	Whitley	whitley.mike@clynch.com	N/A	Web-based comments	165	N/A
not provided	Whitney	welcome.whitney@gmail.com	N/A	Web-based comments	1225	2
not provided	William	not provided	N/A	Web-based comments	1836	1
not provided	WJT	Wiskyjack@hotmail.com	N/A	Web-based comments	3188	N/A
not provided	Woody	not provided	N/A	Web-based comments	32085	1
not provided	Xavier	not provided	N/A	Web-based comments	1614	1
not provided	Yagn	not provided	N/A	Web-based comments	31823	1
not provided	Yannick	not provided	N/A	Web-based comments	432, 1137	1
not provided	Yi	not provided	N/A	Web-based comments	1693	1
not provided	Zanaria	not provided	N/A	Web-based comments	2151	1
not provided	Zapora	zandlittled@yahoo.com	N/A	Web-based comments	31830	1
not provided	Zirano	not provided	N/A	Web-based comments	1585	1
not provided	Zoe	not provided	N/A	Web-based comments	1333	N/A
not provided	Zoe	not provided	N/A	Web-based comments	6319	1
Notaro	Ralph	not provided	N/A	Web-based Comments	26595	24
Nottingham	Holly	not provided	N/A	Web-based Comments	15762	24
nottingham	Lois	not provided	N/A	Web-based Comments	44635	34
Nottingham	Lois	not provided	N/A	Web-based Comments	21727	24
Nounpa	Patricia	not provided	N/A	Web-based Comments	25816	24
nourrisson	Ophelie	not provided	N/A	Web-based comments	449	N/A
NOURSE	JEANNE	not provided	N/A	Web-based Comments	16963	24
Nourse	Kevin	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58750	13
Novak	Callum	not provided	N/A	Web-based Comments	9728	24
Novak	Christine	not provided	N/A	Web-based Comments	10965	24
Novak	Daniel	not provided	N/A	Web-based Comments	11759	24
Novak	Deena	not provided	N/A	Web-based Comments	12587	24
Novak	Gloria	not provided	N/A	Web-based Comments	15167	24
Novak	Jan	not provided	N/A	Web-based Comments	16416	24
novak	lana	not provided	N/A	Web-based Comments	56209	34
Novak	Linda	not provided	N/A	Web-based Comments	21370	24
Novak	Samantha	not provided	N/A	Web-based Comments	28081	24
Novak	Trina	not provided	N/A	Web-based Comments	49432, 49433	34

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Noval	Ronia	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	31751	N/A
Novelo	Cristina	not provided	N/A	Web-based Comments	48855	34
Novelo	Cristina	not provided	N/A	Web-based Comments	11445	24
Novey	George	not provided	N/A	Web-based Comments	14907	24
Novick	Emmett	not provided	N/A	Web-based Comments	14067	24
Novkov	Russell	not provided	N/A	Web-based Comments	27840	24
Novoa	Jourdan	not provided	N/A	Web-based Comments	18448	24
Novosel	Rich	not provided	N/A	Web-based Comments	26924	24
Novotny	Claudette	not provided	N/A	Web-based comments	57401	35
Novotny	Mark	not provided	N/A	Web-based Comments	58532	34
Novy-Hildesley	Julia	not provided	N/A	Web-based Comments	48647	34
Nowak	Diane	not provided	N/A	Web-based Comments	55736	34
nowak	joe	not provided	N/A	Web-based Comments	17890	24
Nowak	Joseph	not provided	N/A	Web-based Comments	18383	24
Nowak	Klaudia	not provided	N/A	Web-based Comments	54392	34
Nowak	Lois	not provided	N/A	Web-based Comments	21728	24
Nowatzki	M	not provided	N/A	Web-based Comments	22182	24
Nowell	Anita Cannata	not provided	N/A	Web-based Comments	50735	34
Nowell	Maleyah	not provided	N/A	Web-based Comments	22294	24
Nowicki	Ann	not provided	N/A	Web-based comments	57437	35
Nowicki	Ann	not provided	N/A	Web-based Comments	49362, 49363	34
Nowicki	ANN	not provided	N/A	Web-based Comments	8069	24
Nowicki	Kathleen	not provided	N/A	Web-based Comments	19581	24
Nowicki	Maria	not provided	N/A	Web-based Comments	22619	24
Nowicki	ReNae	not provided	N/A	Web-based Comments	26821	24
nowicki	susan	not provided	N/A	Web-based Comments	29789	24
Nowka-Keane	Austin	not provided	N/A	Web-based Comments	8543	24
Nowland	Anne	not provided	N/A	Web-based Comments	8227	24
Nowlis	David	not provided	N/A	Web-based Comments	52301	34
Nowotny	Robert	not provided	N/A	Web-based Comments	27343	24
Noyes	Chris	not provided	N/A	Web-based Comments	10770	24
Noyes	Donna	not provided	N/A	Web-based Comments	13165	24
Noyes	Ellen	not provided	N/A	Web-based Comments	13934	24
Noyes-Verchereau	Eileen	not provided	N/A	Web-based Comments	13554	24
Nts	Nts	not provided	N/A	Web-based Comments	25405	24
Nucci	Marilyn	not provided	N/A	Web-based Comments	22803	24
Nuesch	Ray	not provided	N/A	Web-based Comments	26674	24
Nuesch	Raymond	not provided	N/A	Web-based Comments	53520, 53521	34
Nuess	Mike	not provided	N/A	Web-based Comments	58297	16
Nugent	Carol	not provided	N/A	Web-based Comments	9996	24
Nugent	Debra	not provided	N/A	Web-based Comments	12538	24
Nugent	Janet	not provided	N/A	Web-based Comments	16628	24
Nugnez	Nile	not provided	N/A	Web-based Comments	49354	34
Nuismer	Tijs	not provided	N/A	Web-based Comments	53197	34
Null	Ciry	not provided	N/A	Web-based Comments	54522	34
Null	Elisabeth H.	not provided	N/A	Web-based Comments	58538	34
nunes	maria	not provided	N/A	Web-based Comments	55014	34
nunes	maria	not provided	N/A	Web-based Comments	22620	24
nunes	maria	not provided	N/A	Web-based Comments	22621	24
Nunes	Maria	not provided	N/A	Web-based Comments	22622	24
Nunes	Tim	not provided	N/A	Web-based Comments	30622	24
Nunez	Adriana	not provided	N/A	Web-based Comments	46860, 46861	34
Nunez	Adriana	not provided	N/A	Web-based Comments	7088	24
Nunez	Carlos	not provided	N/A	Web-based Comments	9858	24
Nunez	P	not provided	N/A	Web-based Comments	45408	34
Nunez	P	not provided	N/A	Web-based Comments	25466	24
Nunez	Stephanie	not provided	N/A	Web-based Comments	55853, 55854	34
Nunez	Stephanie	not provided	N/A	Web-based Comments	29237	24
Nunn	Amy	not provided	N/A	Web-based Comments	7647	24
Nunn	Kathie	kathie@tidewater.com	N/A	Web-based comments	3662	N/A
Nupen	Max	not provided	N/A	Web-based Comments	23739	24
Nurkse	Lucille	not provided	N/A	Web-based Comments	21943	24
Nurse	Heidi	not provided	N/A	Web-based Comments	15575	24
Nusbaum	Michael	not provided	N/A	Web-based Comments	24186	24
Nusbaum	William	not provided	N/A	Web-based Comments	31575	24
Nush	Michael	not provided	N/A	Web-based Comments	55846	34
Nussbaum	Amy	not provided	N/A	Web-based Comments	7648	24
Nussbaum	Fred	not provided	N/A	Web-based Comments	14577	24
Nussbaum	Michael	not provided	N/A	Web-based comments	56853	35
Nussbaumer	Elizabeth	not provided	N/A	Web-based Comments	54206	34

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
nuszer	mark	not provided	N/A	Web-based Comments	22972	24
Nuti	Kenneth	not provided	N/A	Web-based comments	56973	35
Nutley	Andrea	not provided	N/A	Web-based Comments	52631	34
Nutley	Andrea	not provided	N/A	Web-based Comments	7761	24
Nutt	Bob	not provided	N/A	Web-based Comments	9247	24
Nutt	Denise	not provided	N/A	Web-based Comments	12653	24
Nuxoll	Roger	roger@highlandrealty.net	N/A	Web-based comments	4198	N/A
Nuxoll	Sheryl	fsnuxoll@gmail.com	N/A	Web-based comments	3071, 3073	N/A
Nydam	Bre	not provided	N/A	Web-based comments	1217	N/A
Nye	Annabelle	not provided	N/A	Web-based Comments	8161	24
NYIKES	SERENA	not provided	N/A	Web-based Comments	28540	24
Nyland	Jennifer	not provided	N/A	Web-based Comments	17231	24
Nylen	Eric	not provided	N/A	Web-based Comments	14130	24
nyne	kate	not provided	N/A	Web-based Comments	51145	34
nyne	kate	not provided	N/A	Web-based Comments	19396	24
Nystrom	Kristofer	knystrom2@comcast.net	N/A	Web-based comments	32212	1
Nystrom	Ranell	not provided	N/A	Web-based Comments	26646	24
Nystrom	Ranell	not provided	N/A	Web-based Comments	58224	16
Nystrom	Ranell	private-idaho@comcast.net	N/A	Web-based comments	1568, 32211, 32220	1
O	D	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58406	32
o	d	not provided	N/A	Web-based Comments	11583	24
o	k	not provided	N/A	Web-based Comments	18980	24
O	Nancy	not provided	N/A	Web-based Comments	53958, 53959, 53960	34
O	Nancy	not provided	N/A	Web-based Comments	24942	24
O	Peggy	not provided	N/A	Web-based comments	1516	N/A
O	Rusty	not provided	N/A	Web-based Comments	27849	24
o	x	not provided	N/A	Web-based Comments	44373	34
o	x	not provided	N/A	Web-based Comments	31646	24
O' Gorman	Margaret	not provided	N/A	Web-based Comments	22486	24
Oak	Holly	illusionest@hotmail.com	N/A	Web-based comments	1380, 1576	N/A
Oak	Holly	not provided	N/A	Web-based Comments	15763	24
Oakes	Helene	not provided	N/A	Web-based Comments	15643	24
Oakes	Kyle	not provided	N/A	Web-based Comments	20457	24
Oakley	A	not provided	N/A	Web-based Comments	50928	34
Oakley	Evan	not provided	N/A	Web-based Comments	46373	34
Oakley	Hannah	not provided	N/A	Web-based Comments	15408	24
Oaks	Phoenix	not provided	N/A	Web-based Comments	50794, 50795	34
Oates	Hermine	not provided	N/A	Web-based Comments	46182	34
Oatman	Mary Jane	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4242	N/A
Oba	Peggy	not provided	N/A	Web-based Comments	26170	24
Obal-Enevoldsen	Margaret	not provided	N/A	Web-based Comments	22487	24
O'Bannon	Allen	fstp@mac.com	N/A	Web-based comments	6170	11
Obedzinski	Linda	not provided	N/A	Web-based Comments	21371	24
O'Beirne	Ilona	not provided	N/A	Web-based Comments	15858	24
Oberdorf	Robert	not provided	N/A	Web-based Comments	27344	24
Oberdorfer	Rob	roboberdorfer@gmail.com	N/A	Web-based comments	3625	N/A
Oberg	Ralph	not provided	N/A	Web-based Comments	26596	24
Oberle	Melissa	not provided	N/A	Web-based comments	6500	1
Oberlin	Rebecca	not provided	N/A	Web-based Comments	26758	24
Oberlin	Wendy	not provided	N/A	Web-based Comments	31440	24
Oberoi	Rajni	not provided	N/A	Web-based Comments	26583	24
O'Berry	Donna	not provided	N/A	Web-based comments	57093	35
O'Berry	Donna	not provided	N/A	Web-based Comments	47259	34
O'Berry	Donna	not provided	N/A	Web-based Comments	13166	24
Oberst	Della	not provided	N/A	Web-based Comments	12606	24
Obert	Margaret	not provided	N/A	Web-based Comments	22488	24
Oberti	August	not provided	N/A	Web-based Comments	8536	24
O'Boyle	Beth	not provided	N/A	Web-based Comments	9040	24
O'Boyle	Mark	not provided	N/A	Web-based comments	4910	N/A
Obr	Brooks	not provided	N/A	Web-based Comments	45409, 45410	34
obre	kathleen	not provided	N/A	Web-based Comments	45992	34
obre	kathleen	not provided	N/A	Web-based Comments	19582	24
Obrecht	Elizabeth	not provided	N/A	Web-based Comments	49792	34
OBrien	Helen	not provided	N/A	Web-based Comments	15623	24
Obrien	Karen	not provided	N/A	Web-based Comments	19190	24
OBrien	Kathy	not provided	N/A	Web-based comments	57684	35
OBrien	Kathy	not provided	N/A	Web-based Comments	19739	24
OBrien	Kathy	not provided	N/A	Web-based Comments	19740	24
OBRIEN	LYNN	not provided	N/A	Web-based Comments	22079	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
OBrien	Sandra	not provided	N/A	Web-based Comments	46970	34
OBrien	Stephen	not provided	N/A	Web-based Comments	29326	24
OBrien	Suzanne	not provided	N/A	Web-based Comments	30012	24
obrien	victoria	not provided	N/A	Web-based Comments	48613	34
obrien	Victoria	not provided	N/A	Web-based Comments	31210	24
O'Brien	Alice	not provided	N/A	Web-based Comments	54005	34
O'Brien	Alice	not provided	N/A	Web-based Comments	7359	24
O'Brien	Bill	not provided	N/A	Web-based Comments	9178	24
O'Brien	Carolyn	not provided	N/A	Web-based Comments	56355	34
O'Brien	Chad	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	56638	32
O'Brien	Chloe	not provided	N/A	Web-based Comments	10712	24
O'Brien	CJ	not provided	N/A	Web-based Comments	11117	24
O'Brien	Daniel	not provided	N/A	Web-based Comments	54677, 54678	34
O'Brien	Daniel	not provided	N/A	Web-based Comments	11760	24
O'BRIEN	DAVID	KTTECH@FRONTIER.COM	N/A	Web-based comments	4432	N/A
O'Brien	Dennis	not provided	N/A	Web-based Comments	12698	24
O'Brien	Kathy	not provided	N/A	Web-based Comments	46864	34
O'Brien	Kevin	not provided	N/A	Web-based Comments	20127	24
O'Brien	Peggy	not provided	N/A	Web-based Comments	26171	24
O'Brien	Shayne	not provided	N/A	Web-based Comments	28770	24
O'Brien	Tim	timo@inlandpower.com	N/A	Web-based comments	3580	N/A
O'Brien	William	not provided	N/A	Web-based Comments	58220	16
OBrien,	Robert	not provided	N/A	Web-based Comments	27345	24
Obropta	Cody	not provided	N/A	Web-based Comments	11240	24
OByrne	Cyndi	not provided	N/A	Web-based Comments	53518	34
O'Byrne	Patrick	pwobyrne@buffalo.edu	N/A	Web-based comments	6142	N/A
Ocasio	Miriam	not provided	N/A	Web-based Comments	24555	24
Oceane	Garcia	garcia.oceane@outloo.fr	N/A	Web-based comments	129	1
Oceguera	Wendy	not provided	N/A	Web-based Comments	54733, 54734	34
Och	Evelyn	not provided	N/A	Web-based Comments	46379	34
Och	Evelyn	not provided	N/A	Web-based Comments	14354	24
Ochi	Jon	jon123ochi@gmail.com	N/A	Web-based comments	32036	N/A
Ochoa	Rosa	not provided	N/A	Web-based Comments	27697	24
ochoa	Vanessa	not provided	N/A	Web-based comments	6043	1
Ochs	John	jforph@gmail.com	N/A	Web-based comments	6498	N/A
Ockerse	Thomas	not provided	N/A	Web-based Comments	30528	24
O'Clair	Charles	not provided	N/A	Web-based Comments	46499	34
O'Clair	Chuck	not provided	N/A	Web-based Comments	46424	34
OCN	Paige Harrison RN MSN	not provided	N/A	Web-based Comments	49111	34
OConnell	Kathleen	not provided	N/A	Web-based Comments	19583	24
Oconnell	Lenore	not provided	N/A	Web-based Comments	20988	24
Oconnell	Marck	not provided	N/A	Web-based Comments	46529	34
O'Connell	Cathleen	not provided	N/A	Web-based Comments	10343	24
O'Connell	Hudson	not provided	N/A	Web-based Comments	15816	24
O'Connell	Kathleen	not provided	N/A	Web-based Comments	55058	34
O'Connell	Maureen	not provided	N/A	Web-based Comments	23708	24
O'Conner	Paul	not provided	N/A	Web-based Comments	26032	24
Oconnor	Barbara	not provided	N/A	Web-based Comments	49749	34
OConnor	Barbara	not provided	N/A	Web-based Comments	49748	34
Oconnor	Cathy	not provided	N/A	Web-based Comments	53210, 53211	34
OConnor	Dennis	not provided	N/A	Web-based Comments	12699	24
oconnor	eve	not provided	N/A	Web-based Comments	14340	24
OConnor	James	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	2250	N/A
OConnor	Jeanette	not provided	N/A	Web-based Comments	45480	34
OConnor	Julia	not provided	N/A	Web-based Comments	51717	34
OConnor	Michael	not provided	N/A	Web-based Comments	58170	16
OConnor	Pamela	poconnor0512@gmail.com	N/A	Web-based comments	3863	N/A
Oconnor	Shari	not provided	N/A	Web-based Comments	52939, 52940, 52941	34
OConnor	Shari	not provided	N/A	Web-based Comments	28614	24
O'Connor	Bernie	not provided	N/A	Web-based Comments	8998	24
O'Connor	Bette	not provided	N/A	Web-based Comments	47536, 47537	34
O'Connor	Donna	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	2249	N/A
o'connor	elizabeth	not provided	N/A	Web-based Comments	13820	24
O'Connor	Gloria	not provided	N/A	Web-based Comments	15168	24
O'Connor	John	johnpoconnor@msn.com	N/A	Web-based comments	2073	N/A
O'Connor	Judith	not provided	N/A	Web-based Comments	18636	24
O'Connor	Lynn	not provided	N/A	Web-based Comments	58226	16
O'Connor	Mary Beth	not provided	N/A	Web-based Comments	23508	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
O'Connor	Nicholas	not provided	N/A	Web-based Comments	25174	24
O'Connor	Timothy	not provided	N/A	Web-based comments	57026	35
O'Connor	Victoria	not provided	N/A	Web-based Comments	31211	24
Oda	John	not provided	N/A	Web-based Comments	44705, 44706	34
Oda	John	not provided	N/A	Web-based Comments	18123	24
Oda	John	not provided	N/A	Web-based Comments	18124	24
O'Day	Sean	not provided	N/A	Web-based Comments	28522	24
ODBERG	ERIC	OFARMS@MOSCOW.COM	N/A	Web-based comments	5839	N/A
ODear	Elizabeth	not provided	N/A	Web-based Comments	13821	24
Odegaard	Alan	riverquest@cableone.net	N/A	Web-based comments	5653	N/A
Odell	Nicki	not provided	N/A	Web-based Comments	25208	24
O'Dell	Bridget	not provided	N/A	Web-based Comments	9540	24
O'Dell	Rebecca	not provided	N/A	Web-based Comments	26759	24
O'Dell	Sean	not provided	N/A	Web-based Comments	48559	34
O'Dell	Sean	not provided	N/A	Web-based Comments	28523	24
Odello	Diane	not provided	N/A	Web-based Comments	12885	24
Oden	Carolyn	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32423	N/A
Oden	Kaysea	not provided	N/A	Web-based Comments	19851	24
Oder	Stephen	not provided	N/A	Web-based Comments	29327	24
Oder	Stephen	not provided	N/A	Web-based Comments	57937	16
Odett	Ann	not provided	N/A	Web-based Comments	8070	24
Odhner	Dewey	not provided	N/A	Web-based Comments	12742	24
ODoherty	Kit	not provided	N/A	Web-based Comments	20288	24
Odom	Ted	not provided	N/A	Web-based comments	57133	35
Odom	Ted	not provided	N/A	Web-based Comments	30246	24
Odomo	Mare	not provided	N/A	Web-based Comments	22413	24
O'Donald	Julie	g.odonald@frontier.com	N/A	Web-based comments	247	3
O'Donald	Julie	not provided	N/A	Web-based Comments	18876	24
O'Donnal	Mary	not provided	N/A	Web-based Comments	23378	24
ODonnell	Julie	not provided	N/A	Web-based Comments	54317	34
ODonnell	Julie	not provided	N/A	Web-based Comments	18877	24
O'Donnell	Deanne	not provided	N/A	Web-based Comments	49816, 49817, 49818, 49819	34
O'Donnell	DeDe	not provided	N/A	Web-based Comments	55708, 55709	34
O'Donnell	Karen	not provided	N/A	Web-based Comments	58219	16
O'Donnell	Kevin	not provided	N/A	Web-based Comments	20128	24
O'Donnell	Richard Michael	not provided	N/A	Web-based Comments	49517	34
O'donnell	Sue	not provided	N/A	Web-based Comments	29541	24
O'Donoghue	Clive	not provided	N/A	Web-based Comments	11231	24
O'Dowd	Jeanne	not provided	N/A	Web-based Comments	16964	24
O'Driscoll	Maggie	not provided	N/A	Web-based Comments	56538, 55002	34
Ody	Lori	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	5602	N/A
Oelsner	Leslie	not provided	N/A	Web-based Comments	21091	24
Oertel	Gerhard	not provided	N/A	Web-based Comments	14984	24
Oesterling	Sally	not provided	N/A	Web-based Comments	28022	24
Of	Concerned	not provided	N/A	Web-based comments	3308	N/A
of	Washington	not provided	N/A	Web-based comments	4579	N/A
O'Ferrall	Andrea	andreaoferrall@comcast.net	N/A	Web-based comments	1595	3
OFFERMAN	MARK	not provided	N/A	Web-based Comments	22973	24
Officer	Shandra	not provided	N/A	Web-based Comments	28564	24
Offutt	Lynn	not provided	N/A	Web-based Comments	52529	34
OFlaherty	James	not provided	N/A	Web-based Comments	48395	34
Ofstad	Liz Ofstad	not provided	N/A	Web-based Comments	53072	34
Oftedahl	Becky	not provided	N/A	Web-based Comments	8918	24
O'Garro	Nyemah	not provided	N/A	Web-based Comments	56285	34
Ogas	Daniel	not provided	N/A	Web-based Comments	11761	24
Ogata	Sharon	not provided	N/A	Web-based Comments	53782	34
Ogata	Sharon	not provided	N/A	Web-based Comments	28696	24
Ogbac	Peter	not provided	N/A	Web-based Comments	26274	24
Ogburn	Kylie	not provided	N/A	Web-based Comments	20465	24
Ogden	Brenda	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32468	N/A
Ogden	Mike	not provided	N/A	Web-based Comments	24476	24
Ogden	Sara	not provided	N/A	Web-based Comments	28302	24
Ogella	Edith	not provided	N/A	Web-based Comments	48166	34
Ogella	Edith	not provided	N/A	Web-based Comments	13471	24
Ogg	Brian	not provided	N/A	Web-based Comments	9498	24
Oggianu	Marzia	not provided	N/A	Web-based Comments	23594	24
Oggiono	Nanette	not provided	N/A	Web-based Comments	45772, 45773	34
Ogle	Marylou	not provided	N/A	Web-based Comments	23587	24
Ogletree	Raquel	not provided	N/A	Web-based comments	993	2
Ogorzaly	jean	not provided	N/A	Web-based Comments	56447	34

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
OGrady	Victoria	not provided	N/A	Web-based Comments	31212	24
O'Grady	Darlene	not provided	N/A	Web-based Comments	44686	34
O'Grady	William	not provided	N/A	Web-based Comments	54706	34
O'Halloran	Dr. E.	not provided	N/A	Web-based Comments	50282	34
O'Halloran	Mary	not provided	N/A	Web-based Comments	23379	24
Ohanian	Laura M.	not provided	N/A	Web-based Comments	57958	16
OHara	Deborah	not provided	N/A	Web-based Comments	12449	24
Ohara	Gail	not provided	N/A	Web-based Comments	45222	34
Ohara	Gail	not provided	N/A	Web-based Comments	14705	24
O'Hara	Ann Marie	not provided	N/A	Web-based Comments	8111	24
O'Hara	Griffin	griffinohara@gmail.com	N/A	Web-based comments	1304	N/A
O'Hara	William	not provided	N/A	Web-based Comments	31576	24
O'Hare	Janet	not provided	N/A	Web-based Comments	16629	24
O'HARE	WILLIAM	not provided	N/A	Web-based Comments	48980, 48981	34
O'HARE	WILLIAM	not provided	N/A	Web-based Comments	31577	24
O'Hearn	William	not provided	N/A	Web-based Comments	31578	24
Ohenley	Joan	not provided	N/A	Web-based Comments	17719	24
Ohlendorf	Carol	not provided	N/A	Web-based Comments	53653	34
Ohlendorf	Richard	not provided	N/A	Web-based Comments	47170	34
Ohlin	Susan	not provided	N/A	Web-based Comments	29790	24
Ohlsen	Glenn	not provided	N/A	Web-based Comments	15134	24
OHM	HILARY	not provided	N/A	Web-based Comments	58214	16
Ohme	Ann	not provided	N/A	Web-based Comments	52146	34
Oholorogg	Dana	not provided	N/A	Web-based comments	57392	35
ohst	victoria	not provided	N/A	Web-based Comments	31213	24
Oien	Steven	steveoien2015@gmail.com	N/A	Web-based comments	6266	N/A
Ojala	Gregory	gregojalab@yahoo.com	N/A	Web-based comments	6664	N/A
Oka	Masaru	not provided	N/A	Web-based Comments	23595	24
Okamoto	Shari	not provided	N/A	Web-based Comments	28615	24
OKeefe	Lauren	not provided	N/A	Web-based Comments	20790	24
OKeefe	Linda	not provided	N/A	Web-based Comments	21372	24
O'Keefe	Dan	not provided	N/A	Web-based Comments	48232	34
O'Keefe	Dan	not provided	N/A	Web-based Comments	11669	24
O'Keeffe	Kimberly	not provided	N/A	Web-based Comments	20231	24
O'Keeffe	Sean	not provided	N/A	Web-based Comments	54786, 54787	34
Okinaka	Corey	not provided	N/A	Web-based comments	57028	35
okolowicz	sofia	not provided	N/A	Web-based Comments	29043	24
Okone	Brandon	not provided	N/A	Web-based Comments	9371	24
Oladipo	Ara	not provided	N/A	Web-based Comments	58368	28
Olaf	Erik	not provided	N/A	Web-based Comments	46969	34
Olafson	Lynn	not provided	N/A	Web-based Comments	22080	24
Olah	Sally	not provided	N/A	Web-based Comments	28023	24
Oland	Lorraine	not provided	N/A	Web-based Comments	56141	34
Olander	Robin	not provided	N/A	Web-based Comments	27506	24
Olander	Shonto	not provided	N/A	Web-based Comments	28972	24
O'Laughlin	Elizabeth	not provided	N/A	Web-based Comments	13822	24
O'Laughlin	John	jayo@uidaho.edu	N/A	Web-based comments	31881	N/A
Olcott	Lori	not provided	N/A	Web-based Comments	21799	24
Olcott	Stephen	not provided	N/A	Web-based Comments	54431	34
Olcsvary	Michael	not provided	N/A	Web-based Comments	50852	34
Olcsvary	Michael	not provided	N/A	Web-based Comments	24187	24
Oldenburg	Sharon	not provided	N/A	Web-based Comments	28697	24
Older	Molly	not provided	N/A	Web-based Comments	24600	24
Oldershaw	Robert	not provided	N/A	Web-based Comments	27346	24
Oldfield	Jane	not provided	N/A	Web-based Comments	53104, 53105	34
Oldfield	Jane	not provided	N/A	Web-based Comments	16523	24
Oldham	Andrew	not provided	N/A	Web-based Comments	55629	34
Oldham	Kevin	not provided	N/A	Web-based Comments	20129	24
Olds	Carrie	not provided	N/A	Web-based Comments	45676	34
OLDS	KIMCAROLYN	not provided	N/A	Web-based Comments	48508	34
OLDS	KIMCAROLYN	not provided	N/A	Web-based Comments	20257	24
Olds	Marilyn	not provided	N/A	Web-based Comments	22804	24
Oleary	Anne	not provided	N/A	Web-based Comments	8228	24
O'Leary	Cody	not provided	N/A	Web-based Comments	11241	24
O'Leary Carey	Cathy	not provided	N/A	Web-based Comments	10384	24
Oleksiak	Angela	not provided	N/A	Web-based comments	57656	35
Olenick	Roberta	not provided	N/A	Web-based Comments	48938, 48939	34
Olenick	Roberta	not provided	N/A	Web-based Comments	27445	24
Olenjack	Michael	not provided	N/A	Web-based Comments	24188	24
Oleson	Gary	not provided	N/A	Web-based Comments	14788	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Olin	Bonnie	owyheeriver@comcast.net	N/A	Web-based comments	4340	N/A
Oliphant	Jeanne	not provided	N/A	Web-based Comments	16965	24
Olitzky	Bruce	bruce@grantproseatch.com	N/A	Web-based comments	5493	N/A
Oliva	Dyane	not provided	N/A	Web-based Comments	13405	24
Olivares	Anne	not provided	N/A	Web-based Comments	8229	24
Olivares	Juan Carlos	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	2528	N/A
Olivares	Julia	not provided	N/A	Web-based Comments	18769	24
Olivarez	Consuelo	not provided	N/A	Web-based Comments	50589	34
Olivarez	Consuelo	not provided	N/A	Web-based Comments	11353	24
Olivas	Lorrie	not provided	N/A	Web-based Comments	21855	24
Oliveira	Ana	not provided	N/A	Web-based Comments	53177	34
Oliveira	Elizabeth	not provided	N/A	Web-based Comments	13823	24
Oliveira	Larissa	not provided	N/A	Web-based Comments	20562	24
Oliveira	Mariana	not provided	N/A	Web-based Comments	22665	24
Oliveira	Matthew	not provided	N/A	Web-based Comments	23656	24
Oliveira	O C	not provided	N/A	Web-based Comments	51863	34
Oliveira	Roberto	not provided	N/A	Web-based Comments	27461	24
Oliver	Bob	bntc41@yahoo.com	N/A	Web-based comments	2750	N/A
Oliver	Bonnie	not provided	N/A	Web-based Comments	47252, 47253	34
Oliver	Elaine	not provided	N/A	Web-based Comments	13605	24
Oliver	Janet	not provided	N/A	Web-based Comments	16630	24
Oliver	Jennifer	not provided	N/A	Web-based Comments	17232	24
Oliver	Jeri	not provided	N/A	Web-based Comments	47932	34
Oliver	Joan M	not provided	N/A	Web-based Comments	17761	24
Oliver	Kathleen	not provided	N/A	Web-based Comments	53223	34
Oliver	Kay	not provided	N/A	Web-based Comments	19831	24
Oliver	Nancy	not provided	N/A	Web-based Comments	24943	24
Oliver Borquez	Maureen	not provided	N/A	Web-based Comments	23709	24
Oliver Flores, Esq.	Nancy	not provided	N/A	Web-based Comments	24944	24
Oliveras	Roberto	not provided	N/A	Web-based Comments	50985	34
oliveri	charles	not provided	N/A	Web-based Comments	10522	24
Oliveri	Sherry	not provided	N/A	Web-based Comments	28899	24
oliveria	sheelagh	not provided	N/A	Web-based Comments	46767	34
Olivier	Judith	not provided	N/A	Web-based Comments	18637	24
Olk	Todd	not provided	N/A	Web-based Comments	30726	24
Oller	Carol	not provided	N/A	Web-based Comments	56457	34
Ollila	Randy	not provided	N/A	Web-based Comments	26641	24
Ollis	Louise	not provided	N/A	Web-based Comments	21894	24
Ollove	Jesse	not provided	N/A	Web-based Comments	17398	24
Olloz	Guillaume	not provided	N/A	Web-based Comments	15332	24
Olmez	Justine	not provided	N/A	Web-based Comments	51609	34
Olmo	Susan	not provided	N/A	Web-based Comments	29791	24
Olmstead	Holly	not provided	N/A	Web-based Comments	15764	24
Olmstead	Mary Anne	not provided	N/A	Web-based Comments	23507	24
Olmsted	Caren	not provided	N/A	Web-based Comments	9783	24
Olmsted	Jennifer	not provided	N/A	Web-based Comments	17233	24
Olness	Margaret	not provided	N/A	Web-based Comments	47404	34
Olney	Cheri	not provided	N/A	Web-based Comments	50306	34
Olney	Cheri	not provided	N/A	Web-based Comments	10604	24
Olney	Twyla	tolney4175@charter.net	N/A	Web-based comments	4913	N/A
O'Loughlin	Amy	not provided	N/A	Web-based Comments	7649	24
O'Loughlin	Laurie	not provided	N/A	Web-based Comments	20849	24
O'Loughlin	Michael and Susan	not provided	N/A	Web-based Comments	24259	24
Olsen	Barrie	not provided	N/A	Web-based Comments	8856	24
Olsen	Blaine	not provided	N/A	Web-based Comments	9213	24
Olsen	Brenda	not provided	N/A	Web-based Comments	50027	34
Olsen	Brenda	not provided	N/A	Web-based Comments	9414	24
OLSEN	CATHLEEN	not provided	N/A	Web-based Comments	50298, 57763	34
Olsen	Corey E.	not provided	N/A	Web-based Comments	50885	34
Olsen	Corey E.	not provided	N/A	Web-based Comments	11367	24
Olsen	Earl	not provided	N/A	Web-based Comments	13428	24
Olsen	Josh	olsenjc@hotmail.com	N/A	Web-based comments	6489	N/A
Olsen	Loretta	not provided	N/A	Web-based Comments	21766	24
Olsen	Nora	not provided	N/A	Web-based comments	1951	N/A
Olsen	Thomas	not provided	N/A	Web-based Comments	30529	24
Olson	Amanda	not provided	N/A	Web-based Comments	48408, 48409	34
Olson	Arlene	not provided	N/A	Web-based Comments	8430	24
Olson	Barbara	not provided	N/A	Web-based Comments	50622	34
Olson	Carin	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32451	29
Olson	Donald	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32396	33

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Olson	Eric	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32446	29
Olson	Felicia	not provided	N/A	Web-based Comments	14417	24
Olson	Jill	not provided	N/A	Web-based Comments	17533	24
Olson	Joel	not provided	N/A	Web-based Comments	51957	34
Olson	Joel	not provided	N/A	Web-based Comments	17917	24
Olson	Kim	not provided	N/A	Web-based Comments	55333	34
Olson	Larry	not provided	N/A	Web-based Comments	53917	34
Olson	Leone	not provided	N/A	Web-based Comments	21015	24
Olson	Linda	not provided	N/A	Web-based Comments	47806, 47807	34
Olson	Linda	not provided	N/A	Web-based Comments	21373	24
Olson	Lindsey	not provided	N/A	Web-based comments	57340	35
Olson	Lowrie	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	56674	N/A
Olson	M. Rita	not provided	N/A	Web-based Comments	54886	34
Olson	Major	not provided	N/A	Web-based Comments	22286	24
Olson	Nate	stephaniesolson@aol.com	N/A	Web-based comments	4447	N/A
Olson	Nicole	not provided	N/A	Web-based Comments	25249	24
Olson	R.	court.olson@yahoo.com	N/A	Web-based comments	5, 3119	N/A
Olson	Sarah	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32448	29
Olson	Sharon	not provided	N/A	Web-based Comments	28698	24
Olson	Stephanie	stephisinseattle@gmail.com	N/A	Web-based comments	4442	N/A
Olson	Wayne	olson.wayne.moscow@gmail.com	N/A	Web-based comments	3138	N/A
Olson-Lee	James	not provided	N/A	Web-based Comments	16276	24
Olsson	Krister	not provided	N/A	Web-based Comments	20353	24
Olszewski	Marek	not provided	N/A	Web-based Comments	48856	34
Oltman	Meagan	not provided	N/A	Web-based Comments	51030	34
Oltman	Meagan Elizabeth	not provided	N/A	Web-based Comments	51028, 51029	34
Oltman	Meagan Elizabeth	not provided	N/A	Web-based Comments	23772	24
Olveira	Lori	not provided	N/A	Web-based Comments	21800	24
Olvera	Jody	not provided	N/A	Web-based Comments	17869	24
Olwell	Ned	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	56665	N/A
O'Malley	Polly	not provided	N/A	Web-based Comments	47980	34
Oman	Barbara	not provided	N/A	Web-based Comments	8749	24
Oman	J.W.	not provided	N/A	Web-based Comments	16020	24
O'Meany	Lara	not provided	N/A	Web-based Comments	20554	24
O'Meara	Colleen & Joe - NRDC	not provided	N/A	Web-based Comments	11279	24
O'Meara	Colleen Joe - CFBD	not provided	N/A	Web-based Comments	49878	34
O'Meara	Colleen Joe UCS	not provided	N/A	Web-based Comments	49879	34
O'Meara Reyolds	Kath	not provided	N/A	Web-based Comments	19409	24
Omilion	Zygmunt	not provided	N/A	Web-based Comments	31743	24
Oncley	Louise	not provided	N/A	Web-based Comments	21895	24
O'Neal	Bret	not provided	N/A	Web-based Comments	9445	24
O'Neal	Frances	not provided	N/A	Web-based Comments	53179	34
O'Neal	Maureen	not provided	N/A	Web-based Comments	57971, 56567	16, 34
O'Neal	Maureen	not provided	N/A	Web-based Comments	23710	24
O'Neal	Nancy	not provided	N/A	Web-based Comments	24945	24
O'Neal	Thomas	not provided	N/A	Web-based Comments	30527	24
Oneil	Carol	not provided	N/A	Web-based Comments	9997	24
O'Neil	Bob	not provided	N/A	Web-based Comments	9248	24
O'Neil	Christina	not provided	N/A	Web-based Comments	10872	24
O'Neil	Karen	not provided	N/A	Web-based Comments	19191	24
O'Neil	Kevin	not provided	N/A	Web-based comments	3018	N/A
O'Neil	Leslie	not provided	N/A	Web-based Comments	21092	24
O'Neil	Nichole	not provided	N/A	Web-based Comments	25188	24
ONeill	Eileen	not provided	N/A	Web-based Comments	13555	24
Oneill	Jennifer	not provided	N/A	Web-based Comments	17234	24
ONeill	Steve	not provided	N/A	Web-based Comments	29391	24
O'Neill	Andrea	not provided	N/A	Web-based Comments	7762	24
O'Neill	Colin	not provided	N/A	Web-based Comments	58677	34
O'Neill	Colleen	not provided	N/A	Web-based Comments	11272	24
O'Neill	Debbie	not provided	N/A	Web-based Comments	12337	24
O'Neill	Dorothy	not provided	N/A	Web-based Comments	13275	24
O'Neill	Ellen	not provided	N/A	Web-based Comments	13935	24
O'Neill	Kate	not provided	N/A	Web-based Comments	19397	24
O'Neill	Melody	not provided	N/A	Web-based Comments	23951	24
O'Neill	Michael	mikeoneill1221@gmail.com	N/A	Web-based comments	2116	5
O'Neill	Sheila	not provided	N/A	Web-based Comments	28798	24
O'Neill	Steve	not provided	N/A	Web-based Comments	29392	24
Onessimo	Dean	not provided	N/A	Web-based Comments	47709	34
Onessimo	Dean	not provided	N/A	Web-based Comments	12268	24
Ong	Ming	not provided	N/A	Web-based Comments	24534	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Ono	Lory	not provided	N/A	Web-based Comments	21857	24
Onsel	Greg	not provided	N/A	Web-based Comments	55454	34
Onsel	Greg	not provided	N/A	Web-based Comments	15240	24
Onstad	Julianna	not provided	N/A	Web-based Comments	18801	24
Ontivero Jr	Rene	not provided	N/A	Web-based Comments	26831	24
Oosthuizen	John	not provided	N/A	Web-based Comments	18125	24
Opas	Evan	not provided	N/A	Web-based Comments	14332	24
Openshaw	Sherrilee	not provided	N/A	Web-based Comments	28879	24
Opfergelt	Robert	not provided	N/A	Web-based Comments	46933	34
Opfinger	Janice	not provided	N/A	Web-based Comments	49675, 49676	34
Opitz	Brian	skydive1955@yahoo.com	N/A	Web-based comments	4472	N/A
Oppedisano	Cathy	not provided	N/A	Web-based Comments	48915	34
Oppel	Richard	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32310	N/A
Oppenheimer	Lara	not provided	N/A	Web-based Comments	20555	24
Oppenhuizen	Kathy	not provided	N/A	Web-based Comments	19741	24
Oppenlander	John	s.bare@outlook.com	N/A	Web-based comments	4439	N/A
Oppfelt	Amy	not provided	N/A	Web-based Comments	7650	24
Oquendo	Jaime	not provided	N/A	Web-based comments	56953	35
O'Quinn	Blake	not provided	N/A	Web-based Comments	55329	34
Orahood	Dawn	not provided	N/A	Web-based Comments	12241	24
Orahood	Donald	not provided	N/A	Web-based Comments	13075	24
Oram	Shelley	not provided	N/A	Web-based Comments	28838	24
Orange	Amy	not provided	N/A	Web-based Comments	7651	24
Orange	Judy	not provided	N/A	Web-based Comments	46006	34
Oravetz	John	not provided	N/A	Web-based Comments	18126	24
Orazietti	Alexander	not provided	N/A	Web-based Comments	7270	24
Orcholski	Gerald	not provided	N/A	Web-based Comments	14960	24
ordway	john	not provided	N/A	Web-based Comments	18127	24
OReilly	Kathleen	not provided	N/A	Web-based Comments	19584	24
O'Reilly	Maxine	not provided	N/A	Web-based Comments	23752	24
O'Reilly	Michelle	not provided	N/A	Web-based Comments	24378	24
O'Reilly	Patricia	not provided	N/A	Web-based Comments	45645	34
Orellana	Ada	not provided	N/A	Web-based Comments	7034	24
Orellana	Elsy	not provided	N/A	Web-based Comments	13991	24
Orem	Jennifer	not provided	N/A	Web-based Comments	17235	24
Oremland	Jeff	not provided	N/A	Web-based Comments	17049	24
Orengo	Geoffrey	not provided	N/A	Web-based Comments	50927	34
Orenstein	Joyce	not provided	N/A	Web-based Comments	18502	24
Oresic	Emma	not provided	N/A	Web-based Comments	14061	24
oreskovich	gregory	not provided	N/A	Web-based Comments	15289	24
Organa	Abalin	not provided	N/A	Web-based comments	57540	35
Orich	Suzanne	not provided	N/A	Web-based Comments	30013	24
Orick	Debi	debiorick@gmail.com	N/A	Web-based comments	1998	N/A
Orman	Linsey	not provided	N/A	Web-based Comments	21512	24
Orme	Elton	eltonorme@yahoo.com	N/A	Web-based comments	3577	N/A
Orme	Jessica	not provided	N/A	Web-based Comments	17450	24
orme	kevin	not provided	N/A	Web-based Comments	20130	24
Ormond	Judith	not provided	N/A	Web-based Comments	18638	24
Ormos	Kleo	not provided	N/A	Web-based Comments	20300	24
Ornaf	Isabella	not provided	N/A	Web-based Comments	47077	34
Orndorff	Matthew	not provided	N/A	Web-based Comments	54772, 54773	34
Ornee	Mary	not provided	N/A	Web-based Comments	23380	24
Ornelas	Izabella	not provided	N/A	Web-based Comments	15965	24
Orobitg	Maria	not provided	N/A	Web-based Comments	53041	34
Orobitg	Maria jose	not provided	N/A	Web-based Comments	53040	34
Orona	Angel	not provided	N/A	Web-based Comments	7885	24
Orourke	Janet	not provided	N/A	Web-based Comments	16631	24
Orourke	Karen	not provided	N/A	Web-based Comments	19192	24
ORourke	Kevin	not provided	N/A	Web-based Comments	20131	24
O'Rourke	Janell	not provided	N/A	Web-based Comments	48445	34
O'Rourke	Janet	not provided	N/A	Web-based Comments	51929	34
O'Rourke	Matthew	not provided	N/A	Web-based Comments	23657	24
O'Rourke	Melissa	not provided	N/A	Web-based Comments	46670	34
Oroz	Michelle	not provided	N/A	Web-based Comments	54836	34
Oroz	Michelle	not provided	N/A	Web-based Comments	24379	24
Orozco	Erin	not provided	N/A	Web-based Comments	14230	24
Orr	Alicia	not provided	N/A	Web-based Comments	48132, 48133	34
Orr	Barbara	not provided	N/A	Web-based Comments	8750	24
Orr	Flint	not provided	N/A	Web-based comments	2479	N/A
Orr	Lou	not provided	N/A	Web-based Comments	58119, 55680	16, 34

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Orr	Mary	not provided	N/A	Web-based Comments	48933, 48934	34
Orr	Noel	not provided	N/A	Web-based Comments	58113	16
Orshan	Carol	not provided	N/A	Web-based Comments	45828	34
Orsini	Rocco	not provided	N/A	Web-based Comments	27554	24
Orszulak	Samantha	not provided	N/A	Web-based Comments	28082	24
ORSZULAK	TAMMY	not provided	N/A	Web-based Comments	30162	24
Ort	Geri	not provided	N/A	Web-based Comments	51796	34
Ortega	Denise	not provided	N/A	Web-based Comments	48134	34
Ortez	Tracy	not provided	N/A	Web-based Comments	30876	24
Ortiz	Ahmed	not provided	N/A	Web-based Comments	7122	24
ORTIZ	CAROL	not provided	N/A	Web-based Comments	9998	24
Ortiz	Gina	not provided	N/A	Web-based Comments	49197, 49198	34
Ortiz	Loreto	not provided	N/A	Web-based Comments	21756	24
Ortiz	Mariby	not provided	N/A	Web-based comments	57370	35
Ortiz	Robert	not provided	N/A	Web-based Comments	53956	34
Ortiz	Robert	not provided	N/A	Web-based Comments	27347	24
Ortiz	Yeimy	not provided	N/A	Web-based Comments	31664	24
Ortland	Tawnni	not provided	N/A	Web-based Comments	30229	24
Ortman	David	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4256	N/A
orum	shyama	not provided	N/A	Web-based Comments	28977	24
Orvin	Allison	not provided	N/A	Web-based Comments	48726, 48727	34
Orvin	Allison	not provided	N/A	Web-based Comments	7470	24
Orzech	Greg	not provided	N/A	Web-based Comments	15241	24
Os	Colette van	not provided	N/A	Web-based Comments	49853, 49854	34
Osada	Susan	not provided	N/A	Web-based Comments	29792	24
Osantowski	Rose	not provided	N/A	Web-based Comments	27729	24
Osattin	Rob	not provided	N/A	Web-based Comments	27183	N/A
Osborn	Emily	not provided	N/A	Web-based Comments	14031	24
Osborn	Irene Serrano	not provided	N/A	Web-based Comments	48817, 49805	34
Osborn	Julie	not provided	N/A	Web-based Comments	47621	34
Osborne	Anne	not provided	N/A	Web-based Comments	8230	24
Osborne	Colin	not provided	N/A	Web-based Comments	11254	24
Osborne	Ellen	not provided	N/A	Web-based Comments	13936	24
Osborne	Hannah	not provided	N/A	Web-based Comments	48012	34
Osborne	Jessie	not provided	N/A	Web-based Comments	55943	34
Osborne	John	not provided	N/A	Web-based Comments	18128	24
Osborne	JonAlan	not provided	N/A	Web-based comments	6671	N/A
Osburn	Linda	not provided	N/A	Web-based Comments	21374	24
Osepchuk	Caitlin	not provided	N/A	Web-based Comments	51565	34
Osgood	Catherine	not provided	N/A	Web-based Comments	10308	24
Osgood	Diane	not provided	N/A	Web-based Comments	12886	24
O'Shae	Lynn	not provided	N/A	Web-based Comments	22078	24
O'Shaughnessy	Raymond	not provided	N/A	Web-based Comments	26692	24
O'Shields	Miranda	not provided	N/A	Web-based Comments	46260	34
O'shields	Miranda	not provided	N/A	Web-based Comments	24539	24
Oshima	Lani	not provided	N/A	Web-based Comments	20541	24
Osle	Zilma Adriana	not provided	N/A	Web-based Comments	31730	24
Osment	Alison	not provided	N/A	Web-based Comments	52749, 52750	34
Osmer	William	not provided	N/A	Web-based Comments	31579	24
Osmun	Richard	not provided	N/A	Web-based Comments	27019	24
Ososki	Jill	not provided	N/A	Web-based Comments	44979	34
Ospelt	Rita	not provided	N/A	Web-based Comments	27147	24
Ostempowski	Frances	not provided	N/A	Web-based Comments	14489	24
Osten	Irene	not provided	N/A	Web-based Comments	15909	24
Oster	Linda	not provided	N/A	Web-based Comments	21375	24
Osterberg	Dena	not provided	N/A	Web-based comments	57738	35
Osterberg	Martha	not provided	N/A	Web-based Comments	23116	24
Osterhouse	Norma	not provided	N/A	Web-based Comments	25387	24
Ostertag	Brigitte	not provided	N/A	Web-based comments	56765	35
Ostlund	Jan	jeostlund@comcast.net	N/A	US Mail or commercial carrier (UPS, FedEx)	32335	N/A
Ostoich	Julie	not provided	N/A	Web-based Comments	47014	34
Ostrer	Allison	not provided	N/A	Web-based Comments	50929	34
Ostro	Linda	not provided	N/A	Web-based Comments	21376	24
Ostrow	Hillary	not provided	N/A	Web-based Comments	52236	34
Ostrow	Hillary	not provided	N/A	Web-based Comments	15714	24
Ostrowski	Angie	not provided	N/A	Web-based Comments	7954	24
Ostrowski	Marcia	not provided	N/A	Web-based Comments	56336	34
Ostroy	Thea	not provided	N/A	Web-based Comments	30413	24
Osuch	Christine	not provided	N/A	Web-based Comments	10966	24
OSullivan	Rita	not provided	N/A	Web-based Comments	27148	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
O'Sullivan	Greg	not provided	N/A	Web-based Comments	15242	24
O'Sullivan	Kathleen	not provided	N/A	Web-based Comments	19585	24
O'Sullivan	Rita	not provided	N/A	Web-based Comments	52963, 52964	34
O'Sullivan	Shawn	not provided	N/A	Web-based Comments	28754	24
Oswald	Farrell	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32544	13
Oswald	Fred	not provided	N/A	Web-based Comments	50460, 50461	34
Oswald	Judi	not provided	N/A	Web-based Comments	51199	34
Oswald	Sandra	not provided	N/A	Web-based Comments	28197	24
Oswald	Sarah	not provided	N/A	Web-based Comments	53311, 53312	34
Oswald	Sarah	not provided	N/A	Web-based Comments	28385	24
Oswald	Tim	not provided	N/A	Web-based Comments	30623	24
Otero	Jo	not provided	N/A	Web-based Comments	17651	24
Otey	Paul	p.otey000690@gmail.com	N/A	Web-based comments	3097	12
Othrow	Marge	not provided	N/A	Web-based Comments	22533	24
Otis	Bert	otisranch@wispwest.net	N/A	Web-based comments	4363	N/A
Otis	Janice	not provided	N/A	Web-based Comments	16689	24
OToole	Joe	not provided	N/A	Web-based Comments	46086	34
OToole	Joe	not provided	N/A	Web-based Comments	17891	24
OToole	Mark	eldo@comcast.net	N/A	Web-based comments	5133	N/A
Ott	Deb	not provided	N/A	Web-based Comments	12300	24
Ott	Domenica	not provided	N/A	Web-based Comments	12998	24
Ott	Geri	not provided	N/A	Web-based Comments	44567	34
Ott	Geri	not provided	N/A	Web-based Comments	14990	24
Ott	Jacob	ottersguide@gmail.com	N/A	Web-based comments	6010	N/A
Ott	Tanya	not provided	N/A	Web-based Comments	30190	24
Ottaviano	Mary Ann	not provided	N/A	Web-based Comments	23500	24
Ottaviano	Sara	not provided	N/A	Web-based Comments	28303	24
Otte	Kathie	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	56680	N/A
Otte	Terry	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	56680	N/A
Otten	Constance	not provided	N/A	Web-based Comments	46725, 46726	34
Otten	Constance	not provided	N/A	Web-based Comments	11345	24
Ottenbreit	Benjamin	not provided	N/A	Web-based Comments	8967	24
Otterbacher	Ardys	not provided	N/A	Web-based Comments	52441	34
Otterstetter	Rosa	not provided	N/A	Web-based Comments	27698	24
Ottinger	Joan	joanottinger@gmail.com	N/A	Web-based comments	2748	N/A
ottman	peter	not provided	N/A	Web-based Comments	26275	24
Otto	Brian	not provided	N/A	Web-based Comments	9499	24
Otto	Diana	not provided	N/A	Web-based Comments	12787	24
Otto	Kristin	not provided	N/A	Web-based Comments	20386	24
Ottomanelli	Phyllis	not provided	N/A	Web-based comments	57699	35
Otzelberger	Luann	not provided	N/A	Web-based Comments	21920	24
Ouaknine	Lisa	not provided	N/A	Web-based Comments	46814	34
Oubrayrie	Fabienne	not provided	N/A	Web-based Comments	14377	24
Ouellette	Ashley	not provided	N/A	Web-based Comments	47188, 47189	34
Ouellette	Ashley	not provided	N/A	Web-based Comments	8490	24
Ouellette	Brenda	not provided	N/A	Web-based Comments	9415	24
Ouellette	Jacquelyn	not provided	N/A	Web-based Comments	16140	24
Ouellette	Johnathon	not provided	N/A	Web-based Comments	18227	24
Ouellette	Maureen	not provided	N/A	Web-based Comments	46811	34
Ouellette	Maureen	not provided	N/A	Web-based Comments	23711	24
Ouellette	Tracy	not provided	N/A	Web-based Comments	57896, 46721, 46783	16, 34
Ouellette	Tracy	not provided	N/A	Web-based Comments	30877	24
Ouellette	Tracy	tracyjouellette@gmail.com	N/A	Web-based comments	578	N/A
Ounsworth	Charleen	not provided	N/A	Web-based Comments	10468	24
Ourchane	Nadia	not provided	N/A	Web-based Comments	24756	24
Out	Sheila	not provided	N/A	Web-based Comments	28799	24
Outerbridge	Verona	not provided	N/A	Web-based Comments	31093	24
Outon	Glenn	not provided	N/A	Web-based Comments	15135	24
Ouweleen	Jane	not provided	N/A	Web-based Comments	16524	24
Overby	Gary	not provided	N/A	Web-based Comments	45155	34
overdier	ruth	not provided	N/A	Web-based Comments	27882	24
Overland	Tina	not provided	N/A	Web-based Comments	30685	24
Overmire	Laurence	not provided	N/A	Web-based Comments	55251	34
Overstreet	Romy	not provided	N/A	Web-based Comments	27611	24
Overton	Joyce	not provided	N/A	Web-based comments	57290	35
Overton	Joyce	not provided	N/A	Web-based Comments	18503	24
Overton	Marilyn	not provided	N/A	Web-based Comments	22805	24
Overton	Michelle	not provided	N/A	Web-based Comments	24380	24
Overton	Nancy	not provided	N/A	Web-based Comments	24946	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Overton	Ned	not provided	N/A	Web-based Comments	45174, 45175	34
Overton	Ned	not provided	N/A	Web-based Comments	25124	24
Overton	Riley	not provided	N/A	Web-based Comments	27118	24
Overton	Sara	not provided	N/A	Web-based Comments	28304	24
Overton	Steve	not provided	N/A	Web-based Comments	47289, 47290	34
Overton	Steve	not provided	N/A	Web-based Comments	29393	24
Ovodenko	Boris	not provided	N/A	Web-based Comments	9337	24
Ovstaas	Kirsten	not provided	N/A	Web-based comments	56735	35
Owcarz	Matthew	not provided	N/A	Web-based Comments	55298	34
Owen	Allan	not provided	N/A	Web-based Comments	7437	24
Owen	Anita	not provided	N/A	Web-based Comments	53880	34
Owen	Cindy	not provided	N/A	Web-based Comments	11091	24
Owen	Cynthia	not provided	N/A	Web-based Comments	11540	24
Owen	David	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	56686	32
Owen	Douglass	not provided	N/A	Web-based Comments	13349	24
Owen	Jeanne	not provided	N/A	Web-based Comments	56253	34
Owen	Jeanne	not provided	N/A	Web-based Comments	16966	24
Owen	John	not provided	N/A	Web-based comments	4985	N/A
Owen	Julie	not provided	N/A	Web-based Comments	18878	24
Owen	Mike	mkowen1@msn.com	N/A	Web-based comments	5292	N/A
Owen	Ruth	not provided	N/A	Web-based Comments	52620	34
Owen	Ruth	not provided	N/A	Web-based Comments	27883	24
Owen	Sandra	not provided	N/A	Web-based Comments	28198	24
Owen	Tamara	not provided	N/A	Web-based Comments	30126	24
Owens	Carol J	not provided	N/A	Web-based Comments	49209	34
Owens	Carolyn	not provided	N/A	Web-based Comments	10173	24
Owens	Debbie	not provided	N/A	Web-based Comments	12338	24
Owens	Emily	not provided	N/A	Web-based Comments	14032	24
Owens	Janabai	not provided	N/A	Web-based Comments	16456	24
Owens	Linda	not provided	N/A	Web-based Comments	48282	34
Owens	Michael	not provided	N/A	Web-based Comments	50150	34
Owens	Michael	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32521	13
Owens	Renee	not provided	N/A	Web-based comments	57386	35
Owens	Stephanie	not provided	N/A	Web-based Comments	44418	34
Owens	Theresa	not provided	N/A	Web-based Comments	46989	34
Owens	Vikki	not provided	N/A	Web-based Comments	31242	24
Oxman	Andrew	not provided	N/A	Web-based Comments	7834	24
Oxman	Sharen	not provided	N/A	Web-based Comments	47152	34
Oxman	Sharen	not provided	N/A	Web-based Comments	28608	24
Oyama	Rita	not provided	N/A	Web-based Comments	27149	24
Oza	Sara	not provided	N/A	Web-based Comments	54738	34
ozburn	Jake	jozburn@msn.com	N/A	Web-based comments	5862	N/A
ozkan	dogan	not provided	N/A	Web-based Comments	53939	34
Ozkan	Dogan	not provided	N/A	Web-based Comments	53940	34
ozkan	dogan	not provided	N/A	Web-based Comments	12989	24
Ozkok	Gumus	not provided	N/A	Web-based Comments	56122	34
p	a	not provided	N/A	Web-based Comments	6969	24
P	Adam	lytetch@yahoo.com	N/A	Web-based comments	1290	N/A
P	Andy	not provided	N/A	Web-based Comments	7877	24
p	Diane	not provided	N/A	Web-based Comments	12887	24
P	E	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	5528	N/A
P	E	not provided	N/A	Web-based Comments	13414	24
P	J	not provided	N/A	Web-based Comments	45401	34
P	J	not provided	N/A	Web-based Comments	15987	24
P	Marco	not provided	N/A	Web-based Comments	22393	24
P	S	not provided	N/A	Web-based Comments	27948	24
P	Sarah	not provided	N/A	Web-based Comments	28386	24
P	Sarah	not provided	N/A	Web-based Comments	28387	24
P	Sheila	not provided	N/A	Web-based comments	57541	35
P	Sister Josie	not provided	N/A	Web-based Comments	29033	24
P.	Ang?lique	angelique.popart@gmail.com	N/A	Web-based comments	698	1
P.	Bobby	not provided	N/A	Web-based Comments	9268	24
P.	Jerry	not provided	N/A	Web-based Comments	17367	24
pa	jo	not provided	N/A	Web-based Comments	17652	24
Paak	Lissa	not provided	N/A	Web-based Comments	21673	24
Pac	Mark Emlet	not provided	N/A	Web-based Comments	54705	34
Pace	Ann	not provided	N/A	Web-based Comments	8071	24
pace	charles	not provided	N/A	Web-based comments	6887	N/A
Pace	Claudia	not provided	N/A	Web-based Comments	11193	24
Pace	Katya	katya_pace@yahoo.com	N/A	Web-based comments	56815, 1325, 3738	35, 1

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Pace	Katya	not provided	N/A	Web-based Comments	19813	24
Pace	Patty	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32490	33
Pace	Rosemarie	not provided	N/A	Web-based Comments	27753	24
Pace	Scott	not provided	N/A	Web-based Comments	28489	24
Pach	Julianne	not provided	N/A	Web-based comments	57542	35
Pacheco	Roseanne	not provided	N/A	Web-based Comments	27742	24
Pachler	Ilona	not provided	N/A	Web-based Comments	15859	24
Pacimeo	Vicki	not provided	N/A	Web-based Comments	31145	24
Packard	Shea	not provided	N/A	Web-based Comments	28772	24
Packard	Ted and Kay	not provided	N/A	Web-based Comments	30250	24
Packer	Judith	not provided	N/A	Web-based Comments	18639	24
Packer	Patti	not provided	N/A	Web-based Comments	25948	24
Packer	Paul	not provided	N/A	Web-based Comments	26033	24
Packer	Richard	not provided	N/A	Web-based Comments	27020	24
Padelford	Grace	not provided	N/A	Web-based comments	57445	35
Padelford	Grace	not provided	N/A	Web-based Comments	52489, 52490, 52491	34
Padelford	Grace	not provided	N/A	Web-based Comments	15198	24
Padelford	Grace	not provided	N/A	Web-based Comments	15199	24
Padgett	Linda	not provided	N/A	Web-based Comments	21377	24
padgett	lorinda	not provided	N/A	Web-based Comments	58271	16
Padgett	Robyn	arpadge@yahoo.com	N/A	Web-based comments	6038	1
Padilla	Hilda	hldpadilla@yahoo.com	N/A	Web-based comments	5794	1
Padilla	Monica	not provided	N/A	Web-based Comments	50864, 54625	34
Padilla	Vanessa	not provided	N/A	Web-based Comments	31069	24
Padilla-Rogers	Jenn	not provided	N/A	Web-based Comments	17134	24
Padmanabhan	Urmila	not provided	N/A	Web-based Comments	50187, 50188	34
Padmanabhan	Urmila	not provided	N/A	Web-based Comments	30973	24
Padmore	Sam	not provided	N/A	Web-based Comments	28065	24
Padrick	Thomas	not provided	N/A	Web-based Comments	30530	24
Padula	P.S.	not provided	N/A	Web-based Comments	54882	34
Padula	Pr.Cristoforo	not provided	N/A	Web-based Comments	26433	24
PAETEL	JOHN	JOHN.PAETEL@GMAIL.COM	N/A	Web-based comments	32010	N/A
Pagan	Brenda	not provided	N/A	Web-based Comments	9416	24
Pagan	Elisa	not provided	N/A	Web-based Comments	56067	34
Pagan	Mary Jane	not provided	N/A	Web-based Comments	23527	24
Pagan	Mike	not provided	N/A	Web-based Comments	47488, 47489	34
Pagani	Laurent	not provided	N/A	Web-based Comments	20806	24
Pagano	Christine	not provided	N/A	Web-based Comments	10967	24
Pagano	Jovanina	not provided	N/A	Web-based Comments	18450	24
Pagano	Laura	not provided	N/A	Web-based Comments	20682	24
Pagano	Maria	not provided	N/A	Web-based Comments	45057	34
Pagano	Maria Antonietta	not provided	N/A	Web-based Comments	22641	24
Page	Charles	not provided	N/A	Web-based Comments	10523	24
Page	Cindy	not provided	N/A	Web-based Comments	11092	24
Page	David	not provided	N/A	Web-based Comments	12100	24
Page	Heidi	not provided	N/A	Web-based Comments	55345	34
Page	Jessica	jessica.lauren.page@gmail.con	N/A	Web-based comments	6049	1
Page	Karen S	not provided	N/A	Web-based Comments	19262	24
page	matthew	not provided	N/A	Web-based Comments	23658	24
Page	Michele	not provided	N/A	Web-based Comments	24300	24
Page	Peggy	not provided	N/A	Web-based Comments	52622	34
Page	Peggy	not provided	N/A	Web-based Comments	26172	24
Page	Rosine	not provided	N/A	Web-based Comments	48215	34
Page	Rosine	not provided	N/A	Web-based Comments	27780	24
Pagel	Andrew	not provided	N/A	Web-based Comments	7835	24
Pagenkopf	Kris	not provided	N/A	Web-based Comments	48348	34
Paget	Steven	not provided	N/A	Web-based Comments	29458	24
PAGLIA	VICTOR	not provided	N/A	Web-based Comments	45348	34
Paglieri	James	jnpaglieri@gmail.com	N/A	Web-based comments	31951	N/A
Pagni	Jean	not provided	N/A	Web-based Comments	16872	24
Pagoni	Robert	not provided	N/A	Web-based Comments	27348	24
Pahi	Angsuman	not provided	N/A	Web-based Comments	7957	24
Pahre	James	not provided	N/A	Web-based Comments	16277	24
Paige	Gina	not provided	N/A	Web-based Comments	47700	34
Paige	Gina	not provided	N/A	Web-based Comments	15062	24
Paige	Lynda	not provided	N/A	Web-based Comments	22028	24
Paige	Melissa	not provided	N/A	Web-based Comments	23912	24
Paige	Nieba	not provided	N/A	Web-based Comments	53497	34
Paige	Patricia	not provided	N/A	Web-based Comments	25817	24
Pailet	Bob	not provided	N/A	Web-based Comments	9249	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Paine	Arthur	not provided	N/A	Web-based Comments	8465	24
Paine	Jeff	scorpioz28@twc.com	N/A	Web-based comments	40	N/A
Paine	Jody	not provided	N/A	Web-based Comments	49384	34
Painter	Everett	e_scottpainter@msn.com	N/A	Web-based comments	5118	8
Pais	Julia	not provided	N/A	Web-based Comments	18770	24
pais	paula	not provided	N/A	Web-based Comments	26095	24
Pajer	Scott and Tricia	not provided	N/A	Web-based Comments	28511	24
Pakaln	Laura	not provided	N/A	Web-based Comments	20683	24
Pakieser	Joanne	not provided	N/A	Web-based Comments	17818	24
Palacio	Frances	not provided	N/A	Web-based Comments	49319, 49320	34
Palacio	Frances	not provided	N/A	Web-based Comments	14490	24
Palacky	Tami	not provided	N/A	Web-based Comments	30140	24
Paladin	John	not provided	N/A	Web-based Comments	54443	34
Paladin	John	PaladinEsq@AOL.com	N/A	Web-based comments	2474	1
Palafoutas	John	not provided	N/A	Web-based Comments	18129	24
palanca	ray	not provided	N/A	Web-based Comments	26675	24
Paleck	Erika	epaleck@gmail.com	N/A	Web-based comments	2631	N/A
Paley	Leon	not provided	N/A	Web-based Comments	21001	24
palicki	val	not provided	N/A	Web-based Comments	30998	24
Palka	Dana	not provided	N/A	Web-based Comments	11701	24
Palla	Paul	not provided	N/A	Web-based Comments	57770	34
Palladini	David	not provided	N/A	Web-based Comments	12101	24
Palladino	Mary	not provided	N/A	Web-based Comments	23381	24
Pallanes	Beatriz	not provided	N/A	Web-based Comments	52644	34
Pallanes	Beatriz	not provided	N/A	Web-based Comments	8895	24
Pallen	Jeanneadele	not provided	N/A	Web-based Comments	16981	24
Paller	Jesse	not provided	N/A	Web-based Comments	17399	24
pallis	ashley	not provided	N/A	Web-based Comments	49497	34
Palloc	Sgt. Alexander	not provided	N/A	Web-based Comments	28554	24
Palma	Luciano	not provided	N/A	Web-based Comments	21939	24
Palmer	Allie	not provided	N/A	Web-based Comments	45443, 45444	34
palmer	allie	not provided	N/A	Web-based Comments	7455	24
Palmer	Amaira	not provided	N/A	Web-based Comments	7511	24
Palmer	Amy	not provided	N/A	Web-based Comments	46525	34
Palmer	Catherine	not provided	N/A	Web-based Comments	56468	34
Palmer	Catherine	not provided	N/A	Web-based Comments	10309	24
Palmer	Catherine	not provided	N/A	Web-based Comments	10310	24
Palmer	Colleen	not provided	N/A	Web-based Comments	11273	24
Palmer	Cynthia	not provided	N/A	Web-based Comments	11541	24
Palmer	Deborah	not provided	N/A	Web-based Comments	50146	34
Palmer	Delphine	Boomerblond@gmail.com	N/A	Web-based comments	4101	N/A
Palmer	Emmett	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	6939	N/A
Palmer	Eric	not provided	N/A	Web-based Comments	14131	24
Palmer	Esther	not provided	N/A	Web-based Comments	14278	24
Palmer	Hart	not provided	N/A	Web-based Comments	15467	24
Palmer	Heidi	not provided	N/A	Web-based Comments	15576	24
Palmer	Joel	not provided	N/A	Web-based Comments	52571	34
Palmer	Joel	not provided	N/A	Web-based Comments	17918	24
Palmer	Judy	not provided	N/A	Web-based Comments	57956	16
Palmer	Lesley	not provided	N/A	Web-based comments	57146	35
Palmer	Martin	not provided	N/A	Web-based Comments	23169	24
Palmer	Matthew	not provided	N/A	Web-based Comments	23659	24
Palmer	Matthew	not provided	N/A	Web-based Comments	23660	24
Palmer	Mayor	townofoakesdale@msn.com	N/A	Web-based comments	2281	N/A
Palmer	Melodie	not provided	N/A	Web-based Comments	23940	24
Palmer	Noel	not provided	N/A	Web-based Comments	25337	24
Palmer	Shane	sap75_51534@yahoo.com	N/A	Web-based comments	6810	N/A
Palmer	Sherry	not provided	N/A	Web-based Comments	28900	24
Palmer	Susan	not provided	N/A	Web-based Comments	29793	24
Palmer	Tim	tim@timpalmer.org	N/A	Web-based comments	2791, 5605	N/A
Palombo	Bruce	not provided	N/A	Web-based Comments	9622	24
Palomo	Sophia	not provided	N/A	Web-based Comments	29084	24
Paltin	Sharon	not provided	N/A	Web-based Comments	52495, 52496	34
Paltin	Sharon	not provided	N/A	Web-based Comments	28699	24
Paluca	Gerhard	not provided	N/A	Web-based Comments	14985	24
Palumbo	Anthony	not provided	N/A	Web-based Comments	8343	24
Palumbo	Julieann	not provided	N/A	Web-based Comments	58029	16
Pam	Joe	joe.anderson@frontier.com	N/A	Web-based comments	5369	N/A
Pamperin	John	not provided	N/A	Web-based Comments	54329	34
pamperin	john	not provided	N/A	Web-based Comments	18130	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Pan	Jenny	not provided	N/A	Web-based Comments	17297	24
pan	pinkyjain	not provided	N/A	Web-based Comments	45975, 45976	34
pan	pinkyjain	not provided	N/A	Web-based Comments	26413	24
panagakis	donna	not provided	N/A	Web-based Comments	13167	24
Panagos	Jim	not provided	N/A	Web-based Comments	17598	24
pancrazi	Gloria	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4706, 5614	N/A
pancrazi	Gloria	not provided	N/A	Web-based comments	3774	1
Pandey	Akhilesh	not provided	N/A	Web-based comments	1170	N/A
Pandit	Sudhir	not provided	N/A	Web-based Comments	29507	24
Pando	Aoede	aoede.pando@gmail.com	N/A	Web-based comments	3885	1
Pandolfi	Sara	not provided	N/A	Web-based Comments	28305	24
Pandora	Marg	not provided	N/A	Web-based Comments	22421	24
Pang	Eliza	not provided	N/A	Web-based comments	3983	1
Pang	Naomi	not provided	N/A	Web-based Comments	25050	24
Pang	Yi	not provided	N/A	Web-based comments	73	N/A
Pang	Yi	not provided	N/A	Web-based comments	1330, 1754, 4926	1
Pang	Yi	yion.pang@gmail.com	N/A	Web-based comments	2850	1
Pang	Yi	yishares@gmail.com	N/A	Web-based comments	2211, 86, 6371	1
Paniagua	Rosiris	not provided	N/A	Web-based Comments	27781	24
Panitz	Patricia	not provided	N/A	Web-based Comments	44737	34
panjabi	deepali	not provided	N/A	Web-based Comments	12589	24
Pannell	Bonnie	not provided	N/A	Web-based Comments	9315	24
Pannone Jr	Alfred	not provided	N/A	Web-based Comments	53302	34
Panter	Rich	not provided	N/A	Web-based Comments	26925	24
Pantier	Gina	not provided	N/A	Web-based Comments	47063	34
Pantier	Gina	not provided	N/A	Web-based Comments	15063	24
Pantukhoff	Jeff	not provided	N/A	Web-based Comments	17050	24
Panzarello	Marcus	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	5524	18
Panzica	Joseph	not provided	N/A	Web-based Comments	18384	24
Panzner	Elise	not provided	N/A	Web-based comments	1309	2
Paoli	Loredana De	not provided	N/A	Web-based Comments	50093	34
Paoli	Sydney	not provided	N/A	Web-based comments	2778	N/A
Paolucci	Rick	not provided	N/A	Web-based Comments	27097	24
Paoluzzi	Sara	not provided	N/A	Web-based Comments	28306	24
Paonessa	Marcia	not provided	N/A	Web-based Comments	22378	24
Papa	Mar	not provided	N/A	Web-based Comments	22317	24
Papaccio	Jenifer	not provided	N/A	Web-based Comments	17128	24
Papandrea	John	not provided	N/A	Web-based Comments	18131	24
Papaneri	Marybeth	not provided	N/A	Web-based Comments	23576	24
papasodaro	sara	not provided	N/A	Web-based Comments	28307	24
Pape	Brian	not provided	N/A	Web-based Comments	9500	24
Papin	C	not provided	N/A	Web-based Comments	9679	24
Papineau	Hilary	not provided	N/A	Web-based Comments	15704	24
Papineau	John	not provided	N/A	Web-based Comments	18132	24
Papoutsi	Eva	not provided	N/A	Web-based Comments	14315	24
PAPPALARDO	MASSIMO	not provided	N/A	Web-based Comments	45375	34
PAPPALARDO	MASSIMO	not provided	N/A	Web-based Comments	23600	24
Pappano	Rachael	not provided	N/A	Web-based Comments	56442, 56443	34
Pappano	Rachael	not provided	N/A	Web-based Comments	26504	24
Pappano	Sandra D.	not provided	N/A	Web-based Comments	28235	24
Pappas	Carole	not provided	N/A	Web-based comments	57226	35
Pappas	Carole	not provided	N/A	Web-based Comments	54575	34
Pappas	Carole	not provided	N/A	Web-based Comments	10094	24
Pappas	Christine	not provided	N/A	Web-based Comments	47616	34
Pappas	George	not provided	N/A	Web-based Comments	52082	34
Pappas	George	not provided	N/A	Web-based Comments	14908	24
Pappas	Kristina	not provided	N/A	Web-based Comments	20407	24
Pappas	Melissa	not provided	N/A	Web-based Comments	23913	24
Pappas	Randi	not provided	N/A	Web-based Comments	26627	24
Pappas	Robin	not provided	N/A	Web-based Comments	52356	34
Papscun	Alan	not provided	N/A	Web-based Comments	7181	24
Paquin	Paul	not provided	N/A	Web-based Comments	26034	24
Paracca	Teresa	not provided	N/A	Web-based Comments	30290	24
Paradis	Bettie	not provided	N/A	Web-based Comments	9082	24
Paradis	Carol	not provided	N/A	Web-based Comments	9999	24
Paradis	Theresa	not provided	N/A	Web-based Comments	54161	34
Paradise	David	not provided	N/A	Web-based Comments	12102	24
Paradise	Michael	not provided	N/A	Web-based Comments	58527	34
Paramore	Marty	martyparamore@icloud.com	N/A	Web-based comments	2534	N/A

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
PARAPAR	ALEJANDRA	not provided	N/A	Web-based Comments	7226	24
Parcell	Teresa	not provided	N/A	Web-based Comments	56236	34
Parcells	Julie	not provided	N/A	Web-based Comments	18879	24
Parcher-Charles	Kai	not provided	N/A	Web-based Comments	19000	24
pardee	cathy	not provided	N/A	Web-based Comments	47748	34
pardee	cathy	not provided	N/A	Web-based Comments	10385	24
Pardee	Neal	not provided	N/A	Web-based Comments	25118	24
Pardess	Yael	not provided	N/A	Web-based Comments	31650	24
Pardi	Marco	not provided	N/A	Web-based Comments	53410	34
Pardi	Marco	not provided	N/A	Web-based Comments	22394	24
Pardy	Linda	not provided	N/A	Web-based Comments	21378	24
Paredes	Cristiana	not provided	N/A	Web-based Comments	11438	24
Paregian	Michelle	not provided	N/A	Web-based Comments	54887	34
Parekh	Heather	not provided	N/A	Web-based Comments	50117	34
Parente	Donna	not provided	N/A	Web-based Comments	48540	34
Parente	Donna	not provided	N/A	Web-based Comments	13168	24
Parento	Dominie	not provided	N/A	Web-based Comments	13002	24
Parga	Beatriz	not provided	N/A	Web-based comments	57720	35
Pargiter	Giles	not provided	N/A	Web-based Comments	15030	24
Parikh	Anand	not provided	N/A	Web-based Comments	7708	24
Paris	Danette	not provided	N/A	Web-based Comments	11717	24
Paris	Gerhild	not provided	N/A	Web-based Comments	14987	24
Paris	Mayor	dwayneparis@gmail.com	N/A	Web-based comments	6108	N/A
Paris	Nancy	not provided	N/A	Web-based Comments	24947	24
parise	renato	not provided	N/A	Web-based Comments	26826	24
Parish	Nadine	not provided	N/A	Web-based Comments	24767	24
Park	Candace	not provided	N/A	Web-based Comments	53969	34
park	christy	not provided	N/A	Web-based Comments	11045	N/A
Park	Jason	not provided	N/A	Web-based Comments	16785	24
Park	Jeannie	not provided	N/A	Web-based Comments	58099, 54641, 54642	16, 34
Park	Jeannie	not provided	N/A	Web-based Comments	16993	24
Park	Joanne	not provided	N/A	Web-based Comments	56492	34
Park	Louise	not provided	N/A	Web-based Comments	57797	34
Park	Louise	not provided	N/A	Web-based Comments	21896	24
Park	Nam Soo	not provided	N/A	Web-based Comments	24780	24
Park	Noel	not provided	N/A	Web-based Comments	51920	34
Park	Noel	not provided	N/A	Web-based Comments	25338	24
Park	Robert	not provided	N/A	Web-based Comments	55034	34
Park	Tammy	not provided	N/A	Web-based Comments	49608	34
Parke	Rachel	rachel_parke@yahoo.com	N/A	Web-based comments	6362	N/A
Parker	Brenda	not provided	N/A	Web-based Comments	46715	34
Parker	Brenda	not provided	N/A	Web-based Comments	9417	24
PARKER	CAROL	not provided	N/A	Web-based Comments	10000	24
Parker	Craig	not provided	N/A	Web-based Comments	11425	24
Parker	Cynthia	not provided	N/A	Web-based Comments	51451	34
Parker	Cynthia	not provided	N/A	Web-based Comments	11542	24
Parker	David	not provided	N/A	Web-based Comments	52352	34
Parker	David	not provided	N/A	Web-based Comments	12103	24
Parker	Deborah	not provided	N/A	Web-based Comments	58061, 51424	16, 34
Parker	Deborah	not provided	N/A	Web-based Comments	12450	24
Parker	Dixie	not provided	N/A	Web-based Comments	48627	34
Parker	Elaine	not provided	N/A	Web-based Comments	13606	24
Parker	Evelyn	not provided	N/A	Web-based Comments	14355	24
parker	F	oebuisness@yahoo.com	N/A	Web-based comments	32045	N/A
Parker	Faith	not provided	N/A	Web-based Comments	14385	24
Parker	Helen	not provided	N/A	Web-based Comments	15624	24
Parker	James	not provided	N/A	Web-based Comments	16278	24
Parker	Janice	not provided	N/A	Web-based Comments	52561	34
Parker	Janice	not provided	N/A	Web-based Comments	16690	24
Parker	Jenna	not provided	N/A	Web-based Comments	52374	34
Parker	Jin	not provided	N/A	Web-based Comments	17627	24
Parker	Karen	not provided	N/A	Web-based Comments	19193	24
Parker	Lisa	not provided	N/A	Web-based Comments	54327, 54328	34
Parker	Lisa	not provided	N/A	Web-based Comments	21609	24
Parker	Mary	not provided	N/A	Web-based Comments	23382	24
Parker	Mary	not provided	N/A	Web-based Comments	23383	24
Parker	Meghan	not provided	N/A	Web-based Comments	58495, 58496	34
Parker	Peg	not provided	N/A	Web-based Comments	26141	24
Parker	Randy	not provided	N/A	Web-based Comments	26642	24
Parker	Rich	rich63edie@aol.com	N/A	Web-based comments	3859	N/A

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Parker	Stephanie	not provided	N/A	Web-based Comments	54200	34
Parker	Sue	not provided	N/A	Web-based Comments	29542	24
parker	tina	not provided	N/A	Web-based Comments	30686	24
Parker	Vita	not provided	N/A	Web-based Comments	52111	34
Parker	William	not provided	N/A	Web-based Comments	31580	24
Parker III	Gordon	not provided	N/A	Web-based Comments	15184	24
Parker-Essig	Tara	not provided	N/A	Web-based Comments	48890	34
Parker-Timms	Denise	not provided	N/A	Web-based Comments	12654	24
Parkhurst	David	not provided	N/A	Web-based Comments	12104	24
Parkin	Pauline	not provided	N/A	Web-based comments	57067	35
Parkin	Pauline	not provided	N/A	Web-based Comments	26122	24
Parkinson	William	not provided	N/A	Web-based Comments	52308	34
Parkinson	William	not provided	N/A	Web-based Comments	31581	24
Parks	Ashley	not provided	N/A	Web-based Comments	8491	24
Parks	Jessica	not provided	N/A	Web-based Comments	17451	24
Parks	Michele	not provided	N/A	Web-based Comments	24301	24
Parks	Pam	not provided	N/A	Web-based Comments	25504	24
Parks	Susan Bennett	not provided	N/A	Web-based Comments	29924	24
Parks-Pittman	Sarah	not provided	N/A	Web-based Comments	47117	34
Parlevliet	Leotien	not provided	N/A	Web-based Comments	49703, 49704	34
Parlevliet	Leotien	not provided	N/A	Web-based Comments	21023	24
Parlevliet	Leotien	not provided	N/A	Web-based Comments	58116	16
Parlier	Sasha	not provided	N/A	Web-based Comments	28438	24
Parliman	B Barbara	not provided	N/A	Web-based Comments	8578	24
Parmeter	Sarah-Hope	not provided	N/A	Web-based Comments	28426	24
Parms	Louise	not provided	N/A	Web-based Comments	21897	24
Parnell	Cynthia	not provided	N/A	Web-based Comments	11543	24
Parnell	Kristine	not provided	N/A	Web-based Comments	20419	24
Parnell	Robyn	not provided	N/A	Web-based Comments	27548	24
Parr	Julia	not provided	N/A	Web-based Comments	18771	24
Parr	Michelle	not provided	N/A	Web-based Comments	24381	24
Parr	Robert	afppbob@aol.com	N/A	Web-based comments	4867	N/A
Parr	Stacy	not provided	N/A	Web-based Comments	52265	34
Parr	Stacy	not provided	N/A	Web-based Comments	29142	24
Parr	William	not provided	N/A	Web-based Comments	49237	34
Parr	William	not provided	N/A	Web-based Comments	31582	24
Parra	Brenda	not provided	N/A	Web-based Comments	58501	34
Parra	Natalie	natalie@opsociety.org	N/A	Web-based comments	2867	N/A
Parra	Natalie	not provided	N/A	Web-based Comments	46955	34
Parravicini	Marco	not provided	N/A	Web-based Comments	22395	24
Parrent	Joanne	not provided	N/A	Web-based Comments	17819	24
Parris	Nancy	not provided	N/A	Web-based Comments	52445	34
Parrish	Antonia	parrishantonia@gmail.com	N/A	Web-based comments	6559	N/A
Parrish	Mikel	mt.mikeparrish@gmail.com	N/A	Web-based comments	3593	N/A
Parrott	Elaine	not provided	N/A	Web-based Comments	13607	24
Parrott	Ian	not provided	N/A	Web-based Comments	15835	24
Parry	Alison	not provided	N/A	Web-based Comments	7415	24
Parry	Alyson	not provided	N/A	Web-based Comments	7499	24
Parry	Julie	not provided	N/A	Web-based Comments	51484	34
Parry	Michael	not provided	N/A	Web-based Comments	24189	24
Parry	Taryn	not provided	N/A	Web-based Comments	57861	34
Parshall	Dorothy	not provided	N/A	Web-based Comments	58555, 58039	34, 16
Parshall	Sharon	not provided	N/A	Web-based Comments	58174	16
Parsley	Adina	not provided	N/A	Web-based Comments	51811	34
Parsley	Patricia	not provided	N/A	Web-based Comments	58198	16
Parson	Kristi	not provided	N/A	Web-based Comments	20358	24
Parsons	Don	not provided	N/A	Web-based Comments	53544	34
Parsons	Gene	not provided	N/A	Web-based Comments	14854	24
Parsons	Gene	not provided	N/A	Web-based Comments	14855	24
Parsons	Kathy	not provided	N/A	Web-based Comments	19742	24
Parsons	Kelli	not provided	N/A	Web-based Comments	19901	24
Parsons	Ken	not provided	N/A	Web-based Comments	47320	34
Parsons	Louise	not provided	N/A	Web-based Comments	45576	34
Parsons	Merry	not provided	N/A	Web-based Comments	23996	24
Parsons	Nancy	not provided	N/A	Web-based Comments	24948	24
Parsons	Stevie	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	5611	N/A
Parsons	Tim	not provided	N/A	Web-based Comments	30624	24
Partin	Melissa	not provided	N/A	Web-based Comments	23914	24
Partin	Nancy	not provided	N/A	Web-based Comments	24949	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Partin	Nancy	not provided	N/A	Web-based Comments	24950	24
Partridge	Kerry	not provided	N/A	Web-based Comments	53786	34
Partridge	Ronald	not provided	N/A	Web-based Comments	27661	24
Parus	Christine	not provided	N/A	Web-based Comments	45926	34
Parvela	Heidi	not provided	N/A	Web-based Comments	52919	34
Parvin	Paula	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	5603	N/A
Parvin	Paula	not provided	N/A	Web-based comments	31859	1
pas	boris	not provided	N/A	Web-based Comments	54957	34
Pascal	Robin	not provided	N/A	Web-based Comments	52618	34
Pascal	Robin	not provided	N/A	Web-based Comments	27507	24
Pasenow	Carly	not provided	N/A	Web-based Comments	9861	24
Pashell	Hector	not provided	N/A	Web-based Comments	15556	24
Pasholk	Kelly	not provided	N/A	Web-based Comments	54430	34
Pasholk	Kelly	not provided	N/A	Web-based Comments	19940	24
Pasichnyk	Richard	not provided	N/A	Web-based Comments	58000, 45898, 45899	16, 34
Paskowitz	Nancy	not provided	N/A	Web-based Comments	55986	34
Paskowitz	Nancy	not provided	N/A	Web-based Comments	24951	24
Paskus	Leslie	not provided	N/A	Web-based Comments	21093	24
Pasley	Michael	not provided	N/A	Web-based Comments	24190	24
PASQUA	GARY	not provided	N/A	Web-based Comments	14789	24
Pasqua	John	not provided	N/A	Web-based comments	57577	35
Pasqua	John	not provided	N/A	Web-based Comments	51019, 51020, 51021	34
Pasqua	John	not provided	N/A	Web-based Comments	18133	24
pasquali	jude	not provided	N/A	Web-based Comments	18542	24
Pasquinelli	Dorothy	not provided	N/A	Web-based Comments	51655, 51656	34
Pass	Alanna	not provided	N/A	Web-based Comments	7203	24
Passalacqua	Karla	not provided	N/A	Web-based Comments	19315	24
Passante	John	not provided	N/A	Web-based Comments	51322	34
Passer	Joel and Sonia	not provided	N/A	Web-based Comments	17929	24
Passino	Ashley	not provided	N/A	Web-based comments	56948	35
Passmore	Muriel	not provided	N/A	Web-based Comments	24698	24
Passon	Gary	not provided	N/A	Web-based Comments	14790	24
Pasternack	Ellen	not provided	N/A	Web-based Comments	13937	24
Pastorino	Gino	not provided	N/A	Web-based Comments	52649, 52721	34
Pastula	Adam	not provided	N/A	Web-based Comments	47940	34
Pastula	Adam	not provided	N/A	Web-based Comments	7054	24
Patane	Daniel	not provided	N/A	Web-based Comments	11762	24
Patch	Joan	not provided	N/A	Web-based Comments	55663	34
Patchett	Kristen	not provided	N/A	Web-based comments	57419	35
Pate	Camryn	not provided	N/A	Web-based Comments	53182	34
Pate	Camryn	not provided	N/A	Web-based Comments	9751	24
Pate	Jessica	not provided	N/A	Web-based Comments	53640, 53641	34
Pate	Jessica	not provided	N/A	Web-based Comments	17452	24
Pate	Kara	not provided	N/A	Web-based Comments	53908	34
Pate	Kara	not provided	N/A	Web-based Comments	19026	24
Pate	Logan	not provided	N/A	Web-based Comments	51553	34
Pate	Nathan	not provided	N/A	Web-based Comments	52378	34
pate	nathan	not provided	N/A	Web-based Comments	25101	24
Pate Jr	Evans	not provided	N/A	Web-based Comments	14335	24
Patel	Bhavik	not provided	N/A	Web-based Comments	9153	24
Patel	Neela	not provided	N/A	Web-based Comments	25125	24
Patel	Sagar	not provided	N/A	Web-based Comments	55494	34
Patel	Sagar	not provided	N/A	Web-based Comments	27989	24
Patenaude	Richard	not provided	N/A	Web-based Comments	27021	24
Paterno	Joshua	not provided	N/A	Web-based Comments	49062	34
Paterson	Chris	not provided	N/A	Web-based Comments	46044, 46045	34
Paterson	Derek	not provided	N/A	Web-based Comments	51971, 51972	34
Paterson	Stuart	not provided	N/A	Web-based Comments	29497	24
Patkus	Mary	not provided	N/A	Web-based Comments	23384	24
Patnode	Connie	not provided	N/A	Web-based Comments	50144	34
Patnode	Diane	not provided	N/A	Web-based Comments	54135, 54136	34
Patnode	Diane	not provided	N/A	Web-based Comments	12888	24
Patrick	David	not provided	N/A	Web-based Comments	12105	24
Patrick	Janice	not provided	N/A	Web-based Comments	57787	34
Patrick	Janice	not provided	N/A	Web-based Comments	16691	24
Patrick	Linda	not provided	N/A	Web-based Comments	21379	24
Patrick	Thidet	not provided	N/A	Web-based Comments	30463	24
Patsiga	Lynn	not provided	N/A	Web-based Comments	22081	24
Patten	Robin	not provided	N/A	Web-based Comments	51429, 51430	34

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Patten	Robin	not provided	N/A	Web-based Comments	27508	24
Patterson	A	not provided	N/A	Web-based Comments	6970	24
Patterson	Alice	not provided	N/A	Web-based Comments	7360	24
Patterson	Beth	not provided	N/A	Web-based Comments	9041	24
Patterson	Carol	not provided	N/A	Web-based Comments	10001	24
Patterson	Carol Joan	not provided	N/A	Web-based Comments	10062	24
Patterson	Hayley	not provided	N/A	Web-based Comments	15480	24
Patterson	Jack	not provided	N/A	Web-based comments	2880	6
Patterson	John	not provided	N/A	Web-based Comments	18134	24
Patterson	Katherine	not provided	N/A	Web-based Comments	19470	24
Patterson	Kevin	not provided	N/A	Web-based Comments	53856	34
Patterson	Kevin	not provided	N/A	Web-based Comments	20132	24
Patterson	M. M.	not provided	N/A	Web-based Comments	22215	24
Patterson	Martina	not provided	N/A	Web-based Comments	53753	34
Patterson	Nell	not provided	N/A	Web-based Comments	25141	24
Patterson	Phillip	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4623	N/A
patterson	rhonda	not provided	N/A	Web-based Comments	26906	24
Patterson	Roland	not provided	N/A	Web-based Comments	50975	34
Patterson	Roni Jo	not provided	N/A	Web-based Comments	27685	24
Patterson	Thomas	not provided	N/A	Web-based Comments	48366, 48367	34
Patterson	Thomas	not provided	N/A	Web-based Comments	30531	24
Patti	Joel	not provided	N/A	Web-based Comments	17919	24
Patto	Marika	not provided	N/A	Web-based Comments	22753	24
Patton	Barbara	not provided	N/A	Web-based Comments	8751	24
Patton	Carol	not provided	N/A	Web-based Comments	10002	24
Patton	Cathy	not provided	N/A	Web-based Comments	10386	24
Patton	Gloria S	not provided	N/A	Web-based Comments	57954	16
Patton	James	not provided	N/A	Web-based Comments	53922	34
Patton	James	not provided	N/A	Web-based Comments	16279	24
Patton	Jane	not provided	N/A	Web-based Comments	16525	24
Patton	Linda	not provided	N/A	Web-based Comments	21380	24
Patton	Tamaira & James	not provided	N/A	Web-based Comments	30113	24
Patton	Tanya	not provided	N/A	Web-based Comments	30191	24
Patton	Therese	not provided	N/A	Web-based Comments	30459	24
Patton	Tim	not provided	N/A	Web-based Comments	48387	34
Patumanoan	Nancy	not provided	N/A	Web-based Comments	24952	24
Patyk	S.	not provided	N/A	Web-based Comments	56144	34
Patzer	Debra Davino	not provided	N/A	Web-based Comments	55439	34
Paul	Adrian	not provided	N/A	Web-based Comments	7083	24
Paul	Brandon	not provided	N/A	Web-based Comments	9372	24
Paul	Gavin	not provided	N/A	Web-based Comments	14816	24
Paul	Jeffrey	not provided	N/A	Web-based Comments	17095	24
paul	ki	not provided	N/A	Web-based Comments	20154	24
Paul	Markus	not provided	N/A	Web-based Comments	23019	24
Paul	Rashida	not provided	N/A	Web-based Comments	26655	24
Paul	Tim	not provided	N/A	Web-based Comments	30625	24
Paul	Wendy	not provided	N/A	Web-based Comments	31441	24
Paul	William & Bertha	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32486	N/A
Pauley	Jean	not provided	N/A	Web-based Comments	16873	24
Pauley	Marcia	not provided	N/A	Web-based Comments	53694	34
Pauley	Stephen	spauley4@gmail.com	N/A	Web-based comments	2242, 2690, 3174, 3175	N/A
Paulignan	Guillaume	not provided	N/A	Web-based Comments	48893, 48894	34
Pauline	Jim	bowldawg2@gmail.com	N/A	Web-based comments	1876	N/A
Pauling	Lynda	not provided	N/A	Web-based Comments	22029	24
Paull	Rachel	not provided	N/A	Web-based Comments	26540	24
Pauls	Virgil	not provided	N/A	Web-based Comments	31263	24
Paulsen	Karen	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32426	N/A
Paulson	Alan	not provided	N/A	Web-based comments	57076	35
Paulson	Martha	not provided	N/A	Web-based Comments	23117	24
Paulson	Melony	not provided	N/A	Web-based Comments	55330	34
Paulson	Patrick	patrick@3rivers-ashtanga.org	N/A	Web-based comments	6007	N/A
Paulson	Rebekah	not provided	N/A	Web-based Comments	26794	24
Paulson	Rick	not provided	N/A	Web-based Comments	46681	34
Pauluk	Midge	not provided	N/A	Web-based Comments	24417	24
Paumard	Cassie	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	5588	N/A
Paupe	John	not provided	N/A	Web-based Comments	47367	34
Pauwels	Anita	not provided	N/A	Web-based Comments	7981	24
pavacich	john	not provided	N/A	Web-based Comments	45378	34
Pavcovich	Michelle	not provided	N/A	Web-based Comments	49092	34

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Pavey	Brenna	not provided	N/A	Web-based Comments	49804	34
Pavlak	Patrick	not provided	N/A	Web-based Comments	25921	24
Pavlic	Anne	not provided	N/A	Web-based Comments	55670, 55671	34
Pavlidis	Gregory	not provided	N/A	Web-based Comments	15290	24
Pavlinchak	Carin	not provided	N/A	Web-based Comments	9792	24
Pavlock	Lawrence	not provided	N/A	Web-based Comments	20883	24
Pavone	Sharon	not provided	N/A	Web-based Comments	28700	24
Pawell	Brenda	not provided	N/A	Web-based Comments	9418	24
Pawloski	Linda	not provided	N/A	Web-based Comments	56577	34
Paxson	John	not provided	N/A	Web-based Comments	18135	24
Paxson	Michele	not provided	N/A	Web-based Comments	55336	34
Paxson	Michele	not provided	N/A	Web-based Comments	24302	24
Paxton	G.	not provided	N/A	Web-based Comments	14627	24
Payal	Jesus	not provided	N/A	Web-based Comments	49510	34
Payden-Travers	Christine	not provided	N/A	Web-based Comments	10968	24
Payette	Aaron	not provided	N/A	Web-based Comments	7002	24
Payne	Arthur	not provided	N/A	Web-based Comments	8466	24
Payne	Bernadette	not provided	N/A	Web-based Comments	55768	34
Payne	Bernadette	not provided	N/A	Web-based Comments	8989	24
Payne	Geneine	not provided	N/A	Web-based Comments	55777, 55778	34
Payne	Geneine	not provided	N/A	Web-based Comments	14858	24
Payne	Grace	not provided	N/A	Web-based Comments	15200	24
Payne	Heather	not provided	N/A	Web-based Comments	47526	34
Payne	L E	not provided	N/A	Web-based Comments	20491	24
Payne	Nadja	not provided	N/A	Web-based Comments	48418	34
Payne	Rex	not provided	N/A	Web-based Comments	26879	24
Payne	Richard	not provided	N/A	Web-based Comments	27022	24
Payne	Wendy	not provided	N/A	Web-based Comments	54802	34
Paynter	Katherine	not provided	N/A	Web-based Comments	19471	24
Pazdzierska	Nicola	not provided	N/A	Web-based Comments	25216	24
Pazdziorko	Stephen	not provided	N/A	Web-based Comments	29328	24
Pazos	Patricia	not provided	N/A	Web-based Comments	25818	24
Pe	Rene	not provided	N/A	Web-based comments	57543	35
Pe	Unreadable	not provided	N/A	Web-based Comments	26817	24
Peabody	Deborah	not provided	N/A	Web-based Comments	12451	24
Peace	Renee	not provided	N/A	Web-based Comments	26852	24
Peachee	Barbara	not provided	N/A	Web-based Comments	8752	24
Peacock	Adrienne	not provided	N/A	Web-based Comments	56151	34
Peacock	Robert	not provided	N/A	Web-based Comments	27349	24
Peak	Matthew	not provided	N/A	Web-based Comments	23661	24
Peak	Tina	not provided	N/A	Web-based Comments	46658, 46659	34
PEAK	TINA	not provided	N/A	Web-based Comments	30687	24
Peake	David	not provided	N/A	Web-based Comments	12106	24
Peale	Michael	not provided	N/A	Web-based Comments	45209	34
Peale	Mike	not provided	N/A	Web-based Comments	24477	24
Pearce	Roberta	not provided	N/A	Web-based Comments	27446	24
pearcy	elizabeth	not provided	N/A	Web-based Comments	13824	24
Pearl	Alita	not provided	N/A	Web-based Comments	47442	34
Pearl	Alita	not provided	N/A	Web-based Comments	7427	24
pearl	douglas	not provided	N/A	Web-based Comments	49887	34
Pearlin	Gina	not provided	N/A	Web-based Comments	15064	24
Pearl-Thomas	Dina	not provided	N/A	Web-based Comments	12961	24
Pearson	Donald	not provided	N/A	Web-based Comments	13076	24
Pearson	G	not provided	N/A	Web-based Comments	53159	34
Pearson	Heather	hpearson0902@gmail.com	N/A	Web-based comments	1968	1
Pearson	Heather	not provided	N/A	Web-based Comments	48711	34
Pearson	Jane	not provided	N/A	Web-based Comments	16526	24
Pearson	John	not provided	N/A	Web-based Comments	18136	24
Pearson	Juliet	not provided	N/A	Web-based Comments	53625	34
Pearson	Juliet	not provided	N/A	Web-based Comments	18918	24
Pearson	Kathleen	not provided	N/A	Web-based Comments	19586	24
Pearson	Kathryn	not provided	N/A	Web-based Comments	19656	24
Pearson	Linda	not provided	N/A	Web-based Comments	21381	24
Pearson	Lynn	not provided	N/A	Web-based Comments	22082	24
Pearson	Melissa	not provided	N/A	Web-based Comments	56514	34
Pearson	nancy	not provided	N/A	Web-based Comments	56303	34
Pearson	Nancy	not provided	N/A	Web-based Comments	24953	24
Pearson	Sandra	not provided	N/A	Web-based Comments	28199	24
Pearson	Stacey	schambers30@gmail.com	N/A	Web-based comments	734	1
Pearson	Tia	not provided	N/A	Web-based Comments	30577	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Pearthree	Pippa	not provided	N/A	Web-based Comments	57864	34
Pearthree	Pippa	not provided	N/A	Web-based Comments	26415	24
Pease	Ashley	not provided	N/A	Web-based Comments	8492	24
Pease	Diane	not provided	N/A	Web-based Comments	52984, 52985	34
Pease	Kristie	kristie.lombardo@gmail.com	N/A	Web-based comments	3608	5
Pease	Patricia	not provided	N/A	Web-based Comments	50872	34
peaslee	joan	not provided	N/A	Web-based Comments	17720	24
Peate	Mary	not provided	N/A	Web-based Comments	23385	24
Peavy	Jerry	not provided	N/A	Web-based Comments	17368	24
Pech	James	not provided	N/A	Web-based Comments	16280	24
Pecha	Richard	not provided	N/A	Web-based Comments	47091	34
Peck	Brian	not provided	N/A	Web-based Comments	48142	34
Peck	Ellen	not provided	N/A	Web-based Comments	13938	24
Peck	Karin	not provided	N/A	Web-based Comments	53137	34
Peck	Laura	not provided	N/A	Web-based Comments	20684	24
Peck	Louisa	2louisa@gmail.com	N/A	Web-based comments	2738	N/A
Peck	Neil	not provided	N/A	Web-based comments	2742	N/A
Peck	Pamela	not provided	N/A	Web-based Comments	25576	24
Peck	Sheila	not provided	N/A	Web-based Comments	28800	24
peckarsky	james	not provided	N/A	Web-based Comments	16281	24
Peckarsky	Jim	not provided	N/A	Web-based Comments	17599	24
Peckham	Theresa	not provided	N/A	Web-based Comments	46198	34
Peckham	Theresa	not provided	N/A	Web-based Comments	30444	24
Peckover	Geoffrey	not provided	N/A	Web-based Comments	14877	24
Pedder	Christine	not provided	N/A	Web-based Comments	10969	24
Peddicord	Shelly	not provided	N/A	Web-based Comments	53557	34
Peddle	Adrienne	not provided	N/A	Web-based Comments	49126, 49127	34
Pedersen	Debra	not provided	N/A	Web-based Comments	12539	24
Pedersen	Ellen	not provided	N/A	Web-based Comments	45064	34
Pedersen	Eric	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4737	N/A
Pedersen	Loridean	not provided	N/A	Web-based Comments	21812	24
Pedersen	Lynn	not provided	N/A	Web-based Comments	22083	24
Pederslie	Sharon	not provided	N/A	Web-based Comments	53155	34
Pederson	Karina	not provided	N/A	Web-based comments	57252	35
Pedler	Stephanie	not provided	N/A	Web-based Comments	29238	24
Pedone	Chris	not provided	N/A	Web-based Comments	50381, 52426	34
Pedone	Chris	not provided	N/A	Web-based Comments	10771	24
Pedriani	Rachel	not provided	N/A	Web-based Comments	56515	34
Pedrick	Scott	not provided	N/A	Web-based comments	56728	35
Peek	Holly	not provided	N/A	Web-based Comments	15765	24
Peel	Roberta	not provided	N/A	Web-based Comments	55662	34
Peeling	Alan	not provided	N/A	Web-based Comments	7182	24
Pegg	Lyn	not provided	N/A	Web-based Comments	22011	24
Peggy	Frank	panisko@att.net	N/A	Web-based comments	2109	N/A
Peggy	Gary	not provided	N/A	Web-based comments	2461	N/A
Pegnato	Lisa	not provided	N/A	Web-based Comments	21610	24
Peha	Chris	cpeha@nwgrgr.com	N/A	Web-based comments	2835	N/A
Peha	David	not provided	N/A	Web-based Comments	54663	34
Pehrson	John	jpehrson@wildroserealty.net	N/A	Web-based comments	3611	13
Peil	Amie	not provided	N/A	Web-based Comments	7587	24
Peine	Debby	not provided	N/A	Web-based comments	57271	35
Peinert	Robert	ra.peinertjr.md@gmail.com	N/A	Web-based comments	5469	N/A
Peipert	Jacqueline	not provided	N/A	Web-based Comments	16125	24
peirce	Susan	not provided	N/A	Web-based Comments	45586, 45587	34
Peiris	Ravi	not provided	N/A	Web-based Comments	26661	24
Peiser	Dan	not provided	N/A	Web-based Comments	11670	24
Peiser	Lucas	not provided	N/A	Web-based Comments	21929	24
Peixoto	Teresa	not provided	N/A	Web-based Comments	53164	34
Peksa	Richard	not provided	N/A	Web-based Comments	27023	24
Pekurar	Laurean	not provided	N/A	Web-based Comments	53479, 53480, 53481	34
Pelais	Mark	not provided	N/A	Web-based comments	57112	35
Pelc	Joan	not provided	N/A	Web-based Comments	17721	24
Peletier	Sandy	not provided	N/A	Web-based Comments	28256	24
Pelican	Susan	not provided	N/A	Web-based Comments	50775	34
Pelish	Nancy	not provided	N/A	Web-based Comments	24954	24
Pelka	Ursula	not provided	N/A	Web-based Comments	51368	34
Pelka	Ursula	not provided	N/A	Web-based Comments	30981	24
Pelleg	josh	not provided	N/A	Web-based Comments	18422	24
Pellegrini	Annika	not provided	N/A	Web-based Comments	44356	34
Pellegrino	James	not provided	N/A	Web-based Comments	16282	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Pellegrino	Maddox	not provided	N/A	Web-based Comments	44878, 44879	34
Pellegrino	Maddox	not provided	N/A	Web-based Comments	22234	24
Pellerin	Tyra	not provided	N/A	Web-based Comments	53816, 53817	34
Pellerito	Catherine	not provided	N/A	Web-based Comments	10311	24
Pelletier	Dr Kenneth R	not provided	N/A	Web-based Comments	13357	24
Pelletier	Judith	not provided	N/A	Web-based Comments	18640	24
Pelletier	Valerie	not provided	N/A	Web-based Comments	53213	34
Pellett	Ocean	not provided	N/A	Web-based Comments	25419	24
Pelley	Kathleen	not provided	N/A	Web-based Comments	19587	24
Pellicani	Andrea	not provided	N/A	Web-based Comments	44416	34
Pellman	Julie	not provided	N/A	Web-based Comments	18880	24
Peloquen	James	not provided	N/A	Web-based Comments	16283	24
Peloquin	Alan	not provided	N/A	Web-based Comments	7183	24
Peloza	Amy	not provided	N/A	Web-based Comments	7652	24
Pelter-Laman	Deborah	not provided	N/A	Web-based Comments	12452	24
Peltier	Jamie	not provided	N/A	Web-based Comments	16370	24
Peltier	Thibaud	not provided	N/A	Web-based Comments	30462	24
Pelton	Drew	not provided	N/A	Web-based Comments	55805	34
Peltzer	Alan	not provided	N/A	Web-based Comments	56169	34
Pelzer	Ann	not provided	N/A	Web-based Comments	54485	34
Pelzer	Ann	not provided	N/A	Web-based Comments	8072	24
Pemberton	Ann	annpmbrtn126@gmail.com	N/A	Web-based comments	6027	N/A
Pena	Deanna	not provided	N/A	Web-based comments	57509	35
Pena	Deanna	not provided	N/A	Web-based Comments	12280	24
Pena	Melissa	not provided	N/A	Web-based Comments	23915	24
Pence	Susan	not provided	N/A	Web-based Comments	29794	24
Penchoen	Gregory	not provided	N/A	Web-based Comments	49981	34
Pendall	Evelyn	not provided	N/A	Web-based Comments	14356	24
Pendas	Ginny	not provided	N/A	Web-based Comments	15081	24
Pendergast	Betsy	not provided	N/A	Web-based Comments	9074	24
Pendergast	James	not provided	N/A	Web-based Comments	48725	34
Pendleton	Pam	not provided	N/A	Web-based Comments	25505	24
Pendleton	Richard	not provided	N/A	Web-based Comments	27024	24
Pendragon Bowdish	Jana	not provided	N/A	Web-based Comments	16451	24
Pengelley	David	not provided	N/A	Web-based Comments	12107	24
Penn	Kristin	not provided	N/A	Web-based Comments	20387	24
Penn	Melissa	not provided	N/A	Web-based Comments	23916	24
Pennamon	Amy	not provided	N/A	Web-based Comments	7653	24
Pennell	Dennis	not provided	N/A	Web-based Comments	12700	24
Pennell	Erin	not provided	N/A	Web-based comments	56956	35
Pennell	Sue	not provided	N/A	Web-based Comments	29543	24
Pennello	Stephanie	not provided	N/A	Web-based Comments	29239	24
Penninger	Vickie	not provided	N/A	Web-based Comments	31159	24
Pennington	Carol	not provided	N/A	Web-based Comments	10003	24
Pennington	Greg	not provided	N/A	Web-based Comments	15243	24
Pennington	Joanne	not provided	N/A	Web-based Comments	52077	34
Pennington	Juliana	not provided	N/A	Web-based Comments	18796	24
Pennington	Sharyn	not provided	N/A	Web-based Comments	28739	24
Pennisi	Andrea	not provided	N/A	Web-based Comments	7763	24
Penquite	Rick	not provided	N/A	Web-based Comments	27098	24
Penrose	Christine	not provided	N/A	Web-based Comments	10970	24
Penrose	Linda	not provided	N/A	Web-based Comments	21382	24
Penrose	Linda	not provided	N/A	Web-based Comments	21383	24
Penrose Jr.	Walter	not provided	N/A	Web-based Comments	31360	24
Pentelow	James	not provided	N/A	Web-based Comments	52094	34
Pentelow	James	not provided	N/A	Web-based Comments	16284	24
Penzer	Daniel	not provided	N/A	Web-based comments	56992	35
Penzola	Nancy	not provided	N/A	Web-based Comments	24955	24
Pepe	Monica	not provided	N/A	Web-based comments	56987	35
Pepe	Toni	not provided	N/A	Web-based Comments	51727	34
Peper	Alison	not provided	N/A	Web-based Comments	7416	24
Pepkowski	Nona	not provided	N/A	Web-based Comments	48065	34
Peplow	Bonnie	not provided	N/A	Web-based Comments	9316	24
Pepper	Freddie	not provided	N/A	Web-based Comments	50678	34
Peraga	Hilda	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	5587	N/A
Peragine	Kimberly	not provided	N/A	Web-based Comments	20232	24
Perakis	Steve	not provided	N/A	Web-based Comments	29394	24
Perakslis	Margaret	not provided	N/A	Web-based Comments	22489	24
Peraza	Silvia	not provided	N/A	Web-based Comments	54954, 54955	34
Perconti	Bill	wjperconti@lcsc.edu	N/A	Web-based comments	2221	N/A

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Percopo	Dominic	not provided	N/A	Web-based Comments	13001	24
Perdios	Dan	not provided	N/A	Web-based Comments	11671	24
Perdios	Daniel	not provided	N/A	Web-based Comments	56186	34
Perdue	Don	not provided	N/A	Web-based Comments	13031	24
Pereira	Almaelisa	not provided	N/A	Web-based comments	57149	35
Pereira	Diane	not provided	N/A	Web-based Comments	12889	24
Perera	Lucy	not provided	N/A	Web-based Comments	49430	34
Perez	Adriana	not provided	N/A	Web-based Comments	55890	34
Perez	Adriana	not provided	N/A	Web-based Comments	7089	24
Perez	Alyssa	not provided	N/A	Web-based Comments	7507	24
Perez	Angela	not provided	N/A	Web-based comments	56951	35
Perez	Elisha	not provided	N/A	Web-based Comments	13694	24
Perez	Holly	not provided	N/A	Web-based Comments	54039	34
perez	holly	not provided	N/A	Web-based Comments	15766	24
Perez	Jaime	not provided	N/A	Web-based Comments	50011	34
Perez	Janet	not provided	N/A	Web-based Comments	46250	34
Perez	Jennifer	not provided	N/A	Web-based Comments	17236	24
Perez	Katelyn Acevedo	not provided	N/A	Web-based Comments	54410	34
Perez	Margarita	not provided	N/A	Web-based Comments	53293	34
Perez	Michael	not provided	N/A	Web-based Comments	48426	34
Perez	Miriam	not provided	N/A	Web-based Comments	24556	24
Perez	Nadia	not provided	N/A	Web-based Comments	24757	24
perez	raysa	not provided	N/A	Web-based Comments	26697	24
Perez	Susana	not provided	N/A	Web-based Comments	45904, 45905	34
Perez	Susana	not provided	N/A	Web-based Comments	29932	24
Perfrement	Eileen	not provided	N/A	Web-based Comments	13556	24
perhay	robert	not provided	N/A	Web-based Comments	27350	24
Peri	Deborah	not provided	N/A	Web-based Comments	12453	24
Perilstein	Cindy	not provided	N/A	Web-based Comments	11093	24
perin	silvana	not provided	N/A	Web-based Comments	29003	24
Perinchief	Jana	not provided	N/A	Web-based Comments	50744, 54051	34
Perinchief	Jana	not provided	N/A	Web-based Comments	16452	24
Perini	Giulio	not provided	N/A	Web-based Comments	15105	24
Perini	Louise	not provided	N/A	Web-based Comments	21898	24
Perino	Nina	luvallbeings@gmail.com	N/A	Web-based comments	6621	1
Perino	Nina	not provided	N/A	Web-based Comments	46541	34
Perino	Nina	not provided	N/A	Web-based Comments	25315	24
Perkins	Christine	not provided	N/A	Web-based Comments	52242	34
Perkins	Christine	not provided	N/A	Web-based Comments	10971	24
Perkins	Deborah	not provided	N/A	Web-based Comments	48161	34
Perkins	Elizabeth	eaperkins101@gmail.com	N/A	Web-based comments	782	1
Perkins	George	not provided	N/A	Web-based Comments	14909	24
Perkins	Guy	not provided	N/A	Web-based comments	57348	35
Perkins	Guy	not provided	N/A	Web-based Comments	15342	24
Perkins	James	not provided	N/A	Web-based comments	5976	N/A
Perkins	Jane	not provided	N/A	Web-based Comments	16527	24
Perkins	Joan	not provided	N/A	Web-based Comments	49530	34
Perkins	Joan	not provided	N/A	Web-based Comments	17722	24
Perkins	Karen	not provided	N/A	Web-based Comments	54247	34
Perkins	Karen	not provided	N/A	Web-based Comments	19194	24
Perkins	Madeline	not provided	N/A	Web-based Comments	22243	24
Perkins	Marie	not provided	N/A	Web-based Comments	45259, 45260	34
Perkins	Martha	not provided	N/A	Web-based Comments	45970, 45971	34
Perkinson	Nancy	not provided	N/A	Web-based Comments	24956	24
Perkowski	Richard	not provided	N/A	Web-based comments	57333	35
Perl	Joseph	not provided	N/A	Web-based Comments	18385	24
Perlaki	Jennifer	not provided	N/A	Web-based Comments	17237	24
Perlin	Judith	not provided	N/A	Web-based Comments	18641	24
perlman	janet	not provided	N/A	Web-based Comments	49866, 49867	34
perlman	janet	not provided	N/A	Web-based Comments	16632	24
PERLMAN	JASON	not provided	N/A	Web-based Comments	16786	24
Perlstein	Judith	not provided	N/A	Web-based Comments	18642	24
Perna	Giovanni	not provided	N/A	Web-based Comments	15087	24
Perna	Marc	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32337	N/A
Perna	Nancy	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32283	N/A
Perna	Sonia	not provided	N/A	Web-based Comments	29065	24
Perner	Mary	not provided	N/A	Web-based Comments	23386	24
Pernot	Susan	not provided	N/A	Web-based Comments	29795	24
Perot	Suzanne	not provided	N/A	Web-based Comments	30014	24
Perras	Brandon	not provided	N/A	Web-based Comments	9373	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Perras	Donald	not provided	N/A	Web-based Comments	46456	34
Perreault	Bridgette	not provided	N/A	Web-based Comments	9546	24
Perrero	Deborah	not provided	N/A	Web-based Comments	12454	24
Perricelli	Claire	not provided	N/A	Web-based Comments	45876, 45877	34
Perricelli	Claire	not provided	N/A	Web-based Comments	11140	24
Perrie	Rev. Michael	not provided	N/A	Web-based Comments	26872	24
Perrigoue	Linda	not provided	N/A	Web-based Comments	54406	34
Perrin	Edward	not provided	N/A	Web-based Comments	13510	24
Perrin	Mimi	not provided	N/A	Web-based Comments	24522	24
Perrine	Douglas	not provided	N/A	Web-based Comments	13335	24
perron	p	not provided	N/A	Web-based Comments	57936	16
perron	patricia	not provided	N/A	Web-based Comments	53009	34
Perrotta	Lisa	not provided	N/A	Web-based Comments	21611	24
Perry	Allen And Karen	not provided	N/A	Web-based Comments	7451	24
Perry	Allison	not provided	N/A	Web-based Comments	7471	24
Perry	Anithra	not provided	N/A	Web-based Comments	7990	24
Perry	Antoinette	not provided	N/A	Web-based Comments	8355	24
Perry	Bob	bobp@westoregon.org	N/A	Web-based comments	3826	N/A
Perry	Brooke	not provided	N/A	Web-based comments	57432	35
Perry	Brooke	not provided	N/A	Web-based Comments	9584	24
Perry	Debra	not provided	N/A	Web-based Comments	12540	24
Perry	Ed Perry	not provided	N/A	Web-based Comments	47225, 47226	34
Perry	Greta	not provided	N/A	Web-based Comments	15305	24
Perry	Jessica	not provided	N/A	Web-based Comments	17453	24
Perry	Kimberly	not provided	N/A	Web-based Comments	20233	24
Perry	Lee	not provided	N/A	Web-based Comments	20940	24
Perry	Lisa	not provided	N/A	Web-based Comments	21612	24
Perry	Marian	not provided	N/A	Web-based Comments	22661	24
Perry	Pauline	not provided	N/A	Web-based Comments	49216	34
Perry	Pauline	not provided	N/A	Web-based Comments	26123	24
Perry	Randall	not provided	N/A	Web-based Comments	44728	34
perry	robin	not provided	N/A	Web-based Comments	50757	34
Perry	Scout	not provided	N/A	Web-based Comments	28514	24
Perry	Steven	not provided	N/A	Web-based Comments	47227	34
Perry	Susan	not provided	N/A	Web-based Comments	29796	24
Perry	Will	not provided	N/A	Web-based Comments	31491	24
Perryman	Jo	not provided	N/A	Web-based Comments	17653	24
PERRYMAN	PAMELA	not provided	N/A	Web-based Comments	25577	24
Persaud	Maxine	not provided	N/A	Web-based comments	56714	35
Perse	Sue	not provided	N/A	Web-based Comments	55233	34
Persky	Jerry	not provided	N/A	Web-based Comments	54175, 54176	34
Persky	Jerry	not provided	N/A	Web-based Comments	17369	24
Persky	Tamara	not provided	N/A	Web-based Comments	52176, 52268	34
Person	Betty	not provided	N/A	Web-based Comments	9101	24
Persons	Charlotte	cpersons@yahoo.com	N/A	Web-based comments	3840	17
Persons	Robert	not provided	N/A	Web-based Comments	27351	24
Persselin	Sara	not provided	N/A	Web-based Comments	28309	24
pesareso	martin	not provided	N/A	Web-based Comments	23170	24
Pesicka	Dawn	not provided	N/A	Web-based Comments	12242	24
Pesini	Rita	not provided	N/A	Web-based Comments	27150	24
Peskin	Laura J.	not provided	N/A	Web-based Comments	45789	34
Pesko	Pat	not provided	N/A	Web-based Comments	51194, 51195	34
Pesko	Pat	not provided	N/A	Web-based Comments	25667	24
Pesochin	Lee	not provided	N/A	Web-based Comments	45280	34
Pessoa	Ignacio	not provided	N/A	Web-based Comments	15843	24
Peter	Judith	not provided	N/A	Web-based Comments	18643	24
Peterkin	John	not provided	N/A	Web-based Comments	18137	24
Petermann	Janet	not provided	N/A	Web-based Comments	16633	24
Peters	Barbara	not provided	N/A	Web-based Comments	52976, 52977	34
Peters	Benjamin	not provided	N/A	Web-based Comments	8968	24
Peters	Brittany	not provided	N/A	Web-based Comments	9570	24
Peters	CP	not provided	N/A	Web-based Comments	11409	24
Peters	Ellen	not provided	N/A	Web-based Comments	48955	34
peters	eric	not provided	N/A	Web-based Comments	14132	24
Peters	Erika	not provided	N/A	Web-based Comments	14201	24
Peters	Erinn	not provided	N/A	Web-based Comments	14242	24
Peters	Gretchen	not provided	N/A	Web-based Comments	15317	24
Peters	Holly	not provided	N/A	Web-based Comments	15767	24
Peters	Hope	not provided	N/A	Web-based Comments	15789	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Peters	J	not provided	N/A	Web-based Comments	47612	34
Peters	J.	not provided	N/A	Web-based Comments	16009	24
Peters	Kathleen	not provided	N/A	Web-based Comments	19588	24
Peters	Lon	Lon@nw-econ.com	N/A	Web-based comments	1794	N/A
Peters	Lydia	not provided	N/A	Web-based Comments	21994	24
Peters	Michelle	president@visitlcvalley.com	N/A	Web-based comments	6495*	N/A
Peters	Pearl Darlene	not provided	N/A	Web-based Comments	55138	34
Peters	Priscilla	not provided	N/A	Web-based Comments	26451	24
Peters	Rosamonde	not provided	N/A	Web-based Comments	27710	24
Peters	Ryan	not provided	N/A	Web-based Comments	27921	24
Peters	Sandra	not provided	N/A	Web-based comments	414	1
Peters	Sheryl	not provided	N/A	Web-based Comments	28924	24
Peters	Susan	not provided	N/A	Web-based Comments	52687	34
Peters	Susan	not provided	N/A	Web-based Comments	29797	24
Peters	Susan	not provided	N/A	Web-based Comments	29798	24
Peters	Thom	not provided	N/A	Web-based Comments	50762	34
Peters	Thom	not provided	N/A	Web-based Comments	30465	24
Peters	Thom	voice4wild@aol.com	N/A	Web-based comments	1807	N/A
Peters	Troy	rtroypeters@gmail.com	N/A	Web-based comments	2574	N/A
Peters	Vicki	not provided	N/A	Web-based Comments	31146	24
Petersen	Bente	not provided	N/A	Web-based Comments	8978	24
Petersen	Dale	petersencldr@comcast.net	N/A	Web-based comments	42	N/A
Petersen	Diane	not provided	N/A	Web-based Comments	52246	34
Petersen	Dr. Stefan	not provided	N/A	Web-based Comments	55504	34
Petersen	Elsa	not provided	N/A	Web-based Comments	53122	34
Petersen	Josefine	not provided	N/A	Web-based Comments	55712	34
Petersen	Karla	not provided	N/A	Web-based Comments	19316	24
Petersen	Robert	not provided	N/A	Web-based Comments	27352	24
Petersen	Scott	scott.petersen1410@YAHOO.com	N/A	Web-based comments	3007	N/A
Petersen	Sue	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	2525	N/A
Petersen	Susan	not provided	N/A	Web-based Comments	29799	24
Petersen	Susan and Elisa	not provided	N/A	Web-based Comments	29921	24
Peterson	Alicia	not provided	N/A	Web-based Comments	7383	24
Peterson	Amy	not provided	N/A	Web-based Comments	7654	24
Peterson	Betty	not provided	N/A	Web-based Comments	9102	24
Peterson	Blake	not provided	N/A	Web-based Comments	9216	24
PETERSON	BLAKE	not provided	N/A	Web-based Comments	9217	24
Peterson	Bonnie	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32315	13
Peterson	Brenda	not provided	N/A	Web-based Comments	52894	34
Peterson	Chadwick	not provided	N/A	Web-based Comments	58482	34
Peterson	Chris	not provided	N/A	Web-based Comments	10772	24
Peterson	Christine	not provided	N/A	Web-based Comments	10972	24
Peterson	Cindy	not provided	N/A	Web-based Comments	56137	34
peterson	claire	not provided	N/A	Web-based Comments	11141	24
Peterson	Claire	not provided	N/A	Web-based Comments	11142	24
Peterson	Dave	dave.peterson@fallriverelectric.com	N/A	Web-based comments	3677	N/A
Peterson	Dave	dave.peterson@fallriverelectric.com	N/A	US Mail or commercial carrier (UPS, FedEx)	32428	13
Peterson	Dave	not provided	N/A	Web-based Comments	11917	24
Peterson	David	not provided	N/A	Web-based Comments	52866, 46583	34
Peterson	David	not provided	N/A	Web-based Comments	12108	24
Peterson	David	not provided	N/A	Web-based Comments	12109	24
Peterson	David	not provided	N/A	Web-based Comments	12110	24
Peterson	Davin	not provided	N/A	Web-based Comments	12196	24
Peterson	Debra	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32413	11
Peterson	Douglas	not provided	N/A	Web-based Comments	13336	24
Peterson	Erik	not provided	N/A	Web-based Comments	48990	34
Peterson	Erik	not provided	N/A	Web-based Comments	14187	24
Peterson	Heather	not provided	N/A	Web-based Comments	15528	24
Peterson	James	jlpeterson007@gmail.com	N/A	Web-based comments	5102	N/A
Peterson	Janet	not provided	N/A	Web-based comments	57209	35
Peterson	Janet	not provided	N/A	Web-based Comments	16634	24
Peterson	John	not provided	N/A	Web-based Comments	53527	34
Peterson	John	not provided	N/A	Web-based Comments	18138	24
peterson	joyce	not provided	N/A	Web-based Comments	18504	24
Peterson	Karen	not provided	N/A	Web-based comments	57259	35
Peterson	Karen	not provided	N/A	Web-based Comments	19195	24
Peterson	Kathy	not provided	N/A	Web-based Comments	19743	24
Peterson	Kim	not provided	N/A	Web-based Comments	20198	24
Peterson	Kim	not provided	N/A	Web-based Comments	20199	24
Peterson	Kyle	not provided	N/A	Web-based Comments	20458	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Peterson	Laura	not provided	N/A	Web-based Comments	20685	24
Peterson	Mary	not provided	N/A	Web-based Comments	58091	16
Peterson	Matthew	not provided	N/A	Web-based Comments	56200, 56201	34
Peterson	Melanie	not provided	N/A	Web-based Comments	23842	24
Peterson	Mike	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4651	N/A
Peterson	Mike	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32306	11
Peterson	Norma	not provided	N/A	Web-based Comments	25388	24
Peterson	Pamela	not provided	N/A	Web-based Comments	57778	34
Peterson	Richard	not provided	N/A	Web-based Comments	54532	34
Peterson	Richard	ppeterson4570@outlook.com	N/A	Web-based comments	2235	N/A
Peterson	Robin	not provided	N/A	Web-based Comments	51102	34
Peterson	Robin	not provided	N/A	Web-based Comments	27509	24
Peterson	Susan	not provided	N/A	Web-based Comments	45824, 45825, 50531	34
Peterson	Susan	not provided	N/A	Web-based Comments	29800	24
Peterson	Thomas	not provided	N/A	Web-based Comments	30532	24
Peterson	Tracey	not provided	N/A	Web-based Comments	30847	24
PETHERAM	REBECCA	rpetheram@comcast.net	N/A	Web-based comments	1303	N/A
Petit	Laetitia	not provided	N/A	Web-based Comments	53091, 53092	34
Petit	Laetitia	not provided	N/A	Web-based Comments	20514	24
Petitt	Denis	not provided	N/A	Web-based Comments	55781, 55782	34
Petitt	Denis	not provided	N/A	Web-based Comments	12623	24
Petix	Jean	not provided	N/A	Web-based Comments	16874	24
Petkiewicz	Jim	not provided	N/A	Web-based Comments	17600	24
Petlack	Howard	not provided	N/A	Web-based Comments	15804	24
Peto	Shari	not provided	N/A	Web-based Comments	45859	34
Petras	Carrington	not provided	N/A	Web-based Comments	10210	24
Petre-Miller	Dana	not provided	N/A	Web-based Comments	45918, 45919	34
Petre-Miller	Dana	not provided	N/A	Web-based Comments	11702	24
Petri	Andrea	not provided	N/A	Web-based Comments	7764	24
Petri	Natsumi	not provided	N/A	Web-based Comments	25110	24
petricca	kathy	not provided	N/A	Web-based Comments	50195	34
Petricek	Kyle	not provided	N/A	Web-based Comments	20459	24
Petrillo	Diane	not provided	N/A	Web-based Comments	47388, 47389	34
PETRITES	TIMOTHY	not provided	N/A	Web-based Comments	30657	24
Petro	Pat	not provided	N/A	Web-based Comments	51678, 51679	34
Petro	Pat	not provided	N/A	Web-based Comments	25668	24
PETROCELLI	JULIE	not provided	N/A	Web-based Comments	47030	34
Petroni	John	not provided	N/A	Web-based Comments	18139	24
Petronik	Anna	not provided	N/A	Web-based Comments	8147	24
Petruccelli	Paul	not provided	N/A	Web-based Comments	26035	24
petrulias	linda	not provided	N/A	Web-based Comments	21384	24
Petruzziello	Sheree	not provided	N/A	Web-based Comments	28850	24
Petry	Edgar	not provided	N/A	Web-based Comments	13464	24
Petrzilka	Alison	not provided	N/A	Web-based Comments	7417	24
Pett	Christopher	not provided	N/A	Web-based Comments	11023	24
Pette	Jane	not provided	N/A	Web-based Comments	16528	24
Pettee	Steve	stevepettee@sbcglobal.net	N/A	Web-based comments	1895	N/A
Petteway	Sue	not provided	N/A	Web-based Comments	52917	34
Petticord	Laura	not provided	N/A	Web-based Comments	20686	24
Pettigrwe	Deborah	not provided	N/A	Web-based Comments	12455	24
Pettinger	Jana	not provided	N/A	Web-based Comments	52189	34
Pettit	Kimberly	not provided	N/A	Web-based Comments	55755	34
Pettit	Kimberly	not provided	N/A	Web-based Comments	20234	24
Pettit	Sheena	not provided	N/A	Web-based Comments	28776	24
Pettus	Wanda	not provided	N/A	Web-based Comments	31377	24
Petty	Gina	not provided	N/A	Web-based Comments	58600	34
Petty	Sandra	not provided	N/A	Web-based Comments	49725	34
Petzak	Jamaka	not provided	N/A	Web-based Comments	45164	34
Petzko	Allison	not provided	N/A	Web-based Comments	7472	24
Petzold	David	not provided	N/A	Web-based Comments	12111	24
Petzold	Ruth	not provided	N/A	Web-based Comments	49936	34
Petzold	Ruth	not provided	N/A	Web-based Comments	27884	24
Peveto	Linda	not provided	N/A	Web-based Comments	52555	34
Pevoto	Mary	not provided	N/A	Web-based Comments	54348	34
Pezet	Zoe	not provided	N/A	Web-based Comments	31737	24
Pezrow	M	not provided	N/A	Web-based Comments	22183	24
Pezzella	Lisa	not provided	N/A	Web-based Comments	21613	24
Pezzicara	Amy	pezzphoto@gmail.com	N/A	Web-based comments	5711	1
Pfaff	Jarrod	garfield-town@completebbs.com	N/A	Web-based comments	4033	N/A
Pfaffman	Amy	not provided	N/A	Web-based Comments	7655	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Pfeifer	Nezka	not provided	N/A	Web-based Comments	54179	34
Pfeifer	Steven	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4756	N/A
Pfeiffer	Ben	benppfeiffer@gmail.com	N/A	Web-based comments	2618	1
Pfeiffer	Mindy	not provided	N/A	Web-based Comments	53310	34
Pfeiffer-Rios	Jan	not provided	N/A	Web-based Comments	16417	24
Pfennigs	Katie	katiewhite1515@gmail.com	N/A	Web-based comments	6051	N/A
Pfister	Anne	not provided	N/A	Web-based Comments	8231	24
Pfitzner	James	not provided	N/A	Web-based Comments	16285	24
Pflueger	Annie	not provided	N/A	Web-based comments	57664	35
Pflugrad	Ken	not provided	N/A	Web-based Comments	19987	24
Pflugrad	Linda	not provided	N/A	Web-based Comments	21385	24
Pfost	Leslie	not provided	N/A	Web-based Comments	52565	34
Pfutzner	Angelika	not provided	N/A	Web-based Comments	56599, 56600	34
Ph.D.	Margaret Guilfoy Tyler	not provided	N/A	Web-based Comments	54971	34
Ph.D.,	Darryll	DOlsenEcon@AOL.com	N/A	Web-based comments	4160	N/A
Pham	Heather	not provided	N/A	Web-based Comments	49537	34
Pham	Kelly	not provided	N/A	Web-based Comments	19941	24
Phan	Andrea	not provided	N/A	Web-based Comments	7765	24
Phares	Allison	not provided	N/A	Web-based Comments	7473	24
Phares	Melissa	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	4780	N/A
PhD	Donald	donald_hammerstrom@ieee.org	N/A	Web-based comments	2133	N/A
PhD	Jessa	not provided	N/A	Web-based comments	6597	1
PhD	Mr. Shelley Dahlgren,	not provided	N/A	Web-based Comments	57948	16
PhD	Robert	bfrancis@uw.edu	N/A	Web-based comments	2668	N/A
Phelan	Ann	not provided	N/A	Web-based Comments	8073	24
Phelan	Danette	not provided	N/A	Web-based Comments	11718	24
Phelan	Daniel	not provided	N/A	Web-based Comments	56139	34
Phelps	Jan	not provided	N/A	Web-based Comments	50829	34
Phelps	Jennifer	not provided	N/A	Web-based Comments	17238	24
Phelps	Sally	not provided	N/A	Web-based Comments	28024	24
Phelps	Tami	not provided	N/A	Web-based Comments	48285	34
Phelps	Tami	not provided	N/A	Web-based Comments	30141	24
Phelps	Veronica	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4673	N/A
Phenicie	Terrie	not provided	N/A	Web-based Comments	30355	24
Phenix	Anja	not provided	N/A	Web-based Comments	7993	24
Philbin	Brittany	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	31757	N/A
Philipps	Justin	not provided	N/A	Web-based Comments	18958	24
Philips	Betty	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58399	32
Philips	Nancy	not provided	N/A	Web-based Comments	47128	34
Phillips	Alexandra	not provided	N/A	Web-based Comments	7286	24
Phillips	Amy	amy_p@mac.com	N/A	Web-based comments	4410	N/A
Phillips	Anna	not provided	N/A	Web-based Comments	8148	24
Phillips	Annie	not provided	N/A	Web-based Comments	45198, 45199	34
Phillips	Annie	not provided	N/A	Web-based Comments	8306	24
phillips	aurelia	not provided	N/A	Web-based Comments	54127	34
Phillips	Carley	not provided	N/A	Web-based Comments	51039	34
Phillips	Charles	not provided	N/A	Web-based Comments	48377	34
Phillips	Chip	not provided	N/A	Web-based Comments	10707	24
Phillips	Dana	heart4orcas@gmail.com	N/A	Web-based comments	1075	N/A
Phillips	Daniel	not provided	N/A	Web-based Comments	11763	24
Phillips	Deborah	not provided	N/A	Web-based Comments	12456	24
Phillips	Debra	not provided	N/A	Web-based Comments	12541	24
Phillips	Debra	not provided	N/A	Web-based Comments	12542	24
Phillips	Elizabeth	not provided	N/A	Web-based Comments	13825	24
Phillips	Ellen	not provided	N/A	Web-based Comments	13939	24
Phillips	George	not provided	N/A	Web-based Comments	14910	24
Phillips	Janet	not provided	N/A	Web-based Comments	16635	24
Phillips	Janice	not provided	N/A	Web-based Comments	52170	34
Phillips	Janice	not provided	N/A	Web-based Comments	16692	24
Phillips	Joseph	not provided	N/A	Web-based Comments	18386	24
Phillips	Kathleen	not provided	N/A	Web-based Comments	48845	34
Phillips	Keith	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	2251	N/A
Phillips	Kimberly	not provided	N/A	Web-based Comments	55121, 55122	34
Phillips	Linda Lee	not provided	N/A	Web-based Comments	21470	24
Phillips	Lynn	not provided	N/A	Web-based Comments	22084	24
Phillips	Marie-Anne	not provided	N/A	Web-based Comments	22735	24
Phillips	Marvis J.	not provided	N/A	Web-based Comments	23197	24
Phillips	Matilda	not provided	N/A	Web-based Comments	23603	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Phillips	Mercedes	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	56614	N/A
Phillips	Robyn	not provided	N/A	Web-based Comments	27549	24
Phillips	Roxanne	not provided	N/A	Web-based Comments	27803	24
Phillips	Sandy	not provided	N/A	Web-based Comments	28257	24
Phillips	Sheridan	not provided	N/A	Web-based Comments	28859	24
Phillips	Stu	not provided	N/A	Web-based Comments	50138	34
Phillips	Susan	not provided	N/A	Web-based Comments	29801	24
Phillips	Teresa	not provided	N/A	Web-based Comments	47015, 47016	34
Phillips	Teresa	not provided	N/A	Web-based Comments	30291	24
Phillips	Terry	not provided	N/A	Web-based Comments	30380	24
Phillips	Valerie	not provided	N/A	Web-based Comments	31039	24
Phillipy	Patty	not provided	N/A	Web-based Comments	25962	24
Phillis	Nili	not provided	N/A	Web-based Comments	25295	24
Philpot	Andrew	not provided	N/A	Web-based Comments	46343	34
Philpot	Andrew	not provided	N/A	Web-based Comments	7836	24
Phinney	Erica	not provided	N/A	Web-based comments	56743	35
Phipps	Catherine	not provided	N/A	Web-based Comments	10312	24
Phipps	John	not provided	N/A	Web-based Comments	18140	24
Phipps	Robert	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4635	N/A
Phipps	Susanne	not provided	N/A	Web-based Comments	54133	34
Phleger	Nansy	not provided	N/A	Web-based Comments	58659	34
Phleger	Nansy	not provided	N/A	Web-based Comments	25039	24
Phoenix	Angela	not provided	N/A	Web-based Comments	54486, 54487	34
Phoenix	Angela	not provided	N/A	Web-based Comments	7924	24
Phoenix	L	not provided	N/A	Web-based comments	31820	1
Phoenix	Lassen	ourvirtualjunkdrawer@gmail.com	N/A	Web-based comments	2886	1
Pi	Andre	not provided	N/A	Web-based Comments	7722	24
Piascik	Ellen	not provided	N/A	Web-based Comments	13940	24
Piascik	Jim	not provided	N/A	Web-based Comments	17601	24
Piasecka	Ewa	not provided	N/A	Web-based Comments	47181, 47182	34
Piasecka	Ewa	not provided	N/A	Web-based Comments	14367	24
Piatt	Greg	not provided	N/A	Web-based Comments	15244	24
Piattoly	Brigette	not provided	N/A	Web-based Comments	9550	24
piazza	Ashley	ashleychez@gmail.com	N/A	Web-based comments	620	N/A
Piazza	Kerri	not provided	N/A	Web-based Comments	20058	24
Piazza	Peter	not provided	N/A	Web-based Comments	55393	34
Picard	John	not provided	N/A	Web-based Comments	50055	34
Picard	John	not provided	N/A	Web-based Comments	18141	24
Picco	Lisa	not provided	N/A	Web-based Comments	46975	34
Piccolo	Eric	not provided	N/A	Web-based Comments	14133	24
Piccolo	Luciana	not provided	N/A	Web-based Comments	53793	34
Piche	Jennifer	not provided	N/A	Web-based Comments	45471	34
Piche	Jennifer	not provided	N/A	Web-based Comments	17239	24
Piche	Karen	not provided	N/A	Web-based Comments	19196	24
Piche	Sylvia	not provided	N/A	Web-based Comments	30071	24
Pick	Amy	not provided	N/A	Web-based Comments	50228	34
Pick	Amy	not provided	N/A	Web-based Comments	7656	24
Pickens	Martha	not provided	N/A	Web-based Comments	23118	24
Pickens	Michael	not provided	N/A	Web-based Comments	24191	24
Pickens	Mike	not provided	N/A	Web-based Comments	24478	24
Pickens	Nancy	not provided	N/A	Web-based Comments	24957	24
Pickens	Walter	not provided	N/A	Web-based Comments	31361	24
Pickering	Eric	not provided	N/A	Web-based Comments	14134	24
Pickering	Karen	not provided	N/A	Web-based Comments	53420	34
PICKERING	PATRICIA	not provided	N/A	Web-based Comments	53566	34
Pickett	Paul	fraxinus@reachone.com	N/A	Web-based comments	6514	N/A
Picton	Rebecca	not provided	N/A	Web-based Comments	52588	34
Picton	Rebecca	not provided	N/A	Web-based Comments	26760	24
Piecuch	Joe	not provided	N/A	Web-based Comments	17892	24
Piedrahita	Juliana	not provided	N/A	Web-based comments	56868	35
Pielaszczyk	Donna	not provided	N/A	Web-based Comments	13169	24
Piengkham	Nathan	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4687	N/A
Pierce	Carol	not provided	N/A	Web-based Comments	10004	24
Pierce	Christina	not provided	N/A	Web-based Comments	10873	24
Pierce	Dean	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4753	N/A
Pierce	Diane	not provided	N/A	Web-based Comments	48969, 48970	34
Pierce	Diane	not provided	N/A	Web-based Comments	12890	24
pierce	fil	not provided	N/A	Web-based Comments	14430	24
Pierce	James	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	44263	13
pierce	jean s.	not provided	N/A	Web-based Comments	16904	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Pierce	Katherine	not provided	N/A	Web-based Comments	19472	24
Pierce	Morgan	morganspierce@gmail.com	N/A	Web-based comments	2928	8
Pierce	Nancy	not provided	N/A	Web-based Comments	24958	24
Pierce	Peter & Lorrie	not provided	N/A	Web-based Comments	26303	24
Pierce	Stephanie	not provided	N/A	Web-based Comments	46117	34
Pierce	Sue	not provided	N/A	Web-based Comments	29544	24
piercey	liz	not provided	N/A	Web-based Comments	46272	34
Piercey	Liz	not provided	N/A	Web-based Comments	21692	24
Piercey	Mary	not provided	N/A	Web-based Comments	55936, 55937	34
Piercy	Kala	not provided	N/A	Web-based comments	992	N/A
Piercy	Susan	not provided	N/A	Web-based Comments	50827	34
Piercy	Susan	not provided	N/A	Web-based Comments	29802	24
Pieringer	Laura	not provided	N/A	Web-based Comments	20687	24
pieroni	bridget	not provided	N/A	Web-based Comments	9541	24
Pierot	Dave	not provided	N/A	Web-based Comments	47222	34
Pierret	Claude	wyncla@amerion.com	N/A	Web-based comments	153	N/A
Pierri	Judith	not provided	N/A	Web-based Comments	50238	34
Pierro	Eduardo	not provided	N/A	Web-based Comments	58370	28
Pierro	Eduardo H	not provided	N/A	Web-based Comments	13481	24
Pierro	Kathryn	not provided	N/A	Web-based Comments	19657	24
pierron	christel	not provided	N/A	Web-based Comments	10816	24
Piersialla	Leonard	not provided	N/A	Web-based Comments	21010	24
Pierson	Carolyn Clark	not provided	N/A	Web-based Comments	10184	24
Pierson	Kevin	not provided	N/A	Web-based Comments	20133	24
Pierson	Marilyn	not provided	N/A	Web-based Comments	46281	34
Pierson	Mary Louise	not provided	N/A	Web-based Comments	23543	24
Pierson	Neilia	not provided	N/A	Web-based Comments	58151	16
Pierson	Robert	not provided	N/A	Web-based Comments	27353	24
Pierson	Sherri	not provided	N/A	Web-based Comments	55355	34
Pietersen	Teresa	not provided	N/A	Web-based Comments	30292	24
Pieth	Reto	not provided	N/A	Web-based Comments	56191	34
Pieth	Reto	not provided	N/A	Web-based Comments	26866	24
Pietryla	Julie	not provided	N/A	Web-based Comments	18881	24
Pietsch	Linsley	not provided	N/A	Web-based Comments	21513	24
Pigford	Terri	not provided	N/A	Web-based Comments	30341	24
Piggott	Shyaunna	not provided	N/A	Web-based Comments	28979	24
Pigott	Milly	not provided	N/A	Web-based comments	57742	35
Piguet	Eloise	not provided	N/A	Web-based Comments	13981	24
Pikala	Christine	not provided	N/A	Web-based Comments	10973	24
Pike	Andrew	not provided	N/A	Web-based Comments	46159, 46160	34
Pike	Andrew	not provided	N/A	Web-based Comments	7837	24
Pike	Brian	not provided	N/A	Web-based Comments	47212, 47213	34
Pike	Brian	not provided	N/A	Web-based Comments	9501	24
Pike	Gavin	not provided	N/A	Web-based Comments	14817	24
Pike	Michelle	not provided	N/A	Web-based Comments	24382	24
Pike	Nancie	not provided	N/A	Web-based Comments	24795	24
Pikey	Donald	not provided	N/A	Web-based Comments	13077	24
Pilger	Mark	not provided	N/A	Web-based Comments	53551, 53552	34
Pilholski	Frank	not provided	N/A	Web-based Comments	46113	34
Pilisuk	Marc	not provided	N/A	Web-based Comments	22340	24
Pillar	Ina	not provided	N/A	Web-based Comments	15865	24
Pillinger	Hal	not provided	N/A	Web-based Comments	15378	24
Pilon	John	not provided	N/A	Web-based Comments	18142	24
Pimentel	Gisela	not provided	N/A	Web-based Comments	15092	24
PIN	Jonathan	not provided	N/A	Web-based Comments	18293	24
Pinc	J Michael	not provided	N/A	Web-based Comments	16004	24
Pincetich	Chris	not provided	N/A	Web-based Comments	10773	24
Pincus	Robert	not provided	N/A	Web-based Comments	27354	24
Pinder	David	not provided	N/A	Web-based Comments	12112	24
Pine	Joslyn	not provided	N/A	Web-based Comments	48407	34
Pine	Joslyn	not provided	N/A	Web-based Comments	18445	24
Pineau	Cuma	not provided	N/A	Web-based Comments	11471	24
Pineda	Faye	not provided	N/A	Web-based Comments	46455	34
Pineda	Neris	not provided	N/A	Web-based Comments	25150	24
Pineo	Christopher	ctpineo@gmail.com	N/A	Web-based comments	5649	N/A
Piner	Lisa	not provided	N/A	Web-based Comments	48229	34
Piner	Lisa	not provided	N/A	Web-based Comments	21614	24
Pingeon	Jenna	not provided	N/A	Web-based Comments	47707, 47708	34
Pingeon	Jenna	not provided	N/A	Web-based Comments	17140	24
Pingree	Elizabeth	not provided	N/A	Web-based Comments	13826	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Pinheiro	A.	not provided	N/A	Web-based Comments	6982	24
Pink	Stephen	not provided	N/A	Web-based Comments	29329	24
Pinkerton	Brandi	not provided	N/A	Web-based Comments	9361	24
Pinkerton	Margo	not provided	N/A	Web-based Comments	22548	24
Pinkham	Barbara	not provided	N/A	Web-based Comments	8753	24
Pinkham	Bill	not provided	N/A	Web-based Comments	47714	34
Pinkham-Salt	Debbie	not provided	N/A	Web-based comments	56963	35
Pinkston	Pamela	not provided	N/A	Web-based Comments	25578	24
Pinkus	Walter	not provided	N/A	Web-based Comments	31362	24
Pinneo	Guy	not provided	N/A	Web-based Comments	55067	34
Pinneo	Guy	not provided	N/A	Web-based Comments	15343	24
Pinneo	Janet	not provided	N/A	Web-based Comments	46651, 46652	34
Pinney	Chris	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4752	N/A
Pinney	Chris	not provided	N/A	Web-based Comments	57946	16
Pinney	Chris	wwpinneys@gmail.com	N/A	Web-based comments	6773, 31771	N/A
Pinney	Chris and Judy	not provided	N/A	Web-based Comments	54034	34
Pinney	Markus	not provided	N/A	Web-based Comments	23020	24
Pinnola	Martha	not provided	N/A	Web-based Comments	23119	24
Pinnt	Jeannine	not provided	N/A	Web-based Comments	53990	34
Pinque	Meryl	not provided	N/A	Web-based Comments	55139, 55140	34
Pinque	Meryl	not provided	N/A	Web-based Comments	24000	24
Pinsker	Jerry	not provided	N/A	Web-based Comments	17370	24
Pinsky	Ellen	not provided	N/A	Web-based Comments	54810	34
Pinsky	Ellen	not provided	N/A	Web-based Comments	13941	24
Pinsof	Robin	not provided	N/A	Web-based Comments	46650	34
Pinsof	Robin	not provided	N/A	Web-based Comments	27510	24
Pinson	Amanda	not provided	N/A	Web-based Comments	7550	24
Pinson	Luan	not provided	N/A	Web-based Comments	21919	24
Pinson	Luan	pinwil4634@gmail.com	N/A	Web-based comments	3576	N/A
PINTA	Jennifer	not provided	N/A	Web-based Comments	17240	24
Pintner	Dan	not provided	N/A	Web-based Comments	11672	24
Pinto	Juliann	not provided	N/A	Web-based Comments	18798	24
Pinto	Sib	not provided	N/A	Web-based Comments	55438	34
pinto martinez	esperanza	not provided	N/A	Web-based Comments	14264	24
Pinzâˆšâ‰¥n	Javier	not provided	N/A	Web-based Comments	16798	24
Pio	Rosalynd	not provided	N/A	Web-based Comments	27709	24
Piotrowski	Liz	not provided	N/A	Web-based comments	57059	35
Pipa	Ronald	not provided	N/A	Web-based Comments	27662	24
Pipal & Diana Hall	Tom	not provided	N/A	Web-based Comments	30762	24
Piper	Brian	not provided	N/A	Web-based Comments	45875	34
Piper	Cathy	not provided	N/A	Web-based Comments	10387	24
Piper	Janna	not provided	N/A	Web-based Comments	56274	34
Piper	Jeffrey	jspiper9@gmail.com	N/A	Web-based comments	32223	1
Piper	Russell	not provided	N/A	Web-based Comments	27841	24
Piper	Thomas	not provided	N/A	Web-based Comments	30533	24
Pippin-Emanuel	Patricia	not provided	N/A	Web-based Comments	25819	24
Pique	Lynn	not provided	N/A	Web-based Comments	50489	34
Pirate	Kevin	not provided	N/A	Web-based comments	56936	35
Pirazzi	Tina	not provided	N/A	Web-based Comments	48466	34
Pirazzi	Tina	not provided	N/A	Web-based Comments	30688	24
Pire	Pat	not provided	N/A	Web-based Comments	52027	34
Pire	Pat	not provided	N/A	Web-based Comments	25669	24
Pires	Diane	not provided	N/A	Web-based Comments	46947	34
Pires	Whitney	not provided	N/A	Web-based Comments	31474	24
Pirie	Cynthia	not provided	N/A	Web-based Comments	11544	24
Pirker	Brigitte	not provided	N/A	Web-based Comments	45432	34
Piro	Peter	not provided	N/A	Web-based Comments	26276	24
Piroso	Stefanie	not provided	N/A	Web-based Comments	29173	24
Pirotte	Danielle	not provided	N/A	Web-based Comments	52815	34
Pirri	Jacqueline	not provided	N/A	Web-based Comments	16126	24
Pirrone	Annette	not provided	N/A	Web-based Comments	8285	24
Pirrone	Martha	not provided	N/A	Web-based Comments	46976	34
Pisani	Maureen	not provided	N/A	Web-based Comments	45060	34
Pisano	Lisa	not provided	N/A	Web-based Comments	46850	34
Pisano	Lisa	not provided	N/A	Web-based Comments	21615	24
Pisarcik Connolly	Laurie	not provided	N/A	Web-based Comments	20850	24
piselli	alfideo	not provided	N/A	Web-based Comments	7315	24
Piselli	Tony	not provided	N/A	Web-based Comments	30817	24
Pishock	Deborah	debpishock@comcast.net	N/A	Web-based comments	5128	N/A
Pisoni	Charlotte	not provided	N/A	Web-based Comments	10563	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
PI-SUNYER	Nancy	not provided	N/A	Web-based Comments	24959, 24960	24
Pitcher	Charlotte	not provided	N/A	Web-based Comments	10564	24
Piter	Desiree	not provided	N/A	Web-based Comments	49597, 49598	34
PITIOT	FABRICE	thomas.hawk@free.fr	N/A	Web-based comments	830, 1751	1
Pitkin	Carole	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32439	N/A
pitman	Meg	mpitman75@gmail.com	N/A	Web-based comments	5461	1
Pitman	Sandy	not provided	N/A	Web-based Comments	28258	24
Pitner	Emily	not provided	N/A	Web-based Comments	46475	34
Pitner	Emily	not provided	N/A	Web-based Comments	14033	24
Pitre	Chris	chris@cohowr.com	N/A	Web-based comments	34	N/A
Pitre	Jean	not provided	N/A	Web-based Comments	16875	24
Pitsker	Polly D	not provided	N/A	Web-based Comments	26428	24
Pitt	Christopher	not provided	N/A	Web-based Comments	11024	24
Pitt	Jon	not provided	N/A	Web-based Comments	18260	24
Pittea	Chetna	not provided	N/A	Web-based Comments	55027	34
Pittea	Chetna	not provided	N/A	Web-based Comments	10688	24
Pittelli	Michael	not provided	N/A	Web-based Comments	24192	24
Pittis	Kathy	rkpittis@gmail.com	N/A	Web-based comments	6732	N/A
Pittman	Christopher	not provided	N/A	Web-based Comments	11025	24
Pittman	David	not provided	N/A	Web-based Comments	12113	24
Pitts	Don	not provided	N/A	Web-based Comments	13032	24
Pivaral	Omar	not provided	N/A	Web-based Comments	53287, 53288	34
Pivcevich	Carey	not provided	N/A	Web-based Comments	47698	34
Pivcevich	Carey	not provided	N/A	Web-based Comments	9787	24
Pixler	Joan	not provided	N/A	Web-based Comments	17723	24
Pizarro	Judy	not provided	N/A	Web-based Comments	49457, 49458	34
Pizzo	J	not provided	N/A	Web-based Comments	15988	24
Place	Kelly	not provided	N/A	Web-based Comments	19942	24
Plagmann	Terry	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32517, 56660	N/A
Plambeck	Katherine	not provided	N/A	Web-based Comments	19473	24
Planck	Deborah	not provided	N/A	Web-based comments	57227	35
Planeta	Jennifer	not provided	N/A	Web-based Comments	17241	24
Plant	Briony	not provided	N/A	Web-based Comments	55385	34
Plant	Mary Ann	not provided	N/A	Web-based Comments	53620	34
Plante	Mari	not provided	N/A	Web-based Comments	22575	24
Plantz	Dan	billsfan4eva@hotmail.com	N/A	Web-based comments	6673	N/A
Platt	Amy	not provided	N/A	Web-based Comments	7657	24
Platt	Betty	not provided	N/A	Web-based Comments	51271	34
Platt	Heather	not provided	N/A	Web-based Comments	15529	24
Platt	Julie	not provided	N/A	Web-based Comments	18882	24
Platt	Luke	not provided	N/A	Web-based Comments	21978	24
Platt	Marilyn	not provided	N/A	Web-based Comments	22806	24
PLATT	TIM	not provided	N/A	Web-based Comments	30626	24
Platt	William	williamplatt@msn.com	N/A	Web-based comments	6537	N/A
Platte	Lori	not provided	N/A	Web-based Comments	21801	24
Plauche	Elisa	not provided	N/A	Web-based comments	57424	35
Pleiss	Martha	not provided	N/A	Web-based Comments	23120	24
Plessner	Laurel	not provided	N/A	Web-based Comments	20745	24
Pletcher	Jennifer	not provided	N/A	Web-based Comments	17242	24
Pletcher	Jessica	not provided	N/A	Web-based Comments	17454	24
Pletzer	Karoline	not provided	N/A	Web-based Comments	46152	34
Pliner	Elliot	not provided	N/A	Web-based Comments	46923	34
pliner	elliot	not provided	N/A	Web-based Comments	13970	24
Plishka	Debbie	not provided	N/A	Web-based Comments	46617	34
Plock	Christopher	not provided	N/A	Web-based Comments	11026	24
Plog	Malinda	not provided	N/A	Web-based Comments	51128, 51129	34
Ploger	Scott	not provided	N/A	Web-based Comments	47984	34
Ploger	Scott	not provided	N/A	Web-based Comments	28490	24
Plon	Edward	not provided	N/A	Web-based Comments	51416	34
Plonski	Marta	not provided	N/A	Web-based Comments	56077	34
Plotkin	Ethel	not provided	N/A	Web-based Comments	14284	24
Plotkin	Stephen	not provided	N/A	Web-based Comments	29330	24
Plourde	R	not provided	N/A	Web-based Comments	26481	24
Plowright	Ali	not provided	N/A	Web-based Comments	7326	24
Plucinak	Eileen	eplucinak@gmail.com	N/A	Web-based comments	5025	N/A
Pluff	Dawn	not provided	N/A	Web-based comments	57217	35
Pluff	Will	not provided	N/A	Web-based comments	57218	35
Plumb	Sonja	not provided	N/A	Web-based Comments	55705	34
Plumb	Sonja	not provided	N/A	Web-based Comments	29074	24
Plumlee	Jon	not provided	N/A	Web-based Comments	18261	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Plummer	Helen	not provided	N/A	Web-based Comments	45167	34
Plummer	Karen	not provided	N/A	Web-based Comments	19197	24
Plummer	Sarah	not provided	N/A	Web-based comments	57122	35
Plunkett	Brian	plunkettbrian@hotmail.com	N/A	Web-based comments	3796	N/A
Plunkett	Patricia	not provided	N/A	Web-based Comments	25820	24
Pluska	Jackie	not provided	N/A	Web-based Comments	16071	24
Pluvinage	Catherine	not provided	N/A	Web-based comments	56763	35
Plymale	Denise	not provided	N/A	Web-based Comments	49591	34
Plymale	Denise	not provided	N/A	Web-based Comments	12655	24
Poage	Peter	not provided	N/A	Web-based Comments	26277	24
Poblete	Shannon	not provided	N/A	Web-based Comments	28595	24
Poborsky	Kelly	not provided	N/A	Web-based Comments	19943	24
Pochat	Louisette	not provided	N/A	Web-based Comments	21906	24
Pochwatko	Maria	not provided	N/A	Web-based Comments	22623	24
Podber	Alan	not provided	N/A	Web-based Comments	7184	24
Podell	Daniel	not provided	N/A	Web-based Comments	11764	24
Podergajs	Neza	not provided	N/A	Web-based Comments	55275	34
Podes	Stamatina	not provided	N/A	Web-based Comments	29147	24
Podewell	Roger	not provided	N/A	Web-based Comments	53064	34
Podewell	Roger	not provided	N/A	Web-based Comments	27591	24
podhraski	urska	not provided	N/A	Web-based Comments	30974	24
Podleski	Jeremiah	not provided	N/A	Web-based Comments	52125	34
Podoll	Claire	clairecpodoll@gmail.com	N/A	Web-based comments	5704	N/A
Podolsky	Lisa	not provided	N/A	Web-based Comments	21616	24
Podolsky	Lisa Rosenfield	not provided	N/A	Web-based Comments	50125, 50126, 50127	34
Poe	Annalee	not provided	N/A	Web-based Comments	48041	34
Poe	Ashley	not provided	N/A	Web-based Comments	8493	24
Poehlman	Annette	not provided	N/A	Web-based Comments	8286	24
Poessel	Sharon	not provided	N/A	Web-based Comments	52560	34
Poessel	Sharon	not provided	N/A	Web-based Comments	28701	24
Pohl	Kari	not provided	N/A	Web-based Comments	53183	34
pohl	terrie	not provided	N/A	Web-based Comments	44413	34
Pohorylo	Erast	not provided	N/A	Web-based Comments	14079	24
Poirier	Jeanne	jeannepoirier@yahoo.com	N/A	Web-based comments	767, 2049	N/A
Poirier	Jess	not provided	N/A	Web-based Comments	17380	24
Poirier	Magda	not provided	N/A	Web-based Comments	55189	34
Poissant	Barbara	not provided	N/A	Web-based Comments	8754	24
Poklemba	Christine	not provided	N/A	Web-based Comments	44534	34
Pokorski	Max J.	not provided	N/A	Web-based Comments	23744	24
Pokropek	Catherine	not provided	N/A	Web-based Comments	10313	24
Pol	Hector A.	not provided	N/A	Web-based Comments	15558	24
polacco	michael	not provided	N/A	Web-based Comments	24193	24
Polak	Judith	not provided	N/A	Web-based Comments	18644	24
Poland	Barbara	not provided	N/A	Web-based Comments	45047	34
poland	barbara	not provided	N/A	Web-based Comments	8755	24
Poland	Bonnie	not provided	N/A	Web-based Comments	9317	24
Polayes	Joanne	not provided	N/A	Web-based Comments	17820	24
Polczynski	Eric	not provided	N/A	Web-based Comments	58410	34
Polehn	J	jpolehn@yahoo.com	N/A	Web-based comments	4489	N/A
Polesky	Alice	not provided	N/A	Web-based Comments	7361	24
Polick	Melissa	not provided	N/A	Web-based Comments	23917	24
Polinard	Patti	not provided	N/A	Web-based Comments	25949	24
Poling	Victoria	vpoling@gmail.com	N/A	Web-based comments	3548	3
Polinski	Linda	not provided	N/A	Web-based Comments	21386	24
Polinsky	Donna	not provided	N/A	Web-based Comments	13170	24
POLIS	ROSE	not provided	N/A	Web-based Comments	27730	24
Polis	Terry	not provided	N/A	Web-based Comments	30381	24
Polissky	Jodi	not provided	N/A	Web-based Comments	55456	34
Polissky	Jodi	not provided	N/A	Web-based Comments	17848	24
Politis	Lee	not provided	N/A	Web-based Comments	20941	24
polito	Nancy	not provided	N/A	Web-based Comments	24961	24
Polivanov	Lexy	not provided	N/A	Web-based Comments	21133	24
Polivka	Peter	not provided	N/A	Web-based Comments	26278	24
Polk	Crystal	not provided	N/A	Web-based Comments	11464	24
Polk	Docken	not provided	N/A	Web-based Comments	47177	34
Polk	James	jkpv52@gmail.com	N/A	Web-based comments	3338	13
Polk	Nora	not provided	N/A	Web-based Comments	52317, 52318	34
Pollack	Calista	not provided	N/A	Web-based Comments	9723	24
Pollack	Debra	not provided	N/A	Web-based Comments	12543	24
Pollaine	Stephen	not provided	N/A	Web-based Comments	29331	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Pollak	Jeannie	not provided	N/A	Web-based Comments	16994	24
Pollard	Pat	not provided	N/A	Web-based Comments	44825	34
Pollard	Pat	not provided	N/A	Web-based Comments	25670	24
Pollet	Tristin	not provided	N/A	Web-based Comments	47641	34
Pollet	Tristin	not provided	N/A	Web-based Comments	30932	24
polley	Daniel	not provided	N/A	Web-based Comments	44657	34
polley	Daniel	not provided	N/A	Web-based Comments	11765	24
Pollinzi	Rebecca	not provided	N/A	Web-based Comments	26761	24
Pollock	Robert	not provided	N/A	Web-based Comments	27355	24
Pollock	Sarah	not provided	N/A	Web-based Comments	47001, 47002	34
Polly	Zena	not provided	N/A	Web-based Comments	31728	24
Polo	John	not provided	N/A	Web-based Comments	18143	24
Polo	Sharon	not provided	N/A	Web-based Comments	55306	34
Polonka	Jack	not provided	N/A	Web-based Comments	48587, 48588	34
Polonka	Jack	not provided	N/A	Web-based Comments	16039	24
Poltorak	Kahlan	not provided	N/A	Web-based Comments	18997	24
Polya	Lance	not provided	N/A	Web-based Comments	46324	34
Polya	Lance	not provided	N/A	Web-based Comments	20530	24
Polychronis	Jan	not provided	N/A	Web-based Comments	16418	24
Polydorou	Olivia	not provided	N/A	Web-based Comments	25436	24
Polyzotis	Jennifer	not provided	N/A	Web-based comments	1229	N/A
Polzin	Janet	not provided	N/A	Web-based Comments	16636	24
Pomeroy	Carolyn	not provided	N/A	Web-based Comments	50323	N/A
Pomes	Maria	not provided	N/A	Web-based comments	56731	35
Pomies	Jackie	not provided	N/A	Web-based Comments	16072	24
Pompa	Rosalba	not provided	N/A	Web-based Comments	58686, 58687	34
pompe	urska	not provided	N/A	Web-based Comments	30975	24
Pomponio	Annette	not provided	N/A	Web-based Comments	8287	24
PONCE	Raphael	not provided	N/A	Web-based Comments	26652	24
Ponchot	Susan	not provided	N/A	Web-based Comments	46320, 46321	34
Pond	Leslie	not provided	N/A	Web-based Comments	21094	24
Pons	Kerrie	not provided	N/A	Web-based Comments	20060	24
Pontbriand	Trevor	not provided	N/A	Web-based Comments	30901	24
Ponte	Hannah	not provided	N/A	Web-based Comments	47092	34
Ponte	Jennifer	not provided	N/A	Web-based Comments	49291, 49292, 49293	34
Ponthieu	Sandrine	not provided	N/A	Web-based Comments	49692, 49693	34
Pontious	Mel	not provided	N/A	Web-based Comments	23828	24
Ponzi	Monica	not provided	N/A	Web-based comments	56833	35
Ponzini	Michaela	not provided	N/A	Web-based Comments	24267	24
Poock	Patricia	not provided	N/A	Web-based Comments	49835, 49836	34
Pool	Patricia	not provided	N/A	Web-based Comments	25821	24
pool	robert	not provided	N/A	Web-based Comments	27356	24
Poole	Alexis	not provided	N/A	Web-based Comments	7311	24
Poole	Joan N.	not provided	N/A	Web-based Comments	50518	34
Poole	Patricia	not provided	N/A	Web-based Comments	55386, 55387	34
Poole	Patricia	not provided	N/A	Web-based Comments	25822	24
Poole	Robert	not provided	N/A	Web-based Comments	55866	34
Poole	Thomas	not provided	N/A	Web-based Comments	47623, 47745	34
Poole	Thomas	poolee7@msn.com	N/A	Web-based comments	3045, 4124	N/A
Pooley	Lynn	not provided	N/A	Web-based Comments	22085	24
Poons	Mark	not provided	N/A	Web-based Comments	22974	24
Poor	C	not provided	N/A	Web-based Comments	9680	24
Poor	Joan	not provided	N/A	Web-based comments	6619	N/A
Poor	Lorraine	not provided	N/A	Web-based Comments	50480	34
Poore	John	not provided	N/A	Web-based Comments	18144	24
Poore	Lorraine	not provided	N/A	Web-based Comments	21845	24
Popa	Daniel	not provided	N/A	Web-based Comments	11766	24
Pope	Anne	not provided	N/A	Web-based Comments	8232	24
Pope	C. Warren	not provided	N/A	Web-based Comments	9703	24
Pope	Cassidy	not provided	N/A	Web-based Comments	10238	24
Pope	Jacquelyn	not provided	N/A	Web-based Comments	16141	24
Pope	Leslie	not provided	N/A	Web-based Comments	21095	24
Pope	Nancy	not provided	N/A	Web-based Comments	24962	24
Pope	Robert	not provided	N/A	Web-based Comments	27357	24
Popiel	Paul	not provided	N/A	Web-based Comments	48404	34
Popko	Jane	not provided	N/A	Web-based Comments	16529	24
popoff	dave	not provided	N/A	Web-based Comments	44653	34
Popoff	Kathy	not provided	N/A	Web-based Comments	50052	34
Popovits	Denise	not provided	N/A	Web-based Comments	12656	24
Poppa	Richard	not provided	N/A	Web-based Comments	51154	34

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
poppe	Donnal	not provided	N/A	Web-based Comments	13201	24
Poppenk	Rita	not provided	N/A	Web-based Comments	27151	24
Porcelli	Chris	not provided	N/A	Web-based Comments	10774	24
Porcello	James	not provided	N/A	Web-based Comments	54171	34
Porch	Delores	verandafay@gmail.com	N/A	Web-based comments	5616	N/A
Porcher	Janeene	not provided	N/A	Web-based Comments	16551	24
Poritzky	Robin	not provided	N/A	Web-based Comments	27511	24
Poropudas	Belinda	not provided	N/A	Web-based Comments	8926	24
Porporino	Joseph	not provided	N/A	Web-based Comments	51624	34
Porporino	Joseph	not provided	N/A	Web-based Comments	18387	24
Porrot	Sylvain	not provided	N/A	Web-based comments	57579	35
Port	Julie	not provided	N/A	Web-based Comments	18883	24
Port	lisa	not provided	N/A	Web-based Comments	21617	24
Port	M	not provided	N/A	Web-based Comments	22184	24
Porter	Betsey	not provided	N/A	Web-based Comments	9069	24
PORTER	CHARLES	not provided	N/A	Web-based Comments	10524	24
Porter	Christopher	not provided	N/A	Web-based Comments	50548, 50552	34
Porter	Christopher	not provided	N/A	Web-based Comments	11027	24
Porter	Cynthia	not provided	N/A	Web-based Comments	47094	34
Porter	David	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32459	13
Porter	Deborah	not provided	N/A	Web-based Comments	12457	24
Porter	Deborah	not provided	N/A	Web-based Comments	12458	24
Porter	Joel	not provided	N/A	Web-based Comments	17920	24
Porter	Joelle	not provided	N/A	Web-based Comments	17932	24
Porter	Joelle	not provided	N/A	Web-based Comments	58010	16
Porter	Katie	not provided	N/A	Web-based Comments	45704	34
Porter	Kevin	not provided	N/A	Web-based Comments	20134	24
Porter	Kitty	not provided	N/A	Web-based Comments	20290	24
Porter	Laurie	not provided	N/A	Web-based Comments	50706	34
Porter	Pamela	not provided	N/A	Web-based Comments	25579	24
Porter	Susan	not provided	N/A	Web-based Comments	29803	24
Porter	Tim	not provided	N/A	Web-based Comments	48225, 48226	34
porter	william	pf0057@hotmail.com	N/A	Web-based comments	5463	N/A
Porter	Zack	not provided	N/A	Web-based Comments	58120	16
Porter-Knox	Jamie	not provided	N/A	Web-based Comments	16371	24
Porth	Peggy	not provided	N/A	Web-based Comments	26173	24
Portnova	Lyudmila	not provided	N/A	Web-based Comments	22164	24
Portugal	Jorge	not provided	N/A	Web-based Comments	49771	34
Portugheiz	Norberto	not provided	N/A	Web-based Comments	25370	24
Posch	Robert	not provided	N/A	Web-based Comments	27358	24
Posella	Karyn	not provided	N/A	Web-based Comments	19337	24
Posey	Sharon	not provided	N/A	Web-based Comments	28702	24
Poskeviciute	Justina	not provided	N/A	Web-based Comments	18965	24
Posner	Amy	not provided	N/A	Web-based Comments	7658	24
Posner	Jill Arthur	not provided	N/A	Web-based Comments	17553	24
Posner	Rebecca	not provided	N/A	Web-based Comments	26762	24
Posner	Susan	not provided	N/A	Web-based Comments	46875	34
Post	Heath	not provided	N/A	Web-based Comments	55609, 55610	34
Post	Heath	not provided	N/A	Web-based Comments	15494	24
POST	Sheryl	not provided	N/A	Web-based Comments	58075	16
Post	Sibyl	not provided	N/A	Web-based Comments	52411	34
Post	Suzanne	not provided	N/A	Web-based Comments	30015	24
Postel	Rus	not provided	N/A	Web-based Comments	49617, 49618	34
Poston	Joanne	not provided	N/A	Web-based Comments	17821	24
Potamianou	Klelia	not provided	N/A	Web-based comments	56810	35
Potash	Lorrie	not provided	N/A	Web-based Comments	21856	24
Poteraske	John	not provided	N/A	Web-based Comments	54502	34
potestio	sara	not provided	N/A	Web-based Comments	28310	24
Pothier	Savanna	savpothier@gmail.com	N/A	Web-based comments	5962	N/A
Potock	Jitka	not provided	N/A	Web-based comments	56746	35
Potrepka	Daniel	not provided	N/A	Web-based Comments	11767	24
Potter	Bran	not provided	N/A	Web-based Comments	9359	24
Potter	D	djpotter@hotmail.com	N/A	Web-based comments	4397	N/A
Potter	Doris	not provided	N/A	Web-based Comments	55017, 55018	34
Potter	Doris	not provided	N/A	Web-based Comments	13235	24
POtter	Ibis	not provided	N/A	Web-based Comments	15842	24
Potter	Jeffrey	jeffthepeaceguy@gmail.com	N/A	Web-based comments	5273	N/A
Potter	Jen	not provided	N/A	Web-based comments	57098	35
Potter	Lori	not provided	N/A	Web-based comments	57480	35
Potter	Margaret	not provided	N/A	Web-based Comments	22490	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Potter	Penny	not provided	N/A	Web-based Comments	45415	34
Potter	Syd	not provided	N/A	Web-based Comments	30049	24
Potters	Hans	not provided	N/A	Web-based Comments	15429	24
Pottinger	Randy	not provided	N/A	Web-based Comments	55286	34
Potts	Kerrily	not provided	N/A	Web-based Comments	55068	34
potts	paul	not provided	N/A	Web-based Comments	57890	16
potts	randall	not provided	N/A	Web-based Comments	50273	34
Pou	Tessa	not provided	N/A	Web-based Comments	47916	34
Pouladin	Kaveh	not provided	N/A	Web-based Comments	19814	24
Poulin	Frederic	not provided	N/A	Web-based Comments	56498	34
Poulsen	Barbara	not provided	N/A	Web-based Comments	58215	16
Poulson	Judi	not provided	N/A	Web-based Comments	55998, 55999	34
Poulson	Judi	not provided	N/A	Web-based Comments	18546	24
poulson	terry	not provided	N/A	Web-based Comments	54032	34
Poutre	Amy	not provided	N/A	Web-based Comments	53317, 53318	34
Poutre	Amy	not provided	N/A	Web-based Comments	7659	24
Povah	Errol	errolp@hotmail.com	N/A	Hand-delivered or oral testimony (personally delivered)	4653, 4763, 6943	N/A
Povah	Errol	errolp@hotmail.com	N/A	Web-based comments	6832	N/A
Povah	Errol	not provided	N/A	Web-based Comments	57813	N/A
powell	Callahan	not provided	N/A	Web-based comments	31987	1
Powell	Dale	not provided	N/A	Web-based Comments	52542	34
Powell	Dennis	not provided	N/A	Web-based Comments	12701	24
Powell	Ethel	not provided	N/A	Web-based Comments	14285	24
Powell	Gail	not provided	N/A	Web-based Comments	49543	34
Powell	Gail	not provided	N/A	Web-based Comments	14706	24
Powell	James	not provided	N/A	Web-based Comments	16286	24
Powell	Kathlyn	not provided	N/A	Web-based Comments	48848	34
Powell	Larry	not provided	N/A	Web-based Comments	20585	24
Powell	Lesley-Jane	not provided	N/A	Web-based Comments	21054	24
Powell	Mallory	adamsmj12@gmail.com	N/A	Web-based comments	1320, 1321, 5679	1
Powell	Margaret	not provided	N/A	Web-based Comments	22491	24
Powell	Mary	not provided	N/A	Web-based Comments	23387	24
Powell	Pat	pcpowellfarms@gmail.com	N/A	Web-based comments	2160	N/A
Powell	Penny	not provided	N/A	Web-based Comments	26212	24
POWELL	STEPHEN	not provided	N/A	Web-based Comments	29332	24
Powell	Wendy	wendy@auroraherbs.com	N/A	Web-based comments	32111	N/A
Powell Morgan	Peggy	not provided	N/A	Web-based Comments	26174	24
Powell-Schager	Barbara	not provided	N/A	Web-based Comments	8756	24
Power	Gary	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32292	N/A
Power	Julie	not provided	N/A	Web-based Comments	18884	24
Power	Kate	not provided	N/A	Web-based Comments	19398	24
Power	magnum	not provided	N/A	Web-based Comments	22276	24
Powers	Breanna	not provided	N/A	Web-based Comments	47260	34
Powers	Chris	donnachrispowers@gmail.com	N/A	Web-based comments	2502	N/A
Powers	Elizabeth	not provided	N/A	Web-based Comments	13827	24
Powers	Ellen	not provided	N/A	Web-based Comments	13942	24
Powers	Hilary	not provided	N/A	Web-based comments	1719	1
Powers	Inara	not provided	N/A	Web-based Comments	15866	24
Powers	Jessica	not provided	N/A	Web-based Comments	50254	34
Powers	Kara	not provided	N/A	Web-based Comments	45458	34
Powers	Karen	not provided	N/A	Web-based Comments	19198	24
Powers	Sheila	not provided	N/A	Web-based Comments	28801	24
Powers	Susan	not provided	N/A	Web-based Comments	29804	24
Poxon	Judith	not provided	N/A	Web-based Comments	18645	24
Poyer	David	not provided	N/A	Web-based Comments	53079	34
Pozin	Briana	briana.pozin@gmail.com	N/A	Web-based comments	190	1
Prabhakar	Anil	not provided	N/A	Web-based Comments	54226, 54227	34
Prabhakar	Anil	not provided	N/A	Web-based Comments	7960	24
Prabhu	Amratha	not provided	N/A	Web-based Comments	7590	24
Prada	Roberto	not provided	N/A	Web-based Comments	27462	24
Prairie	Annemarie	not provided	N/A	Web-based Comments	8271	24
Prandi	Linda	not provided	N/A	Web-based Comments	49831, 49832, 49833	34
Prandi	Linda	not provided	N/A	Web-based Comments	21387	24
Prasad	Kamal	not provided	N/A	Web-based Comments	53981, 53982	34
Praschesaits	Michael	not provided	N/A	Web-based Comments	54685	34
Prater	Neil	not provided	N/A	Web-based Comments	25134	24
prats	gilberto	not provided	N/A	Web-based Comments	15026	24
Pratt	Charles	not provided	N/A	Web-based Comments	10525	24
Pratt	Debbi	not provided	N/A	Web-based comments	57462	35
Pratt	Debbi	not provided	N/A	Web-based Comments	44799	34

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Pratt	John	not provided	N/A	Web-based Comments	18145	24
Pratt	Sarah	not provided	N/A	Web-based comments	57056	35
Pratt	Wendy	not provided	N/A	Web-based Comments	49731	34
Pratt	Yvette	not provided	N/A	Web-based Comments	31685	24
Praus	Diana	not provided	N/A	Web-based Comments	12788	24
Prav	M	not provided	N/A	Web-based Comments	48763	34
Pravitz	Suzanne	not provided	N/A	Web-based Comments	55443	34
Pray	Barbara	not provided	N/A	Web-based Comments	44639, 44640	34
Pray	Barbara	not provided	N/A	Web-based Comments	8757	24
Pray	Lauren	not provided	N/A	Web-based Comments	47945, 50615	34
Prebynski	Bradford	not provided	N/A	Web-based Comments	9351	24
Precourt	Bernice	not provided	N/A	Web-based Comments	8996	24
Preisinger	Claudette	not provided	N/A	Web-based Comments	11174	24
Preister	Donald	not provided	N/A	Web-based Comments	13078	24
Preli	Maryanne	not provided	N/A	Web-based Comments	23573	24
Preliasco	Robert	not provided	N/A	Web-based Comments	27359	24
Prellwitz	Carl	not provided	N/A	Web-based Comments	54054	34
Prellwitz	Carl	not provided	N/A	Web-based Comments	9808	24
Prendergast	Colette	not provided	N/A	Web-based Comments	11247	24
Prendiville	Jerami	not provided	N/A	Web-based Comments	51889	34
Prendiville	Jerami	not provided	N/A	Web-based Comments	17305	24
Presant	Carroll	not provided	N/A	Web-based Comments	10212	24
Prescott	Pam	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58405	32
Presley	Angela	not provided	N/A	Web-based Comments	51818	34
PRESSER	IRVING	not provided	N/A	Web-based Comments	15927	24
Pressimone	Melissa	not provided	N/A	Web-based Comments	49899, 49900	34
Pressl	Sarah	not provided	N/A	Web-based Comments	28388	24
PRESTAT	Nelly	not provided	N/A	Web-based Comments	25146	24
Presti	Charles	clopresti@owt.com	N/A	Web-based comments	6547	N/A
Preston	Elaine	not provided	N/A	Web-based Comments	44294	34
Preston	George	not provided	N/A	Web-based Comments	53787	34
Preston	Lynne	not provided	N/A	Web-based Comments	51854	34
Preston	Lynne	not provided	N/A	Web-based Comments	22148	24
PRESTON	MARIANNE	not provided	N/A	Web-based Comments	22688	24
Preston	Patricia	not provided	N/A	Web-based Comments	25823	24
Preston	Susan	not provided	N/A	Web-based Comments	47618, 47619	34
Preston	Terry	not provided	N/A	Web-based Comments	30382	24
Prete	Michael	not provided	N/A	Web-based Comments	53712	34
Pretlow	Theresa	not provided	N/A	Web-based Comments	30445	24
Pretnar	Tadeja	not provided	N/A	Web-based Comments	30104	24
Prettyman	Robert	not provided	N/A	Web-based Comments	27360	24
Preuschat	Sibylle	not provided	N/A	Web-based Comments	28980	24
Preuss	Ginnie	not provided	N/A	Web-based Comments	52766	34
Preuss	Ginnie	not provided	N/A	Web-based Comments	15077	24
Preve	Meredith	not provided	N/A	Web-based Comments	23979	24
Prevendar	Jill	not provided	N/A	Web-based Comments	17534	24
Prewitt	Beth	not provided	N/A	Web-based Comments	9042	24
Prewitt	Elizabeth	not provided	N/A	Web-based Comments	49212	34
Prezant	Jennifer	not provided	N/A	Web-based Comments	17243	24
Pribanic	Carl	not provided	N/A	Web-based Comments	49440	34
Price	Allen	not provided	N/A	Web-based Comments	46689	34
price	allen	not provided	N/A	Web-based Comments	7448	24
Price	Amanda	not provided	N/A	Web-based Comments	7551	24
Price	Cheri	not provided	N/A	Web-based Comments	49722	34
Price	Dan	not provided	N/A	Web-based Comments	11673	24
Price	Gill	not provided	N/A	Web-based Comments	15033	24
Price	Joe	not provided	N/A	Web-based Comments	17893	24
Price	John	johnhprice123@yahoo.com	N/A	Web-based comments	4093	11
price	kevin	kkkkprice@yahoo.com	N/A	Web-based comments	58838	N/A
Price	Lilyanne	not provided	N/A	Web-based Comments	21184	24
Price	Linda	not provided	N/A	Web-based Comments	21388	24
Price	Lisa	not provided	N/A	Web-based Comments	21618	24
Price	Lois Olcott	not provided	N/A	Web-based Comments	21735	24
Price	Maddie	not provided	N/A	Web-based comments	32201	1
Price	Marilyn	not provided	N/A	Web-based Comments	22807	24
Price	Mark	not provided	N/A	Web-based Comments	22975	24
Price	Martha	not provided	N/A	Web-based Comments	54221, 54222	34
Price	Michael	not provided	N/A	Web-based Comments	24194	24
Price	Michael	not provided	N/A	Web-based Comments	24195	24
Price	Pamela	not provided	N/A	Web-based Comments	25580	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Price	Sally	inoasal@yahoo.com	N/A	Web-based comments	4092	11
Prichard	Roger	not provided	N/A	Web-based Comments	27592	24
Pride	Tamara	not provided	N/A	Web-based Comments	30127	24
pridgen	thomas	not provided	N/A	Web-based Comments	50124	34
Priebe	Matthew	not provided	N/A	Web-based Comments	55580, 55581	34
Priepke	Karla, Peter and John	not provided	N/A	Web-based Comments	19319	24
Prieske	Melissa	melissa@prieske-nairobi.de	N/A	Web-based comments	1104	N/A
Priest	Jean	not provided	N/A	Web-based Comments	16876	24
Priest	Louise	not provided	N/A	Web-based Comments	44426	34
Priester	Katie	not provided	N/A	Web-based Comments	19796	24
Priestley	Meredith	not provided	N/A	Web-based Comments	23980	24
Prieto	Rosalie	not provided	N/A	Web-based comments	57389	35
Prifte	M	not provided	N/A	Web-based Comments	22185	24
Prigorac	Thomas	not provided	N/A	Web-based Comments	30534	24
Primatic	Kimberly	not provided	N/A	Web-based Comments	20235	24
Primrose	John	not provided	N/A	Web-based Comments	18146	24
Primrose	Joy	not provided	N/A	Web-based Comments	18465	24
Prince	Erin	not provided	N/A	Web-based Comments	14231	24
Prince	Jeanne	not provided	N/A	Web-based Comments	16967	24
Prince	Steve	not provided	N/A	Web-based Comments	44622	34
Principe	Sofia	not provided	N/A	Web-based comments	56706	35
Pringle	Janice	not provided	N/A	Web-based Comments	49288	34
Pringle	Marlyn	not provided	N/A	Web-based Comments	23052	24
Prins	Alma	not provided	N/A	Web-based Comments	7486	24
prinz	jovita	not provided	N/A	Web-based Comments	18453	24
Prinzmetal	Donna	not provided	N/A	Web-based Comments	13171	24
Prior	Ellen	not provided	N/A	Web-based Comments	44313	34
Prior	Lynne	not provided	N/A	Web-based Comments	22149	24
Priskich	Fiona	not provided	N/A	Web-based Comments	48018	34
Pritchard	Adrienne	not provided	N/A	Web-based Comments	7099	24
Pritchard	Holly	not provided	N/A	Web-based Comments	15768	24
Pritchard	Mary	not provided	N/A	Web-based Comments	23388	24
Pritchard	Rev.	meighan.pritchard@gmail.com	N/A	Web-based comments	3638	3
Pritchard	Tim	craichoneyco.kim@gmail.com	N/A	Web-based comments	5340	N/A
Pritchett	Sarah	not provided	N/A	Web-based Comments	28389	24
PRITZKER	BURTON	not provided	N/A	Web-based Comments	9657	24
Priven	Louis	not provided	N/A	Web-based Comments	21872	24
Privitera	Nora	not provided	N/A	Web-based Comments	25364	24
Privman	Jay	not provided	N/A	Web-based Comments	16814	24
Prize	Audie	not provided	N/A	Web-based comments	57297	35
Prizio	Judith	not provided	N/A	Web-based Comments	54860	34
Prizio	Judith	not provided	N/A	Web-based Comments	18646	24
Prjanikov	Esme	not provided	N/A	Web-based Comments	14259	24
Proano	Guido A.	not provided	N/A	Web-based Comments	15330	24
Probert	Matt	not provided	N/A	Web-based Comments	23620	24
Procter	Karen	not provided	N/A	Web-based Comments	47773	34
Procter	Karen	not provided	N/A	Web-based Comments	19199	24
Proctor	Melanie	not provided	N/A	Web-based Comments	23843	24
Proctor	Steven	not provided	N/A	Web-based Comments	29459	24
Profant	Carmine	not provided	N/A	Web-based Comments	49423	34
profilio	mary ann	not provided	N/A	Web-based Comments	23501	24
Profit	Carol	not provided	N/A	Web-based Comments	10005	24
Profitt	Natalie	natalie.profitt@gmail.com	N/A	Web-based comments	1403	1
Proietta	Susan	not provided	N/A	Web-based Comments	29805	24
Prol	Rosa Maria	not provided	N/A	Web-based Comments	55646	34
Prola	Robert	not provided	N/A	Web-based Comments	27361	24
Pronchick	Cheryl	not provided	N/A	Web-based Comments	10668	24
Pronovost	Natalie	not provided	N/A	Web-based Comments	25074	24
Propen	Beverly	not provided	N/A	Web-based Comments	9138	24
Prorak	Diane	DPRORAK@GMAIL.COM	N/A	Web-based comments	5093	N/A
Pross	Magen	not provided	N/A	Web-based Comments	22262	24
Pross	Richard	not provided	N/A	Web-based Comments	27025	24
Prosser	Amy	not provided	N/A	Web-based Comments	7660	24
Prost	Anne	not provided	N/A	Web-based Comments	8233	24
prost	carol	not provided	N/A	Web-based Comments	10006	24
Prostko	Linda	not provided	N/A	Web-based Comments	56374	34
Prostko	Linda	not provided	N/A	Web-based Comments	21389	24
Proteau	Mary	not provided	N/A	Web-based Comments	50341	34
protectors	Pnw	pnwprotectors@gmail.com	N/A	Web-based comments	31922	1

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Prothero	William	not provided	N/A	Web-based Comments	31583	24
Proubasta	Dolores	not provided	N/A	Web-based Comments	12996	24
ProudFire	Anne	not provided	N/A	Web-based Comments	56422	34
Proudfit	Linda	not provided	N/A	Web-based Comments	44667	34
Proudfit	Linda	not provided	N/A	Web-based Comments	21390	24
Provance	D	not provided	N/A	Web-based Comments	49579, 49580	34
Provance	Donna	not provided	N/A	Web-based Comments	13172	24
Provencio	Rick	not provided	N/A	Web-based Comments	27099	24
Provided	Name	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58775	N/A
Provided	Namenot	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58764	N/A
Provost	Lin	not provided	N/A	Web-based Comments	52680	34
Provost	Lin	not provided	N/A	Web-based Comments	21185	24
Provost	Ruth	not provided	N/A	Web-based Comments	45265, 45266	34
Prowell	Mary	not provided	N/A	Web-based Comments	23389	24
Prowell	Sarah	not provided	N/A	Web-based Comments	44448	34
Prowse	Jae	not provided	N/A	Web-based Comments	16151	24
Prudden	Beth	not provided	N/A	Web-based Comments	9043	24
Pruitte	Patrice	not provided	N/A	Web-based Comments	25692	24
Prushinski	Laura	not provided	N/A	Web-based Comments	20688	24
Prusse	Jennifer	not provided	N/A	Web-based Comments	17244	24
Prust	Lauren	not provided	N/A	Web-based Comments	58556	34
prvt	catherine	not provided	N/A	Web-based Comments	10314	24
Pryble-Dattalo	Susan	not provided	N/A	Web-based Comments	29806	24
PRYBYLSKI	JOHN	not provided	N/A	Web-based Comments	46729, 46730	34
Pryce	Carol	not provided	N/A	Web-based Comments	56504	34
Pryich	Ann	not provided	N/A	Web-based Comments	53944, 53945	34
Pryich	Ann	not provided	N/A	Web-based Comments	8074	24
Prynoski	Barbara	not provided	N/A	Web-based Comments	8758	24
Pryor	Sheila	not provided	N/A	Web-based Comments	50286	34
Pryor-Luzier	Maresa	not provided	N/A	Web-based Comments	22418	24
Przybycien	Ron	not provided	N/A	Web-based Comments	27632	24
Przybylski	Laurel	not provided	N/A	Web-based Comments	20746	24
Psaras	Brenda	not provided	N/A	Web-based Comments	44298	34
Pszanka	James	not provided	N/A	Web-based Comments	51083	34
Ptucha	Gregory	not provided	N/A	Web-based Comments	50463	34
Puaoi	Richard	not provided	N/A	Web-based Comments	27026	24
Puc	Rob	not provided	N/A	Web-based Comments	50873, 50874	34
Puc	Rob	not provided	N/A	Web-based Comments	27184	24
Puca	Laurie	not provided	N/A	Web-based Comments	20851	24
Puca	Robert	not provided	N/A	Web-based Comments	50669, 50670	34
pucci	elena	not provided	N/A	Web-based Comments	13654	24
Puchalsky	Hazel	not provided	N/A	Web-based Comments	15488	24
Puchli	Robert	not provided	N/A	Web-based Comments	51397	34
Puchniak	John	not provided	N/A	Web-based Comments	18147	24
Puchois	Sabrina	not provided	N/A	Web-based comments	56753	35
Puchyr	Carol J	not provided	N/A	Web-based Comments	10061	24
Pudasaini	Amandine	amandine.pudasaini@gmail.com	N/A	Web-based comments	541	1
Puddicombe	Autumn	not provided	N/A	Web-based comments	56994	35
Pudewell	Lalla	not provided	N/A	Web-based Comments	20521	24
Pudliner	Jennifer	not provided	N/A	Web-based Comments	17245	24
Pudzianowski	Andrew	not provided	N/A	Web-based Comments	50475, 50474	34
Puentes	Adriana	not provided	N/A	Web-based comments	57157	35
Puentes	Felena	not provided	N/A	Web-based Comments	14412	24
Puerner	Liz	not provided	N/A	Web-based Comments	50096	34
Puerta	Jeanne	not provided	N/A	Web-based Comments	16968	24
Puerta	Lina	not provided	N/A	Web-based Comments	21188	24
Puett	Barbara	not provided	N/A	Web-based Comments	8759	24
Pufnock	Jeff	jeff.pufnock@gmail.com	N/A	Web-based comments	6429	N/A
Pugh	Bree	not provided	N/A	Web-based Comments	50242, 50243	34
Pugh	Bree	not provided	N/A	Web-based Comments	9387	24
Pugh	Lindsay	not provided	N/A	Web-based Comments	21484	24
Pugh	Robert	not provided	N/A	Web-based Comments	27362	24
Pugliese	Colleen	not provided	N/A	Web-based Comments	11274	24
Puglisi	Richard	not provided	N/A	Web-based Comments	27027	24
Puissant	Celine	not provided	N/A	Web-based Comments	55239	34
Pulcini	Elizabeth	not provided	N/A	Web-based Comments	13828	24
Puleo	Beth	not provided	N/A	Web-based Comments	9044	24
Pulford	Bruce	not provided	N/A	Web-based Comments	9623	24
Puliselic	Christine	not provided	N/A	Web-based Comments	10974	24
Pullen	Martha	not provided	N/A	Web-based Comments	23121	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Pullen	Seth	not provided	N/A	Web-based Comments	28547	24
Pullman	Chloe	not provided	N/A	Web-based Comments	10713	24
Pulsinelli	Michael	not provided	N/A	Web-based Comments	24196	24
Pultz	Leslie	not provided	N/A	Web-based Comments	54128	34
Pulver	Christian	not provided	N/A	Web-based Comments	10831	24
Pulzone	Angela	not provided	N/A	Web-based comments	57110	35
Pumo	Beth	not provided	N/A	Web-based Comments	9045	24
Punday	Nicole	not provided	N/A	Web-based Comments	44907	34
Punday	Nicole	not provided	N/A	Web-based Comments	25250	24
Punnett	Hope	not provided	N/A	Web-based Comments	15790	24
Puntasecca	Juanita	not provided	N/A	Web-based Comments	18535	24
Puoskari	Pasi	not provided	N/A	Web-based Comments	25626	24
Puppione	Greg	not provided	N/A	Web-based Comments	15245	24
Pupysheva	Olga	not provided	N/A	Web-based comments	56834	35
Purcell	Jodie	jpurcell@bishopblanchet.org	N/A	Web-based comments	3256	3
Purcell	Judith	not provided	N/A	Web-based Comments	47517	34
Purcell	P	not provided	N/A	Web-based Comments	25467	24
Purdue	Joyce	not provided	N/A	Web-based Comments	47332	34
Purdue	Joyce	not provided	N/A	Web-based Comments	18505	24
Purdy	Jan	not provided	N/A	Web-based Comments	16419	24
Purdy	Kaitlin	not provided	N/A	Web-based Comments	53018, 53019	34
Purdy	Kaitlin	not provided	N/A	Web-based Comments	19004	24
Purdy	Patricia	not provided	N/A	Web-based Comments	25824	24
Purinton	Susan	not provided	N/A	Web-based Comments	29807	24
Purnell	Dan	not provided	N/A	Web-based Comments	46866	34
Purnell	Joanne	not provided	N/A	Web-based Comments	17822	24
Purrinson	Beth	not provided	N/A	Web-based Comments	9046	24
Purs	Vija	not provided	N/A	Web-based Comments	31238	24
Purser	R	richardprsr@gmail.com	N/A	Web-based comments	1546*	N/A
purser	richard	not provided	N/A	Web-based Comments	53452	34
purser	richard	not provided	N/A	Web-based Comments	27028	24
PURVIS	Paula	not provided	N/A	Web-based Comments	26096	24
Puscheck	Maura	not provided	N/A	Web-based Comments	23680	24
Putnam	Charles	not provided	N/A	Web-based Comments	10526	24
Putnam	David	not provided	N/A	Web-based comments	32112	1
Putnam	Diane	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	56632	N/A
Putnam	Grant	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4655	N/A
Putnam	J	not provided	N/A	Web-based Comments	15989	24
Putnam	Quinten	not provided	N/A	Web-based Comments	54302	34
Putnam	Richard	reputnam@gmail.com	N/A	Web-based comments	3731, 3732, 3734, 3736	N/A
Putnam	Richard	reputnam@gmail.com	N/A	Hand-delivered or oral testimony (personally delivered)	4757, 5606	N/A
Putnam	William	will.e.putnam@gmail.com	N/A	Hand-delivered or oral testimony (personally delivered)	4696, 4716	N/A
Putnam	William	will.e.putnam@gmail.com	N/A	Web-based comments	1815	1
Putt	Monica	not provided	N/A	Web-based Comments	24638	24
Putthoff	Laurie	not provided	N/A	Web-based Comments	49181	34
Puttinger	Ferdinand	not provided	N/A	Web-based Comments	14420	24
Putze	Michelle	not provided	N/A	Web-based Comments	24383	24
putzeys	rosette	not provided	N/A	Web-based Comments	27774	24
Puzey	Babette	not provided	N/A	Web-based Comments	8590	24
Puzyn	Diane	not provided	N/A	Web-based Comments	12891	24
Pydeski	Linda	not provided	N/A	Web-based Comments	21391	24
Pylant	Christa	not provided	N/A	Web-based Comments	10812	24
Pyle	Alexandra	not provided	N/A	Web-based Comments	7287	24
Pyle	David	not provided	N/A	Web-based Comments	12114	24
Pyle	Donald	not provided	N/A	Web-based comments	4533	N/A
pynn	doug	not provided	N/A	Web-based Comments	13306	24
Pysno	Michael	not provided	N/A	Web-based Comments	24197	24
Pysson	Cheri	not provided	N/A	Web-based Comments	44297	34
Pysson	Cheri	not provided	N/A	Web-based Comments	58375	28
Quackenbush	Kay	not provided	N/A	Web-based Comments	53300	34
Quackenbush	Nancy	not provided	N/A	Web-based Comments	24963	24
Quadrini	Philip	not provided	N/A	Web-based Comments	26350	24
Quail	Kevin	not provided	N/A	Web-based Comments	20135	24
Quaintance	Howard	not provided	N/A	Web-based Comments	45108	34
Quam	Lowell	lpquam@gmail.com	N/A	Web-based comments	2552	N/A
Quan	Franklin	not provided	N/A	Web-based Comments	14563	24
Quarella	Loretta	not provided	N/A	Web-based Comments	21767	24
Quarles	Neil	not provided	N/A	Web-based Comments	25135	24
Quarles IV	Donald	not provided	N/A	Web-based Comments	13079	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Quarrick	Robert	not provided	N/A	Web-based Comments	48569	34
Quarrick	Robert	not provided	N/A	Web-based Comments	27363	24
Quartaro	Nicholas	not provided	N/A	Web-based Comments	25175	24
Quartey	Danette	not provided	N/A	Web-based Comments	55506	34
Quarto	Faith	not provided	N/A	Web-based Comments	14386	24
Quellhorst	Megan	not provided	N/A	Web-based Comments	23800	24
Quentel	Patricia	not provided	N/A	Web-based Comments	25825	24
Quentin	Peggy	not provided	N/A	Web-based Comments	53671	34
Querner	Kathleen	not provided	N/A	Web-based Comments	19589	24
Querry	Linda	not provided	N/A	Web-based Comments	21392	24
Quick	Carol	not provided	N/A	Web-based Comments	10007	24
Quick	Holly	not provided	N/A	Web-based Comments	47832, 47833	34
Quick	Holly	not provided	N/A	Web-based Comments	15769	24
Quickel	Susan	not provided	N/A	Web-based Comments	29808	24
Quicken	Martijn	not provided	N/A	Web-based Comments	23149	24
Quiet	Natalie	not provided	N/A	Web-based Comments	25075	24
Quigley	Abby	20aquigley@students.cdaschools.org	N/A	Web-based comments	31949	N/A
Quigley	Ann	not provided	N/A	Web-based Comments	8075	24
Quigley	Caitlin	not provided	N/A	Web-based Comments	9715	24
Quigley	Jann	not provided	N/A	Web-based Comments	16751	24
Quigley	Lori	not provided	N/A	Web-based Comments	21802	24
Quigley	Louise and	not provided	N/A	Web-based Comments	21904	24
Quigley	Michelle	amquigley710@gmail.com	N/A	Web-based comments	6070	N/A
Quigley	Sean	not provided	N/A	Web-based Comments	51027	34
Quijano	Nancy	not provided	N/A	Web-based comments	57037	35
Quilez	Carlos	not provided	N/A	Web-based Comments	9859	24
quin	john	j.crazd@comcast.net	N/A	Web-based comments	5378	N/A
Quinlan	Anne	not provided	N/A	Web-based Comments	47746	34
Quinlan	Jacqueline	not provided	N/A	Web-based Comments	54712	34
Quinlan	Jacqueline	not provided	N/A	Web-based Comments	16127	24
Quinlivan	Diane	not provided	N/A	Web-based Comments	55178	34
Quinlivan	Diane	not provided	N/A	Web-based Comments	12892	24
Quinlog	Catherine	not provided	N/A	Web-based Comments	10315	24
Quinn	Caitlin	not provided	N/A	Web-based comments	197	1
Quinn	Carolyn	not provided	N/A	Web-based Comments	10174	24
Quinn	Charlesand Diana	not provided	N/A	Web-based Comments	50909	34
Quinn	Edythe Ann	not provided	N/A	Web-based Comments	48442	34
Quinn	Ellen	not provided	N/A	Web-based Comments	46728	34
Quinn	Kathleen	not provided	N/A	Web-based Comments	19590	24
Quinn	Krista	not provided	N/A	Web-based Comments	20334	24
Quinn	Michael	not provided	N/A	Web-based Comments	24198	24
Quinn	Michael	not provided	N/A	Web-based Comments	24199	24
Quinn	Owen	not provided	N/A	Web-based Comments	25457	24
Quinn	Patricia	not provided	N/A	Web-based Comments	25826	24
Quinn	Patrick	not provided	N/A	Web-based Comments	48335	34
Quinn	Teresa	not provided	N/A	Web-based Comments	30293	24
Quinn	Zoe	not provided	N/A	Web-based Comments	45219	34
Quinn-Dupont	Maureen	not provided	N/A	Web-based Comments	23712	24
Quintana	Kristin	not provided	N/A	Web-based Comments	20388	24
Quintana	Raquel	not provided	N/A	Web-based Comments	50078	34
Quintero	Gerry	not provided	N/A	Web-based Comments	51579	34
Quintero	Gerry	not provided	N/A	Web-based Comments	15002	24
Quintero	Jesse	not provided	N/A	Web-based Comments	47765	34
Quintero	Miguel	not provided	N/A	Web-based Comments	24421	24
Quintero	Vanessa	not provided	N/A	Web-based Comments	31070	24
Quinton	Peter	not provided	N/A	Web-based Comments	26279	24
Quirici	Giovanna	not provided	N/A	Web-based Comments	15085	24
Quirk	Kathleen	not provided	N/A	Web-based Comments	19591	24
Quirl	Jed	jed.quirl@fallriverelectric.com	N/A	Web-based comments	3476	11
Quirl	Jed	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32546, 32383	11
Quisquinay	Gaby	not provided	N/A	Web-based Comments	50123	34
Quist	Elizabeth	not provided	N/A	Web-based Comments	50677	34
QUISUMBING-KING	CORA	not provided	N/A	Web-based Comments	11358	24
R	Adrienne	not provided	N/A	Web-based Comments	7100	24
R	Andrew	not provided	N/A	Web-based Comments	55204	34
R	Carol	not provided	N/A	Web-based Comments	10008	24
r	craig	not provided	N/A	Web-based Comments	11426	24
R	D	not provided	N/A	Web-based Comments	47615, 54559	34
R	D	not provided	N/A	Web-based Comments	11584	24
R	Jennifer	not provided	N/A	Web-based Comments	17246	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
R	K	not provided	N/A	Web-based Comments	18981	24
R	Lisa	not provided	N/A	Web-based Comments	21619	24
R	Lynn	not provided	N/A	Web-based Comments	46552	34
r	p	not provided	N/A	Web-based Comments	49939	34
R	Ruben	not provided	N/A	Web-based comments	1035	2
R	S	not provided	N/A	Web-based Comments	27949	24
R	Stacey	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	31747	N/A
R	Tyler	not provided	N/A	Web-based Comments	30963	24
R	V	not provided	N/A	Web-based Comments	52187	34
R Murray	Debbie	not provided	N/A	Web-based Comments	12339	24
R.	Eliot	not provided	N/A	Web-based comments	10	N/A
R.	M.	not provided	N/A	Web-based comments	6663	N/A
R.	Opal	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	5082, 5529	N/A
R.	Tiffany	trodriguez0913@gmail.com	N/A	Web-based comments	6623	1
Raasch	Carolyn	not provided	N/A	Web-based Comments	57870, 10175	N/A
Raasch	Dorothy	not provided	N/A	Web-based Comments	13276	24
Raath	Francoise	not provided	N/A	Web-based Comments	45277	34
Rabb	Sharon	not provided	N/A	Web-based Comments	28703	24
Rabbitskin	Jacqueline (Jackie) T.	not provided	N/A	Web-based Comments	16137	24
Rabe	Fred	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58734	N/A
Rabel	Andrea	not provided	N/A	Web-based Comments	7766	24
Rabenstein	Lynn	not provided	N/A	Web-based Comments	22086	24
Rabie	mar	not provided	N/A	Web-based Comments	22318	24
Rabin	Pat	not provided	N/A	Web-based Comments	52854	34
Rabinowitz	Rebecca	not provided	N/A	Web-based Comments	58584	34
Racette	Beth	bracette@gmail.com	N/A	Web-based comments	2027	N/A
Racette	Beth	not provided	N/A	Web-based Comments	56395	34
Rachael Pappano	Rachael	not provided	N/A	Web-based comments	57001	35
Rachel	Hamaide	not provided	N/A	Web-based comments	1319	N/A
Racheli	Desdamona	not provided	N/A	Web-based Comments	44281	34
Rachilla	Kala	not provided	N/A	Web-based Comments	19009	24
Rachwitz	Katrina	not provided	N/A	Web-based Comments	50559	34
Racine	Marie	not provided	N/A	Web-based comments	56737	35
Racine	Robert	not provided	N/A	Web-based Comments	27364	24
Rackley	Mindi	not provided	N/A	Web-based Comments	46713	34
Rackman	Gary	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	44265	13
Racz	David	not provided	N/A	Web-based Comments	12115	24
Racz	Karina	karina_racz@hotmail.com	N/A	Web-based comments	898	N/A
Radarian	Forrest	not provided	N/A	Web-based Comments	45616	34
Radau	Christine	not provided	N/A	Web-based Comments	49188, 49189	34
Radcke	Vincent	not provided	N/A	Web-based Comments	31254	24
radder	joel	not provided	N/A	Web-based Comments	17921	24
Radell	Joan	not provided	N/A	Web-based Comments	17724	24
Rademacher	Barbara	not provided	N/A	Web-based Comments	51480	34
Rader	Alex	not provided	N/A	Web-based Comments	7249	24
Rader	Doug	not provided	N/A	Web-based Comments	13307	24
Rader	Jan	not provided	N/A	Web-based Comments	16420	24
Rader	Leslie	not provided	N/A	Web-based Comments	21096	24
Radford	Andy	andyradford@bellsouth.net	N/A	Web-based comments	5409	N/A
Radke	Angelika	not provided	N/A	Web-based Comments	7941	24
Radke	Irene	not provided	N/A	Web-based Comments	50121	34
Radko	Danuta	not provided	N/A	Web-based Comments	45025	34
Radloff	Patricia	not provided	N/A	Web-based Comments	25827	24
Radosevic	Penny	not provided	N/A	Web-based Comments	26213	24
Radosti	Susan	not provided	N/A	Web-based Comments	29809	24
Radtke	Nicholas	not provided	N/A	Web-based Comments	25176	24
Radwany	Julia	not provided	N/A	Web-based Comments	52425	34
Rae	Beverly	not provided	N/A	Web-based Comments	50376	34
Rae	Beverly	not provided	N/A	Web-based Comments	9139	24
Rae	Ella M	not provided	N/A	Web-based Comments	13889	24
Rae	Kristine	k.radical.b@gmail.com	N/A	Web-based comments	5441	N/A
Raebeck	Wendy	not provided	N/A	Web-based Comments	31442	24
Raedel	Braelyn	not provided	N/A	Web-based Comments	9358	24
Raekes	Philip	not provided	N/A	Web-based comments	32104	N/A
Raffa	Jeanne	not provided	N/A	Web-based Comments	16969	24
Rafferty	John	not provided	N/A	Web-based Comments	18148	24
Rafferty	Keith	not provided	N/A	Web-based Comments	19884	24
Raffia	Donna	not provided	N/A	Web-based Comments	13173	24
Rafiee	Amy	not provided	N/A	Web-based Comments	7661	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Rafkin	Dru	not provided	N/A	Web-based Comments	52059	34
raforth	laura	not provided	N/A	Web-based Comments	52159	34
Rafter	Sara CA	not provided	N/A	Web-based Comments	47157	34
Raftery	Heather	not provided	N/A	Web-based Comments	45308	34
Ragalyi	Sarah	not provided	N/A	Web-based Comments	28390	24
Ragan	Suzan	not provided	N/A	Web-based Comments	29972	24
Ragana	Lollie	not provided	N/A	Web-based Comments	21737	24
Ragazzi	Stefano	not provided	N/A	Web-based Comments	29178	24
Raggiaschi	Alba	not provided	N/A	Web-based Comments	7205	24
Ragland	Camille	not provided	N/A	Web-based Comments	9745	24
Rago	Eileen	not provided	N/A	Web-based Comments	13557	24
ragon	stephen	not provided	N/A	Web-based Comments	29333	24
Ragsdale	Greg	not provided	N/A	Web-based Comments	15246	24
Rahal	Linda	not provided	N/A	Web-based Comments	21393	24
Rahbun	Corrin	1944csr@gmail.com	N/A	Web-based comments	2206	N/A
Rahikainen	Patricia	not provided	N/A	Web-based Comments	47099	34
Rahimi	Ruth	not provided	N/A	Web-based Comments	58184	16
Rahmun	Lindsay	not provided	N/A	Web-based Comments	52510	34
Rahn	Elke	not provided	N/A	Web-based comments	57262	35
Rahn	Elke	not provided	N/A	Web-based Comments	13882	24
Rahn	Marlene	not provided	N/A	Web-based Comments	23045	24
Raible	Annette	not provided	N/A	Web-based Comments	8288	24
Raible	Martin	not provided	N/A	Web-based Comments	23171	24
Raich	Denise	not provided	N/A	Web-based Comments	55267	34
Raikes	Antonia	not provided	N/A	Web-based Comments	8361	24
Railey	Thea	raileyt@gmail.com	N/A	Web-based comments	5097	N/A
Railsback	Beverly	not provided	N/A	Web-based Comments	9140	24
Raimondi	Dayna	not provided	N/A	Web-based Comments	12257	24
Raimondo	Terri	not provided	N/A	Web-based Comments	30342	24
Raine	Jya	not provided	N/A	Web-based comments	32240	1
RAINEY	JOHN	not provided	N/A	Web-based Comments	18149	24
Rainey	Laura	not provided	N/A	Web-based Comments	45274	34
Rainey	Maya	not provided	N/A	Web-based Comments	47905, 47906	34
Rainforth	Danielle	not provided	N/A	Web-based Comments	44693	34
Rainho	Maria	not provided	N/A	Web-based Comments	46946	34
Rains	Pamela	not provided	N/A	Web-based Comments	54935	34
rainville	michelle	not provided	N/A	Web-based Comments	24384	24
Raitano	Joan	not provided	N/A	Web-based Comments	45476	34
Raitano	Joan	not provided	N/A	Web-based Comments	17725	24
Rajbhandari	Adjit	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	5568	N/A
Rajbhandari	Ajit	ajit.rajbhandari@gmail.com	N/A	Web-based comments	32194	N/A
Rajbhandari	Shiva	shiva.a.rajbhandari@gmail.com	N/A	Hand-delivered or oral testimony (personally delivered)	5569	N/A
Rajbhandari	Shiva	shiva.a.rajbhandari@gmail.com	N/A	US Mail or commercial carrier (UPS, FedEx)	58791	N/A
Rajbhandari	Shiva	shiva.a.rajbhandari@gmail.com	N/A	Web-based comments	6044, 6235	N/A
Rajeff	Steve	not provided	N/A	Web-based Comments	57957	16
Rajgeet	Mayank	not provided	N/A	Web-based Comments	23763	24
Rajkumar	Raj	not provided	N/A	Web-based Comments	26580	24
Rajnus	Linda	not provided	N/A	Web-based comments	2327	N/A
Raju	Nik	not provided	N/A	Web-based Comments	25281	24
RAKACZKY	RACHEL	not provided	N/A	Web-based Comments	53295, 53296	34
Rakaczky	Rachel	not provided	N/A	Web-based Comments	26541	24
Rake	Don	not provided	N/A	Web-based Comments	13033	24
Rake	J	not provided	N/A	Web-based Comments	49604	34
Rakestraw	Sandra	not provided	N/A	Web-based Comments	28200	24
Rakocinski	Patricia	not provided	N/A	Web-based Comments	25828	24
Rakoczy	Teresa	not provided	N/A	Web-based Comments	30294	24
Rakow	Tamara	not provided	N/A	Web-based Comments	52266, 52267	34
Rakow	Tamara	not provided	N/A	Web-based Comments	30128	24
Rall	Ben	not provided	N/A	Web-based Comments	56019	34
Rall	Ben	not provided	N/A	Web-based Comments	8946	24
Rallo	James	not provided	N/A	Web-based Comments	16287	24
Ralph	Sarah	not provided	N/A	Web-based Comments	53859	34
Ralston	Aron	not provided	N/A	Web-based Comments	52515	34
Ralston	Chelsea	not provided	N/A	Web-based Comments	10589	24
Ralston	Jeannette	not provided	N/A	Web-based Comments	53530	34
Ralston	Sara	not provided	N/A	Web-based Comments	28311	24
Ram?rez	Carlos	lancer3dg@gmail.com	N/A	Web-based comments	859	1
Ramacher	Karen	not provided	N/A	Web-based Comments	19200	24
Ramage	Rebecca	not provided	N/A	Web-based Comments	49388	34
Ramaker	Julianne	not provided	N/A	Web-based Comments	58112, 50184	16, 34

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Ramaker	Julianne	not provided	N/A	Web-based Comments	18806	24
Ramakrishnan	Ananthanarayanan	not provided	N/A	Web-based Comments	54393, 54394	34
Ramallo Santos	Rosa Maria	not provided	N/A	Web-based comments	56847	35
Ramauro	Michelle	not provided	N/A	Web-based Comments	24385	24
Ramazinski Miller	Jennifer	not provided	N/A	Web-based Comments	17247	24
Ramcharitar	Vijaya	not provided	N/A	Web-based Comments	53447	34
Ramee	Joyce	mavijramee@aol.com	N/A	Web-based comments	243	3
Ramee	Joyce	not provided	N/A	Web-based Comments	18506	24
Ramey	Chris	not provided	N/A	Web-based Comments	10775	24
Ramin	Sue	not provided	N/A	Web-based Comments	29545	24
Ramirez	Angela	not provided	N/A	Web-based Comments	7925	24
Ramirez	Carmen	not provided	N/A	Web-based Comments	49257, 49258	34
Ramirez	Carmen	not provided	N/A	Web-based Comments	9874	24
Ramirez	Emmanuel	not provided	N/A	Web-based Comments	53252	34
Ramirez	Gabriel	not provided	N/A	Web-based Comments	14639	24
Ramirez	Jackie	not provided	N/A	Web-based Comments	16073	24
Ramirez	Jessica	not provided	N/A	Web-based Comments	17455	24
Ramirez	John	not provided	N/A	Web-based Comments	18150	24
Ramirez	Laura	not provided	N/A	Web-based Comments	20689	24
Ramirez	Mary	not provided	N/A	Web-based Comments	23390	24
Ramirez	Monse	not provided	N/A	Web-based Comments	24660	24
Ramirez	Richard	not provided	N/A	Web-based Comments	27029	24
Ramirez	Robert	not provided	N/A	Web-based Comments	27365	24
Ramirez	Teresa	not provided	N/A	Web-based Comments	48709	34
Ramirez	Theresa	not provided	N/A	Web-based Comments	57845	34
Ramis	Cristian	not provided	N/A	Web-based Comments	11437	24
Rammell	Michael	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32361	13
Ramoni	Elizabeth	not provided	N/A	Web-based Comments	13829	24
Ramos	Ana	not provided	N/A	Web-based Comments	7696	24
Ramos	Debbie	not provided	N/A	Web-based Comments	55742, 55743	34
Ramos	Eury	not provided	N/A	Web-based Comments	14308	24
Ramos	Joann	not provided	N/A	Web-based Comments	45127, 45128	34
Ramos	Joann	not provided	N/A	Web-based Comments	17777	24
Ramos	Melissa	not provided	N/A	Web-based Comments	53431	34
Ramos	Natalie	not provided	N/A	Web-based Comments	25076	24
Ramos	Paul	not provided	N/A	Web-based Comments	52562	34
Ramos	Samantha Garcia	not provided	N/A	Web-based Comments	45284	34
Ramos	Tatianna	not provided	N/A	Web-based Comments	30225	24
Ramos	Venessa	not provided	N/A	Web-based Comments	55464	34
Ramos	Venessa	not provided	N/A	Web-based Comments	31079	24
Ramos-Copenhaver	Pat	not provided	N/A	Web-based Comments	50362, 51602	34
Ramp	Rudy	not provided	N/A	Web-based Comments	27816	24
Ramsay	Richard	not provided	N/A	Web-based Comments	27030	24
Ramsay	Scott	not provided	N/A	Web-based Comments	28491	24
Ramsay Weit	RM	not provided	N/A	Web-based Comments	27165	24
Ramsden	Barbara	not provided	N/A	Web-based Comments	8760	24
Ramsey	Anthony	not provided	N/A	Web-based Comments	8344	24
Ramsey	Brian	not provided	N/A	Web-based Comments	9502	24
Ramsey	Corinne	not provided	N/A	Web-based Comments	11378	24
Ramsey	Cynthia	not provided	N/A	Web-based Comments	11545	24
Ramsey	Elizabeth	not provided	N/A	Web-based comments	57416	35
Ramsey	Justin	not provided	N/A	Web-based Comments	56006	34
ramsey	karen	not provided	N/A	Web-based Comments	19201	24
Ramsey	Kerry	not provided	N/A	Web-based Comments	20072	24
Ramsey	Lezlie	not provided	N/A	Web-based Comments	21135	24
Ramsey	Megan	not provided	N/A	Web-based Comments	58530, 58531	34
Ramsey	Walter	not provided	N/A	Web-based comments	57406	35
Ramunno	Maureen	not provided	N/A	Web-based Comments	54866	34
Rancatti	Jan	not provided	N/A	Web-based Comments	50253	34
Rancatti	Jan	not provided	N/A	Web-based Comments	16421	24
Rance	Julie	not provided	N/A	Web-based comments	57311	35
rancourt	shannon	not provided	N/A	Web-based Comments	28596	24
Rand	Sherri	not provided	N/A	Web-based Comments	28869	24
randall	ashley	not provided	N/A	Web-based Comments	8494	24
Randall	Brianne	not provided	N/A	Web-based Comments	9534	24
Randall	David	not provided	N/A	Web-based Comments	44914, 44915	34
Randall	David	not provided	N/A	Web-based Comments	12116	24
Randall	Ged	ged_r@yahoo.com	N/A	Web-based comments	2193	N/A
Randall	Jane	not provided	N/A	Web-based Comments	45552	34

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Randall	Kirsten	not provided	N/A	Web-based Comments	20279	24
Randall	Laura	dr.laurab@gmail.com	N/A	Web-based comments	1406	1
Randall	Stefanie	not provided	N/A	Web-based Comments	29174	24
Randall	Stephanie	not provided	N/A	Web-based Comments	29240	24
Randall	Victoria	not provided	N/A	Web-based Comments	31214	24
Randazzo	Patricia	not provided	N/A	Web-based Comments	25829	24
Randgaard	Diane	not provided	N/A	Web-based Comments	12893	24
Randle	Kathe	not provided	N/A	Web-based Comments	19427	24
Randles	Emily	not provided	N/A	Web-based Comments	14034	24
Randolph	Anne	not provided	N/A	Web-based Comments	50898	34
Randolph	Anne	not provided	N/A	Web-based Comments	8234	24
Randolph	Dan	not provided	N/A	Web-based Comments	11674	24
Randolph	Doug	not provided	N/A	Web-based Comments	13308	24
Randolph	Jean	not provided	N/A	Web-based Comments	16877	24
Randolph	John	not provided	N/A	Web-based Comments	18151	24
Randolph	Leigh	not provided	N/A	Web-based Comments	20966	24
Randolph	Taylor	not provided	N/A	Web-based Comments	30235	24
Randolph	Tracy	not provided	N/A	Web-based Comments	30878	24
Randolph	Zachary	not provided	N/A	Web-based Comments	31715	24
Randolph-Frye	Mary	not provided	N/A	Web-based Comments	50921	34
Rane	Dawn	not provided	N/A	Web-based Comments	55750	34
Ranestal	Silvia	not provided	N/A	Web-based Comments	29012	24
Raney	Gary	not provided	N/A	Web-based Comments	14791	24
Raney	Scott	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4280	N/A
Rangel	Giselle	not provided	N/A	Web-based Comments	15098	24
Rangel	Louise	not provided	N/A	Web-based Comments	55648	34
Rangoni Machiavelli	Niccola	not provided	N/A	Web-based Comments	25158	24
ranieri	richard	not provided	N/A	Web-based Comments	51804, 51806, 51807	34
Ranieri	Richard	not provided	N/A	Web-based Comments	51805	34
ranieri	richard	not provided	N/A	Web-based Comments	27031	24
Raniolo	Traci	not provided	N/A	Web-based Comments	30853	24
Ranjan	Annie	not provided	N/A	Web-based Comments	8307	24
Ranjan	Mayuri	not provided	N/A	Web-based Comments	23766	24
Ranker	Natalie	not provided	N/A	Web-based Comments	49760	34
Rankin	Holly	not provided	N/A	Web-based Comments	15771	24
Rankin	James	not provided	N/A	Web-based Comments	44441	34
Rankin	Sue	not provided	N/A	Web-based Comments	29546	24
Ransdell	Brent	not provided	N/A	Web-based Comments	9441	24
Ransford	Erica	not provided	N/A	Web-based Comments	14166	24
Ransier	Katherine	not provided	N/A	Web-based Comments	19474	24
Ransier	Kathy	not provided	N/A	Web-based Comments	45094	34
Ransom	Dan	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4230	N/A
Ransom	Fran	not provided	N/A	Web-based Comments	56074	34
Ranzi	Erika	not provided	N/A	Web-based Comments	14202	24
Rao	Mary	not provided	N/A	Web-based Comments	23391	24
Rape	Glenn	not provided	N/A	Web-based Comments	51275	34
Raper	Connie	not provided	N/A	Web-based Comments	11319	24
Raper	Traci	not provided	N/A	Web-based Comments	54762	34
Raper	Traci	not provided	N/A	Web-based Comments	30854	24
Rapp	Lauren	not provided	N/A	Web-based Comments	50205	34
Rapp	Virginia	not provided	N/A	Web-based Comments	31299	24
Rappe	Lenny	not provided	N/A	Web-based Comments	20986	24
Rappe	Leonard W.	not provided	N/A	Web-based Comments	54472	34
Rapplean	Tiffany	not provided	N/A	Web-based Comments	46311, 46312	34
Rapplean	Tiffany	not provided	N/A	Web-based Comments	30590	24
Rappolt	George	not provided	N/A	Web-based Comments	14911	24
Rapport	Michael	not provided	N/A	Web-based comments	57279	35
Rarey	Tom	not provided	N/A	Web-based Comments	53813, 53814	34
Ras	Dennis	not provided	N/A	Web-based Comments	52812	34
raschi	mitje	not provided	N/A	Web-based Comments	24576	24
Rascon	Thomas	not provided	N/A	Web-based Comments	47660	34
Rashea	Jordan	j.rashea@outlook.com	N/A	Web-based comments	31794	1
Rashid	Zakia	zakia.hijinx@gmail.com	N/A	Web-based comments	3827	1
Rashidi	Lara	not provided	N/A	Web-based Comments	20556	24
Rasinski	Deborah	not provided	N/A	Web-based Comments	12459	24
Rasker	Gerda	not provided	N/A	Web-based Comments	14983	24
Raskin	Dorri	not provided	N/A	Web-based Comments	47248	34
Raskin	Dorri	not provided	N/A	Web-based Comments	13284	24
Rasmussen	Chris	not provided	N/A	Web-based Comments	10776	24
Rasmussen	Donna	not provided	N/A	Web-based Comments	13174	24

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Rasmussen	Glenn	not provided	N/A	Web-based comments	3683	N/A
Rasmussen	Ivonne Ortiz	not provided	N/A	Web-based Comments	53096	34
rasmussen	m	not provided	N/A	Web-based Comments	22186	24
Rasmussen	Margaret	not provided	N/A	Web-based Comments	46297, 46298	34
Rasmussen	Matthew	not provided	N/A	Web-based Comments	23662	24
Rasmussen	Nancy	not provided	N/A	Web-based Comments	45995	34
Rasmussen	Radar	not provided	N/A	Web-based Comments	26566	24
Rasmussen	Zach	not provided	N/A	Web-based Comments	31709	24
Raspa	Doris	not provided	N/A	Web-based Comments	13236	24
Raspun	Laura	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4646	N/A
Rastetter	William	not provided	N/A	Web-based Comments	31584	24
Rasussen	Joan	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32440	N/A
Ratcliff	Kathy	not provided	N/A	Web-based Comments	19744	24
Ratcliff	Norma	not provided	N/A	Web-based Comments	25389	24
Ratcliff	Philip	not provided	N/A	Web-based Comments	52279, 52280	34
Ratcliffe	Ellen	not provided	N/A	Web-based Comments	13943	24
Rath	Kaitlyn	not provided	N/A	Web-based comments	57544	35
Rathbone	Karen	not provided	N/A	Web-based Comments	19202	24
Rathbone	Lora	ldrathbone@outlook.com	N/A	Web-based comments	2532	3
Rathbun	Kirk	k2rathbun@gmail.com	N/A	Web-based comments	2355	N/A
Rathmann	Patricia	not provided	N/A	Web-based Comments	58048	16
Ratkovic	Nicole	not provided	N/A	Web-based Comments	25251	24
Ratkovsky	Greg	not provided	N/A	Web-based Comments	15247	24
Ratliff	Kelli	not provided	N/A	Web-based Comments	19902	24
Ratliff	Rebecca	not provided	N/A	Web-based Comments	26763	24
Ratna	Devi	not provided	N/A	Web-based Comments	12737	24
Ratnam	Premila	not provided	N/A	Web-based Comments	26436	24
Ratner	Ronald	not provided	N/A	Web-based Comments	27663	24
Rattigan	Chris	not provided	N/A	Web-based Comments	45372	34
Rattigan	Chris	not provided	N/A	Web-based Comments	10777	24
Rattman	Joseph	not provided	N/A	Web-based Comments	18388	24
Ratzlaf	Eugene	not provided	N/A	Web-based Comments	14297	24
Ratzlaff	David	treehugratz@yahoo.com	N/A	Web-based comments	31936	N/A
Rau	Melinda	not provided	N/A	Web-based Comments	23867	24
Rauch	Bill	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32520	N/A
Raught	Lisle	not provided	N/A	Web-based Comments	21672	24
Rauh	Robert	not provided	N/A	Web-based Comments	52544	34
Rauh	Robert	not provided	N/A	Web-based Comments	27366	24
Rauhut	Amy	not provided	N/A	Web-based Comments	48676	34
Rauhut	Amy	not provided	N/A	Web-based Comments	7662	24
Raum	Silvia	not provided	N/A	Web-based Comments	29013	24
Raunch	Bill	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	56659	N/A
Raup	Bruce	not provided	N/A	Web-based Comments	9624	24
Rautine	Susan	not provided	N/A	Web-based Comments	29810	24
Rautus	Toni	not provided	N/A	Web-based Comments	30800	24
Rauworth	Steve	not provided	N/A	Web-based Comments	45007, 45008	34
Rava	Lance	not provided	N/A	Web-based Comments	49379	34
Ravenscroft	Rose	not provided	N/A	Web-based Comments	27731	24
Rawady	Ed	not provided	N/A	Web-based Comments	13453	24
Rawling	Sonia	not provided	N/A	Web-based comments	57626	35
Rawling	Sonia	not provided	N/A	Web-based Comments	49630	34
Rawlings	Devon Ann	not provided	N/A	Web-based comments	56720	35
Rawlings	Linda	not provided	N/A	Web-based Comments	48757	34
Rawlings	Linda	not provided	N/A	Web-based Comments	21394	24
Rawlings	Maureen	not provided	N/A	Web-based Comments	46046	34
Ray	Bertha	not provided	N/A	Web-based Comments	9005	24
Ray	Casey	not provided	N/A	Web-based Comments	10228	24
Ray	Clifford	not provided	N/A	Web-based Comments	53800	34
Ray	Karyn	not provided	N/A	Web-based Comments	19338	24
ray	kristy	not provided	N/A	Web-based Comments	20425	24
Ray	Laura	not provided	N/A	Web-based Comments	47385, 47386	34
Ray	Laura	not provided	N/A	Web-based Comments	20690	24
Ray	Melanie	not provided	N/A	Web-based Comments	23844	24
Ray	Raz	not provided	N/A	Web-based Comments	26698	24
Ray	Rick	not provided	N/A	Web-based Comments	27100	24
Ray	Sherry	not provided	N/A	Web-based Comments	28901	24
Ray	Shylah	shyrae@hotmail.com	N/A	Web-based comments	6713	N/A
Ray	Thomas	not provided	N/A	Web-based Comments	47018, 47019	34
Ray	Thomas	not provided	N/A	Web-based Comments	30535	24
Ray	Tom And Janice	not provided	N/A	Web-based Comments	30783	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Ray	William	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32364	13
Rayburn U.S. Veteran 1963-1967	Bob	not provided	N/A	Web-based Comments	9250	24
Raymer	Sarah	not provided	N/A	Web-based Comments	28391	24
Raymond	Catherine	not provided	N/A	Web-based Comments	55448	34
Raymond	Catherine	not provided	N/A	Web-based Comments	10316	24
Raymond	George	not provided	N/A	Web-based Comments	14912	24
raymond	georges	not provided	N/A	Web-based Comments	46974, 50705	34
Raymond	Gregg	not provided	N/A	Web-based Comments	15264	24
Raymond	Sonja	not provided	N/A	Web-based Comments	29075	24
Raymond	Timothy	not provided	N/A	Web-based Comments	30658	24
Raymond	Wendy	not provided	N/A	Web-based Comments	50930	34
Rayson	Dilys	raysond@gmail.com	N/A	Web-based comments	2875	N/A
Razo	Joseph	not provided	N/A	Web-based Comments	52968	34
Razooly	Claudia	not provided	N/A	Web-based Comments	56453	34
Rea	Judy	judyrea1939@gmail.com	N/A	Web-based comments	2724	N/A
Rea	Laura	not provided	N/A	Web-based Comments	20691, 20692	24
Rea	Linda	not provided	N/A	Web-based Comments	47644	34
Reaber	Doug	dreaber@comcast.net	N/A	Web-based comments	2929	N/A
Read	Anne-Marie	not provided	N/A	Web-based Comments	55544	34
Read	Anne-Marie	not provided	N/A	Web-based Comments	8272	24
Read	Dean	not provided	N/A	Web-based Comments	12269	24
read	dominique	not provided	N/A	Web-based Comments	13009	24
Read	Donna	not provided	N/A	Web-based Comments	13175	24
Read	Gina	not provided	N/A	Web-based Comments	15065	24
Read	Graham	not provided	N/A	Web-based Comments	15215	24
Read	Keira	not provided	N/A	Web-based comments	56871	35
Read	Lisa	not provided	N/A	Web-based Comments	21620	24
Read	Nathan	not provided	N/A	Web-based Comments	25102	24
readance	lisa	not provided	N/A	Web-based Comments	21621	24
Reade	Deborah	not provided	N/A	Web-based Comments	12460	24
Reader	Mel	not provided	N/A	Web-based Comments	23829	24
Reagan	Bobby	not provided	N/A	Web-based Comments	9269	24
Reagan	Carolee	not provided	N/A	Web-based Comments	45143	34
Reagan	Pam	not provided	N/A	Web-based Comments	25506	24
Reagan	Peg	not provided	N/A	Web-based Comments	26142	24
Reager	Lisa	not provided	N/A	Web-based Comments	21622	24
Ream	Ahren	not provided	N/A	Web-based Comments	7125	24
Ream	Catherine	not provided	N/A	Web-based Comments	10317	24
Ream	Sara	not provided	N/A	Web-based Comments	51061	34
Ream	Sara	not provided	N/A	Web-based Comments	28312	24
Reamer	Janice	not provided	N/A	Web-based Comments	16693	24
Reames	Cheryl	not provided	N/A	Web-based Comments	10669	24
Reames	Kelly	not provided	N/A	Web-based Comments	19944	24
REARDON	JANET	not provided	N/A	Web-based Comments	16637	24
Reardon	Michael	not provided	N/A	Web-based Comments	24200	24
Reaume	Wave	not provided	N/A	Web-based Comments	45846	34
Reaves	Gerri	not provided	N/A	Web-based Comments	50746, 54097	34
Reaves	Lee	leereaves@hotmail.com	N/A	Web-based comments	3090	8
Reba	Bonnie	not provided	N/A	Web-based Comments	9318	24
Reback	Mark	not provided	N/A	Web-based Comments	47981, 47982, 47983	34
Reback	Mark	not provided	N/A	Web-based Comments	22976	24
Rebbin	Dianne	not provided	N/A	Web-based Comments	12946	24
Reber	Mary	not provided	N/A	Web-based Comments	52434	34
Reber	Patricia	not provided	N/A	Web-based comments	57574	35
Reber	Sandy	not provided	N/A	Web-based Comments	28259	24
Rebolo	Stephanie	not provided	N/A	Web-based Comments	29241	24
Rebson	Daniel	not provided	N/A	Web-based Comments	46667	34
Recchia	Michael	not provided	N/A	Web-based Comments	24201	24
Recher	Karen	dandyacre@gmail.com	N/A	Web-based comments	6179	N/A
RECKER	RACHEL	rachelrecker@gmail.com	N/A	Web-based comments	145	N/A
Redden	Denise	not provided	N/A	Web-based Comments	44922, 44923	34
Redden	Elizabeth	not provided	N/A	Web-based Comments	13830	24
Reddie	Lisa	not provided	N/A	Web-based comments	56965	35
Redding	Linda	not provided	N/A	Web-based Comments	21395	24
Redding	Robert	not provided	N/A	Web-based Comments	27367	24
Redding	Vic	vicredding@sbcglobal.net	N/A	Web-based comments	5473	N/A
Reddoch	Barbara	not provided	N/A	Web-based Comments	49720	34
Redenbarger	Jan	not provided	N/A	Web-based Comments	16422	24
Redfern	David	not provided	N/A	Web-based Comments	12117	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Redford	Thom	not provided	N/A	Web-based Comments	30466	24
Redhead	Beverly L.	not provided	N/A	Web-based comments	57565	35
Redhead	David	not provided	N/A	Web-based comments	57634	35
Redish	Ellen	not provided	N/A	Web-based Comments	49573	34
Redish	Maryellen	not provided	N/A	Web-based Comments	23581	24
Rediske	Mardell	not provided	N/A	Web-based Comments	22411	24
Redlein	Kim	not provided	N/A	Web-based comments	2538	N/A
Redman	Brad	not provided	N/A	Web-based Comments	9344	24
REDMAN	DD	not provided	N/A	Web-based Comments	12258	24
REDMAN	DIA	not provided	N/A	Web-based Comments	12746	24
Redman	Donna	not provided	N/A	Web-based Comments	13176	24
Redman	Richard	not provided	N/A	Web-based Comments	27032	24
Redman	Sandi	not provided	N/A	Web-based Comments	51231, 51232	34
Redman-Smith	Joanna	not provided	N/A	Web-based Comments	17792	24
Redmon	Lorri	not provided	N/A	Web-based Comments	21852	24
Redmond	Penny	not provided	N/A	Web-based Comments	44562	34
Redoutey	Colleen	not provided	N/A	Web-based Comments	11275	24
Redoutey	Karolyn	not provided	N/A	Web-based Comments	19329	24
redwood	colin	not provided	N/A	Web-based Comments	11255	24
Reece	Darien	not provided	N/A	Web-based Comments	11864	24
Reece	David	not provided	N/A	Web-based Comments	12118	24
Reece	Elizabeth	not provided	N/A	Web-based Comments	13831	24
Reed	Alex	not provided	N/A	Web-based comments	5863	N/A
Reed	Ann	not provided	N/A	Web-based Comments	53890	34
Reed	Anna	not provided	N/A	Web-based Comments	48658	34
Reed	Brandi	not provided	N/A	Web-based comments	3358	N/A
Reed	Carol	not provided	N/A	Web-based comments	57341	35
Reed	D	PNVoices@att.net	N/A	Web-based comments	6583	N/A
Reed	Dallas	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	5567	N/A
Reed	Frederick	not provided	N/A	Web-based Comments	14597	24
Reed	Gail	not provided	N/A	Web-based Comments	14707	24
Reed	Gillen	not provided	N/A	Web-based Comments	15034	24
Reed	Jacki	not provided	N/A	Web-based Comments	16052	24
Reed	Jessica	not provided	N/A	Web-based Comments	17456	24
Reed	John	not provided	N/A	Web-based comments	56909	35
Reed	Laura	not provided	N/A	Web-based comments	6408	N/A
Reed	Marney	not provided	N/A	Web-based Comments	49234	34
Reed	Marney	not provided	N/A	Web-based Comments	23056	24
Reed	Mary	not provided	N/A	Web-based Comments	23392	24
Reed	MaryEllen	not provided	N/A	Web-based Comments	23582	24
Reed	Mi [unreadable]	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58350	N/A
Reed	Michele	not provided	N/A	Web-based Comments	24303	24
Reed	Patricia	not provided	N/A	Web-based comments	57630	35
Reed	Rachel	not provided	N/A	Web-based comments	2645	N/A
Reed	Robert	not provided	N/A	Web-based Comments	27368	24
Reed	Ronald	not provided	N/A	Web-based Comments	44777	34
Reed	Ronald	not provided	N/A	Web-based Comments	27664	24
Reed	Steve	not provided	N/A	Web-based Comments	29395	24
Reed	Susan	not provided	N/A	Web-based Comments	29811	24
Reed	Taylor	not provided	N/A	Web-based Comments	49970, 49971	34
Reed	Thomas	not provided	N/A	Web-based Comments	30536	24
Reed	William	not provided	N/A	Web-based Comments	31585	24
Reed	Wrenn	not provided	N/A	Web-based comments	56983	35
Reed	Wrenn	not provided	N/A	Web-based Comments	31641	24
Reeder	James	not provided	N/A	Web-based Comments	16288	24
Reeder	Patty	not provided	N/A	Web-based comments	57494	35
Reeder	Shelley	not provided	N/A	Web-based Comments	28839	24
Reeder	Tabitha	treeder@portofkalama.com	N/A	Web-based comments	6647	N/A
Reeder	Victoria	not provided	N/A	Web-based Comments	49306	34
Reed-Savory	Debbi	not provided	N/A	Web-based Comments	12304	24
Reedy	Ben	not provided	N/A	Web-based comments	2059	N/A
Reek	Margaret	not provided	N/A	Web-based Comments	22492	24
Reel	Brooke	not provided	N/A	Web-based Comments	9585	24
Reel	Joseph	not provided	N/A	Web-based Comments	49343, 49344	34
Reens	Judy	not provided	N/A	Web-based Comments	18710	24
Reents	Dean	deanreents@gmail.com	N/A	Web-based comments	3640	N/A
Rees	Bob	brees@pacifier.com	N/A	Web-based comments	6818	N/A
Rees	Bob	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4254, 4672, 4731	N/A
Rees	L.P.	not provided	N/A	Web-based Comments	20505	24
rees	michael	not provided	N/A	Web-based Comments	24202	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Rees	Ted	not provided	N/A	Web-based Comments	30247	24
Rees`	James	not provided	N/A	Web-based Comments	16289	24
Reese	Adam	not provided	N/A	Web-based Comments	7055	24
Reese	David	not provided	N/A	Web-based Comments	12119	24
Reese	Drew	not provided	N/A	Web-based Comments	13377	24
Reese	Gary	not provided	N/A	Web-based Comments	14792	24
Reese	Louise	not provided	N/A	Web-based Comments	21899	24
Reese	Michele	not provided	N/A	Web-based Comments	55161	34
Reese	Michele	not provided	N/A	Web-based Comments	24304	24
Reese	Pat	not provided	N/A	Web-based Comments	25671	24
Reese	Sarah	not provided	N/A	Web-based Comments	28392	24
Reese	To y Ann	not provided	N/A	Web-based Comments	49626	34
Reese	Toby Ann	not provided	N/A	Web-based Comments	44868	34
Reese III	Cadwalader	not provided	N/A	Web-based Comments	9706	24
Reese, Jr.	Homer	not provided	N/A	Web-based Comments	15778	24
Reeve	Teresa	not provided	N/A	Web-based Comments	30295	24
Reeve	Teress	not provided	N/A	Web-based Comments	30307	24
Reeves	Don	not provided	N/A	Web-based Comments	13034	24
Reeves	Lenore	not provided	N/A	Web-based Comments	51226, 51227	34
Reeves	Lenore	not provided	N/A	Web-based Comments	20989	24
Reeves	Leora	not provided	N/A	Web-based Comments	21022	24
Reeves	Lisa	not provided	N/A	Web-based Comments	21623	24
Reeves	Peggy	not provided	N/A	Web-based Comments	26175	24
Refes	N	not provided	N/A	Web-based Comments	24736	24
Refsnider	Ronald	not provided	N/A	Web-based Comments	27665	24
Regalado	Wilma	not provided	N/A	Web-based Comments	44497, 44498	34
Regan	Paul	not provided	N/A	Web-based Comments	26036	24
Regen	Avery	not provided	N/A	Web-based Comments	8549	24
Regen	Hamilton	not provided	N/A	Web-based Comments	15389	24
Regenhard	A&C	not provided	N/A	Web-based Comments	6981	24
Rego	James	not provided	N/A	Web-based Comments	16290	24
Rego	Maria	not provided	N/A	Web-based Comments	22624	24
Regoli	Jennifer	not provided	N/A	Web-based Comments	17248	24
regush	lisa	not provided	N/A	Web-based Comments	21624	24
regush	lisa	not provided	N/A	Web-based Comments	21625	24
Rehberg	Cindy	not provided	N/A	Web-based Comments	11094	24
rehder	melissa	not provided	N/A	Web-based Comments	50223	34
Rehder	Melissa	not provided	N/A	Web-based Comments	23918	24
Rehl	Chris	not provided	N/A	Web-based Comments	44342	34
Rehmel	D.	not provided	N/A	Web-based Comments	52470	34
Rehmer	moira	not provided	N/A	Web-based Comments	24590	24
Rehn	Debra	not provided	N/A	Web-based Comments	58181, 47028, 47029	16, 34
Rehnberg	Eva	not provided	N/A	Web-based Comments	14316	24
Rehner	Diane	not provided	N/A	Web-based Comments	12894	24
Reibman	Philip	not provided	N/A	Web-based Comments	26351	24
Reibscheid	M	not provided	N/A	Web-based Comments	22187	24
Reich	Dee	not provided	N/A	Web-based Comments	12581	24
Reich	Joy	not provided	N/A	Web-based Comments	18466	24
Reichard	Deborah	not provided	N/A	Web-based Comments	12461	24
Reichard	Ulrich	ureich@siu.edu	N/A	Web-based comments	1496	1
Reichart	Yahm	not provided	N/A	Web-based Comments	31652	24
Reichel	Tom	not provided	N/A	Web-based Comments	30763	24
Reichley	Nancy	not provided	N/A	Web-based Comments	24964	24
Reichow	Debbie	not provided	N/A	Web-based Comments	47620	34
Reichter	Susan	not provided	N/A	Web-based Comments	29812	24
Reid	Brian	not provided	N/A	Web-based Comments	58223	16
Reid	Brian	reidbw50@frontier.com	N/A	Web-based comments	1652	3
Reid	Diana	not provided	N/A	Web-based Comments	12789	24
Reid	Ed	sweeted@smgazette.com	N/A	Web-based comments	3033	N/A
Reid	Jodi	not provided	N/A	Web-based Comments	17849	24
Reid	John	not provided	N/A	Web-based Comments	48064	34
Reid	Karen	not provided	N/A	Web-based Comments	55224	34
Reid	Kelli	not provided	N/A	Web-based Comments	58616	34
Reid	Maggie	not provided	N/A	Web-based Comments	22273	24
Reid	Matthew	not provided	N/A	Web-based Comments	50587	34
Reid	Matthew	not provided	N/A	Web-based Comments	23663	24
Reid	Patrick	not provided	N/A	Web-based Comments	25922	24
Reid	Peter	not provided	N/A	Web-based Comments	26280	24
Reider	Shirley	not provided	N/A	Web-based Comments	28961	24
Reidinger	Kurt	not provided	N/A	Web-based comments	5884	N/A

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Reif	Sue	not provided	N/A	Web-based Comments	29547	24
Reif	Thomas	not provided	N/A	Web-based Comments	30537	24
Reiff	Dara	not provided	N/A	Web-based Comments	11849	24
Reiff	Ivan Reiff	not provided	N/A	Web-based comments	57467	35
Reifferscheidt	Dirk	not provided	N/A	Web-based Comments	12969	24
reifke	kathleen	not provided	N/A	Web-based Comments	19592	24
Reiher	Laura	not provided	N/A	Web-based Comments	20693	24
Reilly	Ann	not provided	N/A	Web-based Comments	8076	24
Reilly	Jeanie	not provided	N/A	Web-based comments	56991	35
Reilly	Joe	not provided	N/A	Web-based Comments	49989, 49990	34
Reilly	Judith	not provided	N/A	Web-based Comments	56180	34
Reilly	Kris	not provided	N/A	Web-based Comments	20326	24
Reilly	Linda	not provided	N/A	Web-based Comments	21396	24
Reilly	Peter	not provided	N/A	Web-based Comments	26281	24
Reilly	Roberta	robertareilly@aol.com	N/A	Web-based comments	6308	1
Reimer	Jennifer	not provided	N/A	Web-based Comments	51540	34
Reimers	Rabbi Paula	not provided	N/A	Web-based Comments	50354	34
Reimpell	Marta	not provided	N/A	Web-based Comments	23087	24
Rein	Cristy	RZPublish@aol.com	N/A	Web-based comments	3039	N/A
Reinartz	Ellen	not provided	N/A	Web-based Comments	13944	24
Reinbold	Thomas	tom@miappraisals.com	N/A	Web-based comments	5217	N/A
Reinecke	Sonja	not provided	N/A	Web-based Comments	29076	24
Reinertsen	James	not provided	N/A	Web-based comments	3312	N/A
Reinfried	Kay	not provided	N/A	Web-based Comments	49402	34
Reinfried	Kay	not provided	N/A	Web-based Comments	19832	24
Reingold	Peter	not provided	N/A	Web-based Comments	56513	34
Reingruber	Gregory	not provided	N/A	Web-based Comments	15291	24
Reinhardt	Jenifer	not provided	N/A	Web-based Comments	17129	24
Reinhardt	Kathy	not provided	N/A	Web-based Comments	19745	24
Reinhardt	Max	not provided	N/A	Web-based Comments	47918	34
Reinhart	Gabriele	not provided	N/A	Web-based Comments	44433	34
Reinhart	Robin	not provided	N/A	Web-based Comments	45864	34
Reinhart	Robin	not provided	N/A	Web-based Comments	27512	24
Reinholdt	Sally	not provided	N/A	Web-based Comments	28025	24
Reiniger	Cherry	not provided	N/A	Web-based Comments	10612	24
Reininger	Jacqueline	not provided	N/A	Web-based Comments	16128	24
Reinisch	Danielle	not provided	N/A	Web-based comments	57019	35
Reinish	Jennie	not provided	N/A	Web-based Comments	17146	24
Reinlander	Olivia	not provided	N/A	Web-based Comments	25437	24
Reinsel	Joann	not provided	N/A	Web-based Comments	17778	24
Rein-Weston	Annie	not provided	N/A	Web-based Comments	54751	34
Reis	Jenni	not provided	N/A	Web-based Comments	44593	34
Reis	Jenni	not provided	N/A	Web-based Comments	17143	24
Reis	Joan	not provided	N/A	Web-based Comments	17726	24
Reis	Jourdan	not provided	N/A	Web-based Comments	18449	24
Reisch	Charles	not provided	N/A	Web-based Comments	10527	24
Reisch	Elizabeth	not provided	N/A	Web-based Comments	13832	24
Reisch	Jesse	not provided	N/A	Web-based Comments	17400	24
Reisch	Sherry	not provided	N/A	Web-based Comments	49375	34
Reisch	Sherry	not provided	N/A	Web-based Comments	28902	24
Reischl	Andrew	not provided	N/A	Web-based Comments	7838	24
Reisenbichler	Kevin	not provided	N/A	Web-based Comments	20136	24
Reiser	Katharyn	not provided	N/A	Web-based Comments	50369	34
Reisert	Courtney	not provided	N/A	Web-based Comments	11405	24
Reisland	Melissa	not provided	N/A	Web-based Comments	23919	24
Reisman	Ande	not provided	N/A	Web-based Comments	7715	24
Reisner	Kaitlyn	not provided	N/A	Web-based Comments	19005	24
Reitan	Julia	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	5559	N/A
reiter	john	not provided	N/A	Web-based Comments	18152	24
reiter	lauren	not provided	N/A	Web-based Comments	20791	24
Reiter	Margaret	not provided	N/A	Web-based Comments	22493	24
Reitz	Sadie	not provided	N/A	Web-based comments	57617	35
Reizer	Eilene	not provided	N/A	Web-based Comments	13564	24
rejsek	gary	not provided	N/A	Web-based Comments	14793	24
Rekdal	Sheila	not provided	N/A	Web-based Comments	28802	24
Rekstad	Michelle	not provided	N/A	Web-based Comments	24386	24
Relethford	Russell	not provided	N/A	Web-based Comments	27842	24
Rem	Caut	not provided	N/A	Web-based Comments	10404	24
Rembold	Venice	not provided	N/A	Web-based Comments	55600, 55601, 55602	34
Rembold	Venice	not provided	N/A	Web-based Comments	31080	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Remick	Evan	not provided	N/A	Web-based comments	6672	1
Remilien	Sandra	not provided	N/A	Web-based Comments	53627, 53628	34
Remilien	Sandra	not provided	N/A	Web-based Comments	28201	24
Remillard	Annie	not provided	N/A	Web-based Comments	8308	24
Remington	Charles	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32284	N/A
Remington	Dezirah	dezirah.remington@gmail.com	N/A	Web-based comments	2389	N/A
Remington	Hugh	not provided	N/A	Web-based Comments	58257	16
Remington	Margaret	not provided	N/A	Web-based Comments	49201, 50947	34
Remmert	Ashlyn	not provided	N/A	Web-based Comments	8503	24
Remmich	Margaret	not provided	N/A	Web-based Comments	46899	34
Remmich	Marge	not provided	N/A	Web-based Comments	22534	24
Remy	Casey Jo	not provided	N/A	Web-based Comments	58069, 54611, 54612	16, 34
Remy	Magali	Magali.remy@gmail.com	N/A	Web-based comments	1508, 1665, 1666	1
Renaldi	Ronald	not provided	N/A	Web-based Comments	27666	24
renard	mary	not provided	N/A	Web-based Comments	23393	24
Renardson	Fay	not provided	N/A	Web-based Comments	14406	24
Renaud	Ludivine	ludivine.renaud@gmail.com	N/A	Web-based comments	662	N/A
Rendall	Beth	not provided	N/A	Web-based Comments	55631	34
rendall	Beth	not provided	N/A	Web-based Comments	9047	24
Render	JoAnn	not provided	N/A	Web-based Comments	17779	24
Rendic	Lisa	lisa.rendic@gmail.com	N/A	Web-based comments	6678	1
Rendic	Lisa	not provided	N/A	Web-based Comments	21626	24
Rendigs	Kim and Richard	not provided	N/A	Web-based Comments	51411	34
Rendulich	Ellen	not provided	N/A	Web-based Comments	53127	34
Renfrow	Matt	not provided	N/A	Web-based comments	2499	N/A
Renfrow	Michael	not provided	N/A	Web-based Comments	46518	34
Rengers	Edward	not provided	N/A	Web-based Comments	46770, 46771	34
Rengers	Edward	not provided	N/A	Web-based Comments	13511	24
Rengers	Lorraine	not provided	N/A	Web-based Comments	21846	24
Rengert	Lee	not provided	N/A	Web-based Comments	51998	34
Reniee	Esola	not provided	N/A	Web-based Comments	14263	24
Renna	Shanna	not provided	N/A	Web-based Comments	28575	24
Renner	Courtney	not provided	N/A	Web-based Comments	11406	24
Renner	Jeff	not provided	N/A	Web-based Comments	46463	34
Reno	Suzi	not provided	N/A	Web-based Comments	30038	24
Renouf	Johanna	not provided	N/A	Web-based Comments	17946	24
Rensch	Pm	not provided	N/A	Web-based Comments	52048	34
Renshaw	Susanne	not provided	N/A	Web-based Comments	54729	34
Renteria	Veronica	not provided	N/A	Web-based Comments	56301	34
Rentfrow	Linda	lrentfrow@msn.com	N/A	Web-based comments	3592	N/A
Rentfrow	Linda	not provided	N/A	Web-based Comments	46319	34
Renton	Kristen	not provided	N/A	Web-based Comments	53364	34
Renz	Sarah	not provided	N/A	Web-based Comments	45434	34
Renze	Charlie	not provided	N/A	Web-based Comments	10549	24
Renzelman	Gary	not provided	N/A	Web-based Comments	14794	24
Repole	Kathleen	not provided	N/A	Web-based Comments	19593	24
Repp	Dana	ddrepp77@gmail.com	N/A	Web-based comments	6326	N/A
Repp	S.	not provided	N/A	Web-based Comments	27961	24
Reppa	Douglas	not provided	N/A	Web-based Comments	13337	24
Reppert	Donna	not provided	N/A	Web-based Comments	13177	24
Reppucci	Louisa	not provided	N/A	Web-based Comments	21879	24
Reppucci	Madisyn	not provided	N/A	Web-based Comments	22254	24
Repsher	Donna	not provided	N/A	Web-based Comments	48222	34
Rerak	Sebastian	not provided	N/A	Web-based Comments	44427, 44428	34
Resca	Olivier	not provided	N/A	Web-based Comments	53013	34
Reschly	Tim	tjreschly@gmail.com	N/A	Web-based comments	5853	8
Resener	Glenda	not provided	N/A	Web-based Comments	46891	34
Resh	Brian	not provided	N/A	Web-based Comments	9503	24
Resley	Terri	not provided	N/A	Web-based Comments	30343	24
Reslock	Patti	not provided	N/A	Web-based Comments	25950	24
Resnick	Adam	not provided	N/A	Web-based Comments	7056	24
Resnick	Jonathan	not provided	N/A	Web-based Comments	18294	24
Resor	Pamela	not provided	N/A	Web-based Comments	25581	24
Ress	Denise	not provided	N/A	Web-based Comments	12657	24
Ressel	Katarina	not provided	N/A	Web-based Comments	19361	24
Ressmeyer	Georgia	not provided	N/A	Web-based Comments	14942	24
Ret	Dr. Robert and Ginny Bonometti - LTC USA	not provided	N/A	Web-based Comments	51795	34

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Reti	Stephanie	not provided	N/A	Web-based Comments	51967	34
Rettenmair	Anne	not provided	N/A	Web-based Comments	8235	24
Rettkowski	Gale	galer@inlandpower.com	N/A	Web-based comments	2488	7
Rettman	Sam	not provided	N/A	Web-based Comments	28066	24
Reukauf	Bonnie	not provided	N/A	Web-based Comments	54207	34
Reuscher	F. Carlene	not provided	N/A	Web-based Comments	14374	24
Reuter	Mary D	not provided	N/A	Web-based Comments	23515	24
Reuter	Zachary	not provided	N/A	Web-based Comments	31716	24
Reutzel	Barry	not provided	N/A	Web-based Comments	49773, 49774	34
REVERTE	Eulalie	eulalie.r@hotmail.com	N/A	Web-based comments	2187	1
Revett	Dawn	not provided	N/A	Web-based Comments	12243	24
Revord	Michael	not provided	N/A	Web-based Comments	24203	24
Rex	Angela	not provided	N/A	Web-based Comments	47023, 47024	34
Rex	Eli	not provided	N/A	Web-based Comments	51348	34
Rey Calvo	Vicor Lose	not provided	N/A	Web-based comments	56842	35
Reycraft	Anna	not provided	N/A	Web-based Comments	8149	24
Reyes	Jasmine	not provided	N/A	Web-based Comments	16770	24
Reyes	Jessah Mae	not provided	N/A	Web-based Comments	17382	24
Reyes	Jesse	not provided	N/A	Web-based Comments	17401	24
Reyes	Nyssana	not provided	N/A	Web-based Comments	25412	24
Reyes	Tori	not provided	N/A	Web-based comments	57367	35
Reyes	Xcarlet	xcarletr@gmail.com	N/A	Web-based comments	882	1
Reyes-Illg	Gwendolen	myschen@hotmail.com	N/A	Web-based comments	4055	17
Reyna	Patrick	not provided	N/A	Web-based Comments	49934	34
Reyna	Susan	not provided	N/A	Web-based Comments	29813	24
Reynier	Delphine	not provided	N/A	Web-based comments	57132	35
Reynolds	Alan	not provided	N/A	Web-based Comments	58254	16
Reynolds	Barbara	not provided	N/A	Web-based Comments	8761	24
Reynolds	Ben	not provided	N/A	Web-based Comments	8947	24
reynolds	bob	bicrungee@gmail.com	N/A	Web-based comments	5181	N/A
Reynolds	Brian	not provided	N/A	Web-based Comments	54743	34
Reynolds	Brian	not provided	N/A	Web-based Comments	9504	24
Reynolds	Carol	not provided	N/A	Web-based Comments	10009	24
Reynolds	Cathy	not provided	N/A	Web-based Comments	10388	24
Reynolds	Chris	not provided	N/A	Web-based Comments	47209	34
Reynolds	Dale	not provided	N/A	Web-based Comments	11630	24
Reynolds	Dan	djreynolds1945@yahoo.com	N/A	Web-based comments	2026	N/A
Reynolds	Delbert	dreynolds541@gmail.com	N/A	Web-based comments	6376	N/A
Reynolds	Galiena	galienac42@gmail.com	N/A	Web-based comments	2108	N/A
Reynolds	Grace	not provided	N/A	Web-based Comments	15201	24
Reynolds	James	not provided	N/A	Web-based Comments	16291	24
Reynolds	Jeff	not provided	N/A	Web-based Comments	17051	24
Reynolds	Ken	not provided	N/A	Web-based Comments	19988	24
Reynolds	Linda	not provided	N/A	Web-based Comments	21397	24
Reynolds	Lisa-May	not provided	N/A	Web-based Comments	45777	34
reynolds	lloyd	not provided	N/A	Web-based Comments	44778	34
reynolds	lloyd	not provided	N/A	Web-based Comments	21710	24
Reynolds	Lynn	not provided	N/A	Web-based Comments	22087	24
Reynolds	Megan	not provided	N/A	Web-based Comments	23801	24
Reynolds	Nancy	not provided	N/A	Web-based Comments	24965	24
Reynolds	Nancy L	not provided	N/A	Web-based Comments	25029	24
Reynolds	Patrice	not provided	N/A	Web-based Comments	25693	24
Reynolds	Patricia	not provided	N/A	Web-based Comments	25830	24
Reynolds	Rebecca	not provided	N/A	Web-based Comments	54158, 54159	34
Reynolds	Rebecca	not provided	N/A	Web-based Comments	26764	24
REYNOLDS	RICHARD	not provided	N/A	Web-based Comments	27033	24
Reynolds	Robert	not provided	N/A	Web-based Comments	27369	24
Reynolds	Ronda	not provided	N/A	Web-based Comments	47938, 47939	34
Reynolds	Ronda	not provided	N/A	Web-based Comments	27679	24
Reynolds	Roy	not provided	N/A	Web-based Comments	27810	24
Reynolds	Sarah	not provided	N/A	Web-based Comments	44386	34
Reynolds	Stephanie	not provided	N/A	Web-based Comments	44736	34
Reynolds	Susie	not provided	N/A	Web-based Comments	29965	24
Reynolds	Thomas	not provided	N/A	Web-based Comments	30538	24
Reynolds	Victoria	not provided	N/A	Web-based Comments	31215	24
Reynoso	Nadine	not provided	N/A	Web-based Comments	24768	24
Rezell	Laura	not provided	N/A	Web-based Comments	20694	24
Rezk	Brenda	not provided	N/A	Web-based Comments	53400	34
Reznicek	Eileen	not provided	N/A	Web-based Comments	48402	34
Reznicek	Eileen	not provided	N/A	Web-based Comments	13558	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Reznick	Dan	not provided	N/A	Web-based Comments	11675	24
Reznik	Mindy	not provided	N/A	Web-based Comments	24532	24
Rheder	Richard	not provided	N/A	Web-based Comments	27034	24
Rhee	Seul	not provided	N/A	Web-based Comments	28551	24
Rhein	Jennifer	not provided	N/A	Web-based Comments	51909	34
Rhein	Jennifer	not provided	N/A	Web-based Comments	17249	24
Rhein	Sandy	not provided	N/A	Web-based Comments	49069	34
Rhein	Sandy	not provided	N/A	Web-based Comments	28260	24
Rhoades	Falon	not provided	N/A	Web-based Comments	14389	24
RHOADES	MARTHA	not provided	N/A	Web-based Comments	45346	34
Rhoades	Martha	not provided	N/A	Web-based Comments	23122	24
Rhoads	Bonnie	not provided	N/A	Web-based Comments	9319	24
Rhoads	Jeni	not provided	N/A	Web-based comments	5067	1
Rhoads	Kirk	not provided	N/A	Web-based Comments	20271	24
Rhoda	Katherine	not provided	N/A	Web-based Comments	19475	24
Rhode	Christina	not provided	N/A	Web-based Comments	50953	34
Rhode	Christina	not provided	N/A	Web-based Comments	10874	24
Rhodes	Carolyn	not provided	N/A	Web-based Comments	49670	34
Rhodes	Janet	not provided	N/A	Web-based Comments	46468	34
Rhodes	Janet	not provided	N/A	Web-based Comments	16638	24
Rhodes	Louis	not provided	N/A	Web-based Comments	46704, 46705	34
Rhodes	Robert	not provided	N/A	Web-based Comments	27370	24
Rhodes	Sheryl	not provided	N/A	Web-based Comments	28925	24
Rhodes	Tim	not provided	N/A	Web-based Comments	30627	24
Rhum	Madeline	not provided	N/A	Web-based Comments	22244	24
Rhyne	Jennifer	not provided	N/A	Web-based Comments	17250	24
rhyne	sylvia	not provided	N/A	Web-based Comments	30072	24
Rials	Jennifer	not provided	N/A	Web-based Comments	17251	24
Riback	Leslie	not provided	N/A	Web-based Comments	21097	24
Ribarts	Gigi	not provided	N/A	Web-based Comments	15020	24
Ribblett	Allen	mezcla84@gmail.com	N/A	Web-based comments	1361	N/A
Ribeiro	Adriana	not provided	N/A	Web-based Comments	7090	24
Ribeiro	Ana Unreadable	not provided	N/A	Web-based Comments	7699	24
Ribowsky	Sasha	not provided	N/A	Web-based Comments	28439	24
Ricca	Bonnie	not provided	N/A	Web-based Comments	52747, 52748	34
Ricci	Jean M.	not provided	N/A	Web-based Comments	16901	24
Ricci	Joseph	not provided	N/A	Web-based Comments	18389	24
Ricci	Lynn	not provided	N/A	Web-based Comments	22088	24
Ricci	Vittorio	not provided	N/A	Web-based Comments	31310	24
Ricciardi	Anthony	not provided	N/A	Web-based Comments	8345	24
Ricciardi	Lori	not provided	N/A	Web-based Comments	44331	34
Ricciardi	Lori	not provided	N/A	Web-based Comments	21803	24
Riccid	Debra	not provided	N/A	Web-based Comments	12544	24
Ricciuti	Nikki	not provided	N/A	Web-based Comments	25288	24
Rice	Brittney	not provided	N/A	Web-based Comments	49098, 49099	34
Rice	Brittney	not provided	N/A	Web-based Comments	9575	24
Rice	Dennis	not provided	N/A	Web-based Comments	58132	16
Rice	Doug	not provided	N/A	Web-based Comments	58582	34
Rice	Dr & Mrs Greg	not provided	N/A	Web-based Comments	13353	24
Rice	Jima	not provided	N/A	Web-based Comments	17622	24
Rice	Julie	not provided	N/A	Web-based Comments	52070, 53330	34
Rice	Julie	not provided	N/A	Web-based Comments	18885	24
Rice	Kim	not provided	N/A	Web-based Comments	20200	24
Rice	Kimberly	goldhairties56@gmail.com	N/A	Web-based comments	1123	1
Rice	Kris	not provided	N/A	Web-based Comments	20327	24
Rice	Kyra	not provided	N/A	Web-based Comments	55105	34
Rice	Kyra	not provided	N/A	Web-based Comments	20468	24
Rice	Lauren	not provided	N/A	Web-based Comments	20792	24
Rice	Lisa	not provided	N/A	Web-based Comments	53802	34
Rice	Lisa	not provided	N/A	Web-based Comments	21627	24
Rice	Michelle	not provided	N/A	Web-based Comments	52492, 52568	34
Rice	Michelle E	not provided	N/A	Web-based Comments	24410	24
Rice	Nicole	not provided	N/A	Web-based Comments	25252	24
Rice	Richard	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	56691	N/A
Rice	Rose	not provided	N/A	Web-based Comments	27732	24
Rice	Sandra	not provided	N/A	Web-based Comments	28202	24
Rice	Virginia	not provided	N/A	Web-based Comments	54752	34
rice	wilson	not provided	N/A	Web-based comments	5261	N/A
rice-coughlan	virginia	not provided	N/A	Web-based Comments	31300	24
Ricewasser	Robert	not provided	N/A	Web-based Comments	52511	34

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Ricewasser	Robert	not provided	N/A	Web-based Comments	27371	24
Rich	Cynthia	not provided	N/A	Web-based Comments	11546	24
Rich	Gail	not provided	N/A	Web-based Comments	14708	24
Rich	Janelle	not provided	N/A	Web-based Comments	16558	24
Rich	Karen	not provided	N/A	Web-based Comments	19203	24
Rich	Laura	not provided	N/A	Web-based comments	57438	35
RICH	LILIA	not provided	N/A	Web-based Comments	21157	24
Rich	Margaret	not provided	N/A	Web-based Comments	22494	24
Rich	Robert	rdr@shavertransportation.com	N/A	Web-based comments	3864	N/A
Rich	Roberta	not provided	N/A	Web-based Comments	27447	24
Richard	Amandine	midane.ar@gmail.com	N/A	Web-based comments	542	1
Richard	Camille	not provided	N/A	Web-based Comments	9746	24
Richard	Cynthia	not provided	N/A	Web-based Comments	11547	24
Richard	Jack	not provided	N/A	Web-based Comments	16040	24
Richard	Laree	not provided	N/A	Web-based Comments	20559	24
Richard	Louis	not provided	N/A	Web-based Comments	21873	24
Richard	Marine	not provided	N/A	Web-based comments	1509	1
Richard	Nancy	not provided	N/A	Web-based Comments	24966	24
Richard	Robin	not provided	N/A	Web-based Comments	27513	24
RICHARD	STUART	srichard@colrip.com	N/A	Web-based comments	2309*	N/A
Richards	Alexandra	not provided	N/A	Web-based Comments	49426	34
Richards	Audrey	not provided	N/A	Web-based Comments	53776	34
Richards	Bill	not provided	N/A	Web-based Comments	9179	24
Richards	Caitlin	not provided	N/A	Web-based Comments	47342	34
Richards	Chris	not provided	N/A	Web-based Comments	10778	24
Richards	Claire	clairerichardsrn@gmail.com	N/A	Web-based comments	2087	1
Richards	David	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32454	13
Richards	Deborah	not provided	N/A	Web-based Comments	12462	24
richards	derrick	not provided	N/A	Web-based Comments	12727	24
Richards	Fiona	not provided	N/A	Web-based Comments	14436	24
Richards	Frank	not provided	N/A	Web-based Comments	50423, 52929	34
Richards	Georgia	not provided	N/A	Web-based Comments	14943	24
Richards	Irene	not provided	N/A	Web-based Comments	15910	24
Richards	Linda	not provided	N/A	Web-based Comments	21398	24
Richards	Linds	not provided	N/A	Web-based Comments	49732	34
Richards	Marcia M.	not provided	N/A	Web-based Comments	22390	24
Richards	Melinda	not provided	N/A	Web-based Comments	23868	24
Richards	Nancy	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32404	13
Richards	Pamela	not provided	N/A	Web-based Comments	25582	24
Richards	Patricia	not provided	N/A	Web-based Comments	25831	24
Richards	Peter	not provided	N/A	Web-based Comments	26282	24
Richards	Rebecca	not provided	N/A	Web-based Comments	26765	24
Richards	Ronald	not provided	N/A	Web-based comments	1591	1
Richards	Susan	not provided	N/A	Web-based Comments	29814	24
Richards	Tracy	not provided	N/A	Web-based Comments	46929, 46930	34
Richards	Tracy	not provided	N/A	Web-based Comments	30879	24
Richardson	Abigail	not provided	N/A	Web-based comments	4519	N/A
Richardson	Aleda	not provided	N/A	Web-based Comments	48689	34
richardson	allie	alliejrichardson@yahoo.com	N/A	Web-based comments	2180	N/A
Richardson	Annick	not provided	N/A	Web-based Comments	50008	34
Richardson	Annick	not provided	N/A	Web-based Comments	8293	24
Richardson	Ashley	not provided	N/A	Web-based comments	57698	35
Richardson	Caroline	not provided	N/A	Web-based Comments	44715	34
Richardson	Dean	not provided	N/A	Web-based Comments	12270	24
Richardson	Erin	not provided	N/A	Web-based Comments	14232	24
Richardson	Georgetta	not provided	N/A	Web-based Comments	53850	34
Richardson	James	not provided	N/A	Web-based Comments	16292	24
Richardson	Jan	not provided	N/A	Web-based comments	57731	35
Richardson	Jeffrey	not provided	N/A	Web-based Comments	52709	34
Richardson	Kathryn	not provided	N/A	Web-based Comments	19658	24
Richardson	Lea	not provided	N/A	Web-based Comments	54053	34
Richardson	Leslie	not provided	N/A	Web-based Comments	21098	24
Richardson	Lynn	not provided	N/A	Web-based Comments	22089	24
Richardson	Lynn	not provided	N/A	Web-based Comments	22090	24
Richardson	Mary Alice	not provided	N/A	Web-based Comments	23484	24
Richardson	Rachelle	not provided	N/A	Web-based Comments	50628	34
Richardson	Ralph	not provided	N/A	Web-based Comments	55036	34
Richardson	Roberta	not provided	N/A	Web-based Comments	50402	34
Richardson	Robin	not provided	N/A	Web-based Comments	27514	24
Richardson	Rodger	not provided	N/A	Web-based Comments	27571	24

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Richardson	Scott	not provided	N/A	Web-based Comments	28492	24
Richardson	Stacy	slmw008@hotmail.com	N/A	Web-based comments	181	N/A
Richardson	Sue	not provided	N/A	Web-based Comments	29548	24
Richardson	Suzanne	not provided	N/A	Web-based Comments	30016	24
Richardson	Teri	not provided	N/A	Web-based Comments	30313	24
Richert	Barb	not provided	N/A	Web-based Comments	8606	24
Richert	Chris	not provided	N/A	Web-based Comments	10779	24
Richey	Jane	not provided	N/A	Web-based Comments	16530	24
Richey	Judy	not provided	N/A	Web-based Comments	18711	24
Richey	Pam	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58340	N/A
Richey	Sarah	not provided	N/A	Web-based Comments	28393	24
Richey	Sharon	not provided	N/A	Web-based Comments	28704	24
Richie	Lauren	not provided	N/A	Web-based Comments	47921, 47922	34
Richins	Shelby	not provided	N/A	Web-based Comments	55727	34
Richman	Alice	not provided	N/A	Web-based Comments	7362	24
Richman	Bruce	not provided	N/A	Web-based Comments	46983, 46984	34
Richman	Bruce	not provided	N/A	Web-based Comments	9625	24
Richman	Martin	not provided	N/A	Web-based Comments	23172	24
richmond	ali	not provided	N/A	Web-based Comments	7327	24
Richmond	Chey	not provided	N/A	Web-based Comments	10691	24
Richmond	David	davidrhome1@gmail.com	N/A	Web-based comments	5773	N/A
richmond	lonna	not provided	N/A	Web-based Comments	21741	24
Richmond	Matt	not provided	N/A	Web-based Comments	23621	24
Richmond	Michael	not provided	N/A	Web-based Comments	24204	24
Richner	Claudia	not provided	N/A	Web-based Comments	45386	34
Richner	Claudia	not provided	N/A	Web-based Comments	11194	24
Richter	Cynthia	Cynthiae2013@gmail.com	N/A	Web-based comments	832	N/A
Richter	Elisabeth	not provided	N/A	Web-based Comments	46073, 46074	34
Richter	Elisabeth	not provided	N/A	Web-based Comments	13679	24
Richter	Joanne	joanneerichter@gmail.com	N/A	Web-based comments	3882	N/A
Richter	Juliana	not provided	N/A	Web-based Comments	18797	24
Richter	Karen	not provided	N/A	Web-based Comments	52869	34
Richter	Ron	not provided	N/A	Web-based Comments	27633	24
Richter	Scott	not provided	N/A	Web-based Comments	28493	24
Richter	Sheilah	not provided	N/A	Web-based Comments	28818	24
Rickenmann	Claudia	not provided	N/A	Web-based Comments	11195	24
Rickert	Betty	not provided	N/A	Web-based comments	57633	35
Ricketts	Alicia	not provided	N/A	Web-based Comments	7384	24
Ricketts	James	jimricketts325@gmail.com	N/A	Web-based comments	2939	N/A
RICKEY	SUZAN	not provided	N/A	Web-based Comments	29973	24
Rickman	Ann	not provided	N/A	Web-based Comments	8077	24
Rickman	Martin	not provided	N/A	Web-based Comments	23173	24
ricobene	thomas	not provided	N/A	Web-based Comments	30539	24
Riddell	Jeanie	not provided	N/A	Web-based Comments	16923	24
Ridder	Catherine	not provided	N/A	Web-based Comments	10318	24
Ridder	Lynette	not provided	N/A	Web-based comments	57403	35
Ridder	Lynette	not provided	N/A	Web-based Comments	22041	24
Ridder	Ross	not provided	N/A	Web-based Comments	27790	24
Riddle	Amy	not provided	N/A	Web-based Comments	7663	24
Riddle	Brenda	not provided	N/A	Web-based Comments	51949	34
Riddle	Jennifer	jennifer@tidewater.com	N/A	Web-based comments	2460	N/A
Riddle	Robert	not provided	N/A	Web-based Comments	48866	34
Ridel	Stephanie	not provided	N/A	Web-based Comments	29242	24
Ridella	Gerard	not provided	N/A	Web-based Comments	55372, 55373	34
Ridella	Gerard	not provided	N/A	Web-based Comments	14978	24
Ridenour	Linda	not provided	N/A	Web-based Comments	21399	24
Ridenour	Patty	not provided	N/A	Web-based Comments	49871, 50269	34
Rider	Alan	not provided	N/A	Web-based Comments	45344, 45345	34
Rider	Dara	not provided	N/A	Web-based Comments	56268	34
Rider	Dara	not provided	N/A	Web-based Comments	11850	24
Rider	Lin	not provided	N/A	Web-based Comments	21186	24
Rider	Linda	not provided	N/A	Web-based Comments	21400	24
Rider	Linda	not provided	N/A	Web-based Comments	21401	24
RiderHall	Susan	not provided	N/A	Web-based Comments	50129	34
RiderHall	Susan E	not provided	N/A	Web-based Comments	29926	24
Ridge	Anne Katherine	not provided	N/A	Web-based Comments	8262	24
Ridge	Jeffrey	not provided	N/A	Web-based Comments	17096	24
Ridge	Lorraine	not provided	N/A	Web-based Comments	21847	24
Ridgely	Robert	not provided	N/A	Web-based Comments	50736	34
Ridgeway	William	not provided	N/A	Web-based Comments	55119	34

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Ridgley	Ryan	not provided	N/A	Web-based Comments	27922	24
Ridgway	Joanna	not provided	N/A	Web-based Comments	53439, 53440	34
Ridgway	Kathi	not provided	N/A	Web-based Comments	44995	34
Ridley	Donna	not provided	N/A	Web-based Comments	53761	34
Riebeling	Laurie	not provided	N/A	Web-based Comments	20852	24
RIEBOLD	BERNITA	bkriebold@gmail.com	N/A	Web-based comments	6637	N/A
Riechel	Kathy	not provided	N/A	Web-based Comments	19746	24
Rieckmann	David	not provided	N/A	Web-based Comments	51682	34
Rieckmann	David	not provided	N/A	Web-based Comments	12120	24
Riedel	Claude	riede006@umn.edu	N/A	Web-based comments	5252	N/A
Rieder	Sylvia	not provided	N/A	Web-based Comments	50973	34
Rieder	Sylvia	not provided	N/A	Web-based Comments	30073	24
Riegel	Margaret	not provided	N/A	Web-based Comments	22495	24
Riegel	Marilyn	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32445	11
Riegel	Serafina	not provided	N/A	Web-based Comments	51787	34
Rieger	L.	rrhhcm@aol.com	N/A	Web-based comments	5452	N/A
Rieger	Tanja	not provided	N/A	Web-based comments	56783	35
Rieger	Tanja	not provided	N/A	Web-based Comments	55010, 55011	34
Rieger	Tanja	not provided	N/A	Web-based Comments	30175	24
riehart	dale	not provided	N/A	Web-based Comments	11631	24
Riehl	Jean and Everett	not provided	N/A	Web-based Comments	16900	24
Rieke	Elizabeth	email.l.rieke@gmail.com	N/A	Web-based comments	6375	1
Riel	Tom	tom.riel@yahoo.com	N/A	Web-based comments	4076	N/A
Riesenburger	Regina	not provided	N/A	Web-based Comments	26806	24
Rietz	Marguerite	not provided	N/A	Web-based Comments	22567	24
Riezenman	Chris	not provided	N/A	Web-based Comments	10780	24
Riffe	Adele	adeleriffe@yahoo.com	N/A	Web-based comments	2300	N/A
Riffee	Brad	not provided	N/A	Web-based comments	5488	8
Rigano	Kimberly	not provided	N/A	Web-based Comments	20236	24
Rigby	Cheryl	not provided	N/A	Web-based Comments	50611	34
Rigby	Cheryl	not provided	N/A	Web-based Comments	10670	24
Riggers	Cole	coleriggers@gmail.com	N/A	Web-based comments	2696	N/A
Riggins	Jocelyn	not provided	N/A	Web-based Comments	46403	34
Riggins	Jocelyn	not provided	N/A	Web-based Comments	17840	24
Riggle	Martha	not provided	N/A	Web-based Comments	23123	24
Riggtula	Stephen	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58722	N/A
Rightenour	Andrea	not provided	N/A	Web-based Comments	7767	24
RIGHTMAN	Myron	not provided	N/A	Web-based Comments	24725	24
Rightmire	Judy	not provided	N/A	Web-based Comments	18712	24
Rigney	Mark	not provided	N/A	Web-based Comments	22977	24
Rigo	Elizabeth	not provided	N/A	Web-based Comments	13833	24
Rigopoulos	Panagiotis	not provided	N/A	Web-based Comments	53472, 53473	34
Rigopoulos	Panagiotis	not provided	N/A	Web-based Comments	25609	24
Rigrod	Andrew	not provided	N/A	Web-based Comments	7839	24
Riley	Annie	not provided	N/A	Web-based Comments	8309	24
Riley	Jaci	not provided	N/A	Web-based Comments	16025	24
Riley	Jon Michael	not provided	N/A	Web-based Comments	18269	24
Riley	Katharine	not provided	N/A	Web-based Comments	19421	24
Riley	Kelly	not provided	N/A	Web-based Comments	19945	24
Riley	linda	not provided	N/A	Web-based Comments	21402	24
Riley	Michael	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32280	N/A
Riley	Norma	not provided	N/A	Web-based Comments	25390	24
Riley	Paul	not provided	N/A	Web-based Comments	26037	24
Riley	Paulette	not provided	N/A	Web-based Comments	26113	24
Riley	Robert	not provided	N/A	Web-based Comments	27372	24
Riley	Robin	not provided	N/A	Web-based Comments	27515	24
Riley	Sandra	not provided	N/A	Web-based Comments	28203	24
Riley	Tim	not provided	N/A	Web-based Comments	30628	24
Riley	William	1633Charles@gmail.com	N/A	US Mail or commercial carrier (UPS, FedEx)	32279	N/A
Rilk	Tirzah	not provided	N/A	Web-based Comments	53327	34
Rillema	Gary	not provided	N/A	Web-based Comments	14795	24
Rimbos	Peter	not provided	N/A	Web-based Comments	26283	24
Rimcock	Buzz	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	2253	N/A
rimmer clay	rosemary	not provided	N/A	Web-based Comments	27767	24
Rinaldi	Frank	not provided	N/A	Web-based Comments	45753, 45754	34
Rinaldi	Pamela	not provided	N/A	Web-based Comments	25583	24
Rinaldi	Zorine	not provided	N/A	Web-based Comments	31741	24
Rinas	Juanita	not provided	N/A	Web-based Comments	51837	34
Rinck Sr	C.D.	not provided	N/A	Web-based Comments	9705	24
Rinck, Sr.	C.D.	not provided	N/A	Web-based Comments	49025	34

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Rincon	Anna	not provided	N/A	Web-based Comments	8150	24
Rincon	Claudia	not provided	N/A	Web-based Comments	11196	24
Rind	Rich	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	56633	N/A
RINDER	ROSE	not provided	N/A	Web-based Comments	54630	34
Rindler	Joseph	not provided	N/A	Web-based Comments	52678	34
Rinehart	Kathy	not provided	N/A	Web-based comments	57193	35
Rinehart	Marcus	not provided	N/A	Web-based Comments	22402	24
Rinehart	Steve	steverine@gmail.com	N/A	Web-based comments	5458	N/A
Ringel	Melanie	not provided	N/A	Web-based Comments	23845	24
Ringelman	Jeff	ringelman@comcast.net	N/A	Web-based comments	3487	11
Ringer	David	not provided	N/A	Web-based Comments	12121	24
Ringkvist-Taffora	Crystal	not provided	N/A	Web-based Comments	11465	24
Ringle	Dave	not provided	N/A	Web-based Comments	51366, 51367	34
Ringler	Ronald	not provided	N/A	Web-based Comments	52914	34
Ringnalda	Jonelle	not provided	N/A	Web-based Comments	18304	24
Ringquist	Matt	not provided	N/A	Web-based Comments	23622	24
Rings	Sally	not provided	N/A	Web-based Comments	45035	34
Rings	Sally	not provided	N/A	Web-based Comments	28026	24
Ringsby	Eric	not provided	N/A	Web-based Comments	49977	34
Ringwood	Don	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4684, 4750	N/A
Ringwood	Sam	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4755	N/A
Ringwood	Susan	not provided	N/A	Web-based Comments	29815	24
Rink	Melissa	not provided	N/A	Web-based Comments	23920	24
Rinzler	Melissa	not provided	N/A	Web-based Comments	23921	24
Rio	Alice	not provided	N/A	Web-based Comments	7363	24
Rion	Lauretta	not provided	N/A	Web-based Comments	20808	24
Riordan	James	jmiltr@yahoo.com	N/A	Web-based comments	3030	N/A
Rios	Elisa	not provided	N/A	Web-based Comments	45830, 45893	34
Rios	Elisa	not provided	N/A	Web-based Comments	13672	24
Rios	Lourdes	not provided	N/A	Web-based Comments	21909	24
rios	luis	not provided	N/A	Web-based Comments	21971	24
Rios	Stephanie	not provided	N/A	Web-based Comments	29243	24
Riper	Barbara	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32272	N/A
Riper	Michael Van	not provided	N/A	Web-based Comments	54145	34
Ripley	Paul	not provided	N/A	Web-based Comments	49282	34
Ripley	Richard	not provided	N/A	Web-based comments	5383	N/A
Ripoll	Sara	not provided	N/A	Web-based comments	6089	1
Rippa	Ninna	nrippa02@hotmail.com	N/A	Web-based comments	675	2
Ripple	Martha Jane	not provided	N/A	Web-based Comments	23143	24
Ripplinger	Jeffery	jaripplinger@yahoo.com	N/A	Web-based comments	4300	N/A
Ripplinger	Joseph	jripplinger@juno.com	N/A	Web-based comments	2711	N/A
Ririe	Kurt	ksririe1@gmail.com	N/A	Web-based comments	5112	11
Ririe	Randall	ririefarms@gmail.com	N/A	US Mail or commercial carrier (UPS, FedEx)	32373	N/A
Ririe	Sylvan	mjoririe@gmail.com	N/A	Web-based comments	5114	11
Ris	Marina	not provided	N/A	Web-based Comments	48187	34
risa	m	not provided	N/A	Web-based Comments	22188	24
Rischel	Denise	not provided	N/A	Web-based Comments	51790	34
Riser	Carol	not provided	N/A	Web-based Comments	10010	24
Riser	Marianna	not provided	N/A	Web-based Comments	50232	34
Risley	David	drrisley@hotmail.com	N/A	Web-based comments	2595	N/A
Risley	David	Risleylawoffice@gmail.com	N/A	Web-based comments	4046	N/A
Riss	Margot	not provided	N/A	Web-based comments	57027	35
Risselada	Heather	not provided	N/A	Web-based Comments	54367	34
Risselada	Heather	not provided	N/A	Web-based Comments	15530	24
Risso	Alisa	not provided	N/A	Web-based Comments	52196	34
Ristau	Jacque	not provided	N/A	Web-based Comments	16098	24
Rister	Patricia	not provided	N/A	Web-based Comments	25832	24
Ristig	Ciara	not provided	N/A	Web-based Comments	54645	34
Risvold	Cindy	not provided	N/A	Web-based Comments	11095	24
Ritachild	Tusi	not provided	N/A	Web-based Comments	55207	34
Ritari	Markku	mritari@gmail.com	N/A	Web-based comments	6185	N/A
Ritari	Pat	pat.ritari@gmail.com	N/A	Web-based comments	3778	N/A
Ritchie	Jean	not provided	N/A	Web-based Comments	16878	24
Ritchie	John	not provided	N/A	Web-based Comments	18153	24
Ritchie	Kathleen	not provided	N/A	Web-based Comments	19594	24
Ritchie	Kathy	not provided	N/A	Web-based Comments	49143	34
Rither	Alan	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58726	N/A
Riti	Christopher	not provided	N/A	Web-based Comments	54920	34
Ritola	Donna	not provided	N/A	Web-based Comments	13178	24
Rittenbach	Jamie	not provided	N/A	Web-based Comments	16372	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Rittenhouse	Calvin	not provided	N/A	Web-based Comments	9729	24
Ritter	Bambi	not provided	N/A	Web-based Comments	8595	24
Ritter	Carly	not provided	N/A	Web-based Comments	9862	24
Ritter	Jack	Jritter412@gmail.com	N/A	Web-based comments	5391	N/A
Ritter	Philip	not provided	N/A	Web-based Comments	26352	24
Ritter	Stephanie	not provided	N/A	Web-based Comments	47643	34
ritter	stephanie	not provided	N/A	Web-based Comments	29244	24
Ritter	Teresa	not provided	N/A	Web-based Comments	30296	24
Ritz	Ed	not provided	N/A	Web-based Comments	13454	24
Rivalsi	Doug	not provided	N/A	Web-based Comments	13309	24
Rivalsi	Douglas	not provided	N/A	Web-based Comments	46003, 46004	34
Rivas	E E	not provided	N/A	Web-based Comments	13418	24
Rivas	Flavia	not provided	N/A	Web-based Comments	14442	24
Rivas	Shirley	not provided	N/A	Web-based Comments	49603	34
Rivera	Abel	not provided	N/A	Web-based Comments	7017	24
Rivera	Ailed	not provided	N/A	Web-based Comments	56527	34
Rivera	Amy	not provided	N/A	Web-based Comments	7664	24
Rivera	Ashley	not provided	N/A	Web-based Comments	8495	24
Rivera	Gabe	not provided	N/A	Web-based comments	715	2
Rivera	Javier	not provided	N/A	Web-based Comments	16799	24
Rivera	Jennifer	airinthelungs@gmail.com	N/A	Web-based comments	6683	1
Rivera	Madeline	not provided	N/A	Web-based Comments	22245	24
Rivera	Sergio	not provided	N/A	Web-based Comments	28543	24
Rivera	Sofia	not provided	N/A	Web-based Comments	29044	24
Rivers	Jerry	not provided	N/A	Web-based Comments	17371	24
Rivers	Karen	not provided	N/A	Web-based Comments	48447	34
Rivers	Michelle	not provided	N/A	Web-based Comments	51882	34
rivers	patrick	not provided	N/A	Web-based Comments	25923	24
Rivers	William	not provided	N/A	Web-based Comments	31586	24
Rives	Douglas	not provided	N/A	Web-based Comments	51910	34
Rives-Denight	Susan G	not provided	N/A	Web-based Comments	29928	24
Rivetti	Mark	not provided	N/A	Web-based Comments	22978	24
Rivkin	Deb	not provided	N/A	Web-based Comments	12301	24
RIVOALLAN	Carine	rivoallan.carine@neuf.fr	N/A	Web-based comments	948	1
Rizer	William	not provided	N/A	Web-based Comments	31587	24
rizzi	candida	not provided	N/A	Web-based Comments	9764	24
Rizzi	Tricia	not provided	N/A	Web-based Comments	48989	34
Rizzi	Tricia	not provided	N/A	Web-based Comments	30906	24
Rizzico	Nichole	not provided	N/A	Web-based Comments	25189	24
Rizzo	Ann	not provided	N/A	Web-based Comments	8078	24
Rizzo	Marissa	not provided	N/A	Web-based Comments	55667	34
Rizzo	Renee	not provided	N/A	Web-based Comments	26853	24
Rizzuti	Heather	not provided	N/A	Web-based Comments	15531	24
Rizzuto	Christopher	not provided	N/A	Web-based comments	57014	35
RM	Risa	risarobinsmoloney@yahoo.com	N/A	Web-based comments	6753	1
RN	Cynthia Elia	not provided	N/A	Web-based Comments	49455	34
RN	Margaret Aldinger	not provided	N/A	Web-based Comments	53482	34
RN	Mary	not provided	N/A	Web-based Comments	23394	24
Roa	Tania	not provided	N/A	Web-based Comments	46581, 46582	34
Roach	Bob	not provided	N/A	Web-based Comments	46939	34
Roach	Bob	not provided	N/A	Web-based Comments	9251	24
Roach	Gerald	jerryroach@gmail.com	N/A	Web-based comments	6265	N/A
Roane	Christine	not provided	N/A	Web-based Comments	10975	24
Roark	John	not provided	N/A	Web-based Comments	18154	24
Robb	Aaeron	not provided	N/A	Web-based Comments	51144	34
Robb	Jackie	not provided	N/A	Web-based Comments	16074	24
Robb	Terri	not provided	N/A	Web-based Comments	30344	24
Robbie	Maureen	not provided	N/A	Web-based Comments	23713	24
Robbins	Alison	not provided	N/A	Web-based Comments	51310	34
ROBBINS	ANDREW	not provided	N/A	Web-based Comments	7840	24
Robbins	Jesse	jesselancerobbins@gmail.com	N/A	Web-based comments	6181	N/A
Robbins	Jim	Jrobbins@kec.com	N/A	Web-based comments	58830	N/A
Robbins	Kathlyn	not provided	N/A	Web-based Comments	19615	24
Robbins	Linda	not provided	N/A	Web-based Comments	21403	24
Robbins	Mary	not provided	N/A	Web-based Comments	23395	24
Robbins	Megan	not provided	N/A	Web-based Comments	23802	24
robbins	mike	not provided	N/A	Web-based Comments	24479	24
Robbins	Patricia	not provided	N/A	Web-based Comments	25833	24
Robbins	Peter	not provided	N/A	Web-based Comments	26284	24
Robbins	Sue	not provided	N/A	Web-based Comments	29549	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Robbins	Virginia	not provided	N/A	Web-based Comments	31301	24
Robb-Linse	Olivia	not provided	N/A	Web-based comments	32065	1
Robby	D	not provided	N/A	Web-based comments	2999	N/A
Robello	Ashley	not provided	N/A	Web-based Comments	8496	24
Roberge	Manon	not provided	N/A	Web-based Comments	48526	34
Roberson	Julaine	not provided	N/A	Web-based Comments	46334, 47758, 58416	34
Roberson	Lynne	not provided	N/A	Web-based Comments	47953	34
Roberson	Lynne	not provided	N/A	Web-based Comments	22150	24
Roberson	Rick	not provided	N/A	Web-based Comments	27101	24
Roberson	Rowen	not provided	N/A	Web-based Comments	27795	24
Roberson	Suzanne E Webster	not provided	N/A	Web-based Comments	45021	34
Roberson	Tamela	not provided	N/A	Web-based Comments	51902, 51903	34
Roberson	Tamela	not provided	N/A	Web-based Comments	30135	24
Roberson	William	not provided	N/A	Web-based Comments	56434, 56435	34
Roberson	William	not provided	N/A	Web-based Comments	31588	24
Robert	Alan	not provided	N/A	Web-based Comments	53377	34
Robert	Alan	not provided	N/A	Web-based Comments	7185	24
Robert	Brett	not provided	N/A	Web-based Comments	50846	34
Robert	Claude	not provided	N/A	Web-based Comments	44359	34
Robert	Gregory	not provided	N/A	Web-based Comments	15292	24
Robert	Heloise	HeloRbt@protonmail.com	N/A	Web-based comments	491	1
ROBERT	LACEY	not provided	N/A	Web-based Comments	20509	24
Robert	Mary	not provided	N/A	Web-based Comments	23396	24
Roberto	Phil	not provided	N/A	Web-based Comments	26326	24
Roberto	Rob	not provided	N/A	Web-based Comments	27185	24
Roberto	Robert	not provided	N/A	Web-based Comments	52333, 52334	34
Roberts	Amy	not provided	N/A	Web-based Comments	57915, 50103	16, 34
Roberts	Amy	not provided	N/A	Web-based Comments	7665	24
Roberts	Andrew	not provided	N/A	Web-based Comments	7841	24
Roberts	Anna	anna.kr.roberts@gmail.com	N/A	Web-based comments	6111	N/A
Roberts	Brad	not provided	N/A	Web-based comments	3230	N/A
Roberts	Brandon	brober14@gmail.com	N/A	Web-based comments	5284	8
Roberts	Brock	not provided	N/A	Web-based Comments	56382	34
Roberts	Cameron	not provided	N/A	Web-based Comments	9732	24
Roberts	Carey	invisigirl@gmail.com	N/A	Web-based comments	853	1
Roberts	Dan	not provided	N/A	Web-based Comments	11676	24
Roberts	Donna	not provided	N/A	Web-based Comments	47375	34
Roberts	Elizabeth	not provided	N/A	Web-based Comments	13834	24
Roberts	Fiona	not provided	N/A	Web-based Comments	47469	34
Roberts	Fiona	not provided	N/A	Web-based Comments	14437	24
Roberts	Fiona	not provided	N/A	Web-based Comments	14438	24
Roberts	Gail	not provided	N/A	Web-based Comments	14709	24
Roberts	Gretchen	not provided	N/A	Web-based Comments	15318	24
Roberts	Harriet Edith	not provided	N/A	Web-based Comments	15455	24
Roberts	Jack	not provided	N/A	Web-based Comments	54072, 54073	34
Roberts	James	not provided	N/A	Web-based Comments	48538	34
Roberts	James	not provided	N/A	Web-based Comments	16293	24
Roberts	James	not provided	N/A	Web-based Comments	16294	24
Roberts	James	not provided	N/A	Web-based Comments	16295	24
Roberts	James	not provided	N/A	Web-based Comments	16296	24
Roberts	Jean	not provided	N/A	Web-based Comments	16879	24
roberts	jeannie	not provided	N/A	Web-based Comments	16995	24
Roberts	Joan	not provided	N/A	Web-based Comments	17727	24
Roberts	Joan	not provided	N/A	Web-based Comments	17728	24
Roberts	Joan	not provided	N/A	Web-based Comments	17729	24
Roberts	John	jack_4th_hole@msn.com	N/A	Web-based comments	4128	N/A
Roberts	Jonathan	not provided	N/A	Web-based Comments	18295	24
Roberts	Joyce	not provided	N/A	Web-based Comments	18507	24
Roberts	Judith	not provided	N/A	Web-based Comments	51242	34
Roberts	Julie	not provided	N/A	Web-based Comments	18886	24
Roberts	Karen	not provided	N/A	Web-based Comments	52464	34
Roberts	Lana	not provided	N/A	Web-based Comments	20528	24
Roberts	Laney	not provided	N/A	Web-based Comments	45247	34
Roberts	Laney	not provided	N/A	Web-based Comments	20539	24
Roberts	Laura	not provided	N/A	Web-based Comments	47723	34
Roberts	Les	not provided	N/A	Web-based Comments	55757, 55758	34
roberts	les	not provided	N/A	Web-based Comments	21033	24
Roberts	Leticia	not provided	N/A	Web-based Comments	21122	24
Roberts	Linda	not provided	N/A	Web-based Comments	48971, 48972	34

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Roberts	Linda	not provided	N/A	Web-based Comments	21404	24
Roberts	Mark	not provided	N/A	Web-based Comments	22979	24
Roberts	Marsha	not provided	N/A	Web-based Comments	23075	24
Roberts	Martyn	not provided	N/A	Web-based Comments	44350, 44351	34
Roberts	Nancy	not provided	N/A	Web-based Comments	47433	34
Roberts	Pamela	dprfam@gmail.com	N/A	Web-based comments	3535	13
Roberts	Roberta	not provided	N/A	Web-based Comments	27448	24
Roberts	Robin	not provided	N/A	Web-based Comments	27516	24
Roberts	Stacy	not provided	N/A	Web-based Comments	51670, 51671, 51672	34
Roberts	Susan	not provided	N/A	Web-based Comments	29816	24
Roberts	Wendy	not provided	N/A	Web-based Comments	31443	24
Roberts-Moneir	Nancy	not provided	N/A	Web-based Comments	24967	24
Robertson	Barbara	not provided	N/A	Web-based Comments	8762	24
Robertson	Beverly	not provided	N/A	Web-based Comments	9141	24
Robertson	Christina	not provided	N/A	Web-based Comments	10875	24
Robertson	Christina	not provided	N/A	Web-based Comments	10876	24
Robertson	Gary	bicycle81@yahoo.com	N/A	Web-based comments	4551*	N/A
Robertson	Gary	not provided	N/A	Web-based Comments	44650	34
Robertson	Iris	not provided	N/A	Web-based Comments	15918	24
Robertson	Isabel	not provided	N/A	Web-based Comments	56372	34
Robertson	Janice	not provided	N/A	Web-based Comments	16694	24
Robertson	Jill	not provided	N/A	Web-based Comments	17535	24
Robertson	John Mark	not provided	N/A	Web-based Comments	18225	24
Robertson	Julie	not provided	N/A	Web-based comments	32029	N/A
Robertson	Kenneth	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58330	N/A
Robertson	Kenneth	not provided	N/A	Web-based Comments	53292	34
Robertson	Kenneth	not provided	N/A	Web-based Comments	20023	24
Robertson	Mary	not provided	N/A	Web-based Comments	23397	24
Robertson	Michael	not provided	N/A	Web-based Comments	24205	24
Robertson	Myles	not provided	N/A	Web-based Comments	24708	24
Robertson	Nick	not provided	N/A	Web-based Comments	25204	24
robertson	nora	not provided	N/A	Web-based Comments	25365	24
Robertson	S.	not provided	N/A	Web-based Comments	49964	34
Robertson	S.	not provided	N/A	Web-based Comments	27962	24
Robertson	Sandra	not provided	N/A	Web-based Comments	28204	24
Robertson-Smith	Susan	not provided	N/A	Web-based Comments	45374	34
Robey	Nicolas	not provided	N/A	Web-based Comments	47020	34
Robidoux	Ryan	not provided	N/A	Web-based Comments	27923	24
Robin	Etta	not provided	N/A	Web-based Comments	55062	34
robin	gina	not provided	N/A	Web-based Comments	52261	34
Robin	Jodi	not provided	N/A	Web-based Comments	17850	24
Robin	Unreadable	not provided	N/A	Web-based Comments	13246	24
Robins	Adam	not provided	N/A	Web-based Comments	7057	24
Robins	Carol	not provided	N/A	Web-based Comments	10011	24
Robins	James	not provided	N/A	Web-based Comments	16297	24
Robinson	Amy	not provided	N/A	Web-based Comments	7666	24
Robinson	andrea	not provided	N/A	Web-based Comments	7768	24
Robinson	Atlas	not provided	N/A	Web-based Comments	8518	24
robinson	bert	not provided	N/A	Web-based Comments	9003	24
Robinson	Bill	not provided	N/A	Web-based Comments	9180	24
Robinson	Brooks	not provided	N/A	Web-based Comments	9591	24
Robinson	Camille	not provided	N/A	Web-based Comments	9747	24
Robinson	Cynthia	not provided	N/A	Web-based Comments	11548	24
Robinson	D	not provided	N/A	Web-based Comments	57865, 57866	34
Robinson	Dennis	not provided	N/A	Web-based Comments	49280	34
Robinson	Dvora	not provided	N/A	Web-based Comments	52708	34
Robinson	Egan	not provided	N/A	Web-based Comments	13532	24
Robinson	Elise	not provided	N/A	Web-based Comments	13693	24
Robinson	Eric	not provided	N/A	Web-based Comments	55370	34
Robinson	Erin	not provided	N/A	Web-based Comments	14233	24
Robinson	Gary	Gary_W_Robinson@rl.gov	N/A	Web-based comments	2633	N/A
Robinson	George	not provided	N/A	Web-based Comments	14913	24
Robinson	Gina	not provided	N/A	Web-based Comments	15066	24
Robinson	James	not provided	N/A	Web-based Comments	16298	24
Robinson	Jan	not provided	N/A	Web-based Comments	58438	34
Robinson	Janet	not provided	N/A	Web-based Comments	16639	24
Robinson	Joyce	not provided	N/A	Web-based Comments	49986	34
Robinson	June	robinsonja1959@gmail.com	N/A	Web-based comments	2632	N/A
Robinson	Kaki	not provided	N/A	Web-based Comments	19007	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Robinson	Kate	not provided	N/A	Web-based Comments	49303, 49304	34
Robinson	Kate	not provided	N/A	Web-based Comments	19399	24
Robinson	Kathy	not provided	N/A	Web-based Comments	19747	24
Robinson	Katy	not provided	N/A	Web-based Comments	19808	24
Robinson	Keely	not provided	N/A	Web-based comments	56712	35
Robinson	Kim	not provided	N/A	Web-based Comments	45180	34
Robinson	Kimberly	not provided	N/A	Web-based Comments	20237	24
Robinson	Kimmy	not provided	N/A	Web-based Comments	46057	34
Robinson	Lisa	not provided	N/A	Web-based Comments	21628	24
Robinson	Lynda	not provided	N/A	Web-based Comments	49665	34
Robinson	M. Sazonov-	not provided	N/A	Web-based Comments	54023	34
Robinson	Marci	not provided	N/A	Web-based Comments	44963	34
Robinson	Margo	not provided	N/A	Web-based Comments	45398	34
Robinson	Mary	not provided	N/A	Web-based Comments	46733	34
Robinson	Merry	not provided	N/A	Web-based Comments	23998	24
Robinson	Nancy	not provided	N/A	Web-based Comments	54942	34
Robinson	Pat	not provided	N/A	Web-based Comments	48527, 48528	34
Robinson	Raye	not provided	N/A	Web-based Comments	26681	24
Robinson	Rebecca	not provided	N/A	Web-based Comments	51169	34
Robinson	Rhonda	not provided	N/A	Web-based Comments	55903	34
robinson	richard	not provided	N/A	Web-based Comments	27035	24
Robinson	Robby	not provided	N/A	Web-based Comments	27197	24
Robinson	Rory	not provided	N/A	Web-based Comments	27693	24
Robinson	Scott	not provided	N/A	Web-based Comments	28494	24
Robinson	shari	not provided	N/A	Web-based Comments	28616	24
Robinson	Susan	not provided	N/A	Web-based Comments	51856	34
Robinson	Tina	not provided	N/A	Web-based Comments	30689	24
Robinson	Todd	chlcspring@frontier.com	N/A	Web-based comments	4940	N/A
Robisch	Dan	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58709	N/A
Robison	Charlie	charliejrobison@gmail.com	N/A	Web-based comments	3008	N/A
Robison	Cheryl	not provided	N/A	Web-based Comments	10671	24
Robison	David	not provided	N/A	Web-based Comments	51814	34
Robison	Jill	not provided	N/A	Web-based Comments	54830	34
Robison	Jill	not provided	N/A	Web-based Comments	17536	24
Robison	Jill	not provided	N/A	Web-based Comments	17537	24
Robison	Joy	not provided	N/A	Web-based Comments	18467	24
Robison	Rick	lawyerrickrobinson@gmail.com	N/A	Web-based comments	5843	N/A
Robson	Brent	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32558	N/A
Robson	Ella	not provided	N/A	Web-based Comments	52299	34
Robson	Ella	not provided	N/A	Web-based Comments	13888	24
Robson	Lance	not provided	N/A	Web-based Comments	20531	24
Robustelli	Joseph	not provided	N/A	Web-based Comments	18390	24
Roc	wes	not provided	N/A	Web-based Comments	31461	24
Rocco	Evelyn	not provided	N/A	Web-based Comments	14357	24
Rocco	Yvonne	not provided	N/A	Web-based Comments	31703	24
Rocha	Anthony	not provided	N/A	Web-based Comments	8346	24
Rocha	Candace	not provided	N/A	Web-based Comments	9758	24
Rocha	Mario	not provided	N/A	Web-based Comments	47713	34
Roche	Clinton	not provided	N/A	Web-based Comments	11227	24
Roche	John	not provided	N/A	Web-based Comments	18155	24
Roche	Kathleen	kathleensroche@gmail.com	N/A	Web-based comments	4589	N/A
Roche	Maureen	not provided	N/A	Web-based Comments	55583	34
Roche	Megan	not provided	N/A	Web-based Comments	23803	24
Roche	Michael	not provided	N/A	Web-based Comments	24206	24
Roche	Peter	not provided	N/A	Web-based Comments	26285	24
Rocheleau	Jessica	not provided	N/A	Web-based Comments	17457	24
Rochelle-Levy	Paulette	not provided	N/A	Web-based Comments	26114	24
Rochester	Ingrid	not provided	N/A	Web-based Comments	48428	34
Rochester	Ingrid	not provided	N/A	Web-based Comments	15881	24
Rochester	Mark	not provided	N/A	Web-based Comments	58372	28
Rochkind	Iris	not provided	N/A	Web-based Comments	47830, 47831	34
Rock	Dave	not provided	N/A	Web-based Comments	11918	24
Rock	Vicki	not provided	N/A	Web-based Comments	31147	24
RockaAllen	Lezlie	not provided	N/A	Web-based Comments	21136	24
Rockhold	Steve	not provided	N/A	Web-based Comments	45461	34
rockhold	steve	not provided	N/A	Web-based Comments	29396	24
Rocklein	Christian	not provided	N/A	Web-based Comments	57767	34
Rockman	Paul	not provided	N/A	Web-based Comments	26038	24
Rocks	Brent	not provided	N/A	Web-based Comments	58008, 52085	16, 34

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Rocks	Brent	not provided	N/A	Web-based Comments	9442	24
Rockwell	David	not provided	N/A	Web-based Comments	53284	34
Rockwell	James	not provided	N/A	Web-based comments	3212	N/A
Rockwood	Craig	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32533	13
Rockwood	Joyce	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32532	13
ROD	LARRY	not provided	N/A	Web-based Comments	20586	24
Roda	Anne	not provided	N/A	Web-based Comments	8236	24
Rodack	Soretta	not provided	N/A	Web-based Comments	29093	24
Rodah	Lenore	not provided	N/A	Web-based Comments	20990	24
Rodar	Jodi	not provided	N/A	Web-based Comments	52937	34
Rodar	Jodi	not provided	N/A	Web-based Comments	17851	24
Rodd	David	not provided	N/A	Web-based Comments	12122	24
Rodda	Shirley	not provided	N/A	Web-based Comments	28962	24
Roddick	Laurie	roddickltd@gmail.com	N/A	Web-based comments	6262	N/A
Rodecker	John	not provided	N/A	Web-based comments	57586	35
Rodeen	Rob	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58747	N/A
Rodefer	Terrell	not provided	N/A	Web-based comments	57365	35
Rodeman	Mary	not provided	N/A	Web-based Comments	23398	24
Roden	Michael	not provided	N/A	Web-based Comments	24207	24
Rodenbury	Gregory	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58763	N/A
Rodenhizer	David	not provided	N/A	Web-based Comments	12123	24
Roder	Nicole	not provided	N/A	Web-based Comments	25253	24
Roderer	Sara	not provided	N/A	Web-based Comments	28313	24
Roderick	E	not provided	N/A	Web-based Comments	13415	24
Rodgers	Alice	not provided	N/A	Web-based Comments	49483	34
Rodgers	Camie	not provided	N/A	Web-based Comments	45804	34
Rodgers	Camie	not provided	N/A	Web-based Comments	9733	24
Rodgers	Robin	not provided	N/A	Web-based Comments	27517	24
Rodgers	Wendy	not provided	N/A	Web-based Comments	50983	34
Rodine	Jean	not provided	N/A	Web-based Comments	16880	24
Rodman	Shirley	not provided	N/A	Web-based Comments	28963	24
Rodney	Ray	not provided	N/A	Web-based Comments	26676	24
Rodrigo	Barbara	not provided	N/A	Web-based Comments	8763, 8764	24
Rodrigues	Andrea	not provided	N/A	Web-based Comments	47338	34
Rodrigues	Jessica	not provided	N/A	Web-based Comments	17458	24
Rodrigues	Rute	not provided	N/A	Web-based Comments	48927, 48928	34
Rodrigues	Sharon	not provided	N/A	Web-based Comments	28705	24
Rodriguez	Ana	not provided	N/A	Web-based Comments	52729	34
Rodriguez	Angela	not provided	N/A	Web-based Comments	7926	24
Rodriguez	Ariel	aporphy@gmail.com	N/A	Web-based comments	1871	4
Rodriguez	B.	not provided	N/A	Web-based Comments	8581	24
Rodriguez	Brenda	not provided	N/A	Web-based Comments	9419	24
Rodriguez	Brianna	not provided	N/A	Web-based comments	57159	35
Rodriguez	Carolina	not provided	N/A	Web-based Comments	10114	24
Rodriguez	David	not provided	N/A	Web-based Comments	12124	24
Rodriguez	Donna	not provided	N/A	Web-based Comments	13179	24
Rodriguez	Doris	not provided	N/A	Web-based Comments	13237	24
Rodriguez	Drew	not provided	N/A	Web-based Comments	13378	24
Rodriguez	Eric	not provided	N/A	Web-based Comments	14135	24
Rodriguez	Ernest	not provided	N/A	Web-based Comments	14249	24
Rodriguez	Frances	fnfrod@gmail.com	N/A	Web-based comments	3116	N/A
Rodriguez	Ian	not provided	N/A	Web-based Comments	15836	24
Rodriguez	Ingrid	not provided	N/A	Web-based Comments	15882	24
Rodriguez	Josh	not provided	N/A	Web-based Comments	51331	34
Rodriguez	Kathleen	not provided	N/A	Web-based Comments	46223	34
Rodriguez	L.	not provided	N/A	Web-based Comments	20500	24
Rodriguez	Lara	not provided	N/A	Web-based Comments	20557	24
Rodriguez	Levinson	not provided	N/A	Web-based Comments	55334, 55335	34
Rodriguez	Maria	not provided	N/A	Web-based Comments	22625	24
Rodriguez	Patricia	not provided	N/A	Web-based Comments	25834	24
Rodriguez	Raul	not provided	N/A	Web-based Comments	51288	34
Rodriguez	Rene	not provided	N/A	Web-based Comments	26832	24
Rodriguez	Rolando	not provided	N/A	Web-based Comments	27602	24
Rodriguez	Shawn	not provided	N/A	Web-based Comments	28755	24
Rodriguez	Simon	not provided	N/A	Web-based Comments	29020	24
Rodriguez	Susan	not provided	N/A	Web-based Comments	57807	34
Rodriguez	Susan	not provided	N/A	Web-based Comments	29817	24
Rodwin	Marilyn	not provided	N/A	Web-based Comments	22808	24
Roe	Alyse	not provided	N/A	Web-based Comments	48537	34
Roe	Christina	not provided	N/A	Web-based Comments	49147, 49148	34

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Roe	Deb	not provided	N/A	Web-based Comments	55493	34
Roe	Robert	not provided	N/A	Web-based Comments	27373	24
Roegner	Debby	not provided	N/A	Web-based Comments	47516	34
Roegner	Debby	not provided	N/A	Web-based Comments	12358	24
Roeh	Maggie	not provided	N/A	Web-based comments	57219	35
roehrig	jo	not provided	N/A	Web-based Comments	17654	24
Roemeling	Harold	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	2530	N/A
Roemer	Janet	not provided	N/A	Web-based Comments	16640	24
Roemisch	Debrah	not provided	N/A	Web-based Comments	12565	24
Roesch	Al	not provided	N/A	Web-based Comments	55841	34
Roesch	Al	not provided	N/A	Web-based Comments	7149	24
Roesel	Barb	not provided	N/A	Web-based comments	57053	35
Roeske	Peggy	not provided	N/A	Web-based Comments	26176	24
Roesler	Barbara	not provided	N/A	Web-based Comments	8765	24
Roesner	Chris	not provided	N/A	Web-based Comments	10781	24
ROETSCH	GEORGE	not provided	N/A	Web-based Comments	45844	34
Rogalny	Daniel	not provided	N/A	Web-based Comments	11768	24
Rogalski	Marjorie	not provided	N/A	Web-based Comments	22884, 22885	24
Rogan	Mary	not provided	N/A	Web-based Comments	50364	34
Rogan	Mary	not provided	N/A	Web-based Comments	23399	24
Rogan	Robert	not provided	N/A	Web-based Comments	27374	24
roger	Anna	not provided	N/A	Web-based comments	1398	1
Rogers	Andrew	not provided	N/A	Web-based Comments	7842	24
rogers	ann	not provided	N/A	Web-based Comments	8079	24
Rogers	Anne	not provided	N/A	Web-based Comments	8237	24
Rogers	Carlin	not provided	N/A	Web-based Comments	9847	24
Rogers	Chris	not provided	N/A	Web-based Comments	56470	34
Rogers	Corey	not provided	N/A	Web-based Comments	11365	24
Rogers	David	not provided	N/A	Web-based Comments	51489	34
Rogers	Dennis	not provided	N/A	Web-based Comments	52576	34
Rogers	Dirk	not provided	N/A	Web-based Comments	12970	24
Rogers	Donna	not provided	N/A	Web-based Comments	13180	24
Rogers	Frank & Laura	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32369	5
Rogers	Franny	not provided	N/A	Web-based comments	57674	35
Rogers	Georgia	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	44260	32
rogers	james	not provided	N/A	Web-based Comments	16300	24
Rogers	James	not provided	N/A	Web-based Comments	16299	24
Rogers	Jason	not provided	N/A	Web-based Comments	16787	24
Rogers	Jean	not provided	N/A	Web-based Comments	16881	24
Rogers	Jennifer	not provided	N/A	Web-based Comments	17252	24
Rogers	Jim	not provided	N/A	Web-based Comments	17602	24
rogers	john	not provided	N/A	Web-based Comments	18156	24
Rogers	Julie	not provided	N/A	Web-based Comments	18887	24
Rogers	Kim	not provided	N/A	Web-based Comments	56120, 56121	34
Rogers	Laurel	not provided	N/A	Web-based Comments	47357	34
Rogers	Laurel	not provided	N/A	Web-based Comments	20747	24
Rogers	Lee	not provided	N/A	Web-based Comments	20942	24
Rogers	Linda	not provided	N/A	Web-based Comments	47642	34
Rogers	Linda	not provided	N/A	Web-based Comments	21405	24
Rogers	Lorraine	not provided	N/A	Web-based Comments	21848	24
Rogers	Margaret	not provided	N/A	Web-based Comments	22496	24
Rogers	Marilyn	not provided	N/A	Web-based comments	56985	35
Rogers	Mark	not provided	N/A	Web-based comments	2090	N/A
Rogers	Martha	not provided	N/A	Web-based Comments	23124	24
rogers	maureen	not provided	N/A	Web-based Comments	45467	34
Rogers	Nesa	not provided	N/A	Web-based Comments	58676	34
Rogers	Nikki	not provided	N/A	Web-based comments	5970	N/A
Rogers	Norm	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32403	13
Rogers	Pamela	not provided	N/A	Web-based Comments	45489	34
Rogers	Pamela	not provided	N/A	Web-based Comments	25584	24
Rogers	Phoebe	phoeberogers44@gmail.com	N/A	Web-based comments	6091	1
Rogers	Roz	not provided	N/A	Web-based Comments	58622	34
Rogers	Ruth	not provided	N/A	Web-based Comments	47544	34
Rogers	Sally	not provided	N/A	Web-based Comments	48642	34
Rogers	SallyAnn	not provided	N/A	Web-based Comments	28040	24
Rogers	Sandra	not provided	N/A	Web-based Comments	28205	24
Rogers	Sandra Jilton	not provided	N/A	Web-based Comments	50351	34
Rogers	Sherry	not provided	N/A	Web-based Comments	49728, 49729	34
Rogers	Sherry	not provided	N/A	Web-based Comments	28903	24
Rogers	Stacy	srogers1036@cableone.net	N/A	Web-based comments	3473	N/A

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Rogers	Sue	not provided	N/A	Web-based Comments	53798	34
Rogers	Suzanne	not provided	N/A	Web-based Comments	30017	24
Rogers	Tamara	not provided	N/A	Web-based Comments	30129	24
Rogers	Thomas	not provided	N/A	Web-based Comments	30540	24
Rogers	Tina	not provided	N/A	Web-based Comments	53081	34
Rogers	Tina	not provided	N/A	Web-based Comments	30690	24
Rogerson	Lily	lilyrogerson1@gmail.com	N/A	Web-based comments	6772	1
Rogge	Rachel	not provided	N/A	Web-based Comments	44385	34
Rogoff	Len	not provided	N/A	Web-based Comments	55412, 55413	34
Rogulski	Barbara	not provided	N/A	Web-based Comments	50206	34
Rogulski	Barbara	not provided	N/A	Web-based Comments	8766	24
Roh	Marian	not provided	N/A	Web-based Comments	50435	34
Rohder	Kristina	not provided	N/A	Web-based Comments	20408	24
Rohlman	Erin	not provided	N/A	Web-based Comments	57847	34
Rohlman	Erin	not provided	N/A	Web-based Comments	14234	24
Rohloff	Rosalyn	not provided	N/A	Web-based Comments	52564	34
Rohloff	Rosalyn	not provided	N/A	Web-based Comments	27708	24
Rohn	Diane	not provided	N/A	Web-based Comments	45720	34
Rohn	Douglas	lymfatic@me.com	N/A	Web-based comments	5210	19
Rohn	Douglas	not provided	N/A	Web-based Comments	58027, 54055, 54056	16, 34
Rohn	Douglas	not provided	N/A	Web-based Comments	13338	24
Rohr	Andrea	not provided	N/A	Web-based Comments	7769	24
Rohr	Noah	not provided	N/A	Web-based comments	5697	N/A
Roidl	Barbara	not provided	N/A	Web-based Comments	8767	24
Roig	John	not provided	N/A	Web-based Comments	18157	24
Roitman	Michael	not provided	N/A	Web-based Comments	24208	24
Rojas	Jessica	jessica@necoalition.org	N/A	Web-based comments	3689	N/A
Rojas	Jose Miguel	not provided	N/A	Web-based comments	56734	35
Rojeski	Mary	not provided	N/A	Web-based Comments	23400	24
Rokaw	Catherine	not provided	N/A	Web-based Comments	10319	24
Roke	Pattie	not provided	N/A	Web-based Comments	44959, 44960	34
Rokosch	James	not provided	N/A	Web-based Comments	49107, 49108	34
Roland	Jelica	not provided	N/A	Web-based Comments	53089	34
Roland	Jelica	not provided	N/A	Web-based Comments	17107	24
Roland	Sarah	not provided	N/A	Web-based Comments	51568, 51569	34
Roland	Sarah	not provided	N/A	Web-based Comments	28394	24
Roland	Tanya	not provided	N/A	Web-based Comments	30192	24
Rolbeck	Mike	not provided	N/A	Web-based Comments	58615	34
Rolbeck	Mike	not provided	N/A	Web-based Comments	24480	24
Roldan	Emily	not provided	N/A	Web-based Comments	14035	24
Rolen	Niki	not provided	N/A	Web-based Comments	25284	24
Roles	David	not provided	N/A	Web-based Comments	50260	34
Rolfes	Kevin	not provided	N/A	Web-based Comments	20137	24
Rolf-Jansen	Bellinda	not provided	N/A	Web-based Comments	45941	34
rolf-jansen	belllinda	not provided	N/A	Web-based Comments	8929	24
Roll	Rachel	not provided	N/A	Web-based Comments	26542	24
Rolla	Lea Ann	not provided	N/A	Web-based Comments	51551	34
Rolland	Stacey	not provided	N/A	Web-based Comments	29121	24
Rollin	Yineska	not provided	N/A	Web-based Comments	31666	24
Rollinger	Karin	not provided	N/A	Web-based Comments	52263	34
Rollings	Rusty	not provided	N/A	Web-based Comments	27850	24
Rollins	Linda	not provided	N/A	Web-based Comments	21406	24
Rollins	Renata	not provided	N/A	Web-based Comments	26824	24
Rolls	Bill	not provided	N/A	Web-based Comments	9181	24
Roloff	Neil	not provided	N/A	Web-based Comments	45090	34
Rolofson	Tom	not provided	N/A	Web-based Comments	30764	24
Rolon	Jeremiah	not provided	N/A	Web-based Comments	17309	24
rolph	kayla	not provided	N/A	Web-based Comments	19847	24
Rolsky	Bob	not provided	N/A	Web-based Comments	51760	34
ROLSKY	BOB	not provided	N/A	Web-based Comments	9252	24
Rolsky	Charles	not provided	N/A	Web-based comments	57337	35
Roma	Mary	not provided	N/A	Web-based Comments	23401	24
Roma	Michele	not provided	N/A	Web-based Comments	55717	34
Roma	Michele	not provided	N/A	Web-based Comments	24305	24
ROMAGNA	Christophe	not provided	N/A	Web-based Comments	10997	24
Romahn	Sheena	not provided	N/A	Web-based Comments	28777	24
Romaine	Caridad	not provided	N/A	Web-based Comments	46812	34
Romaker	Rosemary	not provided	N/A	Web-based Comments	27768	24
Romamak	Donna	not provided	N/A	Web-based Comments	13181	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Roman	Christina	not provided	N/A	Web-based Comments	10877	24
Roman	Laricea	not provided	N/A	Web-based Comments	20560	24
Roman	Roberto	not provided	N/A	Web-based Comments	27463	24
Roman	Victor	not provided	N/A	Web-based comments	57079	35
Romano	Michael	not provided	N/A	Web-based Comments	58378	28
romano	russ	not provided	N/A	Web-based Comments	27827	24
Romano'	Paolo	not provided	N/A	Web-based Comments	25616	24
Romanowski	Amy	not provided	N/A	Web-based Comments	46904	34
romanowski	amy	not provided	N/A	Web-based Comments	7667	24
Romans	Jennifer	not provided	N/A	Web-based Comments	17253	24
Romberger	Cynthia	not provided	N/A	Web-based Comments	51865, 51866	34
Romberger	Cynthia	not provided	N/A	Web-based Comments	11549	24
Rome	Abigail	not provided	N/A	Web-based Comments	7023	24
Romeo	Kerri	not provided	N/A	Web-based Comments	20059	24
Romer	Elke	not provided	N/A	Web-based Comments	54471	34
Romero	Cardy & Maureen	not provided	N/A	Web-based Comments	9779	24
Romero	Greg	not provided	N/A	Web-based Comments	15248	24
Romero	Jeri	not provided	N/A	Web-based Comments	46666	34
Romero	Jessica	not provided	N/A	Web-based comments	2984	5
Romero	Valerie	not provided	N/A	Web-based Comments	44925	34
Romero-Price	Armida	not provided	N/A	Web-based Comments	8446	24
Romesburg	Denise	not provided	N/A	Web-based Comments	12658	24
Romine	Janet	not provided	N/A	Web-based Comments	16641	24
Romito	Alexandra	not provided	N/A	Web-based Comments	7288	24
Romm	Rich	not provided	N/A	Web-based comments	4170	N/A
Rommereim	RL	rl.rommereim@gmail.com	N/A	Web-based comments	2404	N/A
Romondo	Darcy	not provided	N/A	Web-based Comments	48558	34
Ronaldson	Mitchell	not provided	N/A	Web-based Comments	24574	24
Ronan	Mary	not provided	N/A	Web-based Comments	23402	24
Ronay	Amanda	not provided	N/A	Web-based Comments	7552	24
Roncalli	LD	not provided	N/A	Web-based Comments	45752	34
Ronci	John	not provided	N/A	Web-based Comments	51075	34
Ronquillo	Elena	not provided	N/A	Web-based Comments	53289	34
Rood	Arthur	not provided	N/A	Web-based comments	6434	1
Rood	Edson	perkybeer2@gmail.com	N/A	Web-based comments	5971	N/A
Rood	Heidi	not provided	N/A	Web-based Comments	15577	24
Roojen	Mark	mvr1@earthlink.net	N/A	Web-based comments	2915	N/A
Rook	Natalie	not provided	N/A	Web-based Comments	25077	24
Rook	Rebecca	not provided	N/A	Web-based Comments	26766	24
Rooney	Christopher	not provided	N/A	Web-based Comments	51862	34
Rooney	Hannah	not provided	N/A	Web-based Comments	15409	24
Rooney	Jill	not provided	N/A	Web-based Comments	17538	24
Rooney	Kate	not provided	N/A	Web-based Comments	19400	24
Rooney	Ray	not provided	N/A	Web-based Comments	49718	34
Rooney	Rita	not provided	N/A	Web-based Comments	27152	24
Roop	Dick	not provided	N/A	Web-based Comments	12952	24
Roop	Jeffrey	not provided	N/A	Web-based Comments	17097	24
Roos	Karin	not provided	N/A	Web-based Comments	19285	24
Roos	Page	pageroos@yahoo.com	N/A	Web-based comments	4433	N/A
ROOSE	SHEM	SHEM@SHEMROOSE.COM	N/A	Web-based comments	1087	N/A
Root	Edith	not provided	N/A	Web-based Comments	58596	34
ROOT	ELIZABETH	not provided	N/A	Web-based Comments	45778	34
Root	Jenny	not provided	N/A	Web-based Comments	53494	34
Root	Nancy	not provided	N/A	Web-based Comments	24968	24
Roper	Daniel	danielleeroper@gmail.com	N/A	Web-based comments	4383	N/A
Roper	Truda	not provided	N/A	Web-based Comments	30939	24
Ropke	Melissa	not provided	N/A	Web-based Comments	45635	34
Roquemore	Priscilla	not provided	N/A	Web-based Comments	46099	34
Ros	Janneke	not provided	N/A	Web-based Comments	51303, 51304	34
Ros	Janneke	not provided	N/A	Web-based Comments	16754	24
Rosa	Linnea	not provided	N/A	Web-based comments	31814	1
Rosa	Michael	not provided	N/A	Web-based Comments	53884	34
Rosa	Michael	not provided	N/A	Web-based Comments	24209	24
rosa	vital	not provided	N/A	Web-based Comments	31309	24
Rosado	Francisco	not provided	N/A	Web-based Comments	14508	24
Rosales	Chari	not provided	N/A	Web-based Comments	50119	34
Rosales	Jazmine	not provided	N/A	Web-based Comments	16834	24
Rosales	Julio	not provided	N/A	Web-based Comments	55896	34
Rosales	Laura	not provided	N/A	Web-based Comments	20695	24
Rosane	Douglas	not provided	N/A	Web-based Comments	13339	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Rosa-Re	Lisa	not provided	N/A	Web-based Comments	21629	24
Rosa-Re	Samantha	not provided	N/A	Web-based Comments	47134, 47135	34
Rosario	Tess	tess_rosario@live.ca	N/A	Web-based comments	1422	1
Rosas	Greg	not provided	N/A	Web-based Comments	15249	24
Rosas	Harriet	not provided	N/A	Web-based Comments	15454	24
Rosas	Lori	not provided	N/A	Web-based Comments	21804	24
Rosasco	Gregory	not provided	N/A	Web-based Comments	15293	24
Rosato	Graciela	not provided	N/A	Web-based Comments	48030	34
Rosa-Young	Maria de la	not provided	N/A	Web-based Comments	58617	34
Rosczyk	Mary Lou	not provided	N/A	Web-based Comments	23540	24
Rose	Allyson	not provided	N/A	Web-based Comments	7482	24
Rose	Amanda	Amandafmrose@gmail.com	N/A	Web-based comments	2439	N/A
Rose	Andrea	not provided	N/A	Web-based Comments	7770	24
Rose	B.	not provided	N/A	Web-based Comments	8582	24
Rose	Becky	not provided	N/A	Web-based Comments	50730	N/A
Rose	C.	not provided	N/A	Web-based Comments	9698	24
Rose	Charmen	not provided	N/A	Web-based Comments	10582	24
Rose	Chris	not provided	N/A	Web-based Comments	48284, 49236	34
Rose	David	not provided	N/A	Web-based Comments	12125	24
Rose	Diann	not provided	N/A	Web-based Comments	44597	34
Rose	Don	not provided	N/A	Web-based Comments	13035	24
Rose	Donna	not provided	N/A	Web-based Comments	13182	24
Rose	Elizabeth	not provided	N/A	Web-based Comments	13835	24
Rose	Erica	not provided	N/A	Web-based Comments	51578	34
Rose	Galen	not provided	N/A	Web-based comments	1253	2
Rose	George	not provided	N/A	Web-based Comments	14914	24
Rose	Jason	not provided	N/A	Web-based Comments	16788	24
Rose	Jay	not provided	N/A	Web-based Comments	16815	24
Rose	Jennifer	not provided	N/A	Web-based comments	2921	N/A
Rose	John	not provided	N/A	Web-based Comments	18158	24
Rose	Kathryn	not provided	N/A	Web-based Comments	19659	24
Rose	Kay	not provided	N/A	Web-based comments	3282	N/A
Rose	Martyn	not provided	N/A	Web-based Comments	53456	34
Rose	Melene	not provided	N/A	Web-based Comments	23854	24
Rose	Pat	not provided	N/A	Web-based Comments	48765	34
Rose	Robert	not provided	N/A	Web-based Comments	27375	24
Rose	Robert	roseranch@willapabay.org	N/A	Web-based comments	6511	N/A
ROSE	SALLY	not provided	N/A	Web-based Comments	28027	24
Rose	Shanna	not provided	N/A	Web-based Comments	49024	34
Rose	Stephanie	not provided	N/A	Web-based Comments	50075	34
Rose	Terri	not provided	N/A	Web-based Comments	58554	34
Rose	Thatcher	not provided	N/A	Web-based Comments	30407	24
ROSE	WILLIAM	willowrose2@gmail.com	N/A	Web-based comments	32033	N/A
Rose Jr	William G	not provided	N/A	Web-based Comments	52011	34
Rosecrans	Melody	not provided	N/A	Web-based Comments	23952	24
Rose-Fortmueller	Laura	not provided	N/A	Web-based Comments	49140, 49141, 49142	34
Rose-Fortmueller	Laura	not provided	N/A	Web-based Comments	20696	24
Roseman a	Merin	not provided	N/A	Web-based Comments	23989	24
Rosemerta	Jann	not provided	N/A	Web-based Comments	16752	24
Rosen	Jerry	not provided	N/A	Web-based Comments	50869	34
Rosen	Karen	not provided	N/A	Web-based Comments	19204	24
Rosen	Ken	not provided	N/A	Web-based Comments	46422, 46423	34
Rosen	Ken	not provided	N/A	Web-based Comments	19989	24
Rosen	Michael	not provided	N/A	Web-based Comments	45134	34
Rosen	Rona	not provided	N/A	Web-based Comments	27643	24
Rosen	Stewart	not provided	N/A	Web-based Comments	29483	24
rosen	susan	not provided	N/A	Web-based Comments	29818	24
Rosen	Wanda	not provided	N/A	Web-based Comments	31378	24
Rosenau	Tamara	not provided	N/A	Web-based Comments	56217	34
Rosenbalm	Jean	not provided	N/A	Web-based Comments	16882	24
Rosenbaum	Jane E	not provided	N/A	Web-based Comments	16548	24
Rosenbaum	Peter	not provided	N/A	Web-based Comments	26286	24
Rosenberg	Alan	not provided	N/A	Web-based Comments	7186	24
rosenberg	gj	not provided	N/A	Web-based Comments	53812	34
Rosenberg	Jenn	not provided	N/A	Web-based Comments	17135	24
Rosenberg	John	rosenbergjohn@comcast.net	N/A	Hand-delivered or oral testimony (personally delivered)	4707	N/A
Rosenberg	John	rosenbergjohn@comcast.net	N/A	Web-based comments	2584, 1775	3
rosenberg	margot	not provided	N/A	Web-based Comments	47627	34
rosenberg	margot	not provided	N/A	Web-based Comments	22554	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Rosenberg	Michael	not provided	N/A	Web-based Comments	24210	24
Rosenberg	Pauline	not provided	N/A	Web-based Comments	53256	34
Rosenberg	Pauline	not provided	N/A	Web-based Comments	26124	24
Rosenberg	Steven	not provided	N/A	Web-based Comments	29460	24
Rosenberry Chase	Joy	not provided	N/A	Web-based Comments	18468	24
Rosenblad	Ken	not provided	N/A	Web-based Comments	19990	24
rosenblatt	michelle	not provided	N/A	Web-based Comments	24387	24
Rosenblood	Jamie	not provided	N/A	Web-based Comments	52762	34
Rosenblood	Jamie	not provided	N/A	Web-based Comments	16373	24
Rosenbloom	Richard	not provided	N/A	Web-based Comments	27036	24
Rosenblum	Ellen	not provided	N/A	Web-based Comments	51933	34
Rosenblum	John	not provided	N/A	Web-based Comments	18159	24
Rosenblum	Leonard	not provided	N/A	Web-based Comments	21011	24
Rosenblum	Margie	not provided	N/A	Web-based Comments	22543	24
Rosenblum	Roanne	not provided	N/A	Web-based Comments	27168	24
Rosenblum	Ronald	not provided	N/A	Web-based Comments	46764	34
Rosenblum	Stephen	not provided	N/A	Web-based Comments	29334	24
Rosenfeld	Daniel	not provided	N/A	Web-based Comments	11769	24
Rosenfeld	David	not provided	N/A	Web-based Comments	12126	24
ROSENFELD	JACK	not provided	N/A	Web-based Comments	16041	24
Rosenfeld	Miriam	not provided	N/A	Web-based Comments	24557	24
Rosenfeld	Wendy	not provided	N/A	Web-based Comments	31444	24
Rosengrant	D.	not provided	N/A	Web-based Comments	49649	34
Rosenhouse	Neil	not provided	N/A	Web-based Comments	25136	24
Rosenkoetter	Lisa	not provided	N/A	Web-based Comments	52383	34
Rosenkotter	Barbara	not provided	N/A	Web-based Comments	58018, 55529, 55530	16, 34
Rosenkotter	Barbara	not provided	N/A	Web-based Comments	8768	24
Rosenkranz	Ginny	not provided	N/A	Web-based Comments	58269	16
Rosenman	Emily	emily.rosenman@gmail.com	N/A	Web-based comments	31815	1
Rosenqvist	Kristin	not provided	N/A	Web-based Comments	20389	24
Rosenstein	Betty	not provided	N/A	Web-based Comments	9103	24
Rosenstein	Susan	not provided	N/A	Web-based Comments	29819	24
Rosenthal	A	not provided	N/A	Web-based Comments	6971	24
Rosenthal	Andrew	not provided	N/A	Web-based Comments	58106, 51113, 51114, 51115	16, 34
Rosenthal	Andrew	not provided	N/A	Web-based Comments	7843	24
Rosenthal	Rima	not provided	N/A	Web-based Comments	53267	34
Rosenthal	Rima	not provided	N/A	Web-based Comments	27119	24
Rosentreter	Roger	not provided	N/A	Web-based Comments	47778, 47854	34
Rosentreter	Roger	roger.rosentreter0@gmail.com	N/A	Web-based comments	2541	N/A
Rosenus	Alan	not provided	N/A	Web-based Comments	7187	24
Rosenzweig	Aline	not provided	N/A	Web-based Comments	7394	24
Rosepiper	Nima	not provided	N/A	Web-based Comments	25298	24
Rose-Stark	Matthew	not provided	N/A	Web-based comments	5775	1
Rosetto	Toni	not provided	N/A	Web-based Comments	30801	24
Rosin	Jay	not provided	N/A	Web-based Comments	16816	24
Rosing	John	not provided	N/A	Web-based Comments	18160	24
Roskelley	Heather	not provided	N/A	Web-based Comments	15532	24
Rosman	Garry	garryr@inlandpower.com	N/A	Web-based comments	2506	7
Ross	Adrienne	not provided	N/A	Web-based Comments	51435	34
Ross	Adrienne	not provided	N/A	Web-based Comments	7101	24
Ross	Amorah	ross.amorah@gmail.com	N/A	Web-based comments	753	N/A
Ross	Ann Marie	not provided	N/A	Web-based Comments	8112	24
Ross	Blanca Luz	not provided	N/A	Web-based Comments	9220	24
Ross	Burton	not provided	N/A	Web-based Comments	9658	24
Ross	Catherine	not provided	N/A	Web-based Comments	57933	16
Ross	Daphne	not provided	N/A	Web-based Comments	11843	24
Ross	David	not provided	N/A	Web-based comments	57564	35
Ross	David	not provided	N/A	Web-based Comments	12127	24
Ross	David	not provided	N/A	Web-based Comments	12128	24
Ross	Dru	not provided	N/A	Web-based Comments	45413	34
Ross	Ellen	not provided	N/A	Web-based Comments	13945	24
Ross	Elliot	not provided	N/A	Web-based Comments	13971	24
Ross	Eric	not provided	N/A	Web-based Comments	52738, 55194	34
Ross	Eric	not provided	N/A	Web-based Comments	14136	24
Ross	George and Darlene	not provided	N/A	Web-based Comments	14925	24
Ross	Georgianna	not provided	N/A	Web-based Comments	14948	24
Ross	Gerri	not provided	N/A	Web-based Comments	14996	24
ross	Ian	ianross5213@yahoo.com	N/A	Web-based comments	858	N/A
Ross	Irma	not provided	N/A	Web-based Comments	15924	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Ross	Jake	not provided	N/A	Web-based Comments	16165	24
Ross	James	not provided	N/A	Web-based Comments	16301	24
Ross	Janice	not provided	N/A	Web-based Comments	16695	24
Ross	Jennifer	not provided	N/A	Web-based Comments	17254	24
Ross	Jeremy	not provided	N/A	Web-based Comments	17319	24
Ross	Jim	not provided	N/A	Web-based Comments	17603	24
Ross	Kathy	not provided	N/A	Web-based Comments	19748	24
Ross	Laura	not provided	N/A	Web-based Comments	54343	34
Ross	Lilli	not provided	N/A	Web-based Comments	21165	24
Ross	Linda	not provided	N/A	Web-based Comments	21407	24
Ross	Lindsay	not provided	N/A	Web-based Comments	21485	24
Ross	Margaret	not provided	N/A	Web-based Comments	22497	24
Ross	Maria	not provided	N/A	Web-based Comments	45798	34
Ross	Marsha	not provided	N/A	Web-based Comments	52730	34
Ross	Nancy	not provided	N/A	Web-based Comments	24969	24
Ross	Nikisha	not provided	N/A	Web-based Comments	56004	34
Ross	Nona	not provided	N/A	Web-based Comments	51673	34
Ross	Pat	not provided	N/A	Web-based Comments	46092, 46093	34
Ross	Robert	not provided	N/A	Web-based Comments	56572	34
Ross	Roger	not provided	N/A	Web-based Comments	27593	24
Ross	Rohini	not provided	N/A	Web-based Comments	27598	24
Ross	Sabastian	not provided	N/A	Web-based Comments	27969	24
Ross	Sara	not provided	N/A	Web-based comments	57736	35
Ross	Shelly	not provided	N/A	Web-based Comments	28846	24
Ross	Sophie	not provided	N/A	Web-based Comments	29089	24
Ross	Susan	not provided	N/A	Web-based Comments	47131	34
Ross	Suzanne	not provided	N/A	Web-based Comments	30018	24
Rosseland	Sharon	not provided	N/A	Web-based Comments	28706	24
Rosselini	Isabella	not provided	N/A	Web-based Comments	15944	24
Rosser	Ellen	not provided	N/A	Web-based Comments	51185	34
Rossi	Berto	not provided	N/A	Web-based Comments	9006	24
Rossi	Bettina	not provided	N/A	Web-based Comments	53848	34
Rossi	Bob	not provided	N/A	Web-based Comments	53785	34
Rossi	Carolyn	not provided	N/A	Web-based Comments	44633	34
Rossi	Greta	not provided	N/A	Web-based Comments	15306	24
Rossi	Mike	not provided	N/A	Web-based Comments	24481	24
Rossi	Patricia	not provided	N/A	Web-based Comments	25835	24
Rossignol	Joan	not provided	N/A	Web-based Comments	45258	34
Rossignol	Joan	not provided	N/A	Web-based Comments	17730	24
Rossin	Linda	not provided	N/A	Web-based Comments	50778	34
Rossin	Linda	not provided	N/A	Web-based Comments	21408	24
Rossing Angeltveit	Andreas	not provided	N/A	Web-based Comments	7786	24
Rossman	Gregory	not provided	N/A	Web-based Comments	15294	24
Rossmann	Charles	not provided	N/A	Web-based Comments	10528	24
Rossner	A	not provided	N/A	Web-based Comments	6972	24
Rossner	M	not provided	N/A	Web-based Comments	22189	24
Rosso	Brit	not provided	N/A	Web-based Comments	50172, 50173	34
Rosso	Brit	not provided	N/A	Web-based Comments	9560	24
Rosson	Caity	not provided	N/A	Web-based comments	732	1
Rostholder	Jill	not provided	N/A	Web-based Comments	17539	24
Rostlund	Michelle	not provided	N/A	Web-based Comments	45946	34
Rotcher	Michael	not provided	N/A	Web-based Comments	24211	24
Rotensen	Hilbert	not provided	N/A	Web-based Comments	15707	24
Roth	Arlene	not provided	N/A	Web-based Comments	8431	24
Roth	Beverley	not provided	N/A	Web-based Comments	9115	24
Roth	Cathy	not provided	N/A	Web-based Comments	10389	24
Roth	Daniela	not provided	N/A	Web-based Comments	11796	24
roth	dave	not provided	N/A	Web-based Comments	11919	24
Roth	Elizabeth	not provided	N/A	Web-based Comments	13836	24
Roth	Hannah	not provided	N/A	Web-based Comments	15410	24
Roth	Jim Roth	not provided	N/A	Web-based comments	57463	35
Roth	Louis	not provided	N/A	Web-based Comments	21874	24
Roth	Lu	not provided	N/A	Web-based Comments	21917	24
Roth	Margaret	not provided	N/A	Web-based Comments	52364	34
Roth	Ronna	not provided	N/A	Web-based Comments	27688	24
Roth	Sandra	not provided	N/A	Web-based comments	57054	35
Roth	Shannon	not provided	N/A	Web-based Comments	28597	24
Roth	Susan	not provided	N/A	Web-based Comments	29820	24
Roth	Sylvia	not provided	N/A	Web-based Comments	30074	24
Roth	Teri	not provided	N/A	Web-based Comments	30314	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Rothach	Thalla	not provided	N/A	Web-based Comments	30402	24
rothal	beverly	not provided	N/A	Web-based Comments	9142	24
Rothbart	Jeffrey	not provided	N/A	Web-based Comments	55702	34
Rothbell	Carol	not provided	N/A	Web-based Comments	10012	24
Rothenberg	Florie	not provided	N/A	Web-based Comments	14453	24
Rothera	Malcolm	not provided	N/A	Web-based Comments	44285, 44286	34
Rothfeld	Philip	not provided	N/A	Web-based Comments	26353	24
Rothlisberger	Casey	rothlis3@gmail.com	N/A	Web-based comments	4175	1
Rothman	Alexis	not provided	N/A	Web-based Comments	7312	24
Rothman	Debra	not provided	N/A	Web-based Comments	12545	24
Rothman	Diana	not provided	N/A	Web-based Comments	12790	24
Rothman	Susan	not provided	N/A	Web-based Comments	29821	24
Rothrock	Annie	arothrock09@gmail.com	N/A	Web-based comments	6050	1
Rothschild	Mary	not provided	N/A	Web-based Comments	49712	34
Rothstein	Jamie	not provided	N/A	Web-based Comments	45149	34
Rothstein	Richard	not provided	N/A	Web-based Comments	27037	24
Rothwell	Jim	not provided	N/A	Web-based Comments	17604	24
Rouches	Inga	not provided	N/A	Web-based Comments	55188	34
Rouff	J	not provided	N/A	Web-based Comments	15990	24
Rough	Veronica	not provided	N/A	Web-based Comments	31102	24
Roughton	Karen	not provided	N/A	Web-based Comments	19205	24
Roulston	Larraine	not provided	N/A	Web-based Comments	20565	24
Rounds	Virginia	not provided	N/A	Web-based Comments	31302	24
Roundy	Alton	not provided	N/A	Web-based Comments	7493	24
Roundy	Glen & Diane	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	56608	N/A
Roure	Emilie	not provided	N/A	Web-based Comments	46291	34
Rouse	Frank	not provided	N/A	Web-based Comments	56045	34
Rouse	Frank	not provided	N/A	Web-based Comments	14543	24
Rouse	Gregory	not provided	N/A	Web-based Comments	15295	24
Rouse	Rena	not provided	N/A	Web-based Comments	51632	34
Rouse	Stacy	not provided	N/A	Web-based Comments	29143	24
Rouse	Terri	not provided	N/A	Web-based Comments	30345	24
Rouser	Howard	not provided	N/A	Web-based Comments	15805	24
Rouser	Norma	not provided	N/A	Web-based Comments	25391	24
Roussakis	Ioannis	not provided	N/A	Web-based Comments	53583	34
Rousseau	Mary Jo	not provided	N/A	Web-based Comments	23530	24
Rousseau	Veronica	not provided	N/A	Web-based comments	32127	27
Roussel-Dupre	diane	not provided	N/A	Web-based Comments	12895	24
Roussel-Dupre	Diane	not provided	N/A	Web-based Comments	12896	24
Roussell	Pam	not provided	N/A	Web-based Comments	25507	24
Routt	Bernadette	Kalai596706@yahoo.com	N/A	Web-based comments	1176	N/A
Rouviere	Steph	not provided	N/A	Web-based comments	56764	35
Roux	Raphael	not provided	N/A	Web-based comments	56849	35
Rove	Frances	not provided	N/A	Web-based Comments	54413	34
rovere	ann	not provided	N/A	Web-based Comments	8080	24
Rovine	Rachel	not provided	N/A	Web-based Comments	26543	24
Rovito	Marie	not provided	N/A	Web-based Comments	22724	24
Rovnak	Samantha	not provided	N/A	Web-based comments	57545	35
Rowan	Laurie	not provided	N/A	Web-based Comments	20853	24
Rowan	Shea	not provided	N/A	Web-based Comments	28773	24
Rowe	Bernice	not provided	N/A	Web-based Comments	8997	24
Rowe	Bonnie	not provided	N/A	Web-based Comments	9320	24
Rowe	Charles B.	not provided	N/A	Web-based Comments	50359	34
Rowe	G	not provided	N/A	Web-based Comments	50324	34
Rowe	Gret	not provided	N/A	Web-based Comments	15302	24
Rowe	IRENE	not provided	N/A	Web-based Comments	50868	34
ROWE	JEROMY	not provided	N/A	Web-based Comments	17333	24
Rowe	Laurie	not provided	N/A	Web-based Comments	55498	34
Rowe	Linda	not provided	N/A	Web-based Comments	21409	24
Rowe	M M	not provided	N/A	Web-based Comments	22206	24
Rowe	Sarah	not provided	N/A	Web-based Comments	28395	24
Rowe	Shirley	not provided	N/A	Web-based Comments	28964	24
ROWE	WILLIAM	not provided	N/A	Web-based Comments	31589	24
Rowe-Conlan	Lorraine	not provided	N/A	Web-based Comments	51667	34
Rowell	Diana	not provided	N/A	Web-based Comments	56026, 56027	34
Rowell	Diana	not provided	N/A	Web-based Comments	12791	24
Rowell	Steven	not provided	N/A	Web-based Comments	29461	24
Rowinski	Wojciech	not provided	N/A	Web-based Comments	31638	24
Rowland	Della	not provided	N/A	Web-based Comments	12607	24
Rowland	Joan	not provided	N/A	Web-based Comments	17731	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Rowland	Lizbeth	not provided	N/A	Web-based Comments	21706	24
Rowlas	Andrew	not provided	N/A	Web-based Comments	7844	24
Rowley	Carley	not provided	N/A	Web-based Comments	9842	24
Rowley	L.	not provided	N/A	Web-based comments	2776	N/A
Rowley	Mike	not provided	N/A	Web-based Comments	55035	34
Rowney	Marijke	not provided	N/A	Web-based comments	56921	35
Rowney	Marijke	not provided	N/A	Web-based Comments	22752	24
Roy	Ben	fenriz024@gmail.com	N/A	Web-based comments	2457	N/A
Roy	Brenda	not provided	N/A	Web-based Comments	9420	24
Roy	Brigite	not provided	N/A	Web-based Comments	51292, 51293	34
Roy	Bryant	bryant.roy@me.com	N/A	Web-based comments	5376	N/A
Roy	Carola	not provided	N/A	Web-based Comments	10065	24
Roy	Joe	not provided	N/A	Web-based Comments	53642	34
roy	kathleen	not provided	N/A	Web-based Comments	19595	24
Roy	Mags	not provided	N/A	Web-based Comments	56260	34
Roy	Mags	not provided	N/A	Web-based Comments	22277	24
Roy	Robin	not provided	N/A	Web-based Comments	27518	24
Roy	Wyatt	not provided	N/A	Web-based Comments	31643	24
Royales	Perri	perrieroyales@yahoo.com	N/A	Web-based comments	2004	1
Royer	James	jroyer1@gmail.com	N/A	Web-based comments	6252	1
Royer	Sharon	not provided	N/A	Web-based Comments	28707	24
Royffe	Shifra	not provided	N/A	Web-based Comments	28933	24
Roys	Kayla	kaylamroys@gmail.com	N/A	Web-based comments	6738	N/A
Royse	Cynthia	not provided	N/A	Web-based Comments	11550	24
Rozell	Vickie	not provided	N/A	Web-based Comments	31160	24
Rpsemfield	lynne	not provided	N/A	Web-based Comments	51311	34
Ruane	Matt	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32482	N/A
Ruane	Matthew	eireson@aol.com	N/A	Web-based comments	4125	N/A
Ruark	David	not provided	N/A	Web-based comments	6827	N/A
Rubatto	Martha	not provided	N/A	Web-based Comments	23125	24
Rubel	Sidra	not provided	N/A	Web-based Comments	28983	24
ruben	kyra	not provided	N/A	Web-based Comments	20469	24
Rubenstone	E	not provided	N/A	Web-based Comments	13416	24
Rubietta	Victoria	not provided	N/A	Web-based Comments	31216	24
Rubin	Allan	not provided	N/A	Web-based Comments	7438	24
Rubin	Bill	not provided	N/A	Web-based Comments	9182	24
Rubin	Enid	not provided	N/A	Web-based Comments	14072	24
Rubin	Erica	not provided	N/A	Web-based Comments	14167	24
Rubin	Laurie	not provided	N/A	Web-based Comments	20854	24
Rubin	Marc	not provided	N/A	Web-based Comments	22341	24
Rubin	Michael B.	not provided	N/A	Web-based Comments	24260	24
Rubin	Monique	not provided	N/A	Web-based Comments	24656	24
Rubin	Susan	not provided	N/A	Web-based Comments	29822	24
Rubin Fields	Deborah	not provided	N/A	Web-based Comments	12463	24
Rubinfield	Adam	adam.ruby@gmail.com	N/A	Web-based comments	5834	8
Rubinfine	Deborah	not provided	N/A	Web-based Comments	12464	24
Rubin-Horton	Lisa	not provided	N/A	Web-based Comments	21630	24
Rubino	Dawn	not provided	N/A	Web-based Comments	12244	24
Rubinow	Stuart	not provided	N/A	Web-based Comments	29498	24
Rubinstein	Sherry	not provided	N/A	Web-based Comments	28904	24
Rubio	Brittany	not provided	N/A	Web-based Comments	55150	34
Rubio	Edwin	not provided	N/A	Web-based Comments	13526	24
Rubio	Jennifer	not provided	N/A	Web-based Comments	17255	24
Ruby	Alan	fectrustee5@hotmail.com	N/A	Web-based comments	4981	N/A
Ruby	Constance	not provided	N/A	Web-based Comments	11346	24
Ruby	Dennis	not provided	N/A	Web-based Comments	12702	24
ruby	jan	not provided	N/A	Web-based Comments	16423	24
Ruby	Kenneth	not provided	N/A	Web-based Comments	49947	34
Ruby	Kenneth	not provided	N/A	Web-based Comments	20024	24
Ruby	Theresa	not provided	N/A	Web-based Comments	30446	24
Rucci	Kayvon	not provided	N/A	Web-based Comments	19853	24
Rucinski	Arlene	not provided	N/A	Web-based Comments	8432	24
Rucker	Rebecca	not provided	N/A	Web-based Comments	26767	24
Ruckman	Heather	not provided	N/A	Web-based Comments	48287	34
Ruckman	Heather	not provided	N/A	Web-based Comments	15533	24
Rudavsky	Dahlia	not provided	N/A	Web-based Comments	54600	34
Rudd	Laura	not provided	N/A	Web-based Comments	20697	24
Rudd	Pauline	not provided	N/A	Web-based Comments	46023	34
Rudd	Sidney	not provided	N/A	Web-based Comments	47236, 47237	34
Rudenko	Anton	not provided	N/A	Web-based Comments	8358	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Ruder	Aaron	not provided	N/A	Web-based Comments	7003	24
Rudin	David	not provided	N/A	Web-based Comments	12129	24
Rudisill	Amanda Sue	not provided	N/A	Web-based Comments	50352	34
Rudisill	Amanda Sue	not provided	N/A	Web-based Comments	7561	24
Rudley	Gail	not provided	N/A	Web-based Comments	14710	24
Rudnick	Steven	not provided	N/A	Web-based Comments	29462	24
Rudolf	Catherine	not provided	N/A	Web-based Comments	10320	24
Rudolf	Matthew	mattrudolf@hotmail.com	N/A	Web-based comments	32032	N/A
Rudolph	Heilet	not provided	N/A	Web-based Comments	15589	24
Rudolph	JoEllen	not provided	N/A	Web-based comments	57592	35
Rudolph	JoEllen	not provided	N/A	Web-based Comments	17934	24
Rudolph	John	not provided	N/A	Web-based Comments	45557	34
Rudolph	Mynhard	not provided	N/A	Web-based Comments	24709	24
Rudolph	Rachel	not provided	N/A	Web-based Comments	26544	24
Rudy	Timothy	not provided	N/A	Web-based Comments	30659	24
Rueck	Gina	not provided	N/A	Web-based Comments	54414	34
Rueckel	Gail	not provided	N/A	Web-based Comments	14711	24
Rueckel	James	not provided	N/A	Web-based Comments	16302	24
Ruedas	Thomas	not provided	N/A	Web-based Comments	47168	34
Ruelland	Michel	not provided	N/A	Web-based Comments	24272	24
Rues	Alicia	not provided	N/A	Web-based Comments	53623, 53624	34
Rueter	Tami	rueter.tami@gmail.com	N/A	Web-based comments	6618	N/A
Rufener	Paula	not provided	N/A	Web-based Comments	52999	34
Rufener	Paula	not provided	N/A	Web-based Comments	26097	24
Ruff	Gregory	not provided	N/A	Web-based Comments	15296	24
Ruff	Wallace	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32327	N/A
Rugel	Emily	not provided	N/A	Web-based Comments	14036	24
Ruger	Connie	not provided	N/A	Web-based Comments	11320	24
Ruger	Kathy	not provided	N/A	Web-based Comments	19749	24
Rugg	Susan	not provided	N/A	Web-based Comments	29823	24
Ruggeri	Letizia	not provided	N/A	Web-based Comments	21125	24
Ruggeri	Wendy	not provided	N/A	Web-based Comments	55787	34
Ruggeri	Wendy	not provided	N/A	Web-based Comments	31445	24
Ruggieri	Deana	not provided	N/A	Web-based Comments	12271	24
Ruggiero	Dianna	not provided	N/A	Web-based Comments	12931	24
Rugoff Locker	Stephanie	not provided	N/A	Web-based Comments	29245	24
Ruisard	Richard	not provided	N/A	Web-based Comments	58262	16
Ruisi	Joseph	not provided	N/A	Web-based Comments	18391	24
Ruiter	Jessica de	not provided	N/A	Web-based Comments	50236, 50237	34
Ruiz	Aida	not provided	N/A	Web-based Comments	55880	34
Ruiz	Alejandra	not provided	N/A	Web-based Comments	7227	24
Ruiz	Diego	not provided	N/A	Web-based Comments	53762	34
Ruiz	George	not provided	N/A	Web-based Comments	56432	34
Ruiz	Gloria	not provided	N/A	Web-based Comments	15169	24
Ruiz	Jennifer	not provided	N/A	Web-based Comments	17256	24
Ruiz	Kathleen	not provided	N/A	Web-based Comments	54924, 54925	34
Ruiz	Lorena	not provided	N/A	Web-based Comments	21753	24
Ruiz	Marcia	not provided	N/A	Web-based Comments	54988	34
Ruiz	Marina	not provided	N/A	Web-based Comments	45931	34
Ruiz	Rahel	not provided	N/A	Web-based Comments	26576	24
Ruiz	Stefani	not provided	N/A	Web-based comments	32197	1
Rule	Juliann	not provided	N/A	Web-based Comments	53610, 58428	34
Rule	Juliann	not provided	N/A	Web-based Comments	18799	24
Rullman	Claudia	not provided	N/A	Web-based Comments	50418	34
Rullman	Claudia	not provided	N/A	Web-based Comments	11197	24
Rullmann	Gale	not provided	N/A	Web-based Comments	48920	34
Rullmann	Gale	not provided	N/A	Web-based Comments	14735	24
Rumbaugh	Lisa	not provided	N/A	Web-based Comments	48403	34
RUMENS	DEBORAH	not provided	N/A	Web-based Comments	12465	24
Rumiantseva	Elena	not provided	N/A	Web-based Comments	47595, 47596, 47597	34
Rumiantseva	Elena	not provided	N/A	Web-based Comments	13655	24
Rummel	Tom	not provided	N/A	Web-based Comments	30765	24
Rumpf	John	not provided	N/A	Web-based Comments	18161	24
Rumpf-Sternberg	Eve	not provided	N/A	Web-based Comments	14341	24
Rund	Jen	not provided	N/A	Web-based Comments	17121	24
Rundstrom	Parker	not provided	N/A	Web-based Comments	54257	34
Runft	W J	not provided	N/A	Web-based Comments	31339	24
Runge	Erica	not provided	N/A	Web-based Comments	52616, 52617	34
Runge	Sven	not provided	N/A	Web-based Comments	30045	24
Runk	Karen	not provided	N/A	Web-based Comments	53471	34

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Runte	Donna	not provided	N/A	Web-based Comments	13183	24
Ruocco	Susan	not provided	N/A	Web-based Comments	29824	24
Ruokonen	Sari	not provided	N/A	Web-based Comments	28433	24
Rupert	Greg	not provided	N/A	Web-based Comments	56324, 56325	34
Rupp	cathy	not provided	N/A	Web-based Comments	50709	34
Rupp	Karen	not provided	N/A	Web-based Comments	50141	34
Rupp	Lavelle	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58697	11
Rupp	Nancy	not provided	N/A	Web-based Comments	45734, 45735	34
Rupp	Nancy	not provided	N/A	Web-based Comments	24970	24
Rupp	Rick	not provided	N/A	Web-based comments	3515	N/A
Ruppel	Christie	not provided	N/A	Web-based Comments	10838	24
Ruprecht	Jessica	not provided	N/A	Web-based Comments	17459	24
ruscitto	lydia linda	not provided	N/A	Web-based Comments	21995	24
Rush	Julia	not provided	N/A	Web-based Comments	18772	24
Rush	Lawrence	not provided	N/A	Web-based Comments	20884	24
Rush	Mary	not provided	N/A	Web-based Comments	23403	24
Rush	Michael	rushm1953@gmail.com	N/A	Web-based comments	4490	N/A
Rush	Nan	not provided	N/A	Web-based Comments	24788	24
Rush	Robert	not provided	N/A	Web-based Comments	27376	24
Rush	Tracy	ttrfarms@gmail.com	N/A	Web-based comments	4530	N/A
Rush	Wysteria	not provided	N/A	Web-based comments	4524	N/A
Rushefsky	Molly	not provided	N/A	Web-based Comments	24601	24
Rusher	Marna	not provided	N/A	Web-based Comments	23055	24
Rushfeldt	Diana	not provided	N/A	Web-based Comments	12792	24
Rushin	Christopher	not provided	N/A	Web-based Comments	11028	24
Rushworth	Jerily	not provided	N/A	Web-based Comments	55069, 55070	34
Rushworth	Jerily	not provided	N/A	Web-based Comments	17330	24
Rusnak	Richard	not provided	N/A	Web-based Comments	27038	24
Rusnak	Richard	rarusnak62@gmail.com	N/A	Web-based comments	31834	N/A
Rusnak	Tianna	not provided	N/A	Web-based comments	56729	35
Russ	John	not provided	N/A	Web-based Comments	18162	24
Russ	Louis	not provided	N/A	Web-based Comments	21875	24
Russ	Sue	not provided	N/A	Web-based Comments	56171	34
Russell	Anne	not provided	N/A	Web-based Comments	58545	34
Russell	Bill	not provided	N/A	Web-based Comments	49650	34
Russell	Bill	not provided	N/A	Web-based Comments	9183	24
Russell	Carli	not provided	N/A	Web-based Comments	9844	24
Russell	Catherine	not provided	N/A	Web-based Comments	10321	24
Russell	Charlotte	not provided	N/A	Web-based Comments	10565	24
Russell	Danielle	not provided	N/A	Web-based Comments	11816	24
Russell	Elaine	not provided	N/A	Web-based Comments	13608	24
Russell	Jan	not provided	N/A	Web-based Comments	16424	24
Russell	Jennifer	not provided	N/A	Web-based Comments	45568, 50582	34
Russell	john	russrad@juno.com	N/A	Web-based comments	4408	N/A
Russell	Jordan	not provided	N/A	Web-based comments	5850, 5851	1
Russell	Kat	not provided	N/A	Web-based Comments	19351	24
Russell	Kathy	not provided	N/A	Web-based Comments	19750	24
Russell	Linda	linda.may.russ@gmail.com	N/A	Web-based comments	1364	1
Russell	Marilyn	not provided	N/A	Web-based Comments	22809	24
Russell	Mary	not provided	N/A	Web-based Comments	23404	24
Russell	Michael	not provided	N/A	Web-based Comments	24212	24
Russell	Michael	not provided	N/A	Web-based Comments	24213	24
Russell	Nerissa	not provided	N/A	Web-based Comments	25152	24
Russell	Patricia	not provided	N/A	Web-based Comments	25836	24
Russell	Paul	not provided	N/A	Web-based Comments	50338	34
Russell	Ralph	rwrussell3@gmail.com	N/A	Web-based comments	1873	N/A
Russell	Robin	not provided	N/A	Web-based Comments	50503	34
Russell	Rosemarie	not provided	N/A	Web-based Comments	27754	24
Russell	Sandra	not provided	N/A	Web-based Comments	28206	24
Russell	Sharon	not provided	N/A	Web-based Comments	28708	24
Russell	Stuart	not provided	N/A	Web-based Comments	29499	24
Russell	Thomas	Thomas.C.Russell@gmail.com	N/A	Web-based comments	32077	N/A
Russell	William	not provided	N/A	Web-based Comments	31590	24
Russie	Daniel	DBRussie@gmail.com	N/A	Web-based comments	1924	N/A
Russo	Frank	not provided	N/A	Web-based comments	5092	N/A
Russo	Keli	not provided	N/A	Web-based Comments	19892	24
Russo	Meredith	fair.comyn@gmail.com	N/A	Web-based comments	2854	N/A
Russo	Samantha	not provided	N/A	Web-based Comments	28083	24
Russo	Selene	not provided	N/A	Web-based Comments	51245	34
Russo-Jang	Fiorella	not provided	N/A	Web-based Comments	14441	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Rust	Arlene	not provided	N/A	Web-based Comments	8433	24
Rust	Christine	not provided	N/A	Web-based comments	57595	35
Rust	Paula	not provided	N/A	Web-based Comments	52451	34
Rust	Sandra	not provided	N/A	Web-based Comments	28207	24
Rust	Steven	not provided	N/A	Web-based Comments	29463	24
Rusterholz	Kurt	not provided	N/A	Web-based Comments	20438	24
Rustermier	Cathy	not provided	N/A	Web-based Comments	10390	24
Rutayisire	Sandrine	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	31753	25
Ruth	Doug	not provided	N/A	Web-based Comments	13310	24
Ruth	Joy	not provided	N/A	Web-based comments	57307	35
Rutherford	Francie	not provided	N/A	Web-based Comments	14497	24
Rutherford	Jim	not provided	N/A	Web-based comments	57609	35
Rutherford	John	johnr72@aol.com	N/A	Web-based comments	3005	N/A
Rutherford	Richard	not provided	N/A	Web-based Comments	27039	24
Rutigliano	Janet	not provided	N/A	Web-based Comments	56071	34
rutkin	brian	not provided	N/A	Web-based Comments	9505	24
Rutkowski	Kimberly	not provided	N/A	Web-based Comments	20238	24
Rutsch	Taylor	not provided	N/A	Web-based Comments	30236	24
Ruttenberg	Judith	not provided	N/A	Web-based Comments	45437	34
Rutter	Gene	not provided	N/A	Web-based Comments	49056	34
Rutter	Robert	bbrutter@icloud.com	N/A	Web-based comments	15	N/A
Rutz	Geri	not provided	N/A	Web-based Comments	46163	34
Rutzky	Ronald	not provided	N/A	Web-based Comments	27667	24
Ruud	Dave	not provided	N/A	Web-based Comments	53280	34
Ruud	Dave	not provided	N/A	Web-based Comments	11920	24
Ruud	Kathryn	not provided	N/A	Web-based Comments	19660	24
Ruud	Kirsti	ruudk@seattleu.edu	N/A	Web-based comments	3540	3
Ruvalcaba	Leonel	not provided	N/A	Web-based Comments	21016	24
Ruvo	Daniel	not provided	N/A	Web-based Comments	11770	24
Ryan	Amy	not provided	N/A	Web-based Comments	7668	24
Ryan	Annie	not provided	N/A	Web-based Comments	56231	34
Ryan	Annie	not provided	N/A	Web-based Comments	8310	24
Ryan	Bart	not provided	N/A	Web-based Comments	47042, 47043	34
Ryan	Bart	not provided	N/A	Web-based Comments	8871	24
Ryan	Carolyn	not provided	N/A	Web-based Comments	54843, 54844	34
Ryan	Constance	not provided	N/A	Web-based Comments	11347	24
Ryan	Diane	not provided	N/A	Web-based Comments	12897	24
Ryan	Emmet	not provided	N/A	Web-based Comments	48999	34
Ryan	Hannah	not provided	N/A	Web-based Comments	15411	24
Ryan	Joanne	not provided	N/A	Web-based Comments	17823	24
Ryan	Kenneth	not provided	N/A	Web-based Comments	54090	34
Ryan	Larry	not provided	N/A	Web-based Comments	49622	34
Ryan	Laura	not provided	N/A	Web-based Comments	45956	34
Ryan	Lynn	not provided	N/A	Web-based Comments	47503	34
Ryan	Lynn	not provided	N/A	Web-based Comments	22091	24
Ryan	Megan	not provided	N/A	Web-based Comments	52905	34
Ryan	Michelle	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4217	N/A
Ryan	Michelle	not provided	N/A	Web-based Comments	46237	34
Ryan	Patrice	not provided	N/A	Web-based Comments	25694	24
Ryan	Paul	not provided	N/A	Web-based Comments	26039	24
Ryan	Sarah	not provided	N/A	Web-based Comments	28396	24
Ryan	Sheila	not provided	N/A	Web-based Comments	44394	34
Ryan	Sheila	not provided	N/A	Web-based Comments	28803	24
Ryan	Susan	not provided	N/A	Web-based Comments	44303	34
Ryan	Valerie	not provided	N/A	Web-based Comments	31040	24
Ryan	William	not provided	N/A	Web-based Comments	31591	24
Ryan Booth	Lauren	not provided	N/A	Web-based comments	57558	35
Ryave	Ruth	not provided	N/A	Web-based Comments	27885	24
Rybicki	John	not provided	N/A	Web-based Comments	54124, 54125	34
Rybicki	John	not provided	N/A	Web-based Comments	18163	24
Rybnikov	Michele	Mi68or@gmail.com	N/A	Web-based comments	1432	N/A
Rydalch	Jeff	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32356	13
ryden	wendy	not provided	N/A	Web-based Comments	46294	34
Ryden	Wendy	not provided	N/A	Web-based Comments	31446	24
Ryder	Alissa	not provided	N/A	Web-based comments	56698	35
Ryder	Anne	not provided	N/A	Web-based Comments	8238	24
Ryder	Judy	not provided	N/A	Web-based Comments	47535	34
Rydman	Nate	not provided	N/A	Web-based Comments	25098	24
Rye	Faye	not provided	N/A	Web-based Comments	14408	24
Ryerson	William	not provided	N/A	Web-based Comments	31592	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Ryffel	Clifford	not provided	N/A	Web-based Comments	11221	24
rygiel	rose	not provided	N/A	Web-based Comments	27733	24
Ryland	Anne	not provided	N/A	Web-based Comments	55689, 55690	34
Ryland	Gail	not provided	N/A	Web-based Comments	14712	24
Ryland	Martin	not provided	N/A	Web-based comments	56883	35
Rynders	Lynette	not provided	N/A	Web-based Comments	22042	24
Rynes	Michael	not provided	N/A	Web-based Comments	56233, 56234	34
Rynes	Michael	not provided	N/A	Web-based Comments	24214	24
Ryngler	Sheerlie	not provided	N/A	Web-based comments	32192	1
Rysavy	Robin	not provided	N/A	Web-based Comments	27519	24
Ryter	Gisela	not provided	N/A	Web-based Comments	47579	34
Rzepiak	Sandy	not provided	N/A	Web-based Comments	28261	24
S	A	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	4776	18
S	Adi	not provided	N/A	Web-based Comments	51623	34
s	c	not provided	N/A	Web-based Comments	55422	34
S	C	not provided	N/A	Web-based Comments	49852, 57872, 57871	34
S	Clare	not provided	N/A	Web-based Comments	11163	24
S	D	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58365	N/A
S	D	not provided	N/A	Web-based Comments	11585	24
S	David	not provided	N/A	Web-based Comments	12130	24
S	G	not provided	N/A	Web-based Comments	14617	24
S	G	not provided	N/A	Web-based Comments	14618	24
S	J	not provided	N/A	Web-based Comments	44535, 46550	34
S	J	not provided	N/A	Web-based Comments	15991	24
S	Jay	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	4766	18
S	Jessica	not provided	N/A	Web-based Comments	17460	24
S	Jimmy	not provided	N/A	Web-based Comments	17626	24
S	John	not provided	N/A	Web-based Comments	47197	34
S	John	not provided	N/A	Web-based Comments	18164	24
s	joyce	not provided	N/A	Web-based Comments	18508	24
S	Laurie	not provided	N/A	Web-based Comments	50374	34
S	Linda	lindasz100@gmail.com	N/A	Web-based comments	6056	N/A
S	Lindsay	not provided	N/A	Web-based Comments	58513	34
S	Lois	not provided	N/A	Web-based Comments	21729	24
S	M	not provided	N/A	Web-based Comments	47534	34
s	m	not provided	N/A	Web-based Comments	22192	24
S	M	not provided	N/A	Web-based Comments	22190	24
S	M	not provided	N/A	Web-based Comments	22191	24
S	Mani	not provided	N/A	Web-based Comments	48660	34
S	O	not provided	N/A	Web-based Comments	25413	24
S	One	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	4778	N/A
S	Patti	not provided	N/A	Web-based Comments	25951	24
S	Poppy	not provided	N/A	Web-based Comments	26430	24
S	Rachel	not provided	N/A	Web-based Comments	26545	24
S	Sarah	not provided	N/A	Web-based Comments	28397	24
S	STeve	not provided	N/A	Web-based Comments	52370	34
S	Steve	not provided	N/A	Web-based Comments	29397	24
S	Toni	not provided	N/A	Web-based comments	6806	1
S Lutes	Elizabeth	not provided	N/A	Web-based Comments	13837	24
S.	Adrienne	not provided	N/A	Web-based Comments	7102	24
S.	Brett	not provided	N/A	Web-based comments	3326	N/A
s.	desanka	not provided	N/A	Web-based Comments	49620	34
S.	Francis	not provided	N/A	Web-based Comments	46426	34
S.	Francis	not provided	N/A	Web-based Comments	14506	24
S.	J.	not provided	N/A	Web-based comments	1334	2
S.	Jim	rrsjls@outlook.com	N/A	Web-based comments	1889	N/A
S.	Joe	not provided	N/A	Web-based Comments	17894	24
S.	John	not provided	N/A	Web-based comments	4436	8
S.	Katana	not provided	N/A	Web-based comments	6298	1
S.	Kenneth	korova44@yahoo.com	N/A	Web-based comments	32204	1
S.	M.	not provided	N/A	Web-based Comments	22211	24
S.	Nelson	not provided	N/A	Web-based Comments	54081, 54082	34
S.	Nelson	not provided	N/A	Web-based Comments	25147	24
S.	Rachel	rachel.adriano43@gmail.com	N/A	Web-based comments	1631	1
S.	Rebecca	not provided	N/A	Web-based comments	4881	1
S.	Sam	not provided	N/A	Web-based Comments	58258	16
S. Snider	Pamela S.	not provided	N/A	Web-based Comments	25604	24
S.Germain	Lesley	not provided	N/A	Web-based Comments	21048	24
S.Tarver	Letitia	not provided	N/A	Web-based Comments	21124	24
Saa	Marilyn	not provided	N/A	Web-based Comments	22810	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Saachi	Olivia	not provided	N/A	Web-based comments	57400	35
Saaf	Anne	not provided	N/A	Web-based Comments	8239	24
Saar	Jenny	not provided	N/A	Web-based Comments	17298	24
Saari	Jani	not provided	N/A	Web-based Comments	44502, 44503	34
Saari	Jani	not provided	N/A	Web-based Comments	16662	24
Saarimaa	Saara	not provided	N/A	Web-based Comments	27968	24
Saarinen	Tamara	not provided	N/A	Web-based Comments	52872	34
Saarinen	Tamara	not provided	N/A	Web-based Comments	30130	24
Saatchi	Shan	not provided	N/A	Web-based Comments	28562	24
Saavedra	Jasmine	not provided	N/A	Web-based Comments	48982, 49053	34
Sabado	Rick Sabado	not provided	N/A	Web-based comments	57472	35
Sabatini	Kathy	not provided	N/A	Web-based Comments	19751	24
Sabato	Jennie	not provided	N/A	Web-based Comments	17147	24
Sabbadini	Amy	not provided	N/A	Web-based Comments	7669	24
SABIA	DANNI	not provided	N/A	Web-based Comments	11830	24
Sabiers	Ruth	not provided	N/A	Web-based Comments	27886	24
Sabin	Cynthia	not provided	N/A	Web-based Comments	11551	24
Sabin	Robert	not provided	N/A	Web-based Comments	46274	34
Sabinson	Mara	not provided	N/A	Web-based Comments	44949, 44950	34
Sabinson	Mara	not provided	N/A	Web-based Comments	22322	24
Sable	Eric	ericash12@hotmail.com	N/A	Web-based comments	3385	N/A
Sable	Rosalie	not provided	N/A	Web-based Comments	53565	34
Sabo	Betty	not provided	N/A	Web-based Comments	50584, 58114	16
Sabo	Bradley	not provided	N/A	Web-based Comments	9355	24
SABOYA	MARIA	not provided	N/A	Web-based Comments	58458	34
Saboya	MARIA	not provided	N/A	Web-based Comments	22626	24
Sabsay	Tori	not provided	N/A	Web-based comments	57404	35
SACANY	Deborah	deborah.sacany@gmail.com	N/A	Web-based comments	4337	1
SACANY	Viviane	v.sacany@gmail.com	N/A	Web-based comments	4335	1
Sacca	Isabella	not provided	N/A	Web-based Comments	15945	24
Saccardi	John	not provided	N/A	Web-based Comments	18165	24
Sacco	Joel	not provided	N/A	Web-based Comments	17922	24
Sacco	Julie	not provided	N/A	Web-based Comments	18888	24
Sachanska	Anita	not provided	N/A	Web-based Comments	48771, 48772	34
Sachs	Alson	not provided	N/A	Web-based Comments	7491	24
Sachs	Andreas	not provided	N/A	Web-based Comments	7787	24
sachs	benita	not provided	N/A	Web-based Comments	49953	34
Sachs	Jameson	not provided	N/A	Web-based Comments	16349	24
Sachs	Janet	not provided	N/A	Web-based Comments	16642	24
Sachs	Randyl	not provided	N/A	Web-based Comments	26645	24
Sack	Rita	not provided	N/A	Web-based Comments	27153	24
Sackett	John	johnisackett@gmail.com	N/A	Web-based comments	5359	N/A
Sackmann	Erin	not provided	N/A	Web-based Comments	48094	34
Sacra	Kristine	not provided	N/A	Web-based Comments	20420	24
Sade	Guy	not provided	N/A	Web-based Comments	15344	24
Sadeghi	Afshin	not provided	N/A	Web-based Comments	55873, 55874	34
Sadeghi	Afshin	not provided	N/A	Web-based Comments	7111	24
Sadiq	Meena	not provided	N/A	Web-based comments	57354	35
Sadler	Liese	not provided	N/A	Web-based Comments	21152	24
Sadler	Marie	not provided	N/A	Web-based Comments	22725	24
Sadlo	Joan	not provided	N/A	Web-based Comments	17732	24
Sadowniczak	Claire	not provided	N/A	Web-based Comments	11144	24
Sadowski	Barbara	not provided	N/A	Web-based Comments	8769	24
Sadowski	Diane	not provided	N/A	Web-based Comments	12898	24
Sadowsky	Nancy	not provided	N/A	Web-based Comments	24971	24
Sadowsky	Richard	not provided	N/A	Web-based Comments	27040	24
Saegaert	Tessa	not provided	N/A	Web-based Comments	30397	24
Saenz	Janiece	not provided	N/A	Web-based Comments	46911	34
safai	fariba	not provided	N/A	Web-based Comments	14392	24
Safer	Orna	not provided	N/A	Web-based Comments	25450	24
Safferstone	Steve	not provided	N/A	Web-based Comments	29398	24
Safford	Brooke	not provided	N/A	Web-based Comments	9586	24
Saffren	G.	not provided	N/A	Web-based Comments	55801	34
Safran	Roselle	not provided	N/A	Web-based Comments	27744	24
Safran	Sandra	not provided	N/A	Web-based Comments	28208	24
Safrin	Patricia	not provided	N/A	Web-based Comments	46084	34
Sage	Karen	not provided	N/A	Web-based Comments	45564	34
Sage	Marina	not provided	N/A	Web-based Comments	22836	24
Sager	Darcy	not provided	N/A	Web-based Comments	11854	24
Sagev	Segal	not provided	N/A	Web-based Comments	28529	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Saggan	Laurie	not provided	N/A	Web-based Comments	50479	34
Saglietto	Eve	not provided	N/A	Web-based Comments	54382, 54383	34
Saglietto	Eve	not provided	N/A	Web-based Comments	14342	24
Sagovac	Emily	not provided	N/A	Web-based Comments	49928	34
Sagovac	Emily	not provided	N/A	Web-based Comments	14037	24
Sahebi	Nusheen	not provided	N/A	Web-based Comments	25408	24
Sahl	Brad	not provided	N/A	Web-based Comments	9345	24
Sahlberg	Tom	tomnsahl@comcast.net	N/A	Web-based comments	1949	N/A
Sahouria	Jack	not provided	N/A	Web-based Comments	16042	24
Saia	Chris	not provided	N/A	Web-based Comments	10782	24
Saifee	Zahra	not provided	N/A	Web-based Comments	31720	24
Sailer	John	not provided	N/A	Web-based Comments	54949, 54950	34
Sailer	Randy	not provided	N/A	Web-based Comments	26643	24
Saint	Le	meryl.lesaint@yahoo.fr	N/A	Web-based comments	299	1
Saint-Amour	Jeanne	not provided	N/A	Web-based Comments	16970	24
Saint-Clair	Catherine	not provided	N/A	Web-based Comments	49436, 49437	34
SAINTS	SHEILA	not provided	N/A	Web-based Comments	28804	24
Sajdak	Mary	not provided	N/A	Web-based Comments	23405	24
Sajovie	Norm	not provided	N/A	Web-based Comments	55114	34
Sajovie	Norm	not provided	N/A	Web-based Comments	25377	24
Sak	Henry	not provided	N/A	Web-based Comments	15671	24
Sakiyama	Cathryn	not provided	N/A	Web-based Comments	10347	24
Sakoman	kelli	not provided	N/A	Web-based Comments	47782	34
Saladas	Pan	not provided	N/A	Web-based Comments	25608	24
Salamon	Adam	not provided	N/A	Web-based Comments	7058	24
Salamon	Mark	not provided	N/A	Web-based Comments	22980	24
Salamone	Marianne	not provided	N/A	Web-based Comments	22689	24
Salas	Justine	not provided	N/A	Web-based Comments	18968	24
Salas	Nick	not provided	N/A	Web-based Comments	25205	24
Salatino	Mary Lou	not provided	N/A	Web-based Comments	53652	34
Salauyeva	Irina	not provided	N/A	Web-based Comments	15917	24
Salay	Debbie	not provided	N/A	Web-based Comments	12340	24
Salazar	Alicia	not provided	N/A	Web-based Comments	44279	34
Salazar	Francisco J	not provided	N/A	Web-based Comments	47772	34
Salazar	Francisco J	not provided	N/A	Web-based Comments	14509	24
Salazar	Joe	not provided	N/A	Web-based Comments	17895	24
Salazar	Lisa	not provided	N/A	Web-based Comments	48669, 51530	34
Salazar	Lisa	not provided	N/A	Web-based Comments	21631	24
Salcedo	Cristy	not provided	N/A	Web-based comments	4360	11
Salcedo	Mark	marksalcedo@me.com	N/A	Web-based comments	4358	11
Salcido	Sonia	not provided	N/A	Web-based Comments	45327	34
Saldana	Peter	not provided	N/A	Web-based comments	57244	35
Saldana	Tina	not provided	N/A	Web-based comments	57245	35
Sale	Natalija	not provided	N/A	Web-based Comments	44380	34
Saleh	Jason	not provided	N/A	Web-based Comments	16789	24
Salem	Pat	not provided	N/A	Web-based Comments	25672	24
Salerno	Bailey	not provided	N/A	Web-based Comments	8592	24
Salerno	Judy	not provided	N/A	Web-based Comments	18713	24
Sales	Hubert	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58318	N/A
Salgado	Dalia	not provided	N/A	Web-based Comments	11638	24
Salgado	Jane	not provided	N/A	Web-based Comments	16531	24
salgado	natasha	not provided	N/A	Web-based Comments	25090	24
Salice	Regina	not provided	N/A	Web-based Comments	26807	24
Salinas	Ana	not provided	N/A	Web-based Comments	7697	24
Salinas	Julius	not provided	N/A	Web-based Comments	18925	24
Salinger	Nicole	not provided	N/A	Web-based Comments	25254	24
Salisbury	Daniel	not provided	N/A	Web-based Comments	55059	34
Salka	Jill	not provided	N/A	Web-based Comments	17540	24
Sallee	Barbara	not provided	N/A	Web-based Comments	47346	34
Sallee	Stephanie	not provided	N/A	Web-based Comments	29246	24
Salley	Tracey	not provided	N/A	Web-based Comments	30848	24
Sallinger	Bob	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4644	N/A
Sallinger	Peter	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4668	N/A
Salof	Tanya	not provided	N/A	Web-based Comments	30193	24
Salone	Margo	not provided	N/A	Web-based Comments	51418	34
Salopek	D	not provided	N/A	Web-based Comments	11586	24
Salsman	Ryan	not provided	N/A	Web-based Comments	27924	24
Salt	Max	not provided	N/A	Web-based Comments	53304, 53305	34
Salt	Max	not provided	N/A	Web-based Comments	23740	24
Salter	Robin	not provided	N/A	Web-based Comments	27520	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Salter	Sarah	not provided	N/A	Web-based Comments	28398	24
Salto	Victor	not provided	N/A	Web-based comments	56705	35
Saltzman	Marina	not provided	N/A	Web-based Comments	22837	24
Saltzman	Susan	not provided	N/A	Web-based Comments	54218	34
Saltzman	Susan	not provided	N/A	Web-based Comments	29825	24
Saltzman	Veronica	not provided	N/A	Web-based Comments	31103	24
Salvadorini	David	david@salconsult.net	N/A	Web-based comments	5178	8
Salvato	Rosalie	not provided	N/A	Web-based Comments	27704	24
Salvatore	Hannah	not provided	N/A	Web-based Comments	15412	24
Salvner	Amanda	not provided	N/A	Web-based Comments	44881, 44973	34
Salyer	Allen	not provided	N/A	Web-based Comments	49068	34
Salzberg	Laurie	not provided	N/A	Web-based Comments	20855	24
Salzberg	R	not provided	N/A	Web-based Comments	49309	34
Salzman	Virgil	not provided	N/A	Web-based Comments	31264	24
salzmann	michael	not provided	N/A	Web-based Comments	53929	34
Samaras	Alexandra	not provided	N/A	Web-based Comments	50275, 50276	34
Samaras	Alexandra	not provided	N/A	Web-based Comments	7289	24
Samardzic	Inga	not provided	N/A	Web-based Comments	53458	34
Samarin	Alex	not provided	N/A	Web-based Comments	7250	24
Sambrano	Kenya	not provided	N/A	Web-based Comments	20047	24
Sambuchino	M	not provided	N/A	Web-based Comments	22193	24
Sammoury	JP	not provided	N/A	Web-based Comments	18526	24
Samodai	Nova	not provided	N/A	Web-based Comments	25403	24
Sampford	George	not provided	N/A	Web-based Comments	14915	24
Sample	Jessica	not provided	N/A	Web-based Comments	17461	24
Sample	Joan	not provided	N/A	Web-based Comments	51217	34
SAMPLE	JOAN	not provided	N/A	Web-based Comments	17733	24
Sampliner	Susan	not provided	N/A	Web-based Comments	29826	24
Sampou	Peter	psampou@yahoo.com	N/A	Web-based comments	5669	N/A
Sampson	Beth	not provided	N/A	Web-based Comments	9048, 9049	24
Sampson	Cynthia	not provided	N/A	Web-based Comments	45112	34
Sampson	Gisele	not provided	N/A	Web-based Comments	54108, 55417	34
Sampson	Jeri	not provided	N/A	Web-based Comments	17326	24
Sampson	Jonathan	not provided	N/A	Web-based Comments	18296	24
sampson	Katherine	not provided	N/A	Web-based Comments	19476	24
Sampson	Max	not provided	N/A	Web-based Comments	55028, 55029	34
Sampson	Mike	flyfishbum@sampsonsunvalley.com	N/A	Web-based comments	6023	N/A
Sampson	Mike	not provided	N/A	Web-based Comments	58205	16
Sampson	Nancy	not provided	N/A	Web-based Comments	24972	24
Sampson	Pam	not provided	N/A	Web-based Comments	25508	24
sams	duane	louiesams@charter.net	N/A	Web-based comments	3531	N/A
Samsel	Taylor	not provided	N/A	Web-based Comments	54304	34
Samten Lhamo	Karma	not provided	N/A	Web-based Comments	19322	24
Samtenlhamo	Karma	not provided	N/A	Web-based Comments	44439	34
samuels	jeannette	not provided	N/A	Web-based Comments	53194, 53195	34
Samuels	Maurice	not provided	N/A	Web-based Comments	45712, 47779	34
Samuels	Maurice	not provided	N/A	Web-based Comments	23729	24
Samuels	Renee	not provided	N/A	Web-based Comments	52007	34
Samuelson	Georgeanne	not provided	N/A	Web-based Comments	14927	24
Samuelson	Kathryn	not provided	N/A	Web-based Comments	19661	24
Samuelson	Phil	not provided	N/A	Web-based Comments	26327	24
San Souci	Darryl A.	not provided	N/A	Web-based Comments	11903	24
Sanborn	Bria	not provided	N/A	Web-based Comments	9453	24
Sanborn	Georgiann	not provided	N/A	Web-based Comments	14947	24
Sanborn	Stuart	stu@tidewater.com	N/A	Web-based comments	4615	N/A
Sanchez	Alisa	not provided	N/A	Web-based Comments	7395	24
Sanchez	Barbara	not provided	N/A	Web-based Comments	8770	24
Sanchez	Claudia	not provided	N/A	Web-based Comments	11198	24
Sanchez	Dana	not provided	N/A	Web-based Comments	11703	24
Sanchez	Efrain	not provided	N/A	Web-based Comments	13531	24
SANCHEZ	FERNANDEZ	not provided	N/A	Web-based Comments	48974	34
Sanchez	Iryna	not provided	N/A	Web-based comments	1107	N/A
Sanchez	Ivonne	not provided	N/A	Web-based Comments	48646	34
Sanchez	Julia	not provided	N/A	Web-based Comments	18773	24
Sanchez	Maria	not provided	N/A	Web-based Comments	22627	24
Sanchez	Natalie	not provided	N/A	Web-based Comments	51749	34
Sanchez	Niambi	not provided	N/A	Web-based Comments	25155	24
Sanchez	Patricia	not provided	N/A	Web-based Comments	25837	24
Sanchez	Ralph	not provided	N/A	Web-based Comments	49366	34
Sanchez	Rodolfo	not provided	N/A	Web-based Comments	52924, 53033	34

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Sanchez	Sara	not provided	N/A	Web-based comments	1193	N/A
Sanchez	Sierra	not provided	N/A	Web-based Comments	54289, 54290	34
Sanchez	Sierra	not provided	N/A	Web-based Comments	28990	24
Sanchez	Susana	not provided	N/A	Web-based Comments	29933	24
Sanchez	Virginia	not provided	N/A	Web-based Comments	44756	34
SANCHO	ANNE-MARIE	not provided	N/A	Web-based Comments	8273	24
Sand	Heather	not provided	N/A	Web-based Comments	47027	34
Sanda	Joanne	not provided	N/A	Web-based Comments	17824	24
Sandberg	Jill	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32455	13
Sandeen	Judith	not provided	N/A	Web-based Comments	18647	24
Sandeen	Mimi	not provided	N/A	Web-based Comments	50692	34
Sandel	Norman	not provided	N/A	Web-based Comments	54952	34
Sandel	Norman	not provided	N/A	Web-based Comments	25400	24
Sandel	Petrea	not provided	N/A	Web-based Comments	26314	24
Sandell	Dwight	not provided	N/A	Web-based Comments	13401	24
sander	cara	not provided	N/A	Web-based Comments	9778	24
Sander	Melissa	not provided	N/A	Web-based Comments	58222, 58261, 58295	16
Sander	Sue	suesander1@gmail.com	N/A	Web-based comments	32108	N/A
Sanders	Ashley	not provided	N/A	Web-based Comments	58137	16
sanders	carol	not provided	N/A	Web-based Comments	10013	24
Sanders	Clarence	not provided	N/A	Web-based Comments	58128	16
Sanders	Claudia	not provided	N/A	Web-based Comments	11199	24
Sanders	Darla	not provided	N/A	Web-based Comments	11873	24
Sanders	Gary	not provided	N/A	Web-based Comments	46233	34
Sanders	John	sanders-john@comcast.net	N/A	Web-based comments	5333	N/A
Sanders	July	not provided	N/A	Web-based Comments	18926	24
SANDERS	LENA	not provided	N/A	Web-based Comments	20980	24
Sanders	M	not provided	N/A	Web-based Comments	51881	34
Sanders	Maggie	not provided	N/A	Web-based Comments	22274	24
Sanders	Maria	not provided	N/A	Web-based Comments	22628	24
Sanders	Richard	not provided	N/A	Web-based Comments	27041	24
Sanders	Ryan	not provided	N/A	Web-based Comments	27925	24
Sanders	Samantha	not provided	N/A	Web-based Comments	28084	24
Sanders	Scott	scotts1988@hotmail.com	N/A	Web-based comments	58847	N/A
Sanders	Thomas	not provided	N/A	Web-based Comments	30541	24
Sanderson	Linda	not provided	N/A	Web-based Comments	50845, 55320	34
Sanderson	Melissa	not provided	N/A	Web-based Comments	46613	34
Sandford	Ben	not provided	N/A	Web-based Comments	8948	24
Sandhammar	Eva	not provided	N/A	Web-based Comments	53751	34
Sandhas	Thomas	not provided	N/A	Web-based Comments	30542	24
Sandifer	Charles	chicksandifer@msn.com	N/A	Web-based comments	2786	N/A
Sandifer	Laura	lauraksandifer@gmail.com	N/A	Web-based comments	6687	1
Sandin	Neal	not provided	N/A	Web-based Comments	25119	24
Sanditz	Stephen	not provided	N/A	Web-based Comments	44554	34
Sandoval	Dore	not provided	N/A	Web-based Comments	13206	24
Sandoval	Maida	not provided	N/A	Web-based Comments	22283	24
Sandow	B	not provided	N/A	Web-based Comments	8573	24
Sandra	Allen	allensandra524@turbonet.com	N/A	Web-based comments	2419	N/A
Sandritter	Ann	not provided	N/A	Web-based Comments	53393	34
Sands	Gloria	not provided	N/A	Web-based Comments	15170	24
Sands	Jean	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32340	N/A
Sands	Leigh	not provided	N/A	Web-based Comments	20967	24
Sands	Peggy	not provided	N/A	Web-based Comments	26177	24
Sands	Wendy	not provided	N/A	Web-based comments	57668	35
Sandstrom	Deirdre	not provided	N/A	Web-based Comments	54203	34
Sandstrom	Linda	not provided	N/A	Web-based Comments	21410	24
Sandstrom	Mark	not provided	N/A	Web-based Comments	22981	24
Sanecki	Janice	not provided	N/A	Web-based Comments	16696	24
Sanford	Ken	not provided	N/A	Web-based Comments	19991	24
Sanford	Tracy	not provided	N/A	Web-based Comments	48948	34
Sang	Jillian	not provided	N/A	Web-based Comments	44504	34
Sanghavi	Dharmesh	not provided	N/A	Web-based Comments	12744	24
Sangster	Kim	not provided	N/A	Web-based comments	57435	35
Saniee	Azar	not provided	N/A	Web-based Comments	8562	24
Sankoh	Gebrill	not provided	N/A	Web-based Comments	14841	24
Sanne	Rebecca	not provided	N/A	Web-based Comments	26768	24
Sannik	Jaanice	not provided	N/A	Web-based Comments	56535	34
Sano	Mary	not provided	N/A	Web-based Comments	23406	24
Sanow	Jessica	jessicasanow@gmail.com	N/A	Web-based comments	4451, 4452	N/A
Sanquenetti	Sharon	not provided	N/A	Web-based Comments	28709	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Sansby	Joe	not provided	N/A	Web-based Comments	44412	34
SANSON	JANICK	not provided	N/A	Web-based Comments	16714	24
Sanson	June	not provided	N/A	Web-based Comments	18942	24
Sanson	Veronique	not provided	N/A	Web-based Comments	31109	24
Sansone	Ellen	not provided	N/A	Web-based Comments	13946	24
Sansone	Paul	not provided	N/A	Web-based Comments	26040	24
Sant	Isabel	izziedouglas@gmail.com	N/A	Web-based comments	800	N/A
Santacroce	Janet	not provided	N/A	Web-based Comments	16643	24
Santana	Nick	nsantana6990@gmail.com	N/A	Web-based comments	6323	1
Santander	Fallon	not provided	N/A	Web-based Comments	54696	34
Santangelo	Roseann	not provided	N/A	Web-based Comments	47153	34
Santaniello	Deirdre	not provided	N/A	Web-based Comments	44578	34
Santerre	Gay and David	not provided	N/A	Web-based Comments	50392	34
Santi	Harry	not provided	N/A	Web-based Comments	15462	24
Santiago	Austin	dmiranda.as@gmail.com	N/A	Web-based comments	32232	1
Santiago	Magda	not provided	N/A	Web-based Comments	22259	24
Santiago	Maria.	not provided	N/A	Web-based Comments	22647	24
Santone	Deborah	not provided	N/A	Web-based Comments	12466	24
Santone	Leah	not provided	N/A	Web-based Comments	20906	24
Santopietro	Dawne	not provided	N/A	Web-based comments	57062	35
Santopietro	Dawne	not provided	N/A	Web-based Comments	12253	24
Santora	Marc	not provided	N/A	Web-based Comments	22342	24
Santori	Nancy	not provided	N/A	Web-based Comments	24973	24
Santoro	Barbara	not provided	N/A	Web-based Comments	8771	24
Santoro	Michele	not provided	N/A	Web-based Comments	49463, 54932	34
Santoro	Michele	not provided	N/A	Web-based Comments	24306	24
Santos	Alyah	not provided	N/A	Web-based Comments	7495	24
Santos	Isabella	isabellapearlsant@gmail.com	N/A	Web-based comments	6373	3
Santos	Mar	not provided	N/A	Web-based comments	57041	35
Santos	Margarita	margaritasantoz@yahoo.com	N/A	Web-based comments	3431	13
Santos	Saskia	not provided	N/A	Web-based Comments	48461	34
Santos	Saskia	not provided	N/A	Web-based Comments	28443	24
Santos	Unreadable	not provided	N/A	Web-based Comments	7719	24
Santry	Matt	not provided	N/A	Web-based Comments	58251	16
Santto	Aldana	not provided	N/A	Web-based Comments	7218	24
Santucci	Melissa	not provided	N/A	Web-based Comments	23922	24
Santy	Michelle	not provided	N/A	Web-based Comments	24388	24
Sanyal	Robyn	not provided	N/A	Web-based Comments	27550	24
Sapareto	Stephen	not provided	N/A	Web-based Comments	29335	24
Saperstein	Steven	not provided	N/A	Web-based Comments	29464	24
Saphier	Nancy	not provided	N/A	Web-based Comments	56406	34
Saphier	Nancy	not provided	N/A	Web-based Comments	24974	24
Sapienza	Zachary	not provided	N/A	Web-based Comments	31717	24
Sapp	Emily	not provided	N/A	Web-based Comments	54197	34
Sapp	Jerry	sapp375@aol.com	N/A	Web-based comments	5302	N/A
Sapp	Rachel	not provided	N/A	Web-based Comments	26546	24
Sapp	Russ	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32536	N/A
Sappelli	Carin	not provided	N/A	Web-based Comments	9793	24
sappong	Michelle	not provided	N/A	Web-based comments	31997	1
Sara	Barron	barron_sg@yahoo.com	N/A	Web-based comments	4073	N/A
Sarabia	Michael	not provided	N/A	Web-based Comments	47240, 47241	34
Saraha	Ariana	not provided	N/A	Web-based Comments	8409	24
Saraiva	Miriam	not provided	N/A	Web-based comments	57165	35
Saranczak	Jaime	not provided	N/A	Web-based Comments	16159	24
Sarandrea	Gwen	not provided	N/A	Web-based Comments	15355	24
Saraydar	Stacy	not provided	N/A	Web-based Comments	29144	24
Sardilla	Elaine	not provided	N/A	Web-based Comments	13609	24
Sardina	Roger	not provided	N/A	Web-based Comments	27594	24
Sardineer	Ann Marie	not provided	N/A	Web-based Comments	47129, 47130	34
Sardineer	Ann Marie	not provided	N/A	Web-based Comments	8113	24
Saretsky	Arlene	not provided	N/A	Web-based Comments	8434	24
Sarff	Jennifer	not provided	N/A	Web-based Comments	17257	24
Sargeant	Heather	not provided	N/A	Web-based Comments	15534	24
Sargeant	Mary	not provided	N/A	Web-based Comments	50636	34
Sargent	Anastasia	not provided	N/A	Web-based Comments	7712	24
Sargent	Deborah	not provided	N/A	Web-based Comments	12467	24
Sargent	Jay	not provided	N/A	Web-based Comments	16817	24
Sargent	Laurie	not provided	N/A	Web-based Comments	52845	34
Sargent	Rich	sargentrn1@msn.com	N/A	Web-based comments	6462*	N/A
Sargent	Robert	not provided	N/A	Web-based Comments	58570	34

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Sarin	Charles	not provided	N/A	Web-based Comments	48872	34
Sarkar	Maya	not provided	N/A	Web-based Comments	46567	34
Sarmiento	Leah	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4692	N/A
Sarmiento	Nina	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4628, 5612	N/A
Sarmiento	Nina	nsarmie2@gmail.com	N/A	Web-based comments	6919*, 31883*, 31931*	N/A
Sarnacki	Mark	not provided	N/A	Web-based Comments	22982	24
Sarnecki	Vicki	not provided	N/A	Web-based Comments	31148	24
Sarnoff	Broucka	not provided	N/A	Web-based Comments	9593	24
Sarnoski	Michelle	not provided	N/A	Web-based Comments	52605, 52606	34
Sarp	Barbara	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	4787	18
Sarry	Sandra	not provided	N/A	Web-based Comments	28209	24
Sartin	Pete	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32324	N/A
Sarumi	Mary	not provided	N/A	Web-based Comments	46614	34
Sarver	Michael	not provided	N/A	Web-based Comments	24215	24
Sarvis	Jan	not provided	N/A	Web-based Comments	45487	34
Sasaoka	Julie	not provided	N/A	Web-based Comments	53487	34
Sasaoka	Julie	not provided	N/A	Web-based Comments	18889	24
Saslow	Rondi	not provided	N/A	Web-based Comments	27681	24
Sasseville	Angela	not provided	N/A	Web-based Comments	7927	24
Satchell	Dan	not provided	N/A	Web-based Comments	11677	24
Satheesh Kumar	Hareesh Ragavendar	not provided	N/A	Web-based Comments	15431	24
Sathishkumar	Kirtana	not provided	N/A	Web-based Comments	50139	34
Sato	Rodney	v.rodbs@gmail.com	N/A	Web-based comments	5209	N/A
Satori	Sabaro	not provided	N/A	Web-based Comments	54077	34
Satterfield	Caroline	not provided	N/A	Web-based Comments	47436	34
Satterfield	Caroline	not provided	N/A	Web-based Comments	10130	24
sattler	jerry	not provided	N/A	Web-based Comments	17372	24
Satz	Greg	not provided	N/A	Web-based Comments	15250	24
Saubat	Nathalie	not provided	N/A	Web-based comments	56773	35
Sauer	Elizabeth	not provided	N/A	Web-based Comments	49963	34
Sauer	Jeanine	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58790	N/A
Saunders	Aliza	not provided	N/A	Web-based comments	32169	N/A
Saunders	Britton	not provided	N/A	Web-based Comments	9577	24
Saunders	Cathy	not provided	N/A	Web-based Comments	10391	24
Saunders	Chelsea	not provided	N/A	Web-based Comments	10590	24
Saunders	Cristine	not provided	N/A	Web-based Comments	11451	24
Saunders	Daniel	not provided	N/A	Web-based Comments	11771	24
Saunders	Diane	not provided	N/A	Web-based Comments	52207	34
Saunders	Ellen	not provided	N/A	Web-based Comments	13947	24
Saunders	Kelly	not provided	N/A	Web-based Comments	19946	24
Saunders	Krista	not provided	N/A	Web-based Comments	49844	34
Saunders	Lynnette	not provided	N/A	Web-based Comments	22160	24
Saunders	Marilyn	not provided	N/A	Web-based Comments	22811	24
Saunders	Maurice	not provided	N/A	Web-based Comments	56034	34
Saunders	Steven	shark9529@gmail.com	N/A	Web-based comments	4822	N/A
Saunders	Ted	not provided	N/A	Web-based Comments	30248	24
Saunders	Trudi	not provided	N/A	Web-based Comments	50573	34
Saurs	Terri	not provided	N/A	Web-based Comments	45848	34
sauter	mark	alleffort@gmail.com	N/A	Web-based comments	5150	N/A
Sauters-Hall	Sandra	not provided	N/A	Web-based Comments	54758	34
Sautter	Tamar	not provided	N/A	Web-based Comments	44526	34
Sautter	Tamar	not provided	N/A	Web-based Comments	30115	24
SAUVAGEOT	Mylene	mylene.sauvageot@hotmail.fr	N/A	Web-based comments	379	1
Savage	Alice	not provided	N/A	Web-based Comments	54631	34
Savage	Alice	not provided	N/A	Web-based Comments	7364	24
Savage	Daniel	not provided	N/A	Web-based Comments	49826	34
Savage	Edward	not provided	N/A	Web-based Comments	13512	24
Savage	Kitty	not provided	N/A	Web-based Comments	20291	24
Savage	Leslie	not provided	N/A	Web-based Comments	21099	24
Savage	Linda	not provided	N/A	Web-based Comments	21411	24
Savage	Louise	not provided	N/A	Web-based Comments	21900	24
Savage	Patricia	not provided	N/A	Web-based Comments	25838	24
Savard	Judy	not provided	N/A	Web-based Comments	18714	24
Savenko	Oksana	not provided	N/A	Web-based Comments	51298	34
Savicky	Randy	not provided	N/A	Web-based Comments	54571	34
Savides	Peggy	not provided	N/A	Web-based Comments	26178	24
Savige	David	not provided	N/A	Web-based Comments	12131	24
Savignano	Karin	not provided	N/A	Web-based Comments	19286	24
Saville	Annie	savilleannie@gmail.com	N/A	Web-based comments	186, 4936	N/A

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
saville	carolepatton saville	not provided	N/A	Web-based Comments	10110	24
Savilonis	Melissa	not provided	N/A	Web-based Comments	23923	24
Savino	Heather	not provided	N/A	Web-based Comments	45960	34
Savitch	Steve	not provided	N/A	Web-based Comments	48117	34
Savitch	Steven	not provided	N/A	Web-based Comments	29465	24
Savoie	Polly	not provided	N/A	Web-based Comments	26426	24
Savoie	Suzie	not provided	N/A	Web-based Comments	50640	34
Savonen	Carol	Carol.Savonen@oregonstate.edu	N/A	Web-based comments	31880	N/A
Savoy	Richard	not provided	N/A	Web-based Comments	56025	34
Sawade	Burt	not provided	N/A	Web-based Comments	9655, 9656	24
Saward	Christine	not provided	N/A	Web-based Comments	10976	24
Sawicki	Benjamin	not provided	N/A	Web-based Comments	8969	24
Sawina	Jane Kennedy	not provided	N/A	Web-based Comments	16549	24
Saws	Dale	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32282	N/A
Sawyer	Carl	not provided	N/A	Web-based Comments	9809	24
Sawyer	Caryl	not provided	N/A	Web-based Comments	10219	24
Sawyer	Eve	not provided	N/A	Web-based Comments	14343	24
Sawyer	Janis	not provided	N/A	Web-based Comments	16746	24
Sawyer	Luann	not provided	N/A	Web-based Comments	21921	24
Sawyer	Nigel	not provided	N/A	Web-based Comments	25275	24
Sax	Patricia	not provided	N/A	Web-based Comments	25839	24
Saxe	Matthew	not provided	N/A	Web-based Comments	46736	34
Saxe	Tina	not provided	N/A	Web-based Comments	30691	24
Saxena	Ann	not provided	N/A	Web-based Comments	55598	34
Saxon	Diana	not provided	N/A	Web-based Comments	58175, 55826	16, 34
Saxon	Diana	not provided	N/A	Web-based Comments	12793	24
Saxon	Rachel	not provided	N/A	Web-based Comments	44727	34
Saxon	Rachel	not provided	N/A	Web-based Comments	26547	24
saxton	chris	krazyriderzz@hotmail.com	N/A	Web-based comments	5179	N/A
Sayag	Mava	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4727	N/A
Sayago	Sammy	not provided	N/A	Web-based Comments	28096	24
Sayas	Otto	not provided	N/A	Web-based Comments	44311, 44312	34
Sayer	Chloe	not provided	N/A	Web-based Comments	10714	24
sayer	stanley	not provided	N/A	Web-based Comments	29157	24
Sayers	Meredith	not provided	N/A	Web-based Comments	23981	24
Sayle	Suzy	not provided	N/A	Web-based Comments	30041	24
Sayles	Andy	not provided	N/A	Web-based Comments	51206	34
Saylor	Barbara	not provided	N/A	Web-based Comments	8772	24
Saylor	Loralei	not provided	N/A	Web-based Comments	48353	34
Saylr	Suzy	not provided	N/A	Web-based Comments	49991	34
Sayre	James	not provided	N/A	Web-based Comments	16303	24
Sayre	Joe	not provided	N/A	Web-based Comments	17896	24
Sayre	Lily	not provided	N/A	Web-based Comments	21183	24
Sayre	Melody	not provided	N/A	Web-based Comments	23953	24
Sayre	Peter	not provided	N/A	Web-based Comments	26287	24
Sayre	Rebecca	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	5550	N/A
Scadin	Frederic	not provided	N/A	Web-based Comments	14590	24
Scafe	Walter	walterscafe@outlook.com	N/A	Web-based comments	3544	N/A
Scala	Andrea	not provided	N/A	Web-based comments	56695	35
Scala	Andrea	not provided	N/A	Web-based Comments	7771	24
Scalf	Darryl	not provided	N/A	Web-based Comments	11900	24
Scalley	Leslie Anne	not provided	N/A	Web-based Comments	21115	24
scaltrito	marietta	not provided	N/A	Web-based Comments	50209	34
Scalzitti	Jana	not provided	N/A	Web-based Comments	50200	34
Scalzitti	Jana	not provided	N/A	Web-based Comments	16453	24
Scalzo	Miranda	not provided	N/A	Web-based Comments	44596, 44671	34
Scammell	Cy	cy.scammell@hibu.com	N/A	Web-based comments	6384	1
Scammell	Cy	cyscammell@yahoo.com	N/A	Web-based comments	1884	N/A
Scanlan	Tom	not provided	N/A	Web-based Comments	30766	24
Scanlon	Anita	not provided	N/A	Web-based Comments	7982	24
Scantlebury	E	not provided	N/A	Web-based Comments	54736	34
Scantlebury	E	not provided	N/A	Web-based Comments	13417	24
scapa	marc	not provided	N/A	Web-based Comments	22343	24
scarano	nicole	not provided	N/A	Web-based Comments	45317	34
Scarborough	James	not provided	N/A	Web-based Comments	46765	34
Scarborough	Nancy	scarboroughnancy@gmail.com	N/A	Web-based comments	67	N/A
Scarfone	Louise	not provided	N/A	Web-based Comments	21901	24
Scarola	Michael	not provided	N/A	Web-based Comments	24216	24
Scarpinato	Amy	not provided	N/A	Web-based Comments	7670	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
scarry	patrick	not provided	N/A	Web-based Comments	25924	24
Scatamacchia	Maryanne	not provided	N/A	Web-based Comments	23574	24
Scatchard	Dee	not provided	N/A	Web-based Comments	12582	24
Scavezze	Barbara	not provided	N/A	Web-based Comments	51101	34
Scepaniak	Michael	not provided	N/A	Web-based Comments	24217	24
Schaaf	Jeanne	not provided	N/A	Web-based Comments	46247	34
Schaaf	Klaus	not provided	N/A	Web-based Comments	20298	24
schaaf	william	not provided	N/A	Web-based Comments	31593	24
Schaaff	Mike	not provided	N/A	Web-based Comments	24482	24
Schaap	Laura V	not provided	N/A	Web-based Comments	47837	34
Schaberl	Jum	not provided	N/A	Web-based Comments	18927	24
Schacher	Anthony	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32368	N/A
Schacher	Irene	not provided	N/A	Web-based Comments	15911	24
Schacherer	Conner	not provided	N/A	Web-based Comments	11288	24
Schacht	Timothy	not provided	N/A	Web-based Comments	50787, 55716	34
Schade	Corey	not provided	N/A	Web-based Comments	48268	34
Schade	Corey	not provided	N/A	Web-based Comments	11366	24
Schader	Kevin	not provided	N/A	Web-based Comments	20138	24
Schadow	Karen	not provided	N/A	Web-based Comments	19206	24
Schaef	Dennis	not provided	N/A	Web-based Comments	12703	24
Schaefer	Juli	not provided	N/A	Web-based Comments	18739	24
Schaefer	Madelyn	not provided	N/A	Web-based Comments	22250	24
Schaefer	Marlene	msjovicenterprises8@gmail.com	N/A	Web-based comments	3215	N/A
Schaefer	Nancy	not provided	N/A	Web-based Comments	24975	24
Schaefer	Robert	not provided	N/A	Web-based Comments	27377	24
Schaefer	Sarah	not provided	N/A	Web-based Comments	44924	34
Schaefer	Stacey	not provided	N/A	Web-based Comments	29122	24
Schaefer	Susie	susie.schaefer@comcast.net	N/A	Web-based comments	6886	N/A
Schaefers	Alexandra	alexandra.schaefers@gmail.com	N/A	Web-based comments	2760	N/A
Schaeffer	Carol	not provided	N/A	Web-based Comments	10014	24
Schaeffer	Cathy	cschaeffer@columbiainet.com	N/A	Web-based comments	5685	10
Schaeffer	Evy	not provided	N/A	Web-based Comments	14366	24
Schaem	Suzanne	not provided	N/A	Web-based Comments	30019	24
Schaer	Ann	not provided	N/A	Web-based Comments	52028	34
Schaerer	Laurene	not provided	N/A	Web-based Comments	20805	24
Schaerrer	Hollie	not provided	N/A	Web-based Comments	15725	24
SCHAFER	DALE	not provided	N/A	Web-based Comments	11632	24
Schafer	Raymond	not provided	N/A	Web-based Comments	26693	24
Schafer	Steven	not provided	N/A	Web-based Comments	29466	24
Schaffeld	Hank	info@goldvalleyloghomes.com	N/A	Web-based comments	3968	N/A
Schaffell	J.	not provided	N/A	Web-based Comments	16010	24
Schaffer	Carol	not provided	N/A	Web-based Comments	48889, 51622	34
Schaffer	Carol	not provided	N/A	Web-based Comments	10015	24
Schaffer	Mary	not provided	N/A	Web-based Comments	23407	24
Schaffer	William	not provided	N/A	Web-based Comments	46347	34
Schalin	Amaryntha	not provided	N/A	Web-based Comments	52690, 52691, 52692	34
Schalin	Amaryntha	not provided	N/A	Web-based Comments	7563	24
Schall	James Buck	not provided	N/A	Web-based Comments	16343	24
Schaller Jr.	Frank	not provided	N/A	Web-based Comments	14544	24
Schallmo	Barbara	not provided	N/A	Web-based Comments	8773	24
Schamer	Sabina	not provided	N/A	Web-based Comments	27971	24
schaming	carol	not provided	N/A	Web-based Comments	53596	34
Schaming	Carol	not provided	N/A	Web-based Comments	10016	24
schanter-bhitiyakul	rosemarie	not provided	N/A	Web-based Comments	44652	34
Schanzer	Joe and Francie	not provided	N/A	Web-based Comments	17904	24
Schapker	Don	not provided	N/A	Web-based Comments	13036	24
Scharpf	Karen	not provided	N/A	Web-based Comments	19207	24
schatanoff	david	not provided	N/A	Web-based Comments	12132	24
Schatz	Barbara	not provided	N/A	Web-based Comments	8774	24
Schatz	Steve	not provided	N/A	Web-based Comments	29399	24
Schatzel	Deborah	not provided	N/A	Web-based Comments	12468	24
Schatzkin	Laura	not provided	N/A	Web-based Comments	20699	24
Schatzle	Kathy	not provided	N/A	Web-based Comments	19752	24
Schaub	Elizabeth	not provided	N/A	Web-based Comments	13838	24
schaudt	leah	not provided	N/A	Web-based Comments	20907	24
Schauer	Elizabeth	not provided	N/A	Web-based Comments	13839	24
Schauff	Sharman	not provided	N/A	Web-based Comments	28623	24
Schaut	Matthew	not provided	N/A	Web-based Comments	52698, 52699	34
Schaut	Matthew	not provided	N/A	Web-based Comments	23664	24
Schear	Roberta	not provided	N/A	Web-based Comments	45453, 45454	34

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Schebsdat-Sciuto	Patricia	not provided	N/A	Web-based Comments	25840	24
Schechter	Arielle	not provided	N/A	Web-based Comments	57781	34
Scheele	Jeff	not provided	N/A	Web-based Comments	44425	34
Schefter	Jessica	Jesslambert2890@gmail.com	N/A	Web-based comments	5723	1
Schefter	Ken	not provided	N/A	Web-based Comments	56157, 56158	34
Schefter	Ken	not provided	N/A	Web-based Comments	19992	24
Schegloff	Myra	not provided	N/A	Web-based Comments	24715	24
Scheid	Kaitlyn	not provided	N/A	Web-based Comments	48162, 48163	34
Scheid	Sienna	not provided	N/A	Web-based Comments	28985	24
Scheidt	Nancy	not provided	N/A	Web-based Comments	24976	24
Scheihagen	Eric	not provided	N/A	Web-based Comments	50969	34
Scheihagen	Eric	not provided	N/A	Web-based Comments	14137	24
Schein	Christoph	not provided	N/A	Web-based Comments	10996	24
Scheinbach	Jane	not provided	N/A	Web-based Comments	16532	24
scheld	steve	not provided	N/A	Web-based Comments	52553	34
schelich	missy	not provided	N/A	Web-based Comments	56304	34
Schell	Charlotte	not provided	N/A	Web-based Comments	10566	24
schell	Kelly	not provided	N/A	Web-based comments	5779	1
Schellbach	Ruth	not provided	N/A	Web-based Comments	55769	34
Schellbach	Ruth	not provided	N/A	Web-based Comments	27887	24
Scheller	Christopher	not provided	N/A	Web-based Comments	52693	34
Scheller	Christopher	not provided	N/A	Web-based Comments	11029	24
Schelling	Mary	not provided	N/A	Web-based Comments	23408	24
Schelstrate	Barbara	not provided	N/A	Web-based Comments	8775	24
Schelter	Catherine	not provided	N/A	Web-based Comments	10322	24
Schenck	Alan	not provided	N/A	Web-based Comments	7188	24
Schenck	David	not provided	N/A	Web-based Comments	53995	34
Schenck	David	not provided	N/A	Web-based Comments	12133	24
Schenck	John	not provided	N/A	Web-based Comments	52536	34
Schenk	Ann	not provided	N/A	Web-based Comments	57814	34
Schenk	Kathie	not provided	N/A	Web-based Comments	19505	24
Schenkel	Suzanne	not provided	N/A	Web-based Comments	30020	24
Schepers	Laury	not provided	N/A	Web-based Comments	20868	24
Schepis	Debbie	not provided	N/A	Web-based Comments	55683	34
Schepis	Debbie	not provided	N/A	Web-based Comments	12341	24
Scheppler	Elizabeth	not provided	N/A	Web-based Comments	13840	24
Scher	Jonathan	not provided	N/A	Web-based Comments	18297	24
Scher	Stephen and Janet	not provided	N/A	Web-based Comments	29349	24
Scherbak	Elizabeth	not provided	N/A	Web-based Comments	51724	34
Scherer	Wendy	not provided	N/A	Web-based Comments	49799	34
Schermerhorn	Susan	not provided	N/A	Web-based Comments	29827	24
Scherpenisse	Carol	not provided	N/A	Web-based Comments	50914	34
Scherpenisse	Carol	not provided	N/A	Web-based Comments	10017	24
Scherz	Rebecca	not provided	N/A	Web-based Comments	26769	24
scherzinger	Linda	not provided	N/A	Web-based Comments	21412	24
Scheuerman	Carl	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	44259	32
Scheunemann	Anita	not provided	N/A	Web-based Comments	57926	16
Schiavone	Joseph	not provided	N/A	Web-based Comments	18392	24
Schicker	Robert	not provided	N/A	Web-based Comments	27378	24
schieborn	birgit	not provided	N/A	Web-based Comments	9201	24
Schielke	Dale	dahlialou@msn.com	N/A	Web-based comments	58834	N/A
Schiemann	Heinz	ikeandheinz@roadrunner.com	N/A	Web-based comments	5774	N/A
Schiera	Catherine	not provided	N/A	Web-based Comments	47512	34
Schiering	Jan	not provided	N/A	Web-based Comments	16425	24
Schiess	Tina	not provided	N/A	Web-based Comments	30692	24
Schiff	Jan Hart	not provided	N/A	Web-based Comments	49678	34
Schiffer	Kathleen	not provided	N/A	Web-based Comments	19596	24
Schiffman	Lauren	not provided	N/A	Web-based Comments	55634, 55635	34
Schiffrin	Rebecca	not provided	N/A	Web-based Comments	26770	24
Schiks	Diane	not provided	N/A	Web-based Comments	12899	24
Schildgen	Bob	not provided	N/A	Web-based Comments	9253	24
Schildwachter	Steve	not provided	N/A	Web-based Comments	48490, 48491	34
Schilg	Ursula	not provided	N/A	Web-based Comments	45036, 45037	34
Schill	Brian	not provided	N/A	Web-based Comments	9506	24
Schillaci	David	not provided	N/A	Web-based Comments	12134	24
Schiller	Amber	not provided	N/A	Web-based Comments	7571	24
Schiller	Marcel	not provided	N/A	Web-based Comments	49334	34
Schilling	Kenneth	not provided	N/A	Web-based Comments	20025	24
Schilling	Sandra	not provided	N/A	Web-based Comments	56155	34
Schilling	Sandra	not provided	N/A	Web-based Comments	28210	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Schillo	Noah	not provided	N/A	Web-based Comments	25332	24
Schiltz	Katherine	kitrogschiltz@hotmail.com	N/A	Web-based comments	1288	3
Schimmel	Jennifer	not provided	N/A	Web-based comments	6545	1
Schinas	Rachel	not provided	N/A	Web-based Comments	26548	24
Schindler	Arlene	not provided	N/A	Web-based Comments	8435	24
Schini	Kate	kschini98@hotmail.com	N/A	Web-based comments	32071	1
Schini	Todd	not provided	N/A	Web-based comments	32094	1
Schipman	Samantha	not provided	N/A	Web-based Comments	28085	24
Schipper	Diana	not provided	N/A	Web-based comments	57745	35
Schippers	Nick	schippers.nicholas@gmail.com	N/A	Web-based comments	6541	1
Schisler	Michael	not provided	N/A	Web-based Comments	24218	24
Schkloven-Friedman	Janice	not provided	N/A	Web-based Comments	56482	34
Schlabach	Marie	not provided	N/A	Web-based Comments	54530	34
schlacter	jud	not provided	N/A	Web-based Comments	18537	24
Schladweiler-Trebbe	Madeline	not provided	N/A	Web-based Comments	22246	24
Schlaepfer	Chad	not provided	N/A	Web-based Comments	48047	34
SCHLAGMAN	DANIEL	not provided	N/A	Web-based Comments	11772	24
Schlais	Karen	not provided	N/A	Web-based Comments	51057	34
Schlais	Karen	not provided	N/A	Web-based Comments	19208	24
Schlanzky	Gerhard	not provided	N/A	Web-based Comments	14986	24
Schlatter	Dr. Larry	not provided	N/A	Web-based Comments	54621	34
Schlatter	Kris	not provided	N/A	Web-based Comments	20328	24
Schlauder	Diana	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58713	N/A
Schlauder	Wallace	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58746	N/A
Schlechter	Beth	not provided	N/A	Web-based Comments	9050	24
Schlechtriem	Renee	not provided	N/A	Web-based Comments	26854	24
schlegel	jane	not provided	N/A	Web-based Comments	16533	24
Schleich	Kathleen	not provided	N/A	Web-based Comments	19597	24
Schleicher	Kathy	not provided	N/A	Web-based Comments	19753	24
SCHLENDER	GREG	not provided	N/A	Web-based Comments	15251	24
Schlesinger	Ronald	not provided	N/A	Web-based Comments	27668	24
Schlesinger	Stephen L	not provided	N/A	Web-based Comments	29350	24
Schlesinger	Sybil	not provided	N/A	Web-based Comments	30048	24
Schlessinger	Susan	not provided	N/A	Web-based Comments	53650	34
Schlessinger	Susan	not provided	N/A	Web-based Comments	29828	24
Schleupner	Jennifer	not provided	N/A	Web-based Comments	17258	24
Schlichter	Emily	not provided	N/A	Web-based Comments	14038	24
Schlie	Linda	not provided	N/A	Web-based Comments	21413	24
Schlinger	Debbie	not provided	N/A	Web-based Comments	52331, 52332	34
Schlinger	Hank	not provided	N/A	Web-based Comments	15392	24
Schlippert	Glenn	not provided	N/A	Web-based Comments	54479, 54480	34
Schlippert	Glenn	not provided	N/A	Web-based Comments	15136	24
Schlitz	Barbara	not provided	N/A	Web-based Comments	8776	24
Schloss	E.S.	not provided	N/A	Web-based Comments	47991, 47992	34
Schloss	Morley	not provided	N/A	Web-based Comments	24672	24
Schloss-Birkholz	Gisela	not provided	N/A	Web-based Comments	49376	34
Schlosser	Julia	not provided	N/A	Web-based Comments	49051	34
Schmall	Eric	not provided	N/A	Web-based Comments	14138	24
Schmalz	Jessica	not provided	N/A	Web-based Comments	17462	24
Schmalzer	Paul	not provided	N/A	Web-based Comments	48128	34
Schmaus	Michael	not provided	N/A	Web-based Comments	54777	34
Schmeh	Derek	not provided	N/A	Web-based Comments	48841	34
Schmeling	Sheila	not provided	N/A	Web-based Comments	28805	24
Schmerl	Harry	not provided	N/A	Web-based Comments	56248	34
Schmerl	Harryâ€šÃ…Ï€	not provided	N/A	Web-based Comments	15466	24
Schmicker	Kristen	not provided	N/A	Web-based comments	57546	35
Schmid	Jeffrey	not provided	N/A	Web-based Comments	17098	24
Schmid	Susan	not provided	N/A	Web-based Comments	29829	24
Schmidt	Angelica	not provided	N/A	Web-based Comments	7940	24
Schmidt	Barb	not provided	N/A	Web-based comments	57253	35
Schmidt	Carol	not provided	N/A	Web-based Comments	49632	34
Schmidt	Christine	not provided	N/A	Web-based Comments	48950, 48951	34
Schmidt	Christine	not provided	N/A	Web-based Comments	10977	24
Schmidt	Christine	not provided	N/A	Web-based Comments	10978	24
Schmidt	Dan	schmidt.danj@gmail.com	N/A	Web-based comments	3184	N/A
Schmidt	Daniel	not provided	N/A	Web-based Comments	50507	34
Schmidt	Daniel	not provided	N/A	Web-based Comments	11773	24
Schmidt	Deborah	not provided	N/A	Web-based Comments	12469	24
schmidt	diana	not provided	N/A	Web-based Comments	12794	24
Schmidt	E Frank	not provided	N/A	Web-based Comments	13419	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Schmidt	Faith	Faith.evelyn.schmidt@gmail.com	N/A	Web-based comments	6289	3
Schmidt	Jacob	grooovyjake@gmail.com	N/A	Hand-delivered or oral testimony (personally delivered)	4640, 5570	N/A
Schmidt	Jacob	grooovyjake@gmail.com	N/A	Web-based comments	5513, 6303	3
Schmidt	Jacqueline	not provided	N/A	Web-based Comments	16129	24
Schmidt	Janet	not provided	N/A	Web-based Comments	54518	34
Schmidt	Jeremy	not provided	N/A	Web-based Comments	17320	24
Schmidt	Jon	not provided	N/A	Web-based Comments	48121	34
Schmidt	Joseph	not provided	N/A	Web-based comments	1633	1
Schmidt	Kevin	not provided	N/A	Web-based Comments	58090	16
Schmidt	Kim-Beatrice	not provided	N/A	Web-based Comments	56384	34
Schmidt	Kimberly	not provided	N/A	Web-based comments	57547	35
Schmidt	Kimberly	not provided	N/A	Web-based Comments	20239	24
Schmidt	Linda	not provided	N/A	Web-based Comments	53576	34
Schmidt	Linda	not provided	N/A	Web-based Comments	21414	24
Schmidt	Linda	not provided	N/A	Web-based Comments	21415	24
Schmidt	Margaret	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	2139	N/A
Schmidt	Mary	not provided	N/A	Web-based Comments	23409	24
Schmidt	Phyllis	not provided	N/A	Web-based Comments	26396	24
Schmidt	Pilar	pilarisabelschmidt@gmail.com	N/A	Web-based comments	6124	1
Schmidt	Shannon	not provided	N/A	Web-based Comments	28598	24
SCHMIDT	SONIA	not provided	N/A	Web-based Comments	29066	24
Schmidt	Susan	not provided	N/A	Web-based comments	57121	35
Schmidt	Susan	not provided	N/A	Web-based Comments	29830	24
Schmidt	Teresa	not provided	N/A	Web-based Comments	47635	34
Schmidt	Thomas	not provided	N/A	Web-based Comments	54985	34
Schmier	Jerry	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58739	13
Schmier	Jerry	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58741	11
Schmitt	David	not provided	N/A	Web-based Comments	58154	16
Schmitt	Jaylen	not provided	N/A	Web-based Comments	55071	34
Schmitt	Jaylen	not provided	N/A	Web-based Comments	16825	24
Schmitt	Lana	not provided	N/A	Web-based Comments	55003	34
Schmitt	Tim	not provided	N/A	Web-based Comments	45965	34
Schmitt	Tim	not provided	N/A	Web-based Comments	30629	24
Schmitt	Viola	not provided	N/A	Web-based Comments	31258	24
Schmitt	Walter	not provided	N/A	Web-based Comments	44588	34
Schmitthenner	Christine	not provided	N/A	Web-based Comments	10979	24
Schmitz	Christiane	not provided	N/A	Web-based Comments	10835	24
Schmitz	Gladys	not provided	N/A	Web-based Comments	50888	34
Schmitz	Heidi	not provided	N/A	Web-based Comments	47794	34
Schmitz	Heidi	not provided	N/A	Web-based Comments	15578	24
Schmitz	Marina	not provided	N/A	Web-based Comments	22838	24
Schmitz	Yvonne	not provided	N/A	Web-based Comments	31704	24
Schmoe	Thomas	tom.schmoe@gmail.com	N/A	Web-based comments	58841	N/A
Schmotzer	Michael	not provided	N/A	Web-based Comments	24219	24
Schmucker	Lindabeth	not provided	N/A	Web-based Comments	21474	24
Schmutz	Henry	not provided	N/A	Web-based comments	57590	35
Schnarch	Steve	not provided	N/A	Web-based Comments	29400	24
Schnaubelt	Marianne	not provided	N/A	Web-based Comments	22690	24
Schnebelen	Jeffrey	not provided	N/A	Web-based Comments	17099	24
Schnebly	Christine	not provided	N/A	Web-based Comments	57983	16
Schnee	Jane	not provided	N/A	Web-based Comments	52241	34
Schnee	Jane	not provided	N/A	Web-based Comments	16534	24
Schneebacher	Laura	not provided	N/A	Web-based Comments	50081	34
Schneebacher	Laura	not provided	N/A	Web-based Comments	20700	24
Schneeberger	Brian	not provided	N/A	Web-based Comments	9507	24
Schneider	Amy	not provided	N/A	Web-based Comments	54661	34
Schneider	Barbara	not provided	N/A	Web-based Comments	52097	34
Schneider	Dan	not provided	N/A	Web-based Comments	47604	34
Schneider	Danielle	not provided	N/A	Web-based Comments	48291	34
Schneider	Dave	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	5564	N/A
Schneider	Donna	not provided	N/A	Web-based Comments	47263	34
Schneider	Edward	not provided	N/A	Web-based Comments	55969, 55970	34
Schneider	Emilia	not provided	N/A	Web-based Comments	14003	24
Schneider	Erik	not provided	N/A	Web-based Comments	14188	24
Schneider	Gary	not provided	N/A	Web-based Comments	56023	34
Schneider	Gary	not provided	N/A	Web-based Comments	14796	24
Schneider	George	sebastiangeo@yahoo.com	N/A	Web-based comments	5090	N/A
Schneider	Jared	theschneiders@bentonrea.com	N/A	Web-based comments	2056	N/A
Schneider	Jo Ann	not provided	N/A	Web-based Comments	52161	34
Schneider	Jo Ann	not provided	N/A	Web-based Comments	17659	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
schneider	joan	not provided	N/A	Web-based Comments	17734	24
schneider	john	redfishflyfish@mac.com	N/A	Web-based comments	2578	N/A
Schneider	Julie	not provided	N/A	Web-based Comments	18890	24
Schneider	Keri	not provided	N/A	Web-based Comments	20050	24
Schneider	Maria	not provided	N/A	Web-based comments	56804	35
Schneider	Maria	not provided	N/A	Web-based Comments	54381	34
Schneider	Nancy	not provided	N/A	Web-based Comments	52006	34
Schneider	Rebecca Dinan	not provided	N/A	Web-based Comments	46461	34
Schneider	Terri	not provided	N/A	Web-based Comments	30346	24
Schneider	Thomas	not provided	N/A	Web-based Comments	30543	24
Schneider	Zachary	zschneider78@gmail.com	N/A	Web-based comments	6025	N/A
schneiders	barb	not provided	N/A	Web-based Comments	8607	24
Schneirov	Silvia	not provided	N/A	Web-based Comments	29014	24
Schnell	Gail	not provided	N/A	Web-based Comments	14713	24
Schnell	Penny	not provided	N/A	Web-based Comments	26214	24
Schneller	Douglas	not provided	N/A	Web-based Comments	53524	34
Schneller	Lynette	not provided	N/A	Web-based Comments	22043	24
Schnierle	Michael	not provided	N/A	Web-based Comments	24220	24
Schniold	Shirley	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58783	N/A
Schnitman	Tamra	not provided	N/A	Web-based Comments	30168	24
Schnitzer	Karen	not provided	N/A	Web-based Comments	57822	34
Schnur	G.	not provided	N/A	Web-based Comments	14628	24
Schnyder	Karlee	not provided	N/A	Web-based Comments	19320	24
Schoch	Leonard	not provided	N/A	Web-based Comments	21012	24
Schochet	Joy	not provided	N/A	Web-based Comments	18469	24
Schock	Suzanne	not provided	N/A	Web-based Comments	30021	24
Schockner	Jan	not provided	N/A	Web-based Comments	16426	24
Schoelkopf	K	not provided	N/A	Web-based Comments	46781	34
Schoellhorn	Nylene	not provided	N/A	Web-based Comments	55640	34
Schoen	Allen	not provided	N/A	Web-based Comments	7449	24
Schoen	Andrew	not provided	N/A	Web-based Comments	7845	24
Schoen	Brian	not provided	N/A	Web-based Comments	9508	24
Schoenbachler	Lisa	not provided	N/A	Web-based Comments	21632	24
Schoenberg	Steven	not provided	N/A	Web-based Comments	29467	24
Schoenfeld	Ilana	not provided	N/A	Web-based Comments	15846	24
Schoenfeld	Rosemarie	not provided	N/A	Web-based Comments	27755	24
Schoenfield	Rick	not provided	N/A	Web-based Comments	27102	24
Schoenstein	Eve-Lynn	els234pta@gmail.com	N/A	Web-based comments	31879	1
Schoenwetter	Kay	not provided	N/A	Web-based Comments	19833	24
Schoessler Lynn	Rachelle	not provided	N/A	Web-based Comments	26563	24
schoettler	maria	not provided	N/A	Web-based Comments	22629	24
Schofield	Andy	not provided	N/A	Web-based Comments	7878	24
Schofield	Anna	not provided	N/A	Web-based Comments	48473	34
Schofield	Cheryl	not provided	N/A	Web-based Comments	50157	34
Schofield	Joanne	not provided	N/A	Web-based Comments	17825	24
Schofield	Renee	not provided	N/A	Web-based Comments	26855	24
Scholfield	Emily	not provided	N/A	Web-based Comments	14039	24
Scholl	Chris	not provided	N/A	Web-based Comments	49769	34
Scholl	Chris	not provided	N/A	Web-based Comments	10783	24
Scholl	Natasha	not provided	N/A	Web-based Comments	25091	24
Scholte	Jennifer	not provided	N/A	Web-based Comments	17259	24
Scholten	John	not provided	N/A	Web-based Comments	55403	34
Scholtz	Lauren	not provided	N/A	Web-based Comments	20793	24
Scholz	Bettina	not provided	N/A	Web-based Comments	44346	34
Scholz	Bettina	not provided	N/A	Web-based Comments	9086	24
SCHOLZ	ERNEST	not provided	N/A	Web-based Comments	14250	24
Schonberg	Toni	not provided	N/A	Web-based Comments	30802	24
Schonberger	Eric	not provided	N/A	Web-based Comments	14139	24
Schonefeld	Bonnie	lochsa2@gmail.com	N/A	Web-based comments	6805	N/A
Schong	Diana	not provided	N/A	Web-based Comments	45707	34
Schoo	Steve	not provided	N/A	Web-based Comments	29401	24
Schoolman	Alexandra	not provided	N/A	Web-based Comments	7290	24
Schoonhoven	Frances	not provided	N/A	Web-based Comments	14491	24
Schoonmaker	Robert	not provided	N/A	Web-based Comments	27379	24
schoorl	frank	not provided	N/A	Web-based Comments	14545	24
Schopf	Thomas	not provided	N/A	Web-based comments	56787	35
Schopp	Joy	not provided	N/A	Web-based Comments	55126	34
Schoppmann	Renee	not provided	N/A	Web-based Comments	26856	24
Schornoz	Louis	not provided	N/A	Web-based Comments	21876	24
SCHORZMAN	DEBORAH	not provided	N/A	Web-based comments	139	1

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Schossow	Jodie	not provided	N/A	Web-based Comments	17858	24
Schou	Samantha	not provided	N/A	Web-based Comments	28086	24
Schoultz	Lisa	not provided	N/A	Web-based Comments	55326, 55327	34
Schout	Sandy	not provided	N/A	Web-based Comments	28262	24
Schrader	Stacy	not provided	N/A	Web-based Comments	49677	34
Schraeder	Heather	not provided	N/A	Web-based Comments	15535	24
Schramm	Beatrix	not provided	N/A	Web-based Comments	8894	24
Schramm	Cathi	not provided	N/A	Web-based Comments	46341	34
Schramm	Eileen	not provided	N/A	Web-based Comments	13559	24
Schramm	Linda	not provided	N/A	Web-based Comments	21416	24
Schramm	Michelle	not provided	N/A	Web-based Comments	24389	24
Schramm	Peggy	not provided	N/A	Web-based Comments	26179	24
SCHRANTZ	RICHARD	not provided	N/A	Web-based Comments	27042	24
Schranz	Leanna	not provided	N/A	Web-based Comments	20916	24
Schreckling	Marina	not provided	N/A	Web-based Comments	22839	24
Schreffler	Amanda	not provided	N/A	Web-based comments	57075	35
Schreiber	Janis	not provided	N/A	Web-based Comments	16747	24
Schreiber	Jennifer	not provided	N/A	Web-based Comments	45289	34
Schreiber	Sarah	not provided	N/A	Web-based Comments	28399	24
Schreiber	sherry	not provided	N/A	Web-based Comments	28905	24
Schreier	Barbara	not provided	N/A	Web-based Comments	8777	24
Schreier	Saul	not provided	N/A	Web-based Comments	54680	34
schreier	saul	not provided	N/A	Web-based Comments	28446	24
Schreifels	Mary	not provided	N/A	Web-based Comments	23410	24
Schreitmueller	Teresa	not provided	N/A	Web-based Comments	30297	24
Schrems	Carrie	not provided	N/A	Web-based Comments	10204	24
schreurs	tami	not provided	N/A	Web-based Comments	44345	34
Schreurs	Tami	not provided	N/A	Web-based Comments	30142	24
Schriebman	Judy	not provided	N/A	Web-based Comments	50797	34
schriener	leslie	not provided	N/A	Web-based Comments	21100	24
SCHRIEVER	GEORGE B	not provided	N/A	Web-based Comments	14926	24
Schrinner	Joan	not provided	N/A	Web-based Comments	17735	24
Schrock	Renelle	not provided	N/A	Web-based Comments	55285, 57863	34
Schroder	Heidi	not provided	N/A	Web-based Comments	15579	24
Schroeder	Briana	not provided	N/A	Web-based Comments	9530	24
Schroeder	Curtis	not provided	N/A	Web-based Comments	53047	34
Schroeder	Jerene	not provided	N/A	Web-based Comments	17323	24
Schroeder	Jon	not provided	N/A	Web-based Comments	51448	34
Schroeder	Jon	not provided	N/A	Web-based Comments	18262	24
Schroeder	R. Kirk	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58802	N/A
Schroeder	Rebecca	not provided	N/A	Web-based Comments	26771	24
Schroeder	Sheryl	not provided	N/A	Web-based Comments	50457	34
Schroeter	Rogil	not provided	N/A	Web-based Comments	45503, 45504	34
Schronk	Judy	not provided	N/A	Web-based Comments	18715	24
Schub	Martin	not provided	N/A	Web-based Comments	23174	24
Schuchard	Susan	not provided	N/A	Web-based Comments	48659	34
Schuchardt	Greg	not provided	N/A	Web-based Comments	15252	24
Schudda	Carrie	not provided	N/A	Web-based Comments	10205	24
Schue	Kory	not provided	N/A	Web-based comments	57441	35
Schue	Shirley	not provided	N/A	Web-based Comments	58561	34
Schue	Shirley	not provided	N/A	Web-based Comments	28965	24
Schuett	Marlen	not provided	N/A	Web-based Comments	23031	24
Schuetz	Sue	not provided	N/A	Web-based Comments	29550	24
Schuhrke	Nancy	not provided	N/A	Web-based Comments	46336	34
Schuhrke	Nancy	not provided	N/A	Web-based Comments	24977	24
Schulenberg	Margaret	not provided	N/A	Web-based Comments	50652	N/A
Schuler	Brian	not provided	N/A	Web-based comments	56969	35
Schuler	Mary	not provided	N/A	Web-based comments	57190	35
Schuler	Sandra	not provided	N/A	Web-based Comments	28211	24
Schuler	Sarah	not provided	N/A	Web-based comments	57274	35
Schultheiss	Joan	jmschultheiss@aim.com	N/A	Web-based comments	5012	N/A
Schultheiss	Robert	RSCHULTHEISS@RISK-DECISIONS.COM	N/A	Web-based comments	5023	N/A
Schultz	A	not provided	N/A	Web-based Comments	6973	24
Schultz	Arleen	not provided	N/A	Web-based Comments	8418	24
Schultz	Cindy	not provided	N/A	Web-based Comments	11096	24
SCHULTZ	DANIEL	not provided	N/A	Web-based Comments	11774	24
schultz	david	davrsch@gmail.com	N/A	Web-based comments	5270	N/A
Schultz	Elizabeth	not provided	N/A	Web-based Comments	13841	24
Schultz	Howard	not provided	N/A	Web-based Comments	15806	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
schultz	jennifer	not provided	N/A	Web-based Comments	17260	24
Schultz	Jeramy	jeramy61@msn.com	N/A	Web-based comments	4605	N/A
Schultz	Judy	not provided	N/A	Web-based Comments	18716	24
Schultz	K.	not provided	N/A	Web-based Comments	18988	24
Schultz	Kaylene	not provided	N/A	Web-based Comments	19850	24
Schultz	Leah	not provided	N/A	Web-based Comments	50229	34
Schultz	Lesley	not provided	N/A	Web-based Comments	21049	24
Schultz	Luke	luke.schultz1985@gmail.com	N/A	Web-based comments	2975	8
Schultz	Margaret	margaret_schultz@yahoo.com	N/A	Web-based comments	248	3
Schultz	Mark	not provided	N/A	Web-based Comments	22983	24
Schultz	Mia	not provided	N/A	Web-based Comments	24008	24
Schultz	Nancy	not provided	N/A	Web-based Comments	49017	34
Schultz	Nancy	not provided	N/A	Web-based Comments	24978	24
Schultz	Peter F.	not provided	N/A	Web-based Comments	48820	34
Schultz	R.	not provided	N/A	Web-based Comments	26490	24
Schultz	Walter	not provided	N/A	Web-based Comments	31363	24
Schultz Ahearn	Melissa	not provided	N/A	Web-based Comments	23924	24
schultze	patricia	not provided	N/A	Web-based Comments	46625	34
SchultzPowell	Latoya	not provided	N/A	Web-based Comments	20602	24
Schulz	David	not provided	N/A	Web-based Comments	12135	24
Schulz	Delia	not provided	N/A	Web-based Comments	12602	24
Schulz	Eslei	not provided	N/A	Web-based Comments	14257	24
Schulz	Sarah	not provided	N/A	Web-based Comments	58465	34
Schulz	Sarah	not provided	N/A	Web-based Comments	28400	24
Schumacher	Amy	not provided	N/A	Web-based Comments	53395, 53396	34
Schumacher	Amy	not provided	N/A	Web-based Comments	7671	24
Schumacher	Brien	not provided	N/A	Web-based Comments	9548	24
Schuman	Arlene	not provided	N/A	Web-based Comments	8436	24
Schuman	Laura	not provided	N/A	Web-based Comments	47890	34
Schumann	Marcia	not provided	N/A	Web-based Comments	22379	24
SCHUMM	MICHAEL	not provided	N/A	Web-based Comments	55571	34
Schurr	Arthur	not provided	N/A	Web-based Comments	45200, 45201	34
Schurr	Arthur	not provided	N/A	Web-based Comments	8467	24
Schurtz	Renee	not provided	N/A	Web-based Comments	55390	34
Schus	Stephanie	not provided	N/A	Web-based Comments	29247	24
Schusler	Sylvia	not provided	N/A	Web-based Comments	30075	24
Schuster	Caleb	not provided	N/A	Web-based Comments	54732	34
Schuster	Irmgard	not provided	N/A	Web-based Comments	15925	24
Schuster	Jeanne	not provided	N/A	Web-based Comments	48450	34
Schuster	Jeanne	not provided	N/A	Web-based Comments	16971	24
Schutte	Jerry	not provided	N/A	Web-based Comments	17373	24
Schutz	Arlene	not provided	N/A	Web-based Comments	8437	24
Schutz	Norma	not provided	N/A	Web-based Comments	25392	24
Schutz	Susan	not provided	N/A	Web-based Comments	29831	24
Schwab	Vicki	not provided	N/A	Web-based Comments	31149	24
Schwadron	Anna	not provided	N/A	Web-based Comments	8151	24
Schwager	Elaine	not provided	N/A	Web-based Comments	13610	24
Schwager	Karen	not provided	N/A	Web-based Comments	19209	24
Schwager	Katrina	not provided	N/A	Web-based Comments	54354	34
schwart	j	not provided	N/A	Web-based Comments	15992	24
Schwartz	Alan	not provided	N/A	Web-based Comments	54742	34
Schwartz	Ann	not provided	N/A	Web-based Comments	8081	24
Schwartz	Barbara	not provided	N/A	Web-based Comments	51200	34
Schwartz	Barry	not provided	N/A	Web-based Comments	47547	34
Schwartz	Barry	not provided	N/A	Web-based Comments	8866	24
schwartz	becca	not provided	N/A	Web-based Comments	8900	24
Schwartz	Brandon	not provided	N/A	Web-based Comments	9374	24
SCHWARTZ	CHRISTOPHER	not provided	N/A	Web-based Comments	11030	24
Schwartz	Dan	not provided	N/A	Web-based Comments	11678	24
Schwartz	Dawn	not provided	N/A	Web-based Comments	12245	24
Schwartz	Don	not provided	N/A	Web-based Comments	54447	34
Schwartz	Don	not provided	N/A	Web-based Comments	13037	24
Schwartz	Donald	not provided	N/A	Web-based Comments	13080	24
Schwartz	Elizabeth	not provided	N/A	Web-based Comments	53130, 53131	34
Schwartz	Eve	not provided	N/A	Web-based Comments	14344	24
Schwartz	Howard	not provided	N/A	Web-based Comments	15807	24
Schwartz	Karen	not provided	N/A	Web-based Comments	19210	24
Schwartz	Kelli	not provided	N/A	Web-based Comments	19903	24
Schwartz	Marge	not provided	N/A	Web-based Comments	47047, 47048	34

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Schwartz	Marge	not provided	N/A	Web-based Comments	22535	24
Schwartz	Marshall	not provided	N/A	Web-based Comments	23083	24
Schwartz	max	not provided	N/A	Web-based Comments	23741	24
Schwartz	Melissa	not provided	N/A	Web-based Comments	23925	24
schwartz	nancy	not provided	N/A	Web-based Comments	24979	24
SCHWARTZ	NATASHA	not provided	N/A	Web-based Comments	25092	24
Schwartz	Phebe	not provided	N/A	Web-based Comments	26318	24
schwartz	philip	not provided	N/A	Web-based Comments	26354	24
Schwartz	Rhona	not provided	N/A	Web-based Comments	26889	24
Schwartz	Rhonda	not provided	N/A	Web-based Comments	26907	24
Schwartz	Ronlyn	not provided	N/A	Web-based Comments	51454	34
Schwartz	Wayne	not provided	N/A	Web-based Comments	31400	24
Schwartz	William	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58771	N/A
Schwartzsmith	Juli	not provided	N/A	Web-based Comments	18740	24
Schwarz	A	not provided	N/A	Web-based Comments	6974	24
Schwarz	Barbara	not provided	N/A	Web-based Comments	56123	34
Schwarz	Emma	not provided	N/A	Web-based Comments	14062	24
Schwarz	Kurt	not provided	N/A	Web-based Comments	20439	24
Schwarz	Marlene	not provided	N/A	Web-based Comments	23046	24
Schwarz	Robin	not provided	N/A	Web-based Comments	47070	34
Schwarzauer	Dennis	not provided	N/A	Web-based Comments	12704	24
Schwarzer	Deborah	not provided	N/A	Web-based Comments	12470	24
Schwasinger	Shelli	not provided	N/A	Web-based Comments	56433	34
Schwede	Bette	not provided	N/A	Web-based Comments	9079	24
Schwefel	Jeff	not provided	N/A	Web-based Comments	47198, 47199	34
Schwefel	Jeff	not provided	N/A	Web-based Comments	17052	24
Schwegler	Tom	not provided	N/A	Web-based Comments	50941	34
Schwegler	Tom	not provided	N/A	Web-based Comments	30767	24
Schweim	Donald	not provided	N/A	Web-based Comments	13081	24
Schweinsburg	Rich and Jane	not provided	N/A	Web-based Comments	26928	24
Schweiss	Kraig and Valerie	not provided	N/A	Web-based Comments	20317	24
Schweitzer	Brenda	salmongoddess@gmail.com	N/A	Web-based comments	4150	N/A
Schweizer	Scott	not provided	N/A	Web-based Comments	51674	34
Schweizer	Scott	not provided	N/A	Web-based Comments	28495	24
Schwendeman	J	not provided	N/A	Web-based Comments	47026	34
Schwendiman	Lynn	not provided	N/A	Web-based Comments	22092	24
Schwenk	Sharon	not provided	N/A	Web-based comments	4475	N/A
Schwer	Deb	not provided	N/A	Web-based Comments	55457	34
Schwer	Debbie	not provided	N/A	Web-based Comments	12342	24
Schwerdtle	John	not provided	N/A	Web-based Comments	18166	24
Schwerthelm	Franziska	not provided	N/A	Web-based Comments	51284, 51285	34
Schwieder	Denise	not provided	N/A	Web-based comments	3729	N/A
Schwimmer	carolyn	not provided	N/A	Web-based Comments	10176	24
Schwimmer	Dena	not provided	N/A	Web-based Comments	52662	34
Schwimmer	Dena	not provided	N/A	Web-based Comments	12618	24
Schwimmer	Jill	not provided	N/A	Web-based Comments	17541	24
Schwinberg	Jean	not provided	N/A	Web-based Comments	46337	34
Schwinberg	Jean	not provided	N/A	Web-based Comments	16883	24
Schwing	Bill	not provided	N/A	Web-based Comments	51585	34
Schwing	William	not provided	N/A	Web-based Comments	51584	34
schwing	william	not provided	N/A	Web-based Comments	31594	24
Schwinkendorf	William	not provided	N/A	Web-based Comments	31595	24
Schwoebel	Camilla	not provided	N/A	Web-based Comments	58440	34
Schwoerer	Kathlene	not provided	N/A	Web-based Comments	19613	24
Schwoerer	Katie	not provided	N/A	Web-based Comments	50038	34
Schwomeyer	Terri	not provided	N/A	Web-based Comments	30347	24
Scibetta	Jen	not provided	N/A	Web-based Comments	47669, 47670	34
Scibetta	Jen	not provided	N/A	Web-based Comments	17122	24
Scicluna	Leanne	not provided	N/A	Web-based Comments	20920	24
Sciochetti	Chris	not provided	N/A	Web-based Comments	44456	34
Scipione	Josephine	not provided	N/A	Web-based Comments	18412	24
Scircle	Khristen	not provided	N/A	Web-based Comments	20152	24
Scodellari	Paola	not provided	N/A	Web-based Comments	25611	24
Scognamiglio	Antonio	not provided	N/A	Web-based Comments	53748	34
Scognamiglio	Antonio	not provided	N/A	Web-based Comments	8370	24
Scoles	Richard	not provided	N/A	Web-based Comments	51707	34
Scollon	Suzanne	suzannescollon@gmail.com	N/A	Web-based comments	3635	3
Scooler	Angela	not provided	N/A	Web-based Comments	7928	24
Scorby	Ryan	not provided	N/A	Web-based Comments	27926	24
Scott	Alain	not provided	N/A	Web-based Comments	7151	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Scott	Amy	not provided	N/A	Web-based Comments	7672	24
Scott	Barbara	not provided	N/A	Web-based Comments	44704	34
Scott	Barbie	not provided	N/A	Web-based Comments	44951	34
Scott	Barbie	not provided	N/A	Web-based Comments	8845	24
Scott	Bennie	not provided	N/A	Web-based Comments	51838	34
Scott	Bennie	not provided	N/A	Web-based Comments	8976	24
Scott	Brian M.	not provided	N/A	Web-based Comments	9528	24
Scott	Carol	not provided	N/A	Web-based Comments	51906	34
Scott	Carol	not provided	N/A	Web-based Comments	10018	24
scott	carole	not provided	N/A	Web-based Comments	10095	24
Scott	Cathrine	not provided	N/A	Web-based Comments	46231	34
Scott	Cheryl	not provided	N/A	Web-based Comments	51711, 51712	34
Scott	Cheryl	not provided	N/A	Web-based Comments	10672	24
Scott	Christine	not provided	N/A	Web-based Comments	10980	24
Scott	Doug	not provided	N/A	Web-based Comments	13311	24
Scott	Esme	not provided	N/A	Web-based Comments	50553	34
Scott	Esme	not provided	N/A	Web-based Comments	14260	24
Scott	Gina	not provided	N/A	Web-based Comments	15067	24
Scott	J. David	not provided	N/A	Web-based Comments	51038	34
Scott	J. David	not provided	N/A	Web-based Comments	16011	24
Scott	Jennifer	not provided	N/A	Web-based Comments	51176	34
Scott	Jennifer	not provided	N/A	Web-based Comments	17261	24
Scott	Joan	not provided	N/A	Web-based Comments	17736	24
Scott	John	not provided	N/A	Web-based Comments	50720	34
Scott	Kari Lorraine	not provided	N/A	Web-based Comments	19273	24
Scott	Katelyn	not provided	N/A	Web-based Comments	19405	24
Scott	Katelyn	not provided	N/A	Web-based Comments	57901	16
Scott	Krista	not provided	N/A	Web-based Comments	51098	34
Scott	Larry	scottld@q.com	N/A	Web-based comments	3491	11
Scott	Lenore	not provided	N/A	Web-based Comments	20991	24
Scott	Les	not provided	N/A	Web-based Comments	21034	24
Scott	Margaret	not provided	N/A	Web-based comments	57212	35
Scott	Margaret	not provided	N/A	Web-based Comments	22498	24
Scott	Marion	not provided	N/A	Web-based Comments	22857	24
Scott	Mary	not provided	N/A	Web-based Comments	23411	24
Scott	Meagan	not provided	N/A	Web-based Comments	23771	24
Scott	Megan	not provided	N/A	Web-based Comments	23804	24
Scott	Melissa	not provided	N/A	Web-based Comments	23926	24
Scott	Nolen	not provided	N/A	Web-based Comments	25349	24
Scott	Pamela	not provided	N/A	Web-based Comments	25585	24
Scott	Pippa	not provided	N/A	Web-based Comments	50627	34
Scott	Rachel	not provided	N/A	Web-based Comments	26549	24
Scott	Raine	not provided	N/A	Web-based Comments	26578	24
Scott	Regina	not provided	N/A	Web-based Comments	26808	24
Scott	Sheila	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58305	N/A
Scott	Shelly	not provided	N/A	Web-based Comments	28847	24
Scott	Star	not provided	N/A	Web-based Comments	49180	34
Scott	Susanne	not provided	N/A	Web-based Comments	29953	24
Scott	Suzanne	photoartbysuzi@gmail.com	N/A	Web-based comments	342	1
SCOTT	SVEA	not provided	N/A	Web-based Comments	30042	24
Scott	Tanya	not provided	N/A	Web-based Comments	30194	24
Scott Carter	Anna	not provided	N/A	Web-based Comments	8152	24
Scotto	Denise	not provided	N/A	Web-based Comments	12659	24
Scovell	Edward	not provided	N/A	Web-based Comments	13513	24
Scoville	Gary	not provided	N/A	Web-based Comments	14797	24
Scoville	James	not provided	N/A	Web-based Comments	53407	34
Scoville	James	not provided	N/A	Web-based Comments	16304	24
Scovotti	Arlene	not provided	N/A	Web-based Comments	56512	34
Scowen	Pat	not provided	N/A	Web-based Comments	25673	24
Screen	Michael	not provided	N/A	Web-based Comments	47678, 47679	34
Screen	Michael	not provided	N/A	Web-based Comments	24221	24
Scribner	Denee	not provided	N/A	Web-based Comments	52173, 52174	34
Scribner	Denee	not provided	N/A	Web-based Comments	12621	24
Scribner	Jr	not provided	N/A	Web-based Comments	18527	24
Scribner	Karin	not provided	N/A	Web-based Comments	19287	24
Scrimsher	Michael	snakeriverskier@yahoo.com	N/A	Web-based comments	4155, 4157	N/A
scripp	margaret	not provided	N/A	Web-based Comments	22499	24
Scriptunas	Judy	not provided	N/A	Web-based Comments	54112	34
Scritchfield	Roberta	not provided	N/A	Web-based Comments	52198	34
Scudder	Stuart	not provided	N/A	Web-based Comments	29500	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Scull	Jennifer	not provided	N/A	Web-based Comments	49925	34
Scull	Jennifer	not provided	N/A	Web-based Comments	17262	24
Scully	Bethany	bethanyannscully@gmail.com	N/A	Web-based comments	6278	1
Scully	Richard	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4229	N/A
Scully	Richard	scullyrjs@cableone.net	N/A	Web-based comments	6079	N/A
Scully	Roxi	not provided	N/A	Web-based Comments	27804	24
Scully	Susan	scullysu77@gmail.com	N/A	Web-based comments	5729	N/A
Scully-Clark	Jacqueline	not provided	N/A	Web-based Comments	55297	34
Se	Amy	not provided	N/A	Web-based Comments	7673	24
seaberg	nancy	not provided	N/A	Web-based Comments	24980	24
Seabrook	Kathy	not provided	N/A	Web-based Comments	19754	24
Seader	Scot	not provided	N/A	Web-based Comments	28453	24
Seagle	Deborah	not provided	N/A	Web-based Comments	12471	24
Seailles	Heloise C.	not provided	N/A	Web-based Comments	15654	24
Seakwood	John	not provided	N/A	Web-based Comments	18167	24
Sealander	David	not provided	N/A	Web-based Comments	48801	34
Seals	Brenda	not provided	N/A	Web-based Comments	9421	24
Seaman	Jon	not provided	N/A	Web-based Comments	18263	24
Sear	Linda	not provided	N/A	Web-based Comments	21417	24
Sear	William	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58758	13
Searain	Susan	not provided	N/A	Web-based Comments	29832	24
Searle	Bryan	mrspud7@gmail.com	N/A	Web-based comments	3598	N/A
Searle	Jon	rtkandlerfarms@aol.com	N/A	Web-based comments	6030	11
Searle	Mark	searleml@gmail.com	N/A	Web-based comments	3340	13
Searles	Dave	not provided	N/A	Web-based Comments	11921	24
Sears	Carol	not provided	N/A	Web-based Comments	10019	24
Sears	Cassie	not provided	N/A	Web-based Comments	58191	16
Sears	Milissa	not provided	N/A	Web-based Comments	24513	24
Season	Ron	not provided	N/A	Web-based Comments	27634	24
Seater	Kimberly	not provided	N/A	Web-based Comments	48737	34
Seaton	Chris	not provided	N/A	Web-based Comments	10784	24
Seaver	Linda	not provided	N/A	Web-based Comments	21418	24
Seaver	Stacy	not provided	N/A	Web-based Comments	29145	24
Seay	Emily	not provided	N/A	Web-based Comments	14040	24
Sebastian	Carla	not provided	N/A	Web-based Comments	9831	24
SEBASTIAN	ROBERTA	not provided	N/A	Web-based Comments	45622, 45623	34
SEBASTIAN	ROBERTA	not provided	N/A	Web-based Comments	27449	24
Sebesta	Lou	not provided	N/A	Web-based Comments	56349	34
Seckendorf	Michael	not provided	N/A	Web-based Comments	24222	24
Seckinger	Caroline	caroline@carolineseckinger.com	N/A	Web-based comments	31946	N/A
Seckman	Sally	not provided	N/A	Web-based Comments	46346	34
Seckman	Sally	not provided	N/A	Web-based Comments	28028	24
Secondo	John	secondojon@gmail.com	N/A	Web-based comments	2630	N/A
Secrist	Linda	not provided	N/A	Web-based Comments	21419	24
Secrist	PJ	not provided	N/A	Web-based Comments	26421	24
Sedakow	Tami	not provided	N/A	Web-based Comments	50066	34
Sedall	Sabine	not provided	N/A	Web-based Comments	27975	24
Sederberg	Karyn	not provided	N/A	Web-based Comments	19339	24
Sederholm	Mike	not provided	N/A	Web-based Comments	24483	24
Sedgwick	Kyra	not provided	N/A	Web-based Comments	20470	24
Sedivy-Haley	Katharine	not provided	N/A	Web-based Comments	19422	24
Sedlacek	Mindee	not provided	N/A	Web-based comments	57328	35
Sedon	Douglas	not provided	N/A	Web-based Comments	13340	24
Seeback	John S	not provided	N/A	Web-based Comments	50675	34
Seeberg	Karen	not provided	N/A	Web-based Comments	19211	24
Seeger	Jeremy	not provided	N/A	Web-based Comments	46928	34
Seegers	Sally	not provided	N/A	Web-based Comments	45695	34
Seegers	Sally	not provided	N/A	Web-based Comments	28029	24
Seegott	Mary	not provided	N/A	Web-based Comments	49162, 49163	34
Seegott	Mary	not provided	N/A	Web-based Comments	23412	24
Seegott	Mary	not provided	N/A	Web-based Comments	58266	16
Seehra	Parveen	not provided	N/A	Web-based Comments	53749	34
seehra	parveen	not provided	N/A	Web-based Comments	25621	24
Seeley	Clyde	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32493	11
Seeley	Theresa	not provided	N/A	Web-based Comments	30447	24
Seematter	Barbara	not provided	N/A	Web-based Comments	8778	24
Seemayer	Shelley	not provided	N/A	Web-based Comments	50134	34
Seethaler	Susan	not provided	N/A	Web-based Comments	47351, 47352	34
Seewester	Frank	not provided	N/A	Web-based Comments	14546	24
Seff	Joshua	not provided	N/A	Web-based Comments	18437	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Seffern II	Duncan	not provided	N/A	Web-based Comments	13389	24
Sefton	Nancy	not provided	N/A	Web-based Comments	24981, 24982	24
Segain	Francoise	not provided	N/A	Web-based Comments	14515	24
segal	barbara	not provided	N/A	Web-based Comments	8779	24
Segal	Jane	not provided	N/A	Web-based Comments	52389	34
Segedy	Avis	not provided	N/A	Web-based Comments	45328	34
Seger	Kimberly	not provided	N/A	Web-based Comments	45927	34
Seghir	Mohammed	not provided	N/A	Web-based Comments	24584	24
Segonnes	Carolyn	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4739	N/A
Segovia	Edith	not provided	N/A	Web-based Comments	13472	24
Segovia	Sarra	swsegovia@gmail.com	N/A	Web-based comments	4189	1
Segretti	Fiona	not provided	N/A	Web-based Comments	45145	34
Segur	Greg	not provided	N/A	Web-based Comments	15253	24
Seh	ellen	not provided	N/A	Web-based Comments	13948	24
Selvilla	Caroline	not provided	N/A	Web-based Comments	45812	34
Seibel	Erika	not provided	N/A	Web-based Comments	14203	24
Seibert	Bob	not provided	N/A	Web-based Comments	53941	34
Seid	Sarah	not provided	N/A	Web-based Comments	28401	24
Seiden	Bruce	Bruce.Seiden@gmail.com	N/A	Web-based comments	5688	8
seidenstricker	richard	not provided	N/A	Web-based Comments	27043	24
Seidle	Kim	not provided	N/A	Web-based Comments	20201	24
Seidler	Dylan	dfarrellseidler@gmail.com	N/A	Web-based comments	3856	N/A
Seidler	Sarah	not provided	N/A	Web-based Comments	28402	24
Seidlitz	Anne	not provided	N/A	Web-based Comments	8240	24
Seidlitz	Steve	not provided	N/A	Web-based comments	57249	35
seif	nancy gordon	not provided	N/A	Web-based Comments	25028	24
Seifert	Friedrich	not provided	N/A	Web-based Comments	14606	24
Seifert	Kristi	not provided	N/A	Web-based Comments	20359	24
Seifert	Thomas	not provided	N/A	Web-based Comments	30544	24
seifi	Mohamadhossein	mohamad.h.seifi274@gmail.com	N/A	Web-based comments	1205	2
Seigel	Suellen	not provided	N/A	Web-based Comments	29566	24
Seil	Fredrick	not provided	N/A	Web-based Comments	46630	34
Seiler	Jonas	jonasseiler2@gmail.com	N/A	Web-based comments	58827	N/A
Seiler	Marilyn	not provided	N/A	Web-based Comments	55678	34
Seiler	Marilyn	not provided	N/A	Web-based Comments	22812	24
Seiler	Pelle	pelleseiler@gmail.com	N/A	Web-based comments	4024	N/A
Seiter	Charles	not provided	N/A	Web-based Comments	45626	34
Seitz	Gabriele	not provided	N/A	Web-based Comments	14646	24
Seitz	Gabriele	not provided	N/A	Web-based Comments	14647	24
Seitz	Richard	not provided	N/A	Web-based Comments	27044	24
Sekerak	Robin	not provided	N/A	Web-based Comments	27521	24
Selberg-Woodcock	Mary	not provided	N/A	Web-based Comments	23413	24
Selch	Ruthie	not provided	N/A	Web-based Comments	27899	24
Selevich Ramos	Pamela	not provided	N/A	Web-based Comments	25586	24
Seley	Mm	not provided	N/A	Web-based Comments	51013, 51014	34
Self	Clyde	not provided	N/A	Web-based Comments	11235	24
Self	Diane	not provided	N/A	Web-based Comments	12900	24
Self	Winke	not provided	N/A	Web-based Comments	31633	24
Selfridge	Dina	not provided	N/A	Web-based Comments	12962	24
Selin	Anne-Cathrine	not provided	N/A	Web-based Comments	8266	24
Sellers	Jennifer	not provided	N/A	Web-based Comments	51132	34
Sellers	Margaret	not provided	N/A	Web-based Comments	45006	34
Sellers	Margaret	not provided	N/A	Web-based Comments	22500	24
Sellon	Kim	not provided	N/A	Web-based Comments	47261, 47262	34
Sellon	Kim	not provided	N/A	Web-based Comments	20202	24
Sells	Greg	not provided	N/A	Web-based Comments	15254	24
Selman	Ashley	not provided	N/A	Web-based Comments	8497	24
Selman	Holly	not provided	N/A	Web-based comments	56920	35
Selove	John	not provided	N/A	Web-based Comments	18168	24
Selph	Sarah	not provided	N/A	Web-based Comments	28403	24
Selquist	Donna	not provided	N/A	Web-based Comments	48585	34
Selter	Carol	not provided	N/A	Web-based Comments	10020	24
Seltzer	Devon	not provided	N/A	Web-based Comments	52948, 52949	34
Seltzer	Devon	not provided	N/A	Web-based Comments	12741	24
Seltzer	Elizabeth	not provided	N/A	Web-based Comments	55375	34
Seltzer	Elizabeth Seltzer	not provided	N/A	Web-based Comments	13877	24
Seltzer	Rob	not provided	N/A	Web-based Comments	45172	34
Selverston	Sylvia	not provided	N/A	Web-based Comments	30076	24
Sem	Malina	not provided	N/A	Web-based Comments	22297	24
Sem	Teresa	not provided	N/A	Web-based Comments	46050	34

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Sem	Teresa	not provided	N/A	Web-based Comments	30298	24
Sem	Teresa	not provided	N/A	Web-based Comments	30299	24
semel	audrey	not provided	N/A	Web-based Comments	46267	34
Semen	George	not provided	N/A	Web-based Comments	14916	24
Semken	Holmes	not provided	N/A	Web-based Comments	15776	24
Semo	Deborah	not provided	N/A	Web-based Comments	12472	24
sen	elizabeth	not provided	N/A	Web-based Comments	13842	24
Sen	L	not provided	N/A	Web-based Comments	20486	24
Sen	Rishabh	not provided	N/A	Web-based Comments	27125	24
Sena	Jani	not provided	N/A	Web-based Comments	47265	34
Sena	Jani	not provided	N/A	Web-based Comments	16663	24
Sena	Mary Sena	not provided	N/A	Web-based Comments	23547	24
senape	Nick	not provided	N/A	Web-based comments	3500	N/A
Seneff	Carol	not provided	N/A	Web-based comments	57381	35
Senesac	Pixie	not provided	N/A	Web-based Comments	53777	34
Senesac	Pixie	not provided	N/A	Web-based Comments	26419	24
Senft	Wayne	not provided	N/A	Web-based Comments	53631, 53632	34
Sengupta	Sumita	not provided	N/A	Web-based Comments	29570	24
Senichenko	Geoffrey	not provided	N/A	Web-based Comments	14878	24
Senior	Natasha	not provided	N/A	Web-based comments	56943	35
Senour	Jon	not provided	N/A	Web-based Comments	55607	34
Senour	Jon	not provided	N/A	Web-based Comments	18264	24
sensano	ulrike	not provided	N/A	Web-based Comments	30971	24
Senthil	Tarun	not provided	N/A	Web-based Comments	47492	34
Senyan	Eloise	not provided	N/A	Web-based Comments	13982	24
Sepe	Peter	not provided	N/A	Web-based Comments	26288	24
Seppala	Virginia	not provided	N/A	Web-based Comments	31303	24
September	PJ	not provided	N/A	Web-based Comments	26422	24
Sepulveda	Victoria	not provided	N/A	Web-based Comments	31217	24
Serapio	Eddie	not provided	N/A	Web-based Comments	13459	24
Serazio	Charlotte	not provided	N/A	Web-based Comments	48813, 48814	34
Serazio	Charlotte	not provided	N/A	Web-based Comments	10567	24
Sercombe	Sarah	not provided	N/A	Web-based Comments	53526	34
Serdar-Kissel	Nikolina	SerdarN@gmx.de	N/A	Web-based comments	837	2
Serell	David	dcserell@gmail.com	N/A	Web-based comments	4577	N/A
Sergewich	Autumn	not provided	N/A	Web-based comments	57548	35
Serio	Robert	not provided	N/A	Web-based Comments	27380	24
Serna	Joyce	not provided	N/A	Web-based Comments	18509	24
Serpi	Geralyn	gmohn.65@gmail.com	N/A	Web-based comments	1310	N/A
Serra	Dawn	not provided	N/A	Web-based Comments	52148	34
Serra	Ragen	not provided	N/A	Web-based Comments	26575	24
Serra	Thomas and Linda	not provided	N/A	Web-based Comments	30569	24
Serralde	Jazmin	not provided	N/A	Web-based Comments	49671	34
Serralde	Paul	not provided	N/A	Web-based Comments	54995	34
Serrano	Kathleen	not provided	N/A	Web-based Comments	19598	24
Serrano	Rik	not provided	N/A	Web-based Comments	27112	24
Serrano-Osborn	Irene	not provided	N/A	Web-based Comments	15912	24
Serrato	Steven	not provided	N/A	Web-based Comments	29468	24
Serratore	Danielle	not provided	N/A	Web-based Comments	53230	34
serratore	danielle	not provided	N/A	Web-based Comments	11817	24
Sertich	Andrew	not provided	N/A	Web-based Comments	7846	24
Servadei	Maria Adele	not provided	N/A	Web-based Comments	22640	24
Servaege	Muriel	not provided	N/A	Web-based Comments	50083, 50084	34
Servello	John	not provided	N/A	Web-based Comments	18169	24
Servi Scarselli	Caterina	not provided	N/A	Web-based Comments	10250	24
Serxner-Merchant	Shoshana	not provided	N/A	Web-based Comments	47771	34
Serylo	Shannen	not provided	N/A	Web-based Comments	44800, 44801	34
Serylo	Shannen	not provided	N/A	Web-based Comments	28577	24
Sesack	Brian	not provided	N/A	Web-based Comments	9509	24
Sessford	Terry	not provided	N/A	Web-based Comments	54379, 54380	34
Sessions	Marcia	not provided	N/A	Web-based Comments	22381	N/A
Sessions	Marcia	not provided	N/A	Web-based Comments	22380	24
Sessions	Robert	not provided	N/A	Web-based Comments	27381	24
Setchell	Helen	not provided	N/A	Web-based Comments	51981, 51982	34
Setlow	Barbara C	not provided	N/A	Web-based Comments	8837	24
Settanni	Anne	annesettanni@comcast.net	N/A	Web-based comments	43, 2480	1
Settanni	Anne	not provided	N/A	Web-based Comments	8241	24
Settle	Charmaine	not provided	N/A	Web-based Comments	10581	24
Settle	Greg	not provided	N/A	Web-based Comments	15255	24
Settle	Greg	not provided	N/A	Web-based Comments	15256	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Seve	Geri De	not provided	N/A	Web-based Comments	45218	34
Severin	Suzanne	not provided	N/A	Web-based Comments	30022	24
Severino	Susan	not provided	N/A	Web-based Comments	29833	24
Severns	Tammy	not provided	N/A	Web-based Comments	30163	24
Severtson	Laurence	not provided	N/A	Web-based Comments	20800	24
Severy	Janaki	not provided	N/A	Web-based comments	57644	35
Sevigny	Amy	not provided	N/A	Web-based Comments	7674	24
Sevilla	Aurora	not provided	N/A	Web-based Comments	8540	24
Sevy	Deborah	not provided	N/A	Web-based Comments	12473	24
Sewall	Dana	not provided	N/A	Web-based Comments	11704	24
Sewell	Kevin	not provided	N/A	Web-based Comments	45860	34
Sewell	Lauren	not provided	N/A	Web-based Comments	46558, 46559	34
Sexton	krista	not provided	N/A	Web-based Comments	20335	24
Sexton	MARTHA	not provided	N/A	Web-based Comments	23126	24
Sexton	Peter	not provided	N/A	Web-based Comments	26289	24
sexton	sara	not provided	N/A	Web-based Comments	47839, 47840, 47841, 47842	34
Sexton	Tonya	not provided	N/A	Web-based Comments	30823	24
Seyfarth	Gordon and Michelle	not provided	N/A	Web-based Comments	45924	34
Seyffert	Margaret	not provided	N/A	Web-based Comments	22501	24
Seymour	Eddie	not provided	N/A	Web-based Comments	13460	24
Seymour	Frankie	not provided	N/A	Web-based Comments	48857	34
Seymour	Frankie	not provided	N/A	Web-based Comments	14556	24
Seymour	Renee	not provided	N/A	Web-based Comments	26857	24
Seymour	Stephanie	not provided	N/A	Web-based Comments	29248	24
Sfayer	Lauren	not provided	N/A	Web-based comments	57016	35
Sferra	Gloria	not provided	N/A	Web-based Comments	55925	34
Sferra	Gloria	not provided	N/A	Web-based Comments	15171	24
Sganbellini	Joseph F.	not provided	N/A	Web-based Comments	18406	24
Sgoutas	Cornelia	not provided	N/A	Web-based Comments	11386	24
Shabbott	Mary	not provided	N/A	Web-based Comments	56424, 56425	34
Shabbott	Mary	not provided	N/A	Web-based Comments	23414	24
Shabi	Kathleen	not provided	N/A	Web-based Comments	19599	24
Shackelford	Lisa	not provided	N/A	Web-based Comments	21633	24
Shadick	Jan	not provided	N/A	Web-based Comments	16427	24
Shadowbear	Peggy	not provided	N/A	Web-based Comments	26180	24
Shae	Ruthann	not provided	N/A	Web-based Comments	45865	34
Shafe	Sissy	not provided	N/A	Web-based comments	2667	6
Shafer	Kimberly	not provided	N/A	Web-based Comments	20240	24
Shaffer	Brandon	not provided	N/A	Web-based Comments	9375	24
Shaffer	Brooke	not provided	N/A	Web-based Comments	52213	34
Shaffer	Diane	not provided	N/A	Web-based Comments	46078	34
Shaffer	Diane	not provided	N/A	Web-based Comments	12901	24
Shaffer	Gwen	not provided	N/A	Web-based Comments	15356	24
Shaffer	Mary	not provided	N/A	Web-based Comments	23415	24
Shaffer	Matt	not provided	N/A	Web-based Comments	23623	24
Shaffer	Nicole	not provided	N/A	Web-based Comments	53354, 53355	34
Shaffer	Nicole	not provided	N/A	Web-based Comments	25255	24
Shaffer	Renay	not provided	N/A	Web-based Comments	26827	24
Shaffer	Sarah	not provided	N/A	Web-based comments	57023	35
Shaffer	Suzanne	not provided	N/A	Web-based Comments	54162	34
Shaffer	Suzanne	not provided	N/A	Web-based Comments	30023	24
Shaffer	Tria	not provided	N/A	Web-based Comments	50624	34
Shaffer	Wayne	not provided	N/A	Web-based Comments	31401	24
Shaffer-Koros	Carole	not provided	N/A	Web-based Comments	10096	24
Shafransky	Paula	not provided	N/A	Web-based Comments	58037	16
Shah	Nandita	not provided	N/A	Web-based Comments	52155, 52156	34
Shah	Nandita	not provided	N/A	Web-based Comments	25031	24
Shah	Supriya	not provided	N/A	Web-based Comments	58485	34
Shaheen	Joy	not provided	N/A	Web-based Comments	18470	24
Shah-Rais	Mariam	not provided	N/A	Web-based Comments	45418	34
Shah-Rais	Mariam	not provided	N/A	Web-based Comments	22652	24
Shair	Kyra	not provided	N/A	Web-based Comments	20471	24
Shake	Whitney	not provided	N/A	Web-based Comments	31475	24
Shaker	Orly	not provided	N/A	Web-based Comments	25449	24
Shakespeare	Heather	not provided	N/A	Web-based Comments	15536	24
Shakkour	L	not provided	N/A	Web-based Comments	20487	24
Shalat	Harriet	not provided	N/A	Web-based Comments	46697	34
Shalev	Nadav	not provided	N/A	Web-based Comments	53173	34
Shalit	Robert	not provided	N/A	Web-based Comments	27382	24
Shallenberger	Mary	not provided	N/A	Web-based Comments	23416	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Shallman	Elsy	not provided	N/A	Web-based Comments	44273	34
Shamahlov	Andrey Ozareo	not provided	N/A	Web-based Comments	7867	24
Shambach	Rita	not provided	N/A	Web-based Comments	27154	24
Shammas	Judith	not provided	N/A	Web-based Comments	18648	24
Shan.	korinna	not provided	N/A	Web-based Comments	45999	34
Shan.	Korinna	not provided	N/A	Web-based Comments	46000	34
Shan.	korinna	not provided	N/A	Web-based Comments	20313	24
Shand	Bonnie	not provided	N/A	Web-based Comments	9321	24
Shane	Abagayle	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	31750	N/A
shank	chris	chris.shank@icloud.com	N/A	Web-based comments	2606	1
Shank	Genevieve	not provided	N/A	Web-based Comments	53271, 53272	34
Shankel	Georgia	not provided	N/A	Web-based Comments	14944	24
Shanker	Gopal	not provided	N/A	Web-based Comments	51167, 51168	34
Shanley	Colleen	not provided	N/A	Web-based Comments	48949	34
Shannahoff	David	not provided	N/A	Web-based Comments	12136	24
Shannahoff-Khalsa	David	not provided	N/A	Web-based Comments	12137	24
Shannon	Hayley	not provided	N/A	Web-based comments	2435	N/A
Shannon	Kaelan	not provided	N/A	Web-based Comments	46090	34
Shannon	Maureen	not provided	N/A	Web-based Comments	23714	24
Shannon	Sally	not provided	N/A	Web-based Comments	28030	24
Shanny	Jane	not provided	N/A	Web-based Comments	16535	24
Shanske	Donna	not provided	N/A	Web-based Comments	13184	24
Shanu	Nuhshan	nuhshanu@gmail.com	N/A	Web-based comments	649	N/A
Shapira	Alon	not provided	N/A	Web-based Comments	7489	24
Shapiro	AD	not provided	N/A	Web-based Comments	7032	24
Shapiro	Aggie	not provided	N/A	Web-based Comments	7113	24
Shapiro	Anita	not provided	N/A	Web-based Comments	7983	24
Shapiro	Denise	not provided	N/A	Web-based Comments	12660	24
shapiro	ellene	not provided	N/A	Web-based Comments	44555	34
shapiro	freema	not provided	N/A	Web-based Comments	14602	24
Shapiro	Howard	not provided	N/A	Web-based Comments	55741	34
Shapiro	Jordan	not provided	N/A	Web-based Comments	18322	24
Shapiro	Judith	not provided	N/A	Web-based Comments	18649	24
Shapiro	Michael	not provided	N/A	Web-based Comments	24223	24
Shapiro	Rick	not provided	N/A	Web-based Comments	27103	24
Shapiro	Susan	not provided	N/A	Web-based Comments	29834	24
Shapka	Diane	not provided	N/A	Web-based Comments	56537	34
Shappell	Regina	not provided	N/A	Web-based Comments	26809	24
Sharfman	William	not provided	N/A	Web-based Comments	31596	24
Sharington	Grace	not provided	N/A	Web-based Comments	47919	34
Sharker	Debra	not provided	N/A	Web-based Comments	47943	34
Sharkey	Lynn	not provided	N/A	Web-based Comments	22093	24
Sharkova	Mihaela	not provided	N/A	Web-based Comments	24422	24
sharma	mukund	not provided	N/A	Web-based Comments	55404, 55405, 55406, 55407	34
sharma	mukund	not provided	N/A	Web-based Comments	24691	24
sharma	mukund	not provided	N/A	Web-based Comments	24692	24
Sharp	Donna	not provided	N/A	Web-based Comments	54116	34
Sharp	Dwite	not provided	N/A	Web-based Comments	13404	24
Sharp	Gloria	not provided	N/A	Web-based Comments	51511, 51512	34
Sharp	Harvey	not provided	N/A	Web-based Comments	15470	24
Sharp	J	not provided	N/A	Web-based Comments	47355, 47356	34
Sharp	James	not provided	N/A	Web-based Comments	45561, 45562, 45639	34
sharp	james	not provided	N/A	Web-based Comments	16305	24
Sharp	Jennifer	not provided	N/A	Web-based Comments	54080	34
Sharp	Joanne	not provided	N/A	Web-based comments	4845	N/A
Sharp	Kathryn	not provided	N/A	Web-based Comments	19662	24
Sharp	Marieca	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58325	N/A
Sharp	Mary Jean	not provided	N/A	Web-based Comments	23528	24
Sharp	Rick	ricksharp1@hotmail.com	N/A	Web-based comments	1799	N/A
Sharp	Robert	not provided	N/A	Web-based Comments	27383	24
Sharpe	Anthony	not provided	N/A	Web-based Comments	8347	24
Sharpe	Dan	md.sharpe@yahoo.com	N/A	Web-based comments	2041	N/A
Sharpe	Wil	not provided	N/A	Web-based Comments	31478	24
Sharrad	Hazel	not provided	N/A	Web-based Comments	15489	24
Shasky	Mike	not provided	N/A	Web-based Comments	24484	24
Shatkin	Geraldine	not provided	N/A	Web-based Comments	14973	24
Shats	Tatyana	not provided	N/A	Web-based Comments	52321	34
Shaub	Kimberly	not provided	N/A	Web-based Comments	20241	24
Shaughnessy	Anna	not provided	N/A	Web-based Comments	53537	34
Shaughnessy	Diane	not provided	N/A	Web-based Comments	58074, 58233	16

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Shaver	Dawn	dawnshaver13@yahoo.com	N/A	Web-based comments	57483, 1945	35, 1
Shaver	Elisabeth	not provided	N/A	Web-based Comments	46978	34
Shaver	Jason	jasonlshaver@yahoo.com	N/A	Web-based comments	1202	N/A
Shaver	Kim	not provided	N/A	Web-based Comments	20203	24
shaw	alexis	not provided	N/A	Web-based Comments	51330	34
Shaw	Alexis	not provided	N/A	Web-based Comments	7313	24
Shaw	Chelle	not provided	N/A	Web-based comments	751	N/A
Shaw	Claire	not provided	N/A	Web-based Comments	11145	24
Shaw	Connelee	not provided	N/A	Web-based Comments	51110	34
Shaw	Deborah	not provided	N/A	Web-based Comments	12474	24
Shaw	Donald	not provided	N/A	Web-based Comments	13082	24
Shaw	Donna	not provided	N/A	Web-based Comments	13185	24
Shaw	Jim	jrs@hfsllp.com	N/A	Web-based comments	4463	11
Shaw	Joel	not provided	N/A	Web-based Comments	17923	24
Shaw	Julie	not provided	N/A	Web-based Comments	18891	24
Shaw	Kathy	not provided	N/A	Web-based Comments	56475, 56476	34
Shaw	Kathy	not provided	N/A	Web-based Comments	19755	24
shaw	lisa	not provided	N/A	Web-based Comments	21634	24
Shaw	Madeline	not provided	N/A	Web-based Comments	54364	34
Shaw	Marlene	not provided	N/A	Web-based Comments	23047	24
Shaw	Mary	not provided	N/A	Web-based comments	57178	35
Shaw	Nancy	not provided	N/A	Web-based Comments	24983	24
Shaw	Niel	not provided	N/A	Web-based Comments	25271	24
Shaw	Pamela	not provided	N/A	Web-based Comments	25587	24
Shaw	Paul	not provided	N/A	Web-based Comments	26041	24
Shaw	S	not provided	N/A	Web-based Comments	27950	24
Shaw	Sharene	not provided	N/A	Web-based Comments	28609	24
Shaw	Shirley	not provided	N/A	Web-based Comments	28966	24
Shea	Alec	not provided	N/A	Web-based Comments	7220	24
Shea	Jackie	not provided	N/A	Web-based Comments	16075	24
Shea	Jillian	not provided	N/A	Web-based Comments	46218, 46219	34
Shea	Jillian	not provided	N/A	Web-based Comments	17560	24
Shea	June	not provided	N/A	Web-based Comments	18943	24
Shea	Karen	not provided	N/A	Web-based Comments	19212	24
Shea	Linda	not provided	N/A	Web-based Comments	44740	34
Shea	Marilyn	not provided	N/A	Web-based Comments	22813	24
Shea	Pam	not provided	N/A	Web-based comments	57625	35
Shea	Pam	not provided	N/A	Web-based Comments	53405	34
Sheafe	Alex	not provided	N/A	Web-based Comments	7251	24
sheaffer	scott	not provided	N/A	Web-based Comments	28496	24
Sheahan	Maureen	not provided	N/A	Web-based Comments	45096, 45097	34
Sheahan	Maureen	not provided	N/A	Web-based Comments	23715	24
Sheaks	Cindy	not provided	N/A	Web-based Comments	11097	24
Shearer	Cornelia	not provided	N/A	Web-based Comments	58014, 50752	16, 34
Shearer	Cornelia	not provided	N/A	Web-based Comments	11387	24
Shearer	Kathy	not provided	N/A	Web-based Comments	19756	24
Shearer	Sandra	not provided	N/A	Web-based Comments	51991	34
Sheck	Sally	not provided	N/A	Web-based Comments	28031	24
Sheckler	Daniel	danielsheckler@gmail.com	N/A	Web-based comments	3665	N/A
shee	sandra	not provided	N/A	Web-based Comments	45367	34
Sheehan	Danielle	not provided	N/A	Web-based Comments	11818	24
Sheehan	Jason	jkdairy@yahoo.com	N/A	Web-based comments	2576	N/A
Sheehan	Jon	not provided	N/A	Web-based Comments	18265	24
sheehan	julia	not provided	N/A	Web-based Comments	18774	24
Sheehan	Karen	jkdairy2003@gmail.com	N/A	Web-based comments	2553	N/A
Sheehan	Melissa	not provided	N/A	Web-based Comments	23927	24
Sheehan	Rita	not provided	N/A	Web-based Comments	27155	24
Sheehan	Sheila	not provided	N/A	Web-based Comments	28806	24
Sheehan	Trevor	not provided	N/A	Web-based comments	4470	8
Sheehey	Alison	not provided	N/A	Web-based Comments	53398	34
Sheehy	Julianne	not provided	N/A	Web-based Comments	18807	24
Sheehy	Steve	not provided	N/A	Web-based Comments	57925, 51181	16, 34
Sheehy	Steve	not provided	N/A	Web-based Comments	29402	24
Sheeler	Pam	not provided	N/A	Web-based Comments	45935	34
Sheeran	joe	not provided	N/A	Web-based Comments	50714	34
Sheets	Gabriel	not provided	N/A	Web-based Comments	14640	24
Sheets	Sarah	not provided	N/A	Web-based Comments	28404	24
sheets-johnstone	maxine	not provided	N/A	Web-based Comments	50691	34
Sheffield	Larry	not provided	N/A	Web-based comments	3365	N/A
Sheffield	Nancy	not provided	N/A	Web-based Comments	24984	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Sheffield	Winslow	not provided	N/A	Web-based Comments	31636	24
Sheibley	Kathryn	not provided	N/A	Web-based Comments	19663	24
Sheikh	Cynthia	not provided	N/A	Web-based Comments	11552	24
Sheil	Christine	not provided	N/A	Web-based Comments	10981	24
Sheinman	Deborah	not provided	N/A	Web-based Comments	12475	24
Shelangoski	Dena	not provided	N/A	Web-based Comments	51758	34
Shelby	BC	not provided	N/A	Web-based Comments	8882	24
Sheldon	Cheryl	not provided	N/A	Web-based Comments	50977	34
Sheldon	Cheryl	not provided	N/A	Web-based Comments	10673	24
Sheldon	Sam	not provided	N/A	Web-based Comments	28067	24
Sheldon	Sarah	not provided	N/A	Web-based comments	56878	35
Shelgren	Mikayla	not provided	N/A	Web-based Comments	24430	24
Shell	Dr. Rudolph	not provided	N/A	Web-based Comments	13367	24
Shell	Jill	not provided	N/A	Web-based Comments	58693	34
Shell	Peter	not provided	N/A	Web-based Comments	26290	24
Shelley	Dan	not provided	N/A	Web-based Comments	48663	34
Shelley	Ian	not provided	N/A	Web-based Comments	15837	24
Shelley	Katherine	not provided	N/A	Web-based Comments	19477	24
Shelley	Mary	not provided	N/A	Web-based Comments	47179	34
Shelley	Sarah	not provided	N/A	Web-based Comments	28405	24
Shelton	Carol	not provided	N/A	Web-based Comments	10021	24
Shelton	Cheri	not provided	N/A	Web-based Comments	46779	34
Shelton	Chuck	not provided	N/A	Web-based Comments	11053	24
Shelton	Gail	Sheltonranch@gmail.com	N/A	Web-based comments	4987	10
Shelton	James	not provided	N/A	Web-based Comments	48577	34
Shelton	Kacie	not provided	N/A	Web-based Comments	18992	24
Shemberg	Bea	not provided	N/A	Web-based Comments	8886	24
Shemberg	Marina	not provided	N/A	Web-based Comments	22840	24
Shen	Gloria	not provided	N/A	Web-based Comments	45763, 58411	34
Shen	Gloria	not provided	N/A	Web-based Comments	15172	24
Shen	Shi	not provided	N/A	Web-based Comments	28932	24
Shenefelt	Daniel	not provided	N/A	Web-based Comments	11775	24
Sheng	Ilene	not provided	N/A	Web-based Comments	15856	24
Shenkin	Michael	not provided	N/A	Web-based Comments	24224	24
Shenn	Steve	not provided	N/A	Web-based Comments	47498	34
Shepard	Barb	not provided	N/A	Web-based Comments	8608	24
Shepard	Dennis	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32559	N/A
Shepard	Hazel	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32559	N/A
Shepard	Kaiya	not provided	N/A	Web-based Comments	19006	24
Shepard	Lansing	not provided	N/A	Web-based Comments	20546	24
Shepard	Margaret	not provided	N/A	Web-based Comments	22502	24
Shepard	Richard	not provided	N/A	Web-based Comments	53602, 53603	34
Shepard	Richard	not provided	N/A	Web-based Comments	27045	24
Shepard	Tina	not provided	N/A	Web-based Comments	30693	24
Sheperd	JoAnn	not provided	N/A	Web-based Comments	49980	34
Shephard	Gary	not provided	N/A	Web-based Comments	51751	34
Shephard	Jill	not provided	N/A	Web-based Comments	17542	24
Shepherd	Anne	not provided	N/A	Web-based Comments	8242	24
Shepherd	David	not provided	N/A	Web-based Comments	12138	24
Shepherd	Lee	not provided	N/A	Web-based Comments	20943	24
Shepherd	Megan	not provided	N/A	Web-based Comments	51729, 51730	34
Shepherd	Monika	not provided	N/A	Web-based Comments	24652	24
Shepherd	Vickie	not provided	N/A	Web-based Comments	50761	34
Shepherd	Yvonne	not provided	N/A	Web-based comments	56897	35
Shepherdson	Marjorie	not provided	N/A	Web-based Comments	22886	24
Shepler	Larry	not provided	N/A	Web-based Comments	20587	24
sheppard	ben	not provided	N/A	Web-based Comments	8949	24
SHEPPARD	CYNTHIA	not provided	N/A	Web-based Comments	11553	24
Sheppard	Jim	not provided	N/A	Web-based Comments	17605	24
Sheppard	Layne	not provided	N/A	Web-based Comments	20892	24
Sheppard	Melissa	not provided	N/A	Web-based Comments	23928	24
Sheppard	Mike	not provided	N/A	Web-based Comments	50922	34
Sheppard	Mike	not provided	N/A	Web-based Comments	24485	24
Sheppard	Robin	not provided	N/A	Web-based comments	57035	35
Sheppard	Sheila	not provided	N/A	Web-based Comments	47112, 47113	34
Sheppard	Sheila	not provided	N/A	Web-based Comments	28807	24
Sherba	Dayle	not provided	N/A	Web-based Comments	48104	34
Sherburne	Ashley	not provided	N/A	Web-based Comments	8498	24
Shereda	Joni	not provided	N/A	Web-based Comments	18309	24
Sherin	Chandra	not provided	N/A	Web-based Comments	45982	34

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Sherin	Mimi	not provided	N/A	Web-based Comments	24523	24
Sherin	Peter	not provided	N/A	Web-based Comments	26291	24
Sherkow	Mark	not provided	N/A	Web-based Comments	22984	24
Sherman	Daniel F.	not provided	N/A	Web-based Comments	11794	24
Sherman	J.P.	not provided	N/A	Web-based Comments	51382	34
Sherman	Joyce	not provided	N/A	Web-based Comments	18510	24
Sherman	Kara	not provided	N/A	Web-based Comments	54355, 54356	34
Sherman	Marlee	not provided	N/A	Web-based Comments	53839	34
sherman	mary	not provided	N/A	Web-based Comments	23418	24
Sherman	Mary	not provided	N/A	Web-based Comments	23417	24
Sherman	Nicholas	not provided	N/A	Web-based Comments	25177	24
Sherman	Nicholas	not provided	N/A	Web-based Comments	25178	24
Sherman	Rachel	not provided	N/A	Web-based Comments	54607	34
Sherman	Rachel	not provided	N/A	Web-based Comments	26550	24
Sherman	Trisha	not provided	N/A	Web-based Comments	30927	24
Sherman-Jones	Cynthia	not provided	N/A	Web-based Comments	45329, 45330	34
Shero	Dale	not provided	N/A	Web-based Comments	45588	34
Shero	Dale	not provided	N/A	Web-based Comments	11633	24
SHERRARD	BARBARA	Bsws770@gmail.com	N/A	Web-based comments	2901	N/A
Sherrard	Kathryn	not provided	N/A	Web-based Comments	19664	24
Sherrell	Art	not provided	N/A	Web-based Comments	8454	24
Sherrill	Tawny	not provided	N/A	Web-based Comments	30230	24
Sherrington	Barbara	not provided	N/A	Web-based Comments	8780	24
Sherton	Corinne	not provided	N/A	Web-based Comments	54936	34
Shervs	Art	not provided	N/A	Web-based Comments	45928	34
Sherwin	Joyce	not provided	N/A	Web-based Comments	18511	24
sherwood	ann	not provided	N/A	Web-based Comments	8082	24
Sherwood	Dan	not provided	N/A	Web-based Comments	56335	34
Sherwood	Kate	not provided	N/A	Web-based Comments	52226	34
Sherwood	Kate	not provided	N/A	Web-based Comments	19401	24
Sherwood	Kristin	not provided	N/A	Web-based Comments	20390	24
Sherwood	Nora	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	5592	N/A
Sherwood	Trina	not provided	N/A	Web-based Comments	30912	24
Sheshebor	Niloofar	not provided	N/A	Web-based Comments	25296	24
Sheto	May	not provided	N/A	Web-based Comments	48080	34
Shevham	Michael	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	2526	N/A
Shevis	Aron	not provided	N/A	Web-based Comments	8449	24
Shewalter	Stephanie	not provided	N/A	Web-based Comments	29249	24
Shideler	Valerie	not provided	N/A	Web-based Comments	31041	24
Shidlauski	Tamara	not provided	N/A	Web-based Comments	30131	24
Shield	Erin	not provided	N/A	Web-based Comments	14235	24
Shield	Kat	not provided	N/A	Web-based Comments	19352	24
Shields	Ed	not provided	N/A	Web-based Comments	47510	34
Shields	Janice	not provided	N/A	Web-based Comments	16697	24
Shields	Juli	not provided	N/A	Web-based Comments	18741	24
Shields	Linda M	not provided	N/A	Web-based Comments	21471	24
Shields	Mary	not provided	N/A	Web-based Comments	23419	24
Shields	Mike	not provided	N/A	Web-based Comments	24486	24
Shields	Molly	not provided	N/A	Web-based Comments	50283	34
Shields	Monika	monika.wieland@gmail.com	N/A	Web-based comments	5024	N/A
Shields	Susan	not provided	N/A	Web-based Comments	29835	24
Shields	Victoria	not provided	N/A	Web-based Comments	31218	24
Shiels	Theresa	not provided	N/A	Web-based Comments	30448	24
SHIFFRIN	JOYCE	not provided	N/A	Web-based Comments	45010	34
SHIFFRIN	JOYCE	not provided	N/A	Web-based Comments	18512	24
Shifley	John	john.shifley@gmail.com	N/A	Web-based comments	2570	1
Shifley	Sarah	not provided	N/A	Web-based comments	2546	1
Shih	Victoria	not provided	N/A	Web-based Comments	31219	24
Shih	Victoria Shih	not provided	N/A	Web-based Comments	47879, 47880	34
Shiina	Nicolette	not provided	N/A	Web-based Comments	25268	24
Shill	David	davids@inlandpower.com	N/A	Web-based comments	2758	7
Shilling	Tim	not provided	N/A	Web-based comments	56916	35
Shillito	Jan	not provided	N/A	Web-based Comments	16428	24
Shiloh	Caren	not provided	N/A	Web-based Comments	9784	24
Shimata	Liwen	not provided	N/A	Web-based Comments	51995	34
Shimeall	Nancy	nshimeall@gmail.com	N/A	Web-based comments	1988	N/A
Shimkonis	Ericka	not provided	N/A	Web-based Comments	14179	24
Shimon	Barbara	not provided	N/A	Web-based Comments	8781	24
Shimoni	Yael	not provided	N/A	Web-based Comments	31651	24
Shimpi	Nikhil	not provided	N/A	Web-based Comments	25283	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Shimshon	Yael	not provided	N/A	Web-based Comments	53102	34
Shimwell	Helen	not provided	N/A	Web-based Comments	45361	34
Shin	Janet	not provided	N/A	Web-based Comments	16644	24
Shine	Deshna	not provided	N/A	Web-based Comments	55424	34
Shine	Stephanie	not provided	N/A	Web-based Comments	29250	24
Shinhearl	Aimee	not provided	N/A	Web-based Comments	7136	24
Shinhearl	Roberta	not provided	N/A	Web-based Comments	27450	24
Shinkawa	Donna	not provided	N/A	Web-based Comments	13186	24
Shinkle	Adaline	not provided	N/A	Web-based Comments	7036	24
Shinn	Brain	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4219	N/A
Shinn	Mary	marybeth.shinn@gmail.com	N/A	Web-based comments	3239	N/A
Shinners	James	not provided	N/A	Web-based Comments	16306	24
Shiplet	Louetta	louettashiplet@gmail.com	N/A	Web-based comments	4559	N/A
Shipley	Brian	not provided	N/A	Web-based Comments	9510	24
Shipley	Leslie	not provided	N/A	Web-based Comments	21101	24
Shipley	Tim	not provided	N/A	Web-based Comments	30630	24
Shippee	Bob	not provided	N/A	Web-based Comments	49998	34
Shipper	Nimia Montanez	not provided	N/A	Web-based Comments	52043	34
Shiraishi	Ayumi	not provided	N/A	Web-based Comments	8561	24
SHIREK	BETH	not provided	N/A	Web-based Comments	9051	24
Shires	Jeffrey	not provided	N/A	Web-based Comments	17100	24
Shirey	Debi	not provided	N/A	Web-based Comments	12363	24
Shirey	Deborah	not provided	N/A	Web-based Comments	12476	24
Shirey	Linda	not provided	N/A	Web-based Comments	54460, 54461, 54876	34
Shirey	Linda	not provided	N/A	Web-based Comments	21420	24
Shirkey	Zachary	not provided	N/A	Web-based Comments	31718	24
Shirley	Robin	not provided	N/A	Web-based Comments	27522	24
Shishido	Mason	not provided	N/A	Web-based Comments	23597	24
Shively	Judy	not provided	N/A	Web-based Comments	18717	24
Shivik	Jessica	not provided	N/A	Web-based Comments	17463	24
Shlasky	Stephanie	not provided	N/A	Web-based Comments	29251	24
Shober	Stephanie	not provided	N/A	Web-based Comments	52723	34
Shockley	Linda	not provided	N/A	Web-based Comments	21421	24
shoemaker	beth	not provided	N/A	Web-based Comments	9052	24
Shoemaker	Eric	not provided	N/A	Web-based comments	399	N/A
Shoemaker	Rachel	mrs.rachelshoemaker@yahoo.com	N/A	Web-based comments	667	N/A
Shoffner	Samantha	not provided	N/A	Web-based comments	57031	35
Shokmalli	Korie	not provided	N/A	Web-based Comments	20311	24
Shokohi	Azhand	not provided	N/A	Web-based Comments	8563	24
Sholtz	Laura	not provided	N/A	Web-based Comments	20701	24
Shoofey-Stabler	Rae	not provided	N/A	Web-based Comments	58498, 58499	34
shook	mary C.	not provided	N/A	Web-based Comments	23512	24
Shope	Sydney	not provided	N/A	Web-based Comments	30054	24
Shopper	Bonnie	not provided	N/A	Web-based Comments	9322	24
Shor	Barbara	not provided	N/A	Web-based Comments	8782	24
Shor	Shar	not provided	N/A	Web-based Comments	28606	24
shoraka	nina	not provided	N/A	Web-based Comments	25316	24
Shore	Allison	not provided	N/A	Web-based Comments	51775	34
Shore	Allison	not provided	N/A	Web-based Comments	7474	24
Shore	H Edward	not provided	N/A	Web-based Comments	15369	24
Shore	Lisa	not provided	N/A	Web-based Comments	21635	24
Shores	Kathy	not provided	N/A	Web-based Comments	19757	24
Short	Carol	not provided	N/A	Web-based Comments	10022	24
Short	Glenn	not provided	N/A	Web-based Comments	15137	24
Short	J	jmichael.photo@gmail.com	N/A	Web-based comments	2900*	N/A
Short	J	jmichael.photo@gmail.com	N/A	Hand-delivered or oral testimony (personally delivered)	4224, 5535	N/A
Short	Marjorie	not provided	N/A	Web-based Comments	22887	24
Short	Sandra	not provided	N/A	Web-based Comments	28212	24
Shortell	Tim	not provided	N/A	Web-based Comments	30631	24
Shortle	Tracy	not provided	N/A	Web-based Comments	51440	34
Shortle	Tracy	not provided	N/A	Web-based Comments	30880	24
Shortledge	Ben	shortledgeben@gmail.com	N/A	Web-based comments	3386	N/A
Shortridge	Katrina	not provided	N/A	Web-based Comments	49277	34
Shotts	Tami	not provided	N/A	Web-based Comments	47687	34
Shotwell	Andreia	not provided	N/A	Web-based Comments	53600	34
Shotz	Alyson	not provided	N/A	Web-based Comments	54016, 54017	34
Shoule	Michael	not provided	N/A	Web-based Comments	24225	24
Shovelin	Sharon	not provided	N/A	Web-based Comments	28710	24
Shovelski	Raymond	not provided	N/A	Web-based Comments	51481	34
Show	Enviro	not provided	N/A	Web-based Comments	14078	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Showalter	Tara	not provided	N/A	Web-based Comments	30206	24
Showerman	Linda	not provided	N/A	Web-based Comments	21422	24
Shows	Leslie	skincoloured@hotmail.com	N/A	Web-based comments	5786	1
Shpak	Iris	not provided	N/A	Web-based Comments	15919	24
Shreve	Wendy	not provided	N/A	Web-based Comments	31447	24
Shrewsbury	George	not provided	N/A	Web-based Comments	14917	24
Shrieves	Ron	not provided	N/A	Web-based Comments	27635	24
Shroff	Namita	not provided	N/A	Web-based Comments	24781	24
Shroyer	Roberta	not provided	N/A	Web-based Comments	27451	24
Shrum	Birgit	not provided	N/A	Web-based Comments	9202	24
Shryock	Heather	not provided	N/A	Web-based Comments	50151	34
Shtern	Adele	not provided	N/A	Web-based Comments	7070	24
Shubb	Lisa	not provided	N/A	Web-based Comments	21636	24
Shubert	Lois	not provided	N/A	Web-based Comments	21730	24
shubert	stephen	not provided	N/A	Web-based Comments	29336	24
Shubin	Carol	not provided	N/A	Web-based Comments	50120	34
Shubin	Carol	not provided	N/A	Web-based Comments	10023	24
Shuck	D	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32269	N/A
Shuck	Edward	ted.shuck@gmail.com	N/A	Web-based comments	5392	N/A
Shue	Henry	not provided	N/A	Web-based Comments	15672	24
Shuford	Carla	not provided	N/A	Web-based Comments	9832	24
Shuford	Jim	Biologics@aol.com	N/A	Web-based comments	5836	N/A
Shugerman	Lance	not provided	N/A	Web-based Comments	20532	24
Shuler	Patsy	not provided	N/A	Web-based Comments	25937	24
Shull, Ryt-200, Pryt	Kelly	not provided	N/A	Web-based Comments	19947	24
Shulof	Vicki	not provided	N/A	Web-based Comments	31150	24
Shultz	Jamie	not provided	N/A	Web-based Comments	52508	34
Shultz	Jamie	not provided	N/A	Web-based Comments	16374	24
Shultz	Karen M U	not provided	N/A	Web-based Comments	19261	24
Shumaker	H. Dennis	not provided	N/A	Web-based Comments	52763	34
Shumaker	H. Dennis	not provided	N/A	Web-based Comments	15372	24
Shumaker	Jan	not provided	N/A	Web-based Comments	16429	24
Shuman	Rob	not provided	N/A	Web-based Comments	27186	24
Shumate	Lisa	not provided	N/A	Web-based Comments	21637	24
Shup	Marilyn	not provided	N/A	Web-based Comments	58657	34
Shupak	Eileen	not provided	N/A	Web-based Comments	13560	24
Shuppe	Kelly	not provided	N/A	Web-based Comments	47688, 47689	34
Shurgot,	Michael	mwshurgot@earthlink.net	N/A	Web-based comments	6249	N/A
Shuri	Frank	not provided	N/A	Web-based Comments	14547	24
Shushan	Cheryl	not provided	N/A	Web-based Comments	10674	24
shuster	debra	not provided	N/A	Web-based Comments	51559	34
Shuster	Elaine	not provided	N/A	Web-based Comments	13611	24
Shuster	Marguerite	not provided	N/A	Web-based Comments	54036	34
Shutay	Jeanette	not provided	N/A	Web-based Comments	54164	34
Shuter	Melanie	not provided	N/A	Web-based Comments	23846	24
Shwatal	David	not provided	N/A	Web-based Comments	12139	24
Shy	Kerolyn	not provided	N/A	Web-based comments	57356	35
Shycoff	Diana	not provided	N/A	Web-based Comments	51934	34
Siak	Judy	not provided	N/A	Web-based Comments	18718	24
Sibbio	Oriana	orianaink@gmail.com	N/A	Web-based comments	6291	1
Sibson	Jane	not provided	N/A	Web-based Comments	16536	24
Sibson	Richard	not provided	N/A	Web-based Comments	47214	34
Sicari	Daria	not provided	N/A	Web-based comments	57309	35
Sickles	David	not provided	N/A	Web-based Comments	46376	34
Sickles	David	not provided	N/A	Web-based Comments	12140	24
Sicular	Roy	not provided	N/A	Web-based Comments	27811	24
Sidbeck	Sarah	not provided	N/A	Web-based Comments	52001	34
Siddique	Omar	not provided	N/A	Web-based Comments	25444	24
Sider	Terri	not provided	N/A	Web-based Comments	30348	24
Siders	Sadie	not provided	N/A	Web-based Comments	27987	24
Sidhu	A. Amber	not provided	N/A	Web-based Comments	6986	24
Sieb	Angeline	not provided	N/A	Web-based Comments	7944	24
Siebens	Heidi	not provided	N/A	Web-based Comments	55368	34
Siebens	Heidi	not provided	N/A	Web-based Comments	15580	24
Sieck	Pamela	not provided	N/A	Web-based Comments	54606	34
Sieck	Pamela	not provided	N/A	Web-based Comments	25588	24
Siedenburg	Heather	not provided	N/A	Web-based Comments	15537	24
Siegal	Andrew	not provided	N/A	Web-based Comments	7847	24
Siegel	Christa	not provided	N/A	Web-based Comments	10813	24
Siegel	E.	not provided	N/A	Web-based Comments	50344	34

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Siegel	Jean	not provided	N/A	Web-based Comments	52997	34
Siegel	Jeffrey	not provided	N/A	Web-based Comments	17101	24
Siegel	Jenn	dreamspynner@yahoo.com	N/A	Web-based comments	4988	N/A
Siegel	Jerry	not provided	N/A	Web-based Comments	17374	24
Siegel	Jessica	not provided	N/A	Web-based Comments	54714, 54715	34
Siegel	Jessica	not provided	N/A	Web-based Comments	17464	24
Siegel	Martha	not provided	N/A	Web-based Comments	53263	34
Siegel	Martha	not provided	N/A	Web-based Comments	23127	24
Siegel	Paul	not provided	N/A	Web-based Comments	26042	24
Siegel	Richard	not provided	N/A	Web-based Comments	27046	24
Siegel	Stephanie	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32484	13
Siegert	Rick	not provided	N/A	Web-based Comments	48380	34
Siegler	Mary	not provided	N/A	Web-based Comments	23420	24
Siegling	Joyce	not provided	N/A	Web-based Comments	18513	24
Siegman	Pamela	not provided	N/A	Web-based Comments	25589	24
Siegrist	Toni	not provided	N/A	Web-based comments	56970	35
Siegrist	Toni	not provided	N/A	Web-based Comments	52123	34
Siekevitz	Ruth	not provided	N/A	Web-based Comments	45055	34
SIELINSKY	JAMES	joeriskeval@ida.net	N/A	Web-based comments	3565	N/A
Siemian	Lori	not provided	N/A	Web-based Comments	21805	24
Sienkiewicz	Edward	not provided	N/A	Web-based Comments	13514	24
Sierra	Dorothea	not provided	N/A	Web-based Comments	47636	34
Sietmann	Caroline	not provided	N/A	Web-based Comments	10131	24
SIFFORD	WILLIAM	billbstallion@yahoo.com	N/A	Web-based comments	32179	N/A
Sifuentes	D.G.	not provided	N/A	Web-based Comments	11603	24
SIgel	Liz	not provided	N/A	Web-based Comments	21693	24
Sigg	Debra	not provided	N/A	Web-based Comments	51776	34
Sigg	Jim	not provided	N/A	Web-based Comments	17606	24
Siggs	Patricia	not provided	N/A	Web-based Comments	25841	24
Sigler	Jill	not provided	N/A	Web-based Comments	17543	24
Sigler	John	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32294	N/A
Sigler	Teri	not provided	N/A	Web-based Comments	30315	24
Signalness	Penny	not provided	N/A	Web-based Comments	51256, 51257	34
Sikand	Vikram	not provided	N/A	Web-based Comments	31243	24
Sikora	John	jesikora@sbcglobal.net	N/A	Web-based comments	5634	N/A
silaco	joan	not provided	N/A	Web-based Comments	17737	24
Silagy	Frank	not provided	N/A	Web-based Comments	14548	24
Silberhumer	Helena	not provided	N/A	Web-based Comments	55054	34
Silberstein	Lois	not provided	N/A	Web-based Comments	21731	24
Silburn	Jackie	not provided	N/A	Web-based Comments	45283	34
Silcox	Chris	not provided	N/A	Web-based Comments	10785	24
Sileno	Michael	not provided	N/A	Web-based Comments	24226	24
Siler	Julie	not provided	N/A	Web-based Comments	18892	24
Silkey	Ulrike	not provided	N/A	Web-based Comments	47184	34
Silkey	Ulrike E	not provided	N/A	Web-based Comments	30972	24
Silkiss	Vicki	not provided	N/A	Web-based Comments	31151	24
Silkworth	Leslie	not provided	N/A	Web-based Comments	21102	24
Sill	Joel	not provided	N/A	Web-based Comments	17924	24
Sillasen	Becky	not provided	N/A	Web-based Comments	8919	24
Silliphant	John	not provided	N/A	Web-based Comments	18170	24
Sills	Carol	not provided	N/A	Web-based Comments	10024	24
Silman	Tasmin	not provided	N/A	Web-based Comments	30218	24
Siluni	Jiji	not provided	N/A	Web-based Comments	17490	24
Silva	Da	mailysdasilva8@gmail.com	N/A	Web-based comments	284, 868, 1435, 1436, 1796	1
Silva	Gail	not provided	N/A	Web-based Comments	49518	34
Silva	Grace	not provided	N/A	Web-based Comments	9233	24
silva	jessica	not provided	N/A	Web-based Comments	17465	24
Silva	Joseph	not provided	N/A	Web-based comments	2241	N/A
Silva	Will	not provided	N/A	Web-based Comments	31492	24
Silva, Sr	Carlos	not provided	N/A	Web-based Comments	49488	34
Silvea	Celest	not provided	N/A	Web-based Comments	44651	34
Silver	Amanda	not provided	N/A	Web-based Comments	53258	34
Silver	Dan	not provided	N/A	Web-based Comments	58540	34
Silver	Deborah	not provided	N/A	Web-based Comments	12477	24
Silver	Genie	not provided	N/A	Web-based Comments	14868	24
Silver	Mara	not provided	N/A	Web-based comments	57721	35
Silver	Margaret	not provided	N/A	Web-based Comments	22503	24
Silver	Ron	not provided	N/A	Web-based Comments	27636	24
Silver	Susan	not provided	N/A	Web-based Comments	29836	24
Silver	Susan	not provided	N/A	Web-based Comments	29837	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Silver	Victoria	not provided	N/A	Web-based Comments	50688	34
Silverboard	Howard	not provided	N/A	Web-based Comments	15808	24
Silverman	Eva	not provided	N/A	Web-based Comments	14317	24
Silverman	Jennifer	not provided	N/A	Web-based comments	2446	N/A
Silverman	Laura	not provided	N/A	Web-based Comments	48411	34
Silverman	Laura	not provided	N/A	Web-based Comments	20702	24
Silverman	Lorin	not provided	N/A	Web-based Comments	21816	24
Silverman	Marc	not provided	N/A	Web-based Comments	22344	24
Silverman	Susan	not provided	N/A	Web-based Comments	29838	24
Silversmith	Linda	not provided	N/A	Web-based Comments	21423	24
Silverstein	Ian	not provided	N/A	Web-based Comments	44414	34
Silverstein	Judy	not provided	N/A	Web-based Comments	50926	34
Silverstein	Judy	not provided	N/A	Web-based Comments	18719	24
silverstein	sasha	not provided	N/A	Web-based Comments	28440	24
SILVERSTONE	Sharon	not provided	N/A	Web-based Comments	46944	34
Silverstrim	Brenda	not provided	N/A	Web-based comments	57077	35
Silverwood	George	not provided	N/A	Web-based Comments	14918	24
Silvestri	Sandra Silvestri	not provided	N/A	Web-based Comments	53145	34
Silvey	Katherine	not provided	N/A	Web-based Comments	48345, 48346	34
Silvey	Katherine	not provided	N/A	Web-based Comments	19478	24
Silvey	Kevin	not provided	N/A	Web-based Comments	49550	34
Silvia	Regina	not provided	N/A	Web-based comments	56981	35
Sim	Eric	not provided	N/A	Web-based Comments	14140	24
Simerl	Gladys	not provided	N/A	Web-based Comments	48779	34
Simington	Kathy	not provided	N/A	Web-based Comments	50104	34
Simioni	Marco A.	not provided	N/A	Web-based Comments	22397	24
Simkin	Rick	not provided	N/A	Web-based Comments	27104	24
Simmonds	Barbara	not provided	N/A	Web-based Comments	8783	24
Simmonds	Beatrice	not provided	N/A	Web-based Comments	8892	24
Simmons	Cathy	not provided	N/A	Web-based Comments	10392	24
Simmons	Chris	not provided	N/A	Web-based Comments	10786	24
Simmons	Clarreta	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	2592	N/A
Simmons	Deanna	not provided	N/A	Web-based Comments	12281	24
Simmons	Jarrod	not provided	N/A	Web-based Comments	16764	24
Simmons	Judy	not provided	N/A	Web-based Comments	18720	24
Simmons	Michael	not provided	N/A	Web-based Comments	24227	24
Simmons	Robert	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	2593	N/A
Simmons	Victoria	not provided	N/A	Web-based Comments	31220	24
Simms	Lisa	not provided	N/A	Web-based Comments	21638	24
SIMON	Arlette	not provided	N/A	Web-based Comments	8441	24
SIMON	Bruno	not provided	N/A	Web-based Comments	56497	34
SIMON	Bruno	not provided	N/A	Web-based Comments	9633	24
Simon	Cailleaux	cailleaux.simon@gmail.com	N/A	Web-based comments	506	2
Simon	Christine	heymrpooch@yahoo.com	N/A	Web-based comments	5922	N/A
Simon	George	not provided	N/A	Web-based Comments	14919	24
Simon	Jessie	not provided	N/A	Web-based comments	57364	35
Simon	Jill	not provided	N/A	Web-based Comments	17544	24
Simon	L	not provided	N/A	Web-based Comments	20488	24
Simon	Lana	not provided	N/A	Web-based Comments	46007	34
Simon	Morgan	mksimon11@gmail.com	N/A	Web-based comments	1230	1
Simon	Richard	not provided	N/A	Web-based Comments	27047	24
Simon	Robert	not provided	N/A	Web-based comments	57015	35
Simon	Roslyn	not provided	N/A	Web-based Comments	47608	34
simon	sara	not provided	N/A	Web-based Comments	28314	24
Simon	Tia	not provided	N/A	Web-based Comments	50520	34
Simone	Dana	not provided	N/A	Web-based Comments	44769	34
Simone	Dana	not provided	N/A	Web-based Comments	11705	24
Simonet	Sarah	not provided	N/A	Web-based Comments	44965	34
Simone-Wiley	Renee	not provided	N/A	Web-based Comments	47518	34
Simoni	Leia	not provided	N/A	Web-based Comments	20960	24
Simonik	Kathy	not provided	N/A	Web-based Comments	19758	24
Simonitsch	Natalie	not provided	N/A	Web-based Comments	25078	24
SIMONOT	Leslie	not provided	N/A	Web-based Comments	21103	24
Simons	Daniel	not provided	N/A	Web-based Comments	11776	24
Simons	Mack	not provided	N/A	Web-based Comments	22230	24
Simonsen	Tina	not provided	N/A	Web-based Comments	30694	24
Simonton	Catherine	not provided	N/A	Web-based Comments	10323	24
Simpkins	Sunny	ssimpkins@mcdd.org	N/A	Web-based comments	6911	N/A
Simpson	Alice	not provided	N/A	Web-based Comments	7365	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Simpson	Andy	not provided	N/A	Web-based Comments	51297	34
Simpson	Barbara	barbsimp@comcast.net	N/A	Web-based comments	6092	N/A
Simpson	Cathy & Dave	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58780	N/A
Simpson	Clay	not provided	N/A	Web-based comments	4444	8
Simpson	Doug	not provided	N/A	Web-based Comments	13312	24
Simpson	Ed and Bee	not provided	N/A	Web-based Comments	57875	N/A
Simpson	Edith	not provided	N/A	Web-based Comments	13473	24
Simpson	Edward & Beatrice	not provided	N/A	Web-based Comments	13519	N/A
Simpson	Elisabeth	not provided	N/A	Web-based Comments	13680	24
Simpson	Eric	not provided	N/A	Web-based Comments	53459	34
Simpson	Eric	not provided	N/A	Web-based Comments	14141	24
Simpson	Jill	not provided	N/A	Web-based Comments	17545	24
Simpson	John	not provided	N/A	Web-based Comments	53613, 53614	34
Simpson	Josh	not provided	N/A	Web-based Comments	18423	24
Simpson	Karin	not provided	N/A	Web-based Comments	19288	24
Simpson	Kristina	not provided	N/A	Web-based Comments	54930, 54931	34
Simpson	Lou	not provided	N/A	Web-based Comments	21861	24
Simpson	Malcolm	not provided	N/A	Web-based Comments	58064	16
Simpson	Maureen	not provided	N/A	Web-based Comments	23716	24
Simpson	Pete	not provided	N/A	Web-based Comments	46147	34
Simpson	Reid	rsimpwastate@gmail.com	N/A	Web-based comments	1407	N/A
Simpson	Sally	not provided	N/A	Web-based Comments	28032	24
Simpson	Vickie	not provided	N/A	Web-based Comments	47011	34
Simpson	Walter	not provided	N/A	Web-based Comments	31364	24
Simrin	Harry	not provided	N/A	Web-based Comments	15463	24
Sims	Anna	not provided	N/A	Web-based Comments	8153	24
Sims	Becky	not provided	N/A	Web-based Comments	55843	34
Sims	Carmen	not provided	N/A	Web-based comments	1120	N/A
Sims	Catherine	not provided	N/A	Web-based Comments	10324	24
Sims	Christopher	papasims.cs@gmail.com	N/A	Web-based comments	6781	N/A
Sims	Dwight	not provided	N/A	Web-based Comments	13402	24
Sims	Guy	not provided	N/A	Web-based Comments	15345	24
Sims	Joe	not provided	N/A	Web-based comments	57128	35
Simurro	Cie	not provided	N/A	Web-based Comments	51201	34
Sinai	Iris	not provided	N/A	Web-based Comments	15920	24
Sinai	Iris	not provided	N/A	Web-based Comments	15921	24
Sincher	Joyce	not provided	N/A	Web-based Comments	18514	24
Sinclair	David	not provided	N/A	Web-based Comments	12141	24
Sinclair	Deborah	not provided	N/A	Web-based Comments	44917	34
Sinclair	Deborah	not provided	N/A	Web-based Comments	12478	24
Sinclair	Jean	not provided	N/A	Web-based Comments	57828	34
Sinclair	Jean	not provided	N/A	Web-based Comments	16884	24
Sinclair	Karen	not provided	N/A	Web-based Comments	47847	34
Sinclair	Melanie	not provided	N/A	Web-based Comments	52068	34
Sinclair	Melanie	not provided	N/A	Web-based Comments	23847	24
Sinden	Grace	not provided	N/A	Web-based Comments	15202	24
sindoni	jenne	not provided	N/A	Web-based Comments	47784	34
SINER	ROBIN	not provided	N/A	Web-based Comments	27523	24
Sines	Charlotte	not provided	N/A	Web-based comments	57695	35
Sines	Charlotte	not provided	N/A	Web-based Comments	53695, 53696	34
Sines	Charlotte	not provided	N/A	Web-based Comments	10568	24
Singels	Lori	not provided	N/A	Web-based Comments	53779	34
Singer	Andrew	not provided	N/A	Web-based Comments	7848	24
Singer	Betty J	not provided	N/A	Web-based Comments	47316	34
Singer	Gaelle	not provided	N/A	Web-based Comments	14660	24
Singer	Jennifer	not provided	N/A	Web-based Comments	49581	34
Singer	Jerald	not provided	N/A	Web-based Comments	17302	24
Singer	judy	not provided	N/A	Web-based Comments	18721	24
Singer	Linda	not provided	N/A	Web-based Comments	44521	34
Singer	Pam	not provided	N/A	Web-based Comments	25509	24
Singer	Sharon	not provided	N/A	Web-based Comments	28711	24
Singh	JULIE	not provided	N/A	Web-based Comments	52229, 52230	34
Singh	Julie	not provided	N/A	Web-based Comments	18893	24
Singh	Kathleen	not provided	N/A	Web-based Comments	19600	24
Singh	Stuti	stutisingh127@gmail.com	N/A	Web-based comments	6892	N/A
SINGH	the	not provided	N/A	Web-based Comments	30409	24
Singher	Marjory	not provided	N/A	Web-based Comments	22891	24
Singian	Micah	singianmicah@yahoo.com	N/A	Web-based comments	570	2
Singletary	Linda	not provided	N/A	Web-based Comments	21424	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Singleterry	Jacquilin	not provided	N/A	Web-based Comments	44382	34
Singleterry	Jacquilin	not provided	N/A	Web-based Comments	16148	24
Singleton	Deb	not provided	N/A	Web-based Comments	49202	34
Singleton	Debra	not provided	N/A	Web-based Comments	12546	24
Singleton	Greg	not provided	N/A	Web-based Comments	15257	24
Singleton	Jon	not provided	N/A	Web-based Comments	51861	34
Singleton	Martha	not provided	N/A	Web-based Comments	46605, 46606	34
Singwi	Veena	not provided	N/A	Web-based Comments	31075	24
Siniard	Susan	not provided	N/A	Web-based Comments	52109	34
Sinkovitz	Lori	not provided	N/A	Web-based Comments	51474	34
Sinram	Danika	not provided	N/A	Web-based Comments	11824	24
Sinski	Carol	not provided	N/A	Web-based Comments	10025	24
Sintjago	Tania	not provided	N/A	Web-based Comments	54401	34
Sinton	William	not provided	N/A	Web-based Comments	50034	34
Sipes	Kenneth	not provided	N/A	Web-based Comments	20026	24
Sipes	Laura	not provided	N/A	Web-based Comments	48684	34
Sipes	Laura	not provided	N/A	Web-based Comments	20703	24
Sipple	Peter and Margaret Sipple	not provided	N/A	Web-based Comments	26305	24
Siptroth	Michael	not provided	N/A	Web-based Comments	52120	34
Sipulski	Marcia	not provided	N/A	Web-based Comments	22382	24
Sirabian	Erika	not provided	N/A	Web-based Comments	14204	24
Siraj	Ayesha	not provided	N/A	Web-based Comments	8557	24
Sircar	Sanjay	not provided	N/A	Web-based Comments	28269	24
Sircus	Gerald	not provided	N/A	Web-based Comments	14961	24
Sirdeshpande	Uttara	not provided	N/A	Web-based Comments	30985	24
Sires	Evelyn	wsires@aol.com	N/A	Web-based comments	2062	N/A
Sirico	Rocco	not provided	N/A	Web-based Comments	27555	24
Sirmenis	Angela	not provided	N/A	Web-based Comments	7929	24
Sironen	Joel	joelsironen@gmail.com	N/A	Web-based comments	5462	8
Siroshton	Jayne Siroshton	not provided	N/A	Web-based comments	57647	35
Sirotiak	Arie	not provided	N/A	Web-based Comments	8410	24
Sise	Betsy	not provided	N/A	Web-based Comments	9075	24
Sisk	John	jjsmas@alumni.calpoly.edu	N/A	Web-based comments	6369	N/A
Sismondo	Sarah	not provided	N/A	Web-based Comments	49555, 49556	34
Sissel	Rosemary	not provided	N/A	Web-based Comments	57867	N/A
Sisson	Dawn	not provided	N/A	Web-based Comments	12246	24
SISSON	KATHLEEN	not provided	N/A	Web-based Comments	47053	34
Sisson	Lynn	not provided	N/A	Web-based Comments	22094	24
Sisson	Valerie	not provided	N/A	Web-based Comments	54476, 54477	34
Sissons	Andrew	not provided	N/A	Web-based Comments	54031	34
sissons	Elizabeth	not provided	N/A	Web-based Comments	13843	24
Sitkei	Jean	not provided	N/A	Web-based Comments	16885	24
Sitnick	Joan	not provided	N/A	Web-based Comments	17738	24
Sitomer	Joan	not provided	N/A	Web-based Comments	17739	24
Siuleuer	Douglas	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	56613	32
Sivan	Vidya	not provided	N/A	Web-based Comments	31236	24
Sivesind	Torunn	not provided	N/A	Web-based Comments	30831	24
sivley	ann	not provided	N/A	Web-based Comments	8083	24
Six	John	not provided	N/A	Web-based Comments	18171	24
Sizemore	Caleb	not provided	N/A	Web-based comments	56874	35
Sizemore	D	not provided	N/A	Web-based Comments	55949	34
Sizemore	D	not provided	N/A	Web-based Comments	11587	24
sjogren	karen	not provided	N/A	Web-based Comments	54565, 54566	34
Sjolin	Susan	not provided	N/A	Web-based comments	57618	35
Skaar	Beryle	not provided	N/A	Web-based Comments	47766	34
Skadorwa	Tatiana	taermak@yahoo.com	N/A	Web-based comments	3139	N/A
Skaife	Margaret	not provided	N/A	Web-based Comments	48401	34
Skaife	Margaret	not provided	N/A	Web-based Comments	22504	24
Skal	Steven	not provided	N/A	Web-based Comments	49969	34
Skala	Dominika	not provided	N/A	Web-based Comments	13003	24
Skalaq	Dominika	not provided	N/A	Web-based Comments	13004	24
Skalic	Dita	not provided	N/A	Web-based Comments	45349	34
Skalsky	Rebecca	not provided	N/A	Web-based Comments	53515, 53516	34
Skantze	Vanessa	not provided	N/A	Web-based Comments	31071	24
Skeath	David	not provided	N/A	Web-based comments	2033	N/A
Skeath	Meredith	not provided	N/A	Web-based Comments	23982	24
Skeels	Jarad	drysideoutfitters@gmail.com	N/A	Web-based comments	2585	N/A
Skeen	D.	meskeen@custertel.net	N/A	Web-based comments	2438	N/A
Skees	Kathy	not provided	N/A	Web-based Comments	48376	34

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Skees	Kathy	not provided	N/A	Web-based Comments	19759	24
Skeggs	Fiona	not provided	N/A	Web-based comments	56886	35
Skelton	Julia	not provided	N/A	Web-based Comments	49208	34
Skelton	Julia	not provided	N/A	Web-based Comments	18775	24
Skelton	Mary	not provided	N/A	Web-based Comments	23421	24
Skerlec	Ernetta	not provided	N/A	Web-based Comments	54872	34
Sketo	Steve	not provided	N/A	Web-based Comments	29403	24
Skevis	Joe	not provided	N/A	Web-based Comments	17897	24
Skevofilax	Mark	not provided	N/A	Web-based Comments	47933	34
Skibinski	Lynn	not provided	N/A	Web-based Comments	44843	34
Skibinski	Lynn	not provided	N/A	Web-based Comments	22095	24
Skiles	Jean	not provided	N/A	Web-based Comments	16886	24
Skill	Jacqui	not provided	N/A	Web-based Comments	16145	24
Skinner	Gloria	not provided	N/A	Web-based Comments	55083	34
skinner	mark	not provided	N/A	Web-based Comments	22985	24
Skinner	Phyllis	not provided	N/A	Web-based Comments	55838	34
Skinner	Richard	not provided	N/A	Web-based Comments	27048	24
Skinner	Russell	not provided	N/A	Web-based Comments	27843	24
Skinner	Sierra	not provided	N/A	Web-based Comments	49600	34
Skinner	Sierra	not provided	N/A	Web-based Comments	28991	24
Skirbunt-Kozabo	William	not provided	N/A	Web-based Comments	31597	24
Skirvin	Laurence	not provided	N/A	Web-based Comments	49464	34
Skirvin	Laurence	not provided	N/A	Web-based Comments	20801	24
Skizinski	Paul	not provided	N/A	Web-based Comments	26043	24
Sklaire	Nomi	not provided	N/A	Web-based Comments	25350	24
Sklar	Dana	not provided	N/A	Web-based Comments	58426	34
Sklar	Gail	not provided	N/A	Web-based Comments	14714	24
Sklar	Michael	not provided	N/A	Web-based Comments	46872, 46873	34
Sklar	Michael	not provided	N/A	Web-based Comments	24228	24
Skodis	Susan	not provided	N/A	Web-based Comments	29839	24
Skok	Emma	not provided	N/A	Web-based Comments	14063	24
Skole	Stacey	not provided	N/A	Web-based Comments	29123	24
Skolnick	Kate	not provided	N/A	Web-based Comments	47467, 47468	34
Skolnick	Kate	not provided	N/A	Web-based Comments	19402	24
Skonberg	Linda	not provided	N/A	Web-based Comments	21425	24
Skorin	Luka	not provided	N/A	Web-based Comments	21976	24
Skowron	Ed	not provided	N/A	Web-based Comments	55173	34
Skrivanek	Smita	not provided	N/A	Web-based Comments	50668	34
Skrzypczak	Lida	not provided	N/A	Web-based Comments	55097, 55098	34
Skrzypczak	Lida	not provided	N/A	Web-based Comments	21145	24
Skuce	Carla	not provided	N/A	Web-based Comments	9833	24
Skup	Debra	not provided	N/A	Web-based Comments	12547	24
Skuster	Kimberly	not provided	N/A	Web-based Comments	20242	24
Skvarla	Susan	not provided	N/A	Web-based Comments	46750, 46751	34
Skvarla	Susan	not provided	N/A	Web-based Comments	29840	24
Skylstad	Michelle	not provided	N/A	Web-based Comments	53891, 53892	34
Slabotsky	Lisbeth	not provided	N/A	Web-based Comments	21664	24
Slaby	GLENN	not provided	N/A	Web-based Comments	54822	34
Slaby	GLENN	not provided	N/A	Web-based Comments	15138	24
slacik	L?a	leas04@hotmail.fr	N/A	Web-based comments	473	2
Slack	Debbie	not provided	N/A	Web-based Comments	12343	24
Slack	Don and Jane	not provided	N/A	Web-based Comments	13047	24
Slack	John	john.slack10@gmail.com	N/A	Web-based comments	3131	5
Slade	Beverly	not provided	N/A	Web-based Comments	9143	24
Slade	Grant	not provided	N/A	Web-based Comments	50850	N/A
Slaff	Lee	not provided	N/A	Web-based Comments	20944	24
Slagle	Daniel & Janet	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	56671	N/A
Slagle	Teri	not provided	N/A	Web-based Comments	51464	34
Slark	Rachel	not provided	N/A	Web-based Comments	44532, 44533	34
Slate	Judi	not provided	N/A	Web-based Comments	18547	24
Slaten	Constance	not provided	N/A	Web-based Comments	11348	24
Slater	Heather	not provided	N/A	Web-based Comments	15538	24
Slater	Laurie	not provided	N/A	Web-based Comments	20856	24
Slater	Marina	mruizslater@gmail.com	N/A	Web-based comments	2783	N/A
Slater	Phoebe	not provided	N/A	Web-based Comments	26376	24
Slater Price	Pam	not provided	N/A	Web-based Comments	25510	24
Slattengren	Darryl	not provided	N/A	Web-based Comments	11901	24
Slattery	Kitty	not provided	N/A	Web-based Comments	20292	24
Slattery	Louise	not provided	N/A	Web-based Comments	21902	24
Slattery	Maura	not provided	N/A	Web-based Comments	48043	34

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Slaughter	Brandon	not provided	N/A	Web-based Comments	9376	24
Slaughter	John	not provided	N/A	Web-based Comments	18172	24
Slaughter	Margo	not provided	N/A	Web-based Comments	48185	34
Slaughter	Mary	not provided	N/A	Web-based Comments	23422	24
Slauson	Kevin	not provided	N/A	Web-based Comments	52115, 52116	34
Slawinski	Katherine	not provided	N/A	Web-based Comments	19479	24
Slawson	Diana	not provided	N/A	Web-based Comments	12795	24
Slaybaugh	Brian	brians@inlandpower.com	N/A	Web-based comments	2487	7
Slayden	Janie	not provided	N/A	Web-based Comments	16718	24
sleath	janet	not provided	N/A	Web-based Comments	46775	34
Sledd	Andrew	not provided	N/A	Web-based Comments	7849	24
Sleeper	Kathryn	not provided	N/A	Web-based Comments	19665	24
Sleeper	Stephen	not provided	N/A	Web-based Comments	29337	24
Slentz	Paul	not provided	N/A	Web-based Comments	26044	24
Slesinski	Carole	not provided	N/A	Web-based Comments	10097	24
Slessor	Christa	not provided	N/A	Web-based Comments	10814	24
Sletteland	Holly	not provided	N/A	Web-based Comments	50058	34
Sleva	Cathy	not provided	N/A	Web-based Comments	56558	34
Slichenmyer	Jeanette	not provided	N/A	Web-based Comments	45730, 45731	34
Slimo	Micky	not provided	N/A	Web-based comments	56825	35
Slingsby	Olivia	not provided	N/A	Web-based Comments	51956	34
Slivka	Terri	not provided	N/A	Web-based Comments	30349	24
Sliwka	Piotr	not provided	N/A	Web-based Comments	26414	24
Sloan	Elaine	not provided	N/A	Web-based comments	57030	35
Sloan	Emily	not provided	N/A	Web-based Comments	14041	24
Sloan	Mike	not provided	N/A	Web-based Comments	24487	24
Sloan	Patricia	not provided	N/A	Web-based Comments	25842	24
Sloan	Susan	not provided	N/A	Web-based Comments	47569	34
Sloan	Wil	not provided	N/A	Web-based Comments	31479	24
Sloane	Marta	not provided	N/A	Web-based Comments	23088	24
Sloat	Dale	not provided	N/A	Web-based Comments	50750	34
Sloat	Jan	not provided	N/A	Web-based Comments	50861	34
Sloate	Thomas	t.sloate@gmail.com	N/A	Web-based comments	5812	N/A
Slobin	Jan and Larry	not provided	N/A	Web-based Comments	50772	34
Slobin	Janet	not provided	N/A	Web-based Comments	57771	34
Slocum	Scott	not provided	N/A	Web-based Comments	50580	34
Slocumb	D.	not provided	N/A	Web-based comments	2165	N/A
Sloi Urbano	Patrâˆšâ‰¤ cia	not provided	N/A	Web-based Comments	25686	24
Slonaker	Lynn	not provided	N/A	Web-based Comments	52752	34
Slonaker	Lynn	not provided	N/A	Web-based Comments	22096	24
Slone	Ricca	not provided	N/A	Web-based Comments	26921	24
Slone	Tom	not provided	N/A	Web-based Comments	30768	24
Slonecker	Blake	slonecker_b@heritage.edu	N/A	Web-based comments	2533	N/A
Slote	Karen	not provided	N/A	Web-based Comments	53591, 53592	34
SLOVAK	JOHN	not provided	N/A	Web-based Comments	18173	24
Slovic	Randy	rslovic@gmail.com	N/A	Web-based comments	2060	N/A
Slowikowski	Patricia and	not provided	N/A	Web-based Comments	25879	24
Slowinski	William	not provided	N/A	Web-based Comments	31598	24
Slyk	April	not provided	N/A	Web-based comments	56726	35
S-M	Manu	not provided	N/A	Web-based Comments	53224, 53225	34
S-M	Manu	not provided	N/A	Web-based Comments	22310	24
Smaldone	Robert	not provided	N/A	Web-based Comments	27384	24
Smale	Maryann	not provided	N/A	Web-based Comments	58549, 58550	34
Smale	Maura	not provided	N/A	Web-based Comments	23681	24
Small	Justin	not provided	N/A	Web-based Comments	18959	24
Small	Shirley	not provided	N/A	Web-based Comments	28967	24
Smallman	Dawn	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	6945	N/A
SMALLWOOD	HOLLY	not provided	N/A	Web-based Comments	15772	24
Smarandoiu	Andrei	not provided	N/A	Web-based Comments	53372, 53373	34
Smarandoiu	Andrei	not provided	N/A	Web-based Comments	7792	24
Smaron	Trae	not provided	N/A	Web-based Comments	30888	24
Smarr	Todd	not provided	N/A	Web-based Comments	55772, 55773	34
Smarr	Todd	not provided	N/A	Web-based Comments	30727	24
Smart	Helen	not provided	N/A	Web-based Comments	46919	34
Smart	Helen	not provided	N/A	Web-based Comments	15625	24
Smart	Kim	not provided	N/A	Web-based Comments	49489	34
Smart	Murray	not provided	N/A	Web-based Comments	55261	34
Smath	James	not provided	N/A	Web-based Comments	16307	24
Smathers	Linda	not provided	N/A	Web-based Comments	21426	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Smathers	Robert	bsmathers@idahofb.org	N/A	Web-based comments	3994	12
Smatla	Victoria	not provided	N/A	Web-based Comments	31221	24
Smedberg	Virginia	not provided	N/A	Web-based Comments	50335	34
Smedley	Gabriel	not provided	N/A	Web-based Comments	14641	24
Smedley	Victoria	not provided	N/A	Web-based Comments	31222	24
Smeeding	Erin	not provided	N/A	Web-based Comments	14236	24
Smegal	Jeanine	not provided	N/A	Web-based Comments	49631	34
Smeltzer	David	dcsmeltzer@yahoo.com	N/A	Web-based comments	3038	N/A
Smessaert	Joanne	not provided	N/A	Web-based Comments	17826	24
Smet	Martine	not provided	N/A	Web-based Comments	23188	24
Smetaniuk	Mari	not provided	N/A	Web-based Comments	44956	34
Smiley	Christine	not provided	N/A	Web-based Comments	52830	34
Smiley	Jessica	not provided	N/A	Web-based Comments	17466	24
Smiley	Joy	not provided	N/A	Web-based Comments	18471	24
Smit	Holly	bignsmalldocs@icloud.com	N/A	Web-based comments	3511	13
Smith	Aaron	amsmithwelding@yahoo.com	N/A	Web-based comments	3089	12
Smith	Aiyana	not provided	N/A	Web-based comments	6490	1
Smith	Amanda	not provided	N/A	Web-based Comments	7553	24
Smith	Andrea	not provided	N/A	Web-based Comments	44515, 44516	34
Smith	Andrew	not provided	N/A	Web-based Comments	7850	24
Smith	Ann	not provided	N/A	Web-based Comments	8084	24
Smith	Anna	not provided	N/A	Web-based comments	57549	35
Smith	Anne	not provided	N/A	Web-based Comments	8243	24
Smith	Annetta	not provided	N/A	Web-based Comments	8274	24
Smith	Annick	not provided	N/A	Web-based Comments	50536	34
Smith	Barb	not provided	N/A	Web-based Comments	8609	24
Smith	Barbara	not provided	N/A	Web-based Comments	49129	34
Smith	Barry	not provided	N/A	Web-based Comments	54400	34
Smith	Belinda	not provided	N/A	Web-based comments	56926	35
Smith	Benjamin	not provided	N/A	Web-based Comments	8970	24
Smith	Bernadine	not provided	N/A	Web-based Comments	44634	34
Smith	Betsy	not provided	N/A	Web-based Comments	9076	24
Smith	Betty	not provided	N/A	Web-based Comments	50809	34
Smith	Braden	bradensmith34@gmail.com	N/A	Web-based comments	100	N/A
Smith	Bradley	not provided	N/A	Web-based Comments	9356	24
Smith	BrendaLee	not provided	N/A	Web-based Comments	54436, 54437	34
Smith	Brian	not provided	N/A	Web-based Comments	47239	34
Smith	Brooke	brookewsmith3410@gmail.com	N/A	Web-based comments	1053	N/A
Smith	bryce	not provided	N/A	Web-based Comments	9643	24
Smith	Bryce	not provided	N/A	Web-based Comments	9642	24
Smith	Carol V	not provided	N/A	Web-based Comments	53781	34
Smith	Carole	not provided	N/A	Web-based Comments	10098	24
Smith	Carole	not provided	N/A	Web-based Comments	10099	24
smith	Cary	not provided	N/A	Web-based Comments	10218	24
smith	catherine	not provided	N/A	Web-based Comments	10325	24
Smith	Cathleen	not provided	N/A	Web-based Comments	10344	24
Smith	Charles	not provided	N/A	Web-based Comments	44808	34
Smith	Charles	not provided	N/A	Web-based Comments	10529	24
Smith	Charles	not provided	N/A	Web-based Comments	10530	24
Smith	Charlotte	not provided	N/A	Web-based Comments	54679	34
Smith	Charlotte	not provided	N/A	Web-based Comments	10569	24
Smith	Cheri	not provided	N/A	Web-based Comments	10605	24
Smith	Chloe	not provided	N/A	Web-based comments	1870	1
Smith	Christina	not provided	N/A	Web-based Comments	10878	24
Smith	Christopher	not provided	N/A	Web-based Comments	11031	24
Smith	Christopher	not provided	N/A	Web-based Comments	11032	24
Smith	Clark	not provided	N/A	Web-based Comments	46570	34
Smith	Cris	not provided	N/A	Web-based Comments	11434	24
Smith	Cristina	not provided	N/A	Web-based Comments	11446	24
Smith	Cynthia	not provided	N/A	Web-based Comments	49874	34
Smith	Cynthia	not provided	N/A	Web-based Comments	11554	24
Smith	Daphne	not provided	N/A	Web-based Comments	11844	24
Smith	Dave	not provided	N/A	Web-based Comments	11922	24
Smith	David	not provided	N/A	Web-based Comments	44926	34
Smith	David	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58759	11
Smith	David J.	not provided	N/A	Web-based Comments	12191	24
SMITH	DE	not provided	N/A	Web-based Comments	12259	24
Smith	Deanna	not provided	N/A	Web-based Comments	12282	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Smith	Debera	not provided	N/A	Web-based Comments	12359	24
Smith	Deborah	not provided	N/A	Web-based Comments	47100, 47101	34
SMITH	DEBORAH	not provided	N/A	Web-based Comments	12479	24
Smith	Debra	not provided	N/A	Web-based Comments	44754	34
Smith	Debra	not provided	N/A	Web-based Comments	12548	24
Smith	Delwin	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58708	13
Smith	Diane	not provided	N/A	Web-based Comments	53585, 53586, 53587	34
Smith	Diane	not provided	N/A	Web-based Comments	12902	24
Smith	Diane	not provided	N/A	Web-based Comments	12903	24
Smith	Dianne	not provided	N/A	Web-based Comments	58593	34
Smith	Donald	not provided	N/A	Web-based Comments	13083	24
Smith	Donna	not provided	N/A	Web-based Comments	45678	34
Smith	Donna	not provided	N/A	Web-based Comments	13187	24
Smith	Donna	not provided	N/A	Web-based Comments	13188	24
Smith	Douglass	not provided	N/A	Web-based Comments	49485	34
Smith	E	not provided	N/A	Web-based Comments	52005	34
Smith	Earl	not provided	N/A	Web-based Comments	13429	24
Smith	Edward	not provided	N/A	Web-based Comments	53854, 53855	34
Smith	Elaine	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58710	13
Smith	Eleanor	not provided	N/A	Web-based Comments	13638	24
Smith	Elizabeth	not provided	N/A	Web-based Comments	45507	34
Smith	Elizabeth	not provided	N/A	Web-based Comments	13844	24
Smith	Ellen	not provided	N/A	Web-based Comments	13949	24
Smith	Emily	not provided	N/A	Web-based Comments	14042	24
Smith	Eric	not provided	N/A	Web-based Comments	53932	34
Smith	Eric	not provided	N/A	Web-based Comments	14142	24
Smith	Frederick	not provided	N/A	Web-based Comments	14598	24
Smith	Gaye	not provided	N/A	Web-based Comments	53246	34
Smith	Gayle	not provided	N/A	Web-based Comments	14833	24
Smith	Gemma	not provided	N/A	Web-based Comments	55075, 55076	34
Smith	Glenn	not provided	N/A	Web-based Comments	48005, 48006	34
Smith	Gordon	not provided	N/A	Web-based Comments	15186	24
Smith	Gordon	not provided	N/A	Web-based Comments	15187	24
Smith	Greg	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4236	N/A
Smith	Greg	not provided	N/A	Web-based Comments	54875	34
Smith	Greg	not provided	N/A	Web-based Comments	15258	24
Smith	Greg	wpgsmith@msn.com	N/A	Web-based comments	5487	N/A
Smith	Harlin	harlinsmith@gmail.com	N/A	Web-based comments	2998	8
Smith	Harper	not provided	N/A	Web-based Comments	15447	24
Smith	Heather	not provided	N/A	Web-based Comments	15539	24
Smith	Heidi	hbh_smith@yahoo.com	N/A	Web-based comments	3513	N/A
smith	Helen	not provided	N/A	Web-based Comments	15627	24
Smith	Helen	not provided	N/A	Web-based Comments	15626	24
Smith	Henry	not provided	N/A	Web-based Comments	15673	24
Smith	Howard	not provided	N/A	Web-based Comments	15809	24
Smith	J.T.	not provided	N/A	Web-based Comments	16019	24
Smith	James	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58404	32
Smith	James	not provided	N/A	Web-based Comments	16308	24
Smith	Jamie	not provided	N/A	Web-based Comments	16375	24
Smith	Janell	not provided	N/A	Web-based Comments	45009	34
Smith	Jeff	not provided	N/A	Web-based Comments	17053	24
Smith	Jennifer	not provided	N/A	Web-based Comments	55738, 55739	34
Smith	Jennifer	not provided	N/A	Web-based Comments	17263	24
Smith	Jennifer	not provided	N/A	Web-based Comments	17264	24
Smith	Jenny	not provided	N/A	Web-based Comments	17299	24
Smith	Jessica	not provided	N/A	Web-based Comments	17467	24
Smith	Jessica	not provided	N/A	Web-based Comments	17468	24
Smith	Joan	not provided	N/A	Web-based Comments	52440	34
Smith	Joan	not provided	N/A	Web-based Comments	17740	24
smith	joe	not provided	N/A	Web-based Comments	17898	24
Smith	John	not provided	N/A	Web-based Comments	18174	24
Smith	Joyce	not provided	N/A	Web-based Comments	18515	24
Smith	Judith	not provided	N/A	Web-based Comments	48464, 48465	34
Smith	Judith	not provided	N/A	Web-based Comments	18650	24
Smith	Judith	not provided	N/A	Web-based Comments	18651	24
Smith	Judson	js1589@berkeley.edu	N/A	Web-based comments	3219	N/A
Smith	Julie	not provided	N/A	Web-based Comments	18894	24
Smith	Juliette	not provided	N/A	Web-based Comments	18922	24
Smith	Juliette	not provided	N/A	Web-based Comments	18923	24
Smith	Justin	not provided	N/A	Web-based Comments	53635	34

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Smith	K.	not provided	N/A	Web-based Comments	45710, 45711	34
Smith	Karla	not provided	N/A	Web-based Comments	19317	24
Smith	Kate	not provided	N/A	Web-based Comments	19403	24
Smith	Kathy	not provided	N/A	Web-based Comments	19760	24
Smith	Katrina	not provided	N/A	Web-based Comments	19804	24
Smith	Kellar	not provided	N/A	Web-based Comments	19893	24
Smith	Keri	not provided	N/A	Web-based Comments	20051	24
Smith	Kim	not provided	N/A	Web-based Comments	56311	34
Smith	Kim	not provided	N/A	Web-based Comments	20204	24
Smith	Kristi	not provided	N/A	Web-based Comments	20360	24
Smith	Larry	not provided	N/A	Web-based Comments	20588	24
Smith	Laura	not provided	N/A	Web-based comments	57420	35
Smith	Lauren	not provided	N/A	Web-based Comments	56342, 56343	34
Smith	Laurie	not provided	N/A	Web-based Comments	20857	24
Smith	Laurie	not provided	N/A	Web-based Comments	20858	24
Smith	LeNoir	not provided	N/A	Web-based Comments	47419	34
Smith	LeRoy	not provided	N/A	Web-based Comments	45403	34
Smith	Leslie	not provided	N/A	Web-based Comments	47859, 48214	34
Smith	Leslie	not provided	N/A	Web-based Comments	21104	24
Smith	Lex	not provided	N/A	Web-based Comments	21132	24
Smith	Linda	not provided	N/A	Web-based Comments	54294, 54295	34
Smith	Linda	not provided	N/A	Web-based Comments	21427	24
Smith	Lindsay	not provided	N/A	Web-based comments	6764	1
Smith	Lisa	not provided	N/A	Web-based Comments	21639	24
Smith	Londi	not provided	N/A	Web-based Comments	21738	24
Smith	Lynn	not provided	N/A	Web-based comments	57641	35
Smith	Lynne	not provided	N/A	Web-based Comments	22151	24
Smith	Lyrysa	not provided	N/A	Web-based Comments	22161	24
Smith	Machelle	not provided	N/A	Web-based Comments	22228	24
Smith	Maddie	maddie@earthministry.org	N/A	Web-based comments	164	3
Smith	Margaret	not provided	N/A	Web-based Comments	58670	34
Smith	Marsha	not provided	N/A	Web-based Comments	56421	34
Smith	Marsha	not provided	N/A	Web-based Comments	23076	24
Smith	Marsha	not provided	N/A	Web-based Comments	23077	24
Smith	Martin	not provided	N/A	Web-based Comments	23175	24
smith	mary	not provided	N/A	Web-based Comments	23424	24
smith	mary	not provided	N/A	Web-based Comments	23425	24
Smith	Mary	not provided	N/A	Web-based Comments	23423	24
SMITH	MARY F.	not provided	N/A	Web-based Comments	23520	24
Smith	Matthew	not provided	N/A	Web-based Comments	23665	24
Smith	Meg	not provided	N/A	Web-based Comments	23780	24
Smith	Meghan	not provided	N/A	Web-based Comments	23816	24
Smith	Michael	not provided	N/A	Web-based comments	57489	35
Smith	Michele	not provided	N/A	Web-based Comments	24307	24
Smith	Monica	not provided	N/A	Web-based Comments	24639	24
Smith	Morton	not provided	N/A	Web-based Comments	24678	24
Smith	Nance	not provided	N/A	Web-based Comments	24793	24
Smith	Nancy	not provided	N/A	Web-based comments	57627	35
Smith	Nancy	not provided	N/A	Web-based Comments	46209, 58562	34
Smith	Nancy	not provided	N/A	Web-based Comments	24985	24
Smith	Nancy	not provided	N/A	Web-based Comments	24986	24
Smith	Neil	not provided	N/A	Web-based Comments	25137	24
Smith	Neill	not provided	N/A	Web-based Comments	49644	34
Smith	Nina	not provided	N/A	Web-based Comments	25317	24
Smith	Oliver	not provided	N/A	Web-based Comments	53319	34
Smith	Pamela	not provided	N/A	Web-based Comments	25590	24
SMITH	PAMELA J.	not provided	N/A	Web-based Comments	55397	34
Smith	Patricia	not provided	N/A	Web-based Comments	50070	34
Smith	Patricia	not provided	N/A	Web-based Comments	25843	24
Smith	Patricia	not provided	N/A	Web-based Comments	25844	24
Smith	Patrick	not provided	N/A	Web-based Comments	25925	24
Smith	Paul	not provided	N/A	Web-based comments	57374	35
Smith	Paul	not provided	N/A	Web-based Comments	46363	34
smith	paul	not provided	N/A	Web-based Comments	26045	24
Smith	Paul	not provided	N/A	Web-based Comments	26046	24
Smith	Paul	not provided	N/A	Web-based Comments	26047	24
Smith	Paula	not provided	N/A	Web-based Comments	26098	24
Smith	Paula	not provided	N/A	Web-based Comments	26099	24
Smith	Peggy	not provided	N/A	Web-based Comments	26181	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Smith	Penny	not provided	N/A	Web-based Comments	26215	24
Smith	Peter	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32320	N/A
Smith	Peter	not provided	N/A	Web-based Comments	26292	24
Smith	Philip	not provided	N/A	Web-based Comments	26355	24
Smith	Pricilla	not provided	N/A	Web-based Comments	26438	24
Smith	Priscilla	not provided	N/A	Web-based Comments	58439	34
smith	priscilla	not provided	N/A	Web-based Comments	26452	24
Smith	R	not provided	N/A	Web-based Comments	26482	24
smith	ralph	not provided	N/A	Web-based Comments	26597	24
Smith	Randy	not provided	N/A	Web-based Comments	26644	24
Smith	Raymond	not provided	N/A	Web-based Comments	26694	24
Smith	Rebecca	not provided	N/A	Web-based Comments	26772	24
smith	richard	not provided	N/A	Web-based Comments	27050	24
Smith	Richard	not provided	N/A	Web-based Comments	27049	24
Smith	Robert	not provided	N/A	Web-based Comments	27385	24
Smith	Rod	rod@rhsmith.com	N/A	Web-based comments	6909	N/A
Smith	Ronald	not provided	N/A	Web-based Comments	52395	34
Smith	Ronald	not provided	N/A	Web-based Comments	27669	24
Smith	Ronald	not provided	N/A	Web-based Comments	27670	24
Smith	Russell	not provided	N/A	Web-based Comments	27844	24
Smith	S.	not provided	N/A	Web-based Comments	27963	24
Smith	Samantha	not provided	N/A	Web-based Comments	28087	24
Smith	Sandra	not provided	N/A	Web-based Comments	54780	34
Smith	Sarah	not provided	N/A	Web-based comments	57499	35
Smith	Sarah	not provided	N/A	Web-based Comments	54424	34
Smith	Scott	not provided	N/A	Web-based Comments	28497	24
Smith	Shannon	not provided	N/A	Web-based Comments	28599	24
Smith	Shari	not provided	N/A	Web-based Comments	46956	34
Smith	Sherri	not provided	N/A	Web-based Comments	28870	24
Smith	Sheryl	not provided	N/A	Web-based Comments	28926	24
Smith	Stacey	not provided	N/A	Web-based Comments	45341	34
smith	stephanie	not provided	N/A	Web-based Comments	54550	34
smith	stephanie	not provided	N/A	Web-based Comments	29252	24
Smith	Stephen	not provided	N/A	Web-based Comments	29338	24
Smith	Steve	not provided	N/A	Web-based Comments	29404	24
smith	steve	stevelillsmith@pocketinet.com	N/A	Web-based comments	2119, 2122, 2491	N/A
Smith	Steven	not provided	N/A	Web-based Comments	29469	24
Smith	Susan	not provided	N/A	Web-based Comments	29841	24
Smith	Suzannah	not provided	N/A	Web-based Comments	49121	34
Smith	Taylor	not provided	N/A	Web-based Comments	30237	24
Smith	Tayon	not provided	N/A	Web-based Comments	30240	24
Smith	Teresa	not provided	N/A	Web-based Comments	30300	24
Smith	Teri	not provided	N/A	Web-based Comments	30316	24
Smith	Terri	not provided	N/A	Web-based Comments	30350	24
Smith	Thomas	not provided	N/A	Web-based Comments	30545	24
Smith	Tim	not provided	N/A	Web-based comments	4820	N/A
Smith	Timmie	not provided	N/A	Web-based Comments	56294, 56295	34
Smith	Timmie	not provided	N/A	Web-based Comments	30636	24
Smith	Tina	not provided	N/A	Web-based Comments	30695	24
smith	tom	not provided	N/A	Web-based Comments	30769	24
smith	tori	not provided	N/A	Web-based Comments	51723	34
Smith	Tracy	not provided	N/A	Web-based Comments	54084	34
Smith	Tyler	not provided	N/A	Web-based Comments	30964	N/A
Smith	Victoria	not provided	N/A	Web-based Comments	31223	24
Smith	Victoria	not provided	N/A	Web-based Comments	31224	24
Smith	W.	not provided	N/A	Web-based Comments	31342	24
smith	wendy	not provided	N/A	Web-based Comments	31449	24
SMITH	WENDY	not provided	N/A	Web-based Comments	31448	24
Smith	Will	not provided	N/A	Web-based Comments	31493	24
Smith	Yvonne	not provided	N/A	Web-based Comments	31705	24
Smith	Zach	not provided	N/A	Web-based Comments	31710	24
Smith, PE	Brett	not provided	N/A	Web-based Comments	9451	24
Smith-Connelly	Crystal	not provided	N/A	Web-based Comments	11466	24
Smithe	Linda	not provided	N/A	Web-based Comments	21428	24
Smithey	melody	not provided	N/A	Web-based Comments	23954	24
Smithwick	Doreen	not provided	N/A	Web-based Comments	45350, 45351	34
smithwick	robin	not provided	N/A	Web-based Comments	27524	24
Smock	Amanda	not provided	N/A	Web-based Comments	56159	34
Smolen	Mike	not provided	N/A	Web-based Comments	24488	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Smolic	Matej	not provided	N/A	Web-based Comments	55363	34
Smolic	Zlata	not provided	N/A	Web-based Comments	51469	34
Smoose	Jennifer	not provided	N/A	Web-based Comments	17265	24
Smoot	Leslie	not provided	N/A	Web-based Comments	21105	24
Smoot	Margaret	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	56670	11
Smudin	Carole	not provided	N/A	Web-based Comments	56414	34
Smudin	Carole	not provided	N/A	Web-based Comments	10100	24
Smudz	Susan	not provided	N/A	Web-based Comments	29842	24
Smyth	April	not provided	N/A	Web-based Comments	8389	24
Smyth	Barbara	not provided	N/A	Web-based Comments	8784	24
Smyth	Elizabeth	not provided	N/A	Web-based Comments	13845	24
Smyth	Teri	not provided	N/A	Web-based Comments	49230	34
Smyth	Teri	not provided	N/A	Web-based Comments	30317	24
Smythe	Martha	not provided	N/A	Web-based Comments	23128	24
Smythe	Susan	not provided	N/A	Web-based Comments	29843	24
Snapp	Seth	not provided	N/A	Web-based Comments	44815	34
Snapp	Seth	not provided	N/A	Web-based Comments	28548	24
Snavely	Irene	not provided	N/A	Web-based Comments	53664	34
Snavely	Marie	not provided	N/A	Web-based Comments	49482	34
Snavely	Marie	not provided	N/A	Web-based Comments	22726	24
Snavely	William	not provided	N/A	Web-based Comments	45069, 45070	34
Snead	Heather	not provided	N/A	Web-based Comments	15540	24
Snedden	Evelyn	not provided	N/A	Web-based Comments	48884	34
Sneddon	Laura	not provided	N/A	Web-based Comments	20704	24
Snedecor	Janet	not provided	N/A	Web-based Comments	16645	24
Snedeker	Nadine	not provided	N/A	Web-based Comments	24769	24
Snedeker	Stephanie	not provided	N/A	Web-based Comments	45217	34
Snedeker	Stephanie	not provided	N/A	Web-based Comments	29253	24
Snee	Thomas	not provided	N/A	Web-based Comments	30546	24
Snell	Valarie	not provided	N/A	Web-based Comments	31002	24
Snellgrove	Dade	not provided	N/A	Web-based Comments	45205	34
Snelling	John	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32342	N/A
Snider	Beth	not provided	N/A	Web-based Comments	9053	24
Snider	Deann	not provided	N/A	Web-based Comments	12272	24
Snider	Leslie	not provided	N/A	Web-based Comments	21106	24
Snipes	George	not provided	N/A	Web-based Comments	54666, 54667	34
Snipes	George	not provided	N/A	Web-based Comments	14920	24
Snodgrass	Chuck	chucksnodgrass@surewest.net	N/A	Web-based comments	3651	11
Snoles	Susan	not provided	N/A	Web-based Comments	44299, 44300	34
Snook	Cherece	not provided	N/A	Web-based Comments	51116	34
Snow	Diana	not provided	N/A	Web-based Comments	47097	34
Snow	Donna	not provided	N/A	Web-based Comments	48844	34
Snow	Donna	not provided	N/A	Web-based Comments	13189	24
Snow	JJ	not provided	N/A	Web-based Comments	17631	24
Snow	Trina	not provided	N/A	Web-based Comments	30913	24
Snowden	Herbert	not provided	N/A	Web-based Comments	15682	24
snowdon	gus	not provided	N/A	Web-based Comments	15335	24
Snyder	Andrea	not provided	N/A	Web-based Comments	50046	34
Snyder	Andrea	not provided	N/A	Web-based Comments	7772	24
Snyder	Andrea	not provided	N/A	Web-based Comments	7773	24
Snyder	Brad	not provided	N/A	Web-based Comments	57874	34
Snyder	Brad	not provided	N/A	Web-based Comments	9346	24
Snyder	Brad	not provided	N/A	Web-based Comments	9347	24
Snyder	Douglas	not provided	N/A	Web-based Comments	13341	24
Snyder	Gerry	not provided	N/A	Web-based Comments	15003	24
Snyder	Jerry	GeraldSnyder50@gmail.com	N/A	Web-based comments	32155	N/A
Snyder	Joanne	not provided	N/A	Web-based Comments	17827	24
Snyder	Kim	not provided	N/A	Web-based Comments	50903	34
snyder	lynn	not provided	N/A	Web-based Comments	22097	24
Snyder	Marilyn	not provided	N/A	Web-based Comments	49019	34
Snyder	Nancy	not provided	N/A	Web-based Comments	46840	34
Snyder	Nancy	not provided	N/A	Web-based Comments	24987	24
Snyder	Patricia	not provided	N/A	Web-based Comments	25845	24
Snyder	Paul	not provided	N/A	Web-based Comments	26048	24
Snyder	Philip	not provided	N/A	Web-based Comments	26356	24
Snyder	Robert	not provided	N/A	Web-based Comments	55042	34
Snyder	Ronaele	not provided	N/A	Web-based Comments	27644	24
Snyder	Sheri	not provided	N/A	Web-based Comments	28855	24
Snyder	Siobhan	not provided	N/A	Web-based Comments	29027	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Snyder	Todd	not provided	N/A	Web-based Comments	30728	24
Snyder	Valerie	not provided	N/A	Web-based Comments	44781, 44782	34
Snyder	Valerie	not provided	N/A	Web-based Comments	31042	24
Snyder	Warren	not provided	N/A	Web-based Comments	31383	24
Snyder Mayor of Ward, Colorado (Ret.)	Honorable Tiffany	not provided	N/A	Web-based Comments	15782	24
Snyder-Baldonado	Elizabeth	not provided	N/A	Web-based Comments	13846	24
Snydmiller	J	not provided	N/A	Web-based Comments	50108	34
Soard	Annelie	not provided	N/A	Web-based Comments	8269	24
Soares	Alexandra	not provided	N/A	Web-based Comments	7291	24
Soares	David	not provided	N/A	Web-based Comments	52225	34
soares	maria	not provided	N/A	Web-based Comments	55037, 55038	34
soares	monique	not provided	N/A	Web-based Comments	24657	24
Soares	Susana	not provided	N/A	Web-based Comments	48092, 48186	34
Soat	Lynn	not provided	N/A	Web-based Comments	22098	24
Sobanski	Sandy	not provided	N/A	Web-based Comments	54543	34
sobek	sandra	not provided	N/A	Web-based Comments	28213	24
Sobel	Alla	not provided	N/A	Web-based Comments	49557	34
Sobel	Alla	not provided	N/A	Web-based Comments	7429	24
Sober	Ted	not provided	N/A	Web-based Comments	30249	24
sobey	ed	not provided	N/A	Web-based Comments	13455	24
Sobolewski	Angela	not provided	N/A	Web-based Comments	7930	24
Sobrino	David Josel Rodriguez	not provided	N/A	Web-based Comments	55253	34
Soby	Patrick	not provided	N/A	Web-based Comments	47657	34
Socha	Nancy	not provided	N/A	Web-based Comments	50326	34
Sockness	Jan	not provided	N/A	Web-based Comments	16430	24
Socorro	Lorraine	not provided	N/A	Web-based Comments	54707	34
sodal	jofrid	not provided	N/A	Web-based Comments	17937	24
Soddy	Diane	not provided	N/A	Web-based Comments	12904	24
Soden	Tom	not provided	N/A	Web-based Comments	53790	34
Soderberg	Lori	not provided	N/A	Web-based Comments	21806	24
Sodorsky	Gisela	not provided	N/A	Web-based Comments	15093	24
Soedjono	Joshua	not provided	N/A	Web-based Comments	18438	24
Soeldner	W	waltsoe@gmail.com	N/A	Web-based comments	1604, 1798, 2096	3
Sofer	Jeannette	not provided	N/A	Web-based Comments	16988	24
Sohan	Pam	not provided	N/A	Web-based Comments	25511	24
Sohn	Cathy/Jim	not provided	N/A	Web-based Comments	10402	24
Sohut	Chris	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	56664	13
Sojourner	Mary	not provided	N/A	Web-based Comments	23426, 23427	24
Sokolowski	Linda	not provided	N/A	Web-based Comments	21429	24
Sokolsky	Joel	not provided	N/A	Web-based Comments	17925	24
Sola	Ana	not provided	N/A	Web-based Comments	7698	24
Sola	Mikel	not provided	N/A	Web-based Comments	55015	34
Solano	Kezia	not provided	N/A	Web-based Comments	20148	24
Solar	Raul Del	not provided	N/A	Web-based Comments	47416	34
Solari	Chad	not provided	N/A	Web-based Comments	10452	24
Solca	Alez	not provided	N/A	Web-based Comments	7314	24
Soldal	Jesse	not provided	N/A	Web-based Comments	17402	24
Sole	Victoria	not provided	N/A	Web-based Comments	31225	24
Soleta	Melissa	not provided	N/A	Web-based Comments	45555, 45556	34
Solg	Grete	not provided	N/A	Web-based Comments	15321	24
Sollecito	Flavia	not provided	N/A	Web-based Comments	14443	24
Solmos	Jon	not provided	N/A	Web-based Comments	18266	24
Solomon	Alan	not provided	N/A	Web-based Comments	7189	24
Solomon	Beverly	not provided	N/A	Web-based Comments	55512, 55513	34
Solomon	Beverly	not provided	N/A	Web-based Comments	9144	24
Solomon	Carol	not provided	N/A	Web-based Comments	10026	24
Solomon	Chihoko	not provided	N/A	Web-based Comments	45184	34
Solomon	David	davidsolomonriverman@gmail.com	N/A	Web-based comments	31892	16
Solomon	Julie	not provided	N/A	Web-based Comments	18895	24
solomon	mf	not provided	N/A	Web-based Comments	24004	24
Solomon	Michelle	solomon.michelle@gmail.com	N/A	Web-based comments	6646	N/A
Solomon	Richard	not provided	N/A	Web-based Comments	55591, 55592	34
Solomon	Samantha	not provided	N/A	Web-based Comments	28088	24
Solomon	Stanley J	not provided	N/A	Web-based Comments	56517	34
Solomonoff	Sonia	not provided	N/A	Web-based Comments	29067	24
Soloski	Carol	not provided	N/A	Web-based Comments	10027	24
Solov	JoAnn	not provided	N/A	Web-based Comments	17780	24
soltau	ronald	not provided	N/A	Web-based Comments	27671	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Soltysiak	Shannon	not provided	N/A	Web-based Comments	28600	24
Solum	Mary	not provided	N/A	Web-based Comments	23428	24
Solum	Stacey	not provided	N/A	Web-based Comments	52782	34
Solum	Stacey	not provided	N/A	Web-based Comments	29124	24
Solvay	Maxine	not provided	N/A	Web-based comments	57210	35
Somers	Hayley	not provided	N/A	Web-based Comments	45353	34
Somers	Hayley	not provided	N/A	Web-based Comments	15481	24
Somers	Jeff	not provided	N/A	Web-based Comments	49808	34
Somers	Paula	not provided	N/A	Web-based comments	57711	35
Somers	Paula	not provided	N/A	Web-based Comments	26100	24
Somers	Sharon	not provided	N/A	Web-based comments	57170	35
Somma	Jeff	not provided	N/A	Web-based Comments	17054	24
Sommer	Angie	not provided	N/A	Web-based Comments	7955	24
sommer	brenda	not provided	N/A	Web-based Comments	9422	24
Sommer	Elisabeth	not provided	N/A	Web-based Comments	13681	24
Sommer	George	advprtsys@gmail.com	N/A	Web-based comments	5852	N/A
Sommer	Heather	not provided	N/A	Web-based Comments	15541	24
Sommer	Karen	not provided	N/A	Web-based Comments	19213	24
Sommerfield	Katharine	not provided	N/A	Web-based Comments	46918	34
Sommerfield	Katharine	not provided	N/A	Web-based Comments	19423	24
Sommers	Benjamin	not provided	N/A	Web-based Comments	8971	24
Sommers	Garold	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58302	11
Sommers	Megan	not provided	N/A	Web-based Comments	23805	24
Somoza	Kathryn	not provided	N/A	Web-based Comments	19666	24
Sompayrac	Lauren	laurens@alum.mit.edu	N/A	Web-based comments	3259	N/A
Sondahl	Carolyn	not provided	N/A	Web-based Comments	10177	24
Sonder	Mark	not provided	N/A	Web-based Comments	22986	24
Sondergaard	Bonnie	not provided	N/A	Web-based Comments	9323	24
SONDERSKOV	MARK	not provided	N/A	Web-based Comments	22987	24
Sondik	Sheila	not provided	N/A	Web-based Comments	54333	34
Song	Amy	not provided	N/A	Web-based Comments	7675	24
Song	Dawn	dawnsong03@gmail.com	N/A	Web-based comments	4598	N/A
Song	Patty	not provided	N/A	Web-based Comments	47843	34
songe	Alex	not provided	N/A	Web-based comments	1060	N/A
Songsiridej	Sudarat	not provided	N/A	Web-based Comments	55766	34
Sonin	John S.	not provided	N/A	Web-based Comments	55658	34
Sonja	Michel And	not provided	N/A	Web-based Comments	44430	34
Sonneborn	Alexander	not provided	N/A	Web-based Comments	7271	24
Sonnenberg	Ronald	not provided	N/A	Web-based Comments	27672	24
Sonnenschein	Bonnie	not provided	N/A	Web-based Comments	9324	24
Sonntag	Carl	not provided	N/A	Web-based Comments	9810	24
Sonntag	Kathleen	not provided	N/A	Web-based Comments	19601	24
Sonny	Donna	not provided	N/A	Web-based Comments	47506	34
Sontag	Susan	not provided	N/A	Web-based Comments	29844	24
Sophia	Tristan	not provided	N/A	Web-based Comments	46301, 46302	34
Sophia	Tristan	not provided	N/A	Web-based Comments	30931	24
Sophie	Joan	not provided	N/A	Web-based Comments	54870	34
Sorcic	Tiffini	not provided	N/A	Web-based Comments	30593	24
Sorem	Shannon	not provided	N/A	Web-based Comments	45211, 45212	34
Sorenen	Timothy	19timsorensen56@gmail.com	N/A	Web-based comments	4982	N/A
Sorensen	Ana	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32391	13
Sorensen	Barry	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32392	13
sorensen	diane	not provided	N/A	Web-based Comments	12905	24
Sorensen	Elaine	not provided	N/A	Web-based comments	57203	35
SORENSEN	GERALD	gcsorensen@gmail.com	N/A	Web-based comments	4090	N/A
Sorensen	Janell	not provided	N/A	Web-based Comments	16554	24
Sorensen	Karen	not provided	N/A	Web-based Comments	19214	24
Sorensen	Lynn	not provided	N/A	Web-based Comments	47328	34
Sorensen	Nancy	not provided	N/A	Web-based Comments	24988	24
Sorensen	Sally	not provided	N/A	Web-based Comments	49227	34
Sorenson	Carol	not provided	N/A	Web-based Comments	10028	24
Sorenson	Jim	1idahocowboy@gmail.com	N/A	Web-based comments	5362	N/A
SORG	LIZ	not provided	N/A	Web-based Comments	21694	24
Sorgeler	Barbara	not provided	N/A	Web-based Comments	8785	24
Sorgenfrei	Matt	not provided	N/A	Web-based Comments	23624	24
Soria	Sara	not provided	N/A	Web-based Comments	28315	24
Sorkin	Lawrence	not provided	N/A	Web-based Comments	20885	24
Sormani	Chiara	not provided	N/A	Web-based Comments	10696	24
Sorock	Bradley	not provided	N/A	Web-based Comments	54628, 54629	34
Sorokie	Mary Ann	not provided	N/A	Web-based Comments	56327	34

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Sorrell	Deborah	not provided	N/A	Web-based Comments	12480	24
Sorrell	Grant	not provided	N/A	Web-based Comments	53036	34
Sorrell	Grant	not provided	N/A	Web-based Comments	15217	24
Sorrell	JoAnn	not provided	N/A	Web-based Comments	17781	24
Sorrell	Ken	not provided	N/A	Web-based Comments	19993	24
Sorrells	James	not provided	N/A	Web-based Comments	46794, 46795	34
Sorrells	James	not provided	N/A	Web-based Comments	16309	24
Sosa	Amanda	captivityunmasked@gmail.com	N/A	Web-based comments	6054	1
Sosa	Gladys	not provided	N/A	Web-based Comments	15109	24
Sosa	Salome Rubio	not provided	N/A	Web-based Comments	53026	34
Sosby	Anthony	not provided	N/A	Web-based Comments	8348	24
Sotelo	Anne	not provided	N/A	Web-based Comments	8244	24
Soteropoulos	Patricia	not provided	N/A	Web-based Comments	25846	24
Sotile	Carol	not provided	N/A	Web-based Comments	10029	24
Sotiropoulos	Thalia	not provided	N/A	Web-based Comments	47588, 47589	34
Soto	Denise	not provided	N/A	Web-based Comments	49120	34
Soubeyroux	Richard	not provided	N/A	Web-based Comments	27051	24
Souci	Darryl A. San	not provided	N/A	Web-based Comments	46980	34
Souder	Logan	not provided	N/A	Web-based Comments	21713	24
Souders	Pat	not provided	N/A	Web-based Comments	25674	24
Soukup	Timothy	not provided	N/A	Web-based Comments	30660	24
Soul	Veronika	not provided	N/A	Web-based Comments	31107	24
Soulard	Andre	not provided	N/A	Web-based Comments	54390	34
SOULAS	Daniel	not provided	N/A	Web-based Comments	11777	24
Soule	Craig	not provided	N/A	Web-based Comments	46467	34
Souren	Angelina	not provided	N/A	Web-based Comments	7943	24
Sousa	Eunice	not provided	N/A	Web-based Comments	14307	24
Sousa	Glenn	not provided	N/A	Web-based Comments	15139	24
Sousa	Kim	not provided	N/A	Web-based Comments	53192	34
Sousa	Veronica	not provided	N/A	Web-based Comments	58696	34
South	Lois	not provided	N/A	Web-based Comments	45991	34
Southard	Keane	not provided	N/A	Web-based Comments	19859	24
Southard	Susan	not provided	N/A	Web-based Comments	29845	24
Southwood	Dave	not provided	N/A	Web-based Comments	11923	24
Southworth	Richard	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32420	N/A
Southworth	Teri	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32420	N/A
Souva	Carol	not provided	N/A	Web-based Comments	45000, 45058	34
Souva	Carol	not provided	N/A	Web-based Comments	10030	24
Souza	Dee	not provided	N/A	Web-based Comments	12583	24
Souza	Madeleine	not provided	N/A	Web-based Comments	48791	34
Souza	Madeleine	not provided	N/A	Web-based Comments	22237	24
Souza	Mike	not provided	N/A	Web-based Comments	44837	34
Souza	Mike	not provided	N/A	Web-based Comments	24489	24
Sovil	Lindsay	not provided	N/A	Web-based Comments	21486	24
Sovran	Vivian	not provided	N/A	Web-based Comments	31321	24
Sowambur	Sarah	not provided	N/A	Web-based Comments	28406	24
sowersby	nancy	not provided	N/A	Web-based Comments	51349, 51350	34
Sowinski	Nancy	not provided	N/A	Web-based Comments	53893	34
Sozio	Jeanne	not provided	N/A	Web-based Comments	16972	24
Spaans	David	not provided	N/A	Web-based Comments	12142	24
Spacek	Michael	not provided	N/A	Web-based Comments	24229	24
Spachner	Richard	not provided	N/A	Web-based Comments	27052	24
Spadafora	M	not provided	N/A	Web-based Comments	22194	24
Spaeth	Jane	not provided	N/A	Web-based Comments	58606, 58607	34
Spaethe	David	not provided	N/A	Web-based Comments	12143	24
Spagnola	Debra	not provided	N/A	Web-based Comments	51931, 51932	34
Spain	Sheri	not provided	N/A	Web-based Comments	28856	24
spalt	amanda	not provided	N/A	Web-based Comments	7554	24
spangler	gail	not provided	N/A	Web-based Comments	53706	34
Spangler	linda	not provided	N/A	Web-based Comments	54143, 54144	34
Spangler	Linda	not provided	N/A	Web-based Comments	21430	24
Spangler	Melissa	not provided	N/A	Web-based Comments	23929	24
Spangler	Nicholas	not provided	N/A	Web-based Comments	25179	24
Spangler	Pamela	not provided	N/A	Web-based Comments	25591	24
Spangrude	Gene	spangrudelaptop@q.com	N/A	Web-based comments	2146*	N/A
Spanhel	Annette	not provided	N/A	Web-based Comments	8289	24
Spann	Christina	not provided	N/A	Web-based Comments	55615	34
Spano	Carol	not provided	N/A	Web-based Comments	10031	24
Spanos	Greg	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4617	N/A
Spares	Beverly	not provided	N/A	Web-based Comments	9145	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Sparkman	Roberta	not provided	N/A	Web-based Comments	27452	24
Sparks	Barbara L	not provided	N/A	Web-based Comments	8839	24
Sparks	Diane	not provided	N/A	Web-based Comments	51725	34
Sparks	Kathy	not provided	N/A	Web-based Comments	56529	34
Sparks	M	not provided	N/A	Web-based Comments	22195	24
Sparks	Michele	not provided	N/A	Web-based Comments	24308	24
Sparks-Gillis	Michelle	not provided	N/A	Web-based Comments	24390	24
Sparlin	Shauna	not provided	N/A	Web-based Comments	28743	24
sparling	sheryl	not provided	N/A	Web-based Comments	49568	34
sparling	sheryl	not provided	N/A	Web-based Comments	28927	24
Sparrow	Phillip	not provided	N/A	Web-based Comments	52601	34
Spates	Georgeanne	not provided	N/A	Web-based Comments	50399	34
Spates	Georgeanne	not provided	N/A	Web-based Comments	14928	24
Spath	Larry	LDSpath1@cs.com	N/A	Web-based comments	1953	N/A
Spatz	Gerald	jspatz26@gmail.com	N/A	Web-based comments	3819	3
Spaulding	Ann	not provided	N/A	Web-based Comments	8085	24
Spaulding	D.	not provided	N/A	Web-based Comments	11600	24
spaulding	marie	not provided	N/A	Web-based Comments	49233	34
Spaulding	Nancy	not provided	N/A	Web-based Comments	24989	24
Speach	Bernadette	not provided	N/A	Web-based Comments	8990	24
Spear	Carole	not provided	N/A	Web-based Comments	10101	24
Spear	Debbie	not provided	N/A	Web-based Comments	12344	24
Spear	Diane	not provided	N/A	Web-based Comments	12906	24
Spear	Vana	not provided	N/A	Web-based Comments	50971	34
Spears	Candace	not provided	N/A	Web-based comments	57654	35
Spears	Harvey	not provided	N/A	Web-based Comments	15471	24
Spears	Ronald	not provided	N/A	Web-based Comments	27673	24
Speciale	Samuel	not provided	N/A	Web-based Comments	28102	24
Species	Scott	not provided	N/A	Web-based Comments	54114, 54115	34
Species	Scott	not provided	N/A	Web-based Comments	28498	24
Speck	Caryl	not provided	N/A	Web-based Comments	54553	34
Spector	Norma	not provided	N/A	Web-based Comments	25393	24
Speece	Tim	not provided	N/A	Web-based Comments	55987	34
Speed	Rachel	not provided	N/A	Web-based Comments	47409	34
Speed	Sandra	not provided	N/A	Web-based Comments	28214	24
Speer	Cheryl	not provided	N/A	Web-based Comments	54657	34
Speer	Cheryl	not provided	N/A	Web-based Comments	10675	24
Speer	Gregory	not provided	N/A	Web-based Comments	44790	34
Speer	Gregory	not provided	N/A	Web-based Comments	15297	24
Speer	Rich	not provided	N/A	Web-based Comments	26926	24
Speirs	Timothy	not provided	N/A	Web-based comments	57486	35
Speiser	Bob	not provided	N/A	Web-based Comments	9254	24
Spell	Judith	not provided	N/A	Web-based comments	57175	35
spelter	katarina	not provided	N/A	Web-based Comments	44851	34
spelter	katarina	not provided	N/A	Web-based Comments	19362	24
Speltz	Charlotte	not provided	N/A	Web-based Comments	10570	24
Spence	Debbie	not provided	N/A	Web-based Comments	12345	24
Spence	Katherine	not provided	N/A	Web-based Comments	58244	16
Spence	Kimberly	not provided	N/A	Web-based Comments	20243	24
Spence	Liter	not provided	N/A	Web-based Comments	45835, 45836	34
Spencer	Amanda	not provided	N/A	Web-based Comments	55691	34
Spencer	Brent	not provided	N/A	Web-based Comments	56356	34
Spencer	Brent	not provided	N/A	Web-based Comments	9443	24
Spencer	Carole	not provided	N/A	Web-based Comments	10102	24
Spencer	Charlotte	not provided	N/A	Web-based Comments	52641	34
Spencer	Charlotte	not provided	N/A	Web-based Comments	10571	24
Spencer	Clifford	not provided	N/A	Web-based Comments	54892	34
Spencer	D R	not provided	N/A	Web-based Comments	11592	24
Spencer	Dawn	not provided	N/A	Web-based Comments	12247	24
Spencer	Deborah	not provided	N/A	Web-based Comments	56428, 56429	34
Spencer	Gayle	not provided	N/A	Web-based Comments	14834	24
Spencer	Gayle Spencer	not provided	N/A	Web-based Comments	57849	34
Spencer	John	not provided	N/A	Web-based Comments	18175	24
Spencer	Kathy	not provided	N/A	Web-based Comments	19761	24
Spencer	Kathy	not provided	N/A	Web-based Comments	19762	24
SPENCER	LINDA	not provided	N/A	Web-based Comments	21431	24
Spencer	Marci	not provided	N/A	Web-based Comments	46273	34
Spencer	Martha	not provided	N/A	Web-based Comments	47164	34
Spencer	Martha	not provided	N/A	Web-based Comments	23129	24
Spencer	Nancy	not provided	N/A	Web-based Comments	45300	34

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Spencer	Nancy	not provided	N/A	Web-based Comments	24990	24
Spencer	Pamela	rp61997@myidahomail.com	N/A	Web-based comments	3445	N/A
Spencer	Penny	not provided	N/A	Web-based Comments	26216	24
Spencer	Steph	not provided	N/A	Web-based Comments	29187	24
Spencer	Susan	not provided	N/A	Web-based Comments	48749	34
Spencer-Stover	Sheila	not provided	N/A	Web-based Comments	28808	24
Spenger	Connie	not provided	N/A	Web-based Comments	50764, 50765	34
Spengler	Julie	not provided	N/A	Web-based Comments	18896	24
spengler	reginald	not provided	N/A	Web-based Comments	26812	24
Spera	Kathy	not provided	N/A	Web-based Comments	55535	34
Spera	Pamela	not provided	N/A	Web-based Comments	25592	24
Speranza	Ilya	not provided	N/A	Web-based Comments	48126	34
Speranza	Ilya	not provided	N/A	Web-based Comments	15862	24
Spergel	Elizabeth	not provided	N/A	Web-based Comments	13847	24
Sperling	Carolyn	not provided	N/A	Web-based Comments	10178	24
Sperling	Jennie	not provided	N/A	Web-based Comments	54505	34
Spero	Maria	not provided	N/A	Web-based Comments	22630	24
Spero	Thomas	not provided	N/A	Web-based Comments	46539	34
Spero	Thomas	not provided	N/A	Web-based Comments	30547	24
Sperry	William	w_sperry@hotmail.com	N/A	Web-based comments	1955	N/A
Spesick	Anne	not provided	N/A	Web-based Comments	8245	24
Spica	Sarah	not provided	N/A	Web-based Comments	54418	34
Spice	Anneka	not provided	N/A	Web-based Comments	49332	34
Spicer	Karen	not provided	N/A	Web-based Comments	19215	24
Spickard	Laurie	ldspickard@gmail.com	N/A	Web-based comments	224	N/A
Spidle	Kay	not provided	N/A	Web-based Comments	19834	24
Spiegel	Edwyna	not provided	N/A	Web-based Comments	50440	34
Spiegel	Hazel	not provided	N/A	Web-based Comments	15490	24
Spiegel	Ilse	not provided	N/A	Web-based Comments	58627, 58628	34
Spiegel	Ilse	not provided	N/A	Web-based Comments	15860	24
Spiegel	Kimberly	not provided	N/A	Web-based Comments	45063	34
spiegel	phyllis	not provided	N/A	Web-based Comments	26397	24
Spiegel	Susan	not provided	N/A	Web-based Comments	29846	24
Spiegelman	Robin	not provided	N/A	Web-based Comments	49246	34
Spiegelman	Robin	not provided	N/A	Web-based Comments	27525	24
Spiegler	Linda	not provided	N/A	Web-based Comments	21432	24
Spielberg, MSW	Janie	not provided	N/A	Web-based Comments	16719	24
Spielman	Emily	not provided	N/A	Web-based Comments	14043	24
Spiers	Barbara A	not provided	N/A	Web-based Comments	8835	24
Spies	Doug	not provided	N/A	Web-based Comments	13313	24
Spietz	Barbara	not provided	N/A	Web-based Comments	8786	24
Spike	Marie	not provided	N/A	Web-based Comments	45438	34
Spindel	Paul	not provided	N/A	Web-based Comments	52609	34
Spindler	Louise	not provided	N/A	Web-based Comments	52208	34
Spinello	Susan	not provided	N/A	Web-based Comments	29847	24
Spinetta	Gina	not provided	N/A	Web-based Comments	52368	34
Spini	Jane	not provided	N/A	Web-based Comments	16537	24
Spinks Marasco	Summer	not provided	N/A	Web-based Comments	29572	24
Spinosa	Pat and Lee	not provided	N/A	Web-based Comments	25682	24
Spira	Timothy	not provided	N/A	Web-based Comments	30661	24
Spiro	Pearl	not provided	N/A	Web-based Comments	26132	24
Spiropoulou	Zoe	not provided	N/A	Web-based Comments	53034, 53035	34
Spiropoulou	Zoe	not provided	N/A	Web-based Comments	31738	24
Spitale	John	not provided	N/A	Web-based Comments	18176	24
Spitaleri	Chiara	not provided	N/A	Web-based Comments	10697	24
Spitsbergen	Karen	not provided	N/A	Web-based Comments	19216	24
Splaver	Ellen	not provided	N/A	Web-based Comments	13950	24
spoerer	joan	not provided	N/A	Web-based Comments	17741	24
Spofford	Andrew	not provided	N/A	Web-based Comments	7851	24
Spolek	Graig	not provided	N/A	Web-based comments	3211	N/A
Spolek	Steven	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32273	N/A
Spolek	Steven	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32480	N/A
spoon	leslie	not provided	N/A	Web-based Comments	51022	34
spoon	leslie	not provided	N/A	Web-based Comments	21107	24
Spooner	Jim	not provided	N/A	Web-based Comments	17607	24
Spooner	Tianna	not provided	N/A	Web-based Comments	30579	24
Spoorcic	Mike	Mike.Sporcic@yahoo.com	N/A	Web-based comments	3781	N/A
Spor	Rhonda	not provided	N/A	Web-based Comments	56478	34
Spor	Rhonda	not provided	N/A	Web-based Comments	26908	24
Spornik	Natalia	not provided	N/A	Web-based Comments	25054	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Spotleson	Bruce	spotleson@cox.net	N/A	Web-based comments	4570	N/A
Spotts	Richard	not provided	N/A	Web-based Comments	50404, 50420, 50421	34
Spotts	Richard	not provided	N/A	Web-based Comments	27053	24
Spottswood	Dana	not provided	N/A	Web-based Comments	11706	24
Spradau	Hayley	not provided	N/A	Web-based Comments	15482	24
Spradlin	Karen	not provided	N/A	Web-based Comments	51898	34
Spradlin	Karen	not provided	N/A	Web-based Comments	19217	24
Spragett	Cedra	not provided	N/A	Web-based Comments	50160	34
Spragett	Cedra	not provided	N/A	Web-based Comments	10424, 10425	24
Sprague	Edward	not provided	N/A	Web-based Comments	13515	24
Sprague	Kars	not provided	N/A	Web-based Comments	55258	34
Spratley	Richard	not provided	N/A	Web-based Comments	46110	34
Spratlin	Marilan	not provided	N/A	Web-based Comments	22754	24
Spratt	David	not provided	N/A	Web-based Comments	54512	34
Spratt	David	not provided	N/A	Web-based Comments	12144	24
spratt	marcia	not provided	N/A	Web-based Comments	22383	24
Sprayberry	Shannon	not provided	N/A	Web-based Comments	51821	34
Spreitzer	Judith	not provided	N/A	Web-based Comments	18652	24
Sprenger	Rosemary	not provided	N/A	Web-based Comments	56474	34
Springer	Cynthia	not provided	N/A	Web-based Comments	49806, 49807	34
SPRINGER	DIXIE	not provided	N/A	Web-based Comments	12981	24
Springer	Jacob	not provided	N/A	Web-based Comments	16095	24
Springer	Kimberly	not provided	N/A	Web-based Comments	20244	24
Springsteen	Michele	not provided	N/A	Web-based Comments	24309	24
Sprott	Stephen	not provided	N/A	Web-based Comments	29339	24
Sproul	David	hatchmaster@hotmail.com	N/A	Web-based comments	3151	N/A
Sprouse	Sharon	not provided	N/A	Web-based Comments	52934	34
Sprouse	Sharon	not provided	N/A	Web-based Comments	28712	24
Sprowl	Robert	not provided	N/A	Web-based Comments	27386	24
Spruce	Victoria	not provided	N/A	Web-based Comments	31226	24
Sprunk	Gary	not provided	N/A	Web-based Comments	14798	24
Spurr	Karen	not provided	N/A	Web-based Comments	51850	34
spyrou	ksenia	not provided	N/A	Web-based Comments	44505	34
SQUARANTI	CRISTINA	not provided	N/A	Web-based Comments	11447	24
Squibb	Marsha	not provided	N/A	Web-based Comments	23078	24
Squire	Julie	not provided	N/A	Web-based Comments	48568	34
Squire	Julie	not provided	N/A	Web-based Comments	18897	24
Squires	Brad	not provided	N/A	Web-based Comments	9348	24
Squires	Kathi	not provided	N/A	Web-based Comments	19500	24
Squires	Lynda	not provided	N/A	Web-based Comments	48083	34
Sreiber	Andrea	not provided	N/A	Web-based Comments	46826, 46856	34
Sreiber	Andrea	not provided	N/A	Web-based Comments	7774	24
Sridharakannan	Divya	not provided	N/A	Web-based Comments	12975	24
Srinivasan	Ashwin	not provided	N/A	Web-based Comments	51390	34
Srygley	Donald	not provided	N/A	Web-based Comments	13084	24
St Angelo	Diane	not provided	N/A	Web-based Comments	12907	24
St John	Debbie	not provided	N/A	Web-based Comments	12346	24
St John	Haley	not provided	N/A	Web-based Comments	15383	24
St John	Star	not provided	N/A	Web-based Comments	29158	24
St Louis	Kelli	not provided	N/A	Web-based Comments	19904	24
St. Clair	John	not provided	N/A	Web-based Comments	18177	24
St. John	Dennis	not provided	N/A	Web-based Comments	12705	24
St. John	Kathryn	not provided	N/A	Web-based Comments	19667	24
St. Onge	Kay	not provided	N/A	Web-based Comments	19835	24
St.Clair	Laura	not provided	N/A	Web-based Comments	49004, 50441	34
St.Clair	Laura	not provided	N/A	Web-based Comments	20705	24
St.John	Erica	not provided	N/A	Web-based Comments	14168	24
Staab	Alfred	not provided	N/A	Web-based Comments	7323	24
Staab	Diana	not provided	N/A	Web-based Comments	48809	34
Staal	Stephanie	not provided	N/A	Web-based Comments	29254	24
Staats	Alycia	not provided	N/A	Web-based Comments	52660	34
Staats	Alycia	not provided	N/A	Web-based Comments	7496	24
Stabler	Jessica	not provided	N/A	Web-based Comments	17469	24
Stables	Leah	not provided	N/A	Web-based Comments	20908	24
Staccia	Dawn-Marie	not provided	N/A	Web-based Comments	45981	34
Stacey	Karen	not provided	N/A	Web-based Comments	55318	34
Stacey	Karen	not provided	N/A	Web-based Comments	19218	24
Stacey	Nancy	scot62@cableone.net	N/A	Web-based comments	3721, 3722	N/A
Stacey	Pauline i	not provided	N/A	Web-based Comments	26125	24
Stacey	Ray	not provided	N/A	Web-based comments	5020	11

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Stacey	Terry	not provided	N/A	Web-based Comments	30383	24
Stachura	Delores	not provided	N/A	Web-based Comments	45016, 45017	34
Stachura	Delores	not provided	N/A	Web-based Comments	12609	24
Stack	Andy	not provided	N/A	Web-based Comments	7879	24
Stack	Catherine	not provided	N/A	Web-based Comments	48962	34
Stacy	Ryan	not provided	N/A	Web-based comments	57194	35
Stade	Chris	toot.bones@yahoo.com	N/A	Web-based comments	1863	N/A
Stadelbauer	Natalia	not provided	N/A	Web-based Comments	53974	34
Stadelmann	Anja	not provided	N/A	Web-based Comments	7994	24
Stadstad	Jean	not provided	N/A	Web-based Comments	16887	24
Stadtler	Roman	not provided	N/A	Web-based Comments	54261	34
Stadtmueller	Petra	not provided	N/A	Web-based Comments	26311	24
Staff	George	not provided	N/A	Web-based Comments	14921	24
Staffan	Allison	not provided	N/A	Web-based Comments	7475	24
Stafford	Ben	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58333	N/A
Stafford	Drew	not provided	N/A	Web-based Comments	13379	24
Stafford	Richard	not provided	N/A	Web-based Comments	27054	24
Stafford	Sarah	not provided	N/A	Web-based Comments	54185	34
Stafford	Sarah	not provided	N/A	Web-based Comments	28407	24
Staggers	Morgan	not provided	N/A	Web-based Comments	24670	24
Stagnitta	Gayle	not provided	N/A	Web-based Comments	14835	24
Stahl	Lisa	not provided	N/A	Web-based Comments	56261	34
stahl	Theresa	jewels@tatteredgossamer.com	N/A	Web-based comments	5498	1
Stahl	Wendy	not provided	N/A	Web-based Comments	31450	24
Staiman Vosk	Cynthia	not provided	N/A	Web-based Comments	11555	24
Stair	Cheri	not provided	N/A	Web-based Comments	10606	24
Stair	Patrick	not provided	N/A	Web-based Comments	25926	24
Stalcup	Marvel	not provided	N/A	Web-based Comments	23195	24
Stalcup	Robin	not provided	N/A	Web-based Comments	50593	34
Stalder	Gary	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	56635	N/A
Staley	Bill	not provided	N/A	Web-based Comments	9185	24
Staley	Nancy	not provided	N/A	Web-based Comments	24991	24
Staley	Sheri	not provided	N/A	Web-based Comments	54288	34
Staley	William	not provided	N/A	Web-based Comments	48459	34
Stalker	Amy	not provided	N/A	Web-based Comments	7676	24
Stallings	Nancy	not provided	N/A	Web-based Comments	24992	24
Stallings	Sharon	not provided	N/A	Web-based Comments	28713	24
Stallworth	Gretchen	not provided	N/A	Web-based Comments	50560	34
Stalnaker	Kathryn	not provided	N/A	Web-based comments	57324	35
Stamatacos	Helen	not provided	N/A	Web-based Comments	15628	24
Stamiris	Barbara	not provided	N/A	Web-based Comments	8787	N/A
Stamm	Eric	estamm123@gmail.com	N/A	Web-based comments	2933	8
Stamm	Patricia	not provided	N/A	Web-based Comments	25847	24
Stamos	James	not provided	N/A	Web-based Comments	52017, 52018	34
Stamp	Barbara	not provided	N/A	Web-based Comments	8788	24
Stamp	Tracie	not provided	N/A	Web-based Comments	30858	24
Stamper	Gerry	not provided	N/A	Web-based Comments	15004	24
Stampfer	Martha	not provided	N/A	Web-based Comments	23130	24
Stan	Talila	not provided	N/A	Web-based Comments	50156	34
Stanberry	Beth	not provided	N/A	Web-based Comments	9054	24
Stanberry	Jasha	not provided	N/A	Web-based Comments	16766	24
Stanborough	Jeanne	not provided	N/A	Web-based Comments	16973	24
Stanbury	Phyllis	not provided	N/A	Web-based Comments	26398	24
Stancell	Cecilia	not provided	N/A	Web-based Comments	48011	34
Standal	Gro	not provided	N/A	Web-based Comments	15323	24
Standar	Monica	not provided	N/A	Web-based Comments	24640	24
Standard	Steven	not provided	N/A	Web-based Comments	52502	34
Stander	Kathleen	not provided	N/A	Web-based Comments	56467	34
Standing	Winifred	not provided	N/A	Web-based Comments	31631	24
Standow	Linda	not provided	N/A	Web-based Comments	51456	34
Standridge	Teri	not provided	N/A	Web-based Comments	30318	24
Stanek	Emma	emmastanek@hotmail.com	N/A	Web-based comments	2869	1
Stanescu	Jon	jcs98@fastmail.com	N/A	Web-based comments	2094	N/A
Stang	Marta	not provided	N/A	Web-based Comments	23089	24
Stanger	Dan	not provided	N/A	Web-based Comments	11679	24
Stanger	Michele	not provided	N/A	Web-based Comments	54314	34
Stanger	Telly	tvstanger@gmail.com	N/A	Web-based comments	2414	N/A
Stanger	Telly	tvstanger@gmail.com	N/A	Hand-delivered or oral testimony (personally delivered)	5546	N/A
Stangl	Kathryn	kathystangl@gmail.com	N/A	Web-based comments	32128	N/A
Stanhope	Robert	not provided	N/A	Web-based Comments	50436	34

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Stanistreet	Cedar	not provided	N/A	Web-based Comments	48728	34
Stanistreet	Cedar	not provided	N/A	Web-based Comments	10423	24
Stanistreet	Mary	not provided	N/A	Web-based Comments	23429	24
Stanke	Sharon	not provided	N/A	Web-based Comments	28714	24
Stankiewicz	Melyssa	not provided	N/A	Web-based Comments	23958	24
Stanley	Beth	not provided	N/A	Web-based Comments	9055	24
Stanley	Carol	not provided	N/A	Web-based Comments	44978	34
Stanley	Carol	not provided	N/A	Web-based Comments	10032	24
Stanley	Jacqueline	not provided	N/A	Web-based Comments	16130	24
Stanley	M	not provided	N/A	Web-based Comments	49145	34
Stanley	Rebecca	not provided	N/A	Web-based Comments	26773	24
Stanley	Richard	not provided	N/A	Web-based Comments	45101	34
Stanley	Richard	not provided	N/A	Web-based Comments	27055	24
Stanley	Robert	not provided	N/A	Web-based Comments	47083, 47084	34
STANLEY	ROBERT	not provided	N/A	Web-based Comments	27387	24
Stanley	Susan	not provided	N/A	Web-based Comments	29848	24
Stanlick	Harold	not provided	N/A	Web-based Comments	15444	24
Stannard	Barbara	not provided	N/A	Web-based Comments	8789	24
Stannard	Mark	not provided	N/A	Web-based Comments	22988	24
Stanojevic	Erica	not provided	N/A	Web-based Comments	14169	24
Stansbery	Steven	not provided	N/A	Web-based Comments	29470	24
Stansbury	Sherry	not provided	N/A	Web-based Comments	28906	24
Stansbury	Susan	not provided	N/A	Web-based Comments	29849	24
STANSELL	Catherine	not provided	N/A	Web-based Comments	10326	24
Stansen	Jan	not provided	N/A	Web-based Comments	16431	24
Stansfield	Jack	not provided	N/A	Web-based Comments	55623, 57968	34, 16
Stansfield	Jack	not provided	N/A	Web-based Comments	16043	24
Stansfield	Lesley	not provided	N/A	Web-based Comments	55946	34
Stansfield	Lesley	not provided	N/A	Web-based Comments	21050	24
Stanton	Clifford	not provided	N/A	Web-based Comments	11222	24
Stanton	James	not provided	N/A	Web-based Comments	47899	34
Stanton	Janice	not provided	N/A	Web-based Comments	16698	24
Stanton	Joan	not provided	N/A	Web-based Comments	17742	24
Stanton	Joan	not provided	N/A	Web-based Comments	17743	24
stanton	john	not provided	N/A	Web-based Comments	18178	24
Stanton	July	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58328	N/A
Stanton	Leigh	not provided	N/A	Web-based Comments	20968	24
Stanton	Mary	not provided	N/A	Web-based Comments	49470, 49471	34
Stanton	Mary	not provided	N/A	Web-based Comments	23430	24
Stapes	Lynn	not provided	N/A	Web-based Comments	22099	24
Stapes	Lynn And Roger	not provided	N/A	Web-based Comments	50713	34
Staples	Charlotte	not provided	N/A	Web-based Comments	10572	24
Staples	Laura	not provided	N/A	Web-based Comments	20706	24
Stapleton	Connie	not provided	N/A	Web-based Comments	11321	24
Stapp	Tare'	not provided	N/A	Web-based Comments	30210	24
star	garry	not provided	N/A	Web-based Comments	14746	24
Starck	David And Virginia	not provided	N/A	Web-based Comments	46498	34
Stargrove	Mitchell	not provided	N/A	Web-based Comments	24575	24
Stark	Eileen	not provided	N/A	Web-based Comments	52643, 57789	34
Stark	Joseph	not provided	N/A	Web-based Comments	18393	24
Stark	Judd	not provided	N/A	Web-based Comments	18539	24
Stark	Kathy	not provided	N/A	Web-based Comments	19763	24
Stark	Laurie	not provided	N/A	Web-based Comments	20859	24
Stark	Lee	not provided	N/A	Web-based Comments	20945	24
stark	marianne	not provided	N/A	Web-based Comments	22691	24
Stark	Nickolas	not provided	N/A	Web-based Comments	25209	24
Stark	Robert	not provided	N/A	Web-based Comments	58576	34
Stark	Robert	not provided	N/A	Web-based Comments	27388	24
Starkebaum	Katelyn	not provided	N/A	Web-based Comments	19406	24
Starkweather	Catherine	not provided	N/A	Web-based Comments	46880	34
Starkweather	Catherine	not provided	N/A	Web-based Comments	10327	24
Starkweather	David	not provided	N/A	Web-based Comments	12145	24
Staroba	Edward	not provided	N/A	Web-based Comments	13516	24
Starr	Laurel	not provided	N/A	Web-based Comments	49058	34
Starr	Norton	not provided	N/A	Web-based Comments	25402	24
Starr	Rebecca	not provided	N/A	Web-based Comments	26774	24
Starseed	Lozz	not provided	N/A	Web-based Comments	46672, 56002, 56003	34
Starseed	Lozz	not provided	N/A	Web-based Comments	21913	24
Startin MACS CZMT Certified	Maureen	not provided	N/A	Web-based Comments	23717	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Startup	Eugene	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58309	N/A
Stasica	Kristi	not provided	N/A	Web-based Comments	20361	24
Stassi	JL	not provided	N/A	Web-based Comments	17634	24
Stassijns	Ludo	not provided	N/A	Web-based Comments	21966	24
Staszak	Darren	not provided	N/A	Web-based Comments	11897	24
Staszewski	James	not provided	N/A	Web-based Comments	16310	24
States	Wade	not provided	N/A	Web-based Comments	31344	24
Statland	Joyce	not provided	N/A	Web-based Comments	18516	24
Staudt	Deb	not provided	N/A	Web-based Comments	46107	34
Staunton	Gail	not provided	N/A	Web-based Comments	14715	24
Stauty	Celia	not provided	N/A	Web-based Comments	10440	24
Stavis	Alex	not provided	N/A	Web-based Comments	7252	24
Stawinoga	Greg	not provided	N/A	Web-based Comments	50247, 50248	34
Stawinoga	Greg	not provided	N/A	Web-based Comments	15259	24
StClair	Janice	not provided	N/A	Web-based Comments	16699	24
Stead	Rosanne and Dan	not provided	N/A	Web-based Comments	27714	24
Steadmon	Jason	not provided	N/A	Web-based Comments	45682	34
Stearns	Paul	not provided	N/A	Web-based Comments	26049	24
Stearns	Renee	not provided	N/A	Web-based Comments	50194	34
Stearns	Tim	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	5582	N/A
Stebbings	Barrie	not provided	N/A	Web-based Comments	8857	24
Stebbins	Kerri	not provided	N/A	Web-based Comments	46960	34
Stebbins	Sara	not provided	N/A	Web-based Comments	28316	24
Stechert	Judy	not provided	N/A	Web-based Comments	18722	24
Steckel	Judy	not provided	N/A	Web-based Comments	18723	24
Steckhouse	Lisa	not provided	N/A	Web-based Comments	47721, 47722	34
Steckhouse	Lisa	not provided	N/A	Web-based Comments	21640	24
Steckler	Bernard	not provided	N/A	Web-based Comments	47494	34
Steckloff	Mark	not provided	N/A	Web-based Comments	22989	24
Stedman	Jen	not provided	N/A	Web-based Comments	56452	34
Stedman	Matt	not provided	N/A	Web-based Comments	47955	34
Stedman	Matt	not provided	N/A	Web-based Comments	23625	24
Stedman	Sherilyn	not provided	N/A	Web-based comments	57718	35
Steeb	Patricia R	not provided	N/A	Web-based Comments	25886	24
Steel	Penelope	not provided	N/A	Web-based Comments	26193	24
Steel	Roger	not provided	N/A	Web-based Comments	27595	24
Steele	Ann	not provided	N/A	Web-based Comments	8086	24
Steele	Billy	not provided	N/A	Web-based Comments	47074	34
Steele	Billy	not provided	N/A	Web-based Comments	9198	24
Steele	Carla	not provided	N/A	Web-based Comments	9834	24
Steele	Dolores	not provided	N/A	Web-based Comments	12997	24
Steele	Jenifer	not provided	N/A	Web-based Comments	50596, 50597, 52793, 52867	34
Steele	Jenifer	not provided	N/A	Web-based Comments	17130	24
steele	karen	not provided	N/A	Web-based Comments	49385, 49386	34
Steele	Karen	not provided	N/A	Web-based Comments	19219	24
Steele	Mary	not provided	N/A	Web-based Comments	51855	34
Steele	Wade	wadesteele@gmail.com	N/A	Web-based comments	2890	N/A
Steele	William	not provided	N/A	Web-based Comments	50319	34
Steen	Karl	not provided	N/A	Web-based Comments	19304	24
Steen	Matt	not provided	N/A	Web-based Comments	23626	24
Steers	Rebekah	not provided	N/A	Web-based Comments	56506	34
Steeves	Charleen	not provided	N/A	Web-based Comments	10469	24
Steeves	Robin	not provided	N/A	Web-based Comments	27526	24
Stefani	Giulia	not provided	N/A	Web-based Comments	15103	24
Stefani	Julia Good	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4638	N/A
Steffen	Maria	not provided	N/A	Web-based Comments	53049, 53050	34
Steffen	Maria	not provided	N/A	Web-based Comments	22631	24
Steffens	Kathy	not provided	N/A	Web-based Comments	50198, 50199	34
Steffens	Kathy	not provided	N/A	Web-based Comments	19764	24
Steffes	Susan	not provided	N/A	Web-based Comments	29850	24
Steffes	Wayne	not provided	N/A	Web-based Comments	31402	24
Steflik	Bette	not provided	N/A	Web-based Comments	54944	34
Stehle	Alice	not provided	N/A	Web-based Comments	52992	34
Stehle	Alice	not provided	N/A	Web-based Comments	7366	24
Stehle	Lee	not provided	N/A	Web-based Comments	50100	34
Stehle	Lee	not provided	N/A	Web-based Comments	20946	24
Stehlik	Richard	not provided	N/A	Web-based Comments	27056	24
Stehning	Berit	not provided	N/A	Web-based Comments	46127	34
Steidler	John	not provided	N/A	Web-based Comments	18179	24
Steigerwaldt	Samantha	not provided	N/A	Web-based Comments	28089	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Steigman	Barbara	not provided	N/A	Web-based Comments	8790	24
Steihl	Jodi	jodi.steihl@fallriverelectric.com	N/A	US Mail or commercial carrier (UPS, FedEx)	58743	11
Steimann	Frederick	not provided	N/A	Web-based Comments	46142	34
Stein	Alan	not provided	N/A	Web-based Comments	7190	24
Stein	Andrea	not provided	N/A	Web-based comments	56990	35
Stein	Beth	not provided	N/A	Web-based Comments	9056	24
Stein	Cindy	not provided	N/A	Web-based Comments	50687	34
Stein	Cindy	not provided	N/A	Web-based Comments	11098	24
Stein	Claudia	not provided	N/A	Web-based Comments	53923, 53924	34
stein	ellen	not provided	N/A	Web-based Comments	13951	24
Stein	Heather	not provided	N/A	Web-based Comments	15542	24
Stein	Howard	not provided	N/A	Web-based Comments	15810	24
Stein	Julie	not provided	N/A	Web-based Comments	56160	34
Stein	Julie	not provided	N/A	Web-based Comments	18898	24
Stein	Kathryn	not provided	N/A	Web-based Comments	19668	24
Stein	Lisa	not provided	N/A	Web-based Comments	21641	24
Stein	Marc	not provided	N/A	Web-based Comments	22345	24
Stein	Sarah	not provided	N/A	Web-based Comments	28408	24
Stein	Tim	not provided	N/A	Web-based Comments	30632	24
Stein	Veronica	not provided	N/A	Web-based Comments	31104	24
Steinbach	Patrick	not provided	N/A	Web-based Comments	25927	24
Steinberg	Angela	not provided	N/A	Web-based Comments	7931	24
Steinberg	Arlene	not provided	N/A	Web-based Comments	8438	24
steinberg	barbara	not provided	N/A	Web-based Comments	8791	24
Steinberg	Julia	not provided	N/A	Web-based Comments	18776	24
Steinberg	Karen	not provided	N/A	Web-based Comments	19220	24
Steinberg	Karl	not provided	N/A	Web-based Comments	19305	24
Steinberg	Ruth	not provided	N/A	Web-based Comments	27888	24
Steinberg	Terence	not provided	N/A	Web-based Comments	30257	24
Steiner	A.L.	not provided	N/A	Web-based Comments	47828	34
Steiner	A.L.	not provided	N/A	Web-based Comments	6989	24
Steiner	Alexandra	not provided	N/A	Web-based Comments	50904	34
Steiner	David	not provided	N/A	Web-based Comments	52303	34
Steiner	Don	not provided	N/A	Web-based Comments	13038	24
Steiner	Jennifer	not provided	N/A	Web-based Comments	17266	24
Steiner	Neal	not provided	N/A	Web-based Comments	54779	34
Steiner	Neal	not provided	N/A	Web-based Comments	25120	24
Steinert	Leslie	not provided	N/A	Web-based Comments	21108	24
Steinert-Bresilge	Heidi	not provided	N/A	Web-based Comments	15581	24
Steinfeld	Beverly	not provided	N/A	Web-based Comments	9146	24
Steinhart	Judith	not provided	N/A	Web-based Comments	44685	34
Steinhart	Judith	not provided	N/A	Web-based Comments	18653	24
Steinhauer	Jami	not provided	N/A	Web-based comments	2684	6
Steinienger	Lorenz	not provided	N/A	Web-based Comments	21755	24
Steininger	Bob	not provided	N/A	Web-based Comments	50039, 50040	34
Steininger	Bob	not provided	N/A	Web-based Comments	9255	24
Steininger	Donald	not provided	N/A	Web-based Comments	53093	34
Steininger	Linda	not provided	N/A	Web-based Comments	50165	34
Steininger	Loreenz	not provided	N/A	Web-based Comments	48868	34
Steinke	Daniel	not provided	N/A	Web-based Comments	11778	24
STEINMAN	KURT	not provided	N/A	Web-based Comments	20440	24
Steinmann	Sue	not provided	N/A	Web-based Comments	49522	34
Steinmetz	Deborah L	not provided	N/A	Web-based Comments	54408, 54409	34
Steinolfson	September	not provided	N/A	Web-based Comments	28535	24
Steisel	Jane	not provided	N/A	Web-based Comments	16538	24
Steitz	Jim	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32537	N/A
Steitz	Jim	not provided	N/A	Web-based Comments	17608	24
Stekelenburg	Peter	pestekelenburg@gmail.com	N/A	Web-based comments	795	1
Stella	Michael	not provided	N/A	Web-based Comments	24230	24
Stella	Terry	tastella@gmail.com	N/A	Web-based comments	2448	N/A
Stellnberger	Elmar	not provided	N/A	Web-based Comments	13978	24
Stelmach	Nancy	not provided	N/A	Web-based Comments	24993	24
Stelten	Tracy	not provided	N/A	Web-based Comments	30881	24
Stelter	Joan	not provided	N/A	Web-based Comments	49438	34
Stelzer	Marsha	not provided	N/A	Web-based Comments	23079	24
Stemac	Laura	not provided	N/A	Web-based Comments	46275	34
stemig	kathie	not provided	N/A	Web-based Comments	19506	24
Stempf	Debbie	dstempf@comcast.net	N/A	Hand-delivered or oral testimony (personally delivered)	4676, 5557	N/A
Stempf	Debbie	dstempf@comcast.net	N/A	Web-based comments	1001	3
Stemwell	Christina	not provided	N/A	Web-based Comments	10879	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Stenberg	Bill and Fran	not provided	N/A	Web-based Comments	9192	24
Stenberg	George	not provided	N/A	Web-based Comments	45997, 45998	34
stender	marcus	not provided	N/A	Web-based Comments	22403	24
Stengel	Brynn	not provided	N/A	Web-based Comments	9648	24
Stenger	Lori	not provided	N/A	Web-based Comments	21807	24
Stenroos	Christine	not provided	N/A	Web-based Comments	10982	24
Stenross	Barbara	not provided	N/A	Web-based Comments	8792	24
Stephan	Dorothea	not provided	N/A	Web-based Comments	53160, 53161	34
Stephan	Dorothea	not provided	N/A	Web-based Comments	13248	24
Stephanie	Chuquet	not provided	N/A	Web-based comments	56774	35
Stephansen-Martin	Shaundra	not provided	N/A	Web-based Comments	28744	24
Stephens	Andrew	not provided	N/A	Web-based Comments	7852	24
Stephens	Beverly	not provided	N/A	Web-based Comments	45967	34
Stephens	Cody	not provided	N/A	Web-based comments	56828	35
Stephens	Courtenay	not provided	N/A	Web-based Comments	11396	24
Stephens	Don	not provided	N/A	Web-based Comments	13039	24
Stephens	Kat	not provided	N/A	Web-based Comments	19353	24
Stephens	M	not provided	N/A	Web-based Comments	22196	24
Stephens	Margaret	not provided	N/A	Web-based Comments	45715	34
Stephens	Melissa	melmstephens@gmail.com	N/A	Web-based comments	5760	1
Stephens	Natalie	not provided	N/A	Web-based Comments	25079	24
Stephens	Richard	not provided	N/A	Web-based Comments	27057	24
Stephens	Rick	not provided	N/A	Web-based comments	4983	N/A
Stephens	Roderic	not provided	N/A	Web-based Comments	27570	24
Stephens	Ron	ronks@pocketinet.com	N/A	Web-based comments	4382	N/A
Stephens	Sandra	not provided	N/A	Web-based Comments	28215	24
Stephens	Steve-Anna	not provided	N/A	Web-based Comments	52034, 52035	34
Stephens Ramani	Sarah	not provided	N/A	Web-based Comments	28409	24
Stephenson	Elisabeth	not provided	N/A	Web-based Comments	13682	24
Stephenson	Jan	not provided	N/A	Web-based Comments	16432	24
Stephenson	Larry	stephensonld1@hotmail.com	N/A	Web-based comments	1980	N/A
stepnicka	sara	not provided	N/A	Web-based Comments	51246, 51247	34
Steponaitis	John	not provided	N/A	Web-based Comments	44874, 44875	34
Steponaitis	John	not provided	N/A	Web-based Comments	18180	24
Stergas	Rob	not provided	N/A	Web-based Comments	27187	24
Sterkel	Kaeley	not provided	N/A	Web-based comments	57384	35
Sterling	Jeff	not provided	N/A	Web-based Comments	17055	24
Sterling	Jennifer	not provided	N/A	Web-based Comments	17267	24
Sterling	Laurie	not provided	N/A	Web-based Comments	58253, 45546	16, 34
Stermer	Jennifer	not provided	N/A	Web-based Comments	17268	24
Stern	Donna	not provided	N/A	Web-based Comments	13190	24
Stern	Les	not provided	N/A	Web-based Comments	53253	34
Stern	Marcia Shakman	not provided	N/A	Web-based Comments	58367	28
Stern	R	not provided	N/A	Web-based Comments	26483	24
Stern	Renee	not provided	N/A	Web-based Comments	26858	24
Stern	Richard	not provided	N/A	Web-based Comments	44484, 44485, 44486	34
Stern	Richard	not provided	N/A	Web-based Comments	27058	24
Stern	Ricky	not provided	N/A	Web-based Comments	27111	24
Stern	Sharon	not provided	N/A	Web-based Comments	54219, 54220	34
stern	sheila	not provided	N/A	Web-based Comments	28809	24
Stern	Susan	not provided	N/A	Web-based Comments	29851	24
Sternberg	David	not provided	N/A	Web-based Comments	12146	24
Sternberg	Elyse	not provided	N/A	Web-based Comments	52127, 52128	34
Sternberg	Elyse	not provided	N/A	Web-based Comments	13998	24
Stern-Eilers	Estelle	not provided	N/A	Web-based Comments	46507	34
Stern-Olshan	Marilyn	not provided	N/A	Web-based Comments	22814	24
Sterrett	Katy	not provided	N/A	Web-based Comments	19809	24
Steslicki	Louis	mtmanlou@outlook.com	N/A	Web-based comments	3050	N/A
Stetina	Petra	not provided	N/A	Web-based Comments	26312	24
Stetler	David	not provided	N/A	Web-based Comments	58056, 55776	16, 34
Steudle	Robin	not provided	N/A	Web-based Comments	55339, 55340	34
Steudle	Robin	not provided	N/A	Web-based Comments	27527	24
Steurer	Biggi	not provided	N/A	Web-based Comments	53169	34
Steve	Jim	not provided	N/A	Web-based comments	6936	N/A
Steve	Pettit	spideranch@cpcinternet.com	N/A	Web-based comments	32006	N/A
Stevens	Bart	not provided	N/A	Web-based Comments	8872	24
Stevens	Carol	not provided	N/A	Web-based Comments	10033	24
Stevens	Cheryl	not provided	N/A	Web-based Comments	10676	24
Stevens	David	not provided	N/A	Web-based Comments	45278	34
Stevens	David	not provided	N/A	Web-based Comments	12147	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Stevens	Dixie	not provided	N/A	Web-based Comments	12982	24
Stevens	Elaine	not provided	N/A	Web-based Comments	13612	24
Stevens	Emma	not provided	N/A	Web-based Comments	14064	24
Stevens	Henry	not provided	N/A	Web-based Comments	15674	24
Stevens	Jordan	not provided	N/A	Web-based Comments	18323	24
Stevens	Lauren	not provided	N/A	Web-based Comments	20794	24
Stevens	Martha	not provided	N/A	Web-based Comments	23131	24
Stevens	Maureen	not provided	N/A	Web-based Comments	23718	24
Stevens	Patricia	not provided	N/A	Web-based Comments	25848	24
Stevens	Peter	not provided	N/A	Web-based Comments	55129, 55130	34
stevens	richard	not provided	N/A	Web-based comments	5913	N/A
Stevens	Sally	not provided	N/A	Web-based Comments	46105	34
Stevens	Sally	not provided	N/A	Web-based Comments	28033	24
Stevens	Summer	not provided	N/A	Web-based Comments	29573	24
Stevens	Tom	not provided	N/A	Web-based Comments	50734	34
Stevens	Trish	not provided	N/A	Web-based Comments	30924	24
Stevens	Zoe	not provided	N/A	Web-based Comments	44607	34
Stevens-Briody	Susan	not provided	N/A	Web-based Comments	29852	24
Stevenson	Barbara	bbstvnsn15@gmail.com	N/A	Web-based comments	58840	1
Stevenson	Carl	not provided	N/A	Web-based Comments	9811	24
Stevenson	Ian	not provided	N/A	Web-based Comments	15838	24
Stevenson	Joel & Leigh	not provided	N/A	Web-based Comments	17928	24
Stevenson	Julia	not provided	N/A	Web-based Comments	55110, 55111	34
Stevenson	Julia	not provided	N/A	Web-based Comments	18777	24
Stevenson	Katherine	not provided	N/A	Web-based Comments	19480	24
Stevenson	Lida	not provided	N/A	Web-based Comments	44880	34
Stevenson	Nan	not provided	N/A	Web-based Comments	24789	24
Stevenson	Rodney	not provided	N/A	Web-based Comments	27576	24
Stevenson	Sandra	not provided	N/A	Web-based Comments	28216	24
Stevenson	Sheri	not provided	N/A	Web-based Comments	28857	24
Stevenson	T	not provided	N/A	Web-based Comments	46134	34
Stevenson	Tyler	tylerjawesome1@gmail.com	N/A	Web-based comments	1000	N/A
Stevenson - King	Annie	not provided	N/A	Web-based Comments	8311	24
Stevenson-Wright	Margaret	not provided	N/A	Web-based Comments	22505	24
Stever	Christine	not provided	N/A	Web-based Comments	51286, 51287	34
Stever	Christine	not provided	N/A	Web-based Comments	10983	24
Steverlynck	Pascale	not provided	N/A	Web-based Comments	25625	24
Steverlynck	Theresa	not provided	N/A	Web-based Comments	30449	24
Steward	Ashley	not provided	N/A	Web-based Comments	8499	24
Steward	Roberta	not provided	N/A	Web-based Comments	27453	24
Stewart	A	not provided	N/A	Web-based Comments	6975	24
Stewart	Amy	not provided	N/A	Web-based Comments	52990	34
Stewart	Annie	not provided	N/A	Web-based Comments	8312	24
Stewart	Brian Lamarr	not provided	N/A	Web-based Comments	9527	24
Stewart	Cleone	not provided	N/A	Web-based Comments	49973	34
Stewart	Dana	not provided	N/A	Web-based Comments	11707	24
Stewart	Debbie	not provided	N/A	Web-based Comments	12347	24
Stewart	Deborah	not provided	N/A	Web-based Comments	44672	34
Stewart	Doris	not provided	N/A	Web-based comments	56864	35
Stewart	Irene	not provided	N/A	Web-based Comments	15913	24
Stewart	Jack	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	5594	N/A
Stewart	Jackie	not provided	N/A	Web-based Comments	16076	24
Stewart	Jacqueline	not provided	N/A	Web-based Comments	54999, 55000	34
Stewart	John	not provided	N/A	Web-based Comments	18181	24
Stewart	Judy	not provided	N/A	Web-based Comments	18724	24
Stewart	Katherine	not provided	N/A	Web-based Comments	19481	24
Stewart	Katherine	not provided	N/A	Web-based Comments	58134	16
Stewart	Kristin	not provided	N/A	Web-based comments	57481	35
Stewart	Laine	not provided	N/A	Web-based Comments	20517	24
Stewart	Lori	not provided	N/A	Web-based comments	57318	35
Stewart	Mark	not provided	N/A	Web-based Comments	53021	34
stewart	mark	not provided	N/A	Web-based Comments	22990	24
Stewart	Michael	not provided	N/A	Web-based Comments	54358, 54359	34
Stewart	Mikaeel	not provided	N/A	Web-based Comments	24426	24
Stewart	Olga	not provided	N/A	Web-based Comments	25429	24
Stewart	Peggy	not provided	N/A	Web-based Comments	26182	24
Stewart	Robert	not provided	N/A	Web-based Comments	54229	34
Stewart	Robert	not provided	N/A	Web-based Comments	27389	24
Stewart	Sarah	not provided	N/A	Web-based Comments	57888, 52839, 52913	16, 34
Stewart	Sarah	not provided	N/A	Web-based Comments	28410	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Stewart	Susan	not provided	N/A	Web-based Comments	29853	24
Stewart	Susan	not provided	N/A	Web-based Comments	29854	24
Stewart	Terri	not provided	N/A	Web-based Comments	30351	24
Stewart	Victoria	not provided	N/A	Web-based Comments	31227	24
Stice	Laura	not provided	N/A	Web-based Comments	54180	34
Stice	Laura	not provided	N/A	Web-based Comments	20707	24
Stickley	Beverly	not provided	N/A	Web-based Comments	9147	24
stickney	karen	not provided	N/A	Web-based Comments	19221	24
Stidger	Dave	not provided	N/A	Web-based Comments	11924	24
Stidham	Danielle	not provided	N/A	Web-based Comments	11819	24
Stieber	Frank	not provided	N/A	Web-based Comments	49945	34
Stiefel	Charlotte	not provided	N/A	Web-based Comments	10573	24
Stiefel	Jack	not provided	N/A	Web-based Comments	16044	24
Stiehl	Joanna	not provided	N/A	Web-based Comments	44670	34
Stiennon	Florent	not provided	N/A	Web-based Comments	14452	24
Stier	Nancy	not provided	N/A	Web-based Comments	24994	24
Stiewe	Carl	not provided	N/A	Web-based Comments	9812	24
Stiff	Chris	not provided	N/A	Web-based Comments	49116	34
Stiff	Chris	not provided	N/A	Web-based Comments	10787	24
Stiff	Eric	not provided	N/A	Web-based Comments	56084	34
Stiff	Eric	not provided	N/A	Web-based Comments	14143	24
Stiff	Gina	not provided	N/A	Web-based Comments	47036	34
Stiff	Gina	not provided	N/A	Web-based Comments	15068	24
Stiff	Kristin	not provided	N/A	Web-based Comments	55942	34
Stiff	Valerie	not provided	N/A	Web-based Comments	31043	24
Stiffler	Tonya	not provided	N/A	Web-based Comments	58086, 52407, 52408	16, 34
Stiffler	Tonya	not provided	N/A	Web-based Comments	30824	24
Stigge	Lori	lstigge@bmwtricities.com	N/A	Web-based comments	2050	N/A
Stigge	Sheryl	not provided	N/A	Web-based Comments	28928	24
Stiles	Cynthia	not provided	N/A	Web-based Comments	11556	24
stiles	tom	not provided	N/A	Web-based Comments	30770	24
Still	Ashton	not provided	N/A	Web-based Comments	8504	24
Still	Brian	not provided	N/A	Web-based Comments	9511	24
Stiller	Jean-Paul	not provided	N/A	Web-based Comments	17001	24
Stillings	Lorrie	not provided	N/A	Web-based Comments	46698	34
Stillman	Vera	not provided	N/A	Web-based Comments	31088	24
Stillwagon	Steve	not provided	N/A	Web-based Comments	29405	24
Stillwater	Bonnie	not provided	N/A	Web-based Comments	9325	24
Stillwell	Lyda	not provided	N/A	Web-based Comments	21988	24
Stilwell	Joyce	not provided	N/A	Web-based Comments	18517	24
Stimac	Andreja	not provided	N/A	Web-based Comments	45318	34
Stimely	Sarah	not provided	N/A	Web-based Comments	48234	34
Stimmel	Christina	not provided	N/A	Web-based Comments	10880	24
Stimpson	Lisa	not provided	N/A	Web-based Comments	21642	24
Stimson	Karen	not provided	N/A	Web-based Comments	19222	24
Stine	Joe	not provided	N/A	Web-based Comments	44697	34
Stinehart	Debbie	not provided	N/A	Web-based Comments	12348	24
stiner erni	marianne	not provided	N/A	Web-based Comments	22692	24
Stinson	Sherry	not provided	N/A	Web-based Comments	28907	24
Stiritz	Robin	not provided	N/A	Web-based Comments	27528	24
Stirling	Gail	not provided	N/A	Web-based comments	56895	35
Stirling	Gail	not provided	N/A	Web-based Comments	47216	34
Stirling	Kimberly	not provided	N/A	Web-based Comments	20245	24
Stirn	Philip	stirnphil@aol.com	N/A	Web-based comments	5500	N/A
Stirpe	D	not provided	N/A	Web-based Comments	50419, 52840	34
Stirpe	D	not provided	N/A	Web-based Comments	11588	24
Stirton	Gaylen	not provided	N/A	Web-based Comments	14837	24
Stites	Marcy	not provided	N/A	Web-based Comments	22409	24
Stitt	Chelsea	not provided	N/A	Web-based Comments	10591	24
stitt	Tracy	not provided	N/A	Web-based Comments	30882	24
stiver	susan	not provided	N/A	Web-based Comments	29855	24
Stobbs	Ryan	not provided	N/A	Web-based Comments	27927	24
Stober	Paula	not provided	N/A	Web-based Comments	56604	34
Stobie	David	not provided	N/A	Web-based Comments	12148	24
Stobie	Shawna	not provided	N/A	Web-based Comments	47777	34
Stochel	Patricia	not provided	N/A	Web-based Comments	25849	24
Stock	Linda	not provided	N/A	Web-based Comments	21433	24
Stock	Ryan	not provided	N/A	Web-based comments	5982	N/A
Stock	Sandra	not provided	N/A	Web-based Comments	56437, 56438	34
Stock	Sandra	not provided	N/A	Web-based Comments	28217	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Stock	Sara	not provided	N/A	Web-based Comments	48286	34
Stock	Suzanne	not provided	N/A	Web-based Comments	30024	24
stock	wendy	not provided	N/A	Web-based Comments	31451	24
Stockdale	Leslie	not provided	N/A	Web-based Comments	21109	24
Stockdale	Nancy	not provided	N/A	Web-based Comments	56287	34
Stocker	Ann	not provided	N/A	Web-based Comments	49176	34
Stocker	Patricia	not provided	N/A	Web-based Comments	25850	24
Stocki	Glenn	not provided	N/A	Web-based Comments	15140	24
Stockman	Amelie	not provided	N/A	Web-based Comments	7586	24
Stockman	Erin	not provided	N/A	Web-based Comments	14237	24
Stockton	Patricia	not provided	N/A	Web-based Comments	46295	34
Stockwell	Celia	not provided	N/A	Web-based Comments	10441	24
Stoddard	Elaine	stoddard_elaine@yahoo.com	N/A	Web-based comments	3715	N/A
Stoddart	Benjamin	not provided	N/A	Web-based Comments	8972	24
Stodola	Sue	not provided	N/A	Web-based Comments	29551	24
Stoeckel	Sue	not provided	N/A	Web-based Comments	53858, 58088	34, 16
Stoeckel	Sue	not provided	N/A	Web-based Comments	29552	24
Stoeferle	Claudia	not provided	N/A	Web-based Comments	45990	34
stoegmueller	guenther	not provided	N/A	Web-based Comments	15327	24
Stoesser	Ellie	not provided	N/A	Web-based Comments	13965	24
Stofan	Sandra	not provided	N/A	Web-based Comments	28218	24
Stoffel	Sandra	not provided	N/A	Web-based Comments	58221	16
Stofko	John	not provided	N/A	Web-based Comments	18182	24
Stoggles	Robert	not provided	N/A	Web-based Comments	27390	24
Stoiberg	Tana	not provided	N/A	Web-based Comments	30169	24
Stoick	Myron	not provided	N/A	Web-based comments	57251	35
stoike	richie	not provided	N/A	Web-based Comments	27081	24
Stoj	Oksana	not provided	N/A	Web-based Comments	50952	34
STOKER	STEVE	STEVERITA5@YAHOO.COM	N/A	Web-based comments	4287	N/A
Stokes	Diana	not provided	N/A	Web-based Comments	12796	24
stokes	jeri	not provided	N/A	Web-based Comments	17327	24
Stokes	Lynne	not provided	N/A	Web-based Comments	22152	24
Stokes	Mary	not provided	N/A	Web-based Comments	23431	24
Stolfi	Jackie	not provided	N/A	Web-based Comments	16077	24
Stoll	Blake	not provided	N/A	Web-based Comments	9218	24
Stoll	Paul	paulstoll@charter.net	N/A	Web-based comments	5365	N/A
Stoll	Richard	rkstoll@yahoo.com	N/A	Web-based comments	4485	N/A
Stoller	Amy	not provided	N/A	Web-based Comments	44571, 44572	34
Stollmer	Linda	not provided	N/A	Web-based Comments	21434	24
Stollon	Courtney	not provided	N/A	Web-based Comments	51076	34
Stoltz	Elizabeth	not provided	N/A	Web-based Comments	46934	34
Stoltz	Elizabeth	not provided	N/A	Web-based Comments	13848	24
Stoltz	Mary Beth	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	56624	11
Stoltze	Lisa	not provided	N/A	Web-based Comments	21643	24
stolzenburg	Thelma	not provided	N/A	Web-based Comments	51715	34
stolzenburg	Thelma	not provided	N/A	Web-based Comments	30416	24
Stomper	Connie	not provided	N/A	Web-based Comments	11322	24
Stone	Alex	not provided	N/A	Web-based Comments	7253	24
Stone	Andrea	not provided	N/A	Web-based Comments	7775	24
Stone	Barbara	not provided	N/A	Web-based Comments	8793	24
Stone	Barbara	not provided	N/A	Web-based Comments	8794	24
Stone	Blane	bstone@offshoremolds.com	N/A	Web-based comments	5368	N/A
Stone	Cindy	not provided	N/A	Web-based Comments	11099	24
Stone	Cynthia	not provided	N/A	Web-based Comments	11557	24
Stone	Danny	danny757@outlook.com	N/A	Web-based comments	3374	N/A
Stone	Darby	not provided	N/A	Web-based Comments	11851	24
Stone	David	david.stone@fallriverelectric.com	N/A	US Mail or commercial carrier (UPS, FedEx)	32505	N/A
Stone	David	david.stone@fallriverelectric.com	N/A	Web-based comments	3478	13
Stone	David	not provided	N/A	Web-based Comments	12149	24
Stone	David	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58699	13
Stone	Debra	not provided	N/A	Web-based Comments	12549	24
Stone	Diana	not provided	N/A	Web-based Comments	54826	34
Stone	Diana	not provided	N/A	Web-based Comments	12797	24
Stone	dianne	not provided	N/A	Web-based Comments	12947	24
Stone	Elliott	not provided	N/A	Web-based Comments	13974	24
Stone	J H	not provided	N/A	Web-based Comments	16002	24
Stone	Jan	not provided	N/A	Web-based Comments	52409	34
Stone	Jan	not provided	N/A	Web-based Comments	16433	24
Stone	Jeffrey	not provided	N/A	Web-based Comments	52781	34
Stone	Johanna	not provided	N/A	Web-based Comments	17947	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Stone	Judith	not provided	N/A	Web-based Comments	49885	34
Stone	Judith	not provided	N/A	Web-based Comments	18654	24
Stone	Lauren	not provided	N/A	Web-based Comments	20795	24
Stone	Lisa	not provided	N/A	Web-based Comments	21644	24
Stone	Mary	not provided	N/A	Web-based Comments	23432	24
Stone	Mary	not provided	N/A	Web-based Comments	23433	24
Stone	Mary	not provided	N/A	Web-based Comments	23434	24
Stone	Miriam	not provided	N/A	Web-based Comments	24558	24
STONE	NANCY	not provided	N/A	Web-based Comments	24995	24
Stone	Nikky	not provided	N/A	Web-based Comments	25290	24
Stone	Ron	not provided	N/A	Web-based Comments	27637	24
Stone	Shoshanah	not provided	N/A	Web-based Comments	54928, 54929	34
Stone	Shoshanah	not provided	N/A	Web-based Comments	28974	24
Stone	Stephanie	not provided	N/A	Web-based Comments	29255	24
Stone	Susan	not provided	N/A	Web-based Comments	29856	24
Stone	Susanna	not provided	N/A	Web-based Comments	29943	24
Stone	William	not provided	N/A	Web-based Comments	44322	34
Stone	William	not provided	N/A	Web-based Comments	31599	24
Stoneberger	Lorie	not provided	N/A	Web-based Comments	21814	24
Stonebraker	Keith	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32292	N/A
Stoneburner	Barb	not provided	N/A	Web-based Comments	49063	34
Stonefield	Alison L	not provided	N/A	Web-based Comments	7423	24
Stonehouse	Jeff	not provided	N/A	Web-based Comments	17056	24
Stoner	Cathy	not provided	N/A	Web-based Comments	55365	34
Stoner	Doris	not provided	N/A	Web-based Comments	13238	24
Stoner	Lori	not provided	N/A	Web-based Comments	21808	24
Stoner	Nadine	not provided	N/A	Web-based Comments	24770	24
Stone-Ready	Rebecca	not provided	N/A	Web-based Comments	26775	24
Stoney	Michelle	not provided	N/A	Web-based Comments	24391	24
Stopa	Martha	not provided	N/A	Web-based Comments	45483, 45484	34
Stopin	La?titia	ultra.calme@gmail.com	N/A	Web-based comments	259	1
Stoppani	Pete	not provided	N/A	Web-based Comments	26235	24
Stopyra	Melanie	not provided	N/A	Web-based Comments	23848	24
Storace	Michelle	not provided	N/A	Web-based Comments	53811	34
Storace	Michelle	not provided	N/A	Web-based Comments	24392	24
Storch	Susan	not provided	N/A	Web-based Comments	54102	34
Stordahl	Eric	not provided	N/A	Web-based Comments	55361, 55362	34
Stork	Maryann	not provided	N/A	Web-based Comments	49298, 49299	34
Stork	Sharon	not provided	N/A	Web-based Comments	28715	24
Storm	Joette	gjstorm@gmail.com	N/A	Web-based comments	2388, 4553	N/A
Storm	Laurie	not provided	N/A	Web-based comments	57505	35
Storms	Ann	not provided	N/A	Web-based Comments	8087	24
Storne	Karen	not provided	N/A	Web-based Comments	19223	24
Storozhinskiy	Ilya	not provided	N/A	Web-based Comments	15863	24
storr	megan	not provided	N/A	Web-based Comments	23806	24
Storrs	Andrea	not provided	N/A	Web-based Comments	55790	34
Storthz	Carol	not provided	N/A	Web-based Comments	47969	34
Story	Donald	not provided	N/A	Web-based Comments	13085	24
Story	Elizabeth	not provided	N/A	Web-based Comments	13849	24
Story	Kay	not provided	N/A	Web-based Comments	19836	24
Stothers	Samuel	sssstothers@gmail.com	N/A	Web-based comments	6115	1
Stotler	Lisa	not provided	N/A	Web-based comments	57119	35
Stott	Dylan	dylanstott47@gmail.com	N/A	Web-based comments	869	N/A
Stottlar	Shawn	not provided	N/A	Web-based comments	57430	35
Stottlemyer	Eric	not provided	N/A	Web-based Comments	14144	24
Stoudmann	Fabienne	not provided	N/A	Web-based Comments	45984	34
Stoudmann	Fabienne	not provided	N/A	Web-based Comments	14378	24
Stout	Catherine J	not provided	N/A	Web-based Comments	54344	34
Stout	D	not provided	N/A	Web-based Comments	11589	24
Stout	Dorothy	not provided	N/A	Web-based Comments	13277	24
Stout	Glenna	not provided	N/A	Web-based Comments	15144	24
Stout	Lu Ann	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32302	13
Stout	Nancy	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32300	13
Stout	Ryan	not provided	N/A	Web-based Comments	27928	24
Stout	Sarah	not provided	N/A	Web-based Comments	28411	24
Stout	Susan	not provided	N/A	Web-based Comments	46867	34
Stout	Susan	not provided	N/A	Web-based Comments	29857	24
Stout	Ted	not provided	N/A	Web-based Comments	48871	34
Stout	William	not provided	N/A	Web-based Comments	31600	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Stoutamyer	Carla	not provided	N/A	Web-based Comments	9835	24
Stover	Charry	not provided	N/A	Web-based Comments	51353	34
Stover	James	not provided	N/A	Web-based Comments	16311	24
Stover	Jaye	not provided	N/A	Web-based Comments	47734	34
Stowe	Jane	not provided	N/A	Web-based Comments	16539	24
Stowell	Bruce	not provided	N/A	Web-based Comments	50696	34
Stowell	Coleen	not provided	N/A	Web-based Comments	51306	34
Stowell	Jocelyn	not provided	N/A	Web-based Comments	53498, 53499	34
Stowell	Jocelyn	not provided	N/A	Web-based Comments	17841	24
Stowell	Louis	not provided	N/A	Web-based Comments	21877	24
Stowers	Ellen	not provided	N/A	Web-based Comments	13952	24
Stoy	Lucy N.	not provided	N/A	Web-based Comments	21962	24
Stoye	Bill	not provided	N/A	Web-based Comments	9186	24
Stoyles	Robert	not provided	N/A	Web-based Comments	53806, 53807	34
StPeter	Susan	not provided	N/A	Web-based Comments	29858	24
Stracchino	Keith	not provided	N/A	Web-based Comments	19885	24
Strack	Shyamala	not provided	N/A	Web-based Comments	28978	24
Stracquadanio	John	not provided	N/A	Web-based Comments	18183	24
Stradling	Martin	not provided	N/A	Web-based Comments	23176	24
Strailey	Faith	not provided	N/A	Web-based Comments	14387	24
Strailey	Kaarle	not provided	N/A	Web-based Comments	45640	34
Strain	Cheryl	not provided	N/A	Web-based Comments	10677	24
Strain	Darren	not provided	N/A	Web-based Comments	45933, 50535	34
Strain	Darren	not provided	N/A	Web-based Comments	11898	24
Strait	Gary	not provided	N/A	Web-based Comments	14799	24
Strakbein	Stephanie	not provided	N/A	Web-based Comments	56308, 56309	34
Stram	Veda	not provided	N/A	Web-based Comments	50612	34
Strand	Scott	not provided	N/A	Web-based Comments	28499	24
Strand	Tara	not provided	N/A	Web-based Comments	50101	34
Strang	Matt	not provided	N/A	Web-based Comments	58204	16
Strange	Lynn	not provided	N/A	Web-based Comments	44603	34
Stranger	Gabriela	not provided	N/A	Web-based Comments	14644	24
Stranger	Kat	not provided	N/A	Web-based Comments	54506	34
Strangstad	Lynette	not provided	N/A	Web-based Comments	48483	34
Strantz	Elizabeth	not provided	N/A	Web-based Comments	13850	24
Strantz	Sarah	not provided	N/A	Web-based Comments	28412	24
Strassburger	Elaine	not provided	N/A	Web-based Comments	13613	24
Strassfield	Zoe	not provided	N/A	Web-based Comments	31739	24
Strassner	Mary Ann	not provided	N/A	Web-based Comments	23502	24
Stratmann	Erich	not provided	N/A	Web-based Comments	14175	24
Stratten	Ann	not provided	N/A	Web-based Comments	8088	24
Strattner	Susan	not provided	N/A	Web-based Comments	29859	24
Stratton	Judi	not provided	N/A	Web-based Comments	47233, 47234	34
Stratton	Judith	not provided	N/A	Web-based Comments	18655	24
Stratton	Summer	not provided	N/A	Web-based Comments	50258	34
Straub	Carolyn	not provided	N/A	Web-based Comments	10179	24
Straub	Judith	not provided	N/A	Web-based Comments	53914, 53915	34
Straub	Judith	not provided	N/A	Web-based Comments	18656	24
Straubinger	Caitlin	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4713	N/A
Straughen	Megan	not provided	N/A	Web-based Comments	55765	34
Straus	Faye	not provided	N/A	Web-based Comments	14409	24
Straus	Peter	not provided	N/A	Web-based Comments	55043	34
Strauss	Joan	not provided	N/A	Web-based Comments	17744	24
Strauss	Miriam	not provided	N/A	Web-based Comments	24559	24
Strauss	Susan	not provided	N/A	Web-based Comments	50662	34
Strauss	Susan	not provided	N/A	Web-based Comments	29860	24
Strauss	Susan	susan@straussstoryteller.com	N/A	Web-based comments	2449	N/A
Straw	Jeanne	not provided	N/A	Web-based Comments	16974	24
Straw	Rebecca	not provided	N/A	Web-based Comments	26776	24
Strawbridge	Frederic	not provided	N/A	Web-based Comments	14591	24
Strawman	Tom	not provided	N/A	Web-based Comments	55668	34
Strawman	Tom	not provided	N/A	Web-based Comments	30771	24
Streat	Michael	not provided	N/A	Web-based Comments	51294	34
Streck	Diane	not provided	N/A	Web-based Comments	12908	24
Strecker	Dawn	not provided	N/A	Web-based Comments	45414	34
Streeet	Patty	not provided	N/A	Web-based Comments	25963	24
street	diena	not provided	N/A	Web-based Comments	12954	24
Street	Kristin	kristinstreet@gmail.com	N/A	Web-based comments	3818	1
Street	Mark	not provided	N/A	Web-based Comments	22991	24
Street	Michelle	not provided	N/A	Web-based Comments	24393	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Street	Sara	not provided	N/A	Web-based Comments	50453	34
Street	Sheila	not provided	N/A	Web-based Comments	28810	24
Street	Sheila	not provided	N/A	Web-based Comments	28811	24
Street	Stacia	not provided	N/A	Web-based Comments	29128	24
Street	Susan	not provided	N/A	Web-based Comments	29861	24
Street	Zachary	not provided	N/A	Web-based comments	57620	35
Streete	John	not provided	N/A	Web-based Comments	18184	24
Streich	Kim	not provided	N/A	Web-based Comments	20205	24
Streich	Robert	not provided	N/A	Web-based Comments	44842	34
Streif	Shawn	shawn.streif@gmail.com	N/A	Web-based comments	5430	N/A
Streit	Pascal	not provided	N/A	Web-based Comments	25622	24
Strelke	Charleen	not provided	N/A	Web-based Comments	51753	34
Strelke	Charleen	not provided	N/A	Web-based Comments	10470	24
Strelke	Robert	not provided	N/A	Web-based Comments	27391	24
Stricker	Sheena	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32405	11
Stricker	Sheena	sheena.stricker@fallriverelectric.com	N/A	Web-based comments	3514	13
Strickland	Tracy	not provided	N/A	Web-based Comments	45249	34
Strickland	Tracy	not provided	N/A	Web-based Comments	30883	24
Strickler	James	not provided	N/A	Web-based Comments	58142	16
Stridbeck	Boel	not provided	N/A	Web-based Comments	52911	34
Strieder	Marilyn	not provided	N/A	Web-based Comments	22815	24
Striegel	Chris	not provided	N/A	Web-based Comments	55056	34
Striegel	Chris	not provided	N/A	Web-based Comments	10788	24
Striegel	Maryann	not provided	N/A	Web-based Comments	23563	24
Strik	Nicolaas	not provided	N/A	Web-based Comments	25217	24
strine	laurie	not provided	N/A	Web-based Comments	20860	24
Stringer	Kari	not provided	N/A	Web-based Comments	48158	34
Stringer	Rebecca	not provided	N/A	Web-based Comments	26777	24
Stringham	Deborah	not provided	N/A	Web-based Comments	12481	24
Strissel	Lisa	not provided	N/A	Web-based Comments	21645	24
Strobel-McLean	Joan	not provided	N/A	Web-based Comments	17745	24
Stroble	Sharon	not provided	N/A	Web-based Comments	50041	34
Stroe	Elena	not provided	N/A	Web-based Comments	51363	34
Stroehnisch	Cedric	not provided	N/A	Web-based Comments	10427	24
STROHL	PENELOPE	not provided	N/A	Web-based Comments	26194	24
Strohm	Barbara	not provided	N/A	Web-based Comments	8795	24
Strohm	Donald	not provided	N/A	Web-based Comments	48877	34
Strohm	Donald	not provided	N/A	Web-based Comments	13086	24
Strohm	Jody	not provided	N/A	Web-based Comments	17870	24
Strohmeyer	April	not provided	N/A	Web-based Comments	51680	34
Strohmeyer	April	not provided	N/A	Web-based Comments	8390	24
Strol	Joyce	not provided	N/A	Web-based Comments	18518	24
Strom Moon	Heidi	not provided	N/A	Web-based Comments	15582	24
Stromberg	Bennett	not provided	N/A	Web-based Comments	8975	24
Stromberg	Mark	not provided	N/A	Web-based comments	5260	8
Stromberg	Sue	not provided	N/A	Web-based Comments	47640	34
Stromgren	Jeff	not provided	N/A	Web-based Comments	17057	24
Strompf	David	not provided	N/A	Web-based Comments	12150	24
Strompf	Roni	not provided	N/A	Web-based Comments	27683	24
Strong	Dayle	not provided	N/A	Web-based Comments	12255	24
Strong	Grace	not provided	N/A	Web-based Comments	53709	34
Strong	Kenneth	not provided	N/A	Web-based Comments	20027	24
Strong	Laura	not provided	N/A	Web-based Comments	20708	24
Strong	Linda	not provided	N/A	Web-based Comments	46892	34
Strong	Robert	not provided	N/A	Web-based Comments	46742	34
Stroozas	Robert	not provided	N/A	Web-based Comments	27392	24
Strother	Julie	not provided	N/A	Web-based Comments	18899	24
Strotkamp	Dorothy	not provided	N/A	Web-based Comments	52856	34
Stroud	Jacqueline	not provided	N/A	Web-based Comments	16131	24
Stroud	Janice	not provided	N/A	Web-based Comments	16700	24
Stroup	Marylyn	not provided	N/A	Web-based Comments	23589	24
Strous	Allen	not provided	N/A	Web-based Comments	7450	24
Struble	Dan	not provided	N/A	Web-based Comments	46778	34
Struck	Caroline	not provided	N/A	Web-based Comments	10132	24
Struhsaker	Thomas	not provided	N/A	Web-based Comments	56417	34
Struhsaker	Thomas	not provided	N/A	Web-based Comments	30548	24
Struthers	George	not provided	N/A	Web-based comments	5182	N/A
Struve	Elizabeth	not provided	N/A	Web-based Comments	13851	24
Stryker	Jesse	not provided	N/A	Web-based comments	4321	N/A

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Stryker	O.	not provided	N/A	Web-based Comments	25415	24
Stryker	Steven	not provided	N/A	Web-based Comments	29471	24
Stuart	Amy	amystuart63@gmail.com	N/A	US Mail or commercial carrier (UPS, FedEx)	32293	N/A
Stuart	Andrianna	not provided	N/A	Web-based Comments	7868	24
Stuart	Chelsey	not provided	N/A	Web-based Comments	10592	24
Stuart	Fiona	not provided	N/A	Web-based comments	56945	35
Stuart	Fiona	not provided	N/A	Web-based Comments	14439	24
Stuart	Holly	not provided	N/A	Web-based Comments	15773	24
Stuart	Katherine	katiestuart33@gmail.com	N/A	Web-based comments	4494	N/A
Stuart	Mary	not provided	N/A	Web-based Comments	23435	24
Stuart	Meryn	not provided	N/A	Web-based Comments	24002	24
Stuart	Michael	not provided	N/A	Web-based Comments	53370, 53371	34
Stuart	Tom	tomstuart@cableone.net	N/A	Web-based comments	5171	N/A
Stuart	Willis	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58765	N/A
Stuart Quintanilla	Claire	not provided	N/A	Web-based Comments	11146	24
Stuart-Jennings	Erin	not provided	N/A	Web-based Comments	14238	24
Stubblefield	Elyn	not provided	N/A	Web-based Comments	13994	24
Stubbs	Jeremy	not provided	N/A	Web-based Comments	17321	24
Stubbs	Richard	richard.stubbs@me.com	N/A	Web-based comments	4143	N/A
Stucker	Kara	not provided	N/A	Web-based Comments	54966	34
Stucker	Kara	not provided	N/A	Web-based Comments	19027	24
Stucker	Melinda	not provided	N/A	Web-based Comments	23869	24
Studebaker	Andy	as98119@gmail.com	N/A	Web-based comments	38	N/A
Studley	Linda	not provided	N/A	Web-based Comments	44423	34
Studley	Linda	not provided	N/A	Web-based Comments	21435	24
Stueck	Lawrence	not provided	N/A	Web-based Comments	20886	24
Stueckly	David	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58777	N/A
Stuehler	Helen	not provided	N/A	Web-based Comments	58228	16
Stuhaan	Sandy	not provided	N/A	Web-based Comments	46327, 46328	34
Stuhlmacher	James	not provided	N/A	Web-based Comments	16312	24
Stukel	Cameron	cameron.stukel@gmail.com	N/A	Web-based comments	6660	N/A
Stull	Warren	not provided	N/A	Web-based Comments	31384	24
Stultz	Alan	not provided	N/A	Web-based Comments	46994, 46995	34
Stultz	Alan	not provided	N/A	Web-based Comments	7191	24
Stultz	Steven	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	56647	N/A
Stumbur	Roxanna	not provided	N/A	Web-based Comments	46010	34
Stump	Brenda	not provided	N/A	Web-based Comments	9423	24
Stumpf	Rebecca	not provided	N/A	Web-based Comments	26778	24
Stumpf	Tom	not provided	N/A	Web-based Comments	46248, 46249	34
Stumpf	Tom	not provided	N/A	Web-based Comments	30772	24
Stuntebeck	Dan	not provided	N/A	Web-based Comments	11680	24
Sturbaum	Susan	not provided	N/A	Web-based Comments	52798	34
Sturdivant	Macy	not provided	N/A	Web-based comments	211	1
Sturgen	Shannon	not provided	N/A	Web-based Comments	28601	24
Sturgeon	Barbara	not provided	N/A	Web-based Comments	45282	34
STURGEON	BARBARA	not provided	N/A	Web-based Comments	8796	24
Sturgeon	Danny	not provided	N/A	Web-based Comments	11838	24
Sturges	Dorothy	not provided	N/A	Web-based Comments	47594	34
Sturges	Dorothy	not provided	N/A	Web-based Comments	13278	24
Sturm	Alan	not provided	N/A	Web-based Comments	7192	24
Sturm	Cherie	cheriesturm@gmail.com	N/A	Web-based comments	4422	N/A
Sturm	P.	not provided	N/A	Web-based Comments	25474	24
Sturm	P.	not provided	N/A	Web-based Comments	58093	16
Sturm	Sabine	not provided	N/A	Web-based Comments	27976	24
Sturm	Ted	tedsturm1@gmail.com	N/A	Web-based comments	4935	N/A
Stutt	Andrew	not provided	N/A	Web-based Comments	7853	24
Stutz	Julian and Joyce	not provided	N/A	Web-based Comments	18790	24
Sty	Debbie	not provided	N/A	Web-based Comments	12349	24
Styers	Steven	not provided	N/A	Web-based Comments	29472	24
Su	Donna	not provided	N/A	Web-based Comments	13191	24
Suarez	David	not provided	N/A	Web-based Comments	51354, 51355	34
Suarez	David	not provided	N/A	Web-based Comments	12151	24
Suarez	Joseph	not provided	N/A	Web-based Comments	18394	24
Suarez	Maia	not provided	N/A	Web-based Comments	22282	24
Suarez	Melissa	not provided	N/A	Web-based Comments	48385	34
Suarez	Melissa	not provided	N/A	Web-based Comments	23930	24
Suarez	Mercedes	not provided	N/A	Web-based Comments	23967	24
Suarez	Moraima	not provided	N/A	Web-based Comments	50265, 50266	34
Subby	Patricia	not provided	N/A	Web-based Comments	55243	34
Sucklal	Sirina	not provided	N/A	Web-based Comments	54899	34

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Suckling	Mark	fefabfee@q.com	N/A	Web-based comments	6237	N/A
Suckow	Carey	not provided	N/A	Web-based Comments	9788	24
Sudborough	Meredith	not provided	N/A	Web-based Comments	23983	24
Sudduth	Deborah	not provided	N/A	Web-based Comments	47387	34
Sudol	Laurie	not provided	N/A	Web-based Comments	45256	34
Suess	Randy	randys@inlandpower.com	N/A	Web-based comments	2465	7
Suess	Ryan	not provided	N/A	Web-based Comments	54788	34
Suffness	Dorit	not provided	N/A	Web-based Comments	13243	24
Sugahara	Abigail	not provided	N/A	Web-based Comments	7024	24
Sugarman	Kathy	not provided	N/A	Web-based Comments	19765	24
Sugarman	Kathy	not provided	N/A	Web-based Comments	57973	16
Sugarman	Stevie	not provided	N/A	Web-based Comments	47737	34
Sugden	Maureen	not provided	N/A	Web-based Comments	23719	24
Sugg	Ben	not provided	N/A	Web-based Comments	8950	24
Sugg	Christine	chrissu2011@yahoo.com	N/A	Web-based comments	1276	3
Suggs	Joyce	not provided	N/A	Web-based Comments	53577	34
Sugnet	Kent	not provided	N/A	Web-based Comments	20043	24
Suhich	Sarah	not provided	N/A	Web-based Comments	28413	24
Suit	Karen	not provided	N/A	Web-based Comments	47870	34
Suit	Karen	not provided	N/A	Web-based Comments	19224	24
Sulackow	Lynn	not provided	N/A	Web-based comments	57254	35
Sulak	Courtney	not provided	N/A	Web-based Comments	11407	24
Suleski	James	jsuleski19@gmail.com	N/A	Web-based comments	3198	N/A
Sulkoske	Joanne	not provided	N/A	Web-based Comments	17828	24
Sullens	Tracy	not provided	N/A	Web-based Comments	30884	24
Sullivan	Allayne	not provided	N/A	Web-based Comments	44467	34
Sullivan	Amber	asullivan69@live.com	N/A	Web-based comments	3452	N/A
Sullivan	Amy	not provided	N/A	Web-based Comments	58581	34
Sullivan	Ann	not provided	N/A	Web-based Comments	49672, 51015	34
Sullivan	B	not provided	N/A	Web-based Comments	8574	24
Sullivan	Candy	not provided	N/A	Web-based Comments	46620	34
Sullivan	Catherine	not provided	N/A	Web-based Comments	10328	24
Sullivan	Christine	not provided	N/A	Web-based Comments	10984	24
Sullivan	Daniel	not provided	N/A	Web-based Comments	11779	24
Sullivan	Diane	not provided	N/A	Web-based Comments	54902, 54903, 54904	34
Sullivan	Diane	not provided	N/A	Web-based Comments	12909	24
Sullivan	Edward	not provided	N/A	Web-based Comments	49495, 49496	34
Sullivan	Elizabeth	not provided	N/A	Web-based Comments	13852	24
Sullivan	Emily	not provided	N/A	Web-based comments	2047	N/A
Sullivan	Eric	not provided	N/A	Web-based Comments	14145	24
Sullivan	Gail	not provided	N/A	Web-based Comments	49213	34
Sullivan	Jamella	not provided	N/A	Web-based Comments	16169	24
Sullivan	James	not provided	N/A	Web-based Comments	54256	34
Sullivan	Jeff	SULLIVAN.JEFFREY.M@GMAIL.COM	N/A	Web-based comments	2733	1
Sullivan	Jennifer	not provided	N/A	Web-based Comments	48574	34
Sullivan	Jennifer	not provided	N/A	Web-based Comments	17269	24
Sullivan	Jerry	not provided	N/A	Web-based Comments	17375	24
Sullivan	John	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32539	11
Sullivan	John	steelhead1@yahoo.com	N/A	Web-based comments	2613	N/A
Sullivan	Katherine	not provided	N/A	Web-based Comments	19482	24
Sullivan	Linda	not provided	N/A	Web-based Comments	21436	24
Sullivan	Margo	not provided	N/A	Web-based Comments	22549	24
Sullivan	Mary	not provided	N/A	Web-based Comments	23436	24
Sullivan	Mary-Helen	not provided	N/A	Web-based Comments	23585	24
Sullivan	Matthew	not provided	N/A	Web-based Comments	23666	24
Sullivan	Melissa	not provided	N/A	Web-based Comments	49335	34
Sullivan	Patricia	not provided	N/A	Web-based Comments	25851	24
Sullivan	Sandra	not provided	N/A	Web-based Comments	28219	24
Sullivan	Scott	not provided	N/A	Web-based Comments	28500	24
Sullivan	Steve	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	56607	13
sullivan	Sue	suz4ducks@gmail.com	N/A	Web-based comments	5757	N/A
sullivan	sue	suzanne3700@yahoo.com	N/A	Web-based comments	2512	N/A
Sullivan	Susan	not provided	N/A	Web-based Comments	29862	24
Sullivan	Susan	not provided	N/A	Web-based Comments	29863	24
Sullivan	Susan	sjsull55@gmail.com	N/A	Web-based comments	5200	8
SullyCole	Althea	not provided	N/A	Web-based Comments	7492	24
Sumberg	Marc	not provided	N/A	Web-based Comments	22346	24
Sumerlin	Doreen	not provided	N/A	Web-based Comments	13212	24
Sumler	James	not provided	N/A	Web-based Comments	54960	34
Sumler	James	not provided	N/A	Web-based Comments	16313	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Summers	Amanda	not provided	N/A	Web-based Comments	7555	24
Summers	Debbie	not provided	N/A	Web-based Comments	12350	24
Summers	Dennis	not provided	N/A	Web-based comments	3351	N/A
Summers	Dirk	not provided	N/A	Web-based Comments	12971	24
Summers	Erin	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32343	13
Summers	Linda	not provided	N/A	Web-based Comments	21437	24
Summers	Lisa	not provided	N/A	Web-based Comments	46143, 46144	34
Summers	Lisa	not provided	N/A	Web-based Comments	21646	24
Summers	Ryan	not provided	N/A	Web-based Comments	50989	34
Summers	Susan	not provided	N/A	Web-based Comments	29864	24
Sumner	Jeanne	not provided	N/A	Web-based Comments	47655, 47656	34
sumner	jeanne	not provided	N/A	Web-based Comments	16975	24
Sumner	Jennifer	not provided	N/A	Web-based Comments	52284	34
Sumoge	Theresa	not provided	N/A	Web-based Comments	30450	24
Sumrall	Amber Coverdale	not provided	N/A	Web-based Comments	7572	24
Sun	Serena	not provided	N/A	Web-based Comments	28541	24
Sunar	Rina	not provided	N/A	Web-based Comments	51475, 51771	34
Sunar	Rina	not provided	N/A	Web-based Comments	27120	24
sunday	doug	not provided	N/A	Web-based Comments	13314	24
Sunday	Lynn	not provided	N/A	Web-based Comments	45604, 45605	34
Sundberg	Rebecca	not provided	N/A	Web-based Comments	26779	24
Sunderland	Felicia	not provided	N/A	Web-based Comments	14418	24
Sundmacker	Richard	not provided	N/A	Web-based Comments	27059	24
Sundquist	Elizabeth	not provided	N/A	Web-based Comments	13853	24
Sunerius	Kent	not provided	N/A	Web-based Comments	48896	34
Sunstein	Sara	not provided	N/A	Web-based Comments	24599	24
Suppo	Dawn	not provided	N/A	Web-based Comments	52214	34
Suprenant	Linda	not provided	N/A	Web-based Comments	21438	24
Surabian	Stacie	not provided	N/A	Web-based Comments	29131	24
Surratt	Sher	not provided	N/A	Web-based Comments	28848	24
Surratt	Taylor	not provided	N/A	Web-based Comments	46431	34
Surratt	Taylor	not provided	N/A	Web-based Comments	30238	24
Surton	Elizabeth	not provided	N/A	Web-based Comments	13854	24
Sury	Lois	not provided	N/A	Web-based Comments	45547	34
Susalla	Ann	not provided	N/A	Web-based Comments	8089	24
Susan	Carl	pass2sue@yahoo.com	N/A	Web-based comments	32123	N/A
Susan	Chris	cpdirckx@gmail.com	N/A	Web-based comments	5715	N/A
Susan	Dennis	dskreid@gmail.com	N/A	Web-based comments	6561	N/A
Susha	James	not provided	N/A	Web-based Comments	16314	24
Sussman	Perri	not provided	N/A	Web-based Comments	47215	34
Sussman	Perri	not provided	N/A	Web-based Comments	26223	24
Sustaita	H.M.	not provided	N/A	Web-based Comments	51024	34
Suter	Christina	not provided	N/A	Web-based Comments	10881	24
Suter	Fred	frsuter@comcast.net	N/A	Web-based comments	5229	N/A
Sutherland	C	not provided	N/A	Web-based Comments	9681	24
sutherland	charles	not provided	N/A	Web-based Comments	10531	24
Sutherland	Fiona	not provided	N/A	Web-based Comments	14440	24
Sutherland	Ian	not provided	N/A	Web-based Comments	15839	24
Sutherland	Peter	not provided	N/A	Web-based Comments	26293	24
Sutliff	Leslie	not provided	N/A	Web-based Comments	46195, 46196	34
Sutliff	Leslie	not provided	N/A	Web-based Comments	21110	24
Sutriasa	Shakti	not provided	N/A	Web-based Comments	45826	34
Sutter	Ann	not provided	N/A	Web-based Comments	53139	34
Suttle	Jill	not provided	N/A	Web-based Comments	52288	34
Suttle	Jill	not provided	N/A	Web-based Comments	17546	24
Sutton	Abbe	not provided	N/A	Web-based comments	57450	35
Sutton	Clarence	not provided	N/A	Web-based Comments	11166	24
Sutton	Clay	not provided	N/A	Web-based Comments	11211	24
Sutton	Debra	not provided	N/A	Web-based Comments	55725	34
Sutton	Janet	not provided	N/A	Web-based Comments	16646	24
Sutton	Katherine	not provided	N/A	Web-based Comments	19483	24
Sutton	M. S.	not provided	N/A	Web-based Comments	22218	24
sutton	marg	not provided	N/A	Web-based Comments	22422	24
Sutton	Michael	tecnopagan@hotmail.com	N/A	Web-based comments	31943	1
Sutton	Rick	not provided	N/A	Web-based Comments	53336	34
Sutton	Rick	not provided	N/A	Web-based Comments	27105	24
Sutton	Russ	not provided	N/A	Web-based Comments	50280	34
Sutton	Sally	not provided	N/A	Web-based Comments	28034	24
Suzio	Francesca	not provided	N/A	Web-based Comments	56399	34
Suzuki	Marlene	not provided	N/A	Web-based Comments	50137	34

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Svadlenka	Jean	not provided	N/A	Web-based Comments	16888	24
svenson	jennifer	not provided	N/A	Web-based Comments	52249	34
Svenson	Lark	not provided	N/A	Web-based Comments	51410	34
SVERCL	ELIZABETH	not provided	N/A	Web-based Comments	13855	24
Svidler	Mariano	not provided	N/A	Web-based Comments	22697	24
Svizzero	Patricia	not provided	N/A	Web-based Comments	25852	24
Svizzero	Susan	not provided	N/A	Web-based Comments	29865	24
Svoboda	Sheri	not provided	N/A	Web-based Comments	46893	34
Svobodny	Rhonda	not provided	N/A	Web-based Comments	26909	24
Swadley	Virgil	not provided	N/A	Web-based Comments	31265	24
Swafford	Leilani	not provided	N/A	Web-based Comments	20976	24
Swagel	Shayne	not provided	N/A	Web-based Comments	47776	34
Swain	Carol	not provided	N/A	Web-based Comments	10034	24
swain	halsey	not provided	N/A	Web-based Comments	47444	34
Swain	Richard	not provided	N/A	Web-based Comments	48393	34
Swallow	Kevin	not provided	N/A	Web-based Comments	20139	24
Swalwell	Janis	not provided	N/A	Web-based Comments	50570	34
Swan	Alice	not provided	N/A	Web-based Comments	7367	24
Swan	Curtis	not provided	N/A	Web-based Comments	51177, 51178	34
Swan	Curtis	not provided	N/A	Web-based Comments	11478	24
Swan	Eric	not provided	N/A	Web-based Comments	14146	24
Swan	Linda	not provided	N/A	Web-based Comments	21439	24
Swan	Ramona	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	4767	18
Swan	Scott	swanscott@peoplepc.com	N/A	Web-based comments	3331	13
Swan	Shirley	not provided	N/A	Web-based comments	56859	35
swan	shirley	not provided	N/A	Web-based Comments	46031, 46032	34
swan	shirley	not provided	N/A	Web-based Comments	28968	24
Swan	Yol	not provided	N/A	Web-based Comments	31668	24
Swan-Brown	Ruth	not provided	N/A	Web-based Comments	27889	24
Swank	Carrie	not provided	N/A	Web-based Comments	53682, 53683	34
Swank	Carrie	not provided	N/A	Web-based Comments	10206	24
Swannack	David	dlswannack@gmail.com	N/A	Web-based comments	3132	N/A
Swans	Laurena	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58397	32
Swanson	Anne	not provided	N/A	Web-based Comments	54831	34
Swanson	Brian	not provided	N/A	Web-based Comments	9512	24
Swanson	Cathy	not provided	N/A	Web-based Comments	56088	34
Swanson	Cathy	not provided	N/A	Web-based Comments	10393	24
Swanson	Craig	not provided	N/A	Web-based Comments	11427	24
Swanson	David	not provided	N/A	Web-based Comments	53216	34
Swanson	Debra	not provided	N/A	Web-based Comments	12550	24
Swanson	J	not provided	N/A	Web-based Comments	15993	24
Swanson	Jerry	not provided	N/A	Web-based Comments	17376	24
Swanson	Jessica	not provided	N/A	Web-based Comments	17470	24
Swanson	Kate	not provided	N/A	Web-based Comments	49861	34
Swanson	Kristen	not provided	N/A	Web-based Comments	58016, 56062	16, 34
Swanson	Kristen	not provided	N/A	Web-based Comments	20348	24
Swanson	Marla	not provided	N/A	Web-based Comments	52393	34
Swanson	Marla	not provided	N/A	Web-based Comments	23029	24
Swanson	Rebecca	not provided	N/A	Web-based Comments	26780	24
Swanson	Robert	not provided	N/A	Web-based Comments	27393	24
Swanson	Robert	not provided	N/A	Web-based Comments	27394	24
Swanson	Roberta	not provided	N/A	Web-based Comments	57808	34
Swanson	Roberta	not provided	N/A	Web-based Comments	27454	24
Swanson	Robin	not provided	N/A	Web-based Comments	58432	34
Swanson	Robin	not provided	N/A	Web-based Comments	27529	24
Swan-Utsman	Freyja	not provided	N/A	Web-based Comments	14605	24
Sward	Douglas	not provided	N/A	Web-based Comments	13342	24
Sward	Mary Ann	not provided	N/A	Web-based Comments	53323	34
Swartswalter	Brian	sgtk10@charter.net	N/A	Web-based comments	5325	N/A
Swartwout	Jodie	not provided	N/A	Web-based Comments	17859	24
Swartz	Debra	not provided	N/A	Web-based Comments	12551	24
Swartz	Lily	not provided	N/A	Web-based Comments	51230	34
Swartz	Martha	not provided	N/A	Web-based Comments	47624	34
Swartz	Martha	not provided	N/A	Web-based Comments	23132	24
Swartz	Tami	not provided	N/A	Web-based Comments	55865	34
Swarzman	Gerald	not provided	N/A	Web-based Comments	56099	34
Swavely	Emily	not provided	N/A	Web-based Comments	14044	24
Sweat	Kellie	not provided	N/A	Web-based Comments	48493	34
Sweat	Kellie	not provided	N/A	Web-based Comments	19906	24
Sweeney	Connie	not provided	N/A	Web-based Comments	11323	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Sweeney	Dodie	not provided	N/A	Web-based Comments	12987	24
Sweeney	James	not provided	N/A	Web-based Comments	50821	34
Sweeney	Kathy	not provided	N/A	Web-based Comments	19766	24
Sweet	David	not provided	N/A	Web-based Comments	12152	24
Sweet	Doug	not provided	N/A	Web-based Comments	13315	24
Sweet	Mary	not provided	N/A	Web-based Comments	23437	24
Sweet	Patricia	not provided	N/A	Web-based Comments	49911	34
Sweet	Selina	not provided	N/A	Web-based Comments	28530	24
Sweet-Bunner	Amanda	not provided	N/A	Web-based Comments	54517	34
Sweeting	David	not provided	N/A	Web-based Comments	12153	24
Sweetland	Jeff	not provided	N/A	Web-based Comments	17058	24
Sweinhart	Shannon	not provided	N/A	Web-based Comments	28602	24
sweney	sharon	not provided	N/A	Web-based Comments	28716	24
Swensen	Joy	not provided	N/A	Web-based Comments	18472	24
Swensen	Mike	not provided	N/A	Web-based Comments	24490	24
Swenson	Annika	not provided	N/A	Web-based Comments	54163	34
Swenson	Annika	not provided	N/A	Web-based Comments	8316	24
Swenson	James R	not provided	N/A	Web-based Comments	16347	24
Swenson	Ludell	not provided	N/A	Web-based Comments	21963	24
Swenson	Ruth	not provided	N/A	Web-based Comments	27890	24
Swers	Arthur	not provided	N/A	Web-based Comments	8468	24
Swett	Robert	not provided	N/A	Web-based Comments	27395	24
Swift	Ann	not provided	N/A	Web-based Comments	8090	24
Swift	Craig	not provided	N/A	Web-based Comments	11428	24
Swift	Jacqueline	not provided	N/A	Web-based Comments	53788	34
Swift	Richard	not provided	N/A	Web-based Comments	27060	24
Swift	William	bswiftwr@aol.com	N/A	Web-based comments	1856	N/A
Swigart	Anne	not provided	N/A	Web-based Comments	8246	24
Swilling	Mary	not provided	N/A	Web-based Comments	44451	34
Swindle	Carter	carterswindle@hotmail.com	N/A	Web-based comments	888, 892	2
Swinehamer	Amber	not provided	N/A	Web-based comments	57130	35
Swinehart	Lorin	not provided	N/A	Web-based Comments	21817	24
Swinnerton	Mark	markswinnerton11@gmail.com	N/A	Web-based comments	4911	1
Swirczynski	Jim and Sophie	not provided	N/A	Web-based Comments	55660	34
Swirczynski	Jim and Sophie	not provided	N/A	Web-based Comments	17620	24
Swisher	Sandra	not provided	N/A	Web-based Comments	28220	24
Swisj	Lisa	not provided	N/A	Web-based comments	32067	N/A
Swistak	Karen	not provided	N/A	Web-based Comments	50210	34
Swistak	Karen	not provided	N/A	Web-based Comments	19225	24
Switalski	Diane	not provided	N/A	Web-based Comments	49422	34
Switalski	Diane	not provided	N/A	Web-based Comments	12910	24
Switzer	Bruce	not provided	N/A	Web-based Comments	9626	24
Switzer	Karolyn	not provided	N/A	Web-based Comments	19330	24
Switzer	Margaret	not provided	N/A	Web-based Comments	22506	24
Swoffer	Thomas	not provided	N/A	Web-based Comments	58131, 55354	16, 34
Swoiskin	Mark	not provided	N/A	Web-based Comments	22992	24
Swolinski	Susan	not provided	N/A	Web-based Comments	29866	24
Swope	Robin	not provided	N/A	Web-based Comments	51273	34
Swope	Robin	not provided	N/A	Web-based Comments	27530	24
Swyden	Barbara	not provided	N/A	Web-based Comments	8797	24
Swyers	Elsa	not provided	N/A	Web-based Comments	13987	24
Swygard	Donald	not provided	N/A	Web-based Comments	13087	24
Sy	Steven	not provided	N/A	Web-based Comments	55786	34
Sy	Steven	not provided	N/A	Web-based Comments	29473	24
Sychowski	Laura	not provided	N/A	Web-based Comments	20709	24
Sydnor	Jim	not provided	N/A	Web-based Comments	17609	24
Syen	Helen	not provided	N/A	Web-based Comments	56050	34
Sykes	Dagmar	not provided	N/A	Web-based comments	814	N/A
Sykes	Freddie	not provided	N/A	Web-based Comments	14586	24
Sykes	Kendra	not provided	N/A	Web-based Comments	20001	24
Sykes	Wally	not provided	N/A	Web-based Comments	53829	34
Sykes	Walter	not provided	N/A	Web-based Comments	31365	24
Sykes-David	Kristin	not provided	N/A	Web-based Comments	44890	34
Sykes-Gatz	Sheila	not provided	N/A	Web-based Comments	28812	24
Syltebo	Tiffany	not provided	N/A	Web-based Comments	30591	24
Sylvan	Susan	not provided	N/A	Web-based Comments	29867	24
Sylver	James	not provided	N/A	Web-based Comments	16315	24
Sylvester	Ed	EDSLY42@GMAIL.COM	N/A	Web-based comments	5867	N/A
Sylvester	Hannah	not provided	N/A	Web-based Comments	15413	24
Sylvestro	Eleanor	not provided	N/A	Web-based Comments	13639	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
sylvie	haustete	not provided	N/A	Web-based Comments	48937	34
Sylvie	Lemaire	not provided	N/A	Web-based Comments	58455	34
Sylvie	Lemaire	not provided	N/A	Web-based Comments	20978	24
Symington	Sharon	not provided	N/A	Web-based Comments	53789	34
Symonds	Christopher	not provided	N/A	Web-based Comments	49331	34
Symonds	Michael	not provided	N/A	Web-based Comments	24231, 24232	24
Synneby	Linda	not provided	N/A	Web-based Comments	21440	24
Synnestvedt	Susan	not provided	N/A	Web-based Comments	29868	24
Sytzko	Victor	not provided	N/A	Web-based Comments	31176	24
Sywulak	Daria	not provided	N/A	Web-based Comments	11862	24
Sywulak-Herr	Charlie	not provided	N/A	Web-based Comments	10550	24
Szabados	Michelle	not provided	N/A	Web-based Comments	24394	24
Szablewski	Conrad	not provided	N/A	Web-based Comments	52893, 57796	34
Szalay	Jessie	not provided	N/A	Web-based comments	57332	35
Szambelak	Sue	not provided	N/A	Web-based Comments	44295	34
Szambelak	Sue	not provided	N/A	Web-based Comments	29553	24
szamreta	joanne	not provided	N/A	Web-based Comments	17829	24
Szewczyk	Andzelika	not provided	N/A	Web-based Comments	7880	24
Szmrecsanyi	Mary	not provided	N/A	Web-based Comments	23438	24
Szokolai	Maria	not provided	N/A	Web-based Comments	22632	24
Szrajber	Maja	maja.szrajber@gmail.com	N/A	Web-based comments	478	N/A
Szulc-Flissi	Susan	not provided	N/A	Web-based Comments	54601	34
Szumal	Ray	not provided	N/A	Web-based Comments	49259	34
Szumal	Raymond	not provided	N/A	Web-based Comments	26695	24
Szumlas	Nick	not provided	N/A	Web-based Comments	25206	24
Szurley	Linda	not provided	N/A	Web-based Comments	52604	34
Szymanowski	Paul	not provided	N/A	Web-based Comments	47096	34
Szymanski	Laura	not provided	N/A	Web-based Comments	20710	24
T	Ann	not provided	N/A	Web-based Comments	8091	24
T	B	not provided	N/A	Web-based Comments	8575	24
T	C	not provided	N/A	Web-based Comments	9682	24
T	C	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	4785	18
T	Derek	not provided	N/A	Web-based comments	32059	1
t	f	not provided	N/A	Web-based Comments	44830	34
t	heather	not provided	N/A	Web-based Comments	15543	24
T	J	not provided	N/A	Web-based Comments	46161	34
T	John	not provided	N/A	Web-based Comments	53649	34
T	M	not provided	N/A	Web-based Comments	22197	24
T	Martha	not provided	N/A	Web-based comments	57338	35
T	Vivianne	not provided	N/A	Web-based Comments	31329	24
T.	P	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	4768	N/A
T.	Sheila	not provided	N/A	Web-based Comments	28813	24
T.	Wes	wbtrout@gmail.com	N/A	Web-based comments	32224	N/A
Tabatcher	Patrick	not provided	N/A	Web-based Comments	25928	24
Tabb	Linda	not provided	N/A	Web-based Comments	21441	24
Tabbott	Diane	not provided	N/A	Web-based Comments	51962	34
Taber	Don	not provided	N/A	Web-based comments	3069	N/A
Taber	Kelcey	not provided	N/A	Web-based Comments	19890	24
Tabin	Jean	not provided	N/A	Web-based Comments	51639	34
Tabish	G.	not provided	N/A	Web-based Comments	14629	24
Tablish	Karen	not provided	N/A	Web-based Comments	19226	24
Tabor	KC	not provided	N/A	Web-based Comments	19855	24
Taborek	Allison	not provided	N/A	Web-based Comments	7476	24
Tachna	Heather	not provided	N/A	Web-based Comments	53719	34
Tack	Martha	not provided	N/A	Web-based Comments	23133	24
Tacke	Cliff	not provided	N/A	Web-based comments	3725	N/A
Tacker	Barbara	not provided	N/A	Web-based Comments	46047, 46048	34
Tackett	Dennis	not provided	N/A	Web-based Comments	12706	24
Tafoya	Theresa	not provided	N/A	Web-based Comments	45226	34
Taft	Robert	not provided	N/A	Web-based Comments	54986	34
tagawa	ann	not provided	N/A	Web-based Comments	47145	34
Tagawa	Ann	not provided	N/A	Web-based Comments	47144	34
Taggart	Carol	not provided	N/A	Web-based comments	57393	35
Taggert	Deborah	not provided	N/A	Web-based Comments	12482	24
Tagliente	David	not provided	N/A	Web-based Comments	12154	24
Tai	Doris	pandadbt@gmail.com	N/A	Web-based comments	4139	N/A
Taila	Tom	not provided	N/A	Web-based comments	4947	1
Taillade	Line	not provided	N/A	Web-based Comments	53444, 53445	34
Taillade	Line	not provided	N/A	Web-based Comments	21503	24
Taino	Lyza	not provided	N/A	Web-based Comments	22165	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Taintor	Ellen	not provided	N/A	Web-based Comments	13953	24
tait	Karen	not provided	N/A	Web-based Comments	19227	24
takada	miki	not provided	N/A	Web-based Comments	44699	34
Takahashi	Jim	not provided	N/A	Web-based Comments	53463	34
Takahashi	Jim	not provided	N/A	Web-based Comments	17610	24
Takahashi	Kerry	not provided	N/A	Web-based Comments	20073	24
Takahashi	Sarah	not provided	N/A	Web-based Comments	28414	24
Takahashi	Trina	not provided	N/A	Web-based Comments	30914	24
Takaichi	Mary	not provided	N/A	Web-based Comments	23439	24
Takatsch	Julie	not provided	N/A	Web-based Comments	48106, 48107	34
Takemoto	Joy	not provided	N/A	Web-based Comments	47730	34
takemoto	joy	not provided	N/A	Web-based Comments	18473	24
Takemoto	Michelle	not provided	N/A	Web-based Comments	24395	24
Takush	Kathie	not provided	N/A	Web-based Comments	47652, 47653	34
Takush	Kathie	not provided	N/A	Web-based Comments	19507	24
Tal	Arieh	not provided	N/A	Web-based Comments	8411	24
Tal	Susan	not provided	N/A	Web-based Comments	29869	24
Talbert	Jessica	not provided	N/A	Web-based Comments	17471	24
Talbert	John	not provided	N/A	Web-based Comments	18185	24
Talbot	Frank	not provided	N/A	Web-based Comments	49685	34
Talbot	Michael	not provided	N/A	Web-based Comments	46752	34
Talbot	Mike	not provided	N/A	Web-based Comments	24491	24
Talbot	Susan	not provided	N/A	Web-based Comments	29870	24
Talbot	Virginia	not provided	N/A	Web-based Comments	31304	24
Talbot-Bagnall	Sharon	not provided	N/A	Web-based Comments	28717	24
Talbot-Heindl	Chris	not provided	N/A	Web-based Comments	10789	24
Talcroft	Barbara L.	not provided	N/A	Web-based Comments	52776	34
Talento	Val	not provided	N/A	Web-based Comments	30999	24
Talhami	Michelle	not provided	N/A	Web-based Comments	48563	34
Taliaferro	Jessica	not provided	N/A	Web-based Comments	45206, 45207	34
Taliaferro	Jessica	not provided	N/A	Web-based Comments	17472	24
Tall	Mary	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32319	13
TALL	ROGER	rhtall@gmail.com	N/A	Web-based comments	3753	11
Tall	Roger	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32307	13
Tallal	Jimy	not provided	N/A	Web-based Comments	49876	34
Tallant	Alex	not provided	N/A	Web-based comments	57405	35
TALLAS-CARDONE	ELAINE	not provided	N/A	Web-based Comments	13614	24
Talley	Brenda	not provided	N/A	Web-based Comments	52791	34
Talley	Gordon	not provided	N/A	Web-based Comments	47104	34
Talley	Renee	not provided	N/A	Web-based Comments	26859	24
Tamamian	Ruben	not provided	N/A	Web-based Comments	51774	34
Tamamian	Sushana	not provided	N/A	Web-based Comments	56291	34
Tamao	Walter	not provided	N/A	Web-based Comments	31366	24
Tamarack	Michael	not provided	N/A	Web-based Comments	24233	24
Tamarkin	Leslie	not provided	N/A	Web-based Comments	21111	24
Tamayo	Herbert	not provided	N/A	Web-based Comments	44655	34
Tambone	Alissa	not provided	N/A	Web-based comments	57725	35
Tamburrino	Lisa	not provided	N/A	Web-based Comments	21647	24
TAMBURRY	CAROL	not provided	N/A	Web-based Comments	10035	24
Tamminga	Timothy	not provided	N/A	Web-based Comments	30662	24
Tamplin	Tom	not provided	N/A	Web-based Comments	30773	24
Tamulevich	David	not provided	N/A	Web-based Comments	12155	24
Tamura	Lorilei	not provided	N/A	Web-based Comments	21815	24
Tanaka	Tara	not provided	N/A	Web-based Comments	30207	24
Tanaka	William and Kathleen	not provided	N/A	Web-based Comments	31613	24
Tanderup	Ane	not provided	N/A	Web-based Comments	7881	24
Tandetnik	Igor	not provided	N/A	Web-based Comments	15844	24
Tandon	Shubhi	not provided	N/A	Web-based comments	57550	35
Tandy	Tracy	not provided	N/A	Web-based Comments	30885	24
Tang	Julia	not provided	N/A	Web-based Comments	18778	24
Tangney	John	not provided	N/A	Web-based Comments	51914	34
Tanguma	Barbara Stanford	not provided	N/A	Web-based Comments	49590	34
Taniguchi	Naomi	not provided	N/A	Web-based Comments	25051	24
Tanis	Paul	paul.tanis@hotmail.com	N/A	Web-based comments	5770	1
Tann	Rosemary	not provided	N/A	Web-based Comments	48323	34
Tannehill	Bridgette	not provided	N/A	Web-based Comments	49314	34
Tanner	Bonnie	not provided	N/A	Web-based Comments	9326	24
Tanner	Deston	not provided	N/A	Web-based Comments	12735	24
Tanner	Elizabeth	not provided	N/A	Web-based Comments	13856	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Tanner	Gail	not provided	N/A	Web-based Comments	50987	34
Tanner	Gail	not provided	N/A	Web-based Comments	14716	24
Tanner	Garth	gtanner0@gmail.com	N/A	Web-based comments	3643	N/A
Tanner	Joan	not provided	N/A	Web-based Comments	17746	24
Tanner	Karen	not provided	N/A	Web-based Comments	19228	24
Tanner	Marquita	not provided	N/A	Web-based Comments	23060	24
Tanner	Rob	not provided	N/A	Web-based Comments	27188	24
Tanner	Robert	not provided	N/A	Web-based Comments	27396	24
Tanner	Sierra	not provided	N/A	Web-based comments	5331	1
Tanzer	Dawn	not provided	N/A	Web-based Comments	45996	34
Tanzer	Elaine	not provided	N/A	Web-based Comments	13615	24
Tao	Carol	not provided	N/A	Web-based Comments	10036	24
Tapani	Kevin	kevint@tapani.com	N/A	Web-based comments	4111	N/A
Tapio-Nuzzo	Kimberly	ktnuzzo@aol.com	N/A	Web-based comments	6648	1
Tapp	Elizabeth	not provided	N/A	Web-based Comments	13857	24
Tapp	Yvette	not provided	N/A	Web-based Comments	56565, 56566	34
Tarant	Patricia	not provided	N/A	Web-based Comments	47593	34
Tarantino	Patricia	not provided	N/A	Web-based Comments	25853	24
Tarantino	Shari	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4738	N/A
Tarantino	Shari	orcaconservancy@gmail.com	N/A	Web-based comments	6242	N/A
Tarasova	Angelina	not provided	N/A	Web-based Comments	50149	34
Taratula	Alec	not provided	N/A	Web-based Comments	7221	24
Tarbell	Barbara	not provided	N/A	Web-based Comments	8798	24
Tarbox	William	not provided	N/A	Web-based Comments	31601	24
Tardif	Steve	not provided	N/A	Web-based Comments	29406	24
Tario	Teresa	not provided	N/A	Web-based Comments	45488	34
Tarkowski	Stacy	not provided	N/A	Web-based Comments	54725	34
Tarleton	Autumn	amtarleton@gmail.com	N/A	Web-based comments	679	1
Taroli	Garry	not provided	N/A	Web-based Comments	14747	24
Tarr	Janice	not provided	N/A	Web-based Comments	16701	24
Tarr	Valerie	not provided	N/A	Web-based Comments	45093	34
Tartaglia	Prof. Denise J.	not provided	N/A	Web-based Comments	26457	24
Tarver	Letitia	not provided	N/A	Web-based Comments	55958	34
Tarverdians	Andre	not provided	N/A	Web-based Comments	7723	24
Taschereau	Jennifer	not provided	N/A	Web-based Comments	17270	24
Taskila	Brooke	not provided	N/A	Web-based Comments	9587	24
Tassell	Stephen	not provided	N/A	Web-based Comments	29340	24
Tasset	Niurys	not provided	N/A	Web-based Comments	25323	24
Tassone	Joseph	not provided	N/A	Web-based Comments	18395	24
Tate	Andrew	not provided	N/A	Web-based Comments	7854	24
Tate	Constance	not provided	N/A	Web-based Comments	46421	34
Tate	Doyle	not provided	N/A	Web-based Comments	13352	24
Tate	Laurel E.	not provided	N/A	Web-based Comments	48854	34
Tate	Marguerite	not provided	N/A	Web-based Comments	22568	24
Tate	Richard	ricktate@impactachievement.com	N/A	Web-based comments	3845	N/A
Tatone	Sheila	not provided	N/A	Web-based Comments	45501	34
Tatro	Tammy	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32452	N/A
Tattu	Georgia	not provided	N/A	Web-based Comments	14945	24
Tatum	Jody	not provided	N/A	Web-based Comments	17871	24
Tatum	Nancy	not provided	N/A	Web-based Comments	24996	24
Taube	DeEtta	not provided	N/A	Web-based Comments	12590	24
tauger	susan	not provided	N/A	Web-based Comments	29871	24
Tauson	Chris	not provided	N/A	Web-based Comments	53281	34
Tavcar	Tania	not provided	N/A	Web-based Comments	30172	24
Tavel	Meggan	not provided	N/A	Web-based Comments	23811	24
Taverner	Kenneth	not provided	N/A	Web-based Comments	20028	24
Taverner	Lori	not provided	N/A	Web-based Comments	21809	24
Tawa	Brigitte	not provided	N/A	Web-based Comments	9558	24
Tawil	Cynthia	not provided	N/A	Web-based Comments	11558	24
Tawil	Leila	not provided	N/A	Web-based Comments	20973	24
Tawney	Katherine	not provided	N/A	Web-based Comments	54834	34
Tayloe	Donald	not provided	N/A	Web-based Comments	13088	24
Taylor	Adrienne	not provided	N/A	Web-based Comments	7103	24
Taylor	Aileen	not provided	N/A	Web-based Comments	7129	24
Taylor	Alan	not provided	N/A	Web-based Comments	7193	24
Taylor	Amanda	not provided	N/A	Web-based Comments	7556	24
Taylor	Anita	not provided	N/A	Web-based Comments	7984	24
Taylor	Barbara	not provided	N/A	Web-based Comments	53567, 53568	34
Taylor	Barbara	not provided	N/A	Web-based Comments	8799	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Taylor	Beverly	not provided	N/A	Web-based Comments	9148	24
Taylor	Charles	not provided	N/A	Web-based Comments	10532	24
Taylor	Chris	not provided	N/A	Web-based Comments	10790	24
Taylor	Christina	not provided	N/A	Web-based Comments	10882	24
Taylor	Christine	not provided	N/A	Web-based Comments	10985	24
Taylor	Coral	not provided	N/A	Web-based Comments	44585	34
Taylor	Deborah	not provided	N/A	Web-based Comments	12483	24
Taylor	Donald	not provided	N/A	Web-based Comments	47567	34
Taylor	Elaine	not provided	N/A	Web-based Comments	44690	34
Taylor	Elaine	not provided	N/A	Web-based Comments	13616	24
Taylor	Elizabeth	not provided	N/A	Web-based Comments	13858	24
Taylor	Elizabeth	not provided	N/A	Web-based Comments	13859	24
Taylor	Geoff	not provided	N/A	Web-based comments	750*	N/A
Taylor	Gerald	not provided	N/A	Web-based comments	57278	35
Taylor	Gigi	not provided	N/A	Web-based Comments	53871	34
Taylor	Gregg	not provided	N/A	Web-based Comments	15265	24
Taylor	Houston	not provided	N/A	Web-based Comments	45195	34
Taylor	Houston	not provided	N/A	Web-based Comments	15791	24
Taylor	Iris	not provided	N/A	Web-based Comments	15922	24
Taylor	J. Holley	not provided	N/A	Web-based Comments	56402	34
Taylor	J. Holley	not provided	N/A	Web-based Comments	16012	24
Taylor	J.P.	not provided	N/A	Web-based comments	5233	N/A
Taylor	Jan	not provided	N/A	Web-based Comments	16434	24
Taylor	Jane	not provided	N/A	Web-based Comments	16540	24
Taylor	Janet	not provided	N/A	Web-based Comments	58716	16
Taylor	Janie	not provided	N/A	Web-based Comments	16720	24
Taylor	Jeannie	not provided	N/A	Web-based Comments	16996	24
Taylor	Jennifer	not provided	N/A	Web-based Comments	17271	24
Taylor	Jennifer	not provided	N/A	Web-based Comments	17272	24
taylor	jeremy	not provided	N/A	Web-based Comments	46522	34
Taylor	Jeri	not provided	N/A	Web-based Comments	17328	24
Taylor	Jill	not provided	N/A	Web-based Comments	17547	24
Taylor	Jonathan	not provided	N/A	Web-based Comments	18298	24
Taylor	Julia	not provided	N/A	Web-based Comments	54841	34
Taylor	K	not provided	N/A	Web-based Comments	18982	24
Taylor	Karla	not provided	N/A	Web-based Comments	19318	24
Taylor	Kathryn	not provided	N/A	Web-based Comments	19669	24
Taylor	Kathy	not provided	N/A	Web-based Comments	56462	34
Taylor	Kent	not provided	N/A	Web-based Comments	20044	24
Taylor	Krista	not provided	N/A	Web-based Comments	49249	34
Taylor	Krista	not provided	N/A	Web-based Comments	20336	24
Taylor	Kristin	not provided	N/A	Web-based Comments	20391	24
Taylor	Laura Pitt	not provided	N/A	Web-based Comments	20724	24
Taylor	Leah	leahtaylorup@gmail.com	N/A	Web-based comments	32025	1
Taylor	Lee Ann	not provided	N/A	Web-based Comments	20954	24
Taylor	Lisa	not provided	N/A	Web-based Comments	58456	34
Taylor	Lyndsey	not provided	N/A	Web-based Comments	22032	24
Taylor	Lynne	not provided	N/A	Web-based Comments	58243	16
Taylor	M	not provided	N/A	Web-based Comments	22198	24
Taylor	Mark	not provided	N/A	Web-based Comments	22993	24
Taylor	MaryAnn	not provided	N/A	Web-based Comments	23564	24
Taylor	Matthew	not provided	N/A	Web-based Comments	44719, 44720	34
Taylor	Matthew	not provided	N/A	Web-based Comments	23667	24
Taylor	Michael	mitka@comcast.net	N/A	Web-based comments	4135	N/A
taylor	michelle	not provided	N/A	Web-based Comments	53750	34
Taylor	Natalie	not provided	N/A	Web-based comments	32124	27
Taylor	Oakley	not provided	N/A	Web-based Comments	50522	34
Taylor	Ocean	not provided	N/A	Web-based Comments	47944	34
Taylor	Patricia	not provided	N/A	Web-based Comments	25854	24
Taylor	Penny	not provided	N/A	Web-based Comments	26217	24
Taylor	Polly	not provided	N/A	Web-based Comments	53543	34
Taylor	Polly	not provided	N/A	Web-based Comments	26427	24
Taylor	Rachael	rachaelwtaylor@yahoo.com	N/A	Web-based comments	4859	1
Taylor	Ramsay	not provided	N/A	Web-based Comments	26608	24
Taylor	Rebecca	not provided	N/A	Web-based Comments	26781	24
Taylor	Ricky	not provided	N/A	Web-based Comments	57938, 55203	16, 34
Taylor	Ross	not provided	N/A	Web-based Comments	46024, 46025	34
Taylor	Sandra	not provided	N/A	Web-based comments	57423	35
Taylor	Sandra	not provided	N/A	Web-based Comments	28221	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Taylor	Shannon	not provided	N/A	Web-based Comments	28603	24
Taylor	Stefan	not provided	N/A	Web-based Comments	54140	34
Taylor	Stefan	not provided	N/A	Web-based Comments	29166	24
Taylor	Stephen	not provided	N/A	Web-based Comments	29341	24
TAYLOR	STEVEN	not provided	N/A	Web-based Comments	29474	24
Taylor	Stuart	sbt2@bellsouth.net	N/A	Web-based comments	5315	N/A
Taylor	Sue	not provided	N/A	Web-based Comments	29554	24
Taylor	Susan	not provided	N/A	Web-based Comments	29872	24
Taylor	Sydney Taylor	not provided	N/A	Web-based comments	57479	35
Taylor	Sylvia	not provided	N/A	Web-based Comments	52485	34
Taylor	Terri	not provided	N/A	Web-based Comments	51892	34
Taylor	Terri	not provided	N/A	Web-based Comments	30352	24
Taylor	Tracey	not provided	N/A	Web-based Comments	30849	24
Taylor	Victoria	not provided	N/A	Web-based Comments	31228	24
Taylor	Yvonne	not provided	N/A	Web-based Comments	31706	24
TaylorHintz	Nicole	not provided	N/A	Web-based Comments	25256	24
Taysom	Glen	not provided	N/A	Web-based Comments	15116	24
Tazzia	Charles	not provided	N/A	Web-based Comments	46380, 46381	34
Tazzia	Charles	not provided	N/A	Web-based Comments	10533	24
Teague	Gail	not provided	N/A	Web-based Comments	14717	24
teague	michael	not provided	N/A	Web-based Comments	24234	24
Teague	Sharry	not provided	N/A	Web-based Comments	28736	24
Tealdo	Susie	not provided	N/A	Web-based Comments	29966	24
Teare	Brian	not provided	N/A	Web-based Comments	51661	34
Tebay	Norman	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	5555	N/A
Tebet	Deborah	not provided	N/A	Web-based Comments	12484	24
Teder	Ann Marie	not provided	N/A	Web-based Comments	8114	24
Teders	Frances	not provided	N/A	Web-based Comments	55256	34
Tedesco	Terry	not provided	N/A	Web-based Comments	52703	34
Tedesco	Terry	not provided	N/A	Web-based Comments	30384	24
Tedrick	Daniel	not provided	N/A	Web-based Comments	11780	24
Tedrick	Gloria	gloria.s.tedrick@gmail.com	N/A	Web-based comments	6641	N/A
Tee	Bobby	not provided	N/A	Web-based Comments	9270	24
Teed	Cornelia	not provided	N/A	Web-based Comments	57902	16
Teegardin	Susan	not provided	N/A	Web-based Comments	47546	34
Teel	Shannon	not provided	N/A	Web-based Comments	45391	34
Teel	Shannon	not provided	N/A	Web-based Comments	28604	24
Teel	Shannon	not provided	N/A	Web-based Comments	28605	24
Tees	Kathleen	not provided	N/A	Web-based Comments	19602	24
Teevan	Janette	jmteevan@gmail.com	N/A	Web-based comments	590	1
Teevan	John	not provided	N/A	Web-based Comments	47930, 47931	34
Teevan	John	not provided	N/A	Web-based Comments	18186	24
Tegethoff	carl	not provided	N/A	Web-based Comments	48901	34
Tegtmeier	Diane	not provided	N/A	Web-based Comments	12911	24
Tehennepe	Eugene	not provided	N/A	Web-based Comments	14298	24
Teigen	Terry	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4701	N/A
Tein	Callie	not provided	N/A	Web-based Comments	9725	24
Teitsort	Cindy	not provided	N/A	Web-based Comments	11100	24
Tejeda	Rosemary	not provided	N/A	Web-based Comments	27769	24
Tekin	Onder	not provided	N/A	Web-based Comments	56530	34
Telep	Gerald	not provided	N/A	Web-based Comments	51211	34
Telese	Nancy	not provided	N/A	Web-based Comments	24997	24
telese	susan	not provided	N/A	Web-based Comments	29873	24
Telford	Aloce	not provided	N/A	Web-based Comments	7488	24
Teli	Ann Marie	not provided	N/A	Web-based Comments	47486	34
Tellez	Cristel	not provided	N/A	Web-based Comments	48281	34
Tellez F.	Jorge	not provided	N/A	Web-based Comments	18329	24
Temperly	Joanne	not provided	N/A	Web-based Comments	17830	24
Temple	Michele	not provided	N/A	Web-based Comments	24310	24
Temple	Susan	not provided	N/A	Web-based Comments	29874	24
Temple	Suzanne	not provided	N/A	Web-based Comments	30025	24
TEMPLET	Mel	not provided	N/A	Web-based Comments	23830	24
Temple-Thurston	Barbara	not provided	N/A	Web-based Comments	54118	34
Templeton	Kent	not provided	N/A	Web-based Comments	20045	24
Templeton Sr	John	not provided	N/A	Web-based Comments	18187	24
Templin	Max	not provided	N/A	Web-based Comments	23742	24
Templin	Tracy	not provided	N/A	Web-based Comments	46221, 46222	34
Templin	Tracy	not provided	N/A	Web-based Comments	30886	24
Tena	Liz	not provided	N/A	Web-based Comments	21695	24
Tenenbaum	Debbie	not provided	N/A	Web-based Comments	45105	34

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Tenenbaum	Debbie	not provided	N/A	Web-based Comments	12351	24
Tenerowicz	Kristina	not provided	N/A	Web-based Comments	20409	24
Tennant	Gail	not provided	N/A	Web-based Comments	14718	24
Tenneriello	Bianca	not provided	N/A	Web-based Comments	44839	34
Tenneriello	Bianca	not provided	N/A	Web-based Comments	9158	24
Tennessen	Peter	not provided	N/A	Web-based Comments	26294	24
Tenney	Joanne	not provided	N/A	Web-based Comments	17831	24
Tepe	Andy	Andy@controlled-air.com	N/A	Web-based comments	4344	N/A
Teplin	Debra	not provided	N/A	Web-based Comments	12552	24
Teplin	Lynne	not provided	N/A	Web-based comments	57033	35
Teplin	Lynne	not provided	N/A	Web-based Comments	50180, 50181	34
Teplin	Lynne	not provided	N/A	Web-based Comments	22153	24
Teplitsky	Mark	not provided	N/A	Web-based Comments	22994	24
Tepper	Carol	not provided	N/A	Web-based Comments	10037	24
Tepperman	Jean	not provided	N/A	Web-based Comments	16889	24
Ter horst	Mirjam	not provided	N/A	Web-based Comments	24562	24
Teraberry	Kimberly	not provided	N/A	Web-based Comments	53878, 53879	34
Teraberry	Kimberly	not provided	N/A	Web-based Comments	20246	24
Terbrock	Elizabeth	not provided	N/A	Web-based Comments	13860	24
Terenzio	Gudy	not provided	N/A	Web-based Comments	15325	24
Terenzio	Gudy	not provided	N/A	Web-based Comments	15326	24
Tereschak	Cassandra	not provided	N/A	Web-based Comments	52645	34
Tereschak	Cassandra	not provided	N/A	Web-based Comments	10234	24
Teresita	Marmolejo	not provided	N/A	Web-based Comments	23054	24
Terfort	Leonie	not provided	N/A	Web-based Comments	21017	24
terhune	anne	not provided	N/A	Web-based Comments	52751	34
Terhune	Joyce	not provided	N/A	Web-based Comments	18519	24
Terletzky	Doreen	not provided	N/A	Web-based Comments	13213	24
Terracciano	Annie	not provided	N/A	Web-based comments	2620	N/A
Terrace	Lois	not provided	N/A	Web-based Comments	21732	24
Terre	Karen	not provided	N/A	Web-based Comments	19229	24
Terrell	Betty	not provided	N/A	Web-based Comments	48712	34
Terrell	Walter	not provided	N/A	Web-based Comments	50769	34
Terrell	Walter	not provided	N/A	Web-based Comments	31367	24
Terreros	Juan Pablo	not provided	N/A	Web-based Comments	18529	24
Terrill	Nancy	not provided	N/A	Web-based Comments	24998	24
Terry	Bobby	not provided	N/A	Web-based Comments	9271	24
Terry	Lani	not provided	N/A	Web-based Comments	20542	24
Terry	Lauren	not provided	N/A	Web-based Comments	49997	34
Terry	Linda	not provided	N/A	Web-based Comments	21442	24
Terry	Michael	not provided	N/A	Web-based Comments	53943	34
Terry	Michael	not provided	N/A	Web-based Comments	24235	24
Terry	Patty	not provided	N/A	Web-based Comments	25964	24
Terry	Robin	not provided	N/A	Web-based Comments	27531	24
Terry	Thomas	not provided	N/A	Web-based Comments	30549	24
Terryn	Matthew	not provided	N/A	Web-based comments	57206	35
Terseleer	Alexandre	not provided	N/A	Web-based Comments	7296	24
Terzuolo	Terry A	not provided	N/A	Web-based Comments	30390	24
Terzuolo	Terry A	not provided	N/A	Web-based Comments	30391	24
Tesar	Gaye	gaye_tesar@hotmail.com	N/A	Web-based comments	76	N/A
Tesoriero	Patricia	not provided	N/A	Web-based Comments	25855	24
Tessari	Diane	not provided	N/A	Web-based Comments	12912	24
Tessem	Carol	not provided	N/A	Web-based Comments	10038	24
tessier	solange	not provided	N/A	Web-based Comments	29050	24
tessman	jacqueline	not provided	N/A	Web-based Comments	47599	34
tessman	jacqueline	not provided	N/A	Web-based Comments	16132	24
Testa	Linda	not provided	N/A	Web-based Comments	21443	24
Testaguzza	Marlene	not provided	N/A	Web-based Comments	56441	34
Tester	Kendra	not provided	N/A	Web-based Comments	46932	34
Testerman	Heather	not provided	N/A	Web-based Comments	15544	24
Tetreault	Ashley	not provided	N/A	Web-based comments	32093	1
Tetreault	Rose	not provided	N/A	Web-based Comments	27734	24
Tetro	Barbara	not provided	N/A	Web-based Comments	8800	24
Tetz	Shelley	not provided	N/A	Web-based Comments	56131	34
Teuber	Kathryn	not provided	N/A	Web-based Comments	19670	24
Teuscher	Alfred	not provided	N/A	Web-based Comments	54819	34
Texcell	Terri	not provided	N/A	Web-based Comments	30353	24
Texter	Linda	not provided	N/A	Web-based Comments	21444	24
Texter	Robert	not provided	N/A	Web-based Comments	27397	24
Texter	Sarah	not provided	N/A	Web-based Comments	28415	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Thach	Andrea	not provided	N/A	Web-based Comments	52780	34
Thaler	Gary	not provided	N/A	Web-based Comments	47993	34
Thaler	Gary	not provided	N/A	Web-based Comments	14800	24
Thalmayer	Amber	not provided	N/A	Web-based Comments	47803	34
Tharp	Candice	not provided	N/A	Web-based Comments	9763	24
Tharp	Rod	not provided	N/A	Web-based Comments	53132	34
Tharpe	Donna	not provided	N/A	Web-based Comments	13192	24
Thatcher	Tobey	not provided	N/A	Web-based Comments	48785, 48786, 48787, 48788	34
Thatcher	Tobey	not provided	N/A	Web-based Comments	30706	24
Thaw	John	not provided	N/A	Web-based Comments	51208	34
Thayer	Alan	not provided	N/A	Web-based Comments	7194	24
Thayer	Carolyn	not provided	N/A	Web-based comments	2348	N/A
Thayer	Jeff	not provided	N/A	Web-based Comments	47463	34
Thayer	Russell	not provided	N/A	Web-based Comments	27845	24
Thayne	Stan	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	5577	N/A
Thayne	Stan	stanleythayne@gmail.com	N/A	Web-based comments	32120	N/A
Thea	Kaz	kazthea@mac.com	N/A	Web-based comments	1825	N/A
Thede	Elizabeth	not provided	N/A	Web-based Comments	13861	24
TheGreat	Sienna	not provided	N/A	Web-based Comments	28986	24
Theis	David	not provided	N/A	Web-based Comments	12156	24
Thelander	Donna	dthelander@gmail.com	N/A	Web-based comments	4541	19
Themm	Caroline	not provided	N/A	Web-based Comments	10133	24
Themm	Melinda	not provided	N/A	Web-based Comments	54174	34
Theobald	George	not provided	N/A	Web-based Comments	14922	24
Theobald	Kathryn	not provided	N/A	Web-based Comments	54313	34
Theodorou	Zoe	not provided	N/A	Web-based comments	56986	35
Therault	Cody	not provided	N/A	Web-based Comments	11242	24
Theriault	Joseph	not provided	N/A	Web-based Comments	18396	24
Therien	Paige	paige8250@yahoo.com	N/A	Web-based comments	1896	1
Therrien	Therese	not provided	N/A	Web-based Comments	30460	24
Theus	Dorothea	not provided	N/A	Web-based Comments	13249	24
Theus	Marion	not provided	N/A	Web-based Comments	22858	24
Thew	Janet	not provided	N/A	Web-based Comments	53419	34
Thew	Janet	not provided	N/A	Web-based Comments	16647	24
Theyerl	Hannah	not provided	N/A	Web-based Comments	15414	24
Thibodeaux	Andrew	not provided	N/A	Web-based Comments	7855	24
Thibodeaux	David	not provided	N/A	Web-based Comments	12157	24
Thiebaut	Estelle	estelle.thiebaut6@gmail.com	N/A	Web-based comments	818	N/A
Thiede	Hanne	hanne.thiede@gmail.com	N/A	Web-based comments	6118	N/A
thiel	barbara	not provided	N/A	Web-based Comments	8801	24
thiel	paul	not provided	N/A	Web-based Comments	26050	24
Thiel	Susan	not provided	N/A	Web-based Comments	29875	24
Thiele	Barbara	not provided	N/A	Web-based Comments	8802	24
Thier	Judy	not provided	N/A	Web-based Comments	18725	24
Thierry	Judith	not provided	N/A	Web-based Comments	47809	34
Thies	Karen	not provided	N/A	Web-based Comments	58285	16
thigpen	martin	not provided	N/A	Web-based Comments	23177	24
Thilgen	Celia	not provided	N/A	Web-based Comments	55458	34
Thilgen	Celia	not provided	N/A	Web-based Comments	10442	24
Thiry	Gert	not provided	N/A	Web-based Comments	15007	24
Thivierge	Deb	debthivierge@hotmail.com	N/A	Web-based comments	1399	1
Thoennes	Betsey	lookforcanaries@gmail.com	N/A	Web-based comments	2612	N/A
Tholl	Jonathan	not provided	N/A	Web-based Comments	54425	34
Tholl	Jonathan	not provided	N/A	Web-based Comments	18299	24
thom	camille	not provided	N/A	Web-based Comments	9748	24
Thom	Maria	not provided	N/A	Web-based Comments	22633	24
Thoma	Mary	not provided	N/A	Web-based Comments	23440	24
Thoman	James	not provided	N/A	Web-based Comments	16316	24
Thomas	Al	not provided	N/A	Web-based Comments	49378	34
Thomas	Antoinette	not provided	N/A	Web-based Comments	8356	24
Thomas	Barbara	not provided	N/A	Web-based Comments	55539	34
Thomas	Bev	not provided	N/A	Web-based Comments	9110	24
Thomas	Brooks	not provided	N/A	Web-based Comments	9592	24
Thomas	Carol	not provided	N/A	Web-based Comments	52165, 52166	34
Thomas	Cecelia	not provided	N/A	Web-based Comments	10410	24
Thomas	Christine	not provided	N/A	Web-based Comments	10986	24
Thomas	Deana	deanathomas94@yahoo.com	N/A	Web-based comments	5672	1
Thomas	Debbie	not provided	N/A	Web-based Comments	53728	34
Thomas	Denise	not provided	N/A	Web-based Comments	12661	24
Thomas	Dimitri	not provided	N/A	Web-based Comments	12956	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Thomas	Donna	not provided	N/A	Web-based Comments	52734	34
Thomas	Eleanor	not provided	N/A	Web-based Comments	13640	24
Thomas	Eva	not provided	N/A	Web-based Comments	55980	34
Thomas	Gail	not provided	N/A	Web-based Comments	14719	24
Thomas	Gary	not provided	N/A	Web-based Comments	14801	24
Thomas	Gerald	tootnjerry@aol.com	N/A	Web-based comments	2107	N/A
Thomas	Jackson	not provided	N/A	Web-based Comments	16081	24
Thomas	Jacob	not provided	N/A	Web-based Comments	48789	34
Thomas	Jacob	not provided	N/A	Web-based Comments	16096	24
Thomas	James	not provided	N/A	Web-based Comments	44891, 46710	34
Thomas	Janie	not provided	N/A	Web-based Comments	16721	24
Thomas	Jean	not provided	N/A	Web-based Comments	16890	24
Thomas	Jean	not provided	N/A	Web-based Comments	16891	24
Thomas	Jim	not provided	N/A	Web-based Comments	17611	24
Thomas	Joyce	not provided	N/A	Web-based Comments	18520	24
Thomas	Julia	not provided	N/A	Web-based Comments	51252	34
Thomas	Julia	not provided	N/A	Web-based Comments	18779	24
Thomas	Karen	not provided	N/A	Web-based Comments	19230	24
Thomas	Kat	not provided	N/A	Web-based Comments	19354	24
Thomas	Katherine	not provided	N/A	Web-based Comments	19484	24
Thomas	Larry	not provided	N/A	Web-based comments	5162	N/A
Thomas	LiLiegh	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	31756	N/A
Thomas	Linda (Lee)	not provided	N/A	Web-based Comments	21466	24
Thomas	Lynn	not provided	N/A	Web-based Comments	22100	24
THOMAS	Marie-Lys	not provided	N/A	Web-based Comments	22743	24
Thomas	Marion	not provided	N/A	Web-based Comments	22859	24
Thomas	Mary	not provided	N/A	Web-based Comments	55157	34
Thomas	Mary	not provided	N/A	Web-based Comments	23441	24
Thomas	Melissa	not provided	N/A	Web-based Comments	23931	24
thomas	michael	not provided	N/A	Web-based Comments	55154	34
Thomas	Patricia	not provided	N/A	Web-based Comments	56461	34
Thomas	Rebecca	not provided	N/A	Web-based Comments	44602	34
Thomas	Renee	not provided	N/A	Web-based Comments	26860	24
Thomas	Robert	not provided	N/A	Web-based Comments	27398	24
Thomas	Rosemary	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58315	N/A
Thomas	Shakayla	not provided	N/A	Web-based Comments	53276	34
Thomas	Shakayla	not provided	N/A	Web-based Comments	28560	24
THomas	Suzanne	not provided	N/A	Web-based Comments	56258	34
Thomas	Suzanne	not provided	N/A	Web-based Comments	30026	24
Thomas	T	not provided	N/A	Web-based Comments	30097	24
Thomas	Toni	not provided	N/A	Web-based Comments	49445	34
Thomas	Tucker	not provided	N/A	Web-based Comments	48590	34
Thomas	Warren	warrenthomas30@gmail.com	N/A	Web-based comments	577	N/A
Thomas	Yun	not provided	N/A	Web-based Comments	31679	24
Thomas, jr	john	solimarfishjohn@gmail.com	N/A	Web-based comments	3080	N/A
Thomas,Sr.	Nathan P.	not provided	N/A	Web-based Comments	25106	24
Thomas-Hill	Pam	not provided	N/A	Web-based Comments	25512	24
Thomas-Kruse	Barbara	not provided	N/A	Web-based Comments	54009	34
Thomas-Kruse	Barbara	not provided	N/A	Web-based Comments	8803	24
thomas-murphy	maureen	not provided	N/A	Web-based Comments	23720	24
Thomason	Anita	not provided	N/A	Web-based Comments	7985	24
Thomason	Michael	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32308	N/A
Thomasson	Tabitha	not provided	N/A	Web-based Comments	51928	34
Thomasson	Tabitha	not provided	N/A	Web-based Comments	30101	24
Thomee	E.	not provided	N/A	Web-based Comments	13423	24
Thomert	Valerie	not provided	N/A	Web-based Comments	31044	24
Thompson	Amanda	not provided	N/A	Web-based comments	32076	1
Thompson	Angelia	not provided	N/A	Web-based Comments	7937	24
Thompson	Bailey	not provided	N/A	Web-based Comments	8593	24
Thompson	Barbara	bluemtngirl@hotmail.com	N/A	Web-based comments	2627	N/A
Thompson	Barbara	bluemtngirl@hotmail.com	N/A	Hand-delivered or oral testimony (personally delivered)	4636	N/A
Thompson	Beth	not provided	N/A	Web-based Comments	9057	24
Thompson	Blake	not provided	N/A	Web-based comments	6449	1
Thompson	Bonnie	not provided	N/A	Web-based Comments	9327	24
Thompson	Brenda	not provided	N/A	Web-based Comments	49513	34
Thompson	Brenda	not provided	N/A	Web-based Comments	9424	24
Thompson	Brian	not provided	N/A	Web-based Comments	9513	24
Thompson	C	not provided	N/A	Web-based Comments	9683	24
Thompson	Carol	not provided	N/A	Web-based Comments	10039	24
Thompson	Carol	not provided	N/A	Web-based Comments	10041	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
THOMPSON	CAROL	not provided	N/A	Web-based Comments	10040	24
Thompson	Carrie	not provided	N/A	Web-based Comments	55992	34
Thompson	Cathy	not provided	N/A	Web-based Comments	46317	34
Thompson	Cathy	not provided	N/A	Web-based Comments	10394	24
Thompson	Cathy	not provided	N/A	Web-based Comments	10395	24
Thompson	Charles	not provided	N/A	Web-based Comments	10534	24
Thompson	Charles	not provided	N/A	Web-based Comments	10535	24
Thompson	Clarence	not provided	N/A	Web-based Comments	11167	24
Thompson	Craig	not provided	N/A	Web-based Comments	11429	24
Thompson	Cyndi	not provided	N/A	Web-based Comments	11485	24
Thompson	Dana	not provided	N/A	Web-based Comments	11708	24
Thompson	David	not provided	N/A	Web-based Comments	12158	24
Thompson	David	not provided	N/A	Web-based Comments	12159	24
Thompson	David	not provided	N/A	Web-based Comments	12160	24
Thompson	Debbie	not provided	N/A	Web-based comments	57095	35
Thompson	Debra	not provided	N/A	Web-based Comments	48003	34
Thompson	DeNene	not provided	N/A	Web-based Comments	56058	34
Thompson	Don	not provided	N/A	Web-based Comments	13040	24
THOMPSON	DONNA	not provided	N/A	Web-based Comments	13193	24
Thompson	Doug	not provided	N/A	Web-based comments	57373	35
Thompson	Doug	not provided	N/A	Web-based Comments	13316	24
Thompson	E.	not provided	N/A	Web-based Comments	13424	24
Thompson	Elijah	not provided	N/A	Web-based Comments	13666	24
Thompson	Emily Malaga	not provided	N/A	Web-based Comments	14052	24
Thompson	Geoffrey	not provided	N/A	Web-based Comments	14879	24
Thompson	Gerald	not provided	N/A	Web-based Comments	14962	24
Thompson	Geraldine	not provided	N/A	Web-based Comments	14974	24
Thompson	Ilene	not provided	N/A	Web-based Comments	51522	34
Thompson	Ilene	not provided	N/A	Web-based Comments	15857	24
thompson	james	not provided	N/A	Web-based Comments	50466	34
Thompson	James	not provided	N/A	Web-based Comments	16317	24
Thompson	James & April	not provided	N/A	Web-based Comments	16339	24
Thompson	Janice	not provided	N/A	Web-based Comments	16702	24
Thompson	Jeanne	not provided	N/A	Web-based Comments	16976	24
Thompson	Jeff	not provided	N/A	Web-based Comments	50840	34
Thompson	Jo Marie	not provided	N/A	Web-based Comments	17660	24
Thompson	John	JetEagle3@gmail.com	N/A	Web-based comments	2495, 32149	N/A
Thompson	John	not provided	N/A	Web-based Comments	49118	34
Thompson	John	not provided	N/A	Web-based Comments	18188	24
Thompson	John	not provided	N/A	Web-based Comments	18189	24
Thompson	Juliet	julietthmpsn@gmail.com	N/A	Web-based comments	6333	N/A
Thompson	Kat	not provided	N/A	Web-based comments	1420	N/A
Thompson	Katy	not provided	N/A	Web-based Comments	19810	24
Thompson	Keith	not provided	N/A	Web-based Comments	50877	34
Thompson	Keith	not provided	N/A	Web-based Comments	19886	24
Thompson	Ken	not provided	N/A	Web-based Comments	19994	24
Thompson	Kerry	kt61996@gmail.com	N/A	Web-based comments	3278	13
Thompson	Kiara	not provided	N/A	Web-based Comments	20155	24
thompson	kt	not provided	N/A	Web-based Comments	20432	24
Thompson	Lauren	not provided	N/A	Web-based Comments	50446	34
Thompson	Lawrence	not provided	N/A	Web-based Comments	45210, 50530	34
Thompson	Lawrence	not provided	N/A	Web-based Comments	20887	24
Thompson	Linda	not provided	N/A	Web-based Comments	49301, 52215	34
Thompson	Linda	not provided	N/A	Web-based Comments	21445	24
Thompson	Linda	not provided	N/A	Web-based Comments	21446	24
Thompson	Loretta	not provided	N/A	Web-based Comments	21768	24
Thompson	Malaika	not provided	N/A	Web-based Comments	22289	24
Thompson	Margaret	not provided	N/A	Web-based Comments	22507	24
Thompson	Margaret	not provided	N/A	Web-based Comments	22508	24
Thompson	Maria	not provided	N/A	Web-based Comments	22634	24
Thompson	Marianne	not provided	N/A	Web-based Comments	22693	24
Thompson	Marilyn	not provided	N/A	Web-based Comments	22816	24
Thompson	Mark	not provided	N/A	Web-based Comments	22995	24
Thompson	Mary	not provided	N/A	Web-based Comments	23442	24
Thompson	Mary	not provided	N/A	Web-based Comments	23443	24
Thompson	Matthew	not provided	N/A	Web-based Comments	23668	24
Thompson	Mel	not provided	N/A	Web-based Comments	57860	34
Thompson	Muhammad	not provided	N/A	Web-based Comments	44798	34
Thompson	N	not provided	N/A	Web-based Comments	55509	34
Thompson	N	not provided	N/A	Web-based Comments	24737	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Thompson	Nancy	not provided	N/A	Web-based Comments	48077	34
Thompson	Pat	not provided	N/A	Web-based Comments	25675	24
Thompson	Paula	not provided	N/A	Web-based Comments	46513	34
Thompson	Peggy	not provided	N/A	Web-based Comments	26183	24
Thompson	Ray	not provided	N/A	Web-based Comments	26677	24
Thompson	Rose Marie	not provided	N/A	Web-based Comments	54265	34
Thompson	Rose Marie	not provided	N/A	Web-based Comments	27736	24
Thompson	Sandy	not provided	N/A	Web-based Comments	57884	16
Thompson	Sarah	not provided	N/A	Web-based Comments	50625	34
Thompson	Shan	not provided	N/A	Web-based Comments	28563	24
Thompson	Stephanie	not provided	N/A	Web-based Comments	29256	24
Thompson	Sue	not provided	N/A	Web-based Comments	29555	24
Thompson	Susan	not provided	N/A	Web-based Comments	29876	24
Thompson	Susan	not provided	N/A	Web-based Comments	29877	24
Thompson	Terrence	not provided	N/A	Web-based Comments	51488	34
Thompson	Terrence	not provided	N/A	Web-based Comments	30324	24
Thompson	Terry	not provided	N/A	Web-based Comments	30385	24
Thompson	Thomas	not provided	N/A	Web-based Comments	30550	24
Thompson	TJ	not provided	N/A	Web-based Comments	58157, 54525, 54526	16, 34
Thompson	TJ	not provided	N/A	Web-based Comments	30704	24
Thompson	Valorie	not provided	N/A	Web-based Comments	31056	24
Thompson	Wendy	not provided	N/A	Web-based Comments	31452	24
Thompson	William	not provided	N/A	Web-based Comments	31602	24
THOMSEN	DOROTHY	not provided	N/A	Web-based Comments	52036	34
Thomsen	Patti	not provided	N/A	Web-based comments	57236	35
Thomsen	Patti	not provided	N/A	Web-based Comments	25952	24
Thomson	Anne	not provided	N/A	Web-based Comments	8247	24
Thomson	Chris	not provided	N/A	Web-based Comments	10791	24
Thomson	Joy	not provided	N/A	Web-based Comments	58218, 53735	16, 34
Thomson	Marianne	not provided	N/A	Web-based Comments	22694	24
Thomson	Nathan	not provided	N/A	Web-based Comments	25103	24
Thomson	Robert	not provided	N/A	Web-based Comments	27399	24
Thomson	Scot	scotthomson@me.com	N/A	Web-based comments	4482	N/A
Thonet	Kathi	not provided	N/A	Web-based Comments	56350	34
Thonet	Kathi	not provided	N/A	Web-based Comments	19501	24
Thonney	Steve	sthonney53@gmail.com	N/A	Web-based comments	3157	N/A
Thoren	Franz	not provided	N/A	Web-based Comments	14564	24
Thoren	John	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32492	N/A
Thorman	Yvonne	emailstat@gmail.com	N/A	Web-based comments	4892	N/A
Thorn	Debbie	not provided	N/A	Web-based Comments	52320	34
thorn	debbie	not provided	N/A	Web-based Comments	12352	24
Thorn	John	drjohn83001@yahoo.com	N/A	Web-based comments	3395	N/A
Thorn	Sandra	not provided	N/A	Web-based Comments	28222	24
Thornberry	Meg	not provided	N/A	Web-based Comments	23781	24
Thornborrow	Diane	not provided	N/A	Web-based Comments	12913	24
Thornburg	Merrie	not provided	N/A	Web-based Comments	48000	34
Thornburn	Cathy	not provided	N/A	Web-based Comments	10396	24
Thorne	carol	not provided	N/A	Web-based Comments	10042	24
Thornhill	Robert	not provided	N/A	Web-based Comments	47095	34
Thornhill	Robert	not provided	N/A	Web-based Comments	27400	24
Thornley	Dana	not provided	N/A	Web-based Comments	11709	24
Thornley	Suzanne	not provided	N/A	Web-based Comments	30027	24
Thornton	Annette	not provided	N/A	Web-based Comments	8290	24
Thornton	Dp	not provided	N/A	Web-based Comments	54562	34
Thornton	Jennifer	not provided	N/A	Web-based Comments	44330	34
Thornton	Jennifer	not provided	N/A	Web-based Comments	17273	24
Thornton	Mary	not provided	N/A	Web-based Comments	45333, 45334	34
Thornton	Pam	not provided	N/A	Web-based Comments	25513	24
Thornton	Robert	roblthornton@gmail.com	N/A	Web-based comments	5762	N/A
Thorp	Annie	not provided	N/A	Web-based Comments	50106	34
Thorp	Annie	not provided	N/A	Web-based Comments	8313	24
Thorp	Raun	not provided	N/A	Web-based Comments	26658	24
Thorpe	Mary	not provided	N/A	Web-based Comments	23444	24
Thorpe	Rachelle	not provided	N/A	Web-based Comments	46565	34
Thorpe	Thomas	not provided	N/A	Web-based Comments	30551	24
Thorsen	Susan	not provided	N/A	Web-based Comments	29878	24
Thorsen	Theresa	not provided	N/A	Web-based Comments	30451	24
Thorson	Trina	not provided	N/A	Web-based Comments	30915	24
Thrash	Jeffrey	not provided	N/A	Web-based Comments	17102	24
Threlkeld	Elizabeth	not provided	N/A	Web-based comments	57390	35

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Threlkeld	Lisa	not provided	N/A	Web-based Comments	21648	24
Thrower	Michelle	not provided	N/A	Web-based comments	57323	35
Thryft	Ann	not provided	N/A	Web-based Comments	52413, 52414	34
Thumma	Rhiannon	not provided	N/A	Web-based Comments	48123	34
Thune	Michael	not provided	N/A	Web-based Comments	24236	24
Thurairatnam	Susan	not provided	N/A	Web-based Comments	52315, 52387	34
Thurairatnam	Susan	not provided	N/A	Web-based Comments	29879	24
Thurber	Walter & Frances	not provided	N/A	Web-based Comments	31369	24
Tia	Andrew	not provided	N/A	Web-based comments	3982	11
Tiarks	Daniel	not provided	N/A	Web-based Comments	54811	34
Tiarks	Daniel	not provided	N/A	Web-based Comments	11781	24
Tibbett	Jillian	not provided	N/A	Web-based Comments	51196	34
Tibbett	Valerie	not provided	N/A	Web-based Comments	31045	24
Tiberi	Judy	not provided	N/A	Web-based Comments	55718	34
Tice	Troy	not provided	N/A	Web-based Comments	30938	24
Tichenor	Steven	not provided	N/A	Web-based Comments	29475	24
Tichenor	Steven	not provided	N/A	Web-based Comments	58071	16
Tichy	Nicole	not provided	N/A	Web-based Comments	50217	34
ticknor	cherie	not provided	N/A	Web-based Comments	54763	34
Ticknor	Cherie	not provided	N/A	Web-based Comments	54764	34
Tidball	Julie	not provided	N/A	Web-based Comments	18900	24
Tidd	Richard	not provided	N/A	Web-based Comments	27061	24
Tidman	Jill	not provided	N/A	Web-based Comments	17548	24
Tidrick	Denis	not provided	N/A	Web-based Comments	12624	24
Tidwell	Marion	not provided	N/A	Web-based Comments	22860	24
Tidwell	Stephanie	not provided	N/A	Web-based Comments	50345	34
Tidwell	Thomas	ttidwell1@hotmail.com	N/A	Web-based comments	5447	N/A
Tidyman	Thomas	not provided	N/A	Web-based Comments	30552	24
Tiedje	Tanya	not provided	N/A	Web-based Comments	30195	24
Tiefen	Loretta	not provided	N/A	Web-based Comments	21769	24
Tiefer	Hillary	hillarytiefer@hotmail.com	N/A	Web-based comments	3602	17
Tiefer	Hillary	not provided	N/A	Web-based Comments	57976, 51365	16, 34
Tiemann	Beverly	not provided	N/A	Web-based Comments	45796	34
Tiernan	Virginia	not provided	N/A	Web-based Comments	31305	24
Tiessen	Diana	not provided	N/A	Web-based Comments	47716, 47717	34
Tietjen	Jeanie	not provided	N/A	Web-based Comments	16924	24
Tietze	Denise	not provided	N/A	Web-based Comments	12662	24
Tiffany	Linda	not provided	N/A	Web-based Comments	21447	24
Tigerlily	Eliot	not provided	N/A	Web-based Comments	48108	34
Tighe	Courtney	not provided	N/A	Web-based Comments	11408	24
Tikhonov	Roman	not provided	N/A	Web-based Comments	27608	24
Tildes	Katherine	not provided	N/A	Web-based Comments	19485	24
Tilds	Laura	not provided	N/A	Web-based Comments	20711	24
Till	Mary Ann	not provided	N/A	Web-based Comments	23503	24
Tillery	Bruce	not provided	N/A	Web-based Comments	9627	24
Tilles	Nurit	not provided	N/A	Web-based Comments	50882	34
Tilley	Dan	not provided	N/A	Web-based Comments	55183	34
Tilley	Dan	not provided	N/A	Web-based Comments	11681	24
TILLEY	JUSTINE	not provided	N/A	Web-based Comments	18969	24
Tilley	Kimberly	not provided	N/A	Web-based Comments	45261, 45262	34
Tilley	Rose	not provided	N/A	Web-based Comments	27735	24
Tillman	Barbara	not provided	N/A	Web-based Comments	45459, 45460	34
Tillman	Barbara	not provided	N/A	Web-based Comments	8804	24
Tilloca	Marco	not provided	N/A	Web-based Comments	22396	24
Tilow	Meredith	not provided	N/A	Web-based Comments	23984	24
Timm	Jill	not provided	N/A	Web-based Comments	17549	24
Timm	John	not provided	N/A	Web-based Comments	18190	24
Timm	Mary	not provided	N/A	Web-based Comments	23445	24
Timmer	Lisa	not provided	N/A	Web-based Comments	21649	24
Timmer	Suzanne	not provided	N/A	Web-based Comments	30028	24
Timmins	M	not provided	N/A	Web-based Comments	22199	24
Timmins	Rebecca	not provided	N/A	Web-based Comments	26782	24
Timmons	Mary	not provided	N/A	Web-based Comments	23446	24
Timpany	John	timpany33@gmail.com	N/A	Web-based comments	6930	N/A
Timperio	Katie	not provided	N/A	Web-based Comments	49822	34
Timson	Ivor	not provided	N/A	Web-based Comments	15962	24
Timson	Jessalyn	not provided	N/A	Web-based Comments	55556	34
Timson	Jessalyn	not provided	N/A	Web-based Comments	17383	24
Tina	Cris	not provided	N/A	Web-based Comments	45297	34
Tindall	Christine	not provided	N/A	Web-based Comments	10987	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Tindall	John	tindall.john@gmail.com	N/A	Web-based comments	5442	N/A
Tinder	Lydia	not provided	N/A	Web-based Comments	56254, 56255	34
Tine'	Tina	not provided	N/A	Web-based Comments	47979	34
Tine'	Tina	not provided	N/A	Web-based Comments	30696	24
Tingen	Sarah	not provided	N/A	Web-based Comments	54769	34
Tingey	Lynette	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32528	13
Tingey	Lynette	poormanid@netscape.net	N/A	Web-based comments	3354	N/A
Tingleaf	Deborah	not provided	N/A	Web-based Comments	12485	24
Tingley	Marcia	not provided	N/A	Web-based Comments	22384	24
Tinkham	Joanne	not provided	N/A	Web-based comments	57662	35
Tinkler	Duane	not provided	N/A	Web-based Comments	13384	24
Tinkler	Wendy	not provided	N/A	Web-based Comments	31453	24
Tinney	Brecken	not provided	N/A	Web-based comments	57189	35
Tinney	Frances	not provided	N/A	Web-based Comments	14492	24
Tinsley	Danne	not provided	N/A	Web-based Comments	11827	24
Tinsley	Gail	not provided	N/A	Web-based Comments	14720	24
Tippett	Holly	not provided	N/A	Web-based Comments	49425	34
Tippett	James	not provided	N/A	Web-based Comments	16318	24
Tipton	Dee	pielady67@gmail.com	N/A	Web-based comments	3277	N/A
Tipton	Scott	not provided	N/A	Web-based Comments	28501	24
Tirado	Grendel	not provided	N/A	Web-based Comments	54280	34
Tirath	Isabel	not provided	N/A	Web-based Comments	15936	24
Tirce	Nancy	not provided	N/A	Web-based Comments	24999	24
Tirelli	Cristina	not provided	N/A	Web-based Comments	11448	24
Tischhauser	John	not provided	N/A	Web-based Comments	44449	34
Tischhauser	John	not provided	N/A	Web-based Comments	18191	24
Tischler	Barbara	not provided	N/A	Web-based Comments	8805	24
Tischler	Mark	not provided	N/A	Web-based Comments	22996	24
Tisdale	Heather	not provided	N/A	Web-based Comments	47354	34
Tisdale	Heather	not provided	N/A	Web-based Comments	15545	24
Tisel	Anne	not provided	N/A	Web-based Comments	8248	24
Titelman	Ann	not provided	N/A	Web-based Comments	51782	34
Titherley	Susan	not provided	N/A	Web-based Comments	29880	24
Tito	Johanna	not provided	N/A	Web-based Comments	17948	24
Titus	Dr Kate	not provided	N/A	Web-based Comments	13356	24
Titus	Laura	not provided	N/A	Web-based Comments	56133	34
Tizard	Thomas	not provided	N/A	Web-based Comments	30553	24
Tobe	Jerry	not provided	N/A	Web-based Comments	17377	24
tober	mary	not provided	N/A	Web-based Comments	23447	24
Tobey	Kathy	not provided	N/A	Web-based Comments	52804	34
Tobey	Kathy	not provided	N/A	Web-based Comments	19767	24
Tobin	Colleen	not provided	N/A	Web-based comments	57452	35
Tobin	Jason	not provided	N/A	Web-based Comments	16790	24
Tobin	Jessica	not provided	N/A	Web-based comments	57114	35
tobin	mary	not provided	N/A	Web-based Comments	23448, 23449	24
Tobin	Maryanne	not provided	N/A	Web-based Comments	44717, 44718	34
Tobin	Virginia	not provided	N/A	Web-based Comments	31306	24
Tobolski	Nicholas	not provided	N/A	Web-based Comments	25180	24
Tobyn	Ned	not provided	N/A	Web-based Comments	55473	34
Tocci	Angela	not provided	N/A	Web-based Comments	7932	24
Tocher	Baxter	not provided	N/A	Web-based Comments	8878	24
Tocher	Beatrice	not provided	N/A	Web-based Comments	8893	24
TODARO	T	not provided	N/A	Web-based Comments	30098	24
Todd	A.	not provided	N/A	Web-based Comments	6983	24
Todd	Allen	not provided	N/A	Web-based Comments	58260	16
Todd	Erinn	not provided	N/A	Web-based Comments	14243	24
Todd	Janis	not provided	N/A	Web-based Comments	46001	34
Todd	Jennifer	namaste73@yahoo.com	N/A	Web-based comments	802	1
Todd	Jennifer Jane	not provided	N/A	Web-based comments	57446	35
Todd	Jude	not provided	N/A	Web-based Comments	46531, 46532	34
Todd	Judy	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4723, 5580	N/A
Todd	Laurie	not provided	N/A	Web-based Comments	49668	34
Todd	Paula	not provided	N/A	Web-based Comments	26101	24
Todman	Bill	not provided	N/A	Web-based Comments	9187	24
Toelle	Sherry	not provided	N/A	Web-based Comments	28908	24
Toerner	Kendall	toernekr@gmail.com	N/A	Web-based comments	3861	N/A
Toews	Sharon	not provided	N/A	Web-based Comments	28718	24
Toguchi	Kae	not provided	N/A	Web-based Comments	46342	34
Toister	Jan	not provided	N/A	Web-based Comments	16435	24
Tokar	Mary Anne	not provided	N/A	Web-based Comments	56218	34

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Tokarczyk	Janine	not provided	N/A	Web-based Comments	16734	24
Tokunaga	Barb	not provided	N/A	Web-based Comments	8610	24
Toledano-DeMars	Andrea	not provided	N/A	Web-based Comments	7776	24
Toledo	Rebecca	not provided	N/A	Web-based Comments	26783	24
toll	dennis	not provided	N/A	Web-based Comments	12707	24
Tollefson	Jill	not provided	N/A	Web-based Comments	17550	24
Tollefson	Linda	not provided	N/A	Web-based comments	57247	35
Tollefson	Michael	not provided	N/A	Web-based Comments	24237	24
Tollefson/Conard	Margot	not provided	N/A	Web-based Comments	22555	24
Tolley	Sylvia	not provided	N/A	Web-based Comments	30077	24
Tollinger	Cindy	not provided	N/A	Web-based comments	57195	35
Tollison	Joanne	not provided	N/A	Web-based Comments	17832	24
Tollman	Larry	not provided	N/A	Web-based Comments	20589	24
Tolman	John	not provided	N/A	Web-based Comments	18192	24
Tolski	Stefanie	not provided	N/A	Web-based comments	56792	35
Tomasello	Pela	not provided	N/A	Web-based Comments	26186	24
Tomasi	Loren	loren.tomasi@gmail.com	N/A	Web-based comments	5410	N/A
Tomasik	Amanda	not provided	N/A	Web-based Comments	7557	24
Tomasino	Jennifer	jennifer.tomasino@yahoo.com	N/A	Web-based comments	3150	N/A
Tomayko	Darleen	not provided	N/A	Web-based Comments	11874	24
Tome	Eli	not provided	N/A	Web-based Comments	58236	16
Tomermason	Paul	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32316	N/A
Tomlian	Janice	not provided	N/A	Web-based Comments	47172, 47173	34
Tomlian	Janice	not provided	N/A	Web-based Comments	16703	24
Tomlin	Curtis	not provided	N/A	Web-based Comments	48394	34
Tomlinson	Katrina	not provided	N/A	Web-based Comments	52486	34
Tomlinson	Monica	not provided	N/A	Web-based Comments	24641	24
Tomlinson	Sandra	not provided	N/A	Web-based Comments	28223	24
Tomlinson	William	not provided	N/A	Web-based Comments	31603	24
Tompetrini	Phil	not provided	N/A	Web-based Comments	58386	28
Tompkins	Ed	not provided	N/A	Web-based Comments	51586	34
Tompkins	Gwen	not provided	N/A	Web-based Comments	47324	34
tompkins	joe	not provided	N/A	Web-based Comments	17899	24
Tompkins	Pam	not provided	N/A	Web-based Comments	25514	24
Tomsits	Pati	not provided	N/A	Web-based Comments	25683	24
Toncray	Mike	not provided	N/A	Web-based Comments	24492	24
Tonelli	Russell	not provided	N/A	Web-based Comments	27846	24
Toner	Laurie	not provided	N/A	Web-based Comments	20861	24
TONET	Monique	not provided	N/A	Web-based Comments	45862	34
Toniato	Maurizio	not provided	N/A	Web-based Comments	23732	24
Tonini	Joe	not provided	N/A	Web-based Comments	17900	24
Tonkin	Gary	not provided	N/A	Web-based Comments	14802	24
Tonne	Elizabeth	not provided	N/A	Web-based Comments	13862	24
Tooba	Syeda	not provided	N/A	Web-based Comments	30055	24
Tooley	Anne	not provided	N/A	Web-based Comments	8249	24
Toorkey	Meher	not provided	N/A	Web-based Comments	23820	24
Top	Linde	not provided	N/A	Web-based comments	56701	35
Topalian	Maggie	mtopalian.7@gmail.com	N/A	Web-based comments	2398	1
Topalian	Maggie	not provided	N/A	Web-based Comments	50056, 50057	34
Topalian	Maggie	not provided	N/A	Web-based Comments	22275	24
Topliffe	Laurence	not provided	N/A	Web-based Comments	20802	24
Topping	Debra	not provided	N/A	Web-based Comments	12553	24
Toquinto	Alya	alya.toquinto@gmail.com	N/A	Web-based comments	32191	1
Torbert	Jan	not provided	N/A	Web-based Comments	16436	24
Torheim	Maren	not provided	N/A	Web-based Comments	22417	24
Toriello	Frank	not provided	N/A	Web-based Comments	45347	34
Torkelson	Marilynn	not provided	N/A	Web-based Comments	22827	24
Torlone	Stephanie	not provided	N/A	Web-based Comments	29257	24
tormes	liz	not provided	N/A	Web-based Comments	21696	24
Tornabene	Michele	not provided	N/A	Web-based Comments	24311	24
Toro	Debora	deb8208@cox.net	N/A	Web-based comments	545	1
Torok	Joan	not provided	N/A	Web-based Comments	17747	24
torrence	paul	not provided	N/A	Web-based Comments	26051	24
Torres	Angela	not provided	N/A	Web-based comments	57044	35
Torres	Carmen	not provided	N/A	Web-based Comments	9875	24
Torres	Cirenia	not provided	N/A	Web-based Comments	11114	24
Torres	Jickie	jickie.torres@gmail.com	N/A	Web-based comments	758	N/A
Torres	Kiara	not provided	N/A	Web-based Comments	20156	24
Torres	M. Lorraine	not provided	N/A	Web-based Comments	22214	24
Torres	Marianella	not provided	N/A	Web-based Comments	22667	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
torres	nuno	not provided	N/A	Web-based Comments	25406	24
Torres	Susan	not provided	N/A	Web-based Comments	55112, 55113	34
Torres	Wendy	not provided	N/A	Web-based Comments	31454	24
Torres Garcia	Luz Maria	not provided	N/A	Web-based Comments	21987	24
Torresani	Amanda	not provided	N/A	Web-based Comments	7558	24
Torreskrushinski	Alexandra	not provided	N/A	Web-based Comments	7292	24
Torrey	Michele	not provided	N/A	Web-based Comments	24312	24
Torrie	Myrna	not provided	N/A	Web-based Comments	55722	34
Torson	Dianna	not provided	N/A	Web-based Comments	47141	34
torson	jerri	not provided	N/A	Web-based Comments	17336	24
Torstrick	Denise	not provided	N/A	Web-based Comments	12663	24
Tortell	Susie	not provided	N/A	Web-based Comments	29967	24
torti	carla	not provided	N/A	Web-based Comments	9836	24
Toscano	Kristin	not provided	N/A	Web-based Comments	20392	24
Tosh	Barbara	not provided	N/A	Web-based Comments	45881	34
Tosh	Barbara	not provided	N/A	Web-based Comments	8806	24
Toshalis	Barbara	not provided	N/A	Web-based Comments	52203	34
Tosney	Kathryn	not provided	N/A	Web-based Comments	45305	34
Tostanoski	DeeDee	not provided	N/A	Web-based Comments	12586	24
Toteva	Nadezhda	not provided	N/A	Web-based Comments	24750	24
Toth	Jane	not provided	N/A	Web-based Comments	16541	24
Toth	Marcia	not provided	N/A	Web-based Comments	22385	24
Totten	Tabitha	not provided	N/A	Web-based Comments	30102	24
Totty	Mary	not provided	N/A	Web-based Comments	23450	24
toubman	sara	not provided	N/A	Web-based Comments	28317	24
Touchstone	Lana	not provided	N/A	Web-based Comments	44908, 44909	34
Tountas	Barbara	not provided	N/A	Web-based Comments	53805	34
Tountas	Barbara	not provided	N/A	Web-based Comments	8807	24
Tour	Shatoiya de la	not provided	N/A	Web-based Comments	48756	34
Touyeres	maeva	gessdu45@gmail.com	N/A	Web-based comments	1960	1
Towbin	Rachel	not provided	N/A	Web-based Comments	26551	24
Tower	Lynn	not provided	N/A	Web-based Comments	22101	24
Tower	Patricia	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58704	N/A
Towers	Josepha	not provided	N/A	Web-based comments	57418	35
Towers	Kevin	not provided	N/A	Web-based Comments	20140	24
Towery	B.Todd	not provided	N/A	Web-based Comments	8588	24
Towle	Dawn	not provided	N/A	Web-based Comments	12248	24
Towle	Nan	not provided	N/A	Web-based Comments	24790	24
Towne	dawna	not provided	N/A	Web-based Comments	46497	34
Towner	Erline	not provided	N/A	Web-based Comments	14244	24
Townill	Linda	not provided	N/A	Web-based Comments	21448	24
Towning	Georgina	not provided	N/A	Web-based Comments	53443	34
Towns	Alyssa	not provided	N/A	Web-based Comments	7508	24
Townsend	Carlos	not provided	N/A	Web-based Comments	52296	34
Townsend	Cheryl	not provided	N/A	Web-based Comments	10678	24
Townsend	Peter	not provided	N/A	Web-based Comments	26295	24
Townsend	Sarah	not provided	N/A	Web-based Comments	55756	34
Townsend	Sarah	not provided	N/A	Web-based Comments	28416	24
Townsend	Steve	not provided	N/A	Web-based Comments	29407	24
Townsend	Sue	not provided	N/A	Web-based Comments	29556	24
Townsend	Taylor	not provided	N/A	Web-based Comments	55557	34
Towry	Paula	not provided	N/A	Web-based Comments	26102	24
Towsley	Brian	not provided	N/A	Web-based Comments	9514	24
Toy	Sherry	not provided	N/A	Web-based Comments	28909	24
Toyon	Rich	not provided	N/A	Web-based Comments	26927	24
Tozzi	Sharon	not provided	N/A	Web-based Comments	28719	24
Tracey Seguin	Joan	not provided	N/A	Web-based Comments	17748	24
trachtman	joey	not provided	N/A	Web-based Comments	17935	24
Tracy	Phil	phildtracy@hotmail.com	N/A	Web-based comments	1805	N/A
Trafican	Jeffrey	not provided	N/A	Web-based Comments	17103	24
Trafican	Patricia	not provided	N/A	Web-based Comments	25856	24
Trahan	Judy	not provided	N/A	Web-based Comments	18726	24
Trail	Galen	not provided	N/A	Web-based Comments	14738	24
Trail	Jennifer	not provided	N/A	Web-based Comments	17274	24
Trail	Pepper	not provided	N/A	Web-based Comments	58144	16
Train	Jeffrey	not provided	N/A	Web-based Comments	17104	24
Trainer	Tamie	not provided	N/A	Web-based Comments	30143	24
Trainor	Catherine	not provided	N/A	Web-based Comments	10329	24
Trainor	Nancy	not provided	N/A	Web-based Comments	25000	24
Trajanovska	Michelle	not provided	N/A	Web-based Comments	53346	34

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Trajanovska	Michelle	not provided	N/A	Web-based Comments	24396	24
Trammell	Jeffery	j_trammell@hotmail.com	N/A	Web-based comments	1909	5
Tran	Angela	not provided	N/A	Web-based Comments	44776	34
Tran	Britnee	not provided	N/A	Web-based Comments	9562	24
Tran	Dat	not provided	N/A	Web-based Comments	46833	34
Tran	Dat	not provided	N/A	Web-based Comments	11905	24
Tran	Kim	not provided	N/A	Web-based Comments	20206	24
Tran	Lisa	not provided	N/A	Web-based Comments	21650	24
Tran	Sheila	not provided	N/A	Web-based Comments	46874	34
Tran	Sheila	not provided	N/A	Web-based Comments	28814	24
Tran	Thanh	not provided	N/A	Web-based Comments	30405	24
Tran	Thuha	not provided	N/A	Web-based Comments	30573	24
Tranfaglia	Carol	not provided	N/A	Web-based Comments	10043	24
Tranie	Magali	not provided	N/A	Web-based Comments	22258	24
Transtrum	Wallace	mtranstrum4@q.com	N/A	Web-based comments	3675	13
Trapnell	William	not provided	N/A	Web-based Comments	31604	24
trask	David	not provided	N/A	Web-based Comments	50848	34
Trask	Jamie	not provided	N/A	Web-based Comments	16376	24
Trask	Sally	not provided	N/A	Web-based Comments	28035	24
Traub	Constance	not provided	N/A	Web-based Comments	11349	24
Traube	Patty	not provided	N/A	Web-based Comments	25965	24
Traut	Elizabeth	not provided	N/A	Web-based Comments	13863	24
TRAUT	JAMES	not provided	N/A	Web-based Comments	16319	24
Trauth	Beti Webb	not provided	N/A	Web-based Comments	44896, 44897	34
Trauth	Beti Webb	not provided	N/A	Web-based Comments	9068	24
Trauth	Claire	not provided	N/A	Web-based Comments	46014	34
Trauth	Claire	not provided	N/A	Web-based Comments	11147	24
Travers	L. J.	not provided	N/A	Web-based Comments	51088	34
Travesset	Isabel	not provided	N/A	Web-based Comments	15937	24
Travis	Dianne	not provided	N/A	Web-based Comments	12948	24
Travis	Lynn	not provided	N/A	Web-based Comments	22102	24
Travis	Marie	not provided	N/A	Web-based Comments	22727	24
Trayer	Jason	not provided	N/A	Web-based comments	57102	35
Treadaway	Janet	not provided	N/A	Web-based Comments	16648	24
Treadway	Carolyn	not provided	N/A	Web-based Comments	45849, 58109	34, 16
Treasure	Trudy	trudy.treasure@gmail.com	N/A	Web-based comments	3451	13
Treat	Amanda	not provided	N/A	Web-based Comments	7559	24
Treat	Jay	not provided	N/A	Web-based Comments	16818	24
Treffil	Michaela	not provided	N/A	Web-based Comments	54439	34
Treffry	Nancy	not provided	N/A	Web-based Comments	25001	24
Tregidgo	Richard	not provided	N/A	Web-based Comments	27062	24
trejo	arthur	not provided	N/A	Web-based Comments	8469	24
Tremain	Tom	ttreesalmon@yahoo.com	N/A	Web-based comments	3806	N/A
Tremaine	Lisa	not provided	N/A	Web-based Comments	21651	24
Tremayne	Kalie	not provided	N/A	Web-based Comments	19011	24
Tremblay	Marie-Eve	not provided	N/A	Web-based Comments	56490	34
Trendall	Michael	not provided	N/A	Web-based Comments	24238	24
Trenholm	K	not provided	N/A	Web-based Comments	18983	24
Trenholm	Kim	not provided	N/A	Web-based Comments	20207	24
trent	deborah	d8s54trent@gmail.com	N/A	Web-based comments	4996	N/A
Trepelas	Mary	not provided	N/A	Web-based Comments	23451	24
Trepod	Gary	not provided	N/A	Web-based Comments	14803	24
Treppeda	Cassandra	not provided	N/A	Web-based Comments	10235	24
Trescone	Thomas	not provided	N/A	Web-based Comments	57969, 47695	16, 34
Tresemer	Emma	not provided	N/A	Web-based Comments	56224	34
Trevey	Fred	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32292	N/A
Trevillian	Jacqui	not provided	N/A	Web-based Comments	16146	24
Trevillian	Linda	not provided	N/A	Web-based Comments	21449	24
Trevino	Reva	not provided	N/A	Web-based Comments	26874	24
Triana	Antonio	not provided	N/A	Web-based Comments	8371	24
Tricase	Joe	not provided	N/A	Web-based Comments	56107	34
Tricase	Joe	not provided	N/A	Web-based Comments	17901	24
Trice	Billy	not provided	N/A	Web-based Comments	9199	24
Trice	Mary Lou	not provided	N/A	Web-based Comments	23541	24
Trice	Tina	not provided	N/A	Web-based Comments	53564	34
Trice	Tina	not provided	N/A	Web-based Comments	30697	24
Trickett	Heather	not provided	N/A	Web-based Comments	15546	24
Tricot	Caroline	not provided	N/A	Web-based Comments	44476	34
Triebels	Cj	not provided	N/A	Web-based comments	57444	35
triebenbach	violet	not provided	N/A	Web-based Comments	31259	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Triest	Toni	not provided	N/A	Web-based Comments	30803	24
Trilling	Beth	not provided	N/A	Web-based Comments	9058	24
Trimble	Alex	not provided	N/A	Web-based Comments	45775	34
trimble	bill	not provided	N/A	Web-based Comments	9188	24
Trimble	J	not provided	N/A	Web-based Comments	49738	34
Trimble	J	not provided	N/A	Web-based Comments	15994	24
Trimble	Nathan	not provided	N/A	Web-based Comments	25104	24
Trimble	Ursula	not provided	N/A	Web-based Comments	48363	34
Trinchitella	Amy	not provided	N/A	Web-based Comments	7677	24
Trindl	William	not provided	N/A	Web-based Comments	46189	34
Trinh	Christopher	not provided	N/A	Web-based Comments	46732	34
Trinidad	Christina	not provided	N/A	Web-based Comments	10883	24
Trinidad Sprung	Brianna	not provided	N/A	Web-based Comments	9532	24
Trinkaus	Emily	not provided	N/A	Web-based Comments	51593	34
Trinkaus	Emily	not provided	N/A	Web-based Comments	14045	24
Trinz	Ann	not provided	N/A	Web-based Comments	8092	24
Triolo	sandy	not provided	N/A	Web-based Comments	28263	24
Triplett	Bruce and Penny	not provided	N/A	Web-based Comments	48152	34
Triplett	Bruce and Penny	not provided	N/A	Web-based Comments	9630	24
Triplett	Tia	not provided	N/A	Web-based Comments	30578	24
Tripp	Jack	not provided	N/A	Web-based Comments	16045	24
Tripp	Martin	not provided	N/A	Web-based Comments	48680, 48681	34
Tripp	Tom	not provided	N/A	Web-based Comments	30774	24
Trissel	Nancy	not provided	N/A	Web-based Comments	25002	24
TRITTEN	KAREN	not provided	N/A	Web-based Comments	55962	34
Triueblood	Valerie	not provided	N/A	Web-based Comments	50308	34
Trivedi	BJ	not provided	N/A	Web-based Comments	47961, 47962	34
Trivedi	BJ	not provided	N/A	Web-based Comments	9208	24
Trivedi	Subir	not provided	N/A	Web-based Comments	50468	34
Troccoli	lyleen	not provided	N/A	Web-based Comments	45486, 45563	34
Troendle	Timothy	not provided	N/A	Web-based Comments	30663	24
Trofimenko	Nikolay	not provided	N/A	Web-based Comments	25291	24
Troia	Dana	not provided	N/A	Web-based Comments	48887	34
Troiano	Joseph	not provided	N/A	Web-based Comments	18397	24
Trojan	Anna	not provided	N/A	Web-based comments	791	1
Troland	Mary	not provided	N/A	Web-based Comments	49214	34
Troll	Laura	not provided	N/A	Web-based Comments	47109	34
Trolz	Hannah	not provided	N/A	Web-based comments	57588	35
Trombley	Geri	not provided	N/A	Web-based comments	57222	35
Trombley	Lily	not provided	N/A	Web-based comments	57224	35
Trombley	Paul	not provided	N/A	Web-based comments	57223	35
Trombley	Zoey	not provided	N/A	Web-based comments	57225	35
Tronhjem	Nanna	not provided	N/A	Web-based Comments	25036	24
Tropeano	Bianca	not provided	N/A	Web-based Comments	9159	24
Trosper	Michelle	not provided	N/A	Web-based Comments	24397	24
Troth	Jillian	not provided	N/A	Web-based Comments	17561	24
Troth	Tracy S	not provided	N/A	Web-based Comments	55415	34
Trotman	Alicia	not provided	N/A	Web-based Comments	7385	24
Trotta	Nicole	not provided	N/A	Web-based Comments	48257	34
Trotta	Nicole	not provided	N/A	Web-based Comments	25257	24
Trotter	Jack	not provided	N/A	Web-based Comments	16046	24
Trottier	Jaye	not provided	N/A	Web-based Comments	47740, 47741	34
Trottier	Jaye	not provided	N/A	Web-based Comments	16824	24
Trottier	Nicholas	not provided	N/A	Web-based Comments	25181	24
Troup	Brenda	not provided	N/A	Web-based Comments	9425	24
Troup	Scott	not provided	N/A	Web-based Comments	51016, 51017	34
Troup	Scott	not provided	N/A	Web-based Comments	28502	24
Troutman	Mike	hawk4300@yahoo.com	N/A	Web-based comments	2204	N/A
Troutman	Phil	not provided	N/A	Web-based Comments	26328	24
Trouve	Dawn	not provided	N/A	Web-based Comments	12249	24
Trouvetou	Unreadable	not provided	N/A	Web-based Comments	14633	24
Trover	Larry	not provided	N/A	Web-based Comments	20590	24
TROXEL	MARK	trox416@gmail.com	N/A	Web-based comments	1543	N/A
Troxell	Nicole	not provided	N/A	Web-based Comments	25258	24
Troxell	Shawn	not provided	N/A	Web-based Comments	28756	24
Troy	Dave	dstroy@troyins.com	N/A	Web-based comments	3906	N/A
Troy	Kristin	kristin@middleforklodge.com	N/A	Web-based comments	31935	N/A
Troy	Mark	mark@middleforklodge.com	N/A	Web-based comments	6099	N/A
Troyanovich	Steve	not provided	N/A	Web-based Comments	29408	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Trudeau	Stephanie	not provided	N/A	Web-based Comments	53828	34
Trudeau	Stephanie	not provided	N/A	Web-based Comments	29258	24
Trudel	Christiane G	not provided	N/A	Web-based Comments	47006	34
Trudel	Line	not provided	N/A	Web-based Comments	47499	34
Trudel	Robert	not provided	N/A	Web-based Comments	55240, 55241	34
True	James	not provided	N/A	Web-based Comments	45162	34
Truesdall	Heather	not provided	N/A	Web-based Comments	15547	24
Truex	Tess	not provided	N/A	Web-based Comments	44490, 44491	34
Trujillo	Oceana	not provided	N/A	Web-based Comments	25420	24
Trujillo	Yolanda	not provided	N/A	Web-based Comments	47788	34
Truman	Barry	not provided	N/A	Web-based Comments	8867	24
Truman	Francesca	not provided	N/A	Web-based Comments	45477	34
Trumbo	Kristine	not provided	N/A	Web-based Comments	20421	24
Trump	Carol	caroltrump0@gmail.com	N/A	Web-based comments	2036	N/A
Trump	Donald	not provided	N/A	Web-based comments	4496	N/A
Truog	Justin	not provided	N/A	Web-based Comments	18960	24
Truong	Hong-An	not provided	N/A	Web-based Comments	15781	24
Trup	Linda	not provided	N/A	Web-based Comments	21450	24
Trupin	Joel	not provided	N/A	Web-based comments	57672	35
Truschel	Ann-Louise	not provided	N/A	Web-based Comments	8317	24
Truyens	Ann	not provided	N/A	Web-based Comments	8093	24
Tryggeseth	Jackie	not provided	N/A	Web-based comments	57243	35
Tryggeseth	Jackie	not provided	N/A	Web-based Comments	55585	34
Tryggeseth	Jackie	not provided	N/A	Web-based Comments	16078	24
Tryon	Lance	not provided	N/A	Web-based Comments	46920	34
Tryon	Laura	not provided	N/A	Web-based Comments	20712	24
Trypaluk	Barbara	rsage@nycap.rr.com	N/A	Web-based comments	2489	N/A
Trypaluk	Barbara	trypalukb@gmail.com	N/A	Web-based comments	407	1
Tsacle	Edith	not provided	N/A	Web-based Comments	46758	34
Tsadok	Orna	not provided	N/A	Web-based Comments	25451	24
Tsai	Frank	not provided	N/A	Web-based Comments	14549	24
Tsantes	Demetra	not provided	N/A	Web-based Comments	51413	34
Tsantilis	Senta	not provided	N/A	Web-based Comments	28534	24
Tschann	Denise	not provided	N/A	Web-based Comments	12664	24
Tschirhart	Michael	not provided	N/A	Web-based Comments	24239	24
Tse	Keith	not provided	N/A	Web-based Comments	46523, 46524	34
Tse	Keith	not provided	N/A	Web-based Comments	19887	24
Tseu	Christina	not provided	N/A	Web-based Comments	47507	34
Tshibangu	Mandy	not provided	N/A	Web-based Comments	45095	34
Tsiamouri	Sofia	not provided	N/A	Web-based Comments	47288	34
tsiamouri	sofia	not provided	N/A	Web-based Comments	29045	24
Tsiao	Cathy	not provided	N/A	Web-based Comments	54805	34
Tsien	Wendy	not provided	N/A	Web-based Comments	54567	34
Tsimeraki	Vasilia	not provided	N/A	Web-based comments	57372	35
Tsou	C	not provided	N/A	Web-based comments	57394	35
Tsouvalas	Alex	not provided	N/A	Web-based Comments	7254	24
Tsung-Sze	Nina	not provided	N/A	Web-based Comments	25318	24
Tsylor	Sandra	not provided	N/A	Web-based Comments	28224	24
Tuan	Linda	not provided	N/A	Web-based Comments	21451	24
tubb	sue	not provided	N/A	Web-based Comments	29557	24
Tublin	Dian	not provided	N/A	Web-based Comments	12751	24
Tucciarone	Frank	not provided	N/A	Web-based Comments	14550	24
tuck	judith	not provided	N/A	Web-based Comments	51234	34
Tucker	Ann	not provided	N/A	Web-based Comments	8094	24
Tucker	Cindy	not provided	N/A	Web-based Comments	11101	24
Tucker	Daniel	not provided	N/A	Web-based Comments	11782	24
Tucker	David	not provided	N/A	Web-based Comments	58206	16
Tucker	Della	dellakeister@hotmail.com	N/A	Web-based comments	2321, 2322	N/A
Tucker	Donna	not provided	N/A	Web-based Comments	13194	24
Tucker	Irene	not provided	N/A	Web-based Comments	15914	24
Tucker	James	not provided	N/A	Web-based Comments	53334	34
Tucker	Karen	not provided	N/A	Web-based Comments	50048	34
Tucker	Karen	not provided	N/A	Web-based Comments	19231	24
Tucker	Kathleen	not provided	N/A	Web-based Comments	19603	24
Tucker	Kelly	not provided	N/A	Web-based Comments	19948	24
Tucker	Lucinda	not provided	N/A	Web-based Comments	55944, 55945	34
Tucker	Matthew	not provided	N/A	Web-based Comments	45272	34
Tucker	Meredith	not provided	N/A	Web-based Comments	23985	24
Tucker	Nancy	not provided	N/A	Web-based Comments	25003	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Tucker	Nancy	not provided	N/A	Web-based Comments	25004	24
Tucker	Sally	not provided	N/A	Web-based Comments	44913, 44986	34
Tucker	Sally	not provided	N/A	Web-based Comments	28036	24
Tucker	Sharon	not provided	N/A	Web-based Comments	28720	24
Tucker	Steven	stevenandlinda@msn.com	N/A	Web-based comments	4526	N/A
TUCKNESS	DANA	farmertuck@ymail.com	N/A	Web-based comments	2345	N/A
Tuddenham	Anne	not provided	N/A	Web-based Comments	8250	24
Tudor	Chris	not provided	N/A	Web-based Comments	10792	24
Tudor	Jane	not provided	N/A	Web-based Comments	16542	24
Tudor	Jay	not provided	N/A	Web-based Comments	50284	34
Tudor	Kate White	not provided	N/A	Web-based Comments	19404	24
Tufekci	Mine	not provided	N/A	Web-based comments	1148	1
Tuff	Paul	not provided	N/A	Web-based Comments	50667	34
Tuff	Paul	not provided	N/A	Web-based Comments	26052	24
Tuke	Carla	not provided	N/A	Web-based Comments	51505, 51506	34
Tuke	Carla	not provided	N/A	Web-based Comments	9837	24
Tullis	Jan	not provided	N/A	Web-based Comments	50366	34
Tullis	Stacey	satullis@gmail.com	N/A	Web-based comments	3824	1
Tullman	June	not provided	N/A	Web-based Comments	45650	34
Tullman	June	not provided	N/A	Web-based Comments	18944	24
Tullmann	Heidi	tullmannator@gmail.com	N/A	Web-based comments	6218	1
Tully	Maureen	not provided	N/A	Web-based Comments	23721	24
Tully	Stephanie	not provided	N/A	Web-based Comments	29259	24
Tulsi	Reneet	not provided	N/A	Web-based Comments	26863	24
Tuma	Mary	not provided	N/A	Web-based Comments	44964	34
Tuma	Mary	not provided	N/A	Web-based Comments	23452	24
Tuminski	Robert	not provided	N/A	Web-based Comments	27401	24
Tumolo	Christopher	not provided	N/A	Web-based Comments	46719, 46720	34
Tumolo	Christopher	not provided	N/A	Web-based Comments	11033	24
Tumwesigye	Godfrey Elasmus	not provided	N/A	Web-based Comments	15178	24
Tunaydin	Pelin	not provided	N/A	Web-based Comments	26187	24
Tune	Jonathan	not provided	N/A	Web-based comments	32116	N/A
Tunnell	James	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	2971	N/A
Tunstall	Jean	not provided	N/A	Web-based Comments	16892	24
Tuomey	AE	not provided	N/A	Web-based Comments	7108	24
Tuomi	R.G.	not provided	N/A	Web-based Comments	26495	24
Tupasi	Anthony	not provided	N/A	Web-based Comments	8349	24
Tupper	Larry	ldtupper@outlook.com	N/A	Web-based comments	3065	N/A
Turbush	Heather	not provided	N/A	Web-based Comments	52789, 52790	34
Turbush	Heather	not provided	N/A	Web-based Comments	15548	24
Turchin	Janina	not provided	N/A	Web-based Comments	16725	24
Turco	Jill	not provided	N/A	Web-based Comments	49133	34
Turcotte	Chantale	not provided	N/A	Web-based Comments	51300	34
Turcotte	Nicole	nicole.turcotte@gmail.com	N/A	Web-based comments	650	1
TUREAC	ANDREEA	not provided	N/A	Web-based Comments	7790	24
Turetsky	Samantha	not provided	N/A	Web-based Comments	28090	24
Turk	Jeremy	not provided	N/A	Web-based Comments	17322	24
Turk RN	Lawrence	not provided	N/A	Web-based Comments	20888	24
TURKENKOPF	MARGARET	not provided	N/A	Web-based Comments	22509	24
Turley	Anthon	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	56669	13
Turley	Gertrude	not provided	N/A	Web-based Comments	15010	24
Turley	Leann	not provided	N/A	Web-based Comments	49008	34
Turley	Leann	not provided	N/A	Web-based Comments	20915	24
Turman	Vinny	not provided	N/A	Web-based Comments	31255	24
Turnbull	Kathleen	not provided	N/A	Web-based Comments	51103	34
Turner	Angela	not provided	N/A	Web-based Comments	7933	24
Turner	Breanna	not provided	N/A	Web-based Comments	9386	24
Turner	Catherine	not provided	N/A	Web-based Comments	46157	34
Turner	Dena	not provided	N/A	Web-based Comments	44994	34
Turner	Dena	not provided	N/A	Web-based Comments	12619	24
Turner	Ethan	not provided	N/A	Web-based Comments	58252	16
Turner	Gabriella	not provided	N/A	Web-based Comments	14652	24
Turner	Gina	not provided	N/A	Web-based Comments	15069	24
Turner	Jacqueline	not provided	N/A	Web-based Comments	16133	24
Turner	James	not provided	N/A	Web-based Comments	46743, 46744	34
Turner	James	not provided	N/A	Web-based Comments	16320	24
Turner	Joan	not provided	N/A	Web-based Comments	17749	24
Turner	June	not provided	N/A	Web-based Comments	18945	24
Turner	Kathy	not provided	N/A	Web-based Comments	19768	24
Turner	Kimberly	not provided	N/A	Web-based Comments	20247	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Turner	Lindsay	not provided	N/A	Web-based Comments	21487	24
turner	margaret	not provided	N/A	Web-based Comments	22510	24
Turner	Mary Lee	not provided	N/A	Web-based Comments	23537	24
Turner	Monte	not provided	N/A	Web-based Comments	50991	34
Turner	Phyllis	not provided	N/A	Web-based Comments	49431	34
Turner	Rick	not provided	N/A	Web-based comments	5891	10
TURNER	ROBERT	not provided	N/A	Web-based Comments	27402	24
Turner	Ron	not provided	N/A	Web-based Comments	27638	24
TURNER	SCOTT	not provided	N/A	Web-based Comments	28503	24
Turner	Stu	not provided	N/A	Web-based comments	58839	N/A
Turner	Teresa	not provided	N/A	Web-based Comments	30301	24
Turner	Traci	not provided	N/A	Web-based Comments	51759	34
Turner	Traci	not provided	N/A	Web-based Comments	30855	24
Turney	Donna	not provided	N/A	Web-based comments	57640	35
Turney	Katie	not provided	N/A	Web-based comments	56876	35
Turney	Marcia	not provided	N/A	Web-based Comments	22386	24
Turney	Thomas	not provided	N/A	Web-based Comments	30554	24
Turnquist	David	not provided	N/A	Web-based Comments	12161	24
Turnquist	Megan	not provided	N/A	Web-based Comments	23807	24
Turobiner	Martha	not provided	N/A	Web-based Comments	23134	24
Turoff	Fred	not provided	N/A	Web-based Comments	14578	24
TUROLLA	Eric	not provided	N/A	Web-based Comments	14147	24
Turov	Ilya	not provided	N/A	Web-based Comments	56362	34
Turowski	Anamyn	not provided	N/A	Web-based Comments	7707	24
Turpeinen	Tiina	not provided	N/A	Web-based comments	56750	35
Turpin	Anthony	not provided	N/A	Web-based comments	57379	35
Turpin	Jan	not provided	N/A	Web-based Comments	16437	24
Turrubiate	K	not provided	N/A	Web-based Comments	55102	34
Turrubiate	Kori	not provided	N/A	Web-based Comments	20310	24
Turtle	Carol	not provided	N/A	Web-based Comments	10044	24
Tuscher	Ralph	not provided	N/A	Web-based Comments	45003, 45004	34
Tustin	Kristi	not provided	N/A	Web-based Comments	20362	24
TUTHILL	SCOTT	scotttut@icloud.com	N/A	Web-based comments	2816	N/A
Tuttle	Carla	not provided	N/A	Web-based Comments	9838	24
Tuttle	Denise	not provided	N/A	Web-based Comments	12665	24
Tuttle	Mark	not provided	N/A	Web-based comments	1915	N/A
Tututi	Martha	not provided	N/A	Web-based Comments	23135	24
Tuvunivono	Elizabeth	not provided	N/A	Web-based Comments	13864	24
Tvedt	David	not provided	N/A	Web-based Comments	49095	34
Tvedt	David	not provided	N/A	Web-based Comments	12162	24
Twa	John	john_twa@yahoo.com	N/A	Web-based comments	5651*	N/A
Twardoch	Petra	not provided	N/A	Web-based Comments	26313	24
Tweedy	Jeanne	not provided	N/A	Web-based Comments	58384	28
TWIGG	JOANNA	not provided	N/A	Web-based Comments	53321, 53322	34
Twitmyer	Jane	not provided	N/A	Web-based Comments	16543	24
two-Eagle	arel	not provided	N/A	Web-based Comments	8403	24
Twombly	Glen A	not provided	N/A	Web-based Comments	49396	34
Twombly	Karl	not provided	N/A	Web-based Comments	19306	24
Ty	Janet	not provided	N/A	Web-based Comments	16649	24
Tyler	Bridget	not provided	N/A	Web-based Comments	9542	24
Tyler	Jenn	not provided	N/A	Web-based Comments	17136	24
Tyler	Jess	not provided	N/A	Web-based Comments	55905	34
Tyler	Margaret	not provided	N/A	Web-based Comments	22511	24
Tyler	Margaret Guilfoy	not provided	N/A	Web-based Comments	47452	34
Tyler	Naomi	naomityler00@gmail.com	N/A	Web-based comments	32008	27
Tyler	Tobi	not provided	N/A	Web-based Comments	45959	34
Tyler-Marks	Jennifer	not provided	N/A	Web-based Comments	17275	24
Tymkiw	Liz	not provided	N/A	Web-based Comments	21697	24
Tyndall	Carl	not provided	N/A	Web-based Comments	9813	24
Tyndall	Lucy	not provided	N/A	Web-based Comments	21959	24
Tyner	Wil	wilzt@sbcglobal.net	N/A	Web-based comments	111, 2331	N/A
Tysall	Lee	not provided	N/A	Web-based Comments	51031	34
Tyson	Daniel	not provided	N/A	Web-based Comments	11783	24
Tyson	Kathleen	not provided	N/A	Web-based Comments	19604	24
Tyson	Liberty	not provided	N/A	Web-based comments	4972	N/A
Tyson	Robert	not provided	N/A	Web-based Comments	27403	24
Tzelil	Canan	not provided	N/A	Web-based Comments	52974	34
Tzeng	Fred	not provided	N/A	Web-based Comments	14579	24
u	lynn	not provided	N/A	Web-based Comments	55440	34
Uchno	LJ	not provided	N/A	Web-based Comments	46309	34

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Uchno	LJ	not provided	N/A	Web-based Comments	21708	24
Ucko	Aaron	not provided	N/A	Web-based Comments	47017	34
Ucko	Aaron	not provided	N/A	Web-based Comments	7004	24
Uddenberg	Signo	signouddenberg@gmail.com	N/A	Web-based comments	4545	20
Uebelacker	Judith	not provided	N/A	Web-based Comments	18657	24
Uecker	Loren	not provided	N/A	Web-based Comments	21749	24
Ugolik	Lori	not provided	N/A	Web-based Comments	21810	24
Ugolik	Loril	not provided	N/A	Web-based Comments	56319	34
Uhl	Henny	not provided	N/A	Web-based Comments	15656	24
Uhler	Bob	not provided	N/A	Web-based Comments	9256	24
Uhler	Brenda	not provided	N/A	Web-based Comments	9426	24
Uhlir	Christina	not provided	N/A	Web-based Comments	47502	34
Uko	Edet	not provided	N/A	Web-based Comments	13463	24
Ulinder	David	not provided	N/A	Web-based Comments	12163	24
Ullrich	Linda	not provided	N/A	Web-based Comments	21452	24
Ullyette	Laurel	not provided	N/A	Web-based Comments	20748	24
Ulmer	Anna	anulmer@gmail.com	N/A	Web-based comments	6859	1
Ulreich-Power	Siobhan	not provided	N/A	Web-based Comments	29028	24
Ulrich	Barbara	devorulric@gmail.com	N/A	Web-based comments	2278	N/A
Ulrich	Jeanne	not provided	N/A	Web-based Comments	16977	24
Ulrich	Julia	not provided	N/A	Web-based Comments	18780	24
Ultican	K.	not provided	N/A	Web-based comments	6734	N/A
Umbarger	C	johnu42@aol.com	N/A	Web-based comments	4079	N/A
Umphred	Neal	not provided	N/A	Web-based Comments	51660	34
Umphries	Andrew	not provided	N/A	Web-based Comments	45435	34
Umphries	Andrew	not provided	N/A	Web-based Comments	7856	24
Underhill	Katherina	not provided	N/A	Web-based Comments	19429	24
Underwood	Kailyn	not provided	N/A	Web-based Comments	19002	24
Underwood	Merissa	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	2142	N/A
Underwood	Paul	not provided	N/A	Web-based Comments	26053	24
Ungar	Arthur	not provided	N/A	Web-based Comments	8470	24
Ungar	Jonathan	not provided	N/A	Web-based Comments	18300	24
Ungeheier	Betsy	not provided	N/A	Web-based Comments	49952	34
Unger	Charles	not provided	N/A	Web-based Comments	10536	24
Unger	Dan	not provided	N/A	Web-based Comments	11682	24
Unger	Jay	not provided	N/A	Web-based Comments	47902	34
Unger	Linda	not provided	N/A	Web-based Comments	54939	34
Unger	Michelle	not provided	N/A	Web-based Comments	48635	34
unger	michelle	not provided	N/A	Web-based Comments	24398	24
Unger	Pamela	not provided	N/A	Web-based Comments	25593	24
Unger	Pamela R.	not provided	N/A	Web-based Comments	49405	34
ungureanu	mihai	not provided	N/A	Web-based Comments	47557	34
ungureanu	Mihail	not provided	N/A	Web-based Comments	48810	34
unit	isabelle	not provided	N/A	Web-based Comments	15949	24
Unknown	Unknown	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32268*	N/A
Unninayar	Cynthia	not provided	N/A	Web-based Comments	11559	24
Uno	Frederic	fkuno2001@gmail.com	N/A	Web-based comments	5355	8
Unreadable	Albeniz	not provided	N/A	Web-based Comments	7207	24
Unreadable	Alejandro	not provided	N/A	Web-based Comments	7228	24
Unreadable	Arlette	not provided	N/A	Web-based Comments	8440	24
Unreadable	Barbara	not provided	N/A	Web-based Comments	8745	24
Unreadable	Caroline	not provided	N/A	Web-based comments	56778	35
Unreadable	Caroline	not provided	N/A	Web-based Comments	10129	24
Unreadable	Catherine	not provided	N/A	Web-based comments	56768	35
Unreadable	Claire	not provided	N/A	Web-based Comments	11143	24
Unreadable	Cuzon	angelique.cuzon@hotmail.fr	N/A	Web-based comments	1285	1
Unreadable	Daniel Emmanuel	not provided	N/A	Web-based Comments	11793	24
Unreadable	Gitte	not provided	N/A	Web-based Comments	15102	24
Unreadable	Guillaume	not provided	N/A	Web-based Comments	15331	24
Unreadable	ito	lunako80@GMAIL.COM	N/A	Web-based comments	1623	1
Unreadable	jean-francois	not provided	N/A	Web-based Comments	16921	24
Unreadable	Joan	not provided	N/A	Web-based Comments	17718	24
Unreadable	Juliette	not provided	N/A	Web-based Comments	18920	24
Unreadable	Kenya	not provided	N/A	Web-based Comments	54284	34
Unreadable	Laura	not provided	N/A	Web-based Comments	20680	24
Unreadable	Laura	not provided	N/A	Web-based Comments	20698	24
Unreadable	Liaisan	not provided	N/A	Web-based Comments	47485	34
Unreadable	Magaly	not provided	N/A	Web-based comments	56772	35
Unreadable	Magaly	not provided	N/A	Web-based Comments	58127	16
Unreadable	Mathias	not provided	N/A	Web-based comments	56747	35

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Unreadable	Monika	not provided	N/A	Web-based Comments	24651	24
Unreadable	Nicole	not provided	N/A	Web-based Comments	25228	24
Unreadable	Nina	not provided	N/A	Web-based Comments	25303	24
Unreadable	Paulo	not provided	N/A	Web-based Comments	26128	24
Unreadable	R.	not provided	N/A	Web-based Comments	26492	24
Unreadable	Renald	not provided	N/A	Web-based Comments	26822	24
Unreadable	Sacha	not provided	N/A	Web-based comments	2093	1
Unreadable	Sara	not provided	N/A	Web-based Comments	28308	24
Unreadable	Sylvie	not provided	N/A	Web-based Comments	30082	24
Unreadable	Szabari	not provided	N/A	Web-based Comments	30086	24
Unreadable	Tihana	not provided	N/A	Web-based Comments	30594	24
Unreadable	Unreadable	not provided	N/A	Web-based Comments	29104	24
Unreadable	Unreadable	not provided	N/A	Web-based Comments	47963, 47964	34
Unreadable	Unreadable	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	56643	5
Unreadable	Unreadable	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58719	36
Unreadable	Unreadable	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	56636	32
Unreadable	Unreadable	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32332	N/A
Unreadable	Unreadable	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	56625, 56630, 56634	32
Unreadable	Unreadable	not provided	N/A	Web-based Comments	18334	24
Unreadable	Unreadable	not provided	N/A	Web-based Comments	8538	24
Unreadable	Unreadable	not provided	N/A	Web-based Comments	17489	24
Unreadable	Vianneth	not provided	N/A	Web-based Comments	31114	24
Unruh	H.	not provided	N/A	Web-based Comments	58417	34
Untalan	Meris	not provided	N/A	Web-based Comments	48804	34
UNTERNEHR	Danielle	not provided	N/A	Web-based Comments	11820	24
Upp	Cynthia	not provided	N/A	Web-based Comments	11560	24
Uppgaard	Heidi	not provided	N/A	Web-based Comments	51696, 51697	34
UPTON	JESSICA	not provided	N/A	Web-based Comments	17473	24
upton	richard	not provided	N/A	Web-based Comments	27063	24
Urbain	Mireille	not provided	N/A	Web-based Comments	44434, 44435	34
Urbain	Mireille	not provided	N/A	Web-based Comments	24542	24
Urban	Pat	not provided	N/A	Web-based Comments	25676	24
Urban	Patrik	purbikfs@gmail.com	N/A	Web-based comments	991	N/A
Urban	Robin	not provided	N/A	Web-based Comments	27532	24
Urban	TJ	turban1169@gmail.com	N/A	Web-based comments	2212, 4558	1
Urbanovich	Mary	not provided	N/A	Web-based Comments	23453	24
Urbanowicz	Rachel	not provided	N/A	Web-based Comments	26552	24
Urbanski	Matthew	not provided	N/A	Web-based Comments	23669	24
Uriarte	Ray	not provided	N/A	Web-based Comments	45399	34
Uriarte	Ray	not provided	N/A	Web-based Comments	26678	24
Uriarte	Rsy	not provided	N/A	Web-based comments	57380	35
Urie	Gary	not provided	N/A	Web-based Comments	14804	24
Urquhart	Andrew	not provided	N/A	Web-based Comments	7857	24
Urquhart	Caro Urquhart	not provided	N/A	Web-based Comments	9878	24
Urquhart	Steven	not provided	N/A	Web-based Comments	46747, 46748	34
Urrutia	Anne and Xavier	not provided	N/A	Web-based Comments	8260	24
Ursini	Mary Beth	not provided	N/A	Web-based Comments	23509	24
Urso	Amelia	not provided	N/A	Web-based Comments	7583	24
Urso	Massimiliano	not provided	N/A	Web-based Comments	23598	24
Urval	Sumida	not provided	N/A	Web-based Comments	29569	24
Usahanun	Waltraud	not provided	N/A	Web-based Comments	31371	24
Usami	C.	1madura1200@gmail.com	N/A	Web-based comments	2707	4
Usami	Chris	not provided	N/A	Web-based Comments	53178	34
Usami	Chris	not provided	N/A	Web-based Comments	10793	24
Usaraga	Ethel	not provided	N/A	Web-based Comments	14286	24
Usgaonker	Rajdeep	not provided	N/A	Web-based Comments	26581	24
Ussini	Monique	not provided	N/A	Web-based Comments	24658	24
Utigaard	Nina	not provided	N/A	Web-based Comments	25319	24
Utterback	Margot	not provided	N/A	Web-based Comments	22556	24
UTZ	Lor	not provided	N/A	Web-based Comments	54878	34
Utz	Lory	not provided	N/A	Web-based Comments	54879	34
Utzinger	Christine	not provided	N/A	Web-based Comments	10988	24
Uwins	Jennifer	not provided	N/A	Web-based Comments	17276	24
Uyenishi	Steve	not provided	N/A	Web-based Comments	29409	24
Uzarski	Joelle	not provided	N/A	Web-based Comments	17933	24
Uzuner	Selim	not provided	N/A	Web-based Comments	46716, 58034	34, 16
uzych	leo	not provided	N/A	Web-based Comments	47044	34
V	B	not provided	N/A	Web-based Comments	8576	24
V	Elsie	not provided	N/A	Web-based Comments	13989	24
V	Gregory	not provided	N/A	Web-based Comments	15298	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
V	Jack	Jvbrew@gmail.com	N/A	Web-based comments	3541	13
V	Kim	not provided	N/A	Web-based Comments	20208	24
v	s	not provided	N/A	Web-based Comments	27951	24
V	V	not provided	N/A	Web-based Comments	45342, 55425	34
V	V	not provided	N/A	Web-based Comments	30990	24
V.	Gina	not provided	N/A	Web-based comments	31926	1
V.	Steve	not provided	N/A	Web-based Comments	49562, 49563	34
V.	Steve	not provided	N/A	Web-based Comments	29410	24
Va	Glenda	not provided	N/A	Web-based Comments	15125	24
Vacanti	Adrienne	not provided	N/A	Web-based Comments	7104	24
Vaccaro	Ms. Terry	not provided	N/A	Web-based Comments	24690	24
Vacek	Radko	not provided	N/A	Web-based Comments	26567	24
VACHEZ	GERARD J	not provided	N/A	Web-based Comments	14980	24
Vackar	Linda	not provided	N/A	Web-based Comments	21453	24
Vadnais	Kathleen	not provided	N/A	Web-based Comments	54195	34
vahed	shaheda	not provided	N/A	Web-based Comments	28557	24
Vail	Cameron	not provided	N/A	Web-based Comments	55622	34
Vaillancourt	Denise	not provided	N/A	Web-based Comments	12666	24
Vaillancourt	Francois	not provided	N/A	Web-based Comments	14513	24
Vaillancourt	Michele	not provided	N/A	Web-based Comments	51466, 51467	34
Vaillancourt	Michele Vaillancourt	not provided	N/A	Web-based Comments	24315	24
Vaillancourt	Paul	not provided	N/A	Web-based Comments	26054	24
Vairo	Sylvia	not provided	N/A	Web-based Comments	46544	34
Vairo	Sylvia	not provided	N/A	Web-based Comments	30078	24
Vakili	Janice	not provided	N/A	Web-based Comments	16704	24
Vakulyk	Iryna	not provided	N/A	Web-based Comments	15929	24
Valade	Arielle	not provided	N/A	Web-based Comments	8416	24
Valadez	Stephanie	not provided	N/A	Web-based Comments	29260	24
Valakas	Antonia	not provided	N/A	Web-based Comments	8362	24
Valamanesh	Fereshteh	not provided	N/A	Web-based Comments	14422	24
Valance	Liberty	not provided	N/A	Web-based Comments	48270	34
Valdes	Nick	not provided	N/A	Web-based Comments	25207	24
Valdez	D	not provided	N/A	Web-based Comments	46241	34
Valdez	D	not provided	N/A	Web-based Comments	11590	24
Valdez	Deborah	not provided	N/A	Web-based comments	57355	35
Valdez	Samuel	not provided	N/A	Web-based Comments	47671, 47672	34
Valdez	Samuel	not provided	N/A	Web-based Comments	28103	24
Valdiviezo	Kerrie	kerrie.valdiviezo@gmail.com	N/A	Web-based comments	757	1
Vale	Christine	not provided	N/A	Web-based Comments	10989	24
Valencia	Guillermo	not provided	N/A	Web-based Comments	53630	34
Valencia Montoya	Marina	not provided	N/A	Web-based Comments	22841	24
Valente	Barbara	not provided	N/A	Web-based Comments	8808	24
Valente	Donna	not provided	N/A	Web-based Comments	54626	34
Valente	Donna	not provided	N/A	Web-based Comments	13195	24
Valente	Mary	not provided	N/A	Web-based Comments	51001	34
Valente	Nancy	not provided	N/A	Web-based Comments	52290	34
Valentine	Devin	devinvalentine@live.com	N/A	Web-based comments	4288	N/A
Valentine	Jennifer	not provided	N/A	Web-based comments	57047	35
valentine	jennifer	not provided	N/A	Web-based Comments	50016, 50017	34
Valentine	Jennifer	not provided	N/A	Web-based Comments	17277	24
Valentine	Kim	not provided	N/A	Web-based Comments	51594	34
Valentino	Ron	not provided	N/A	Web-based Comments	27639	24
Valenzuela	Sarah	not provided	N/A	Web-based comments	57607	35
Valero	Maudie	not provided	N/A	Web-based Comments	47763	34
Valerugo	Katherine	not provided	N/A	Web-based Comments	19486	24
Vales	Audrey	not provided	N/A	Web-based Comments	55021, 55022	34
Valinoti	Raymond	not provided	N/A	Web-based Comments	26696	24
Valko	Terri	not provided	N/A	Web-based Comments	30354	24
Valle	Damayanti	not provided	N/A	Web-based Comments	55072, 55073	34
Valle	David	not provided	N/A	Web-based Comments	12164	24
Valle	Nayda	not provided	N/A	Web-based Comments	56210	34
Valle	Nayda	not provided	N/A	Web-based Comments	25111	24
valle	nyra	not provided	N/A	Web-based Comments	25411	24
Vallee	Michelle	not provided	N/A	Web-based Comments	58464	34
Vallens	Laurie	not provided	N/A	Web-based Comments	20862	24
Valney	John &Shirley	not provided	N/A	Web-based Comments	18213	24
van	duncan	dgvanarsdale@live.com	N/A	Web-based comments	5277	N/A
Van	Gregory	not provided	N/A	Web-based comments	5357	N/A
Van Aken	Richard	not provided	N/A	Web-based Comments	27064	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Van Alstyne	Anne	not provided	N/A	Web-based Comments	8251	24
van Alyne	Emily	not provided	N/A	Web-based Comments	14046	24
van Asten	Michelle	not provided	N/A	Web-based Comments	24399	24
Van Beek	Constance	not provided	N/A	Web-based Comments	11350	24
Van Burg	Chera	not provided	N/A	Web-based Comments	10597	24
Van Cleave	Link	not provided	N/A	Web-based Comments	21504	24
Van Clede	David	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4270	N/A
Van Cleve	Margie	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4277	N/A
Van Coppenolle	Marieke	not provided	N/A	Web-based Comments	22739	24
Van de Durpel	Laura	not provided	N/A	Web-based comments	56702	35
van de Waarsenburg	Marc	not provided	N/A	Web-based Comments	22347	24
VAN DEN BLINK	KIEREN	not provided	N/A	Web-based Comments	20157	24
Van den Durpel	Ellen	not provided	N/A	Web-based comments	57556	35
Van den Durpel	Lisa	not provided	N/A	Web-based comments	57582	35
Van den Durpel	Paul	not provided	N/A	Web-based comments	57670	35
Van den Durpel	Tom	not provided	N/A	Web-based comments	56703	35
van den Heuvel	Claudine	not provided	N/A	Web-based Comments	11206	24
van der Haagen	Mirtis	not provided	N/A	Web-based Comments	24564	24
van der Heyden	Pieter	not provided	N/A	Web-based Comments	26409	24
van der Loo	Bernadette	not provided	N/A	Web-based Comments	8991	24
Van der merwe	AA	not provided	N/A	Web-based Comments	6990	24
van der Veen	Susanne	not provided	N/A	Web-based comments	56822	35
van der Walt	Mandy	not provided	N/A	Web-based comments	56840	35
Van Derbur	Janice L	not provided	N/A	Web-based Comments	16713	24
van Deursen	Stephanie	not provided	N/A	Web-based Comments	29261	24
Van Dien	Gillian	not provided	N/A	Web-based Comments	15042	24
Van Diest	Violet	not provided	N/A	Web-based Comments	31260	24
Van Dinter	James	not provided	N/A	Web-based Comments	16321	24
Van Doorn	Catherine	not provided	N/A	Web-based comments	57614	35
Van Dusen	Alison	not provided	N/A	Web-based Comments	7418	24
van Erp	Willem	not provided	N/A	Web-based Comments	31496	24
van Halbeek	Joseph	not provided	N/A	Web-based Comments	18398	24
Van Hill	Timothy	not provided	N/A	Web-based Comments	30664	24
Van Horn	Sandra	not provided	N/A	Web-based Comments	28225	24
Van Houten	Corinne	not provided	N/A	Web-based Comments	11379	24
Van Houten	Gloria	not provided	N/A	Web-based Comments	15173	24
Van Kampen	Art	not provided	N/A	Web-based Comments	8455	24
Van Lankeren	Robert	not provided	N/A	Web-based Comments	27404	24
Van Leekwijck	Natalie	not provided	N/A	Web-based Comments	25080	24
van Leusden	Paul	not provided	N/A	Web-based Comments	26055	24
Van Leuven	Phyllis	not provided	N/A	Web-based Comments	26399	24
Van Lie	Nicole	not provided	N/A	Web-based Comments	25259	24
Van Middlesworth	Julie	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4761	N/A
Van Ness	Erin	not provided	N/A	Web-based Comments	14239	24
van Nierop	Daniel	not provided	N/A	Web-based Comments	11784	24
van Oers	Tricia	not provided	N/A	Web-based Comments	30907	24
van Os	Colette	not provided	N/A	Web-based Comments	11248	24
Van Osdol	Sherri	not provided	N/A	Web-based Comments	28871	24
Van Putten	Fabrice	not provided	N/A	Web-based Comments	14380	24
Van Riel	Marina	not provided	N/A	Web-based Comments	22842	24
Van Riper	Michael	not provided	N/A	Web-based Comments	24240	24
Van Rossum	Patrice	not provided	N/A	Web-based Comments	25695	24
Van Ruiten	Janelle	not provided	N/A	Web-based comments	57163	35
Van Schaick	Kathleen	not provided	N/A	Web-based Comments	19605	24
van sickle	Terry	not provided	N/A	Web-based Comments	30386	24
van Son	Liesbeth	not provided	N/A	Web-based Comments	21151	24
van Straelen	FranÂˆšÃŸoise	not provided	N/A	Web-based Comments	14468	24
Van Swoll	Janet	not provided	N/A	Web-based Comments	16650	24
Van Syoc	Amy	not provided	N/A	Web-based Comments	7678	24
Van Tassell	Bruce	not provided	N/A	Web-based Comments	9628	24
Van Tassell	Robin	not provided	N/A	Web-based Comments	27533	24
Van Walsen	Barbara	not provided	N/A	Web-based Comments	8809	24
Van Widenfelt-Boersma	Elisabeth	not provided	N/A	Web-based Comments	13683	24
Van Zanen	Kathryn	not provided	N/A	Web-based Comments	19671	24
Van Zee	Ali	not provided	N/A	Web-based Comments	7328	24
Van Zeeland	Marianne	not provided	N/A	Web-based Comments	22695	24
Van Zele	Linda	not provided	N/A	Web-based Comments	21454	24
VanÂˆšÃ²ver	Christopher	not provided	N/A	Web-based Comments	11034	24
vanantwerp	mari	not provided	N/A	Web-based Comments	22576	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
VanAssche	Terese	not provided	N/A	Web-based Comments	48223	34
vanbekbergen	brigitte	not provided	N/A	Web-based Comments	9559	24
Vanbuggenhout	Viviane	not provided	N/A	Web-based Comments	31328	24
Vance	Bonnie	not provided	N/A	Web-based Comments	9328	24
Vance	Melvin	not provided	N/A	Web-based Comments	23956	24
Vance	Patricia	not provided	N/A	Web-based Comments	25857	24
Vance	Susan	not provided	N/A	Web-based Comments	29881	24
vance	victoria	not provided	N/A	Web-based Comments	54783	34
Vance II	Robert	not provided	N/A	Web-based Comments	27405	24
Vancea	Monica Rodica	not provided	N/A	Web-based Comments	24643	24
Vancelette	David	not provided	N/A	Web-based Comments	12165	24
VanCorbach	Everett	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58355	N/A
VanCura	Pam	not provided	N/A	Web-based Comments	44383	34
Vandamme	Martin	not provided	N/A	Web-based Comments	45952, 45953	34
Vandegrift	Debra	not provided	N/A	Web-based Comments	12554	24
VandeGrift	Julia	not provided	N/A	Web-based Comments	18781	24
Vandel	Diana	not provided	N/A	Web-based Comments	12798	24
Vanden Bossche	Valerie	not provided	N/A	Web-based Comments	31046	24
Vandenabeele	Rob	not provided	N/A	Web-based Comments	51859	34
VandenBas	Janice	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	56623	N/A
Vandenberg	Angela	not provided	N/A	Web-based Comments	7934	24
VANDERBOSCH	CARL	not provided	N/A	Web-based Comments	9814	24
VanDeRee	Michelle	not provided	N/A	Web-based Comments	24400	24
Vanderford	Jeanene	jeanenevanderford@yahoo.com	N/A	Web-based comments	4151	N/A
Vanderhill	Margo	not provided	N/A	Web-based Comments	22550	24
Vanderhoof	Jane	janevavan@gmail.com	N/A	Web-based comments	1810	N/A
Vanderhoof	Jane	janevavan@gmail.com	N/A	Hand-delivered or oral testimony (personally delivered)	4740	N/A
Vanderklift	Marianna	not provided	N/A	Web-based Comments	22669	24
Vanderpool	Aaron	not provided	N/A	Web-based Comments	7005	24
Vanderslice	Kyle	not provided	N/A	Web-based Comments	20460	24
Vanderstar	Bev	not provided	N/A	Web-based Comments	53722	34
Vandervoort	Marjorie	not provided	N/A	Web-based Comments	22888	24
Vandervoort	Martha	not provided	N/A	Web-based Comments	23136	24
Vanderwerf	Barbara	not provided	N/A	Web-based Comments	8810	24
Vandeveire	Carol	not provided	N/A	Web-based Comments	46838	34
Vandever	Judy	not provided	N/A	Web-based Comments	18727	24
Vandewiele	Michael	mikevand.dls@gmail.com	N/A	Web-based comments	3398	13
Vandiver	Diane	not provided	N/A	Web-based Comments	46436, 46437	34
Vandiver	Diane	not provided	N/A	Web-based Comments	12914	24
Vandivere	Stephen	not provided	N/A	Web-based Comments	29342	24
Vandolah	Daniel	not provided	N/A	Web-based Comments	11785	24
Vandrey	Ryan	not provided	N/A	Web-based Comments	27929	24
VanDuzer	Ronald	not provided	N/A	Web-based Comments	27674	24
Vanella	Richard	not provided	N/A	Web-based Comments	27065	24
Vanerka	Dorothy	dorothyvanerka@gmail.com	N/A	Web-based comments	4919	N/A
Vanerka	Doug	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32422	N/A
Vanes-Williams	Kay	not provided	N/A	Web-based Comments	19837	24
VANGHELUWE	Bart	not provided	N/A	Web-based Comments	8873	24
Vangiessen	Pamela	not provided	N/A	Web-based Comments	25594	24
VanHanken	Barbara	not provided	N/A	Web-based Comments	8811	24
Vanhout	Josee	not provided	N/A	Web-based Comments	18340	24
Vanisko	Madeline	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	56639	N/A
Vankeerbergen	Bernadette	not provided	N/A	Web-based Comments	8992	24
Vanlandingham	Mike	not provided	N/A	Web-based Comments	49933	34
Vanlandingham	Mike	not provided	N/A	Web-based Comments	24493	24
VanMiddlesworth	Julie	not provided	N/A	Web-based comments	31958	N/A
Vann	Natalia	not provided	N/A	Web-based Comments	25055	24
Vanneman	Jill	not provided	N/A	Web-based Comments	17551	24
Vannice	Michael	not provided	N/A	Web-based Comments	24241	24
Vannoy	Robin	not provided	N/A	Web-based Comments	27534	24
Vannoy	Tamara	not provided	N/A	Web-based Comments	30132	24
VanOrmer	Diana	not provided	N/A	Web-based Comments	12799	24
Vanover	John	not provided	N/A	Web-based Comments	18193	24
VanSandt	Nan	not provided	N/A	Web-based Comments	50641	34
Vanta	Sandra	not provided	N/A	Web-based Comments	28226	24
VanValen	Andrew	not provided	N/A	Web-based Comments	49065	34
Vanvliet	Nagisa	not provided	N/A	Web-based Comments	56521	34
VanWinkle	Jean Marie	not provided	N/A	Web-based Comments	48656, 48716	34
VanWinkle	Jean Marie	not provided	N/A	Web-based Comments	16902	24
vanwyck	jory	xoroo4you@gmail.com	N/A	Web-based comments	6063	1

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
VanWyck	Kerri	klkamrock@gmail.com	N/A	Web-based comments	6062	1
Varacalli	Douglas	not provided	N/A	Web-based Comments	13343	24
varani	Silvia	not provided	N/A	Web-based Comments	29015	24
Varanitsa	Oleg	not provided	N/A	Web-based Comments	25427	24
Varbel	Kristen	not provided	N/A	Web-based Comments	20349	24
Varden	Bob	not provided	N/A	Web-based Comments	49715	34
Varela	Mariana	not provided	N/A	Web-based Comments	22666	24
Varga	Janet	not provided	N/A	Web-based comments	56722	35
Varga	John	not provided	N/A	Web-based Comments	49761, 49762	34
Varga	John	not provided	N/A	Web-based Comments	18194	24
Vargas	Erika	not provided	N/A	Web-based Comments	14205	24
VARGAS	eugenia	not provided	N/A	Web-based Comments	14304	24
Vargas	Gena	not provided	N/A	Web-based Comments	14845	24
Vargas	Marian	not provided	N/A	Web-based Comments	45029	34
Vargas	Natalia	not provided	N/A	Web-based Comments	25056	24
Vargo	Mark	not provided	N/A	Web-based Comments	48777, 48778	34
Varney	C Jean	not provided	N/A	Web-based Comments	9686	24
Varon	Erica	not provided	N/A	Web-based Comments	14170	24
Varon	Joseph M.	not provided	N/A	Web-based Comments	53351	34
Vartabedian	Pia	not provided	N/A	Web-based Comments	26405	24
Varteresian	Carl	not provided	N/A	Web-based Comments	9815	24
vartoogian	linda	not provided	N/A	Web-based Comments	21455	24
Vasantharaman	Saranya	not provided	N/A	Web-based Comments	28431	24
Vasco	Donald	not provided	N/A	Web-based Comments	13089	24
Vasconcellos	Melissa	not provided	N/A	Web-based Comments	23932	24
Vasconcelos	Paula	not provided	N/A	Web-based Comments	47295	34
Vasile	Dan	not provided	N/A	Web-based Comments	11683	24
VASILOPOULOS	ROULA	not provided	N/A	Web-based Comments	27794	24
Vasquez	Alex	not provided	N/A	Web-based Comments	50980	34
Vasquez	Andrea	not provided	N/A	Web-based Comments	7777	24
Vasquez	Elias	not provided	N/A	Web-based Comments	13661	24
vasquez	ileana	not provided	N/A	Web-based Comments	45847	34
Vasquez	Ileana	not provided	N/A	Web-based Comments	45768	34
Vasquez	Ileana	not provided	N/A	Web-based Comments	15850	24
Vasquez	Pamela	not provided	N/A	Web-based Comments	25595	24
Vasquez	Rita	not provided	N/A	Web-based Comments	27156	24
Vasquez	Victoria	not provided	N/A	Web-based Comments	31229	24
Vasquez	Yovonna	bonnie.vaz99@gmail.com	N/A	Web-based comments	710	1
Vasser	Mike	not provided	N/A	Web-based Comments	24494	24
Vassilakidis	Sophia	not provided	N/A	Web-based Comments	50045	34
Vastine	Susan	not provided	N/A	Web-based Comments	29882	24
Vater	Karen	not provided	N/A	Web-based Comments	19232	24
Vatousiou	Mark	not provided	N/A	Web-based Comments	22997	24
Vauchee	Eva	not provided	N/A	Web-based Comments	14318	24
Vaughan	Burger	not provided	N/A	Web-based Comments	9652	24
Vaughan	Carey	not provided	N/A	Web-based Comments	9789	24
Vaughan	Donetta	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32461	13
Vaughan	Heather	not provided	N/A	Web-based Comments	53572	34
Vaughan	Jan	not provided	N/A	Web-based Comments	16438	24
Vaughan	Joseph	not provided	N/A	Web-based comments	32016	N/A
Vaughan	Lisa	not provided	N/A	Web-based Comments	21652	24
Vaughn	Christie	not provided	N/A	Web-based Comments	10839	24
Vaughn	Elizabeth	not provided	N/A	Web-based Comments	52274	34
Vaughn	Hayley	not provided	N/A	Web-based Comments	15483	24
Vaughn	Joshua	not provided	N/A	Web-based Comments	18439	24
Vaughn	Madeline	not provided	N/A	Web-based Comments	22247	24
Vaughn	N. Andrew	not provided	N/A	Web-based Comments	24740	24
Vaughn	Patrick	not provided	N/A	Web-based Comments	25929	24
Vaughn	Theresa	not provided	N/A	Web-based Comments	30452	24
vaughn	william	not provided	N/A	Web-based Comments	31605	24
Vaughn Jr.	Bobby	not provided	N/A	Web-based Comments	9272	24
Vaught	Kevin	not provided	N/A	Web-based Comments	53240	34
Vaught	Kevin	not provided	N/A	Web-based Comments	20141	24
Vavrek	Ayesha	not provided	N/A	Web-based Comments	55626	34
Vavrek	Ayesha	not provided	N/A	Web-based Comments	8558	24
Vayanian	Solara	not provided	N/A	Web-based Comments	29051	24
Vayda	Karen	not provided	N/A	Web-based comments	56950	35
Vayda	Karen	not provided	N/A	Web-based Comments	55984, 55985	34
Vayda	Karen	not provided	N/A	Web-based Comments	19233	24
Vayu	Satya	not provided	N/A	Web-based Comments	47998	34

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
vayu	satya	not provided	N/A	Web-based Comments	28444	24
Vaz	Kimberly	not provided	N/A	Web-based Comments	20248	24
Vazquez	Claudia	not provided	N/A	Web-based Comments	11200	24
Vazquez	Lucia	not provided	N/A	Web-based Comments	21936	24
Vazquez	Marcelo	not provided	N/A	Web-based Comments	48852, 48853	34
Vazquez	Marcelo	not provided	N/A	Web-based Comments	22356	24
Vazquez	Mary	not provided	N/A	Web-based Comments	23454	24
Vazquez	Noemi	not provided	N/A	Web-based Comments	25345	24
Vazquez	Patricia	not provided	N/A	Web-based Comments	45951	34
Vazquez	Patricia	not provided	N/A	Web-based Comments	25858	24
Vazquez	Sonia	not provided	N/A	Web-based Comments	29068	24
Vazquez	Tina	not provided	N/A	Web-based Comments	54660	34
Vazquez	Tina	not provided	N/A	Web-based Comments	30698	24
Veazey	Maria	not provided	N/A	Web-based Comments	55527	34
Vecchio	Irene	not provided	N/A	Web-based Comments	15915	24
Vecchry	Carole	not provided	N/A	Web-based Comments	10103	24
Vedder-Shults	Nancy	not provided	N/A	Web-based Comments	25005	24
Vedio	Dr	not provided	N/A	Web-based comments	6587	1
Veeder	Harold	not provided	N/A	Web-based Comments	15445	24
Veeder	Hazel	not provided	N/A	Web-based Comments	15491	24
Veenker	Nicole	not provided	N/A	Web-based Comments	54481	34
Vega	Alejandra	not provided	N/A	Web-based Comments	49701, 49702	34
Vega	Marissa	not provided	N/A	Web-based comments	6176	1
Vega	Michella	not provided	N/A	Web-based Comments	24317	24
Vega	Victoria	not provided	N/A	Web-based Comments	50958	34
Vegh	Hannah	not provided	N/A	Web-based comments	56999	35
Veghte	Bathsheba	not provided	N/A	Web-based Comments	8877	24
vegvari	ted	not provided	N/A	Web-based Comments	50476	34
Vehr	Mark	ma2ve2@gmail.com	N/A	Web-based comments	4429	N/A
Vehslage	Charles	not provided	N/A	Web-based Comments	10537	24
Veiby	Gail	not provided	N/A	Web-based Comments	14721	24
Veit	Douglas	not provided	N/A	Web-based Comments	13344	24
Veitch	Hazel	not provided	N/A	Web-based comments	56858	35
Velarde	Mario	not provided	N/A	Web-based Comments	48258, 58419	34
Velasco	Consuelo Serena	not provided	N/A	Web-based Comments	11355	24
Velasco	Mona	not provided	N/A	Web-based Comments	24611	24
Velasco	Steven	not provided	N/A	Web-based Comments	29476	24
Velategui	Victoria	not provided	N/A	Web-based Comments	31230	24
Velategui	Victoria	vicv1444@gmail.com	N/A	Web-based comments	6626	N/A
Velazquez-Rivera	Rachel	not provided	N/A	Web-based Comments	26553	24
Vele	Brigid	not provided	N/A	Web-based Comments	48296, 48297	34
Vele	Brigid	not provided	N/A	Web-based Comments	9552	24
Velenik	Alka	not provided	N/A	Web-based Comments	47447	34
Velez	Abraham	not provided	N/A	Web-based Comments	7027	24
Velez	Francisco	not provided	N/A	Web-based Comments	46185	34
Velez	Sue	not provided	N/A	Web-based Comments	52533	34
Velhagen	Michelle	not provided	N/A	Web-based Comments	24401	24
Veljkovic	Alexandra	not provided	N/A	Web-based Comments	7293	24
Vellenga	Lynn	not provided	N/A	Web-based Comments	22103	24
Velli	Sandra	not provided	N/A	Web-based Comments	28227	24
Velvick	Joan velvick	not provided	N/A	Web-based Comments	17762	24
Venable	Clairann	not provided	N/A	Web-based Comments	11118	24
Venditti	Sherri	not provided	N/A	Web-based Comments	28872	24
Vendryes	Patricia	not provided	N/A	Web-based Comments	25859	24
venegas	andres	not provided	N/A	Web-based Comments	7795	24
Venegas	Angel	not provided	N/A	Web-based Comments	7886	24
Veneman	Uta	uta-lists@asaplang.com	N/A	Web-based comments	6661	1
Venezio	Glen	not provided	N/A	Web-based Comments	50163	34
Venidis	Maria	not provided	N/A	Web-based Comments	22635	24
Venn	Gael	not provided	N/A	Web-based Comments	14659	24
Vennerholm	Susan	not provided	N/A	Web-based Comments	29883	24
Vennum	Kathryn	not provided	N/A	Web-based Comments	50602	34
Venskowski	V	not provided	N/A	Web-based comments	57584	35
Venter	Susan	not provided	N/A	Web-based Comments	29884	24
Ventrella	Kathleen	not provided	N/A	Web-based Comments	19606	24
Ventress	Ken	not provided	N/A	Web-based Comments	19995	24
Ventura	Debra	not provided	N/A	Web-based Comments	12555	24
Vera	Anne Dal	not provided	N/A	Web-based Comments	53136	34
Vera	Laura	not provided	N/A	Web-based Comments	20713	24
veraldi	anne	not provided	N/A	Web-based Comments	51744	34

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Veraldi	anne	not provided	N/A	Web-based Comments	8252	24
Verberkmoes	Marty	not provided	N/A	Web-based Comments	23192	24
Verbeuren	Dirk	not provided	N/A	Web-based Comments	58541, 58542	34
Verbeylen	Goedele	not provided	N/A	Web-based Comments	53022	34
Verbridge	Tara	not provided	N/A	Web-based Comments	30208	24
Verchick	Kristen	not provided	N/A	Web-based Comments	20350	24
Vercos	Stasia	not provided	N/A	Web-based Comments	29160	24
VerDuin	Melissa	not provided	N/A	Web-based Comments	23933	24
verellen	philip	not provided	N/A	Web-based Comments	26357	24
Vergara	Don	not provided	N/A	Web-based Comments	13041	24
Vergason	Gerry	not provided	N/A	Web-based Comments	15005	24
vergilia	nadine	not provided	N/A	Web-based Comments	44310	34
Vergopia	Nadine	not provided	N/A	Web-based Comments	24771	24
VerHanes	Pamela	not provided	N/A	Web-based comments	57657	35
Verhoeven	Linda	not provided	N/A	Web-based Comments	56354	34
Verkamp	Doris	not provided	N/A	Web-based Comments	13239	24
Verkinder	Carly	not provided	N/A	Web-based Comments	9863	24
Vermeer	Shellie	not provided	N/A	Web-based Comments	28842	24
Vermeulen	Dr. C. L.	not provided	N/A	Web-based Comments	53043	34
Vermillion	Bob	not provided	N/A	Web-based Comments	9257	24
Verna	Diane	not provided	N/A	Web-based Comments	52676, 52677	34
vernet	Yvette	not provided	N/A	Web-based Comments	31686	24
Vernon	Ann	not provided	N/A	Web-based Comments	8095	24
Vernon	Donald	vern2dkv@gmail.com	N/A	Web-based comments	2335, 2337, 2338, 2339, 2340, 2341, 2342, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2374, 2375, 2390, 2391, 2392, 2393, 2394, 5966, 6114, 6470	N/A
Vernon	Kirsten	not provided	N/A	Web-based Comments	20280	24
Vernon	Margaret	not provided	N/A	Web-based Comments	46760	34
Veronique	Genevier	not provided	N/A	Web-based Comments	14859	24
Verougstraete	Marie-Anne	not provided	N/A	Web-based Comments	22736	24
Verow	Susan	not provided	N/A	Web-based Comments	29885	24
Verrill	Evelyn	not provided	N/A	Web-based Comments	14358	24
Ver'Schneider	Neil	not provided	N/A	Web-based Comments	25138	24
Versenyi	Adam	not provided	N/A	Web-based Comments	7059	24
Verstraete	Frank	not provided	N/A	Web-based Comments	14551	24
Verstraeten	Evi	not provided	N/A	Web-based Comments	14364	24
Vescio	Pasquale	not provided	N/A	Web-based Comments	25627	24
Vescio	Pat	not provided	N/A	Web-based Comments	50353	34
Vesey	Robin	not provided	N/A	Web-based Comments	50405	N/A
VESEY	STEPH	not provided	N/A	Web-based Comments	52465	34
Vesey	Steph	not provided	N/A	Web-based Comments	29188	24
Vespa	Courtney	cvespa38@gmail.com	N/A	Web-based comments	842	N/A
Vesper	Joel	joel_v2002@yahoo.com	N/A	Web-based comments	4611	N/A
Vesper	Paul	not provided	N/A	Web-based Comments	52095	34
Vesper	Paul	not provided	N/A	Web-based Comments	26056	24
Vesper	Rebecca	not provided	N/A	Web-based Comments	51677	34
Vesper	Rebecca	not provided	N/A	Web-based Comments	26784	24
Vessicchio	Susan P.	not provided	N/A	Web-based Comments	56080	34
Vest	Justin	not provided	N/A	Web-based Comments	18961	24
Vest	Martha	not provided	N/A	Web-based Comments	53741, 53742, 53743	34
Vest	Martha	not provided	N/A	Web-based Comments	23137	24
Vestal	Tara	not provided	N/A	Web-based comments	4182	N/A
veya	Laurence	laurence.veya@gmail.com	N/A	Web-based comments	1348	N/A
Vezzaro	Ilva	not provided	N/A	Web-based Comments	15861	24
Viacrucis	John	not provided	N/A	Web-based Comments	18195	24
Viandier	Jamila	not provided	N/A	Web-based Comments	54300, 54301	34
Viandier	Jamila	not provided	N/A	Web-based Comments	16379	24
viaud	Virginie	virginie.viaud21@gmail.com	N/A	Web-based comments	435	1
Vicars	Deanna	not provided	N/A	Web-based Comments	12283	24
Vice	Daniel	not provided	N/A	Web-based Comments	11786	24
Vician	Doris	not provided	N/A	Web-based Comments	47749	34
Vickers	Gordon	g_vickers@comcast.net	N/A	Web-based comments	5646	N/A
Vickers	Scott	not provided	N/A	Web-based Comments	53888	34
Vickery	Elaine	not provided	N/A	Web-based Comments	53149	34
Vickstrom	William	not provided	N/A	Web-based Comments	52397	34
Victor	Georgette	not provided	N/A	Web-based Comments	14932	24
victor	Joan	not provided	N/A	Web-based Comments	17750	24
Victoria	Alexandra	tigerdudedude@gmail.com	N/A	Web-based comments	2106	1
Victoria	Katrina	not provided	N/A	Web-based Comments	19805	24
Vicuna	Steve	not provided	N/A	Web-based Comments	29411	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Vida	Timea	not provided	N/A	Web-based Comments	30635	24
Vidal	Avis	not provided	N/A	Web-based Comments	8551	24
Vidito	Allie	not provided	N/A	Web-based Comments	7456	24
Vidmar	Tim	timvidmar85@gmail.com	N/A	Web-based comments	3299	13
Vieira	Dorothy	not provided	N/A	Web-based Comments	13279	24
Vieira	Katy	not provided	N/A	Web-based Comments	19811	24
Viens	Eugene	not provided	N/A	Web-based Comments	14299	24
viers	joan	not provided	N/A	Web-based Comments	17751	24
Viers	Valdyne	not provided	N/A	Web-based Comments	31003	24
Viertel	Angie	not provided	N/A	Web-based Comments	7956	24
Vierthaler	Bonnie	not provided	N/A	Web-based Comments	9329	24
Vigars	Barbra	not provided	N/A	Web-based Comments	54658, 54659	34
Vigil	Matthew	not provided	N/A	Web-based Comments	23670	24
Vignere	Joel	not provided	N/A	Web-based Comments	17926	24
Vilca Lecaros	Belfor Luis	not provided	N/A	Web-based Comments	8923	24
Vilcek	Diana	not provided	N/A	Web-based Comments	12800	24
Villagran	Victoria	not provided	N/A	Web-based Comments	31231	24
Villalva	Debbie	not provided	N/A	Web-based Comments	44665	34
Villalva	Debbie	not provided	N/A	Web-based Comments	12353	24
Villani	Seb	not provided	N/A	Web-based Comments	49374	34
Villani	Seb	not provided	N/A	Web-based Comments	28526	24
villanova	michael	not provided	N/A	Web-based Comments	24242	24
Villanueva	Natasha	not provided	N/A	Web-based Comments	25093	24
Villanueva	Susan	not provided	N/A	Web-based Comments	29886	24
Villarnovo	Victoria	not provided	N/A	Web-based Comments	31232	24
villarreal	francisco javie	not provided	N/A	Web-based Comments	14510	24
Villarroel	Erick	not provided	N/A	Web-based Comments	54638	34
VILLAVICENCIO	SANDRA	not provided	N/A	Web-based Comments	28228	24
Ville	Anna De	not provided	N/A	Web-based Comments	55971	34
Villeda	Ramon	not provided	N/A	Web-based Comments	26600	24
Villeneuve	Michele	not provided	N/A	Web-based Comments	52970	34
Villero	Ofelia	not provided	N/A	Web-based Comments	25425	24
Villinger	Beverly	not provided	N/A	Web-based Comments	45470	34
Vilter	Lance	not provided	N/A	Web-based Comments	20533	24
Vincent	Joel	not provided	N/A	Web-based Comments	17927	24
Vincent	John	johntv9@hotmail.com	N/A	Web-based comments	6415	N/A
Vincent	Joseph	not provided	N/A	Web-based Comments	57774	34
Vincent	Kimberly	not provided	N/A	Web-based Comments	20249	24
Vincent	Marcy	not provided	N/A	Web-based Comments	22410	24
Vincent	Patricia	not provided	N/A	Web-based Comments	48615	34
Vincent	Robin	not provided	N/A	Web-based Comments	27535	24
Vinch	Melissa	not provided	N/A	Web-based Comments	53307	34
Vinecourt	Jean Marie	not provided	N/A	Web-based Comments	16903	24
Vinegar	Jan	not provided	N/A	Web-based Comments	16439	24
Viner	Diane	not provided	N/A	Web-based Comments	12915	24
Vineski	Patricia	not provided	N/A	Web-based Comments	47816	34
Viney	James	not provided	N/A	Web-based Comments	45148	34
Vinikoff	Jerald	not provided	N/A	Web-based Comments	17303	24
Vining	Alexi	not provided	N/A	Web-based Comments	7300	24
Vinson	Patricia	not provided	N/A	Web-based Comments	25860	24
Vintilla	Joanna	not provided	N/A	Web-based Comments	45874	34
Vinton	Janine	not provided	N/A	Web-based Comments	47301, 47302	34
Vinton	Joanne	not provided	N/A	Web-based Comments	50592	34
Viola	Krystle	not provided	N/A	Web-based Comments	49475	34
Violet	Laurence	not provided	N/A	Web-based Comments	20803	24
Vipond	Mathew	not provided	N/A	Web-based Comments	23601	24
Viramontes	Christine	not provided	N/A	Web-based Comments	10990	24
viravong	Lidet	not provided	N/A	Web-based Comments	46224	34
Viravong	Lidet	not provided	N/A	Web-based Comments	21146	24
Virgin	Aaron	not provided	N/A	Web-based Comments	7006	24
Virtuoso	Lauren	not provided	N/A	Web-based Comments	20796	24
Virzi	Diane	not provided	N/A	Web-based Comments	12916	24
Virzi	Nichelle	not provided	N/A	Web-based Comments	56371	34
Visca	Rachelle	not provided	N/A	Web-based Comments	26564	24
Visconti	Michele	not provided	N/A	Web-based Comments	24313	24
Viscuso	Christine	not provided	N/A	Web-based Comments	10991	24
Visintini	Silvia	not provided	N/A	Web-based Comments	29016	24
Vital	Sybille	not provided	N/A	Web-based Comments	58138	16
Vitale	Kyle	not provided	N/A	Web-based Comments	20461	24
Vitaliano	Judith	not provided	N/A	Web-based Comments	18658	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Vitek	Kathryn	not provided	N/A	Web-based Comments	19672	24
Vitelli	Rena	not provided	N/A	Web-based Comments	26819	24
Vitello	Mark	not provided	N/A	Web-based Comments	22998	24
viteri	paola	not provided	N/A	Web-based Comments	25612	24
Vitiello	Korine	not provided	N/A	Web-based Comments	20312	24
vito	janice	not provided	N/A	Web-based Comments	16705	24
Vito-Dimiati	Alexander	not provided	N/A	Web-based Comments	50936	34
Vitorino	Carolina	carolina.m.vitorino@hotmail.com	N/A	Web-based comments	234	1
Vitorino	Carolina	not provided	N/A	Web-based comments	6310	1
Vitrano	Thomas	not provided	N/A	Web-based comments	6178	N/A
Vitro	Mary	not provided	N/A	Web-based Comments	51583	34
Viveros	Mary Ann	not provided	N/A	Web-based Comments	49336, 49337, 49338, 49339, 49340	34
Viveros	Miroslava	not provided	N/A	Web-based Comments	24563	24
Vivian	John	johnandbinners@msn.com	N/A	Web-based comments	1550	N/A
Vivola	Lloyd	nouveladam@hotmail.com	N/A	Web-based comments	4307	N/A
Vizena	Laura	not provided	N/A	Web-based Comments	20714	24
Vizyinou	Ourania	not provided	N/A	Web-based Comments	25454	24
VL	Judie	not provided	N/A	Web-based Comments	18549	24
Vladimirova	Marina	not provided	N/A	Web-based Comments	22843	24
Vlah	M	not provided	N/A	Web-based Comments	22200	24
vlasiadis	andreas	not provided	N/A	Web-based Comments	46037	34
vlasiadis	andreas	not provided	N/A	Web-based Comments	7788	24
Vlasiadis	Chrisanthos	not provided	N/A	Web-based Comments	10799	24
Vlasopolos	Anca	not provided	N/A	Web-based Comments	7714	24
Voda	Candace	not provided	N/A	Web-based Comments	9759	24
Vo-Dinh	Hannah	not provided	N/A	Web-based Comments	15415	24
Voelker	Carol	colbyvoelker@gmail.com	N/A	Web-based comments	244	3
Voelker	Estelle	not provided	N/A	Web-based Comments	58479	34
Voelker	Estelle	not provided	N/A	Web-based Comments	14267	24
Voetberg	Meg	not provided	N/A	Web-based Comments	23782	24
Vogel	Nathan	not provided	N/A	Web-based Comments	49875	34
Vogel	Nathan	not provided	N/A	Web-based Comments	25105	24
Vogel	Sally	not provided	N/A	Web-based Comments	52710	34
Vogel	Susan	not provided	N/A	Web-based Comments	29887	24
Vogelpohl	Elke	not provided	N/A	Web-based Comments	13883	24
Vogen	Thomas	not provided	N/A	Web-based Comments	30555	24
Vogler	Robin	not provided	N/A	Web-based Comments	27536	24
Voglewede	Mary	mom.tbird@gmail.com	N/A	Web-based comments	5497	1
Vogt	Daniel	not provided	N/A	Web-based Comments	11787	24
Vogt	Mary	not provided	N/A	Web-based Comments	23455	24
Vogt	Susan	not provided	N/A	Web-based Comments	47572, 47573	34
Vogt	Susan	not provided	N/A	Web-based Comments	29888	24
Vogt	Terry	not provided	N/A	Web-based Comments	30387	24
Vohs	Marilyn	not provided	N/A	Web-based Comments	22817	24
Voight	James	not provided	N/A	Web-based Comments	16322	24
Voight	Kenneth	not provided	N/A	Web-based Comments	20029	24
Volbrecht	Rose Mary	not provided	N/A	Web-based Comments	50136	34
Volkers	Gusty	not provided	N/A	Web-based Comments	15336	24
Vollmer	Alexander	not provided	N/A	Web-based Comments	45052, 45053	34
Vollmer	Alexander	not provided	N/A	Web-based Comments	7272	24
Vollmer	Max	not provided	N/A	Web-based Comments	23743	24
Vollmer-Juhl	Stephanie	not provided	N/A	Web-based Comments	58264	16
Volmer	Hannah	not provided	N/A	Web-based comments	57717	35
Volpe	Eleonora	not provided	N/A	Web-based Comments	13657	24
Volpi	Silvia	not provided	N/A	Web-based Comments	29017	24
Voluck	Ruth	not provided	N/A	Web-based Comments	27891	24
Volz	Candace	not provided	N/A	Web-based Comments	56554, 56555	34
Volz	Candace	not provided	N/A	Web-based Comments	9760	24
von den Driesch	Markus	not provided	N/A	Web-based Comments	23021	24
von Gretener	Girard	not provided	N/A	Web-based Comments	15090	24
von Hoffmann	Barbara	not provided	N/A	Web-based Comments	8812	24
von Holzen	Simon	not provided	N/A	Web-based comments	56855	35
VON HUENE	GREGOR	not provided	N/A	Web-based Comments	15267	24
von Kries	Karl	not provided	N/A	Web-based Comments	19307	24
von Lehsten	Dieter	not provided	N/A	Web-based Comments	12955	24
von Nardroff	Erica	not provided	N/A	Web-based Comments	14171	24
von Pein	Margreta	not provided	N/A	Web-based Comments	22558	24
von Roedern	Sue	not provided	N/A	Web-based Comments	29558	24
Von Wurmb	Jayne	not provided	N/A	Web-based Comments	16830	24
vonnDehn	Stephanie	svondehn@hotmail.com	N/A	Web-based comments	58837	N/A

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Voorhees	Pamela	not provided	N/A	Web-based Comments	44402	34
Voorhees	Will	not provided	N/A	Web-based Comments	46569	34
Voorhies	Eric	not provided	N/A	Web-based comments	57425	35
Voorhies	Eric	not provided	N/A	Web-based Comments	14148	24
Vorce	Brigid	not provided	N/A	Web-based Comments	9553	24
voreas	stella	not provided	N/A	Web-based Comments	29185	24
Vorhees	Miranda	not provided	N/A	Web-based Comments	46657	34
Vorhees	Miranda	not provided	N/A	Web-based Comments	24540	24
Vorillon	Dominique	not provided	N/A	Web-based Comments	13010	24
Vorland	Jim	not provided	N/A	Web-based Comments	17612	24
Vorpahl	Nicholas	not provided	N/A	Web-based Comments	25182	24
vorwalske	sharon	not provided	N/A	Web-based Comments	28721	24
Vos	Matthijs	not provided	N/A	Web-based Comments	23677	24
Vos	Walter	not provided	N/A	Web-based Comments	51746	34
Voss	Cindy	not provided	N/A	Web-based Comments	11102	24
Voss	Dan	vossfrmsllc@gmail.com	N/A	Web-based comments	5963	N/A
Voss	Kathleen	not provided	N/A	Web-based Comments	51907	34
Voss	Nancy	not provided	N/A	Web-based Comments	25006	24
Voss	Rebecca	not provided	N/A	Web-based Comments	45118	34
Votek	Deborah	not provided	N/A	Web-based Comments	12486	24
Voter	Citizen	not provided	N/A	Web-based Comments	11115	24
Voth	Jon	not provided	N/A	Web-based Comments	18267	24
VourosCallahan	Pamela	not provided	N/A	Web-based Comments	47532, 47533	34
VourosCallahan	Pamela	not provided	N/A	Web-based Comments	25596	24
Voves	Deborah	not provided	N/A	Web-based Comments	49456	34
Voves	Deborah	not provided	N/A	Web-based Comments	12487	24
Vowell	Elaine	not provided	N/A	Web-based Comments	13617	24
Vowels	G T	not provided	N/A	Web-based Comments	14622	24
Voydanoff	Patricia	not provided	N/A	Web-based Comments	25861	24
Voyles	Neilda	not provided	N/A	Web-based Comments	25140	24
Voytilla	Mary Kay	not provided	N/A	Web-based Comments	23533	24
Vrba	Caroll	not provided	N/A	Web-based Comments	58231	16
Vrbanic	Adam	not provided	N/A	Web-based Comments	7060	24
Vreeland	Mollie	not provided	N/A	Web-based Comments	54814	34
Vreeland	Mollie	not provided	N/A	Web-based Comments	24592	24
VrMeer	Janice	not provided	N/A	Web-based Comments	16706	24
Vu	Sohale	not provided	N/A	Web-based Comments	29048	24
Vu	Thao	not provided	N/A	Web-based Comments	30406	24
Vukcevich	Ray	not provided	N/A	Web-based Comments	26679	24
vulcano	jacque	not provided	N/A	Web-based Comments	16099	24
Vullo	Tom	not provided	N/A	Web-based Comments	30775	24
Vultaggio	Richard	not provided	N/A	Web-based Comments	27066	24
Vyas	Shelley	not provided	N/A	Web-based Comments	58507	34
Vyhnal	Kristin	not provided	N/A	Web-based Comments	53909, 53910	34
Vyner	Joy	not provided	N/A	Web-based Comments	18474	24
W	A	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	4775	18
W	C	not provided	N/A	Web-based Comments	9684	24
W	Carol	not provided	N/A	Web-based Comments	10045	24
w	d	not provided	N/A	Web-based Comments	48864, 48865	34
W	Dave	djwarren26@yahoo.com	N/A	Web-based comments	4361	5
W	G	not provided	N/A	Web-based Comments	14619	24
w	Gerri	not provided	N/A	Web-based comments	519	N/A
W	H	not provided	N/A	Web-based Comments	54964	34
W	H	not provided	N/A	Web-based Comments	15368	24
W	Harrold	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32395	N/A
W	Heather	not provided	N/A	Web-based comments	56944	35
W	Jeffery	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58403	32
W	John	not provided	N/A	Web-based Comments	18196	24
W	Kelsey	not provided	N/A	Web-based comments	1383	1
W	Kira	not provided	N/A	Web-based Comments	20266	24
W	L	not provided	N/A	Web-based Comments	20489	24
W	LeRoy	not provided	N/A	Web-based Comments	21027	24
W.	A.	not provided	N/A	Web-based Comments	6984	24
W.	Allen	tallen@northbaymgt.com	N/A	Web-based comments	5298	N/A
W.	Anne	not provided	N/A	Web-based Comments	50202	34
W.	Anne	not provided	N/A	Web-based Comments	8253	24
W.	Lisa	not provided	N/A	Web-based comments	1679	1
W.	Loni	not provided	N/A	Web-based comments	31846	1
W.	M.	not provided	N/A	Web-based Comments	55249, 55250	34
W.	P.	not provided	N/A	Web-based Comments	25475	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
W.	Sharon	not provided	N/A	Web-based Comments	49424	34
WA	Concerned	not provided	N/A	Web-based comments	2781	N/A
Waara	Kris	not provided	N/A	Web-based Comments	50363	34
Wach	R.	not provided	N/A	Web-based Comments	26491	24
Wacha	Nancy	not provided	N/A	Web-based Comments	46910	34
Wachholz	Jan	not provided	N/A	Web-based Comments	16440	24
Wachob	William	not provided	N/A	Web-based Comments	31606	24
Waddell	Cris	not provided	N/A	Web-based Comments	11435	24
Waddell	Jim	kairos42@earthlink.net	N/A	Web-based comments	3858*, 6796*, 31956, 31968	N/A
Waddell	Jim	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4643, 4726, 5586	N/A
Waddell	Susan	not provided	N/A	Web-based Comments	29889	24
Waddington	Annette	not provided	N/A	Web-based Comments	8291	24
Wade	Aaron	not provided	N/A	Web-based Comments	7007	24
Wade	Emily	not provided	N/A	Web-based Comments	14047	24
Wade	Ian	not provided	N/A	Web-based Comments	15840	24
Wade	Kimberly	not provided	N/A	Web-based Comments	46655	34
Wade	Kimberly	not provided	N/A	Web-based Comments	20250	24
Wade	Lynn	not provided	N/A	Web-based comments	57124	35
Wade	Mary	not provided	N/A	Web-based Comments	23456	24
wade	vicki	not provided	N/A	Web-based Comments	31152	24
Wadlington	Janet	not provided	N/A	Web-based Comments	16651	24
Wadman	Carolyn	not provided	N/A	Web-based Comments	10180	24
Wadsworth	Andrew	not provided	N/A	Web-based Comments	45894, 45895	34
Wadsworth	Craig	cmwads@hotmail.com	N/A	Web-based comments	4312	N/A
Wadsworth	Molly	not provided	N/A	Web-based Comments	24602	24
Wagar	Colleen	not provided	N/A	Web-based Comments	11276	24
Wagenseil	Lois	not provided	N/A	Web-based Comments	21733	24
Wager	Joan	not provided	N/A	Web-based Comments	55849, 55850	34
Waggoner	Lee	not provided	N/A	Web-based Comments	52697	34
Waggoner	Susan	not provided	N/A	Web-based Comments	29890	24
Wagler	Nathalie Wagler	not provided	N/A	Web-based comments	57464	35
Wagner	Benjamin	not provided	N/A	Web-based Comments	8973	24
Wagner	Brenda	not provided	N/A	Web-based Comments	9427	24
Wagner	Carol	not provided	N/A	Web-based Comments	10046	24
Wagner	Darrah	not provided	N/A	Web-based Comments	11890	24
Wagner	Donna	not provided	N/A	Web-based Comments	44266, 53522	34
Wagner	Elissa	not provided	N/A	Web-based Comments	13696	24
Wagner	Ellen	not provided	N/A	Web-based Comments	13954	24
Wagner	Franklin	not provided	N/A	Web-based Comments	48888	34
Wagner	Gisela	not provided	N/A	Web-based Comments	15094	24
Wagner	Inge	not provided	N/A	Web-based Comments	15868	24
WAGNER	JOHN	johnrobw@gmail.com	N/A	Web-based comments	4194	N/A
Wagner	Karin	not provided	N/A	Web-based Comments	19289	24
Wagner	Kathy	not provided	N/A	Web-based Comments	19769	24
Wagner	Margrit	not provided	N/A	Web-based Comments	22559	24
Wagner	Marianne	not provided	N/A	Web-based Comments	22696	24
Wagner	Mark	not provided	N/A	Web-based Comments	22999	24
Wagner	Pat	not provided	N/A	Web-based Comments	25677	24
wagner	Paul	cheokten@gmail.com	N/A	Web-based comments	2470	N/A
Wagner	Rayleen	not provided	N/A	Web-based Comments	26682	24
Wagner	Susan	sswagner7@gmail.com	N/A	Web-based comments	2741	N/A
Wagoner	Douglas	not provided	N/A	Web-based Comments	58110	16
Wagstaff	William	bwagstf@hotmail.com	N/A	Web-based comments	5246	N/A
Waguespack	Patrice	not provided	N/A	Web-based Comments	54674	34
Waguespack	Patrice	not provided	N/A	Web-based Comments	25696	24
Wahl	Amy	not provided	N/A	Web-based Comments	58623	34
Wahl	Drake	not provided	N/A	Web-based comments	57551	35
WAhlstrand	Mary	not provided	N/A	Web-based Comments	23457	24
Wahlstrom	Alexandra	not provided	N/A	Web-based Comments	7294	24
Wai	See Yao	not provided	N/A	Web-based Comments	28528	24
Waiblinger	Michael	not provided	N/A	Web-based Comments	24243	24
Wain	Simon	not provided	N/A	Web-based Comments	29021	24
Waine	Linda	not provided	N/A	Web-based Comments	46183	34
Wainwright	Bob	not provided	N/A	Web-based Comments	9258	24
Waisman	Mauri	not provided	N/A	Web-based Comments	23726	24
Wait	Dawn	not provided	N/A	Web-based Comments	12250	24
Wait	E	not provided	N/A	Web-based Comments	47418	34
Waite	Brian	not provided	N/A	Web-based Comments	9515	24
Waite	Janet	not provided	N/A	Web-based comments	56924	35
Wakefield	Marie	not provided	N/A	Web-based Comments	57928, 54457	16, 34

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Wakefield	Marie	not provided	N/A	Web-based Comments	22728	24
Wakefield	Randy	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32424	11
Wakely	Linda	not provided	N/A	Web-based Comments	21456	24
Wakeman	Patricia	not provided	N/A	Web-based Comments	25862	24
Wakerley	Norm	not provided	N/A	Web-based Comments	25378	24
Wakerley	William Norman	not provided	N/A	Web-based Comments	44540	34
Wakiji	Dana	not provided	N/A	Web-based Comments	11710	24
Walby-Bocchino	Jacqueline	not provided	N/A	Web-based Comments	54727	34
Walby-Bocchino	Jacqueline	not provided	N/A	Web-based Comments	16134	24
Walcott	Donna	not provided	N/A	Web-based Comments	13196	24
Wald	Aloysius	not provided	N/A	Web-based Comments	51876, 51877	34
Wald	Aloysius	not provided	N/A	Web-based Comments	7490	24
Wald	Helen	not provided	N/A	Web-based Comments	54759	34
Wald	Susan	not provided	N/A	Web-based Comments	49009	34
Wald	Susan	not provided	N/A	Web-based Comments	29891	24
Wald	Susan	not provided	N/A	Web-based Comments	29892	24
Walden	Margaret	not provided	N/A	Web-based Comments	22512	24
Waldkoenig	Kirstin	not provided	N/A	Web-based Comments	20283	24
Waldman	Dennis	not provided	N/A	Web-based Comments	12708	24
Waldman	Susan	not provided	N/A	Web-based Comments	29893	24
Waldner	Carol	not provided	N/A	Web-based Comments	10047	24
Waldo	Sarah	sarahrwaldo@gmail.com	N/A	Web-based comments	5926*	N/A
Waldorf	Ashley	not provided	N/A	Web-based Comments	47555, 47556	34
Waldorf	Ashley	not provided	N/A	Web-based Comments	8500	24
Waldron	Carla C.	not provided	N/A	Web-based Comments	49138	34
Waldron	Carla C.	not provided	N/A	Web-based Comments	9840	24
Waldron	Elaine	not provided	N/A	Web-based Comments	13618	24
Waldron	Leon	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32469	N/A
Waldron	Nicole	not provided	N/A	Web-based Comments	58448	34
Waldron	Nicole	not provided	N/A	Web-based Comments	25260	24
Waldron	Virgina	not provided	N/A	Web-based Comments	31266	24
Waldroup	Morgan	not provided	N/A	Web-based Comments	24671	24
Waldruff	Douglas	not provided	N/A	Web-based Comments	13345	24
Waldspurger	Theresa	not provided	N/A	Web-based Comments	54489	34
Waldspurger	Theresa	not provided	N/A	Web-based Comments	30453	24
Waldvogel	Jaki	not provided	N/A	Web-based Comments	55074	34
Wales	Martha	not provided	N/A	Web-based Comments	45067, 45068	34
Wales	Rachel	not provided	N/A	Web-based Comments	48062	34
Waleski	Melanie	not provided	N/A	Web-based Comments	23849	24
Waleski	R	not provided	N/A	Web-based Comments	47878	34
Waleski	Rebecca	not provided	N/A	Web-based Comments	26785	24
Walk	Leslie	not provided	N/A	Web-based comments	56896	35
Walkden	Fred	not provided	N/A	Web-based Comments	14580	24
Walker	Ahmad	not provided	N/A	Web-based Comments	7120	24
Walker	Anthony	not provided	N/A	Web-based Comments	8350	24
Walker	Becky	bnjwalker@hotmail.com	N/A	Web-based comments	4860	N/A
Walker	Brad	not provided	N/A	Web-based Comments	51240	34
walker	carolyn	not provided	N/A	Web-based Comments	49783, 49784	34
walker	catherine	not provided	N/A	Web-based Comments	10330	24
Walker	Cheryl	not provided	N/A	Web-based Comments	54325	34
Walker	Cheryl	not provided	N/A	Web-based Comments	10679	24
walker	Christabel	not provided	N/A	Web-based Comments	10815	24
Walker	Christie	not provided	N/A	Web-based Comments	10840	24
Walker	Constance	not provided	N/A	Web-based Comments	11351	24
Walker	David	not provided	N/A	Web-based Comments	49747, 55833, 55834	34
Walker	David	not provided	N/A	Web-based Comments	12166	24
Walker	Erick	not provided	N/A	Web-based Comments	14177	24
Walker	Fern	not provided	N/A	Web-based Comments	53196	34
Walker	Fern	not provided	N/A	Web-based Comments	14425	24
Walker	Heather	not provided	N/A	Web-based Comments	15549	24
walker	JaNET	not provided	N/A	Web-based Comments	16652	24
Walker	Joan	not provided	N/A	Web-based Comments	58117, 54266, 54267	16, 34
Walker	Joan	not provided	N/A	Web-based Comments	17752	24
Walker	Judy	not provided	N/A	Web-based Comments	18728	24
Walker	Juleigh	not provided	N/A	Web-based Comments	18736	24
Walker	Karen	not provided	N/A	Web-based Comments	19234	24
WALKER	KATHY	not provided	N/A	Web-based Comments	19770	24
Walker	Ke	not provided	N/A	Web-based Comments	19857	24
Walker	Kimberly	not provided	N/A	Web-based Comments	20251	24
Walker	Lance	not provided	N/A	Web-based Comments	20534	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Walker	Laura	laura.walker225@gmail.com	N/A	Web-based comments	5059, 4858, 5077, 5622	1
Walker	Laura	not provided	N/A	Web-based comments	57315	35
Walker	Laura	not provided	N/A	Web-based Comments	45972	34
Walker	Lawrence	not provided	N/A	Web-based Comments	20889	24
Walker	Le Ann Walker	not provided	N/A	Web-based Comments	56150	34
Walker	Leigh	not provided	N/A	Web-based Comments	20969	24
Walker	Lorna	not provided	N/A	Web-based Comments	21827	24
WALKER	MADONNA	not provided	N/A	Web-based Comments	22256	24
Walker	Marcia	not provided	N/A	Web-based Comments	22387	24
Walker	Mary	not provided	N/A	Web-based Comments	23458	24
Walker	Matt	smokeybear50@hotmail.com	N/A	Web-based comments	5061	1
Walker	Melissa	not provided	N/A	Web-based comments	56975	35
Walker	Nora	not provided	N/A	Web-based Comments	25366	24
Walker	Ollie	not provided	N/A	Web-based Comments	25441	24
Walker	Scott	not provided	N/A	Web-based Comments	50680	34
Walker	Scott C.	not provided	N/A	Web-based Comments	28512	24
Walker	Shayla	not provided	N/A	Web-based Comments	28768	24
Walker	Stacia	not provided	N/A	Web-based Comments	29129	24
Walker	Susan	not provided	N/A	Web-based Comments	46133	34
Walker	Susan	not provided	N/A	Web-based Comments	29894	24
Walker	Susan	not provided	N/A	Web-based Comments	29895	24
Walker	Verla D.	not provided	N/A	Web-based Comments	53607	34
Walker-Dale	Heather	not provided	N/A	Web-based Comments	52363	34
Walker-Ward	Ginelle	not provided	N/A	Web-based Comments	15071	24
Walkowiak	Stephanie	not provided	N/A	Web-based Comments	45407	34
Walkswithwind	James	not provided	N/A	Web-based Comments	16323	24
wall	adam	not provided	N/A	Web-based Comments	7061	24
Wall	Alexa	not provided	N/A	Web-based Comments	55940, 55941	34
Wall	Alexa	not provided	N/A	Web-based Comments	7258	24
Wall	Debbie	not provided	N/A	Web-based Comments	50870, 50871	34
Wall	Deborah	not provided	N/A	Web-based Comments	12488	24
Wall	Karen	not provided	N/A	Web-based Comments	19235	24
Wall	Teresa	not provided	N/A	Web-based Comments	30302	24
Wallace	Beth	not provided	N/A	Web-based Comments	9059	24
Wallace	Diane	not provided	N/A	Web-based Comments	12917	24
Wallace	Erin	not provided	N/A	Web-based Comments	47827	34
Wallace	Erlynn	not provided	N/A	Web-based Comments	50569	34
Wallace	Jacob	not provided	N/A	Web-based Comments	49341	34
Wallace	Jeff	not provided	N/A	Web-based Comments	17059	24
Wallace	Julie	not provided	N/A	Web-based Comments	18901	24
Wallace	Kelly	not provided	N/A	Web-based Comments	19949	24
Wallace	Louise	not provided	N/A	Web-based Comments	46898	34
Wallace	Louise	not provided	N/A	Web-based Comments	21903	24
Wallace	Margaret	not provided	N/A	Web-based Comments	22513	24
Wallace	Michael	not provided	N/A	Web-based Comments	24244	24
wallace	nadine	not provided	N/A	Web-based Comments	54524	34
Wallace	Nadine	not provided	N/A	Web-based Comments	24772	24
Wallace	Nadine	not provided	N/A	Web-based Comments	58002	16
Wallace	Pam	not provided	N/A	Web-based Comments	49724	34
Wallace	Pam	not provided	N/A	Web-based Comments	25515	24
Wallace	Patrice	not provided	N/A	Web-based Comments	25697	24
Wallace	Patricia	not provided	N/A	Web-based Comments	25863	24
Wallace	Peter	not provided	N/A	Web-based Comments	26296	24
Wallace	Richard	not provided	N/A	Web-based Comments	27067	24
Wallace	Saleen	not provided	N/A	Web-based Comments	27993	24
Wallace	Susan	not provided	N/A	Web-based Comments	50830, 55120	34
Wallace	Tracey	not provided	N/A	Web-based Comments	30850	24
Wallace	V	not provided	N/A	Web-based Comments	55899	34
Wallach	Risa	not provided	N/A	Web-based Comments	27123	24
Wallen	Adrienne	not provided	N/A	Web-based Comments	7105	24
Wallen	Lawrence	not provided	N/A	Web-based Comments	51318	34
Waller	Ann	not provided	N/A	Web-based Comments	52341, 52342	34
Waller	Ann	not provided	N/A	Web-based Comments	8096	24
Waller	Ben	not provided	N/A	Web-based Comments	8951	24
Waller	R	not provided	N/A	Web-based Comments	26484	24
Waller	Sara	not provided	N/A	Web-based Comments	48154	34
Wallerstein	Emma	not provided	N/A	Web-based Comments	14065	24
Walley	Janet	not provided	N/A	Web-based Comments	16653	24
Walley	Patti	not provided	N/A	Web-based Comments	25953	24
Wallick	Sara	not provided	N/A	Web-based Comments	28318	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Wallin	Patti	not provided	N/A	Web-based Comments	51572	34
Wallington	Victoria	not provided	N/A	Web-based Comments	31233	24
Wallis	Ashley	not provided	N/A	Web-based Comments	51539	34
wallis	peter	not provided	N/A	Web-based Comments	26297	24
Wallis	Steven	not provided	N/A	Web-based Comments	29477	24
wallitt	roberta	not provided	N/A	Web-based Comments	27455	24
wallo	john	not provided	N/A	Web-based Comments	18197	24
Wallof	Julie	not provided	N/A	Web-based Comments	18902	24
Walls	Fred	not provided	N/A	Web-based Comments	14581	24
Walls	Jozie	joziedarlene@gmail.com	N/A	Web-based comments	778	N/A
Walls	Mary	not provided	N/A	Web-based Comments	45987, 45988	34
Walls	Mary	not provided	N/A	Web-based Comments	23459	24
Walrafen	Janice	not provided	N/A	Web-based Comments	47586	34
walrath	Adrian	not provided	N/A	Web-based Comments	7084	24
Walsh	Barbara	not provided	N/A	Web-based Comments	45620, 45621	34
Walsh	Barbara	not provided	N/A	Web-based Comments	8813	24
Walsh	Catriona	catrionawalsh@hotmail.co.uk	N/A	Web-based comments	2640	1
Walsh	Denise	not provided	N/A	Web-based Comments	12667	24
Walsh	Dennis	not provided	N/A	Web-based Comments	12709	24
Walsh	Dennis	not provided	N/A	Web-based Comments	12710	24
Walsh	Dr Steve	not provided	N/A	Web-based Comments	13359	24
walsh	ellen	not provided	N/A	Web-based Comments	55807	34
Walsh	Ellen	not provided	N/A	Web-based Comments	13955	24
Walsh	Gerald	not provided	N/A	Web-based Comments	46484	34
Walsh	Gwen	not provided	N/A	Web-based Comments	15357	24
Walsh	Jenna	not provided	N/A	Web-based comments	31855	N/A
Walsh	Joan	not provided	N/A	Web-based Comments	17753	24
Walsh	Katharina	not provided	N/A	Web-based Comments	53236	34
Walsh	Katherine	not provided	N/A	Web-based comments	57051	35
Walsh	Kathleen F.	not provided	N/A	Web-based Comments	19610	24
Walsh	Kevin	not provided	N/A	Web-based Comments	47926, 48002	34
Walsh	Kristin	not provided	N/A	Web-based Comments	20393	24
Walsh	Marce	not provided	N/A	Web-based Comments	50812	34
Walsh	Marce	not provided	N/A	Web-based Comments	22350	24
Walsh	Margaret	not provided	N/A	Web-based Comments	22514	24
Walsh	Nancy	not provided	N/A	Web-based Comments	25007	24
Walsh	Patrick	not provided	N/A	Web-based Comments	25930	24
Walsh	Ricki	not provided	N/A	Web-based Comments	27110	24
Walsh	Sean	not provided	N/A	Web-based Comments	28524	24
Walsh	Steve	not provided	N/A	Web-based Comments	45147	34
Walsh	Susan	not provided	N/A	Web-based Comments	29896	24
Walsh	Susan	not provided	N/A	Web-based Comments	29897	24
Walston	Bryan	not provided	N/A	Web-based Comments	9639	24
Walstra	Maureen	not provided	N/A	Web-based Comments	23722	24
Walt	Mandy van der	not provided	N/A	Web-based Comments	52817	34
Waltasti	Marilyn	not provided	N/A	Web-based Comments	22818	24
Walter	Amy	not provided	N/A	Web-based Comments	51904	34
Walter	Amy	not provided	N/A	Web-based Comments	7679	24
Walter	Crystal	not provided	N/A	Web-based Comments	49681	34
Walter	Crystal	not provided	N/A	Web-based Comments	11467	24
Walter	David	not provided	N/A	Web-based Comments	53979	34
Walter	Dixie	not provided	N/A	Web-based Comments	12983	24
Walter	Ellen	not provided	N/A	Web-based Comments	51813	34
Walter	Heather	not provided	N/A	Web-based Comments	15550	24
Walter	Heidi	not provided	N/A	Web-based Comments	15583	24
Walter	Kathy	not provided	N/A	Web-based Comments	56252	34
Walter	Kenneth	not provided	N/A	Web-based Comments	20030	24
Walter	Kyle	kyle.walter@chsinc.com	N/A	Web-based comments	3262	N/A
Walter	Lisa	not provided	N/A	Web-based Comments	21653	24
Walter	Mark	not provided	N/A	Web-based Comments	23000	24
Walter	Mary	not provided	N/A	Web-based Comments	23460	24
Walter	Rebecca	not provided	N/A	Web-based Comments	26786	24
Walter	Traci	traci.walter@gmail.com	N/A	Web-based comments	1875	1
Walter	Verena	not provided	N/A	Web-based Comments	31090	24
Walters	Bryana	not provided	N/A	Web-based Comments	52514	34
Walters	Bryana	not provided	N/A	Web-based Comments	9641	24
Walters	Candace	not provided	N/A	Web-based Comments	9761	24
Walters	Carol	not provided	N/A	Web-based Comments	49901	34
Walters	Cindy	not provided	N/A	Web-based Comments	11103	24
Walters	David	not provided	N/A	Web-based Comments	12167	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Walters	Ernie	not provided	N/A	Web-based Comments	45617, 45618	34
Walters	Ernie	not provided	N/A	Web-based Comments	14252	24
Walters	Heather	not provided	N/A	Web-based Comments	15551	24
Walters	J	not provided	N/A	Web-based Comments	15995	24
Walters	Julie	not provided	N/A	Web-based Comments	50867	34
Walters	Julie	not provided	N/A	Web-based Comments	18903	24
Walters	Laura	not provided	N/A	Web-based Comments	20715	24
Walters	Lee	not provided	N/A	Web-based Comments	20947	24
Walters	Linda	not provided	N/A	Web-based comments	57115	35
Walters	Linda	not provided	N/A	Web-based Comments	21457	24
Walters	M	not provided	N/A	Web-based Comments	22201	24
Walters	Meredith	not provided	N/A	Web-based Comments	49912	34
Walters	Robert	not provided	N/A	Web-based Comments	27406	24
Walters	Robyn S	not provided	N/A	Web-based Comments	51235	34
Walters	Robyn S	not provided	N/A	Web-based Comments	27551	24
Walters	Ron	grwalters@frontier.com	N/A	Web-based comments	2267	N/A
Walters	Ron	grwalters@frontier.com	N/A	Web-based Comments	46236	34
Walters	Sandra	not provided	N/A	Web-based Comments	28229	24
Walters	Sarah	not provided	N/A	Web-based Comments	28417	24
Walters	Tura	not provided	N/A	Web-based Comments	30952	24
Walters	Wendy	not provided	N/A	Web-based Comments	31455	24
Walthers	Lisa	not provided	N/A	Web-based Comments	21654	24
Walthour	Cheryl	not provided	N/A	Web-based Comments	10680	24
Waltman	Karen	not provided	N/A	Web-based Comments	52404	34
Waltman	Karen	not provided	N/A	Web-based Comments	19236	24
Walton	Christine	not provided	N/A	Web-based Comments	10992	24
Walton	Cynthia	not provided	N/A	Web-based Comments	11561	24
Walton	Daniel	not provided	N/A	Web-based Comments	11788	24
Walton	Elizabeth	not provided	N/A	Web-based Comments	48759, 58651	34
Walton	James	not provided	N/A	Web-based Comments	16324	24
Walton	John	not provided	N/A	Web-based Comments	54109	34
Walton	Justin	jswalton@roadrunner.com	N/A	Web-based comments	3004	N/A
Walton	Mark	not provided	N/A	Web-based Comments	23001	24
Walton	Paulette	not provided	N/A	Web-based Comments	26115	24
Walton	Stephanie	not provided	N/A	Web-based Comments	29262	24
Waltz	Shirley	not provided	N/A	Web-based Comments	51588	34
Waltz	Shirley	not provided	N/A	Web-based Comments	28969	24
Waltzer	Mark	not provided	N/A	Web-based Comments	52164	34
Waltzer	Mark	not provided	N/A	Web-based Comments	23002	24
Walukas	Elizabeth	not provided	N/A	Web-based Comments	13865	24
Walz	Kenneth	not provided	N/A	Web-based Comments	20031	24
Wampler	Angela	not provided	N/A	Web-based Comments	50358	34
Wampler	M.	not provided	N/A	Web-based comments	5188	N/A
Wan	Josephine	not provided	N/A	Web-based Comments	18413	24
Wanaisie	Luwana	not provided	N/A	Web-based Comments	21984	24
Wands	Arlene	not provided	N/A	Web-based Comments	8439	24
Wanenmacher	Erika	not provided	N/A	Web-based Comments	45736	34
Wanenmacher	Erika	not provided	N/A	Web-based Comments	14206	24
Wang	Ashley	not provided	N/A	Web-based Comments	48718	34
Wang	Judith	not provided	N/A	Web-based Comments	18659	24
Wang	Kevin	not provided	N/A	Web-based Comments	20142	24
Wang	Rebecca	not provided	N/A	Web-based Comments	26787	24
wanika	tammy	not provided	N/A	Web-based Comments	48909	34
Wanless	Maria	not provided	N/A	Web-based Comments	22636	24
Wanling	Clarence	not provided	N/A	Web-based comments	2447	N/A
Wannag	Svein Axel	not provided	N/A	Web-based Comments	30043	24
Wanter	Paula	not provided	N/A	Web-based Comments	26103	24
Warburrton	Joss	not provided	N/A	Web-based Comments	18446	24
Warburton	Jane	not provided	N/A	Web-based Comments	53416	34
Ward	Aurelie	not provided	N/A	Web-based Comments	54688	34
Ward	Charles	cdougward@gmail.com	N/A	Web-based comments	3392	11
Ward	Charles	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32500	13
Ward	Christine	not provided	N/A	Web-based Comments	10993	24
Ward	Christopher	not provided	N/A	Web-based Comments	11035	24
Ward	Craig	cward@rof.net	N/A	Web-based comments	5184	N/A
Ward	Dana	not provided	N/A	Web-based Comments	11711	24
Ward	Danielle	danielle@sunselkie.art	N/A	Web-based comments	5639	1
Ward	Danielle	danielle4wards@outlook.com	N/A	Web-based comments	196	N/A
Ward	Denise	not provided	N/A	Web-based Comments	12668	24
Ward	Diane	not provided	N/A	Web-based comments	57715	35

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Ward	Douglas	not provided	N/A	Web-based Comments	13346	24
Ward	Emma	emma.ryals@gmail.com	N/A	Web-based comments	6917	1
Ward	Gail	not provided	N/A	Web-based Comments	58629	34
Ward	Jacqueline	not provided	N/A	Web-based Comments	16135	24
Ward	Jennifer	jennifer_ward1971@yahoo.com	N/A	Web-based comments	3966	N/A
Ward	Judy	not provided	N/A	Web-based Comments	47515	34
Ward	Karen	heartofidaho@moscow.com	N/A	Web-based comments	6072	N/A
Ward	Kathi	not provided	N/A	Web-based Comments	45696, 45697	34
Ward	Kathi	not provided	N/A	Web-based Comments	19502	24
Ward	Katrina	katrina.ward@umatillaelectric.com	N/A	Web-based comments	6721	N/A
Ward	Kay	not provided	N/A	Web-based Comments	19838	24
Ward	Michelle	not provided	N/A	Web-based Comments	24402	24
Ward	Nancy	not provided	N/A	Web-based Comments	51601	34
Ward	Nancy	not provided	N/A	Web-based Comments	25008	24
Ward	Pat	not provided	N/A	Web-based Comments	55551	34
Ward	Penelope	not provided	N/A	Web-based Comments	47060	34
Ward	Ralph	not provided	N/A	Web-based Comments	45882, 45883	34
Ward	Rosemary	not provided	N/A	Web-based Comments	48723, 48724	34
Ward	Sheila	not provided	N/A	Web-based comments	56946	35
Ward	Sheila	not provided	N/A	Web-based Comments	44889	34
Ward	Sheila	not provided	N/A	Web-based Comments	28815	24
Ward	Susan	not provided	N/A	Web-based Comments	29898	24
Ward	Suzan	not provided	N/A	Web-based Comments	49479	34
Ward	Valerie	not provided	N/A	Web-based Comments	31047	24
Ward Jr.	Tedd	not provided	N/A	Web-based Comments	30251	24
Wardell	Jonathan	not provided	N/A	Web-based Comments	18301	24
Wardell	Tom	not provided	N/A	Web-based Comments	30776	24
Warden	Lisa	not provided	N/A	Web-based Comments	46619	34
Warden	Lisa	not provided	N/A	Web-based Comments	21655	24
Warden	Richard	not provided	N/A	Web-based Comments	27068	24
Warden	Todd	not provided	N/A	Web-based Comments	58152	16
Warden	Valerie	not provided	N/A	Web-based Comments	31048	24
Wardlaw	Jessica	not provided	N/A	Web-based Comments	46817, 46818	34
Wardle	Elizabeth	not provided	N/A	Web-based Comments	53797	34
Wardrip	Matthew	not provided	N/A	Web-based Comments	23671	24
Wardwell	Samantha	not provided	N/A	Web-based Comments	45743	34
Ware	Alexander	not provided	N/A	Web-based Comments	7273	24
Ware	Christopher	not provided	N/A	Web-based Comments	45728, 45729	34
Ware	Christopher	not provided	N/A	Web-based Comments	11036	24
Ware	Clifton	not provided	N/A	Web-based Comments	48119	34
Warenycia	Paul	not provided	N/A	Web-based Comments	26057	24
Warfield	Joan	not provided	N/A	Web-based Comments	17754	24
Warfield	Melissa	melissawarfield@yahoo.com	N/A	Web-based comments	985	N/A
Warfield	Melissa	not provided	N/A	Web-based Comments	54250, 54251	34
Warfield	Melissa	not provided	N/A	Web-based Comments	23934	24
Warga	Jeff	jeffwarga@hotmail.com	N/A	Web-based comments	4137	N/A
Wargmoone	Anna	not provided	N/A	Web-based Comments	8154	24
Wargo	Brittney	not provided	N/A	Web-based Comments	9576	24
WARGO	CYNTHIA	not provided	N/A	Web-based Comments	45873	34
Warhol	Tom	not provided	N/A	Web-based Comments	30777	24
Warhola	Shena	not provided	N/A	Web-based Comments	46963	34
Waring	Alysa	not provided	N/A	Web-based Comments	45806	34
Warmee	Marilyn	not provided	N/A	Web-based Comments	22819	24
Warne	Sandra	not provided	N/A	Web-based Comments	46175	34
Warner	Carolyn	not provided	N/A	Web-based Comments	10181	24
Warner	Elizabeth	not provided	N/A	Web-based Comments	13866	24
Warner	Jodi	not provided	N/A	Web-based Comments	17852	24
Warner	Katharine	not provided	N/A	Web-based Comments	19424	24
Warner	Monica	not provided	N/A	Web-based Comments	24642	24
Warner	Mrs.Larry	not provided	N/A	Web-based Comments	24683	24
Warner	Nancy	not provided	N/A	Web-based Comments	25009	24
Warner	Rita	not provided	N/A	Web-based Comments	48452	34
Warner	Sue	not provided	N/A	Web-based Comments	54516	34
WARNER	THOMAS	not provided	N/A	Web-based Comments	30556	24
warner	tom	not provided	N/A	Web-based Comments	30778	24
Warnke	Tina	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32317	13
Warnock	Dan	not provided	N/A	Web-based Comments	48961	34
Warns	Danica	not provided	N/A	Web-based comments	56996	35

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Warr	Julie	not provided	N/A	Web-based Comments	18904	24
Warrand	Chrstine	not provided	N/A	Web-based Comments	11047	24
Warren	Carole	not provided	N/A	Web-based Comments	10104	24
Warren	Cynthia	not provided	N/A	Web-based Comments	11562	24
Warren	James	jameswarren58@hotmail.com	N/A	Web-based comments	2963, 3200, 3724, 32000	N/A
Warren	Jessica	not provided	N/A	Web-based Comments	17474	24
Warren	Leigh	not provided	N/A	Web-based Comments	20970	24
Warren	Mark	not provided	N/A	Web-based Comments	23003	24
Warren	Megan	not provided	N/A	Web-based Comments	52526	34
Warren	Megan	not provided	N/A	Web-based Comments	23808	24
Warren	Mobi	not provided	N/A	Web-based Comments	24583	24
Warren	Ronald	not provided	N/A	Web-based Comments	45652	34
Warren	Sally	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58306	N/A
Warren	Thyra	idahoreealestate@gmail.com	N/A	Web-based comments	5506	N/A
Warrenburg	Stephen	not provided	N/A	Web-based Comments	29343	24
Warrens	Debra	not provided	N/A	Web-based Comments	56187	34
WARRENS	DEBRA	not provided	N/A	Web-based Comments	12556	24
Warriner	Elizabeth	not provided	N/A	Web-based Comments	13867	24
Warriner	Kellie	not provided	N/A	Web-based Comments	19907	24
warrington	jason	not provided	N/A	Web-based Comments	16791	24
warshauer	david	not provided	N/A	Web-based Comments	12168	24
Warshaw	Nan	not provided	N/A	Web-based Comments	24791	24
Warth	Rita	not provided	N/A	Web-based Comments	27157	24
Warwick	Cynthia	not provided	N/A	Web-based Comments	11563	24
Warwick	Scott	not provided	N/A	Web-based Comments	52735	34
Warzon	Jake	not provided	N/A	Web-based Comments	16166	24
Wasfi	Ellen	not provided	N/A	Web-based Comments	13956	24
Wasgatt	Ann	not provided	N/A	Web-based Comments	52671	34
Wasgatt	Ann	not provided	N/A	Web-based Comments	8097	24
Wash	Pete	not provided	N/A	Web-based Comments	26236	24
Washburn	Clint	not provided	N/A	Web-based comments	3285	N/A
Washburn	Kimberly	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58335	N/A
Washburn	Scott	not provided	N/A	Web-based Comments	48913	34
Washenko	Michael	not provided	N/A	Web-based Comments	24245	24
Washington	Chris	not provided	N/A	Web-based Comments	10794	24
Wasnesky	Tom	not provided	N/A	Web-based Comments	30779	24
waspe	carole	not provided	N/A	Web-based Comments	10105	24
Wassard	Cody	codywassard@gmail.com	N/A	Web-based comments	5929	N/A
Wassemiller	David & Rosemary & Chad	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58351	N/A
Wasserman	Barbara	not provided	N/A	Web-based Comments	8814	24
Wasserman	Linda	not provided	N/A	Web-based Comments	58017, 53550	16, 34
Wasserman	Scott	not provided	N/A	Web-based Comments	28504	24
Wasserwald	Lee	not provided	N/A	Web-based Comments	20948	24
Wassmuth	Donna	dawnstar1018@gmail.com	N/A	Web-based comments	3081	12
Wassmuth	Eric	not provided	N/A	Web-based comments	23, 2793	N/A
Wasson	Ernie	not provided	N/A	Web-based Comments	14253	24
Wasson	Valerie	not provided	N/A	Web-based Comments	52355	34
Wasson	Valerie	not provided	N/A	Web-based Comments	31049	24
Waste	Kathleen	not provided	N/A	Web-based Comments	19607	24
Watabayashi	Jennifer	not provided	N/A	Web-based Comments	17278	24
Watanabe	Osamu	not provided	N/A	Web-based Comments	25452	24
Watchempino	L.	not provided	N/A	Web-based Comments	55048	34
Watchie	Joanne	not provided	N/A	Web-based Comments	17833	24
Waterhouse	Dennis	not provided	N/A	Web-based Comments	12711	24
waterhouse	martin	not provided	N/A	Web-based Comments	23178	24
Waterhouse	Sophie	not provided	N/A	Web-based Comments	29090	24
Waterman	Glenna	not provided	N/A	Web-based Comments	15145	24
Waterman	Sharon	not provided	N/A	Web-based comments	3113	N/A
Waters	Ann	not provided	N/A	Web-based Comments	55872	34
Waters	Bradley	not provided	N/A	Web-based Comments	9357	24
Waters	Darwin	not provided	N/A	Web-based comments	2904	N/A
Waters	Edith	not provided	N/A	Web-based comments	57727	35
Waters	Jean	not provided	N/A	Web-based Comments	58366	28
Waters	Kristine	not provided	N/A	Web-based Comments	50037	34
Waters	Lanene	not provided	N/A	Web-based Comments	51406	34
Waters	Les	not provided	N/A	Web-based Comments	21035	24
Waters	Melissa	not provided	N/A	Web-based Comments	45912	34
Waters	Melissa	not provided	N/A	Web-based Comments	23935	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Waters	Michelle	flyingcat95033@yahoo.com	N/A	Web-based comments	6327	1
Waters	Michelle	not provided	N/A	Web-based Comments	46877	34
Waters	Mr. Anje'	not provided	N/A	Web-based Comments	54570	34
Waters	Virginia & James Waters	not provided	N/A	Web-based Comments	31307	24
Waterson	Kim	not provided	N/A	Web-based Comments	51582	34
Waterworth	Laura	not provided	N/A	Web-based Comments	45961, 45962	34
Waterworth	Laura	not provided	N/A	Web-based Comments	20716	24
Waterworth	Pamela	not provided	N/A	Web-based Comments	54719, 54720	34
Waterworth	Pamela	not provided	N/A	Web-based Comments	25597	24
Wathne	Lisa	not provided	N/A	Web-based Comments	54181	34
Watkins	Anita	not provided	N/A	Web-based Comments	57830	34
Watkins	Anita	not provided	N/A	Web-based Comments	7986	24
Watkins	Evelyn	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32387	13
Watkins	Gerald	not provided	N/A	Web-based Comments	14963	24
Watkins	James	not provided	N/A	Web-based Comments	16325	24
Watkins	Jim	not provided	N/A	Web-based Comments	17613	24
Watkins	Julie	not provided	N/A	Web-based Comments	54421	34
Watkins	Kevin	not provided	N/A	Web-based Comments	56588	34
Watkins	Kevin	not provided	N/A	Web-based Comments	20143	24
Watkins	Maria	not provided	N/A	Web-based Comments	50481	34
Watkins	Marilyn	not provided	N/A	Web-based Comments	22820	24
Watkins	Mark	not provided	N/A	Web-based Comments	23004	24
Watkins	Steve	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32386	13
Watkins	Susan	not provided	N/A	Web-based Comments	29899	24
Watkins	Tom	tom.hfcaddis@gmail.com	N/A	Web-based comments	5917	N/A
Watkins	Vivian	not provided	N/A	Web-based Comments	31322	24
Watkinson	Louise	not provided	N/A	Web-based comments	57357	35
Watkinson	Tomeka	not provided	N/A	Web-based Comments	30788	24
Watremez	Chantal	not provided	N/A	Web-based Comments	10461	24
Watrous	Amy	not provided	N/A	Web-based Comments	7680	24
Watson	Bonnie	not provided	N/A	Web-based Comments	53314	34
Watson	Brad	not provided	N/A	Web-based Comments	9349	24
Watson	Catherine	not provided	N/A	Web-based Comments	10331	24
watson	claire	not provided	N/A	Web-based Comments	44911	34
Watson	Claire	not provided	N/A	Web-based Comments	44912	34
watson	claire	not provided	N/A	Web-based Comments	11148	24
Watson	Donald	not provided	N/A	Web-based Comments	13090	24
Watson	Elizabeth	not provided	N/A	Web-based Comments	13868	24
Watson	Harold	not provided	N/A	Web-based Comments	54074	34
Watson	Harold	not provided	N/A	Web-based Comments	15446	24
Watson	Jeffrey	not provided	N/A	Web-based Comments	17105	24
Watson	Joanne	not provided	N/A	Web-based comments	56908	35
Watson	John	not provided	N/A	Web-based Comments	47598	34
Watson	John	not provided	N/A	Web-based Comments	18198	24
Watson	John	not provided	N/A	Web-based Comments	18199	24
Watson	Joyce	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	44258	N/A
Watson	Judah	not provided	N/A	Web-based Comments	18538	24
Watson	Judy L	not provided	N/A	Web-based Comments	55237	34
Watson	Kathy	not provided	N/A	Web-based Comments	19771	24
Watson	Kirsteen	not provided	N/A	Web-based comments	56881	35
Watson	Madison	not provided	N/A	Web-based Comments	52797	34
Watson	Mary	not provided	N/A	Web-based Comments	51345, 51346	34
Watson	Michael R.	not provided	N/A	Web-based Comments	46566	34
Watson	Nicholas	not provided	N/A	Web-based Comments	25183	24
Watson	Nick	nick.watson@fallriverelectric.com	N/A	Web-based comments	3471	13
Watson	Patricia	not provided	N/A	Web-based Comments	25864	24
Watson	Richard	not provided	N/A	Web-based Comments	44712, 44713	34
Watson	Richard	not provided	N/A	Web-based Comments	27069	24
Watson	Virginia	not provided	N/A	Web-based Comments	51192	34
Watson Jr	LeRoy	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	2848	N/A
Watt	Alannah	not provided	N/A	Web-based comments	56744	35
Watt	Julie	not provided	N/A	Web-based Comments	18905	24
Watt	Kathy	not provided	N/A	Web-based Comments	19772	24
Watt	Michael	mwatt@gmx.de	N/A	Web-based comments	2029	N/A
Watt	Yvette	not provided	N/A	Web-based Comments	31687	24
Wattenbarger	David	daveandjeanw@yahoo.com	N/A	Web-based comments	3074, 5168	N/A
watters	cheryl	not provided	N/A	Web-based Comments	56553	34
watters	cheryl	not provided	N/A	Web-based Comments	10681	24
Watters	Linda	not provided	N/A	Web-based Comments	21458	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
watters	Whitney	not provided	N/A	Web-based Comments	52336	34
watters	Whitney	not provided	N/A	Web-based Comments	31476	24
watters	zayne	not provided	N/A	Web-based Comments	31723	24
Watters RPE,BCPP	Ann	not provided	N/A	Web-based Comments	8098	24
Watterson	Nadine	not provided	N/A	Web-based Comments	24773	24
Watts	Allison	alleycat9906@gmail.com	N/A	Web-based comments	5091	1
Watts	Barb	not provided	N/A	Web-based Comments	8611	24
Watts	Craig	not provided	N/A	Web-based Comments	57988	16
Watts	Diane Watts	not provided	N/A	Web-based Comments	52554	34
Watts	Eli	not provided	N/A	Web-based Comments	13659	24
Watts	Ken	watts3188@gmail.com	N/A	Web-based comments	3489, 3772	N/A
Watts	Martin	not provided	N/A	Web-based Comments	53966	34
Watts	Patsy	pjmwatts@gmail.com	N/A	Web-based comments	3777	N/A
Watts	Robert	not provided	N/A	Web-based Comments	54827	34
Watts	Sandra	not provided	N/A	Web-based Comments	28230	24
Watts	Susan	not provided	N/A	Web-based Comments	29900	24
Watts-Rosenfeld	Susan	not provided	N/A	Web-based Comments	47850	34
Waugh	Helen	not provided	N/A	Web-based Comments	15629	24
Waugh	James	not provided	N/A	Web-based Comments	16326	24
Waugh	Katharine	not provided	N/A	Web-based Comments	19425	24
Waugh	Kym	not provided	N/A	Web-based Comments	20467	24
Way	Anne	not provided	N/A	Web-based Comments	48732	34
Way	David	not provided	N/A	Web-based Comments	44457, 44520	34
Way	David	not provided	N/A	Web-based Comments	12169	24
Way	Princess Grace	not provided	N/A	Web-based Comments	26439	24
Waymire	David	not provided	N/A	Web-based Comments	12170	24
WAYMON	TODD	not provided	N/A	Web-based Comments	30729	24
Wayne	Mackenzie	not provided	N/A	Web-based Comments	46562, 46563	34
Wayne	Mackenzie	not provided	N/A	Web-based Comments	22231	24
We	Barbara	not provided	N/A	Web-based Comments	46145	34
WE	Barbara	not provided	N/A	Web-based Comments	8815	24
Weakley	Diane	not provided	N/A	Web-based Comments	12918	24
Weare	Marcia	not provided	N/A	Web-based Comments	48733	34
Weatherly	Tamara	not provided	N/A	Web-based Comments	30133	24
Weatherman	Josh	not provided	N/A	Web-based Comments	18424	24
Weathersbee	Christine	not provided	N/A	Web-based Comments	10994	24
Weatherup	Katie	not provided	N/A	Web-based Comments	19797	24
Weaver	Charlie	not provided	N/A	Web-based Comments	10551	24
Weaver	Clare	not provided	N/A	Web-based Comments	11164	24
Weaver	Darcy	not provided	N/A	Web-based Comments	11855	24
Weaver	Dianne	not provided	N/A	Web-based Comments	12949	24
Weaver	Jana	not provided	N/A	Web-based Comments	16454	24
Weaver	Jennifer	not provided	N/A	Web-based Comments	17279	24
Weaver	Kathy	not provided	N/A	Web-based Comments	19773	24
Weaver	Natasha	not provided	N/A	Web-based Comments	25094	24
Weaver	Nathan	not provided	N/A	Web-based comments	2053	5
Weaver	Nora	not provided	N/A	Web-based Comments	25367	24
Weaver	Pamela	not provided	N/A	Web-based Comments	50647	34
Weaver	Patricia	not provided	N/A	Web-based Comments	25865	24
Weaver	Tammy	not provided	N/A	Web-based Comments	30164	24
Weaver	Wes	not provided	N/A	Web-based Comments	31462	24
Webb	B	not provided	N/A	Web-based Comments	8577	24
Webb	Carol	not provided	N/A	Web-based Comments	10048	24
Webb	Charles	not provided	N/A	Web-based Comments	10538	24
Webb	David	not provided	N/A	Web-based Comments	12171	24
Webb	Donald	not provided	N/A	Web-based Comments	52237	34
Webb	Donald	not provided	N/A	Web-based Comments	13091	24
Webb	Jane	not provided	N/A	Web-based Comments	16544	24
Webb	Jim	jim@lvenergy.com	N/A	Web-based comments	3962	N/A
Webb	Marty	not provided	N/A	Web-based Comments	23193	24
Webb	Maureen	not provided	N/A	Web-based Comments	23723	24
Webb	Michael	not provided	N/A	Web-based Comments	24246	24
Webb	Michella	not provided	N/A	Web-based Comments	24318	24
Webb	Pamela	not provided	N/A	Web-based Comments	48914	34
Webb	Patricia	not provided	N/A	Web-based Comments	25866	24
Webb	Randall	not provided	N/A	Web-based Comments	54613	34
Webb	Randall	not provided	N/A	Web-based Comments	26618	24
Webb	Robert	webbrn@charter.net	N/A	Web-based comments	3028	N/A
Webb	Sharon	not provided	N/A	Web-based Comments	28722	24
Webb	Shawncey	not provided	N/A	Web-based Comments	28763	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Webb	Todd	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	56675	13
Webb Ferebee	Kelly	not provided	N/A	Web-based Comments	19950	24
Webber	Kathy	not provided	N/A	Web-based Comments	19774	24
Webber	Liz	not provided	N/A	Web-based Comments	21698	24
Webber	Nancy	not provided	N/A	Web-based Comments	25010	24
Webber	R	not provided	N/A	Web-based Comments	53690	34
Webber	Rita	not provided	N/A	Web-based Comments	27158	24
Webber	Taylor	not provided	N/A	Web-based Comments	51058, 51059	34
Weber	Ahnna	not provided	N/A	Web-based Comments	47712	34
Weber	Ahnna	not provided	N/A	Web-based Comments	7124	24
Weber	Brenda	not provided	N/A	Web-based Comments	9428	24
Weber	Brien	Webbrien1@yahoo.com	N/A	Web-based comments	5019	N/A
Weber	Carmen	not provided	N/A	Web-based Comments	9876	24
Weber	Carol	not provided	N/A	Web-based Comments	10049	24
Weber	Cindy	not provided	N/A	Web-based Comments	11104	24
Weber	Danika	not provided	N/A	Web-based Comments	11825	24
Weber	EB	not provided	N/A	Web-based Comments	13431	24
Weber	Greg	not provided	N/A	Web-based Comments	51893	34
Weber	Helen	not provided	N/A	Web-based Comments	48147	34
Weber	Helen	not provided	N/A	Web-based Comments	15630	24
Weber	Jeanine	not provided	N/A	Web-based Comments	44866	34
Weber	Jeanine	not provided	N/A	Web-based Comments	16930	24
Weber	Jessica	not provided	N/A	Web-based Comments	17475	24
Weber	Lore	not provided	N/A	Web-based Comments	21747	24
WEBER	MARC	marchollisweber@gmail.com	N/A	Web-based comments	2654	N/A
Weber	Merris	not provided	N/A	Web-based Comments	23995	24
Weber	Michael	not provided	N/A	Web-based Comments	24247	24
WEBER	PAULA	not provided	N/A	Web-based Comments	26104	24
Weber	Steve	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4762	N/A
Weber	Zorina	not provided	N/A	Web-based Comments	31740	24
Weber Wyborski	Shira	not provided	N/A	Web-based comments	56781	35
Weborg	Lynne	not provided	N/A	Web-based Comments	22154	24
Webster	Bernadette	not provided	N/A	Web-based Comments	51769	34
Webster	Bobbie	not provided	N/A	Web-based Comments	51327	34
Webster	Brian	not provided	N/A	Web-based Comments	9516	24
Webster	Catherine	not provided	N/A	Web-based Comments	54533	34
Webster	Catherine	not provided	N/A	Web-based Comments	10332	24
Webster	Eva	not provided	N/A	Web-based Comments	14319	24
Webster	Heather	not provided	N/A	Web-based Comments	15552	24
Webster	Jonathan	lilweby@yahoo.com	N/A	Web-based comments	3492	13
Webster	Lassie	not provided	N/A	Web-based Comments	44522	34
Webster	Phyllis	not provided	N/A	Web-based Comments	26400	24
Webster	Robert	not provided	N/A	Web-based Comments	54427	34
Webster	Robert	not provided	N/A	Web-based Comments	27407	24
Wechsler	Susan	not provided	N/A	Web-based Comments	58044, 58558	16, 34
Wecker	Karen	not provided	N/A	Web-based Comments	19237	24
wed	eder	not provided	N/A	Web-based Comments	13462	24
Weddington	Tim	not provided	N/A	Web-based Comments	49057	34
Weddle	Todd	not provided	N/A	Web-based comments	1879	N/A
Wedlake	John	not provided	N/A	Web-based Comments	18200	24
Wedow	Nancy	not provided	N/A	Web-based Comments	25011	24
Wee	James	not provided	N/A	Web-based Comments	16327	24
weed	Lynn	lweed68@hotmail.com	N/A	Web-based comments	5197, 32028	N/A
Weedall	Susan	weedallfamily@gmail.com	N/A	Web-based comments	3702	17
Weeden	Mary R.	not provided	N/A	Web-based Comments	23546	24
Weeden	Noreen	not provided	N/A	Web-based Comments	53952	34
Weedman	Ruth	not provided	N/A	Web-based Comments	27892	24
Weedon	Butch	not provided	N/A	Web-based comments	3769	N/A
Weekley	Sarah	not provided	N/A	Web-based Comments	53004	34
Weekley	Sarah	not provided	N/A	Web-based Comments	28418	24
Weekley	Terri	not provided	N/A	Web-based Comments	54868	34
Weeks	Beth	not provided	N/A	Web-based Comments	9060	24
Weeks	Beverley	not provided	N/A	Web-based Comments	9116	24
Weeks	Janine	not provided	N/A	Web-based Comments	16735	24
Weeks	Ken	not provided	N/A	Web-based Comments	55745	34
Weeks	Steve	not provided	N/A	Web-based Comments	29412	24
Weeks-Green	Mandy	not provided	N/A	Web-based Comments	22306	24
Weems	Pam	not provided	N/A	Web-based Comments	25516	24
Weerasinghe	Dhash	not provided	N/A	Web-based Comments	12745	24
Weerts	Kim	kimmyweerts@gmail.com	N/A	Web-based comments	31795	N/A

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Wegener	Brian	not provided	N/A	Web-based Comments	50911, 54440	34
Wegener	Detlev	ruppert228@aol.com	N/A	Web-based comments	1904	N/A
Wegener	Michaela	not provided	N/A	Web-based Comments	24268	24
Weger	Evan	not provided	N/A	Web-based Comments	14333	24
Weghorst	Andrew	not provided	N/A	Web-based Comments	7858	24
WEGNER	RONNA	not provided	N/A	Web-based Comments	27689	24
Wegrzyn	Eileen	not provided	N/A	Web-based Comments	13561	24
Wehberg	Shelley	not provided	N/A	Web-based Comments	28840	24
Wehner	Michaela	not provided	N/A	Web-based Comments	24269	24
Wehr	Jordan	not provided	N/A	Web-based Comments	18324	24
Wehrenberg	Christine	not provided	N/A	Web-based Comments	10995	24
Weibezahl	Kevin	not provided	N/A	Web-based Comments	20144	24
Weichel	Julie	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	5595	N/A
Weichman	Joshua	not provided	N/A	Web-based Comments	46648	34
Weicman	Sharon	not provided	N/A	Web-based Comments	51323	34
Weidmann	Frederick	not provided	N/A	Web-based Comments	14599	24
Weigel	Alice	not provided	N/A	Web-based Comments	45896, 45897	34
Weigel	Donna	not provided	N/A	Web-based Comments	13197	24
Weigle	Karen	not provided	N/A	Web-based Comments	45807	34
Weigle	Karen	not provided	N/A	Web-based Comments	19238	24
Weih	Jeffrey	not provided	N/A	Web-based Comments	48618	34
Weikart	Christopher	not provided	N/A	Web-based Comments	52291, 52292	34
Weikel	Wendy	not provided	N/A	Web-based Comments	49190	34
weikert	j	not provided	N/A	Web-based Comments	15996	24
Weil	Gwen	not provided	N/A	Web-based Comments	15358	24
Weil	Janet	not provided	N/A	Web-based Comments	52172	34
Weil	Lise	not provided	N/A	Web-based Comments	21669	24
Weil	Madeline	not provided	N/A	Web-based Comments	22248	24
Weil	Nancy	not provided	N/A	Web-based Comments	53634	34
Weil	Rosemary	not provided	N/A	Web-based Comments	27770	24
Weil	Susanne	not provided	N/A	Web-based Comments	48518	34
Weil	Susanne	not provided	N/A	Web-based Comments	29954	24
Weilage	Taylor	not provided	N/A	Web-based Comments	30239	24
Weiland	Alex	not provided	N/A	Web-based Comments	50945	34
Weiland	Sherry	not provided	N/A	Web-based Comments	49157	34
Weiland	Sherry	not provided	N/A	Web-based Comments	28910	24
Weiler	Colleen	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4274, 5576	N/A
Weiler	Colleen	not provided	N/A	Web-based comments	57436	35
Weiler	Debbi	not provided	N/A	Web-based Comments	53468	34
Weiler	Dennis	not provided	N/A	Web-based comments	57228	35
Weiler	James	not provided	N/A	Web-based Comments	16328	24
weill	jennifer	not provided	N/A	Web-based Comments	52069	34
Weinberg	J.D.	not provided	N/A	Web-based Comments	16017	24
Weinberg	Pat	not provided	N/A	Web-based Comments	44824	34
Weinberg	Robert	not provided	N/A	Web-based Comments	27408	24
Weinberg	Sharon	not provided	N/A	Web-based Comments	28723	24
Weinberger	Andrea	not provided	N/A	Web-based Comments	7778	24
Weinberger	Daniel	not provided	N/A	Web-based Comments	44689	34
Weinberger	Daniel	not provided	N/A	Web-based Comments	11789	24
Weinberger	Joshua	not provided	N/A	Web-based Comments	18440	24
Weinberger	Mark S.	not provided	N/A	Web-based Comments	51830	34
Weindling	P	not provided	N/A	Web-based Comments	25468	24
Weiner	Dr.	rliz717@gmail.com	N/A	Web-based comments	6322	3
Weiner	Linda	not provided	N/A	Web-based Comments	21459	24
Weiner	Mary	not provided	N/A	Web-based Comments	23461	24
weiner	mike	not provided	N/A	Web-based Comments	24495	24
Weiner	Peter	not provided	N/A	Web-based Comments	26298	24
Weingart	Robert	not provided	N/A	Web-based Comments	50501	34
Weingart	Robert	not provided	N/A	Web-based Comments	27409	24
weingarten	gilbert	not provided	N/A	Web-based Comments	15025	24
Weingarten	Sheldon	not provided	N/A	Web-based Comments	28823	24
Weingartner	Jason	not provided	N/A	Web-based Comments	16792	24
Weingartner	Joseph	not provided	N/A	Web-based Comments	18399	24
Weinles	Mariette	not provided	N/A	Web-based Comments	22748	24
Weinlich Miltenberg	Anne	not provided	N/A	Web-based Comments	8254	24
Weinmann	Elaine	not provided	N/A	Web-based Comments	13619	24
Weinmann	Marie	not provided	N/A	Web-based Comments	22729	24
Weinsoft	Mark	not provided	N/A	Web-based Comments	51089	34
Weinstein	Diane	not provided	N/A	Web-based Comments	57998, 53594	16, 34
weinstein	elyette	not provided	N/A	Web-based Comments	13993	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
weinstein	elyette	not provided	N/A	Web-based Comments	57941	16
weinstein	helene	not provided	N/A	Web-based Comments	15644	24
Weinstein	Susan	not provided	N/A	Web-based Comments	29901	24
Weinstein-Foner	Steven	not provided	N/A	Web-based Comments	29478	24
Weinstein-Foner	Stevie	not provided	N/A	Web-based Comments	46191, 46192	34
Weintraub	Dana	not provided	N/A	Web-based Comments	51556, 51557	34
Weintraub	Dana	not provided	N/A	Web-based Comments	11712	24
WEIR	ALICE	not provided	N/A	Web-based Comments	7368	24
weirich	robin	not provided	N/A	Web-based Comments	46194	34
Weirich	Robin	not provided	N/A	Web-based Comments	46193	34
Weirich	Robin	not provided	N/A	Web-based Comments	27537	24
Weis	Alice	not provided	N/A	Web-based Comments	7369	24
Weis	Jennifer	jennycweis@gmail.com	N/A	Web-based comments	3024	N/A
Weis	Joe	not provided	N/A	Web-based Comments	45523	34
Weis	Karen	not provided	N/A	Web-based Comments	55359	34
Weis	Karen	not provided	N/A	Web-based Comments	19239	24
Weis	Marie	not provided	N/A	Web-based Comments	51161	34
Weis	Marie	not provided	N/A	Web-based Comments	22730	24
Weis	Randel	not provided	N/A	Web-based Comments	56561	34
Weis	Roman	not provided	N/A	Web-based Comments	50722	34
Weisberg	Lisa	not provided	N/A	Web-based Comments	49780	34
Weisberg	Sarah	not provided	N/A	Web-based Comments	48453, 48454	34
Weisel	Bonnie	not provided	N/A	Web-based Comments	9330	24
Weisel	Jan	not provided	N/A	Web-based comments	57449	35
Weisel	Jan	not provided	N/A	Web-based Comments	56177	34
Weisel	Jan	not provided	N/A	Web-based Comments	16441	24
Weisenfeld	Harv	not provided	N/A	Web-based Comments	54717	34
Weisensee	Michael	not provided	N/A	Web-based Comments	24248	24
Weiser	Nancy	not provided	N/A	Web-based Comments	51095, 51096	34
Weisgal	Larry	not provided	N/A	Web-based Comments	20591	24
Weisgram	Stefanie	not provided	N/A	Web-based Comments	29175	24
Weishaupt	Greg	not provided	N/A	Web-based Comments	15260	24
Weiske	Lynne	not provided	N/A	Web-based Comments	46584	34
Weiske	Lynne	not provided	N/A	Web-based Comments	22155	24
weisman	naomi	not provided	N/A	Web-based Comments	25052	24
Weismann	Zach	not provided	N/A	Web-based Comments	31711	24
weiss	barry	not provided	N/A	Web-based Comments	47374	34
Weiss	Charlotte	not provided	N/A	Web-based Comments	10574	24
Weiss	Crystal	not provided	N/A	Web-based Comments	11468	24
weiss	eric	not provided	N/A	Web-based Comments	14149	24
Weiss	Herbert	not provided	N/A	Web-based Comments	15683	24
Weiss	Howard	not provided	N/A	Web-based Comments	15811	24
Weiss	Howard	not provided	N/A	Web-based Comments	15812	24
Weiss	Irene	not provided	N/A	Web-based Comments	52373	34
Weiss	Janice	not provided	N/A	Web-based Comments	16707	24
WEISS	Jeffrey	not provided	N/A	Web-based Comments	17106	24
Weiss	Karen	not provided	N/A	Web-based Comments	19240	24
Weiss	Laura	not provided	N/A	Web-based Comments	20717	24
Weiss	Martin	not provided	N/A	Web-based Comments	55262	34
Weiss	MC	not provided	N/A	Web-based Comments	23770	24
Weiss	Nancy	not provided	N/A	Web-based Comments	45565, 45566	34
Weiss	Paul	not provided	N/A	Web-based Comments	26058	24
Weiss	R	not provided	N/A	Web-based Comments	58036	16
Weiss	Roslyn	rwweiss@gmail.com	N/A	Web-based comments	6097	1
Weiss	Sonja	not provided	N/A	Web-based Comments	44654	34
Weiss	Steve	not provided	N/A	Web-based Comments	45705	34
Weiss	Stuart	not provided	N/A	Web-based Comments	29501	24
Weiss	Susan	not provided	N/A	Web-based Comments	29902	24
Weissberg	Carol	not provided	N/A	Web-based Comments	10050	24
Weissberg	Carol	not provided	N/A	Web-based Comments	10051	24
Weissberger	Alan	not provided	N/A	Web-based Comments	7195	24
Weiss-Geissler	Erika	not provided	N/A	Web-based Comments	14207	24
Weissglass	Roberta	not provided	N/A	Web-based Comments	27456	24
Weissman	Ira	not provided	N/A	Web-based Comments	15891	24
Weissman	Stephen	not provided	N/A	Web-based Comments	51520	34
Weissman	Stephen	not provided	N/A	Web-based Comments	29344	24
Weisz	Russell	not provided	N/A	Web-based Comments	47390	34
Wekselman	William	not provided	N/A	Web-based Comments	31607	24
Welch	Barbara	not provided	N/A	Web-based Comments	8816	24
Welch	Brooke	not provided	N/A	Web-based Comments	9588	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Welch	Chevelle	not provided	N/A	Web-based Comments	10689	24
Welch	Leanne Welch	not provided	N/A	Web-based comments	57478	35
Welch	Lynn	not provided	N/A	Web-based Comments	53519	34
Welch	Lynn	not provided	N/A	Web-based Comments	22104	24
Welch	Paul	not provided	N/A	Web-based Comments	26059	24
Welchert	Alice	not provided	N/A	Web-based Comments	50444	34
Welchman	Eva	not provided	N/A	Web-based Comments	14320	24
Weldon	Tom	not provided	N/A	Web-based Comments	30780	24
Weldon	Wendy	not provided	N/A	Web-based Comments	53261, 53262	34
Weldon-Faulkner	Cassandra	not provided	N/A	Web-based Comments	50682	34
Welkowitz	William	not provided	N/A	Web-based Comments	31608	24
Weller	Gay	not provided	N/A	Web-based Comments	14819	24
Weller	Harriette	not provided	N/A	Web-based Comments	15456	24
Weller	Nicole	not provided	N/A	Web-based Comments	25261	24
Weller	Sarah	not provided	N/A	Web-based Comments	56183	34
Weller	Sarah	not provided	N/A	Web-based Comments	28419	24
Weller	Thomas	tweller@midstateelectric.com	N/A	Web-based comments	2681	6
Welles	Karen	not provided	N/A	Web-based Comments	19241	24
Welles	Kasey	not provided	N/A	Web-based Comments	19341	24
Welles	Kasey	not provided	N/A	Web-based Comments	58123	16
Welles	Sue	not provided	N/A	Web-based Comments	52945	34
Welling	Jeannette	not provided	N/A	Web-based Comments	16989	24
Wellington	Mary	not provided	N/A	Web-based Comments	52672, 52673	34
Wellington	Mary	not provided	N/A	Web-based Comments	23462	24
Wellington	Nancy	not provided	N/A	Web-based Comments	25012	24
Wellman	Ben	tandbwellman@msn.com	N/A	Web-based comments	3743	N/A
Wells	Adam	adam.joseph.wells@gmail.com	N/A	Web-based comments	6064	1
Wells	Bonnie Cameron	not provided	N/A	Web-based Comments	9332	24
Wells	David	not provided	N/A	Web-based Comments	12172	24
Wells	Gary	riverwinebud@gmail.com	N/A	Web-based comments	2034	N/A
Wells	Hannah	not provided	N/A	Web-based Comments	15416	24
Wells	Janette	not provided	N/A	Web-based Comments	49224	34
Wells	Jeff	not provided	N/A	Web-based Comments	17060	24
Wells	John	2015johnpwells@gmail.com	N/A	Web-based comments	5255	N/A
Wells	Karena	not provided	N/A	Web-based Comments	19263	24
Wells	Lasha	not provided	N/A	Web-based Comments	45230, 45231, 45232	34
Wells	Lasha	not provided	N/A	Web-based Comments	20600	24
Wells	Laureen	not provided	N/A	Web-based Comments	58692	34
Wells	Lynn	not provided	N/A	Web-based Comments	22105	24
Wells	R	not provided	N/A	Web-based Comments	55871	34
Wells	Rachel	not provided	N/A	Web-based Comments	26554	24
Wells	Rebecca	not provided	N/A	Web-based Comments	26788	24
Wells	Samantha	not provided	N/A	Web-based comments	4401	1
Wells	Scott	not provided	N/A	Web-based Comments	28505	24
WELSCH	Unreadable	not provided	N/A	Web-based Comments	7114	24
WELSCH	Unreadable	not provided	N/A	Web-based Comments	31000	24
Welsford	Susan	not provided	N/A	Web-based Comments	49167, 49168	34
Welte	Heidi	not provided	N/A	Web-based Comments	58470	34
Welte	Heidi	not provided	N/A	Web-based Comments	15584	24
Welte	Joan	not provided	N/A	Web-based Comments	46724	34
Welter	Diane	not provided	N/A	Web-based Comments	12919	24
Weltner	Lucy	not provided	N/A	Web-based Comments	50321	34
Weltner	Lucy	not provided	N/A	Web-based Comments	21960	24
Weltner	Robert	not provided	N/A	Web-based Comments	27410	24
Welty	Fred	not provided	N/A	Web-based Comments	14582	24
Weltzien	Lynn	not provided	N/A	Web-based Comments	22106	24
Wendel	Elizabeth	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	5532	21
Wendel	Tom	not provided	N/A	Web-based Comments	30781	24
Wendell	Patricia R.	not provided	N/A	Web-based Comments	58559	34
Wendland	Jim	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4269	N/A
Wendland	Joshua	jwadress@gmail.com	N/A	Web-based comments	6596	1
Wendt	David	not provided	N/A	Web-based Comments	12173	24
Wendt	Debra	not provided	N/A	Web-based Comments	49979	34
Wendt	Debra	not provided	N/A	Web-based Comments	12557	24
Wendt	Kris	not provided	N/A	Web-based Comments	48164	34
Wendt	Steve	not provided	N/A	Web-based Comments	49564, 49565	34
Wenger	Beverly	not provided	N/A	Web-based Comments	9149	24
Wenger	Jean	not provided	N/A	Web-based Comments	16893	24
Wenham	Sharon	not provided	N/A	Web-based Comments	28724	24
Wenrick	Joyce	not provided	N/A	Web-based Comments	18521	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Wentworth	Katherine	not provided	N/A	Web-based Comments	19487	24
Wentworth	Kimberly	not provided	N/A	Web-based Comments	20252	24
Wentz	Pat	not provided	N/A	Web-based Comments	51210	34
Wenz	Daniel	not provided	N/A	Web-based Comments	11790	24
Wenzek-Barth	Linda	not provided	N/A	Web-based Comments	21460	24
Wenzel	Joseph	not provided	N/A	Web-based Comments	52665, 52666	34
Wenzel	Joseph	not provided	N/A	Web-based Comments	18400	24
Wenzel	Julia	not provided	N/A	Web-based Comments	18782	24
Wenzel	Steve	stevewenzel7@gmail.com	N/A	Web-based comments	5620	N/A
Wenzel	Walter	not provided	N/A	Web-based Comments	31368	24
Wenzell	Katherine	not provided	N/A	Web-based Comments	55976	34
Wenzer	Bee	not provided	N/A	Web-based Comments	47454, 47455	34
Wenzer	Lou	not provided	N/A	Web-based Comments	55931, 55932	34
Wenzer	Lou	not provided	N/A	Web-based Comments	21862	24
Wenzer	Minivere	not provided	N/A	Web-based Comments	49859, 49860	34
Wenzl	Cristina	not provided	N/A	Web-based Comments	11449	24
Wenzlaff	Carla	not provided	N/A	Web-based Comments	9839	24
Wenzlick	Allyson	not provided	N/A	Web-based Comments	7483	24
Wepking	Susan	not provided	N/A	Web-based Comments	49219	34
WEPKING	SUSAN	not provided	N/A	Web-based Comments	58058	16
Weprin	Janeane	jghonore@yahoo.com	N/A	Web-based comments	382	3
werber	karen	not provided	N/A	Web-based Comments	19242	24
Werdesheim	Gary	not provided	N/A	Web-based Comments	14805	24
Werland	Amy	not provided	N/A	Web-based Comments	49443	34
Werneke	Angela	not provided	N/A	Web-based Comments	55972	34
Werner	Bob	not provided	N/A	Web-based Comments	9259	24
Werner	Elizabeth	not provided	N/A	Web-based Comments	13869	24
Werner	Katherine	not provided	N/A	Web-based Comments	19488	24
Werner	Sharon	not provided	N/A	Web-based Comments	28725	24
Werner-[unreadable]	Gertie	not provided	N/A	Web-based Comments	15008	24
Wernke	Diane	not provided	N/A	Web-based Comments	12920	24
Wertheim	Ellen	not provided	N/A	Web-based Comments	46164	34
Wertheim	Ellen	not provided	N/A	Web-based Comments	13957	24
Wertheim	Ello	not provided	N/A	Web-based Comments	13977	24
Wertin	John and Robbie	not provided	N/A	Web-based Comments	52248	34
Wertz	Brad	not provided	N/A	Web-based Comments	45589, 45590, 45591	34
Wertz	CharLynn	not provided	N/A	Web-based Comments	10578	24
Wertz	Jennifer	not provided	N/A	Web-based comments	57069	35
wescoe	Benjamin	not provided	N/A	Web-based Comments	8974	24
Weshinskey	Gwenna	not provided	N/A	Web-based Comments	15361	24
Weskamp	Mary	not provided	N/A	Web-based Comments	23463	24
Wesley	Brian	not provided	N/A	Web-based Comments	9517	24
Wesley	Martha	not provided	N/A	Web-based Comments	23138	24
Wesoky	Sharon	not provided	N/A	Web-based Comments	28726	24
Wessberg	Annette	not provided	N/A	Web-based Comments	8292	24
Wesselink	Miriam	not provided	N/A	Web-based Comments	55484, 55485	34
Wessell	Deborah	wessell@pobox.com	N/A	Web-based comments	3596	17
Wessman	Eric	not provided	N/A	Web-based Comments	14150	24
Wessner	Susan	not provided	N/A	Web-based Comments	47376	34
West	Alice	not provided	N/A	Web-based Comments	56175, 56176	34
West	Alice	not provided	N/A	Web-based Comments	7370	24
West	Alice	not provided	N/A	Web-based Comments	7371	24
West	Barbara	not provided	N/A	Web-based Comments	8817	24
West	Bruce	not provided	N/A	Web-based Comments	55063	34
west	carrie	not provided	N/A	Web-based Comments	46211	34
west	carrie	not provided	N/A	Web-based Comments	10207	24
West	Emily	not provided	N/A	Web-based Comments	14048	24
West	Eric	not provided	N/A	Web-based Comments	48705	34
West	Eric	not provided	N/A	Web-based Comments	14151	24
West	Geri	not provided	N/A	Web-based Comments	14991	24
West	Gertrude	not provided	N/A	Web-based Comments	56102	34
West	John	not provided	N/A	Web-based Comments	18201	24
West	Julia	not provided	N/A	Web-based Comments	18783	24
west	leslie	not provided	N/A	Web-based Comments	21112	24
West	Lori	not provided	N/A	Web-based Comments	45653, 45727	34
West	Lynda	not provided	N/A	Web-based Comments	46575, 46576	34
West	Lynda	not provided	N/A	Web-based Comments	22030	24
West	Mariquita	not provided	N/A	Web-based Comments	22861	24
West	Myrna	not provided	N/A	Web-based Comments	24723	24
West	Nancy	not provided	N/A	Web-based Comments	25013	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
West	Paul	not provided	N/A	Web-based Comments	55582	34
West	Sherri	not provided	N/A	Web-based Comments	47884	34
West	Spencer	not provided	N/A	Web-based Comments	29096	24
West	Terrie	not provided	N/A	Web-based Comments	30356	24
Westbrook	Suzanne	not provided	N/A	Web-based Comments	30029	24
Westby	Anne	not provided	N/A	Web-based Comments	8255	24
Westcott	Jeff	jwestcott3401@hotmail.com	N/A	Web-based comments	2757	N/A
Westendorp	Doug	not provided	N/A	Web-based Comments	50357	34
Westerberg	Beverly	not provided	N/A	Web-based Comments	9150	24
Westerheide	Pam	not provided	N/A	Web-based Comments	25517	24
Westerman	Cherry	not provided	N/A	Web-based Comments	10613	24
Westfield	Diane	not provided	N/A	Web-based Comments	54861	34
Westford	Kayleen	kwestford@gmail.com	N/A	Web-based comments	31867	1
Westhead	Joey	not provided	N/A	Web-based Comments	17936	24
Westler	Marc	not provided	N/A	Web-based Comments	46106	34
Westler	Marc	not provided	N/A	Web-based Comments	22348	24
Westlund	Thomas	not provided	N/A	Web-based Comments	30557	24
Westman	Debra	not provided	N/A	Web-based Comments	12558	24
Westoby	Jacky	not provided	N/A	Web-based Comments	16083	24
Westoby	Jacqueline	not provided	N/A	Web-based Comments	46796	34
Weston	Eleanor	not provided	N/A	Web-based Comments	50875	34
Weston	John	not provided	N/A	Web-based Comments	18202	24
Weston	Sundai	s13volley@aol.com	N/A	Web-based comments	1392	2
Westover	Lacey	not provided	N/A	Web-based Comments	20510	24
Westphal	Brian	westphalbri@gmail.com	N/A	Web-based comments	6730	N/A
Westra	Jennifer	not provided	N/A	Web-based Comments	53705	34
Westra	Jennifer	not provided	N/A	Web-based Comments	17280	24
Westre	Willard	not provided	N/A	Web-based Comments	31495	24
Wetherill	Benjamen	not provided	N/A	Web-based Comments	8959	24
Wetstone	Susan	not provided	N/A	Web-based Comments	29903	24
Wetteland	Signe	not provided	N/A	Web-based Comments	46479	34
Wetteland	Signe	not provided	N/A	Web-based Comments	28992	24
Wetter	Kristina	not provided	N/A	Web-based Comments	20410	24
Wettergreen	Margaret	not provided	N/A	Web-based Comments	22515	24
Wettersten	Jill	not provided	N/A	Web-based Comments	55371	34
Wetzel	Glen	not provided	N/A	Web-based Comments	55859, 55860	34
Wetzel	Maureen	not provided	N/A	Web-based Comments	23724	24
Wetzler	Cynthia	not provided	N/A	Web-based Comments	11564	24
Wever	Wilma	not provided	N/A	Web-based Comments	31625	24
Wevers	Karlijn	not provided	N/A	Web-based Comments	54916	34
wevers	marlou	not provided	N/A	Web-based Comments	53462	34
Wey	Valerie	not provided	N/A	Web-based Comments	31050	24
Weyman	Elizabeth	not provided	N/A	Web-based Comments	13870	24
Weynand	Sarah	not provided	N/A	Web-based Comments	54236	34
Weynand	Sarah	not provided	N/A	Web-based Comments	28420	24
Whalen	Carol	not provided	N/A	Web-based Comments	10052	24
Whalen	Maureen	not provided	N/A	Web-based Comments	23725	24
Whaley	Cathy	not provided	N/A	Web-based Comments	46018, 46019	34
Whaley	George	not provided	N/A	Web-based Comments	14923	24
Whaley	Richard	not provided	N/A	Web-based Comments	27070	24
Wharton	Wendee	not provided	N/A	Web-based Comments	31405	24
Wheadon	Janice	not provided	N/A	Web-based Comments	16708	24
Whealan	William	afirelife@gmail.com	N/A	Web-based comments	1958	N/A
Wheatcroft-Pardue	Ken	not provided	N/A	Web-based Comments	19996	24
Wheatley	Benjamin	not provided	N/A	Web-based Comments	52880	34
Wheaton	Sue	not provided	N/A	Web-based Comments	29559	24
Wheeler	Brenda	not provided	N/A	Web-based Comments	56096	34
Wheeler	Brenda	not provided	N/A	Web-based Comments	9429	24
Wheeler	Dorothy	not provided	N/A	Web-based Comments	13280	24
Wheeler	Judith	not provided	N/A	Web-based Comments	46453	34
Wheeler	Kathryn	not provided	N/A	Web-based Comments	19673	24
Wheeler	Laura	not provided	N/A	Web-based Comments	46797	34
Wheeler	Layne	not provided	N/A	Web-based Comments	58001, 49917	16, 34
Wheeler	Lynn	not provided	N/A	Web-based Comments	22107	24
Wheeler	Mariko	not provided	N/A	Web-based Comments	45455	34
Wheeler	Mark	not provided	N/A	Web-based Comments	53715	34
Wheeler	Philip	not provided	N/A	Web-based Comments	26358	24
Wheeler	Robyne	not provided	N/A	Web-based Comments	49490	34
Wheeler	Sandra	not provided	N/A	Web-based Comments	49570, 49571	34
Wheeler	Sandra	not provided	N/A	Web-based Comments	28231	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
wheeler	tara	not provided	N/A	Web-based Comments	30209	24
Wheeler	Theresa	not provided	N/A	Web-based Comments	52726	34
Wheeler	Tim	t wheeler@hotmail.com	N/A	Web-based comments	5342	8
Wheeler	Vicki	not provided	N/A	Web-based Comments	52927, 52928	34
Wheeler	Vicki	not provided	N/A	Web-based Comments	31153	24
Wheeler	Yolanda	not provided	N/A	Web-based comments	57160	35
Wheelock	Dave	not provided	N/A	Web-based comments	2964	N/A
Wheelock	Donnette	not provided	N/A	Web-based Comments	13202	24
Wheelock	Jean Ann	not provided	N/A	Web-based Comments	48496	34
Whelan	Kathleen	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	56629	32
Whelan	Maria	not provided	N/A	Web-based Comments	22637	24
Wherley	Michael	not provided	N/A	Web-based Comments	50396	34
Whetstine	Linda	not provided	N/A	Web-based Comments	49294, 49295	34
Whetstine	Linda	not provided	N/A	Web-based Comments	21461	24
Whetzel	Chad	chadwhetzel@yahoo.com	N/A	Web-based comments	5980	10
Whetzel	Katie	katiewhetzel@yahoo.com	N/A	Web-based comments	5979	10
Whidden	Candy	not provided	N/A	Web-based Comments	9770	24
Whipple	Alan	not provided	N/A	Web-based Comments	7196	24
Whipple	Debbie	not provided	N/A	Web-based comments	3850	13
Whipple	Lisa	not provided	N/A	Web-based Comments	21656	24
Whipple	Susan	not provided	N/A	Web-based Comments	47848	34
Whirledge-Karp	Anne	not provided	N/A	Web-based Comments	8256	24
Whisenand	Gretchen	not provided	N/A	Web-based Comments	46723	34
Whisnant	Trena	not provided	N/A	Web-based Comments	54983	34
Whistler	Joshua	not provided	N/A	Web-based comments	57310	35
Whiston	David	dlw56@yandex.com	N/A	Web-based comments	6552	1
Whitacre	Julie	not provided	N/A	Web-based Comments	18906	24
Whitaker	Cari	not provided	N/A	Web-based Comments	9790	24
Whitaker	Howard J	not provided	N/A	Web-based Comments	48992	34
Whitaker	Howard J	not provided	N/A	Web-based Comments	15813	24
Whitaker	Joan	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32393	11
Whitaker	Kristin	not provided	N/A	Web-based Comments	20394	24
Whitaker	Melinda	not provided	N/A	Web-based Comments	23870	24
Whitaker	Warren	not provided	N/A	Web-based Comments	31385	24
Whitaker	William	not provided	N/A	Web-based Comments	45236	34
Whitcomb	Claire	not provided	N/A	Web-based Comments	11149	24
WHITCOMB	David	dlwhitcomb@aol.com	N/A	Web-based comments	4192*	N/A
whitcomb	joyce	not provided	N/A	Web-based Comments	58525	34
White	Aileen	not provided	N/A	Web-based Comments	7130	24
White	Andrew	not provided	N/A	Web-based Comments	7859	24
White	Ann	not provided	N/A	Web-based Comments	55968	34
White	Ardyth	not provided	N/A	Web-based Comments	8402	24
White	August	not provided	N/A	Web-based comments	6060	1
White	Barbara	not provided	N/A	Web-based Comments	8818	24
White	Betsy	not provided	N/A	Web-based Comments	9077	24
White	Bill	not provided	N/A	Web-based comments	57003	35
White	Brian	not provided	N/A	Web-based Comments	9518	24
White	Bruce	not provided	N/A	Web-based Comments	9629	24
White	Callie	not provided	N/A	Web-based Comments	9726	24
White	Cally	not provided	N/A	Web-based Comments	58493, 58494	34
White	Carol	not provided	N/A	Web-based Comments	10053	24
White	Catharine	not provided	N/A	Web-based Comments	10252	24
White	Cathy	not provided	N/A	Web-based Comments	10397	24
White	Christopher	not provided	N/A	Web-based Comments	57970	16
White	Colleen	not provided	N/A	Web-based Comments	53988	34
White	Constance	not provided	N/A	Web-based Comments	11352	24
White	Cynthia	not provided	N/A	Web-based Comments	11565	24
White	Daniella	not provided	N/A	Web-based Comments	55060	34
White	Danielle	not provided	N/A	Web-based Comments	11821	24
White	David	not provided	N/A	Web-based Comments	12174	24
White	David	not provided	N/A	Web-based Comments	12175	24
White	Dawn	not provided	N/A	Web-based Comments	55929	34
White	Denise	not provided	N/A	Web-based Comments	52209, 52210	34
White	Donald	not provided	N/A	Web-based Comments	13092	24
White	Donald and Lynda	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	2849	N/A
White	Erika	not provided	N/A	Web-based Comments	14208	24
White	Erin	not provided	N/A	Web-based Comments	14240	24
White	Florence	not provided	N/A	Web-based Comments	54588	34
White	G.	not provided	N/A	Web-based Comments	14630	24
White	Gabrielle	Gabriellejwhite@gmail.com	N/A	Web-based comments	31940	N/A

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
White	Georgina	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	56681	32
White	Greta	not provided	N/A	Web-based Comments	54747, 54748	34
White	Harry	hwhite321@yahoo.com	N/A	Web-based comments	6195	N/A
White	Ildi	not provided	N/A	Web-based Comments	15848	24
White	Jean	not provided	N/A	Web-based Comments	16894	24
White	Jeffrey	not provided	N/A	Web-based Comments	58041	16
White	Jon	jnw@q.com	N/A	Web-based comments	2440	N/A
White	Joseph	not provided	N/A	Web-based Comments	46201, 46202	34
White	Joy	not provided	N/A	Web-based Comments	18475	24
White	Judy	not provided	N/A	Web-based Comments	18729	24
White	Kaiba	not provided	N/A	Web-based Comments	45866, 45867	34
White	Kar	not provided	N/A	Web-based Comments	19020	24
White	Karen	karenlwhite1962@yahoo.com	N/A	Web-based comments	4564	N/A
White	Karen	not provided	N/A	Web-based Comments	52957, 52958	34
White	Karen	not provided	N/A	Web-based Comments	19243	24
White	Karen	not provided	N/A	Web-based Comments	19244	24
White	Katherine	not provided	N/A	Web-based Comments	19489	24
White	Katherine	not provided	N/A	Web-based Comments	19490	24
White	Katherine	not provided	N/A	Web-based Comments	19491	24
White	Kim	not provided	N/A	Web-based Comments	20209	24
White	Kory	not provided	N/A	Web-based Comments	20315	24
White	Laura	not provided	N/A	Web-based Comments	20718	24
White	Lauren	not provided	N/A	Web-based Comments	20797	24
White	Laurie	not provided	N/A	Web-based comments	57552	35
White	Lois	not provided	N/A	Web-based Comments	52950, 52951, 52952	34
White	Lois	not provided	N/A	Web-based Comments	57913, 57920	16
White	Margaret	not provided	N/A	Web-based Comments	44336	34
White	Mark	not provided	N/A	Web-based Comments	23005	24
White	Mary	not provided	N/A	Web-based Comments	58587	34
White	Mary	not provided	N/A	Web-based Comments	23464	24
White	Maurice	maurywhite@q.com	N/A	Web-based comments	4832	N/A
White	Michael	not provided	N/A	Web-based Comments	50213, 50214	34
White	Michael	not provided	N/A	Web-based Comments	24249	24
White	Michael Grant	not provided	N/A	Web-based Comments	24261	24
White	Michelle	not provided	N/A	Web-based Comments	24403	24
white	mike	not provided	N/A	Web-based Comments	52101	34
White	Mindi	not provided	N/A	Web-based Comments	47913	34
White	Molly	not provided	N/A	Web-based Comments	24603	24
White	N. Irena	not provided	N/A	Web-based Comments	24741	24
White	Nancy	not provided	N/A	Web-based Comments	52975, 58105	34, 16
White	Nancy	not provided	N/A	Web-based Comments	25014	24
White	Nancy	not provided	N/A	Web-based Comments	25015	24
White	Pamela	not provided	N/A	Web-based Comments	25598	24
White	Pamela	not provided	N/A	Web-based Comments	25599	24
White	Patricia	not provided	N/A	Web-based Comments	50957, 56280	34
White	Paul	not provided	N/A	Web-based comments	2002	N/A
White	Phyllis	not provided	N/A	Web-based Comments	55447	34
white	ron	not provided	N/A	Web-based Comments	27640	24
White	Scott	not provided	N/A	Web-based Comments	28506	24
White	Sharon	not provided	N/A	Web-based Comments	28727	24
White	Shawn	not provided	N/A	Web-based Comments	28757	24
White	Steve	not provided	N/A	Web-based Comments	45815	34
White	Ted	t3tedbo@gmail.com	N/A	Web-based comments	3770	N/A
White	Theresa	not provided	N/A	Web-based comments	57604	35
White	Tisha	not provided	N/A	Web-based Comments	52989	34
White	Trina	not provided	N/A	Web-based Comments	45389	34
White	Trina	not provided	N/A	Web-based Comments	30916	24
White	Trudy	not provided	N/A	Web-based Comments	30948	24
White	Virginia	not provided	N/A	Web-based Comments	49841	34
White	Wesley	not provided	N/A	Web-based Comments	31470	24
White	William	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	56681	32
White	Wilma	not provided	N/A	Web-based Comments	31626	24
White II	Thomas	not provided	N/A	Web-based Comments	30558	24
Whitebook	Gayle	not provided	N/A	Web-based Comments	14836	24
WhiteEagle	Karen	not provided	N/A	Web-based Comments	19245	24
Whitehair	Barbara	not provided	N/A	Web-based Comments	8819	24
Whitehair	Bert	not provided	N/A	Web-based Comments	52978, 52979	34
whitehall	lee	not provided	N/A	Web-based Comments	54389	34
whitehall	lee	not provided	N/A	Web-based Comments	20949	24
Whitehart	Ivy	cougar.mountain.mamma@gmail.com	N/A	Web-based comments	6398	1

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Whitehaus	Genevieve	not provided	N/A	Web-based Comments	46116	34
Whitehead	Barbara	tlbjwhitehead@aol.com	N/A	Web-based comments	2420	N/A
Whitehead	Carole G.	not provided	N/A	Web-based Comments	10108	24
WHITEHEAD	DOUGLAS	not provided	N/A	Web-based Comments	13347	24
Whitehead	Ed	not provided	N/A	Web-based Comments	45325	34
Whitehead	Edward	not provided	N/A	Web-based Comments	13517	24
Whitehead	M	not provided	N/A	Web-based Comments	22202	24
Whitehead	Mary	not provided	N/A	Web-based Comments	23465	24
Whitehead	Priscilla	not provided	N/A	Web-based Comments	26453	24
Whitehead	Rosemary	not provided	N/A	Web-based Comments	27771	24
Whitehead	Thea	not provided	N/A	Web-based Comments	30414	24
Whitehouse	Judy	not provided	N/A	Web-based Comments	45011	34
whitelaw	alison	not provided	N/A	Web-based Comments	46964	34
Whitelaw	Elaine	not provided	N/A	Web-based Comments	13620	24
Whiteman	Adam	not provided	N/A	Web-based Comments	7062	24
Whiteman	David	not provided	N/A	Web-based Comments	12176	24
Whitemarsh	David	not provided	N/A	Web-based comments	4319	N/A
Whitemarsh	Lou	not provided	N/A	Web-based comments	4316	N/A
White-Masi	Stacy	not provided	N/A	Web-based Comments	29146	24
Whitener	Dr. Scott	not provided	N/A	Web-based Comments	13368	24
Whiteside	Catherine	not provided	N/A	Web-based Comments	45794, 45795	34
Whiteside	Frances	not provided	N/A	Web-based Comments	14493	24
Whiteside	J	not provided	N/A	Web-based Comments	15997	24
Whiteside	S	not provided	N/A	Web-based Comments	27952	24
Whitesides	Lynette	not provided	N/A	Web-based Comments	22044	24
Whitfield	Charles	not provided	N/A	Web-based Comments	10539	24
Whitford	Alice	alicewhitford@gmail.com	N/A	Web-based comments	6777	N/A
Whitford	Tracy	not provided	N/A	Web-based Comments	49611, 49612	34
Whitford	Tracy	not provided	N/A	Web-based Comments	30887	24
Whitford	Vanessa	not provided	N/A	Web-based Comments	31072	24
Whiting	Chelsea	not provided	N/A	Web-based comments	57451	35
Whiting	Glenda	not provided	N/A	Web-based Comments	15126	24
Whiting	Gm	not provided	N/A	Web-based Comments	47266	34
whiting	gm	not provided	N/A	Web-based Comments	58081	16
Whiting	Nancy	not provided	N/A	Web-based Comments	25016	24
Whitley	Jeannine	JLFDTF@LIVE.COM	N/A	Web-based comments	909	1
Whitley	Sandra	not provided	N/A	Web-based Comments	46448	34
Whitley	Sandy	not provided	N/A	Web-based Comments	28264	24
Whitley	Tracey	not provided	N/A	Web-based Comments	51573	34
whitlock	richard	not provided	N/A	Web-based Comments	27071	24
Whitlock	Sue	not provided	N/A	Web-based Comments	29560	24
Whitlock	Susan	not provided	N/A	Web-based Comments	29904	24
Whitloeb	Lauri	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58761	N/A
Whitlow	Samora	not provided	N/A	Web-based Comments	28097	24
Whitman	Eric	not provided	N/A	Web-based Comments	14152	24
Whitman	Fanny	not provided	N/A	Web-based Comments	56030	34
Whitman	Larry	not provided	N/A	Web-based Comments	20592	24
Whitman	Port	communications@portwhitman.com	N/A	Web-based comments	6830	N/A
Whitman	Rick	not provided	N/A	Web-based Comments	27106	24
Whitnack	Michele	not provided	N/A	Web-based comments	57421	35
Whitney	Diane	not provided	N/A	Web-based Comments	12921	24
Whitney	Edward	Nedwhitney@gmail.com	N/A	Web-based comments	3579	16
Whitney	Jane	not provided	N/A	Web-based Comments	16545	24
Whitsell	Susan	not provided	N/A	Web-based Comments	29905	24
Whitson	Melanie	not provided	N/A	Web-based Comments	23850	24
Whitson	Paul	not provided	N/A	Web-based Comments	26060	24
whittaker	christelle	not provided	N/A	Web-based Comments	45436	34
Whittaker	Sharon	not provided	N/A	Web-based Comments	28728	24
Whitted	Hannah	not provided	N/A	Web-based Comments	48609, 48610	34
whittemire	deanna	not provided	N/A	Web-based Comments	12284	24
Whitten	Robert	not provided	N/A	Web-based Comments	27411	24
Whittier	Marlis	not provided	N/A	Web-based Comments	23051	24
Whittington	Judy	not provided	N/A	Web-based Comments	44371	34
Whittlesey	Thomas	not provided	N/A	Web-based Comments	30559	24
Whitt-Trevino	Melanie	not provided	N/A	Web-based Comments	23851	24
whitwer	gen	not provided	N/A	Web-based Comments	14844	24
Whitworth	Amy	not provided	N/A	Web-based Comments	49112	34
whorton	adrian	not provided	N/A	Web-based Comments	46590	34
Whyman	Barbara	not provided	N/A	Web-based Comments	48308	34
Whyman	Barbara	not provided	N/A	Web-based Comments	8820	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Whyman	Mike	not provided	N/A	Web-based Comments	24496	24
Whynott	Gregory	not provided	N/A	Web-based Comments	53382, 53383	34
whynott	gregory	not provided	N/A	Web-based Comments	15299	24
Wiant	Jean	not provided	N/A	Web-based Comments	16895	24
Wibalda	Anna	not provided	N/A	Web-based Comments	8155	24
Wichar	Den	deedub@webtv.net	N/A	Web-based comments	2443	3
Wichar	Den Mark	not provided	N/A	Web-based Comments	58717	N/A
Wick	Jodi	not provided	N/A	Web-based Comments	17853	24
Wick	Kim	not provided	N/A	Web-based Comments	51647, 51649, 51651	34
Wick	Kimberly	not provided	N/A	Web-based Comments	51648, 51650	34
Wick	Kimberly	not provided	N/A	Web-based Comments	20253	24
Wick	Sue	not provided	N/A	Web-based Comments	50710	34
Wickersham	Terry	TEWICK1@GMAIL.COM	N/A	Web-based comments	4924	N/A
Wickham	Ben	not provided	N/A	Web-based Comments	58052	16
Wickham	Bill	not provided	N/A	Web-based Comments	9189	24
Wickham	Joan	not provided	N/A	Web-based Comments	17755	24
Wickholm	Cathy	fcwickholm@gmail.com	N/A	Web-based comments	4089	N/A
Wicki	Ben	not provided	N/A	Web-based Comments	8952	24
Widdowson	julia	not provided	N/A	Web-based Comments	18784	24
Widerstrom	Sally	not provided	N/A	Web-based Comments	28037	24
Widman	Duane	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	2252	N/A
Widman	Mary	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58792	N/A
Wiebe	Julie	not provided	N/A	Web-based Comments	54309, 56544, 56545	34
Wiebenson	Sascha	not provided	N/A	Web-based Comments	57904, 45144	16, 34
Wieberg	Danielle	not provided	N/A	Web-based Comments	11822	24
Wiechman	Jill	not provided	N/A	Web-based Comments	17552	24
Wiechmann	Nancy	not provided	N/A	Web-based Comments	53366	34
Wieczorek	Dave	not provided	N/A	Web-based Comments	11925	24
Wieczynski, RSM	Susan	not provided	N/A	Web-based Comments	29906	24
Wieder	Anna Marie	not provided	N/A	Web-based Comments	54535	34
Wiederanders	Ellen	not provided	N/A	Web-based Comments	13958	N/A
Wiederhold	Joe	not provided	N/A	Web-based Comments	47607	34
Wieduwilt	Trudi	not provided	N/A	Web-based Comments	30941	24
Wiegand	Carolyn	not provided	N/A	Web-based Comments	10182	24
Wiegers	Kristen	not provided	N/A	Web-based Comments	20351	24
Wiegman	Rosemarie	not provided	N/A	Web-based Comments	47435	34
Wiegman	Sherri	not provided	N/A	Web-based Comments	50320	34
Wieland	Chuck	not provided	N/A	Web-based Comments	11054	24
Wieland	Loren	not provided	N/A	Web-based Comments	51258	34
Wieland	Loren	not provided	N/A	Web-based Comments	21750	24
Wiemer	Nancy	not provided	N/A	Web-based Comments	25017	24
Wienbrauck	JOAN	not provided	N/A	Web-based Comments	17756	24
Wiener	Mary	not provided	N/A	Web-based Comments	46839	34
Wiener	Mary	not provided	N/A	Web-based Comments	23466	24
Wiener	Wendy	not provided	N/A	Web-based Comments	44773	34
Wienk	Marilyn	not provided	N/A	Web-based Comments	22821	24
Wiens	Alison	wiensthac@yahoo.com	N/A	Web-based comments	5039	N/A
Wiens	Gary	gary@mtco-ops.com	N/A	Web-based comments	6447	N/A
Wiens	Gary	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4633	N/A
Wiens	Mary Kay	not provided	N/A	Web-based Comments	23534	24
Wiens	Susan	not provided	N/A	Web-based Comments	29907	24
Wientjes	Ken	kjwientjes@hotmail.com	N/A	Web-based comments	4351	N/A
Wiersma	Jess	not provided	N/A	Web-based Comments	17381	24
Wierzbowski	Judith	not provided	N/A	Web-based Comments	18660	24
Wiesbrock	Lucy	not provided	N/A	Web-based Comments	21961	24
Wiesenhahn	Katherine	not provided	N/A	Web-based Comments	19492	24
Wiesenthal-Gold	Ruth Ann	not provided	N/A	Web-based Comments	27894	24
Wieshalla	Edith	not provided	N/A	Web-based Comments	13474	24
Wiesner	Joseph	not provided	N/A	Web-based Comments	18401	24
Wiest	Jo	not provided	N/A	Web-based comments	57169	35
Wiest	Jo	not provided	N/A	Web-based Comments	17655	24
Wietek	Nadine	not provided	N/A	Web-based Comments	24774	24
Wietek	Stefan	not provided	N/A	Web-based Comments	29167	24
Wigen	Connie	not provided	N/A	Web-based Comments	11324	24
Wigen	Les	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4654, 5584	N/A
Wiggermann	Jenny	not provided	N/A	Web-based Comments	47768	34
Wiggin	Deborah	not provided	N/A	Web-based Comments	48546, 48547	34
Wiggins	Brian	not provided	N/A	Web-based Comments	47401	34
Wiggins	Brian	not provided	N/A	Web-based Comments	9519	24
Wiggins	Brittany	not provided	N/A	Web-based Comments	9571	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Wiggins	Heather	not provided	N/A	Web-based Comments	15553	24
Wiggins	James	not provided	N/A	Web-based Comments	16329	24
Wight	Barbara	not provided	N/A	Web-based Comments	54540	34
Wightman	Karen	not provided	N/A	Web-based Comments	51328	34
Wightman	Karen	not provided	N/A	Web-based Comments	19246	24
Wightman	Richard	not provided	N/A	Web-based Comments	58387	28
Wijemanne	Manthri	not provided	N/A	Web-based Comments	48874, 48875	34
Wijk	Katrina	katrinashomeandgarden@yahoo.com	N/A	Web-based comments	5149	N/A
Wiker	Kevin	not provided	N/A	Web-based Comments	46374, 46375	34
Wiker	Kevin	not provided	N/A	Web-based Comments	20145	24
Wilbanks	Tom	not provided	N/A	Web-based Comments	30782	24
Wilborn	Leslie	not provided	N/A	Web-based Comments	21113	24
Wilbourn	Pam	not provided	N/A	Web-based Comments	25518	24
Wilbur	Jan	not provided	N/A	Web-based Comments	16442	24
Wilbur	Lynn	not provided	N/A	Web-based Comments	51384	34
Wilbur	Lynn	not provided	N/A	Web-based Comments	22108	24
Wilbur	Robert	not provided	N/A	Web-based Comments	50741	34
wilburn	kathy	not provided	N/A	Web-based Comments	47654	34
Wilcox	Barbara	not provided	N/A	Web-based Comments	8821	24
Wilcox	Ben	not provided	N/A	Web-based comments	56913	35
Wilcox	Bridget	not provided	N/A	Web-based Comments	9543	24
Wilcox	Cathy	not provided	N/A	Web-based Comments	10398	24
Wilcox	David R	not provided	N/A	Web-based Comments	12194	24
Wilcox	Faith	not provided	N/A	Web-based Comments	50029, 50274	34
Wilcox	James	not provided	N/A	Web-based Comments	16330	24
Wilcox	Jane	fisheye02@gmail.com	N/A	Web-based comments	6807	N/A
Wilcox	Ken	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58402	32
Wilcox	Kenneth	not provided	N/A	Web-based Comments	55982	34
Wilcox	Kenneth	not provided	N/A	Web-based Comments	20032	24
Wilcox	Lynn	lynn@wilcoxfresh.com	N/A	Web-based comments	4387	N/A
Wilcox	Nannette	not provided	N/A	Web-based Comments	25037	24
Wilcox	Toby	toby_wilcox@yahoo.com	N/A	Web-based comments	2485	N/A
Wild	Joanna	not provided	N/A	Web-based comments	56937	35
Wild	Marie	not provided	N/A	Web-based comments	806, 1962	1
wild	susan	not provided	N/A	Web-based Comments	29908	24
Wild and Wonderful	Protect All Things	not provided	N/A	Web-based Comments	26458	24
Wildberger	Suzanne	not provided	N/A	Web-based Comments	30030	24
Wildblood	Margie	not provided	N/A	Web-based Comments	22544	24
Wilde	Julian	not provided	N/A	Web-based Comments	18788	24
Wilde	Matthew	not provided	N/A	Web-based Comments	23672	24
Wildeman	Miriam	not provided	N/A	Web-based Comments	24560	24
Wilder	K	not provided	N/A	Web-based Comments	18984	24
Wilder	Laura	not provided	N/A	Web-based Comments	20719	24
Wilder	Megan	not provided	N/A	Web-based Comments	23809	24
Wilder	Stephanie	not provided	N/A	Web-based Comments	29263	24
Wildermann	Margaret	not provided	N/A	Web-based Comments	22516	24
wildman	Bill and Farryl	not provided	N/A	Web-based Comments	50114	34
Wilen	David	not provided	N/A	Web-based Comments	12177	24
Wiles	John	not provided	N/A	Web-based Comments	18203	24
Wiles	Nadine	not provided	N/A	Web-based Comments	24775	24
Wiley	Arleen	not provided	N/A	Web-based Comments	8419	24
Wiley	Carol	not provided	N/A	Web-based Comments	52594	34
Wiley	Carol	not provided	N/A	Web-based Comments	10054	24
Wiley	Herb	not provided	N/A	Web-based Comments	54951	34
Wiley	Jane	not provided	N/A	Web-based Comments	46684, 46685	34
Wiley	Jane7	not provided	N/A	Web-based Comments	16550	24
Wiley	John & Nancy	not provided	N/A	Web-based Comments	18212	24
Wiley	Joseph	not provided	N/A	Web-based Comments	18402	24
Wiley	Kimberly	not provided	N/A	Web-based Comments	56340	34
Wiley	Lynne	not provided	N/A	Web-based Comments	22156	24
Wiley	Madeleine	madwiley@gmail.com	N/A	Hand-delivered or oral testimony (personally delivered)	4660, 5607	N/A
Wiley	Madeleine	madwiley@gmail.com	N/A	Web-based comments	4887	N/A
Wiley	Mara	not provided	N/A	Web-based Comments	22323	24
Wiley	Patricia	not provided	N/A	Web-based Comments	25867	24
Wiley	Tim	not provided	N/A	Web-based comments	2659	6
Wilfing	Janice	not provided	N/A	Web-based Comments	53666	34
Wilfing	Janice	not provided	N/A	Web-based Comments	16709	24
Wilhelm	Winifred	not provided	N/A	Web-based Comments	31632	24
Wilhelm		jwilhelm304@gmail.com	N/A	Web-based Comments	18971	24
Wilhite	Barbara	not provided	N/A	Web-based Comments	8822	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Wilk	Samantha	not provided	N/A	Web-based Comments	45527	34
Wilk	Zuzanna	not provided	N/A	Web-based Comments	46082	34
Wilkas	Mary	not provided	N/A	Web-based Comments	23467	24
Wilke	Gail	not provided	N/A	Web-based Comments	14722	24
Wilke	Michael	not provided	N/A	Web-based Comments	24250	24
Wilkenfeld	Isadora	not provided	N/A	Web-based Comments	15950	24
Wilkerson	DerKirra E.	not provided	N/A	Web-based Comments	12725	24
Wilkerson	John	not provided	N/A	Web-based comments	5877	N/A
Wilkes	Sara	not provided	N/A	Web-based Comments	28319	24
Wilkey-Olejarczyk	Nina	not provided	N/A	Web-based Comments	25320	24
Wilkin	Delaina	not provided	N/A	Web-based Comments	12596	24
Wilkin	Peter	not provided	N/A	Web-based Comments	26299	24
Wilkings	Judith	not provided	N/A	Web-based Comments	18661	24
Wilkins	Elise	not provided	N/A	Web-based comments	1268	N/A
Wilkins	Georgia	not provided	N/A	Web-based Comments	14946	24
Wilkins	Gerald	not provided	N/A	Web-based Comments	14964	24
Wilkins	Jaci	not provided	N/A	Web-based Comments	44770	34
Wilkins	Jaci	not provided	N/A	Web-based Comments	16026	24
Wilkins	Keith	not provided	N/A	Web-based Comments	45387	34
WILKINS	LS	not provided	N/A	Web-based comments	4031	N/A
Wilkins	Wil	wilkins.wil@gmail.com	N/A	Web-based comments	202, 4010	N/A
Wilkinson	Angela	not provided	N/A	Web-based Comments	7935	24
Wilkinson	David	not provided	N/A	Web-based Comments	12178	24
Wilkinson	Diana	not provided	N/A	Web-based Comments	56085	34
Wilkinson	Diana	not provided	N/A	Web-based Comments	12801	24
Wilkinson	James	not provided	N/A	Web-based Comments	16331	24
Wilkinson	John	not provided	N/A	Web-based Comments	18204	24
Wilkinson	L. L.	not provided	N/A	Web-based Comments	20501	24
Wilkinson	Michael	not provided	N/A	Web-based Comments	24251	24
Wilkinson	Michele	not provided	N/A	Web-based Comments	45949	34
Wilkinson	Michele	not provided	N/A	Web-based Comments	24314	24
wilkinson	murray	not provided	N/A	Web-based Comments	24703	24
Wilkinson	Robin	not provided	N/A	Web-based Comments	27538	24
Wilkinson	Sarah	not provided	N/A	Web-based Comments	45721	34
Wilkowski	Jennifer	not provided	N/A	Web-based comments	57484	35
Wilks	Andrew	not provided	N/A	Web-based Comments	7860	24
Will	Leona	not provided	N/A	Web-based Comments	21005	24
will	sherry	not provided	N/A	Web-based Comments	28911	24
Willard	Deborah	not provided	N/A	Web-based Comments	12489	24
Willard	Garry	not provided	N/A	Web-based Comments	14748	24
Willard	Martha	martha.willard@gmail.com	N/A	Web-based comments	2655	1
willcutt	mary	not provided	N/A	Web-based Comments	23468	24
Willebrands	Paula	not provided	N/A	Web-based Comments	26105	24
Willems	Kristian	not provided	N/A	Web-based Comments	20363	24
Willett	Paulette	not provided	N/A	Web-based Comments	26116	24
Willey	Brandy	not provided	N/A	Web-based Comments	9380	24
Willey	Irene	not provided	N/A	Web-based Comments	46810	34
willey	Irene	not provided	N/A	Web-based Comments	15916	24
Willey	Paula	not provided	N/A	Web-based Comments	26106	24
Williams	Alison	not provided	N/A	Web-based Comments	51335	34
Williams	Barbara	not provided	N/A	Web-based Comments	8823	24
Williams	Barbarajene	not provided	N/A	Web-based Comments	8844	24
Williams	Bruce	b42w@mac.com	N/A	Web-based comments	3115	N/A
Williams	Bruce	bewilliams16@gmail.com	N/A	Web-based comments	5904	8
Williams	Carla	not provided	N/A	Web-based Comments	54093	34
Williams	Carol	cjwilliams@sisqtel.net	N/A	Web-based comments	6658	N/A
Williams	Carol	not provided	N/A	Web-based Comments	10055	24
Williams	Carol	not provided	N/A	Web-based Comments	10056	24
Williams	Cassandra	cassandrawilliams82097@gmail.com	N/A	Web-based comments	1228	N/A
Williams	Cassandra	not provided	N/A	Web-based Comments	10236	24
Williams	Catherine	not provided	N/A	Web-based Comments	53003	34
Williams	Catherine	not provided	N/A	Web-based Comments	10333	24
Williams	Cecelia	not provided	N/A	Web-based Comments	10411	24
Williams	Chelsi	not provided	N/A	Web-based Comments	55885	34
Williams	Cheryl	not provided	N/A	Web-based Comments	53618	34
Williams	Christina	not provided	N/A	Web-based Comments	50424	34
Williams	Christina	not provided	N/A	Web-based Comments	10884	24
Williams	Christina	not provided	N/A	Web-based Comments	10885	24
Williams	Dale	not provided	N/A	Web-based Comments	11634	24
Williams	Daniel	not provided	N/A	Web-based Comments	50524	34

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Williams	David	not provided	N/A	Web-based Comments	47514	34
Williams	David	not provided	N/A	Web-based Comments	12179	24
Williams	David	not provided	N/A	Web-based Comments	12180	24
Williams	Dawn	not provided	N/A	Web-based Comments	12251	24
WILLIAMS	Deb	not provided	N/A	Web-based Comments	12302	24
Williams	Debbie	not provided	N/A	Web-based comments	57608	35
Williams	Deborah	not provided	N/A	Web-based Comments	53028	34
Williams	Deborah	not provided	N/A	Web-based Comments	12490	24
Williams	Deborah	not provided	N/A	Web-based Comments	12491	24
williams	dennis	dwilliams.dw21@gmail.com	N/A	Web-based comments	3435	13
Williams	Derek	not provided	N/A	Web-based Comments	12723	24
Williams	Diana	not provided	N/A	Web-based Comments	45157	34
Williams	Diana	not provided	N/A	Web-based Comments	12802	24
Williams	Diane	not provided	N/A	Web-based Comments	12922	24
Williams	Don	not provided	N/A	Web-based Comments	13042	24
Williams	Donald	not provided	N/A	Web-based Comments	13093	24
Williams	Doug	not provided	N/A	Web-based Comments	13317	24
Williams	Elizabeth	not provided	N/A	Web-based Comments	13871	24
Williams	Ernie	ewilliams2010@hotmail.com	N/A	Web-based comments	6331	3
williams	freddie	not provided	N/A	Web-based Comments	45244	34
Williams	Freddie	not provided	N/A	Web-based Comments	45243, 45245	34
Williams	Freddie	not provided	N/A	Web-based Comments	14587	24
Williams	George	not provided	N/A	Web-based Comments	14924	24
Williams	Holly	not provided	N/A	Web-based comments	56915	35
Williams	Ian	not provided	N/A	Web-based Comments	15841	24
Williams	Jacqueline	not provided	N/A	Web-based Comments	16136	24
Williams	James	not provided	N/A	Web-based Comments	53512	34
Williams	James	not provided	N/A	Web-based Comments	16332	24
Williams	Janet	not provided	N/A	Web-based Comments	16654	24
Williams	Jason	ja-wil@hotmail.com	N/A	Web-based comments	6382	N/A
Williams	Jason	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	5578	N/A
Williams	Jean	not provided	N/A	Web-based Comments	16896	24
Williams	Jesse	not provided	N/A	Web-based Comments	56393, 56394	34
Williams	Jim	not provided	N/A	Web-based Comments	17614	24
Williams	Joe	not provided	N/A	Web-based Comments	17902	24
Williams	Joseph	not provided	N/A	Web-based Comments	18403	24
Williams	Josh	not provided	N/A	Web-based comments	6002	N/A
Williams	Judy	not provided	N/A	Web-based Comments	54910, 54911	34
Williams	Judy	not provided	N/A	Web-based Comments	18730	24
Williams	Julian	not provided	N/A	Web-based Comments	18789	24
Williams	Justin	not provided	N/A	Web-based Comments	18962	24
Williams	Karen	not provided	N/A	Web-based Comments	19247	24
Williams	Kat	not provided	N/A	Web-based Comments	19355	24
Williams	Kat	not provided	N/A	Web-based Comments	19356	24
Williams	Kathleen	not provided	N/A	Web-based Comments	47951, 47952	34
Williams	Kathleen	not provided	N/A	Web-based Comments	19608	24
Williams	Kaye	not provided	N/A	Web-based Comments	19843	24
Williams	Kellilee	not provided	N/A	Web-based Comments	19908	24
Williams	Kenneth	flotsam18@gmail.com	N/A	Web-based comments	3047	N/A
WILLIAMS	KEVIN	kevin@ifc-insurance.com	N/A	Web-based comments	6090	N/A
Williams	Kevin	kvn2729@yahoo.com	N/A	Web-based comments	3630	N/A
Williams	Kimberly	not provided	N/A	Web-based Comments	20254	24
Williams	Kitty	not provided	N/A	Web-based Comments	20293	24
Williams	Laurie	laurie_williams424@roadrunner.com	N/A	Web-based comments	4131	N/A
Williams	Laurie	not provided	N/A	Web-based Comments	20863	24
Williams	Lee	not provided	N/A	Web-based Comments	20950	24
Williams	Linda	not provided	N/A	Web-based Comments	48730	34
Williams	Linda	not provided	N/A	Web-based Comments	21462	24
Williams	Lloyd	not provided	N/A	Web-based Comments	21711	24
Williams	Lori	not provided	N/A	Web-based Comments	21811	24
Williams	Lynne	not provided	N/A	Web-based Comments	22157	24
Williams	Lynne	not provided	N/A	Web-based Comments	22158	24
Williams	Marilyn	not provided	N/A	Web-based Comments	22822	24
Williams	Mark	mark.williams833@gmail.com	N/A	Web-based comments	5444	8
Williams	Mark	not provided	N/A	Web-based Comments	23006	24
Williams	Mary	mary@eastsidecre.com	N/A	Web-based comments	1582	N/A
Williams	Mary Beth	not provided	N/A	Web-based Comments	23510	24
Williams	Matthew	not provided	N/A	Web-based Comments	23673	24
Williams	Megan	not provided	N/A	Web-based Comments	47378, 47443	34
Williams	Megan	not provided	N/A	Web-based Comments	23810	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Williams	Melissa	not provided	N/A	Web-based Comments	23936	24
Williams	Monique	not provided	N/A	Web-based Comments	44420	34
Williams	Morris	not provided	N/A	Web-based Comments	24676	24
Williams	Nancy	not provided	N/A	Web-based Comments	25018	24
Williams	Nelli	nelli_robin@hotmail.com	N/A	Web-based comments	5907	8
Williams	Niija	not provided	N/A	Web-based Comments	25276	24
Williams	Pamela	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4247	N/A
Williams	Pamela	not provided	N/A	Web-based Comments	25600	24
Williams	Patricia	not provided	N/A	Web-based Comments	25868	24
Williams	Patricia	not provided	N/A	Web-based Comments	25869	24
Williams	Patti	not provided	N/A	Web-based Comments	25954	24
Williams	Paul	not provided	N/A	Web-based Comments	48136	34
Williams	Paul	not provided	N/A	Web-based Comments	26061	24
Williams	Rachel	not provided	N/A	Web-based Comments	26555	24
Williams	Raymond	maxrwilliams@aol.com	N/A	Web-based comments	4032	N/A
Williams	Richard	troutdna@gmail.com	N/A	Web-based comments	4427	N/A
Williams	Roni	not provided	N/A	Web-based Comments	27684	24
Williams	S. E.	not provided	N/A	Web-based Comments	46991	34
Williams	S. E.	not provided	N/A	Web-based Comments	27964	24
Williams	Sandy	not provided	N/A	Web-based Comments	46466	34
Williams	Sandy	not provided	N/A	Web-based Comments	28265	24
Williams	Sheila	not provided	N/A	Web-based Comments	28816	24
Williams	Sherry	not provided	N/A	Web-based Comments	28912	24
Williams	Stephania	not provided	N/A	Web-based Comments	47756	34
williams	suzanne	not provided	N/A	Web-based Comments	30031	24
Williams	Taffy	not provided	N/A	Web-based Comments	30105	24
Williams	Terrie	not provided	N/A	Web-based comments	57303	35
Williams	Terrie	not provided	N/A	Web-based Comments	52566, 52567	34
Williams	Terrie	not provided	N/A	Web-based Comments	30357	24
Williams	Theresa	boswellco@cox-internet.com	N/A	Web-based comments	4054	N/A
Williams	Todd	not provided	N/A	Web-based Comments	30730	24
Williams	Weldon	not provided	N/A	Web-based Comments	56411, 56412	34
Williams	Weldon	not provided	N/A	Web-based Comments	31403	24
Williams	Wendy	not provided	N/A	Web-based Comments	57761	34
Williams	Zachary	willizac@gmail.com	N/A	Web-based comments	4066	N/A
Williams	Zo	sharksareourfriend@gmail.com	N/A	Web-based comments	5783	N/A
Williams Lindgren	Suanne	not provided	N/A	Web-based Comments	29504	24
Williamson	Ann	not provided	N/A	Web-based Comments	8099	24
Williamson	Barbara	not provided	N/A	Web-based Comments	55902	34
Williamson	Craig and Penny	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58332	N/A
Williamson	Dawn	not provided	N/A	Web-based Comments	52960	34
Williamson	Faith	not provided	N/A	Web-based Comments	14388	24
Williamson	Jaclyn	not provided	N/A	Web-based Comments	55202	34
Williamson	Jean	not provided	N/A	Web-based Comments	16897	24
Williamson	Maria	not provided	N/A	Web-based Comments	56575, 56576	34
Williamson	Mary	not provided	N/A	Web-based Comments	23469	24
Williamson	Nancy	not provided	N/A	Web-based Comments	46425	34
Williamson	Pat	not provided	N/A	Web-based Comments	51063, 51064	34
Williamson	Pat	not provided	N/A	Web-based Comments	25678	24
Williamson	Patricia	not provided	N/A	Web-based Comments	51065	34
Williamson	Sherri	not provided	N/A	Web-based Comments	28873	24
Willie	Steve	Steve.Willie@comcast.net	N/A	Web-based comments	1812	N/A
Williford	Marissa	not provided	N/A	Web-based Comments	22869	24
Williford	Shirley	not provided	N/A	Web-based Comments	28970	24
Willinger	Carol	not provided	N/A	Web-based Comments	10057	24
Willis	Callie	not provided	N/A	Web-based Comments	9727	24
willis	g.	not provided	N/A	Web-based Comments	47690	34
Willis	G.	not provided	N/A	Web-based Comments	47691	34
Willis	Norman	npw6689@hotmail.com	N/A	Web-based comments	1878	N/A
Willis	Patricia	not provided	N/A	Web-based Comments	25870	24
Willliams	Diana	not provided	N/A	Web-based Comments	12803	24
Willman	Andrew	not provided	N/A	Web-based Comments	44389	34
Willmann	Holly	not provided	N/A	Web-based Comments	15774	24
Willmes	Cathy	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32553	N/A
Willmon	Sandra	not provided	N/A	Web-based Comments	28232	24
Willmon	Shelby	not provided	N/A	Web-based comments	57103	35
Willms	Thomas	not provided	N/A	Web-based Comments	46089	34
Willoughby	Emily	not provided	N/A	Web-based Comments	57854	34
willroth	alana	not provided	N/A	Web-based Comments	48364	34
Willroth	Alana	not provided	N/A	Web-based Comments	48365	34

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Willroth	Alana	not provided	N/A	Web-based Comments	7201	24
Willsey	Cynthia	not provided	N/A	Web-based Comments	11566	24
Willsher	Isabel	not provided	N/A	Web-based Comments	15938	24
Willson	Clyde	not provided	N/A	Web-based Comments	11236	24
Willworth	Rick	not provided	N/A	Web-based Comments	57986	16
Wilmering	Kathy	seachange3@comcast.net	N/A	Web-based comments	2273	3
Wilmers	Cheyenne	not provided	N/A	Web-based Comments	10692	24
Wilmes	Norman	not provided	N/A	Web-based Comments	55531	34
Wilmoth	Bonnie	bjankrom@gmail.com	N/A	Web-based comments	5119	N/A
Wilmsen	Sherry	not provided	N/A	Web-based Comments	44604	34
Wilper	Gina	not provided	N/A	Web-based Comments	15070	24
Wilson	Alison	not provided	N/A	Web-based Comments	7419	24
Wilson	Allison	not provided	N/A	Web-based Comments	7477	24
Wilson	Amy	not provided	N/A	Web-based Comments	7681	24
Wilson	Arthur	not provided	N/A	Web-based Comments	8471	24
Wilson	Aubrey	not provided	N/A	Web-based Comments	47136	34
Wilson	Aubrey	not provided	N/A	Web-based Comments	8520	24
Wilson	Barbara	not provided	N/A	Web-based Comments	8824	24
Wilson	Becca	not provided	N/A	Web-based Comments	8901	24
Wilson	Brady	not provided	N/A	Web-based comments	57615	35
Wilson	Brian	not provided	N/A	Web-based comments	3654	N/A
Wilson	Brian	not provided	N/A	Web-based Comments	9520	24
Wilson	Carol Rodarte	not provided	N/A	Web-based Comments	46345	34
Wilson	Caroll	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	56657	32
Wilson	Carolyn	news4punky@gmail.com	N/A	Web-based comments	3163	N/A
Wilson	Christopher	cmwils5849@gmail.com	N/A	Web-based comments	2490	1
Wilson	Colette	not provided	N/A	Web-based Comments	54186	34
wilson	colette	not provided	N/A	Web-based Comments	11249	24
Wilson	Crystal	not provided	N/A	Web-based Comments	47174	34
Wilson	Damian	not provided	N/A	Web-based Comments	49746	34
Wilson	Debra	not provided	N/A	Web-based Comments	12559	24
Wilson	Debra	not provided	N/A	Web-based Comments	12560	24
Wilson	Debra	not provided	N/A	Web-based Comments	12561	24
Wilson	Don	not provided	N/A	Web-based Comments	13043	24
Wilson	Donald	not provided	N/A	Web-based Comments	13094	24
Wilson	Donna	not provided	N/A	Web-based Comments	55213	34
Wilson	Doris (Jody)	not provided	N/A	Web-based Comments	13240	24
Wilson	Dorothy	not provided	N/A	Web-based Comments	13281	24
Wilson	Douglas	not provided	N/A	Web-based Comments	13348	24
Wilson	Elizabeth	not provided	N/A	Web-based Comments	13872	24
Wilson	Grant	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58307	11
Wilson	Helen	not provided	N/A	Web-based Comments	15631	24
Wilson	Hilary	not provided	N/A	Web-based Comments	15705	24
Wilson	Holly	not provided	N/A	Web-based Comments	53965	34
Wilson	Holly	not provided	N/A	Web-based Comments	15775	24
Wilson	Ivalee	not provided	N/A	Web-based Comments	15954	24
Wilson	James	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58702	29
Wilson	Jamey	not provided	N/A	Web-based Comments	48218	34
Wilson	Jenna	not provided	N/A	Web-based Comments	17141	24
Wilson	Jessica	not provided	N/A	Web-based Comments	17476	24
Wilson	Jim	not provided	N/A	Web-based Comments	17615	24
Wilson	Jim	not provided	N/A	Web-based Comments	17616	24
Wilson	Judith	not provided	N/A	Web-based Comments	56072	34
Wilson	Judy	not provided	N/A	Web-based comments	57616	35
Wilson	Karen	not provided	N/A	Web-based Comments	53226, 53227	34
Wilson	Karen	not provided	N/A	Web-based Comments	19248	24
Wilson	Karen	not provided	N/A	Web-based Comments	19249	24
wilson	kasey	not provided	N/A	Web-based Comments	57780	34
wilson	kathy	not provided	N/A	Web-based Comments	19775	24
Wilson	Kristen	not provided	N/A	Web-based comments	57697	35
Wilson	Kristin	not provided	N/A	Web-based Comments	20395	24
Wilson	Lauren	not provided	N/A	Web-based Comments	46632	34
Wilson	Leah	not provided	N/A	Web-based Comments	20909	24
Wilson	Lois	not provided	N/A	Web-based Comments	46404	34
Wilson	Lorraine	not provided	N/A	Web-based Comments	21849	24
Wilson	M	not provided	N/A	Web-based Comments	46678, 46679	34
Wilson	Margaret	not provided	N/A	Web-based Comments	22517	24
Wilson	Marsha	not provided	N/A	Web-based Comments	23080	24
Wilson	Martha	not provided	N/A	Web-based Comments	23139	24
Wilson	Mary	deligirl.wilson@gmail.com	N/A	Web-based comments	4511	N/A

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Wilson	Meagan	not provided	N/A	Web-based comments	5087	1
Wilson	Michelle	not provided	N/A	Web-based Comments	46011	34
Wilson	Michelle	not provided	N/A	Web-based Comments	24404	24
Wilson	Natalie	not provided	N/A	Web-based Comments	25081	24
wilson	Paul	not provided	N/A	Web-based Comments	26062	24
Wilson	Peggy	not provided	N/A	Web-based Comments	26184	24
Wilson	Pete	not provided	N/A	Web-based Comments	26237	24
Wilson	Rachel	not provided	N/A	Web-based Comments	51960	34
Wilson	Rachel	not provided	N/A	Web-based Comments	26556	24
Wilson	Riley	riley.w@hotmail.com	N/A	Web-based comments	31939	1
wilson	robert	not provided	N/A	Web-based Comments	52619	34
Wilson	Rose Marie	not provided	N/A	Web-based Comments	50970	34
Wilson	Ryan	rwilson2244@gmail.com	N/A	Web-based comments	5263	8
Wilson	Sandra	not provided	N/A	Web-based comments	57506	35
Wilson	Sara-Jane	not provided	N/A	Web-based Comments	28428	24
Wilson	Scott	not provided	N/A	Web-based Comments	28507	24
Wilson	Sekaya	wilsonsekaya@gmail.com	N/A	Web-based comments	1882	N/A
Wilson	Seth	not provided	N/A	Web-based Comments	28549	24
Wilson	Sharon	not provided	N/A	Web-based Comments	53857	34
Wilson	Shawn	not provided	N/A	Web-based Comments	28758	24
Wilson	Steve	not provided	N/A	Web-based Comments	29413	24
Wilson	Steve	not provided	N/A	Web-based Comments	58162	16
wilson	Susan	not provided	N/A	Web-based Comments	29909	24
Wilson	Susan	not provided	N/A	Web-based Comments	29910	24
Wilson	Susky	not provided	N/A	Web-based Comments	29968	24
Wilson	Suzette	not provided	N/A	Web-based Comments	30036	24
Wilson	Tamar Diana	not provided	N/A	Web-based Comments	46335	34
Wilson	Tavner	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58752	13
Wilson	Thomas	not provided	N/A	Web-based Comments	47394	34
Wilson	Thomas	not provided	N/A	Web-based Comments	30560	24
Wilson	Tina	not provided	N/A	Web-based Comments	53264, 53265	34
Wilson	Tina	not provided	N/A	Web-based Comments	30699	24
Wilson	Walter	not provided	N/A	Web-based comments	57306	35
wilson	winn	not provided	N/A	Web-based Comments	56012	34
Wilson	Yolanda	not provided	N/A	Web-based Comments	31671	24
Wilton	Laraine	not provided	N/A	Web-based comments	57490	35
Wilton	Liz	not provided	N/A	Web-based Comments	55851	34
Wilton	Liz	not provided	N/A	Web-based Comments	21699	24
Wimer	Mary	not provided	N/A	Web-based Comments	23470	24
Wimet	Cheryl	not provided	N/A	Web-based Comments	10682	24
Wimmer	Mildred	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32389	13
Winant	Marissa	not provided	N/A	Web-based Comments	22870	24
Winburn	William	not provided	N/A	Web-based Comments	51203, 51204	34
Winchell	Richard	not provided	N/A	Web-based Comments	27072	24
winchester	linda	not provided	N/A	Web-based Comments	48209	34
Winchester	Monika	not provided	N/A	Web-based Comments	24653	24
WIND	ROSALIE	not provided	N/A	Web-based Comments	58517, 58518	34
Wind	Rosalie	not provided	N/A	Web-based Comments	27705	24
Wind	Susan	not provided	N/A	Web-based Comments	29911	24
Windfeldt	Anna	anna.j.windfeldt@gmail.com	N/A	Web-based comments	32086	1
Windflower	Lisa	not provided	N/A	Web-based Comments	53818	34
Windham	Dallas	not provided	N/A	Web-based Comments	11642	24
Windham	Patricia	not provided	N/A	Web-based Comments	25871	24
Windholz	Kari	not provided	N/A	Web-based Comments	19272	24
Windischgraetz	Katalin zu	not provided	N/A	Web-based Comments	54279	34
Windle	A	not provided	N/A	Web-based Comments	6976	24
Windsor	Rob	not provided	N/A	Web-based Comments	27189	24
Windus	Jared	not provided	N/A	Web-based Comments	53509	34
Windwalker	Joseph & Sandra	not provided	N/A	Web-based Comments	18405	24
Windweh	Karola	not provided	N/A	Web-based Comments	48032	34
Windweh	Karola	not provided	N/A	Web-based Comments	19324	24
Winegardner	Michael	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	56653	N/A
Wineman	Marian	not provided	N/A	Web-based Comments	50110	34
Wineman	Marian	not provided	N/A	Web-based Comments	22662	24
Winemiller	Thomas	not provided	N/A	Web-based Comments	30561	24
Wines	Cynthia Tinge	not provided	N/A	Web-based Comments	45371	34
Winfree	Jen	not provided	N/A	Web-based Comments	17123	24
Winfrey	Bobbiejo	not provided	N/A	Web-based Comments	9265	24
Wing	Marjorie	not provided	N/A	Web-based Comments	55710	34
Wing	Marjorie	not provided	N/A	Web-based Comments	22889	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Wing	Ryan	not provided	N/A	Web-based Comments	27930	24
Wingeier	Doug	not provided	N/A	Web-based Comments	13318	24
Winger	Crystal	not provided	N/A	Web-based Comments	11469	24
Wingert	Gretchen K	not provided	N/A	Web-based Comments	15320	24
Wingle	Dennis	not provided	N/A	Web-based Comments	50425, 50426	34
Wingo	Cynthia	not provided	N/A	Web-based Comments	50091	34
Winheld	Matthew	not provided	N/A	Web-based Comments	23674	24
winholtz	betty	not provided	N/A	Web-based Comments	9104	24
Winholtz	Gerald	not provided	N/A	Web-based Comments	14965	24
Winkel	Matthew	not provided	N/A	Web-based Comments	23675	24
Winkler	Ann	ann_from_spokane@yahoo.com	N/A	Web-based comments	2205	N/A
Winkler	Christina	not provided	N/A	Web-based comments	56812	35
Winkler	Clay	not provided	N/A	Web-based Comments	11212	24
Winkler	Daniel	not provided	N/A	Web-based Comments	11791	24
Winkler	Erich	not provided	N/A	Web-based Comments	55401, 55402	34
Winkler	Erich	not provided	N/A	Web-based Comments	14176	24
Winkler	Erik	not provided	N/A	Web-based Comments	14189	24
Winkler	Joan	not provided	N/A	Web-based Comments	52275	34
Winkler	Joan	not provided	N/A	Web-based Comments	17757	24
Winks	Carter	cdwinks@gmail.com	N/A	Web-based comments	32026	N/A
Winn	Randall	rewinn10@gmail.com	N/A	Web-based comments	3320	N/A
Winn	Trisha	not provided	N/A	Web-based Comments	30928	24
Winnegrad	Kay	not provided	N/A	Web-based Comments	19839	24
Winner	Barbara	not provided	N/A	Web-based Comments	50371	34
Winner	Barbara	not provided	N/A	Web-based Comments	8825	24
Winner	Judith	not provided	N/A	Web-based Comments	56286	34
Winnett	Jane	not provided	N/A	Web-based Comments	16546	24
Winnett	Lucas	not provided	N/A	Web-based comments	57083	35
Winnick	Joie	not provided	N/A	Web-based Comments	46707	34
Winnick	Karen	not provided	N/A	Web-based Comments	52534	34
Winnicki	Kristine	not provided	N/A	Web-based Comments	56007, 56008	34
Winser	M	not provided	N/A	Web-based Comments	45382, 45383	34
Winsett	David Hale	not provided	N/A	Web-based Comments	50655	34
Winslow	Carole	not provided	N/A	Web-based Comments	10106	24
Winslow	Joyce	not provided	N/A	Web-based Comments	18522	24
Winslow	Lee	not provided	N/A	Web-based Comments	20951	24
Winstanley	Jessenia	not provided	N/A	Web-based Comments	17404	24
Winstead	Annie	not provided	N/A	Web-based Comments	51646	34
Winstead	Annie	not provided	N/A	Web-based Comments	8314	24
Winston	Elizabeth	not provided	N/A	Web-based Comments	47358	34
Winston	Erica	not provided	N/A	Web-based Comments	14172	24
Winston	Mark	not provided	N/A	Web-based Comments	23007	24
Winter	Amy	not provided	N/A	Web-based Comments	49785	34
Winter	Ellen	not provided	N/A	Web-based Comments	13959	24
Winter	George	george@ttclabs.com	N/A	Web-based comments	4306	N/A
Winter	H. Leabah	not provided	N/A	Web-based Comments	15373	24
Winter	Jeanna	not provided	N/A	Web-based comments	57057	35
Winter	Patricia	not provided	N/A	Web-based Comments	25872	24
Winterburn	Kathy	not provided	N/A	Web-based Comments	19776	24
Winterle	Alicia	not provided	N/A	Web-based Comments	7386	24
winters	patricia	not provided	N/A	Web-based Comments	25873	24
Winterscheidt	Karin	not provided	N/A	Web-based Comments	19290	24
Winthrop	David	not provided	N/A	Web-based Comments	55892	34
Winton	Jennifer	not provided	N/A	Web-based comments	57180	35
Wintroub	Andrea	not provided	N/A	Web-based Comments	7779	24
WIPF	TYLER	twipf@hotmail.com	N/A	Web-based comments	2686	N/A
Wipperman	Mallory	not provided	N/A	Web-based Comments	22300	24
Wireman	Ginger	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4261	N/A
Wirkus	Jeffrey	jeffktm520@yahoo.com	N/A	Web-based comments	4997	11
Wirth	Charles	not provided	N/A	Web-based Comments	10540	24
Wirth	Donald	seed@saddlebutte.com	N/A	Web-based comments	3117	9
Wirth	Jason	wirthj@seattleu.edu	N/A	Web-based comments	3557	3
Wisch	Anita	not provided	N/A	Web-based Comments	52632, 52633, 52634, 52635	34
Wisch	Anita	not provided	N/A	Web-based Comments	7987	24
Wischhusen	Eva	not provided	N/A	Web-based Comments	46527, 46588	34
Wischhusen	Eva	not provided	N/A	Web-based Comments	14321	24
Wisdom	Charlene	not provided	N/A	Web-based Comments	10478	24
Wise	Amy	not provided	N/A	Web-based Comments	50159	34
Wise	Bill	ptwise@gmail.com	N/A	Web-based comments	2469	N/A
Wise	Margaret H.	not provided	N/A	Web-based Comments	22523	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Wise	Niki	not provided	N/A	Web-based Comments	44631	34
Wise	Sally	not provided	N/A	Web-based Comments	47132	34
Wise	Sally	not provided	N/A	Web-based Comments	28038	24
Wise	Steve	not provided	N/A	Web-based Comments	52377	34
Wise	Steve	not provided	N/A	Web-based Comments	29414	24
Wise	Willow	not provided	N/A	Web-based Comments	31620	24
Wisely	Eldridge	not provided	N/A	Web-based Comments	49399	34
Wiseman	Ann	not provided	N/A	Web-based Comments	46130, 46207	34
Wiseman	Ann	not provided	N/A	Web-based Comments	8100	24
Wiseman	Christina	not provided	N/A	Web-based Comments	10886	24
Wiseman	Judith	not provided	N/A	Web-based Comments	56011	34
Wiseman	Judith	not provided	N/A	Web-based Comments	18662	24
Wiser	Clayne	not provided	N/A	Web-based comments	3808	10
Wishnosky	Mary Ann	not provided	N/A	Web-based Comments	23504	24
Wisinski	Michael	not provided	N/A	Web-based Comments	24252	24
Wissler	Frank	not provided	N/A	Web-based Comments	14552	24
Wisz	Julie	not provided	N/A	Web-based Comments	18907	24
Witchner	Beverly	not provided	N/A	Web-based Comments	9151	24
With	Ben De	not provided	N/A	Web-based Comments	46203	34
Witham	Debbie	not provided	N/A	Web-based Comments	12354	24
Withers	Lynell	not provided	N/A	Web-based Comments	22034	24
Witherspoon	Angela	angelapearle@gmail.com	N/A	Web-based comments	6306	1
Witherspoon	Matt	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	2256	N/A
Withnall	Emily	not provided	N/A	Web-based Comments	48275	34
Withnall	Emily	not provided	N/A	Web-based Comments	14049	24
Withrow	Claris	not provided	N/A	Web-based Comments	55545	34
WITIAK	GENE AND JOAN	not provided	N/A	Web-based Comments	14856	24
Witkoski	Stephanie	not provided	N/A	Web-based Comments	51873	34
Witkoski	Stephanie	not provided	N/A	Web-based Comments	29264	24
Witkowski	Lee	not provided	N/A	Web-based Comments	20952	24
Witmer	Tiffany	not provided	N/A	Web-based Comments	30592	24
Witoslawski	Justin	not provided	N/A	Web-based Comments	18963	24
Witt	Alex	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	4792	18
Witt	Joseph	not provided	N/A	Web-based Comments	50693	34
Witt	Karen	not provided	N/A	Web-based Comments	19250	24
WITT	LUCAS	not provided	N/A	Web-based Comments	49717	34
Witt	Rose Ann	not provided	N/A	Web-based Comments	50561	34
Witt	Stella	not provided	N/A	Web-based Comments	29186	24
witte	ellen	not provided	N/A	Web-based Comments	13960	24
Witte	Marcia	not provided	N/A	Web-based Comments	22388	24
Witte Anderson	Gail	not provided	N/A	Web-based Comments	14723	24
Wittenborn	Andrew and Kathleen	not provided	N/A	Web-based Comments	7863	24
Wittenbrader	Jill	not provided	N/A	Web-based Comments	47639, 47715	34
Wittern	Dennis	not provided	N/A	Web-based Comments	12712	24
WITTHAUS	ANDREW	not provided	N/A	Web-based Comments	7861	24
Witthaus	Michelle	michelle.witthaus@gmail.com	N/A	Web-based comments	6867	N/A
Witthuhn	Bethany	not provided	N/A	Web-based Comments	45800, 45801	34
Witthuhn	Bethany	not provided	N/A	Web-based Comments	9067	24
Witthuhn Horton	Susan Ann	not provided	N/A	Web-based Comments	29922	24
Wittig	Katharina	not provided	N/A	Web-based Comments	49696, 49697	34
Wittkamp	Martina	not provided	N/A	Web-based Comments	23184	24
Wittmann	Nancy	not provided	N/A	Web-based Comments	25019	24
Wittmann	Victor	not provided	N/A	Web-based Comments	31177	24
Wittmier	Jack	not provided	N/A	Web-based Comments	16047	24
Wittner	Rodney	not provided	N/A	Web-based comments	6279	N/A
Wittwer	Leonard	not provided	N/A	Web-based Comments	21013	24
Witty	Alec	not provided	N/A	Web-based Comments	7222	24
Witzeman	Janet	not provided	N/A	Web-based Comments	52707	34
Witzman	Kathy	not provided	N/A	Web-based Comments	52926	34
Wixson	Penny	not provided	N/A	Web-based Comments	26218	24
Wizard	Map	not provided	N/A	Web-based Comments	22316	24
Wobeter	Tony and Gaylen	not provided	N/A	Web-based Comments	30819	24
Wobus	Elizabeth	not provided	N/A	Web-based Comments	13873	24
Wochholz	Kurt	not provided	N/A	Web-based Comments	55369	34
Woessner	William	not provided	N/A	Web-based Comments	31609	24
Wohlberg	Robert	not provided	N/A	Web-based Comments	27412	24
Wohler	Kimberly	not provided	N/A	Web-based Comments	20255	24
Wohlers	Vee	not provided	N/A	Web-based comments	57171	35
Wohlleb	Michael	not provided	N/A	Web-based Comments	24253	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Wojciak	Barbara	not provided	N/A	Web-based Comments	8826	24
Wojciechowska	Agnieszka	not provided	N/A	Web-based Comments	7118	24
Wojciechowski	Richard	not provided	N/A	Web-based Comments	27073	24
Wojcik	Marysia	not provided	N/A	Web-based Comments	55084	34
Wojdak	John	not provided	N/A	Web-based Comments	18205	24
Wojnaroski	Sabrina	not provided	N/A	Web-based Comments	27982	24
Wojtalik	Alan	not provided	N/A	Web-based Comments	7197	24
Wojtalik	Nikki	not provided	N/A	Web-based Comments	25289	24
Wolansky	Hector	not provided	N/A	Web-based Comments	15557	24
Wolcott	James	not provided	N/A	Web-based Comments	16333	24
Wolcott	Leslie	not provided	N/A	Web-based Comments	44932	34
Wolf	Anne	not provided	N/A	Web-based Comments	8257	24
Wolf	Arlene	not provided	N/A	Web-based Comments	52954	34
Wolf	Barbara	not provided	N/A	Web-based Comments	8827	24
Wolf	Betsy	not provided	N/A	Web-based Comments	47836	34
Wolf	Carol	not provided	N/A	Web-based Comments	10058	24
Wolf	Crystal	not provided	N/A	Web-based Comments	51662	34
Wolf	Crystal	not provided	N/A	Web-based Comments	11470	24
Wolf	D	not provided	N/A	Web-based Comments	11591	24
Wolf	Darlene	not provided	N/A	Web-based Comments	11887	24
Wolf	David	not provided	N/A	Web-based Comments	49673	34
Wolf	Deborah	not provided	N/A	Web-based Comments	12492	24
Wolf	Dietlinde	not provided	N/A	Web-based Comments	44659	34
Wolf	Elisabeth	not provided	N/A	Web-based Comments	13684	24
Wolf	Hannah	not provided	N/A	Web-based Comments	15417	24
Wolf	Joe	not provided	N/A	Web-based comments	4897	N/A
wolf	karen	not provided	N/A	Web-based Comments	49307	34
Wolf	Karen	not provided	N/A	Web-based Comments	47825, 47826	34
Wolf	Karen	not provided	N/A	Web-based Comments	19251	24
Wolf	Kristina	not provided	N/A	Web-based Comments	50994	34
Wolf	Lou	not provided	N/A	Web-based Comments	56532	34
Wolf	Mark	not provided	N/A	Web-based Comments	23008	24
Wolf	Mark	not provided	N/A	Web-based Comments	23009	24
Wolf	Martin	not provided	N/A	Web-based Comments	23179	24
Wolf	Rachel	not provided	N/A	Web-based Comments	49207	34
Wolf	Rachel	not provided	N/A	Web-based Comments	26557	24
Wolf	Richard	not provided	N/A	Web-based Comments	27074	24
Wolf	Rob	not provided	N/A	Web-based Comments	27190	24
Wolf	Scott	not provided	N/A	Web-based Comments	28508	24
Wolf	Tim	not provided	N/A	Web-based Comments	30633	24
Wolf	Todd	not provided	N/A	Web-based Comments	30731	24
Wolf	Torah	not provided	N/A	Web-based Comments	30827	24
Wolf	Wesley	not provided	N/A	Web-based Comments	31471	24
Wolf	Zack	ztwolf@hotmail.com	N/A	Web-based comments	3010	5
Wolfberg	Amy	not provided	N/A	Web-based Comments	53294	34
Wolfe	Amy	not provided	N/A	Web-based Comments	48736	34
Wolfe	Amy	not provided	N/A	Web-based Comments	7682	24
Wolfe	Ann	not provided	N/A	Web-based Comments	8101	24
Wolfe	Bryan	not provided	N/A	Web-based comments	5495	N/A
Wolfe	Charles	not provided	N/A	Web-based Comments	55793, 55794	34
Wolfe	Charles	not provided	N/A	Web-based Comments	10541	24
Wolfe	Chris	christina.wolfe@gmail.com	N/A	Web-based comments	2767	1
Wolfe	Dorothy	not provided	N/A	Web-based Comments	13282	24
Wolfe	Duane	not provided	N/A	Web-based Comments	56075	34
Wolfe	Emily	not provided	N/A	Web-based Comments	14050	24
Wolfe	Heather	not provided	N/A	Web-based Comments	15554	24
Wolfe	Iris	not provided	N/A	Web-based Comments	15923	24
Wolfe	Laura	not provided	N/A	Web-based Comments	20720	24
Wolfe	Louis	not provided	N/A	Web-based Comments	58267	16
Wolfe	Meghan	not provided	N/A	Web-based Comments	23817	24
Wolfe	Nanlouise	not provided	N/A	Web-based Comments	25034	24
Wolfe	Sage	swolfejunk@gmail.com	N/A	Web-based comments	448	1
Wolfe	Sharon	not provided	N/A	Web-based Comments	53071	34
Wolfe	Sharon	not provided	N/A	Web-based Comments	28729	24
Wolfe	Stacey	not provided	N/A	Web-based Comments	29125	24
Wolfe	Suzanne	not provided	N/A	Web-based Comments	55434	34
WOLFE	Terry	not provided	N/A	Web-based Comments	30388	24
Wolfe	Wendy	not provided	N/A	Web-based Comments	31456	24
Wolfenbarger	Anne	not provided	N/A	Web-based Comments	8258	24
Wolff	Barbara	not provided	N/A	Web-based Comments	8828	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Wolff	Dennis	not provided	N/A	Web-based Comments	44618	34
Wolff	Emmy	not provided	N/A	Web-based Comments	14068	24
Wolff	Jennifer	not provided	N/A	Web-based Comments	53599	34
Wolff	Kari	kwolff1209@gmail.com	N/A	Web-based comments	962	1
Wolff	Pat	not provided	N/A	Web-based Comments	23997	24
Wolff	Sarah	not provided	N/A	Web-based Comments	28421	24
Wolfgang	Mara	not provided	N/A	Web-based comments	57084	35
Wolfgang	Mara	not provided	N/A	Web-based Comments	22324	24
Wolfheart	Marisa	not provided	N/A	Web-based Comments	22868	24
Wolfheart	Marissa	not provided	N/A	Web-based Comments	54104	34
WOLFLEY	DEBRA	not provided	N/A	Web-based Comments	55141	34
Wolfsohn	Edward	not provided	N/A	Web-based Comments	45559	34
Wolfsohn	Edward	not provided	N/A	Web-based Comments	13518	24
wolfsohn	sharon	not provided	N/A	Web-based Comments	56128	34
Wolfsong	Jennifer	not provided	N/A	Web-based Comments	49837	34
Wolgamott	Jill	not provided	N/A	Web-based Comments	52406	34
Woll	Strhen	not provided	N/A	Web-based Comments	29487	24
Wollison	Mary	not provided	N/A	Web-based Comments	51558	34
Wollman	Nan	not provided	N/A	Web-based Comments	52188	34
Wolner	Kirsten	not provided	N/A	Web-based Comments	20281	24
Wolny	Rose	not provided	N/A	Web-based Comments	46419	34
Wolock	Rosemary	not provided	N/A	Web-based Comments	27772	24
Wolohan	Matt	not provided	N/A	Web-based Comments	58077	16
Wolpe	Corinne	not provided	N/A	Web-based Comments	11380	24
Wolpers	Vivian	not provided	N/A	Web-based Comments	31323	24
Wolslegel	Thomas	not provided	N/A	Web-based Comments	30562	24
Wolter	Audrey	not provided	N/A	Web-based Comments	53342	34
Wolter	Mary	not provided	N/A	Web-based Comments	23471	24
Woltz	Farrar	not provided	N/A	Web-based Comments	14395	24
Wolverton	Gary	not provided	N/A	Web-based Comments	14806	24
Wolverton	W	not provided	N/A	Web-based Comments	31338	24
Wolz	Boyd	ynp2imax@gmail.com	N/A	Web-based comments	5661	11
Wolz	Donna	not provided	N/A	Web-based Comments	13198	24
Wonacott	Greg	gwonacott56@gmail.com	N/A	Web-based comments	2173	N/A
Wondolowdki	William T.	not provided	N/A	Web-based Comments	31616	24
Wong	Grace	not provided	N/A	Web-based Comments	15203	24
Wong	James	not provided	N/A	Web-based Comments	16334	24
Wong	Janice	not provided	N/A	Web-based Comments	16710	24
Wong	Jen-Mai	not provided	N/A	Web-based Comments	54147, 54148	34
Wong	Jessie	not provided	N/A	Web-based comments	1883	4
Wong	Kelly	not provided	N/A	Web-based Comments	47481	34
wong	kevin	not provided	N/A	Web-based Comments	20146	24
Wong	Meixuan	not provided	N/A	Web-based Comments	49545, 49546	34
Wong	Sabrina	not provided	N/A	Web-based Comments	27983	24
wong	Steve	not provided	N/A	Web-based comments	5743	1
wong	tatiana	not provided	N/A	Web-based Comments	30223	24
Wong-Brehmer	Janene	not provided	N/A	Web-based Comments	48205	34
Wonio	Diane	not provided	N/A	Web-based Comments	12923	24
Wontor	Debra	not provided	N/A	Web-based Comments	12562	24
Woo	Vickie	not provided	N/A	Web-based Comments	31161	24
wood	Asha	Ashalynnwd@outlook.com	N/A	Web-based comments	1919	4
Wood	Becky	not provided	N/A	Web-based Comments	8920	24
Wood	Betsy	not provided	N/A	Web-based Comments	9078	24
wood	bill	not provided	N/A	Web-based Comments	9190	24
Wood	C	not provided	N/A	Web-based Comments	53784	34
Wood	Carolyn	CarolynWood29@hotmail.com	N/A	Web-based comments	2434	N/A
Wood	Catherine	not provided	N/A	Web-based Comments	10334	24
Wood	Charlotte	not provided	N/A	Web-based Comments	49329	34
Wood	Charlotte	not provided	N/A	Web-based Comments	10575	24
Wood	Dana	not provided	N/A	Web-based Comments	11713	24
Wood	David	dwood@wheco.com	N/A	Web-based comments	4019	N/A
Wood	Debbi	not provided	N/A	Web-based Comments	12305	24
Wood	Dian	not provided	N/A	Web-based Comments	46611	34
Wood	Ed	not provided	N/A	Web-based Comments	13456	24
wood	elsa	not provided	N/A	Web-based Comments	13988	24
Wood	Gordon	not provided	N/A	Web-based Comments	45106	34
Wood	Hailey	not provided	N/A	Web-based Comments	15375	24
Wood	Hannah	not provided	N/A	Web-based Comments	15418	24
Wood	Hollis	not provided	N/A	Web-based Comments	56547	34
Wood	Jacqueline	not provided	N/A	Web-based Comments	51291	34

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Wood	Jeffrey	jwood@westernsintering.com	N/A	Web-based comments	5943	N/A
Wood	John and Polly	not provided	N/A	Web-based Comments	18216	24
Wood	Josie	not provided	N/A	Web-based Comments	18443	24
Wood	Julia	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32481	11
Wood	Leslie	not provided	N/A	Web-based Comments	52772	34
Wood	Leslie	not provided	N/A	Web-based Comments	21114	24
Wood	Lisa	not provided	N/A	Web-based Comments	21657	24
Wood	Lorna	not provided	N/A	Web-based Comments	21828	24
Wood	Margaret	not provided	N/A	Web-based Comments	22518	24
Wood	Marilee	not provided	N/A	Web-based Comments	22758	24
Wood	Mike	not provided	N/A	Web-based Comments	24497	24
Wood	Pamela	not provided	N/A	Web-based Comments	49786	34
Wood	Patricia	not provided	N/A	Web-based Comments	25874	24
Wood	Penelope	not provided	N/A	Web-based Comments	26195	24
Wood	Peter	not provided	N/A	Web-based comments	57052	35
Wood	Peter	not provided	N/A	Web-based Comments	51610, 51611	34
Wood	Peter	not provided	N/A	Web-based Comments	26300	24
wood	r	not provided	N/A	Web-based Comments	26485	24
Wood	Rega	not provided	N/A	Web-based Comments	26801	24
Wood	Richard	not provided	N/A	Web-based Comments	27075	24
Wood	Stephanie	not provided	N/A	Web-based Comments	29265	24
Wood	Sue	not provided	N/A	Web-based Comments	29561	24
Wood	Suzanne	not provided	N/A	Web-based Comments	30032	24
Wood	Suzanne	not provided	N/A	Web-based Comments	30033	24
Wood	Tresilla	not provided	N/A	Web-based comments	56866	35
Woodall	Sandra	not provided	N/A	Web-based Comments	28233	24
Woodall	Tom	not provided	N/A	Web-based comments	3393	N/A
Woodard	Jessica	not provided	N/A	Web-based Comments	17477	24
Woodard	John	not provided	N/A	Web-based Comments	18206	24
Woodard	Sally	not provided	N/A	Web-based Comments	28039	24
woodard	stephen	not provided	N/A	Web-based Comments	29345	24
Woodbridge	Bill	not provided	N/A	Web-based Comments	51457	34
Woodcock	Charlene	not provided	N/A	Web-based Comments	57909, 50291	16, 34
Woodcock	Charlene	not provided	N/A	Web-based Comments	10479	24
Woodcock	Diana	not provided	N/A	Web-based Comments	12804	24
Woodcock	Ruth	not provided	N/A	Web-based Comments	54655	34
Woodell	Brittany	not provided	N/A	Web-based Comments	9572	24
Wooden	John	not provided	N/A	Web-based Comments	18207	24
Woodhull	Delight	not provided	N/A	Web-based Comments	12604	24
Woodhull	J	not provided	N/A	Web-based Comments	15998	24
Woodley	Paula	not provided	N/A	Web-based Comments	58497	34
Woodlford	Robert	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	56677	13
Woodrich	Brian	not provided	N/A	Web-based Comments	9521	24
Woodring-Hawk	Kasandra	not provided	N/A	Web-based Comments	19340	24
Woodruff	Ali	not provided	N/A	Web-based Comments	7329	24
Woodruff	Anita	not provided	N/A	Web-based Comments	7988	24
Woodruff	Robin	not provided	N/A	Web-based Comments	27539	24
Woodruff	Ron	rwoodruf42@aol.com	N/A	Web-based comments	5421	N/A
Woodruff	Stefan	woodrust@oregonstate.edu	N/A	Web-based comments	5438	N/A
Woods	Carolyn	not provided	N/A	Web-based Comments	10183	24
Woods	Christopher	not provided	N/A	Web-based Comments	11037	24
Woods	David	not provided	N/A	Web-based Comments	50458	34
WOODS	David	not provided	N/A	Web-based Comments	12181	24
woods	ingrid	not provided	N/A	Web-based Comments	15883	24
Woods	James	not provided	N/A	Web-based Comments	48201, 48202	34
Woods	Lesley	not provided	N/A	Web-based Comments	21051	24
Woods	Lizzy	not provided	N/A	Web-based Comments	55263	34
Woods	Margaret	not provided	N/A	Web-based Comments	22519	24
Woods	Rocquelle	not provided	N/A	Web-based Comments	45887, 45888	34
Woods	Rocquelle	not provided	N/A	Web-based Comments	27567	24
woods	roth	not provided	N/A	Web-based Comments	27793	24
woods	sidney	not provided	N/A	Web-based Comments	50650	34
Woods	Stormie	not provided	N/A	Web-based Comments	29486	24
Woods	Teresa	not provided	N/A	Web-based Comments	51580	34
Woods	Teresa	not provided	N/A	Web-based Comments	30303	24
Woodward	Alexandra	not provided	N/A	Web-based Comments	7295	24
Woodward	Ellis	not provided	N/A	Web-based Comments	13976	24
Woodward	Jonathan	not provided	N/A	Web-based Comments	18302	24
Woodward	Laura	not provided	N/A	Web-based Comments	20721	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Woodworker-Schmid	Bria	not provided	N/A	Web-based Comments	9454	24
Woodworth	J.	not provided	N/A	Web-based Comments	55195	34
Wool	Barb	not provided	N/A	Web-based Comments	8612	24
Wooldridge	Mary	not provided	N/A	Web-based Comments	47082	34
Wooley	Stacie	not provided	N/A	Web-based Comments	29132	24
Woolf	Sharon	not provided	N/A	Web-based Comments	56564	34
Woolford	Ronald	not provided	N/A	Web-based Comments	27675	24
Woolfson	Vivian	not provided	N/A	Web-based Comments	31324	24
Woolley	April	not provided	N/A	Web-based Comments	49060	34
Woolley	M	not provided	N/A	Web-based Comments	47520	34
woolley	m	not provided	N/A	Web-based Comments	22203	24
Woolley	Nancy	not provided	N/A	Web-based Comments	25020	24
Woolly	Jim	jim.carol@sbcglobal.net	N/A	Web-based comments	5254	N/A
Woolly	Jim	not provided	N/A	Web-based Comments	17617	24
Woolmer	Mary	not provided	N/A	Web-based Comments	23472	24
Woolsey	David A.	not provided	N/A	Web-based Comments	12186	24
Woolstenhulme	Linda	idcowgirl@gmail.com	N/A	Web-based comments	3795	11
Woolston	Connie	not provided	N/A	Web-based comments	57723	35
Woolworth	Moriah	not provided	N/A	Web-based Comments	52346	34
Wooster	Susan	not provided	N/A	Web-based Comments	29912	24
Wootan	Cathy	not provided	N/A	Web-based Comments	45171	34
Wootan	Cathy	not provided	N/A	Web-based Comments	10399	24
Wooten	Deborah	not provided	N/A	Web-based Comments	55688	34
Wootton	Sharon	not provided	N/A	Web-based Comments	28730	24
Woppert	Jean	not provided	N/A	Web-based Comments	53999	34
Woppert	Jean	not provided	N/A	Web-based Comments	16898	24
Worchesin	Elizabeth	not provided	N/A	Web-based Comments	13874	24
Worden	Reba	not provided	N/A	Web-based Comments	52591	34
Worden	Susan	not provided	N/A	Web-based Comments	50883	34
Worden	Susan	not provided	N/A	Web-based Comments	29913	24
Worden	T.H.	not provided	N/A	Web-based Comments	45968	34
Worell	Wendy	not provided	N/A	Web-based Comments	31457	24
Worker	Kevin	not provided	N/A	Web-based Comments	20147	24
Workman	Clair	cbworkman@hotmail.com	N/A	Web-based comments	3424	13
Workman	Joseph	not provided	N/A	Web-based Comments	18404	24
Workman	Krysta	not provided	N/A	Web-based Comments	20427	24
Workman	Mary	not provided	N/A	Web-based Comments	55116	34
Workman	Mary	not provided	N/A	Web-based Comments	23473	24
Worley	David	not provided	N/A	Web-based Comments	58082, 49278	16, 34
Worley	David	not provided	N/A	Web-based Comments	12182	24
Worley	Don	not provided	N/A	Web-based Comments	13044	24
Worley	Kathleen	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	56622	N/A
Worley	Larry	not provided	N/A	Web-based comments	1872	N/A
Worley	Peter	not provided	N/A	Web-based Comments	26301	24
Worley	Robert	not provided	N/A	Web-based Comments	27413	24
Wormer	Dale	dwvanwormer@outlook.com	N/A	Web-based comments	4047	N/A
Wornum	Claudia	not provided	N/A	Web-based Comments	11201	24
Worrell	Glen	not provided	N/A	Web-based Comments	15117	24
Worsham	Cynthia	not provided	N/A	Web-based Comments	45841	34
Worsley	David	not provided	N/A	Web-based Comments	12183	24
Worsley	Linda	not provided	N/A	Web-based Comments	21463	24
Worth	Braxton	not provided	N/A	Web-based Comments	53972, 53973	34
Worth	Braxtoon	not provided	N/A	Web-based Comments	9382	24
Worth	Chad	not provided	N/A	Web-based Comments	58173	16
Worth	Christina	not provided	N/A	Web-based Comments	10887	24
Worth	Mark	not provided	N/A	Web-based Comments	23010	24
Worth	Marti	not provided	N/A	Web-based Comments	23146	24
Worth	Russell	not provided	N/A	Web-based Comments	27847	24
Worth	Wendy	not provided	N/A	Web-based Comments	31458	24
worthington	Brandon	worthingtonflyfishing@gmail.com	N/A	Web-based comments	3079	N/A
Worthington	David J.	not provided	N/A	Web-based Comments	12192	24
Worthy	Crista	not provided	N/A	Web-based Comments	52947	34
Wortzel	Sandra	not provided	N/A	Web-based Comments	28234	24
Wotan	Andrea	not provided	N/A	Web-based Comments	7780	24
Wotzak	Gregory	not provided	N/A	Web-based Comments	15300	24
Woudstra	Gerrit	not provided	N/A	Web-based Comments	54385, 54384	34
Wouk	Nina	not provided	N/A	Web-based Comments	50390	34
Wraight	S	not provided	N/A	Web-based Comments	49548	34
wray	anthea	not provided	N/A	Web-based Comments	8322	24
Wray	Russell	not provided	N/A	Web-based Comments	27848	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Wreford	Julie	not provided	N/A	Web-based Comments	49694	34
Wreford	Julie	not provided	N/A	Web-based Comments	18908	24
Wren	Ashley	not provided	N/A	Web-based Comments	8501	24
Wren	JoAnn	not provided	N/A	Web-based Comments	17782	24
wren	kent	not provided	N/A	Web-based Comments	20046	24
Wren	RhiONA	not provided	N/A	Web-based Comments	26886	24
Wren	Tawnya	not provided	N/A	Web-based Comments	30231	24
Wren	Vicki	not provided	N/A	Web-based Comments	31154	24
Wrich	Dana	not provided	N/A	Web-based Comments	58671, 58672, 58673	34
Wright	Amy	not provided	N/A	Web-based Comments	7683	24
Wright	Anita	not provided	N/A	Web-based Comments	7989	24
Wright	Ann	not provided	N/A	Web-based Comments	8102	24
Wright	Anne	not provided	N/A	Web-based Comments	8259	24
Wright	Barbara	not provided	N/A	Web-based Comments	49000, 58080	34, 16
Wright	Brian	not provided	N/A	Web-based Comments	9522	24
Wright	Caitlyn	not provided	N/A	Web-based Comments	9717	24
Wright	Cari	not provided	N/A	Web-based Comments	9791	24
Wright	Carol	not provided	N/A	Web-based Comments	50551	34
Wright	Catherine	not provided	N/A	Web-based Comments	50739	N/A
Wright	Chadwick	not provided	N/A	Web-based Comments	10453	24
Wright	Charlotte	not provided	N/A	Web-based comments	57683	35
Wright	Chris	not provided	N/A	Web-based Comments	10795	24
Wright	Claire	not provided	N/A	Web-based Comments	11150	24
Wright	Claire	not provided	N/A	Web-based Comments	11151	24
Wright	Colleen	not provided	N/A	Web-based Comments	11277	24
Wright	Dale	not provided	N/A	Web-based Comments	11635	24
Wright	David	not provided	N/A	Web-based Comments	55143	34
Wright	Debra	not provided	N/A	Web-based Comments	50116	34
Wright	Dereth	not provided	N/A	Web-based Comments	12724	24
Wright	Edmund	not provided	N/A	Web-based Comments	48079	34
Wright	Edmund	not provided	N/A	Web-based Comments	13476	24
Wright	Eleanor	not provided	N/A	Web-based Comments	13641	24
Wright	Georgina	not provided	N/A	Web-based Comments	45054	34
Wright	Georgina	not provided	N/A	Web-based Comments	14950	24
WRIGHT	GEORGINA	not provided	N/A	Web-based Comments	57990	16
Wright	Grace	gjwright@sonic.net	N/A	Web-based comments	5160	N/A
Wright	Greg	Wrightwildlife@gmail.com	N/A	Web-based comments	1424	N/A
Wright	Hope	not provided	N/A	Web-based Comments	44337	34
Wright	Jan	not provided	N/A	Web-based Comments	16443	24
Wright	Janet	not provided	N/A	Web-based Comments	48317	34
Wright	Janet	not provided	N/A	Web-based Comments	16655	24
Wright	Jared	not provided	N/A	Web-based Comments	16760	24
Wright	Jill	jillwright1962@gmail.com	N/A	Web-based comments	3405	13
Wright	Joan	not provided	N/A	Web-based Comments	17758	24
Wright	John	fishwright1955@gmail.com	N/A	Web-based comments	5228	N/A
Wright	Judith	not provided	N/A	Web-based Comments	18663	24
Wright	Julie	not provided	N/A	Web-based Comments	18909	24
Wright	Katherine	not provided	N/A	Web-based Comments	57892, 47207, 47208, 53301	16, 34
Wright	Katherine	not provided	N/A	Web-based Comments	19493	24
Wright	Katherine	not provided	N/A	Web-based Comments	19494	24
Wright	Kenneth	not provided	N/A	Web-based Comments	51900	34
Wright	Kiea	not provided	N/A	Web-based Comments	53525	34
Wright	Kimball	not provided	N/A	Web-based Comments	20211	24
Wright	Laurel	not provided	N/A	Web-based Comments	20749	24
Wright	Lesley	not provided	N/A	Web-based Comments	21052	24
Wright	Linda	not provided	N/A	Web-based Comments	55228	34
Wright	Linda	not provided	N/A	Web-based Comments	21464	24
Wright	Lorraine	not provided	N/A	Web-based Comments	52988	34
Wright	Lyn	not provided	N/A	Web-based Comments	22012	24
Wright	Mel	not provided	N/A	Web-based Comments	23831	24
Wright	Nancy	not provided	N/A	Web-based Comments	50385	34
Wright	Nancy and Gerald	not provided	N/A	Web-based Comments	25025	24
Wright	Nicole	not provided	N/A	Web-based Comments	25262	24
Wright	Phillip	not provided	N/A	Web-based Comments	26366	24
Wright	Rhonda	not provided	N/A	Web-based Comments	26910	24
Wright	Ross	rwright@lynnjackson.com	N/A	Web-based comments	4	N/A
Wright	Ryan	ryan@ryanwright.com	N/A	Web-based comments	4107	N/A
Wright	Sharon	not provided	N/A	Web-based Comments	28731	24
Wright	Sheila	not provided	N/A	Web-based Comments	46394	34
Wright	Sherry	not provided	N/A	Web-based Comments	28913	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Wright	Sue	not provided	N/A	Web-based Comments	29562	24
Wright	Susan	not provided	N/A	Web-based Comments	49131, 49132	34
Wright	Susan	not provided	N/A	Web-based Comments	29914	24
Wright	Terri	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4627	N/A
Wright	Tom	wright_tr@hotmail.com	N/A	Web-based comments	2911	8
Wright III	Trigg	not provided	N/A	Web-based Comments	30908	24
Wright, MD	Lara	not provided	N/A	Web-based Comments	20558	24
Wrightfrierson	Ginny	not provided	N/A	Web-based Comments	15082	24
Wrighty	Brian	not provided	N/A	Web-based Comments	9523	24
Wrigley	not provided	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	5525	N/A
Wroblewski	Robert	not provided	N/A	Web-based Comments	27414	24
Wrona	Darryl	not provided	N/A	Web-based Comments	54100	34
Wrona	Darryl	not provided	N/A	Web-based Comments	11902	24
Wrona	Diane	not provided	N/A	Web-based Comments	12924	24
Wrubel	Hayley	not provided	N/A	Web-based Comments	15484	24
Wu	Blake	not provided	N/A	Web-based Comments	48167, 48168	34
Wu	Blake	not provided	N/A	Web-based Comments	9219	24
Wu	Victoria	not provided	N/A	Web-based Comments	31234	24
Wuerthner	George	gwuerthner@gmail.com	N/A	Web-based comments	2859	N/A
Wueste	Mary	not provided	N/A	Web-based Comments	23474	24
Wuethrich	Linda	not provided	N/A	Web-based Comments	45139	34
Wullenwaber	Dana	not provided	N/A	Web-based Comments	55855, 55856	34
Wullenwaber	Dana	not provided	N/A	Web-based Comments	11714	24
Wurster	Jeanette	not provided	N/A	Web-based Comments	16919	24
Wurtz	William	not provided	N/A	Web-based Comments	31610	24
Wushensky	Sharon	not provided	N/A	Web-based Comments	58613	34
Wushensky	Sharon	not provided	N/A	Web-based Comments	28732	24
Wusterbarth-Brown	Sandy	not provided	N/A	Web-based Comments	55080	34
Wutzke	Laura	not provided	N/A	Web-based Comments	46973	34
Wyant	Linda	not provided	N/A	Web-based Comments	21465	24
Wyatt	Aimee	not provided	N/A	Web-based Comments	7137	24
Wyatt	Christina	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32372	30
Wyatt	Craig Dylan	not provided	N/A	Web-based Comments	11431	24
Wyatt	Dale	not provided	N/A	Web-based Comments	54587	34
Wyatt	Darlene	not provided	N/A	Web-based Comments	11888	24
wyaTT	jack	not provided	N/A	Web-based Comments	16048	24
Wyatt	Jennifer	not provided	N/A	Web-based Comments	48543	34
Wyatt	Jennifer	not provided	N/A	Web-based Comments	17281	24
Wyatt	Jill L	not provided	N/A	Web-based Comments	17554	24
Wyatt	Mary	not provided	N/A	Web-based Comments	23475	24
Wyatt	Mia	not provided	N/A	Web-based Comments	24009	24
Wyatt	Nora	not provided	N/A	Web-based Comments	25368	24
Wyatt	Pat	not provided	N/A	Web-based Comments	25679	24
Wyatt	Rebecca	not provided	N/A	Web-based Comments	26789	24
Wyatt	Toby	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	4231	N/A
Wyber	darlene	not provided	N/A	Web-based Comments	11889	24
Wyberg	Bryan	not provided	N/A	Web-based Comments	57821	34
Wyberg	Bryan	not provided	N/A	Web-based Comments	9640	24
Wyborski	Yuval	not provided	N/A	Web-based comments	56805	35
Wyckoff	Andrea	not provided	N/A	Web-based Comments	7781	24
Wyckoff	Jean	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	2531	5
Wyenn	Neil	not provided	N/A	Web-based Comments	25139	24
Wyer	Kathleen	not provided	N/A	Web-based Comments	53860	34
Wyett	RyAnn	not provided	N/A	Web-based Comments	48690	34
Wygant	Dan	not provided	N/A	Web-based Comments	52767	34
Wyland	Deborah	not provided	N/A	Web-based Comments	55304	34
Wylde	Caitlin	not provided	N/A	Web-based Comments	56597	34
Wyles	Regina	not provided	N/A	Web-based Comments	26810	24
Wylie	Chris	wylie@interzoic.com	N/A	Web-based comments	5990	N/A
Wylie	Joan	not provided	N/A	Web-based Comments	17759	24
Wyman	Elizabeth	not provided	N/A	Web-based Comments	13875	24
Wyman	Jean	not provided	N/A	Web-based Comments	54059	34
Wynn	Nicholas	not provided	N/A	Web-based Comments	25184	24
Wynn	Scott	not provided	N/A	Web-based Comments	54781, 54782	34
Wynn	Scott	not provided	N/A	Web-based Comments	28509	24
Wynn	Thomas	not provided	N/A	Web-based Comments	30563	24
Wynne	Diane	not provided	N/A	Web-based Comments	52090, 52091	34
Wynne	Janet	not provided	N/A	Web-based Comments	16656	24
Wynne	Judson	not provided	N/A	Web-based Comments	49134	34
Wynne	Keith	not provided	N/A	Web-based Comments	19888	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Wyoral	Susan	not provided	N/A	Web-based Comments	48838	34
Wyse	Margo	not provided	N/A	Web-based Comments	53874, 53875	34
Wyse	Rosemary	not provided	N/A	Web-based Comments	27773	24
Wysong	Wes	not provided	N/A	Web-based Comments	31463	24
Wysser	Jessica	not provided	N/A	Web-based comments	56697	35
Wysser - Martin	Colleen	not provided	N/A	Web-based Comments	11278	24
Wyville	Dale	not provided	N/A	Web-based Comments	11636	24
Wyzykiewicz	Stephen	not provided	N/A	Web-based Comments	29346	24
Xann	Amelia	not provided	N/A	Web-based Comments	7584	24
Xavier	Marjorie	not provided	N/A	Web-based Comments	49276	34
Xu	Cheng	not provided	N/A	Web-based Comments	10594	24
Y	G	not provided	N/A	Web-based Comments	47861	34
Y	G	not provided	N/A	Web-based Comments	14620	24
y	liana	not provided	N/A	Web-based Comments	47310	34
y	misa	not provided	N/A	Web-based Comments	24565	24
Y.	Maria	not provided	N/A	Web-based comments	4923	1
Ya	Misa	not provided	N/A	Web-based Comments	46039	34
Yacobian	Sona	not provided	N/A	Web-based Comments	29053	24
Yada	Terry	not provided	N/A	Web-based Comments	30389	24
Yaddow	Erica	not provided	N/A	Web-based Comments	14173	24
Yaeger	Renee	not provided	N/A	Web-based Comments	26861	24
Yaffe	Laurence	not provided	N/A	Web-based Comments	20804	24
Yaffe	Linda	not provided	N/A	Web-based comments	57166	35
Yaffe	Linda	not provided	N/A	Web-based Comments	52888	34
Yagodzinski	Janice	not provided	N/A	Web-based Comments	16711	24
Yah	Shi	shiyah95@outlook.com	N/A	Web-based comments	595	N/A
Yake	Roger	not provided	N/A	Web-based Comments	27596	24
Yamaguchi	Leah	not provided	N/A	Web-based Comments	44968	34
Yamartino	Robert	not provided	N/A	Web-based Comments	27415	24
Yamasaki	Valorie	not provided	N/A	Web-based Comments	31057	24
Yamauchi	Saeko	not provided	N/A	Web-based Comments	27988	24
Yancey	Bob	not provided	N/A	Web-based Comments	48617	34
Yancey	Leanne	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32542	13
Yancey	Leanne	tlyancey@myidahomail.com	N/A	Web-based comments	3754	11
Yancey	Summer	summery@stanthonymotors.com	N/A	Web-based comments	3874	11
Yancey	Tammy	not provided	N/A	Web-based Comments	30165	24
Yancey	Trent	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	56616	11
Yanez	Andrea	not provided	N/A	Web-based Comments	53248	34
Yang	Michelle	not provided	N/A	Web-based Comments	24405	24
Yang	Tony	not provided	N/A	Web-based Comments	30818	24
Yanke	Brian	not provided	N/A	Web-based Comments	46384	34
Yanke	Brian	not provided	N/A	Web-based Comments	9524	24
Yanko	Delores	not provided	N/A	Web-based Comments	12610	24
Yannetti	Gaelen	not provided	N/A	Web-based Comments	45660	34
Yans	Marie-Laurence	not provided	N/A	Web-based Comments	22740	24
Yao	Tina	not provided	N/A	Web-based Comments	52205	34
Yap	Lunardi	not provided	N/A	Web-based Comments	21981	24
Yarber	Tammy	not provided	N/A	Web-based Comments	30166	24
Yarbrough	Jim	not provided	N/A	Web-based Comments	49184, 49185	34
Yardley	Patricia	not provided	N/A	Web-based Comments	25875	24
Yarker	Jan	not provided	N/A	Web-based Comments	16444	24
Yarnell	Ellen	not provided	N/A	Web-based Comments	44682	34
Yarnell	Karen	not provided	N/A	Web-based Comments	48250	34
Yarnell	Karen	not provided	N/A	Web-based Comments	19252	24
Yarnell	Susan	not provided	N/A	Web-based Comments	54117	34
Yaron	Huberta	not provided	N/A	Web-based Comments	15815	24
Yarrobino	Erin	not provided	N/A	Web-based Comments	14241	24
Yassai	Michelle	not provided	N/A	Web-based Comments	24406	24
Yater	Jane	not provided	N/A	Web-based Comments	52956	34
Yaternick	Denise	not provided	N/A	Web-based Comments	12669	24
Yates	Alison	not provided	N/A	Web-based Comments	45281, 51002	34
Yates	Alison	not provided	N/A	Web-based Comments	7420	24
Yates	Cindy	not provided	N/A	Web-based Comments	45854, 45855	34
YATES	CINDY	not provided	N/A	Web-based Comments	11105	24
Yates	Geoff	not provided	N/A	Web-based Comments	48221	34
Yates	Jan	not provided	N/A	Web-based Comments	16445	24
yates	kenneth	not provided	N/A	Web-based Comments	20033	24
Yates	Pamela	not provided	N/A	Web-based Comments	44574	34
Yates	Pamela	not provided	N/A	Web-based Comments	25601	24
Yates	Patricia	not provided	N/A	Web-based Comments	25876	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Yates	Sylvia	not provided	N/A	Web-based Comments	30079	24
Yates	Teresa	not provided	N/A	Web-based Comments	30304	24
Yates	Valerie	not provided	N/A	Hand-delivered or oral testimony (personally delivered)	6940	N/A
Yborra	Gail	not provided	N/A	Web-based Comments	51251	34
Yborra	Gail	not provided	N/A	Web-based Comments	14724	24
Ye	Ann	not provided	N/A	Web-based Comments	8103	24
Yeager	Sky	not provided	N/A	Web-based Comments	56601	34
Yeaple	Joey	not provided	N/A	Web-based Comments	49577	34
Yearsley	Delmar	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58774	N/A
Yearsley	DeWaine	dewaine@cox.net	N/A	Web-based comments	6045	N/A
Yee	C.	not provided	N/A	Web-based Comments	9699	24
Yee	Cathy	not provided	N/A	Web-based Comments	10400	24
Yee	Daphne	not provided	N/A	Web-based Comments	11845	24
Yee	Dennis	not provided	N/A	Web-based Comments	48502, 48503	34
Yee	Mary	not provided	N/A	Web-based Comments	23476	24
Yee	Peter	not provided	N/A	Web-based Comments	26302	24
Yeilding	Nancy	not provided	N/A	Web-based Comments	25021	24
Yelenick	Lisa	not provided	N/A	Web-based Comments	56326	34
Yentsch	Thomas	not provided	N/A	Web-based Comments	50810	34
Yeomans	Gregg	not provided	N/A	Web-based Comments	15266	24
YEONG	JON	not provided	N/A	Web-based Comments	18268	24
Yerden	Carol	not provided	N/A	Web-based Comments	45137, 45138	34
Yerger	Carol	not provided	N/A	Web-based Comments	10059	24
Yerger	James	not provided	N/A	Web-based Comments	16335	24
Yermak	Iris Patty	not provided	N/A	Web-based Comments	46763	34
Yersak	Darene	not provided	N/A	Web-based Comments	11858	24
Yetter	Judy	not provided	N/A	Web-based Comments	18731	24
Yetter	Matt	YETTER.MATHEW@GMAIL.COM	N/A	Web-based comments	3020	N/A
yocum	chris	not provided	N/A	Web-based Comments	10796	24
Yoder	Pam	not provided	N/A	Web-based Comments	25519	24
Yogev	Yonit	not provided	N/A	Web-based Comments	48525	34
Yogev	Yonit	not provided	N/A	Web-based Comments	31673	24
Yogis	Ciel	not provided	N/A	Web-based comments	1355	2
Yohe	Bonnnie	not provided	N/A	Web-based Comments	9334	24
Yoho	Brad	not provided	N/A	Web-based Comments	53637	34
Yondorf	Lisa	not provided	N/A	Web-based Comments	21658	24
YONKER	ASHLEY	not provided	N/A	Web-based Comments	8502	24
Yoon	Michelle	not provided	N/A	Web-based Comments	24407	24
Yord	Rick	not provided	N/A	Web-based Comments	27107	24
York	Barbara	not provided	N/A	Web-based Comments	8829	24
York	Glen	not provided	N/A	Web-based Comments	15118	24
York	Lesley	not provided	N/A	Web-based Comments	53436	34
York	RedLion	not provided	N/A	Web-based Comments	54923	34
York	RedLion	not provided	N/A	Web-based Comments	26795	24
York	Robert	not provided	N/A	Web-based Comments	27416	24
York	Thomas	not provided	N/A	Web-based Comments	30564	24
Yoshino	Trudie	not provided	N/A	Web-based Comments	30942	24
Yost	Carol	not provided	N/A	Web-based Comments	45679	34
yost	derek	dny8088@gmail.com	N/A	Web-based comments	1885	N/A
Yost	Leslie	not provided	N/A	Web-based Comments	51640	34
Yost	Viviana	not provided	N/A	Web-based Comments	31326	24
You	Rob	not provided	N/A	Web-based Comments	27191	24
You	Sam	not provided	N/A	Web-based Comments	46718	34
Youabian	Anita	not provided	N/A	Web-based Comments	54513, 54514, 54515	34
youd	mark	not provided	N/A	Web-based Comments	51747	34
youd	mark	not provided	N/A	Web-based Comments	23011	24
Youens	Rachel	not provided	N/A	Web-based Comments	26558	24
Youmans	K.	not provided	N/A	Web-based Comments	55844	34
Young	Abby	not provided	N/A	Web-based Comments	7016	24
Young	Alison	not provided	N/A	Web-based Comments	7421	24
Young	Amanda	not provided	N/A	Web-based Comments	7560	24
Young	Anne	not provided	N/A	Web-based Comments	51104, 51105, 51106	34
Young	David	young.davea@gmail.com	N/A	Web-based comments	678	2
Young	Deborah	not provided	N/A	Web-based Comments	12493	24
young	Dena Maguire	not provided	N/A	Web-based Comments	46927	34
Young	Denise	not provided	N/A	Web-based Comments	12670	24
Young	Dennis	not provided	N/A	Web-based Comments	12713	24
Young	Donald	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32326	29
Young	Doug	not provided	N/A	Web-based Comments	13319	24
young	gail	not provided	N/A	Web-based Comments	54458	34

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Young	Georgiann	not provided	N/A	Web-based Comments	56013	34
Young	Grace	not provided	N/A	Web-based Comments	15204	24
Young	Jane	not provided	N/A	Web-based Comments	16547	24
Young	Jo	not provided	N/A	Web-based Comments	17656	24
Young	John and Sherry	not provided	N/A	Web-based Comments	18217	24
Young	Josh	not provided	N/A	Web-based Comments	18425	24
young	karen	not provided	N/A	Web-based Comments	46392	34
Young	Kathryn	not provided	N/A	Web-based Comments	55695	34
Young	Kimberly	not provided	N/A	Web-based Comments	20256	24
Young	Larry	not provided	N/A	Web-based Comments	20593	24
Young	Lois	not provided	N/A	Web-based Comments	21734	24
Young	Lowell	not provided	N/A	Web-based Comments	21911	24
Young	Marie	not provided	N/A	Web-based Comments	48829	34
Young	Marie	not provided	N/A	Web-based Comments	22731	24
Young	Martha	not provided	N/A	Web-based Comments	23140	24
Young	Michael	not provided	N/A	Web-based Comments	24254	24
young	michelle	not provided	N/A	Web-based Comments	24408	24
Young	Muriel	not provided	N/A	Web-based Comments	24699	24
Young	Nancy	not provided	N/A	Web-based Comments	25022	24
Young	Noel	not provided	N/A	Web-based Comments	25339	24
Young	Pareese	not provided	N/A	Web-based Comments	25618	24
Young	Rebecca	youngreb@gmail.com	N/A	Web-based comments	5152	N/A
Young	Rhiannon	not provided	N/A	Web-based comments	56824	35
Young	Ria	not provided	N/A	Web-based Comments	26913	24
Young	Richard	not provided	N/A	Web-based Comments	27076	24
Young	Robert	not provided	N/A	Web-based Comments	27417	24
Young	Roberta	not provided	N/A	Web-based Comments	44858	34
Young	Roberta	not provided	N/A	Web-based Comments	27457	24
Young	Sandy	not provided	N/A	Web-based Comments	28266	24
Young	Sharon	not provided	N/A	Web-based Comments	28733	24
Young	Sheryl	not provided	N/A	Web-based Comments	28929	24
Young	Susan	not provided	N/A	Web-based Comments	29915	24
Young	Tanya	not provided	N/A	Web-based Comments	30196	24
Young	Teresa	not provided	N/A	Web-based Comments	50305	34
Young	Teresa	not provided	N/A	Web-based Comments	30305	24
Young	Tod	ylittlefeet@aol.com	N/A	Web-based comments	31796	N/A
Young	William	not provided	N/A	Web-based Comments	51937, 51938	34
Young	William	not provided	N/A	Web-based Comments	31611	24
Youngelson	Noah	not provided	N/A	Web-based Comments	52372	34
YOUNGMARTIN	CAMILLE	not provided	N/A	Web-based Comments	9749	24
Youngquist	Barbara	not provided	N/A	Web-based Comments	8830	24
Youngquist	Eric	not provided	N/A	Web-based Comments	49743	34
Youngquist-Thurow	Miriam	not provided	N/A	Web-based Comments	24561	24
Youngs	Gail	not provided	N/A	Web-based Comments	14725	24
Youngstrom	David	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32409	13
Younis	Mona	not provided	N/A	Web-based Comments	24612	24
Younkin	Katarina	ky@skykos.com	N/A	Web-based comments	2548	5
Younkin	Skyler	younksky@gmail.com	N/A	Web-based comments	5049	N/A
Youra	Gary	not provided	N/A	Web-based Comments	14807	24
Youren	Joseph	yourenjoseph@gmail.com	N/A	Web-based comments	2246	N/A
Yourke	Oliver	not provided	N/A	Web-based Comments	25433	24
Youtz	Charles	not provided	N/A	Web-based Comments	10542	24
Yow	Janie	not provided	N/A	Web-based Comments	16722	24
Yow	Ray	not provided	N/A	Web-based Comments	51214, 51215, 51216	34
Yow	Ray	not provided	N/A	Web-based Comments	26680	24
Yozova	Albena	not provided	N/A	Web-based Comments	7206	24
Yrastorza	Teresa	not provided	N/A	Web-based Comments	54063	34
Yribar	Rita	not provided	N/A	Web-based Comments	27159	24
Yrjanson	Richard	dyrjanson@hotmail.com	N/A	Web-based comments	3011*	N/A
Ysasi	Wendy	not provided	N/A	Web-based Comments	46115	34
Ysita	Eugenia	not provided	N/A	Web-based Comments	14305	24
Yu	Hweiju	not provided	N/A	Web-based Comments	15823	24
Yu	Katie	not provided	N/A	Web-based Comments	19798	24
yudell	j	not provided	N/A	Web-based Comments	15999	24
Yudenfreund-Sujka	Shari	not provided	N/A	Web-based Comments	28617	24
Yueh	Cassidy	not provided	N/A	Web-based Comments	10239	24
Yuinada	Maki	not provided	N/A	Web-based Comments	22287	24
Yule	Cynthia	not provided	N/A	Web-based Comments	11567	24
Yules	Gary	not provided	N/A	Web-based Comments	14808	24
Yun	Allen	not provided	N/A	Web-based Comments	54303	34

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Yunker	Mary	not provided	N/A	Web-based Comments	23477	24
Yurchuck	Ruth	not provided	N/A	Web-based Comments	27893	24
Yurick	Adrienne	not provided	N/A	Web-based Comments	7106	24
Yurkanin	Eric	not provided	N/A	Web-based Comments	14153	24
Yurosko	Beth	not provided	N/A	Web-based Comments	9061	24
Yuschak	Mark	not provided	N/A	Web-based Comments	23012	24
Yusen	Lila	not provided	N/A	Web-based Comments	21156	24
Yutzy	Glenn	not provided	N/A	Web-based Comments	15141	24
Z	Amanda	not provided	N/A	Web-based Comments	47775	34
Z	Cindy	not provided	N/A	Web-based Comments	11106	24
Z	Estela	not provided	N/A	Web-based Comments	55053	34
Z	Jana	not provided	N/A	Web-based comments	32069	1
Z	Leah	not provided	N/A	Web-based Comments	56509	34
Z	Sherry	not provided	N/A	Web-based comments	1835	N/A
Z	Veronica	not provided	N/A	Web-based Comments	55198	34
Z.	B.	not provided	N/A	Web-based Comments	49638	34
Zabala	Kyle	not provided	N/A	Web-based Comments	20462	24
Zabel	Loretta	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	58762	N/A
Zabel	Pamela	not provided	N/A	Web-based Comments	25602	24
Zaber	Pam	not provided	N/A	Web-based Comments	25520	24
Zaborac	Elise	not provided	N/A	Web-based Comments	51812	34
Zabrowski	Robert	robert.zabrowski@jacobs.com	N/A	Web-based comments	4522*	N/A
Zaccanti	Daniel	dzaccanti@yahoo.com	N/A	Web-based comments	2405	N/A
Zacchino	Stephanie	not provided	N/A	Web-based Comments	29266	24
Zachary	Thomas	not provided	N/A	Web-based Comments	52032, 52033	34
Zachary	Thomas	not provided	N/A	Web-based Comments	30565	24
Zachele	Max	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32447	32
Zachmann	Alice	not provided	N/A	Web-based Comments	57852	34
Zachritz	Todd	not provided	N/A	Web-based Comments	30732	24
Zachwieja	John	not provided	N/A	Web-based Comments	18208	24
Zack	Alicia	not provided	N/A	Web-based Comments	51899	34
Zack	Mary	not provided	N/A	Web-based Comments	48099, 48100	34
Zack	Mary	not provided	N/A	Web-based Comments	23478	24
Zackrone	Alex	not provided	N/A	Web-based Comments	7255	24
Zadkovic	Lynn	not provided	N/A	Web-based Comments	22109	24
Zadnik	Crystal	not provided	N/A	Web-based comments	57192	35
Zafiropoulou	Mandy	not provided	N/A	Web-based Comments	48020	34
Zagorski	Daria	not provided	N/A	Web-based Comments	11863	24
Zagorski	Daria H.	not provided	N/A	Web-based Comments	46258, 46259	34
Zagrodnik	Jeanne	not provided	N/A	Web-based Comments	16978	24
Zagrodzinska	Katarzyna	not provided	N/A	Web-based Comments	19363	24
zahadek	clara	not provided	N/A	Web-based Comments	55420	34
Zahler	Mary	not provided	N/A	Web-based Comments	55398	34
Zahn	Dustin	not provided	N/A	Web-based Comments	13395	24
Zahnen	Patricia	not provided	N/A	Web-based Comments	25877	24
zahner	steve	not provided	N/A	Web-based Comments	29415	24
Zahra	Raymond	not provided	N/A	Web-based Comments	51669	34
Zainko	Sonia	not provided	N/A	Web-based Comments	29069	24
zaitlin	j.a.	not provided	N/A	Web-based Comments	16015	24
Zalenski	Edwin	not provided	N/A	Web-based Comments	13527	24
ZALES	LISA	not provided	N/A	Web-based Comments	21659	24
Zalk	Lyn	not provided	N/A	Web-based Comments	22013	24
Zaloski	Shari	not provided	N/A	Web-based Comments	28618	24
zalud	martin	not provided	N/A	Web-based Comments	23180	24
Zamagni	Mary	not provided	N/A	Web-based Comments	47966	34
Zamagni	Mary	not provided	N/A	Web-based Comments	23479	24
Zamalloa	Teresa	not provided	N/A	Web-based Comments	30306	24
Zaman-Zade	Rena	not provided	N/A	Web-based Comments	52642	34
Zaman-Zade	Rena	not provided	N/A	Web-based Comments	26820	24
Zamarripa	Juan A.	not provided	N/A	Web-based Comments	18528	24
Zamazal	Aslan	not provided	N/A	Web-based comments	57383	35
Zambelli	belen	not provided	N/A	Web-based Comments	8922	24
Zambelli	Renee	not provided	N/A	Web-based Comments	26862	24
Zambik	Jean	not provided	N/A	Web-based Comments	16899	24
Zambrana	Cristina	not provided	N/A	Web-based Comments	11450	24
Zambrano	Maria	not provided	N/A	Web-based Comments	22638	24
Zamm	Michael	not provided	N/A	Web-based Comments	24255	24
Zamor	Bob	not provided	N/A	Web-based Comments	9260	24
Zamora	Denise	not provided	N/A	Web-based Comments	12671	24
Zamora	Frankie	not provided	N/A	Web-based Comments	14557	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Zamora	Jossy	not provided	N/A	Web-based Comments	47849	34
Zamora	Jossy	not provided	N/A	Web-based Comments	18447	24
Zamora	Rebecca	not provided	N/A	Web-based Comments	26790	24
Zamos	John	not provided	N/A	Web-based Comments	18209	24
Zampieri	Janet	not provided	N/A	Web-based Comments	44844, 44845	34
Zamudio	A.	not provided	N/A	Web-based Comments	52329	34
Zamudio	A.	not provided	N/A	Web-based Comments	6985	24
Zamzow	Consuelo	not provided	N/A	Web-based Comments	11354	24
Zamzow	Douglas	dszamzow@gmail.com	N/A	Web-based comments	4065	N/A
ZANARDELLI	DAVID	not provided	N/A	Web-based Comments	54669	34
ZANARDELLI	DAVID	not provided	N/A	Web-based Comments	12184	24
Zanavich	Greg	not provided	N/A	Web-based comments	3661	N/A
Zancan	Anna	not provided	N/A	Web-based Comments	45558	34
Zanders	Marya	not provided	N/A	Web-based Comments	23553	24
Zandvakili	Katayoon	not provided	N/A	Web-based Comments	48644	34
Zanella	Ilaria	not provided	N/A	Web-based Comments	15847	24
Zanetakos	Nicole	not provided	N/A	Web-based Comments	25263	24
Zanin	Paola Donata	not provided	N/A	Web-based Comments	25614	24
Zaninotti Malho	Elaine Cristina	not provided	N/A	Web-based Comments	13621	24
Zaninovich	Sandra	not provided	N/A	Web-based Comments	44283	34
Zankel	Hilary	not provided	N/A	Web-based Comments	15706	24
Zanmiller	Therese Ann	not provided	N/A	Web-based Comments	47780	34
Zanney	Shawna	not provided	N/A	Web-based Comments	28762	24
Zannou	Tatiana	not provided	N/A	Web-based Comments	53464	34
Zanzonico	Debra	not provided	N/A	Web-based Comments	12563	24
Zapata	Cinthia	not provided	N/A	Web-based comments	57361	35
Zapf	Dr	holly.zapf@gmail.com	N/A	Web-based comments	4890	19
Zapf	Holly	not provided	N/A	Web-based Comments	50434	34
Zapf	Richard	not provided	N/A	Web-based Comments	27077	24
Zarchin	Paul	not provided	N/A	Web-based Comments	26063	24
Zaremski	Joe	not provided	N/A	Web-based Comments	17903	24
Zaricor	Dorien	not provided	N/A	Web-based Comments	13220	24
Zarkhosh	Helia	not provided	N/A	Web-based Comments	15648	24
Zarn	Ciara	not provided	N/A	Web-based comments	56721	35
Zarraga	Nellie	not provided	N/A	Web-based Comments	25145	24
Zarski	Sylvia	not provided	N/A	Web-based Comments	58459	34
Zarur	Carlos	not provided	N/A	Web-based Comments	49995, 49996	34
Zaslaw	Susan	not provided	N/A	Web-based Comments	29916	24
Zastrow-Hendrickson	Lila-Dave	not provided	N/A	Web-based Comments	44898	34
Zatarack	Eric	not provided	N/A	Web-based Comments	14154	24
Zatirka	Theresa	not provided	N/A	Web-based Comments	30454	24
Zatrine	Barbara	not provided	N/A	Web-based Comments	8831	24
Zaugg	Alonzo	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32523	13
Zaumyslova	Olga	not provided	N/A	Web-based Comments	54277	34
Zavaro	Mario	not provided	N/A	Web-based Comments	55410	34
Zbiegien	George	not provided	N/A	Web-based Comments	55797, 55798	34
Zdobinski	Deborah	not provided	N/A	Web-based Comments	56235	34
Zdybel	Mario	not provided	N/A	Web-based Comments	22848	24
Zecchino	Elsie	not provided	N/A	Web-based Comments	13990	24
zech	Gisela	not provided	N/A	Web-based Comments	54141	34
Zechmann	Sarah	not provided	N/A	Web-based Comments	53046	34
zechmeister	gisela	not provided	N/A	Web-based Comments	15095	24
Zedek	Karen & Rabbi Michael	not provided	N/A	Web-based Comments	19255	24
Zedler	Matt	not provided	N/A	Web-based Comments	23627	24
Zee	Ali Van	not provided	N/A	Web-based Comments	45816	34
Zeeck	Glen	not provided	N/A	Web-based Comments	15119	24
Zeek	Molly	not provided	N/A	Web-based comments	57376	35
Zeff	Felicia Chase	not provided	N/A	Web-based Comments	56430, 56431	34
Zeh	Lisa	not provided	N/A	Web-based Comments	21660	24
Zehel	Rae	not provided	N/A	Web-based Comments	26572	24
Zehner	Kristen	not provided	N/A	Web-based Comments	20352	24
Zeiberg	Sarah	not provided	N/A	Web-based Comments	28422	24
Zeiger-May	Gretchen	not provided	N/A	Web-based Comments	15319	24
Zeiher	Thyra	not provided	N/A	Web-based Comments	30574	24
Zeis	Mary Lou	not provided	N/A	Web-based Comments	44292, 44293	34
ZEIS	MARY LOU	not provided	N/A	Web-based Comments	23542	24
Zeit	Steven	not provided	N/A	Web-based Comments	29479	24
Zeitler	Katherine	not provided	N/A	Web-based Comments	44698	34

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Zeitler	Katherine	not provided	N/A	Web-based Comments	19495	24
Zeitman	Debbie	not provided	N/A	Web-based Comments	12355	24
Zelasko	Sandy	not provided	N/A	Web-based Comments	28267	24
Zelenak	Alice	not provided	N/A	Web-based Comments	7372	24
Zeljak	Mark	not provided	N/A	Web-based Comments	46229	34
Zelke	Estelle	not provided	N/A	Web-based Comments	14268	24
ZELL	Sabine	not provided	N/A	Web-based Comments	27977	24
Zeller	Rudy	not provided	N/A	Web-based Comments	50231	34
Zeller	Rudy	not provided	N/A	Web-based Comments	27817	24
Zelman	Stephen	not provided	N/A	Web-based Comments	29347	24
Zelmanovich	Silvana Zelmanovich	not provided	N/A	Web-based Comments	55471, 55472	34
Zelner	Michael	not provided	N/A	Web-based Comments	24256	24
Zelnio	Diana	not provided	N/A	Web-based Comments	54741	34
Zelt	martie	not provided	N/A	Web-based Comments	23148	24
Zemek	Ruth	not provided	N/A	Web-based Comments	50389	34
Zenack	Samantha	not provided	N/A	Web-based Comments	28091	24
Zenker	Rev. Elizabeth	not provided	N/A	Web-based Comments	46535, 46536, 46537	34
Zenko	Tina	not provided	N/A	Web-based Comments	30700	24
Zens	Christine	not provided	N/A	Web-based Comments	53745	34
Zenteno	Laura	not provided	N/A	Web-based Comments	20722	24
Zentura	Ms	not provided	N/A	Web-based Comments	24686	24
Zepeda	Esther	not provided	N/A	Web-based Comments	14279	24
Zepeda	Luis	not provided	N/A	Web-based comments	1298	2
Zeplin	Robin	not provided	N/A	Web-based Comments	27540	24
Zeppetelli	Laura	not provided	N/A	Web-based comments	56708	35
Zerr	Laura	not provided	N/A	Web-based Comments	50346	34
Zerzan	Paula	not provided	N/A	Web-based Comments	54617	34
Zerzan	Paula	not provided	N/A	Web-based Comments	26107	24
Zeveloff	L.	not provided	N/A	Web-based Comments	44757	34
Zhugayevich	Olga	not provided	N/A	Web-based Comments	25430	24
Ziaeepour	Houri	houriziaeepour@gmail.com	N/A	Web-based comments	2902	N/A
Zias	Monica	not provided	N/A	Web-based Comments	45091	34
Zicht	Louis	not provided	N/A	Web-based Comments	21878	24
Zickefoose	Jessica	not provided	N/A	Web-based Comments	56089	34
Zickefoose	Jessica	not provided	N/A	Web-based Comments	17478	24
Zickur	Tracy	not provided	N/A	Web-based Comments	48542	34
Zidian	Brian	not provided	N/A	Web-based Comments	9525	24
Zieba	P & T	not provided	N/A	Web-based Comments	25469	24
Ziegler	Barbara	not provided	N/A	Web-based Comments	8832	24
Ziegler	Cindy	not provided	N/A	Web-based Comments	11107	24
Ziegler	Dawn	not provided	N/A	Web-based Comments	49640	34
Ziegler	John	not provided	N/A	Web-based Comments	18210	24
Ziegler	Nora	not provided	N/A	Web-based Comments	25369	24
ziegler	russ	not provided	N/A	Web-based Comments	54111	34
Ziegler	Russell	not provided	N/A	Web-based Comments	45740	34
Ziehnert	Dick	dickz@inlandpower.com	N/A	Web-based comments	2519	7
Zielonka	Beata	not provided	N/A	Web-based Comments	8887	24
Ziembicki	John	not provided	N/A	Web-based Comments	18211	24
Ziemian	Barbara	not provided	N/A	Web-based Comments	8833	24
Ziems	Brittany	brittany.ziems@gmail.com	N/A	Web-based comments	6843	1
Zierikzee	R.	not provided	N/A	Web-based Comments	55796	34
Ziese	Marci	not provided	N/A	Web-based comments	57621	35
ziesmer	rosi	not provided	N/A	Web-based Comments	27776	24
Zietsman	Jackie	not provided	N/A	Web-based Comments	55423	34
Ziffer	Claire	not provided	N/A	Web-based Comments	11152	24
Ziliak	Beth	not provided	N/A	Web-based Comments	9062	24
Ziller	Gloria and Bob	not provided	N/A	Web-based Comments	15174	24
Zilliacus	Karin	not provided	N/A	Web-based Comments	19291	24
Zilliox	Susan	not provided	N/A	Web-based Comments	29917	24
Zim	Lawrence	not provided	N/A	Web-based Comments	20890	24
Zimba	Pamela	not provided	N/A	Web-based Comments	25603	24
Zimenko	Alexey	not provided	N/A	Web-based Comments	7299	24
Zimmer	Catherine	not provided	N/A	Web-based Comments	58422	34
Zimmer	Cheryn	not provided	N/A	Web-based Comments	10685	24
Zimmerman	Candise	not provided	N/A	Web-based Comments	9766	24
Zimmerman	Johnette	not provided	N/A	Web-based Comments	18228	24
Zimmerman	Julia	juliazimmerman777@gmail.com	N/A	Web-based comments	4503	N/A
Zimmerman	Kathleen	not provided	N/A	Web-based Comments	19609	24

Commenter Last Name	Commenter First Name	Commenter Email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Zimmerman	Leda	not provided	N/A	Web-based Comments	20923	24
Zimmerman	Nancy	not provided	N/A	Web-based Comments	25023	24
Zimmerman	Paulette	not provided	N/A	Web-based Comments	50415, 57793	34
Zimmerman	Paulette	not provided	N/A	Web-based Comments	26117	24
ZIMMERMAN	SHERYL	not provided	N/A	Web-based Comments	28930	24
Zimmermann	Cynthia	not provided	N/A	Web-based Comments	54582	34
Zimmermann	Gaby	not provided	N/A	Web-based Comments	14655	24
Zimmermann	Olivier	not provided	N/A	Web-based Comments	25440	24
Zimmermann	Richard	not provided	N/A	Web-based Comments	45655	34
Zimney	Gerard	not provided	N/A	Web-based Comments	14979	24
Zimny	Susan	not provided	N/A	Web-based Comments	29918	24
Zinan	Roberta	not provided	N/A	Web-based Comments	27458	24
Zinck	James	not provided	N/A	Web-based Comments	16336	24
Zinder	David	not provided	N/A	Web-based Comments	50731	34
Zindler	Meg	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	4779	18
Zingg	Barbara	not provided	N/A	Web-based Comments	52801, 52802	34
Zingg	Barbara	not provided	N/A	Web-based Comments	8834	24
Zink	Vivien	not provided	N/A	Web-based Comments	50860	34
Zinn	Andrea	not provided	N/A	Web-based Comments	48474	34
Zinn	Andrea	not provided	N/A	Web-based Comments	7782	24
Zinn	Martha and Jim	not provided	N/A	Web-based Comments	23141	24
Zinn	Robert	not provided	N/A	Web-based Comments	27418	24
Zinner	Janet	not provided	N/A	Web-based Comments	47314	34
Zinter	Yvonne	not provided	N/A	Web-based Comments	51726	34
Zinzi	Nicholas	not provided	N/A	Web-based Comments	25185	24
Zinzi	Shanti	not provided	N/A	Web-based Comments	55266, 55265	34
Zipperer	Kathy	not provided	N/A	Web-based Comments	19777	24
Zirasri	Ran	not provided	N/A	Web-based Comments	26610	24
Zirkelbach	Richard	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	32540	11
Zisselman	Irv	not provided	N/A	Web-based Comments	15926	24
ZITIS	JAMES	not provided	N/A	Web-based Comments	52104	34
ZITIS	JAMES	not provided	N/A	Web-based Comments	16337	24
Zito and Family	NOLA	not provided	N/A	Web-based Comments	25348	24
Zivley	Bruce	not provided	N/A	Web-based Comments	55823, 55824	34
Zizza	Daniel	not provided	N/A	Web-based Comments	55720	34
Zlatanova	Ryan	not provided	N/A	Web-based Comments	27931	24
Zlatev	Konstantin	not provided	N/A	Web-based Comments	20306	24
Zlatich	Bob	not provided	N/A	US Mail or commercial carrier (UPS, FedEx)	56676	N/A
Zlatkin	Ira	not provided	N/A	Web-based Comments	15892	24
Zlotoff	Mary	not provided	N/A	Web-based Comments	23480	24
Zoah-Henderson	Richard	not provided	N/A	Web-based Comments	54754	34
Zober	Pinina pamela	not provided	N/A	Web-based Comments	26412	24
Zocchi	Joseph	Jzocchi@earthlink.net	N/A	Web-based comments	3012	N/A
Zoch	Vicki Ann	not provided	N/A	Web-based Comments	31156	24
Zoet	Tom and Liz	not provided	N/A	Web-based Comments	30784	24
Zollars	Teresa	not provided	N/A	Web-based Comments	50409	34
Zollinger	Jann	zolljann@isu.edu	N/A	Web-based comments	31806*	11
Zollinger	Susan	not provided	N/A	Web-based Comments	29919	24
Zolnoski	Elektra	not provided	N/A	Web-based Comments	51966	34
Zolnoski	Elektra	not provided	N/A	Web-based Comments	13643	24
Zolotareva	Tatiana	not provided	N/A	Web-based Comments	30224	24
Zondag	Craig	not provided	N/A	Web-based Comments	11430	24
Zontek	Ken	not provided	N/A	Web-based Comments	47146, 47147, 47148	34
Zor	D.J.	david.zorii@gmail.com	N/A	Web-based comments	3042	8
Zorc	Scott	not provided	N/A	Web-based Comments	28510	24
zore	rita	not provided	N/A	Web-based Comments	27160	24
Zorn	Glen	not provided	N/A	Web-based Comments	15120	24
Zoromsky	Sara	not provided	N/A	Web-based Comments	28320	24
Zorumski	Olivia	not provided	N/A	Web-based Comments	25438	24
Zotos	Bonnie	not provided	N/A	Web-based Comments	49164	34
Zotos	Bonnie	not provided	N/A	Web-based Comments	9331	24
Zoubek	Thomas	not provided	N/A	Web-based Comments	30566	24
zu Windischgraetz	Katalin	not provided	N/A	Web-based Comments	19359	24
zubani	marilena	not provided	N/A	Web-based Comments	22759	24
Zuberblat	Ronen	not provided	N/A	Web-based Comments	27682	24
Zubkis	Maxim	maximzubkis@yahoo.com	N/A	Web-based comments	1739	1
Zubko	James	not provided	N/A	Web-based Comments	16338	24
Zuckerman	Andrea	not provided	N/A	Web-based Comments	7783	24
Zuckerman	Arlene	not provided	N/A	Web-based Comments	48391	34
Zuckerman	Jan	ses_janz@yahoo.com	N/A	Web-based comments	2517	N/A

Commenter Last Name	Commenter First Name	Commenter email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
Zuckerman	Josh	not provided	N/A	Web-based Comments	18426	24
Zuger	Scott	swzuger@lctinc.biz	N/A	Web-based comments	3208	N/A
Zukoski	Katie	not provided	N/A	Web-based Comments	48248	34
Zukoski	Katie	not provided	N/A	Web-based Comments	19799	24
Zuleta	Laura	not provided	N/A	Web-based Comments	47293, 47294	34
Zuniga	Arleen	not provided	N/A	Web-based Comments	8420	24
Zupancic	Jodie	not provided	N/A	Web-based Comments	17860	24
Zupich	Kelly	not provided	N/A	Web-based Comments	19951	24
Zure	Lisa	not provided	N/A	Web-based Comments	50256	34
Zurn	Kathy	not provided	N/A	Web-based Comments	19778	24
Zwerner	Deborah	not provided	N/A	Web-based Comments	12494	24
Zwing	Katharina Karin	not provided	N/A	Web-based Comments	19412	24
Zwingelberg	Sandra M	not provided	N/A	Web-based Comments	53815	34
Zych	Karen	not provided	N/A	Web-based Comments	19253	24
Zygmund	Don	not provided	N/A	Web-based Comments	13045	24
Zygo	Brian	not provided	N/A	Web-based Comments	9526	24
Zyla	Alison	not provided	N/A	Web-based Comments	7422	24
Zylberberg	Maxine	not provided	N/A	Web-based Comments	23753	24
Zylkuski Norris	Cindy	not provided	N/A	Web-based Comments	11108	24
Zylkuski Norris	Stanley	not provided	N/A	Web-based Comments	56282	34
Zywan	Katherine Barrett	not provided	N/A	Web-based Comments	47256, 47257	34
Zywan	Katherine Barrett	not provided	N/A	Web-based Comments	19496	24
ZZ	S	not provided	N/A	Web-based Comments	27953	24
	S	not provided	N/A	Web-based Comments	27934	24
ANONYMOUS						
not provided	not provided	not provided	N/A	Web-based comments	1, 6, 8, 12, 19, 25, 26, 35, 36, 45, 47, 64, 70, 72, 83, 106, 113, 123, 134, 151, 156, 167, 178, 191, 192, 198, 222, 227, 232, 233, 238, 250, 319, 335, 391, 412, 423, 454, 455, 517, 520, 530, 550, 551, 554, 557, 558, 560, 561, 567, 572, 574, 585, 587, 604, 615, 619, 623*, 629, 638, 640, 641, 643, 646, 664, 665, 676, 680, 683, 685, 701, 703, 704, 709, 721, 727, 735, 744, 755, 769, 772, 781, 790, 797, 810, 815, 826, 829, 840, 846, 851, 860, 865, 918, 919, 921, 935, 946, 950, 953, 955, 964, 966, 969, 975, 981, 984, 994, 1002, 1004, 1008, 1013, 1017, 1020, 1025, 1036, 1038, 1041, 1042, 1044, 1047, 1050, 1057, 1058, 1064, 1070, 1078, 1084, 1093, 1100, 1108, 1118, 1121, 1122, 1131, 1134, 1135, 1139, 1155, 1163, 1164, 1172, 1174, 1178, 1188, 1218, 1234, 1239, 1252, 1260, 1261, 1263, 1272, 1289, 1302, 1305, 1311, 1314, 1322, 1323, 1324, 1339, 1351, 1381, 1390, 1393, 1394, 1404, 1412, 1419, 1423, 1439, 1448, 1461, 1493, 1510, 1517, 1519, 1534, 1558, 1560, 1566, 1660, 1689, 1700, 1702, 1715, 1782, 1788, 1800, 1814, 1819, 1823, 1826, 1828, 1829, 1860, 1864, 1868, 1880, 1888, 1905, 1913, 1920, 1921, 1923, 1978, 1986*, 1995, 1997, 1999, 2028, 2038, 2052, 2065, 2074, 2080, 2086, 2091, 2097, 2099, 2102, 2118, 2120, 2134, 2148, 2154, 2157, 2159, 2163, 2164, 2168, 2174, 2188, 2190, 2194, 2197, 2199, 2208, 2210, 2225, 2231, 2238, 2247, 2265, 2269, 2275, 2284, 2285, 2287, 2294, 2295, 2296, 2299, 2307, 2313, 2315, 2318, 2324, 2328, 2336, 2343, 2346, 2347, 2354, 2364, 2366, 2368, 2369, 2370, 2385, 2386, 2395, 2407, 2425, 2453, 2477, 2482, 2496, 2503, 2509, 2539, 2542, 2543, 2547, 2550, 2551, 2557, 2558, 2565, 2568, 2569, 2571, 2594, 2596, 2602, 2611, 2614, 2619, 2623, 2624, 2626, 2636, 2641, 2642, 2648, 2669, 2674, 2677, 2678, 2682, 2687, 2691, 2694, 2695, 2701, 2703, 2708, 2710, 2715, 2718, 2719, 2722, 2723, 2726, 2727, 2729, 2731, 2737, 2740, 2743, 2744, 2749, 2754, 2759, 2769, 2770, 2772, 2794, 2796, 2810, 2822, 2823, 2827, 2829, 2830, 2831, 2836, 2851, 2852, 2863, 2876, 2878, 2893, 2894, 2896, 2897, 2898, 2903, 2906, 2907, 2937, 2943, 2944, 2945, 2954, 2956, 2958, 2959, 2987, 2992, 3002, 3003, 3014, 3015, 3021, 3023, 3031, 3036, 3037, 3055, 3061, 3062, 3067, 3084, 3093, 3100, 3109, 3125, 3127, 3133, 3134, 3137, 3145, 3153, 3171, 3178, 3182, 3183, 3189, 3193, 3194, 3195, 3196, 3201, 3206, 3228, 3234, 3235, 3240, 3244, 3253, 3257, 3263, 3264, 3265, 3267, 3275, 3279, 3288, 3290, 3294, 3297, 3302, 3319, 3325, 3328, 3332, 3336, 3341, 3343, 3344, 3348, 3349, 3353, 3356, 3360, 3361, 3372, 3373, 3375, 3378, 3389, 3409, 3412, 3413, 3416, 3419, 3426, 3434, 3437, 3441, 3444, 3450, 3465, 3466, 3470, 3485, 3486, 3490, 3495, 3505, 3510, 3529, 3547, 3575, 3582, 3583, 3584, 3597, 3610, 3613, 3615, 3620, 3622, 3624, 3628, 3637, 3641, 3644, 3647, 3650, 3672, 3678, 3682, 3685, 3709, 3713, 3716, 3720, 3728,	4, 2, 5, 6, 8, 9, 12, 16, 10, 13, 11, 17, 15, 19, 20, 1, 23, 27

Commenter Last Name	Commenter First Name	Commenter email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
					3735, 3745, 3758, 3766, 3798, 3810, 3825, 3834, 3839, 3848, 3973, 3976, 3979, 3981, 3987, 3993, 3998, 4007, 4012, 4017, 4020, 4022, 4023, 4030, 4043, 4044, 4067, 4070, 4071, 4075, 4078, 4081, 4094, 4095, 4098, 4100, 4102, 4103, 4106, 4110, 4114, 4133, 4136, 4138, 4146, 4149, 4152, 4159, 4179, 4184, 4186, 4207, 4212, 4213, 4281, 4291, 4293, 4294, 4296, 4305, 4308, 4310, 4325, 4326, 4341, 4348, 4349, 4350, 4352, 4357, 4366, 4368, 4375, 4377, 4378, 4380, 4404, 4411, 4413, 4434, 4438, 4453, 4461, 4466, 5769, 4483, 4486, 4487, 4488, 4493, 4498, 4500, 4505, 4513, 4517, 4520, 4521, 4537, 4543, 4554, 4557, 4568, 4576, 4578, 4582, 4587, 4592, 4593, 4600, 4603, 4608, 4803, 4807, 4817, 4880, 4883, 4885, 4909, 4915, 4922, 4925, 4932, 4937, 4941, 4945, 4956, 4957, 4965, 4969, 4970, 4998, 4999, 5005*, 5008, 5009, 5010, 5022, 5029, 5030, 5031, 5034, 5041, 5042, 5043, 5045, 5051, 5054, 5056, 5075, 5078, 5079, 5084, 5088, 5101, 5103, 5104, 5107, 5110, 5116, 5125, 5126, 5129, 5131, 5135, 5136, 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Commenter Last Name	Commenter First Name	Commenter email	Affiliation	Comment Source (Web/Email/Hard Copy/Public Meeting)	Letter No.	Form Letter No.
					1089, 1091, 1096*, 1097, 1101, 1145, 1166, 1168, 1169, 1173, 1183, 1184, 1187, 1197, 1201, 1203, 1208, 1226, 1233, 1235, 1237, 1267, 1277, 1281, 1282, 1284, 1295, 1297, 1301, 1313, 1315, 1316, 1318, 1331, 1335, 1350, 1366, 1368, 1371*, 1376, 1382, 1384, 1405, 1408, 1411, 1413, 1414, 1426, 1447, 1452, 1457, 1458, 1462, 1464, 1465, 1466, 1467, 1468, 1470, 1477, 1478, 1479, 1480, 1481, 1482, 1484, 1485, 1486, 1488, 1489, 1490, 1499, 1500, 1507, 1511, 1514, 1520, 1524, 1530, 1538, 1540, 1541, 1548, 1549, 1554, 1556, 1557, 1559, 1563, 1570, 1571, 1575, 1577, 1578, 1581, 1586, 1588, 1590, 1596, 1599, 1600, 1601, 1602, 1603, 1610, 1611, 1616, 1618, 1619, 1620, 1625, 1627, 1632, 1635, 1637, 1641, 1644, 1646, 1647, 1648, 1649, 1650, 1653, 1654, 1655, 1656, 1657, 1658, 1659, 1661, 1662, 1663, 1670, 1672, 1673, 1675, 1676, 1683, 1686, 1687, 1688, 1691, 1692, 1695, 1699, 1703, 1704, 1708, 1709, 1716, 1717, 1718, 1722, 1723, 1731, 1732, 1736, 1737, 1740, 1743, 1745, 1748, 1752, 1755, 1760, 1762, 1764, 1766, 1767, 1771, 1774, 1776, 1777, 1778, 1802, 1808, 1809, 1834, 1839, 1841, 1844, 1845, 1847, 1848, 1849, 1850, 1857, 1859, 1867, 1877, 1886, 1890, 1892, 1898, 1899, 1902, 1908, 1910, 1911, 1912, 1916, 1927, 1929, 1935, 1937, 1938, 1942, 1943, 1944, 1963, 1964, 1965, 1970, 1979, 1982, 1983, 1987, 1991, 2007, 2008, 2012, 2013, 2023, 2030, 2031, 2032, 2054, 2069, 2070, 2085, 2088, 2089, 2110, 2111, 2121, 2123, 2124, 2150, 2161, 2176, 2177, 2178, 2189, 2192, 2217, 2224, 2228, 2233, 2234, 2290, 2297, 2308, 2311, 2314, 2363, 2365, 2377, 2379, 2383, 2399, 2403, 2450, 2451, 2464, 2508, 2511, 2564, 2572, 2605, 2635, 2714, 2734, 2764, 2801, 2806, 2807, 2856, 2866, 2874, 2888, 2889, 2994, 2995, 3088, 3146, 3156, 3169, 3231, 3618, 3671, 3680, 3712, 3733, 3737, 3741, 3747, 3749, 3771, 3785, 3787, 3790, 3803, 3809, 3816, 3831, 3837, 3844, 3866, 3901, 3944, 3967, 3969, 3990, 4005, 4006, 4008, 4035, 4188, 4193, 4328, 4329, 4336, 4448, 4565, 4585, 4586, 4590, 4606, 4829, 4848, 4854, 4855, 4889, 4893, 4896, 4902, 4904, 4907, 4927, 4929, 4933, 4949, 4955, 4959, 5035, 5062, 5063, 5064, 5068, 5069, 5072, 5073, 5085, 5086, 5105, 5134, 5137, 5153, 5156, 5180, 5346, 5347, 5348, 5358, 5367, 5374, 5396, 5400, 5402, 5411, 5420, 5433, 5436, 5445, 5449, 5457, 5470, 5471, 5502, 5516, 5619, 5629, 5636, 5641, 5643, 5652, 5659, 5660, 5670, 5682, 5725, 5734, 5735, 5748, 5789, 5792, 5793, 5797, 5798, 5799, 5804, 5813, 5822, 5824, 5827, 5833, 5838, 5842, 5845, 5854, 5865, 5876, 5892, 5923, 5927, 5928, 5930, 5941, 5947, 5958, 5977, 5986, 5989, 5991, 6022, 6053, 6076, 6088, 6102, 6103, 6109, 6119, 6130, 6144, 6147, 6150, 6163, 6172, 6175, 6182, 6189, 6193, 6201, 6209, 6211, 6212, 6214, 6220, 6222, 6224, 6227, 6239, 6243, 6250, 6251, 6257, 6263, 6267, 6276, 6277, 6280, 6285, 6287, 6290, 6294, 6304, 6307, 6313, 6315, 6320, 6339, 6353, 6361, 6366, 6372, 6381, 6399, 6401, 6402, 6403, 6404, 6405, 6410, 6414, 6418, 6419, 6424, 6442, 6443, 6445, 6446, 6448, 6454, 6456, 6457, 6459, 6460, 6461, 6468, 6472, 6487, 6491, 6492, 6497, 6502, 6504, 6507, 6512, 6519, 6521, 6526, 6529, 6534, 6551, 6562, 6563, 6564, 6566, 6567, 6568, 6569, 6571, 6573, 6574, 6577, 6580*, 6582, 6598, 6600, 6601, 6602, 6607, 6613, 6627, 6630, 6634, 6638, 6642, 6649, 6670, 6684, 6686, 6698, 6703, 6750, 6752, 6756, 6760, 6761, 6766, 6770, 6786, 6792, 6793, 6799, 6800, 6801, 6808, 6811, 6817, 6820, 6836, 6844, 6846, 6848, 6857, 6866, 6869, 6884, 6891, 6893, 6897, 6898, 6904, 6918, 6933, 31765, 31783, 31788, 31792, 31793, 31809, 31811, 31813, 31828, 31833, 31835, 31856, 31857, 31860, 31869, 31870, 31872, 31877, 31885, 31894, 31895, 31904, 31912, 31921, 31930, 31934, 31960, 31961, 31965, 31966, 31969, 31972, 31975, 31976, 31977, 31978, 31982, 31984, 31985, 31991, 32001, 32004, 32014, 32015, 32018, 32019, 32027, 32030, 32039, 32040, 32049, 32083, 32087, 32098, 32100, 32102, 32109, 32110, 32133, 32140, 32145, 32147, 32162, 32164, 32167, 32168, 32187, 32188, 32189, 32196, 32205, 32206, 32215, 32222, 32225, 32227, 32230, 32235, 32238, 32239, 32241, 32245, 32249, 32250, 32251, 32253, 32257, 32260, 58810, 58822, 58824, 6669*, 6675*, 6679*, 6690*, 6696*, 6700*, 6704*, 6921, 31902, 32035, 32261	

1.2.3 Comments and Response Table

The co-lead agencies reviewed and considered all submissions received during the public comment period. Table 1-2 contains all substantive comments received in those submissions with a response from the co-lead agencies. Submissions that expressed statements of support or opposition; made general statements without requests for information; did not request a change in the EIS; or commented on topics outside the scope of the CRSO analysis are not included in Table 1-2. A general response to these type of comments can be found in Chapter 9 of the Final EIS.

It should be noted that a single submission can contain both substantive and non-substantive comments within the text. The co-lead agencies reviewed all submissions and identified the substantive comments within these submissions.

Form letter substantive comments and responses are addressed in Section 1.2.4.

Table 1-2 is sorted by letter number, then comment number. To find a specific substantive comment, reference the letter number associated with commenter in Table 1-1 above, or search by name, email, or affiliation. Comment text is presented as submitted which can include spelling errors. This text has not been edited.

Table 1-2. Table of Comments Received and Co-Lead Agency Response (1/ References cited in responses can be found in the Final EIS Chapter 11, References)

Letter No.	Comment No.	Commenter Name/Email	Affiliation	Comment	Response1/
14	1	tcuezze@gmail.com	N/A	While the Corps, USBR, and BPA (agencies) have made many efforts to reduce salmon mortality, including fish ladders and cold-water releases, these have had only minuscule effects on salmon. The 4 dams on the lower Snake River block access to critical salmon spawning habitat on Idaho's Salmon River and on numerous smaller tributaries. Dam removal is empirically the most effective technique to aid salmon recovery, as demonstrated by the remarkable success of the removal of Elwha and Glines Canyon dams on the Olympic Peninsula. The Preferred Alternative continues a 50 year track record of failure to prevent salmon mortality. Even if salmon survival rates in transiting the dams were 100%, the Preferred Alternative does nothing to address the problem young smolt face in transiting large, slow moving reservoirs rather than fast-flowing rivers.The energy expenditure of transiting the 8 reservoirs on the Snake and Columbia rivers between the Salmon River and the ocean leave salmon unprepared to face the rigor of saltwater and cause high mortality rates. Only MO3 can truly address salmon recovery.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Based on our analysis in the Fish resources section of Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery as compared to the No Action. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the Columbia River System. That call, however, is ultimately the role of NMFS and the USFWS. Recovery efforts will need to continue to involve parties across the region that have an influence and effect on ESA-listed species. The Preferred Alternative is nevertheless predicted to benefit salmon and steelhead. It also meets the other objectives of the study for resident fish, hydropower, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS, the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams, because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. The effects of removal of the Elwha Dam and the effects of breach of lower Snake River dams are in not comparable. Elwha Dam had a nameplate capacity of just under 15 MW. Its annual power production pales in comparison to the 1,100 aMW provided by the lower Snake River dams. Also, Elwha Dam did not have fish passage. The four Snake River dams do. Removal of the Elwha dam allowed the Elwha River to flow freely. Even if the four Snake River dams were removed, the Snake River would still have regulated flows due to the dams located upstream.
14	2	tcuezze@gmail.com	N/A	The Agencies present numerous negative effects to MO3 while excluding its many positive impacts. Chief among these is the issue of power generation. In the Draft EIS, the Agencies downplay the fact that power from the dams on the lower Snake River is not sold to contracted customers of the BPA but is surplus which is sold to customers outside the BPA service area to subsidize BPA power. Most of the power from the lower Snake River dams is sold to California, where electricity prices have dropped due to increasing use of renewables. Eliminating the power generation from the Snake River dams would not create a need for more power production in the Pacific Northwest, and would still leave the BPA with a large surplus of power. The main area affected would be California, where renewable energy is increasingly cheap and plentiful. The Agencies also claim that base power from the dams is key to serve as baseline power generation as the grid switches to renewables like wind and solar. However, the Pacific Northwest already has a large-enough surplus of hydropower, nuclear, natural gas, and other constant-output energy sources to meet this baseline demand. While population is expected to increase, these increases will be countered with more efficient energy technology. Only very rarely is Snake River dam energy used to meet load requirements, and multiple analyses have shown that the cost to cover these small requirements with new facilities will be much lower than the cost to mitigate negative effects on salmon. Additionally, because these are run-of-the-river dams with relatively little energy storage capacity, they do not provide consist levels of energy production and therefore are not as reliable as sources of baseline power.	The power output for the four lower Snake River dams are not directly sold to California entities nor is their output sold exclusively as surplus as the commenter suggests. Bonneville sells power from the Federal Columbia River Power System (FCRPS) as a unified system, not from specific projects. In this regard, the power generated from the four lower Snake River dams are pooled with all other FCRPS power sold by Bonneville to meet Bonneville's collective power obligations. Most of this power is used to meet the loads of regional publicly owned utilities, such as municipalities, rural utilities, and public utility districts under long-term power-sales contracts (see Draft EIS Section 3.7.2.5 Bonneville Power and Transmission Customers). A small portion of power is sold in the California energy market, but these sales are not from specific projects, but rather from the collective FCRPS. As explained in Section 3.7.3.5 of the EIS, Potential Replacement Resources and Associated Costs, breaching the four lower Snake River dams would have a direct and substantial effect on the supply of Federal power to meet regional load requirements. These effects would impact both actual energy to meet regional load requirements and generating capacity (peaking capacity) to meet variability in loads. The four lower Snake River dams are among the most valuable projects in FCRPS. These dams provide over 1,000 MW of carbon-free energy and up to 2,000 MW of sustained peaking capacity at certain times of the year. The dams also have unparalleled ramping capability the ability to quickly generate energy to match spikes in energy usage with over 2,200 MW of capability in certain months of the year. To maintain regional reliability at the No Action Alternative levels, replacement resources would be needed. The cost of replacing the capability of the four lower Snake River dams is described in detail in the Draft EIS in Section 3.7.3.5, Potential Replacement Resources and Associated Costs. The Draft EIS takes into account the cost savings from the breaching of the four lower Snake River dams. Even with these savings, base rates paid by customers of Bonneville (local public and community owned utilities) would likely increase. Using natural gas as the replacement resource (the least-cost resource portfolio) Bonneville's wholesale power rates could increase 4 percent to 10 percent. See Table 3-166 in the Draft EIS. Using zero-carbon resources to replace lost capability from the four lower Snake River dams capability, Bonneville's wholesale power rate could increase 13 percent to 50 percent. See Table 3-166 in the Draft EIS. While the four lower Snake River dams are indeed run-of-river projects, there is flow in the lower Snake River year-round. Further, upstream storage projects (Dworshak and Brownlee), regulate some of the water flowing into the lower Snake River. In particular, the lower Snake River projects produce a significant amount of power in the winter, which is currently the region's highest demand period.
14	3	tcuezze@gmail.com	N/A	Next, the Agencies say that the loss of barge transportation capability provided by the dams will cause increased cost and GHG emissions due to the need to transport grain by truck or rail. The draft EIS fails to consider that barge shipments have declined 70 percent in the past two decades and that rail and truck are already on the way to becoming more economically viable. Investments in rail would also have numerous benefits beyond transportation in grain, including the potential for cheaper container shipping and passenger rail travel.	Access to barge transportation is the most cost effective means of accessing export markets for the majority of grain producers in the Pacific Northwest currently and removing that option will increase transportation costs for grain producers and increase air emissions, as the EIS shows. It is true that barge movements on the Snake/Columbia river have declined somewhat over the past 20 years, but not by 70 percent. As Table 3-229 in Section 3.10.2.1 shows, over the past 18 years, Snake River tonnage has decreased by 1.7%. That decline is mostly attributed to investments in shuttle rail terminals.
14	4	tcuezze@gmail.com	N/A	As for irrigation, pipeline extensions to draw water from the current level of the river would be cheap and practical.	This EIS discusses engineering solutions (pipeline extensions for example) in Section 3.12.3 Environmental Consequences - Specifically under Region C under the MO3 alternative (see page 3-1267, line 3244, in the Draft EIS) and in Appendix N. The report which this EIS draws upon, as discussed, concluded that modifying the existing pump system was cost prohibitive. In Region C under the MO3 alternative this analysis accordingly concludes that pumps are unable to deliver water to estimated at 48,000 acres.
14	5	tcuezze@gmail.com	N/A	Lastly, the draft EIS overstates cultural and economic impacts to local economies while ignoring benefits further out. The EIS emphasizes the loss of "riverport identity" of towns in the region and current flatwater recreation opportunities. However, a restored lower Snake River would provide many opportunities that the current system of sterile and slow-moving reservoirs does not. A restored Snake River would provide many opportunities for whitewater kayaking, rafting, and canoeing. Land previously submerged between the dam could be converted into a matrix of parks and agricultural areas which would both support local communities and provide interesting recreation opportunities. Located within a day's drive of the major metro areas of Portland and Seattle, a restored river has enormous potential to become a major opportunity. In contrast, reservoirs are abundant throughout the Northwest and attract little in the way of tourism. If towns can develop a "riverport identity," could they not also develop a "swiftwater identity?"	The social welfare effects on fisheries under MO3 are described as major and beneficial in the long-term, with increases in regional economic effects if commercial fish catch rates increase. For the effects on recreational fishing under MO3 (Section 3.11.3.5), the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River). There is some uncertainty around recreational fishing visitation in the long-term given the current measures to regulate, protect, and support ESA-listed fish populations and habitat in the region. However, the EIS does describes that the visitation in the long-term, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting recreation and tourism businesses.
14	6	tcuezze@gmail.com	N/A	Healthy Columbia Basin salmon populations would also have huge cultural significance for native tribes and residents of the Northwest as a whole. More salmon would aid in the recovery of Southern Resident Killer Whales, a Northwest icon currently endangered because of low salmon population. Salmon fisheries along the coast would become much more economically viable, a boon to challenged seaside communities. Fishing and gathering rights guaranteed in treaties to Native groups would be restored, as would many important cultural sites.	Thank you for your comment.
27	1	cakoncal@msn.com	N/A	I would like to see an assessment and educated opinion on the impact of overfishing on the salmon and steelhead. Overfishing is a problem worldwide. It includes the oceans and affects fish count in theColumbia. This problem is never mentioned as a root cause. Both commercial fisherman as well as net-fishing Tribes up and down the Columbia are the causes.	Alternatives to include changes to harvest are not within the scope of this EIS. A recent EIS addressing harvest was conducted by NMFS. We cited this study in Chapter 3.15 as we used its results to determine abundance considerations. To see their conclusions and effects analyses please go to: https://www.fisheries.noaa.gov/resource/document/environmental-impact-statement-programmatic-review-harvest-actions-salmon-and Harvest certainly has an effect on salmon and steelhead populations. The three co-lead agencies do not manage fish stocks, and do not have the authority to do so. For harvest, fisheries in the Columbia River Basin and those that rely upon Columbia River fish stocks are managed by numerous entities, including Federal, state, and tribal governments. These entities are guided by a complex array of policies, laws, compacts, and agreements. The management of Pacific salmon fisheries in particular is complex, and involves numerous entities representing a variety of social, political, and conservation interests. Changes in allowable fishery harvest in the Columbia River Basin are a result of decisions made by state, Federal (i.e., NMFS), and tribal fishery managers based on a variety of environmental, biological, economic, and social factors.
104	2	pearl.momilani.barry@gmail.com	N/A	the federal government has ignored sound science. Tribal, state and federal fisheries biologists have all supported the removal of the four lower Snake River dams as a keystone action necessary for any valid salmon plan. To date, the federal government has ignored this scientific consensus due not to scientific principles, but rather due to political issues. Instead or providing more water, more spill over the dams for safe passage, and dam removal, the federal government has relived on old actions like barging and trucking salmon around the dams and limiting the amount of water in the river that science has shown over and over again simply do not work. In order to restore Snake River salmon populations to sustainable numbers, scientists have determined that they must consistently return adults to the uppermost Snake River dam, Lower Granite, at a minimum rate of 2% to 6%. Since 1975 when the eight dams (four on the lower Columbia River and four on the lower Snake River) were completed, return rates have only rarely exceeded the 2 percent survival minimum. From 1994 to 2004, they ranged from 0.35 to 2.5 percent, exceeding 2 percent in just a single year. An extensive modeling effort completed in 2000 analyzed of the causes of mortality for Snake River salmon. The model demonstrated that the four lower Snake River dams were the most significant factor preventing recovery. The cumulative effect of eight dams on the lower Columbia and lower Snake Rivers is too much for salmon survival and if the four dams on the lower Snake were removed (cutting the total number of dams Snake River stocks face in half), these salmon can rebound to healthy levels.	As required by NEPAs implementing regulations, the co-lead agencies used current high quality information in the analysis of the CRSO EIS. Specific to salmon and steelhead, the agencies used two primary modeling approaches which yielded a range of potential outcomes for the alternatives. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult return rates will increase for both Snake River spring Chinook and steelhead and will average above 2% as a result of the Preferred Alternative. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be in increasing salmon and steelhead returns to the Columbia Basin. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA listed species. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as the alternative that includes the measure to breach the lower Snake River dams. However, the Preferred Alternative also meets the other objectives of the study for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. The alternative that includes the measure to breach the lower Snake River dams, by contrast, has significant regional economic effects and community effects, and meets only a small subset of the EIS objectives. Thus, the co-lead agencies did not recommend that alternative (MO3) because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system.
188	1	jaybird@odessaoffice.com	N/A	Let's also replace the 36,000 MW of power generating capacity of the dam's with 36 ? 1000 MW nuclear power generation plants, which would be a little over one nuke plant per county in Washington; or spread the nukes around a little into Canada, Idaho and Oregon.	For the EIS replacement resources, we used the Northwest Power and Conservation Council's 7th Power Plan and Mid-term Update to prioritize replacement resources. Conventional nuclear power is not on the Council's list of resources to consider, and Small Modular Reactors are classified as "Emerging/Long-term: Resources that have long-term potential in the Pacific Northwest but that are not commercially available yet.
188	2	jaybird@odessaoffice.com	N/A	As I have mentioned before to Cathy McMorris-Rodgers and also the Bonneville Power Administration, we should: 1) leave the dams where they are, best operate to generate power, control water flow, and provide for navigation of commercial shipping, 2) as dams generate power from their huge upstream STORED ENERGY DEVICES, which ALREADY EXIST (duh!), are PAID FOR (?), and are very USEFUL and BENEFICIAL behind each and every dam, for a number of reasons (including we then don't need to develop and construct HUGE BATTERY(?) STORAGE SYSTEMS (which don't exist!!), 3) then pump the downstream water from each dam back upstream over the top of the dams into their existing stored energy pools, by installing downstream variable-speed pumping stations and piping for reusing the water (I call it DYNAMIC PUMPED STORAGE?), all of which is commonly used technology and commercially available today, and a not a huge cost to purchase and install compared to the other pursued alternatives, 4) and then hard-wire connect at least the 10,000-15,000 MW of variable wind and solar power generation along the Columbia etc., to power the required banks of dam(n) downstream variable speed pumps for whenever the wind blows and the sun shines, eliminating the numerous other, worse(?) alternatives to deal with the transmission and use of the variable power, including the upsetting of the existing grid which can't handle more than about 15% contributions of variable power, 5) now then, practice DYNAMIC PUMPED STORAGE at each available chosen dam and upstream storage reservoir until one of two limiting conditions occur: a) the dams overflow, or b) there is insufficient flow to maintain navigation for ocean-going ships along the Columbia-Pacific Ocean waterway. 6) Now then, for the other greenie's? and protestor's?, when we have excess variable power and excess water along the Columbia, build a piping system to divert Columbia River water using these same downstream variable speed pumping stations to transport excess water to refill Lake Powell and Lake Mead (that could be done in a few months) in order to rehydrate the Colorado River water system so that they can then use the excess water to generate their own power in their existing dams plus maybe provide enough water for the Colorado to reach the Pacific to satisfy	The comment that the lower Snake River dams are important for regional power system reliability and the integration of additional renewables is consistent with the findings of the EIS. The EIS did not consider the type of large scale adaptations to the potential storage capabilities the commenter describes. Appendix H discusses pumped storage as a potential resource for the zero-carbon portfolios, however it was not included in the base case MO3 portfolio. The energy sector is constantly undergoing transformation. With new technologies and practices being introduced all the time, the analysis in the EIS is unable to capture all potential permutations of new and emerging resources because to do so would be too speculative. As such, the EIS analysis focuses on technologies that are currently in operation that are (or are capable of) utility-scale performance. The source of information used in the EIS is from the Northwest Power and Conservation Council's 7th Power Plan and Mid-term update. The EIS acknowledges that technological improvements will likely bring other options.

Letter No.	Comment No.	Commenter Name/Email	Affiliation	Comment	Response[1/]
				California for both their power and water demands (which of course the cost of both would need to be sufficiently high as a toll cost to pay for the system and it's operation).	
614	1	troylberglund@gmail.com	N/A	Lastly, I am skeptical of effectiveness of increased spill. While the flex spill option seems to try and find a balance, the wide ranges of modeling results between the two models used in all the spill options considered highlights the lack of knowledge about if increased spill actually helps salmon in a meaningful way. Since increased spill results in less carbon free electricity production, this should only be done if we are 100% sure it will significantly help salmon. If any spill is done above the 2016 levels, which the preferred alternative calls for, we must conduct thorough ongoing evaluations and if we can't produce indisputable evidence that increased spill is significantly helpful to fish, we should reduce the spill immediately and focus on carbon free energy production	The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the biological models and to help determine how effective increased spill can be in increasing salmon and steelhead returns to the Columbia Basin. The effectiveness of the spill program will be monitored, as will the effects to generating resources around the basin. The associated carbon output of those resources will continue to be a focal point in regional power planning efforts.
712	1	N/A	N/A	These four dams are losing money each year, Bonneville Power Administration (BPA) has to borrow $1.6 billion from the federal government (taxpayers? money) over the next 2 years just to maintain the four lower Snake River dams. It would only cost $340 million to breach all four dams. If we breach the four lower Snake River dams this year, Eastern Washington would gain $200-300 million in economic benefits every year and an average of 3,000 jobs annually would be created.	The cost to breach the earthen embankments of the lower Snake River projects and drawdown the reservoirs is described in Annex A of Appendix Q, and is estimated at approximately $995 million. The economic benefits of breaching are provided in Section 3.19.3. In addition, there would be benefits to river-based recreation, including recreational fishing (Section 3.11), and commercial fisheries (Section 3.15). The EIS evaluated beneficial and adverse effects across an array of resource areas, including potential effects at the national, regional and local level. The EIS does not employ a cost-benefit framework for decision-making. Consistent with National Environmental Policy Act (NEPA) analysis framework, the beneficial and adverse effects are expressed as a variety of qualitative and quantitative environmental and economic metrics. Consequently, a focus solely on the monetized economic costs and benefits would exclude important tradeoffs associated with the alternatives communicated in the EIS, including effects on fish. Furthermore, the EIS evaluates the performance of the CRSO EIS alternatives with respect to multiple stated objectives, for example related to improving fish passage and survival, reliable power generation, and minimizing greenhouse gas emissions. Table 7-1 in Chapter 7 provides a summary of the beneficial and adverse effects of the alternatives, including the quantified social welfare costs and benefits for a subset of the resource areas (specifically, hydropower, navigation, and irrigation) as well as the implementation costs of the alternatives. When considering hydropower only, the average annual value of the four lower Snake River dams exceeds the average annual equivalent costs. The generation value at the four lower Snake River dams can be described by a range between the cost to replace the generation through new conventional resources or through a portfolio of zero-carbon resources. Although the costs of replacing the power with market purchases was analyzed, it is unlikely that short-term wholesale power markets could reliably replace the power for the long term. This range would put the annual value of power between $240 million and $500 million for the four dams combined. These numbers represent about 90 percent of the lost benefits cited in Table 3-171 in the Draft EIS because the four dams represent about 1,000 aMW of the 1,100 aMW of lost generation estimated in MO3. The average annual cost to operate and maintain all authorized purposes at the four lower Snake River dams is $75 million (Appendix Q, Table 5-1) and the annual-equivalent capital costs are $32 million (Appendix Q, Table 4-1). Hydropower costs funded by Bonneville represent about $50 million of the total annual operations and maintenance costs and nearly all of the annual capital costs, approximately $31 million. This puts the annual-equivalent power-specific costs at approximately $81 million a year. As a result, the net benefits from hydropower for the four lower Snake River dams are between $159 million and $419 million and the benefit-cost ratios are between 3.0 and 6.2. If the $34 million per year for the Lower Snake River Compensation Plan is added to the capital and expense costs, benefits still exceed costs under each replacement power scenario. Considering these costs, the net benefits range from $125 million to $385 million and the benefit-cost ratios range from 2.1 to 4.3. In the less-likely scenario that generation could be reliably replaced with short-term wholesale market purchases and assuming that the four dams represent 90% of the $150 million in market purchases required to replace the lost generation cited in MO3 (see Table 3-170 in the Draft EIS), the lower bound for net benefits would fall to $54 million and the benefit-cost ratio would fall to 1.7. With the Lower Snake River Compensation Plan included, the lower bound for annual net benefits becomes $20 million and the benefit-cost ratio becomes 1.2. From a resource competitiveness perspective, the four lower Snake River dams are among the least costly generating resources in the Federal Columbia River Power System (FCRPS) and the planned investment strategy is expected to maintain that status. As shown in the Federal Hydropower presentation at the 2018 Integrated Program Review[1], the Headwater/Lower Snake Asset Class[2] is forecast to have a 50-year levelized cost of generation[3] of $11.41/MWh based on the direct funded capital and expense (O&M) programs outlined in that process. These costs remain competitive with volatile Mid-Columbia spot market energy prices which averaged $37/MWh in 2019 and have averaged $21/MWh in 2020. 1/ The Integrated Program Review (IPR) allows interested parties to see and comment on all relevant Federal Columbia River Power System (FCRPS) capital and expense (O&M) spending level estimates in the same forum. The IPR occurs every two years, or just prior to each rate case, and is the public review for the costs that will be recovered through rates the following two-year rate period. Long-term forecasts for the next 50 years and major upcoming projects are also shared in this forum. This information is available here: https://www.bpa.gov/Finance/FinancialPublicProcesses/IPR/2018IPR/IPR%202018%20Fed%20Hydro%20Workshop.pdf and is incorporated by reference into this EIS. 2/ In the 2018 Integrated Program Review, the Headwater/Lower Snake Asset Class consisted of the four lower Snake River dams, Hungry Horse, Libby, and Dworshak dams. These projects were grouped together because they have similar cost characteristics. The Levelized Cost of Generation for the four lower Snake projects alone is slightly lower than that for the whole class including the headwater projects shown in the table. 3/ Levelized cost of generation is defined as the forecast direct costs and administrative overheads of producing power at a plant annualized over a 50-year period. This cost includes direct funded operations, maintenance, administrative and capital costs as well as Columbia River Fish Mitigation (CRFM) costs. Bonneville systemwide mitigation costs, such as its Fish and Wildlife program, are not included in this metric.
1290	1	lytetch@yahoo.com	N/A	While I acknowledge the concerns made by those promoting their removal, they are wholly focused on impacts to the fisheries. Hydroelectric dams are one of the cleanest and most reliable green energy sources. They can be ramped up and down to satisfy periods of peak and low demands, unlike large fossil fuel, nuclear and green energy sources. Their availability is predictable unlike wind and solar. The proposals to remove the hydroelectric dams do not provide an explanation of how the lost generating capacity will be made up. With the removal of many fossil fuel plants, lost hydroelectric capacity may be made up with natural gas turbines for peak demands and nuclear energy for sustained demands.	The commenter is correct that hydroelectric dams produce clean and flexible power that is more predictable than other zero carbon resources, such as by wind and solar. The EIS examines several alternative resource portfolios that have characteristics similar to, though not complete replacements for, the attributes of the four lower Snake River dams that would be lost if breaching occurred under MO3. (See EIS Section 3.7.3.5 in the draft EIS). One of these alternative resource portfolios is a zero carbon replacement scenario, which includes solar, wind, and storage technologies (e.g., batteries). As explained in Section 3.7.3.5 of the draft EIS, replacing the four lower Snake River dams' capability with zero carbon resources would require solar and storage technologies at levels that are above current utility scale quantities.
1290	2	lytetch@yahoo.com	N/A	There is very little discussion from the environmentalists on what the economic impacts would be from the removal of the dams. What is the environmental impact of shipping all of the goods that currently travel by barge to now be shipped by rail or by truck? What is the cost to irrigation districts to reconfigure water supply systems for lower and changing water levels? How many will be unable to provide a consistent supply of water? This affects individual's livelihoods and the nation's food supply. I encourage every decision maker involved in the process to weigh all of the benefits of the hydroelectric dams and substantial impacts of their removal as a whole and not just focus on one aspect.	The potential economic effects from breaching of the lower Snake River dams are presented in the EIS, organized by resource area and type of economic effect, with additional details provided in resource specific appendices. Economic effects are described for changes to Power and Transmission (Section 3.7), Navigation and Transportation (Section 3.10), Water Supply (Section 3.12), and Recreation (Section 3.11). Potential economic effects are evaluated for social welfare effects (national economic effect), regional economic effects, and other social effects. Additionally, the environmental effects associated with increased emissions from shipping goods by rail and/or truck are evaluated and described in the Air Quality Section (Section 3.8), and increase health and safety concerns are described in the Navigation and Transportation Section for other social effects (Section 3.10.3.5). Removal of the dams has the potential to drop surface and groundwater levels up to 100 feet and it is not possible from an engineering or cost standpoint to replace the delivery mechanisms. Assumptions regarding the cost of reconfiguring water supply systems are discussed in the Water Supply Environmental Consequences Section for MO3 (Section 3.12.3.4, Region C). Effects to livelihoods are captured to the extent possible in the regional economic effects and other social effects sections that follow. Please see Section 3.12 and Appendix N for additional information.
1427	1	mlgriffith@frii.com	N/A	Meanwhile, the salmon are unable to get up River to spawn, their counts are dwindling, and the Pacific Northwest Orcas (residents) are STARVING. The 4th dam isn?t even a hydroelectric dam but still puts an impediment in the River. You don't have to destroy the dams to help the salmon get up River. Build a channel around the dam that can be opened during Salmon seasons to let them get up and back down the river.	Comment reviewed and considered. Because there are no references to sections, pages, or line numbers of the Draft EIS, no changes can be recommended based on this comment. All fourteen dams within the CRS generate hydropower. Eight dams on the lower Columbia and lower Snake rivers have existing fish passage facilities.
1493	1	N/A	N/A	You should really consider the recent EIS on the removal of dams on the lower Snake River in Idaho. Yes it takes work and sacrifice, such as possible energy price increase, and irrigation issues to work around, but the results would be worth the sacrifice. Efforts to restore and preserve Salmon and Steelhead populations would be appreciated by our children and grandchildren	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets most other EIS objectives including those for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS, the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams, because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system.
1684	1	Martin_Drumm@yahoo.com	N/A	The reasons for decline in salmon populations are more complex than higher spill rates can rectify. Although increased spill rates at appropriate times have been shown to slightly improve salmon migration, the effect has not been significant. Most importantly, higher spill rates are not significantly increasing salmon return rates which points to problems in the ocean that will not be solved by higher spill rates.	We agree that there are many factors that contribute to salmon and steelhead populations including changes to ocean conditions, predation, harvest, etc. The analysis in this study focus on the migratory effects to salmon and steelhead from the operations, maintenance, and configuration of the Columbia River System projects. Research continues to evaluate the magnitude of these effects. For more information see the NMFS website at: https://www.nwfsc.noaa.gov/research/index.cfm . In its analysis of effects, the Draft EIS used high quality data and best science, including models and studies published in peer review science journals. Specific to salmon and steelhead, the agencies used two primary modeling approaches which yielded a range of potential outcomes for the alternatives. Modifications to the no-action alternative, such as changes in flows, were incorporated into the fish modeling. With respect to the preferred alternative, the CSS model predicts that average Smolt to Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% as a result of the Preferred Alternative. The COMPASS and NMFS Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. To address uncertainty highlighted by the two models, the Preferred Alternative includes working with regional sovereigns to develop a study that will assess the effectiveness of the increased spill regime on adult returns as well as assessment and management of negative unintended consequences, such as long delays of adult migrants, or TDG-related mortality of juvenile migrants. The framework for the adaptive management process is detailed in Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the CRSO EIS.
1684	2	Martin_Drumm@yahoo.com	N/A	On the other hand, higher spill rates can and probably will have an significant impact on the Columbia basin economy and environment. Replacement energy is much more expensive and will make it harder for Washington to reach its objective of providing carbon-free energy. The mostly rural economy of the Columbia River basin is much more sensitive to energy costs than the western metropolitan areas so the negative economic impact of higher spill rates will also fall disproportionally on the eastern rural areas which already significantly lag behind western metro regions.	The comment that replacing the four lower Snake River dams under MO3 would drive up costs in the region is consistent with EIS findings. Whether this affects the ability of Washington to reach its carbon free energy targets is uncertain; however, the EIS acknowledges that MO3 would make achieving these goals more difficult. The Environmental Justice analysis in Section 3.18.3 and Chapter of the Draft EIS provides further detail on potential disproportionate effects to Tribal, low-income and minority populations. Chapter 5 of Appendix H, Power and Transmission, provides additional details on potential rate increases by county as well as for urban and rural utility customers. The EIS recognizes the concern voiced in the comment regarding increasing power rates. Under the Preferred Alternative the Bonneville wholesale power rate pressure is estimated to be 2.7 percent relative to the No Action Alternative. A portion of that rate pressure has already been incorporated into the BP-20 wholesale power rates; and, the remaining rate pressure likely falls within a level that Bonneville has historically been able to absorb through the costs over which it has significant control.
1694	1	mkhoban@hotmail.com	N/A	Spend the money needed to remove the dams to improve handling of fish / fingerlings above and below the dams. Put good minds to work on that. Use the new "fish cannon" or other fish transport system.	The co-lead agencies received additional comments related to use of water cannons, or similar proprietary adult fish passage devices. The current configurations of the CRS dams that have fish ladders already have effective upstream adult passage. Many of the considerations for structural changes proposed in the EIS would be to address downstream juvenile passage and survival, as well as habitat concerns. The technology of fish cannons or similar devices will continue to be evaluated for future applications.
1788	1	N/A	N/A	Our efforts and resources would be better spent on developing improved salmon survival methods, including areas not associated with dams (ocean predators, etc.).	We agree that there are many effects to salmon and steelhead populations outside the operation of the dams. Research continues to evaluate the magnitude of these effects. For more information see the NMFS website at: https://www.nwfsc.noaa.gov/research/index.cfm. The Draft EIS describes and acknowledges the multitude of factors that affect salmon and steelhead throughout their life cycle in the Affected Environment. The EIS analyzed the effects of the different alternatives to operations, maintenance, and configuration of the CRS projects. The scope of the Draft EIS focuses on the area affected by the alternatives presented for operation and configuration of the CRS projects. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat.

Letter No.	Comment No.	Commenter Name/Email	Affiliation	Comment	Response[1/]
1794	1	Lon@nw-econ.com	N/A	The Draft EIS (at 27) contains the following conclusions. (1) "GHG emissions would increase the most if the hydropower were replaced with natural gas." (2) "This increased reliance on fossil-fuel-based resources is estimated to increase power-related emissions by 2.7 percent (1 MMT of CO2) across the region even assuming the new replacement resources are other renewables." These conclusions assume that natural gas is the only fuel that would be burned in over 1,000 MW of new combustion turbines. This assumption is likely incorrect and should be reconsidered. On March 10, 2020, "[t]he Intermountain Power Agency (IPA) ... awarded Mitsubishi Hitachi Power Systems (MHPS) a contract for two M501JAC power trains for the Intermountain Power Plant (IPP) in Delta, Utah." These new power trains will be fueled by a mixture of 30% hydrogen and 70% natural gas when they go on-line in 2025, and 100% hydrogen by 2045. See https://amer.mhps.com/intermountain-power-agency-orders-mhps-jac-gas-turbine-technology-for-renewable-hydrogen-energy-hub.html. An increase in GHG emissions due to the removal of the Snake River Dams is not a foregone conclusion.	The commenter describes an emerging technology that may serve as potential replacement resources that would reduce the greenhouse gas (GHG) emissions from new combustion turbines. The energy sector is constantly undergoing transformation. With new technologies and practices being introduced all the time, the analysis in the EIS is unable to capture all potential permutations of new and emerging resources because to do so would be too speculative. As such, the EIS analysis focuses on technologies that are currently in operation that are capable of utility scale performance. The source of resource information used in the EIS is from the Northwest Power and Conservation Council's Seventh Power Plan and Mid-term Update. The EIS acknowledges that technological improvements will likely bring other options. The conventional least-cost and the zero-carbon resource portfolios were intended to provide a range for the cost and emissions effects of the alternatives assuming current technologies could be scaled to replace the four lower Snake River dams capabilities.
1799	1	ricksharp1@hotmail.com	N/A	Dam removal is not a viable option without data models exploring the changes and disruptions of the below listed areas and agencies of concern, consider off shore netting restrictions and catch limits for salmon and other species.	Harvest and catch limits are outside the scope for this EIS, but the EIS does acknowledge that changes in abundance may affect harvest and catch limits. However, NMFS recently completed an EIS that analyzed effects of harvest on Columbia Basin salmon and steelhead. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as the alternative that includes the measure to breach the lower Snake River dams (MO3). However, the Preferred Alternative also meets the other objectives of the study for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic effects and community effects, and meets only a small subset of the EIS objectives. Thus, the co-lead agencies did not recommend MO3 because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system.
1815	1	will.e.putnam@gmail.com	N/A	"The Corps has a fiduciary responsibility (ultimately derived from the Public Trust Doctrine) to protect the public interest and to fund only beneficial projects. A 'beneficial project' is measured by the National Economic Development benefit-to-cost ratios (BCR) as exceeding 1; meaning for every dollar spent, at least one dollar in benefit is returned. The LSRDs have a combined BCR of 0.15:1. This means the LSRDs are returning only 15 for every $1 invested; we are losing $0.85 for every dollar we spend. This pales to projections that a free-flowing Lower Snake River could return $4-$19 for every $1 invested depending on what was done with the free-flowing river post-breaching. This would be a BCR of 4:1 or 19:1, respectively. Protecting the publics interest means the Corps can place an underperforming project, such as the LSRDs, into a 'caretaker' or 'non-operational' status. This does not require a specific or new authorization from Congress, nor does it require that the project be 'deauthorized' by Congress first. Thus, the Corps has the fiduciary responsibility to place the LSRDs into a non-operational status, based on the BCR." (Jim Waddell in "5 Means For Breaching The Lower Snake River Dams" paper https://damsense.org/wp-content/uploads/2019/01/5-Means-Rewrite-10-Oct-2018.pdf).	A benefit cost ratio was not calculated for the CRSO EIS. It is not a requirement of NEPA nor is it the basis of alternative selection under NEPA (see 40 C.F.R. 1502.23). Instead, the direct and indirect effects to the natural and human environment were evaluated, including some effects that were evaluated quantitatively and monetized, while others were evaluated qualitatively. New congressional authority and appropriations would both be required to implement the dam breaching measures in MO3. More information is available in the Corps Engineering Regulation (ER) 1165-2-119 Water Resources Policies and Authorities, Modifications to Completed Projects (Sept. 20, 1982) or ER 1105-2- 100, Appendix G, Section III Post Authorization Changes.
1815	2	will.e.putnam@gmail.com	N/A	"The purpose of this letter is to warn you of several misconceptions regarding the U.S. Army Corps ability to quickly execute the breaching of the four lower Snake River dams (4LSRDs). Government data and evidence shows immediate breaching is in fact the only available remedy remaining which can quickly supply and recover adult Chinook for the Southern Resident Killer Whales (SRKW) in time to prevent their virtual extinction. NOAA historically estimated that 25% of the SRKW diet was derived from the Snake basin. However, with the collapse of the Frasier River and the declining Salish Sea and mid-Columbia runs, this is now well over 50%; as evidenced by the shift in residency of these whales spending much more time at the mouth of the Columbia River/coastal areas. All other past attempts and those laid out by your SRKW Task Recommendations cannot overcome this deficit. Even NOAAs 2017 Spring / Summer Recovery plan says that despite an extensive list of actions, none of them will recover these stocks. This is why immediate breaching of lower Snake dams is so critical since each dam and reservoir will kill approximately 2 million Chinook smolts starting in April of 2019. Each breach will allow several hundred thousand of these to grow big enough for orca and fisheries within 14-18 months post dam breaching. Nothing can achieve this quicker in terms of overall number and timing ...	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Moreover, the co-lead agencies conclude there could be a negligible to minor beneficial effects to SRKW from implementing MO3. CSS and NMFS Life Cycle models predict that lower Snake River Chinook salmon smolt-to-adult returns would have a moderate to major increase under MO3. Operation of Lower Snake River Compensation Plan fish hatcheries under MO3 is uncertain and therefore, production of Snake River hatchery fish is assumed to decline over the long term, while returning adult wild salmon are anticipated to increase. However, the co-leads do not anticipate a lack of hatchery fish in the short term based on the proposed fish hatchery mitigation described in Chapter 5. These additional hatchery fish should mitigate short-term construction effects to Snake River populations. Additionally, to address short-term effects to ESA-listed species, the co-lead agencies propose constructing a new trap and haul facility at McNary and conducting at least two years of trap and haul operations for Snake River fish (Chinook, sockeye, and steelhead). The co-lead agencies agree that the quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differently from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for the whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall-run (tules and brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall-run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). The co-lead agencies note the contribution to the prey of Southern Resident killer whales through the continued existence of their respective independent congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as Lower Snake River Compensation Plan, which is administered by USFWS.
1815	3	will.e.putnam@gmail.com	N/A	Because the 4LSRDs are failing to meet the national economic objectives dictated by Congress, (benefits must exceed costs; the 4LSRDs are well below 1-to-1); they fail to provide for salmon recovery; the Corps and Bonneville Power Administration (BPA) have insufficient funds to maintain all dams in the Federal Columbia River Power System (FCRPS); 99% of the power produced by the 4LSRDs is surplus and sold at a loss; they cannot provide peaking power; and these dams are the most expensive of the larger dams in the federal system. Therefore, the Corps is obligated to place them into a non-operational status that does not require Congressional authorizations or new appropriations." (Jim Waddell and Ken Balcomb in 2018 Open Letter to Governor Inslee https://damsense.org/wp-content/uploads/2019/01/Inslee-ltr-12-Dec-2018.pdf).	As explained in Section 3.7.3.5 of the EIS, Potential Replacement Resources and Associated Costs, the four lower Snake River dams are among the most valuable projects in the Federal Columbia River Power System (FCRPS). These dams provide over 1000 MW of carbon-free energy and up to 2000 MW of peaking capacity at certain times of the year. The dams also have unparalleled ramping capability the ability to quickly generate energy to match spikes in energy usage with over 2200 MW of capability in certain months of the year. Regarding costs, the four lower Snake River dams are some of the most reliable and lowest-cost electricity sources of the 31 Federal dams from which Bonneville markets power. Bonneville also has sufficient funds to support these, and all, FCRPS projects. Bonneville sets its power rates to recover its total system costs, including the costs of the four lower Snake River dams, and therefore, does not sell power from these projects at a loss. (See Draft EIS Section 3.7.2.7, Power Rate Determination). Rather, Bonneville recovers its costs and maintains sufficient funds to support the FCRPS consistent with its statutory mandates. Finally, Bonneville sells power from the FCRPS as a unified system, not from specific projects. In this regard, the power generated from the four lower Snake River dams are not exclusively sold as surplus, but rather is used to meet Bonneville's collective power obligation, most of which is sold to meet the loads of publicly owned utilities, such as municipalities, rural utilities, and public utility districts. (See Draft EIS Section 3.7.2.5, Bonneville Power and Transmission Customers).
1824	1	gary@dukelow.com	N/A	Retention of Snake River Dams Removal of the dams is predicated on the number of returning fish. However, improvements in the dams for fish migration upstream as well has been extremely successful with returning salmon up to almost 100% of what there were before the dams were built. This is despite the effects of sea lions eating a huge amount of returning fish. A study by the National Marine Fisheries Service found sea lions were eating between 20% and 43% of the spring chinook run of salmon on the Columbia River. Several failed, non-lethal strategies have been attempted to remove sea lions, which have been eating the endangered salmon and steelhead. Last year, sea lions at Willamette Falls ate a quarter of a winter steelhead run that was already down to about 500 fish. If people were really serious about further increasing the amount of returning fish, more sea lions would be killed than what recent attempts have allowed.	Sea lion management decisions at Bonneville Dam rely on input from the Sea Lion Management Working Group. This Working Group is a collaborative effort with NOAA, USFWS, various Tribes, and the co-lead agencies. The co-lead agencies work to minimize the effects of sea lions on salmon by implementing Best Management Practices specified in the NOAA Biological Opinion and by implementing recommendations developed by the Working Group. The co-lead agencies will continue to use this process to minimize the effects of sea lions on salmon. The EIS discusses the Working Group and sea lion management in Sections 3.5, 3.6 and Chapters 5 and 7. Other entities in the region (e.g., NMFS, the states of Oregon and Washington, and local Tribal governments) have authorities and obligations to mitigate the effects from pinnipeds, and the co-lead agencies will continue to work closely with those entities to benefit ESA-listed salmonids.
1824	2	gary@dukelow.com	N/A	Removal of the dams would have the following impacts: Removing the four Lower Snake River dams would increase the cost of electricity in Washington state. The Snake River dams provide some of the lowest-cost electricity in the Columbia-Snake River system, even accounting for the costs to protect salmon. The Northwest is facing a shortage of electricity in upcoming years and destroying the dams would worsen that shortage. Although they dont store energy like other dams on the Columbia River, the Snake River dams can adjust the flow over several hours, providing reliable energy when wind and solar power are not available. Replacement energy is more expensive: Claims about hoped-for dramatic reductions in solar costs are often capacity weighted, which means they are based not on projected averages across states but are based on costs where solar is currently being built, which is primarily in the southwestern United States. If we were replacing the Snake River dams with solar power produced in Phoenix, Arizona these estimates might be useful. Since we are not, they are not. In addition, rather than wind and solar costs going down, projections are that the cost of installing them will increase. One of the arguments made by dam opponents is that the operation of the dams is subsidized by the federal government in a variety of ways. It is fair to argue that we need to be honest about the subsidies in the system. It is not fair, however, to complain about subsidies for the dams while ignoring the massive, and expiring, subsidies for energy like solar and wind power.	The comment about the importance of the four lower Snake River dams for regional power reliability and cost are consistent with the EIS findings. The EIS uses the best available recent estimates for regional power costs, and balances potential resource costs by examining two potential replacement scenarios. The zero-carbon (largely solar power) was more costly than natural gas portfolio option but was still less costly than other scenarios tested such as wind power in the Columbia River Gorge or Montana. The portfolios and the methods underlying their selection are described further in Section 3.7.3.5, Potential Replacement Resources and Associated Costs as well as Appendices H, Power and Transmission and J, Hydropower of the draft EIS. Costs allocated to power at the four lower Snake River dams are not subsidized by the Federal government, but recovered through power rates Bonneville charges its customers and most frequently paid directly to the Corps pursuant to the agencies direct funding agreements. (See Draft EIS Section 3.7.2.6 Power Revenue Requirement).
1824	3	gary@dukelow.com	N/A	Guest column: Breaching dams wont help Orcas BY DAVE MCDONALD A recent Associated Press article (Oct. 30) tying the Snake River Dams to the livelihood of the Puget Sound Orcas left me scratching my head. Activists on the Seattle waterfront said the best way to save the Orcas is to restore the salmon runs that provide their food – mostly by removing the lower Snake River Dams. That is where the head scratching began. The inland waterway of British Columbia and Washington, the Salish Sea, is the favored habitat of the Orcas and where they spend most of their time. That obviously means the bulk of their salmon diet comes from the rivers emptying into those waters. The Columbia/Snake River system is not connected to that habitat favored by the Orcas. Breaching dams on a river system that does not connect to the main habitat of the whales is pointless. The geography doesnt work and the science is questionable (see NOAA Fisheries Service Report Southern Resident Killer Whales and Snake River Dams 2016). The activists described in the article on the Seattle waterfront were staring at the real problems and they are not the Snake River dams. The activists said nothing about the overwater structures, seawalls, bank armoring, bulkheads, breakwaters and filled estuaries that have decimated the nearshore ecosystem around Puget Sound. They said nothing about the destruction of ecological functions of the rivers and streams around Puget Sound. Those rivers and streams directly impact the whales because they are a major part of their favored habitat. To ensure the long-term survival of the whales, restoring the Puget Sound shoreline habitat and rivers must be the priority. The vital nursery, rearing and feeding areas for juvenile salmon along with migration	The co-lead agencies conclude there could be a negligible to minor beneficial effects to SRKW from implementing MO3. CSS and NMFS Life Cycle models predict that lower Snake River Chinook salmon smolt-to-adult returns would have a moderate to major increase under MO3. Operation of Lower Snake River Compensation Plan fish hatcheries under MO3 is uncertain and therefore, production of Snake River hatchery fish is assumed to decline over the long term, while returning adult wild salmon are anticipated to increase. However, the co-leads do not anticipate a lack of hatchery fish in the short term based on the proposed fish hatchery mitigation described in Chapter 5. These additional hatchery fish should mitigate short-term construction effects to Snake River populations. Additionally, to address short-term effects to ESA-listed species, the co-lead agencies propose constructing a new trap and haul facility at McNary and conducting at least two years of trap and haul operations for Snake River fish (Chinook, sockeye, and steelhead). The co-lead agencies agree that the quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differently from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for the

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				routes in the sound have been totally disrupted. The lack of a natural habitat for salmon along the shoreline of Puget Sound has hurt well-being of the whales. Instead of wasting money on the Snake River Dams, put it to better use in the whales front yard and do something to directly benefit them. The whales are swimming in sewage from the Victoria outfalls and all the filth oozing into the Sound from surrounding urban areas. Carkeek Park creek in north Seattle has a sign warning people to avoid the water because of the fecal matter in the creek. All this waste matter is fouling the whales' habitat. Removing the Snake River Dams will not stop the fouling of the Puget Sound waters. Cleaning up superfund sites in the Sound is good but how about also restoring the estuary around the mouth of the Duwamish River. How many of the Puget Sound rivers are dammed? Would removing the Howard Hanson dam or part of the six dams on the Skagit River system help with river restoration? Would closing the mouth of the Duwamish River to boat and ship traffic during the migration periods for salmon improve their survival rates? These are the issues that should be addressed. If we are truly interested in helping the Orcas lets focus our limited resources on improving conditions in the Salish Sea, the home of the Orcas. The Snake River Dams are just a distraction from what really needs to be done	whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall-run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall-run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). Regarding Puget Sound, the effects mentioned in the comment involve a variety of issues beyond the scope of the CRS project. However, water quality effects for the Columbia River Basin were considered in the EIS analysis and are described in Chapter 1, 2, and Section 7.8.3 of the EIS. Additionally, the U.S. Army Corps of Engineers is in partnership with other Federal, state and non-governmental organizations and have been implementing habitat projects for salmon, orcas, and wildlife all around the Puget Sound as part of the Puget Sound Nearshore Ecosystem Restoration Project.
1825	1	kazthea@mac.com	N/A	The new proposed fall temperatures would allow a 2.6 degree increase. It would also allow Idaho Power to spend less on mitigation to meet standards that are never met anyway. Idaho and Oregon must sign on to the new temperature standard, which Idaho has already done. Shame on the state of Idaho! Fall is a critical time for fall chinook spawning that would help boost numbers of naturally reproducing spawning fish.	The EIS scope is limited to operation, maintenance, and configuration of the Columbia River System projects. The CRSO EIS does not evaluate changes to water quality standards nor changes in Idaho Power's operations of the Hells Canyon complex. Analysis of MO1 indicated an increase in lower Snake River temperatures was an unintended consequence of a measure intended to cool the river, so that measure was not carried forward to the Preferred Alternative.
1853	1	fordrattler@charter.net	N/A	I am concerned that breaching the lower Snake River dams not be an option to go forward with. I am of the opinion that this will increase green house gases by adding more truck traffic onto to the roads for agriculture and shipping of goods in the area. It will eliminate the barge traffic that is a good alternative to trucking. It will increase the need for more expensive electricity that the dams deliver in a carbon free state as they are now. The air quality with all the increased truck traffic will decline. There are not enough other environmentally friendly alternative energy sources that will be able to make up the energy provided by these hydro electric greenhouse friendly power sources.	The commenter's concern that breaching of the four lower Snake River dams will cause increased emissions and higher regional electricity prices is consistent with the findings of the EIS. The EIS considers a zero-carbon replacement resource portfolio to replace the capability of the four lower Snake River dams in Section 3.7.3.5, Potential Replacement Resources and Associated Costs. However, the Draft EIS also found that even assuming this zero carbon portfolio was selected, net GHG emissions may increase because existing fossil-fuel generation plants would also increase generation to maintain regional reliability. The Navigation and Transportation Section (3.10) reflects the adverse effects of implementing MO3, including discussions of transportation mode capacity and cost of grain transport. The EIS also evaluates the additional transportation infrastructure investments and associated costs that would be required, as well as the increases in air emissions that would occur. The EIS finds that truck ton-miles may experience an increase of 19 percent to 84 percent under MO3 when compared to the No Action Alternative, depending on the rail rate increases that occur. The EIS analysis found that truck trips would increase between 14,000 to 79,000 truck trips per year, which would increase air pollutant and greenhouse gas emissions in the region and add to traffic and congestion in the region. Similarly, Section 3.10 also describes increased safety concerns from the additional truck traffic resulting from MO3.
1873	1	rwrussell3@gmail.com	N/A	While I am concerned with the declining number of Southern Resident Orca whales, I do not believe this draft EIS has adequately analyzed the comparative impacts of dam removal to mitigation, for example, of salmon habitat around Puget Sound.	MO3 include a measure to breach the four lower Snake River dams. The effects of and mitigation associated with MO3 are captured in Chapters 3, 4, 5 and 6. Mitigation for the Multiple Objective Alternatives 1, 2, 3, and 4 is are described in Chapter 5. Mitigation for the Preferred Alternative is discussed in Chapter 7. As the project scope of analysis is on the operations maintenance and configuration of the 14 Federal dams on the Columbia and lower Snake Rivers, no effects on these operations are anticipated to effect salmon habitat in Puget Sound. Additionally, Puget Sound salmon do not use Columbia River habitat. While this EIS does not include an assessment of Puget Sound habitat, the U.S. Army Corps of Engineers is in partnership with other Federal, state and non-governmental organizations and have been implementing habitat projects for salmon all around Puget Sound as part of the Puget Sound Nearshore Ecosystem Restoration Project. For more information on this work and partnership, visit http://www.pugetsoundnearshore.org/
1888	1	N/A	N/A	Instead of just pulling them out we should first come up with alternatives to replace power production and water storage. Victor Shauberger suggested to look to nature to solve these types of problems. The solution begins upstream with the various forks of the Snake River. The first thing to do is strategically place large rocks on both sides of the stream to create a fast moving channel in the middle and provide vortex swirling that allow beneficial travel and habitat for fish. The next step is to place some kind of pipe with holes in the top and screens to allow water to come in and debris and wildlife to stay out. The topography of the land should indicate where the best areas for water storage are. Instead of a large dam several reservoirs need to be placed to replace and potentially increase water storage. Same with the large dam turbines, several smaller turbines taking advantage of the faster current could be used to create and spread out power distribution or from one reservoir to another using a funnel shaped device to create a vortex which will help purify and add oxygen to water which will help wildlife and water quality. Also spiral or pipes with indentations will also create vortex effect. This will also increase velocity for electric turbine generators. Using gravity as much as possible will reduce workloads of irrigation pumps but some areas will still require power to pump uphill. Solar and ventilator type wind turbines could also be used where irrigation pumps are placed same with existing wind turbines which in my opinion are a bad design, hard to work on, and an eye sore but they already exist. In the long term these designs will produce more power and be more easily maintained and serviced than traditional dams plus they are more in harmony with nature. The Swiss as well as a guy in Texas are already using these principles for various applications. The key will be water collection and storage during peak runoff which the dams sometimes dont take advantage of. Anyhow Im sure theres enough hydraulic engineers working for the Core of Engineers to figure it out. Just figure out exactly how much power and water storage the dams are producing starting with the furthest upstream and replace and exceed current capacity before removing each dam.	The replacement resource scenarios described in the EIS are designed to ensure that the effect of breaching the four lower Snake dams on regional power reliability is minimized to the extent possible, taking into consideration the costs. The EIS recognizes that there are multiple ways that the generation losses from the dams could be replaced and relies on the best information currently available to identify cost-effective replacement scenarios. The co-lead agencies appreciate the insights in this comment regarding innovative project designs for replacing the power; however, information is limited to evaluate how effective these projects would be, so is not within the scope of this EIS.
1895	1	stevepettee@sbcglobal.net	N/A	Secondly, once reservoirs are drained, vast areas will open up to scavengers for Indian artifacts just like what happened when Priest Rapids Dam was recently lowered to make repairs. Those artifacts are currently protected and should stay that way for the next several hundred years.	The co-lead agencies did not identify MO3 as the Preferred Alternative in the Draft EIS. The co-lead agencies agree the potential exists for archaeological looting of exposed cultural resources to occur in the reservoirs following the breaching of the four lower Snake River dams under MO3. To mitigate for this potential effect to cultural resources under MO3, the co-lead agencies proposed several measures in Section 5.3.3.7 and Table 5.1, in the Draft EIS. Some of these measures include protective fencing, public relations activities to deter archaeological looting, implementation of any needed data recovery or emergency excavation of archaeological resources, and increased law enforcement patrols to also deter looting.
1901	1	gamerrick@startmail.com	N/A	The Dams Are Just One Factor in Salmon and Orca Survival Salmon from the Snake River are only one part of an orcas diet. Salmon survival rates through these dams are as high as 97%. NOAA Fisheries analysis shows Puget Sound Chinook salmon are most important for the Southern Residents. Cleaning the Puget Sound and reducing carbon output would be a better use of time and money in saving our treasured salmon and orca.	We agree that there are many effects to salmon and steelhead populations outside the operation of the dams. Research continues to evaluate the magnitude of these effects. For more information see the NMFS website at: https://www.nwfsc.noaa.gov/research/index.cfm Many of these effects are outside the scope of this EIS, which analyzes the effects of operations and maintenance of the CRS dams, including cleaning the Puget Sound. However, However, water quality effects for the Columbia River Basin were considered in the EIS analysis and are described in Chapter 1, 2, and Section 7.8.3 of the EIS. Additionally, the U.S. Army Corps of Engineers is in partnership with other Federal, state and non-governmental organizations and have been implementing habitat projects for salmon, orcas, and wildlife all around the Puget Sound as part of the Puget Sound Nearshore Ecosystem Restoration Project. The population dynamics of the SRKW are complicated and there are multiple factors that contribute to the overall success of this species. The quantity and quality of prey is one of the limiting factors identified by National Marine Fisheries Service (NMFS) in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the CRS directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these Federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin, including both hatchery and wild produced fish, are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differently from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020). Reducing carbon output, as a general matter, is outside the scope of this EIS, but the EIS analyzes effects of the range of alternatives on greenhouse gas emissions and climate change in Section 3.8 and Chapters 4 and 7.
1901	2	gamerrick@startmail.com	N/A	The Dams Meet Washingtons Carbon-Free Goals Washington states Clean Energy Transformation Act (CETA) commits us to a path of no coal generation by 2025 and 100% clean energy by 2045. Zero carbon emissions are produced during hydropower generation. The Dams Provide Affordable Electricity Several independent studies indicate a shortage of electricity generation in the coming years, particularly with the closure of coal plants. The lower Snake River dams are critically needed to avoid a repeat of the 2000-2001 energy crisis that resulted in soaring electricity prices. The draft EIS indicates that replacing lost generation from dam removal with carbon-free resources could result in a 50% increase in power costs. That doesnt consider the loss of coal generation which will also need to be replaced by carbon-free resources to reach CETA goals. A rise in energy costs would worsen our homeless crisis and mean greater hardships for people already struggling to make ends meet.	The comment that four lower Snake River dams produce zero carbon emissions, and that replacing the four lower Snake River dams under MO3 will drive up costs in the region is consistent with EIS findings. The Environmental Justice analysis in Section 3.18.3 of the Draft EIS provides further detail on potential disproportionate effects to Tribal, low-income and minority populations for MO3. Chapter 5 of Appendix H, Power and Transmission provides additional details on potential rate increases by county as well as for urban and rural utility customers.
1904	1	ruppert228@aol.com	N/A	3.) Higher spill rates are expensive and unproven. According to one of two fish survival models outlined in the EIS, this would decrease fish survival rates. For more details on each of my arguments, you can refer to Benton REA's letter to it's customers entitled "Your Action Is Needed To Save The Lower Snake River Dams" dated March 2, 2020.	In its analysis of effects, the Draft EIS used high quality data and best science, including models and studies published in peer review science journals. Specific to salmon and steelhead, the agencies used two primary modeling approaches which yielded a range of potential outcomes for the alternatives. With respect to the preferred alternative, the CSS model predicts that average Smolt to Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% as a result of the preferred alternative. The COMPASS and NMFS Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. To address uncertainty highlighted by the two models, the Preferred Alternative includes working with regional sovereigns to develop a study that assess the effectiveness of the increased spill regime on adult returns as well as assessment and management of negative unintended consequences, such as long delays of adult migrants, or TDG-related mortality of juvenile migrants. The framework for the adaptive management process is detailed in Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS.
1952	1	n.highland@charter.net	N/A	I do not feel that an adequate case has been made concerning the relationship between the dams, salmon survival rates and orca survival. It would seem that a focus by others on cleaning up Puget Sound and further reducing carbon output would go much further to benefit the salmon and orcas.	We agree that there are many effects to salmon and steelhead populations outside the operation of the dams. Research continues to evaluate the magnitude of these effects. For more information see the NMFS website at: https://www.nwfsc.noaa.gov/research/index.cfm The quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differently from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for the whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall-run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall-run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no

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					evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). The co-lead agencies legal authorities relate to operating and maintaining the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. To comply with the ESA, the co-lead agencies have historically supported actions to mitigate adverse effects to listed species from CRS operations, through funding, direct implementation, and other means. Under the Preferred Alternative, those actions would generally continue to ensure compliance with the ESA. Regarding Puget Sound, the effects mentioned in the comment involve a variety of issues beyond the scope of the CRS project. However, water quality effects for the Columbia River Basin were considered in the EIS analysis and are described in Chapter 1, 2, and Section 7.8.3 of the EIS. Additionally, the U.S. Army Corps of Engineers is in partnership with other Federal, state and non-governmental organizations and have been implementing habitat projects for salmon, orcas, and wildlife all around the Puget Sound as part of the Puget Sound Nearshore Ecosystem Restoration Project. Reducing carbon output, as a general matter, is outside the scope of this EIS, but the EIS analyzes effects of the range of alternatives on greenhouse gas emissions and climate change in Section 3.8 and Chapters 4 and 7.
1953	1	LDSpath1@cs.com	N/A	Why was Idaho Power left out of drafting this?	The CRS encompasses the 14 Federal projects on the Columbia River and its major tributaries (Figure 1-1). These dams are not operated by Idaho Power, so that is why it did not draft this EIS.
1955	1	w_sperry@hotmail.com	N/A	Please consider the far-reaching impact to human health and livelihood if dams are reduced or removed. I do not see that breaching dams is an answer to environmental problems and will not largely help the environment preservation over harming our safety and health we currently rely on	Through our analysis, the co-lead agencies concur that dam breaching has adverse impacts to both the human and natural environment. The analysis does show benefits for specific fish within the Snake River, but at the expense of other resources. Under MO3 (which includes the breaching of four lower Snake River dams), the impacts to human health related to changes of air quality, water quality and fish consumption is difficult to estimate, but is anticipated to be adversely affected, especially if the region does not take actions to resolve any water contamination or offset local air pollution. The Preferred Alternative was developed to maintain a balance of the benefits that can be achieved by modifying the operations of the 14 Federal projects, while minimizing any impacts to the natural and human environment.
1956	1	boxdorfabc@centurylink.net	N/A	Public comment meeting on Salmon in Boise?	In response to COVID-19 concerns and public health requirements within the comment period, the agencies converted the six planned in-person regional public comment meetings to conference calls that provided an approach consistent with the format of the planned in-person comment meetings. To ensure adequate opportunity for the public to provide comments on the Draft EIS, the agencies hosted an online comment platform, providing mailing addresses for written comments, and hosted a series of public comment meetings by telephone. The co-lead agencies offered these public comment meetings by telephone to maintain our commitment to accepting verbal comments in accordance with current public health guidelines. These teleconference meetings were structured similarly to the previously scheduled in-person public comment meetings and provided speakers with the same amount of time to submit a verbal comment. Due to the format of these meetings, they were accessible to any public commenter, regardless of location.
1973	1	kmazik@cox.net	N/A	Despite downward trending salmon and steelhead returns, the states first closed steelhead season due to abysmal returns in 2019, and 2020 returns that are predicted to be much of the same, the federal action agencies (Bonneville Power Administration, Army Corps of Engineers, Bureau or Reclamation) concluded that minimal change will come to fish management, even as Idaho communities experience economic hardships and an uncertain future. While the dEIS gave significant attention to industries of agriculture, subsidized barging, and power generation, Idahos (and WA and OR) rural fishing communities were literally left out of evaluating solutionso date, Bonneville Power Administration has spent $17 billion in fish recovery efforts to mitigate for downriver impacts with little to show for it. Yet despite evidence supporting a need for change, the draft plan seeks to continue with the same strategies and failed, irresponsible spending. Simply keeping salmon and steelhead on life support ignores the millions in economic benefits that healthy and harvestable returns would bring to Idaho. For all management alternatives and their Preferred Alternative, the economies of recreation and fishing (guiding, outfitting, hotels, restaurants, gas stations, boat shops, license fees, etc.) were not even accounted for despite existing, publicly available data. Idaho communities are speaking up, looking for leaders who are willing to ask hard questions and seek new and bold solutions that include all stakeholders, industries, and communities. The recently released draft environmental impact statement is not that plan.	The scope of the CRSO EIS covered eight objectives of which salmon, steelhead, and resident fish were three. In particular, the co-lead agencies developed measures to improve fish passage and fish flows, and reduce adverse impacts to spawning habitat. Fish harvest is the responsibility of NMFS and USFWS and continues to be researched by these agencies. Changes in allowable fishery harvest in the Columbia River Basin are a result of decisions made by state, Federal (i.e., NMFS), and Tribal fishery managers based on a variety of environmental, biological, economic, and social factors. The three co-lead agencies (Corps, Reclamation, and Bonneville) do not manage fish stocks, and do not have the authority to do so. The co-lead agencies agree that there are many effects to salmon and steelhead populations outside the operation of the dams. Research continues to evaluate the magnitude of these effects. For more information see the NMFS website at: https://www.nwfsc.noaa.gov/research/index.cfm. The EIS described the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. NMFS estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which is described qualitatively. For the effects on recreational fishing under MO3 (Section 3.11.3.5) along the lower Snake River below Lewiston, the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River) as an indicator for fishing visitation in this reach. The EIS describes that the visitation in the long-term in the lower Snake River, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting outfitting and tourism businesses in the region. The social welfare values and regional economic effects associated with recreational fishing under the MOs, as well as river recreation post dam breach under MO3, were not estimated because of the uncertainty and large range in visitation and consumer surplus values among users. Moreover, the comments suggestion that approximately $17 billion in fish and wildlife mitigation investment has been ineffective to recover ESA-listed species is misplaced. Those investments delivered the intended results when considered in the appropriate statutory context of the Northwest Power Acts anadromous fish provisions which call for improved survival of such fish at FCRPS projects and sufficient flows between the projects to improve production, migration, and survival. For example, as of 2014 this investment had facilitated juvenile dam passage survival of 96% and 93% for spring and summer migrants respectively, see Endangered Species Act Federal Columbia River Power System 2016 Comprehensive Evaluation Section 1, at 17, t.2 (Jan. 2017), a marked improvement compared to when Congress passed the Northwest Power Act and the estimated average juvenile mortality at each mainstem dam and reservoir complex was 15-20% with losses recorded as high as 30%. See Nw. Res. Info. Ctr. v. Nw. Power Planning Council, 35 F.3d 1371, 1374 (9th Cir. 1994) (citing a Sept. 4, 1979, report by U.S. General Accounting Office describing the systems impacts on anadromous fish).
1976	1	nittgritty@yahoo.com	N/A	Why all of a sudden, after 50-60 years, our dams seem to be killing off the Salmon population and thus the Orcas. I believe the problem does lie in the Puget sound area and should be studied from that angle.	Effects to Southern Resident killer whales from actions in Puget Sound are outside the scope of the CRSO EIS. The U.S. Army Corps of Engineers is in partnership with other Federal, state and non-governmental organizations and have been implementing habitat projects for salmon, orcas, and wildlife all around the Puget Sound as part of the Puget Sound Nearshore Ecosystem Restoration Project. Regarding Southern Resident killer whales (SRKW), the population dynamics of the SRKW are complicated, and there is no one factor that contributes to the overall success of this species; however, the co-lead agencies agree that the quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Additionally, Section 7.7.8 states impacts to Southern Resident killer whales would be negligible. Thus, the co-lead agencies expect salmon and steelhead increases would come from operational measures and existing hatchery production carried forward into the Preferred Alternative. These hatcheries include conservation and safety net hatcheries, as well as through the continued existence of certain independent Congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as the Lower Snake River Compensation Plan, which is administered by USFWS. Moreover, NMFS concluded in its 2020 CRS BiOp that operations, maintenance and configuration of the CRS is not likely to adversely affect SRKW.
1985	1	bmeek@agrinw.com	N/A	Specifically: I am glad economic costs and alternative measures to help the Salmon, Orca, and other populations are considered. I am supportive of helping these species but get very frustrated when the role the dams play is overstated. I agree with the assumption used in the irrigated ag section that removing the dams would effectively end irrigated farming on the nearly 50,000 acres that rely on these pools behind the Ice Harbor Dam. I think your economic impact numbers for the farm value and workers on the farms themselves are reasonable. I do believe there should be additional impact factored in for the processors in the tri-cities who would have supplies reduced. If the acres in this area were lost, they cannot be replaced near the current processing infrastructure in Pasco.	Impacts to individual cities was not included in the EIS. However, regional economic impacts and considerations of the effect to areas were included, for example impacts to Water Supply including municipal and industrial and irrigation is described in Section 3.12. Approximately 4,800 jobs (or 5.9% of total jobs) within the Ice Harbor and Lower Monumental socioeconomic area are estimated to be lost related to MO3 irrigation losses. Navigation and Transportation impacts are addressed in Section 3.10. Indeed, there would be additional impacts to such industries like processing plants that would need to develop new relationships and supply chains for business should MO3 be implemented.
1985	2	bmeek@agrinw.com	N/A	Final comment: I can appreciate the frustration the tribes have feel for the ways they have been ignored and under considered in the past. They have legitimate claims that must be addressed. Having said that the argument that they continue to make that this has caused them to lose their traditions is significantly overstated. Human behavior and psychology are universal. My grandfather was a great horseman and wishes his grandchildren were also. Much to his frustration we have access to modern ATVs and that is what we prefer. To argue the younger generation would be significantly different in the embrace of culture and tradition without the dams is the denial of centuries of human behavior.	Thank you for your comment.
1986	1	N/A	N/A	Heres a potential way to replace the power generated by the Snake River dams. Instead of a large dam smaller concrete structures could be built that basically create a spillway that diverts water into a parabolic funnel fountain with multiple funnels. Basically a central stream that allows water to create a vortex that turns an inner funnel with opposing magnetic charges and a stator on outer funnel to collect charge. The water that comes out will be aerated and somewhat purified. It could be spilled back into the water or spilled into another fountain repeating the process depending on elevation change where it enters and exits spillway. These can be built to any scale depending on power demands. Also the double helix vortex created can also generate some power because it also creates a rotating field. Screens placed at spillway entrance will prevent wildlife and debris from entering spillway and fountain. Theres sediment collection devices that need to be added but heavy materials such as lead could be separated if theres a need like in the Columbia River. Ill provide a basic freehand top view sketch as a visual. Improving the water quality and adding oxygen should help. Better stream and flow management would also help. If the water is used for irrigation it will help farmers because it has more oxygen and it will move better through the ground because it has a slight charge. Theres better designs but the concepts are the same. Discharging through a spiral pipe would also increase flow. It should cost less than building dams and actually help improve the environment and wildlife while still producing the same or more electricity.	The replacement resource scenarios described in the EIS are designed to ensure that the effect of dam breach on regional power reliability is minimized to the extent possible, taking into consideration the cost. The EIS recognizes that there are multiple ways that the generation losses from the dams could be replaced and relies on the best information currently available to identify cost-effective replacement scenarios. The co-lead agencies appreciate the insights in this comment regarding innovative project designs for replacing the power; however, information is limited that would be necessary to evaluate how effective these projects would be.
2053	1	N/A	N/A	3. The Dams Provide Affordable Electricity - Multiple independent studies indicate a shortage of electricity generation in the coming years, particularly with the closure of coal plants. The lower Snake River dams are critically needed to avoid a repeat of the 2000-2001 energy crisis that resulted in soaring electricity prices. The draft EIS indicates that replacing lost generation from dam removal with carbon-free resources could result in a 50% increase in power costs. That doesn't consider the loss of coal generation which will also need to be replaced by carbon-free resources to reach CETA goals. A rise in energy costs would worsen our homeless crisis in the Tri-Cities and mean greater hardships for people already struggling to make ends meet.	The comment that breaching the lower Snake River dams and replacing them with alternative sources of energy would drive up costs in the region is consistent with the EIS findings. Likewise, the connection between reducing carbon emissions (under CETA and coal-plant retirements) is an area that the EIS considered. The Environmental Justice analysis (Section 3.18.3 of the draft EIS) provides further detail on potential disproportionate effects to Tribal, low-income and minority populations. Chapter 5 and Exhibit 1 of Appendix H, Power and Transmission in the draft EIS provides additional details on potential rate increases by county as well as for urban and rural utility customers.
2060	1	rslovic@gmail.com	N/A	The study has a glaring omission. It fails to take into consideration the costs of upgrading the aging Lower Snake River Dams. The breaching costs have always included the amount of money needed to provide irrigation from a free-flowing river and the costs of rail spurs to rail lines to accommodate the 2 million tons of grain that currently travels by barge. Longer trains and lighter larger cars that have been developed can accommodate the additional grain. Every ounce of grain currently travels by truck to the barges and silos. The irrational argument about increased truck traffic is meant to confuse and scare people. I doubt Lewiston, Idaho will mourn the loss of its port since it loses a lot of money each year. It hasnt made money in years.	The costs to breach the dams and draw down the infrastructure are described in Section 3.19 and in Appendix Q (construction costs of the structural measures).Tables 4-1 and 5-1 in Appendix Q show the costs and cost savings under MO3. There would be approximately $107 million in annual capital and O&M cost savings under MO3 compared to the No Action Alternative for the four lower Snake River projects over the 50-year period of analysis. The cost of breaching the dams, as described in Section 3.19 and in Appendix Q, does not include changes to irrigation or rail infrastructure. The Navigation and Transportation Section (3.10) reflects the adverse effects of implementing MO3, including discussions of transportation mode capacity and cost of grain transport. The EIS also evaluates the additional transportation infrastructure investments and associated costs that would be required, as well as the increases in air emissions that would occur. The EIS finds that truck ton-miles may experience an increase of 19 percent to 84 percent under MO3 when compared to the No

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					Action Alternative, depending on the rail rate increases that occur. The EIS analysis found that truck trips would increase between 14,000 to 79,000 truck trips per year, which would increase air pollutant and greenhouse gas emissions in the region and add to traffic and congestion in the region. Rail ton-miles would increase by as much as 86 percent (when rail rates are not assumed to increase) or decrease by 2 percent (when rail rates increase by 50 percent).
2060	2	rslovic@gmail.com	N/A	The 98% figures given for overall dam passage survival of chinook, and steelhead strains credulity. It makes me wonder about the rest of the figures in this report. The study continues to conflate the breaching of the four Lower Snake River Dams with the entire Columbia River System. For instance, the study talks about flood control even though the LSRD werent built to control flooding.	The 96% and 93% survival targets in the 2008 Biological Opinion are based on survival at each individual dam and are not cumulative. The in-river survival estimates presented throughout the Draft EIS show the total freshwater juvenile survival rates of salmon and steelhead as they pass the multiple dams of the CRS. The Draft EIS references the number of dams included in each estimate and varies by species (e.g., Upper Columbia vs. Snake River). The Draft EIS contains detailed descriptions of each project and also details whether the authorized purpose of a dam includes flood risk management or not.
2078	1	jdmcive@gmail.com	N/A	The average return for steelhead over Bonneville Dam from 1938 to 1947 averaged 127,000 fish. From 2000 thru 2009, the average return was 401,000 steelhead, a 316 percent increase. For spring chinook salmon, the 1938 to 1947 average was 62,000 fish. From 2000 to 2009, the average return was 164,000 chinook, a 265 percent increase. In a book titled Against the Torrents, copy write 2016, Darrell Bentz, a jet boat builder and fishing guide on the Salmon river states in 2007 there was an abundance of fish. Abundance of fish? How can that be! The snake river dams had been in place for over 30 years and we had and abundance of fish. I would like you to task you to list what has changed since 2007. Did netting on the Columbia river change? Did hatchery production change? Did the way fish arrive at the ocean change? Have predators to fish changed? These are the questions that need answered, because the dams havent changed and allowed an abundance of fish to come up the snake and salmon rivers in the past. Get all the information first before blaming the dams.	We agree that there have been many changes in the basin that impact anadromous fish populations outside the operation of the dams. Research continues to evaluate the magnitude of these effects. For more information see the NMFS website at: https://www.nwfsc.noaa.gov/research/index.cfm While the CRS dams have been in place since well before 2007, the configuration of the dams and operations have changed in order to improve passage conditions for ESA-listed salmon and steelhead. In addition, predation from a variety of sources (e.g., avian, native and non-native fish predators, and pinnipeds) has increased since 2007. Please see the Affected Environment in Chapter 3 of the Draft EIS for more information.
2080	1	N/A	N/A	This draft EIS is described as evaluating the impact of dam operations on threatened and endangered fish populations. I have lived near the Columbia River for nearly 40 years and have had a number of opportunities to visit the dams and their visitor centers. One thing that struck me was the census of fish data and the great decline of fish due to the canneries and fishing that occurred long before the dams were built. The Columbia River hogs were fished out, long before dam construction. There are a number of other causes of fish mortality, including Caspian Terns, California Sea Lions, Northwest Pike Minnows, and the growing and spreading populations of white Pelicans. Fishing also continues, including the use of gill nets that stretch across the river. I did not see any mention of a root cause analysis for the complete causes and extent of causes for fish mortality. A root cause analysis would show that the dams, with their fish ladders, are way down the list and not a main cause. It does not make sense to remove dams. The causes of fish mortality are elsewhere. The Columbia River dams have provided an opportunity for better, healthier lives for residents in the region and around the country. Life expectancy and health have improved due to the accessibility of power and irrigation water and the improved distribution of crops.	We agree that there are many effects to salmon and steelhead populations outside the operation of the dams. Research continues to evaluate the magnitude of these effects. For more information see the NMFS website at: https://www.nwfsc.noaa.gov/research/index.cfm The Preferred Alternative includes a large suite of predation mitigation measures, some of which include maintaining avian wires in the tailrace of lower Columbia and Snake River dams, active hazing of gulls at the dams, and the pattern of operating the spillway gates all mitigate for predation at the dams by birds and fish. The Predator Disruption Operations will mitigate Caspian Tern predation on juvenile salmon and steelhead in the lower Columbia Rivers. Management efforts are ongoing to reduce salmonid consumption by terns in the lower Columbia River, and similar efforts are in progress to reduce the nesting population of Double-crested cormorants in the estuary. The co-lead agencies currently implement a Northern Pikeminnow Management Program which includes an ongoing base program and general increase in northern pikeminnow sport-reward fishery reward structure to reduce predation by these fish. This measure would continue under the Preferred Alternative. Management of gamefish such as walleye typically falls within the authority of state fish and wildlife agencies. This EIS analyzes the operations, maintenance, and configuration of the CRS projects. Many of the effects listed in this comment are outside of the scope of this EIS. The co-lead agencies also looked at the cumulative effects of other actions, including harvest, in Chapters 6 and 7 of the EIS. However, the three co-lead agencies do not manage fish stocks, and do not have the authority to do so. For harvest, fisheries in the Columbia River Basin and those that rely upon Columbia River fish stocks are managed by numerous entities, including Federal, state, and tribal governments. These entities are guided by a complex array of policies, laws, compacts, and agreements. The management of Pacific salmon fisheries in particular is complex, and involves numerous entities representing a variety of social, political, and conservation interests. Changes in allowable fishery harvest in the Columbia River Basin are a result of decisions made by state, Federal (i.e., NMFS), and tribal fishery managers based on a variety of environmental, biological, economic, and social factors. Alternatives to include changes to harvest are not within the scope of this EIS. The assumptions regarding harvest are taken from the NOAA 2018 EIS and reflect current harvest management guidelines. Research continues to evaluate the magnitude of these effects.
2084	1	jfix3371@charter.net	N/A	Alternative 3 has the inherent assumption that breaching the dams this would preserve the salmon and by inference the Southern Resident Orcas. As noted on page 91 of the Washington State (i.e., Governor Inslee) funded report* only some of the factors leading to salmon mortality will be alleviated by lower Snake River Dam removal, while others may be introduced. When projecting changes to mortality and salmon population recovery levels there is extreme uncertainty due to the variety and magnitude of factors that contribute to overall populations, many of which change on a year to year basis. The salmon and Orca situation is amplified in the October 2018 announcement by Canada to help maintain their Northern and Southern Orca Pods. The Canadian effort is particularly relevant to Alternative #3 evaluation in the draft EIS. This announcement states that the Government of Canada is taking immediate and comprehensive action to encourage the recovery of their Orca pods (and by implication salmon) by: reducing Chinook fishery harvesting to increase this food source for both the Northern and Southern Orca Pods; adding more fishery officers on the water to verify compliance; requiring a mandatory minimum approach distance of 200 meters for all Orca populations in British Columbia (BC) and the Pacific Ocean; installing under-water hydrophones in the Salish Sea to better understand noise levels and impacts on the Southern Residents; partnering with the Vancouver Fraser Port Authority Enhancing Cetacean Habitat and Observation (ECHO) program on a voluntary vessel slowdown in Haro Strait (where Southern Pod Orcas are often found) to reduce underwater noise levels of vessels using the port, with a current participation rate of around 90 per cent; increasing aerial surveillance patrols through Transport Canadas National Aerial Surveillance Program; conducting additional research in contaminants, and noise from marine shipping for both Northern and Southern Orca Pods; collaborating with the shipping industry, United States partners, and Indigenous peoples to put in place a trial in which vessels move away from key foraging areas of the Southern Pod Orcas by going further south within existing shipping lanes in the Strait of Juan de Fuca. working with BC Ferries to develop a noise management plan to reduce the underwater noise generated by their fleet, including commitments to buying quieter vessels; and increasing research, strengthening regulatory controls, and enhancing enforcement of environmental regulations to reduce contaminants affecting whales	Thank you for your comment and additional information. We agree that there is uncertainty in projecting future outcomes based on past results. We continue to refine our monitoring and modeling efforts to gain additional insights regarding salmon survival and returns. The co-lead agencies conclude there could be a negligible to minor beneficial effects to SRKW from implementing MO3. CSS and NMFS Lifecycle models predict that lower Snake River Chinook salmon smolt-to-adult returns would have a moderate to major increase under MO3. Operation of Lower Snake River Compensation Plan fish hatcheries under MO3 is uncertain and therefore, production of Snake River hatchery fish is assumed to decline over the long term, while returning adult wild salmon are anticipated to increase. However, the co-leads do not anticipate a lack of hatchery fish in the short term based on the proposed fish hatchery mitigation described in Chapter 5. These additional hatchery fish should mitigate short-term construction effects to Snake River populations. Additionally, to address short-term effects to ESA-listed species, the co-lead agencies propose constructing a new trap and haul facility at McNary and conducting at least two years of trap and haul operations for Snake River fish (Chinook, sockeye, and steelhead). The co-lead agencies agree that the quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differently from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020).
2084	2	jfix3371@charter.net	N/A	The extent of the Canadian programs illustrate that problems are far greater than removing four large dams on a section of the Snake River. Certainly, the primary goal is to increase salmon spawning in various river systems with assurance that there will be a concurrent increase in salmon availability to the Orcas. Available peer-reviewed scientific articles** illustrate that much uncertainty exists as to the actual causes in the decline of salmon availability to the Orca Pods in the Pacific Ocean. These causes must be understood to enhance Orca survival particularly for a species that travels hundreds of miles each year, could easily travel to locations with greater salmon abundance, as well as marine mammal prey, such as seals and sea lions. The most likely outcome of Alternative #3 are continued declines in salmon and ongoing risks to the Orca while destroying the economic vitality of an entire region of south eastern Washington leaving the lower Snake River with large concrete monoliths instead of functioning dams. I question whether the authors of this report spent time examining the existing recreational activities associated with the lower Snake River dams.	We agree that there are many effects to salmon and steelhead populations outside the operation of the dams. Research continues to evaluate the magnitude of these effects. For more information see the NMFS website at: https://www.nwfsc.noaa.gov/research/index.cfm The EIS analysis found only a minor effect to the Southern Resident killer whale would result from implementing MO3 (which includes the dam breach measure). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall run (tules and brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults form the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differentially from hatchery and wild fish. Hatchery fish today likely make up most fish consumed by SRKW (NOAA BiOp 2020). Impacts to recreational activities were analyzed for each alternative, in compliance of the National Environmental Policy Act (NEPA). Recreation analysis is available in Section 3.11 of the EIS.
2101	2	thefranks5@msn.com	N/A	Regarding the salmon/steelhead/fish issue: Has this study looked at purchasing or building some massive fish canons to jetison the fish over the dams in a friendly, cost effective way? https://www.youtube.com/watch?v=iPuQ39iGkAY It seems the cost would be relatively tiny, compared to breaching the dams and trying to replace them. And the company that designed, engineers and produces them, Wooshh Innovations, is Washington-state based, http://www.environews.tv/081819-feat-of-engineering-salmon-cannon-explodes-across-internet-as-fish-get-free-flight-over-dams/	The co-lead agencies received additional comments related to use of water cannons, or similar proprietary adult fish passage devices. Currently, fish ladders are proven effective at moving adult fish upstream at the dams that have them. The technology of fish cannons or similar devices has demonstrated some success on smaller scales, and their use will continue to be evaluated for future applications.
2117	1	lightnerlarry@cableone.net	N/A	The total absence of input from some of the most significantly impacted elements, which includes sportsman and recreational and fishing businesses, makes it a totally pre-determined outcome without any credibility. This EIS should be redone taking into full account the input from these sources.	The EIS recognizes the value of the salmon fishing industry to the region. Section 3.15 describes the values associated with salmon fisheries in the Pacific Northwest. Section 3.11 characterizes the sportfishing economy in the region. However, the uncertainty regarding the overall effects of the alternatives on regional fish populations, and how such changes may affect the management of the fisheries, limits a quantitative analysis of the specific impacts of each alternative on these values. The effects are therefore discussed qualitatively. The social welfare effects on fisheries under MO3 are described as major and beneficial in the long-term, with increases in regional economic effects if commercial fish catch rates increase. For the effects on recreational fishing under MO3 (Section 3.11.3.5), the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River). There is some uncertainty around recreational fishing visitation in the long-term given the current measures to regulate, protect, and support ESA-listed fish populations and habitat in the region. However, the EIS describes that the visitation in the long-term, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting recreation and tourism businesses. The EIS described the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. NMFS estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which is described qualitatively. For MO1, MO2, MO4, and the Preferred Alternative, the evaluation qualitatively describes the potential for effects associated with recreational fishing by referencing the potential effects on relevant fish populations, as described in Section 3.5. Fish modeling results vary for some of the alternatives, for example for the Preferred Alternative and MO4 (i.e., models show either beneficial or adverse effects to anadromous fish), so it is assumed that the potential changes in recreational fishing would follow these changes in fish abundance in the long-term. The contribution of Columbia River origin fish to ocean fisheries is described in Section 3.15.2.1. Because there is considerable uncertainty regarding the overall effects of the alternatives on regional fish populations, and how such changes may affect the management of the fisheries, effects associated with changes in commercial and recreational fisheries under the alternatives were described qualitatively. This analysis evaluates potential effects on fisheries by referencing the potential effects on relevant fish populations, as described in Section 3.5.

Letter No.	Comment No.	Commenter Name/Email	Affiliation	Comment	Response[1/]
2118	1	N/A	N/A	We have been spending increased amounts of money to facilitate fish migration. It would be interesting to me to see what we are spending per fish. I suspect that it is a large number, but have not seen it reported. The publication of such a number would allow the general public to understand the cost impacts in a fundamental way of many of these actions. I know that my power bills have greatly increased over the years as increased money have been spent on supporting fish migration. I wonder if alternative means couldn't supply fish at a lower cost. Stronger efforts to reduce consumption of juvenile fish by predators and additional fish hatcheries would seem to be a more cost effective efforts.	This CRSO EIS looked at alternative ways to operate, maintain and configure the 14 Federal projects. We looked at a variety of ways to improve fish passage and survival, with a wide range of benefits effects, which were a few of the main objectives of the EIS. Both No Action Alternative and the Preferred Alternative includes actions to reduce predation and would be carried out by the Federal agencies. It is not feasible to determine per fish the expenditures, as not all costs are accounted for fish by fish, but typically by habitat, health, and other variables.
2130	1	N/A	N/A	2. Create some sort of control mechanism on the numbers of seals that prey on the salmon; maybe a birth control drug that could be administered to the female seal, or the male.	Developing and administering birth control to seals is beyond the authority of the co-lead agencies and the scope of this EIS, which analyzes the effects of operation, maintenance, and configuration of the CRS projects. Regarding pinniped predation, sea lion management decisions at Bonneville Dam rely on input from the Sea Lion Management Working Group. This Working Group is a collaborative effort with NOAA, USFWS, various Tribes, and the co-lead agencies. The co-lead agencies works to minimize the effects of sea lions on salmon by implementing Best Management Practices specified in the NOAA Biological Opinion and by implementing recommendations developed by the Working Group. The co-lead agencies will continue to use this process to minimize the effects of sea lions on salmon within their authorities. The EIS discusses the Working Group and sea lion management in Section 3.5, 3.6 and Chapters 5 and 7.
2130	2	N/A	N/A	3. Work with the native americans in controlling the number of fish taken by nets, something like what you're doing with the numbers that non-native people may take in a given year. This could be achieved by a better fish counting method than what is presently being done on the netting harvest made by the native american.	For harvest, fisheries in the Columbia River Basin and those that rely upon Columbia River fish stocks are managed by numerous entities, including Federal, state, and Tribal governments. These entities are guided by a complex array of policies, laws, compacts, and agreements. The management of Pacific salmon fisheries in particular is complex, and involves numerous entities representing a variety of social, political, and conservation interests. Changes in allowable fishery harvest in the Columbia River Basin are a result of decisions made by state, Federal (i.e., National Marine Fisheries Service), and Tribal fishery managers based on a variety of environmental, biological, economic, and social factors. The three co-lead agencies (Corps, Reclamation, and Bonneville) do not manage fish stocks, and do not have the authority to do so.
2146	1	spangrudelaptop@q.com	N/A	The purpose of this submittal is to illustrate how long "fisheries issues," especially "declining salmon numbers" and "water temperatures above 68 degrees F" have been noted within the Pacific Northwest. One reference which provides interesting reading concerning fisheries as related to the Northwest United States is this item: Chapman, D.W. (1986). Salmon and Steelhead Abundance in the Columbia River in the Nineteenth Century, Transactions of the American Fisheries Society, 115:662-670. This reference shows graphically that the 'maximum Salmon Harvest' occurred in the 1880's; and has been in general decline since that time. This 'maximum harvest' occurred long before (80 years) the construction of the Lower Snake Projects in the early 1960's. Water temperature data was collected on the Lower Snake River from 1952 through 1956; which was therefore done under free-flowing conditions prior to the construction of the four Lower Snake River projects. The data collection results are summarized in United States Geological Survey (USGS) Water Supply Paper #1253 (for the year 1952), USGS Water Supply Paper # 1293 (for the year 1953), USGS Water Supply Paper #1353 (for the year 1954), USGS Water Supply Paper #1403 (for the year 1955), and USGS Water Supply Paper #1453 (for the year 1956). During this time, temperatures in excess of 65 degrees Fahrenheit were recorded on 304 days, which is approximately 17 per cent of the total observations, or about one out of every six made. Temperatures in excess of 70 degrees Fahrenheit were noted on 100 days, which is about 5 percent of the total observations, or about one out of every 20 made. In 2019, the Water Temperatures at three United States Geological Survey gaging stations located upstream of Lower Granite Project were generally above the 68 Degree F thresh hold since mid-July or early August 2019, depending upon the gage location. These monitoring points are the Salmon River at Whitebird (USGS 13317000), Snake River at Anatone (USGS 13334300), and the Clearwater River at Orofino (USGS 13340000). This current Water Temperature information is readily available online. Data was once available for the Snake River at Weiser (USGS 13269000) location as well; but unfortunately data collection was terminated due to 'loss of funding' after the 2015 Water Year; even though the year 2015 witnessed some water temperature issues downstream. Hopefully the Lower Snake River's extended picture will be addressed, both temporal and spatial aspects, as part of the decision making process. Declining fish numbers were noted long before the construction of the Lower Snake River Projects; and Water Temperatures exceeding 68 Degrees F are currently noted many miles upstream from these dams; and far removed from their direct influence.	The scope of the EIS focuses on the area affected by the alternatives presented for operation, maintenance, and configuration of Columbia River System Projects. This comment provides detailed information on the habitat area outside of the influence of the projects, as well as historical information. The EIS presents a brief description of the tributary habitat area and historical information as context, but it is not needed to be described in detail as none of the alternatives would result in changes to this habitat. It is noted that the temperatures historically contribute to challenges to salmon in the basin and that many factors have contributed to salmon declines, both before and after construction of the dams. The alternatives are evaluated in terms of change from the No Action Alternative, which is the baseline condition of 2016 when the development of the EIS began. However, water quality effects for the Columbia River Basin were considered in the EIS analysis and are described in Sections 3.4 and 7.7.3 of the EIS.
2167	1	crcarlson@hughes.net	N/A	I write to you as a wheat farmer and as the President of the Oregon Wheat Growers League, where I represent our grower members throughout the great state of Oregon. Our growers overwhelmingly support the preferred alternative that rightly avoids the extreme measure of dam breaching. If the dams were breached, the clean power, irrigation supply, and navigable waters made possible by the federal system of locks and dams on the Snake River would come to an end and cause devastation. The demand on the remaining power grid would be stressed to supply inexpensive and reliable power to businesses, irrigated farms and local communities. The irrigation supply to Snake River farms and residential customers would be cut off and the demand from the remaining Columbia River dams would need to supply the deficit. Would there be enough reserves to fill the demand, or would those Snake River acres go back to desert without an inexpensive source of water?	The analysis of MO3 identifies impacts to power generation and reliability, navigation on the lower Snake River, and to irrigation. In Region C under the MO3 alternative this analysis concludes that pumps are unable to deliver water to estimated at 48,000 acres. There is a physical limitation to delivering water to these lands in the absence of the dams. Breach of the dams has the potential to drop surface and groundwater levels up to 100 feet and it is not possible from an engineering or cost standpoint to replace the delivery mechanisms, nor do the co-lead agencies have the authority to do so currently. Please see Section 3.12 and Appendix N for additional information.
2167	2	crcarlson@hughes.net	N/A	Without the Snake River Locks, the 3.5 million tons of cargo, normally shipped by barge, would be shipped by train and truck. It is estimated that it would take more than 35,140 rail cars to carry this cargo, or more than 135,000 semi-trucks. The rail and highway infrastructure along the Columbia River are not prepared to function with the loss of barging on the Snake River. In addition, our local wheat co-ops would have to make major capital investments in elevators and infrastructure to receive truck traffic from the Snake River areas. This would mean increased train loading and barge loading all along the Columbia River. The rail lines are almost at maximum capacity through the Columbia River system; rail, truck and barge rates will increase as demand increases, another cost our farmers will have to incur. The increased cost of trucking and rail, plus the put through cost at our local elevators will cause an economic hardship on farmers and co-ops who need to get the products to market economically. The increased transportation cost will heavily impact wheat producers who are already struggling to make ends meet on many accounts. Barging our wheat and other commercial products is not only the best option to support farm businesses, it is also the most environmentally friendly and safest mode of transportation available.	The Navigation and Transportation Section 3.10 reflects the adverse effects of implementing MO3 including discussions of transportation mode capacity and cost of grain transport. The EIS also evaluates the additional transportation infrastructure investments and associated costs that would be required, as well as the increases in air emissions that would occur. The EIS finds that truck ton-miles may experience an increase of 19 percent to 84 percent under MO3 when compared to the No Action Alternative, depending on the rail rate increases that occur. The EIS analysis found that truck trips would increase between 14,000 to 79,000 truck trips per year, which would increase air pollutant and greenhouse gas emissions in the region and add to traffic and congestion in the region. Rail ton-miles would increase by as much as 86 percent (when rail rates are not assumed to increase) or decrease by 2 percent (when rail rates increase by 50 percent). The EIS finds that average transportation costs for wheat farmers would increase 10 to 33 percent, but that individual farmers could experience increases that are much higher, depending on their specific location and other conditions.
2191	1	smolts@msn.com	N/A	We can provide alternative technology strategies for the main obstacles the dams create for the anadromous salmon, which do not involve dam removal: (1) upstream migration, (2) downstream dam passage, and (3) slowed migration through the reservoirs. Each of these technology strategies involves the use of induced flows for fish guidance using our Flow Velocity Enhancement System (FVES) (Patten No.: US 6,729,800 B2). (1) Upstream migration by adult salmon can be aided by inducing flows in the reservoir forebay where salmon exit the fish ladder, thus reducing fallback. Cool, deep water can be directed at the exit in summer and fall where fish would be attracted to both the low temperature and the directional flow that they expect from a naturally flowing river. (2) Downstream dam passage can be aided by using the FVES to direct young salmon to a new bypass channel at each dam. These channels replicate a natural stream with all the features found in a stream. Newly constructed channels or nature-like bypasses would complement the existing gate-well collectors and save water for generation that is now spilled for fish passage. (3) The well-known slowing of migration through the impoundments, particularly in the dam forebays, that lengthens exposure times of fish to high temperatures and predators can be countered by inducing flow with FVES units. Induced flows can provide guidance in zones where fish lose contact with the directional-flow stimuli provided by natural rivers. Each of these proposed technology strategies is based on published scientific literature that is readily available. See, for example, chapters 6 and 7 by C. C. Coutant and R. R. Whitney in R. N. Williams, editor, Return to the River--Restoring Salmon to the Columbia River. Elsevier Academic Press, New York (2006). For important details about the NATURAL SOLUTIONS nature-like bypass, please see Patent No.: US 6,652,189 B2. We encourage you to explore with our firm how these strategies might be incorporated into a multi-faceted remedial program for improved salmon protection and propagation while retaining the important economic values of the four Snake River dams.	Thank you for your comment and additional information. The EIS recognizes that there are multiple ways that fish passage at dams could be replaced and relies on the current high quality information to identify improvements. We appreciate the insights in this comment regarding innovative project designs for replacing fish passage; however, information is limited to evaluate how effective these projects would be. The co-lead agencies received additional comments related to use of water cannons, or similar proprietary adult fish passage devices. Currently, fish ladders are proven effective at moving adult fish upstream at the dams that have them. The technology of fish cannons or similar devices has demonstrated some success on smaller scales, and their use will continue to be evaluated for future applications.
2200	1	zanbang@gmail.com	N/A	The draft EIS suggests that removal of the dams would have adverse social and economic effects and yet the document fails to recognize that salmon and orca whales are a critical part of the social and economic fabric of our society. The entire economy of the pacific northwest is rooted in salmon, as it has been since time immemorial. By lifting up the leadership of our local tribes we can and will learn how to live on this land more efficiently and peaceably.	The EIS recognizes the social and economic values associated with salmon although these values are not all expressed in monetary terms. Section 3.15 provides a discussion of the value of fisheries (commercial and subsistence) associated with salmon, as well as passive use values that people hold for these fish. Section 3.11 describes recreational values associated with the fish. Given uncertainty associated with the specific effects of the alternatives on overall fish abundance, these values are described qualitatively. Additionally, Section 3.17 provides information on the cultural significance of the salmon to regional Tribes. The analysis described in Section 3.6 of the EIS finds that MO3 will have a minor effect on the Southern Resident killer whales (see Table 3-106) and all other alternatives would have negligible effects on the species.
2200	2	zanbang@gmail.com	N/A	The drafters of this EIS state that breaching of the dams has an adverse impact of disallowing co-lead agencies to operate dams and this is not a stated objective of this document. This section should be removed as it is irrelevant to the stated objectives.	As stated in Chapter 2, the co-lead agencies developed alternatives to meet the objectives and the Purpose and Need. The Purpose and Need Statement includes a desire to meet the congressionally authorized purposes of the system, which include hydropower generation, inland navigation, and irrigation, among others. Each alternative was measured against the No Action Alternative in how well it could meet both achieve the objectives and meet the Purpose and Need Statement . Table 7-1 in Chapter 7 summarizes these considerations. Breaching of the four lower Snake River dams would adversely affect the co-lead agencies' ability to meet those congressionally-authorized purposes, as well as does not meet, or meet as well, the EIS objectives. Operations to meet these purposes are described in the No Action Alternative.
2200	3	zanbang@gmail.com	N/A	It is faulty logic to suggest that the power lost from the hydroelectric dams must be replaced with Natural Gas leading to increased GHG emissions. Washingtonians would never stand for this. This section should be amended to reflect the zero carbon options that are laid out in the EIS in lieu of the natural gas option.	The commenter is correct that the least-cost portfolio replaces lost power capacity with natural gas. The Draft EIS also includes analysis describing a zero resource portfolio, consistent with the commenters suggestion. Both least cost/natural gas and zero emission replacement portfolios were analyzed in the Draft EIS to provide a full range of costs and potential resource replacements. Additionally, by considering natural gas replacement, the conventional least-cost scenario employs an industry-standard approach to valuing changes in capacity. The basis for developing both of these portfolios is in Section 3.7.3.1, Methodology, of the Draft EIS.
2200	4	zanbang@gmail.com	N/A	The suggestion that archeological sites will be adversely impacted by breaching the dam is absurd. The archeological sites were drowned with the building of the dams. Giving this land back to the people who have used it for generations will improve their own connection with ancestors.	The co-lead agencies respectfully disagree that archaeological sites will not be adversely impacted by dam breaching. The co-lead agencies anticipate massive exposure and erosion increases in reservoirs during dam breach activities. As the analysis in Section 3.16.6 in the Draft EIS demonstrates, this would likely entail bank erosion, and in some cases, mass wasting events. Understandably, the erosion rate is dependent on local topography (slope) and geology (sediment structure), but is still expected to be highly impactful to the known and unknown archaeological resources in the areas that will be impacted by dam breaching activities. Other impacts would likely include gully erosion, increased looting, and other forms of ground surface disturbance. The co-lead agencies do agree that impacts to traditional cultural properties (TCPs) may decrease in the long-term in the areas impacted by dam breaching activities. Restoration to a more normative river would allow Tribal communities that attach importance to these traditional areas to access them once again. The overall impacts to TCPs from the dam breaching alternative is presented fully in Section 3.16.3.6 in the Draft EIS.

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2202	1	elapsley@cableone.net	N/A	Lower dams generate about 1,000 Mw. Built in 1960s with tax payers money. EST life 50-100 years. Trojan plant was1,064Mw. Replacement 6B-9B. Who would buy replacement, tax payer. Who would pay remaining life of dams, Tax payer. Cost to rate payers for hydro electric is about $.85 c/kWh. Other sources are 50% or higher. Where is the value to the public?	The comment that replacing the four lower Snake River dams under MO3 will drive up costs in the region is consistent with EIS findings. Construction of the dams is paid for by customers of Bonneville, through the power rates Bonneville sets. Loss of the four lower Snake River dams would drive up costs to regional ratepayers regardless of whether Bonneville replaced the lost capability or regional (non-Federal) entities replaced the lost capability. See Draft EIS Section 3.7.3.5, Tables 3-166, 3-167. The average cost of generation from the Columbia River System is 8.5 cents/kWh (see Table 3-112, Draft EIS). The costs of other resources vary based on a range of other factors. Appendix H, Power and Transmission provides additional details on the selection of replacement resources and potential rate increases.
2203	1	cglanewman@gmail.com	N/A	Instead of removing the environmentally friendly dams, the focus should be placed on the other more lethal factors that affect salmon, such as gill nets from Indian tribes. Tribes did not have motor boats and gill nets when the treaties were signed in 1855, giving them the fishing rights they point to today when arguing this issue. The intent of the treaties, were to guarantee their traditional fishing methods to acquire food to consume... not harvest half of all the fish in the waters every year! The Nez Perce tribe is now placing gill nets in the Clearwater River upstream from Lewiston, ID and stocking the same river with lamprey eel to compete with the salmon for food and habitat. In the last 150 years, there has been a change of circumstance....	The co-lead agencies agree that there are many effects to salmon and steelhead populations other than the operation of the dams. Research continues to evaluate the magnitude of these effects. For more information see the NMFS website at: https://www.nwfsc.noaa.gov/research/index.cfm Fish harvest management is not within the scope and the co-lead agencies have no role or authority over fishing limitations or quotas. Fishing and harvest are subject to separate actions by federal, state, and tribal agencies outside the scope of this EIS.
2210	1	N/A	N/A	The issue are the predation in the Salmon Rivers and Tributaries due to Aggressive Brook Trout introduced in the CSRO System from the Eastern States - they do not migrate instead live in the Salmon, Snake and Columbia River System all the way to Montana - they move from one river system to another easily according to Wild Life studies but they are the largest predator from the Frank Church area and all three forks of the Salmon Rivers of Idaho and their tributaries. NOAA Studies of Juvenile Chinook Salmon Pit-tagged when they come from Valley Creek for example into the SALMON River and tracked to Lower Granite - 80-85% of them do NOT make it due to the slower moving, shallow areas of the Salmon River - the Fish Accords designated to all 4 states total $730 Million in 2014 - the Judge upon ordering this EIS designated $1.5 BILLION to HABITAT and Hatcheries in 2017 - THE EIS should show where that money went and how it was spent in the Federal U.S, State and Tribal Agencies - it has 3 years to be used for Habitat - Federal U.S. Forest Service, Federal Fish and Wildlife, Federal Bureau of Reclamation, Idaho, Washington, Oregon and Montana Wildlife and Game and the Tribes need to show what they did with the money given to them to actually restore Habitat for the Juvenile Fish so they can hide from the aggressive invasive species. Bull Trout are doing better but also pray on the Juveniles - which desperately need Habitat to hide in the Salmon River Forks.	The co-lead agencies agree predation is an important factor affecting salmon survival in tributaries before they reach Lower Granite Dam. The scope of the Draft EIS, however, focuses on the effects of the operations and maintenance of the CRS projects and none of the measures in the range of alternatives would affect brook trout or other predator populations in the tributaries. Regarding habitat funding, the requested information can be found in annual progress reports that detail the accomplishments under implementation of the 2008 Columbia Basin Fish Accords and Biological Opinions.
2210	2	N/A	N/A	Claiming non-applicable treaties is inappropriate - they are mislead. Multiple Acts made such as the Stevens and the Dawes Acts were directed to make all Native Americans citizens by 1924 and give each individual land - the 1855 Treaties and others had a 25 year life. The Constitution doesn't conflict with itself - Native Americans are eligible to run for offices in the U.S. Government - they still have to be a Citizen. We do not make treaties with U.S. Citizens. Tribes are Quasi Sovereign within the 4 corners of the Constitution and highly revered with great effort to restore their ability to have ceremonial fish forge a truly Trust Relationship Mutually. I want Native Americans Tribal members to receive more money designated to them directly instead it is eaten up through the BIA Bureaucracy - taking .75 cents to .90 Cents on the dollar - so their bitterness is understandable all big governments hurts their own people - a multitude of funds never make it to the individual members - but they must self determine to put an end to that. But the fight for the fish is a quandary - no one keeps track of exactly how many fish are taken as 1/2 per the Bolt Decision which many like me fully support - Orofino, ID they sell their rights to take people on guided tours - Openly. There does seem to be conflicting activities for these ceremonial fish. Factually and unfortunately, without bias The Fish Passage Center (a group of multiple tribes and confederated tribes from multiple states that directs the Technical Management Team re: the CSRO per Consultation - disobeyed the Judges Orders on two accounts from the 2014 Bi-OP - Sadly, they didn't follow the Judges Assigned Scientific Team who called on them to move the Juvenile Fish twice in Spring of 2015 - urging juvenile boiling alive to move them in March instead of May - they refused and only transported 13% rather than the Judge Order 40-50% - the same conditions occurred in 2001 and the Juvenile Fish were collected at each of the 4 Snake River Dams and Transported at 98% below Bonneville with cooperation from Fish Passage Center. The EIS should reflect and review the concerns around the man-made crisis not as a point of accusation but as a point of direct concern as to why then do the dams need to be torn down upon such events. From 1957 to 2015 - 25 years the Adult Fish Return Consistently increased from one year to the next year with the highest record number of Adult Returns in 2015 - contrast that to 2017 the year when the Adult returns that the 2015 Juveniles would have come back and confirmed catastrophic loss of 65% by a Man-Made Crisis - an Evidentiary Hearing was requested and the Judge swept it aside saying "He didn't want to hear 'old business' "to man-made crisis that was unprecedented and shouldn't have happened - he also quipped with smile out loud that we might have to breach/do deep draw downs on the Snake River Dams" - DEEP DRAW DOWNS are the SAME affect and result and unnecessary. $1.5 BILLION was designated and where did it go? Tribes don't seem to be anti-dam they studied dams per the Native American Energy Act and their best Opportunity upon review from Alaska to California was the Lower Snake River Dams from 2014-2017. Wouldn't that mean they want the dams and the fish to succeed - if so what changed? The final draft of the EIS needs to answer this. While the EIS has to consider our Native American Neighbors - the Consultation with them failed in Spring 2015 - after decades of protocol and the Judges orders under the Spread the Risk program 50% In-river and 50% Transport to assure Salmon would return and every year transport was used - the fish came back in consistent numbers as a proven method - now the dams are on the chopping block - they and us have to both be bilaterally responsible with one another - that means help, understanding and accountability one to another - peacefully and work together.	The CRSO EIS evaluated alternative plans for operation, maintenance and configuration of the system. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3. However, the Preferred Alternative also meets most of the other objectives of the study for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. Analysis shows that the Preferred Alternative would meet the objectives for improving juvenile salmon, adult salmon, resident fish and lamprey. The analysis found ranges in potential effects due to different assumptions included in each of the fish models used in the study. Using the Comparative Survival Study (CSS), Snake River Chinook salmon and steelhead are expected to see relative improvements in smolt-to-adult returns of 35 percent and 28 percent, respectively. The Smolt-to-Adult return ratio (SAR) is the rate at which of a group of fish survive from their smolt life stage to a defined ending point where they return as adult. While achieving long-term recovery targets will require more than just the efforts of Federal agencies, the CSS models indicate the potential for SARs of Snake River Chinook salmon and steelhead to increase to levels that could approach recovery targets set by the Northwest Power and Conservation Council. If latent mortality effects are reduced by passing more juvenile fish through the spillway, the NMFS Lifecycle Model (LCM) also shows that levels of SARs would increase. However, if latent mortality effects are not reduced, or are different than modeled, the LCM predicts that SARs for Snake River spring Chinook salmon may be lower than the No Action Alternative (a range of -7.5 percent to +28 percent change relative to the No Action Alternative) due to reduced opportunities for fish transportation. Results for upper Columbia River stocks are beneficial based on LCM estimates. In-river survival and SARs are anticipated to increase. The CSS model does not currently model upper Columbia fish. The Preferred Alternative also has measures intended to increase upstream passage success and reduce injury and mortality for Pacific lamprey. These measures are proposed structural improvements that include converting extended-length submersible bar screen material to screen material that would not impinge or entangle juvenile lamprey, expanding the network of lamprey passage structures to bypass impediments in fish ladders, changing the design for turbine cooling water strainers, and replacing turbines for safer fish passage. The Preferred Alternative would also meet the objective to improve resident fish. Effects to resident fish vary by region and species, but are generally minor relative to the No Action Alternative.
2210	3	N/A	N/A	All three modes of Transportation are required during harvest to transport the wheat to the port for sale - if the wheat and other products don't make it on time - no sale. The stakeholders meetings repeatedly made it clear the rail system was not adequate to handle transport adequately the wheat produced. And the Clean Air Act would be drastically affected by 40,000 additional rail cars or 174,000 additional semi-trucks.	The Navigation and Transportation Section 3.10 reflects the adverse effects of implementing MO3 including discussions of transportation mode capacity and cost of grain transport. The EIS also evaluates the additional transportaton infrastructure investments and associated costs that would be required, as well as the increases in air emissions that would occur. The EIS finds that truck ton-miles may experience an increase of 19 percent to 84 percent under MO3 when compared to the No Action Alternative, depending on the rail rate increases that occur. The EIS analysis found that truck trips would increase between 14,000 to 79,000 truck trips per year, which would increase air pollutant and greenhouse gas emissions in the region and add to traffic and congestion in the region. Rail ton-miles would increase by as much as 86 percent (when rail rates are not assumed to increase) or decrease by 2 percent (when rail rates increase by 50 percent).
2210	4	N/A	N/A	The Clean Water Act Model exaggerated water temps 20% in their model - WA Policy Center met with NOAA and went through the same data Empirically and proved the model WA Dept. of Ecology and the Fish Passage Center collaborated or were drawn to collaborate on by Dept. of Ecology of WA State.	Thank you for your comment. The EIS describes the water quality modeling used for this analysis in Section 3.4.
2221	1	wjperconti@lcsc.edu	N/A	Why not consider this compromise: Is it possible to modify the dams into wing dams? Such a modification may allow fish passage while harvesting water for storage and energy.	In order to maintain authorized purposes for hydropower generation and navigation, a number of new wing dams would need to be constructed in the rivers (in addition to the existing dams) to maintain depths for navigation. Wing dams could potentially require significant modifications to the powerhouses to adjust to changed head on the reservoirs. Both would require extensive construction and modification efforts, and would be similar in adverse effect to navigation, water supply and irrigation, and power reliability as MO3. As the co-lead agencies operate the system for much broader purposes as identified in the Purpose and Need Statement, wing dams were not considered a reasonable alternative, and therefore not considered in addition to dam breaching structural measures or other operational management measures.
2226	1	ecopenhaver@bentonrea.org	N/A	I am confused by the two models used in the study to determine fish survival rates after the highest spill levels. Because they don't agree, I don't have confidence that higher spill over the dams will help fish survival. Higher spill prevents electricity from being generated, and since there's no guarantee it will help the fish, why do it?	The co-lead agencies used the two models approaches - CSS and NMFS' Life Cycle models - in its analysis of the range of alternatives because they are the models routinely utilized in this region to provide high quality information and best science. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. The effectiveness of the spill program will be monitored and effects from other sources such as harvest, ocean mortality, and straying will also be accounted for to the extent possible.
2237	1	frank.lawson@eweb.org	N/A	While the CRSO-DEIS is a crucial piece of that bigger picture, consideration of elements outside the scope of the Draft EIS is also required. For example, the overall recovery and wellbeing of Columbia Basin salmon and steelhead runs is dependent on considerations beyond just the dams. In seeking to mitigate the adverse impacts of the CRS to anadromous fish populations, it is essential that we fully account for the many stressors contributing to these impacts, including urbanization, development in floodplains, nonpoint source pollution, climate change, ocean conditions, and avian predation.	The co-lead agencies concur with the commenter that there are multiple stressors on the environment that adversely affect regional salmon populations. The co-lead agencies also recognize that there are many effects to salmon and steelhead populations outside the operation of the dams. The co-lead agencies acknowledge there are many factors that affect salmonid populations that are outside the authority of the co-lead agencies. Both human-caused and natural factors that are outside the responsibility and control of the co-lead federal agencies also contribute to the decline and recovery of fish, and will continue to strongly influence fish and their habitat. Salmon and steelhead have been adversely affected in the Columbia River Basin over the last century by many activities including human population growth, urbanization, introduction of exotic species, overfishing, development of cities and other land uses in the floodplains, water diversions for all purposes, dams, mining, farming, ranching, logging, hatchery production, predation, ocean conditions, and loss of habitat. Research continues to evaluate the magnitude of these effects. For more information see the NMFS website at: https://www.nwfsc.noaa.gov/research/index.cfm. The effects analysis in Chapters 3, 4, 6 and 7 evaluates the direct, indirect and cumulative effects to resources affected by CRS operations, maintenance and configuration. These chapters take into consideration the existing environment, which includes the stressors mentioned by the comment, among others, and evaluates the contribution of effects associated with any proposed changes. Additionally, the scope of the EIS allowed the agencies to focus on the effects of the co-lead agencies actions combined with other on-going actions and trends to determine the direct, indirect and cumulative effects to resource as well as the contribution of benefits. For additional information, see Chapter 6 and Chapter 7 for a discussion of cumulative effects, including the past, present and reasonably foreseeable future actions that also impact resources affected by the CRS.
2237	2	frank.lawson@eweb.org	N/A	EWEB is supportive of the CRSO-DEIS as a transitional guiding policy. We believe the Preferred Alternative will improve beneficial fish outcomes, including reductions in Powerhouse Encounter Probabilities and an increased Smolt-to-Adult Returns (SAR) ratio. Further, it seeks to harmonize fish benefits and power benefits to the greatest extent possible until other long-term options can be explored and/or developed. Of particular interest to EWEB, and what we consider an important part of the CRSO-DEIS, is the Flexible Spill concept strategically increasing spill when hydropower demand and value is lower and reducing spill when hydropower demand and value is higher.	The commenter's suggestions about outcomes of the Preferred Alternative are consistent with the findings of the EIS. The Flexible Spill concept has been integrated into the Preferred Alternative, as described in Chapter 7.
2241	1	N/A	N/A	The report that was done for this did not even mention the cost of having little to no fish return. I think leaving out that bit of information shows the one track mind that was put into this report. And the reason it was left out is because it would overwhelmingly show that the benefit of removing the damns would far out weight the costs.	NEPA does not require a hypothetical condition as a point of comparison, such as a world with little to no fish or "worst case scenario." NEPA requires a comparison of proposed alternatives to the No Action Alternative with a description of effects compared to the existing conditions.
2242	1	spauley4@gmail.com	N/A	Why has everyone forgotten the 2002 study by the Rand Corp on dam removal? The conclusions were that breaching the 4 lower Snake dams would not cause economic harm to the northwest and was the best way to save salmon and steelhead. Breaching would create new jobs. The powers at hand should dig out this study. The Rand Corp is a conservative group that researches subjects in depth. Wind and solar have made great progress. Why	The EIS acknowledges previous analyses of breaching the four lower Snake River dams. However, the EIS relies on current information to evaluate the tradeoffs associated with dam breach under MO3. This includes applying current models and data rather than relying on findings from studies conducted nearly 20 years ago. Further, please see Section 3.7.3.5, Social And Economic Effects Of Changes In Power And Transmission, for a discussion of the regional retail rate effects of dam

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				ignore that? Why continually go back to go over the same things year after year? The Army COE also said in past studies that breaching is the best solution to saving the fish from extinction.	breaching. As described in that section, the general impacts of breaching the four lower Snake River dams is to increase the rates of most consumers of energy in the region, which has the potential to have the highest impact on rural areas. Higher retail rates means less spending on production, which reduces job growth. See Table 3-175 for the regional economic effects from changes in household spending on electricity.
2248	1	gaffco70@icloud.com	N/A	Commerce/transportation on the river barges would be lost. This would immediately allow the railroads to greatly increase rates due to loss of competition. They also are already heavily burdened, at this would slow down freight transport even more. 2. The loss of grain (and other items) transport on the river system would also mean many more trucks on our roads, causing more pollution and greatly increased road wear and tear	The Navigation and Transportation Section 3.10 reflects the adverse effects of implementing MO3 including discussions of transportation mode capacity and cost of grain transport. The EIS also evaluates the additional transportation infrastructure investments and associated costs that would be required, as well as the increases in air emissions that would occur. The EIS finds that truck ton-miles may experience an increase of 19 percent to 84 percent under MO3 when compared to the No Action Alternative, depending on the rail rate increases that occur. The EIS analysis found that truck trips would increase between 14,000 to 79,000 truck trips per year, which would increase air pollutant and greenhouse gas emissions in the region and add to traffic and congestion in the region. Rail ton-miles would increase by as much as 86 percent (when rail rates are not assumed to increase) or decrease by 2 percent (when rail rates increase by 50 percent).
2260	1	David Dunkelbury	Kenney Farms, Inc.	Over a period of nine months in 2017, more than 3.5 million tons of cargos were barged on the Snake River. It would have taken more than 35,140 rail cars to carry this cargo, or more than 135,000 semi trucks. There is insufficient infrastructure to accommodate this kind of increase in truck and rail traffic. It would increase in emissions, increase the number of rail and vehicle accidents, including fatalities and would require further investments into infrastructure and additional road repairs which both states cannot afford.	Section 3.10 of the Draft EIS provides an evaluation of the Columbia-Snake River Navigation System, assessing its relative efficiency, low costs for shippers, safety considerations, and low air emissions relative to other transportation modes. The EIS acknowledges that depending on how rail rates respond to dam breach, shortline rail capacity could be exceeded. The EIS also evaluates the additional transportation infrastructure investments and associated costs that would be required, as well as the increases in air emissions that would occur. Under low rail rate increase scenarios, additional shortline rail capacity would be required that could cost $25 to $50 million. Under a scenario where rail rates increase by 50 percent, more shipping demand would be transferred to trucks, reducing the demands on rail infrastructure, but increasing demands on roads. Under this scenario, up to $10 million in additional road wear and tear costs may occur. The EIS finds that average transportation costs for wheat farmers would increase 10 to 33 percent, but that individual farmers could experience increases that are doubled, depending on their specific location and other conditions.
2266	1	Roger Gray; R Stark	PNGC Power	This is actually an information request and series of questions about the DEIS that will help us prepare our formal comments. If I need to submit these questions as comments on the DEIS, please let me know. PNGC Power plans to submit comments by the April 13th deadline. My questions pertain to the LOLP calculations and figures contained in the DEIS. Specifically, I am looking for more information about MO3 and MO4. The LOLP in the NAA (i.e. "basecase") is 6.6%. The LOLP for MO3 is 13.9% (rounded to 14% elsewhere in the DEIS). The LOLP for MO4 is 30%. If the questions are unclear, please contact me on the phone number or email provided. Usually, LOLP studies run multiple scenarios and then the LOLP is the percent of scenarios that fail to meet load. I was wondering if the Co-lead agencies could provide the following pieces of information (or information that most closely gets at the underlying request. 1. How many scenarios were run for NAA and each MO? Is there a general summary of scenarios (winter-dry, winter-wet, cold winter-dry, etc. etc.)? 2. Confirm (or correct) this statement: For MO3 and MO4, the LOLPs of 14% and 30% were based on the reductions in power supply (e.g. dam breaching or spill) with no other changes to the underlying power system. 3. Were LOLPs run for MO3 and MO4 after the replacement resources were put back in the model? The two sets are replacement resources proposed are: (i) zero-carbon portfolio and (ii) conventional least cost portfolio. If so, what were the LOLP results for MO3 and MO4 after the replacement resources were put back in? 4. For LOLP results in MO3 and MO4 (the 14 and 30% results, respectively), did the scenario analysis and results also produce Expected Unserved Energy (EUSE) or Energy Not Served (ENS)? What were the peak magnitude (MW) and duration (hours) of such unserved energy and total EUSE/ENS (MWH)? Since scenarios typically produce different figures for MW, duration and MWH, if actual data is available for each scenario that would be ideal. Otherwise, I'd appreciate summary data that includes: min, max, mean and average EUSE/ENS. 5. Did the co-lead agencies attempt to quantify or monetize the societal cost of EUSE or ENS? If so, what were the results and what were the underlying methodologies used (e.g. VOS or VOLL?). Thank you Roger Gray PNGC Power ps: I'd suggest that a box for "Power Supply/Reliability" be added to the "Areas of Concern" boxes below. I checked "other" for now.	Chapter 4 of Appendix J, System Reliability, and Chapter 2 of Appendix H, Power Supply and Replacement Resources, provide additional details on the power reliability analysis and LOLP modelling. In response to the commenter's five questions and clarifications: 1) The LOLP analysis is the result of 6,160 simulations. The EIS does not contain a full accounting of all scenarios; however the scenarios and load forecasts are consistent with Northwest Power and Conservation Councils Power Supply Adequacy Assessment. 2) The commenter is correct, LOLP was run for all MOs prior to including any replacement resources. The cited LOLPs for MO3 and MO4 solely reflect changes in hydropower generation. 3) The amount of replacement resource required under each scenario was analyzed to reduce LOLP to the No Action Alternative level (6.6%) for all MOs. 4) The EIS analyzed Conditional Value at Risk (CVaR), which evaluates the amount of monthly average energy not served in the worst 5 percent of LOLP simulations. Chapter 4 of Appendix J summarizes the CVaR results. The EIS did not analyze EUSE. 5) The CVaR results were quantified but were not explicitly monetized beyond the value of the replacement resources identified to reduce LOLP to the No Action Alternative level.
2268	1	commcomm2@gmail.com	N/A	I am requesting you please add an extension to the comment period due to Covid-19!	The co-lead agencies considered requests to extend the public comment period. This NEPA process included a wide array of cooperating agencies whose close involvement throughout the process allowed the co-lead agencies to incorporate feedback. Given the broad range of comments received to date and the extensive Federal and non-Federal participation in the overall process as well as the level of public engagement in the six virtual public meetings in the region, the co-lead agencies determined that an extension was not warranted and that the 45-day public comment period was adequate consistent with NEPA regulations. The CRSO EIS website notified the public on April 9, that they should plan to submit comments by the close of the comment period.
2270	1	luke.henkel@gmail.com	N/A	There is even more danger now that an assessment will be skewed and made more difficult by cuts--an overall "gutting"--of NEPA, the National Environmental Protection Act, from the current administration. This is unconscionable.	The co-lead agencies have conducted the NEPA process as required by the Act and the existing implementing regulations.
2270	2	luke.henkel@gmail.com	N/A	Money will not be relevant if we do not have thriving biodiversity and abundance of life. An example of a study in 2015 conducted by Anthony M. Jones of the Boise economic consulting firm Rocky Mountain Econometrics: "farmers who use the river instead of rail save about 2.4 cents per ton, or about $7.6 million annually. But he said the Army Corps of Engineers spends $17.8 million per year to maintain the river transportation system and hundreds of millions each year to mitigate the harm dams cause to fish." Are we going to let money be the ultimate factor in deciding what we do moving forward? I sincerely hope not! I know we must look at economics--it's difficult not to.	The EIS evaluated beneficial and adverse effects across an array of resource areas including potential effects at the national, regional and local level; effects are monetized and quantified, where possible, and also described qualitatively. As is common in NEPA analyses, the beneficial and adverse effects of the alternatives are expressed as a variety of qualitative and quantitative environmental and economic metrics throughout the EIS to inform decision-making, including the effects of the alternatives on fish as detailed in Section 3.5. That the effects of the alternatives on fish are not expressed as monetized economic values does not mean that they were not considered in the context of the analysis. The EIS does not employ a cost-benefit framework for decision-making. Instead, the EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as the dam breaching alternative. However, the Preferred Alternative also meets most of the other objectives of the study for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. The EIS estimates the costs to operate the CRS dams, as well as the costs to the navigation and transportation industry that would be occur if the lower Snake River dams are breached under MO3 as part of this broad analysis that aims to balance the objectives of the agencies for the system.
2274	1	Jeff Anderson; salem electric	Salem Electric	We believe that breaching the four lower Snake River dams would have an adverse impact on electric cooperative consumers, the reliability of the Northwest energy grid, and the global environment. The Snake River dams are an integral part of our electricity supply in the Pacific Northwest, powering 900,000 homes annually. Oregon's electric cooperatives are serious about our mission of delivering clean, affordable, reliable electricity to our members. The DEIS concluded that breaching the Snake River dams would have "long-term, major, adverse effects on power costs and rates," and the "rate pressure could be up to 50% on wholesale power rates." A 50% increase in BPA's rate could lead to an increase of several hundred dollars a year for electric cooperative consumers. The most impacted by these rate increases will be our vulnerable populations seniors and those on fixed incomes - who shouldn't have to choose between medicine, food, or paying their electric bills.	The comment that replacing the four lower Snake River dams under MO3 would drive up costs in the region is consistent with EIS findings. The Environmental Justice analysis in Section 3.18.3 of the EIS provides further detail on potential disproportionate effects including to Tribal, low-income and minority populations for MO3. Chapter 5 of Appendix H, Power and Transmission provides additional details on potential rate increases by county as well as for urban and rural utility customers.
2274	2	Jeff Anderson; salem electric	Salem Electric	We also should reject any proposal that will lead to blackouts. The DEIS concludes the dam breaching alternative would "more than double the region's risk of power shortages." The Pacific Northwest has a legacy of clean energy but according to the DEIS, breaching the dams would create a 10% increase in power-related emissions across the Northwest.	The commenter is correct that without replacement power, MO3 which includes the measure to breach the four lower Snake River dams, would increase the frequency of power shortages. If the lost capability of the four lower Snake River dams is replaced with natural gas, as assumed in least-cost conventional resource portfolios, emissions would increase. The EIS also considered replacing the lost capability of the four lower Snake River dams with a zero-carbon resource portfolio. The zero-carbon resource portfolio consists entirely of zero carbon resources: solar, wind, and storage technologies (i.e., batteries). However, even with new renewable resources, the EIS analysis finds that existing carbon-emitting resources would likely increase generation to integrate the large portfolio of renewable resources, resulting in a net increase in greenhouse gas emissions. This portfolio is described in Section 3.7.3.5, Potential Replacement Resources and Associated Costs, and emissions implications in Section 3.8.3.5, Greenhouse Gas Emissions from Power Generation in the Draft EIS. The measure to breach the four lower Snake River dams that was evaluated in MO3, was not included in the Preferred Alternative identified in the Draft EIS. The effects of the Preferred Alternative on power are described in Section 7.7.9 of the Draft EIS. Overall, hydropower would decrease relative to the No Action Alternative under the Preferred Alternative. However, because of the shape of the remaining hydropower generation in the Preferred Alternative, the loss of load probability was essentially the same as that of the No Action Alternative.
2279	1	mcarrasco98@gmail.com	N/A	You need to extend the public comment to well after the corona virus pandemic is over with. Public meetings are needed, not just teleconference which limits participation and a great deal of time is necessary to submit public comments on a draft this large. I could go on and on, but I think you get the idea.	The co-lead agencies considered requests to extend the public comment period. This NEPA process included a wide array of cooperating agencies whose close involvement throughout the process allowed the co-lead agencies to incorporate feedback. Given the broad range of comments received to date and the extensive Federal and non-Federal participation in the overall process as well as the level of public engagement in the six virtual public meetings in the region, the co-lead agencies determined that an extension was not warranted and that the 45-day public comment period was adequate consistent with NEPA regulations. The CRSO EIS website notified the public on April 9, that they should plan to submit comments by the close of the comment period.
2296	1	N/A	N/A	The Preferred Alternative in the Draft EIS does not adequately provide for salmon and steelhead populations because it will not improve smolt to adult turn rates (SARs) to levels identified by scientists as necessary for harvest or recovery. Harvestable populations need a SAR around 4%, meaning 4 adults return for every 100 juvenile fish that head to the ocean. Under the Preferred Alternative, SARs for Snake River spring Chinook will reach 2.7% at best. The predicted SAR is even lower for Snake River steelhead at 2.4%. At worst, The Life Cycle Model predicts an extinction trajectory under the Preferred Alternative with a SAR below 1%.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. It should be noted that the 4% average SAR target referenced refers to the Northwest Power and Conservation Councils target for broad-sense recovery and is separate and distinct from the obligations of any single entity or in this case a requirement to be met solely by the co-lead agencies. Just as the Councils fish and wildlife program encompasses both federal and non-federal stakeholders in the Columbia Basin, the Councils recovery goals are shared by many parties. Based on our analysis in the Fish resources section of Chapter 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide meaningful benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the CRS. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. The Preferred Alternative is predicted to benefit salmon and steelhead. It also meets the other objectives of the study for resident fish, hydropower, water management, and water supply, while minimizing adverse impacts to communities and the economy. The CSS model predicts that average Smolt-to-Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% (within the Northwest Power and Conservation Council recovery targets for the region) as a result of the Preferred Alternative. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin.
2296	2	N/A	N/A	The Draft EIS did not take into account the economic impacts of the Northwests salmon fishing industry. When evaluating the economic impacts of each alternative, the analysis completely ignored the sportfishing economy and its estimated contribution of over $757 million in Idaho alone (over $2 billion region-wide).	The EIS recognizes the value of the salmon fishing industry to the region. Section 3.15 describes the values associated with salmon fisheries in the Pacific Northwest. Section 3.11 characterizes the sportfishing economy in the region. However, the uncertainty regarding the overall effects of the alternatives on regional fish populations, and how such changes may affect the management of the fisheries, limits a quantitative analysis of the specific impacts of each alternative on these values. The effects are therefore discussed qualitatively.
2296	3	N/A	N/A	The Draft EIS relied on a qualitative, rather than quantitative, analysis to evaluate impacts despite the existence of several current studies on the economic contributions of outdoor recreation and sport fishing in states with salmon and steelhead. This is in contrast to water supply, irrigation, navigation, and hydropower generation, which were all evaluated quantitatively. It is unacceptable that the Draft EIS did not use publicly-available data sources to quantify the devastating financial impacts of declining salmon and steelhead populations on rural communities in Idaho and the Pacific Northwest.	The EIS recognizes the value of recreational and commercial fishing to the region. Section 3.15 describes the values associated with fisheries in the Northwest. Section 3.11 characterizes the sportfishing economy in the region. However, the uncertainty regarding the overall effects of the alternatives on regional fish populations, and how such changes may affect the management of the fisheries, limits a quantitative analysis of the specific impacts of each alternative on these values. The effects are therefore discussed qualitatively. The social welfare effects on fisheries under MO3 are described as major and beneficial in the long-term, with increases in regional economic effects if commercial fish catch rates increase. For the effects on recreational fishing under MO3 (Section 3.11.3.5), the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River).

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2300	1	adeleriffe@yahoo.com	N/A	While the science shows that increased levels of spill can buy some additional time to put in place more effective actions for imperiled fish populations, it is not, by itself, a long-term survival strategy, let alone a recovery strategy. Indeed the parties to the current, short-term Flexible Spill Agreement made this explicit and respected regional scientists have confirmed that the flexible spill included in the Preferred Alternative will NOT deliver salmon the survival benefits through the hydrosystem they need. The changing climate will further erode any benefits of flexible spill as a long-term approach and only underscores the urgency for meaningful action.	As required by NEPAs implementing regulations, the co-lead agencies used the best available information in the analysis of the CRSO EIS. Specific to salmon and steelhead, the agencies used two primary modeling approaches which yielded a range of potential outcomes for the alternatives. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% as a result of the Preferred Alternative. The NMFS COMPASS and Lifecycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. There are many factors that contribute to salmon and steelhead populations including changes to ocean conditions, predation, harvest, etc. The analysis in this study, particularly relating to the fish passage spill operation, focus on the migratory impacts to salmon and steelhead from the operations of the Columbia River System projects. Research continues to evaluate the magnitude of these effects. For more information see the NMFS website at: https://www.nwfsc.noaa.gov/research/index.cfm The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA listed species. Based on our analysis in the fish resources section of Chapter 7.5, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the Columbia River System. That call however is ultimately the role of NMFS and the USFWS. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species.
2302	1	onboardtours@yahoo.com	N/A	I am requesting an extension to the comment period. Given the fact that there will be no public meetings and there is so much concern and attention on the COVID-19 situation, the public will need more time to read and comment on this important issue.	The co-lead agencies considered requests to extend the public comment period. This NEPA process included a wide array of cooperating agencies whose close involvement throughout the process allowed the co-lead agencies to incorporate feedback. Given the broad range of comments received to date and the extensive Federal and non-Federal participation in the overall process as well as the level of public engagement in the six virtual public meetings in the region, the co-lead agencies determined that an extension was not warranted and that the 45-day public comment period was adequate consistent with NEPA regulations. The CRSO EIS website notified the public on April 9, that they should plan to submit comments by the close of the comment period.
2303	1	justismclaren@gmail.com	N/A	Because of the world (and particularly our little place in it) being so heavily affected by the COVID-19 pandemic, it is imperative that you give the proper chances for the public to learn about this proposal and be allowed time to consider it and comment. The right thing to do is to extend the deadline for comments - this should not be rushed through under cover of a virus when people are concerned about their families, jobs and homes.	The co-lead agencies considered requests to extend the public comment period. This NEPA process included a wide array of cooperating agencies whose close involvement throughout the process allowed the co-lead agencies to incorporate feedback. Given the broad range of comments received to date and the extensive Federal and non-Federal participation in the overall process as well as the level of public engagement in the six virtual public meetings in the region, the co-lead agencies determined that an extension was not warranted and that the 45-day public comment period was adequate consistent with NEPA regulations. The CRSO EIS website notified the public on April 9, that they should plan to submit comments by the close of the comment period.
2309	1	srichard@colrip.com	N/A	Look at the Snake River historical return (provided). It's amazing that Chinook salmon were able to recover from the 1980's grim returns. The 1980's average return was a fraction of even 2019's. But recover they did. We did and are doing something right. I do agree that the current decline is concerning. The ray of hope is that the trend appears to have bottomed. Are the Snake River dams to blame? Could it be ocean acidification? A warming Earth? More sealions in the river than I've ever seen? Ironically, just 5 short years ago we experienced an (at least 40 year) record return of Fall Chinook. It's not a coincidence that Lower Columbia tributaries are following the same graph line.	We agree that there are many effects to salmon and steelhead populations outside the operation of the dams. Research continues to evaluate the magnitude of these effects. For more information see the NMFS website at: https://www.nwfsc.noaa.gov/research/index.cfm
2309	2	srichard@colrip.com	N/A	Many questions remain: How will we realistically replace the power generation with anything even nearly as non- polluting.	The commenter is correct that breach of the four lower Snake River dams would increase emissions from power generation (see Section 3.7.3.5 in the Draft EIS). The EIS also considered replacing the lost capability of the four lower Snake River dams with a zero-carbon resource portfolio. This portfolio is entirely made up of zero carbon resources (solar, wind, storage technologies [e.g., batteries]). However, even with new renewable resources, the EIS analysis finds that existing carbon-emitting resources would likely increase generation to integrate the large portfolio of renewable resources, resulting in a new increase in greenhouse gas emissions. This portfolio is described in the Draft EIS in Section 3.7.3.5 of the EIS, Potential Replacement Resources and Associated Costs, and emissions implications in Section 3.8.3.5, Greenhouse Gas Emissions from Power Generation.
2309	3	srichard@colrip.com	N/A	Will farmers even be able to produce a crop without the current access to irrigation water? What will happen to the thriving Columbia River maritime and export economy that depends on river transportation? What about the commitment to the cities of Lewiston, Id and Clarkston, Wa and Almota, Pomeroy, Wind Dust or Central Ferry to the promise of access to navigation?	The potential economic effects from breaching of the lower Snake River dams are presented in the EIS, organized by resource area and type of economic effect, with additional details provided in resource specific appendices. Economic effects are described for Navigation and Transportation (Section 3.10) and Water Supply (Section 3.12). Potential economic effects are evaluated for social welfare effects (national economic effect), regional economic effects and other social effects. Additionally, the environmental effects associated with increased emissions to shipping goods by rail or truck (or both) are evaluated and described in the Air Quality Section (3.8), and increased health and safety concerns are described in the Navigation and Transportation Section for other social effects (Section 3.10.3.5). Breach of the dams has the potential to drop surface and groundwater levels up to 100 feet and it is not possible from an engineering or cost standpoint to replace the delivery mechanisms, nor do the co-lead agencies have the authority to do so currently. Assumptions regarding the cost of reconfiguring water supply systems are discussed in the Water Supply Environmental Consequences Section for MO3 (Section 3.12.3.4, Region C). Effects to livelihoods are captured to the extent possible in the regional economic effects and other social effects sections that follow. Please see Section 3.12 and Appendix N for additional information.
2319	1	N/A	N/A	Without hydroelectricity to fill in the gaps, the grid cannot take the swings in generation caused by fluctuations in wind and sunshine. The Northwests demand for electricity is highest in the winter when wind is less prevalent and the sun sets early. The dams provide affordable electricity – Several independent studies indicate a shortage of electricity generation in the coming years, particularly with the closure of coal plants. The lower Snake River dams are critically needed to avoid a repeat of the 2000-2001 energy crisis that resulted in soaring electricity prices. The draft EIS indicates that replacing lost generation from dam removal with carbon-free resources could result in a 50% increase in power costs. That doesnt consider the loss of coal generation which will also need to be replaced by carbon-free resources to reach CETA goals. A rise in energy costs would worsen our homeless crisis and mean greater hardships for people already struggling to make ends meet.	The comment that replacing the four lower Snake River dams under MO3 would drive up costs in the region is consistent with EIS findings. The Environmental Justice analysis in Section 3.18.3 of the EIS provides further detail on potential disproportionate effects to Tribal, low-income and minority populations under MO3. Chapter 5 of Appendix H, Power and Transmission provides additional details on potential rate increases by county as well as for urban and rural utility customers. The ability of hydropower to aid in grid stability and the integration of renewable power is described in the Bonneville Transmission System Reliability and Operations subsection of Sections 3.7.3.3 through 3.7.3.6 and in Section 3.7.3.5, Potential Replacement Resources and Associated Costs in the Draft EIS.
2329	1	N/A	N/A	The dams provide affordable electricity. Several independent studies indicate a shortage of electricity generation in the coming years, particularly with the closure of coal plants. The lower Snake River dams are critically needed to avoid a repeat of the 2000-2001 energy crisis that resulted in soaring electricity prices. The draft EIS indicates that replacing lost generation from dam removal with carbon-free resources could result in a 50% increase in power costs. That doesn't consider the loss of coal generation which will also need to be replace by carbon-free resources to reach CETA goals. A rise in energy costs would worsen our homeless crisis and mean greater hardships for people already struggling to make ends meet.	The comment that replacing the four lower Snake River dams under MO3 would drive up costs in the region is consistent with EIS findings. Likewise, the connection between reducing carbon emissions (under CETA and coal-plant retirements) is discussed in the EIS. The Environmental Justice analysis in Sections 3.18.3 and Chapter 7 of the EIS provides further detail on potential disproportionate effects to Tribal, low-income and minority populations under the Multiple Objective Alternatives and the Preferred Alternative, respectively. Chapter 5 of Appendix H, Power and Transmission provides additional details on potential rate increases by county as well as for urban and rural utility customers.
2329	2	N/A	N/A	The dams are just one factor in salmon and orca survival. Salmon from the Snake River are only one part of an orca's diet. Salmon survival rates through these dams are as high as 97%. NOAA Fisheries' analysis shows Puget Sound Chinook salmon are most important for the Southern Resident Orcas. Cleaning the Puget Sound and removing sea lions would be a better use of time and money in saving our treasured salmon and orca.	The co-lead agencies conclude there could be a negligible to minor beneficial effects to SRKW from implementing MO3. CSS and NMFS Lifecycle models predict that lower Snake River Chinook salmon smolt-to-adult returns would have a moderate to major increase under MO3. Operation of Lower Snake River Compensation Plan fish hatcheries under MO3 is uncertain and therefore, production of Snake River hatchery fish is assumed to decline over the long term, while returning adult wild salmon are anticipated to increase. However, the co-leads do not anticipate a lack of hatchery fish in the short term based on the proposed fish hatchery mitigation described in Chapter 5. These additional hatchery fish should mitigate short-term construction effects to Snake River populations. Additionally, to address short-term effects to ESA-listed species, the co-lead agencies propose constructing a new trap and haul facility at McNary and conducting at least two years of trap and haul operations for Snake River fish (Chinook, sockeye, and steelhead). The co-lead agencies agree that the quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differently from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for the whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall-run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall-run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). The co-lead agencies legal authorities relate to operating and maintaining the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. To comply with the ESA, the co-lead agencies have historically supported actions to mitigate adverse effects to listed species from CRS operations, through funding, direct implementation, and other means. Under the Preferred Alternative, those actions, including for the purpose of reducing pinniped and avian predation on listed species, would generally continue to ensure compliance with the ESA. Other entities in the region have authorities and obligations to mitigate the impacts from pinniped and avian predators and the co-lead agencies will continue to work closely with those entities to benefit ESA-listed salmonids. Regarding Puget Sound conditions, the effects mentioned in the comment involve a variety of issues beyond the scope of the CRS project. However, water quality effects for the Columbia River Basin were considered in the EIS analysis and are described in Chapter 1, 2, and Section 7.8.3 of the EIS. Additionally, the U.S. Army Corps of Engineers is in partnership with other Federal, state and non-governmental organizations and have been implementing habitat projects for salmon, orcas, and wildlife all around the Puget Sound as part of the Puget Sound Nearshore Ecosystem Restoration Project.
2335	1	vern2dkv@gmail.com	N/A	Sec. 1.8, Line 666 The following documents should be added to the list of key relevant documents because these documents contain the recovery goals for the Snake River salmon and steelhead species. These recovery goals are applicable for alternative evaluation. U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, ESA Recovery Plan for Snake River Spring/Summer Chinook Salmon (Oncorhynchus tshawytscha) & Snake River Basin Steelhead (Oncorhynchus mykiss), November 2017. U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, ESA Recovery Plan for Snake River Sockeye Salmon (Oncorhynchus nerka), June 8, 2015. U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, ESA Recovery Plan for Snake River Fall Chinook Salmon (Oncorhynchus tshawytscha), November 2017.	The recovery plans noted in the comment were included in the CRSO EIS analysis. The actions included in the recovery planning reports published by NMFS under ESA Section 4(f) guide the actions of both Federal and non-Federal parties. The actions identified under the recovery planning documents are generally consistent with the actions analyzed in this NEPA analysis.

Letter No.	Comment No.	Commenter Name/Email	Affiliation	Comment	Response[1/]
2337	1	vern2dkv@gmail.com	N/A	Sec. 2.1, Line 23-24 The first sentence should be modified as follows: The MOs include a range of spill levels for juvenile fish passage, varying levels of hydropower production, and differing actions to support the needs including recovery of Endangered Species Act (ESA)-listed anadromous and resident fish. This change is needed because the temporal scope of the EIS is 25 years. The past 50 years of investment for anadromous fish has not led to recovery of the fish. In 2019, salmon and steelhead returns were significantly below recovery goals for Snake River endangered salmon and steelhead. The amounts are dramatic regarding the recovery of these fish. Sockeye returns were 97% below recovery goals. Fall chinook was 76% below recovery goals. Spring/summer chinook returns were 70% below recovery goals. While steelhead were a dismal 66% below recovery goals. Another 25 years without achieving recovery goals will likely cause significant adverse impacts upon the Snake River anadromous fish and potential extinction unless recovery is addressed in the Columbia River System Operations EIS.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Based on our analysis Fish resources section of Chapter 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide meaningful benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the CRS. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. The Preferred Alternative is nevertheless predicted to benefit salmon and steelhead. It also meets most of the other objectives of the study for resident fish, hydropower, water management, and water supply, while minimizing adverse impacts to communities and the economy.
2338	1	vern2dkv@gmail.com	N/A	Sec. 2.2.1 Objective 2, Line 73 Objective 2 should be modified as follows: Achieve recovery goals for ESA-listed anadromous fish within the CRSO project area through actions including but not limited to project configuration, flow management, spill operations, hatcheries, and water quality management. This change is needed because the temporal scope of the EIS is 25 years. The past 50 years of investment for anadromous fish has not led to recovery of the fish. In 2019, salmon and steelhead returns were significantly below recovery goals for Snake River endangered salmon and steelhead. The amounts are dramatic regarding the recovery of these fish. Sockeye returns were 97% below recovery goals. Fall chinook was 76% below recovery goals. Spring/summer chinook returns were 70% below recovery goals. While steelhead were a dismal 66% below recovery goals. Another 25 years without achieving recovery goals will likely cause significant adverse impacts upon the Snake River anadromous fish and potential extinction unless recovery is addressed in the Columbia River System Operations EIS.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. The co-lead agencies will continue to fund conservation and safety net hatcheries. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the CRS. That call, however, is ultimately the role of NMFS and the USFWS. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. The Preferred Alternative is nevertheless predicted to benefit salmon and steelhead. It also meets most of the other objectives of the study for resident fish, hydropower, water management, and water supply, while minimizing adverse impacts to communities and the economy.
2339	1	vern2dkv@gmail.com	N/A	Sec. 2.4, Line 156 The Columbia River System Operations Environmental Impact Statement completely disregards the mission of Governor Littles Salmon Work Group. The mission of the work group is to develop policy recommendations for Governor Little through a collaborative, consensus driven, public process to restore abundant, sustainable, and well distributed populations of salmon and steelhead in Idaho for present and future generations, while recognizing diverse interests throughout the State. The Environmental Impact Statement does not evaluate Snake River Specific Alternatives. The Columbia River System Operations Environmental Impact Statement should be modified to develop and evaluate Snake River specific Alternatives. The Snake River specific alternatives need to address restoring abundant, sustainable, and well distributed populations of salmon and steelhead in Idaho for present and future generations	As stated in Chapter 2, the co-lead agencies developed alternatives to meet the objectives and the Purpose and Need. The Purpose and Need Statement includes the need for action as well as the resource and legal and institutional purposes. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. The co-lead agencies did analyze two alternatives, MO3 and MO4, that were directly related to the Snake River salmon and steelhead survival through the migration corridor, which could be used as part of Governor Little's Salmon Work Group.
2340	1	vern2dkv@gmail.com	N/A	Sec. 2.4.3 Line 1188, p. 2-37 Under Structural Measures in Table 2-4, add a new structural measure to construct additional anadromous fish hatcheries upstream of Lower Granite Dam in Idaho to achieve recovery goals. This change is needed because the temporal scope of the EIS is 25 years. The past 50 years of investment for anadromous fish has not led to recovery of the fish. In 2019, salmon and steelhead returns were significantly below recovery goals for Snake River endangered salmon and steelhead. The amounts are dramatic regarding the recovery of these fish. Sockeye returns were 97% below recovery goals. Fall chinook was 76% below recovery goals. Spring/summer chinook returns were 70% below recovery goals. While steelhead were a dismal 66% below recovery goals. Another 25 years without achieving recovery goals will likely cause significant adverse impacts upon the Snake River anadromous fish and potential extinction unless recovery is addressed in the Columbia River System Operations EIS.	Additional fish hatcheries were not included in the original construct of the Multiple Objective Alternatives, which focused on addressing eight objectives and measures for changing the operations, configurations, and maintenance of the 14 CRS projects. Hatcheries and the need for additional output was considered by the co-lead agencies and cooperating agencies during identification of mitigation actions for each alternative. Only MO3 was determined to need additional hatchery production for the short term impacts from breaching the four lower Snake River dams. Additional hatcheries were not identified as needed for mitigation under any alternative. See Chapter 5 for discussion of mitigation. However, the co-lead agencies will continue to fund existing conservation and safety net hatcheries under the Preferred Alternative. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. With respect to the Preferred Alternative, fish analysis in Section 7.7.4 shows that it will provide substantial benefits to ESA-listed salmon and steelhead, which can help contribute to broader recovery goals.
2341	1	vern2dkv@gmail.com	N/A	Sec. 2.4.3, Line 1319, p. 2-42 Additional column should be added to Table 2-5 to address the effects of the spill test on adult Snake River anadromous fish such adult to smolt ratio or similar criteria. Additional analyses are needed for these additional criteria. The information on p. 3-251 (Lines 5485 5490) indicates that water quality standard excursions are expected to continue. Thus the spill test is likely to increase the number of excursions. That information suggests the spill test is not beneficial and should be eliminated from the alternative analysis.	Effects of the various alternatives on fish resources, including SARs, are discussed in detail in Section 3.5. The spill test will result in increased TDG in the lower Snake and Columbia rivers. Monitoring is planned to assess impacts to fish. The goal of the spill test is to evaluate the benefits to downstream fish passage resulting from increased spill and impacts to fish from TDG, potential impacts to passage, and other potentially harmful effects on fish.
2342	1	vern2dkv@gmail.com	N/A	Sec. 2.4.4 Line 1540, p. 2-49 Under Structural Measures in Table 2-6, add a new structural measure to construct additional anadromous fish hatcheries upstream of Lower Granite Dam in Idaho to achieve recovery goals. This change is needed because the temporal scope of the EIS is 25 years. The past 50 years of investment for anadromous fish has not led to recovery of the fish. In 2019, salmon and steelhead returns were significantly below recovery goals for Snake River endangered salmon and steelhead. The amounts are dramatic regarding the recovery of these fish. Sockeye returns were 97% below recovery goals. Fall chinook was 76% below recovery goals. Spring/summer chinook returns were 70% below recovery goals. While steelhead were a dismal 66% below recovery goals. Another 25 years without achieving recovery goals will likely cause significant adverse impacts upon the Snake River anadromous fish and potential extinction unless recovery is addressed in the Columbia River System Operations EIS.	Additional fish hatcheries were not included in the original construct of the Multiple Objective Alternatives, which focused on addressing eight objectives and measures for changing the operations, configurations, and maintenance of the 14 CRS projects. Hatcheries and the need for additional output was considered by the co-lead agencies and cooperating agencies during identification of mitigation actions for each alternative. Only MO3 was determined to need additional hatchery production for the short term impacts from breaching the four lower Snake River dams. Additional hatcheries were not identified as needed for mitigation under any alternative. See Chapter 5 for discussion of mitigation. However, the co-lead agencies will continue to fund existing conservation and safety net hatcheries under the Preferred Alternative. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. With respect to the Preferred Alternative, fish analysis in Section 7.7.4 shows that it will provide substantial benefits to ESA-listed salmon and steelhead, which can help contribute to broader recovery goals.
2345	1	farmertuck@ymail.com	N/A	Transportation of farm produce. 10% of all US wheat exports are moved by barge down the Snake River. Barging is the safest, most efficient, climate friendly way to move wheat for export. One barge is the equivalent of 134 semi-trucks or 35 jumbo rail hoppers. Adding 135,000 more trucks annually would overwhelm our current highway system, making travel more dangerous. Current rail lines are at or near capacity and could not handle the added freight. We must also consider the fuel efficiency of barging. It would take another 5 million gallons of diesel annually if the same freight was moved via the truck to rail system. This would also add another 80 cents per bushel freight cost for farmers, already marketing a wheat crop at break-even or below cost of production.	The Navigation and Transportation Section (3.10) reflects the adverse effects of implementing alternative MO3, including discussions of transportation mode capacity and cost of grain transport. The EIS also evaluates the additional transportation infrastructure investments and associated costs that would be required, as well as the increases in air emissions that would occur. The EIS finds that truck ton-miles may experience an increase of 19 percent to 84 percent under MO3 when compared to the No Action Alternative, depending on the rail rate increases that could occur. The EIS analysis found that truck trips would increase between 14,000 to 79,000 truck trips per year, which would increase air pollutant and greenhouse gas emissions in the region and add to traffic and congestion in the region. Rail ton-miles would increase by as much as 86 percent (when rail rates are not assumed to increase) or decrease by 2 percent (when rail rates increase by 50 percent). The co-lead agencies concur that barging is a more fuel efficient mode of transportation.
2345	2	farmertuck@ymail.com	N/A	With the billions of dollars spent to improve fish runs and several record or near record runs in recent years, well after the dams were in place, what is the real cause of decreased returns? Could it be warming oceans, predators, pollution and toxic waste in The Puget Sound? Federal studies show a 95% survival rate over the dams. If the dams are breached, we really have no way of knowing the effect on the fish, good or bad.	The co-lead agencies agree that there are many effects to salmon and steelhead populations outside the operation of the dams. Research continues to evaluate the magnitude of these effects. For more information see the NMFS website at: https://www.nwfsc.noaa.gov/research/index.cfm
2356	1	vern2dkv@gmail.com	N/A	Sec. 2.4.6 Line 1895, p. 2-62 Under Structural Measures in Table 2-9, add a new structural measure to construct additional anadromous fish hatcheries upstream of Lower Granite Dam in Idaho to achieve recovery goals. This change is needed because the temporal scope of the EIS is 25 years. The past 50 years of investment for anadromous fish has not led to recovery of the fish. In 2019, salmon and steelhead returns were significantly below recovery goals for Snake River endangered salmon and steelhead. The amounts are dramatic regarding the recovery of these fish. Sockeye returns were 97% below recovery goals. Fall chinook was 76% below recovery goals. Spring/summer chinook returns were 70% below recovery goals. While steelhead were a dismal 66% below recovery goals. Another 25 years without achieving recovery goals will likely cause significant adverse impacts upon the Snake River anadromous fish and potential extinction unless recovery is addressed in the Columbia River System Operations EIS.	Additional fish hatcheries were not included in the original construct of the Multiple Objective Alternatives, which focused on addressing eight objectives and measures for changing the operations, configurations, and maintenance of the 14 CRS projects. Hatcheries and the need for additional output was considered by the co-lead agencies and cooperating agencies during identification of mitigation actions for each alternative. Only MO3 was determined to need additional hatchery production for the short term impacts from breaching the four lower Snake River dams. Additional hatcheries were not identified as needed for mitigation under any alternative. See Chapter 5 for discussion of mitigation. However, the co-lead agencies will continue to fund existing conservation and safety net hatcheries under the Preferred Alternative. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. With respect to the Preferred Alternative, fish analysis in Section 7.7.4 shows that it will provide substantial benefits to ESA-listed salmon and steelhead, which can help contribute to broader recovery goals.
2357	1	vern2dkv@gmail.com	N/A	Sec. 3.5.2.3, Line 7219 The discussion provided addresses the highest return year for Bonneville Dam. To balance the discussion, lowest return year for Bonneville Dam should also be included. Snake River salmon and steelhead return should also be summarized by highest and lowest return years by specie. Furthermore including recovery levels for Snake River salmon and steelhead would depict an appropriate summary for those fish. Specifically in 2019, salmon and steelhead returns were significantly below recovery goals for Idahos endangered salmon and steelhead. Sockeye returns were 97% below recovery goals. Fall chinook was 76% below recovery goals. Spring/summer chinook returns were 70% below recovery goals. While steelhead were a dismal 66% below recovery goals. Increasing the number of salmon and steelhead migrating downstream will lead to increased salmon and steelhead returns. Columbia River System Operations should increase the number and capacity of the Idaho salmon and steelhead hatcheries. The Springfield salmon is designed to produce 1,000,000 sockeye salmon smolts. The sockeye recovery goal is 1,000 adults. The Idaho hatchery program for steelhead and spring, summer, and fall Chinook salmon should be expanded to produce the same ratio of smolts to adults for all these Snake River fish species to achieve salmon and steelhead recovery.	Recent declines in salmon returns post 2014 were acknowledged in Section 3.5. Additional fish hatcheries were not included in the original construct of the Multiple Objective Alternatives, which focused on addressing eight objectives and measures for changing the operations, configurations, and maintenance of the 14 CRS projects. Hatcheries and the need for additional output was considered by the co-lead agencies and cooperating agencies during identification of mitigation actions for each alternative. Only MO3 was determined to need additional hatchery production for the short term impacts from breaching the four lower Snake River dams. Additional hatcheries were not identified as needed for mitigation under any alternative. See Chapter 5 for discussion of mitigation. However, the co-lead agencies will continue to fund existing conservation and safety net hatcheries under the Preferred Alternative. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. With respect to the Preferred Alternative, fish analysis in Section 7.7.4 shows that it will provide substantial benefits to ESA-listed salmon and steelhead, which can help contribute to broader recovery goals.
2359	1	vern2dkv@gmail.com	N/A	Sec. 3.5.2.3 Line 7327, Metrics Since adults migrate upstream and juveniles outmigrate, smolt to adult ratio should be added to list of metrics to track Snake River salmon and steelhead survival and recovery. The number of smolts should be estimated to achieve adult recovery for each species of Snake River salmon and steelhead based upon achieving smolt to adult survivals associated with species recovery goals.	Smolt-to-Adult returns are highlighted throughout Section 3.5 and Chapter 7 as one of the primary metrics that the co-lead agencies are using to evaluate potential effects of each alternative. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Based on our fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide meaningful benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the CRS. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. The Preferred Alternative is predicted to benefit salmon and steelhead. It also meets the other objectives of the study for resident fish, hydropower, water management, and water supply, while minimizing adverse impacts to communities and the economy.
2360	1	vern2dkv@gmail.com	N/A	Sec. 3.5.2.3, Line 9906 The Comprehensive Passage Model, Version 2.0 documentation is available as a draft dated July 2, 2019. Independent reviews of the model were not provided or available. Modeling results from this model should be considered inconclusive until appropriate reviews are completed. The following statement on lines 9910 9911 should be deleted until the model is independently, peer reviewed. The COMPASS model attributes most of the recent variations in runs to ocean conditions and predicts small effects to change in spill. In the Independent Scientific Advisory Board for the Northwest Power and Conservation Council, Columbia River Basin Indian Tribes and National Marine Fisheries Service (ISAB) review of the Comparative Survival Study (CSS) Draft 2019 Annual Report, it was stated: The ISAB is concerned that the smolt-to-adult survivals (SARs) of Snake River wild spring/summer Chinook and steelhead continue to fall well short of the Councils 2%-6% SAR objectives. While the CSS is only the messenger of bad	All models used for decision-making in this EIS process are undergoing additional independent, external review. The outcome of this review will be included in the FEIS. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. The co-lead agencies used current, high-quality and scientifically accurate information in the EIS analysis. Specific to salmon and steelhead, the agencies used two primary modeling approaches which yielded a range of potential outcomes for the alternatives. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult return (SAR) rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% (within the Northwest Power and Conservation Council's recovery targets for the region) as a result of the Preferred Alternative (increasing from 2.0% to 2.7% for Chinook, a 35% relative increase). The NMFS COMPASS and Life Cycle models predict higher levels of risk

Letter No.	Comment No.	Commenter Name/Email	Affiliation	Comment	Response[1/]
				news, we reiterate our previously unanswered question that given the large amount of effort in the past to improve SARs through dam passage improvements, habitat improvements and other changes; to what extent might further improvements in hydrosystem management, predator control, and estuarine habitat lead to achieving SARs of 2%-6%? Since Columbia River System Operations alternatives address hydrosytem management, additional criteria for evaluation of these alternatives needs to be developed to address achieving SARS of 2%-6% for Snake River salmon and steelhead. ISAB further stated Smolt-to-adult survivals (SARS) continue to be very low. Do we have enough information to suggest changes to hydrosystem operations that could improve SARs? Line 9913 regarding predicts significant run recovery by increasing spill is not consist for every salmon and steelhead species discussed in draft EIS. That summary statement is misleading unless it is developed based upon recovery goals and SARs for each affected anadromous species. Alternatives for hydrosystem operations need to be modified and reevaluated to achieve SARS of 2%-6% for Snake River salmon and steelhead. Why does Columbia River System Operations continue considering alternatives that produce low SARS? These alternatives lead to adverse environmental impacts to Snake River salmon and steelhead and the likely extinction of these anadromous fish. Additional, revised and new Snake River Specific alternatives need to be developed and evaluated. These new alternatives must address methods to achieve SARS of 2%-6% for Snake River salmon and steelhead. Also these new alternatives need to achieve recovery levels for these Snake River fish.	associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. It should be noted that the average SAR targets referenced refers to the Councils target for broad-sense recovery and is separate and distinct from the obligations of any single entity or in this case a requirement to be met solely by the co-lead agencies. Just as the Councils fish and wildlife program encompasses both Federal and non-Federal stakeholders in the Columbia Basin, the Councils recovery goals are shared by many parties. Based on our analysis of the Preferred Alternative, it will make a meaningful contribution, but the Councils broad sense recovery goals are beyond the scope of this EIS which focuses on the effects associated with the operation and maintenance of the 14 CRS projects.
2361	1	vern2dkv@gmail.com	N/A	Sec. 3.5.3.2 Table 3-61, Line 9976 Snake River Sockeye and Fall Chinook need to be addressed in the table. Estimated recovery levels for each species need to be added to the table. Provide the results in the table from each model-COMPASS, LCM, and CSS	Unfortunately, there are no existing models for juvenile survival or adult returns for Snake River sockeye or fall Chinook at this time. There are some in development that may be used in the future. We did not include estimated recovery numbers because these estimates are out of scope of this EIS effort and adult returns are the focus of regional parties as a metric for tracking change and effects to species.
2362	1	vern2dkv@gmail.com	N/A	Sec. 3.5.3.2, Table 3-61, Line 9976 MO3 and MO4 for Snake River Chinook and Steelhead modeling by CSS estimated smolt to adult return rates greater than 3%. LCM modeling estimated smolt to adult return rates at 1% or less. The two modeling results indicate approximately 400% difference. That range of uncertainty and comparability is not acceptable to demonstrate that Columbia River System Operations will not cause Snake River Chinook and Steelhead extinction. Additional modeling should be conducted for the Snake River salmon and steelhead such that MO3 and MO4 are integrated.	The co-lead agencies agree that, for some of the analyses, there are large differences in model outputs. However, these are the only regionally accepted models in use at this time. Those in development may be used in the future. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% (within the Northwest Power and Conservation Council recovery targets for the region) as a result of the Preferred Alternative. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin.
2362	2	vern2dkv@gmail.com	N/A	Additional modeling should be conducted for the Snake River salmon and steelhead such that MO3 and MO4 are integrated. A suggested adaptive modeling is as follows. Snake River Alternative 1 Remove Lower Granite Dam, Relocate shipments to Barging Facilities downstream of Lower Granite Dam and including spilling at remaining dams from MO4 Snake River Alternative 2 Remove Lower Granite and Little Goose Dams, Relocate shipments to Barging Facilities downstream of Little Goose Dam and including spilling at remaining dams from MO4 Snake River Alternative 3 Remove Lower Granite, Little Goose Dams and Lower Monumental Dams; Relocate shipments to Barging Facilities downstream of Lower Monumental Dam and including spilling at remaining dam from MO4 The purpose of these additional alternatives is that many Idahoans want to see alternatives that work for everyone such that power, salmon and barging are evaluated together for the Snake River. This additional alternative analysis should be included in the Final EIS prior to the selected alternative for the Snake River	Both the benefits and adverse effects of MO3 and MO4 are included in the analysis. The impacts of both MO3 and MO4 are significant to several resources, but especially power generation and reliability. An alternative combining the two would exacerbate, not resolve, those power impacts, and thus, a combination of MO3 and MO4 is not a reasonable alternative under NEPA. MO3 and MO4, individually each caused large loss-of-load probability (LOLP) results (e.g., increased incidence of blackouts). Without major additional of new resources, MO3 would result in power shortages in about one in seven years. MO4 would produce power shortages in about one in every four years. If MO4 were implemented, in addition to breaching the four lower Snake River projects as called for in MO3, then the LOLP would be even higher, with power shortages potentially occurring almost every year. Additionally, if these MOs were combined, in 5% of the years, the power shortages would average close to 1,000 MW in early August when the region might be experiencing a heatwave with particularly high demand for air conditioning. 1,000 aMW is about the average amount of power consumed by Seattle City Light. As shown in Section 3.7, MO3 causes an increase in power reliability concerns in the winter and the summer. MO4 increases power reliability concerns in the summer. Thus, the combination has the largest impact during the summer. The cost of zero-carbon replacement resources for MO3 and MO4 individually are up to $1 billion/year. Resource replacements and associated transmission interconnections for the combination of MO3 and MO4 would be higher, though not likely as high as the sum of the two MOs individually. Assuming that the replacement resources consist largely of wind, solar, and batteries, this would require well over 50 square miles of solar power (more than two and a half times the size of Crater Lake), large areas of new wind generation, and unprecedented amounts of batteries (more batteries in the Northwest alone than the total projection of batteries expected in the entire U.S. by 2023, per the Energy Information Administration). In addition, the reduced generation capability under MO3, particularly throughout the summer, in combination with the impacts of the measures in MO4 and the uncertainty about the characteristics of replacement resources, would result in less capability to provide voltage support and dynamic stability for transmission system reliability than under MO3 or MO4 individually. Thus, combining MO4 with breaching in MO3 would produce unreasonable power and transmission reliability impacts, and it is highly speculative that replacement resources could be sited, permitted and built to address these impacts. In developing the Preferred Alternatives, the agencies used the alternative analysis to optimize the combination of measures based on the measures' intent and performance, to minimize impacts and meet the Purpose and Need Statement and EIS objectives. See Chapter 7. In regards to moving barging facilities, these are not Federal facilities, and thus would be the responsibility of ports, private industry, regional or local entities. Relocation would not be an alternative that the Federal agencies would propose. However, breaching the earthen embankment and the changes to regional economies related to changes in navigation is included in the analysis of MO3. It is anticipated these entities would not move, but that industry would change to a different transportation option, such as trucking or rail.
2362	3	vern2dkv@gmail.com	N/A	Also, the hatcheries should be included in these three Snake River alternatives because rebuilding Snake River salmon and steelhead is a very important benefit to Idaho.	Additional fish hatcheries were not included in the original construct of the Multiple Objective Alternatives. Hatcheries and the need for additional output was considered by the co-lead agencies and cooperating agencies during discussions of mitigation actions for each alternative. Only MO3 was determined to need additional hatchery operations for the short term impacts from the measure breaching the four lower Snake River dams. See Chapter 5 for discussion of mitigation. However, the co-lead agencies will continue to fund existing conservation and safety net hatcheries with the Preferred Alternative.
2374	1	vern2dkv@gmail.com	N/A	The proposed action needs to be modified to achieve Snake River salmon and steelhead recovery goals.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide meaningful benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the Columbia River System. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. The Preferred Alternative is predicted to benefit salmon and steelhead. It also meets the other objectives of the study for resident fish, hydropower, water management, and water supply, while minimizing adverse impacts to communities and the economy.
2374	2	vern2dkv@gmail.com	N/A	Sec. 3.5.4.1, Lines 20304 - 20308 MO3 is the only alternative that could lead to long-term increases in adult returns. Insufficient adult returns will not lead to achieving Snake River salmon and steelhead recovery goals. The proposed actions will not improve the likelihood of survival for Snake River salmon and steelhead. It is likely the proposed action will not lead to recovery of these salmon and steelhead, but leads to their extinction. The proposed action needs to be modified to achieve Snake River salmon and steelhead recovery goals.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the Columbia River System. That call, however, is ultimately the role of NMFS and the USFWS. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. The Preferred Alternative is nevertheless predicted to benefit salmon and steelhead. It also meets all the other objectives of the study for resident fish, hydropower, water management, water supply and greenhouse gas emissions, while minimizing adverse impacts to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS, the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams, because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system.
2375	1	vern2dkv@gmail.com	N/A	The section should be modified to address recreational and commercial fishing throughout the system including the Salmon River basin that is not discussed in Section 3.11.	The EIS provides an evaluation of the social welfare and regional economic effects of the No Action Alternative and the multi-objectives alternatives, including the effects on recreation (Section 3.11) and fisheries (Section 3.15). The EIS described the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. NMFS estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional eco nomic conditions in Region C, which is described qualitatively. The potential for changes in recreational fishing of anadromous fish under MO3 in the Region C is described in Section 3.11. Increases in recreational fishing could support jobs, income, and social benefits in Tribal and rural river communities. For the effects on recreational fishing under MO3 (Section 3.11.3.5) along the Lower Snake River below Lewiston, the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River) as an indicator for fishing visitation in this reach. The EIS describes that the visitation in the long-term in the lower Snake River, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting outfitting and tourism businesses in the region. However, there is uncertainty around recreational fishing visitation in the long-term given the current measures to regulate, protect, and support ESA-listed fish populations and habitat in the region. The contribution of Columbia River origin fish to ocean fisheries is described in Section 3.15.2.1. Because there is considerable uncertainty regarding the overall effects of the alternatives on regional fish populations, and how such changes may affect the management of the fisheries, effects associated with changes in commercial and recreational fisheries under the alternatives were described qualitatively. This analysis evaluates potential effects on fisheries by referencing the potential effects on relevant fish populations, as described in Section 3.5.
2375	2	vern2dkv@gmail.com	N/A	Sec. 3.11.1, Lines 92-93 The adverse effects noted are not limited to area tribes. The section should be modified to address recreational and commercial fishing throughout the system including the Salmon River basin that is not discussed in Section 3.11. Other recreational opportunities that should be added to this section include salmon spawning viewing in the Salmon River Basin.	The EIS recognizes the value of recreational and commercial fishing to the region. Section 3.15 describes the values associated with fisheries in the Northwest. Section 3.11 characterizes the sportfishing economy in the region. However, the uncertainty regarding the overall effects of the alternatives on regional fish populations, and how such changes may affect the management of the fisheries, limits a quantitative analysis of the specific impacts of each alternative on these values. The effects are therefore discussed qualitatively. The social welfare effects on fisheries under MO3 are described as major and beneficial in the long-term, with increases in regional economic effects if commercial fish catch rates increase. The EIS described the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. NMFS estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this

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					region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which is described qualitatively. For the effects on recreational fishing under MO3 (Section 3.11.3.5) along the lower Snake River below Lewiston, the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River) as an indicator for fishing visitation in this reach. The EIS describes that the visitation in the long-term in the lower Snake River, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting outfitting and tourism businesses in the region. The social welfare values and regional economic effects associated with recreational fishing under the MOs, as well as river recreation post dam breach under MO3, were not estimated because of the uncertainty and large range in visitation and consumer surplus values among users.
2390	1	vern2dkv@gmail.com	N/A	Sec. 3.11.2.1, Lines 307-318 This section on affected environment should include the Salmon River Basin, this omission needs corrected.	The specific geographic scope of the CRS proposed alternatives encompasses the 14 Federal projects on the Columbia River and its major tributaries (see Figure 1-1 in the Draft EIS). The EIS provides an evaluation of the social welfare and regional economic effects of the No Action Alternative and the multi-objectives alternatives, including the effects on recreation (Section 3.11) and fisheries (Section 3.15). The EIS described the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. NMFS estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which is described qualitatively. The potential for changes in recreational fishing of anadromous fish under MO3 in the Region C is described in Section 3.11. Increases in recreational fishing could support jobs, income, and social benefits in Tribal and rural river communities. For the effects on recreational fishing under MO3 (Section 3.11.3.5) along the Lower Snake River below Lewiston, the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River) as an indicator for fishing visitation in this reach. The EIS describes that the visitation in the long-term in the lower Snake River, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting outfitting and tourism businesses in the region. However, there is uncertainty around recreational fishing visitation in the long-term given the current measures to regulate, protect, and support ESA-listed fish populations and habitat in the region.
2391	1	vern2dkv@gmail.com	N/A	Sec. 3.11.3.1, Lines 677 702 With the current return levels for Snake River anadromous salmon and steelhead being significantly below recovery numbers, fishing conditions are and will continue to be negatively affected from the presence of dams and system operations. Until Columbia River System Operations are modified such that Snake River anadromous salmon and steelhead returns are above recovery levels, these adverse effects should be included in the EIS as economic losses to recreation and commercial. The opportunity to eat Columbia River salmon and steelhead is routinely taken away of those individuals who enjoy these fish in their diet. In the EIS, steps should be identified to achieve anadromous salmon and steelhead recovery numbers, then after those steps are established, the steps become the baseline to evaluate the effects of the proposed alternatives. Evaluating the effects of the proposed alternatives without achieving recovery levels will lead to extinction of the Snake River anadromous salmon and steelhead.	Recovery goals set under ESA section 4(f) are separate and distinct from goals associated with the analysis of alternatives under NEPA. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide meaningful benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the Columbia River System. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. The Preferred Alternative is predicted to benefit salmon and steelhead. It also meets the other objectives of the study for resident fish, hydropower, water management, and water supply, while minimizing adverse impacts to communities and the economy. The effects of the alternatives on recreation and commercial fishing are provided in Section 3.11 and Chapter 7.7.13 and Section 3.15 and Chapter 7.7.17, respectively.
2392	1	vern2dkv@gmail.com	N/A	Sec. 5.2.1.1, Lines 226-240, page 5-6 Hatchery Actions have not achieved recovery levels of Snake River anadromous salmon and steelhead. Additional and improved supplementation hatchery actions pertaining to recovery of Snake River anadromous salmon and steelhead need to be defined and implemented to prevent extinction. These additional and improved hatchery actions need be identified and discussed in detail in the Columbia River System Operations Environmental Impact Statement including evaluation of smolt to adult (SARS) return ratio (at the hatchery location) as an acceptable measure of success. The Independent Scientific Advisory Board for the Northwest Power and Conservation Council, Columbia River Basin Indian Tribes and National Marine Fisheries Service recommends SARS of 2%-6% for Snake River salmon and steelhead. These new hatchery actions need to be included in the applicable sections in the remaining sections of the Mitigation Chapter.	Hatchery programs are included in the No Action Alternative and would be expected to continue under alternatives MO1, MO2, and MO4, and certain hatcheries would continue under MO3. No new hatchery programs are considered as mitigation under any alternatives, but MO3 does include increased hatchery production due to short-term impacts from breaching the four lower Snake River dams. Hatcheries and the need for additional output was considered by the co-lead agencies and cooperating agencies during identification of mitigation actions for each alternative. Only MO3 was determined to need additional hatchery operations for the short-term impacts. See Chapter 5 for discussion of mitigation. It should be noted that the 2-6% Smolt-to-Adult return (SAR) target referenced in this comment refers to the Northwest Power and Conservation Council (Council) target for broad-sense recovery and is separate and distinct from the obligations of any single entity or in this case a requirement to be met solely by the co-lead agencies. Just as the Councils fish and wildlife program encompasses both federal and non-federal stakeholders in the Columbia Basin, the Councils recovery goals are shared by many parties. Based on the Preferred Alternative analysis, it will make a substantial contribution, but the Councils broad sense recovery goals are beyond the scope of this EIS, which focuses on the effects associated with the operation and maintenance of the 14 CRS projects. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species as that is a broader goal with shared responsibility. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery.
2393	1	vern2dkv@gmail.com	N/A	Sec. 7.7.4.1 Line 2746, Table 7-25 Recovery level (metric) for Snake River Spring/Summer Chinook should be added to this table. Also, estimated adult returns at the recovery level location (metric) should be added. It is very misleading (an insignificant change looks like a huge improvement when there is not improvement in recovery) to address % change for these fish until SARS are at recommended levels of 2%-6%. Sec. 7.7.4.1 Line 2831, Table 7-27 Recovery level (metric) for Snake River Steelhead should be added to this table. Also, estimated adult returns at the recovery level location (metric) should be added. Abundance estimates should be added as was included in Table 7-25. It is very misleading (an insignificant change looks like a huge improvement when there is not improvement in recovery) to address % change for these fish until SARS are at recommended levels of 2%-6%.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide meaningful benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the CRS. That call, however, is ultimately the role of NMFS and the USFWS. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. Specific to salmon and steelhead, the agencies used two primary modeling approaches which yielded a range of potential outcomes for the alternatives. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult (SAR) return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% (the lower end of the Northwest Power and Conservation Council's recovery targets for the region) as a result of the Preferred Alternative (increasing from 2.0% to 2.7% for Chinook, a 35% relative increase). The NMFS COMPASS and Lifecycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. It should be noted that the average SAR targets referenced refers to the Councils target for broad-sense recovery and is separate and distinct from the obligations of any single entity or in this case a requirement to be met solely by the co-lead agencies. Just as the Councils fish and wildlife program encompasses both Federal and non-Federal stakeholders in the Columbia Basin, the Councils recovery goals are shared by many parties. Based on our analysis of the Preferred Alternative, it will make a meaningful contribution to recovery, but the Councils broad sense recovery goals are beyond the scope of this EIS which focuses on the effects associated with the operation, maintenance, and configuration of the 14 CRS projects.
2393	2	vern2dkv@gmail.com	N/A	Sec. 7.7.4.1 Line 2849, Provide a Summary table to include the abundance estimates should be included for Snake River Coho. It is very misleading (an insignificant change looks like a huge improvement when there is not improvement in recovery) to address % change for these fish until SARS are at recommended levels of 2%-6%.	Recovery goals set under ESA Section 4(f) are separate and distinct from goals associated with the analysis of alternatives under NEPA. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide meaningful benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the CRS. That call, however, is ultimately the role of NMFS and the USFWS. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. Specific to salmon and steelhead, the agencies used two primary modeling approaches which yielded a range of potential outcomes for the alternatives. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult (SAR) return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% (within the Northwest Power and Conservation Council's recovery targets for the region) as a result of the Preferred Alternative (increasing from 2.0% to 2.7% for Chinook, a 35% relative increase). The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. It should be noted that the average SAR targets referenced refers to the Councils target for broad-sense recovery and is separate and distinct from the obligations of any single entity or in this case a requirement to be met solely by the co-lead agencies. Just as the Councils fish and wildlife program encompasses both Federal and non-Federal stakeholders in the Columbia Basin, the Councils recovery goals are shared by many parties. Based on our analysis of the Preferred Alternative, it will make a meaningful contribution, but the Councils broad sense recovery goals are beyond the scope of this EIS which focuses on the effects associated with the operation, maintenance, and configuration of the 14 CRS projects.
2393	3	vern2dkv@gmail.com	N/A	Sec. 7.7.4.1 Line 2880 Summary table including recovery level, estimated adult returns, and abundance estimates should be included for Snake River Sockeye Salmon. It is very misleading (an insignificant change looks like a huge improvement when there is not improvement in recovery) to address % change for these fish until SARS are at recommended levels of 2%-6%.	See response to Comment 2393-2.
2393	4	vern2dkv@gmail.com	N/A	Sect. 7.7.4.1 Line 2920 Summary table including recovery level, estimated adult returns, and abundance estimates should be included for Snake River Fall-Run Chinook Salmon. It is very misleading (an insignificant change looks like a huge improvement when there is not improvement in recovery) to address % change for these fish until SARS are at recommended levels of 2%-6%.	Recovery goals set under ESA section 4(f) are separate and distinct from goals associated with the analysis of alternatives under NEPA. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. It should also be noted that the 2%-6% recovery goals set by the NWPCC were initially based on spring Chinook salmon returns to the mouth of the Columbia River. Those same goals may not be applicable for all species with different life history strategies such as Snake River fall Chinook which have demonstrated population growth at SAR levels well below council targets for recovery.
2394	1	vern2dkv@gmail.com	N/A	Appendix E, Sec. 3.6.3.2, Line 4910, Table 3-22 With the SAR results being below 0.02 for LGR-BON and when formal consultation is completed, would Columbia River System Operations with NOAA Fisheries and/or US Fish and Wildlife Service develop Snake River specific alternatives that will achieve salmon and steelhead recovery levels?	No. We do not believe there would be a new alternative as the outcome of ongoing consultation. Consultation is based on the Proposed Action the co-lead agencies proposed to NMFS and USFWS. Recovery goals set under ESA section 4(f) are separate and distinct from goals associated with the analysis of alternatives under NEPA. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide meaningful benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the Columbia River System. Recovery efforts will need to continue to involve parties across the

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					region that have an influence and impact on ESA-listed species. The Preferred Alternative is predicted to benefit salmon and steelhead. It also meets the other objectives of the study for resident fish, hydropower, water management, and water supply, while minimizing adverse impacts to communities and the economy.
2397	1	appel1939@yahoo.com	N/A	I was raised on the Palouse and attended WSU in Ag Engineering. I worked for the USGS- Water Resources Division for 34 years as a Hydrologist. The first three years, 1961-63, I collected Water Data in eastern Washington; my field area was southeast Washington (the Snake River Basin in Washington State). This was before the Snake Dams and I collected river flow and water temperature data on the Snake 6 miles downstream from Lewiston. I moved back to the Colfax area in 1994 and I can attest to the facts that maximum river temperature data show that the river got hotter before the dams. This is primarily because the river was shallower and responded quickly to hot summer air temperatures. The dam pools that we have now act as a "heat sink" and tend to even the temperatures out therefore lowering the maximum extremes and raising the lower extremes.	These statements are in agreement with the historical data and modeling work that we have analyzed for this EIS. Historical water temperature measurements were collected from 1955 to 1958, which are reported in the EIS. This information helps to build historical context and provide an idea of what water temperatures would have looked like prior to the construction of the lower Snake River and Hells Canyon Complex dams. The lower Snake River dams include Lower Granite Dam (constructed in 1975), Little Goose Dam (constructed in 1970), Lower Monumental Dam (constructed in 1969) and Ice Harbor Dam (constructed in 1961), while the Hells Canyon reach dams include Brownlee (constructed in 1959), Oxbow Dam (constructed in 1961) and Hells Canyon Dam constructed in (1967). No Corps of Engineers Dams existed on the Snake River prior to 1961.
2397	2	appel1939@yahoo.com	N/A	The next item that concerns me is if the dams are removed there could be several generations (years) of fish kill due to the tremendous sediments loads in the river. Sediment has been collecting by settling on the bottom and shores since these dams have been constructed starting in early 1960s. It will move downstream as uncontrollably as flooding occurs, if dams are removed, suffocating salmon and steelhead, young and old.	Sediment loads to the Snake and Columbia rivers that could occur under the MO3 Breach Snake Embankments measure were analyzed using sediment transport models as described in Appendix C, Section 3.4. The sediment impounded behind the four lower Snake River dams is predominately fine grained and readily transported in suspension. Analysis results for the MO3 Breach Snake Embankments measure indicate that increased sediment concentrations could occur during the construction season with impacts to dissolved oxygen as described in Section 3.4.1 of Appendix C. Mitigation actions to address these potential impacts are described in Section 5.4.3, including transport of some listed fish. These short term major adverse impacts can only partially be mitigated. A specific discussion of mitigation for effects to anadromous fish from MO3 is included in Section 5.4.3.2. Sediment transport modeling suggests that impounded sediments within the historical river channel extents would scour back to the historical river bed elevations over the near-term (2-7 years) depending on the magnitude and duration of watershed hydrology. Impounded margin sediments remaining on higher elevation floodplain terraces would be expected to incrementally erode over a longer time (>10 years) as seasonal floods access those surfaces.
2413	1	sbruce54@yahoo.com	N/A	Excessive water spilling to help "flush" the fish down river is also questionable. It adds to erosion and may pose a nitrogen narcosis risk to all of the fish.	The co-lead agencies have evaluated the potential negative effects of increased spill and have worked to balance those against the predicted positive outcomes associated with high spill levels. This includes balancing the potential effects of erosion at the dams and increased total dissolved gas levels. The Preferred Alternative will be implemented using a robust monitoring plan to help determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. The effectiveness of the spill program will be monitored, as will other impacts to fish and the dams themselves. The co-lead agencies will, to the extent possible, account for effects from other sources such as harvest, ocean mortality, and straying.
2414	1	tvstanger@gmail.com	N/A	As a member of Bonneville Power Administration (BPA), we fulfill these goals. While LEC handles the safety aspect of our distribution services, BPA is a great partner in helping LEC achieve affordability and reliability. Although LEC desires to achieve environmental balance, we believe BPA and public power have provided many improvements that have produced positive tangible results in fish migration and the environment at a great expense to our member-owners. About one-third (1/3) of our wholesale power costs are spent on environmental improvements. Since wholesale power accounts for about 50% of LECs total expenses, roughly one-sixth (1/6) of our members electric bills are spent on environmental improvements via BPA. These costs are solely shouldered by the members of electric utilities, and residents of the Pacific Northwest. While BPA has a responsibility for fish migration, there are many other factors that contribute to fish survival and population increases. LEC believes there needs to be a holistic view of the entire fish life cycle not just the impacts of the dams. The solutions need to include hydro, hatcheries, harvesting, and habitat since they all are crucial to fish restoration efforts. The narrow view of what others believe are the responsibilities of public power in achieving positive results are prejudicially targeted and unfair to all members of LEC. LEC believes the responsibility for fish restorations should be borne by BPA, public power, and the residents of the Pacific Northwest. There needs to be an overall restoration effort by all concerned parties. This effort means all parties carry some accountability and are willing to give and take through open negotiations.	There are many effects to salmon and steelhead populations outside the operation and maintenance of the dams. Salmon and steelhead have been adversely affected in the Columbia River Basin over the last century by many activities including human population growth, urbanization, introduction of exotic species, overfishing, development of cities and other land uses in the floodplains, water diversions for all purposes, dams, mining, farming, ranching, logging, hatchery production, predation, ocean conditions, and loss of habitat (see Chapters 6 and 7 for additional information). Recovery of ESA-listed salmon is outside of the authority of the co-lead agencies, and was not an objective of this EIS. Recovery of ESA species is the purview of NMFS and the US Fish and Wildlife Service. This EIS has been developed in consultation with NMFS and USFWS to find an acceptable balance that allows the co-leads to meet congressionally authorized purposes while minimizing impacts to affected ESA species and their habitats. Finally, the financial responsibility for fish mitigation is not solely allocated to Bonneville's power ratepayers as the comment suggests. Fish mitigation costs are assigned to each authorized project purpose based on each purposes overall share of project costs, as determined by the cost allocation, by recovering those costs through power rates. Bonneville is required to pay for its share of mitigation costs based on the existing cost allocation. Congress also granted Bonneville discretion to fund the power share directly to the Corps and Reclamation as part of the Energy Policy Act of 1992, in some situations, including the Columbia River Fish Mitigation program. (Energy Policy Act of 1992, Pub. L. No. 102-486, 2406, 106 Stat. 2776, 3009 (1992) (codified at 16 U.S.C. 839d-1 (2012)). Bonneville generally does not, however, directly pay for the capital costs of fish mitigation structures; instead, it reimburses the U.S. Treasury for the power share of appropriations used to construct the structure. Additionally, as described in Section 3.19 of the EIS and Appendix Q, funding to operate the system comes through multiple mechanisms, including federal tax dollars appropriated to cover system costs as well as revenue generated from the marketing and sale of hydropower. For power-specific costs, Bonneville typically provides direct funds to both the Corps and Reclamation. For joint related costs, including funding for fish and wildlife mitigation actions, the Corps and Reclamation receive annual congressional appropriations to fund most, if not all, capital investments. Bonneville reimburses the U.S. Treasury for the power share of these appropriations. Once the investment is in place, Bonneville will typically direct fund the power share of the operations and maintenance costs associated with the facility. In addition to congressional appropriations for fish and wildlife and costs directly funded to Corps and Reclamation by Bonneville, the Bonneville Fish and Wildlife Program (which is separate and distinct from direct funding described above) funds hundreds of projects each year to mitigate the impacts of the federal hydropower system on fish and wildlife. Bonneville began this program to fulfill mandates established by Congress in the Pacific Northwest Electric Power Planning and Conservation Act of 1980 to protect, mitigate, and enhance fish and wildlife affected by the development and operation of the FCRPS. Bonneville uses its authority under 16 U.S.C. 839b(h)(10)(A), to make expenditures to implement its Fish and Wildlife Program. These expenditures provide system-wide funding for actions that also mitigate for the non-power purposes of the CRS, so Bonneville recoups the non-power share of those expenditures from the U.S. Treasury as credit, as required under 16 U.S.C. 839b(h)(10)(C). Bonneville's Fish and Wildlife Program expenditures incurred mitigating the CRS operations identified in the Final EIS and adopted in Bonneville's Mitigation Action Plan would continue to be allocated and borne as provided by existing laws governing the FCRPS and the long-standing accounting procedures used to implement them. Moreover, as described in Chapter 7 of the EIS, funding decisions for Bonneville's Fish and Wildlife Program are not being made as part of the CRSO EIS process. Future budget adjustments would be made in coordination with the regional entities that help Bonneville implement its Fish and Wildlife Program. The statement that roughly a quarter of costs from Bonneville's power rates are due to fish and wildlife spending is consistent with information provided in the EIS.
2414	2	tvstanger@gmail.com	N/A	While LEC believes positive results are achievable, the objectives that came from the EIS are not as beneficial to public power. Spill in any form is not ideal for electric utilities. Increased spill is also not ideal for fish survival since it can cause harmful or deadly amounts of gas in the water. Spill is wasteful and puts BPA in danger of not being able to provide reliability and affordability for the residents of the Pacific Northwest. Dam breaching holds no logic and would increase the reality of energy shortages in the Northwest very soon.	The EIS includes a Purpose and Need Statement in Chapter 1 and identified eight objectives in Chapter 2, which includes a purpose and objective to: "Provide an adequate, efficient, economical, and reliable power supply that supports the integrated Columbia River Power System." MO3, which includes the measure to breach the four lower Snake River dams was not identified as the Preferred Alternative. The Preferred Alternative meets the purpose and objective identified above. The Preferred Alternative which includes flexible spill will be implemented using a robust monitoring plan to help determine how effective increased spill can be in increasing salmon and steelhead returns to the Columbia Basin. The effectiveness of the spill program will be monitored, as will the effects to generating resources around the basin. The EIS documents the reliability concerns and the costs associated with replacement power for spill or dam breaching for the various alternatives. See Section 3.7.3.5 in the Draft EIS.
2414	3	tvstanger@gmail.com	N/A	LEC is reliant on the affordable, clean, renewable energy we receive from BPA. However, reliability can only be achieved with the power produced by the Columbia River System. Reliable hydroelectricity is vital to incorporate intermittent generation sources like solar and wind into the grid. It would be counter-effective to spill more precious water or breach dams. We need to fully utilize the amazing resource we have available in the Pacific Northwest - clean, reliable, carbon-free energy produced by dams on the Columbia River System	The commenter's suggestion that hydropower is valuable for balancing intermittent generation sources such as wind and solar is consistent with the findings of the EIS. This is described further in Section 3.7.3.5, in the Draft EIS, Potential Replacement Resources and Associated Costs. The measure to breach the four lower Snake River dams that was evaluated in MO3, was not included in the Preferred Alternative identified in the Draft EIS. Juvenile Fish Passage Spill Operations are included in the Preferred Alternative identified in the Draft EIS as described in Section 7.6.3.10 of the Draft EIS. The effects of the Preferred Alternative on power are described in Section 7.7.9 of the Draft EIS. Overall, hydropower would decrease relative to the No Action Alternative under the Preferred Alternative. However, because of the shape of the remaining hydropower generation in the Preferred Alternative, the loss of load probability was essentially the same as that of the No Action Alternative.
2415	1	orcharding@yahoo.com	N/A	Please wait until after the Coronavirus pandemic is over and hold the cancelled public meetings when people are aware and attentive to the Columbia River System Environmental Impact Statement and its objectives and measures.	The co-lead agencies considered requests to extend the public comment period. This NEPA process included a wide array of cooperating agencies whose close involvement throughout the process allowed the co-lead agencies to incorporate feedback. Given the broad range of comments received to date and the extensive Federal and non-Federal participation in the overall process as well as the level of public engagement in the six virtual public meetings in the region, the co-lead agencies determined that an extension was not warranted and that the 45-day public comment period was adequate consistent with NEPA regulations. The CRSO EIS website notified the public on April 9, that they should plan to submit comments by the close of the comment period.
2416	1	justinacotter@aol.com	N/A	A major problem with the government's Preferred Alternative is its reliance on the flexible spill approach. Science shows that while increased levels of spill may ameliorate further species decline in the short term, it is not, by itself, a long-term survival strategy, let alone a recovery strategy. Indeed the parties to the current, short-term Flexible Spill Agreement made this explicit, and respected scientists have confirmed that the flexible spill included in the Preferred Alternative will NOT deliver salmon the survival benefits through the hydrosystem they need. Furthermore, the changing climate will erode any benefits of flexible spill as a long-term approach, underscoring the urgency for meaningful action. Rather shockingly, the draft plan includes little to address these intensifying impacts. Snake and Columbia river salmon and steelhead and the irreplaceable benefits they bring to communities and orcas and ecosystems face extinction today. The approach recommended by this Draft EIS as a long-term strategy for Columbia Basin fish will result in nearly certain extinction for the four remaining endangered Snake River stocks: sockeye, spring/summer chinook, fall chinook and steelhead.	As required by NEPAs implementing regulations, the co-lead agencies used current high quality information in the analysis of the CRSO EIS. Specific to salmon and steelhead, the agencies used two primary modeling approaches which yielded a range of potential outcomes for the alternatives. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% as a result of the Preferred Alternative. The NMFS COMPASS and Lifecycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. There are many factors that affect salmon and steelhead populations including changes to ocean conditions, predation, harvest, etc. The analysis in this study, particularly relating to the fish passage spill operation, focus on the migratory impacts to salmon and steelhead from the operations of the Columbia River System projects. Research continues to evaluate the magnitude of these effects. For more information see the NMFS website at: https://www.nwfsc.noaa.gov/research/index.cfm The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA listed species. Based on our analysis in the fish resources section of Chapter 7.5, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the Columbia River System. That call however is ultimately the role of NMFS and the USFWS. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species.
2418	1	kennedy@mymail.mines.edu	N/A	I have a question: within the information for each dam (for example, the John Day Dam: https://www.nwd.usace.army.mil/CRSO/Project-Locations/John-Day/#top), listed is the hydraulic capacity in cfs. Is this number (322 thousand for the John Day Dam) the total cubic feet per second going through the dam, or per turbine? If this were the total, is it fair to say that each turbine (in the John Day Dam) can take in 322/16 cfs, as there are 16 turbines? Thanks, and I look forward to your response.	The "quick facts" listed for the dams at the CRSO website (for example, https://www.nwd.usace.army.mil/CRSO/Project-Locations/John-Day/#top for John Day Dam) include Powerhouse Hydraulic Capacity. The Powerhouse Hydraulic Capacity is the total amount of flow that could pass through the powerhouse, meaning for all the generating units combined. It is not for a single generating unit. So at John Day Dam, which has a Powerhouse Hydraulic Capacity of 322,000 cfs, the hydraulic capacity of each individual unit is 1/16 of the Powerhouse Hydraulic Capacity. This amounts to 20,125 cfs per unit.
2419	1	allensandra524@turbonet.com	N/A	The shutting down of various railroad spurs on the Palouse caused a very noticeable increase in heavy truck traffic on the roads and highways of eastern Washington with corresponding increase in traffic safety concerns for all of us. The breaching of the dams will have an even greater impact on traffic safety, as well as the increased cost of grain and other cargo transport to and from the area.	The Navigation and Transportation Section 3.10 reflects the adverse effects of implementing alternative MO3 including increases to traffic, potential safety, and cost of grain transport. The EIS analysis finds that truck ton-miles may experience an increase of 19 percent to 84 percent under MO3 when compared to the No Action Alternative, depending on the rail rate increases that occur. The EIS found that truck trips would increase between 14,000 to 79,000 truck trips per year, which would increase air pollutant and greenhouse gas emissions in the region and add to traffic and congestion in the region. Rail ton-miles would increase by as much as 86 percent (when rail rates are not assumed to increase) or decrease by 2 percent (when rail rates increase by 50 percent).
2421	1	Charles Tracy	Pacific Fishery Management Council	The Pacific Council would like to provide comments on the draft environmental impact statement for the Columbia River System Operations (DEIS); however, in response to the current COVID- 19 pandemic, the Pacific Council was forced to change its April 5-10 in-person meeting to a webinar format and cut back its agenda to only essential rulemaking items. Unfortunately, the agenda item to approve comments on the DEIS was a casualty of the agenda prioritization. While another process to obtain consensus comments from the Pacific Council exists, this process is less robust than our usual Pacific Council meeting discussions involving Council members, advisors, and stakeholders. The next opportunity to engage in our usual process will be at our June 13-18 meeting; therefore, we are requesting an extension of the comment deadline on the DEIS until at least June 19, 2020. We recognize this is a substantial delay, but the actions considered in the DEIS are extremely important to the Pacific Council, its stakeholders, and the fishery	The co-lead agencies considered requests to extend the public comment period. This NEPA process included a wide array of cooperating agencies whose close involvement throughout the process allowed the co-lead agencies to incorporate feedback. Given the broad range of comments received to date and the extensive Federal and non-Federal participation in the overall process as well as the level of public engagement in the six virtual public meetings in the region, the co-lead agencies determined that an extension was not warranted and that the 45-day public comment period was adequate consistent with NEPA regulations. The Corps notified the Council on April 6 and the public on April 9, that they should plan to submit comments by the close of the comment period.

Letter No.	Comment No.	Commenter Name/Email	Affiliation	Comment	Response[1/]
				resources managed by the Pacific Council. If an extension until then is not possible, we would appreciate your consideration of any extension of the deadline beyond April 13 to allow us to complete our alternative commenting process in a more considered manner. Thank you for considering our request. Please contact me or Ms. Jennifer Gilden, our staff lead, if you have any questions. We look forward to your response and the opportunity to provide meaningful comments on the DEIS. Sincerely, Charles A. Tracy Executive Director JDG:ael Cc: Mr. Chris Oliver Council Members Habitat Committee Salmon Advisory Sub	
2423	1	ahoey@owgl.org	N/A	The Columbia Snake River System is the nations single largest wheat export gateway. Barging plays a key role in this transportation system and moved over 4 million tons of wheat to Lower Columbia River ports last year. Each year, nearly 10% of all U.S. wheat exports move by barge just on the Snake River. A significant concern to any dam removal on this system is the impact to truck and train activity that would be necessary to take the place of barging. It would be simultaneously devastating to our economies and wheat growers while also significantly diminishing air quality due to increase emissions. I applaud the approach taken in this study and support the recommendations put forth for the preferred alternative. Continued improvements to fish passage at the four Snake River dams enable fish to pass the dams with remarkable success. Dams with navigation locks providing barge transportation can and do, in fact, coexist with fish. The ability to barge wheat is a pillar of our industry. Loss of these four facilities would cause irreparable damage to the Pacific Northwest economy, including Oregons wheat growers, not limiting to, Transportation and storage expense would likely increase 50% to 100% for grain suppliers and shippers. These costs could increase by up to $0.80 per bushel if barging on the Snake River is removed as a transportation option. Diesel fuel consumption would increase by nearly 5 million gallons per year as barges are replaced by much less efficient truck-to-rail shipments. Highway, rail and grain elevator networks would need over $1.6 billion in capital investment. The loss of hydropower generation would reduce the baseload power available to balance the power provided by variable generation sources like wind and solar. Carbon emissions from transportation and replacement power generation would greatly increase, something the State of Oregon is supposedly trying to reduce with countless other policy initiatives.	Section 3.10 of the Draft EIS provides an evaluation of the Columbia Snake River Navigation System, assessing its relative efficiency, low costs for shippers, safety considerations, and low air emissions relative to other transportation modes. The EIS acknowledges that depending on how rail rates respond to dam breach, shortline rail capacity could be exceeded. The EIS also evaluates the additional transportation infrastructure investments and associated costs that would be required. Under low rail rate increase scenarios, additional shortline rail capacity could be required at a cost of between $25 to $50 million. Under a scenario where rail rates increase by 50 percent, more shipping demand would be transferred to trucks, reducing the demands on rail infrastructure, but increasing demands on roads. Under this scenario, up to $10 million in additional road wear and tear costs may occur. Environmental and human health impacts associated with increased emissions to shipping goods by rail and/or truck are evaluated and described in the Air Quality Section (3.8), and increased health and safety concerns due to increased truck traffic on roadways and potential for increased accidents are described in the Navigation and Transportation Section for other social effects (Section 3.10.3.5). Regarding the loss of hydropower, the commenter's observation about the balancing ability of the four lower Snake River dams is consistent with the findings of the EIS. The commenter's observation about emissions increasing from transportation and power generation is also consistent with the findings of the EIS.
2424	1	moffpirx@aol.com	N/A	With reference to Appendix H, Section 2.4 "Comparison fo NWEC study with the MO3 All-Gas Alternative" page H-2-16, line 928 to 940. The Groups in support of MO3 and /or MO4 are utilizing the findings of the NW Energy Coalition "Lower Snake River Dams Power Replacement Study - March 2018" by Energy Strategies. As lines 928 to 940 in the CRSO EIS state, the NW Energy Coalition study utilizes out of date information, and is opaque with respect to a number of assumptions used in their models. In addition... 1) The NW Energy Coalition study has not been updated, and does not take into account the NWPCC 7th Power Plan Mid-Term Update, which significantly reduces the amount of Energy Efficiency and Demand Response which is anticipated. 2) The NW Energy Coalition study produces LOLP numbers for all of the replacement scenarios that are drastically less than the concensus of estimates for LOLP from BPA, NWPCC, PNUC, E3, and others. 3) It is not clear from the NW Energy Coalition study that ELCC (Effective Load Carrying Capacity) for wind and solar was correctly used in their models. 4) The NW Energy Coalition study only lightly considers the magnitude and timing of new Transmission lines that will need to be built to accommodate the increased renewable resources. 5) NWEnergy Coalition does not explicitly state that it does not anticipate removing the dams until approximately 2026. There are other areas of concern. For the above, and other issues, the NW Energy Coalition Study should not be considered as an authoritative document to justify MO3 or MO4.	The commenter's note the four lower Snake River dams' power replacement portfolio described in the Northwest Energy Coalition study cannot be compared to MO3 within the EIS is correct. The EIS section cited by the commenter (Appendix H, Power and Transmission, Section 2.4 in the draft EIS) describes the differences between these studies.
2426	1	murphyjeanie@hotmail.com	N/A	First off, the fact that Northwest ratepayers will be devastated by the costs of replacing the power lost if the four lower Snake River dams are removed is incorrect. The four lower Snake River dams are relatively unreliable sources of power compared to some other dams in the federal Columbia River system. They are run of the river dams with very little storage capacity and are thus almost totally dependent on the amount of snowpack and rate of runoff. While they have a collective generating capacity of 3,033 megawatts, their average yearly output is around a third of that 1,075 average megawatts (aMWs). Together, these four dams produce only 790 aMWs of firm power (i.e., the amount of electricity utilities can count on in a drought year). And even that is misleading, since most of that potential exists in spring when the region has a power surplus. When the energy is most needed in winter and late summer, these dams are good for only 425-525 MWs. If Seattle had to rely on the lower Snake dams for its power, it would have electricity shortages much of the year. Because of the unreliability of these four dams, the Northwest Power and Conservation Councils 6th Energy Plan shows that the region would only need to replace about 245 MWs of additional power to address the current output of these dams. The impact on customers rates would be somewhere between 2-4% percent if spread throughout the region, refuting claims that dam removal would devastate ratepayers. Renewable energy and conservation can replace the lost generation or cover future load growth if the four lower Snake River dams are removed. The 2009 Bright Future report from the NW Energy Coalition illustrates that there is enough affordable energy efficiency and renewable energy resources in the Northwest to satisfy load growth, phase out all of the regions carbon-emitting coal plants, and replace the modest amount of power coming from the four lower Snake River dams. Furthermore, the Northwest Power and Conservation Councils 6th Power Plan, released in 2010 underscores many of the findings in Bright Future. The Councils plan shows that the region can meet its growing energy needs almost entirely with energy efficiency and new renewables and with no net increase in greenhouse gas emissions. In addition to being much cheaper and cleaner than gas, reducing loads through conservation frees up valuable transmission capacity needed to integrate more renewables in the Columbia Gorge, and reduces the need for the peaking ability of the dams. Both the Bright Future and the 6th Plan show that we have a sensible and affordable path toward a Northwest energy future where regional carbon emissions are reduced enough to meet the regional climate targets and the lower Snake River is restored for the benefit of salmon, jobs, and communities. The lower Snake River dams are NOT necessary to ensure that wind power can be integrated into the power grid. Removal of the four lower Snake River dams will not significantly increase the cost to integrate or back up wind resources into the grid. Hydropower facilities can firm or back up wind generation by leaving water in the reservoir when the wind is blowing and generating power, and then releasing the water to generate power when the wind is not blowing. But the problem now in the region is that we actually have an excess of hydro capacity at certain times of year that creates a limitation on how much wind we can allow onto the energy grid. Removing the four lower Snake River dams would help to eliminate that problem and thus allow more wind energy to be brought onto the system.	The Draft EIS describes the operational characteristics of the four lower Snake River dams in Section 3.7.3.5, Lower Snake River Full Replacement (Used in Rate Sensitivity Analysis). As described in that section, although the dams are run-of-river, there is upstream storage that is used to increase their firm capacity, and they provide up to 2000 MW of sustained peaking capacity at certain times of the year. Yes, the commenter is correct that they have less firm power in the winter than their annual average, but some of this winter generation can be shaped to meet demand during the morning and evening peaks when it is most needed. They also have unparalleled ramping capability the ability to quickly generate energy to match spikes in energy usage with over 2,000 to approximately 2,300 MW of capability in certain months of the year (see Table 3-160 in the draft EIS). The ramping capability is valuable for system balancing, which is used to serve load (consumed energy by houses, business, industry) and to balance out the variability that renewable generation causes to the system, such as when the wind does not blow or the sun is blocked by clouds. The comment also seems to suggest that the four lower Snake River dams are operated independently of the remaining parts of the Federal Columbia River Power System (FCRPS). As the Draft EIS describes, the FCRPS is operated as an integrated system. Consistent with that operation, Bonneville sells power from the FCRPS as a unified system, not from specific projects. In this regard, the power generated from the four lower Snake River dams are used to meet Bonneville's collective power obligation, most of which is sold to meet the loads of publicly owned utilities, such as municipalities, rural utilities, and public utility districts (see Section 3.7.2.5, Bonneville Power and Transmission Customers in the draft EIS). The EIS used the most recent data from the Northwest Power and Conservation Council's 7th Power plan and Mid-term Updates to analyze regional reliability, the need for replacement resources, and the potential for additional energy efficiency. The Councils 7th Power Plan was issued in February 2016 and the Mid-Term Update was issued in February 2019. The information relied on by the commenter is from the Councils 6th Power Plan, which as the commenter notes, is from 2010. In addition, regarding the specific replacement resource considerations from the Bright Future report and the Council's 6th Power Plan, these studies are 9 or 10 years old and do not reflect the newer information contained in the 7th Power Plan. All cost-effective efficiency was included in the analysis. There is a zero-carbon resource portfolio that includes renewables as well as demand response. Additional energy efficiency in the zero-carbon portfolio was not deemed cost-effective compared to the renewable resources. The EIS identifies an average retail rate increase of 2-4% across all retail ratepayers in the region as a result of MO3. This range includes impacts to utilities that do not directly purchase power from Bonneville (such as private utilities) as well as utilities that do (such as public utilities and municipalities). The retail rate impacts of MO3 on customers that purchase power primarily from Bonneville would be higher than the 2-4 percent increase cited by the commenter. For example, as explained in Section 3.7.3.5, Table 3-174 in the draft EIS, if a zero-carbon resource portfolio were chosen to replace the lost capability of the four lower Snake River dams, 20 percent of regional households would experience a greater than five percent rate increase. Table 3-174 in the draft EIS also describes how 58 percent of regional households would see a retail rate increase of between 3 and 5 percent. The EIS describes the replacement resources that would be needed to maintain regional reliability at the No Action Alternative (No Action Alternative) levels if the four lower Snake River dams are breached. Two portfolios are addressed in the EIS: a least-cost conventional portfolio (natural gas) and a zero carbon portfolio (solar, wind, storage technologies). See Section 3.7.3.5, Potential Replacement Resources and Associated Costs in the draft EIS. To maintain regional reliability at the No Action Alternative levels with zero carbon resources portfolio, 2,550 MW of solar and 600 MW of demand response would be needed. As described in the EIS, this is approximately 1,550 MW above the regions 1000 MW of installed solar. (The final EIS has slightly smaller quantities as well as batteries, See final EIS Section 3.7.3.5.) In addition, as discussed in Section 3.7.3.5 in the draft EIS, Lower Snake River Full Replacement, replacing the lost capability of the four lower Snake River dams would require substantially more additional zero-carbon resources than presented in the reliability analysis, including a total of 3,306 MW of solar, 1,144 MW of wind, and over 2,500 MW of batteries or other storage technology. See Table 3-162 in the draft EIS. The EIS found that even with adding zero-carbon resources such as solar and demand response to replace lost hydropower from dam breaching, greenhouse gas emissions still increased in the region because existing gas-fired power plants in the region would increase generation. See Section 3.8.3.5, Summary of Effects in the draft EIS. The EIS describes the importance of maintaining balancing reserves to meet system uncertainty and to integrate renewable resources, such as wind and solar. See Section 3.7.2.2, Meeting System Uncertainty With Generation Balancing Reserves, Dispatchable Resources, And Ramping Capability in the draft EIS. The four lower Snake River dams are connected to Automatic Generating Control (AGC), making them among the few projects that are capable of providing balancing reserves. See Section 3.7.3.5, Value of Lower Snake River Dam Ramping Capability in the draft EIS. The four lower Snake River dams currently carry approximately 20 percent of upward flexibility and 8 percent of the downward flexibility held by the FCRPS for balancing reserves. See Section 3.7.3.5, Rates Sensitivity Analysis in the draft EIS. As discussed in the EIS, breaching the four lower Snake River dams would place this balancing reserve obligation on the remaining projects tied to AGC, reducing their available generating capability. In addition, the need for balancing reserves would increase in order to reliably integrate the zero-carbon resources needed to replace the lost capability of the four lower Snake River dams. The cost of these integration services is presented in Section 3.7.3.5, Bonneville Finances, and Table 3-166 in the draft EIS.
2426	2	murphyjeanie@hotmail.com	N/A	Removing the lower Snake River dams will NOT hurt farmers and irrigators. Removal of the lower Snake River dams need not have a detrimental impact on farmers in eastern Washington. Prior to the completion of those dams in 1975, grain and other products in the region were transported to market chiefly by rail and truck. Today, a significant portion of these products moves via barge from Lewiston, Idaho, or grain-loading facilities elsewhere on the lower Snake River. Recent studies have found that the 140-mile navigation channel created by the lower Snake River dams could be affordably and effectively replaced by upgrading the Northwests railroad lines. Upgrading railroads in southeastern Washington and Idaho to accommodate most of the grain currently moving down the lower Snake River (some would still be barged from Columbia River ports near Pasco, Washington) would not be cheap, but it can done cost-effectively. Regarding irrigators in the Columbia-Snake basin, removal of the four lower Snake River dams could actually take pressure off upriver irrigators in Idaho, who under an aggressive non-dam-removal plan would need to let more water remain in the river to mitigate for the effects of the dams. And the relatively small amount of irrigated farmland along the lower Snake River (Ice Harbor Dam is the only one that provides irrigation for farms) could be replaced by extending intake pipes to a free-flowing river. Similarly, dryland wheat farmers could retain an affordable, reliable transportation system if some of the taxpayer savings from dam removal are invested in upgrading railroads, highways, and Columbia River barge facilities.	This EIS discusses engineering solutions (pipeline extensions for example) in Section 3.12.3 Environmental Consequences, specifically under Region C under the MO3 alternative (see page 3-1267, line 3244 in the Draft EIS) and in Appendix N. The report from which this EIS draws, as discussed, concluded that modifying the existing pump system was cost prohibitive. In Region C under the MO3 alternative, this analysis assumes that pumps are unable to deliver water to an estimated 48,000 acres. The EIS evaluates the increases in transportation rates that would likely result from removal of lower Snake River navigation capability from dam breach. The EIS finds that under a dam breach scenario, average transportation costs for wheat farmers would increase 10 to 33 percent, but that individual farmers could experience increases that are doubled, depending on their specific location and other conditions. The EIS analysis finds that transportation of freight that is currently barged on the lower Snake River could be accomplished via other transportation modes, but this change would not be without costs to farmers, would require public and private investment in infrastructure, and would result in some adverse regional economic effects, particularly in the short term. The EIS acknowledges previous analyses conducted in the 2002 lower Snake River study. However, the EIS relies on the best, currently available information to evaluate the tradeoffs associated with dam breach under MO3.
2426	3	murphyjeanie@hotmail.com	N/A	Salmon are NOT doing better than ever and returns are NOT approaching historic levels. Contrary to repeated statements from federal agencies, most wild Snake River salmon and steelhead returns remain at about the same levels as when they were first listed under the Endangered Species Act (ESA) in the early 1990s. But around 80% of these returns are hatchery fish, not wild ones. And while those numbers were predicted to be near or slightly below the 10-year average, they are less than half of the numbers we saw as recently as 2001 and 2002. More importantly, the wild returns are still nowhere near NOAA recovery targets, which must be met for eight consecutive years, or the Councils replacement or recovery targets. Many claim that removing the four lower Snake dams will only help four of the thirteen ESA-listed species in the Columbia-Snake Basin. In truth, while the four Snake River salmon and steelhead populations will benefit the most from the removal of the four lower Snake River dams, this action will also help improve water quality and flow in the lower Columbia River, thus benefiting all 13 listed stocks that migrate through the Columbia. Furthermore, a salmon recovery plan including dam removal could free up funding for salmon recovery efforts elsewhere in the Columbia Basin. The science is clear that lower Snake River dam removal is the best hope to restore salmon runs in the Basin. Among other sources, the Plan for Analyzing and Testing Hypotheses	As required by NEPAs implementing regulations, the co-lead agencies used high-quality information in the analysis of the CRSO EIS. Therefore, the agencies did not rely on information contained in the Plan for Analyzing and Testing Hypotheses (PATH) Weight of Evidence Report (ESSA Technologies 1998), which is over twenty-years-old and does not reflect current CRS operations. In addition, the co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets most other EIS objectives including those for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS, the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams, because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system.

Letter No.	Comment No.	Commenter Name/Email	Affiliation	Comment	Response[1/]
				(PATH, a group of federal, state, tribal, and independent scientists convened by the Clinton Administration in the mid-1990s to examine the causes of Columbia and Snake River salmon declines and the best courses of action for reversing those declines) report from 1998 concluded that removing the lower Snake River dams had an 80 and 100% probability, respectively, of recovering Snake River spring/summer chinook and fall chinook. In addition, NOAAs 2000 Biological Opinion concluded that dam removal was the most biologically certain way to recover Snake River salmon: [B]reaching the four lower Snake River dams would provide more certainty of long-term survival and recovery than would other measures. According to the American Fisheries Society, [i] n contrast to the uncertainty of success from the removal of hydro projects in other portions of the basin, the benefits to Snake River stock survival and recovery would be assured with the removal of the lower four dams on that system... The real problem for Columbia and Snake River salmon is NOT climate change and NOT ever-changing ocean conditions. By far the biggest killer of endangered wild salmon and steelhead are the dams on the lower Snake and mainstem Columbia. In fact, the current federal salmon plan permits the federal dams to kill more than 90% of some of these salmon. Yet NOAA and BPA have consistently downplayed those impacts and instead have attributed both good and bad salmon returns to ocean conditions. The best science shows us that the most effective way to ensure strong salmon returns in variable ocean cycles is to fix their freshwater habitat and that begins with the removal of the four lower Snake River dams. While dam removal is not a silver bullet, with strong actions including dam removal, salmon populations will be better able to weather poor ocean cycles in good health and truly thrive when ocean conditions are good. Thanks to their extensive high-elevation habitat in the mountain rivers and streams of Idaho, NE Oregon, and SE Washington, Snake River salmon and steelhead are well-positioned to survive and thrive in spite of climate change but only if the four warm, predator-filled reservoirs on the lower Snake River are replaced with a cooler, swifter, free-flowing river.	Different models predict different long-term survival benefits to ESA-listed species from dam breach, benefits that can contribute to recovery. Under the NMFS COMPASS model, juvenile Snake River spring/summer Chinook in-river survival would improve by 9.6% due to dam breach, which is a 19% relative increase over the No Action Alternative. The NMFS Lifecycle Model predicts an increase in adult returns of 13.6% for these same fish under MO3 (no latent mortality assumed) relative to the No Action Alternative (from 0.88% to 1%). Results for Snake River steelhead are similar (10% absolute improvement, or 23% relative juvenile survival increase - smolt-to-adult returns (SARs) for steelhead were not modeled). Under the CSS model, juvenile in-river survival for the Snake River spring/summer Chinook is predicted to improve by 10.4% due to dam breach, which is an 18% relative increase over the No Action Alternative, while SARs would increase by 115% (from 2% to 4.2% 0.02 to 0.042). The CSS model predicts that Snake River steelhead would see juvenile survival increase by 25.8% which is a 46% relative increase over the No Action Alternative. The CSS model also predicts that SAR increase by 177% (from 1.8% to 5%). Though differing in predictions, both modeling groups predict dam breaching is the best CRSO EIS alternative for salmon and steelhead. One simply predicts adult return increases an order of magnitude higher than the other.
2426	4	murphyjeanie@hotmail.com	N/A	Removing the lower Snake River dams will NOT cause economic devastation and thousands of lost jobs.Federal taxpayers and Northwest ratepayers have already spent upwards of $10 billion on salmon recovery efforts in the Columbia-Snake River Basin for fairly little in return. The federal government has indicated that the current plan will cost an additional $700 million to $1 billion per year to continue the same general activities that we have been doing for the last decade, but which are not achieving sustainable salmon populations. At the same time, the fishing industry has lost more than 25,000 jobs because of salmon declines in the Columbia- Snake Basin. We cannot afford to continue down this path and lose any more jobs. A RAND Corp. analysis, as well as one by a coalition of taxpayer, energy, fishing, and conservation groups, found that removing the Snake River dams may be cheaper in the long run than continuing to spend resources on the failed strategies of the past. In fact, the latter study found that as much as $1.6 to $4.6 billion could be saved with the removal of the four lower Snake River dams. And RANDs analysis found that, if done well, dam removal could actually produce as many as 15,000 new, long-term jobs. If expanded fishing business opportunities are included in the economic picture, lower Snake River dam removal could bring billions of dollars in increased economic benefits to the Northwest from expanded fishing (both sport and commercial), new river-based recreational opportunities, and non-recreational revenue. I am asking you to breach the Lower Snake River Dams to save our salmon and save the Resident pods of Orca whales that depend on them.	The EIS evaluated beneficial and adverse effects across an array of resource areas including potential effects at the national, regional and local level; effects are monetized and quantified, where possible, and also described qualitatively. As is common in NEPA analyses, the beneficial and adverse effects of the alternatives are expressed as a variety of qualitative and quantitative environmental and economic metrics throughout the EIS to inform decision-making, including the effects of the alternatives on fish as detailed in Section 3.5. That the effects of the alternatives on fish are not expressed as monetized economic values does not mean that they were not considered in the context of the analysis. The EIS does not employ a cost-benefit framework for decision-making. Instead, the EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as the dam breaching alternative. However, the Preferred Alternative also meets most of the other objectives of the study for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. Table 7-1 in Chapter 7 (Preferred Alternative) provides a summary of the beneficial and adverse effects of the alternatives, including the quantified social welfare costs and benefits for a subset of the resource areas (specifically, hydropower, navigation, and irrigation) as well as the implementation costs of the alternatives. The EIS acknowledges previous analyses conducted in the 2002 lower Snake River study. However, this EIS relies on the best, currently available information to evaluate the tradeoffs associated with dam breach under MO3. The EIS acknowledges previous analyses of breaching the four lower Snake River dams, such as the 2002 RAND analysis referenced in this comment. However, the EIS relies on current information to evaluate the tradeoffs associated with dam breach under MO3. This includes applying current models and data rather than relying on findings from studies conducted nearly 20 years ago. Section 3.7 of the EIS describes potential uses of zero-carbon resources (alternative resources) to meet the energy demands in the Pacific Northwest if hydropower generation is reduced. The social welfare effects on fisheries under MO3 are described as major and beneficial in the long-term, with increases in regional economic effects if commercial fish catch rates increase (Section 3.15). For the effects on recreational fishing under MO3 (Section 3.11.3.5), the evaluation considers fishing visitation in other similar river reaches. There is some uncertainty around recreational fishing visitation in the long-term given the current measures to regulate, protect, and support ESA-listed fish populations and habitat in the region. However, the EIS does describes that the visitation in the long-term, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting recreation and tourism businesses. The costs of dam breaching are described in Section 3.19.2 and in Appendix Q. MO3 would result in decreased costs or funding requirements for the lower Snake River projects as compared to the No Action Alternative, including capital costs, operations and maintenance, non-routine navigation, non-routine extraordinary costs, and F&W mitigation costs. However, dam breaching and infrastructure drawdown would result in construction costs and costs for additional mitigation measures to address the adverse effects of MO3.
2436	1	N/A	N/A	I am requesting an extension to the comment period. Given the fact that there will be no public meetings and there is so much concern and attention on the COVID-19 situation, the public will need more time to read and comment on this important issue. Thank you.	The co-lead agencies considered requests to extend the public comment period. This NEPA process included a wide array of cooperating agencies whose close involvement throughout the process allowed the co-lead agencies to incorporate feedback. Given the broad range of comments received to date and the extensive Federal and non-Federal participation in the overall process as well as the level of public engagement in the six virtual public meetings in the region, the co-lead agencies determined that an extension was not warranted and that the 45-day public comment period was adequate consistent with NEPA regulations. The CRSO EIS website notified the public on April 9, that they should plan to submit comments by the close of the comment period.
2437	1	julianne.m.dirks@gmail.com	N/A	With dam removal, I believe similar protocols from the Elwha will be considered to ease the sediment transportation when they are being breached. This step is essential to control water quality. Also with dam removal, in order to stabilize the river and to ensure flooding protection from cities, wold log jams be considered to create habitat for fish and guide where the river will flow?	The sequencing and rate of breaching of the four dams was set to optimize the construction season within the in-water work period and minimize the duration of impacts to fish passage. If this alternative were selected in the ROD, additional analysis and modeling would be anticipated that would look to balance the duration and magnitude of impacts with the rate and method of removal. If MO3 were selected for implementation, detailed engineering and design and site specific NEPA evaluations would take place prior to implementation. Additional opportunities for environmental enhancements, such as log jams, could be considered at that time. This would be in accordance with the Corps' Environmental Operating Procedures.
2445	1	stanbos11@gmail.com	N/A	Note the 1951 flooding that backed water up the Willamette river flooding Oregon City. How can we expect this scheme for fish run rebuilding to be successful when the same fish is commercially harvested all along the Columbia river? There is no solid evidence that the fish run would be enhanced by removal of the dams and improvements in the number of fish would soon be harvested before the fish has chance to return.	Any potential changes to harvest rates as a result of implementation of the measures in range of alternatives are discussed in Chapter 3.15 and 7.7.17, Fisheries and Passive Use.
2458	1	laura@ucut-nsn.org	N/A	Several of the UCUT Tribes have engaged as cooperating agencies in the analysis necessary for the Draft EIS, and we are writing to urgently request that you extend the public review and comment deadline for the CRSO Draft Environmental Impact Statement that was released on February 28, 2020 with a 45-day comment period. The 45-day deadline has become impossible for our member Tribes to meet given the outbreak of COVID-19. Each of the UCUT Tribes' governments have restrictions on staff and are under partial shutdowns to do their part to help flatten the curve and control the spread of the virus. Just as the federal government has limited work within your agencies and shifted focus to this National Emergency, the UCUT Tribes too are managing this crisis while needing to keep their government's operational to meet their citizens' basic needs. Ultimately, the constraints from this unexpected National Emergency must be considered and the comment period must be extended. A 120-day period was allowed for the preliminary scoping step for the CRSO EIS. Also, a comment period of 120 days or more would be consistent with the sworn statements from your agencies to the Court in NWF v. NMFS, No. 01-640-SI (D. Or.). As you are well aware, each of our member Tribes has trust and/or treaty resources that will be impacted by the federal decisions made within the preferred alternative and eventual Record of Decision . It is well within your federal trust responsibility owed to the Tribes to extend the arbitrary deadline. With limited staff during this pandemic our member Tribes are simply unable to meaningfully review and comment by the 45-day deadline. Therefore, we request that you extend the comment period to 120-days or more to allow for meaningful involvement for our member Tribes during this time of crisis. If you have any questions following review of this request, please contact DR Michel, UCUT Executive Director, at (509) 209-2412 (office) or (509) 954-7631 (cell) and/or by email at dr@ucut -nsn.org. Sincerely, Donald R Michel, Executive Director	The co-lead agencies considered requests to extend the public comment period. This NEPA process included a wide array of cooperating agencies whose close involvement throughout the process allowed the co-lead agencies to incorporate feedback. Given the broad range of comments received to date and the extensive Federal and non-Federal participation in the overall process as well as the level of public engagement in the six virtual public meetings in the region, the co-lead agencies determined that an extension was not warranted and that the 45-day public comment period was adequate consistent with NEPA regulations. The CRSO EIS website notified the public on April 9, that they should plan to submit comments by the close of the comment period.
2460	1	jennifer@tidewater.com	N/A	Tidewater, the other river transportation service providers, and they Columbia-Snake River system of dams and locks, are essential to continuing the cost-effective and fuel-efficient transportation of goods - connection the farthest inland port in the country to markets in the Northwest and abroad. One barge with tow can ship the equivalent goods of 1.4 100-unit freight trains, or 538 semi- trucks. These trains and trucks would congest our communities, increase greenhouse gas emissions, and decrease air quality if we lose the system of dams and locks that enable barge shipments. Regional deep-draft ports, such as the ports of Portland, Vancouver, Kalama and Longview, rely on barging to help move products from inland communities to export facilities. Grains and other commodities are barged via the Columbia-Snake River System to these deep-water ports and shipped to trade partners all over the world, supporting more than 40,000 local jobs, including mine. Barging is nearly 40% more fuel-efficient than freight trains, and 270% more fuel-efficient than semi-trucks. In 2018, it would have taken 38,966 rail cars or 149,870 semi-trucks to move the 3.9 million tons of cargo shipped on the Snake River alone.	The co-lead agencies concur that barging is a cost effective and fuel efficient method to transport commodities. Additionally, an analysis of changes to congestion and air quality are also included in the EIS and represent an adverse impact to transportation and communities with implementation of alternative MO3. The Navigation and Transportation Section 3.10 reflects the adverse effects of implementing MO3 including discussions of transportation mode capacity and cost of grain transport. The EIS also evaluates the additional transportation infrastructure investments and associated costs that would be required, as well as the increases in air emissions that would occur. The EIS finds that truck ton-miles may experience an increase of 19 percent to 84 percent under MO3 when compared to the No Action Alternative, depending on the rail rate increases that occur. The EIS analysis found that truck trips would increase between 14,000 to 79,000 truck trips per year, which would increase air pollutant and greenhouse gas emissions in the region and add to traffic and congestion in the region. Rail ton-miles would increase by as much as 86 percent (when rail rates are not assumed to increase) or decrease by 2 percent (when rail rates increase by 50 percent).
2462	1	kristinab@inlandpower.com	N/A	Inland Power, along with all other Washington utilities have been charged with becoming carbon-neutral by 2030 and 100 percent carbon-free by 2045. The lower Snake River dams are essential to reaching the Northwests clean energy goals.	The EIS recognizes the relevance of the Washington Clean Energy Transformation Act, among other regional emissions reductions targets, in Section 3.7 Power and Transmission analysis and Section 3.8 Air Quality and Greenhouse Gases emissions analysis. The analyses evaluates the extent to which the CRSO EIS MOs influence the ability of the region to meet these objectives, finding that MO3, which includes breaching the four lower Snake River dams, would make these goals more difficult to meet.
2462	2	kristinab@inlandpower.com	N/A	These dams also help us safely add intermittent renewables, like wind and solar power, to the grid. The hydroelectric turbines at the dams can very quickly fill in the gaps when the sun doesnt shine and the wind doesnt blow, keeping the grid balanced.	The statements that the four lower Snake River dams enhance the ability of the power system to integrate new renewables and to ramp up to meet load are consistent with the findings of the EIS. See draft EIS, Section 3.7.3.1, Integration Services at page 3-832 and Section 3.7.3.5, Lower Snake River Full Replacement at pages 3-905-907.
2462	3	kristinab@inlandpower.com	N/A	I urge you to strongly consider the numerous negative results that would occur should these vital dams be removed. Our state would suffer greatly from an economic, energy, job, agricultural, trade and environmental standpoint.	The EIS evaluated benefits and adverse effects across an array of resource areas including potential effects at the national, regional and local level; effects are monetized and quantified, where possible, and also described qualitatively. The EIS does not employ a cost-benefit framework for decision-making. Instead, the EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets most other EIS objectives including those for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS, the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams, because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system.

Letter No.	Comment No.	Commenter Name/Email	Affiliation	Comment	Response[1/]
2465	1	randys@inlandpower.com	N/A	The loss of barging would directly raise costs for farms, reduce jobs, and cause air quality issues for Eastern Washington communities that already face an uphill battle with greenhouse gasses and smog	The EIS evaluates the costs, and air quality and greenhouse gas emissions effects of modal shifts in shipping wheat from barges to road- and rail-based methods under MO3. Section 3.10.3.5 finds that under a dam breach scenario, average transportation costs for wheat farmers would increase 10 to 33 percent, but that individual farmers could experience increases that are doubled. Additionally, Section 3.8.3.5 describes that the loss of barging would result in up to a 53 percent increase in CO2 emissions (0.06 MMT CO2) relative to the No Action Alternative. The analysis additionally describes air pollution effects associated with increased potential for fugitive dust due to exposed riverbed along the lower Snake River.
2465	2	randys@inlandpower.com	N/A	Inland Power, along with all other Washington utilities have been charged with becoming carbon-neutral by 2030 and 100 percent carbon-free by 2045. The lower Snake River dams are essential to reaching the Northwests clean energy goals.	The EIS recognizes the relevance of the Washington Clean Energy Transformation Act, among other regional emissions reductions targets, in Section 3.7 Power and Transmission analysis and Section 3.8 Air Quality and Greenhouse Gases emissions analysis. The analyses evaluates the extent to which the CRSO EIS MOs influence the ability of the region to meet these objectives, finding that MO3, which includes breaching the four lower Snake River dams, would make these goals more difficult to meet.
2465	3	randys@inlandpower.com	N/A	These dams also help us safely add intermittent renewables, like wind and solar power, to the grid.The hydroelectric turbines at the dams can very quickly fill in the gaps when the sun doesnt shine and the wind doesnt blow, keeping the grid balanced.	The statements that the four lower Snake River dams enhance the ability of the power system to integrate new renewables and to ramp up to meet load are consistent with the findings of the EIS. See draft EIS, Section 3.7.3.1, Integration Services at page 3-832 and Section 3.7.3.5, Lower Snake River Full Replacement at pages 3-905-907.
2465	4	randys@inlandpower.com	N/A	I urge you to strongly consider the numerous negative results that would occur should these vital dams be removed.Our state would suffer greatly from an economic, energy, job, agricultural, trade and environmental standpoint.	The EIS evaluated benefits and adverse effects across an array of resource areas including potential effects at the national, regional and local level; effects are monetized and quantified, where possible, and also described qualitatively. The EIS does not employ a cost-benefit framework for decision-making. Instead, the EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets most of the other EIS objectives including those for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS, the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams, because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system.
2487	1	brians@inlandpower.com	N/A	The commodities my family and I produce rely heavily on the four lower Snake River dams. These dams provide the only source of irrigation for tens of thousands of acres in eastern Washington	Your statements concerning land irrigated from Lower Snake River dam pools is consistent with the description in the EIS. In Region C under the MO3 alternative this analysis assumes that pumps are unable to deliver water to estimated at 48,000 acres. Please see Section 3.12 and Appendix N for additional information.
2487	2	brians@inlandpower.com	N/A	Many agricultural communities across the inland Northwest also depend on the dams to provide access for low-carbon barging to get our products to market.The loss of barging would directly raise costs for farms, reduce jobs, and cause air quality issues for Eastern Washington communities that already face an uphill battle with greenhouse gasses and smog	The EIS evaluates the costs, and air quality and greenhouse gas emissions effects of modal shifts in shipping wheat from barges to road- and rail-based methods under MO3. Section 3.10.3.5 finds that under a dam breach scenario, average transportation costs for wheat farmers would increase 10 to 33 percent, but that individual farmers could experience increases that are doubled. Additionally, Section 3.8.3.5 describes that the loss of barging would result in up to a 53 percent increase in CO2 emissions (0.06 MMT CO2) relative to the No Action Alternative. The analysis additionally describes air pollution effects associated with increased potential for fugitive dust due to exposed riverbed along the lower Snake River.
2487	3	brians@inlandpower.com	N/A	Inland Power, along with all other Washington utilities have been charged with becoming carbon-neutral by 2030 and 100 percent carbon-free by 2045. The lower Snake River dams are essential to reaching the Northwests clean energy goals	The EIS recognizes the relevance of the Washington Clean Energy Transformation Act, among other regional emissions reductions targets, in Section 3.7 Power and Transmission analysis and Section 3.8 Air Quality and Greenhouse Gases emissions analysis. The analyses evaluates the extent to which the CRSO EIS Multiple Objective alternatives influence the ability of the region to meet these objectives, finding that Multiple Objective Alternative 3, which includes breaching the four lower Snake River dams, would make these goals more difficult to meet.
2487	4	brians@inlandpower.com	N/A	These dams also help us safely add intermittent renewables, like wind and solar power, to the grid. The hydroelectric turbines at the dams can very quickly fill in the gaps for wind and sunshine, keeping the grid balanced.	The statements that the four lower Snake River dams enhance the ability of the power system to integrate new renewables and to ramp up to meet load are consistent with the findings of the EIS. See draft EIS, Section 3.7.3.1, Integration Services, at page 3-832 and Section 3.7.3.5, Lower Snake River Full Replacement at pages 3-905-907.
2487	5	brians@inlandpower.com	N/A	I urge you to strongly consider the numerous negative results that would occur should these vital dams be removed. Our state would suffer greatly from an economic, energy, job, agricultural, trade and environmental standpoint.	The EIS evaluated benefits and adverse effects across an array of resource areas including potential effects at the national, regional and local level; effects are monetized and quantified, where possible, and also described qualitatively. The EIS does not employ a cost-benefit framework for decision-making. Instead, the EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets most of the other EIS objectives including those for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS, the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams, because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system.
2488	1	galer@inlandpower.com	N/A	As a dry land and irrigated farmer in Lincoln County, the four lower Snake River dams are vital for the continued survival of my familys business. These dams provide the only source of irrigation for tens of thousands of acres in eastern Washington.	Your statements concerning land irrigated from Lower Snake River dam pools is consistent with the description in the EIS. In Region C under the MO3 alternative this analysis assumes that pumps are unable to deliver water to estimated at 48,000 acres. Please see Section 3.12 and Appendix N for additional information.
2488	2	galer@inlandpower.com	N/A	The loss of barging would directly raise costs for farms, reduce jobs, and cause air quality issues for Eastern Washington communities that already face an uphill battle with greenhouse gasses and smog	The EIS evaluates the costs, and air quality and greenhouse gas emissions effects of modal shifts in shipping wheat from barges to road- and rail-based methods under MO3. Section 3.10.3.5 finds that under a dam breach scenario, average transportation costs for wheat farmers would increase 10 to 33 percent, but that individual farmers could experience increases that are doubled. Additionally, Section 3.8.3.5 describes that the loss of barging would result in up to a 53 percent increase in CO2 emissions (0.06 MMT CO2) relative to the No Action Alternative. The analysis additionally describes air pollution effects associated with increased potential for fugitive dust due to exposed riverbed along the lower Snake River.
2488	3	galer@inlandpower.com	N/A	Inland Power, along with all other Washington utilities have been charged with becoming carbon-neutral by 2030 and 100 percent carbon-free by 2045. The lower Snake River dams are essential to reaching the Northwests clean energy goals.	Consistent with the comment, the EIS finds that replacing hydropower generation from the four lower Snake River dams would increase carbon dioxide emissions. See Section 3.8.3.5 at pages 3-1009-1010 in the draft EIS. While the EIS finds that it would take even more renewable resources to replace the four lower Snake River dams generation while the region is retiring coal plants, the question of whether the dams are essential in reaching Northwest clean energy goals was not addressed in the EIS. See Section 3.7.3.5, Potential Replacement Resources And Associated Costs at pages 3-904-905 and Table 3-160 in the draft EIS.
2488	4	galer@inlandpower.com	N/A	These dams also help us safely add intermittent renewables, like wind and solar power, to the grid. The hydroelectric turbines at the dams can very quickly fill in the gaps when the sun doesnt shine and the wind doesnt blow, keeping the grid balanced	The statements that the four lower Snake River dams enhance the ability of the power system to integrate new renewables and to ramp up to meet load are consistent with the findings of the EIS. See draft EIS, Section 3.7.3.1, Integration Services at page 3-832 and Section 3.7.3.5, Lower Snake River Full Replacement at pages 3-905-907.
2488	5	galer@inlandpower.com	N/A	I urge you to strongly consider the numerous negative results that would occur should these vital dams be removed. Our state would suffer greatly from an economic, energy, job, agricultural, trade and environmental standpoint.:	The EIS evaluated benefits and adverse effects across an array of resource areas including potential effects at the national, regional and local level; effects are monetized and quantified, where possible, and also described qualitatively. The EIS does not employ a cost-benefit framework for decision-making. Instead, the EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets most of the other EIS objectives including those for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS, the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams, because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system.
2492	1	jimk@inlandpower.com	N/A	Inland Power, along with all other Washington utilities have been charged with becoming carbon-neutral by 2030 and 100 percent carbon-free by 2045. The lower Snake River dams are essential to reaching the Northwests clean energy goals	The EIS recognizes the relevance of the Washington Clean Energy Transformation Act, among other regional emissions reductions targets, in Section 3.7 Power and Transmission analysis and Section 3.8 Air Quality and Greenhouse Gases emissions analysis. The analyses evaluates the extent to which the CRSO EIS Multiple Objective alternatives influence the ability of the region to meet these objectives, finding that Multiple Objective Alternative 3, which includes breaching the four lower Snake River dams, would make these goals more difficult to meet.
2492	2	jimk@inlandpower.com	N/A	These dams also help us safely add intermittent renewables, like wind and solar power, to the grid. The hydroelectric turbines at the dams can very quickly fill in the gaps when the sun doesnt shine and the wind doesnt blow, keeping the grid balanced	The statements that the four lower Snake River dams enhance the ability of the power system to integrate new renewables and to ramp up to meet load are consistent with the findings of the EIS. See draft EIS, Section 3.7.3.1, Integration Services at page 3-832 and Section 3.7.3.5, Lower Snake River Full Replacement at pages 3-905-907.
2492	3	jimk@inlandpower.com	N/A	I urge you to strongly consider the numerous negative results that would occur should these vital dams be removed. Our state would suffer greatly from an economic, energy, job, agricultural, trade and environmental standpoint	The EIS evaluated benefits and adverse effects across an array of resource areas including potential effects at the national, regional and local level; effects are monetized and quantified, where possible, and also described qualitatively. The EIS does not employ a cost-benefit framework for decision-making. Instead, the EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets most of the other EIS objectives including those for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS, the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams, because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system.
2494	1	harryrjag@gmail.com	N/A	Attached are my comments on Columbia River System Operations Draft EIS	Unfortunately, the co-lead agencies did not receive an attachment with this submittal. However, this commenter did also submit comments at a public meeting, which is listed as Comment Letter 4711. Please see comments and responses located at 4711.
2494	2	harryrjag@gmail.com	N/A	Attached are my comments on Columbia River System Operations Draft EIS	See response to Comment 2494-1.
2500	1	paulk@highlinegrain.com	N/A	Our economies are not prepared to function with the loss of barging on the Columbia and Snake rivers. Our highway, rail, and grain elevator networks would need over $1.1 billion in capital investments to adapt. This includes hundreds of miles of short-line rail track that have been abandoned; new rail; major highway improvements; and retrofits for grain elevators that do not have rail-loading capabilities. Our local businesses simply cannot manage either the expense or the long-term shock a transportation interruption of this nature would cause.	The Navigation and Transportation Section 3.10 reflects the adverse effects of implementing MO3 including discussions of transportation mode capacity and cost of grain transport. The EIS also evaluates the additional transportation infrastructure investments and associated costs that would be required, as well as the increases in air emissions that would occur. There would need to be investments in infrastructure if dams are breached, both public and private sector investment in the absence of river navigation. These infrastructure improvements are discussed in section 3.10 of the EIS. The EIS finds that truck ton-miles may experience an increase of 19 percent to 84 percent under MO3 when compared to the No Action Alternative, depending on the rail rate increases that occur. The EIS analysis found that truck trips would increase between 14,000 to 79,000 truck trips per year, which would increase air pollutant and greenhouse gas emissions in the region and add to traffic and congestion in the region. Rail ton-miles would increase by as much as 86 percent (when rail rates are not assumed to increase) or decrease by 2 percent (when rail rates increase by 50 percent).
2500	2	paulk@highlinegrain.com	N/A	A shock to our transportation system would ensure a dramatic increase in the cost of freight for not only our patrons, but all those who farm in the State and region. Grain suppliers and shippers that our economies depend on will likely see an increase in transportation and storage costs by 50 to 100% if barging is lost as a transportation option. In an industry where $5.00 per bushel is the current break-even cost, the loss of barging could increase transportation and storage costs from $0.40 per bushel to up to $0.80 per bushel. Dam removal would will dramatically impact our region's global competitiveness, ensure massive job loss in struggling rural communities, create costly and immediate increases in infrastructure damage (State and county roads and rail), and bankrupt countless family farms	The EIS acknowledges that rail rates may increase if the Lower Snake River dams are breached, and evaluates three rate scenarios. The EIS finds that average transportation costs for wheat farmers would increase 10 to 33 percent, but that individual farmers could experience increases that are much higher, depending on their specific location and other conditions. As described in the Navigation and Transportation section of the EIS (Section 3.10), the navigation evaluation in EIS found that transportation costs for wheat in the Palouse Region would increase from $0.07 to $0.24 per bushel. The Navigation and Transportation Section 3.10 reflects the adverse effects of implementing MO3 including discussions of transportation mode capacity and cost of grain transport. The EIS also evaluates the additional transportation infrastructure investments and associated costs that would be required, as well as the increases in air emissions that would occur. The EIS finds that truck ton-miles may experience an increase of 19 percent to 84 percent under MO3 when compared to the No Action Alternative, depending on the rail rate increases that occur. The EIS analysis found that truck trips would increase between 14,000 to 79,000 truck trips per year, which would increase air pollutant and greenhouse gas emissions in the region and add to traffic and congestion in the region. Rail ton-miles would increase by as much as 86 percent (when rail rates are not assumed to increase) or decrease by 2 percent (when rail rates increase by 50 percent).
2501	1	mnaaldrich1@aol.com	N/A	One thing seems to be missing in the discussion that is what were the numbers of salmon in the river without the dams? I am not a fisherman but have noticed that each year the fishing season limits change, with the dams in place. How do we know things have changed with the dams in place? People have been tracking the orkas in the ocean. The orka population also increases and decreases over time. How do we as citizens of the Pacific North West and particularly the Snake River area know that breaching the dams will help or hinder the okras?	Estimates of salmon populations before the construction of dams vary widely and were dependent on a number of environmental and human induced factors. A good reference is from the Independent Science Advisory Board (see ISAB 2015-1). Consistent with NEPA requirements, this EIS did not address historic salmon populations, but compared the effects of the alternatives to baseline conditions established in 2016 when the EIS process began, as the agencies are comparing changes in operations and configuration of each alternative to the No Action Alternative. There are many effects to salmon and steelhead populations outside the operation of the dams. Research continues to evaluate the magnitude of these effects. For more information see the NMFS website at: https://www.nwfsc.noaa.gov/research/index.cfm The co-lead agencies conclude there could be a negligible to minor beneficial effects to SRKW from implementing MO3. CSS and NMFS Lifecycle models predict that lower Snake River Chinook salmon smolt-to-adult returns would have a moderate to major increase under MO3. Operation of Lower Snake River Compensation Plan fish hatcheries under MO3 is uncertain and therefore, production of Snake River hatchery fish is assumed to decline over the long term, while returning adult wild salmon are anticipated to increase. However, the co-leads do not anticipate a lack of hatchery fish in the short term based on the proposed fish hatchery mitigation described in Chapter 5. These additional hatchery fish should mitigate short-term construction effects to Snake River populations. Additionally, to address short-term effects to ESA-listed species, the co-lead agencies propose constructing a new trap and haul facility at McNary and conducting at least two years of trap and haul operations for Snake River fish (Chinook, sockeye, and steelhead).

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					The co-lead agencies agree that the quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differently from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for the whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall-run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall-run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). Additional details on the most crucial prey stocks for Southern Resident killer whales, as well as their population and range, is available from several fact sheets and videos available here: https://www.fisheries.noaa.gov/species/killer-whale#spotlight. For more information, visit this NMFS StoryMap on Southern Resident killer whales: https://noaa.maps.arcgis.com/apps/Cascade/index.html?appid=3405e6637bf74e998d4ebe992c54f613. The co-lead agencies note the contribution to the prey of Southern Resident killer whales through the continued existence of their respective independent congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as Lower Snake River Compensation Plan (LSRCP), which is administered by USFWS.
2506	1	garryr@inlandpower.com	N/A	The loss of barging would directly raise costs for farms, reduce jobs, and cause air quality issues for Eastern Washington communities that already face an uphill battle with greenhouse gasses and smog.	The EIS evaluates the costs, and air quality and greenhouse gas emissions effects of modal shifts in shipping wheat from barges to road- and rail-based methods under MO3. Section 3.10.3.5 finds that under a dam breach scenario, average transportation costs for wheat farmers would increase 10 to 33 percent, but that individual farmers could experience increases that are doubled. Additionally, Section 3.8.3.5 describes that the loss of barging would result in up to a 53 percent increase in CO2 emissions (0.06 MMT CO2) relative to the No Action Alternative. The analysis additionally describes air pollution effects associated with increased potential for fugitive dust due to exposed riverbed along the lower Snake River.
2506	2	garryr@inlandpower.com	N/A	Inland Power, along with all other Washington utilities have been charged with becoming carbon-neutral by 2030 and 100 percent carbon-free by 2045. The lower Snake River dams are essential to reaching the Northwests clean energy goals.	The EIS recognizes the relevance of the Washington Clean Energy Transformation Act, among other regional emissions reductions targets, in Section 3.7 Power and Transmission analysis and Section 3.8 Air Quality and Greenhouse Gases emissions analysis. The analyses evaluates the extent to which the CRSO EIS Multiple Objective alternatives influence the ability of the region to meet these objectives, finding that Multiple Objective Alternative 3, which includes breaching the four lower Snake River dams, would make these goals more difficult to meet.
2506	3	garryr@inlandpower.com	N/A	These dams also help us safely add intermittent renewables, like wind and solar power, to the grid. The hydroelectric turbines at the dams can very quickly fill in the gaps when the sun doesnt shine and the wind doesnt blow, keeping the grid balanced	The statements that the four lower Snake River dams enhance the ability of the power system to integrate new renewables and to ramp up to meet load are consistent with the findings of the EIS. See draft EIS, Section 3.7.3.1, Integration Services at page 3-832 and Section 3.7.3.5, Lower Snake River Full Replacement at pages 3-905-907.
2506	4	garryr@inlandpower.com	N/A	I urge you to strongly consider the numerous negative results that would occur should these vital dams be removed. Our state would suffer greatly from an economic, energy, job, agricultural, trade and environmental standpoint.	The EIS evaluated benefits and adverse effects across an array of resource areas including potential effects at the national, regional and local level; effects are monetized and quantified, where possible, and also described qualitatively. The EIS does not employ a cost-benefit framework for decision-making. Instead, the EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets most of the other EIS objectives including those for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS, the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams, because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system.
2519	1	dickz@inlandpower.com	N/A	As a hay and dairy producer, the four lower Snake River dams are vital for the continued survival of my familys business. These dams provide the only source of irrigation for tens of thousands of acres in eastern Washington.	Your statements concerning land irrigated from Lower Snake River dam pools is consistent with the description in the EIS. In Region C under the MO3 alternative this analysis assumes that pumps are unable to deliver water to estimated at 48,000 acres. Please see Section 3.12 and Appendix N for additional information.
2519	2	dickz@inlandpower.com	N/A	The loss of barging would directly eliminate sales avenues, raise costs for farms, reduce jobs, and cause air quality issues for Eastern Washington communities that already face an uphill battle with greenhouse gasses and smog	The EIS evaluates the costs, and air quality and greenhouse gas emissions effects of modal shifts in shipping wheat from barges to road- and rail-based methods under MO3. Section 3.10.3.5 finds that under a dam breach scenario, average transportation costs for wheat farmers would increase 10 to 33 percent, but that individual farmers could experience increases that are doubled. Additionally, Section 3.8.3.5 describes that the loss of barging would result in up to a 53 percent increase in CO2 emissions (0.06 MMT CO2) relative to the No Action Alternative. The analysis additionally describes air pollution effects associated with increased potential for fugitive dust due to exposed riverbed along the lower Snake River.
2519	3	dickz@inlandpower.com	N/A	Inland Power, along with all other Washington utilities have been charged with becoming carbon-neutral by 2030 and 100 percent carbon-free by 2045. We cannot reach these goals without these dams.	The EIS recognizes the relevance of the Washington Clean Energy Transformation Act, among other regional emissions reductions targets, in Section 3.7 Power and Transmission analysis and Section 3.8 Air Quality and Greenhouse Gases emissions analysis. The analyses evaluates the extent to which the CRSO EIS Multiple Objective alternatives influence the ability of the region to meet these objectives, finding that Multiple Objective Alternative 3, which includes breaching the four lower Snake River dams, would make these goals more difficult to meet.
2519	4	dickz@inlandpower.com	N/A	These dams also help us safely add intermittent renewables, like wind and solar power, to the grid.The hydroelectric turbines at the dams can very quickly fill in the gaps when the sun doesnt shine and the wind doesnt blow, keeping the grid balanced	The statements that the four lower Snake River dams enhance the ability of the power system to integrate new renewables and to ramp up to meet load are consistent with the findings of the EIS. See draft EIS, Section 3.7.3.1, Integration Services at page 3-832 and Section 3.7.3.5, Lower Snake River Full Replacement at pages 3-905-907.
2519	5	dickz@inlandpower.com	N/A	I urge you to strongly consider the copious negative results that would occur should these vital dams be removed. Our state would suffer greatly from an economic, energy, job, agricultural, trade and environmental standpoint.	The EIS evaluated benefits and adverse effects across an array of resource areas including potential effects at the national, regional and local level; effects are monetized and quantified, where possible, and also described qualitatively. The EIS does not employ a cost-benefit framework for decision-making. Instead, the EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets most of the other EIS objectives including those for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS, the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams, because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system.
2529	1	Anthony Umek	AKU Enterprises, LLC	1. RELIABLE ELECTRICITY : Hospitals, security, defense and travel (airports; traffic signals, etc) require reliable electricity. a. HYDRO POWER - Utah State in a recent study stated: "Hydropower is physically reliable because it is more efficient than many other energy sources and can run consistently with little maintenance, making it an ideal source of baseload power. For decades, hydropower has proven to be a source of renewable energy that millions of Americans rely on to meet their daily electricity needs. "Hydro dams are key to meeting Washington State's Clean Energy Transformation Act. b. WIND POWER - Per the US Dept. of Energy overall "Capacity Factor"~ 33%. Existing battery storage is inadequate to support 24hr reliability (Ref ENER GY. GOV documenting a high performance 240 MWh lithium battery can produce 100% power for only 4 hours; at $380/ KWh). c. SOLAR POWER - Photovoltaic Capacity factor~ 20%. Battery storage issue same as wind power . d. ELECTRICAL GRID OPERATION. Utah State University documented a study and found wind is extremely variable in the short term. When looking at energy production within 30 ta 90 minute intervals, there are frequently swings of 10 percent electricity output. Grid operators must monitor the supply and demand and must be able to mitigate the swings in wind power output on timescales as short as ten seconds. More variability in electrical production due to wind power mean s that grid operators must monitor the supply and demand of electricity more closely. Not only do high levels of variability make it more difficult for grid operators to keep supply and demand in constant balance, they can also strain the infrastructure of the grid.	The commenter's suggestion that hydropower is a reliable source of power is consistent with the findings of the EIS. The findings of the power replacement resources indicated that more capacity for zero-carbon resources (e.g., solar) were needed to address lower capacity factors, consistent with the commenter's concern. The ability of hydropower to aid in grid stability and the integration of renewable power, as described by the commenter, is also consistent with the descriptions and analysis of the EIS as described in the Bonneville Transmission System Reliability and Operations subsection of Sections 3.7.3.3 through 3.7.3.6 and in Section 3.7.3.5, Potential Replacement Resources and Associated Costs in the Draft EIS.
2529	3	Anthony Umek	AKU Enterprises, LLC	2. ECONOMIC IMPACTS- The Lower Columbia-Snake River irrigators farm about 350,000 acres, and the irrigated agriculture industry yields over $1 billion annually to household incomes - the impact felt throughout Eastern Washington and Oregon, as well as in Seattle and Portland . Snake River dams provide irrigation for high-value crops on 60,000 acres of prime farmland . Water levels in a free-flowing river are not stable enough to provide reliable irrigation.	There is a physical limitation to delivering water to these lands in the absence of the dams. Breach of the dams has the potential to drop surface and groundwater levels up to 100 feet and it is not possible from an engineering or cost standpoint to replace the delivery mechanisms, nor do the co-lead agencies have the authority to do so currently. Please see Section 3.12 and Appendix N for additional information.
2529	4	Anthony Umek	AKU Enterprises, LLC	3. IMPACTS ON FARMERS AND OTHERS USING BARGING FOR TRANSPORT OF CRITICAL FOOD AND MATERIALS: Breaching the dams would require adding over 165,000 tractor trailer trucks, annually, currently served by tugs/barges on the Snake River. Impacts include: a. Existing roadways are not adequate to handle traffic in winter; resulting in projected accidents, injuries and fatalities. Significant $ to upgrade. b. Logistics of loading, unloading, fueling and maintaining the added truck traffic. c. Carbon foot print of the added highway traffic. d. Impacts on farmers and businesses (and job losses) caused by inclement weather, highway closures, accidents, etc. that would hinder goods from reaching market.	The EIS analysis concurs that there would be significant investments needed in regional infrastructure to continue transportation of agricultural products, which would include additional potential impacts to farmers. The commenter's concern that breaching of the four lower Snake River dams will cause increased emissions is also consistent with the findings of the EIS both for traffic increases and replacement sources for power. The EIS considers a zero-carbon replacement resource portfolio to replace the capability of the four lower Snake River dams in Section 3.7.3.5, Potential Replacement Resources and Associated Costs. However, the Draft EIS also found that even assuming this zero carbon portfolio was selected, net GHG emissions may increase because existing fossil-fuel generation plants would also increase generation to maintain regional reliability. The EIS relies on high-quality, the best, currently available information to evaluate the tradeoffs associated with dam breach under MO3. The Navigation and Transportation Section (3.10) reflects the adverse effects of implementing MO3, including discussions of transportation mode capacity and cost of grain transport. The EIS also evaluates the additional transportation infrastructure investments and associated costs that would be required, as well as the increases in air emissions that would occur. The EIS finds that truck ton-miles may experience an increase of 19 percent to 84 percent under MO3 when compared to the No Action Alternative, depending on the rail rate increases that occur. The EIS analysis found that truck trips would increase between 14,000 to 79,000 truck trips per year, which would increase air pollutant and greenhouse gas emissions in the region and add to traffic and congestion in the region. Similarly, Section 3.10 also describes increased safety concerns from the additional truck traffic resulting from MO3.
2529	5	Anthony Umek	AKU Enterprises, LLC	6. SALMON & ORCA SURVIVAL: The strategic objective of increasing salmon and ORCA survival; not just in the Snake River system, but more broadly, needs to consider all factors, including: 1. Salmon survival rates through these dams exceed 95%. 2. NOAA: Quoting from an August 2015 study by the National Oceanographic and Atmospheric Administration (NOAA): "Several observations have documented behavioral shifts in salmon that are likely due to warming climate trends over the past half century. In fall Chinook salmon from the Hanford Reach of the Columbia River, spawn date has shifted one week later since 1950, during a 2C period of warming (Hayes, et al. 2014). Salmon from 67 rivers on both sides of the Atlantic have shifted smolt timing approximately 2.5 days earlier/decade (Otero et al. 2014). Unusual catches of Atlantic salmon indicate range shifts in the north Atlantic have reached as far north as Svalbard (Jensen et al. 2014)." 3. A paper: "Environmental factors influencing freshwater survival and smolt production in Pacific Northwest Coho salmon (Oncorhynchus kisutch)", by PW Lawson, EA Loggerwell, et al; includes the following quote: "Climate variability is well known to affect the marine survival of Coho salmon (Oncorhynchus kisutch) in Oregon and Washington. Marine factors have been used to explain up to 83% of the variability in Oregon coastal natural Coho salmon recruitment, yet about half the variability in Coho salmon recruitment comes from the freshwater	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Recovery goals set under ESA Section 4(f) for the strategic objective of increasing salmon and orca survival are separate and distinct from goals associated with the analysis of alternatives under NEPA. The co-lead agencies agree that a number of factors, including ocean conditions and climate change, as mentioned by the commenter, will continue to influence salmon survival. While none of the alternatives would affect ocean conditions, the co-lead agencies recognize that these conditions are a major driver for adult returns and that numerous studies have shown the importance of ocean conditions in the return of adult salmon and steelhead (Peterson et al. 2019). The co-lead agencies analyzed the effects of the operation, maintenance, and configuration of the CRS projects on resources affected by the CRS, including the potential to improve conditions for ESA-listed species. The co-lead agencies also looked at the cumulative effects of other actions, including harvest in Chapters 6 and 7 of the EIS. Research continues to evaluate the magnitude of these effects. For more information see the NMFS website at: https://www.nwfsc.noaa.gov/research/index.cfm. Information on water quality, including temperature, can be found in Sections 3.4 and 7.7.3. Climate effects are discussed in Chapter 4.

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				life phase of the life cycle. This seeming paradox could be resolved if fresh water variability were linked to climate and climate factors influencing marine survival were correlated with those affecting freshwater survival. Effects of climate on broad-scale fluctuations in freshwater survival or production are not well known. We examined the influence of seasonal stream flows and air temperature on freshwater survival and production of two stock units: Oregon coastal natural Coho salmon and Queets River Coho salmon from the Washington Coast. Annual air temperatures and second winter flows correlated strongly with smolt production from both stock units. Additional correlates for the Oregon Coast stocks were the date of first fall freshets and flow during smolt outmigration. Air temperature is correlated with sea surface temperature and timing of the spring transition so that good freshwater conditions are typically associated with good marine conditions." " .....Off the Oregon Coast, a year-long sequence of events beginning in the winter before smolts enter the ocean can explain over 70% of the variability in hatchery smolt survival (Logerwell et al. 2003). Ocean environmental indices explain 75% (Lawson 1997) to 83% (Koslow et al. 2002) of adult recruitment of naturally spawned Coho salmon from Oregon .	
2529	6	Anthony Umek	AKU Enterprises, LLC	4. PUGET SOUND POLLUTION AND SALMON & STEELHEAD - The precise effects of chemical pollution on salmon and steelhead in Puget Sound are not well known, according to Sandie O'Neill, a toxicologist with the Washington Department of Fish and Wildlife, but there is no doubt that Puget Sound salmon and steelhead are being exposed to chemicals that can affect their well-being. Studies have found that concentrations of some toxics are high enough to trigger adverse health effects in 18 to 100 percent of the juvenile Chinook salmon collected from four of the 11 river estuaries sampled, as well as Lake Washington . Known as persistent bioaccumulative toxics, or 'PBTs', these compounds are also high enough to trigger adverse health effects in a third of the juvenile steelhead collected from one of the three river systems. Possible effects range from impaired growth to suppressed immune function. Researchers also found that juvenile Chinook tissues contain a mixture of pharmaceutical, personal-care and industrial compounds. One study of Chinook coming out of five Puget Sound streams revealed that several drugs designed for humans (e.g., anti depressants, heart medications and antibiotics) were in concentrations likely to affect behavior, metabolism and potentially other functions.	We agree that there are many effects to salmon and steelhead populations outside the operation and maintenance of the Columbia River System dams, including toxics. This EIS is on the effects of the operations, maintenance, and configuration of the CRS and therefore, pollution in the Puget Sound outside the scope of this analysis. However, research continues to evaluate the magnitude of these effects in the Sound. For more information see the NOAA website at: https://www.nwfsc.noaa.gov/research/index The co-lead agencies legal authorities relate to operating and maintaining the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. To comply with the ESA, the co-lead agencies have historically supported actions to mitigate adverse effects to listed species from CRS operations, through funding, direct implementation, and other means. Under the Preferred Alternative, those actions would generally continue to ensure compliance with the ESA. Regarding Puget Sound, the effects mentioned in the comment involve a variety of issues beyond the scope of the CRS project. However, water quality effects for the Columbia River Basin were considered in the EIS analysis and are described in Chapter 1, 2, and Section 7.8.3 of the EIS. Additionally, the U.S. Army Corps of Engineers is in partnership with other Federal, state and non-governmental organizations and have been implementing habitat projects for salmon, orcas, and wildlife all around the Puget Sound as part of the Puget Sound Nearshore Ecosystem Restoration Project.
2533	1	slonecker_b@heritage.edu	N/A	The "usual and accustomed places" protected in the various treaties with Plateau tribes have been flooded by the Columbia system dams, including those on the lower Snake River. Those dams were constructed without tribal consent. In fact, they were constructed over the vocal opposition of Plateau tribes. For over a hundred years (since the 1905 decision in United States v. Winans) and as recently as 2019 (see the Cougar Den decision), federal courts have consistently ruled that the terms of the treaties must be interpreted according to how tribal signatories would have understood them in the 1850s. There has never been doubt that the construction of the dams directly contradicted the desires of tribal signatories; the United States Senate confirmed that in hearings prior to the construction of The Dalles Dam and it has been confirmed by tribal leadership repeatedly, across many generations. The Yakama Nation Tribal Council reaffirmed that view just last year. I believe that the Endangered Species Act warrants removal of the lower Snake River dams. But I recognize that decisions made under the Endangered Species Act are always subject to some degree of subjectivity and interpretation of complex ecological evidence. But this issue should not be resolved on the basis of the Endangered Species Act. Dam removal should immediately proceed (not just on the Snake River but on the entire Columbia River system) because it violates sacred treaties, signed in good faith and subsequently ignored by the flooding of protected sites. In lieu sites are not adequate; cash payments are not adequate. "ALL usual and accustomed places" are protected - not some. Until that basic fact is the starting point for conversations about the future of the Columbia River, Northwest tribes have little reason to trust the goodwill of the U.S. federal government.	The co-lead agencies are committed to fulfilling their treaty and trust obligations and providing early, open, transparent and meaningful consultation. See Sections 2.3 and 9.3.2. The co-lead agencies look forward to continuing to consult on the EIS, which covers changes to the water management of the existing 14 projects on the Columbia and lower Snake Rivers. The co-lead agencies recognize these obligations while also acknowledging that construction of the Federally authorized CRS projects directly impacted many of the regions Tribal communities. For this EIS, the No Action Alternative describes the operations, maintenance, and configuration of the CRS, from September 30, 2016, the date the Notice of Intent to Prepare the EIS was published in the Federal Register. As an ongoing action under NEPA, the No Action Alternative considers what would happen if the CRS continued to be operated, maintained, and configured with no change. Breaching the earthen embankments of the four lower Snake River dams was analyzed as part of MO3. It was not selected as the Preferred Alternative because while it improved passage and survival of certain ESA-listed fish, it did not meet five other objectives of the EIS, nor the Purpose and Need Statement. It also had significant adverse effects to the regional economy and social impacts. Throughout this EIS process, the co-lead agencies have analyzed impacts of the ongoing operation and maintenance of the CRS to treaty-reserved rights and associated resources. This analysis addresses how those rights would be impacted by the potential alternatives including how measures could affect fish abundance that may affect the U.S. v. Oregon Fishery Management Agreement, and the extent to which treaty rights and Tribal resources would be protected and enhanced. The Preferred Alternative includes actions to benefit ESA-listed fish as well as lamprey, and these actions also benefit Tribal interests and treaty resources. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the CRS. Recovery determinations are ultimately the role of NMFS and the USFWS. Recovery efforts will need to continue to involve more parties than just the co-lead agencies across the region that have an influence and impact on ESA-listed species.
2533	2	slonecker_b@heritage.edu	N/A	Second, the EIS is scathing in its criticism of dam removal's economic impact while simultaneously being startlingly unimaginative in considering alternative infrastructure projects that would mitigate the economic costs described in the EIS. Each of the major impacts of dam removal has a clear set of mitigation projects that would both address the economic concerns of the region's business and agricultural leaders and honor tribal sovereignty and ecological integrity. The United States has the world's most talented engineers; turned loose on the problem of designing an ecologically sound and socially conscious Columbia River system that continues to provide irrigation, transportation, and energy services, these engineers would make the region the world's leader in green design. Efficient rail; effective pumping; solar energy - these are just starting points in creating a system that would provide an incredible economic boost to the region. That would require a massive federal investment. But for the reasons I've outlined above regarding treaty rights, that massive federal investment is necessary and in the best interests of all stakeholders. This region has always been built on massive federal investment - that was true in the 19th century, as the federal government gave away land to promote settlement, and it has been true into the 20th and 21st centuries, as the federal government built Hanford and now labors to clean it up. As a region, we are a federal project - ever since the United States entered this region, we have been. But dam removal and the subsequent investments in new infrastructure design would place us in a position to make the federal northwest a project that simultaneously makes good on promises made to indigenous peoples.	The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets most other EIS objectives including those for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS, the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams, because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. Chapter 2 describes the process of developing the actions for consideration and development of alternatives and was based on considerable public, cooperating agency, Tribal and co-lead agency input. The scope of the EIS include alternatives to operations, maintenance and configurations of the 14 Federal projects. Under MO3, construction of new infrastructure to replace the lost purposes of the existing infrastructure or to mitigate for the loss of Federal benefits was considered where there are existing Federal authorities. However, in order to regain the full benefits of these lost Federal services, the co-lead agencies identified mitigation measures that are outside the authority of the co-lead agencies that would need to be taken by other entities to alleviate the loss associated with de-authorization of Federal projects.
2533	3	slonecker_b@heritage.edu	N/A	Third, the U.S. Army Corps of Engineers should more directly account for why this decision so flatly contradicts the logic that undergirded its decision to block the coal port that violated the treaty rights of the Lummi Nation. The fact that the dams exist and the coal port was proposed is inadequate. The coal port was blocked because it violated treaty protected fishing rights; the dams should be removed for the same reason. If the same agency, within the span of just a few years, reaches such contradictory decisions, they lose credibility. And I think that the agency should at least publicly acknowledge its startling about-face. Federal courts have a string of rulings about treaty interpretation - decisions stretching back over a hundred years but also including the most recent rulings in federal Indian law - that allow for a dam removal decision that is legally sound and socially just. It only requires the courage of today's judges to connect dam removal (which has too often been addressed solely through the lens of species renewal) to that precedent. "All usual and accustomed places" means ALL, including those fishing sites that have been flooded by these dams and would reemerge with their removal.	Development of the Preferred Alternative in the CRSO EIS does not contradict the U.S. Army Corps of Engineers logic or decision in 2016 that Federal authorization of a private entity's proposed bulk commodity export terminal (Gateway Pacific Terminal) would impermissibly impair the Lummi Nations reserved treaty rights to access Tribal usual and accustomed places to fish. The underlying facts supporting that agency decision are distinct, and were raised by the tribe for agency consideration under different, unrelated authorities. The fact that a proposed export terminal was found to infringe on a tribes right to access a specific usual and accustomed place does not contradict the development of the Preferred Alternative to continue to operate the existing CRS projects in this NEPA analysis. The co-lead agencies are committed to upholding their treaty and trust obligations in all of their decisions, including any assertions of potential impairment of treaty-reserved rights. Treaty specific information is included in Section 3.17 as well as Chapter 7. As stated in that section, the congressionally ratified treaties bind have the force and effect of federal law. The co-lead agencies recognize and respect that fact. Indeed, the co-lead agencies included "Protecting Native American treaty and reserved rights and fulfilling trust obligations for natural and cultural resources throughout the environment affected by the Columbia River System operations" as a purpose in the Purpose and Need Statement in Chapter 1 to ensure treaty obligations were a key consideration in decision making. The co-lead agencies are also engaging in government-to-government consultation with the Tribes, and several Tribes are cooperating agencies on the CRSO EIS.
2538	1	N/A	N/A	A couple questions: In MO2, I was surprised to see the projected cost estimate of $850M for the McNary surface juvenile collection and bypass system. Did any of the parties involved communicate with Grant County PUD on the design or cost of the surface bypass project they did at Rocky Reach dam back in 2001-2002? Other than reducing juvenile fish predation by terns at John Day, was scoring given to aggressively reducing predation by pinnipeds?	The commenter is correct about the cost for the juvenile collection and bypass system. This cost was identified as the best alternative at the time of the development of the alternatives, however as noted in the EIS (see Section 3.7.3.4, Electricity Rate Pressure), the results of this analysis suggest that it would be much more cost effective to continue the use of fish screens and use the turbine bypass system to collect fish if transport from McNary is desired.
2559	1	Michael Freepons	Benton Rural Electric Assocation	Climate change is impacting the ocean environment where salmon spend the majority of their lives, and the DEIS does not acknowledge the beneficial impacts of the carbon-free electric generation of the lower Snake River dams in combatting climate change.	The decline of salmon populations is complex and recovery of those species will take collaboration between various agencies including NOAA and the Tribes. The co-lead agencies acknowledge that the ocean environment is a contributor to the decline in salmon populations that is beyond the scope of the CRSO EIS. While none of the alternatives would affect ocean conditions, we recognize that these conditions are a major driver for adult returns and that numerous studies have shown the importance of this environment in the return of adult salmon and steelhead (Peterson et al. 2019). As such two of the models used in these analyses, NMFS Lifecycle and CSS models, use metrics of ocean productivity to predict adult returns. The carbon-free attributes of the Federal hydropower system are described in the Air Quality Section of the Draft EIS (Section 3.8). The analysis includes the effects to GHG emissions resulting from changes in hydropower generation for each alternative, including breaching the Lower Snake River dams in MO3.
2559	2	Michael Freepons	Benton Rural Electric Assocation	According to the DEIS, the loss of the lower Snake River dams would double the region's risk of blackouts. However, this risk of blackouts does not factor in the loss of nearly 6,000 megawatts of electricity generation in the region due to the closure of coal plants, which is the result of recent state legislative action. A reliable electricity supply is critical now, and our region's electric utility industry faces significant challenges in the coming years in maintaining a reliable system. The carbon-free capacity provided by the lower Snake River dams has never been more important to maintaining a reliable system and avoiding outages for this critical infrastructure, and will become even more important in the future.	The statement that without resource replacement, regional power reliability would decline under MO3 is consistent with the findings of the EIS. See Draft EIS, Section 3.7.3.5, Effects on Power System Reliability, at page 3-903; see also Appendix H, Table 2-1. The EIS also finds, consistent with this comment, that increasing retirement of coal power plants would adversely affect regional power reliability (see Draft EIS Section 2.3 of Appendix H, Sensitivity of LOLP to Assumptions about Coal Capacity). The importance of hydropower for regional emissions is also consistent with the findings of the EIS. The measure to breach the four lower Snake River dams that was evaluated in MO3, was not included in the Preferred Alternative identified in the Draft EIS. The effects of the Preferred Alternative on power are described in Section 7.7.9 of the Draft EIS. Overall, hydropower would decrease relative to the No Action Alternative under the Preferred Alternative. However, because of the shape of the remaining hydropower generation in the Preferred Alternative, the loss of load probability was essentially the same as that of the No Action Alternative.
2559	3	Michael Freepons	Benton Rural Electric Assocation	Energy shortages are not just about reliability and outages. The last energy shortage in the early 2000s did not cause brownouts or blackouts in the Northwest, but the Northwest lost thousands of jobs as energy bills increased rapidly and companies were forced to shut down. The DEIS notes that replacing the electricity production of the lower Snake River dams with carbon-free generation in order to comply with state targets would result in a 50% increase in wholesale electricity prices. Those costs will be passed on to Northwest residents, putting greater hardships on people already struggling to make ends meet, and on businesses trying to compete in a global economy. The Washington State legislature passed the Clean Energy Transformation Act in 2019, which established greenhouse gas emission targets for the electricity sector. The lower Snake River dams are essential to reaching those clean energy goals. More than 1,000 average megawatts of affordable, carbon-free electricity are produced by the lower Snake River dams.	The EIS discusses the West Coast energy crisis of 2001 mentioned in the comment (see 3.7.2.11 Regional Electricity Rates). The statement that wholesale electricity rates would increase up to 50 percent to replace lost hydropower generated in MO3 (which includes breaching of the four lower Snake River dams) is consistent with the findings of the EIS. See Section 3.7.3.5, at 3-918 to 924 in the Draft EIS; see also Table 3-166. The Environmental Justice analysis in Section 3.18.3 of the EIS provides further detail on potential disproportionate effects to Tribal, low-income and minority populations under MO3. Regarding the costs to regional rate payers, the EIS examined the rate effects of these replacement resources in Section 3.7.3.5, Social and Economic Effects of Changes in Power and Transmission. The EIS recognizes the relevance of the Washington Clean Energy Transformation Act, among other regional emissions reductions targets, in Section 3.7 Power and Transmission analysis and Section 3.8 Air Quality and Greenhouse Gases emissions analysis. The analyses evaluates the extent to which the CRSO EIS Multiple Objective alternatives influence the ability of the region to meet these objectives, finding that Multiple Objective Alternative 3, which includes breaching the four lower Snake River dams, would make these goals more difficult to meet.
2559	4	Michael Freepons	Benton Rural Electric Assocation	While the DEIS provides insight into why the preferred recommendation includes the flex spill, the Board has concerns about the significant costs, increased carbon emissions and unproven benefits of increased spill. The significant disparity in fish survival based on the two models used to analyze the various alternatives considered in the DEIS highlight the unproven results associated with increased spill. Fish survival is important, and the Board feels strongly that investments should be prioritized based on proven measures with verifiable results.	The co-lead agencies used current high quality information in the analysis of the CRSO EIS. Specific to salmon and steelhead, the agencies used two primary modeling approaches which yielded a range of potential outcomes for the alternatives. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% as a result of the Preferred Alternative. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective flex spill can be at increasing salmon and steelhead returns to the Columbia Basin.

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					Appendix R, Part 2 describes the principles for implementation of the flexible spill operations and guidance for adaptive management. One of the principles focuses on federal power system benefits, which will be as determined by Bonneville Power Administration. The understanding is that Bonneville must, at a minimum, be no worse financially compared to the 2018 spring fish passage spill operations ordered by the Court. This principle is directly related to Objective 5 of the CRSO EIS: Provide an adequate, efficient, economical and reliable power supply that supports the integrated CR Power System. The co-lead agencies have determined that the Preferred Alternative meets this Objective. In addition, the Preferred Alternative places additional rate pressure for wholesale power rates of 2.7 percent relative to the No Action Alternative consistent with the statement in the comment regarding increased rates. These estimates compare the Preferred Alternative to the No Action Alternative, which is not the same as comparing the Preferred Alternative to current operations. Consequently, the estimates are not a comparison to the BP-20 wholesale power rates, which were set assuming the financial impact of the 2019-2021 Spill Operation Agreement and therefore already include a substantial portion of the cost pressures found in the Preferred Alternative. The remaining rate pressure associated with the Preferred Alternative falls within a level that Bonneville has historically been able to mitigate through the costs it has significant control. The Preferred Alternative does not meet the objective for greenhouse gas emissions across the region. Hydropower generation would decrease resulting in increased generation from existing gas and coal plants resulting in increased greenhouse gas emissions.
2559	5	Michael Freepons	Benton Rural Electric Assocation	We recognize the scope of the DEIS is primarily focused on the Columbia River System operations. However, not enough focus and attention is being placed on the ocean, which has a greater impact on adult returns. Salmon spend between 75% to 80% of their lives in the ocean, and there are growing concerns about salmon survivability in the ocean. The Intergovernmental Panel on Climate Change has warned that climate-driven changes have become a major threat to marine life in ocean ecosystems. These changes are depleting the ocean waters of oxygen, and poisoning them with carbon, heat and acidity. Marine biologists have recently noted near-synchronous declines in worldwide salmon populations.	The Draft EIS describes and acknowledges the multitude of factors that affect salmon and steelhead throughout their life cycle in the Affected Environment. As the commenter acknowledges, this Draft EIS analyzes the effects of configuration, maintenance, and operation of the CRS projects and those effects were analyzed in Chapter 3.4. The scope of the Draft EIS focuses on the area affected by the alternatives presented for operation and configuration of the CRS projects. While none of the alternatives would affect ocean conditions, the co-lead agencies recognize that these conditions are a major driver for adult returns and that numerous studies have shown the importance of ocean conditions in the return of adult salmon and steelhead (Peterson et al. 2019). The co-lead agencies analyzed the effects of the operation, maintenance, and configuration of the CRS projects on resources affected by the CRS, including the potential to improve conditions for ESA-listed species. The co-lead agencies also looked at the cumulative effects of other actions, including harvest in Chapters 6 and 7 of the EIS. Research continues to evaluate the magnitude of these effects. For more information see the NMFS website at: https://www.nwfsc.noaa.gov/research/index.cfm.
2559	6	Michael Freepons	Benton Rural Electric Assocation	Further, recent concerns regarding the southern Puget Sound resident orca recovery have been erroneously focused on the lower Snake River dams. It is well documented that the Puget Sound suffers from high levels of toxicity which affect both pacific salmon and orcas. Salmon in the Puget Sound have been found with measurable levels of antidepressants, nicotine, herbicides and even cocaine in their systems. Because orcas eat large amounts of salmon, these toxins become concentrated in their fat. These substances may be passed along to orca calves through their mothers' milk. More attention must be placed on repairing the Puget Sound, so that it is an area suitable for healthy salmon and orca populations. We again appreciate the collaborate work that went into the DEIS, which included significant input from federal agencies, Native American tribes and the states of Oregon, Washington, Idaho and Montana. The Board of the Benton Rural Electric Association is pleased that the DEIS recognizes the importance of the lower Snake River dams and recommends not breaching the lower Snake River dams as the preferred alternative.	Regarding Puget Sound, the effects mentioned in the comment involve a variety of issues beyond the scope of the CRS project. However, water quality effects for the Columbia River Basin were considered in the EIS analysis and are described in Chapter 1, 2, and Section 7.8.3 of the EIS. Additionally, the U.S. Army Corps of Engineers is in partnership with other Federal, state, and non-governmental organizations and have been implementing habitat projects for salmon, orcas, and wildlife all around the Puget Sound as part of the Puget Sound Nearshore Ecosystem Restoration Project.
2561	1	mayor@clarkston-wa.com	N/A	Clarkston, WA is a city that is bordered on two sides by the Snake River as it makes a sweeping curve and moves west to join the Columbia River. Our waterfront is regulated by the Army Corps of Engineers. The City of Clarkston is very small, approximately 2 square miles. Forty-two of our City parcels are exempt from taxes. These include churches and other tax exempt entities. This does not include three elementary schools, Clarkston High School and Clarkston School District offices. Our median household income is $35,000 per year, with median value of housing at less than $140,000. More than 50% of housing is rentals. Only 16% of our population has a bachelors degree. We are not a wealthy community. We derive 45% of our City revenue from sales tax. Any downturn in the economy has a huge impact on our ability to generate revenue for needed services. Dam breaching would severely and negatively impact our economy. When considering dam breaching, not only the initial but the long-term impacts must be considered. Restoring salmon habitat is a one-dimensional solution with dam breaching but creates multiple impacts for communities like Clarkston, and Asotin WA and Lewiston, ID. The financial impact with dam breaching will be a huge burden and negative impact to our communities in the Lewis Clark Valley region. Businesses, whether agricultural, or riparian have been cultivated for many years upon the rivers present flow. For the Lewiston Clarkston Valley to suddenly have the level of the river altered will be changing an entire culture built upon the current operational level of the Snake River. You have all the documentation and statistics that speak to the Snake and Columbia Rivers and the success of the levee system in Lewiston and Clarkston. You know the amount of agricultural products that are barged down our river, the switch to truck traffic to carry those products to market, and the future negative impact on our roads and infrastructure. I want to convey to you what Clarkston would experience with dam breaching. The levee system that was put in place by the Corps drastically changed the landscape along the Snake River. The resulting trail system is used daily by thousands of residents and visitors walking, running, pushing strollers, and riding bicycles. Local schools host cross-country events on the green belt trails behind our high school that include many Eastern Washington high schools. The lower water level with dam breaching would cause deterioration in the levee system and create a wasteland with no water available to irrigate the green belt. The resulting dust accumulation from areas formerly covered by water will have a detrimental impact on the environment and health hazards for our vulnerable population. The increase in dust will have a detrimental affect on the health of our community. We currently have a population that can barely afford regular medical care. Dam breaching would lower water levels from 41 feet to 10 feet at our Waste Water Treatment Plant outfall line and to only six feet where our diffusers are located. TMDL (Total Maximum Daily Load) and temperature limits would have to be reassessed with WWTP modifications and stricter regulations and testing by Department of Ecology. The City of Clarkston completed a $12 million dollar upgrade to our Waste Water Treatment Plant in 2012. These bonds will not be paid off until 2043. Clarkston cannot afford to borrow new money to mitigate the impacts of new water quality requirements due to dam breaching or further burden our residents with increased Waste Water Treatment Plant utility fees. Riparian activities that support our economy Cruise Boat Visits Jet boat excursions Hotels, motels, restaurants 12 boat manufacturing related businesses located in the Lewis Clark Valley Breaching four dams would result in a lowered water level that would curtail many current recreational and tourism related activities on the river and negatively impact the recreation and associated businesses that benefit us as a City. The draw down in 1992 created ultra-low water levels and demonstrated the dramatic change we could expect with dam breaching. We are the hub for agriculture on the Palouse Prairie, north of us in the Moscow and Pullman area, and south of us on the Camas Prairie, towards Cottonwood and Grangeville, Idaho. The vast majority of our agricultural products are barged down the Snake River from the Lewis Clark Valley. Cruise Boats have had an increasing benefit to us with 18,839 visitors and 54 Cruise Boat visits in 2018. Plans are for more visitors in the future. Cruise Boats and Jet Boats contribute to a robust economy for our region. As we have learned more and more about the impacts of dam breaching, we realize that our community can expect a significant detrimental cascading financial effect to occur. It is our understanding that the fish returns are cyclical. Before we breach dams we need to look at degrading ocean conditions and impacts of increased shipping, environmental impacts of Seattles growth, and the entire North Pacific Coast. We have not heard any guarantees that dam breaching will increase fish populations. The concept behind including Snake River dam removal in alternatives is that fish passage will be improved. The number of adult fish returns in 2014 was phenomenal with 2.5 million fish passing through Bonneville Dam. If fish passage was the only factor affecting recovery, then returns should have increased every year after 2014. More spill occurred after 2014 and other improvements were put in place. But numbers went down. That clearly illustrates that factors beyond fish passage affect smolt-to-adult fish returns. The City of Clarkston is not in a position to make major sacrifices for negligible benefit. Clarkston and our regional community would be financially decimated due to the effects of dam breaching. The loss of current recreational opportunities, tourism business and economically reliable shipping of agricultural products to the world would be devastating. The EIS should properly address the significant negative financial impacts to our community and surrounding region when considering the dam breaching option.	The co-lead agencies have included a discussion of community concerns about the potential impacts of MO3 in the navigation section in section 3.10.3.5, in subsection under Regional Economic Effects called "City/Local Effects Associated with Changes in Commercial Navigation, Cruise Lines, and Ferry Operations" as well as under the Other Social Effects subsections. These sections describe potential regional economic as well as social and community impacts associated with dam breach. The EIS recognizes the short-term adverse effects to recreation visitation and values, including cruise and tour boats, and the associated impacts to the regional economy under MO3, which are described in Section 3.11.3.5. The EIS in Section 3.5.3.6 describes that there would be benefits to anadromous fish in the Snake River associated with the dam breaching under MO3. Effects to water quality (Section 3.4) and water supply (Section 3.12) from MO3 are also discussed in the EIS. Additionally, Section 3.18 discusses Environmental Justice and will be reorganized in the Final EIS to be clearer on cumulative impacts to communities of all alternatives. There are many effects to salmon and steelhead populations outside the operation of the dams. Research continues to evaluate the magnitude of these effects. For more information see the NMFS website at: https://www.nwfsc.noaa.gov/research/index.cfm
2565	1	N/A	N/A	From my perspective, any desires to have things returned to "the way they were" must be both respected, and ignored. I do not pretend to know whether we are now in a better or worse situation than we had in the past, but we are certainly in a different one, and it is the norm to which we are all accustomed. Making major changes that would affect the lives and livelihoods of many people in order to achieve the desires of a few who wish to prioritize a historical vision over very real needs for power production, economical transportation, flood control, etc. is simply not rational. The dams are here, they serve a vital purpose, and they should remain. I would very much like to see a clear statement of how the competing objectives will be balanced when they come into conflict.	The EIS evaluated beneficial and adverse effects across an array of resource areas including potential effects at the national, regional and local level. The EIS does not employ a cost-benefit framework for decision-making. This is because, consistent with National Environmental Policy Act (NEPA) analysis framework (see 40 C.F.R 1502.23), the beneficial and adverse effects are expressed as a variety of qualitative and quantitative environmental and economic metrics. Consequently, a focus solely on the monetized economic costs and benefits would exclude important tradeoffs associated with the alternatives communicated in the EIS, including effects on fish. Furthermore, the EIS evaluates the performance of the CRSO EIS alternatives with respect to multiple objectives, for example related to improving fish passage and survival, reliable power generation, and minimizing greenhouse gas emissions. Tables 7-1 and 7-55 in Chapter 7 provides a summary of the beneficial and adverse effects of the alternatives, including the quantified social welfare costs and benefits for a subset of the resource areas (specifically, hydropower, navigation, and irrigation) as well as the implementation costs of the alternatives. The EIS set forth eight objectives, which in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-lead agencies numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as the MO3 which includes the dam breaching measure. The Preferred Alternative also meets the EIS objectives for: resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS the co-lead agencies did not identify MO3 because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system.
2565	2	N/A	N/A	Further, I would like to see a cost analysis for implementing the changes proposed in the preferred alternative that clearly identifies where the required funding will come from (and what other actions will not be possible as a result).	Section 7.7.21 in the Draft EIS describes the cost analysis for the Preferred Alternative. In addition Appendix Q, Cost Analysis describes the costs of specific measures in more detail. As described in these sections of the EIS, funding to operate the system comes through multiple mechanisms, including Federal appropriations to cover system costs as well as revenue generated from the marketing and sale of hydropower.
2567	1	Sandshot69@Yahoo.com	N/A	lets build a fish canal along the river specifically for the fish to bypass the dams. Start it below Bonneville and run its all the way past the last dam.	Thank you for your comment and your idea. A wide array of measures were considered through the process of measures development and during the creation of alternatives for these analyses. Canal or pipe systems were discussed for fish transport but were determined as technically infeasible and eliminated from further consideration.
2573	1	kenboire@aol.com	N/A	There is one bothersome issue, "reintroduction." This document seems inadequate regarding treatment of reintroduction of salmon above Grand Coulee Dam and installation of fish passage at Grand Coulee and Chief Joseph Dams. Because the concept of reintroduction is casually dismissed, this document disregards potential measures that could conceivably make up the most likely, most productive, most acceptable, most economic means of	Measures to reintroduce salmon above Chief Joseph and Grand Coulee dams were evaluated early in the alternative development process but eliminated from further consideration. Reintroduction is an important and complex, large-scale concept. Its consideration, evaluation, and implementation should involve multiple Tribal, Federal, state, and other entities. A coordinated approach among water users, Tribes, states, multiple Federal agencies, and others would be necessary. To allow so many differing interests to coordinate on such a complex topic, which may include international considerations, a decision-making framework and a series of regional workshops would be necessary just to approach the first step of defining

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				increasing salmon stocks. Mitigation does not have to be in the same stream and reach as losses. By opening the basin above Grand Coulee, historical critical fish habitat would be accessible for reintroduction of anadromous stocks. The reasons given for not dealing with this potential come across as saying Well we dont have the data, we dont know the science, we don't want to do it now, it would be too much work but we can just figure it out later. A casual look at practically any map quickly reveals the amount of river basin and habitat that would be added above Grand Coulee in the USA and Canada would be huge and probably be more than what could be added in the USA by removal of the Snake River projects. Sure, challenges of international cooperation would be encountered but the USA and Canada have already rationally faced fisheries issues regarding Pacific Salmon in border waters of Washington and Alaska. International cooperation needs to be part of this solution and it is embarrassing to find that in the more than 20 years since ESA listing, the Corps, Reclamation, agencies, tribes and industry have seemingly not moved ahead an inch. It is equally embarrassing to discover how reintroduction has been quashed in this EIS because of apparent agency fixation on measures that have been under institutional study for longer than some careers. This is not to say the measures in the EIS are unsound, shallow, impractical or unworthy. They are clear, laudable, and scientifically derived. The nature of an EIS is that it is supposed to recognize problems, measure them, and evaluate alternative solutions. This document deals with long-standing listed species and should at least present a side-by-side comparison of reintroduction with other alternatives like the graphic treatment in Crosswalk", Table 2-12. Obviously more study will be required to do this and the EIS budget and timeline would require modification in order to include reintroduction and complete this EIS as a final report. But without this task the EIS is an empty document and someone might be able to argue it seems to fall short of the legal and scientific purpose. There must be a long history here. It is not a new issue. The challenges of passage, stocking and even reintroduction should have been hammered out starting in 1964 when some long-standing international dam issues were worked out for Canadian projects. Clearly somebody dropped the ball back then or sometime since. In over 50-years we should at least have a grasp adequate to proceed with a detailed consideration of reintroduction in this EIS. Reintroduction needs to be given serious treatment beyond saying agencies and interested regional sovereigns are developing a framework to address critical information gaps. As a minimum the EIS ought to include a budget and timeline of the in progress framework effort.	reintroduction objectives. Given the incompatibility of such a wildlife management decision-making framework with an analysis of the operation of the CRS, it is not feasible to proceed with a detailed consideration of reintroduction in this EIS. Moreover, to meaningfully analyze reintroduction as a measure, the details of the proposal would need to be understood well enough to include in hydrologic, water quality, and fish models. That information is not presently available, and development of those details was not possible in the timeframe of this NEPA process. Nevertheless, the agencies and interested regional sovereigns are developing a framework to address critical information gaps. This effort was initiated on June 23, 2020 when the co-lead agencies participated in a discussion with regional sovereigns concerning fish management in blocked areas.
2573	2	kenboire@aol.com	N/A	Speaking of reintroduction, the EIS states "Given the incompatibility of such a wildlife management decision-making framework with an analysis of the operation of the CRS, it is not feasible to proceed with a detailed consideration of reintroduction in this EIS." One reviewer found this reasoning of incompatibility to be outrageous. Contrary to being incompatible, the concept of reintroduction is basic and essential as it could result in introduction of anadromous species in place of those made extinct by the lack of passage at Grand Coulee and other dams upstream of Grand Coulee. Reintroduction could require major construction but cannot be dismissed on the grounds it is beyond the scope of analysis of the operation of CRS as the EIS includes a dam removal alternative which itself is a major construction project well beyond any strictly operational option. Analysis of reintroduction could be so productive as to tamp down the desires for present day costly operational measures or modifications to the Snake River dams. In that sense, consideration of reintroduction belongs within this EIS and in all respects is not incompatible. Following is the EIS treatment From Page 2-79— Reintroduction is an important and complex, large-scale concept. Its consideration, evaluation, and implementation should involve multiple tribal, federal, state, and other entities. A coordinated approach among water users, tribes, states, multiple federal agencies, and others would be necessary. To allow so many differing interests to coordinate on such a complex topic, which may include international considerations, a decision-making framework and a series of regional workshops would be necessary just to approach the first step of defining reintroduction objectives. Given the incompatibility of such a wildlife management decision-making framework with an analysis of the operation of the CRS, it is not feasible to proceed with a detailed consideration of reintroduction in this EIS. Moreover, to meaningfully analyze reintroduction as a measure, the details of the proposal would need to be understood well enough to include in hydrologic, water quality, and fish models. That information is not presently available, and development of those details was not possible in the timeframe of this NEPA process. Nevertheless, the agencies and interested regional sovereigns are developing a framework to address critical information gaps. Here is a suggestion: The overall issue of reintroduction can probably be de-fanged for now. Pull the curtain back. Offer full disclosure. In the EIS, discuss the history of the blockage, what happened and why, what the upriver potential could be, what the institutional, political, cultural, etc. roadblocks are now, what the realistic opportunities and limits are. Commit to developing a summary plan of study including what is involved in getting the authority and resources to move ahead. Include a broad brush budget and critical path timeline as if this were a fresh start and expect it to reach decades into the future.	Measures to reintroduce salmon above Chief Joseph and Grand Coulee dams were evaluated early in the alternative development process but eliminated from further consideration. Reintroduction is an important and complex, large-scale concept. Its consideration, evaluation, and implementation should involve multiple Tribal, Federal, state, and other entities. A coordinated approach among water users, Tribes, states, multiple Federal agencies, and others would be necessary. To allow so many differing interests to coordinate on such a complex topic, which may include international considerations, a decision-making framework and a series of regional workshops would be necessary just to approach the first step of defining reintroduction objectives. Given the incompatibility of such a wildlife management decision-making framework with an analysis of the operation of the CRS, it is not feasible to proceed with a detailed consideration of reintroduction in this EIS. Moreover, to meaningfully analyze reintroduction as a measure, the details of the proposal would need to be understood well enough to include in hydrologic, water quality, and fish models. That information is not presently available, and development of those details was not possible in the timeframe of this NEPA process. Nevertheless, the agencies and interested regional sovereigns are developing a framework to address critical information gaps. This effort was initiated on June 23, 2020 when the co-lead agencies participated in a discussion with regional sovereigns concerning fish management in blocked areas.
2587	1	D. Beaman	N/A	The issues preventing salmon recovery are biological in nature and therefore applying mechanical solutions such as breaching or similar remedies will not work. Previous efforts in these regards have failed thereby disappointing you, me, generations of Native Americans, fishermen, Puget Sound orca and salmon everywhere. Future efforts at dam removal intended to increase salmon populations will also fail and additional lawsuits will continue to disappoint everyone including the hapless judge that history will hold responsible for any legal decision allowing the lower Snake River dams to be breached. Applying a biological approach rather than mechanical methods previously considered presents a primary and a few secondary testable hypothesis that would result in substantial repopulation of salmon if I am correct.	The co-lead agencies agree there are many effects to salmon and steelhead populations outside the operation of the dams. The Preferred Alternative includes biological, operational and structural measures and approaches for mitigation. Research continues to evaluate the magnitude of these effects. For more information, see the NMFS website at: https://www.nwfsc.noaa.gov/research/index.cfm Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. The effects of delayed mortality are discussed throughout the EIS analysis for each alternative and current high quality data and the best available scientific information was used for this analysis. Based on analysis by the CSS, SARs associated with population declines (SARs of less than 1%) have the potential to be greatly reduced under the Preferred Alternative, and on average, SARs are expected to be well above 2.0% for Snake River spring Chinook salmon and steelhead. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information. The Preferred Alternative would provide a substantial contribution to recovery of salmon populations.
2620	1	N/A	N/A	Though experimental in nature, and not without risk to ESA listed species, NLI is encouraged to see that the underlying principles and model of constructive collaboration established through the 2018 Flexible Spill Agreement (the Agreement or Flexible Spill) have been carried forward in the PA. To the extent that the Flexible Spill operation (as the backbone of the PA) is finalized by the co-leads as part of this EIS process, we insist that the three objectives of the Agreement remain intact: provide additional fish benefits by increasing spill; manage power system costs and preserve hydro system flexibility; and retain operational feasibility. NLI remains concerned however, about the wide variability around the two bodies of fishery science considered in the Draft EIS (i.e. NOAAs Life Cycle Model and The Fish Passage Centers Comparative Survival Study model). Most concerning, is that the extended operation at 125% Total Dissolved Gas (TDG) called for in the Flexible Spill Agreement (and the basis for the PA) is an unprecedented action at these federal projects. We appreciate that the co-lead agencies understand the potential controversy around the different assumptions made by each of the fish models, particularly when it comes to assessing the biological risks versus benefits of operations like the PA that incorporate increased and un-tested levels of spill. To address this issue, we would like to see strong fishery monitoring and adaptive management solutions put in place as described below. Support for Robust Fishery Monitoring and Adaptive Management. Throughout implementation of Flexible Spill, and as further adopted in this EIS, NLI urges the co-lead agencies to keep a close eye on the PAs untested operational approach, particularly spill to 125% TDG. Specifically, to continue to analyze the impacts of the proposed action on ESA listed salmon species. This includes the development of a robust monitoring approach and public platform for providing transparent feedback. We also encourage the co-leads to develop and improve upon an adaptive management framework to ensure that their actions do not jeopardize the continued existence of any listed species (as directed by Section 7 of the ESA).	As required by NEPAs implementing regulations, the co-lead agencies used current high quality information in the analysis of the CRSO EIS. Specific to salmon and steelhead, the agencies used both primary modeling approaches which yielded a range of potential outcomes for the alternatives. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% as a result of the Preferred Alternative. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the biological models and to will help determine how effective increased spill can be in increasing salmon and steelhead returns to the Columbia Basin. The effectiveness of the spill program will be monitored, as will the effects to generating resources around the basin. The Monitoring and Adaptive Management Plan, including the Adaptive Implementation Plan for the flexible spill operations, is included in Appendix R.
2620	2	N/A	N/A	NLI recommends that further analysis is needed to sufficiently quantify the potential socio-economic costs of a blackouts associated with MOs 3 and 4. Please see PNGCs comments for further thoughts on this point.	Substantial costs would likely result should blackouts occur. The EIS methodology includes the full incremental replacement resource cost necessary to return the region to a level where the likelihood of blackouts is equal among all the alternatives, such that comparisons can be made among the alternatives on an equal basis. The EIS assumes for each multiple objective alternative (MO) that sufficient resources are acquired to reduce the risk of blackouts to the level of risk that existed prior to implementation of each MO. Once replacement resources have been acquired, the risk of a blackout for each MO is effectively the same as the No Action Alternative. If the EIS had then also added to each MO the additional cost of a blackout, then the MOs would have double-counted the impact of blackout risk (i.e. the MOs would have included the cost of avoiding blackouts and the costs of blackouts). The Preferred Alternative includes an adaptive management plan that involves working with regional sovereigns to develop a study to assess the effectiveness of the increased spill regime on adult returns as well as assessment and management of adverse unintended consequences, such as long delays of adult migrants, or TDG-related mortality of juvenile migrants. Please see Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information.
2631	1	epaleck@gmail.com	N/A	The DEIS concluded that breaching the Snake River dams would have long-term, major, adverse effects on power costs and rates, and the rate pressure could be up to 50% on wholesale power rates. This is clearly incompatible with why electric cooperatives were formed 75 years ago and with our cooperatives mission which it is already difficult to fulfill. The DEIS concludes the dam breaching alternative would more than double the regions risk of power shortages. In an area already plagued by tall trees with only a 10 right of way on each side, reliability in adverse weather can frequently be an issue. Why increasing the duration and frequency of those outages would be desirable to support migrating juvenile salmon that already have a 96% survivability rate over dams is beyond me. Especially since our members are among those who have paid for these fish passage systems.	The comments that breaching the four lower Snake River dams would (a) increase the frequency of power shortages unless replacement resources were built, and (b) would result in increased costs in the region, are both consistent with EIS findings. The EIS also discusses the fact that Bonneville customers, such as cooperatives mentioned by the commenter, may be more directly affected by rate pressures than other regional utilities that do not purchase power directly from Bonneville.
2647	1	combopipey@gmail.com	N/A	S.E.corner of Washington, as well as S. Idaho,NE Oregon have both benefited from dams in many ways. Drought control, power, irrigation, farming, fish/wildlife habitat, power supply, financial stability(even sold to Southern Oregon and California) Many rural areas, from Idaho, Oregon, Washington all benefit from these, as suppliers for needed irrigation, water/flood control, for farming, jobs, even existance.. with out the water control(good and bad) these smaller communities would become non existent, or ghost towns in some areas, as well as impact larger towns, counties, cities, including larger cities such as Portland & surrounding, Seattle & surrounding, and more. Not only by financial impact, but livelihood, power, recreation, sustainability as	The EIS analyses the impacts to the region created from the operations, configuration, and maintenance of the 14 Federal projects. This includes an analysis of water management in light of drought, a scenario investigated across all resources; operations during low, high, and average water years (Section 3.2), power generation and transmission (Section 3.7), water supply (Section 3.12) and maintaining flood risk levels (Section 3.9). Affects to jobs and the economy are addressed through discussions on Navigation and Transportation (Section 3.10) and Water Supply (Section 3.12). Potential economic impacts are evaluated for social welfare effects (national economic effect), regional economic effects, and other social effects. Effects to livelihoods are captured to the extent possible in the regional economic effects and other social effects sections that follow. Please see Section 3.12 and Appendix N for additional information.

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				well as stabilization. Also may want to consider, and include, physical and geological stability, flood control, and useability (besides just the power created) of areas, due to water control and dams. I am not just referring to recreation nor occupational, but also the actual land, land management, land useage, and availability of these, due to water control and usability created by dams.	Land management is part of the maintenance of these Federal projects. Some land transfers would be anticipated with implementation of alternative MO3, if selected, as the Federal projects are closed out after construction and mitigation is completed. However, the changes of land usage outside of the Federal project was not anticipated to change due to any of the alternatives, except for MO3, which would require additional study and NEPA analysis for implementation if selected. The Preferred Alternative is not anticipated to impact any land usage.
2647	2	combopipey@gmail.com	N/A	can you please show, or explain with research documentation, a break down of 1 cost 2 volume 3 access/egress 4 fuel consumption 5 maintenance/expense, of equal transport, by: waterways, highways, trains, planes, pipelines and trucks? By the way, do us all a favor, and print, display, and report these finding publicly....	The costs of system operations are addressed under Section 3.19 with additional details describing methodology provided in Appendix Q. The navigation and transportation effects are discussed in Section 3.10 with additional details and source information provided in Appendix L.
2648	1	N/A	N/A	While the Preferred Alternative is good, there is a flaw in the EIS process that doesn't look broadly enough at the issues. In this case, replacing the hydro-power generation with CO2-generating power will hasten global warming. Although it can be argued that the power will be replaced by solar and wind, these aren't baseload power sources - thus requiring either enormous national investment in grid distribution or building peaking power plants. In any society, resources are not limitless, so we must consider the overall energy system to make optimal decisions. If, as is likely, we end up with peaking power plants, it will hurt in two ways: (1) these funds then aren't available to reduce CO2 emissions in other ways, and (2) the additional CO2 threatens not only these identified species of fish, but literally millions more. The health of these river ecosystems is obviously important, but our time to reduce global warming is short. Until we can start bringing down global CO2 emissions, reducing this non-CO2 emitting power is a nicety that comes at a very real, but unmeasured and unconsidered, cost. I would therefore suggest additional consideration be given to MO2.	The EIS considers the effects of each of the alternatives on greenhouse gas emissions, finding that all alternatives would result in increased emissions, even if all replacement resources are renewables, with the exception of MO2; and MO1 if replacement resources are all renewables. Section 3.8 provides the emissions effects of the alternatives both in terms of increased carbon emissions and the social cost of carbon (i.e., the economic value of climate-related damages associated with the emissions). However, while MO2 best meets the objective of minimizing carbon emissions, it does not meet or only partially meets several other objectives. The Preferred Alternative identified in the Draft EIS does meet the objectives for: ESA-listed juvenile and adult anadromous salmonids, resident fish, lamprey, hydropower generation, water management and water supply.
2685	1	brett.costley@gmail.com	N/A	The DEIS concluded that breaching the Snake River dams would have long-term, major, adverse effects on power costs and rates, and the rate pressure could be up to 50% on wholesale power rates. This is clearly incompatible with why electric cooperatives were formed 75 years ago and with our cooperatives mission which it is already difficult to fulfill. The DEIS concludes the dam breaching alternative would more than double the regions risk of power shortages. In an area already plagued by tall trees with only a 10 right of way on each side, reliability in adverse weather can frequently be an issue. Migrating juvenile salmon already have a 96% survivability rate over dams. Increasing outages to improve on that high number strikes me as a tradeoff with a very low reward and a very high price. Thank you for your unbiased overview of this situation. Sincerely yours, Brett Costley Board President West Oregon Cooperative	The comments that breaching the four lower Snake River dams would (a) increase the frequency of power shortages, and (b) result in increased costs in the region, are both consistent with EIS finding as described in Section 3.7. The EIS also discusses that Bonneville customers, such as cooperatives mentioned by the commenter, may have larger increases in rate pressures than other regional utilities that do not purchase power directly from Bonneville.
2689	2	guilrl@yahoo.com	N/A	I read the EIS Executive Summary on the subject draft EIS, but could not access the entire document online via the link provided by Rep. Dan Newhouse, reference as available via Capital Press which requires a subscription. I did read the Executive Summary which I had a very hard time reading. Here are some of my comments on the Executive Summary: 1.) Each alternative, including the no action alternative should summarily address what it is upfront in bold, and what defined objectives it meets or does not without too much wording and then go into a little detail as to why, or why not. A.) The way it is written is very ackward for an Executive summary for a reader that wants to get the highlights only. B.) This summary is very confusing as written. C.) When I tried to download the entire document to read my device locked up and I had trouble unfreezing it. D.) I have no idea which dams were considered for breaching or not, or which dams are required for shipping or irrigation. E.) Was there any consideration for clean energy storage alternatives without adding having to consider more polluting energy alternatives to compensate for dam breaching cases. F.) Which dams preclude salmon migration the most? 2.) I was very confused as to exactly what is the preferred alternative as defined in the Executive Summary. I wanted it to be clearly defined as MO 1, 2, 3, or 4, and the Executive Summary did not blatantly say what it is. MO1, MO2, MO3, or MO4, and why? 3.) Did the EIS study include any assessment regarding the structural condition of any or all of the dams, or the remaining life of any of these dams, and the environmental risks posed by any dams that may require them to be replaced? I hope to hear back from you regarding addressing a reply to each of these questions I that have at this time. If possible please also provide me with a better link to the entire draft EIS. Sincerely looking forward to your replies to these questions. Thank you.	We responded on March 31, 2020 to help you identify the link to access the full document from the official site. 1) The Executive Summary as noted would not contain all the analysis but would introduce what would be covered in the main report. In one of the alternatives being considered, MO3, the agencies analyzed the effects of removing the earthern portion of the four Federal dams on the lower Snake River. These are: Ice Harbor, Lower Granite, Lower Monumental and Little Goose. All alternatives are described in Chapter 2. All four of those dams, plus the four dams on the lower Columbia, are required for shipping via the navigation channel. The lower Snake River dams also provide water elevations for regional water pumps. These analyses are in the Navigation and Water Supply sections of Chapter 3. Energy demands and considerations for clean energy to replace those demands are in the Power and Transmission section of Chapter 3. All eight dams on the lower Columbia and lower Snake River dams have significant infrastructure, including fish ladders, spillway weirs, and updated fish passage turbines that allow both upstream and downstream fish passage and do not preclude salmon passage. Specific fish, such as Pacific lamprey, require different passage measures, which are proposed in the alternatives of this study. 2) Chapter 7 specifically describes the Preferred Alternative. 3) Yes, the EIS included the condition of the infrastructure and maintenance costs. There is not any replacement of dams anticipated.
2690	1	spauley4@gmail.com	N/A	Please see the 2002 Rand Report on breaching.	The EIS acknowledges previous analyses of breaching the four lower Snake River dams, such as the 2002 RAND analysis referenced in this comment. However, the EIS relies on current information to evaluate the tradeoffs associated with breaching the four lower Snake River dams included as part of Multiple Objective Alternative 3. This includes applying current models and data rather than relying on findings from studies conducted nearly 20 years ago. Section 3.7 of the draft EIS describes potential uses of zero-carbon resources (alternative resources) to meet the energy demands in the Northwest if hydropower generation is reduced.
2735	1	jld@pocketinet.com	N/A	I am disappointed that the EIS does not emphasize the importance of barging smolts past the dams, as it has been proven to be the most productive way to get smolts down the river and enhance their return. Please give this option, as opposed to more spill, more emphasis in your final report.	The co-lead agencies used current high quality information and the best available scientific information on this subject. Their analyses of the alternatives includes analysis of transportation, or barging, of juvenile salmonids past the dams. Varying levels of transportation were included in all MOs with the exception of MO3 (dam breach). MO2 considered much higher levels of transportation that are currently implemented under the NAA. Transportation effects were also analyzed in the Preferred Alternative.
2752	1	abailey@otecc.com	N/A	One additional reason given by the politicians for dam breaching is it would provide more feed for the Southern Resident Killer Whales (SRKWs). Based on a study performed by NOAA - Northwest Fisheries Science Center this is not the case. They have identified that SRKWs primarily forage on chinook salmon that originate from the rivers in the northern Puget Sound, Georgia Strait and the Strait of San Juan de Fuca. Two studies indicate that these chinook populations are being intercepted by sport and commercial fisherman off the coast of B.C. and Alaska. Using genetic analysis, researchers in the U.S. and Canada found that 80 to 90% of chinook consumed by the SRKW originated from the Fraser River. An estimated 6 to 14% likely originated from tributaries within the Puget Sound. These studies and the related information should be considered before any detrimental decisions are made that effect the FCRPS.	The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). The co-lead agencies agree that the quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults form the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differentially from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020). The co-lead agencies utilized current high quality information and data to analyze the impacts of operations, maintenance, and configuration of the CRS projects. Many of the effects listed in this comment are beyond the scope of this EIS.
2752	2	abailey@otecc.com	N/A	There are several areas that we believe need to be further vetted: 1) Predation of salmon smolts by the cormorants (and other birds), and 2) Predation of returning adults by California Sea Lions and seals are residing in the Columbia River system in record numbers. We appreciate the ability to use lethal force on problem sea lions and seals, but the growth in these populations is not even being touched by this effort.	The co-lead agencies legal authorities relate to operating and maintaining the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. To comply with the ESA, the co-lead agencies have historically supported actions to mitigate adverse effects to listed species from CRS operations, through funding, direct implementation, and other means. Under the Preferred Alternative, those actions, including for the purpose of reducing pinniped and avian predation on listed species, would generally continue to ensure compliance with the ESA. Other entities in the region have authorities and obligations to mitigate the impacts from pinniped and avian predators and the co-lead agencies will continue to work closely with those entities to benefit ESA-listed salmonids.
2752	3	abailey@otecc.com	N/A	The Federal government is requiring a new cost allocation study for the dams in the FCRPS. This is a problem that has increased over time. All costs being considered in this document need to be allocated to the various users of the FCRPS dams.	The report on the House Energy and Water Development Committees Appropriations Bill for Fiscal Year 2020 includes language that directed the Corps, Reclamation, and Bonneville to jointly develop an outline for conducting cost allocation studies for relevant projects within the FCRPS. As stated in the Bill, the outline must include a prioritized list of projects for which cost allocation studies should be conducted and the scope necessary to perform the study. Once the outline is complete, the co-lead agencies are required to brief the Committee with the results. Work is underway on this outline, but whether any new cost allocation studies would be developed as a result of this process is speculative. Thus, the cost analysis provided in the EIS focuses on the current cost allocations. The cost allocations used in this EIS were developed based on methodologies adopted by Corps and Reclamation and reflected in their policies. Although each methodology has a different approach, the fundamental goal of any cost allocation is to allocate a share of the projects costs (capital and O&M) to each of its authorized purposes (e.g. flood control, navigation, power, irrigation). Fish mitigation costs are assigned to each authorized purpose based on each purposes overall share of project costs, as determined by the cost allocation. Bonneville is required to pay for its share of mitigation costs based on the existing cost allocation. Although Congress authorized Bonneville to fund the power share directly to the Corps and Reclamation as part of the Energy Policy Act of 1992. (Energy Policy Act of 1992, Pub. L. No. 102-486, 2406, 106 Stat. 2776, 3009 (1992) (codified at 16 U.S.C. 839d-1 (2012)), in some situations, including the Columbia River Fish Mitigation program, Bonneville does not directly pay for the capital costs of fish mitigation structures; instead it reimburses the U.S. Treasury for the power share of appropriations used to construct the structure.
2753	1	kenboire@aol.com	N/A	Published NEPA guidance is clear. The identification and evaluation of alternative ways of meeting the purpose and need of the proposed action is the heart of the NEPA analysis. The lead agency or agencies must, objectively evaluate all reasonable alternatives, and for alternatives which were eliminated from detailed study, briefly discuss the reasons for their having been eliminated. Reasonable alternatives are those that substantially meet the agencys purpose and need. Reasonable alternatives include those that are practical or feasible from the technical and economic standpoint and using common sense, rather than simply desirable from the standpoint of the applicant. Agencies are obligated to evaluate all reasonable alternatives or a range of reasonable alternatives in enough detail so that a reader can compare and contrast the environmental effects of the various alternatives. After reading the report one curiosity remains unaddressed. What would be the economic effect and change in fish numbers that would result from curtailing all sport and commercial fishing for pacific salmon in the ocean, estuary and river. In the report, life cycle concerns are analyzed via a menu of models. Smolt to adult survival including ocean years and latent mortality were considered as was removal of hatcheries but removal of all harvest seems to be absent. Harvest effects are estimated by models using inputs drawn from historical data but there are no zero harvest years in the file. The evaluation of a zero-harvest measure or alternative in any form seems to be totally absent from the report. The report addresses changes in yearly harvest success, and this is modeled in the EIS, but there is no zero-harvest option to mix in and no zero-harvest year to stand alone. Seems logical to the lay person that foregoing all forms of harvest could reasonably contribute something to recovery especially since harvest appears to constitute a taking.	Alternatives to include changes to harvest are not within the scope of this EIS. The assumptions regarding harvest are taken from the 2018 EIS from NOAA and reflect current harvest management guidelines. For harvest, fisheries in the Columbia River Basin and those that rely upon Columbia River fish stocks are managed by numerous entities, including Federal, state, and Tribal governments. These entities are guided by a complex array of policies, laws, compacts, and agreements. The management of Pacific salmon fisheries in particular is complex, and involves numerous entities representing a variety of social, political, and conservation interests. Changes in allowable fishery harvest in the Columbia River Basin are a result of decisions made by state, Federal (i.e., NMFS), and Tribal fishery managers based on a variety of environmental, biological, economic, and social factors. The three co-lead agencies (Corps, Reclamation, and Bonneville) do not manage fish stocks, and do not have the authority to do so.

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				Maybe the present EIS alternatives would become different or might be down scaled if their performance were to be measured as increments added after implementation of harvest restrictions?	
2762	1	Jim Retzer	City of Colfax	As you prepare your final EIS, we would like to propose further study of the impacts of dam breaching on the agriculture producers bordering the lower Snake River.	Absent more specific parameters for requested further study, please see Section 3.10.3.5 for three social welfare scenario analyses of the effects of dam breach on grain transportation costs at a constant rate, and rate increases of 25 and 50 percent. The regional economic effects to agricultural operations were also analyzed for two hypothetical farmers, one near Colfax, Washington, and the other near Grangeville, Idaho. The respective proximity of each illustrates how the effects of dam breach would differ for specific geographic locations and the potential resulting shipping choices and costs per scenario discussed.
2762	2	Jim Retzer	City of Colfax	Between 50 and 60 million tons of cargo are transported each year on barges that can navigate the lower Snake River. These goods move faster and more cost efficiently by river than train or truck - and with far less carbon emissions. Eliminating this asset would irreparably hurt our wheat farmers. More than 1,100 farms risk bankruptcy if barging is lost, according to a study commissioned by the Pacific Northwest Waterways Association . The federal government would need to increase farm subsidies by $38.8 million to simply maintain current income levels. Inclusion of such figures in the final -EIS would help to portray the personal impacts to farmers for future discussions.	Section 3.10 of the EIS recognizes that access to barge transportation is the most cost effective means of accessing export markets for the majority of grain producers in the Pacific Northwest currently and removing that option would increase transportation costs for grain producers. The EIS evaluates potential effects on farmers associated with increased transportation costs under MO3 in Section 3.10.3.5. The EIS finds that under MO3, average transportation costs for wheat farmers would increase 10 to 33 percent, but that individual farmers could experience increases that are doubled. The cost increases to specific shippers would depend upon location and would vary throughout the region, depending on transportation options at each location. Generally, those grain shippers that are the farthest from alternate shipping locations (shuttle rail facilities or river ports on the Columbia River) would be the most adversely impacted. The EIS recognizes that there is no guarantee wheat grown in the Northwest would be competitive now or in the future because there are many factors that influence international commodity markets (e.g., trade agreements, the U.S. dollar, global supply, etc.). However, the analysis finds that the cost to transport wheat to market would continue to be lower than costs paid by other wheat growers in the United States (e.g., the Dakotas and Midwest). Favorable conditions for Northwest wheat growers that help them stay competitive are: (1) the natural environment of the Palouse region (weather, soils) is ideal for growing this type of wheat, which leads to some of the highest yields per acre in the world, and (2) proximity of Northwest export ports.
2775	1	kate@columbiariverkeeper.org	N/A	Water temperature is a major problem for salmon and steelhead Between 1960 and 2015, water temperature in the Columbia and Snake River have increased by an average of 1.4F. (https://www.epa.gov/climate-indicators/snake-river). Salmon are sensitive to water temperature at many stages of their lives. Warmer water can negatively affect fish, making it more difficult for them to swim upstream, and making fish more susceptible to disease. (https://www.epa.gov/climate-indicators/snake-river) In the Lower Snake River, temperatures in the reservoirs exceed 68F for weeks or months at a time during the summer when many salmon migrate to or from the ocean. Temperatures above 68 degrees are very harmful to salmon. Salmon populations in the Snake River Basin are increasingly threatened by warmer rivers, including significant warming from the reservoirs behind the four dams on the Lower Snake River. The DEIS analysis is insufficient on several levels. In the analysis of climate change. The EIS should model water temperatures in the Columbia and Snake rivers under the climate conditions we expect to see in 20 to 50 years. In addressing the challenges that salmon face in the Columbia River and estuary. Existing dams and worsening climate change are making the lower Columbia River and estuary too hot for fish. The DEIS does not explain this or provide any solutions. The DEIS implies that Lower Snake River dam removal would not significantly change water temperatures or improve conditions for salmon. This is not true. Summer and fall water temperature conditions in the Lower Snake would be significantly better for salmon and steelhead with the dams gone.	The Draft EIS acknowledges and describes the temperature sensitivities of salmon and steelhead, as well as the many other factors that affect these fish. Water quality and hydrology modeling data were inputs into the fish survival models used to analyze the effects of alternative approaches to operations, maintenance, and configuration of the CRS projects on Snake River stocks, so temperature effects to survival have been incorporated into the overall analyses of each alternative. Regarding climate change, the climate science community is still developing models that can be used to analyze possible effects to water temperature from climate change, and unfortunately, there are not reliable models at this time. Therefore, it was not possible to reliably model water temperature changes under climate change for this EIS. In lieu of this information, the climate analysis used the output from the water quality models under historical conditions, climate change data, and scientific literature to qualitatively assess potential effects to water temperature (see Section 4.2.3). Regarding lower Snake River water temperatures, the co-lead agencies' analysis of MO3, the alternative that includes the measure to breach the lower Snake River dams, indicates that nighttime summer water temperatures, as well as fall water temperatures, would be cooler than the conditions in the No Action Alternative. However, even with the dams breached, maximum summer water temperatures would exceed state water quality standards (20C) at times, especially during high air temperature events.
2779	1	afergu@gmail.com	N/A	First off, I am unhappy about the inadequate and confusing public comment teleconferences. I waited for over 2 hours despite pressing 1 and 0 immediately at the very beginning to be placed in the queue to give comment before finally giving up. I wish the CRSO would've extended the public comment period in order to hold in-person meetings or otherwise increased opportunity for public comment due to the impacts of the COVID-19 epidemic.	We are sorry you had technical difficulties. We hope you were able to provided comments into the online form or through mail. The co-lead agencies considered requests to extend the public comment period. This NEPA process included a wide array of cooperating agencies whose close involvement throughout the process allowed the co-lead agencies to incorporate feedback. Given the broad range of comments received to date and the extensive Federal and non-Federal participation in the overall process as well as the level of public engagement in the six virtual public meetings in the region, the co-lead agencies determined that an extension was not warranted and that the 45-day public comment period was adequate consistent with NEPA regulations. The CRSO EOS website notified the public on April 9 that they should plan to submit comments by the close of the comment period.
2779	2	afergu@gmail.com	N/A	The DEIS overstates the cost of replacing power from the Snake River dams with clean energy, and suggests replacing their power with fossil fuels.	The EIS describes the replacement resources that would be needed to maintain regional reliability at the No Action Alternative levels based on a range of potential replacement resources, including one that is based on renewable resources and another that is based on natural gas resources, which are generally the least cost means to maintain reliability (see Section 3.7.3.5, Potential Replacement Resources and Associated Costs in the draft EIS). The EIS uses the best available resource cost information from the Northwest Power and Conservation Council to estimate the potential range in costs of these replacement resources. The EIS does not suggest fossil fuels should be used to replace the power; the purpose of providing the range of replacement resource options is to estimate a reasonable range in potential costs. The basis for developing both of these portfolios may be found in Section 3.7.3.1, Methodology, and Section 3.7.3.5, Potential Replacement Resources and Associated Costs for MO3 in the draft EIS, specifically. The EIS uses the best available resource cost information from the Northwest Power and Conservation Councils 7th Power Plan and Mid-Term update to estimate the potential range in costs of these replacement resources, with the exception of batteries which used newer sources, namely, 2018 and 2019 IRPs from Northwestern Energy and Puget Sound Energy. To further address concerns about potential reductions in resource costs publicly released draft information, such as updated prices for solar and battery storage, from development of the 8th Power Plan is included as rate sensitivities in the Final EIS. The Final EIS will include the de-escalating cost curves prepared by the National Renewable Energy Laboratory (NREL) that will be used by the Council in the 8th Power Plan.
2780	1	boleneus@gmail.com	N/A	Removing the Snake River dams creates a huge electricity shortage. All should be concerned. HOPE for wind renewable electricity is misplaced because wind turbines repeatedly show no ability to perform. The wind turbine record shows it a less than part-time supply and so the fickle wind turbines must rely on dams that some wish be removed. The four Snake R. dams provide 3,033 MWs of electric to serve 1,022,000 homes full-time. Here are reasons that electricity will be inadequate in the future: a- Washington created a new electricity law in 2019 which denies use of coal and natural gas to generate electricity by 2045, thus mandates wind turbines, a mistake because natural gas is very abundant. b-By 2045 35% more customers demand electric as population grows 1.5% per year so I write here for pre-school age family members that cannot comment. c-The new law relies on wind and solar to make up the deficit, but this projection and history shows they will fail. The unreliable supply, and unaffordable high cost to 45 cents/kwh of wind and solar in Ontario, Australia and Europe (Spain, Germany, Denmark) PROVES renewables cannot fulfill the false hope that legislature failed to verify. That cost is not the cost for electricity but cost is due to supercharges added needed to support carbon-free renewable wind or solar, for example, in Ontario and Germany. To see the shortage, look at any two week winter period, but I used November 2019 to know what supply is transmitted by BPA and project this to November 2045. d- Now remove electricity from coal, natural gas, and the 4 Snake River dams, and double wind capacity to 8740 MWs5,800 turbines–and solar to 82 MW. The result shows that the shortage, or deficit for only two weeks is 154,820 MW, enough to supply 259,765 homes is not available. The message is clear that 700,000 customers must go without electricity. Who are 700,000 to volunteer for NO lights, NO cell phones/computers, NO cooking, NO heating, NO refrigeration, NO electric cars? BATTERIES cannot fill this need. This simple projection shows how utterly absurd is this proposal. A wind turbine fleet rated at 35% of the hydroelectric capacity is unable to replace the 11% of the hydroelectric that you propose to eliminate. e-The main reason that electric is not there and voiced by a BPA employee is this: Our wind turbine electric generation record shows wind only provides 4% of its capacity during the 5-6 months, Oct to mid-March because wind turbines are not producing on average 15 days each month because the wind is not blowing. The up-and-down yo-yo generating record of wind is chaos and the 2019 electric law is a disaster in the making as would be loss of the 4 Snake River dams in a time of need.It clearly shows that even 1,000,000 MW of wind will produce no electricity if the wind is uncooperative. All must realize that the intermittent nature of wind cannot promise electricity. I have prepared a poster to support this comment but it is larger than 2MB I am not sending so please request if you wish to see it.	The comment correctly identifies that wind and solar energy have lower capacity factors than natural gas and coal resources, and that hydropower is used to maintain reliability and avoid outages when these resources are not able to generate sufficient power to meet demand. The Draft EIS evaluates the potential for renewable replacement resources to maintain system reliability given a reduction in hydropower generation. The analyses of the alternatives do take into account that, unlike hydropower and fossil fuel sources, wind is an intermittent resource (i.e., cannot always ramp up generation to meet demand) in identifying the amount of added capacity that would be required. The EIS also finds, consistent with this comment, that increasing retirement of coal power plants would adversely affect regional power reliability. The EIS does not answer the question of whether renewable resources will be able to replace all fossil fuel resources in Washington State as the focus of the analysis is specifically on the management of the Columbia River System projects. The EIS identifies the amount of renewable replacement resources that would be needed to maintain reliability under Multiple Objective Alternative 3 (which includes breaching the four lower Snake River dams) at the No Action Alternative levels. Even with these renewable resources, as described in the EIS, existing fossil-fuel plants would likely run more. The EIS also discusses the cost of using only renewable resources as replacement resources, which would come at a more substantial cost than if fossil fuel resources are used. See Section 3.7.3.5, Potential Replacement Resources and Associated Costs in the draft EIS.
2780	2	boleneus@gmail.com	N/A	The Snake River permits 360 miles of river shipping commerce of 9 million tonnes annually up and down the Snake River to Lewiston valued at $4 billion each year. Up to 40,000 jobs are at stake. The loss of shipping on the Snake would each year add 345,000 trucks to highways to carry freight that now uses the Snake River more cheaply than more expensive highway travel. Trucks transporting these products would use 370% more fuel than barge shipping to transport the same freight.	Section 3.10 of the EIS evaluates the increased costs of transportation as well as the increased number of truck trips that would be required if the four Snake River dams were breached under MO3. The EIS recognizes that transportation cost increases could decrease profitability of farming. The number of truck trips could substantially increase, ranging from an additional 14,000 to 79,000 truck trips per year, which would increase air pollutant and greenhouse gas emissions in the region and add to traffic and congestion in the region. The EIS describes, in Section 3.10, that deep draft ports on the Columbia River are important to the regional economy and support approximately 40,000 jobs. The EIS also recognizes these ports receive some cargo from the shallow-draft areas of the Columbia River Navigation System. However, the EIS also recognizes that most of the cargo that goes through the deep-draft ports is shipped directly via rail or truck from inland areas and exported. The total volume of cargo passing through the deepwater ports is not anticipated to be affected under MO3, which includes the dam breach measure.
2784	1	melibeekoch@gmail.com	N/A	The removal of the Elwha dam is a good example of an action that has had a positive impact on the natural environment leading to the return of salmon and steelhead for the first time in one hundred years.	The effects of removal of the Elwha Dam and the effects of breaching the lower Snake River dams are not comparable. Elwha Dam had a nameplate capacity of just under 15 megawatts. Its annual power production pales in comparison to the 1,100 aMW provided by the lower Snake River dams. Also, Elwha Dam did not have fish passage. The four Snake River dams do. Removal of the Elwha dam allowed the Elwha River to flow freely. Even if the four Snake River dams were removed, the Snake River would still have regulated flows due to the dams located upstream.
2785	1	N/A	N/A	Please extend comment period as many public hearings have been canceled and delayed due to the current pandemic.	The co-lead agencies considered requests to extend the public comment period. This NEPA process included a wide array of cooperating agencies whose close involvement throughout the process allowed the co-lead agencies to incorporate feedback. Given the broad range of comments received to date and the extensive Federal and non-Federal participation in the overall process as well as the level of public engagement in the six virtual public meetings in the region, the co-lead agencies determined that an extension was not warranted and that the 45-day public comment period was adequate consistent with NEPA regulations. The CRSO EIS website notified the public on April 9 that they should plan to submit comments by the close of the comment period.
2785	2	N/A	N/A	Thus far, the EIS's and Recovery Plans prioritize economics over conservation. Previous EIS by Army Corp of Engineers has shown breaching the 4 lower Snake River dams is the best alternative for salmon recovery, yet was rejected, prioritizing economic impacts to agriculture, transport, and energy production. These industries are subsidized and can continue to be subsidized transitioning to sustainable industries.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. In this EIS, the Preferred Alternative meets the eight objectives of the EIS, including two objectives to improve passage and survival for ESA listed fish. Additionally, it meets the EIS purpose and need and minimizes adverse impacts to the human and natural environment.
2785	3	N/A	N/A	Declining, endangered Southern Resident killer whales are dependent on Columbia Basin- Snake River salmon. As NOAA's Recovery Plan states: "the single greatest change in food availability for SRKW since the late 1800s has been the decline of salmon in the Columbia River Basin." NOAA has included the coastal Columbia River Basin as part of SRKW Critical Habitat, and federal agencies and operations will have to comply. I also support MO34-Spillovers. With the US 9th Circuit Court mandated spillover in 2013, there was a SRKW 'baby boom' of 9 calves in 2014-2015. Best available science has shown availability of enough salmon directly correlates with successful births.	The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no

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					evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). The co-lead agencies agree that the quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults form the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differentially from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020). The co-lead agencies utilized current high quality information to analyze the effects of operation, maintenance, and configuration of the CRS projects. Without a reference that demonstrates that the increase in calves was directly related to increase spill, the co-lead agencies are not able to assess the credibility of this claim or whether it is the best available science. To the extent that "spillover" means higher spill operations for juvenile fish, the Preferred Alternative does include spill levels that are higher than would have been undertaken in 2013, which is expected to have benefits for juvenile survival.
2791	1	tim@timpalmer.org	N/A	I'm the author of 28 books about resource issues, and my comments here are informed by three books I have written: Endangered Rivers and the Conservation Movement; The Snake River: Window to the West; and The Columbia: Sustaining a Modern Resource, and also by continuing research and reports from many sources. Virtually all the research I did for these books and for work after them indicated that benefits of the four Snake River dams are grossly exceeded by the costs in public subsidies to the barging, hydropower, and irrigation industries and by the costs of allowing these dams to drive our salmon and steelhead toward extinction. Any argument that dam removal does not provide for "certainty" of salmon recovery is logically flawed because that "proof" will only be accepted as fact after it has occurred. Except for reports from entities paying for work that supports keeping the dams intact, and work by agencies deeply invested in sustaining the status quo, the evidence of both biologists and economists say that we need to remove these dams to sustain the salmon and to make our public agencies solvent. The four dams provide less than 4 percent of our regional powerpower that is available mostly when it is in surplus, and it is easily replaced by alternative sources without the problems that the dams are causing. Unlike what was delivered in the past five plans, I urge you to revise this DEIS to provide a fair and accurate report this time. I urge you to consider the full costs of these dams and a full accounting of the benefits of restoring our salmon and building a sustainable economy that is not predicated on the extinction of our native fish and other valuable natural resources.	The CRSO EIS documents the assessment of benefits and impacts of changes to the operations of the 14 Federal projects of the Columbia River System. Using a multi-disciplinary approach and with the coordination and consideration of our cooperating agencies and Tribes, as well as public stakeholder input, and by using current, high quality information, the co-lead agencies developed the Preferred Alternative. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the EIS objectives) as well as the EIS objectives for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. The Preferred Alternative is also more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. While the four lower Snake River dams account for a small portion of the total power of the region, they represent a larger portion of the FCRPS from which Bonneville markets power. As described in Section 3.7.3.5 of the EIS, Potential Replacement Resources and Associated Costs, the four lower Snake River dams are among the most valuable projects in the Federal Columbia River Power System (FCRPS). These dams provide over 1,000 MW of carbon-free energy and up to 2,000 MW of sustained peaking capacity at certain times of the year. The regional power system is surplus during certain times of the year and in certain water conditions. However, without the generation from the four lower Snake River dams, the region would face power shortages (potentially blackouts) in roughly one out of seven years.
2792	1	annvil@earthlink.net	Kalmiopsis Audubon Society	The Agencies preferred alternative is similar to the approach that has already failed and already been rejected 5 times by a federal court over the last 25 years. We believe it also violates the Endangered Species Act by neglecting to take seriously enough the risk of extinction to salmon, steelhead, and orcasand fails to give sufficient attention to the impacts of climate change.	The co-lead agencies disagree the Preferred Alternative is a similar approach to operations prior to the CRSO EIS. The Preferred Alternative carries forward certain mitigation measures that are known to provide benefits to ESA-listed species from the No Action Alternative. These actions by the co-lead agencies have resulted in a large percentage of fish being able to pass both upstream and downstream of the lower Snake River and lower Columbia River projects. Please see Section 3.5.2.3 Anadromous Fish for additional discussion. The spill operation for juvenile fish passage in the Preferred Alternative is a significant departure from previous operations. Please see Section 7.6.3 Preferred Alternative Operational Measures for additional discussion. In addition, a large number of structural changes are included to benefit salmonid species and Pacific lamprey. Please see Section 7.6.2 Preferred Alternative Structural Measures for additional discussion. Based on the fish analysis, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Recovery is a broader regional goal and is above and beyond the co-lead agencies' obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the Columbia River System. This EIS has been developed in consultation with National Marine Fisheries Service (NMFS) and U.S. Fish and Wildlife Service (USFWS) to find an acceptable balance that allows the co-leads to meet the Purpose and Need Statement while minimizing impacts to affected ESA-listed species and their habitats. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. See also Chapter 8, Compliance with Environmental Laws, Regulations and Executive Orders. The EIS analysis of the Preferred Alternative determined the overall effect to SRKW to be negligible in large part because hatchery production is consistent between the No Action Alternative and the Preferred Alternative. Because the impact from the Preferred Alternative was determined to be negligible, the agencies determined that existing hatchery production would be sufficient to address any potential impacts to prey availability for SRKWs. The co-lead agencies note the contribution to the prey of SRKW through the continued existence of their respective independent congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as the Lower Snake River Compensation Plan, which is administered by U.S. Fish and Wildlife Service. The Preferred Alternative and Proposed Action in the agencies' biological assessment carry forward certain mitigation measures described in Chapters 2 and 7 of the EIS, which include continued salmon and steelhead hatchery production. The Preferred Alternative has negligible effects to SRKWs as described in Section 7.7.8. Regarding climate change, through on-going regional climate change studies and work, the co-lead agencies evaluated potential shifts in precipitation and temperature patterns and resulting changes in unregulated Columbia Basin streamflow timing and volumes. The evaluation consisted of the full range of the latest climate change projections developed using multiple global climate models, emissions scenarios, downscaling techniques, and hydrologic models. Details of this evaluation are in Chapter 4 of the EIS. This information was used to describe the potential effects (both beneficial and adverse) on the river systems and resources due to potential changes in climate for the Preferred Alternative. With the uncertainty associated with climate change, it is important that we establish methods for adapting and increasing flexibility on the system. There are measures in the Preferred Alternative that are adaptive to emerging changes in climate and ensure there is flexibility to respond to future changes. One example of this is the habitat restoration program that counters increased stream temperature with deeper pools and more shaded areas. See Chapters 4 and 7 for additional information on climate change.
2792	2	annvil@earthlink.net	Kalmiopsis Audubon Society	Rather than kick the can down the road, wasting more time, and millions of taxpayer dollars more on continuing legal conflicts, I urge the agencies to revise the EIS to focus on the three things that will truly have a chance of working: Removal of the four obsolete Snake River Dams, Increased flows over Columbia River Dams And habitat restoration In addition, please remove killing native predator species from this plan.	The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-lead agencies numerous legal obligations. The Preferred Alternative is predicted to benefit ESA-listed juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. The Preferred Alternative also meets the EIS objectives for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS the co-lead agencies did not identify MO3 because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. Additionally, the co-lead agencies evaluated many different flow and spill levels and as well as seasonal patterns for when flows are enhanced or reduced. The Preferred Alternative represents an operation that provides a balanced approach between spring and summer flow and spill levels to benefit salmon and steelhead, while also providing benefits to resident fish in the upper portion of the Columbia River Basin. Although the Preferred Alternative does not include breaching of the lower Snake River dams, it calls for actions that are different from those that have been implemented in the past. One major change that the Preferred Alternative represents is a new spill operation during spring juvenile fish passage, which would test an innovative approach to balancing fish benefits and energy goals by spilling more water in the spring for juvenile fish passage. The intent is to increase spill when the projected value of power is relatively low, pass higher proportions of fish through the spillway, and spill less water for limited durations when the projected value of power is relatively higher (i.e., during peak power demand). In terms of habitat restoration, the co-lead agencies have supported and will continue to support habitat restoration throughout the Columbia River Basin. See Chapter 7 for additional information on tributary and estuary habitat actions being carried forward into the Preferred Alternative. The co-lead agencies have historically supported actions to mitigate adverse effects to ESA-listed species from CRS operations, through funding, direct implementation, and other means. Under the Preferred Alternative, those actions, including implementation and adaptive management of actions for the purpose of reducing predation on ESA-listed species, would generally continue to ensure compliance with the ESA. Other entities in the region have authorities and obligations to mitigate the impacts from pinniped and avian predators and the co-lead agencies will continue to work closely with those entities to benefit ESA-listed salmonids. The co-lead agencies recognize the value of developing common metrics, identifying measures, and implementation of measures that will aid in the reduction of predation impacts and increase survival of Columbia River salmon and other native fish populations. However, the co-lead agencies are limited to implementing measures that are within the authorities of the agencies. The Preferred Alternative includes predation mitigation measures, including maintaining avian wires in the tailrace of lower Columbia and Snake River dams, active hazing of gulls at the dams, and the pattern of operating the spillway gates, all mitigate for predation at the dams by birds and fish. The Predator Disruption Operations will mitigate Caspian Tern predation on juvenile salmon and steelhead in the lower Columbia River. Management efforts are ongoing to reduce salmonid consumption by terns in the lower Columbia River, and similar efforts are in progress to reduce the nesting population of Double-crested cormorants in the estuary. Chapter 7, and Appendix R, include mitigation measures associated with the Preferred Alternative and describe ongoing habitat restoration programs of the co-lead agencies. Predation management will be an ongoing effort, not only by the co-lead agencies, but by other entities as well. To comply with the ESA, the co-lead agencies have historically supported actions to mitigate adverse effects to ESA-listed species from Columbia River System operations, through funding, direct implementation, and other means. Under the Preferred Alternative, those actions, including for the purpose of reducing pinniped and avian predation on listed species, would generally continue to ensure compliance with the ESA. Other entities in the region have authorities and obligations to mitigate the impacts from pinniped and avian predators and the co-lead agencies will continue to work closely with those entities to benefit ESA-listed salmonids. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3, which includes breaching the four lower Snake River dams. The Preferred Alternative also meets most other EIS objectives including those for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS, the co-lead agencies did not identify MO3 because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. Increasing flows as a potential measure was evaluated in the EIS. In particular, the McNary flow measure in MO4 demonstrated significant adverse effects to upper Columbia basin fish and wildlife, as well as cultural resources. As described in Chapters 5 and 7, the agencies are proposing to continue habitat restoration actions described both under the No Action Alternative as well as new mitigation for the Preferred Alternative. The commenter was also concerned with killing of native predator species. It is unclear which native species the concern was indicating; however, certain native predators adversely affect survival of listed fish species and taking actions to keep a balance is a tool in our strategy. These decisions are not made lightly and are coordinated with resource agencies such as NMFS and USFWS.
2794	1	N/A	N/A	The latest US/Canada Salmon treaty raised the allowed salmon catch to rise from 94 million to 134 million. That has an impact on the reduced salmon in the Columbia River.	We agree that there are many effects to salmon and steelhead populations outside the operation of the dams. Research continues to evaluate the magnitude of these effects. For more information see the NMFS website at: https://www.nwfsc.noaa.gov/research/index.cfm Harvest certainly has an impact on salmon and steelhead populations. The three co-lead agencies do not manage fish stocks, and do not have the authority to do so. For harvest, fisheries in the Columbia River Basin and those that rely upon Columbia River fish stocks are managed by numerous entities, including Federal, state, and tribal governments. These entities are guided by a complex array of policies, laws, compacts, and agreements. The management of Pacific salmon fisheries in particular is complex, and involves numerous entities representing a variety of social, political, and conservation interests. Changes in allowable fishery harvest in the Columbia River Basin are a result of decisions made by state, Federal (i.e., NMFS), and tribal fishery managers based on a variety of environmental, biological, economic, and social factors. Alternatives to include changes to harvest are not within the scope of this EIS. The assumptions regarding harvest are taken from the NOAA 2018 EIS and reflect current harvest management guidelines. To see their conclusions and effects analyses please go to: https://www.fisheries.noaa.gov/resource/document/environmental-impact-statement-programmatic-review-harvest-actions-salmon-and.
2794	2	N/A	N/A	Try to count the number of sea lions living in the Columbia. Get an estimate of their Salmon catch per day when Salmon are in the Columbia River. I think this number will over exceed the Dam losses by the millions!	The co-lead agencies legal authorities relate to operating and maintaining the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. To comply with the ESA, the co-lead agencies have historically supported actions to mitigate adverse effects to listed species from CRS operations, through funding, direct implementation, and other means. Under the Preferred Alternative, those actions, including for the purpose of reducing pinniped and avian predation on listed species, would

Letter No.	Comment No.	Commenter Name/Email	Affiliation	Comment	Response[1/]
					generally continue to ensure compliance with the ESA. Regarding pinniped predation, sea lion management decisions at Bonneville Dam rely on input from the Sea Lion Management Working Group. This Working Group is a collaborative effort with NOAA, USFWS, various Tribes, and the co-lead agencies. The co-lead agencies works to minimize the effects of sea lions on salmon by implementing Best Management Practices specified in the NOAA Biological Opinion and by implementing recommendations developed by the Working Group. The co-lead agencies will continue to use this process to minimize the effects of sea lions on salmon within their authorities. As part of these efforts, the co-lead agencies monitor and count sea lions in the vicinity of the Bonneville Dam tailrace. The EIS discusses the Working Group and sea lion management in Section 3.5, 3.6 and Chapters 5 and 7. Other entities in the region (e.g., NMFS, the states of Oregon and Washington, and local Tribal governments) have authorities and obligations to mitigate the impacts from pinnipeds, and the co-lead agencies will continue to work closely with those entities to benefit ESA-listed salmonids.
2800	1	riverrats04@gmail.com	N/A	Please change the selected alternative for the DEIS and/or add breaching (bypassing) of the four Snake River dams for a potential solution to save our endangered wild fish.	All four of the lower Snake River projects include both upstream and downstream fish passage. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets most other EIS objectives including those for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams, because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system.
2802	1	N/A	N/A	To save the endangered Snake River salmon, Southern Resident orcas and ratepayers money, the federal agencies need to address the Columbia River System in a two-tiered process. Tier one is an emergency response action for the immediate drawdown and breach of Lower Granite and Little Goose dam, followed by the remaining two dams in subsequent years. Tier two is addressing system operations and further mitigation activities in the rest of the Columbia River Basin using the new EIS, assuming that the four lower Snake River dams.	The Draft EIS evaluated under Multiple Objective 3 (MO3) removal of the earthen embankment of the four lower Snake River dams (referenced as tier one in the comment) including operations (referenced as tier two in the comment) of the other ten Federal dams in the CRS and mitigation for effects to resources from implementing this alternative. If MO3 were selected, the Corps could use this EIS as a basis for seeking congressional authority to breach the four lower Snake River dams. After receiving both authority and appropriations from Congress, the Corps could initiate a detailed construction and design report for the breach measure, identification of disposal areas, real estate acquisition and disposal, permits, and mitigation requirements, including temporary fish hatchery production. Each of these actions are required prior to breaching, and the Corps does not have the authority or appropriations necessary to immediately breach the project's embankments. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. The ESA does not require the co-lead agencies to take affirmative actions to support recovery of ESA-listed species. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat. The co-lead agencies agree that the quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differently from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for the whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall-run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall-run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). The EIS analysis in Section 3.6 (Vegetation, Wetlands, Wildlife and Floodplains) The co-lead agencies conclude there could be a negligible to minor beneficial effects to SRKW from implementing MO3. CSS and NMFS Lifecycle models predict that lower Snake River Chinook salmon smolt-to-adult returns would have a moderate to major increase under MO3. Operation of Lower Snake River Compensation Plan fish hatcheries under MO3 is uncertain and therefore, production of Snake River hatchery fish is assumed to decline over the long term, while returning adult wild salmon are anticipated to increase. However, the co-leads do not anticipate a lack of hatchery fish in the short term based on the proposed fish hatchery mitigation described in Chapter 5. These additional hatchery fish should mitigate short-term construction effects to Snake River populations. Additionally, to address short-term effects to ESA-listed species, the co-lead agencies propose constructing a new trap and haul facility at McNary and conducting at least two years of trap and haul operations for Snake River fish (Chinook, sockeye, and steelhead). Additional details on the most crucial prey stocks for SRKW, as well as their population and range, is available from several fact sheets and videos available here: https://www.fisheries.noaa.gov/species/killer-whale#spotlight. For more information, visit this NMFS StoryMap on SRKW: https://noaa.maps.arcgis.com/apps/Cascade/index.html?appid=3405e6637bf74e998d4ebe992c54f613. The co-lead agencies note the contribution to the prey of Southern Resident killer whales through the continued existence of their respective independent congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as Lower Snake River Compensation Plan, which is administered by USFWS. The Preferred Alternative carries forward certain mitigation measures described in Chapters 2 and 7 of the EIS, which include continued salmon and steelhead hatchery production. The Preferred Alternative has negligible effects to SRKWs as described in Section 7.7.7 in large part because hatchery production is consistent between the No Action Alternative and the Preferred Alternative.
2817	1	dick.Ledgerwood@gmail.com	N/A	The MO3 alternative involves a proposed breaching of the earthen portions of each dam to return the river to a stream bed flow, i.e., a drawdown. While breaching and drawdown was not part of the preferred alternative in the draft, such dramatic action is apparently supported by some in the region as a method to help restore endangered anadromous fish runs. While negative aspects of drawdown were discussed in the draft, I do not believe the full impacts associated with drawdown were adequately described. I believe that if such a management action were permitted the entire region would experience a catastrophic economic consequence and it is quite possible we would still lose the fish.	MO3 was not identified as the Preferred Alternative. Beneficial and adverse effects are discussed by resource area within Chapter 3, including effects associated with MO3 which includes the measure to breach the four lower Snake River dams. The EIS covers a broad array of resource areas covering the entire Northwest. The co-lead agencies intended to capture all significant changes to environmental resources and the human environment, but without more information from the commenter, cannot improve on what the commenter believes is missing in the analysis. There are benefits and costs associated with operating the four lower Snake River projects. The EIS evaluated beneficial and adverse effects across an array of resource areas including potential effects at the national, regional and local level; effects are monetized and quantified, where possible, and also described qualitatively. As is common in NEPA analyses, the beneficial and adverse effects of the alternatives are expressed as a variety of qualitative and quantitative environmental and economic metrics throughout the EIS to inform decision-making, including the effects of the alternatives on fish as detailed in Sections 3.5 and 7.7.4. That the effects of the alternatives on fish are not expressed as monetized economic values does not mean that they were not considered in the context of the analysis. The EIS does not employ a cost-benefit framework for decision-making consistent with NEPA (see 40 C.F.R. 1502.23). For hydropower, the average annual value of the four lower Snake River dams exceeds the average annual equivalent costs. The generation value at the four lower Snake River dams can be described by a range between the cost to replace the generation through new conventional resources or through a portfolio of zero-carbon resources. Although the costs of replacing the power with market purchases was analyzed, it is unlikely that short-term wholesale power markets could reliably replace the power for the long-term. This range would put the annual value of power between $240 million and $500 million for the four dams combined. These numbers represent about 90 percent of the lost benefits cited in Table 3-171 of the Draft EIS because the four dams represent about 1,000 aMW of the 1,100 aMW of lost generation estimated in MO3. The average annual cost to operate and maintain all authorized purposes at the four lower Snake River dams is $75 million (Appendix Q, Table 5-1) and the annual-equivalent capital costs are $32 million (Appendix Q, Table 4-1). Hydropower costs funded by Bonneville represent about $50 million of the total annual operations and maintenance costs and nearly all of the annual capital costs, approximately $31 million. This puts the annual-equivalent power-specific costs at approximately $81 million a year. As a result, the net benefits from hydropower for the four lower Snake River dams are between $159 million and $419 million and the benefit-cost ratios are between 3.0 and 6.2. If the $34 million per year for the Lower Snake River Compensation Plan is added to the capital and expense costs, benefits still exceed costs under each replacement power scenario. Considering these costs, the net benefits range from $125 million to $385 million and the benefit-cost ratios range from 2.1 to 4.3. In the less-likely scenario that generation could be reliably replaced with short-term wholesale market purchases and assuming that the four dams represent 90% of the $150 million in market purchases required to replace the lost generation cited in MO3 (see Table 3-170 in the Draft EIS), the lower bound for net benefits would fall to $54 million and the benefit-cost ratio would fall to 1.7. With the Lower Snake River Compensation Plan included, the lower bound for annual net benefits becomes $20 million and the benefit-cost ratio becomes 1.2. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-lead agencies numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets most other EIS objectives including those for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy.
2817	2	dick.Ledgerwood@gmail.com	N/A	MO3 does acknowledge that drawdown would shift major traffic to land transport and result in increased maintenance. I fear the impact of drawdown could totally disrupt land transport far beyond merely wear and tear on roadways and increased traffic. It is not practical to transport bulk cargo such as wheat by land and retain a competitive world market price, even if road and rail where enhanced and not compromised by drawdown. Further, any option to collect and transport juvenile salmonids by barge would likely be lost, particularly important in low flow drought years	The EIS evaluates potential effects on farmers associated with increased transportation costs under MO3 in Section 3.10.3.5. The EIS finds that under a dam breach scenario, average transportation costs for wheat farmers would increase 10 to 33 percent, but that individual farmers could experience increases that are doubled. The cost increases to specific shippers would depend upon location and would vary throughout the region, depending on transportation options at each location. Generally, those grain shippers that are the farthest from alternate shipping locations (shuttle rail facilities or river ports on the Columbia River) would be the most adversely impacted. The EIS recognizes that there is no guarantee wheat grown in the Northwest will be competitive now or in the future because there are many factors that influence international commodity markets (e.g., trade agreements, the U.S. dollar, global supply, etc.). However, the analysis finds that the cost to transport wheat to market would continue to be lower than costs paid by other wheat growers in the United States (e.g., the Dakotas and Midwest). Favorable conditions for Northwest wheat growers that help them stay competitive are: (1) the natural environment of the Palouse region (weather, soils) is ideal for growing this type of wheat, which leads to some of the highest yields per acre in the world, and (2) proximity of Northwest export ports. Environmental and human health effects associated with increased emissions to shipping goods by rail or truck (or both) are evaluated and described in the Section 3.8 Air Quality Section, and increased health and safety concerns due to increased truck traffic on roadways and potential for increased accidents are described in the Section 3.10.3.5 Navigation and Transportation other social effects. There would be no juvenile salmon and steelhead barge transport under MO3. There is the capability to transport from McNary; however, that is only included in Multiple Objective 2. It is not part of the No Action Alternative.
2817	3	dick.Ledgerwood@gmail.com	N/A	Drawdown, much like following the 1980 eruption of Mt St Helens, would likely push extreme sediment loads and resident fish populations downstream into McNary pool. Limnology studies in Lower Granite Reservoir in 1994-95 found sand and fines were more abundant than gravel in all shallow-water sample areas. Following drawdown sediment loads would likely be high for several years. Following the 1980 eruption of Mt St. Helens, resident fish populations (i.e., Pike Minnow) in the upper Columbia River estuary (Rkm 75) increased dramatically as they were crowded downstream to a more suitable environment. Similar downstream displacement of predators and sediment to McNary pool seems likely and would impact threatened salmonids from both Snake River and upper Columbia River sources.	The analyses of effects of breaching the four lower Snake River dams to Snake River resident fish communities is found in Section 3.5.3.6 under Region C of the Draft EIS beginning on page 3-585. Generally, there would be short-term adverse effects to the entire fish community due to breaching construction activities, and in the long-term the community would revert to a more native-dominated community than it is currently, due to the change from reservoir to riverine habitats. The effects to resident fish in the McNary pool is described in Section 3.5.3.6 under the subheading "Chief Joseph to McNary Dam" under Region B. The shift in fish communities in the Snake River would not be expected to be displaced to the Columbia River, but rather just shift over time after the initial short-term adverse effects. Sediment loads to the Snake and Columbia rivers that could occur under the MO3 Breach Snake Embankments measure were analyzed using water quality and sediment transport models as described in Appendices B and C. The sediment impounded behind the four lower Snake River Dams is predominately fine grained and readily transported in suspension. Analysis results for the MO3 Breach Snake Embankments measure indicate that increased sediment concentrations could occur during the two-year construction season with major changes to dissolved oxygen as described in Section 3.4.1 of Appendix C. Mitigation actions to address these potential effects are described in Chapter 5.4.3. Modeling suggests that impounded sediments within the historical river channel extents would scour back to the historical river-bed elevations over the near-term depending on the magnitude and duration of watershed hydrology. Impounded margin sediments remaining on higher elevation floodplain terraces would be expected to incrementally erode over a longer decadal time frame as seasonal floods access those surfaces. The effects on river mechanics are described in Section 3.3.3.5.3.

Letter No.	Comment No.	Commenter Name/Email	Affiliation	Comment	Response[1/]
2817	4	dick.Ledgerwood@gmail.com	N/A	Following drawdown, an increase in GHG emissions from gas fired plants and increased regional truck and rail traffic will further contribute to climate change at a time when the world is desperate to curtail these emissions. A warming climate is causing loss of the snow pack. If we lose the snow pack we also lose the fish that depend on melting snow to carry them to sea	The agencies analyzed impacts to greenhouse gas emissions, which are identified in Sections 3.8 and 7.7.10. Effects to alternatives and resources from projected changes in climate are analyzed in Chapter 4 and Section 7.8.
2828	1	uniontowntownhall@gmail.com	Town of Uniontown	Please see attached scanned letter.	Unfortunately, an attachment was not received from the commenter. The co-lead agencies requested the commenter resubmit via e-mail on June 25, 2020; however, the co-lead agencies did not receive a response to this request.
2836	1	N/A	N/A	It appears that the EIS fails to address the current and future impact of the fishery on an economic level and also fails to address the smolt return numbers to ensure future returns.	Section 3.15 considers the social and economic values related to fish, and how they may be affected by the CRSO alternatives. The effects of the CRSO alternatives on potentially affected fish species are presented in Section 3.5. Section 3,15 references those results in addressing how the commercial and ceremonial and subsistence fisheries that depend upon those fish species may be affected by the alternatives. The potential impacts to recreational fisheries are described in the Recreation / Environmental Consequences section. Smolt to adult return rates (SAR) were a primary metric in evaluating the effect of alternatives on salmon and steelhead. Section 3.5 describes the two peer-reviewed models used to estimate this metric, and presents the results for each alternative. Section 7.7.4 presents SARs for the preferred alternative. In our analysis of effects, the co-lead agencies used high quality data and best science, including models and studies published in peer review science journals. Based on our analysis, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery.
2845	1	Scott Rhees	Franklin PUD	The LSR Dams are a critical element to providing zero carbon electricity, which helps many utilities achieve the standards put forth in Washington's Clean Energy Transformation Act (CETA). Removing the dams would actually be counterproductive to the growing worldwide initiative of carbon emission reduction without scientific facts that there would be any restorative benefit to the wildlife in question.	The EIS does consider the emissions benefits of hydropower, finding that greenhouse gas emissions would increase under MO3, making it more difficult to achieve state emissions reductions goals. The effects associated with MO3 for fish are described in Section 3.5 of the Draft EIS; and Section 3.6 describes the effects associated with MO3 for wildlife. The Preferred Alternative does not recommend breaching the four lower Snake River dams, a measure that is evaluated in MO3.
2845	2	Scott Rhees	Franklin PUD	The DE IS Preferred Alternative does recommend increasing spill to help migrating salmon. Studies have shown that the nitrogen created by spill and becomes trapped in the water may kill more fish than the spill helps. Too much spill can also negatively impact adult returning salmon by making it difficult for the salmon to find the fish ladders. Flexible spill is still in its infancy and should be fully analyzed to determine the impacts before adding additional spill.	The co-lead agencies used the most current, high-quality, available scientific information and appropriate modeling tools in the analysis of the CRSO EIS. Specific to salmon and steelhead, the agencies used two primary modeling approaches which yielded a range of potential outcomes for the alternatives. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult return rates would increase for both Snake River spring Chinook and steelhead and would average above 2% (the lower end of the Northwest Power and Conservation Councils recovery targets for the region) as a result of the Preferred Alternative, increasing from 2.0% to 2.7% for Chinook, a 35% relative increase. The NMFS COMPASS and Lifecycle Models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan, including monitoring to track the effects of dissolved gas levels on juvenile and adult fish, to help narrow the uncertainty between the two models and determine how effective increased spill can be for salmon and steelhead returns to the Columbia River Basin. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information.
2845	3	Scott Rhees	Franklin PUD	Animal predation mitigation was not included in the DEIS Preferred Alternative but should be considered.	Ongoing actions described in Section 2.4.2 of the No Action Alternative to reduce predation on migrating fish are included in the Preferred Alternative and are described in Section 7.6.4.1, Table 7-5 in the Draft EIS. In addition, the operational measure Predator Disruption Operations in the John Day reservoir is expected to further reduce avian predation on migrating juvenile fish as described in Section 7.6.3.16 in the Draft EIS.
2845	4	Scott Rhees	Franklin PUD	While the DEIS Preferred Alternative is believed to meet the objectives of the Environmental Impact Study Franklin PUD feels that animal predation and the impacts of increased spill should be considered in more detail before the final plan is adopted.	Ongoing actions described in Section 2.4.2 of the No Action Alternative to reduce predation on migrating fish are included in the Preferred Alternative and are described in Section 7.6.4.1, Table 7-5 in the Draft EIS. In addition, the operational measure Predator Disruption Operations in the John Day reservoir is expected to further reduce avian predation on migrating juvenile fish as described in Section 7.6.3.16. Using the most up-to-date, high-quality available scientific information and appropriate modeling tools agreed to by co-leads and cooperating agencies, the effects of spill have been evaluated and described for the Preferred Alternative. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the biological models and to will help determine how effective increased spill can be in increasing salmon and steelhead returns to the Columbia Basin. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information.
2864	1	jerryduling@gmail.com	N/A	As a director for Wasco Electric Cooperative as well as a self employed farmer in north central Oregon, I would like to comment in opposition to breaching the dams on the lower Snake River and in favor of the lead agencies preferred alternatives.	Thank you for your comment.
2864	2	jerryduling@gmail.com	N/A	The members of our Coop desire affordable and reliable power and beaching the dams would affect both. As a farmer, this could be devastating to our way of life. We depend on the transportation, affordable power and water storage. Our margins are very small and we can not afford the associated costs of removing the dams. We have invested heavily in protecting salmon by reducing our carbon footprint by switching to no-till practices and precision agriculture which have reduced our carbon footprint and reduced sediment and pollutants in our streams. The benefits are just beginning to be recognized. The costs of beaching the dams far outweighs the benefits especially when the science behind it is unproven.	Section 3.10 of the Draft EIS describes the commercial and regional importance of the Snake River as part of the Columbia Snake Navigation System, as well as its relative efficiency, low costs for shippers, and relatively low air emissions relative to other transportation modes. The EIS acknowledges that depending on how rail rates respond to dam breach, shortline rail capacity could be exceeded. The EIS also evaluates the additional transportation infrastructure investments that would be required, as well as the increases in air emissions that would occur. The EIS finds that under a dam breach scenario, average transportation costs for wheat farmers would increase 10 to 33 percent, but that individual farmers could experience increases that are doubled. The cost increases to specific shippers would depend upon location and would vary throughout the region, depending on transportation options at each location. Generally, those grain shippers that are the farthest from alternate shipping locations (shuttle rail facilities or river ports on the Columbia River) would be the most adversely impacted. Note, cost scenarios for specific farmers are presented below in the Regional Economic Effects within Section 3.10.3.5. For hydropower, the average annual value of the four lower Snake River dams exceeds the average annual equivalent costs. The generation value at the four lower Snake River dams can be described by a range between the cost to replace the generation through new conventional resources or through a portfolio of zero-carbon resources. Although the costs of replacing the power with market purchases was analyzed, it is unlikely that short-term wholesale power markets could reliably replace the power for the long-term. This range would put the annual value of power between $240 million and $500 million for the four dams combined. These numbers represent about 90 percent of the lost benefits cited in Table 3-171 of the Draft EIS because the four dams represent about 1,000 aMW of the 1,100 aMW of lost generation estimated in MO3. The average annual cost to operate and maintain all authorized purposes at the four lower Snake River dams is $75 million (Appendix Q, Table 5-1) and the annual-equivalent capital costs are $32 million (Appendix Q, Table 4-1). Hydropower costs funded by Bonneville represent about $50 million of the total annual operations and maintenance costs and nearly all of the annual capital costs, approximately $31 million. This puts the annual-equivalent power-specific costs at approximately $81 million a year. As a result, the net benefits from hydropower for the four lower Snake River dams are between $159 million and $419 million and the benefit-cost ratios are between 3.0 and 6.2. If the $34 million per year for the Lower Snake River Compensation Plan is added to the capital and expense costs, benefits still exceed costs under each replacement power scenario. Considering these costs, the net benefits range from $125 million to $385 million and the benefit-cost ratios range from 2.1 to 4.3. In the less-likely scenario that generation could be reliably replaced with short-term wholesale market purchases and assuming that the four dams represent 90% of the $150 million in market purchases required to replace the lost generation cited in MO3 (see Table 3-170 in the Draft EIS), the lower bound for net benefits would fall to $54 million and the benefit-cost ratio would fall to 1.7. With the Lower Snake River Compensation Plan included, the lower bound for annual net benefits becomes $20 million and the benefit-cost ratio becomes 1.2. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-lead agencies numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets most other EIS objectives including those for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy.
2878	1	N/A	N/A	The DEIS must include a comprehensive economic analysis of Idahos salmon sport fishery and its potential in the event of restored abundant wild salmon and steelhead returns.	The EIS provides an evaluation of the social welfare and regional economic effects of the No Action Alternative and the Multiple Objective alternatives, including the effects on recreation (Section 3.11) and commercial fisheries (Section 3.15). The EIS describes the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The recreation analysis for the EIS considered the broad range of recreational activities supported by the region, including recreational fishing. While the analysis described any potential impacts to recreational fishing visitation, the EIS did not estimate these impacts separately from the overall impacts to recreation, or estimate changes in fishing visitation related to changes in fish abundance. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. NMFS estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which are described qualitatively. For the effects on recreational fishing under MO3 (Section 3.11.3.5) along the lower Snake River below Lewiston, the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River) as an indicator for fishing visitation in this reach. The EIS describes that the visitation in the long-term in the lower Snake River, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting outfitting and tourism businesses in the region. The potential for changes in recreational fishing of anadromous fish under MO3 is described in Section 3.11, which could result in increases in recreational fishing in the long-term that would support jobs, income, and social benefits in Tribal and rural river communities. However, there is uncertainty around recreational fishing visitation in the long-term given the current measures to regulate, protect, and support ESA-listed fish populations and habitat in the region. The social welfare values and regional economic effects associated with recreational fishing under the action alternatives as well as river recreation post dam breach under MO3 were not estimated because of the uncertainty and large range in visitation and consumer surplus values among users.
2878	2	N/A	N/A	MO3 is the only alternative that adequately minimizes the risk of extinction for Snake River stocks as a baseline; something legally required of this DEIS.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Based on the anadromous fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the CRS. Recovery determinations are ultimately the role of NMFS and the USFWS. Recovery efforts will need to continue to involve more parties than just the co-lead agencies across the region that have an influence and impact on ESA-listed species. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets most other EIS objectives including those for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS, the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams, because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system.
2878	3	N/A	N/A	Alternative MO3 needs to include an accurate cost-benefit analysis of the four Lower Snake River dams and the power they generate	The EIS evaluated beneficial and adverse effects across an array of affected resources including potential effects at the national, regional and local level. The EIS does not employ a cost-benefit framework for decision-making consistent with NEPA (see 40 C.F.R. 1502.23). The beneficial and adverse effects are expressed as a variety of qualitative and quantitative environmental and economic metrics. While a cost-benefit analysis is not performed, the EIS analysis included a thorough analysis of quantifiable impacts for each MO, including impacts on power generation. For MO3, the costs of replacing the lost generating capability of the four lower Snake River dams is discussed in Section 3.7.3.5, Lower Snake River Replacement, page 3-905 in the Draft EIS. The rate impacts from these replacement resources, which includes cost savings from breaching the four lower Snake River dams, is described in Section 3.7.3.5, Table 3-166, pages 3-920-924 in the Draft EIS. As described in the EIS, even with the cost savings associated with reductions in dam operating and fish and wildlife mitigation costs, the net impact on power rates from the breaching of the four lower Snake River dams range from increases of 13-50% (for zero carbon resources replacements) to 4-10% (for natural gas/least cost replacements). The power analysis, described in Section 3.7 and Appendix H, includes additional discussion of the range of costs and benefits associated with MO3, the alternative that includes breaching of the four lower Snake River dams.

Letter No.	Comment No.	Commenter Name/Email	Affiliation	Comment	Response[1/]
2878	4	N/A	N/A	The DEIS needs a more thorough economic analysis on the benefits of a restored Lower Snake River corridor.	The EIS provides an evaluation of the social welfare and regional economic effects of the No Action Alternative and the Multiple Objective alternatives (MO), including the effects on recreation (Section 3.11) and commercial fisheries (Section 3.15). The EIS described the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. NMFS estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which is described qualitatively. Under MO3, the EIS Section 3.5.3.6 describes the long-term effects to anadromous fish migration in Region C that would occur under a dam breach scenario as major and beneficial. The potential for increases in recreational fishing under MO3 in Region C, which would support jobs, income, and social benefits in Tribal and rural river communities, is described in Section 3.11.3.5. For the effects on recreational fishing under MO3 (Section 3.11.3.5) along the lower Snake River below Lewiston, the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River) as an indicator for fishing visitation in this reach. The EIS describes that the visitation in the long-term in the lower Snake River, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting outfitting and tourism businesses in the region. The social welfare values and regional economic effects associated with recreational fishing under the MOs, as well as river recreation post dam breach under MO3, were not estimated because of the uncertainty and large range in visitation and consumer surplus values among users.
2880	1	N/A	N/A	I am a member/consumer of Midstate Electric Cooperative (MEC), a not-for-profit, member-owned electric cooperative headquartered in La Pine, Oregon.: 91.3%] [Form The cooperative purchases 100% of our power from the Bonneville Power Administration (BPA) to provide electric service to over 36,000 people and 2,000 businesses in four counties in Central Oregon.: 87.5%] [Form MEC agrees that Multiple Objective 3 (MO3) breaching the four lower Snake River dams (LSRD) would have an adverse impact on electric cooperative consumers, the reliability of the Northwest energy grid, and the global environment.: 97.1%	The comments that breaching the four lower Snake River dams would (a) increase the frequency of power shortages unless and until replacement resources were built, and (b) would result in increased costs in the region, are both consistent with EIS findings. See EIS, Section 3.7.3.5, Table 3-166 in the Draft EIS; see also Appendix H, Table 2-1. The EIS also finds that Bonneville Power Administration (Bonneville) customers, such as cooperatives mentioned by the commenter, may be more directly affected by rate pressures than other regional utilities that do not purchase power directly from Bonneville. See Draft EIS, Section 3.7.3.5, Residential Effects, page 3-929.
2880	2	N/A	N/A	We are pleased that the DEIS rejected the dam breaching option based on the conclusion that it has the highest adverse impacts to other resources, especially social and economic effects. We are also pleased that the DEIS rejected Multiple Objective 4 (MO4), which significantly increases spill and dramatically decreases power production.	Thank you for your comment.
2880	3	N/A	N/A	The DEIS concluded that breaching the LSRD would have long-term, major, adverse effects on power costs and rates, and the rate pressure could be up to 50% on wholesale power rates. Increased spill as envisioned by MO4 would also increase costs up to 41%.: 100.0%] [Form A 40-50% increase in BPAs rate could lead to an increase of several hundred dollars a year to us, their members.: 100.0%] [Form The most impacted by these rate increases will be our vulnerable populations senior citizens and those on fixed incomes who shouldnt have to choose between medicine, food or paying their electric bills.:	The comments that breaching the four lower Snake River dams would (a) increase the frequency of power shortages unless and until replacement resources were built, and (b) would result in increased costs in the region, are both consistent with EIS findings. See EIS, Section 3.7.3.5, Table 3-166 in the Draft EIS; see also Appendix H, Table 2-1. The EIS also finds that Bonneville Power Administration (Bonneville) customers, such as cooperatives mentioned by the commenter, may be more directly affected by rate pressures than other regional utilities that do not purchase power directly from Bonneville. See Draft EIS, Section 3.7.3.5, Residential Effects, page 3-929. The Environmental Justice analysis (Section 3.18.3 of the Draft EIS) provides further detail on potential disproportionate effects to Tribal, low-income and minority populations.
2880	4	N/A	N/A	MEC also takes seriously their commitment to keep our lights on.: 90.9%] [Form The DEIS concludes the dam breaching alternative would more than double the regions risk of power shortages. MO4 creates an even higher risk of brownouts and blackouts in the Pacific Northwest, which again would harm our co-ops most vulnerable populations.	The comment that breaching the four lower Snake River dams would increase the frequency of power shortages unless replacement resources were built is consistent with the EIS findings. If sufficient replacement resources are acquired, the risk of power shortages can be restored to close to the No Action Alternative level, though the cost of such replacement power would likely result in substantial upward rate pressure on Bonneville ratepayers. See Draft EIS, Section 3.7.3.5. The EIS also finds that Bonneville customers, such as cooperatives mentioned by the commenter, may be more directly affected by rate pressures than other regional utilities that do not purchase power directly from Bonneville. The information provided in the comment regarding the power-related impacts of MO4 is consistent with the findings of the EIS. See Draft EIS, Section 3.7.3.6. Consistent with the comment, the Executive Summary and Chapter 7 explain why MO4 does not meet the EIS objectives to maintain an adequate, efficient, economical and reliable, affordable power system.
2880	5	N/A	N/A	Oregons electric cooperatives are proud of our clean energy profile, with a power supply that is consistently over 90% carbon-emission free.: 95.7%] [Form According to the DEIS, breaching the dams would create an additional 3.3 million metric tons (MMT) of CO2 - a staggering 10% increase in power-related emissions across the Northwest.: 100.0%] [Form MO4 shows similar carbon impacts.: 100.0%] [Form The DEIS clearly demonstrates that breaching the LSRD or spilling excessive amounts of water would be a step backward from decarbonization efforts in our region	The 3.3 million metric ton CO2 increase in greenhouse gas (GHG) emissions under MO3, a 9% increase in regional power sector emissions, described in this comment is associated with a scenario in which only natural gas resources are developed or acquired to offset losses from the lower Snake River dams. The analysis additionally considers a scenario assuming all renewable replacement resources (at a higher cost as discussed in Section 3.8). Under this scenario, the analysis finds a 2.7% increase in regional CO2 emissions relative to the No Action Alternative. Given that policy and legislative decisions in Oregon and Washington are targeting large reductions in GHG emissions, the EIS describes that even the 2.7% increase in CO2 emissions makes these goals more difficult to achieve. The Preferred Alternative estimates that GHG emissions would increase by 1.5% or 0.54 million metric tons compared to the No Action Alternative.
2880	6	N/A	N/A	The DEIS also noted that the co-lead agencies have made substantial improvements for fish passage at the LSRD and lower Columbia River dams.: 100.0%] [Form Our cooperative has helped fund this multi-billion-dollar effort to improve fish passage at the dams, which is meeting targets of 96% survival rates for migrating juvenile fish.: 100.0%] [Form We believe that it is important to build upon this successful fish passage program instead of taking the drastic measure envisioned in MO3 and MO4.	Thank you for your comment.
2931	1	N/A	N/A	The DEIS preferred alternative does not provide sufficient indicia that it will prevent extinction or significant harm to existing the salmon and steelhead in the system. It also is unlikely to comply with the legislative mandates set forth in the Endangered Species Act.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the Columbia River System. Recovery of ESA species is the purview of NMFS and the US Fish and Wildlife Service. This EIS has been developed in consultation with National Marine Fisheries Service and USFWS to minimize impacts to affected ESA species and their habitats. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the EIS objectives) as well as the EIS objectives for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. The Preferred Alternative is also more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. The co-lead agencies used high quality information in the analysis of the CRSO EIS. Specific to salmon and steelhead, the agencies used two primary modeling approaches which yielded a range of potential outcomes for the alternatives. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult (SAR) return rates will increase for both Snake River spring Chinook and steelhead and will average above 2% (the lower end of Northwest Power and Conservation Council's (Council's) recovery targets for the region) as a result of the Preferred Alternative increasing SAR from 2.0% to 2.7% for Chinook, a 35% relative increase. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information. Based on the EIS analysis of the Preferred Alternative, it will make a substantial contribution towards recovery targets. Chapter 8 demonstrates the co-lead agencies' compliance with applicable laws, including the ESA.
2931	2	N/A	N/A	The Snake River Basin is likely to provide the best real chance for meaningful salmon and steelhead recovery in the entire Columbia Basin, due, in large part to the amount of coldwater habitat. Applying scientific analysis to the possible solutions, the best course of action is demonstrably the removal of all four of the lower Snake River dams. The result would be a massive recovery in the salmon and steelhead fishery, which would in turn benefit the whole ecosystem and local economy. The DEIS underestimates the benefits that would result from the removal of all four dams with regard to restoration of the fishery.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets most other EIS objectives including those for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS, the co-lead agencies did not recommend MO3, which includes breaching the four lower Snake River dams, because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. Different models predict different long-term survival benefits to ESA-listed species from dam breach, benefits that can contribute to recovery. Under the NMFS COMPASS model, juvenile Snake River spring/summer Chinook in-river survival would improve by 9.6% due to dam breach, which is a 19% relative increase over the No Action Alternative. The NMFS Lifecycle Model predicts an increase in adult returns of 13.6% for these same fish under MO3 (no latent mortality assumed) relative to the No Action Alternative (from 0.88% to 1%). Results for Snake River steelhead are similar (10% absolute improvement, or 23% relative juvenile survival increase smolt-to-adult returns (SARs) for steelhead were not modeled). Under the CSS model, juvenile in-river survival for the Snake River spring/summer Chinook is predicted to improve by 10.4% due to dam breach, which is an 18% relative increase over the No Action Alternative, while SARs would increase by 115% (from 2% to 4.2% 0.02 to 0.042). The CSS model predicts that Snake River steelhead would see juvenile survival increase by 25.8% which is a 46% relative increase over the No Action Alternative. The CSS model also predicts that SARs increase by 177% (from 1.8% to 5%). Though differing in predictions, both modeling groups predict dam breaching is the best CRSO EIS alternative for salmon and steelhead. One simply predicts adult return increases an order of magnitude higher than the other.
2931	3	N/A	N/A	Strong and healthy fisheries result in strong and healthy ecosystems, a better quality of life for residents, and long term economic benefits. Dam removal has consistently been proven a viable and efficacious means of restoring fisheries across North America. The final EIS should include a preferred alternative that includes removal of the lower Snake River dams. The recovery of the fishery is unlikely if the dams are not removed.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3, which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets the EIS objectives for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS, the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams, because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. The co-lead agencies used high quality information in the analysis of the CRSO EIS. Specific to salmon and steelhead, the agencies used two primary modeling approaches which yielded a range of potential outcomes for the alternatives. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult (SAR) return rates will increase for both Snake River spring Chinook and steelhead and will average above 2% (the lower end of Northwest Power and Conservation Council's (Council's) recovery targets for the region) as a result of the Preferred Alternative increasing SAR from 2.0% to 2.7% for Chinook, a 35% relative increase. The NMFS COMPASS and Lifecycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine

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					how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information. Based on the analysis of the Preferred Alternative, it will make a substantial contribution towards recovery targets.
2939	1	jimricketts325@gmail.com	N/A	I am writing in supports the science-based solution of dam removal one of the options that was legally required to be evaluated and the only option with the potential to achieve recovery. The final EIS should include a preferred alternative that includes removal of the lower Snake River dams. Recovery of abundant, healthy and harvestable levels of Snake River salmon and steelhead is not achievable with the dams in place, as several decades of failed recovery efforts and billions of dollars have revealed. Now, at a time when infrastructure projects are finally getting attention that they desperately need, the agencies should call on Congress to make the necessary investments to replace the dams benefits so we can both recover the fish and maintain a vibrant regional economy.	The co-lead agencies used a multi-disciplinary and science-based approach to analyze the alternatives in the EIS analysis. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. The Preferred Alternative also meets the EIS objectives for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS, the co-lead agencies did not identify MO3 because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system.
2946	1	Robert Ward	Palouse Regional Transportation Planning Organization	Given the high societal costs of dam breaching, the decision on a Preferred Alternative that keeps the dams, but increases spill (i.e., water going over dams instead of through turbines) across the eight dams on the lower Columbia and Snake rivers is a reasonable alternative to improve fish migration. The idea to help juvenile migrating salmon avoid hydro turbines seems more practical than dam breaching. However, we recommend looking further into this option to see how effective this would be as the nitrogen trapped in the water by the spill may be harmful to fish.	The co-lead agencies used current high quality information and the best available science in the analysis of the CRSO EIS. Specific to salmon and steelhead, the agencies used two primary modeling approaches which yielded a range of potential outcomes for the alternatives. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% as a result of the Preferred Alternative. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be in increasing salmon and steelhead returns to the Columbia Basin. This monitoring program will include substantial monitoring efforts to track the effects of dissolved gas levels on juvenile and adult fish.
2948	1	markfccim@gmail.com	N/A	This was an opportunity to contribute to the economic development of the region. The costs of the dam removal will be large. When factored in the the "forever" time frame. it is a "drop in the bucket". As a model, look at the removal of the Elwa. The Benefit to the regional economy, and region are substantial.	The costs to breach the dams and draw down the infrastructure are described in Section 3.19 and in Appendix Q (construction costs of the structural measures). These construction costs have been annualized with the water resources fiscal year 2019 discount rate over the 50-year period of analysis. The social welfare and regional economic benefits in the long term under MO3 have been described in the recreation section (Section 3.11) and fisheries and passive use (Section 3.15). However, the uncertainty regarding the overall effects of the alternatives on regional fish populations, and how such changes may affect the management of the fisheries, limits a quantitative analysis of the specific impacts of each alternative on these values. Because the effects on fish were not quantified, the EIS did not quantitatively evaluate fisheries. The social welfare effects under MO3 on fisheries are described as major and beneficial in the long-term, with increases in regional economic effects if commercial fish catch rates increase. For the effects on recreational fishing under MO3 (Section 3.11), the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River) as an indicator for fishing visitation in the lower Snake River. There is uncertainty around recreational and commercial fishing visitation in the long-term given the current measures to regulate, protect, and support ESA-listed fish populations and habitat in the region. However, the EIS does describe that the visitation in the long-term, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting tourism businesses.
2954	2	N/A	N/A	Small river towns in Idaho rely on the salmon for their outdoor recreation industry, and generate $7.8 billion in consumer spending annually. This also provides 78,000 jobs and $2.3 billion in salaries and wages spread over the state. The dams on the LSR only provide 4% of the needed power to this region. Studies by the NW Energy Coalition indicate that power from the LSR dams can be replaced by new renewable resources such as wind and solar with little or no increase in rates or greenhouse gases.	The EIS recognizes the value of recreational and commercial fishing to the region. Section 3.15 describes the values associated with fisheries in the Northwest. Section 3.11 characterizes the sportfishing economy in the region. However, the uncertainty regarding the overall effects of the alternatives on regional fish populations, and how such changes may affect the management of the fisheries, limits a quantitative analysis of the specific impacts of each alternative on these values. The effects are therefore discussed qualitatively. The social welfare effects on fisheries under Multiple Objective Alternative 3 (MO3) are described as major and beneficial in the long-term, with increases in regional economic effects if commercial fish catch rates increase. For the effects on recreational fishing under MO3 (Section 3.11.3.5 in the draft EIS), the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River). While the four lower Snake River dams account for a small portion of the total power of the region, they represent a larger portion of the FCRPS from which Bonneville markets power. As described in Section 3.7.3.5 of the draft EIS, Potential Replacement Resources and Associated Costs, the four lower Snake River dams are among the most valuable projects in the Federal Columbia River Power System (FCRPS). These dams provide over 1000 MW of carbon-free energy and up to 2000 MW of sustained peaking capacity at certain times of the year. The dams also provide important ramping capability the ability to quickly generate energy to match spikes in energy usage with over 2,000 to approximately 2,300 MW of capability in certain months of the year (see Table 3-160 in the draft EIS). In addition, the EIS finds that, even assuming renewable resources replace the reduction in capacity under MO3, there would be an increase in regional greenhouse gas emissions. As described in Appendix H, Power and Transmission and Section 3.7.3.5 in the draft EIS, the EIS considered the NWEC study cited by the commenter but it is not directly comparable with the EIS. This is due to a variety of reasons including that the EIS has a broader scope and relies on more recent regional load and resource availability and costs data.
2954	3	N/A	N/A	The DEIS falls short of recommending dam breaching on the Lower Snake, which is the preferred action by scientists to help restore the salmon. Over $17 billion have been wasted as well as precious time in which we could have spent tax payers dollars more wisely and helped fishing communities along the coast. The federal agency approach only maintains a status quo and fails to resolve the core of the problem. 1) In the DEIS, a number of alternative strategies are listed. The Corps, Bureau and BPA have picked MO4. With respect to Columbia Basin salmon and steelhead recovery, the CRSO-DEIS preferred alternative (MO4) basically calls for a continuation of the status quo on the lower Snake River and lower Columbia River system and is, therefore entirely inadequate. 2) As stated in Chapter 2 of the Comparative Survival Study (CSS) Annual Report for 2019, "Among the federal alternatives, MO3 (the four dam breach alternative) resulted in the highest SARs(Smolt to Adult Return) and in-river survivals In light of looming salmon and steelhead extinctions, MO3 (4-dam breach) must be implemented. Nothing less will enable fish survival. 3) The time has come for our 3-state governors and members of Congress to take leadership on this issue. The DEIS preferred alternative makes clear that our Federal agencies have failed to dramatically change course in order to meet the Northwest's fish-recovery challenge.	Your comment indicated that you believe and did not support alternative MO4 as the Preferred Alternative. The Preferred Alternative is described in Chapter 7, including a description of the measures being used and the rationale for why other alternatives, including MO4, were not selected as the Preferred Alternative. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the Columbia River System. Recovery of ESA species is the purview of NMFS and the US Fish and Wildlife Service. This EIS has been developed in consultation with National Marine Fisheries Service and USFWS to minimize impacts to affected ESA species and their habitats. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3, which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets the EIS objectives for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the draft EIS, the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams, because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. Moreover, the co-lead agencies disagree the Preferred Alternative is a continuation of the status quo. The spill operation for juvenile fish passage is a significant departure from previous operations, so much so that the Washington and Oregon state water quality standards had to be changed to implement the new spill regime. The Preferred Alternative also includes other operational, structural and mitigation measures to improve conditions for ESA-listed salmon and steelhead. Finally, the commenters suggestion that approximately $17 billion in fish and wildlife mitigation investment has been ineffective to recover ESA listed species is misplaced. Those investments delivered the intended results when considered in the appropriate statutory context of the Northwest Power Acts anadromous fish provisions which call for improved survival of such fish at FCRPS projects and sufficient flows between the projects to improve production, migration, and survival. For example, as of 2014 this investment had facilitated juvenile dam passage survival of 96% and 93% for spring and summer migrants respectively, see Endangered Species Act Federal Columbia River Power System 2016 Comprehensive Evaluation Section 1, at 17, t.2 (Jan. 2017), a marked improvement compared to when Congress passed the Northwest Power Act and the estimated average juvenile mortality at each mainstem dam and reservoir complex was 15-20% with losses recorded as high as 30%. See Nw. Res. Info. Ctr. v. Nw. Power Planning Council, 35 F.3d 1371, 1374 (9th Cir. 1994) (citing a Sept. 4, 1979 report by U.S. General Accounting Office describing the systems impacts on anadromous fish).
2956	1	N/A	N/A	The preferred alternative would increase spill to 125% of total dissolved gas (TDG) levels, which is higher than the previous limit. Scientific study and expert opinion have concluded that TDG limits above 115% can be harmful to fish. There is no documentation to show whether a higher level of TDG would be beneficial to fish passage. More study and monitoring are clearly needed before the 125% TDG limit is incorporated into the operation of the dams	TDG levels are regulated under the Federal Clean Water Act, and administered by the states. Both Oregon and Washington have reassessed the available data on effects of TDG levels up to 125% of saturation on fish and other aquatic organisms. Based on this reassessment, Oregon issued a five-year "standard modification" and Washington issued a permanent rule change, supported by the Environmental Protection Agency (EPA), to allow TDG saturation up to 125%. However, as noted by the commenter, there is considerable uncertainty in the effects; and therefore, monitoring is required by the states and EPA to ensure any negative effects are detected and allow for adaptive management. Further, the Preferred Alternative includes a robust monitoring plan to help narrow the uncertainty between the biological models and will help determine how effective increased spill can be in increasing salmon and steelhead returns to the Columbia Basin. The effectiveness of the spill program will be monitored.
2956	2	N/A	N/A	The costs associated with construction and operational changes to implement the preferred alternative should NOT be allocated exclusively to power rates and thus paid primarily by public power users in the Northwest. Since protection of fish and wildlife is a regional issue, the associated costs should be borne by all residents of the Northwest.	Bonneville is statutorily obligated to pay for its share of project costs, including fish mitigation. Bonneville's share of project costs are established by existing cost allocations at each FCRPS dam. The report on the House Energy and Water Development Committees Appropriations Bill for Fiscal Year 2020 includes language that directed the Corps, Reclamation, and Bonneville to jointly develop an outline for conducting cost allocation studies for relevant projects within the FCRPS. The outline must include a prioritized list of projects for which cost allocation studies should be conducted and the scope necessary to perform the study. Once the outline is complete, the co-lead agencies are required to brief the Committee with the results. Work is underway on this outline, but whether any new cost allocation studies would be developed as a result of this process is speculative. Thus, the cost analysis provided in the EIS focuses on the current cost allocations. The cost allocations used in this EIS were developed based on methodologies adopted by Corps and Reclamation and reflected in their policies. Although each methodology has a different approach, the fundamental goal of any cost allocation is to allocate a share of the projects costs (capital and O&M) to each of its authorized purposes (e.g., flood control, navigation, power, irrigation). Fish mitigation costs are assigned to each authorized purpose based on each purposes overall share of project costs, as determined by the cost allocation. Bonneville is required to pay for its share of mitigation costs based on the existing cost allocation. Although Congress authorized Bonneville to fund the power share directly to the Corps and Reclamation as part of the Energy Policy Act of 1992. (Energy Policy Act of 1992, Pub. L. No. 102-486, 2406, 106 Stat. 2776, 3009 (1992) (codified at 16 U.S.C. 839d-1 (2012)), in some situations, including the Columbia River Fish Mitigation program, Bonneville does not directly pay for the capital costs of fish mitigation structures; instead it reimburses the U.S. Treasury for the power share of appropriations used to construct the structure. Additionally, as described in Section 3.19 of the EIS and Appendix Q, funding to operate the system comes through multiple mechanisms, including Federal tax dollars appropriated to cover system costs as well as revenue generated from the marketing and sale of hydropower. For power-specific costs, Bonneville typically provides direct funds to both the Corps and Reclamation. For joint related costs, including funding for fish and wildlife mitigation actions, the Corps and Reclamation receive annual Congressional appropriations to fund most, if not all, capital investments. Bonneville reimburses Treasury for the power share of these appropriations. Once the investment is in place, Bonneville will typically direct fund the operations and maintenance costs associated with the facility. In addition to congressional appropriations for fish and wildlife, the Bonneville Fish and Wildlife Program funds hundreds of projects each year to mitigate the impacts of the Federal hydropower system on fish and wildlife. Bonneville began this program to fulfill mandates established by Congress in the Pacific Northwest Electric Power Planning and Conservation Act of 1980 to protect, mitigate, and enhance fish and wildlife affected by the development and operation of the FCRPS. This program is funded by Bonneville's electricity ratepayers as part of the rates Bonneville sets to recover its costs.
2956	3	N/A	N/A	The final alternative selected, like the preferred alternative identified in the draft EIS, should consider a full range of effects from the proposed actions beyond protecting fish and wildlife, including effects on transportation, agriculture, recreation, irrigation, and overall implementation costs.	The Preferred Alternative and all four Multiple Objective (MO) alternatives had a full assessment compared to the No Action and were comparable to each other. The final Preferred Alternative will come from these alternatives and therefore have a full analysis, including the implementation costs.
2956	4	N/A	N/A	Ocean conditions can significantly affect the survival of fish and wildlife. Pollution from pesticides and other sources present in the ocean may be a significantly greater problem than the dams themselves. A far better understanding of ocean conditions impacting fish and wildlife and possible mitigation strategies is needed before dam removal is given serious consideration.	The co-lead agencies agree that there are many effects to salmon and steelhead populations outside the operation of the dams. Research continues to evaluate the magnitude of these effects. For more information see the NMFS website at: https://www.nwfsc.noaa.gov/research/index.cfm. While none of the alternatives would affect ocean conditions and ocean conditions are outside of the scope of this EIS, we recognize that these conditions are a major driver for adult returns and that numerous studies have shown the importance of this environment in the return of adult salmon and steelhead (Peterson et al. 2019). As such, two of the models used in these analyses, NMFS Life Cycle and CSS models, use metrics of ocean productivity to predict adult returns.
2956	5	N/A	N/A	The final alternative selected should ensure that each component of the plan, including fish hatcheries and ocean harvest quotas, makes a significant contribution to the goal of delisting threatened or endangered species.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. The co-lead agencies agree that there are many effects to salmon and steelhead populations outside the operation of the dams. Research continues to evaluate the magnitude of these effects. For more information see the NMFS website at: https://www.nwfsc.noaa.gov/research/index.cfm.

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					Alternatives to include changes to harvest are not within the scope of this EIS. The assumptions regarding harvest are taken from the 2018 EIS from NOAA and reflect current harvest management guidelines. For harvest, fisheries in the Columbia River Basin and those that rely upon Columbia River fish stocks are managed by numerous entities, including Federal, state, and Tribal governments. These entities are guided by a complex array of policies, laws, compacts, and agreements. The management of Pacific salmon fisheries in particular is complex, and involves numerous entities representing a variety of social, political, and conservation interests. Changes in allowable fishery harvest in the Columbia River Basin are a result of decisions made by state, Federal (i.e., NMFS), and Tribal fishery managers based on a variety of environmental, biological, economic, and social factors. The three co-lead agencies (Corps, Reclamation, and Bonneville) do not manage fish stocks, and do not have the authority to do so. However, based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. The effects of delayed mortality are discussed throughout the EIS analysis for each alternative and current high quality data and the best available scientific information was used for this analysis. Based on analysis by the CSS, SARs associated with population declines (SARs of less than 1%) have the potential to be greatly reduced under the Preferred Alternative, and on average, SARs are expected to be well above 2.0% for Snake River spring Chinook salmon and steelhead. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information. The effects from the Preferred Alternative on anadromous fisheries are expected to be negligible in Region B downstream of Chief Joseph Dam due to minor changes in operations. As stated previously, depending on the model and ESU/DPS, the effects to anadromous fisheries in Regions C and D have the potential to range from moderate adverse effects to major beneficial effects. However, effects from the Preferred Alternative are expected to improve fish survival and abundance for both anadromous and resident fish through the combination of operational and mitigation measures. To the extent that increases in fish abundance occur, this would increase opportunities for tribal, commercial, and recreational fishing throughout the Columbia River Basin.
2956	6	N/A	N/A	As the population in the Pacific Northwest continues to grow, increased demand for electric power will occur. Meeting that demand can be accomplished with renewables, such as wind and solar, only if there is a base load resource to support them. Carbon free, renewable hydro power is a perfect fit to backstop the variable supply uncertainties associated with other renewables. 7) Industry experts are sounding the alarm that future demand for electric power will outstrip available supply as the Northwest closes coalfired power plants, leading to possible forced outages. This is NOT the time to remove carbon free, renewable hydro facilities like the dams on the lower Snake River. Instead, we should use those dams to meet the growing demand for electric power in the Northwest and to facilitate the integration of additional renewable resources to help meet grid requirements.	This comment is consistent with the findings of the EIS that the four lower Snake River dams provide carbon-free energy and play an important role in the regional power system, particularly in regards to the integration of renewable power sources.
2960	1	corso1965@live.com	N/A	Clearly, we can engineer a better solution to the challenges of irrigating farm land, generating electricity, transporting goods, and managing natural resources. Are we going to take the initiative to negotiate a solution that has something for all parties involved, or are we going to wait for a judge to order a solution without regard for our special interests? Remember the 1854-55 Stevens Treaties; Consider the smoldering Fish Wars; Reflect on court precedent. Is continuing business as usual worth risking loosing everything?	The co-lead agencies agree that there can be many challenges in operating a complex system to satisfy multiple sometimes conflicting purposes. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The co-lead agencies identified a reasonable range of alternatives after analysis of the Purpose and Need Statement and objects, coordination with the Cooperating Agencies, and public scoping. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as the dam breaching alternative. However, the Preferred Alternative also meets most of the other objectives of the study for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy.
2961	1	finney@isu.edu	N/A	DEIS makes it clear that removing the lower Snake River dams is the best option for Snake River salmon and steelhead, but substantially underestimates the level of benefit. The preferred alternative in the DEIS will not avoid extinction. There is a good chance it will not meet the requirements of the Endangered Species Act. This will likely land back in court and another cycle of expensive litigation and uncertainty. Time is running out if we want populations of these keystone fish to persist. Dam removal is a proven method to restore fish populations.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets most other EIS objectives including those for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS, the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams, because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system.
2961	2	finney@isu.edu	N/A	The final EIS should include a preferred alternative that includes removal of the lower Snake River dams. Recovery of salmon and steelhead is not achievable with the dams in place. Snake River Basin has the greatest potential for wild fish recovery of any watershed in the Columbia Basin. It has the most undisturbed stream habitat and is predicted to contain the majority of coldwater habitat as the climate warms. Science consistently supports removal of the four Lower Snake River dams as necessary to recover populations of salmon and steelhead.	The CRSO EIS documents the assessment of benefits and impacts of changes to the operations of the 14 Federal projects of the CRS. Using a multi-disciplinary approach and with the coordination and consideration of our cooperating agencies and Tribes, as well as public stakeholder input, and by using high quality information, the co-lead agencies developed the Preferred Alternative. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the EIS objectives) as well as the EIS objectives for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. The Preferred Alternative is also more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. A full assessment of considerations of climate change and water temperatures are in Section 3.4 Water Quality, Chapter 4 Climate, and Chapter 7 of the Preferred Alternative of the analysis.
2987	1	N/A	N/A	The final EIS should include a preferred alternative that includes removal of the lower Snake River dams. Recovery of abundant, healthy and harvestable levels of Snake River salmon and steelhead is not achievable with the dams in place, as has been shown over the years and the billions of wasted dollars.	The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3, which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets the EIS objectives for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS, the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams, because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA listed species. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the Columbia River System. Recovery of ESA species is the purview of NMFS and the US Fish and Wildlife Service. This EIS has been developed in consultation with National Marine Fisheries Service and USFWS to minimize impacts to affected ESA species and their habitats. The co-lead agencies used high quality information in the analysis of the CRSO EIS. Specific to salmon and steelhead, the agencies used two primary modeling approaches which yielded a range of potential outcomes for the alternatives. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult (SAR) return rates will increase for both Snake River spring Chinook and steelhead and will average above 2% (the lower end of Northwest Power and Conservation Council's (Council's) recovery targets for the region) as a result of the Preferred Alternative increasing SAR from 2.0% to 2.7% for Chinook, a 35% relative increase. The NMFS COMPASS and Lifecycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information. Based on the EIS analysis of the Preferred Alternative, it will make a substantial contribution towards recovery targets.
3002	1	N/A	N/A	The Preferred Alternative in the Draft EIS does not adequately provide for salmon and steelhead populations because it will not improve smolt to adult turn rates (SARs) to levels identified by scientists as necessary for harvest or recovery. Harvestable populations need a SAR around 4%, meaning 4 adults return for every 100 juvenile fish that head to the ocean. Under the Preferred Alternative, SARs for Snake River spring Chinook will reach 2.7% at best. The predicted SAR is even lower for Snake River steelhead at 2.4%. At worst, The Life Cycle Model predicts an extinction trajectory under the Preferred Alternative with a SAR below 1%. I do not support the Preferred Alternative, or any other alternatives, that continue to contribute to the extinction of salmon and steelhead.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species as that is a broader goal with shared responsibility. Based on the EIS analysis of anadromous fish resources in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. National Marine Fisheries Services (NMFS) and U.S. Fish and Wildlife Services (USFWS) review the co-lead agencies' biological assessments and are responsible for making this determination. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the CRS. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. The co-lead agencies used high-quality information in the analysis of the CRSO EIS. Specific to salmon and steelhead, the agencies used two primary modeling approaches which yielded a range of potential outcomes for the alternatives. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult (SAR) return rates will increase for both Snake River spring Chinook and steelhead and will average above 2% (the lower end of Northwest Power and Conservation Council's (Council's) recovery targets for the region) as a result of the Preferred Alternative increasing SAR from 2.0% to 2.7% for Chinook, a 35% relative increase. The NMFS COMPASS and Lifecycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information. It should be noted that the 4% average SAR target referenced refers to the Councils target for broad-sense recovery and is separate and distinct from the obligations of any single entity or in this case a requirement to be met solely by the co-lead agencies. Just as the Councils fish and wildlife program encompasses both Federal and non-Federal stakeholders in the Columbia Basin, the Councils recovery goals are shared by many parties. Based on the EIS analysis of the Preferred Alternative, it will make a substantial contribution, but the Councils broad sense recovery goals are beyond the scope of this EIS which focuses on the effects associated with the operation, maintenance, and configuration of the 14 CRS projects.
3004	1	jswalton@roadrunner.com	N/A	While science consistently supports removal of the four Lower Snake River dams as necessary to recover healthy, fishable populations of salmon and steelhead, the DEIS underestimates the level of benefit of removing the lower Snake River dams. The DEIS preferred alternative does not provide assurance that it will avoid extinction, let alone recover Snake River salmon and steelhead to abundant, harvestable levels. There is a good chance it will not meet the requirements of the Endangered Species Act and result in further litigation. Dam removal is the best method to restore fish populations; this has been proven from Maine to the Olympic Peninsula of Washington State. The final EIS should include a preferred alternative that includes removal of the lower Snake River dams. The agencies should call on Congress to make the necessary investments to replace the dams benefits so we can both recover the fish and maintain a strong regional economy.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the Columbia River System. National Marine Fisheries Service (NMFS) and U.S. Fish and Wildlife Service (USFWS) are responsible for making this determination. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. The co-lead agencies used current, high-quality information in the analysis of the CRSO EIS. Specific to salmon and steelhead, the agencies used two primary modeling approaches which yielded a range of potential outcomes for the alternatives. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% (the lower end of Northwest Power and Conservation Council's recovery targets for the region). The NMFS COMPASS and Lifecycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information.

Letter No.	Comment No.	Commenter Name/Email	Affiliation	Comment	Response[1/]
					The EIS studied breaching the four Lower Snake River Dams as part of the MO3. Many dam removal projects that have occurred across the United States have very different circumstances than what is contemplated in MO3. Recent examples of dam removals have little relevance or similarity to the four lower Snake River Dams. For example, the Elwha dam had no fish passage and provided no economic benefits. In contrast, the four lower Snake River dams provide both upstream and downstream fish passage, produce power, and provide navigation and recreation opportunities. For power, the four lower Snake River dams produce upwards of 1,000 aMW of power, which is approximately 11% of the average power produced by the Federal Columbia River Power System. See Draft EIS, Section 3.7.3.5, Changes in Power Generation, Table 3-159. Losing this amount of power is equivalent to losing power capable of serving 730,000 homes in the Pacific Northwest. See Draft EIS, Section 3.7.3.5, Summary of Effect, page 9-935, noting that the loss of power generation from the four lower Snake River dams accounts for about 90% of the power loss in MO3. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as the alternative that includes the measure to breach the lower Snake River dams. However, the Preferred Alternative also meets the other objectives of the study for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse impacts to communities and the economy. The alternative that includes the measure to breach the lower Snake River dams, by contrast, has significant regional economic impacts and community effects, and meets only a small subset of the EIS objectives. Thus, the co-lead agencies did not recommend that alternative (MO3) because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system.
3014	1	N/A	N/A	The lower Snake River dams should be de-commissioned. This is the only alternative that will meet the essential goal of restoring salmon/steelhead. Agricultural commodities can move by other means than Snake/Columbia barge traffic. I urge you to take appropriate action, and withdraw and revise the EIS to include as preferred option the removal of lower Snake River dams.	Section 3.10 evaluates the increased cost of transportation as well as the increased number of truck trips that would be required if the four lower Snake River dams were breached in MO3. The EIS recognizes that transportation costs increases could decrease profitability of farming. The number of truck trips would substantially increase ranging from an additional 14,000 to 79,000 truck trips per year. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. The Preferred Alternative also meets the EIS objectives for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS the co-lead agencies did not identify MO3 because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. The EIS concluded MO3, which includes breaching the four lower Snake River dams would have greater improvement to certain salmon species in the lower Snake River. It did not, however, conclude there was greater certainty of that result in MO3 over any other alternative. Because of delayed response time in MO3, and the potential severity of the short term effects, MO3 would likely have the most substantial uncertainty in terms of beneficial effects. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% (the lower end of Northwest Power and Conservation Council's recovery targets for the region) as a result of the Preferred Alternative, as a result of the Preferred Alternative increasing SAR from 2.0% to 2.7% for Chinook, a 35% relative increase. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. To address uncertainty highlighted by the two models, the Preferred Alternative includes working with regional sovereigns to develop a study that assess the effectiveness of the increased spill regime on adult returns as well as assessment and management of adverse unintended consequences, such as long delays of adult migrants, or TDG-related mortality of juvenile migrants. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information. Based on the analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the CRS. This EIS has been developed in consultation with National Marine Fisheries Service (NMFS) and U.S. Fish and Wildlife Service (USFWS) to find an acceptable balance that allows the co-lead agencies to meet the Purpose and Need Statement while minimizing impacts to affected ESA-listed species and their habitats. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species.
3033	2	sweeted@smgazette.com	N/A	We could help the fish runs improved by removing sea lions and seals by whatever means it takes to reduce their numbers at the base of the dams where they lay and kill fish at such high numbers.	The No Action Alternative includes ongoing mitigation measures to haze and monitor pinniped predators. These actions would continue under the Preferred Alternative. Other entities in the region have authorities and obligations to mitigate the impacts from pinniped predators and the co-lead agencies will continue to work closely with those entities to benefit ESA-listed salmonids.
3034	2	12tobias@gmail.com	N/A	I beleive we need to continue habitat restoration efforts along with improving predation issues from avians and non-native fish along with improvements to hatchery operations. These actions need to be coupled with a restored lower Snake River if we are to get fish back to Idaho in numbers that will be useful for guides and outfitters, tribal treaty rights, anglers spending money on gas, hotels, fishing shops, and restaurants.	The alternatives analyzed in the EIS include primarily operational or structural measures at the 14 projects sites. Where adverse effects to habitat would be anticipated as a result of implementing an alternative, habitat restoration was proposed. For instance, the Preferred Alternative added habitat mitigation for wetlands and riparian areas in the John Day reservoir and around Lake Roosevelt. The purpose of the EIS was to evaluate alternative ways to manage the 14 Federal projects and determine if a new operation or configuration of the projects could reduce adverse impacts of the system operations, meet the EIS Purpose and Need Statement, objectives, and meet all regulatory and statutory compliance requirements. In addition to routine operations and maintenance of the CRS, the co-lead agencies implement a number of actions and programs, intended to benefit ESA-listed species in the Columbia River Basin. To make the most of available funds, investments in fish and wildlife protection, mitigation and enhancements are prioritized based on biological and cost-effectiveness and their connection to mitigating for impacts of the CRS. In Chapter 7, Table 7-5 in the Draft EIS provides a summary of habitat measures that are carried forward into the Preferred Alternative, which includes measures such as tributary habitat improvements for both Chinook salmon and steelhead, estuary habitat implementation, and Dworshak Reservoir long-term nutrient supplementation program. Hatchery measures have also been carried forward into the Preferred Alternative. Examples of these measures included in Table 7-5 include the programmatic Federal Columbia River Power System (FCRPS) mitigation hatcheries and the safety net programs that continue to identify and plan to provide benefits to ESA-listed stocks at high risk of extinction. The Preferred Alternative also carries forward predator management measures described in Chapter 2 and Chapter 7. The co-lead agencies legal authorities relate to operating and maintaining the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy designated critical habitat. To comply with ESA, the co-lead agencies have historically supported actions to mitigate adverse effects to ESA-listed species from CRS operations, through funding, direct implementation, and other means. Under the Preferred Alternative actions that reduce pinniped and avian predation on ESA-listed species, would generally continue to ensure compliance with the ESA. Other entities in the region have authorities and obligations to mitigate the impacts from pinniped and avian predators and the co-lead agencies will continue to work closely with those entities to benefit ESA-listed salmonids.
3053	3	meaganhitch@gmail.com	N/A	Scientists from the Fish Passage Center have stated that breaching all four of these dams would result in roughly 1 million adult Chinook salmon returning to the mouth of the Columbia River, providing significant relief for endangered Southern Resident orcas. As you know Chinook salmon are the orcas' primary food source from central California to the Salish Sea. And the Columbia Basin supports salmon runs that the orcas have relied on for centuries. Historically half of all the salmon returning to the Columbia Basin were bound for the Snake River. But after the river was dammed more than half a century ago, the wild salmon runs plummeted and left the orcas with fewer fish to eat. Despite the fish ladders and our current interim spill measures, dams continue to cause serious salmon declines by directly killing and preventing their migration. Breaching these dams will cut dam-caused mortality by at least 50%. What's more, these dams have flooded miles of spawning habitat, destroyed healthy riparian forests, and created lethal warm-water reservoirs. With climate change, the number of days where temperatures will reach deadly levels are expected to increase. Independent research has stated that removing these four dams will help cool the river.	Neither the modeling conducted for the CRSO EIS, nor Fish Passage Center modeling conducted outside the EIS process, indicates that breaching the four lower Snake River dams would result in 1 million adult Chinook salmon returning to the mouth of the Columbia River. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. The EIS concluded Multiple Objective 3 (MO3) would result in greater improvement to certain salmon species in the lower Snake River. It did not conclude there was greater certainty of that result in MO3 over any other alternative. The conclusions were based on the ranges predicted in two independent models that have different parameters and limitations in their predictive capabilities. Because of delayed response time in MO3, and the potential severity of the short-term effects, MO3 would likely have the most substantial uncertainty in terms of beneficial effects. Moreover, the EIS analysis found only a minor effect to the Southern Resident killer whale would result from implementing MO3 (which includes the dam breach measure). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults form the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differentially from hatchery and wild fish. Hatchery fish today likely make up most fish consumed by SRKW (NOAA BiOp 2020). The EIS has analyzed spill as a measure in the Preferred Alternative and determined the overall effect to SRKW to be negligible in large part because hatchery production is consistent between the No Action Alternative and the Preferred Alternative. Because the impact from the Preferred Alternative was determined to be negligible, the agencies determined that existing hatchery production would be sufficient to address any potential impacts to prey availability for SRKWs. The co-lead agencies note the contribution to the prey of SRKW through the continued existence of their respective independent congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as the Lower Snake River Compensation Plan, which is administered by U.S. Fish and Wildlife Service. The Preferred Alternative and Proposed Action in the agencies' biological assessment carry forward certain mitigation measures described in Chapters 2 and 7 of the EIS, which include continued salmon and steelhead hatchery production. The Preferred Alternative has negligible effects to SRKWs as described in Section 7.7.8. The EIS analysis indicates that under a scenario that breaches the four lower Snake River dams, the lower Snake River water temperature regime would reflect that of a natural river system, without the water temperature lagging effect that reservoirs create. Spring water temperatures would warm faster, while fall water temperatures would cool faster, as compared to current conditions. The EIS analysis also indicates that summer water temperatures would cool to a greater extent at night, but some exceedances in the 68F water quality standard would still occur, especially during hot weather events and likely future climate change conditions.
3064	1	farmernate10@gmail.com	N/A	I have seen first hand the effectiveness of fish friendly turbines (at the Idaho Falls power plant) and believe that we can and should utilize this technology in many more places than the current existing ones. We can utilize canal diversion structures all along the Snake and its tributaries to help provide inexpensive power to a growing population without adding pollution to the air and using fossil fuels.	The co-lead agencies agree that improved fish passage turbines can increase juvenile fish survival substantially. These turbines are planned for installation at Ice Harbor, McNary, and John Day dams in the next 20 years. Early testing at Ice Harbor Dam shows survival rates over 98 percent. The Draft EIS analyzed several ways to bypass juvenile fish around Columbia River System dams, from dam breach, to surface bypass and spill. In a sense, these are similar to "utilizing canal diversion structures" as the comment suggests, but also meet the biological criteria utilized though decades of research and development of fish passage at these dams.
3080	1	solimarfishjohn@gmail.com	N/A	I have not read an environmentally acceptable replacement for the hydropower from those four "run of the river" dams with navigation locks. How do you replace hydro of that cleanliness, thrift, volume, with fossil fuel, wind, solar, or nuclear power with zero environmental impacts that we don't know would be more revolting than those we have with the reservoirs and water we have and know?	The replacement resource scenarios described in Section 3.7.3.5 of the EIS are designed to ensure that the effect of breaching the four lower Snake River dams on regional power reliability is minimized to the extent possible, taking into consideration the costs. The EIS recognizes that there are multiple ways that the generation losses from the dams could be replaced and relies on the best information currently available to identify cost-effective replacement scenarios. The EIS also identifies that replacing hydropower with other sources of power generation would have adverse environmental effects, including increasing greenhouse gases and air pollutant emissions, consistent with the concern stated in the comment. If an alternative is selected that requires replacement resources, additional environmental review would be required. Appendix H, Section 2.2.4 in the Final EIS discusses the process for potentially acquiring new resources.
3080	4	solimarfishjohn@gmail.com	N/A	Make FERC require Idaho Power provide access to salmon above their dams. Find a way to plant salmon and steelhead in the Owyhee and trap them below the dam and put them above it. That would also require irrigation districts to make the Hood River type of diverters to keep smolts out of	The scope of the EIS focuses on the area affected by the alternatives presented for operating, maintaining, and the configuration of the Columbia River System projects. Idaho Power dams and their effects on salmon and steelhead are outside of the geographic scope of the project. Similarly, the co-lead agencies do not have the authority to direct FERC to require other entities to provide fish passage at their facilities.

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				irrigation canals. Do the same on the Malheur river. It was called "stink river" by the French because of the stench of spawned out, dead chinook creating the "mal eau". bad water. Snake River chinook are not in short supply because of any Washington dam issue. Idaho never required fish ladders or dam designs that would pass salmon and steelhead upstream. So now no steelhead or salmon get to Nevada at all. Nor to most of their former habitat in Idaho.	
3080	5	solimarfishjohn@gmail.com	N/A	Orcas are eating the Puget Sound/Salish Sea chinook and starving their cousins. Sea lions and seals are compounding the problem. 4 dams on the Snake River in Washington are irrelevant to their survival. Best the proposed dam removal money be best spent on creating a chinook hatchery program around lower BC and Puget Sound that produces spring, summer, fall, and winter returning races of chinook salmon.	The No Action Alternative includes ongoing mitigation measures to haze and monitor pinniped predators. These actions would continue under the Preferred Alternative. Other entities in the region have authorities and obligations to mitigate the impacts from pinniped predators and the co-lead agencies will continue to work closely with those entities to benefit ESA-listed salmonids. The co-lead agencies conclude there could be a negligible to minor beneficial effects to SRKW from implementing MO3. CSS and NMFS Lifecycle models predict that lower Snake River Chinook salmon smolt-to-adult returns would have a moderate to major increase under MO3. Operation of Lower Snake River Compensation Plan fish hatcheries under MO3 is uncertain and therefore, production of Snake River hatchery fish is assumed to decline over the long term, while returning adult wild salmon are anticipated to increase. However, the co-leads do not anticipate a lack of hatchery fish in the short term based on the proposed fish hatchery mitigation described in Chapter 5. These additional hatchery fish should mitigate short-term construction effects to Snake River populations. Additionally, to address short-term effects to ESA-listed species, the co-lead agencies propose constructing a new trap and haul facility at McNary and conducting at least two years of trap and haul operations for Snake River fish (Chinook, sockeye, and steelhead). The co-lead agencies agree that the quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differently from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for the whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall-run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall-run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). The co-lead agencies note the contribution to the prey of Southern Resident killer whales through the continued existence of their respective independent congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as Lower Snake River Compensation Plan, which is administered by USFWS. Hatchery programs in lower British Columbia and the Puget Sound area are outside the scope of the EIS.
3084	1	N/A	N/A	Dam removal is a poorly thought out plan that will bring on widespread power shortages across the Pacific Northwest. Brownouts or shut downs are totally unacceptable for today's Oregonians. The reasons listed below are but a short list. There is no plan in place to replace this 24 hour power supply. The coal fired plants and nuclear plants are being phased out at the same time. Wind and solar are intermittent sources and can never replace water power. Solar or wind cannot be stored effectively at this time.	The comments that breaching the four lower Snake River dams would increase the frequency of power shortages unless replacement resources were built are consistent with findings in the EIS. See Draft EIS, Section 3.7.3.5, Effects on Power System Reliability, page 3-903; see also Appendix H, Table 2-1. The EIS does find that regional reliability can be restored with variable renewable resources like wind and solar, but at a considerable cost. See Section 3.7.3.5, Table 3-166 in the Draft EIS. However, the EIS did not evaluate whether there would sufficient dispatchable resources to provide the balancing services needed for integrating variable resources to both replace the generation of the four lower Snake River dams and the retiring coal plants.
3107	1	dbelenky@yahoo.com	N/A	My comment refers to Alternative 3 (MO3) developed to evaluate breaching the four Lower Snake River dams (Lower Granite, Little Goose, Lower Monumental and Ice Harbor). I believe a new alternative similar to MO3 (hereinafter MO3Nuclear) should be devised which would address the need to replace the lost hydropower, the lost navigation/transportation, and the lost irrigation resulting from the breaching of the four dams. As MO3 is by far the superior alternative relative to the preservation of endangered species, the additional cost of MO3Nuclear should be considered an acceptable tradeoff. The four dams currently have a nameplate capacity of 3033MWe (Megawatts electric) with a maximum push capacity of 2650MW x 10 hours per day for 5 days during a cold snap. If these were replaced by 3 x 1400MW nuclear reactors of the current standard, the equivalent or greater power would be available. The advantages of using nuclear rather than a combination of wind, solar and gas-turbine power are; 1) no CO2 output, 2) no danger to raptor species from high-speed wind-turbine blades, and 3) much small footprint and impact on the landscape. In addition Nuclear requires fewer resources of concrete, metal, semiconductors, glass and fossil fuels. The nuclear power could be used; 1) to replace the hydropower currently used by the BPA to supply the Tri-Cities and other current regional demands, 2) to electrify rail transport from Lewiston to Portland, thus reducing CO2 emissions and providing adequate replacement for lost navigation, and 3) to provide pump irrigation, reducing impacts on fish populations, and replacing current dam fed irrigation. MO3Nuclear is proposed to be sited close to to the current Energy Northwest facility outside of Hanford WA for the following reasons; From a national security and international relations point of view it is imperative that the United States re-assert its role as a dominant player in the expansion of nuclear power in the electrification and industrialization of the world. China and Russia are making a remarkable push into Africa, India, and many other areas. Were they to supplant the USA in this area it would affect US influence for decades, if not centuries to come. A small price to pay for supporting this industry. The know-how and infrastructure to support the nuclear industry exists in the Tri-Cities area. There are top-notch research facilities in the area. Many small businesses related to the nuclear industries reside around Hanford and the existence of a nuclear power plant in the area makes it a natural fit. The EIR alludes to insufficient electrical capacity from the Ice River Dam area to the Tri-Cities. Expansion of high-tension lines could be avoided with this proposal. By siting these plants in conjunction with Energy Northwest, operational efficiencies could be gained by using the same management and cross-training manpower. Additionally to allow for future growth, the basic infrastructure could be planned as a six pack of plants with the intention to accomodate an expansion to 6 reactors in the future should it become advisable as population grows in the cities of the Northwest. Six-packs have been found to be a favorable and efficient arrangement by operators in Japan, Korea and China. Another advantage of the six-pack arrangement is that any excess energy could be used to replace Columbia River dam power thus allowing for removal of other obstructing dams along that watercourse allowing for additional species restoration. If water withdrawals from the river for cooling were found to be excessive, this should not be an impediment as either; 1) seasonal dry-cooling could be part of the design as is done at nuclear plants in Kazakhstan or, 2) the use of reclaimed waste-water from the Tri-Cities could be used as is done in Phoenix by the Palo Verde nuclear plant. While this alternative may be considered expensive I believe the funding could be justified by the value of the species restoration. The value of the rail electrification should be included too. The State Department and Department of Defence should also be considered as funding sources for the international relations and national defense value of this proposal.	The comment suggests replacing the output of the lower Snake River dams with nuclear power and describes a range of potential benefits of this development alternative. In considering power replacement portfolios, the EIS focuses on technologies that are currently in operation and are capable of utility-scale performance. The source of resource information used in the EIS is the Northwest Power and Conservation Council's 7th Power Plan and Mid-term Update. Conventional nuclear power units, as described in the comment, are not considered viable by the Council given various risks. The Council considers small modular nuclear reactors potentially viable as they address many of the risks identified with larger conventional nuclear units as described in the 7th Power Plan. For MO3, the EIS did consider small modular nuclear reactors (SMR) as a potential replacement for some of the attributes of the four lower Snake River dams and costs estimates were provided. See Draft EIS Section 3.7.3.5, Small Nuclear Reactor on page 3-909. However, as noted in the Draft EIS, the ramping capability of SMR is unknown. Thus it is unknown if a SMR would be able to provide ramping capability similar to the lower Snake River projects at this time. See Draft EIS on page 3-910. Appendix H provides further discussion on the selection of replacement power resources. If an alternative is selected that requires replacement resources, whether solar, wind, nuclear or other resource, additional environmental review would be required. Appendix H, Section 2.2.4 in the Final EIS discusses the process for potentially acquiring new resources.
3112	1	mark.frei30@gmail.com	N/A	As a farmer, I depend on the navigation system to get my crops to market outside of the state, and without the dams the transportation cost of my wheat to market would make the crop entirely unprofitable for my farming operation. The transportation of wheat cannot be shifted to rail and truck economically, and it would greatly increase fossil fuel consumption.	The EIS evaluates potential effects on farmers associated with increased transportation costs under MO3 in Section 3.10.3.5. Evaluating the impact of removing the lower Snake River locks and barge navigation above Pasco, Washington, is completed using a transportation optimization model that does not allow shipments on river terminals along the lower Snake River. The EIS finds that under a dam breach scenario, average transportation costs for wheat farmers would increase 10 to 33%, but that individual farmers could experience costs that are doubled. The cost increases to specific shippers would depend upon location and would vary throughout the region, depending on transportation options at each location. Generally, those grain shippers that are the farthest from alternate shipping locations (shuttle rail facilities or river ports on the Columbia River) would be the most adversely impacted. Note, cost scenarios for specific farmers are presented in the Regional Economic Effects within Section 3.10.3.5.
3119	1	court.olson@yahoo.com	N/A	I am convinced that we dont need the Lower Snake dams for a reliable energy future. [FYI, buildings account for over 75% of the power consumption on our electric grid. The potential for energy efficiency improvements in our buildings is huge. Given new legislation just passed in Washington, when deeper efficiency measures and increased peak demand controls are aggressively pursued, as I expect they will be, I believe that we can offset the newly developing trend toward abandonment of natural gas usage and replacement with heat pump technology. Consequently, I dont believe that well see significant long-term growth in electric power peak demand. Meanwhile, renewable wind and solar resources will be coming online across the Northwest region to help in this transition.] Given the direction of the energy transformation that I see, the CRSO EIS appears to overvalue those dams for our future power needs.	The comment regarding the importance of the lower Snake River dams to the regional power system is inconsistent with the findings of the EIS. As explained in Section 3.7.3.5 of the Draft EIS, Potential Replacement Resources and Associated Costs, breaching the four lower Snake River dams would have a direct and substantial impact on the supply of Federal power to meet regional load requirements and adversely affect regional power reliability. In addition, the four lower Snake River dams provide carbon-free energy and play an important role in the regional power system, particularly in regards to the integration of renewable power sources, which, as described by the comment, are likely going to increase in the future. Regarding the potential for additional efficiency, the EIS included all cost-effective conservation identified by the Northwest Power and Conservation Council in the 7th Power Plan, which is the current power plan. Cost-effective conservation in the region will be acquired pursuant to current law regardless of the status of the four lower Snake River dams. In addition, substantial amounts of regional coal generation will be retiring over the next decade. See Draft EIS, page 3-841. Without replacing these resources, regional power reliability would decrease substantially.
3126	1	kenboire@aol.com	N/A	This document seems inadequate regarding treatment of reintroduction of salmon above Grand Coulee Dam and installation of fish passage at Grand Coulee and Chief Joseph Dams. Because the concept of reintroduction is casually dismissed, this document disregards potential measures that could make up the most likely, most productive, most acceptable, most economic means of increasing salmon stocks. Mitigation does not have to be in the	Measures to reintroduce salmon above Chief Joseph and Grand Coulee dams were evaluated early in the alternative development process but eliminated from further consideration. Reintroduction is an important, complex, large-scale concept. Its consideration, evaluation, and implementation should involve multiple Tribal, Federal, state, and other entities. A coordinated approach among water users, Tribes, states, multiple Federal agencies, and others would be necessary. To allow so many differing interests to coordinate on such a complex topic, which may include international considerations, a decision-making framework and a series of regional workshops would be necessary just to approach the first step of defining reintroduction

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				same stream and reach as losses. By opening the basin above Grand Coulee, historical critical fish habitat would be restored to reestablish anadromous stocks. The reasons given for not dealing with this are like saying Well we dont have the data, we dont know the science, and it would be too much work but we can just do it later. A casual look at practically any map quickly reveals the amount of river basin and habitat that would be added above Grand Coulee in the USA and Canada would be huge and probably be more than what could be added in the USA by removal of the Snake River projects. Sure, challenges of international cooperation would be encountered but the USA and Canada have already rationally faced fisheries issues regarding Pacific Salmon in border waters of Washington and Alaska. International cooperation needs to be part of this solution and it is embarrassing to find that in the more than 20 years since ESA listing, the Corps, Reclamation, agencies, tribes and industry have seemingly not moved ahead an inch. It is equally embarrassing to discover how reintroduction has been quashed in this EIS because of apparent agency fixation on components of other pet measures that have been under institutional study for longer than some careers. This is not to say the measures in the EIS are unsound, shallow, impractical or unworthy. They are clear and scientifically derived. The nature of an EIS is that it is supposed to recognize problems, measure them, and evaluate alternative solutions. This document deals with long-standing listed species and should at least present a side-by-side comparison of reintroduction with other alternatives like the graphic treatment in Crosswalk", Table 2-12. Obviously more study will be required to do this and the EIS budget and timeline would require modification in order to complete this EIS as a final report. But without this task the EIS is an empty document and someone might be able to argue it seems to fall short of the legal and scientific purpose. There must be a long history here. It is not a new issue. The challenges of passage, stocking and even reintroduction should have been hammered out starting in 1964 when some long-standing international dam issues were worked out for Canadian projects. Clearly somebody dropped the ball back then or sometime since. In over 50-years we should at least have a grasp adequate to proceed with a detailed consideration of reintroduction in this EIS. Reintroduction needs to be given serious treatment beyond saying agencies and interested regional sovereigns are developing a framework to address critical information gaps. As a minimum the EIS ought to include a budget and timeline of the in progress framework effort. Speaking of reintroduction, the EIS states "Given the incompatibility of such a wildlife management decision-making framework with an analysis of the operation of the CRS, it is not feasible to proceed with a detailed consideration of reintroduction in this EIS." One reviewer found this to be outrageous. Contrary to being incompatible, the concept of reintroduction is essential as it could establish anadromous species in place of those made extinct by the lack of passage at Grand Coulee and other dams upstream of Grand Coulee. Reintroduction could require major construction but cannot be dismissed on the grounds it is beyond the scope of analysis of the operation of CRS as the EIS includes a dam removal alternative which itself is a major construction project well beyond any strictly operational option. Analysis of reintroduction could be so productive as to tamp down the need for present day costly operational measures or modifications to the Snake River dams. In that sense consideration of reintroduction belongs within this EIS and in all respects is not incompatible.	objectives. Given the incompatibility of such a wildlife management decision-making framework with an analysis of the operation of the Columbia River System, it is not feasible to proceed with a detailed consideration of reintroduction in this EIS. Moreover, to meaningfully analyze reintroduction as a measure, the details of the proposal would need to be understood well enough to include in hydrologic, water quality, and fish models. That information is not presently available, and development of those details was not possible in the timeframe of this NEPA process. Nevertheless, the co-lead agencies and interested regional sovereigns are developing a framework to address critical information gaps.
3127	1	N/A	N/A	The Draft EIS for CRSO is inadequate in the description of alternatives which minimizes the value of the analysis of alternatives and raises significant questions regarding the objectivity of the analysis. The underlying problem is inherent in the Columbia River System Biological Assessment [BA] (Appendix V), which when combined with the Fish and Wildlife Coordination Report (Appendix U) identifies unresolved environmental issues and concerns. In Section 1 of the BA, the report points out it is a requirement of the Endangered Species Act. The report states: Under Section 7(a)(2) of the Endangered Species Act (ESA) (16 U.S.C. 1536(a)(2) 1973), the Action Agencies are responsible for ensuring that their actions are not likely to jeopardize the continued existence of endangered or threatened species or result in the destruction or adverse modification of designated critical habitat. In Section 5.7 of the BA, the report concludes: Taken collectively the Proposed Action and conservation measures avoid or minimize adverse effects of the Proposed Action on EFH for salmon and will also minimize adverse effects of the Proposed Action on groundfish and coastal pelagic EFH. The Proposed Action carries forward many of the reasonable and prudent measures recommended by NMFS in the 2019 NMFS CRS BiOp. In contrast the Fish and Wildlife Coordination Report comes to a different finding. In the Executive Summary of that report the USFWS states: Since the CRSO has been in operation, the co-lead agencies have implemented conservation measures to protect, mitigate, and enhance fish and wildlife resources affected by project operations. However, the CRSO will continue to negatively impact fish and wildlife resources in the Basin, even with ongoing conservation measures in place. Furthermore, the Coordination Report states on page 46: The Service acknowledges the multiple authorized purposes of the Federal dams and reservoirs. However, the Services analysis found that proposed changes in dam configurations including operations and maintenance of the 14 Federal projects that comprise the CRSO will overall negatively impact, fish, wildlife, and plants in the Basin along with the natural capital they offer. The Service provided a series of conservation recommendations in six categories. No discussion of these recommendations appear in the DEIS. As the DEIS is currently presented, the Description of Alternatives discussion lacks a clear presentation of the existing conservation measures and any additional conservation measures that are anticipated as discussed in the BA. Therefore, the analysis of alternatives if flawed and incomplete.	Chapter 2 and Chapter 7 discuss the Multiple Objective alternatives evaluated in detail, including those measures that are in the No Action Alternative, and those measures that would be carried forward in the Preferred Alternative. The Biological Assessments included the Preferred Alternative measures from the Draft EIS, for consultation with the U.S. Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NMFS) to determine whether it would jeopardize the continued existence of ESA-listed species, or the destruction or adverse modification of designated critical habitat for those ESA-listed species. USFWS and NMFS may propose reasonable and prudent alternatives (RPAs) or reasonable and prudent measures (RPMs), depending on the conclusion reached in the Biological Opinions. If adopted by the co-lead agencies, these RPAs and RPMs will be incorporated into the Final EIS and Record of Decision to reflect those commitments. The Biological Opinions from NMFS and the USFWS are included in the Final EIS, Appendix V. The draft USFWS Coordination Act Report (draft CAR) was included in the Draft EIS (Appendix U) and discussed in Section 8.3.2, Fish and Wildlife Coordination Act of 1934, and covers more than ESA-listed species. The co-lead agencies considered the findings and recommendations while developing the Preferred Alternative, drafting the EIS, and developing mitigation measures for the effects of the alternatives (see Chapter 5). Chapter 5 provides an overview of possible mitigation measures being considered to avoid, minimize and reduce impacts to the environment associated with the No Action Alternative and four Multiple Objective alternatives (MOs). Additional mitigation associated with the Preferred Alternative is described in Chapter 7. See Section 7.6.4.1, Ongoing Programs, and Draft EIS Table 7-5, Measures Included in the Preferred Alternative to Benefit Endangered Species Act-listed Fish that are Being Carried Forward from Previous Commitments by the Co-Lead Agencies, which includes management of lands for fish and wildlife, fish and wildlife actions, Bonneville's Fish and Wildlife Program and Lower Snake River Compensation Plan, the Columbia River Fish Mitigation Program, and the Columbia River Tributary Habitat Program. The final CAR and co-lead agencies considerations and adoption of recommendations are included in the Final EIS. The co-lead agencies need to consider the actions outlined in the CAR.
3130	1	coolhluke37@yahoo.com	N/A	While the Preferred Alternative concludes that any increase in the cost of hydropower will be mitigated through cost cutting measures, historically, those "promises" have not been kept by regulators. This would likely result in higher consumer electrical cost during low spill intervals. Dams are a clean power-generating mechanism and should be used to the maximum possible. Based on this, this portion of the Alternative should be reevaluated.	For Bonneville's wholesale power rates, the Preferred Alternative places additional rate pressure of 2.7% relative to the No Action Alternative consistent with the statement in the comment regarding increased rates. These estimates compare the Preferred Alternative to the No Action Alternative, which is not the same as comparing the Preferred Alternative to current operations. Consequently, the estimates are not a comparison to the BP-20 wholesale power rates, which were set assuming the financial impact of the 2019-2021 Spill Operation Agreement and therefore already include a substantial portion of the cost pressures found in the Preferred Alternative. The remaining rate pressure associated with the Preferred Alternative falls within a level that Bonneville has historically been able to absorb through the costs over which it has significant control.
3130	2	coolhluke37@yahoo.com	N/A	Any material consideration in the EIS for "climate change" should be eliminated. Any change mankind can make to mitigate such changes are wholly foolhardy and pushed by those not based in reality but those of the technology-generation that believe in the total accuracy of models based on flawed assumptions that can never be verified in our lifetime.	The technical and policy elements of the Draft EIS are in full compliance with Corps policy and guidance for qualitative assessment of climate threats and their plausible effects and impacts. The primary controlling policy and guidance are the Corps' Climate Adaptation Policy Statement, signed by the Assistant Secretary of the Army for Civil Works in 2011, updated and signed again in 2013, and remaining in force now; and the Corps' Engineering and Construction Bulletin 2018-14, Guidance for Incorporating Climate Change Impacts to Inland Hydrology in Civil Works Studies, Designs, and Projects. The numerical-model simulated outputs were evaluated by multiple technical means (see record of the full Corps Agency Technical Review), and were tested using the set of analytical measures created by the Corps' Climate Preparedness and Resilience program to ensure sound science and engineering compliance with the Corps' USACE climate change policy and guidance. Those analytical tests are described in ECB 2018-14 (listed just above) and in the Corps' Engineer Technical Letter 1100-2-3, Guidance for Detection of Nonstationarities in Annual Maximum Discharges. The assessment of climate threats and impacts is qualitative only in the sense that the biological and other impacts models did not directly ingest the physical hydroclimatology outputs modeled for the assessment. Those hydroclimatology outputs are fully quantitative and so can be the basis for refined estimates of effects and impacts should those be required following this Draft EIS.
3139	2	taermak@yahoo.com	N/A	Before you actually start destroying something you need to create replacement for it. Energy Northwest only have 15 years left- is there a plan to extend its services or are you planning to build a new nuclear power plan?	For each alternative that reduced hydropower generation and regional power reliability, the EIS analysis estimated the amount of replacement power generation required. The potential replacement of Columbia Generating Station, was beyond the scope of the EIS.
3153	2	N/A	N/A	Just build a long bypass river around each dam.	The Draft EIS analyzed several ways to bypass juvenile fish around Columbia River System dams, from dam breach to surface bypass and spill. These are similar to "building a river around the dam" as the comment suggests, but also meet the biological criteria utilized after decades of research and development of fish passage at these dams.
3155	1	kkinzer@moscow.com	N/A	I have talked with many of the fisheries biologist involved with doing these studies over the last 30 years. They know we can, and have found ways to make fish and dams work together. The one thing they have not been able to get a handle on, is the food supply in the ocean for the salmon. This is the 800 pound gorilla in the room. It makes no sense to remove 4 of the 8 dams between the salmon river and the ocean, if the fish get the ocean and die of starvation. We need to quit spending time and money on the dams, because they need to stay. We need to address the real problem. This problem has been known since the 1990's when Canada commissioned a study, that showed this problem. Basically the study found out that each run from different areas of the same river went to different spots in the ocean to rear themselves. The return of each run was dependent on how much food was available in that area of the ocean. We have rivers up and down the west coast of America and Canada that do not have one single dam, and have experienced low returns. In fact the lower Columbia Coho run, that doesn't go through one dam, basically went extinct back in the late 1990's. We know the problem, lets address it.	There are many effects to salmon and steelhead populations outside the operation and maintenance of the dams (see Chapters 6 and 7 for more information). Salmon and steelhead have been adversely affected in the Columbia River Basin over the last century by many activities including human population growth, urbanization, introduction of exotic species, overfishing, development of cities and other land uses in the floodplains, water diversions for all purposes, dams, mining, farming, ranching, logging, hatchery production, predation, ocean conditions, and loss of habitat. While none of the Multiple Objective alternatives would affect ocean conditions, the co-lead agencies recognize that these conditions are a major driver for adult returns and that numerous studies have shown the importance of this environment in the return of adult salmon and steelhead (Peterson et al. 2019). As such, two of the models used in these analyses, National Marine Fisheries Service (NMFS) COMPASS and CSS Lifecycle Models, use metrics of ocean productivity to predict adult returns. These metrics can be seen at: https://www.nwfsc.noaa.gov/research/divisions/fe/estuarine/oeip/g-forecast.cfm. Research continues to evaluate the magnitude of these effects. For more information see the NMFS website at: https://www.nwfsc.noaa.gov/research/index.cfm.
3159	2	lherburger@hotmail.com	N/A	The habitat improvement for salmon and the follow-on impact for Southern Resident killer whales needs to be more heavily weighted in consideration of the environmental impact of these dams.	The alternatives analyzed in the EIS include operational or structural measures at the 14 projects sites. Where adverse effects to habitat are anticipated as a result of implementing an alternative, habitat restoration was proposed. For instance, the Preferred Alternative added habitat mitigation along wetlands and riparian areas in the John Day reservoir and around Lake Roosevelt. The Preferred Alternative also carries forward certain ongoing actions including habitat measures that are described in Section 7.6.4.1 with examples listed in Table 7-5 in the Draft EIS. The purpose of the EIS was to evaluate alternative ways to manage the 14 federal projects and determine if a new operation or configuration of the projects could reduce adverse impacts of the system operations, meet the EIS Purpose and Need Statement, objectives, and meet all regulatory and statutory compliance requirements. The Preferred Alternative carries forward certain mitigation measures described in Chapters 2 and 7 of the EIS, which include continued salmon and steelhead hatchery production. The Preferred Alternative has minor effects on Southern Resident killer whales as described in Section 7.7.8.

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3161	2	drcadwallader12@gmail.com	N/A	Recreation improved with dams on lower Snake? Baloney! On any given weekend all summer long 10 times more boats and people utilizing the beaches and free flowing stretch of the Snake River above Asotin that on all of Lower Granite Pool. Free flowing river all the way to Tri-cities will enhance boating related recreation. Furthermore , because of warm water in the Snake River,Dworshak Reservoir is drawn down quickly annually each fourth of July resulting in a substantial decline in boat use due to the long mud slopes and unusable boat access camping spots. This drawdown would cease with a free flowing lower Snake and provide a big boost to local economies.	The potential benefits to recreation associated with MO3, which includes breaching the four lower Snake River dams, is described in Section 3.11.3.5. The EIS describes the potential for increased river recreation such as boating, rafting, and kayaking under MO3. There is some uncertainty in the figures; non-fishing recreation in the lower Snake River reach could range from 1.2 to 3.4 million visitors per year. Dworshak's summer drawdown would remain the same under MO3 as under the No Action Alternative because the cooling water in the lower Snake is needed under both alternatives.
3161	3	drcadwallader12@gmail.com	N/A	Predators: virtually ALL predatory activity on smolts and adult fish is greatly enhanced if not totally due to the 4 dams. Warm water predatory fish thrive because of the warmer slow moving water to include Pike Minnows, bass, walleye. Terns, cormorants, sea lions and seals all make use of the dams and slow moving water to inflict their collective damage.	The co-lead agencies disagree with the suggestion in the comment that all predatory actions on fish are a result of the existence of the dams. However, ongoing actions described in the No Action Alternative to reduce predation on migrating fish are included in the Preferred Alternative. In addition, water management actions (the Predator Disruption Operations measure) in the John Day reservoir is expected to further reduce avian predation on migrating juvenile fish. The No Action Alternative includes ongoing mitigation measures to haze and monitor pinniped predators. These actions would continue into the future under the Preferred Alternative, and the co-lead agencies would continue to assist National Marine Fisheries Service (NMFS), states and Tribes in their pinniped removal efforts near Bonneville Dam. The co-lead agencies currently implement a Northern Pikeminnow Management Program which includes an ongoing base program and general increase in northern pikeminnow sport-reward fishery reward structure to reduce predation by these fish. This measure would continue under the Preferred Alternative. Management of gamefish such as walleye typically falls within the authority of state fish and wildlife agencies.
3163	2	news4punky@gmail.com	N/A	Would blackouts from less electricity become the norm? How would the loss of dam-produced electricity be made up?	The EIS finds that under all of the Multiple Objective alternatives (MOs) except the Preferred Alternative and Multiple Objective alternative 2 (MO2), power system reliability would decrease, increasing the likelihood of outages. Table 2-1 in Appendix H of the Draft EIS presents the likelihood of blackouts by alternative and Chapter 2 of Appendix G describes how reliability could be returned to No Action Alternative levels with replacement resources. Section 3.7 of the Draft EIS also describes the replacement resource portfolios and associated costs for maintaining regional reliability at the No Action Alternative level.
3171	1	N/A	N/A	It is important to note that it is not just people living in flood prone areas that have a need for flood control. There are beneficial uses of that land that all citizens enjoy. Transportation through flood areas, jobs and products that sustain and save lives are produced in these areas. The use and benefit should not be portrayed as "just a few people living where they shouldn't".	As described in Section 2.2, Overview of Alternatives Development Process, the flood risk analysis completed for the EIS, and described in Section 3.9 Flood Risk Management, assessed flood risk for communities, property, and resources throughout the Columbia River Basin. The analysis evaluated flows and stages, both downstream of reservoirs and in reservoir pools, for the No Action Alternative, Multiple Objective alternatives (MOs), and Preferred Alternative. For reporting results, the analysis utilized sample National Weather Service gage locations throughout the Basin. The gage locations are commonly utilized reporting locations, used to assess and communicate flood risk levels for developed and undeveloped reaches throughout the Basin. The findings in the EIS for implementing the Preferred Alternative are that there would not be an increased risk of flooding to any communities in the Columbia River Basin.
3174	1	spauley4@gmail.com	N/A	www.rand.org/.../monograph_reports/2002/MR1604.pdf Pllease revisit this Rand Report of 2002 It;'s still valid today. Breaching will create 25,000 jobs and will not harm the economy of the Northwest. The powers at the time ignored this report. It's not what they wanted. PLEASE re visit this report.	The EIS acknowledges previous analyses conducted in the 2002 LSR Study. However, the CRSO EIS relies on high-quality and scientifically accurate information to evaluate the effects associated with breaching the four lower Snake River dams under MO3. The EIS analysis includes the current conditions in the basin as of initiating the EIS in 2016 and those actions that will continue as of September 2016. It then compares the Multiple Objective alternatives to the No Action Alternative.
3175	1	spauley4@gmail.com	N/A	One study, the Rand Report 2002, never received the attention it deserved. It was ignored and then disappeared from the web then reappeared. www.rand.org/.../monograph_reports/2002/MR1604.pd Rand is a conservative think tank and should be taken seriously. It never was. Rand concluded that breaching the 4 Snake dams would not harm the economy and would create 25,000 new jobs. Power needs could be handled with combined cycle natural gas plants, conservation, and wind and solar. (Now solar has taken over in a big way in the NW.) More dam tweaks, spill, hatchery fish won't do the job to restore our native salmon and steelhead. The dams must go. www.rand.org/.../monograph_reports/2002/MR1604.pd	The EIS acknowledges previous analyses of breaching the four lower Snake River dams. However, the EIS relies on high-quality information to evaluate the effects associated with the Breach Snake Embankments measure under MO3. Please see Section 3.7.3.5, Social and Economic Effects of Changes in Power and Transmission, for a discussion of the regional retail rate effects of breaching the four lower Snake River dams. As described in that section, the impacts under MO3 include increased electricity rates for most consumers of energy in the region, which has the potential to have the highest impact on rural areas. Higher retail rates means less spending on production, which affects employment. See Draft EIS Table 3-175 for the regional economic effects from changes in household spending on electricity.
3187	1	jonchris@skadden.com	N/A	While much attention has been put on the discussion of dam breaching, not enough has been placed on the costs of such action and utilizing modern methods of addressing the salmon declines. I believe that salmon and dams can co-exist, but with a more sophisticated discussion than has occurred to date.	The costs of dam breaching are described in Section 3.19.2 and in Appendix Q. MO3 would result in decreased costs or funding requirements for the lower Snake River projects compared to the No Action Alternative, including capital costs, operations and maintenance, non-routine navigation, non-routine extraordinary costs, and fish and wildlife mitigation costs. However, dam breaching would also result in construction costs and costs for additional mitigation measures to address the adverse effects of MO3 consistent with information presented in Section 3.19. Based on the fish in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives) as well as the EIS objectives for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. The Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% (the lower end of Northwest Power and Conservation Council's recovery targets for the region) as a result of the Preferred Alternative, as a result of the Preferred Alternative increasing SAR from 2.0% to 2.7% for Chinook, a 35% relative increase. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. To address uncertainty highlighted by the two models, the Preferred Alternative includes working with regional sovereigns to develop a study that assess the effectiveness of the increased spill regime on adult returns as well as assessment and management of adverse unintended consequences, such as long delays of adult migrants, or TDG-related mortality of juvenile migrants. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information. The Preferred Alternative will make a meaningful contribution towards recovery.
3188	1	Wiskyjack@hotmail.com	N/A	Lets focus on increased production. Let the tribes pay for ladders over Chief Joe, Grand Coulee, Dworshak and others. It will help offset the taxes they dont pay on casino earnings. Bring in some 100 pound fish from AK, and lets rebuild the June Hog fishery in the Columbia. Let the Tribes do more resevoirs on the Snake that model after Cold Springs resevoir on the Umatilla. Those fish made an immediate improvement.	The scope of the CRSO EIS covered eight objectives of which salmon, steelhead, and resident fish were three. In particular, the co-lead agencies developed measures to improve fish passage and fish flows, and reduce adverse impacts to spawning habitat. Fish harvest is the responsibility of NMFS and USFWS and continues to be researched by these agencies. Changes in allowable fishery harvest in the Columbia River Basin are a result of decisions made by state, Federal (i.e., NMFS), and Tribal fishery managers based on a variety of environmental, biological, economic, and social factors. The three co-lead agencies (Corps, Reclamation, and Bonneville) do not manage fish stocks, and do not have the authority to do so. The agencies did look at increased production but determined it would only be needed if MO3 were to be implemented for short-term impacts. Moreover, measures to reintroduce salmon above Grand Coulee and Chief Joseph were evaluated early in the alternative development process but eliminated from further consideration. Reintroduction is an important and complex, large-scale concept. Its consideration, evaluation, and implementation should involve multiple tribal, federal, state, and other entities. A coordinated approach among water users, tribes, states, multiple federal agencies, and others would be necessary. To allow so many differing interests to coordinate on such a complex topic, which may include international considerations, a decision-making framework and a series of regional workshops would be necessary just to approach the first step of defining reintroduction objectives. Given the incompatibility of such a wildlife management decision-making framework with an analysis of the operation of the CRS, it is not feasible to proceed with a detailed consideration of reintroduction in this EIS. Moreover, to meaningfully analyze reintroduction as a measure, the details of the proposal would need to be understood well enough to include in hydrologic, water quality, and fish models. That information is not presently available, and development of those details was not possible in the timeframe of this NEPA process. Nevertheless, the agencies and interested regional sovereigns are developing a framework to address critical information gaps.
3188	2	Wiskyjack@hotmail.com	N/A	As long as runs will support commercial, tribal, sport, and other nations harvesting these fish, there should not be a problem. Lets focus on increased production. Let the tribes pay for ladders over Chief Joe, Grand Coulee, Dworshak and others. It will help offset the taxes they dont pay on casino earnings. Bring in some 100 pound fish from AK, and lets rebuild the June Hog fishery in the Columbia. Let the Tribes do more resevoirs on the Snake that model after Cold Springs resevoir on the Umatilla. Those fish made an immediate improvement	The scope of the CRSO EIS covered eight objectives of which salmon, steelhead, and resident fish were three. In particular, the co-lead agencies developed measures to improve fish passage and fish flows, and reduce adverse impacts to spawning habitat. Fish harvest is the responsibility of NMFS and USFWS and continues to be researched by these agencies. Changes in allowable fishery harvest in the Columbia River Basin are a result of decisions made by state, Federal (i.e., NMFS), and Tribal fishery managers based on a variety of environmental, biological, economic, and social factors. The three co-lead agencies (Corps, Reclamation, and Bonneville) do not manage fish stocks, and do not have the authority to do so. The agencies did look at increased production but determined it would only be needed if MO3 were to be implemented for short term impacts. Measures to reintroduce salmon above Grand Coulee and Chief Joseph were evaluated early in the alternative development process but eliminated from further consideration. Reintroduction is an important and complex, large-scale concept. Its consideration, evaluation, and implementation should involve multiple tribal, federal, state, and other entities. A coordinated approach among water users, tribes, states, multiple federal agencies, and others would be necessary. To allow so many differing interests to coordinate on such a complex topic, which may include international considerations, a decision-making framework and a series of regional workshops would be necessary just to approach the first step of defining reintroduction objectives. Given the incompatibility of such a wildlife management decision-making framework with an analysis of the operation of the CRS, it is not feasible to proceed with a detailed consideration of reintroduction in this EIS. Moreover, to meaningfully analyze reintroduction as a measure, the details of the proposal would need to be understood well enough to include in hydrologic, water quality, and fish models. That information is not presently available, and development of those details was not possible in the timeframe of this NEPA process. Nevertheless, the agencies and interested regional sovereigns are developing a framework to address critical information gaps.
3190	1	jntmyers@gmail.com	N/A	This entire process has been flawed from the beginning. Information on the anadromous fish mortality caused by reservoirs behind dams was not presented to the public. There were no public meetings in Idaho in the many rural areas affected by the continued loss of salmon and steelhead.	The effects to anadromous fish from each alternative including the No Action Alternative are presented in Section 3.5 and for the Preferred Alternative, the effects to anadromous fish are shown in Section 7.7.4. To ensure adequate opportunity for the public to provide comments on the Draft EIS, the agencies hosted an online comment platform, provided mailing addresses for written comments, and hosted a series of public comment meetings by telephone. Hosting the public meetings by telephone allowed interested stakeholders in areas where an in-person public meeting was not originally scheduled to participate in the meetings. The co-lead agencies offered these public comment meetings by telephone to maintain our commitment to accepting verbal comments in accordance with current public health guidelines. As these meetings provided similar accessibility for providing and listening to verbal comments in a public hearing format, the agencies did not postpone the public comment meetings.
3191	1	pixelate@mathsavers.com	N/A	I phoned in to the Comment Teleconference on Tuesday March 31, 2020 at 3:45pm and followed the instructions to enter the queue for speaking. After 4 hours, and an additional 50 minutes, I was not contacted. I can only assume that there were technical difficulties.	We are sorry you had technical difficulties. The public was also able to provide comments using the online form or through mail. We are glad to see you were able to provide comments.
3197	3	N/A	N/A	This Draft EIS is a poor compromise in that it doesn't adequately address the plight of Columbia River anadromous fish. The agency authors and their contractors are setting the stage for the final solution to these fish, extinction by choice. It is so obviously apparent that the solution for fish is in direct conflict with the status quo. Keep the four lower Snake Dams in place, tinker with the fish biology, and let taxpayers pay for the bill; a BPA/COE induced trend that has gone on for 30 years. This document will be historic record of how a nation and northwest politicians decided on the extinction of salmon; a commendable and rewarding legacy for them but not for the fish. Why did they do this? How could they have done this? Future generations of northwest people will ask? There is one more opportunity for US to change this course of extinction. Revised the final EIS and fully address the merits of removing the four lower Snake River Dams. Then make it the preferred decision.	The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets the EIS objectives including those for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS, the co-lead agencies did not identify MO3 because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. The co-lead agencies used high quality information in the analysis of the CRSO EIS. Specific to salmon and steelhead, the agencies used two primary modeling approaches which yielded a range of potential outcomes for the alternatives. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult (SAR) return rates will increase for both Snake River spring Chinook and steelhead and will average above 2% (the lower end of Northwest Power and Conservation Council's (Council's) recovery targets for the region) as a result of the Preferred Alternative increasing SAR from 2.0% to 2.7% for Chinook, a 35% relative increase. The NMFS COMPASS and Lifecycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information. Based on the EIS analysis of the Preferred Alternative, it will make a substantial contribution towards recovery targets.

Letter No.	Comment No.	Commenter Name/Email	Affiliation	Comment	Response[1/]
					Finally, the co-lead agencies disagree the Preferred Alternative is a slight deviation from previous operations. The spill operation for juvenile fish passage is a significant departure from previous operations, so much so that the Washington and Oregon state water quality standards had to be changed to implement the new spill regime. The Preferred Alternative also includes other operational, structural and mitigation measures to improve conditions for ESA-listed salmon and steelhead.
3200	1	jameswarren58@hotmail.com	N/A	Noreen Clough, B.A.S.S. national conservation director, spoke against removing bass restrictions on the Columbia River. By Noreen Clough May 24, 2013 Noreen Clough, B.A.S.S. national conservation director, presented the following speech at an American Fisheries Society conference in Boise, Idaho, April 16. A condensed version was published in the June issue of B.A.S.S. Times.	The co-lead agencies are uncertain as to what the comment is suggesting in relation to the Draft EIS and unable to provide further response.
3202	1	N/A	N/A	You may add me to the burgeoning list of other scientists who have strongly urged removal of the four lowermost Snake River dams. The multitude of sound reasons for removal are outlined in the recently released CRSO EIS draft. Yet the draft was prepared, and the preferred option chosen, by the same two federal agencies, The Corps of Engineers and Bureau of Reclamation, who have jointly wracked the greatest ever man-caused damage to Columbia Basin anadromous fish runs. This latest EIS process is thus illogical, perhaps illegal, and its chosen option no surprise.	The CRSO EIS documents the assessment of benefits and impacts of changes to the operations of the 14 Federal projects of the Columbia River System. Using a multi-disciplinary approach and with the coordination and consideration of our cooperating agencies and Tribes, as well as public stakeholder input, and by using the current, high quality information, the co-lead agencies developed the Preferred Alternative. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the EIS objectives) as well as the EIS objectives for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. The Preferred Alternative is also more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% (the lower end of Northwest Power and Conservation Council's recovery targets for the region) as a result of the Preferred Alternative, as a result of the Preferred Alternative increasing SAR from 2.0% to 2.7% for Chinook, a 35% relative increase. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. To address uncertainty highlighted by the two models, the Preferred Alternative includes working with regional sovereigns to develop a study that assess the effectiveness of the increased spill regime on adult returns as well as assessment and management of adverse unintended consequences, such as long delays of adult migrants, or TDG-related mortality of juvenile migrants. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information. The Preferred Alternative will make a meaningful contribution towards recovery.
3208	1	swzuger@lctinc.biz	N/A	The "first step for fish" comes with the cleaning up of Puget Sound. It is beyond belief the way the people of the surrounding cities have allowed this beautiful body of water to be miss treated. Lets start this cleanup with greater sewage plant capacity, and get our Canadian Neighbors to do their share with their sewage as well! I have a great deal of respect for all of our natural resources and believe that improving fish runs is very necessary. The endangered species act needs to be applied to real life, specifically situation by situation, not one size fits all. The current honey-hole that has been created for sea lions between Astoria, WA and Bonneville Dam is an example of this. The current situation where there are way too many sea lions in that section of river is decimating fish runs unnecessarily. The "second step for fish" is to get this sea lion population under control. Trap them, move them, allow Native Americans hunting of them, or allow Fish and Wildlife Agents to hunt them .Then send the meat to the homeless shelters we have in Oregon and Washington, so that the true population of sea lions is normal to that section of river. The "third step for fish" is to do something similar to control birds who prey on fish smolts. We have created abnormal feeding opportunities and these birds have been taking a toll. The Lewiston - Clarkston Valley is not a normal place to find pelicans, yet they come here now to prey on the juvenal steelhead and other fish available in the spring and summer. Since the Pelicans are protected they have free run, yet some hunting pressure would help send them away.	The co-lead agencies legal authorities relate to operating and maintaining the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. To comply with the ESA, the co-lead agencies have historically supported actions to mitigate adverse effects to listed species from CRS operations, through funding, direct implementation, and other means. Under the Preferred Alternative, those actions, including for the purpose of reducing pinniped and avian predation on listed species, would generally continue to ensure compliance with the ESA. Other entities in the region have authorities and obligations to mitigate the impacts from pinniped and avian predators and the co-lead agencies will continue to work closely with those entities to benefit ESA-listed salmonids. Regarding Puget Sound, the effects mentioned in the comment involve a variety of issues beyond the scope of the CRS project. However, water quality effects for the Columbia River Basin were considered in the EIS analysis and are described in Chapter 1, 2, and Section 7.8.3 of the EIS. Additionally, the U.S. Army Corps of Engineers is in partnership with other Federal, state and non-governmental organizations and have been implementing habitat projects for salmon, orcas, and wildlife all around the Puget Sound as part of the Puget Sound Nearshore Ecosystem Restoration Project.
3211	1	N/A	N/A	One option, MO3, should be rejected under all scenarios. This option calls for the removal of the four lowest dams on the Snake River, ostensibly to improve salmon and steelhead passage. But these dams all have fish ladders that do allow adult fish passage to restricted natal spawning areas. If dam removal is still being considered, then there are four other dams that should be removed first. Those dams are Dworshak Dam on the Clearwater River and Hells Canyon, Oxbow and Brownlee dams on the Snake River. None of these dams even have fish ladders, completely blocking all spawning grounds upstream from access. Any dam removal will reduce the hydropower production that reduces the carbon footprint, but the cost/benefit ratio it much lower for those dams that block all fish passage.	As indicated, the lower Snake dams in the CRS all have fish passage. Breaching the embankment of the four dams is thought to improve fish migration time for the Snake River species that migrate this river. Removing or providing passage to the other projects listed in your comment to allow access to these migrating fish to spawning grounds are outside the scope of this EIS. The Preferred Alternative does not include breaching the four lower Snake River dams.
3217	1	Katie Bilodeau	Friends of the Clearwater	We were disappointed that you chose not to extend this comment period, especially for such a large environmental impact statement and in light of an ongoing pandemic.	The co-lead agencies considered requests to extend the public comment period. This NEPA process included a wide array of cooperating agencies whose close involvement throughout the process allowed the co-lead agencies to incorporate feedback. Given the broad range of comments received and the extensive Federal and non-Federal participation in the overall process as well as the level of public engagement in the six virtual public meetings in the region, the co-lead agencies determined that an extension was not warranted and that the 45-day public comment period was adequate consistent with NEPA regulations. The CRSO EIS website notified the public on April 9, that they should plan to submit comments by the close of the comment period.
3217	2	Katie Bilodeau	Friends of the Clearwater	The science we have provided pursuant with the discussion below is the best available science. If any agency is relying on other science, we request an explanation as to why the agency is relying on the other science instead of what we have provided.	The co-lead agencies used the most current, high-quality and scientifically accurate information, a multi-disciplinary team, and a science-based approach to analyze the alternatives in the EIS. Federally-funded hatcheries in the Columbia River Basin are adaptively managed to minimize impacts on wild fish. The regulatory and co-lead agencies use the best available science to establish best management practices for these programs. The co-lead agencies fund many ongoing research projects to better understand and minimize hatchery and wild fish interactions (i.e. evaluating the relative reproductive success of hatchery fish spawning in the wild from both segregated and integrated stocks, monitoring stray rates of hatchery and wild fish, understanding mechanisms that produce precocious maturation of male hatchery fish), including several referenced in your letter; however, information specifically focused on artificial propagation, while relevant to individual hatchery EISs and BiOps, is out of scope for the CRSO EIS.
3217	3	Katie Bilodeau	Friends of the Clearwater	The Clearwater Basin of North-central Idaho is the northern half of the Big Wild, which is the largest undeveloped watershed complex left in the Lower 48. It is also the southern boundary of the largest known inland temperate rainforest in the world. The Nez Perce and Clearwater National Forests make up a good portion of the Clearwater Basin, and our mission area is home to spawning and breeding grounds of rare and imperiled species that include bull trout, salmon, and steelhead. Because these fish are born and migrate back to our mission area, we are uniquely situated to discuss some of the cumulative effects that we dont think the draft EIS for the Columbia River System Operations has properly considered. Particularly, we noticed a couple of instances where the agency assumes that actions are mitigation impacts when, based on the best available information and defining mitigation as actions that ease injury to a fish species, these actions are more properly categorized as adverse cumulative impacts. NEPA-implementing regulations define mitigation as including: (a) Avoiding the impact altogether by not taking a certain action or parts of an action. (b) Minimizing impacts by limiting the degree or magnitude of the action and its implementation. (c) Rectifying the impact by repairing, rehabilitating, or restoring the affected environment. (d) Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action. (e) Compensating for the impact by replacing or providing substitute resources or environments. 40 C.F.R. 1508.20. And these regulations define cumulative impact in the following way: Cumulative impact is the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. 40 C.F.R. 1508.7. Whether hatcheries are short-term mitigation or adverse long-term impacts depend upon how we define the injury. Hatcheries impose adverse cumulative effects on the existence of wild fish populations. Some habitat programs, funded by the Northwest Power Act, are also probably and inadvertently propping up increased logging levels. The agency needs to discuss this and assess the impacts of business-as-usual, especially since the funding meant to mitigate for salmon and steelhead is actually funding negative cumulative impacts to salmonids from hatcheries and habitat. CUMULATIVE IMPACTS NFMS recognizes the following factors as those that limit the recovery of wild salmonids: * Mainstem Columbia River hydropower-related adverse effects, * Impaired tributary fish passage, * Degraded, including degradation in floodplain connectivity and function, channel structure and complexity, riparian areas and large woody debris recruitment, stream flow, and water quality as a result of cumulative impacts of agriculture, forestry, and development, * Impaired water quality and increased water temperature, * Related harvest effects, particularly for B-Index steelhead, * Predation, and * Genetic diversity effects from out-of-population hatchery releases NMFS 2018 Biological Opinion and EFH Consultation FEIS, p. 146. Our government has done a fantastic job in isolating these impacts and discussing them in different EIS vacuums where the responsible agency can just minimally gloss over the other environmental impacts. Salmon and steelhead face four main threats: hydropower, harvest, hatcheries, and habitat, and they all add up. The existence of harvest depends upon hatcheries, and vice versa. The combination of the above factors is driving our wild salmonids towards extinction, and unless the government takes an action that can make the biggest change, like breaching the lower four Snake River dams, all of these cumulative impacts will press wild salmonids out of existence. Because this pressure is increasing from all sides in terms of cumulative impacts, the cumulative impacts discussion in this draft EIS is woefully insufficient. We elaborate below. Hatcheries hurt wild fish populations Hatcheries and their adverse impacts on salmon and steelhead deserve a weight and discussion that the USACE has not adequately considered. In Chapter 5, the agency cites Bonnevilles Lower Snake River Compensation Plan and the hatcheries that are funded as mitigation. In Chapter 6 (p. 2) the EIS again calls hatcheries positive and offsetting to negative impacts. In the most simplistic narrative, hatcheries replace numbers of fish lost for human consumption. However, hatcheries impose negative ecological and genetic impacts that are becoming more widely understood than when salmon and steelhead were listed and the National Marine Fisheries Service implemented regulations that allow for hatcheries. See 50 C.F.R. 223.203. In the past fifteen years, more science has emerged about the negative impacts of hatcheries. In conjunction with dams, hatcheries are suppressing the ability of salmon and steelhead to recover at best, and may be driving wild salmonids towards extinction at worst. For the below reasons, hatcheries are negative cumulative effects for wild fish, and the draft EIS must acknowledge and discuss this. Weve provided the best available science on this subject in addition to other agencies NEPA documents that recognize the negative impacts of hatcheries. Large releases of hatchery fish increase ecological risk factors. Several studies have specifically implicated large numbers or high proportions of hatchery fish as contributing to a decrease in wild fish productivity, abundance, or survival. Kostow 2009. Kostow discusses a historical example of what the cumulative effects of large-scale hatchery programs, habitat	Hatchery programs have long been a part of the approach for salmon recovery. Figure 3-111 in the Draft EIS is an illustration that the CRS can and has supported large numbers of returning adult salmon and steelhead. As noted, this figure combines hatchery and wild fish. The commenter is correct -- there are broad ecological effects concerning interactions of wild and hatchery fish, as well as harvest, throughout the basin. However, the actual mechanisms, effects, magnitudes, and processes are very complex and uncertain. The analyses used in the CRSO EIS were for the purposes of comparing the effects of the Multiple Objective alternatives for operation and configuration of the CRS projects to the No Action Alternative. Alternatives to include changes to harvest are not within the scope of this EIS. The assumptions regarding harvest are taken from the NOAA 2018 EIS and reflect current harvest management guidelines. To see their conclusions and effects analyses please go to: https://www.fisheries.noaa.gov/resource/document/environmental-impact-statement-programmatic-review-harvest-actions-salmon-and. Hatchery origin fish are very important to Tribal and sport harvest within the Columbia River Basin, and many hatchery programs are important supplementation to rebuilding natural populations. Further, the co-lead agencies have legal requirements to produce hatchery fish as mitigation for components of the CRS. The effects of hatchery programs on ESA-listed fish are evaluated through individual consultations under the Endangered Species Act. These consultations ensure the hatchery programs are not appreciably reducing the likelihood of ESA-listed species survival and recovery, or adversely modifying or destroying designated critical habitat. These consultations have resulted in many site-specific reforms to reduce effects of hatchery/wild fish interactions, such as decreasing the temporal and spatial overlap of wild and hatchery fish in integrated programs or transitioning to local broodstock in integrated programs, similar to the examples cited in the comment. The co-lead agencies used the most current, high-quality and scientifically accurate information, a multi-disciplinary team, and a science-based approach to analyze the alternatives in the EIS analysis. Federally funded hatcheries in the Columbia River basin are adaptively managed to minimize impacts on wild fish and the regulatory and action agencies use the best available science to establish best management practices for these programs. The co-lead agencies fund many ongoing research projects to better understand and minimize hatchery and wild fish interactions (i.e. evaluating the relative reproductive success of hatchery fish spawning in the wild from both segregated and integrated stocks, monitoring stray rates of hatchery and wild fish, understanding mechanisms that produce precocious maturation of male hatchery fish), including several referenced in your letter; however, information specifically focused on artificial propagation, while relevant to individual hatchery EISs and BiOps, is out of scope for the CRSO EIS. Consultations under Section 10 of the ESA also ensure that programs intended to be integrated recovery programs do indeed contribute to ESA-listed species. It is appropriate to claim beneficial effects from these hatchery programs. Based on the anadromous fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Under the Preferred Alternative, hatchery and habitat programs would continue as under the No Action Alternative, and a number of other mitigation measures would continue as well, but no new hatchery programs are proposed. The Preferred Alternative proposes measures such as increased spill intended to improve survival of juvenile anadromous salmonids. Over time, the Preferred Alternative is anticipated to benefit both wild and hatchery fish. Regarding dam breach, overall the conclusion in the Draft EIS is that MO3 would be beneficial to anadromous fish. The effects to populations as they transition from primarily hatchery production to an increased wild production of fish is qualitatively discussed in Section 3.5.3.6 in the Draft EIS. The co-lead agencies recognize the value of long-term benefits compared to short-term impacts as described in the Draft EIS. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as the MO3 which includes the dam breaching measure. The Preferred Alternative also meets the EIS objectives for: resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS the co-lead agencies did not identify MO3 because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system.

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				loss and degradation, and high harvest rates can wreak, using the Columbia River Basin: A specific example of this pattern is the lower Columbia River, which historically produced abundant wild Chinook, coho and chum salmon and steelhead. Extensive releases of hatchery fish, particularly of Chinook and coho, occurred throughout the twentieth century. By the early 1990s, Oregon Department of Fish and Wildlife (ODFW) was releasing about 2835 million fall Chinook, 89 million spring Chinook and 11 million coho annually into the lower Columbia and its major tributary the Willamette River (Kostow 1995). Washington was releasing additional Chinook and Coho salmon in the same area. These releases produced tens of thousands of adult hatchery fish that supported high harvest rates (Wright 1993; Flagg et al. 1995; Good et al. 2005). The hatchery fish that escaped the harvest returned to natural production areas in the lower Columbia River basin that by the 1990s contained no more than a few hundred adult wild fish (Wright 1993, Kostow 1997). By the early 2000s, many wild Chinook and coho salmon populations in the lower Columbia were considered to be extirpated (Good et al. 2005) and the remaining wild fish were listed under the ESA, along with the steelhead and chum populations in the same geographic area. Although the specific mechanisms of hatcherywild fish interactions were not assessed, the large numbers of hatchery fish released and the high harvest rates in fisheries targeting the hatchery fish were among the factors found to contribute to the poor status of these populations in the reviews leading to the final ESA listing decisions (Flagg et al. 1995; Weitkamp et al. 1995; Myers et al. 1998; Good et al. 2005). Kostow 2009. Large hatchery releases negatively impact wild fish survival. The group size of hatchery fish, whose individuals do not disperse as far as wild fish, attract predators. The group-size attraction, compounded with exhibiting behavior not typical of wild fish (aggressive displays, surface feeding, and failure to seek cover), increase predation risks: Wild fish are typically intermingled among the hatchery fish, and so are also consumed at higher than natural rates when the hatchery fish are present and attracting predators (Collis et al. 1995; Nickleson 2003). Kostow 2009. Hatchery fish pressure the environments carrying capacity, and highly inflated numbers of hatchery fish will cause density-dependent fish mortality not typically experienced in natural populations. This means that, for more than one offspring to replace a parent, and for populations to recover from events that might lower abundance, the density of parents, eggs, and juveniles, in the environment must be relatively low. Kostow 2009. In addition to ecological impacts, hatchery-reared fish commonly exert negative genetic effects on wild populations, including lower survival and reproductive fitness. Araki et al. 2010. Numerically rare wild fish will mate with the abundance of fish from hatcheries, and the offspring are genetically predisposed to have low fitness in a wild setting. Studies on segregated broodstocks with a nonlocal origin indicate very low relative fitness[1] of the hatchery fish. Araki et al. 2008. A summary of these studies points to a fishs genetic makeup as a reason why. Scientists think that the mechanism that most likely explains fitness decline is selection imposed by domestication: Domestication selection has long been known to be a strong evolutionary force intentionally changing the characteristics of captive-reared organisms, and unintentional selection is likely to occur in typical supplementation programs as well. Araki et al. 2008. One study has confirmed this, finding that some of the genetics selected for captivity are severely maladaptive in wild environments, and resulting fitness decline in succeeding generations can be rapid. Christie et al. 2016. Researchers studying the genetic effects of domestication have found that hatcheries produce fish that are genetically predisposed to have low fitness in natural stream environments. This lower fitness arises after only a few generations of domestication selection, leading researchers to suggest repeated use of captive-reared parents to supplement wild populations should be carefully reconsidered. Araki et al 2007. This study was repeated in 2016 by NOAA scientists with similar results. Ford et al.2016. Lower relative fitness from hatchery fish carries over to their wild-born descendants, thus impacting wild fish populations. In a study published by Araki et al, researchers reconstructed a genetic pedigree on steelhead trout and estimated reproductive fitness of wild-born descendants. In comparison to fish with two wild-born parents, wild-born fish with a single hatchery parent have a relative fitness of 87%, while wild-born fish with two hatchery parents have a very low relative fitness of 37%. Araki et al. 2009. These data are relevant to the long-term success of wild-born salmon. This is particularly concerning when it is clear that more hatchery-born fish are added every year into these systems. The fitness of wild-born fish appears to be in danger, and there is a distinct possibility of extinction that needs to be explicitly considered, and needs to be considered in a way that incorporates the reduction in genetic diversity since the beginning of segregated hatchery programs. The cumulative effects of this over generations could absolutely become significant and are amplified in a dwindling wild fish population. Steelhead provide a good illustration of hatcheries negative impacts. Idaho steelhead hatcheries are not for the recovery of wild fishthey exist to provide the only sport fishing and harvest opportunity available for steelhead. NMFS 2019 EA pp. 9, 13-14 (pdf pp. 26, 30). The Idaho-operated steelhead hatchery fish are genetically isolated from the wild steelhead. NFMS 2017 p. 2. NMFS defines integrated hatchery programs as those that are reproductively connected or integrated with a natural population, promote natural selection over hatchery- influenced selection, contain genetic resources that represent the ecological and genetic diversity of a species, and are included in a salmon ESU or steelhead DPS. When a hatchery program actively maintains distinctions or promotes differentiation between hatchery fish and fish from a native population, then NMFS refers to the program as isolated (also referred to as segregated). Isolated programs promote domestication or selection in the hatchery over selection in the wild and may culture a stock of fish with phenotypes (e.g., different ocean migrations and spatial and temporal spawning distribution) different from the natural population. NMFS 2017, p. 1. As discussed above, maintaining a hatchery population that is intentionally distinct from a wild population will not contribute towards conservation of the wild populationthe hatchery population introduces a risk of cross-breeding, which will reduce the genetic fitness of the wild population. See McClure et al. 2008,2 Weigel et al. 2019. The numbers of steelhead passing Lower Granite Dam are at an all-time low. See Fish Passage Center Lower Granite dam adult counts. The wild-born and the wild-born B-run are even smaller fractions of those numbers. Hatchery programs like the South Fork Clearwater program are not designed for conservation of wild fish and have no conservation benefit. When hatchery fish arent caught, these hatcheries are providing adverse genetic consequences pulling steelhead towards an extinction vortex by adding domesticated genes into the wild fish population. Even accepting the premise that the non-local broodstock for steelhead has genetic remains from the extirpated North Fork Clearwater steelhead population, it has also had generations of domestication selection at the hands of humansthis genetic line has been repeatedly propagated and reared at Dworshak before released as juveniles. For this reason, even for some broodstock that might have a minor genetic legacy of its ancestry (the extent of which has only ever been discussed anecdotally) from a neighboring basin, artifacts of domestication selection cannot be ignored. In the last ESA status review for steelhead, the Northwest Fisheries Science Center updated risk assessments for major population groups of steelhead in Clearwater River (Major Population Group). The Center renewed the Lower Clearwater steelhead population at a moderate risk for abundance and productivity. The Center issued a high risk rating on abundance and productivity for Lolo Creek and South Fork Clearwater, where [t]here are relatively large and consistent hatchery releases into the area. Northwest Fisheries Science Center (NFSC 2015). The Center stated, The PBT results for the initial year of adult hatchery returns (2012) indicate substantial numbers of hatchery fish are available to spawn after accounting for known removals. It is not possible at this time to generate productivity estimates for this grouping since estimates of the total number of spawners including hatchery fish are not available. For this review, the provisional high-risk A/P ratings applied in prior reviews will be carried forward. NFSC 2015 p. 116. In Idahos Final Steelhead Hatcheries Proposed Evaluation Pending Determination (PEPD), the authors admitted that interbreeding and competition with hatchery fish that outnumber natural-origin fish are one of the reasons that Snake River Steelhead DPS remain threatened, and that [h]atchery effects are likely more pronounced when the program occurs on a listed population. Idaho Steelhead Proposed Evaluation Pending Determination, p. 6. Then the PEPD listed various streams where the fraction of hatchery fish exceeded 50 percent: Tucannon, Asotin Creek, Lolo Creek, South Fork Clearwater, Little Salmon River, Pahsimeroi, Lemhi, East Fork Salmon, and Upper Salmon River. If a smaller fraction of hatchery fish could pose a significant effect, having the majority of fish in the area be the hatchery fish significantly compounds that. Continued plans for the release of hatchery fish will continue to compound the negative impacts of hydropower on threatened salmonids. The release of hatchery steelhead dramatically outnumbers wild B-run fish. And these two types of fish are not identical – hatchery steelhead are genetically divergent because of artificial selection, which causes offspring that survive poorly in natural stream environments. Christie et al. 2012. Hatchery fish that mate with wild fish will pass along the genetic divergence to their offspring. Specifically, hybrid offspring are much less fit than B steelhead born of two wild parents and raised in nature. Araki et al. 2009. Natural-born steelhead therefore face a one-two punch given their rarity: they will very likely mate with hatchery fish and then produce offspring that are poorly suited to survive. Based on the science of genetics and operation of hatcheries, hatcheries are negative cumulative impacts to wild fish. Hydropower contributes to this if hatcheries release numbers of fish based upon how many pass the dams on their return migration. The draft EIS must properly recognize and analyze hatcheries negative impacts to wild fish and how hatchery funding from cooperating agencies contribute to these cumulative impacts. If one looks at mitigation from the viewpoint of wild salmonids, hatcheries are not mitigation. Habitat mitigation is probably supporting increases in logging on the Nez Perce-Clearwater National Forests, which nullifies the mitigation efforts in these national forests We would like USACE and its partnering agencies, including the Bonneville Power Administration, to know that, while you are claiming the funds spent on restoring upstream habitat is making spawning grounds better, the U.S. Forest Service is relying upon some of this restoration to increase its logging levels, which undo any mitigative efforts. The Forest Service does not separate out its funding sources, which means that money funding salmonid-habitat improvement can be added into a pool where the Forest Service then uses that money to mitigate the adverse impacts of its own logging and roadbuilding projects. The clearest evidence to suggest this might	

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				be happening was in the Lolo Creek Watershed of the Nez Perce-Clearwater National Forests. The Forest Service has existing legal obligations under the National Forest Management Act to meet and comply with its forest plan. The applicable forest plan in this case, the Clearwater Forest Plan, has fishery habitat standards, including standards for Lolo Creek and its tributaries. Generally, if fishery habitat does not meet the requirements in the Clearwater Forest Plan for that stream, then the plan prohibits the Forest Service from approving activities (e.g., logging and roadbuilding) that would further degrade fish habitat because all management activities undertaken by the Forest Service must comply with the forest plan, which in turn must comply with the Forest Act, which requires that wildlife habitat must be managed to maintain viable populations of native and desired non-native wildlife species. Idaho Sporting Cong. Inc. v. Rittenhouse, 305 F.3d 957, 962 (9th Cir. 2002). Compliance with the Forest Plan is separate and distinct from BPA-funded restoration. The Northwest Power Act provides money to mitigate for hydropower losses. One of the express purposes of the Northwest Power Act is to protect, mitigate, and enhance the fish and wildlife, including related spawning grounds and habitat, of the Columbia River and its tributaries, particularly anadromous fish. 16 U.S.C. 839(6). To achieve this purpose, the Bonneville Power Association (BPA) developed a program to protect, mitigate, and enhance fish and wildlife in the Columbia River Basin, and the BPA is authorized to use the BPA funds to protect and enhance fish and wildlife to mitigate for the operation of dams in the Columbia River system. See 16 U.S.C. 839b(h)(1)(A), (h)(10). BPA funds are expressly to be used in addition to other existing legal obligations: Expenditures of the Administrator pursuant to this paragraph shall be in addition to, not in lieu of, other expenditures authorized or required from other entities under other agreements or provisions of law. 16 U.S.C. 839b(h)(10)(A) (emphasis added). So, the Forest Service is prohibited by law from using BPA funds to meet its own forest-plan obligations. Both the BPA and the Forest Service have reiterated that BPA funds should not be used to mitigate for Forest Service projects in a Memorandum of Understanding (MOU) for BPA-funded projects. But, the Forest Service does not keep BPA funds separate from other funds. In 2014 Friends of the Clearwater submitted a Freedom of Information Act request to the Nez Perce-Clearwater National Forests, asking how the agency differentiates between sediment-reduction activities done to mitigate Forest Service projects such as roadbuilding and timber sales and sediment-reduction activities funded by the BPA. We asked for guidance, policy, and accounting about how to differentiate these projects, in addition to a list of projects where both categories of restoration had taken place between 2009 and 2014. See FOC Watersheds FOIA 2014. The Forest Service responded that there existed no guidance on how to separate out sediment-reduction projects by funding mechanism, claiming that projects are generally not differentiated by funding mechanism during the NEPA stage. FS Watershed FOIA response.pdf (in BPA folder). The Forest Services lack of accounting of BPA money creates a situation where the Forest Service risks using BPA funds in order to offset the Forest Services own timber- harvest activities (mitigation activities such as decommissioning roads). And, based on some of what the Forest Service has reported back to the BPA, this might be happening. Two major recipients of BPA funding for habitat restoration on the Nez Perce and Clearwater National Forests are the Nez Perce Tribe and the Forest Service. The Nez Perce Tribe has invested a substantial amount of BPA money and work into restoring the Lolo Creek Watershed. According to the BPAs status report on the Lolo Creek Watershed, BPA has provided over two million dollars to the Tribe for restoration work specific to the Lolo Creek watershed. Completed as of 2018 includes culvert prioritization and assessment, installation of an offsite water source, twenty-eight culvert replacements, eleven culvert removals, 1600 ft. of stream bank stabilization, 16 miles of fence installation, and over 22,000 riparian trees planted. Additionally, the Tribe has decommissioned 101 miles of road in the Lolo Creek watershed as part of this restoration funding; the Tribe started restoration work in 2001 and it is ongoing. BPA 2018. This restoration work is why the existing fisheries habitat condition is better than it was. The Forest Service has also utilized a considerable amount of BPA funds to restore the Lolo Creek watershed. The same BPA report also shows that BPA has provided approximately $345,000 to the Forest Service for Lolo Creek Watershed Restoration. With this money, the Forest Service has also replaced culverts and has decommissioned over twenty miles of roads in the Lolo Creek Watershed. The Forest Services contract work began in 2007 and ended in 2010. In 2018, the Forest Service authorized a 3,387-acre logging project in the Lolo Creek watershed. This approved logging project included the construction of 15 miles of temporary road and a lot of other road work on the National Forest System Roads. USDA FS 2018; USDA FS 2018a. Even though the Forest Service generally claims that road decommissioning in its projects are not intended to offset timber harvest, decommissioning roads mitigate the logging projects and the road activities associated with them. This is because road decommissioning improves watersheds and timber harvest impairs watershed. When these two activities are combined and analyzed in one project, the benefits of the road decommissioning will offset the timber harvest. Substantively, this is also how the Forest Service defines mitigation: Measures designed to counteract environmental impacts or make impacts less severe. USDA FS 2018 FEIS p. 294. In the Lolo Insects and Disease Project, the Forest Service could not show that streams in the Lolo Creek watershed were meeting their beneficial uses absent BPA-funded mitigation. Records weve pieced together suggests that the Forest Service is using BPA funds to decommission roads that were intended to offset timber harvest impacts for previous logging projects in the Lolo Watershed area. For example, in the White/White Project (approved 2007), the Forest Service proposed over 2,300 acres of vegetative management, including regeneration cuts, commercial thinning, and pre-commercial thinning. See USDA FS 2007 p. 5. In White/White, the Forest Service intended to restore aquatic conditions for the express purpose of meeting forest plan conditions, among other things, and so proposed to construct and obliterate approximately 6.45 miles of temporary road for the timber sale and decommission approximately 16.2 miles of existing road, which amounts to 22.65 miles of road decommissioning and obliteration in total. USDA FS 2007 p. 5. In a completely separate report to the BPA for the time period 2007-2010, the Forest Service reports using BPA funding to decommission approximately 23 miles of road under the work-element titles, White-White Road Decommissioning and White-White II Road Decommissioning. BPA 2018 Status Report for Lolo Creek Watershed, p. 14. In order to demonstrate that the Forest Service had performed BPA-funded work in addition to, and not in lieu of, its own NFMA and forest-plan obligations for the White/White Project, the Forest Service would have had to show an accounting that it decommissioned approximately 45 miles of road in the White Creek watershed(s)22.65 miles of road decommissioning to offset impacts from timber harvest, and 23 miles of road decommissioning using BPA funds to offset the impacts from dams. Similarly, in the Yakus Creek timber sale (approved 2008), the Forest Service proposed 11.5 miles of road decommissioning, which would offset 450 acres of timber harvest and about 6 miles of road construction. USDA FS 2008 Yakus Creek Record of Decision, p. 1. The BPA report reflects the Forest Service reported to use BPA funds to decommission 10 miles of roads for Yakus Creek Road Decommissioning between 2007 and 2010. BPA 2014 Status Report for Lolo Creek Watershed, p. 14. In order to demonstrate that the Forest Service had performed BPA-funded work in addition to, and not in lieu of, its own NFMA and forest-plan obligations for the Yakus Creek timber sale, the Forest Service would have had to demonstrate approximately 21.5 miles of road decommissioning in Yakus Creek11.5 miles of road conditioning to offset timber harvest and an additional 10 miles funded by BPA to mitigate for dams. During the NEPA process for the Lolo Insect and Disease Project, Friends of the Clearwater raised this concern and asked for this accounting, but the Forest Service summarily dismissed this request, providing no information. The Forest Service refused to provide any accounting or details that could demonstrate or rebut FOCs concern that the BPA-funded restoration work in this watershed area was not the primary reason why the watersheds conditions were meeting forest-plan standards. See USDA FS 2018b Objection Response to FOC Lolo Insects and Disease Objection, p. 2. Without such an accounting and by refusing to provide one, there is a real possibility that the Forest Service is unlawfully spending BPA funds to meet its own forest plan obligations in order to approve future habitat-degrading activities, i.e. timber harvests and the road-building that accompanies them. There is also a real possibility that, for areas like the Lolo Creek watersheds existing condition (a result of BPA money and the Tribes excellent work), the Forest Service is relying on the improved existing condition to demonstrate that the area meets the minimum standards required by the Clearwater Forest Plan. Meeting the minimum forest-plan standards means the agency can approve more habitat-degrading logging and roadbuilding in the area. So, BPA funds are potentially mitigating for logging projects, and cant also be counted as mitigating for hydropower impacts. So long as the Forest Service isnt correcting this, USACE and BPA cannot count this as mitigation. What we have provided is just an example. This double-dippingthat the USACE and BPA are counting as habitat restoration to mitigate for dams while the Forest Service is counting the same habitat restoration to mitigate for its own habitat-degrading activitiesis relevant to the draft EIS analysis because it suggests that mitigation is having much less of an impact than assumed. To compound the problem that Northwest Power Act money might be mitigating for current timber harvests, upstream habitat may get much, much worse in the foreseeable future because of an upcoming forest-plan revision. The USACE must recognize and discuss this reasonably foreseeable negative cumulative impact. The Forest Service is revising the forest plans for the Nez Perce and Clearwater National Forestsdraft revised forest plan and EIS was released December 2019. Weve provided the 2014 Forest Service assessment on fisheries (Ch. 1) for the revised forest plan so NMFS can see what the current condition was in 2014. The upstream habitat for fisheries is still impaired in many places. USDA FS 2014. And this was with measurable, quantifiable standards. Whereas the 1987 Nez Perce Forest Plan and the 1987 Clearwater Forest Plan had measurable fisheries standards that related to cobble embeddedness, See USDA FS 1987a (Nez Perce Forest Plan Ch. II, p. 19 and Appendix A) and USDA FS 1987 (Clearwater Forest Plan, Ch. II p. 27, Appendix K), this new combined plan has no measurable standards for fisheries and the Forest Service has only proposed action alternatives that increase logging, one alternative up to four times the current levels. USDA FS 2019c p. 13. An increase in logging means an increase in roads, and an increase in roads means more fine	

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				sediment distributed to upstream habitat. If the Forest Service does not amend this trajectory, BPA money could not mitigate the Forest Services impact on salmon and steelhead habitat from logging activities, much less even come close to mitigating for the impact downstream dams have on fish. For these reasons, the funding going into upstream habitat projects, specifically in the Nez Perce- Clearwater National Forest, may not have the mitigative effects the USACE is relying upon to make up for the injuries to wild fish from hydropower. This needs to be properly disclosed to the public and discussed. Please choose the Multiple Objective Alternative 3: Breaching the Snake River Dams While we recognize that breaching dams is tricky with some potential short-term negative impacts, there is some great research from the Elwha Dam decommissioning about some species specifically the bull troutrapidly (and positively) responding to a post-dam environment. Brenkman et al. 2019. Please review itthe potential short-term issues with dam breaching is outweighed by incredible potential to recover wild salmonids and the long-term benefits of doing so. For the above reasons, wild salmonids are facing dire cumulative threats that, without drastic action, will keep them listed under the ESA in the best scenario, and will drive them into extinction in the probable scenario. Our organization and our members value wild species. What the agency and cooperating agencies presume to be mitigation is having nullified and even adverse cumulative impacts to wild fish in all alternatives. For these reasons, the best option to counter these impacts and preserve wild salmonids is with dam removal. While hatcheries, habitat, and harvest all need to be addressed, hydropower has the potential for the biggest impact by far.	
3220	2	handerson@cec-co.com	N/A	CEC remains concerned, however, about the wide variability around the two bodies of fishery science considered in the Draft EIS (i.e., NOAA's Life Cycle Model and The Fish Passage Center's Comparative Survival Study model). The extended operation at 125% Total Dissolved Gas ("TDG") at these federal projects called for in the Flexible Spill Agreement (and the basis for the PA) is an unprecedented action. We appreciate that the co-lead agencies understand the potential controversy arOLmd the different a sumptions made by each of the fish models when it comes to assessing the biological risks veTsus benefits of operations like the P A, which incorporate increased and un,.tested spill levels. To address this issue, we request the adoption of reliable fish monitoring and adaptive management solutions. Throughout the implementation of Flexible Spill, and as further adopted in this EIS, CEC urges the co-lead agencies to closely monitor the PA's untested operational approach, particularly, spill to 125% TDG. Efforts must include continual analysis of the proposed action and its impacts on ESA species, and the development of a robust monitoring approach and public platform to provide transparent feedback. We also encourage the co-leads to develop and improve upon an adaptive management framework to ensure their actions do not jeopardize the continued existence of any listed species.	Total Dissolved Gas (TDG) levels are regulated under the Federal Clean Water Act, and administered by the states. Both Oregon and Washington have reassessed the available data on effects of TDG levels up to 125% of saturation on fish and other aquatic organisms. Based on this reassessment, Oregon issued a five-year "standard modification" and Washington issued a permanent rule change, approved by the Environmental Protection Agency (EPA), to allow TDG saturation up to 125%. However, as noted by the commenter, there is considerable uncertainty in the effects; therefore, monitoring was required by the states and EPA to ensure any negative effects are detected and allow for adaptive management. Due to the disparity in the two model's forecasts for the Preferred Alternative and the uncertainty in the effects of TDG up to 125% on migrating salmon and steelhead, the Preferred Alternative includes a robust monitoring plan to help narrow the uncertainty between the biological models and help determine how effective increased spill can be in increasing salmon and steelhead returns to the Columbia Basin. The effectiveness of the spill program will be monitored and effects from other sources such as harvest, ocean mortality, and straying will also be accounted for to the extent possible. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information.
3220	3	handerson@cec-co.com	N/A	Support for further study regarding socio-economic impacts of blackouts. We encourage the co-lead agencies to sharpen their analysis around this issue before issuance of the Record of Decision.	The commenter is correct that there could be socioeconomic effects if blackouts occur. The EIS methodology includes the full incremental replacement resource cost necessary to return the region to a level where the likelihood of blackouts is equal among all the alternatives, such that comparisons can be made among the alternatives on an equal basis. The EIS assumes for each Multiple Objective alternative (MO) that sufficient resources are acquired to reduce the risk of blackouts to the level of risk that existed prior to implementation of the MO. Once replacement resources have been acquired, the risk of a blackout for each MO is effectively the same as the No Action Alternative. The EIS evaluates the costs of replacement resource portfolios that would be required to avoid increasing the risk of an outage. See Draft EIS, Section 3.7. The approach in the analysis is to first evaluate the increased risk of power outages related to an alternative, and then identify what resources are needed to avoid that increased risk of an outage. Thus instead of identifying the potential socio-economic costs of power shortage, the analysis identifies the costs of replacement resource portfolios that would be required in order to avoid increasing the risk of an outage. If the EIS had then also added to each MO the additional cost of a blackout, then the MOs would have double-counted the impact of blackout risk (i.e. the MOs would have included the cost of avoiding blackouts and the costs of blackouts). The analysis identifies that the expected outcomes of MO3 and Multiple Objective alternative 4 (MO4) would be an increase in the cost of power and not in the risk of an outage. See Draft EIS, Sections 3.7.3.5 (MO3) and 3.7.3.6 (MO4). Because of the shape of the remaining hydropower generation in the Preferred Alternative, the loss of load probability was essentially the same as that of the No Action Alternative and identification of replacement resources was not necessary.
3222	1	cblack@rrelectric.com	Raft River Rural Electric Cooperative	RREC supports the Preferred Alternative (PA) contained in the DE IS as a balanced approach, but with some concerns.	Thank you for your comment.
3222	2	cblack@rrelectric.com	Raft River Rural Electric Cooperative	Realizing there will be costs associated with the PA, we ask that the proper care is taken to ensure the measures are not adversely impacting the ESA listed species. The flexible spill agreement imposes large amounts of untested spill to meet the requirements of the PA. It is my understanding that of the 2 bodies of science used in the DE IS analysis predict significantly different results for the survival of the ESA-listed species we are trying to protect. That is why RREC insists that as the co-leads continue to contemplate increasing spill up to 125% total dissolved gas (TOG) levels, these operations include strong monitoring measures and adaptive management	Under the ESA, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy species habitat. The co-lead agencies used current, high-quality information in the analysis of effects to ESA-listed salmonids in the CRSO EIS. Specific to salmon and steelhead, the agencies used two primary modeling approaches which yielded a range of potential outcomes for the alternatives. With respect to the Preferred Alternative, the CSS Model predicts that average Smolt-to-Adult return rates (SARs) would increase for both Snake River spring Chinook and steelhead and would average above 2% (the lower end of Northwest Power and Conservation Council's recovery targets for the region) as a result of the Preferred Alternative increasing SARs from 2.0% to 2.7% for Chinook, a 35% relative increase. The National Marine Fisheries Service COMPASS and Lifecycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to narrow the uncertainty between the two models and test how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information.
3222	3	cblack@rrelectric.com	Raft River Rural Electric Cooperative	In addition to unproven and unprecedented new levels of spill, we are concerned about other conditions that impact ESA-listed salmon species. For example, we are concerned with increased predation, not to mention the rising water temperatures in the ocean and streams that change based on conditions that we as power users cannot control. Again, economic impacts on our members are never easy to promote, but doing our part is nothing more than declaring good stewardship. However, if we are going to ask our members to sacrifice from the common good, we need assurance that the costs associated are actually working based on science, not emotion.	The co-lead agencies recognize that there are many effects to salmon and steelhead populations outside the operation of the dams; including those the commenter mentions. Research continues to evaluate the magnitude of these effects. For more information see the NMFS website at: https://www.nwfsc.noaa.gov/research/index.cfm. The EIS analyses relied on high-quality information and modeling, and co-lead and cooperating agencies' expertise, in the evaluation of effects of alternatives to resources. Based on the anadromous fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative (PA) would provide substantial benefits to ESA-listed species. The PA includes an adaptive management plan. This plan involves working with regional sovereigns to develop a study to assess the effectiveness of the increased spill regime on adult returns as well as assessment and management of adverse unintended consequences, such as long delays of adult migrants, or TDG-related mortality of juvenile migrants. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information. Specifically for the comment on predation, on-going actions described in the No Action Alternative to reduce predation on migrating fish are included in the PA. In addition, water management actions (Predator Disruption Operations measure) in the John Day reservoir are expected to further reduce avian predation on migrating juvenile fish. The No Action Alternative includes ongoing mitigation measures to haze and monitor pinniped predators. These actions would continue into the future under the PA, and the co-lead agencies would continue to assist National Marine Fisheries Service (NMFS), states and Tribes in their pinniped removal efforts near Bonneville Dam. For Bonneville's wholesale power rates, the Preferred Alternative places additional rate pressure of 2.7% relative to the No Action Alternative, consistent with the statement in the comment regarding increased rates. These estimates compare the Preferred Alternative to the No Action Alternative, which is not the same as comparing the Preferred Alternative to current operations. Consequently, the estimates are not a comparison to the BP-20 wholesale power rates, which were set assuming the financial impact of the 2019-2021 Spill Operation Agreement and therefore already include a substantial portion of the cost pressures found in the Preferred Alternative. The remaining rate pressure associated with the Preferred Alternative falls within a level that Bonneville has historically been able to absorb through the costs it has significant control.
3222	4	cblack@rrelectric.com	Raft River Rural Electric Cooperative	I would now like to provide comments on Multiple Objective Alternative 3 (M03). This has been a controversial topic for years. The operation of the Lower Snake River Dams (LSRD) is essential to the goal of providing a reliable and economical power supply to the region. Although the removal of these dams may provide relief to some ESA-listed species, with the water temperature and predation issues, it is clearly not a sure fix all. The negative impact on the bulk power system makes M03 a non-option for our cooperative.	Multiple Objective alternative 3 was not identified in the Draft EIS as the Preferred Alternative. The information provided in the comment regarding the power-related impacts of breaching the four lower Snake River dams is consistent with the findings of the EIS. See Draft EIS, Section 3.7.3.5, Table 3-166; and Appendix H, Table 2-1. The EIS also discusses the fact that Bonneville customers, such as the cooperative mentioned in the comment, may be more directly affected by rate pressures than other regional utilities that do not purchase power directly from Bonneville. See Draft EIS, Section 3.7.3.5, Residential Effects, page 3-929.
3222	5	cblack@rrelectric.com	Raft River Rural Electric Cooperative	Realistically, with growing pressure on power providers to adopt stringent carbon free plans, removing the hydro resource shows complete disregard for improved and reduced carbon footprints. If these carbon free flexible and extremely reliable resources are removed (2000 MW), there will be much less chance of backing up renewables like wind and solar, without an increased loss of load probability or more plainly said, blackouts.	The EIS finds, consistent with this comment, that Multiple Objective 3 (MO3), which includes breaching of the four lower Snake River dams, would result in increased emissions from power generation. The comment that MO3 would increase the frequency of power shortages, unless and until replacement resources are acquired, and remove the renewables integration benefits of the four lower Snake River dams is also consistent with the findings of the EIS. See draft EIS, Section 3.7.3.5, Table 3-166 and Appendix H, Table 2-1.
3222	6	cblack@rrelectric.com	Raft River Rural Electric Cooperative	It is like paper products on the shelves of retail stores during the recent Covid-19 pandemic. Think for a moment if the region was suffering from those similar shortages of viable electricity. There are many essential services that continue to operate via technology using phones and the internet, all of which rely on power to operate. It may seem like an extreme example, but the reality is, removing flexible and extremely reliable hydropower base load contained in the LSRD, and the region is facing limited supply of resource, that may very well result in power shortages, causing blackouts. Granted, we can build alternate resources at a hefty cost, but not to be completely carbon free. There is simply no technology economically feasible that has a zero-carbon footprint as compared to Hydro Power.	The commenter's suggestion that hydropower is a reliable source of power is consistent with the findings of the EIS. The findings of the power replacement resources indicated that more capacity for zero-carbon resources (e.g., solar) were needed to address lower capacity factors, consistent with the commenter's concern. The higher costs for new renewable power, as described by the commenter, is also consistent with the descriptions and analysis of the EIS as described in Section 3.7.3.5, Potential Replacement Resources and Associated Costs, and in Table 3-166, Average Bonneville Wholesale Power Rate ($/MWh) under Multiple Objective 3, for the Base Case without Additional Coal Plant Retirements as well as the Rate Pressures Associated with Additional Sensitivity Analysis.
3222	7	cblack@rrelectric.com	Raft River Rural Electric Cooperative	Multiple Objective Alternative 4 (M04) is another option that could be as damaging to the bulk electric system as M03, as this would implement the highest level of spill across the entire CRS. The level of power generation decreased under average water conditions would be 1,300 aMW and 870 aMW under low water conditions. This seems to be obviously another alternative that simply cannot be tolerated if our goal is to meet the needs of providing a reliable and economical power supply. It also imposes large and untested levels of spill that could pose a diminishing effect on the ESA-listed species, depending on which model is used. To me, there is too much room for error. To impose these types of actions at the cost associated, could be considered wreck less	The information provided in the comment regarding the power-related impacts of Multiple Objective alternative 4 (MO4) are consistent with the findings of the EIS. See Draft EIS, Section 3.7.3.6, Table 3-182. Consistent with the comment, the Executive Summary and Chapter 7 explain why MO4 does not meet the objective developed for the EIS to maintain an adequate, efficient, economical and reliable, affordable power system. The Preferred Alternative identified in the Draft EIS meets the hydropower generation objective.
3224	1	nickwbacon@gmail.com	N/A	The notion that recreational opportunity would improve for the Valley if the slack water is gone is without merit. Firstly we already see existing benefit from the existing whitewater associated businesses as they use our community for supplies, lodging etc, so that would be a net zero "gain". Secondly Hells Gate State Park, Swallows Park, and Chief Timothy park would likely lose 100% of their waterfronts, which would in turn drastically reduce or eliminate their operations. Thirdly with no dams the Corps of Engineers would no longer need to maintain the levies and therefore the levee trails. Over 22 miles of local trail system would fall into disrepair as would the associated parks and the LC Valley would become disconnected from the Lewis & Clark National Historic Trail. Fourthly, the community would lose several public access beaches used by many (including low income families) to recreate and stay cool during the high temperature summers.	Section 3.11 describes adverse effects to existing recreation facilities and access points, which includes beaches, waterfront areas and trails in the Lewis and Clark Valley in Region C, that would occur under MO3, particularly in the short term. The adverse effects for any particular area are hard to predict with precision including at Hells Gate State Park, Swallows Park, and Chief Timothy Park but are expected to be adverse in general. In addition, Section 3.11 describes the need to develop recreation facilities, infrastructure, and/or recreational access under MO3 in the lower Snake region to facilitate new and emerging river recreation. As the region transitions to more river-based recreation, the EIS also describes some beneficial effects that are likely to occur.

Letter No.	Comment No.	Commenter Name/Email	Affiliation	Comment	Response[1/]
3250	1	Brian Hess	Inland Power and Light	After reading the report, I found the agencies preferred alternative, also known as MO1, to be mostly positive. I feel it is important to work toward a solution that addresses as many of the concerns as possible as they pertain to the lower Snake River dams. I was encouraged to see that MO1 calls to keep the dams on the lower Snake River in place. Since the passage of the Clean Energy Transformation Act and the Energy Independence Act, Washington utilities are working extremely hard to ensure the mandated clean energy requirements are met. While it is a steep order, the industry is committed to meeting those goals. We cannot, however meet these regulations without hydropower. It is important to note that increasing the level of spill would result in loss of power generation, thus creating higher costs for ratepayers. The DEIS states that MO1 has more than twice the risk of power shortages including blackouts and emergency conditions than the Northwest Power and Conservation Councils target for regional reliability. This is simply not acceptable. The state of Washington is already looking at a 7,000 MW delta once both coal and natural gas are removed from the states energy portfolio. It is imperative that we not lose clean energy production. According to the National Oceanic and Atmospheric Administration (NOAA), hydropower is necessary for meeting the state mandates for clean, carbon-free energy. The lower Snake River dams generate over 1,000 average megawatts of affordable, carbon-free electricity. They also help us safely add intermittent renewables, like wind and solar power, to the grid. The hydroelectric turbines at the dams can very quickly fill in the gaps for wind and sunshine, keeping the grid balanced.	The EIS does not identify MO1 as the Preferred Alternative as the comment states. The co-lead agencies developed a Preferred Alternative that includes a combination of measures from all of the Multiple Objective alternatives with consideration of environmental, economic, and social effects. Under the Preferred Alternative, regional power reliability is the same as the No Action Alternative; whereas MO1 analysis showed nearly twice the risk to regional reliability relative as the No Action Alternative. The comment that the four lower Snake River dams provide carbon-free energy and play an important role in the regional power system, particularly in regards to the integration of renewable power sources, is consistent with the findings of the Draft EIS in Section 3.7.3.5, Replacement Resources, and Section 3.8.3.5, Greenhouse Gas Effects of Multiple Objective alternative 3.
3250	2	Brian Hess	Inland Power and Light	After research, NOAA concluded that dams and salmon can coexist. It is also important to recognize the major fish passage improvements made to the lower Snake River dams. Over $2 billion has been invested in improved fish passage technologies for the lower Snake and lower Columbia river dams since 2001. These improvements have made a significant difference in juvenile salmon survival. Additionally, from 2001-2015 the lower Snake River experienced by far its highest adult salmon returns since the first lower Snake River dam was completed in 1961. I urge the agencies and regulatory bodies take MO1 seriously as it would benefit the vast majority of stakeholders and result in the most collaborative good for the region.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. Multiple Objective alternative 1 (MO1) met the objectives for implementing adaptable water management strategies, water supply, ESA-listed juvenile and adult anadromous fish and resident fish. However, the expected degree of improvements to ESA-listed salmonids was less than was desired by the co-lead agencies. Under MO1, there would likely be moderate adverse effects to water quality in the lower Snake River, and there would also likely be moderate adverse effects to resident fish in the upper Columbia River Basin due to changes in reservoir operations and elevations that would require mitigation. There would likely be no major or moderate economic effects under MO1, but there are major social effects, including adverse impacts to cultural resources at Hungry Horse, Lake Roosevelt and Dworshak reservoirs. MO1 was not identified as the Preferred Alternative. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets most other EIS objectives including those for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams, because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system.
3315	1	N/A	N/A	See Attachment...	Unfortunately, an attachment was not received from the commenter. The commenter did not provide any contact information the co-lead agencies could use to request these comments, so a response was not provided.
3379	1	jerrydairy@cablespeed.com	N/A	Rather than remove the dams, Just OPEN them to lowest capacity. Then wait a year or two. If you find you have not destroyed the system, then you can proceed with removal.	As stated in Chapter 2, the co-lead agencies developed the reasonable range of alternatives to meet the objectives and the Purpose and Need Statement. The purpose and need describes the congressionally-authorized purposes of the system, which include hydropower generation, inland navigation, and irrigation, among others. Sections 7.3 and 7.4 of the EIS provide a descriptive comparison of the alternatives evaluated. This information is also provided in Table 7-1, Evaluation of Alternatives. Opening the dams is an unreasonable alternative given the potential risks to public health and safety from impacts such as power and transmission reliability and flood risk management.
3430	1	bbrokens@msn.com	N/A	Please see attached letter, which reflects my views on removing the dams in the columbia river drainage.	Unfortunately, an attachment was not received from the commenter. The co-lead agencies requested the commenter resubmit via e-mail on June 25, 2020; however, the co-lead agencies did not receive a response to this request.
3455	1	mhabailey@comcast.net	N/A	SAVE THE PLANET SAVE THE DAMS I live in Tetonia, Idaho and my electric provider is Fall River Electric. It has come to my attention that you are looking at closing some of the dams in the area that will affect me and my home. Please consider the families and farms that this will impact and leave them alone. See attached letter below.	Unfortunately, an attachment was not received from the commenter. The co-lead agencies requested the commenter resubmit via e-mail on June 25, 2020; however, the co-lead agencies did not receive a response to this request. Multiple Objective alternative 3, which included the measure to breach the four lower Snake River dams, was not identified in the Draft EIS as the Preferred Alternative.
3502	1	glenb@inlandpower.com	N/A	While it is not completely amenable to the utility industry, it certainly addresses our primary concern, which is keeping the dams on the lower Snake River in place. This component of MO1 is most definitely a move in the right direction. The increasing regulations facing Washingtons utility industry continues to put pressure on the states electric grid. The push for carbon-free energy is something that simply cannot be done with the use of hydropower. The notion that the lower Snake River dams dont contribute a significant amount of power is nothing more than a myth and misguided argument. These vital dams produce enough carbon-free energy to power 1.87 million homes.	Consistent with the comment, the EIS finds that replacing hydropower generation from the four lower Snake River dams would increase carbon dioxide emissions. EIS, Section 3.8.3.5, 3-1009-1010 in the draft EIS. While the EIS finds that it would take even more renewable resources to replace the four lower Snake River dams generation while the region is retiring coal plants, the question of whether the dams are essential in reaching Northwest clean energy goals was not addressed in the EIS. See draft EIS, Section 3.7.3.5, Potential Replacement Resources And Associated Costs at pages 3-904-905 and Table 3-160 in the Draft EIS. Consistent with the comment, these dams are an important component of the Federal Columbia River Power System. They provide approximately 1,000 aMW of carbon-free energy on average and 2,000 MW of sustained peaking capacity at certain times of the year. See draft EIS, Section 3.7.3.5, Changes in Power Generation, Table 3-159. The dams also provide important ramping capability the ability to quickly generate energy to match spikes in energy usage with over 2,000 to 2,300 MW of capability in certain months of the year. See draft EIS, Section 3.7.3.5, Lower Snake River Full Replacement at pages 3-905-907 and Table 3-160.
3502	2	glenb@inlandpower.com	N/A	The MO1 does a great job of noting the importance of dams and salmon coexisting. The National Oceanic and Atmospheric Administration (NOAA) agrees that these power-generating resources and this vital specie can exist together at the benefit to all in the Pacific Northwest. Salmon pass through many different ecosystems in their life cycles. The ocean is where Chinook salmon spend 75% of their lives. In 2019, the Intergovernmental Panel on Climate Change warned that climate-driven changes have become a major threat to marine life in ocean ecosystems. They said that these changes are poisoning our oceans with carbon, heat, and acidity and depleting the waters of oxygen. Its not surprising that marine biologists have recently noted near-synchronous declines in worldwide salmon populations. Most of these salmon populations come from rivers without dams.	The co-lead agencies concur. The decline of salmon populations is complex and recovery of those species will take collaboration between various agencies including NOAA and the tribes. The co-lead agencies acknowledge that the ocean environment is a contributor to the decline in salmon populations that is beyond the scope of the CRSO EIS. While none of the alternatives would affect ocean conditions, we recognize that these conditions are a major driver for adult returns and that numerous studies have shown the importance of this environment in the return of adult salmon and steelhead (Peterson et al. 2019). As such two of the models used in these analyses, NMFS Life Cycle and CSS models, use metrics of ocean productivity to predict adult returns. The carbon-free attributes of the Federal hydropower system are described in the Air Quality section of the Draft EIS (section 3.8).
3502	3	glenb@inlandpower.com	N/A	Meanwhile, the lower Snake River dams can displace as much carbon as would be produced by two Boardman coal plants running 24 hours a day, 365 days a year.	Section 3.8.3.5 of the EIS provides information on the greenhouse gas (GHG) emissions effects of Multiple Objective Alternative 3 (MO3), which includes breaching the four lower Snake River dams. The analysis evaluates GHG emissions effects assuming a range of replacement resource scenarios. At the high end, the analysis finds an increase in GHG emissions of 3.3 MMT CO2 under MO3, if the replacement power resources are natural gas (the least cost replacement).
3508	2	badgercaddis@mac.com	N/A	Im interested in preserving our access to a carbon free, reliable, and historically low-cost federal hydropower generation, and therefore support the Preferred Alternative (PA) contained in the DEIS as a balanced approach that benefits the ESA-listed species, meets the multiple purposes of the federal projects, and minimizes adverse economic, environmental, and social impacts, although the PA comes at a cost to me as an electric cooperative member.	Thank you for your comment. In developing the Preferred Alternative, one of the objectives was ensuring reliable and affordable power. The Preferred Alternative allows the co-lead agencies to continue to operate the facilities for their congressionally authorized multiple purposes, including fish and wildlife, water supply, navigation, flood risk management, and recreation.
3508	3	badgercaddis@mac.com	N/A	These dams are a key source of low-cost, carbon free power.	This comment is consistent with the discussions and findings of the EIS in Sections 3.7.3.5 and 3.8.3.5 regarding increases in power rates and greenhouse gas emissions under Multiple Objective Alternative 3 (which includes breaching the four lower Snake River dams).
3508	4	badgercaddis@mac.com	N/A	Overall juvenile survival of salmon and steelhead through the Columbia River system is 40% to 50%, depending on the species, which is comparable to free-flowing rivers such as the Frasier River in Canada.	The co-lead agencies concur with the generalized survival rates through the CRS. The co-lead agencies advise caution when directly comparing survival rates between different populations of fish or from different geographical locations. See ISAB 2020-1 for discussion of comparing populations, even populations within the Columbia Basin.
3508	5	badgercaddis@mac.com	N/A	The Lower Snake River dams are some of the lowest cost generation marketed by BPA and are increasing in value as the region sets greenhouse gas (GHG) emission goals.	This comment is consistent with the discussions and findings of the EIS in Sections 3.7.3.5 and 3.8.3.5 regarding increases in power rates and greenhouse gas emissions under Multiple Objective alternative 3 (which includes breaching the four lower Snake River dams).
3508	6	badgercaddis@mac.com	N/A	They provide substantial energy, operating reserves and ramping capability to help prevent blackouts and integrate other variable renewable generation like wind and solar. They have also been built to facilitate fish passage with a spring juvenile survival rate of 96%, which meets performance standards.	The statement that the four lower Snake River dams provide reserves and ramping capability that benefit regional power reliability is consistent with the discussions and findings of the EIS. The survival rate referenced in the comment is put in context in the Draft EIS on page 3-303: To aid the downstream passage of juvenile salmon and steelhead, the co-lead agencies have worked to improve passage and survival past the dams and through the reservoirs of the CRS. Figure 3-114 in the Draft EIS, shows recent estimates of survival at the eight lower CRS projects with fish passage. The dam survival estimates do not include system-wide or latent effects (see Section 3.5.3.1). These estimates were developed to show progress towards meeting the individual dam survival goals developed during the 2008 Biological Opinion of 96 percent survival past each dam for yearling Chinook and steelhead, and 93 percent for Snake River sub-yearling fall Chinook. Section 3.5 also discusses system survival rates, as well as latent mortality. The analysis of alternatives presents estimates of survival rates from Lower Granite to Bonneville dam (eight dams) for Snake River spring/summer Chinook and Snake River steelhead from two different models, with the estimates ranging from 40-60%. The mechanism and magnitude of latent mortality are not well understood, as presented in the discussion of Independent Scientific Review in Section 3.5.3.1, Methodology.
3508	7	badgercaddis@mac.com	N/A	This reports conclusions on fish and wildlife are consistent with past findings which show the lower Snake River dams do not jeopardize the existence of threatened and endangered salmon species that navigate past them.	The co-lead agencies refer the reader to analysis by NMFS and the US Fish and Wildlife Service for official determinations on Jeopardy or No-Jeopardy associated with the Preferred Alternative/Proposed Action. Final Biological Opinions from the two services will be released concurrently with the Final CRSO EIS.
3508	8	badgercaddis@mac.com	N/A	I am concerned about global warming. With regional efforts aimed at reducing carbon and moving to a carbon free generation portfolio, having access to the carbon free, reliable and flexible generation will be essential to ensure the regions power system reliability and will be essential in meeting the regions GHG goals.	The comment cites the importance of hydropower for achieving regional clean energy goals and integrating renewables onto the grid. Although it is beyond the scope of the EIS to analyze the role of hydropower in achieving specific clean energy goals, the EIS does find that replacing lost hydropower generation in MO3 and MO4, even with zero-carbon resources, would increase greenhouse gas emissions from power generation by increasing operation of existing fossil-fuel based generation. EIS, Section 3.8.3.5, 3-1009-1010 in the Draft EIS and 3.8.3.6, 3-1021-1022 in the Draft EIS. The statements regarding the variability of other renewables and the importance of the four lower Snake River dams for integrating new renewables are consistent with the findings and discussions in the EIS. EIS, Appendix J, Section 4.3, Integration of Other Renewable Resources and Hydrosystem Flexibility Analysis.
3508	9	badgercaddis@mac.com	N/A	I encourage cooperation with environmental and Tribal groups to work on plans which do bolster a sustainable salmon and steelhead population. Specifically, I support efforts to manage avian and other predation of salmon populations.	As described in the Preferred Alternative, the co-lead agencies propose several measures to reduce avian and marine mammal predation to mitigate adverse effects to listed species from CRS operations. Ongoing actions described in the No Action Alternative to reduce predation on migrating fish are included in the Preferred Alternative. The No Action Alternative includes ongoing mitigation measures to haze and monitor pinniped predators. These actions would continue into the future under the Preferred Alternative, and the co-lead agencies would continue to assist National Marine Fisheries Service (NMFS), states and Tribes in their pinniped removal efforts near Bonneville Dam. The Preferred Alternative also includes the Predator Disruption Operation to discourage nesting within the John Day reservoir. The projects monitoring and adaptive management plan (Appendix R, part 1) includes monitoring to determine the measure effectiveness on reducing the avian predators nesting habitat. As analyzed in Section 7.7.7, the Predator Disruption Operations measure could delay in nesting waterbirds, forego nesting, or relocate to other areas. As discussed in Section 3.6.3.2, Caspian terns are highly mobile during the breeding season and move between breeding colonies in a given year and between years, demonstrating a willingness to nest away from the Columbia River while still foraging on juvenile salmonids (Corps 2014, 2018, 2019).
3508	10	badgercaddis@mac.com	N/A	I am also concerned about the long-term cost of power. Many of my friends and neighbors are seniors and have fixed or low incomes. In our area we are also dependent on electric service for our water from wells, our electric heat, electric water heaters, wastewater and sewage treatment. Many in our area are particularly vulnerable to increased risks of blackouts and escalating power costs, which makes the PA worthy of my support in terms of its lower risks in these areas compared to other DEIS alternatives.	The EIS recognizes concerns around the affordability of electricity, and the Environmental Justice analysis (Section 3.18.3 and Section 7.7.20 of the EIS) provides further detail on this as well as the potential disproportionate effects to tribal, low-income and minority populations. The statement that the Preferred Alternative preserves regional power reliability and does not increase the likelihood of blackouts is also consistent with the findings of the EIS. The EIS also discusses potential health and safety concerns associated with the increased risk of blackouts.
3510	1	N/A	N/A	Please try to find a good compromise. Maybe improved fish ladders would help.	Thank you for your comment and your idea. A wide array of measures were considered during the creation of alternatives for these analyses. While fish ladders at CRS projects are considered to be effective at safely passing adult salmon, the preferred alternative was developed with balance in mind to support positive improvements in the many complex objectives associated with operative the multi-purpose projects.
3510	2	N/A	N/A	How about asking the various tribes to limit fishing?	The focus of the EIS is the operation, maintenance, and configuration of the Columbia River System. Fishing and harvest are subject to separate actions by federal, state, and tribal agencies outside the scope of this EIS. Additionally, the co-lead agencies have no authority to regulate fishing.

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3556	1	palousemayor@gmail.com	N/A	Breaching the dams, as westside environmental groups advocate, would take away our least expensive and least carbon-intensive method of transportation: barging. In turn, the loss of barging could increase transportation costs 10-33 percent, according to your draft report. In addition, we would lose access to nearly 48,000 acres of irrigation, causing a $500 million social welfare loss, according to the report. Its sobering to think of the impacts to family farms. A study by the Pacific Northwest Waterways Association estimates more than 1,100 farms risk bankruptcy if the federal government does not increase farm subsidies. With wheat prices already down near the break-even point, annual direct payments to farmers would need a boost of $38.8 million to maintain current income levels.	The concerns raised in the comment are consistent with the analysis in the EIS. The EIS evaluates potential effects on farmers associated with increased transportation costs under MO3 in Section 3.10.3.5. Evaluating the impact of removing the lower Snake River locks and barge navigation above Pasco, Washington, is completed using a transportation optimization model that does not allow shipments on river terminals along the lower Snake River. The EIS finds that under a dam breach scenario, average transportation costs for wheat farmers would increase 10 to 33 percent, but that individual farmers could experience increases that are doubled. The cost increases to specific shippers would depend upon location and would vary throughout the region, depending on transportation options at each location. Generally, those grain shippers that are the farthest from alternate shipping locations, shuttle rail facilities or river ports on the Columbia River, would be the most negatively impacted. NEPA requires that all relevant, reasonable mitigation measures that could diminish the adverse impacts of the project be identified in the document, even if they are outside the jurisdiction of the lead agency or the cooperating agencies. See 40 C.F.R. 1502.16(h) and 1505.2(c); 46 Fed. Reg. 18026. The mitigation requested is not within the co-lead agencies' current authorities. The co-lead agencies do not have the authority to provide direct payments to farmers related to increased operation costs.
3562	1	aloise.ca@gmail.com	N/A	So, we are, now, in 2020, Salmon population has further declined. For example, Snake River sockeye salmon were listed as endangered in November 1991, and their listing was reaffirmed in June 2005. This list, from 2005, includes Five anadromous salmon populations and three anadromous steelhead trout populations present in the LSRP. And nothing, in your actual or past EIS, indicate the repercussions on the greater environment of the ocean, including Resident Southern Killer Whales, who are directly impacted by, has they were placed on the endangered species list in 2005.	SRKW analysis is described in the EIS including in the FEIS Chapter 3 (Vegetation, Wetlands, Wildlife, and Floodplains) which has been updated for SRKW (Section 3.6.2.6 and Table 3-102) and FEIS Chapter 7 (Preferred Alternative) with additional analysis information on SRKW and potential increase in forage fish, in particular, Chinook salmon in Section 7.7.8. The co-lead agencies utilized current high quality information and best available science in its analysis of the effects of the operation, maintenance, and configuration of the CRS projects. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not require the co-lead agencies to take affirmative actions to recover ESA listed species. The population dynamics of the SRKW are complicated and there are multiple factors that contribute to the overall success of this species. The quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differently from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for the whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall-run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall-run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). Details on the most crucial prey stocks for Southern Resident killer whales, as well as their population and range, is available from several fact sheets and videos available here: https://www.fisheries.noaa.gov/species/killer-whale#spotlight. For more information, visit this NMFS StoryMap on Southern Resident killer whales: https://noaa.maps.arcgis.com/apps/Cascade/index.html?appid=3405e6637bf74e998d4ebe992c54f613. According to NMFS and the EPA, the estimated SRKW population has fluctuated between 67 and 98 whales between 1960 and 2015. The Snake River dams were constructed between 1962 and 1975. The SRKW population increased from a record low in 1970 to its highest population numbers in 1995. Those years were not high years for Snake or Columbia River Chinook Salmon. Ocean conditions between 2011 and 2013 were good years for salmon. At the same time, 2010 and 2013 were good outmigration years. Particularly, 2011 and 2012 were above normal in water supply, which would mean more cooler water was available and there was better survival of salmon, and 2011 through 2014 were higher than normal spill years as well. The combination of outmigration and ocean conditions created improved adult salmon returns. The EIS has analyzed spill as a measure in the Preferred Alternative and determined the overall effect to SRKW to be negligible in large part because hatchery production is consistent between the No Action Alternative and the Preferred Alternative. Because the impact from the Preferred Alternative was determined to be negligible, the agencies determined that existing hatchery production would be sufficient to address any potential impacts to prey availability for SRKWs. The co-lead agencies note the contribution to the prey of SRKW through the continued existence of their respective independent Congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as the Lower Snake River Compensation Plan (other than under MO3), which is administered by USFWS. The Preferred Alternative and Proposed Action in the agencies' biological assessment carry forward certain mitigation measures described in Chapters 2 and 7 of the EIS, which include continued salmon and steelhead hatchery production. The Preferred Alternative has negligible effects to SRKWs as described in Section 7.7.8. The Biological Assessment (BA) describes the effect of the Proposed Action on the SRKW forage species (see BA Section 3.5.1.2, Southern Resident Killer Whale). The proposed changes in operation of the Columbia River System include increased spring spill during the downstream migration of juvenile spring and summer run Chinook salmon. The result of this action includes potential increases of juvenile fish passing through the spillways, reductions in juvenile fish direct and indirect mortality associated with downstream passage, and the Comparative Survival Study (CSS) model predicts increases in numbers of returning adults, which will benefit SRKWs foraging in and around the mouth of the Columbia River in winter and spring (See EIS Section 7.7.8). The CSS model results predicts Snake River Chinook salmon would have relative improvements in smolt-to-adult returns of 35 percent (see EIS Section 7.7.4). The smolt-to-adult return ratio (SAR) is the rate at which of a group of fish survive from their smolt life stage to a defined ending point where they return as adults. While recovery targets will require more than just the efforts of federal agencies, the CSS models indicate the potential for SARs of Snake River Chinook salmon and steelhead to increase to levels that could approach recovery targets set by the Northwest Power and Conservation Council. The BA, also consistent with the EIS, acknowledges past improvements to the configuration and operation of the Columbia River System, additional improvements to the environmental baseline as a result of completed estuary and tributary habitat actions, and the prospective non-operational conservation measures proposed in Chapter 2 of the Draft EIS, all contribute towards maintaining and improving Chinook abundance. Relevant conservation measures include, among other things, a commitment to continue funding the conservation and safety net hatchery programs listed in Chapter 2 of the Draft EIS. As discussed above, the agencies will fulfill congressionally authorized hatchery mitigation objectives through the funding of hatchery programs that are operated consistent with their independent hatchery program consultations during the term covered by this consultation. Based on those hatchery program consultations, the production levels associated with congressionally authorized hatchery mitigation objectives will continue, at minimum, to be consistent with levels previously analyzed by NOAA in the system consultations in 2008, 2014, and 2019. For the 2020 ESA consultations, therefore, the agencies expect that collectively, all of the actions described above (substantial modifications to migration conditions designed to benefit key prey species, combined with improvements to Chinook spawning and rearing habitat in the tributaries and Columbia River estuary, and continued hatchery production) ensure that remaining Chinook mortality from all sources in the mainstem migratory corridor will continue to be more than offset, resulting in a net gain in Chinook salmon abundance available as a prey source for SRKW. Finally, the 2019 NMFS Fisheries BiOp included increased spring spill operations that are similar to operations evaluated in CRSO EIS, and NOAA validated that the hatchery production of Chinook salmon mitigates for the impacts of operating the Columbia River System and total mortality through the mainstem migratory corridor from all sources.
3571	1	N/A	N/A	If you want to address the global salmon and the lack there-of, go address the lobbying and dirty money that is spent by the commercial seiners. Then cut back the salmon limits, and all fishing limits and you will see the return of the salmon.	Alternatives to include changes to harvest are not within the scope of this EIS. The assumptions regarding harvest are taken from the 2018 EIS from NOAA and reflect current harvest management guidelines. For harvest, fisheries in the Columbia River Basin and those that rely upon Columbia River fish stocks are managed by numerous entities, including Federal, state, and Tribal governments. These entities are guided by a complex array of policies, laws, compacts, and agreements. The management of Pacific salmon fisheries in particular is complex, and involves numerous entities representing a variety of social, political, and conservation interests. Changes in allowable fishery harvest in the Columbia River Basin are a result of decisions made by state, Federal (i.e., NMFS), and Tribal fishery managers based on a variety of environmental, biological, economic, and social factors. The three co-lead agencies (Corps, Reclamation, and Bonneville) do not manage fish stocks, and do not have the authority to do so.
3571	2	N/A	N/A	The commercial seiners are where you need to start and then if needed cut back on recreational limits	See response to Comment 3571-1.
3574	1	N/A	N/A	The DEIS dismisses the overwhelming scientific research that shows restoring the lower Snake River to its free-flowing condition will provide salmon and steelhead with their best and likely only chance to recover, and it ignores the benefits of increasing salmon runs for critically endangered Southern Resident orcas. These orcas primarily eat Chinook salmon and forage for these fish from central California into the Salish Sea. The Columbia and Snake rivers have supported salmon runs that the orcas have relied on for centuries. Historically, nearly half of all the Chinook salmon returning to the Columbia Basin were bound for the Snake River. Scientists from the Fish Passage Center have stated that breaching the four lower Snake River dams would result in roughly one million adult Chinook salmon returning to the mouth of the Columbia River, providing a critical food source for endangered southern resident orcas.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not require the co-lead agencies to take affirmative actions to recover ESA listed species. The population dynamics of the SRKW are complicated and there are multiple factors that contribute to the overall success of this species. The quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differently from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for the whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall-run (tules and brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall-run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). Details on the most crucial prey stocks for Southern Resident killer whales, as well as their population and range, is available from several fact sheets and videos available here: https://www.fisheries.noaa.gov/species/killer-whale#spotlight. For more information, visit this NMFS StoryMap on Southern Resident killer whales: https://noaa.maps.arcgis.com/apps/Cascade/index.html?appid=3405e6637bf74e998d4ebe992c54f613. According to NMFS and the EPA, the estimated SRKW population has fluctuated between 67 and 98 whales between 1960 and 2015. The Snake River dams were constructed between 1962 and 1975. The SRKW population increased from a record low in 1970 to its highest population numbers in 1995. Those years were not high years for Snake or Columbia River Chinook Salmon. Ocean conditions between 2011 and 2013 were good years for salmon. At the same time, 2010 and 2013 were good outmigration years. Particularly, 2011 and 2012 were above normal in water supply, which would mean more cooler water was available and there was better survival of salmon, and 2011 through 2014 were higher than normal spill years as well. The combination of outmigration and ocean conditions created improved adult salmon returns. The EIS has analyzed spill as a measure in the Preferred Alternative and determined the overall effect to SRKW to be negligible in large part because hatchery production is consistent between the No Action Alternative and the Preferred Alternative. Because the impact from the Preferred Alternative was determined to be negligible, the agencies determined that existing hatchery production would be sufficient to address any potential impacts to prey availability for SRKWs. The co-lead agencies note the contribution to the prey of SRKW through the continued existence of their respective independent Congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as the Lower Snake River Compensation Plan (other than under MO3), which is administered by USFWS. The Preferred Alternative and Proposed Action in the agencies' biological assessment carry forward certain mitigation measures described in Chapters 2 and 7 of the EIS, which include continued

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					salmon and steelhead hatchery production. The FEIS Chapter 3 (Vegetation, Wetlands, Wildlife, and Floodplains) has been updated for SRKW (Section 3..6.2.6 and Table 3-102) and FEIS Chapter 7 (Preferred Alternative) with additional analysis information on SRKW and potential increase in forage fish, in particular, Chinook salmon in Section 7.7.8. The Biological Assessment (BA) describes the effect of the Proposed Action on the SRKW forage species (see BA Section 3.5.1.2, Southern Resident Killer Whale). The proposed changes in operation of the Columbia River System include increased spring spill during the downstream migration of juvenile spring and summer run Chinook salmon. The result of this action includes potential increases of juvenile fish passing through the spillways, reductions in juvenile fish direct and indirect mortality associated with downstream passage, and the Comparative Survival Study (CSS) model predicts increases in numbers of returning adults, which will benefit SRKWs foraging in and around the mouth of the Columbia River in winter and spring (See EIS Section 7.7.8). The CSS model results predicts Snake River Chinook salmon would have relative improvements in smolt-to-adult returns of 35 percent (see EIS Section 7.7.4). The smolt-to-adult return ratio (SAR) is the rate at which of a group of fish survive from their smolt life stage to a defined ending point where they return as adults. While recovery targets will require more than just the efforts of federal agencies, the CSS models indicate the potential for SARs of Snake River Chinook salmon and steelhead to increase to levels that could approach recovery targets set by the Northwest Power and Conservation Council. The BA, also consistent with the EIS, acknowledges past improvements to the configuration and operation of the Columbia River System, additional improvements to the environmental baseline as a result of completed estuary and tributary habitat actions, and the prospective non-operational conservation measures proposed in Chapter 2 of the Draft EIS, all contribute towards maintaining and improving Chinook abundance. Relevant conservation measures include, among other things, a commitment to continue funding the conservation and safety net hatchery programs listed in Chapter 2 of the Draft EIS. As discussed above, the agencies will fulfill congressionally authorized hatchery mitigation objectives through the funding of hatchery programs that are operated consistent with their independent hatchery program consultations during the term covered by this consultation. Based on those hatchery program consultations, the production levels associated with congressionally authorized hatchery mitigation objectives will continue, at minimum, to be consistent with levels previously analyzed by NOAA in the system consultations in 2008, 2014, and 2019. For the 2020 ESA consultations, therefore, the agencies expect that collectively, all of the actions described above (substantial modifications to migration conditions designed to benefit key prey species, combined with improvements to Chinook spawning and rearing habitat in the tributaries and Columbia River estuary, and continued hatchery production) ensure that remaining Chinook mortality from all sources in the mainstem migratory corridor will continue to be more than offset, resulting in a net gain in Chinook salmon abundance available as a prey source for SRKW. Finally, the 2019 NMFS Fisheries BiOp included increased spring spill operations that are similar to operations evaluated in CRSO EIS, and NOAA validated that the hatchery production of Chinook salmon mitigates for the impacts of operating the Columbia River System and total mortality through the mainstem migratory corridor from all sources.
3574	2	N/A	N/A	The DEIS presents a false choice between maintaining affordable utility bills and restoring healthy salmon and steelhead. It overstates the cost of replacing power from the lower Snake River dams with clean energy, and suggests replacing their power with fossil fuels, which is unnecessary. A report from the Northwest Energy Coalition shows that through strategic investments, the energy produced by these dams can be replaced at a marginal cost to ratepayers while also improving the reliability of the electrical grid.	The EIS evaluated effects associated with the management of the CRS, and did not quantitatively compare the benefits of the power system against the costs to salmon. The EIS describes the replacement resources that would be needed to maintain regional reliability at the No Action Alternative levels based on two potential portfolios: one based on renewable resources and another based on natural gas resources, which are generally the least cost means to maintain reliability (see Draft EIS at Section 3.7.3.5, Potential Replacement Resources and Associated Costs). The EIS uses the best available resource cost information from the Northwest Power and Conservation Council to estimate the potential range in costs of these replacement resources. In addition, the EIS does not suggest fossil fuels should be used to replace the power; the purpose of providing the range of replacement resource options is to estimate a reasonable range in potential costs. The basis for developing both of these portfolios is in Section 3.7.3.1, Methodology, of the Draft EIS. As described in Appendix H, Power and Transmission, and Section 3.7.3.5, the EIS considered the Northwest Energy Coalition study cited in the comment but it is not directly comparable with the EIS for several reasons, including that the EIS has a broader scope and relies on more recent regional load and resource availability and costs data.
3574	3	N/A	N/A	The DEIS focuses on the financial costs of salmon recovery and ignores the enormous sacrifices that have already been made by Native American tribes and other Northwest residents in terms of lost fishing opportunity, reduced jobs and incomes, impacts on cultural values, and other socio-economic effects.	The EIS recognizes the economic and cultural importance of salmon to Tribes in a number of sections throughout the document. Section 3.15, Fisheries and Passive Use Section and, in particular, Section 3.17, Indian Trust Assets, Tribal Perspectives, and Tribal Interests, include discussions of reductions in anadromous species catch and associated adverse social effects that have occurred in Tribal communities. The cultural significance and impacts of salmon and steelhead fisheries are described in Section 3.15.2.1, Fisheries and Passive Use, which includes subsections that describe ceremonial and subsistence fisheries as well as the social importance of commercial, ceremonial and subsistence fisheries.
3574	4	N/A	N/A	Further, the DEIS ignores the economic and community benefits of salmon recovery and the investments and jobs that river restoration activities will generate.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species as that is a broader goal with shared responsibility. Based on the fish analysis in Section 7.7.4 of the Preferred Alternative, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. The EIS also provides an evaluation of the social welfare and regional economic effects of the No Action Alternative and the Multiple Objective alternatives, including the effects on recreation (Section 3.11) and commercial fisheries (Section 3.15). The EIS describes the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. NMFS estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which are described qualitatively. For the effects on recreational fishing under MO3 (Section 3.11.3.5) along the lower Snake River below Lewiston, the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River) as an indicator for fishing visitation in this reach. The EIS describes that the visitation in the long-term in the lower Snake River, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting outfitting and tourism businesses in the region. The potential for changes in recreational fishing of anadromous fish under MO3 is described in Section 3.11, which could result in increases in recreational fishing in the long-term that would support jobs, income, and social benefits in Tribal and rural river communities. However, there is uncertainty around recreational fishing visitation in the long-term given the current measures to regulate, protect, and support ESA-listed fish populations and habitat in the region. The social welfare values and regional economic effects associated with recreational fishing under the Multiple Objective alternatives as well as river recreation post dam breach under MO3 were not estimated because of the uncertainty and large range in visitation and consumer surplus values among users. Additionally, Section 3.19.3 and Appendix Q, Annex C, describe the construction expenditures and the resulting jobs and income supported by the construction activity associated with the dam breach under MO3. The EIS considers the jobs supported by the implementation and CRSO EIS system costs, including mitigation costs described in Chapter 5 and in Annex B of Appendix Q.
3574	5	N/A	N/A	As written, the DEIS does not provide a complete or accurate assessment of the feasible alternatives for the lower Snake River. An effective solution for Northwest salmon and people must move beyond historic conflicts and proactively address four urgent, connected issues. I support the development of long-term plan to: Restore abundant, fishable salmon and steelhead populations in the Columbia Basin; Protect and invest in the economic vitality of local farming and fishing communities; Continue the regions legacy of providing reliable, affordable, clean energy; and Honor our nations treaty commitments to Native American tribes	The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the EIS objectives) as well as the EIS objectives for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. The Preferred Alternative is also more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. The co-lead agencies recognize the desire to continue the conversation across the region about the future of salmon recovery, affordable and reliable clean electricity, Tribal perspectives, and economic vitality for the many people who depend on the CRS for their way of life. The co-lead agencies will be active participants in regional discussions and solutions for mitigating the effects of the CRS and achieving broader recovery objectives. The Preferred Alternative for long-term system operations, maintenance and configuration of the CRS presented in the Draft EIS is based on todays conditions and environment. Its also important to note that technology is quickly changing, as is the regions dynamic environment and energy market, and the region needs to consider new information and adaptively manage resources. The co-lead agencies recognize that no matter which alternative in the CRSO Draft EIS is identified as the Preferred Alternative, the identification would likely draw criticism from some stakeholders or sovereigns. The region includes stakeholders, sovereigns, and other interested parties with diverse and varied opinions on these very important topics, and many are strong in the belief that their perspective is the best path forward. It is important to keep in mind that factors, both human-caused and natural, that are outside the responsibility and control of the co-lead Federal agencies also contribute to the decline and recovery of fish, and will continue to strongly influence fish and their habitat. Salmon and steelhead have been adversely affected in the Columbia River Basin over the last century by many activities including human population growth, urbanization, introduction of exotic species, overfishing, development of cities and other land uses in the floodplains, water diversions for all purposes, dams, mining, farming, ranching, logging, hatchery production, predation, ocean conditions, and loss of habitat. Operation, configuration and maintenance of the CRS requires mitigation for its effects, and the EIS is not intended or required to serve as an overall salmon recovery plan for the region. All of the human-caused impacts that have contributed to the decline of fish, and how the region should properly and effectively address those impacts, should be part of the continued regional discussion. The co-lead agencies look forward to participating in that discussion.
3580	1	timo@inlandpower.com	N/A	An area of MO1 that concerns me is the mandatory spill. While spill is nothing new, the preferred alternative would require a spill rate much higher than we are currently experiencing, which would have a 2.7% wholesale rate increase impact. This also equates to 160 aMW loss during a normal water year, and 300 aMW loss during a low water year. With the lower Snake River dams producing enough energy to deliver power to 1.87 million homes, this loss in energy production would put further stress on the grid as demand increases and supply decreases.	Multiple Objective alternative 1 was not proposed as the Preferred Alternative. The hydropower statistics described in this comment are consistent with the Preferred Alternative results described in Chapter 7 of the EIS. However, while the total hydropower output of the Federal Columbia River Power System declines, the reliability of the system under the Preferred Alternative improves relative to the No Action Alternative due to the timing and magnitude of hydropower generation. The Preferred Alternative would be implemented using a robust monitoring plan to help evaluate the effectiveness of the spill program, as would the effects to generating resources around the basin. The statement that removing the four lower Snake River dams would increase stress on the grid is consistent with the findings of the EIS. The EIS recognizes the concern voiced in the comment regarding increasing power rates. Under the Preferred Alternative, which includes juvenile fish passage spill operations contemplated under the 2019-2021 Spill Operation Agreement, the Bonneville's wholesale power rate pressure is 2.7 percent relative to the No Action Alternative. These estimates compare the Preferred Alternative to the No Action Alternative, which is not the same as comparing the Preferred Alternative to current operations. Consequently, the estimates are not a comparison to the BP-20 wholesale power rates, which were set assuming the financial impact of the 2019-2021 Spill Operation Agreement, and therefore already include a substantial portion of the cost pressures found in the Preferred Alternative. The remaining rate pressure associated with the Preferred Alternative falls within a level that Bonneville has historically been able to absorb through the costs over which it has significant control. See Draft EIS Section 3.7.3.1 at page 3-187.
3583	1	N/A	N/A	I would like to see a more aggressive pursuit of adaptive upstream travel for the salmon applied to the dams, as well as oceanic policy review. I realize that recreational, commercial and tribal "take" is part of coastal and riverway economics and culture, but I believe that we need to view the whole West Coast Fishery as an ecosystem.We can't just keep looking at the parts of the whole.	The three co-lead agencies (Corps, Reclamation, and Bonneville) do not manage fish stocks, and do not have the authority to do so. An evaluation of the West Coast fisheries is outside the scope of this EIS. Fisheries in the Columbia River Basin and those that rely upon Columbia River fish stocks are managed by numerous entities, including Federal, state, and Tribal governments. These entities are guided by a complex array of policies, laws, compacts, and agreements. The management of Pacific salmon fisheries in particular is complex, and involves numerous entities representing a variety of social, political, and conservation interests. Changes in allowable fishery harvest in the Columbia River Basin are a result of decisions made by state, Federal (e.g., NMFS), and Tribal fishery managers based on a variety of environmental, biological, economic, and social factors.
3592	1	lrentfrow@msn.com	N/A	The comment period was insufficient. 45-days is woefully inadequate to review a plan of this complexity and many people had trouble getting through on the phone hearings.	We are sorry you had technical difficulties. We hope you were able to provided comments into the online form or through mail. The co-lead agencies considered requests to extend the public comment period. This NEPA process included a wide array of cooperating agencies whose close involvement throughout the process allowed the co-lead agencies to incorporate feedback. Given the broad range of comments received and the extensive Federal and non-Federal participation in the overall process as well as the level of public engagement in the six virtual public meetings in the region, the co-lead agencies determined that an extension was not warranted and that the 45-day public comment period was adequate consistent with NEPA regulations. The CRSO EIS website reminded the public on April 9, that they should plan to submit comments by the close of the comment period.
3602	1	hillarytiefer@hotmail.com	N/A	The comment period was insufficient. 45-days is woefully inadequate to review a plan of this complexity and many people had trouble getting through on the phone hearings.	The co-lead agencies considered requests to extend the public comment period. This NEPA process included a wide array of cooperating agencies whose close involvement throughout the process allowed the co-lead agencies to incorporate feedback. Given the broad range of comments received and the extensive Federal and non-Federal participation in the overall process as well as the level of public engagement in the six virtual public hearings in the region, the co-lead agencies

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					determined that an extension was not warranted and that the 45-day public comment period was adequate consistent with NEPA regulations. On April 9, the CRSO EIS website was updated to inform the public that they should plan to submit comments by the close of the comment period. To encourage the highest possible participation, six phone-in opportunities where available to submit comments. The agencies' announcements for the teleconferences included technical assistance instructions for callers who experienced difficulties joining or during a call. The agencies' technical team worked with the AT&T operators to track any concerns heard from anyone who encountered issues joining the calls; no related technical issues were reported. All comment methods were promoted alongside all teleconference information, so those unable to participate in a call or who preferred other methods could refer to those comment options.
3602	2	hillarytiefer@hotmail.com	N/A	The comment period was insufficient. 45-days is woefully inadequate to review a plan of this complexity and many people had trouble getting through on the phone hearings.	The co-lead agencies considered requests to extend the public comment period. This NEPA process included a wide array of cooperating agencies whose close involvement throughout the process allowed the co-lead agencies to incorporate feedback. Given the broad range of comments received and the extensive Federal and non-Federal participation in the overall process as well as the level of public engagement in the six virtual public meetings in the region, the co-lead agencies determined that an extension was not warranted and that the 45-day public comment period was adequate consistent with NEPA regulations. On April 9, the CRSO EIS website was updated to inform the public that they should plan to submit comments by the close of the comment period. To encourage the highest possible participation, six phone-in opportunities where available to submit comments. The agencies' announcements for the teleconferences included technical assistance instructions for callers who experienced difficulties joining or during a call. The agencies' technical team worked with the AT&T operators to track any concerns heard from anyone who encountered issues joining the calls; no related technical issues were reported. All comment methods were promoted alongside all teleconference information so those unable to participate in a call or who preferred other methods could refer to those comment options.
3603	1	N/A	N/A	Get rid of the predators and fish nets.	Predation management measures are included in the Preferred Alternative, as well as the continuation of predation management measures from the No Action Alternative. These measures are described in Chapter 7. Methods of fish harvest and their regulation are outside the scope of this EIS, which analyzes the effects of the operation, maintenance, and configuration of the CRS. The three co-lead agencies (Corps, Reclamation, and Bonneville) do not manage fish stocks, and do not have the authority to do so. Additionally, the use and disposal of fishing gear is not managed by the co-lead agencies.
3605	1	curdog1@charter.net	N/A	Section 3.19.2, page 3-1477 It is a global comment on the discussion of the MOs Annual Equivalent Costs. The EIS suggests the MOs either have small increases or as MO-3 states Under MO3, total costs are anticipated to decrease between 159 and 54 million annually or between 15.1 to 5.1 percent decline compared to the NAA. This is somewhat misleading as the EIS clearly shows the cost to replace the loss of power generation is very expensive. See attached spread sheet Power Generation Mitigation Cost. The cost of power generation portfolios that would be required to be designed and build with capital costs, then the operations and maintenance costs to maintain an equivalent Loss of Load Probability is not included in section 3.19.2. In addition, the cost of the lost revenue from the MO scenarios is not captured or the cost of the GHG that will be generated from the loss of the hydro power. As discussed in section 3.7.31, page 3-821, Bonneville and other regional entities would have to decide who is responsible for acquiring the replacement resources. To make a fair comparison of the costs associated with the EIS alternatives, they need to be factored in. It does not matter who is responsible for the replacement costs, as they would occur as described in the EIS. These costs need to be factored in to show there is a cost associated with loss of power generation. Page 3-873, The social welfare analysis employs both market price and production cost methods based on the base case for this analysis, assuming no additional coal plant retirements. The market price method estimates the societal loss or gain from changes in power generation, valued at monthly market price while production cost method estimates fixed and variable costs both power and transmission, associated with providing power. The two approaches are not additive There are numerous approaches on how to capture a summary of the costs, I propose to use the production cost estimate method as it captures the overall cost. Im not sure if the cost of carbon compliance is included or not, but for the overall summary comparison it is not overly relevant. To keep it simple I propose to use an average of the production cost method estimate and add it to the Annual Equivalent Costs (Low F&W Cost) page 3-1481. See attached spread sheet. Table 3-309, page 3-1481 should reflect these costs and the percent increase adjusted for clarity.	This comment is combining two distinct analyses from the EIS. The first is the cost analysis which focused on estimating the implementation and system operations and maintenance costs for each CRSO EIS Multiple Objective alternative (MO), including dam breaching under MO3. The second set of costs are the estimated costs to construct replacement power resources as described in Section 3.7. The EIS does not sum all costs associated with MO3 in Section 3.19. However, a summary of the benefits and costs for a number of the alternatives has been provided in Section 7.7.21 in the Draft EIS. The EIS evaluated the full value of any loss of revenue from hydropower in Section 3.7.3 by performing a complete reliability analysis, operational study for each MO, and a complete rate analysis at the wholesale, and then retail level. The increase in greenhouse gas emissions from the loss of hydropower is discussed in Section 3.8.3, Air Quality and Greenhouse Gases. The increase in emissions was quantified based on power plant emissions and monetized using the social cost of carbon. In addition, while the costs of replacement resources were not included in the distinct cost analysis, Section 3.7.3.5 in the Draft EIS provides details on the methodology and results of the replacement resource costs. To evaluate socioeconomic effects of resource replacement, the EIS analyzes how these costs affect retail electricity rates as described in Appendix J. The recommendation to estimate social welfare effects using the production cost method is consistent with descriptions in the EIS. The costs of potential carbon compliance are not included in the production cost method estimates because those costs cannot currently be determined due to uncertainty with the legislative requirements for the cost of carbon. The values presented in the EIS for potential carbon compliance offer a range, if binding estimates for the cost of carbon were enforced. The production cost method does assess all variable costs including potential emissions penalties stemming from fossil fuel generation in California. However, the EIS does not sum these power replacement resource costs together with the costs of implementing the alternatives in Section 3.19, as suggested in the comment.
3610	1	N/A	N/A	See attached comment letter.	Unfortunately, an attachment was not received from the commenter. The commenter did not provide any contact information the co-lead agencies could use to request these comments, so a response was not provided.
3616	1	scott@ecotonephoto.com	N/A	I appreciate all the hard work they have done over the years and continue to do to help keep salmon and steelhead from going extinct. However, in looking at the current available data, it becomes apparent that removal of the lower four Snake River dams will increase flexibility in the system, not decrease it. First, it should be of noted that in the Pacific Northwest power grid there is a 17.1% power surplus that is predicted to exceed customer demands until 2028. The lower four Snake River dams only produce 3.9% of the energy in the Pacific Northwest all of which is essentially in the surplus category. This disputes the logic in itself. Even with the removal of the lower four Snake River dams, our region would remain in surplus levels until a predicted 2026. If the surplus is what is giving agencies relief, no immediate impacts would occur and there would be plenty of time to plan for future relief. On that note, BPA already has plans in their queue to replace and far exceed the energy produced by the lower four Snake River dams (only 940 aMW/year).	The statement that removing the lower Snake River dams would increase flexibility is inconsistent with the findings of the EIS. In Section 3.7.3.5 of the EIS, Potential Replacement Resources and Associated Costs, the four lower Snake River dams are among the most valuable projects in the Federal Columbia River Power System (FCRPS). They provide approximately 1,000 aMW of carbon-free energy on average and 2,000 MW of sustained peaking capacity at certain times of the year. See draft EIS, Section 3.7.3.5, Changes in Power Generation, Table 3-159. The dams also provide important ramping capability the ability to quickly generate energy to match spikes in energy usage with over 2,000 to 2,300 MW of capability in certain months of the year. See draft EIS, Section 3.7.3.5, Lower Snake River Full Replacement at pages 3-905-907 and Table 3-160. In other words, it is not enough to consider the amount of generation from these dams in assessing their importance, but also to consider the timing of that generation. Regarding surplus, Bonneville sells power from the FCRPS as a unified system, not from specific projects. In this regard, the power generated from the four lower Snake River dams are not exclusively sold as surplus, but rather is used to meet Bonneville's collective power obligation, most of which is sold to meet the loads of publicly owned utilities, such as municipalities, rural utilities, and public utility districts. (See Section 3.7.2.5, Bonneville Power and Transmission Customers in the draft EIS). Given upcoming coal retirements, the EIS findings indicate that the region would likely require more power resources to maintain power system reliability as described in the Bonneville Transmission System Reliability and Operations subsection of Sections 3.7.3.3 through 3.7.3.6 and in Section 3.7.3.5, Potential Replacement Resources and Associated Costs. While the four lower Snake River dams account for a small portion of the total power of the region, they represent a larger portion of the Federal Columbia River Power System (FCRPS) from which Bonneville supplies firm load. The comment also suggests that the region could absorb this loss because on average the region has surplus energy. To determine resource replacement amounts, the EIS uses a more robust measure of power system reliability and resilience than the average MWs approach suggested by the commenter. Specifically, the EIS uses the loss-of-load probability (LOLP) metric utilized by the Northwest Power and Conservation Council. See EIS Section 3.7.2.2; Appendix H Power and Transmission, at Section 2.1; Appendix I Hydroregulation, Section 2.4.4 in the draft EIS. The LOLP metric evaluates the adequacy of power supply in the region to meet firm power needs under various conditions. It is measured in terms of a percentage, and represents the likelihood of a year having one or more blackouts. See Appendix H Power and Transmission at Section 2.1 in the draft EIS. The current LOLP under the No Action Alternative is 6.6 percent; this is equivalent to one year with blackouts every 15 years. The EIS uses this LOLP level as the benchmark from which to compare the other Multiple Objective (MO) Alternatives. As the commenter notes, under MO3, on average, the region has surplus generation leading to export sales during certain periods and water years. Nevertheless, to maintain regional reliability at the LOLP levels of the No Action Alternative, replacement resources would be needed. This is driven by the timing and magnitude of changes in hydropower generation analyzed in the EIS. As shown by the analysis of the LOLP, in some years and times of the year, particularly winter and later in the summer of drier years, without the four lower Snake River dams there would be insufficient power supply in the region leading to power emergencies and blackouts. Specifically, without replacing the power from the four lower Snake River dams, the LOLP of the region would more than double to 14 percent, which is equivalent to one year with one or more blackouts every seven years. See page 3-903 and Appendix H, Power and Transmission, at Table 2-1 in the draft EIS. Contrary to the comment, Bonneville does not have plans to replace 940aMW/year of FCRPS output.
3619	1	bluebug@hevanet.com	N/A	Any plan for salmon recovery on the Columbia and Snake Rivers must incorporate the following: - Removal of the 4 obsolete dams on the lower Snake River -Increase flow rates over Columbia River dams to lower water temperatures -Updated salmon conservation and restoration strategies in line with guidelines following federal court five time rejection of previous agency strategies -Halt of unnecessary scapegoating of native wildlife for declines in salmon numbers -Inclusion of stakeholders in crafting inclusive, creative, proper solutions, including Indigenous peoples, environmental groups and communities along the river systems -Halt of sport and commercial fishing for salmon and sturgeon on the Columbia and Snake River systems by all but Indigenous peoples until fish recovery equals sustainable numbers	The purpose of the CRSO EIS is not salmon recovery. Section 1.2 provides the Purpose and Need Statement for the CRSO EIS. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. The co-lead agencies recognize the desire to continue the conversation across the region about the future of salmon recovery, affordable and reliable clean electricity, Tribal perspectives, and economic vitality for the many people who depend on the CRS for their way of life. The co-lead agencies will be active participants in regional discussions and solutions for mitigating the effects of the CRS and achieving broader recovery objectives. The Preferred Alternative for long-term system operations, maintenance and configuration of the CRS presented in the Draft EIS is based on todays conditions and environment. Its also important to note that technology is quickly changing, as is the regions dynamic environment and energy market, and the region needs to consider new information and adaptively manage resources. The co-lead agencies recognize that no matter which alternative in the CRSO Draft EIS was identified as the Preferred Alternative, the decision would likely draw criticism from some stakeholders or sovereigns. The region includes stakeholders, sovereigns, and other interested parties with diverse and varied opinions on these very important topics, and many are strong in the belief that their perspective is the best path forward. It is important to keep in mind that factors, both human-caused and natural, that are outside the responsibility and control of the co-lead Federal agencies also contribute to the decline and recovery of fish, and will continue to strongly influence fish and their habitat. Salmon and steelhead have been adversely affected in the Columbia River Basin over the last century by many activities including human population growth, urbanization, introduction of exotic species, overfishing, development of cities and other land uses in the floodplains, water diversions for all purposes, dams, mining, farming, ranching, logging, hatchery production, predation, ocean conditions, and loss of habitat. Operation, configuration and maintenance of the CRS requires mitigation for its effects, and the EIS is not intended or required to serve as an overall salmon recovery plan for the region. All of the human-caused impacts that have contributed to the decline of fish, and how the region should properly and effectively address those impacts, should be part of the continued regional discussion. The co-lead agencies look forward to participating in that discussion. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the EIS objectives) as well as the EIS objectives for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. The Preferred Alternative is also more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. The three co-lead agencies (Corps, Reclamation, and Bonneville) do not manage fish stocks, and do not have the authority to do so. An evaluation of the West Coast fisheries is outside the scope of this EIS. Fisheries in the Columbia River Basin and those that rely upon Columbia River fish stocks are managed by numerous entities, including Federal, state, and Tribal governments. These entities are guided by a complex array of policies, laws, compacts, and agreements. The management of Pacific salmon fisheries in particular is complex, and involves numerous entities representing a variety of social, political, and conservation interests. Changes in allowable fishery harvest in the Columbia River Basin are a result of decisions made by state, Federal (e.g., NMFS), and Tribal fishery managers based on a variety of environmental, biological, economic, and social factors.
3621	1	jl.marshall@comcast.net	N/A	The comment period was insufficient. 45-days is woefully inadequate to review a plan of this complexity and many people had trouble getting through on the phone hearings.	The co-lead agencies considered requests to extend the public comment period. This NEPA process included a wide array of cooperating agencies whose close involvement throughout the process allowed the co-lead agencies to incorporate feedback. Given the broad range of comments received and the extensive Federal and non-Federal participation in the overall process as well as the level of public engagement in the six virtual public meetings in the region, the co-lead agencies determined that an extension was not warranted and that the 45-day public comment period was adequate consistent with NEPA regulations. On April 9, the CRSO EIS website was updated to inform the public that they should plan to submit comments by the close of the comment period. To encourage the highest possible participation, six phone-in opportunities where available to submit comments. The agencies' announcements for the teleconferences included technical assistance instructions for callers who experienced difficulties joining or during a call. The agencies' technical team worked with the AT&T operators to track any concerns heard from anyone who encountered issues joining the calls; no related technical issues were reported. All comment methods were promoted alongside all teleconference information so those unable to participate in a call or who preferred other methods could refer to those comment options.

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3625	1	roboberdorfer@gmail.com	N/A	I also wanted to lodge my complaint about the 45-day public comment period, which with COVID-19 concerns reflects a rush to enact bad policy.	The co-lead agencies considered requests to extend the public comment period. This NEPA process included a wide array of cooperating agencies whose close involvement throughout the process allowed the co-lead agencies to incorporate feedback. Given the broad range of comments received and the extensive Federal and non-Federal participation in the overall process as well as the level of public engagement in the six virtual public meetings s in the region, the co-lead agencies determined that an extension was not warranted and that the 45-day public comment period was adequate as per NEPA regulations. The CRSO website reminded the public on April 9, that they should plan to submit comments by the close of the comment period.
3637	1	N/A	N/A	The DEIS projects a 10 to 33 percent increase in transportation costs. The cost to transport wheat, which made up 87 percent of the cargo shipped down the lower Snake River in 2018, could increase by $0.07-$0.24 per bushel. As a result, the federal government would have to increase farm subsidies by $38.8 million to maintain farmers' current income levels, according to the Pacific Northwest Waterways Association.	The concerns raised in the comment are consistent with the analysis in the EIS. The EIS evaluates potential effects on farmers associated with increased transportation costs under MO3 in Section 3.10.3.5. Evaluating the impact of removing the lower Snake River locks and barge navigation above Pasco, Washington, is completed using a transportation optimization model that does not allow shipments on river terminals along the lower Snake River. The EIS finds that under a dam breach scenario, average transportation costs for wheat farmers would increase 10 to 33 percent, but that individual farmers could experience increases that are doubled. The cost increases to specific shippers would depend upon location and would vary throughout the region, depending on transportation options at each location. Generally, those grain shippers that are the farthest from alternate shipping locations (shuttle rail facilities or river ports on the Columbia River) would be the most negatively impacted. NEPA requires that all relevant, reasonable mitigation measures that could diminish the adverse impacts of the project be identified in the document, even if they are outside the jurisdiction of the lead agency or the cooperating agencies. See 40 C.F.R. 1502.16(h) and 1505.2(c); 46 Fed. Reg. 18026. The inclusion of mitigation measures in this Chapter 5 of the EIS is not intended to indicate that the co-lead agencies, or the Federal government as a whole, has the authority to perform all of the measures listed. If the measures are outside the jurisdiction of the co-lead agencies, those measures will not be included in the Preferred Alternative or Records of Decision (ROD). Their inclusion in Chapter 5 of the EIS serves to alert other agencies, officials, and the public who can implement the measures to the potential benefits of the measure. The mitigation requested, while identified in the Draft EIS, is not within the co-lead agencies' current authorities. The co-lead agencies do not have the authority to provide direct payments to farmers related to increased operation costs.
3641	1	N/A	N/A	I would add an additional component to alternatives 1 & 2 - COMPLETE cessation of ALL fishing for any of the species of fish that this plan is attempting to improve.	The three co-lead agencies (Corps, Reclamation, and Bonneville) do not manage fish stocks, and do not have the authority to do so. An evaluation of the West Coast fisheries is outside the scope of this EIS. Fisheries in the Columbia River Basin and those that rely upon Columbia River fish stocks are managed by numerous entities, including Federal, state, and Tribal governments. These entities are guided by a complex array of policies, laws, compacts, and agreements. The management of Pacific salmon fisheries in particular is complex, and involves numerous entities representing a variety of social, political, and conservation interests. Changes in allowable fishery harvest in the Columbia River Basin are a result of decisions made by state, Federal (e.g., NMFS), and Tribal fishery managers based on a variety of environmental, biological, economic, and social factors.
3644	1	N/A	N/A	I am also a bit shocked that you are shortening the public comment period to only 45 days. The way to move forward is to involve all stakeholders including indigenous tribes, communities and policy makers to come up with a true solution.	The comment period was the 45 days as required by NEPA and had not been shortened. The co-lead agencies considered requests to extend the public comment period. This NEPA process included a wide array of cooperating agencies whose close involvement throughout the process allowed the co-lead agencies to incorporate feedback. Given the broad range of comments received and the extensive Federal and non-Federal participation in the overall process as well as the level of public engagement in the six virtual public meetings s in the region, the co-lead agencies determined that an extension was not warranted and that the 45-day public comment period was adequate as per NEPA regulations. The CRSO website reminded the public on April 9, that they should plan to submit comments by the close of the comment period.
3646	1	calarkin45@gmail.com	N/A	The lower Snake R. dams generate over 1,000 megawatts of affordable, carbon-free, baseload electricity that allows for the addition of renewables and is critical in minimizing brownouts and blackouts. Replacing the dams with natural gas plants would cost $200 million annually and add 3 million metric tons of carbon/year to atmosphere. The increase in truck and train traffic would increase CO2 by more than 1.2 million tons/yr. Hundreds of farmers would be impacted by higher transportation costs, meaning either bankruptcy or the need for millions of dollars in government subsidies.	The EIS finds, consistent with this comment, that Multiple Objective (MO) Alternative 3 (including breaching of the four lower Snake River dams) would result in increased emissions and higher regional electricity prices. The EIS analysis shows that MO3 would raise emissions by between 0.12 to 0.16 million tons/year from increased truck and rail transportation, which is lower than suggested in the comment. Under MO3, increased transportation costs would adversely affect farmers, which is consistent with the findings of the EIS.
3649	1	hayden.mary.k@gmail.com	N/A	Many had trouble getting through on the hearings by phone. We're in a pandemic...give more time for comments, please!	We are sorry you had technical difficulties. We are glad to see you were able to provided comments into the online form or through mail. The co-lead agencies considered requests to extend the public comment period. This NEPA process included a wide array of cooperating agencies whose close involvement throughout the process allowed the co-lead agencies to incorporate feedback. Given the broad range of comments received and the extensive Federal and non-Federal participation in the overall process as well as the level of public engagement in the six virtual public meetings in the region, the co-lead agencies determined that an extension was not warranted and that the 45-day public comment period was adequate as per NEPA regulations. The CRSO website reminded the public on April 9, that they should plan to submit comments by the close of the comment period.
3651	1	chucksnodgrass@surewest.net	N/A	I support higher spill levels and the resulting higher power costs only if scientific analyses clearly show a meaningful benefit to ESA-listed species and other specific mitigations are approved and funded to replace and pay for the loss of carbon free power generation with equal solar, wind and battery alternatives. In addition, any mitigation plan must include funding for alternative tourism activities such as extensive paved bike trails with parking and rest/picnic areas to help replace lost tourism revenue.	The EIS analysis shows that power reliability can be replaced by adding renewable energy and storage, but the existing fossil-fuel generating plants in the region might increase generation as well, therefore resulting in a net increase in GHG emissions. The Preferred Alternative would not diminish tourism or passive recreation, and therefore mitigation is not proposed. The Preferred Alternative analysis does demonstrate benefits to ESA-listed species.
3656	1	Jennifer Joly	Oregon Municipal Electric Utilities Association (OMEU)	As noted in the DEIS, the breaching of the dams would more than double the regions risk of power shortages. The most recent assessment by the Northwest Power and Conservation Council (NWPCC) is that our power supply is likely to become inadequate by 2021 due to the planned retirement of 1,619 megawatts of coal-fired generating capacity. By 2026, the NWPCC assessment notes that the shortfall will grow to 17%. In light of these existing resource adequacy concerns, we must avoid exacerbating the problem by breaching the Lower Snake River dams, which account for 1,100 aMWenough to power 800,000 homes! Losing these dams and replacing them with carbon-free power would raise BPAs power supply rates by 50%. For OMEU members, whose costs are primarily BPA-related, that would translate to rate increases in excess of 25% for our customers.	Breaching the four lower Snake River dams was evaluated in Multiple Objective 3 but was not included in the Preferred Alternative identified in the EIS. The comments that breaching the four lower Snake River dams would (a) increase the frequency of power shortages (unless and until replacement resources are acquired), and (b) would result in increased costs in the region, are both consistent with EIS findings. The EIS also discusses that Bonneville customers, such as municipal electric cooperatives mentioned by the commenter, may have larger increases in rate pressures than other regional utilities that do not purchase power directly from Bonneville. For Bonneville's wholesale power rates, the Preferred Alternative places additional rate pressure of 2.7 percent relative to the No Action Alternative consistent with the statement in the comment regarding increased rates. These estimates compare the Preferred Alternative to the No Action Alternative, which is not the same as comparing the Preferred Alternative to current operations. Consequently, the estimates are not a comparison to the BP-20 wholesale power rates, which were set assuming the financial impact of the 2019-2021 Spill Operation Agreement and therefore already include a substantial portion of the cost pressures found in the Preferred Alternative. The remaining rate pressure associated with the Preferred Alternative falls within a level that Bonneville has historically been able to mitigate through the costs it has significant control.
3656	2	Jennifer Joly	Oregon Municipal Electric Utilities Association (OMEU)	One of the key features of the preferred alternative is its flexibility to adapt to changing conditions and permit adjustments as more data becomes available. In light of the Action Agencies support for higher levels of spill as part of the Preferred Alternative, we anticipate that operations will need to be recalibrated as more evidence comes in regarding fish survival rates with spill operations at up to 125% total dissolved gas (TDG).	Concur. Adaptive management is an important component of the Preferred Alternative. The Preferred Alternative includes a robust monitoring plan to help narrow the uncertainty between the biological models and will help determine how effective increased spill can be in increasing salmon and steelhead returns to the Columbia Basin. The effectiveness of the spill program will be monitored.
3656	3	Jennifer Joly	Oregon Municipal Electric Utilities Association (OMEU)	The Action Agencies should also examine the Comparative Survival Study (CSS) model assumptions around harvest rates. Depending on the findings about the models predictions, spill operations may also need to be re-evaluated on those grounds. We must have confidence that spill operations clearly benefit the ESA-listed species.	The two models used in the anadromous fish analysis predicted different long-term survival benefits for ESA-listed species. However both models assume that current levels of harvest will continue into the future and are calibrated using the current variable harvest rates, which vary based on predicted run size. To address the uncertainty highlighted by the differing model results, the Preferred Alternative includes an adaptive management plan. This plan involves working with regional sovereigns to develop a study to assess the effectiveness of the increased spill regime on adult returns as well as assessment and management of negative unintended consequences, such as long delays of adult migrants, or TDG-related impacts on juvenile migrants.
3656	4	Jennifer Joly	Oregon Municipal Electric Utilities Association (OMEU)	Finally, we suggest that efforts be made to address avian predation as part of the future Columbia River System Operations. As noted in a May 2019 report by the Independent Scientific Advisory Board (ISAB) to the NWPCC, large numbers of colonial, piscivorous water birds, such as Caspian terns and double-crested cormorants, nest in the Columbia River Basin and are believed to be one the greatest sources of mortalityif not the single-greatest sourcefor emigrating juvenile steelhead and yearling Chinook salmon from the upper Columbia and Snake Rivers. Our ratepayers have made significant investments in fish passage at the dams. Future efforts should also be focused on addressing other pieces of this complex puzzle, including avian control.	The co-lead agencies legal authorities relate to operating and maintaining the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. To comply with the ESA, the co-lead agencies have historically supported actions to mitigate adverse effects to listed species from CRS operations, through funding, direct implementation, and other means. Under the Preferred Alternative, those actions, including for the purpose of reducing pinniped and avian predation on listed species, would generally continue to ensure compliance with the ESA. Other entities in the region have authorities and obligations to mitigate the impacts from pinniped and avian predators and the co-lead agencies will continue to work closely with those entities to benefit ESA-listed salmonids. The Preferred Alternative includes a large suite of predation mitigation measures, some of which include maintaining avian wires in the tailrace of lower Columbia and Snake River dams, active hazing of gulls at the dams, and the pattern of operating the spillway gates all mitigate for predation at the dams by birds and fish. The Predator Disruption Operations will mitigate Caspian Tern predation on juvenile salmon and steelhead in the lower Columbia Rivers. Management efforts are ongoing to reduce salmonid consumption by terns in the lower Columbia River, and similar efforts are in progress to reduce the nesting population of Double-crested cormorants in the estuary.
3663	1	a2antoville@gmail.com	N/A	Please note- The comment period was insufficient. 45-days is woefully inadequate to review a plan of this complexity and many people had trouble getting through on the phone hearings.	The co-lead agencies considered requests to extend the public comment period. This NEPA process included a wide array of cooperating agencies whose close involvement throughout the process allowed the co-lead agencies to incorporate feedback. Given the broad range of comments received and the extensive Federal and non-Federal participation in the overall process as well as the level of public engagement in the six virtual public meetings in the region, the co-lead agencies determined that an extension was not warranted and that the 45-day public comment period was adequate consistent with NEPA regulations. On April 9, the CRSO EIS website was updated to inform the public that they should plan to submit comments by the close of the comment period. To encourage the highest possible participation, six phone-in opportunities where available to submit comments. The agencies' announcements for the teleconferences included technical assistance instructions for callers who experienced difficulties joining or during a call. The agencies' technical team worked with the AT&T operators to track any concerns heard from anyone who encountered issues joining the calls; no related technical issues were reported. All comment methods were promoted alongside all teleconference information so those unable to participate in a call or who preferred other methods could refer to those comment options.
3666	1	vectorfins@gmail.com	N/A	Dear representatives of The People. Please lengthen the comment period for the dam removal on the Snake River. We a fighting a battle that no one expected and you cannot in good conscious end the comment period at this time.	The co-lead agencies considered requests to extend the public comment period. This NEPA process included a wide array of cooperating agencies whose close involvement throughout the process allowed the co-lead agencies to incorporate feedback. Given the broad range of comments received and the extensive Federal and non-Federal participation in the overall process as well as the level of public engagement in the six virtual public meetings in the region, the co-lead agencies determined that an extension was not warranted and that the 45-day public comment period was adequate as per NEPA regulations. The CRSO website reminded the public on April 9, that they should plan to submit comments by the close of the comment period..
3674	1	W. Marc Farmer	Clatskanie People's Utility District	Multiple Objective Alternative 3 (MO3), which evaluates the effects of breaching the four lower Snake River dams, fails to meet the DEISs multiple objectives and would have additional negative economic impact to Clatskanie PUDs customers beyond what is evaluated in the DEIS. Among the impacts of MO3, the DEIS evaluation demonstrates that breaching the lower Snake River dams would (1) cost $1 billion per year, if the dams generation is replaced with a carbon-free portfolio such as wind, solar, and batteries, and (2) double the risk of region-wide blackouts. If BPAs public power customers bear those costs similar to how they are distributed today, it would add over ten million dollars to Clatskanie PUDs annual power supply costs. Ninety percent of Clatskanie PUDs retail sales are to industrial customers, and power supply increases like those contemplated by the breaching Page 2 of the lower Snake River dams would be shared by the paper mills we serve. The increased risk of outages would also add to the business uncertainty of operating energy-intensive mill processes. All three of the paper mills we server use an energy-intensive process to produce products in a highly competitive, trade-exposed market. Moreover, they have robust competition from producers of the same products outside the region. The cost	The statements and information presented in this comment regarding increased electricity costs from dam breaching in MO3 are consistent with the findings of the EIS. However, the power shortages as presented are only expected if replacement resources are not acquired. The EIS analyzed retail rate effects for commercial and industrial end users, identifying retail rate pressure increases as described in Section 3.7.3.5, Social and Economic Effects of Changes in Power and Transmission in the Draft EIS. The comment that increasing electricity rates will cause job losses and economic risk to communities is consistent with the findings of the EIS. The Draft EIS used the IMPLAN model to assess potential effects to regional businesses. IMPLAN aggregates all economic output and employment, so the EIS was unable to evaluate effects on specific businesses. Although the EIS examined economic effects at the county level, it acknowledges that localized effects of rate increases may be more pronounced as described in 3.7.3.5, Summary of Effects in the Draft EIS. Specifically, customers of utilities receiving power from Bonneville would experience greater upward rate pressure. Clatskanie PUDs customers would see larger rate impacts than the region-wide average. The financial responsibility for fish mitigation is not solely allocated to Bonneville's power ratepayers as the comment suggests. Fish mitigation costs are assigned to each authorized project purpose based on each purposes overall share of project costs, as determined by the cost allocation, by recovering those costs through power rates. Bonneville is required to pay for its share of mitigation costs based on the existing cost allocation. Congress also granted Bonneville discretion to fund the

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				pressures and business uncertainty associated with breaching the lower Snake River dams erodes the advantages our region has in reliable, clean, and costeffective power supply and may result in the unintended shifting of trade-exposed industries to other regions. The Wauna paper mill is the largest employer in our service territory and accounts for sixty-five percent of our total retail load. Clatskanie PUD and the communities we serve are highly sensitive to mill operations. From a purely rate-setting perspective, we have estimated that the shuttering of the three mills we serve would result in an immediate doubling of our commercial and residential rates. Doubling our customers electric bills at the same time as the largest employer in the community closes would be devastating. Such economic risk to our community was not evaluated in the DEIS, and we hope the federal decision-makers consider the risk of unintended consequences when evaluating the alternatives. Any new costs resulting from the governments process should be equitably and broadly allocated rather than being borne exclusively by BPAs public power customers. To the extent the preferred alternative results in additional costs, it is time to find ways to more broadly share these regional costs. Not only is it appropriate to equitably align cost responsibility with public benefits, but doing so also recognizes the regions shared stake in both fish recovery and the financial health of BPA. The economic, environmental, and operational benefits of the Federal Columbia River Power System (FCRPS) as it exists today should be properly considered and accounted for.	power share directly to the Corps and Reclamation as part of the Energy Policy Act of 1992, in some situations, including the Columbia River Fish Mitigation program. (Energy Policy Act of 1992, Pub. L No. 102-486, 2406, 106 Stat. 2776, 3009 (1992) (codified at 16 U.S.C. 839d-1 (2012)). Bonneville generally does not, however, directly pay for the capital costs of fish mitigation structures; instead, it reimburses the U.S. Treasury for the power share of appropriations used to construct the structure. Additionally, as described in Section 3.19 of the EIS and Appendix Q, funding to operate the system comes through multiple mechanisms, including Federal tax dollars appropriated to cover system costs as well as revenue generated from the marketing and sale of hydropower. For power-specific costs, Bonneville typically provides direct funds to both the Corps and Reclamation. For joint related costs, including funding for fish and wildlife mitigation actions, the Corps and Reclamation receive annual congressional appropriations to fund most, if not all, capital investments. Bonneville reimburses the U.S. Treasury for the power share of these appropriations. Once the investment is in place, Bonneville will typically direct fund the power share of the operations and maintenance costs associated with the facility. In addition to congressional appropriations for fish and wildlife and costs directly funded to Corps and Reclamation by Bonneville, the Bonneville Fish and Wildlife Program (which is separate and distinct from direct funding described above) funds hundreds of projects each year to mitigate the impacts of the Federal hydropower system on fish and wildlife. Bonneville began this program to fulfill mandates established by Congress in the Pacific Northwest Electric Power Planning and Conservation Act of 1980 to protect, mitigate, and enhance fish and wildlife affected by the development and operation of the Federal Columbia River Power System (FCRPS). Bonneville uses its authority under 16 U.S.C. 839b(h)(10)(A), to make expenditures to implement its Fish and Wildlife Program. These expenditures provide systemwide funding for actions that also mitigate for the non-power purposes of the CRS, so Bonneville recoups the non-power share of those expenditures from the U.S. Treasury as credit, as required under 16 U.S.C. 839b(h)(10)(C). Bonneville's Fish and Wildlife Program expenditures incurred mitigating the CRS operations identified in the Final EIS and adopted in Bonneville's Mitigation Action Plan would continue to be allocated and borne as provided by existing laws governing the FCRPS and the long-standing accounting procedures used to implement them. Moreover, as described in Chapter 7 of the EIS, funding decisions for Bonneville's Fish and Wildlife Program are not being made as part of the CRSO EIS process. Future budget adjustments would be made in coordination with the regional entities that help Bonneville implement its Fish and Wildlife Program. The statement that roughly a quarter of costs from Bonneville's power rates are due to fish and wildlife spending is consistent with information provided in the EIS.
3674	2	W. Marc Farmer	Clatskanie People's Utility District	Hydropower is a clean, renewable resource with high availability that is vital to meeting the regions carbon goals, which continue to become more demanding as societys concerns about carbon intensify. A recent study published in the Proceedings of the National Academy of Sciences (PNAS) concluded that BPAs hydropower-based system can be largely attributed with the Pacific Northwest regions production and use of the cleanest energy in the nation, leading among the countrys 20 largest electric regions. FCRPS hydropower is also a flexible resource that enables the region to meet future sustainability goals by integrating intermittent renewable resources like wind and solar onto the grid. The value and demand for the flexible capacity that the FCRPS provides will only increase as state legislation and policies drive the retirement of fossil fueled baseload resources and replace them with intermittent renewable generation. Page 3 The FCRPS projects are a key part of reliable and affordable grid operations and cannot be replaced at low cost by intermittent renewable resources. The value of capacity and reliability of the power produced by these projects has to be properly accounted for.	The information provided in the comment regarding the importance of hydropower for regional power reliability, greenhouse gas emissions goals, and the integration of variable renewables is consistent with the findings of the EIS. Regarding valuing capacity and reliability, the EIS analyzed the value of the replacement resources needed to maintain power system reliability as well as the flexibility and ramping capability of the four lower Snake River dams in the sensitivity analyses Section 3.7.3.5, Potential Replacement Resources and Associated Costs in the Draft EIS. The Preferred Alternative expects the power reliability objective to be met and upward rate pressure is expected to be minor relative to the No Action Alternative.
3689	1	jessica@necoalition.org	N/A	This comment period during a pandemic is not long enough so extend it.	The co-lead agencies considered requests to extend the public comment period. This NEPA process included a wide array of cooperating agencies whose close involvement throughout the process allowed the co-lead agencies to incorporate feedback. Given the broad range of comments received and the extensive Federal and non-Federal participation in the overall process as well as the level of public engagement in the six virtual public meetings in the region, the co-lead agencies determined that an extension was not warranted and that the 45-day public comment period was adequate consistent with NEPA regulations. On April 9, the CRSO EIS website was updated to inform the public that they should plan to submit comments by the close of the comment period.
3690	1	joosgalefamily@comcast.net	N/A	Finally, I'd like to express my strong dismay regarding the insufficient comment period. 45-days is woefully inadequate to review a plan of this complexity and many people had trouble getting through on the phone hearings.	The co-lead agencies considered requests to extend the public comment period. This NEPA process included a wide array of cooperating agencies whose close involvement throughout the process allowed the co-lead agencies to incorporate feedback. Given the broad range of comments received and the extensive Federal and non-Federal participation in the overall process as well as the level of public engagement in the six virtual public meetings in the region, the co-lead agencies determined that an extension was not warranted and that the 45-day public comment period was adequate consistent with NEPA regulations. On April 9, the CRSO EIS website was updated to inform the public that they should plan to submit comments by the close of the comment period. To encourage the highest possible participation, six phone-in opportunities where available to submit comments. The agencies' announcements for the teleconferences included technical assistance instructions for callers who experienced difficulties joining or during a call. The agencies' technical team worked with the AT&T operators to track any concerns heard from anyone who encountered issues joining the calls; no related technical issues were reported. All comment methods were promoted alongside all teleconference information so those unable to participate in a call or who preferred other methods could refer to those comment options.
3716	1	N/A	N/A	The DEIS should consider another option to breach the four lower Snake River dams and utilize spill at the Columbia River dams to 125% TDG. This results in the best scenario for salmon recovery.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. The co-lead agencies are required to evaluate a reasonable range of alternatives in the EIS. However, when there are potentially a very large number of alternatives, only a reasonable number of examples, covering the full spectrum of alternatives, must be analyzed and compared in the EIS. Alternatives for this EIS were developed from measures identified during public scoping, regional forums with scientists and technical experts from cooperating agencies, and expert opinion from within the co-lead agencies and in the literature. These alternatives represent a reasonable range of alternatives for the maintenance and operation of the CRS. The agencies disagree that an alternative combining juvenile fish passage spill up to 125% and breaching the four lower Snake River dams is reasonable, and thus was not proposed as an alternative given the unacceptable risks to public safety from such an alternative. For Power and Transmission, MO3 and Multiple Objective alternative 4 (MO4), individually each caused large loss-of-load probability (LOLP) results (e.g., increased incidence of blackouts). Without major addition of new resources, MO3 would result in power shortages in about one in seven years. MO4 would produce power shortages in about one in every four years. If MO4 were implemented, in addition to breaching the four lower Snake River projects as called for in MO3, then the LOLP would be even higher, with power shortages potentially occurring almost every year. Additionally, if these MOs were combined, in 5% of the years, the power shortages would average close to 1,000 MW in early August when the region might be experiencing a heatwave with particularly high demand for air conditioning (1,000 aMW is about the average amount of power consumed by Seattle City Light). As shown in Section 3.7, MO3 causes an increase in power reliability concerns in the winter and the summer. MO4 increases power reliability concerns in the summer. Thus, the combination of MO3 and MO4 has the largest impact during the summer. The cost of zero-carbon replacement resources for MO3 and MO4 individually are up to $1 billion/year. Resource replacements and associated transmission interconnections for the combination of MO3 and MO4 would be higher, though not likely as high as the sum of MO3 and MO4 individually. Assuming that the replacement resources consist largely of wind, solar, and batteries, those replacement resources would require well over 50 square miles of solar power (more than two and a half times the size of Crater Lake), large areas of new wind generation, and unprecedented amounts of batteries (more batteries in the Northwest alone than the total projection of batteries expected in the entire U.S. by 2023 per the Energy Information Administration). In addition, the reduced generation capability under MO3, particularly throughout the summer, in combination with the impacts of the measures in MO4, and the uncertainty about the characteristics of replacement resources, would result in less capability to provide voltage support and dynamic stability for transmission system reliability than under MO3 or MO4 individually. Thus, combining MO4 with breaching the four lower Snake River projects, would produce unreasonable power and transmission reliability impacts, and it is highly speculative that replacement resources could be sited, permitted and built to address these impacts. This potential alternative has not been evaluated for direct, indirect and cumulative effects to other resources. Thus, an alternative combining juvenile fish passage spill up to 125% and breaching the four lower Snake River dams is unreasonable, and was not proposed as an alternative. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-lead agencies numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets most other EIS objectives including those for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams, because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system.
3717	1	holdercarl@hotmail.com	N/A	Scientists reported the alarming conclusions of 12 years of study, 2008-2019. Fish-eating birds, including Caspian terns, double-crested cormorants, and gulls, are killing half, or more, of the juvenile salmon and steelhead during their annual outmigration down the Columbia River to the Pacific Ocean. Billions of dollars in actual local and federal dollars + the at least 1,000 MWe energy is lost due to fish rules. Inconceivable that there is no control of fish-eating birds that provide absolutely no benefit. The distruction of salmon due to flocks of birds is allowed to continue only due to absurd agency rules A couple of coyote mating pairs or a family of Texas feral hogs on the islands would solve the bird problem with very little cost, no environmental damage, and no PETA outrage. Control the birds with natural predators.	The co-lead agencies' legal authorities relate to operating and maintaining the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy designated critical habitat. To comply with the ESA, the co-lead agencies have historically supported actions to mitigate adverse effects to ESA-listed species from CRS operations through funding, direct implementation, and other means. Under the Preferred Alternative, those actions, including for the purpose of reducing pinniped and avian predation on ESA-listed species, would generally continue to ensure compliance with the ESA. Other entities in the region have authorities and obligations to mitigate the impacts from pinniped and avian predators and the co-lead agencies will continue to work closely with those entities to benefit ESA-listed salmonids. Specifically for the comment on predation, on-going actions described in the No Action Alternative to reduce predation on migrating fish are included in the Preferred Alternative. In addition, water management actions ("Predator Disruption Operations" measure) in the John Day reservoir is expected to further reduce avian predation on migrating juvenile fish.
3726	1	emiliecynthia@gmail.com	N/A	The comment period was insufficient. 45-days is woefully inadequate to review a plan of this complexity and many people had trouble getting through on the phone hearings.	The co-lead agencies considered requests to extend the public comment period. This National Environmental Policy Act (NEPA) process included a wide array of cooperating agencies whose close involvement throughout the process allowed the co-lead agencies to incorporate feedback. Given the broad range of comments received and the extensive Federal and non-Federal participation in the overall process as well as the level of public engagement in the six virtual public meetings in the region, the co-lead agencies determined that an extension was not warranted and that the 45-day public comment period was adequate consistent with NEPA regulations. On April 9, the CRSO website was updated to inform the public that they should plan to submit comments by the close of the comment period.
3726	2	emiliecynthia@gmail.com	N/A	The Agencies preferred alternative is a huge waste of public resources and perpetuates the status quo which has been rejected 5 times by a federal court over the last 25 years. An Alternative Plan must focus on three things: (1) Removal of four obsolete Snake River Dams, (2) increased flows over Columbia River Dams, and (3) habitat restoration. Persecution of native predator species must be eliminated from this plan.	The co-lead agencies are required to evaluate a reasonable range of alternatives in the EIS. Alternatives for this EIS were developed from measures identified during public scoping, regional forums with scientists and technical experts from cooperating agencies, and expert opinions from within the co-lead agencies and in the literature. These alternatives represent a reasonable range of alternatives for the maintenance and operation of the CRS. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-lead agencies numerous legal obligations. The Preferred Alternative is predicted to benefit ESA-listed juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3, which includes breaching the four lower Snake River dams. The Preferred Alternative also meets most other EIS objectives for: resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3 by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS the co-lead agencies did not identify MO3 because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. Similarly, the agencies did not identify Multiple Objective alternative 4 (MO4), which includes a measure to draw down the four lower Snake River and four lower Columbia River projects because of its adverse impacts to resident fish power generation, irrigation and greenhouse gas (GHG) emissions. One major change that the Preferred Alternative represents is a new spill operation (flexible spill) to increase spill when the projected value of power is relatively low, pass higher proportions of juvenile fish through the spillway, and spill less water for limited durations when the projected value of power is relatively higher (e.g., during peak power demand). The flexible spill operation creates an opportunity for salmon and steelhead to avoid going through the power house which may adversely effect fish and improve travel time for migration through the system. The flexible spill operation in the Preferred Alternative would be implemented through an adaptive framework that allows the co-lead agencies to adjust operations as new information emerges. As part of the flexible spill operation, planned spill would increase up to 125 percent total dissolved gas levels at some projects. The Preferred Alternative also contains measures to benefit resident fish, as well as lamprey, while

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					providing reliable flood risk management, water supply for irrigation, and flexibility in hydropower generation that would be valuable for integrating wind and solar energy. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information. The Preferred Alternative identified in the Draft EIS will continue many ongoing actions that are detailed in Section 7.6.4.1. These actions include ongoing efforts that provide for habitat restoration and predator management. Examples of some of these actions are included in Table 7-5.
3732	1	reputnam@gmail.com	N/A	Chapter 7.2 says: BEGIN QUOTE (slightly edited for brevity) The co-lead agencies determined that the No Action Alternative, MO1, MO2, and MO4 allow for the operation of the projects (meaning dams) in furtherance of all of the congressionally authorized purposes to varying degrees. Alternative MO3 would not meet the congressionally authorized purposes of operating and maintaining the four lower Snake River dams for navigation, hydropower, recreation, and irrigation. New congressional authority through new laws and associated funding would be required to implement dam breaching measures. END QUOTE So to summarize what I just read, the three agencies, do one thing. The build and maintain dams. That is their life. That is their congressional authorization (MAGIC WORDS). If you want to remove the dams, go get Congress to authorize that and get some money, because it will not happen with the local Corp of Engineers, or BPA, or Bureau of Reclamation. Thats their story, but it is totally wrong. Those magic words: congressional authorization are a smoke screen by the local lead agencies to make us believe that they cant take out the dams. In fact, they could do that very thing without additional congressional authorization. It doesnt take congress to decommission a Navy ship, like it didnt take Congressional action for the Portland Corp of Engineers to decommission the Willamette Lock and Dam in Portland. Its part of what they are responsible for.	The commenter's assertions are incorrect. If MO3 were selected, the Corps could use the CRSO EIS as a basis for seeking congressional authority to breach the four lower Snake River dams. After receiving both authority and appropriations from Congress, the Corps could initiate a detailed construction and design report for the breach measure, identification of disposal areas, real estate acquisition and disposal, permits, and mitigation requirements, including temporary fish hatchery production. Each of these actions is required prior to breaching, and the Corps does not have the authority or appropriations necessary to immediately breach the project's embankments. More information is available in the Corps Engineering Regulation (ER) 1165-2-119 Water Resources Policies and Authorities, Modifications to Completed Projects (Sept. 20, 1982) or ER 1105-2- 100, Appendix G, Section III Post Authorization Changes. Regarding Willamette Falls Locks (this Corps navigation project does not include a Dam), the commenter is mistaken. The Corps has administrative discretion to (1) place the locks in a minimal maintenance caretaker status, on account of lack of funding associated with a decline in commercial tonnage through the locks, and (2) close the locks to vessel traffic, due to life safety concerns associated with unsafe physical conditions. In contrast, the Corps lacks authority to deauthorize the project for its navigation purpose or dispose of the land and improvements prior to such deauthorization. Only Congress can deauthorize the project. The Corps has evaluated the feasibility of deauthorization and disposal, and understands that congressional committees are considering whether to include such a deauthorization in the next Water Resources Development Act (or WRDA). As such, the Corps administratively closing the locks to vessel traffic due to life safety concerns is quite different than Congress legislatively deauthorizing the project and directing disposal.
3734	1	reputnam@gmail.com	N/A	Why did you not use a third-party organization such as Mitre to help evaluate the various options (alternatives) in order to generate an objective solution instead of keeping the decision "in-house". By not outsourcing the analysis you have put the agencies in the position of being totally biased regarding the "preferred alternative". I would think that this puts the lead organizations legally at risk.	The co-lead agencies used a multi-agency, multi-disciplinary and science-based approach to analyze the alternatives in the EIS. The co-lead agencies invited a number of entities (including tribes, states, and agencies) from across the region to participate in the EIS process as Cooperating Agencies, and over 30 of those invited agreed to participate. Staff from the Cooperating Agencies joined the technical teams and provided their expertise and review of the development and analysis of the alternatives. Leaders from the co-lead agencies met with tribal leaders for formal consultation, and with other organizations and stakeholders to have dialogue and receive feedback as the EIS progressed. However, only the co-lead agencies have the responsibilities on behalf of their agencies and the public to undertake the National Environmental Policy Act (NEPA) process, comply with other Federal laws and regulations, and propose recommendations regarding future operation, maintenance, and configuration of the dams within the authorities provided by Congress for the CRS system. NEPA does not require a third party to evaluate the alternatives or to propose a specific solution, these are the responsibilities of the co-lead agencies. The co-lead agencies selected senior staff from across the country with expertise in their fields to serve on the EIS team. The Draft EIS was subjected to two internal agency reviews by the Corps of Engineers from other experts not involved in the development of the document. Additionally, the entire document, analysis, and modeling were reviewed following an Independent External Peer Review (IEPR) process that meets the Office of Management and Budget (OMB) circular on peer review requirements under the "Information Quality Act" and the Final Information Quality Bulletin for Peer Review by OMB (referred to as the "OMB Peer Review Bulletin). It also meets guidance for the implementation of both Sections 2034 and 2035 of the Water Resources Development Act (WRDA) of 2007 (Public Law (P.L.) 110-114) and standards of the National Academy of Sciences independent peer review. The final IEPR report will be publicly available. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-lead agencies numerous legal obligations. The Preferred Alternative meets the EIS objectives for anadromous and resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse impacts to communities and the economy. Consistent with the twin aims of NEPA, the co-lead agencies disclosed the impacts of their action to the public and will use the input from the public to make an informed decision when the Preferred Alternative is selected.
3736	1	reputnam@gmail.com	N/A	Several sentences from the draft EIS make it appear that many organizations came together to work on this EIS. One such sentence is from the Preface: "More than 30 entities from across the region, consisting of tribes, Federal agencies, and state and local governments, agreed to participate as cooperating agencies in this NEPA process." However another sentence from the draft EIS is quite troubling: " ..., the co-lead agencies identified a Preferred Alternative..." I could find no information that said that after the three co-lead government organizations picked "the final solution" that it was accepted and approved by each of the 30 entities that originally participated. Was there a vote, or other form of acceptance by each of the 30 organizations, or was the final alternative just decided by the three lead organizations. If the other organizations did not have a significant voice, then this EIS is flawed.	The co-lead agencies invited a number of entities (including Tribes, states, and agencies) from across the region to participate in the EIS process as cooperating agencies, and over 30 of those invited agreed to participate. Staff from the cooperating agencies joined the technical teams and provided their expertise and review to the development and analysis of the alternatives. Leaders from the co-lead agencies met with Tribal leaders for formal consultation, and with other organizations and stakeholders to have dialogue and receive feedback as the EIS progressed. However, only the co-lead agencies have authority to make decisions regarding future operation and configuration of the dams in the CRS. The cooperating agencies reserved their rights to submit comments on the Draft EIS and Final EIS, and their acceptance of the cooperating agency invitation did not require that they concur in the co-lead agencies' identification of the Preferred Alternative.
3813	1	hstebbings@shavertransportation.com	Shaver Transportation Company	Much of the impact on salmon populations remains outside of the scope of the Columbia River System operations. The draft DEIS correctly recognizes this and calls for further action to accelerate the recovery of anadromous fish like salmon. The most updated science from the National Oceanic and Atmospheric Administration finds that conditions in ocean waters need to improve for fish numbers to increase, and that dam breaching would yield only marginal and uncertain improvements to fish populations while devasting the regional economy. We need to instead consider factors impacting the whole ecosystem that salmon depend on and not limit our focus to the dams on the Columbia Snake River System, where so much investment and improvement has been made in fish passage infrastructure.	The co-lead agencies recognize that there are many effects to salmon and steelhead populations outside those associated with the operation, maintenance and configuration of the dams, including ocean conditions. A whole ecosystem approach would be welcomed by the co-lead agencies, who will be active participants in regional discussions and solutions for achieving broader recovery objectives. While none of the alternatives would affect ocean conditions, the co-lead agencies recognize that these conditions are a major driver for adult returns and that numerous studies have shown the importance of this environment in the return of adult salmon and steelhead (Peterson et al. 2019). As such, two of the models used in these analyses, CSS and NMFS Lifecycle model, use metrics of ocean productivity to predict adult returns. These metrics can be seen at: https://www.nwfsc.noaa.gov/research/divisions/fe/estuarine/oeip/g-forecast.cfm.
3813	2	hstebbings@shavertransportation.com	Shaver Transportation Company	Our four-barge tows move grain from as far inland as Lewiston, Idaho and carry the equivalent of one and a half unit trains or 538 semi-trucks. Each year, barging on the 365-mile inland Columbia Snake River System keeps the equivalent of 334,615 trucks or 870,000 rail cars from moving through the sensitive airshed of the Columbia River gorge. On the Snake River alone, barging keeps 35,140 rail cars or 135,000 semi-trucks from moving on our already congested transportation system each year. Barging also keeps transportation costs in check by offering an alternative to rail and trucking. Without barging, the regional agricultural community would be captive shippers and see significant impacts. More than 1,100 farms would be at risk of bankruptcy, and grain suppliers and shippers would likely see an increase in transportation and storage costs by 50-100%. Our highway, rail and grain elevator networks would need over $1.1 billion in capital investments to adapt to the loss of barging. This includes hundreds of miles of short-line rail track that have been abandoned, as well as new rail, major highway improvements and retrofits for grain elevators that do not have rail-loading capabilities.	The EIS evaluates potential effects on farmers associated with increased transportation costs under MO3 in Section 3.10.3.5. The EIS finds that under a dam breach scenario, average transportation costs for wheat farmers would increase 10 to 33 percent, but that individual farmers could experience increases that are doubled. The cost increases to specific shippers would depend upon location and would vary throughout the region, depending on transportation options at each location. Generally, those grain shippers that are the farthest from alternate shipping locations (shuttle rail facilities or river ports on the Columbia River) would be the most adversely affected. The EIS recognizes that there is no guarantee wheat grown in the Northwest would be competitive now or in the future because there are many factors that influence international commodity markets (e.g., trade agreements, the U.S. dollar, global supply, etc.). However, the analysis finds that the cost to transport wheat to market would continue to be lower than costs paid by other wheat growers in the United States (e.g., the Dakotas and Midwest). Favorable conditions for Northwest wheat growers that help them stay competitive are: (1) the natural environment of the Palouse region (weather, soils) is ideal for growing this type of wheat, which leads to some of the highest yields per acre in the world, and (2) proximity of Northwest export ports.
3830	1	dmoorx@gmail.com	N/A	I have attached a letter commenting below in attachments	Unfortunately, an attachment was not received from the commenter. The co-lead agencies requested the commenter resubmit via e-mail on June 25, 2020; however, the co-lead agencies did not receive a response to this request.
3836	1	bobkerslake@msn.com	N/A	Lowering Lake Pend Oreilles summer lake level in low water years, thus eliminating our long understood stable summer lake elevations, would devastate our local economy, which is predominantly dependent on water-based recreation. This change would have prevented boat access to countless locations around the lake, preventing close to 90% of waterfront landowners from mooring their boats, destroyed property values, and crippled the summer property. Lowering the summer lake level would make my waterfront unusable. My dock would rest in the mud and it would be impossible to dock my boat. My families very significant investment into the property would be destroyed. I would be forced to sell the property. All the business and revenue my family and friends bring to Bonner County would be lost forever. I am sure many other property owners would be forced into the same decision. It is our understanding this draft preferred alternative could still be altered during this process, in which case, we want to emphasize again that we strongly appose any future operational changes that would lower, shorten, or provide uncertainty to Lake Pend Oreille summer lake levels.	No effects to Lake Pend Oreille elevations that would affect boat ramps are anticipated under any alternative in normal or high water years. Under Multiple Objective alternative 4 (MO4) in low-water years only, water surface elevations at Lake Pend Oreille (Albeni Falls) may be 1 to 3 feet lower between July and September relative to the No Action Alternative. While the analysis does not detect changes in boat ramp accessibility from these changes in water levels at Federal- and state-managed boat ramps, the EIS acknowledges that major adverse effects to recreational activities associated with impaired lake aesthetics (e.g., exposed mud flats) and reduced functionality of fixed docks and other infrastructure are possible under MO4 in low-water years. Moreover, under the Preferred Alternative small changes in river flows and reservoir elevations at Hungry Horse Dam are not anticipated to affect recreation at its reservoir or affect downstream reaches including the Pend Oreille Lake and River.
3841	1	twolinkers1960@gmail.com	N/A	It has also been established that water behind Columbia River dams is warmer than is safe to the survival of salmon and steelhead, which have been shown to struggle in water temperatures higher than a maximum of 64 degrees. The colder water of the upper reaches of the river provides sanctuary for salmon as the climate changes and warms. If this cooler water flows freely down the river, it will mitigate some of the changes brought by climate change.	The Draft EIS acknowledges and describes the temperature sensitivities of salmon and steelhead, as well as the many other factors that affect these fish. Water quality and hydrology modeling data were inputs into the fish survival models used to analyze the alternatives' effects on Snake River stocks, so temperature effects to survival have been incorporated into the overall analyses of each alternative. Regarding climate change, the climate science community is still developing models to the resolution required (river-scale vs. global- or regional-scale) to analyze possible effects to water temperature from climate change. It was not possible to reliably model water temperature changes under climate change for this EIS. In lieu of this information, the climate analysis used the output from the water quality models under historical conditions, climate change data, and scientific literature to qualitatively assess potential effects to water temperature as discussed in Section 4.2.3. Regarding water temperatures under dam breach scenarios, the analysis of MO3, which includes breaching the four lower Snake River dams, indicates that nighttime summer water temperatures, as well as fall water temperatures, would be cooler than No Action Alternative conditions in the Snake River. However, even with the four lower Snake River dams breached, maximum summer water temperatures would exceed state water quality standards (20C) at times, especially during hot weather events. The models showed minor changes in the Columbia River under the dam breach scenario alternative.
3848	1	N/A	N/A	It is time to remove the earthen portions of these dams. The material can be stockpiled. If after twenty years there is no improvement in the fish populations then rebuild the dams.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-lead agencies numerous legal obligations. The Preferred Alternative is predicted to benefit ESA-listed juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3, which includes breaching the four lower Snake River dams. The Preferred Alternative also meets most other EIS objectives for: resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS the co-lead agencies did not identify MO3 because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. The commenter's suggestion to stockpile and rebuild the dams if breaching did not result in meeting the anadromous fish objectives of the EIS would have to be studied and effects evaluated. Siting locations for materials of this amount for long term storage and new construction costs to rebuild would be part of that analysis. The alternative suggested by the commenter would include the adverse effects of implementing MO3, and potentially irretrievable losses to communities and economy. Therefore, the co-lead agencies do not consider this to be a reasonable variation of MO3, which included breaching the four lower Snake River dams.
3851	1	N/A	N/A	To save the endangered Snake River salmon, Southern Resident orcas and ratepayers money, the federal agencies need to address the Columbia River System in a two-tiered process. Tier one is an emergency response action for the immediate drawdown and breach of Lower Granite and Little Goose dam, followed by the remaining two dams in subsequent years. Tier two is addressing system operations and further mitigation activities in the rest of the Columbia River Basin using the new EIS, assuming that the four lower Snake River dams.	The Draft EIS evaluated under MO3 which included the measure to breach the four lower Snake River dams (referenced as tier one in the comment) including operations (referenced as tier two in the comment) of the other ten Federal dams in the CRS and mitigation for effects to resources from implementing this alternative. If MO3 were selected, the Corps could use the CRSO EIS as a basis for seeking congressional authority to breach the lower Snake River dams. After receiving both authority and appropriations from Congress, the Corps could initiate a detailed construction and design report for the breach measure, identification of disposal areas, real estate acquisition and disposal, permits, and mitigation requirements, including temporary fish hatchery production. Each of these actions are required prior to breaching, and the Corps does not have the authority or appropriations necessary to immediately breach the project's embankments.

Letter No.	Comment No.	Commenter Name/Email	Affiliation	Comment	Response[1/]
					Also, under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not require the co-lead agencies to take affirmative actions to support recovery of ESA-listed species. Recovery of ESA-listed salmon is outside of the authority of the co-lead agencies, and was not an objective of this EIS. Recovery of ESA-listed species is the purview of National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (USFWS). This EIS has been developed in consultation with NMFS and USFWS to find an acceptable balance that allows the co-lead agencies to meet the Purpose and Need Statement while minimizing impacts to affected ESA-listed species and their habitats.
3856	1	dfarrellseidler@gmail.com	N/A	Salmon are vital cultural staples for indigenous people and locals of the Pacific Northwest as well as a highly valuable food source. Since their construction dams have decimated salmon populations. The removal of the Snake river dams has been supported by scientists. In addition, for over two decades, Tribal, federal, state and independent research has repeatedly corroborated this determination. The endangered southern resident orcas rely on chinook salmon for 80% of their diet. The Snake river supports 70% of the Chinook salmon within the Columbia River Basin. In total the dams provide 5-13% of hydroelectric power. In 2017 it was predicted that removing the four lower snake river dams would double if not triple salmon populations. The lower snake river dams also cost $312.9 million dollars a year to maintain. While there is the short term loss of employment for workers, there will be a long term economic benefit. The 2020 draft EIS fails to accurately address the need for dam removal promoted by numerous advocates, scientists, and concerned locals. The first priority needs to be salmon survival and while that might mean paying a short term economic price, it will be well worth it. The best option for the survival of salmon populations is to remove these four dams. The Draft EIS itself acknowledges that restoring the river will be more beneficial to the endangered Snake River fish populations than any other option considered or analyzed. This restoration will be the most effective if the four dams are removed. Thus, dam removal should be included as a foundational element of the Preferred Alternative I suggest EIS recommend that the federal government (congress) approve the dam removal and subsidize the workers who have been laid off due to the dam removal until they can find alternate employment. This EIS draft should be adjusted accordingly by presenting the removal of the four snake river dams as the preferred alternative.	Tribal input, concerns, interests, and especially treaty rights were considered throughout the Draft EIS analyses and in the formulation of the Preferred Alternative. The co-lead agencies are engaging in government-to-government consultation with the tribes, and several tribes are cooperating agencies on the CRSO EIS. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult return rates (SARs) will increase for both Snake River spring Chinook and steelhead and will average above 2% (the lower end of Northwest Power and Conservation Council's recovery targets for the region) as a result of the Preferred Alternative increasing SARs from 2.0% to 2.7% for Chinook, a 35% relative increase. The National Marine Fisheries Service (NMFS) COMPASS and Lifecycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. To address uncertainty highlighted by the two models, the Preferred Alternative includes working with regional sovereigns to develop a study that assesses the effectiveness of the increased spill regime on adult returns as well as assessment and management of adverse negative unintended consequences, such as long delays of adult migrants, or total dissolved gas (TDG)-related mortality of juvenile migrants. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information. The population dynamics of the SRKW are complicated and there are multiple factors that contribute to the overall success of this species. The quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differently from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for the whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall-run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall-run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). Details on the most crucial prey stocks for Southern Resident killer whales, as well as their population and range, is available from several fact sheets and videos available here: https://www.fisheries.noaa.gov/species/killer-whale#spotlight. For more information, visit this NMFS StoryMap on Southern Resident killer whales: https://noaa.maps.arcgis.com/apps/Cascade/index.html?appid=3405e6637bf74e998d4ebe992c54f613. According to NMFS and the EPA, the estimated SRKW population has fluctuated between 67 and 98 whales between 1960 and 2015. The Snake River dams were constructed between 1962 and 1975. The SRKW population increased from a record low in 1970 to its highest population numbers in 1995. Those years were not high years for Snake or Columbia River Chinook Salmon. Ocean conditions between 2011 and 2013 were good years for salmon. At the same time, 2010 and 2013 were good outmigration years. Particularly, 2011 and 2012 were above normal in water supply, which would mean more cooler water was available and there was better survival of salmon, and 2011 through 2014 were higher than normal spill years as well. The combination of outmigration and ocean conditions created improved adult salmon returns. The EIS has analyzed spill as a measure in the Preferred Alternative and determined the overall effect to SRKW to be negligible. Because the impact from the Preferred Alternative was determined to be negligible, the agencies determined that existing hatchery production would be sufficient to address any potential impacts to prey availability for SRKWs. The co-lead agencies note the contribution to the prey of SRKW through the continued existence of their respective independent Congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as the Lower Snake River Compensation Plan (other than under MO3), which is administered by USFWS. The final EIS in Vegetation, Wetlands, Wildlife, and Floodplains (Section 3..6.2.6 and Table 3-102), and Chapter 7 (Preferred Alternative), has been updated with additional analysis information on SRKW and the potential increase in forage fish, in particular, Chinook salmon (Section 7.7.8). Moreover, NMFS concluded in its 2020 CRS BiOp that operations, maintenance and configuration of the CRS is not likely to adversely affect SRKW. he EIS describes the operational characteristics of the four lower Snake River dams in Section 3.7.3.5 Lower Snake River Full Replacement (Used in Rate Sensitivity Analysis). While the comment is correct that the four lower Snake River dams account for a small portion of total regional power generation, they are a larger portion of the Federal Columbia River Power System (FCRPS), from which Bonneville markets power. They also have unparalleled ramping capability the ability to quickly generate energy to match spikes in energy usage with over 2,000 to 2,300 MW of capability in certain months of the year. See draft EIS, Table 3-160. The ramping capability is valuable for system balancing, which is used to serve load (consumed energy by houses, business, and industry) and to balance out the variability that renewable generation causes to the system. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-lead agencies numerous legal obligations. The Preferred Alternative is predicted to benefit ESA-listed juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3, which includes breaching the four lower Snake River dams. the Preferred Alternative also meets most other EIS objectives for: resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS the co-lead agencies did not identify MO3 because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system.
3858	1	kairos42@earthlink.net	N/A	The attached technical paper by two retired Corps employees with service at Walla Walla District and others clearly show the peaking, ramping, balancing and reserve claims of $996 million per year are an almost complete fabrication. Using this number is a fatal flaw in the development of the Preferred Alternative rendering the DEIS unusable.	The peaking, ramping, balancing reserve, and contingency reserve values quoted in the EIS are derived from historical data at the hydropower projects. As an example, Table 3-160 at page 3-907 in the Draft EIS shows the historical sustained ramping capability for the four lower Snake River projects. When flows are insufficient for all turbines to operate full time, the four lower Snake River projects generally operate at a lower generation level for most of the day, but are able to ramp up to provide higher generation levels to help meet demand during the highest-load hours. These dams provide over 1,000 MW of carbon-free energy (serving roughly 10% of Bonneville's load or about the amount of energy used by Seattle City Light) and up to 2,000 MW of sustained peaking capacity at certain times of the year. The dams also have unparalleled ramping capability the ability to quickly generate energy to match spikes in energy usage with over 2,000 MW to approximately 2,3000 of capability in certain months of the year. See EIS, Section 3.7.3.5, Lower Snake River Full Replacement, pages 3-905-907 of the Draft EIS. The costs of replacement resources are from the Northwest Power and Conservation Councils Seventh Power plan and Mid-Term update. Details of the methodology are described in Section 3.7 of the EIS and in Appendix J.
3867	1	rgkiyokawa@gmail.com	N/A	In the MO2, I was wondering how transporting collected ESA-listed juvenile fish with barges and trucks affect the fish and the environment. In the same alternative, the draft states that there would be more hydropower created, however, do we really need more power? The cliffs of the Columbia River are inundated with thousands of windmills, which often are left idle because of the excess energy the dams provide. The CRSO EIS website states that the Bonneville Dam has a, total generating capacity of over 1,200 megawatts - enough to power 900,000 homes.	The comment asks if we really need more power. Yes, at certain times of the year and in certain water conditions. Currently, as modeled in the No Action Alternative, the region faces power shortages in about one in every fifteen years, with the highest risk of power shortages in the winter. See Section 3.7.3.2 and Appendix J, Section 4.1.2.1. With the retirement of coal plants in the region, the need for power would increase in the coming years. The comment describes the curtailment of renewable power when there is excess power generation on the grid. This is not a frequent occurrence. The EIS analyzed potential curtailment of renewable power using the GridView model and describes the changes under each alternative in Appendix H, Section 3.1.1. The EIS finds that renewable curtailment does increase under Multiple Objective alternative 2 (MO 2); however, it represents a small portion of the increased hydropower in that alternative. The Bonneville Dam has a total capacity of 1,195 MW and generates 554 aMW in an average water year as described Section 3.7.2.1, Power Generation, Table 3-110 in the draft EIS. The generation of the Bonneville Dam, assuming average consumption of 11 megawatt hours per year, would be enough to power 450,000 homes, if the dam generated at its full capacity all of the time this would be enough power for 900,000 homes consistent with the statement in the comment. Section 3.5.3.3 provides a description of transportation related activities that are in the No Action Alternative. Related to the effects of transportation on fish, both of the fish models account for the number of fish transported and when they are transported. The two models have different predicted responses based on expected benefits of transport compared to migrating in-river under the various river management scenarios. The predicted outcomes for each fish metric presented in Chapters 3 and 7 include the expected response to variations in transportation rates.
3867	2	rgkiyokawa@gmail.com	N/A	I agree that the MO3 would not be the most preferred action by breaching the dams. It is clear in the report that it would be detrimental to the economy if we did so. I do think hydropower and other renewables are very important for our journey off of fossil fuels and natural gas, but what about taking one or two dams out and seeing how that goes? There are smaller dams along the Snake River that would still benefit the fish populations if taken out.	The four lower Snake River dams were jointly authorized and function together as a system with the other ten projects analyzed in this EIS; having only two out of the four dams functioning would not allow the co-lead agencies to meet navigation, greenhouse gas, or power reliability objectives, while also not likely making a substantial change for migrating salmon in the Snake River based on analysis of breaching all four projects and in comparison to other alternatives. The Draft EIS examined the operation and maintenance of the 14 projects in the Columbia River System. Other dams are not within the scope of the EIS or the purview of the co-lead agencies.
3867	3	rgkiyokawa@gmail.com	N/A	My biggest concern about the DEIS is that it doesnt talk about the sea lions that have affected the populations very negatively. I understand that this statement focuses on the dams, however, the sea lions gather up in the pool near Bonneville Dam and over consume fish. I believe there needs to be some action against the invasive California Sea Lions to improve the survival of the salmon	The co-lead agencies' legal authorities relate to operating and maintaining the CRS to meet multiple statutory purposes. They are also required to ensure that operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy designated critical habitat. To comply with the ESA, the co-lead agencies have historically supported actions to mitigate adverse effects to ESA-listed species from CRS operations, through funding, direct implementation, and other means. Under the Preferred Alternative, those actions, including for the purpose of reducing pinniped (sea lion) and avian predation on ESA-listed species, would generally continue to ensure compliance with the ESA. Under the Preferred Alternative, actions that reduce pinniped and avian predation on ESA-listed species, would generally continue to ensure compliance with ESA as described in Section 7.6.4.1, Ongoing Programs, including ongoing measures to haze and monitor pinniped predators. Other entities in the region have authorities and obligations to mitigate the impacts from pinniped and avian predators and the co-lead agencies will continue to work closely with those entities to benefit ESA-listed salmonids.
3867	4	rgkiyokawa@gmail.com	N/A	I also wanted to note that the DEIS addresses the tribes concern appropriately and should keep them as a high priority in the planning.	Tribal input, concerns, interests, and especially treaty rights were considered throughout the Draft EIS analyses and in the formulation of the Preferred Alternative. The co-lead agencies are engaging in government-to-government consultation with the tribes, and several tribes are cooperating agencies on the CRSO EIS.
3882	1	joanneerichter@gmail.com	N/A	The preferred alternative MO4 clearly shows that Federal agencies in charge of Columbia / Snake River dam operations simply want to maintain the status quo: producing power thats largely sold at a loss, from aging infrastructure thats long due for repair, while maintaining warm pools of water behind the dams that are no longer critical for the transport of grain produced by Central Washington farmers. Economic studies have shown that the impacts of breaching or removal of the four lower Snake River Dams can be readily mitigated.	The co-lead agencies note that Multiple Objective alternative 4 (MO4) was not identified as the Preferred Alternative in the Draft EIS. Rather, the Preferred Alternative included measures from various alternatives after consideration of beneficial and adverse effects of various measures. The EIS evaluated beneficial and adverse effects across an array of resource areas including potential effects at the national, regional and local level. The EIS does not employ a cost-benefit framework for decision-making. This is because, consistent with National Environmental Policy Act (NEPA) analysis framework (see 40 C.F.R 1502.23), the beneficial and adverse effects are expressed as a variety of qualitative and quantitative environmental and economic metrics. Consequently, a focus solely on the monetized economic costs and benefits would exclude important tradeoffs associated with the alternatives communicated in the EIS, including effects on fish. Furthermore, the EIS evaluates the performance of the CRSO EIS alternatives with respect to multiple objectives, for example related to improving fish passage and survival, reliable power generation, and minimizing greenhouse gas emissions. Tables 7-1 and 7-55 in Chapter 7 provides a summary of the beneficial and adverse effects of the alternatives, including the quantified social welfare costs and benefits for a subset of the resource areas (specifically, hydropower, navigation, and irrigation) as well as the implementation costs of the alternatives. The EIS finds that under a dam breach scenario, average transportation costs for wheat farmers would increase 10 to 33 percent, but that individual farmers could experience increases that are doubled. Moreover, in the Draft EIS, Table 3-112 on Generation Costs of the Columbia River System Projects, in Section 3.7.2.7 of the draft EIS, lists the average cost of generation in $/MWh for the Columbia River System projects. The four lower Snake River dams generation is well below both Bonneville's Priority Firm Wholesale Power rate and the average market price for wholesale power.

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					The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species as that is a broader goal with shared responsibility. The spill operation for juvenile fish passage that is included in the Preferred Alternative is a significant departure from previous operations, so much so that the Washington and Oregon state water quality standards had to be changed to implement the new spill regime. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. The effects of delayed mortality are discussed throughout the EIS analysis for each alternative and current high quality data and the best available scientific information was used for this analysis. Based on analysis by the CSS, SARs associated with population declines (SARs of less than 1%) have the potential to be greatly reduced under the Preferred Alternative, and on average, SARs are expected to be well above 2.0% for Snake River spring Chinook salmon and steelhead. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information. The co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species.
3882	2	joanneerichter@gmail.com	N/A	A key component of the preferred alternative MO4 is flexible spill, but studies by the Fish Passage Center have clearly shown that this practice is inadequate as a long-term strategy, and does not produce salmon survival benefits that are needed from the Columbia / Snake River dams. The flex spill proposal is not adequate as a long-term solution, and will result in the dangerous decline of salmon and steelhead populations, particularly in light of predicted climate change impacts in the Salmon and Snake River Watersheds. The recovery of Columbia Basin fish species will not occur if the approach recommended in the DEISs preferred alternative is adopted as a long-term strategy.	Multiple Objective alternative 4 (MO4) was not identified in the Draft EIS as the Preferred Alternative and its spill operation was not carried forward in its entirety into the Preferred Alternative. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the Columbia River System. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. The Preferred Alternative includes an adaptive management plan. This plan involves working with regional sovereigns to develop a study to assess the effectiveness of the increased spill regime on adult returns as well as assessment and management of adverse unintended consequences, such as long delays of adult migrants, or total dissolved gas (TDG)-related mortality of juvenile migrants. Please see Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information.
3882	3	joanneerichter@gmail.com	N/A	A new comprehensive approach is needed that would recover salmon abundance, invest in farming and fishing communities to sustain their livelihoods, and adopt actions that would support an affordable, reliable, and increasingly decarbonized regional energy system	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. The co-lead agencies recognize the desire to continue the conversation across the region about the future of salmon recovery, affordable and reliable clean electricity, increasingly decarbonized regional energy system, tribal perspectives, and economic vitality for the many people who depend on the CRS for their way of life. The co-lead agencies will be active participants in regional discussions and solutions for mitigating the effects of the CRS and achieving broader recovery objectives. The Preferred Alternative for long-term system operations, maintenance and configuration of the CRS presented in the Draft EIS is based on todays conditions and environment. Its also important to note that technology is quickly changing, as is the regions dynamic environment and energy market, and the region needs to consider new information and adaptively manage resources. The co-lead agencies recognize that no matter which alternative in the Draft EIS was identified as the Preferred Alternative, the decision would likely draw criticism from some stakeholders or sovereigns. The region includes stakeholders, sovereigns, and other interested parties with diverse and varied opinions on these very important topics, and many are strong in the belief that their perspective is the best path forward. It is important to keep in mind that factors, both human-caused and natural, that are outside the responsibility and control of the co-lead Federal agencies also contribute to the decline and recovery of fish, and will continue to strongly influence fish and their habitat. Salmon and steelhead have been adversely affected in the Columbia River Basin over the last century by many activities including human population growth, urbanization, introduction of exotic species, overfishing, development of cities and other land uses in the floodplains, water diversions for all purposes, dams, mining, farming, ranching, logging, hatchery production, predation, ocean conditions, and loss of habitat. Operation, configuration and maintenance of the CRS requires mitigation for its effects, and the EIS is not intended nor required to serve as an overall salmon recovery plan for the region. All of the human-caused impacts that have contributed to the decline of fish, and how the region should properly and effectively address those impacts, should be part of the continued regional discussion. The co-lead agencies look forward to participating in that discussion. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the EIS objectives) as well as the EIS objectives for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. The Preferred Alternative is also more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system.
3962	1	jim@lvenergy.com	N/A	However, we would like to focus our comments on the positive impacts the lower Snake River dams have on global efforts to reduce GHG emissions. Lower Valley Energy is heavily involved in some unique and successful renewable energy and conservation programs. We have one the most successful voluntary green power sales programs in the country. We are also one of the three founding partners with Teton County and the Town of Jackson, Wyoming in an organization called Energy Conservation Works (ECW). ECW has raised millions of dollars to support local residential and commercial energy conservation programs, renewable energy projects, and alternative fuels for vehicles. Because of our commitment to sustainability we recognize the importance of the lower Snake River dams to the region's clean energy goals as outlined in the DEIS. The report shows that if the dams were replaced with natural gas resources, it would add an additional 3.3 million metric tons of CO2 to the region each year. The dams do much more than provide clean energy, they also act as a giant, clean battery that helps us add new renewables to the grid. They store water and release it to generate electricity when needed to fill in the gaps for wind and solar power, keeping the grid in balance. Without the dams, many MWs of wind and solar power would not have been able to be co-located in the region. While we acknowledge the significant effort put into the DEIS, we believe more effort should be invested into studying the benefits the dams provide in reducing GHG and the growing impacts of climate change.	While the commenter suggests that the benefits of the lower Snake River dams are not adequately captured in the EIS, the co-lead agencies sought to provide a balanced analysis of impacts to affected resources. Section 3.8.3.5 of the EIS provides information on the greenhouse gas (GHG) emissions effects of MO3, which includes breaching the four lower Snake River dams. Consistent with this comment, the analysis finds an increase in GHG emissions of 3.3 million metric tons (MMT) CO2 under MO3, if the replacement power resources are natural gas (the least cost replacement). Section 4.2 and Chapter 7 of the EIS discusses how climate change interacts with the alternatives, including the potential combined effect on GHG emissions.
3970	1	Shelley Silbert	Great Old Broads for Wilderness	Your website required us to review 270 megabytes (over 5,000 pages) of information from a website. However, the co-lead agencies made it extremely difficult and limited comments online or by hand-delivery. The filing online is limited to a maximum of 100 kb with no more than 5 attachments of 2 megabytes apiece. It limited pictures, graphs or diagrams to make our point. We have filed comments with many other federal agencies and have never encountered such obstructive difficulties in filing comments. We find this an egregious misuse of the NEPA process that limits public comments in scope and size limit. The one site designated for hand delivery was locked to public access. When our Broad was able to finally use a call box outside, everyone in the building was unaware of the DEIS comment location. We find it completely unacceptable for 3 public agencies to make filing a document so challenging and difficult. We will be sure to bring this to the attention of the Northwest delegation and the judge for this case. Conclusion Regarding the CRSO-DEIS and its Preferred Alternative Overall, the 2020 CRSO-DEIS is a flawed document for several reasons delineated herein. It supports continuation of a failed, incremental, status quo management approach that will not only not recover Snake Basin anadromous fish runs to the needed 4% SAR ratio, but actually includes measures that most likely will expedite the extinction of Snake Basin anadromous fish. In its attempt to "balance" resources/uses in favor of lower Snake nonessential hydropower production, limited freight transportation, and the resolvable issues related to use of one reservoir for irrigation, the Preferred Alternative, in effect, guarantees that Snake Basin anadromous fish will continue to decline in numbers to the point of extinction. The Preferred Alternative does not meet the mandate of the Court and is entirely inadequate to the task of recovering Snake River Basin salmon and steelhead. What these fish need is a free-flowing lower Snake River.	The co-lead agencies are sorry for any technical difficulty experienced. It is accurate that the website had file size limitations that were listed for a single entry. That was not to limit you in your comments, but to alert you to submit in multiple entries or either contact the CRSO info helpline, or mail your materials to the P.O. Box listed on the CRSO website and on other news and informational releases. Hand delivery was not an option for public comments, and unfortunately with the COVID-19 pandemic response, the co-lead agencies would not have been able to accommodate you should we have had this request, as many office buildings were closed and personnel were directed to work from home. All comments mailed with the post-marked dates prior and up to April 13, 2020, or delivered by a delivery service with access to the mail room by 5:00 pm on April 13, 2020, were accepted. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species as that is a broader goal with shared responsibility. The 2-6% Smolt-to-Adult return ratio (SARs) target referenced in this comment refers to the Northwest Power and Conservation Councils (Council) target for broad-sense recovery and is separate and distinct from the obligations of any single entity or in this case a requirement to be met solely by the co-lead agencies. Just as the Councils fish and wildlife program encompasses both Federal and non-Federal stakeholders in the Columbia River Basin, the Councils recovery goals are shared by many parties. The spill operation for juvenile fish passage is a significant departure from previous operations, so much so that the Washington and Oregon state water quality standards had to be changed to implement the new spill regime. Based on the fish analysis in Section 7.7.4 the Preferred Alternative will make a meaningful contribution towards recovery, but the Councils broad sense recovery goals are beyond the scope of this EIS which is limited to those effects associated with the operation and maintenance of the 14 CRS projects. With respect to the Preferred Alternative, the CSS model predicts that average SARs will increase for both Snake River spring Chinook and steelhead and will average well above 2% (the lower end of Northwest Power and Conservation Council's recovery targets for the region) as a result of the Preferred Alternative increasing SARs from 2.0% to 2.7% for Chinook, a 35% relative increase. The National Marine Fisheries Service COMPASS and Lifecycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. To address uncertainty highlighted by the two models, the Preferred Alternative includes working with regional sovereigns to develop a study that assesses the effectiveness of the increased spill regime on adult returns as well as assessment and management of adverse negative unintended consequences, such as long delays of adult migrants, or total dissolved gas (TDG)-related mortality of juvenile migrants. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information.
3970	2	Shelley Silbert	Great Old Broads for Wilderness	Recommendation Regarding the CRSO-DEIS Alternatives For reasons carefully detailed herein, CRSO-DEIS Alternative 3 (MO3) combined with 125% Total Dissolved Gas (TOG) spill at the lower Columbia River dams provides the soundest, science-based, boldest actions to bring Snake Basin salmon and steel head back to a 4% SARS level and to prevent their extinction. Breaching of the four lower Snake River dams must happen, and soon. Please read on.	The agencies disagree that an alternative that includes breaching the four lower Snake River dams and spring spill operations to 125% total dissolved gas (TDG) at all four lower Columbia River dams is reasonable given the unacceptable risks to public safety from such an alternative. For power and transmission, MO3 and Multiple Objective alternative 4 (MO4), individually each caused large loss-of-load probability (LOLP) results (e.g., increased incidence of blackouts). Without major addition of new resources, MO3 would result in power shortages in about one in seven years. MO4 would produce power shortages in about one in every four years. If MO4 were implemented, in addition to breaching the four lower Snake River projects as called for in MO3, then the LOLP would be even higher, with power shortages potentially occurring almost every year. Additionally, if these Multiple Objective alternatives (MOs) were combined, in 5% of the years, the power shortages would average close to 1,000 MW in early August when the region might be experiencing a heatwave with particularly high demand for air conditioning. 1,000 aMW is about the average amount of power consumed by Seattle City Light. As shown in Section 3.7, MO3 causes an increase in power reliability concerns in the winter and the summer. MO4 increases power reliability concerns in the summer. Thus, the combination has the largest impact during the summer. The cost of zero-carbon replacement resources for MO3 and MO4 individually are up to $1 billion/year. Resource replacements and associated transmission interconnections for the combination of MO3 and MO4 would be higher, though not likely as high as the sum of the two MOs individually. Assuming that the replacement resources consist largely of wind, solar, and batteries, this would require well over 50 square miles of solar power (more than two and a half times the size of Crater Lake), large areas of new wind generation, and unprecedented amounts of batteries (more batteries in the Northwest alone than the total projection of batteries expected in the entire US by 2023 per the Energy Information Administration). In addition, the reduced generation capability under MO3, particularly throughout the summer, in combination with the impacts of the measures in MO4, and the uncertainty about the characteristics of replacement resources, would result in less capability to provide voltage support and dynamic stability for transmission system reliability than under MO3 or MO4 individually. Thus, combining MO4 with breaching the four lower Snake River projects, would produce unreasonable power and transmission reliability impacts, and it is highly speculative that replacement resources could be sited, permitted and built to address these impacts. Thus, an alternative combining juvenile fish passage spill up to 125% and breaching the four lower Snake River dams is unreasonable, and thus was not proposed as an alternative. The agencies disagree that a combination of MO3 and MO4 is reasonable, and thus was not proposed as an alternative given the unacceptable risks to public safety from such an alternative.

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					The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species as that is a broader goal with shared responsibility. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species as that is a broader goal with shared responsibility. Based on the fish analysis in Section 7.7.4 for the Preferred Alternative, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the Columbia River System. That call however is ultimately the role of National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (USFWS). This EIS has been developed in consultation with National Marine Fisheries Service (NMFS) and U.S. Fish and Wildlife Service (USFWS) to find an acceptable balance that allows the co-lead agencies to meet the Purpose and Need Statement while minimizing impacts to affected ESA-listed species and their habitats. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-lead agencies numerous legal obligations. The Preferred Alternative is predicted to benefit ESA-listed juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets most other EIS objectives including those for: resident fish, lamprey, hydropower generation, water management, and water supply while minimizing adverse effects to communities and the economy. MO3 by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system.
3970	3	Shelley Silbert	Great Old Broads for Wilderness	Fish and Aquatic Resources The Columbia-Snake River Watershed was once one of the top salmon producing ecosystems in the world. Nearly 50% of the Columbia River's legendary runs of wild salmon and steelhead historically came from the Snake River and its tributaries. In 2017 only 250 pairs of wild Middle Fork Salmon River Chinook returned to over 600 miles of Idaho habitat, some of the best in the lower 48 states. The 2019 returns of adult fish were near record lows for steelhead, sockeye and Chinook salmon. These important stocks are at immediate risk of extinction. From the 1930s to the mid-1970s, the U.S. Army Corps of Engineers (USACE) built 14 dams throughout the Columbia Basin and its tributaries, along with several private entities that also built large dams. The primary purpose was hydroelectric power, with other purposes for transportation of goods such as wood products and grains, and water for irrigation on adjacent lands. Unfortunately, the dams and associated reservoirs created in the Columbia Basin and particularly the four Lower Snake River dams have led to a long downward spiral in anadromous salmon and steelhead, and many are near the brink of extinction1 . With steadily declining runs, Snake River salmon and steelhead runs were listed as threatened or endangered under the Endangered Species Act (ESA) by the early 1990s2 For the past 30 years, numerous mechanistic fixes have been tried including fish hatcheries, barging, predator control, endless fish-passage "improvements", and many more. The CRSO-DEIS basically proposes more of the same mechanistic fixes. With a changing climate and warmer and drier future, the proposed CRSO DEIS and selected "Preferred Alternative" will most likely lead to extinction of our region's iconic anadromous fish species	While the co-lead agencies do not dispute that dams have had impacts to the anadromous fish populations of the Columbia and Snake Rivers, the co-lead agencies also recognize that there are many effects to these species outside the impacts of CRS dams. Harvest, reduced habitat, poor ocean conditions, and others have significant impacts to these species. Extensive changes to structures and operations have improved survival of anadromous fish. Recent downturns in ocean conditions are a major contributor to recent decreases in return numbers. The spill operation for juvenile fish passage in the Preferred Alternative is a significant departure from previous operations, so much so that the Washington and Oregon state water quality standards had to be changed to implement the new spill regime. The CSS model, which includes latent mortality effects, predicts that median Smolt-to-Adult return rates (SARs) will increase for both Snake River spring Chinook and steelhead and will average above 2% (the lower end of the Northwest Power and Conservation Council's recovery targets for the region) as a result of the Preferred Alternative, increasing SARs from 2.0% to 2.7% for Chinook, a 35% relative increase. The National Marine Fisheries Service (NMFS) COMPASS and Lifecycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. To address uncertainty highlighted by the two models, the Preferred Alternative includes working with regional sovereigns to develop a study that assesses the effectiveness of the increased spill regime on adult returns as well as assessment and management of adverse negative unintended consequences, such as long delays of adult migrants, or total dissolved gas (TDG)-related mortality of juvenile migrants. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the Columbia River System. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species.
3970	4	Shelley Silbert	Great Old Broads for Wilderness	1. The Snake River Dams Cumulatively Impact Anadromous Fish Populations A. General Cumulative Im2_acts and Historic and Current Abundance of Anadromous Fish The Columbia and Snake River Dams impact rivers, streams and aquatic habitats by altering natural flows, water quality and nutrients; trapping sediments, gravel, and woody material; and impeding and delaying fish passage and migrations. This was acknowledged in the CRSO-DEIS with the comment "In general, large dams have an influence on the riverine ecosystem downstream of the structure. Dams alter flow regime, temperature, oxygen dynamics, sediment dynamics, and channel geomorphology (shape and function)" (CRSO-DEIS, p. 3-232). In addition, the four lower Snake River dams inundated 140 miles of the lower Snake River, much of which was fall Chinook spawning habitat. Including the slackwater above Lower Granite Dam, fish are limited to the lower 247 miles of the Snake River up to Hells Canyon Dam, the lowest of three privately owned hydropower dams with no fish passage. Dams also cause high temperatures in the pools behind dams, increase predation, inundate spawning and rearing habitat, and increase mortality from stress and disease. The Columbia and Snake Rivers were changed from free-flowing rivers to a series of dams, with slow moving reservoirs that delay downstream migrating juveniles. Pools behind the dams become too hot for migrating salmon and steelhead, and have abundant predators such as northern pikeminnow and smallmouth bass. Fish from the Snake River must traverse eight large dams both upstream and downstream during their migration. With the completion of the four lower Snake River dams in the mid-1970s, anadromous fish have declined precipitously and are near extinction. For example, during years of low flows or excessive water withdrawal, smolts on the upper Snake River can now take up to 39 days to reach the ocean, compared with less than three days in the pre-dam environment 3 The Snake River, where anadromous species once measured in the hundreds of thousands or millions, is now home to remnant populations of four ESA-listed species of anadromous fish: spring/summer Chinook, fall Chinook, sockeye and steelhead. The following table summarizes how few fish are left of each of the four ESA-listed species of anadromous fish compared to historic abundance (Table 1)4 [included in document: Table of Lower Snake River ESA-listed Salmonids Historic and Projected Current Abundances] Other ocean-going fish include coho salmon and Pacific lamprey. Coho were extirpated from the Snake River in the mid-1980s with only a reintroduced population from a fish hatchery fish program remaining. Pacific lamprey also exist at extreme low abundance, with their status as critically imperiled, possibly extinct, and presumed extinct in different reaches of the Snake River and its main tributaries above the four lower Snake River dams, with trends in abundance severely declining5. Like salmon, Pacific lamprey are severely impacted by the lower Snake River Dams. Adult passage at these dams ranged from 41%-65%6 Downstream migrating juveniles and larvae, too are very susceptible to entrainment and impingement by hydropower dams. Returning wild fish estimates have been masked, especially recently, by the increasing number of returning hatchery produced fish. Hatchery fish were intended as a temporary mitigation measure for producing harvestable fish due to anticipated losses from the construction of the dams and reservoirs. The native wild runs remain at dangerously low levels, and continue to decline.	While the co-lead agencies do not dispute that dams have had impacts to the anadromous fish populations of the Columbia and Snake Rivers, the co-lead agencies also recognize that there are many effects to these species outside the impacts of CRS dams. Harvest, reduced habitat, poor ocean conditions, and others have significant impacts to these species. Extensive changes to structures and operations have improved survival of anadromous fish. Research continues to evaluate the magnitude of these effects. For more information see the National Marine Fisheries Service (NMFS) website at: https://www.nwfsc.noaa.gov/research/index.cfm. The assertion that salmon and steelhead declined precipitously after 1970 is in error. Point-in-Time (PIT) data show that total returns of salmon to Bonneville Dam in the last decade were more than double the 1970s values. Effects to anadromous species have been greatly mitigated by transportation and spill that have increased survival and greatly reduced travel times. In regards to comments regarding turbine passage, the statement that juveniles are very susceptible to impingement is also in error. The numbers of fish now passing turbines is very low and those that do have high survival rates. The recent design and installation of improved fish passage turbines at Ice Harbor Dam is just one example of the improvements being made for juvenile salmon. This turbine will pass fish at a survival rate of over 98 percent allowing for both high salmon survival and power generation.
3970	5	Shelley Silbert	Great Old Broads for Wilderness	B. Fish Passage Anadromous adult and juvenile fish passage over the eight dams to and from the Snake River are both problematic, with cumulative impacts on fish survival. The CRSO-DEIS acknowledges that adult fish experience cumulative mortality in their return to the Snake River: "The 10-year average {2008 to 2017} minimum survival estimate for hatchery and natural origin adult Snake River spring/summer-run Chinook salmon from Bonneville to McNary Dam is 89%, with a range of 83 - 100%, and from Bonneville to Lower Granite Dam is 84%, with range of 77 - 94% {NMFS 2019}. These survival estimates account for total losses from the dams and reservoirs, as well as any losses in these reaches that result from flow effects, temperature, disease, or other natural causes (NMFS 2019)" {CRSO-DEIS p. 3-383-384}. Another issue is that fish ladders are fragile systems prone to disruption; these disruptions will increase as the dam infrastructure continues to age8 Two of the four lower Snake River dams have only one fish ladder. If the ladder is not functional due to mechanical or other difficulties it significantly impacts or even prevents fish migration. Downstream migrating juvenile losses are generally higher than upstream migrating adults. The following is a summary of impacts as juvenile fish pass through each dam: "Physical injury, including brain damage, resulting from impacts with spillway structures and turbines, as well as hydraulic forces associated with spill and sudden depth changes are some of the main hazards associated with hydropower-related passage. Studies of the effect of exposure to severe hydraulic events on juvenile salmon have found a variety of adverse effects caused by strike, shear, pressure gradients, and disorientation. Recent studies have found that fish exposed to high shear and turbulence are subject to direct injury and are more susceptible to bird and fish predation than migrating salmon that have non-turbulent passage. Some of these detrimental effects are realized as delayed mortality, mortality that occurs after fish pass Bonneville Dam as juveniles that would not occur if the federal hydro system did not exist" The USACE asserts that downstream migrating spring/summer Chinook smelts survived at a per-dam rate of approximately 95%. In fact, Figures ES-4 {CRSO Executive Summary p. 19} and Figure 3-113 {p. 3-302} both assert very high rates of passage of juveniles through each of the lower Snake River and Columbia mainstem dams. However, these figures specifically refer to "performance standard" testing at projects in 2010-2014. They also fail to account for losses in the dams' reservoirs. For example, "Widener et al. {2018} estimated that juvenile Snake River spring-run/summer Chinook salmon survival rates {wild and hatchery combined) from Lower Granite to Bonneville Dam averaged 53% (ranging from 44 - 64%} for the same time period. These survival rates incorporate multiple sources of mortality such as passage mortality, natural mortality, and predation {NMFS 2019)" (CRSO-DEIS, p. 3-383}. Further losses are due to "delayed mortality" or "ocean latent mortality" which result from stress and harm that juvenile fish suffer as they pass through the eight dam and reservoir complexes. These losses further diminish juvenile fish survival in the estuary and after reaching the Pacific Ocean. Similar losses of cumulative survival through all eight dams, ranging from approximately 42% - 57%, are also noted for Snake River steelhead (CRSO-DEIS, p. 3-384}. Delayed latent mortality further diminishes survival in the estuary and the ocean. A better measure of survival to evaluate the entire life cycle of anadromous salmon and steelhead are "smelt to adult ratios" or "SARs." SARs are the gold standard for measuring survival since these ratios measure survival from the out-bound smelt stage to the returning adult stage. SARs encompasses most of the salmon life cycle. A SAR of 2% - 6% is needed to assure the survival of a fish species, but Snake River fish typically have SARs less than 2%, hence the continued downward spiral 10 Anadromous fish that pass through fewer hydroelectric dams on the Columbia River system have higher SARS and higher levels of survival (Figures 1 and 2}. [included in document a bar graph: Comparative Smolt to Adult Return Rat es (SAR s) for "Dow nriver" and "Upriver Wild St eelhead and Salmon] Figure 1. Comparison of Smalt to Adult Return Rates (SARs) for wild Chinook and Steelhead for the Deschutes, John Day, Yakima and Snake Rivers. Note more dams equates to lower survival	It should be noted that the 2-6% SAR target referenced in this comment refers to the Northwest Power and Conservation Council (Council) target for broad-sense recovery and is separate and distinct from the obligations of any single entity or, in this case, is not a requirement to be met solely by the co-lead agencies. Just as the Councils fish and wildlife program encompasses both federal and non-federal stakeholders in the Columbia Basin, the Councils recovery goals are shared by many parties. Based on the analysis of the Preferred Alternative, it will make a substantial contribution to recovery, but the Councils broad sense recovery goals are beyond the scope of this EIS which focuses on the effects associated with the operation and maintenance of the 14 CRS projects. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species as that is a broader goal with shared responsibility. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the Columbia River System. That call, however, is ultimately the role of NMFS and the USFWS. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. The co-lead agencies used current high quality information in the analysis of the CRSO EIS. Specific to salmon and steelhead, the agencies used two primary modeling approaches which yielded a range of potential outcomes for the alternatives. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% (within the Council's recovery targets for the region) as a result of the Preferred Alternative. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. In relation to the comment that fish passing few dams have higher SARs and survival, the co-lead agencies follow the guidance from the Independent Science Advisory Board, to not typically weigh performance of one population vs. another. It is difficult to isolate causative factors in those types of comparisons.

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				and SARs 11 . [included in document a map of Yakima, Deschutes, John Day and Snake River] Figure 2. Comparative Survival Studies for Adult Returns of Anadromous Fish to the Deschutes, John, Day, Yakima and Lower Granite Dam on the Snake River. The listed species of salmonids that inhabit the Columbia/Snake River system are a very long way from meeting regional recovery goals that the Northwest Power and Conservation Council (NPCC} have stated. The NPCC asserted that "The program continues to include a set of quantitative goals and related timelines for anadromous fish. These include, among others, increasing total adult salmon and steelhead runs to an average of 5 million annually by 2025 in a manner that emphasizes the populations that originate above Bonneville Dam and supports tribal and non-tribal harvest, and achieves smolt-to-adult return rates in the 2% - 6% range (minimum 2%; average 4%) for listed Snake River and upper Columbia salmon and steelhead." It is apparent from present salmon returns that 50% juvenile survival of Snake River salmon to below Bonneville Dam is insufficient to meet regional 2% - 6% SAR goals. Like Snake River coho, Chinook, sockeye and steelhead are doomed to extinction unless strong measures of a combination of dam breaching of the four lower Snake River dams, and the highest spill levels of 125% TDG at the remaining dams on the lower Columbia mainstem river, are implemented.	
3970	6	Shelley Silbert	Great Old Broads for Wilderness	C. Water Quality High water temperatures caused by Snake River and Columbia mainstem dams and reservoirs that have stagnant water flows, as well as discharges and climate change, are deadly to migrating fish like salmon. Anything above 68F/20C makes it extremely difficult for fish to migrate upstream to spawn. High temperatures affect adult salmon migration by direct mortality, migration delay, and may deplete energy through delay and increased respiration, reduced gamete viability, and increased rates of disease14 . The Fish Passage Center analyzed how temperatures in the Bonneville forebay cause long travel times for upriver steelhead as water temperatures increase. They observed that both Snake River and Upper Columbia steelhead rarely had travel times of greater than 50 days until Bonneville temperatures reached 19- 20C/ 66.2-68C15 . In the hotter and drier than normal summer of 2015, approximately 96% of returning Snake River sockeye salmon run died prematurely in the Columbia and Lower Snake rivers (approximately 250,00 fi sh). The reservoirs, together with record high air temperature and low flows, caused the water to become excessively warm. Most Snake River sockeye failed to reach the Snake River in 2015 having died in the Columbia River. As noted above, Snake River sockeye are an ESA-listed endangered species. The year 2015 is a harbinger for future effects of climate change impacts to water temperature and flow conditions. Events similar to those in 2015 are likely to become more frequent as climate change intensifies. Schultz and Johnson {2017) used a water temperature model to demonstrate that a free flowing Lower Snake River would have remained cooler than 68F/20c during most of the summer of 201516 . By comparison, water temperatures in reaches of the lower Snake River that are dammed, most particularly the three downstream reservoirs, reached 68F/20c in mid to late June and remained near or above 68F/20C until September. The Snake River at Ice Harbor Dam reached 70F/21C by the beginning of July and stayed at least that warm until late August {Figure 3). [included in document graphs: 2015 Actual River Temperatures and 2015 Free-flowing River Temperatures (predicted)] Figure 3. Comparison of 2015 summer water temperatures between the actual, dammed Lower Snake River {left) and a modeled, free-flowing Lower Snake River {right). Figure 3 shows the cumulative effect on temperature as the water moves slowly downstream through the four Lower Snake reservoirs, with each reservoir increasing the river temperature by about 2F/1.1C. Rising temperatures were absent from a simulated free-flowing Snake River. Without the dams, water temperatures in the lower Snake River would warm a relatively minor amount as it flowed across eastern Washington. The results by Schultz and Johnson {2017) validate the Environmental Protection Agency's {EPA) previous finding that each Lower Snake River reservoir can raise the water temperature by roughly 2-4F/ 1.1-2.2C17 . Schultz and Johnson also demonstrated that "pulses" of hot water move past each dam over time, caused by hot weather or low flows upstream. The simulation showed that a pulse of hot water took approximately two weeks to pass through the dammed lower Snake River, while in the absence of the dams that same hot pulse would pass through the free-flowing river in a few days. The simulation model clearly established that despite the dangerously hot air temperatures and low flows that occurred in 2015, the Lower Snake would have remained sufficiently cool for salmon to migrate in the absence of the four lower Snake River dams. Essentially, a free-flowing lower Snake River could remain sustainable salmon habitat from a water temperature perspective, despite climate change. Their results demonstrated that a free-flowing lower Snake River would have temporarily exceeded 68F/20C on two occasions in 2015. The simulation modeling also indicated that a free-flowing lower Snake would have returned to temperatures that salmon can migrate in within a few days. The dammed lower Snake downstream of Lower Monumental Dam consistently exceeded 68F/20C from late June to early September, and caused sustained, cumulative exposure to water above 68F/20C that resulted in the adult salmon mortality observed in 2015. Warm water harms salmon not just in the lower Snake River, but throughout the entire river system from the Snake River tributaries in central Idaho to the Columbia River estuary. Most of the 2015 Snake River sockeye run died from warm water before reaching the lower Snake River. Of the few that passed Lower Granite Dam in 2015, a very small number survived the rest of their migration to Idaho's headwater streams in the Sawtooth Valley. Problems with temperatures and low flows in the Columbia and Snake rivers will intensify as the effects of climate change increase . The only options to ensure survival and avoid extinction of Snake River anadromous fish is to have a free-flowing lower Snake River. Excessively high water temperatures, above 20C/68F, are now normal for extended periods in July, August, and Sept ember 18 . EPA {2003} reported that a free-flowing lower Snake River would, on average, be 3.5C/6.3F cooler in late summer and early fall when measured at the site-potential for John Day Dam. EPA modeling also demonstrated that the combined four lower Snake Dams could affect temperatures up to a potential maximum of 6.8C/12.2F. Without breaching these dams, water temperatures will remain lethal for migrating salmon and will worsen as the climate continues to warm. The report by Cannemela (2019} representing 55 scientists concluded that "restoring the lower Snake River by removing its four federal dams will significantly reduce mainstem water temperatures on a long-term basis, and is likely the only action that can do so, substantially lowering the risk of extinction for salmon and steelhead here."	The Draft EIS acknowledges and describes the temperature sensitivities of salmon and steelhead, as well as the many other factors that affect these fish. Water quality and hydrology modeling data were inputs into the fish survival models used to analyze the alternatives effects on Snake River stocks, so temperature effects to survival have been incorporated into the overall analyses of each alternative. Regarding climate change, the climate science community is still developing models at the resolution necessary (river-scale vs. global- or regional-scale) to analyze possible effects to water temperature from climate change, and unfortunately, there are not reliable models at this time. Therefore it was not possible to reliably model water temperature changes under climate change for this EIS. In lieu of this information, the climate analysis used the output from the water quality models under historical conditions, climate change data, and scientific literature to qualitatively assess potential effects to water temperature (Section 4.2.3). Regarding water temperatures under dam breach scenarios, the analysis of MO3, which includes breaching the four lower Snake River dams, indicates that nighttime summer water temperatures, as well as fall water temperatures, would be cooler than No Action Alternative conditions in the Snake River. However, even with the dams breached, maximum summer water temperatures would exceed state water quality standards (20C) at times, especially during hot weather events. The models showed minor changes in the Columbia River under this alternative. Regarding the whitepaper published by the Columbia River Keeper, Schultz and Johnson (2017) use an old version of RBM10 (2003) to evaluate temperatures in 2015. The EIS analysis included an evaluation of the Environmental Protection Agency's (EPA's) more recent RBM10 model (draft 2019), specifically comparing 2015 Snake River conditions. EPA's temperature predictions using the updated RBM10 model did not contradict the EIS evaluation.
3970	7	Shelley Silbert	Great Old Broads for Wilderness	2. The CRSO-DEIS Proposes Continuation of the Status Quo A. The Preferred Alternative is Worse Than the Status Quo From an operational standpoint, the Preferred Alternative is essentially the same as the 2020 Flex Spill Agreement 20 . The Flex Spill operation involves hourly changes in spill, where higher spill levels are provided for 16 hours and lower "performance spill" levels are provided for 8 hours. Both higher and lower spill levels are provided during daytime and night time hours. When considering the Comparative Survival Study {CSS) analyses of the Preferred Alternative done by the Fish Passage Center, and specifically estimates of powerhouse passage by juvenile fish, the estimates are likely an underestimate of fish passage through the powerhouse. The CSS analyses of CRSO-EIS alternatives are based on the 80-year water record datasets generated by the federal agencies. The datasets present the Preferred Alternative in terms of daily average flow and spill, although the Preferred Alternative is implemented on an hourly, not daily average time st ep. Therefore, the estimates of juvenile powerhouse passage generated on the basis of the federal dataset does not reflect the higher powerhouse encounters that occur from implementing lower performance standard spill during evening and night time hours. The Fish Passage Center reported that the Preferred Alternative did not meet the regional 4% SAR goal, and the lower end of the predicted SAR ranges were well below 1% which indicate a high risk of further population decli ne. For all fish survival metrics, the Preferred Alternative resulted in only slightly better performance than the No Action Alternative and the MOI Alternative, and had lower performance than both MO3 (dam breach) and MO4 (spill to 125% TDG). The discussion of the Preferred Alternative and other operation alternatives does not include any specific numerical identification of benefit to ESA-listed salmon and steelhead {CRSO-DEIS Executive Summary, p.32). The goal is only generally described as "improving juvenile salmon and improving adult salmon." The Northwest Power and Conservation Council {NWPCC) established regional SAR goals of 4% (on average) for recovery of listed populations, but none of the DEIS's alternatives achieve that goal except for MO3 (dam removal).	Actual spill operations will be informed by guidelines informed by regional state, tribal, and Federal experts as part of ongoing flexible spill management. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information. All models were reviewed in the Independent External Peer Review process. All models produce estimates and are not exact. In practice, model estimates may overestimate due to day vs night passage differences because limitations on nighttime spill reductions are already in place through the adaptive management process and lessons learned from the 2019 flexible spill operation. These adjustments in the amount of nighttime spill were informed by state, tribal, and Federal biologists with expertise in dam operations and their effects to fish passage. These examples of adaptive management will continue during post-Record of Decision (ROD) operations. The 4% average Smolt-to-Adult return rates (SARs) target referenced refers to the Northwest Power and Conservation Councils target for broad-sense recovery and is separate and distinct from the obligations of any single entity or in this case a requirement to be met solely by the co-lead agencies. Just as the Councils fish and wildlife program encompasses both Federal and non-Federal stakeholders in the Columbia Basin, the Councils recovery goals are shared by many parties. Based on the fish analysis in Section 7.7.4, the Preferred Alternative would make a substantial contribution, but the Councils broad sense recovery goals are beyond the scope of this EIS which contemplates the effects associated with the operation and maintenance of the 14 CRS projects. The CSS model predicts that average SARs would increase for both Snake River spring Chinook and steelhead and will average above 2% (the lower end of the Northwest Power and Conservation Councils recovery targets for the region) as a result of the Preferred Alternative increasing SARs from 2.0% to 2.7% for Chinook, a 35% relative increase. While some outcomes in individual water years or river conditions may be lower than desired, the average trend is expected to be positive and lead to increasing populations over time. The National Marine Fisheries Service (NMFS) COMPASS and Lifecycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. To address uncertainty highlighted by the two models, the Preferred Alternative includes working with regional sovereigns to develop a study that assesses the effectiveness of the increased spill regime on adult returns as well as assessment and management of adverse negative unintended consequences, such as long delays of adult migrants, or total dissolved gas (TDG)-related mortality of juvenile migrants. The Executive Summary is a high-level summary of the analysis contained in the rest of the Draft EIS. It does not contain as much detail as the Draft EIS. Please see Section 3.5, Chapter 7, and Appendix E for more detail on the analysis.
3970	8	Shelley Silbert	Great Old Broads for Wilderness	B. The Preferred Alternative is completely inadequate, and fails to make significant improvements for Snake River salmon and steelhead populations The Preferred Alternative is worse than adherence and continuation of the status quo because it only mandates flex spill for one year, the last year of the Flex Spill Agreement (CRSO-DEIS p. 7-15, Section 7.4 Summary). After the completion of the spill agreement there is only a "process". The Flex Spill Agreement was intended to avoid litigation during the time frame that the CRSO DEIS was being developed. The Preferred Alternative is the current short-term flex spill agreement with modifications that benefit power production revenue and irrigation. There are no improvements for Snake River salmon and steelhead populations included in this alternative. The Preferred Alternative does not include operations for the long term, and only addresses operations for the last year of the Flex Spill Agreement (2021). For future years the Preferred Alternative makes references to an undefined adaptive management process that has no defined objective that could meet the regional 4% average SAR goal, increase spill for fish passage, increase flow for migration, or implement hydro system actions that would increase life cycle survival. The Preferred Alternative includes measures that will continue to harm salmon and steelhead populations, such as additional irrigation water withdrawals from the Columbia River that total 1.254 million acre-feet. The Preferred Alternative is clearly just a continuation of the status quo. The Preferred Alternative claims to include a "balanced approach," but continuation of the current strategy is what has brought Snake River salmon and steelhead to their present perilous st at us. There are no assurances in this undefined adaptive management process that conditions for Columbia and Snake River salmon and steelhead populations would improve. The CRSO DEIS proposes to continue with more mechanistic fixes for salmon and steelhead that have failed to work in the past, thereby most likely assuring	The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. The framework for the adaptive management process is detailed in Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS. It is the intention of the co-lead agencies to engage regional state, tribal, and Federal biologists in the development of an appropriate adaptive management process utilizing their respective salmonid management expertise. The goal of that adaptive management process would be to consider additional opportunities to further the effectiveness of the operation while maintaining the goals of the flexible spill operation: additional improvements for salmon and steelhead, maintain opportunities to operate the CRS for hydropower generation in a flexible manner that provides value to the Northwest, is implementable by the dam operators, and provides opportunity to reduce uncertainty and improve the learning opportunities around how operations of the CRS can influence the magnitude of latent mortality effects. The co-lead agencies have not made any determinations on what the preferred approach would be for a regionally developed study plan, and intend to develop that study jointly with regional experts. Unforeseen outcomes or unintended consequences will be monitored and adjusted using current in-season management teams such as the Technical Management Team. The co-lead agencies disagree that the short-term nature of this operation is an accurate interpretation of the Preferred Alternative. If no adaptive management needs are identified, the operation would continue through the duration of the ESA consultation period. The co-lead agencies have provided additional clarifying text in Appendix R to make these points more clearly. Relating to the claim that the Draft EIS relies on more mechanistic fixes because the co-lead agencies have constructed numerous structural changes to improve salmon and steelhead passage (e.g. spillway weirs) over the past decades, there are few additional mechanistic fixes proposed in the Preferred Alternative. Most of the structural improvements are focused on improvements for lamprey passage. Other changes, such as turbine replacements are not expected to have beneficial impacts to salmon and steelhead survival that are of a magnitude that would outweigh the modeled effects associated with the higher spill levels in the Preferred Alternative. The Preferred Alternative does not contain any proposed decreases to river flow levels that are expected to impact juvenile salmon migrating during spring and summer. Any changes in flow would be small enough to have minor to negligible impacts or occur outside of the juvenile migration season and are limited to areas of the basin where the impact would be negligible or minor.

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				the extinction of salmon and steelhead in the Snake River. The Preferred Alternative proposes to continue to implement the Flex Spill Agreement, but includes measures that are not included in the Flex Spill Agreement such as the decrease of spring and summer flows that would clearly impact spring and summer migrants. In addition, the language of the Flex Spill Agreement clearly states the purpose of the agreement was to avoid litigation for three years while the CRSO-DEIS was being developed. The Flex Spill Agreement states that "no Party makes any concessions regarding the legal validity, scientific validity, or economic cost/benefit of the spill operations contemplated in this Agreement ." A review of the Flex Spill in 2019 demonstrated that downstream survival, juvenile fish powerhouse encounters, and water transit time of juvenile fish was no better and sometimes even worse than the status quo of the 2018 Biological Opinion (BiOP) spill flows. For example, Figures 4 and 521 demonstrate that the "new and improved" flex spill for 2019 (orange bars) would result in lower survival compared to the 2018 BiOP flows (blue bars). [bar graph included in document] Figure 4. Comparison of 2019 juvenile survival from Lower Granite Dam to Bonneville for steelhead cohorts to the average survival for the same cohorts in the years 1998 to 2018. [bar graph included in document] Figure 5. Estimated reach survivals of juvenile steelhead in 2019 versus model predicted survivals, based on powerhouse encounters and water transit time that each cohort experienced in 2019. The 2019 Flex Spill was intended to improve juvenile survival of downstream migrating fish. The agreement states that fish passage must be better or at least no worse than what would have occurred under the 2018 court ordered injunctive spill order. In 2019 fish passage through powerhouses was worse than the injunctive spill order. More fish went through powerhouses than would have occurred under the injunctive spill order. Flex spill is a multi-year experiment intended to providing higher spill in 2020 and 2021, but results of this experiment will remain unknown until after the 2020 and 2021 spring spill efforts. There are serious flaws and adverse components of the Flex Spill Agreement. Spill to the higher 125% gas cap level is only provided at four of the eight Columbia and Snake hydroelectric projects. At Bonneville, The Dalles, and John Day dams, spill is capped at 120% TOG, and these projects are allowed to reduce spill for 1/3 of the 24-hour cycle day which decreases fish protection at these projects. It is therefore unlikely that the Columbia/Snake hydropower system will meet the stated purpose of the agreement. Because spill is reduced at the lower river projects, Oregon and Washington stocks from the John Day, Deschutes and Yakima Rivers are likely to have increased powerhouse encounters and decreased survival. Given the obvious weaknesses of the Flex Spill Agreement, from the fish recovery prospective it does not provide a path forward to recovery. The Fish Passage Center sent a memo to the federal action agencies on January 24, 2020, that clearly demonstrated that the Preferred Alternative is a high risk alternative for Snake River salmon and st eelhead. 22 In the lower quartile data range, low SARs and continued population decline (1% SAR} are predicted to occur a significant portion of the time. This is even more likely to occur with changing climate change conditions. The Preferred Alternative is inadequate because it makes no substantive changes to restore Snake River salmon and steelhead. There are only vague references to "adaptive management processes" which are a continuation of the failed history to restore Snake River anadromous fish. Frankly, Snake River Salmon and steelhead populations are out of time. The Proposed Alternative carries significant risk for ESA-listed salmon and steelhead (particularly in light of climate change}, not only that they will not recover but that they will go extinct. Scientific analyses in the CRSO-EIS leads to the conclusion that breach of the four lower Snake River Dams is the only option that has potential for recovery of Snake River salmon and steelhead. Based upon the data and analyses used to develop the CRSO-DEIS, the Great Old Broads for Wilderness recommend that the Final EIS establish the objective to balance hydropower generation with substantive and meaningful restoration of anadromous fi sh. This is clearly not the objective of the Preferred Alternative, which places greater emphasis on power production while anadromous fish survival is relegated to "tweaks" of the existing hydro system. Meaningful restoration of salmon and steelhead must include breaching the four lower Snake River dams (MO3 alternative), with plans and a schedule to accomplish that goal. In the meantime, until the dams are breached, the analyses of alternatives clearly demonstrate that spill to the 125% tailrace gas cap (MO4 alternative} at all of the projects, 24 hours per day, must be implemented as an interim measure. Analyses in the CRSO-DEIS show this is the best available option for salmon and steelhead recovery, while still providing sufficient regional energy.	After careful review of monitoring data from the 2019 flex spill operation, the flex spill signatory entities agreed that all biological, hydropower generation, and operational aspects of 2019 met all parties expectations. It is difficult, and not advisable to take a single year of data from an operation, such as the single year of 2019, and make long-term and long-range decisions based on a limited operation. That is why the parties to the agreement based their expected outcomes on multiple water conditions and potential outcomes. When considering benefits to fish, the flex spill parties used powerhouse encounter rate or PITPH as the primary metric, not in-river survival, or even Smolt-to-Adult return ratios (SARs) due to the variation in those metrics and the limited opportunity to evaluate and monitor based on a single year of data. See also response to comment 3970-10 regarding sufficiency of regional power supply. Lastly, the commenter incorrectly states that the Preferred Alternative diverts an additional 1.254 MAF for irrigation. The Preferred Alternative diverts an additional 45 KAF for irrigation, a substantially lower value than what was evaluated in Multiple Objective alternative 1 (MO1), MO3, and Multiple Objective alternative 4 (MO4).
3970	9	Shelley Silbert	Great Old Broads for Wilderness	C. The CRSO-DEIS Incorrectly Claims that it is a Collaborative, Adaptive Management Process and Continuation of the Flexible S.P.ill...agreement One of the more egregious statements in the CRSO-DEIS, and the clearest evidence of the primary failure of the CRSO-DEIS, is the claim of a collaborative, adaptive management process. The CRSO-DEIS stated that "the co-lead agencies are creating an additional opportunity to test the assumptions about the potential for significantly increased salmon survival embedded in the CSS model through the adaptive implementation of a flexible spill operation" (CRSO-DEIS Executive Summary p. 13). This is clearly a continuation of the status quo, a status quo that has been continued for over 30 years at the expense of salmon and steelhead populations of the Snake River Basin. Collaboration and adaptive management will fundamentally perpetuate the status quo at the expense of salmon and steelhead runs which are on the brink of extinction. Snake River salmon and steelhead have been ESA-listed species for the past 30 years. Unfortunately, ESA listings have not resulted in the actions necessary to recover these iconic salmon populations. The path forward outlined in the CRSO-DEIS is a path that the Pacific Northwest has followed before. The long history of good intentions, collaboration, and broken promises was clearly documented in "Sacrificing the Sal mon."23 Blumm (2013) stated that "The promises to these salmon populations and the industries and people that depend on them, of the Northwest Power Act, The Endangered Species Act, the Clean Water Act to name just a few, have all been broken." Broken promises include a century of hatchery operations which aimed to compensate for habitat loss due to hydroelectric and other development s. These promises, as well as those made by the Northwest Power Act, the Pacific Salmon Treaty, the Endangered Species Act, the Clean Water Act, and the Federal Power Act have demonstrated that the co lead agencies are unable to reverse the decline of Snake River Basin salmon and steelhead. Instead, collaborative processes and adaptive management have been offered in place of action. The CRSO-DEIS is repeating a failed history, and proposes promises that have already been broken. It is obvious that the Federal hydro system has been developed beyond the point of balance with salmon and steelhead, and that some of the development needs to be undone. The objective of this CRSO-DEIS appears to be to continue to maintain the status quo hydro system development and configuration. The region has pursued the goal of maintaining the status quo hydro system operation over the past 40 years, investing in considerable effort and funding in fish hatcheries, habitat projects, killing predators, barging juvenile fish, building endless screen systems, bypass systems, forebay contraptions, and forebay nets, attempting everything and anything to "restore" salmon and steelhead. The history is well documented and the approach has not been successful and will not be successful in the future.	Regarding the Preferred Alternative, this alternative is not simply a minor change to operations and maintenance of the CRS. The spill operation for juvenile fish passage in the Preferred Alternative is a significant departure from previous operations, so much so that the Washington and Oregon state water quality standards had to be changed to implement the new spill regime. The CSS model, which includes latent mortality effects, predicts that median Smolt-to-Adult return rates (SARs) will increase for both Snake River spring Chinook and steelhead and will average well above 2% (the lower end of Northwest Power and Conservation Council's recovery targets for the region) as a result of the Preferred Alternative, increasing SARs from 2.0% to 2.7% for Chinook, a 35% relative increase. The National Marine Fisheries Service (NMFS) COMPASS and Lifecycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. To address uncertainty highlighted by the two models, the Preferred Alternative includes working with regional sovereigns to develop a study that assesses the effectiveness of the increased spill regime on adult returns as well as assessment and management of adverse negative unintended consequences, such as long delays of adult migrants, or total dissolved gas (TDG)-related mortality of juvenile migrants. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information. The levels of spill proposed in the Preferred Alternative have never been implemented on a season-wide basis before and were previously outside of allowable limits in place for water quality purposes. This new level of operation must be carefully and thoroughly tested to assess actual results compared to model based expectations. Because of the uncertainty between the outputs of the two models for salmon and steelhead, the co-lead agencies have proposed a robust monitoring program that will be developed with Federal, state, and tribal experts in salmon biology and monitoring.
3970	10	Shelley Silbert	Great Old Broads for Wilderness	3. The Dam Breach Alternative (M03) Combined with 125% TDG Spill (M04) is the Best and Only Chance to Restore Anadromous Fish In response to requests from the federal agencies, the CSS Oversight Committee applied CSS life cycle and cohort models to evaluate federal CRSO-DEIS operation alternatives (Fish Passage Center, 2020a). The six operational alternatives analyzed included the No Action Alternative, Multi-Objective Alternatives 1-4 (MO1, MO2, MO3, and MO4), and the Preferred Alternative. It did not include a SAR-focused alternative to restore Snake River salmon and steelhead. The Fish Passage Center used the 2017 CSS scenario of breach of the lower Snake River Dams, and spill to the 125% tailrace TDG levels in the Middle Columbia River, as a SAR focused "bookend." To provide this SAR focused "bookend" in the context of the CRSO-DEIS scenarios, the CSS added a seventh alternative (MO34) to these analyses using the 80-year water record. The non federal MO34 alternative demonstrated the greatest expected improvements across all biological response metrics, compared to all of the other federal CRSO-DEIS alternatives, and exceeded the 4% average SAR regional goal (Fish Passage Center 2002a). Even the lower end of the predicted SAR range for MO34 was above 1% for both Snake River Chinook and steelhead, indicating that further population decline could be avoided. Among the federal alternatives, MO3 (the four dam breach alternative with spill to the 120% tailrace TDG in the Middle Columbia River) resulted in the highest SARs and in-river survivals, followed by MO4 (the spill to the 125% tailrace TDG alternative). These two alternatives, among the federal alternatives, resulted in the highest likelihood of meeting the 4% average SAR regional goal. The lower end of the predicted SAR range for MO3 was also above 1% for both Chinook and steelhead. However, for MO4 the lower end of the predicted SAR was slightly below 1% indicating a greater risk of further population decline. The other federal alternatives (No Action, MO1, MO2, and the Preferred Alternative) all failed to meet the regional 4% SAR goal, and the lower end of the predicted SAR ranges were well below 1%, indicating greater risk of further population declines under each of these alternatives. For all fish survival metrics, the Preferred Alternative resulted in only slightly better performance than the No Action and MO1 alternatives, and had lower performance than both MO3 and MO4 alternatives. The Fish Passage Center also noted that the "scenario of 125% TDG spill level at the Lower Columbia projects (McNary to Bonneville) and breach of the Lower Snake River projects was analyzed in the 2017 CSS Annual Report 24 and was found to have the highest benefits in terms of fish performance metrics. However, this promising scenario was not included in the CRSO-DEIS alt ernat ives 25. Several statements in the CRSO-DEIS acknowledge that improved conditions for salmon and steelhead survival could occur with removal of the four lower Snake River Dams. The CRSO- DEIS states that for MO3 (dam removal) "On the lower Snake River, changes to flow amounts would be minor since the four lower Snake River Dams are run-of-river projects, not storage projects. However, without the reservoirs, the water particle travel time through the reach could be reduced by an order of magnitude" (CRSO-DEIS, Table 3-1, p. 3-5). The CRSO-DEIS further acknowledged that "effects to Snake River anadromous species are expected to be a major beneficial effect after short-term major adverse effects associated with dam removal stabilize. Minor beneficial effects for lamprey are expected" (CRSO-DEIS Table 3-1, p. 3-7). The	The co-lead agencies contracted with the Fish Passage Center (FPC) to produce the CSS modeling results presented in the Draft EIS. Any additional modeling that was not presented in the Draft EIS is not part of the CRSO EIS and was not developed or reviewed by the co-lead and cooperating agencies as part of this EIS. The co-lead agencies are unsure what information or assumptions CSS used in their separate modeling effort and note there is not a corresponding alternative modeled under the National Marine Fisheries Service (NMFS) Lifecycle model. The agencies disagree that an alternative that includes breaching the four lower Snake River dams and spring spill operations to 125% total dissolved gas (TDG) at all four lower Columbia River dams is reasonable given the unacceptable risks to public safety from such an alternative. MO3 and Multiple Objective alternative 4 (MO4), individually each caused large loss-of-load probability (LOLP) results (e.g. increased incidence of blackouts). Without major addition of new resources, MO3 would result in power shortages in about one in seven years. MO4 would produce power shortages in about one in every four years. If MO4 were implemented, in addition to breaching the four lower Snake River projects as called for in MO3, then the LOLP would be even higher, with power shortages potentially occurring almost every year. Additionally, if these Multiple Objective alternatives (MOs) were combined, in 5% of the years, the power shortages would average close to 1,000 MW in early August when the region might be experiencing a heatwave with particularly high demand for air conditioning. 1,000 aMW is approximately the average amount of power consumed by Seattle City Light. As shown in Section 3.7, MO3 causes an increase in power reliability concerns in the winter and the summer. MO4 increases power reliability concerns in the summer. Thus, the combination has the largest impact during the summer. The cost of zero-carbon replacement resources for MO3 and MO4 individually are up to $1 billion/year. Resource replacements and associated transmission interconnections for the combination of MO3 and MO4 would be higher, though not likely as high as the sum of the two MOs individually. Assuming that the replacement resources consist largely of wind, solar, and batteries, this would require well over 50 square miles of solar power (more than two and a half times the size of Crater Lake), large areas of new wind generation, and unprecedented amounts of batteries (more batteries in the Northwest alone than the total projection of batteries expected in the entire United States by 2023 per the Energy Information Administration). In addition, the reduced generation capability under MO3, particularly throughout the summer, in combination with the impacts of the measures in MO4 and the uncertainty about the characteristics of replacement resources, would result in less capability to provide voltage support and dynamic stability for transmission system reliability than under MO3 or MO4 individually. Thus, combining MO4 with breaching in the MO3 would produce unreasonable power and transmission reliability impacts, and it is highly speculative that replacement resources could be sited, permitted, and built to address these impacts. These are in addition to the other adverse effects to the human and natural environment described in MO3 and MO4 individually. Thus, an alternative combining juvenile fish passage spill up to 125% and breaching the four lower Snake River dams is unreasonable, and thus was not proposed as an alternative. The co-lead agencies acknowledge in the Draft EIS that implementation of MO3 would have benefits to salmon and steelhead. However, the co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-lead agencies numerous legal obligations. The Preferred Alternative is predicted to benefit ESA-listed juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets most other EIS objectives, including those for: resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy.

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				CRSO-DEIS stated that "Over the long term, MO3 would have moderate to major beneficial effects on water quality in Region C through the restoration of natural, river, and water quality processes; a substantial cooling effect in the fall; greater nighttime cooling and respite from warm water temperature conditions in the summer; and a reduction in overall system TDG" (CRSO-DEIS, p. 3-275). Meanwhile under the CRSO-DEIS with the four dams in place, "The cooling effect in the lower Snake River diminishes at each successive downstream reservoir and the frequency of exceedances above the [temperature] standard increases" CRSO-DEIS, p. 3- 238.	
3970	11	Shelley Silbert	Great Old Broads for Wilderness	For over twenty years federal judges have determined that five consecutive biological opinions for the Columbia-Snake hydropower system are illegal and inadequate in terms of protecting steelhead and salmon. Taxpayers and electricity ratepayers have spent at least $17 billion dollars on fish recovery yet these species continue to decline. Breaching the lower Snake River Dams, as indicated by analyses completed by the Fish Passage Center, could lead to a fourfold increase in Snake River salmon and steelhead numbers, which would allow wild salmon the opportunity to recover to sustainable levels26. The Fish Passage Center 2017 Annual Report assessed the potential survival benefits to Snake River spring/summer Chinook as a result of increased spill and dam breach in the lower Snake River. The most significant benefits to in-river survival rates and SARs occurred at the highest TOG limit spill levels (125% TDG), and under dam breached conditions. The authors' results indicate that SARs in the 4 - 6% range occur under most dam breached and spill levels, where the variable juvenile encounters at powerhouses dropped 1.5% and the variable water transit time for fish declined to the 8 - 15 day range. The authors noted that the breached scenario SARs are comparable to the historical SARs of John Day Chinook, which experience five less powerhouses than Snake River Chinook with no dams breached. Historical John Day SARs have been in the 2 - 8% range. Spill and breach scenarios provide a relatively immediate means of increasing life cycle survival, both during in-river migration, and upon ocean entry. If the lower four Snake River Dams are breached and the remaining four lower Columbia River Dams operate at BiOP spill levels, there will be an approximately a 2 -3 fold increase in abundance above that predicted at BiOP spill levels in an impounded system, and up to a 4 fold increase if spill is increased to the 125% TOG limit. Dams in the Columbia River hydro system have created slack-water reservoirs, and on the lower Snake River have inundated over 140 river miles of natural habitat. By 1997, all Snake River salmon and steelhead runs had been federally listed as threatened or endangered under the Endangered Species Act (ESA). In recent years, Chinook salmon and summer steelhead returning adults are so low that fisheries officials have mandated fishing closures in most areas of the Snake River basin and its tributaries. These fishing closures have caused terrible economic hardships to fishing-related rural communities, and businesses and angling recreationists. Breaching the four federal dams on the lower Snake River is the single major step needed to avert extinction of the lower Snake River salmon, and to restore access of salmon and steelhead to 15 million acres of cooler, high-elevation watershed. This would substantially increase access to spawning habitat for lower Snake River Chinook and summer steelhead, as well as assist migrating juvenile fish downstream to the ocean. Major rivers such as the Clearwater and Salmon (and their tributaries) are historic spawning habitat, with watersheds in near pristine conditions due to protected wilderness st at us. Chinook and steelhead swim as far as 900 miles to natal headwater streams, and climb some 7,000 vertical feet from the ocean to spawn in central Idaho. The clear cold waters will be increasingly important as the high elevation mountain snowpack in Idaho is more resistant to climate change, and the waters remain cold where other lower, more southerly rivers will likely become too warm and dry for salmonids. Restoring a free-flowing Snake River will enable protection and restoration of threatened or endangered wild salmon and steelhead facing extinction. Contrary to the statements made in the CRSO-DEIS regarding financial costs of each alternative, American taxpayers and Northwest energy consumers will not be severely impacted by dam removal, and 15,000 acres of prime riverine habitat and agricultural land can be recovered and reinvigorated. Recovery of Chinook salmon and steelhead populations will restore fishing opportunities for anglers and other recreationists and restore rural communities. The CRSO-DEIS claims that the document is "balanced", "collaborative", and "adaptive" are frankly untrue. The only substantive measures that restore salmon are the combination of breaching the four lower Snake River Dams, and running spill operations at the four mainstem Columbia dams at 125%. The CRSO-DEIS is once again putting power generation and ancillary benefits over restoration of fish. The document is not "balanced", "collaborative", or "adaptive" in any way. The idea of dam breaching and removal is not new or radical. In the past 100 years, over 1,700 dams have been removed around the United States, sometimes to restore fish passage, sometimes to remove a safety risk, and sometimes to avoid reconstructing costly infrastructure. A record 90 dams were breached in 2019 alone. Decades of removing old, obsolete dams has restored native fish runs that have been lost or suppressed for centuries. Recent examples include dam removals on the Hood River, White Salmon River and Elwha River in the Pacific Northwest. In each case, there have been astonishing signs of native fish species returning in abundant numbers. For example, after almost 100 years the Condit Dam on the White Salmon River in Washington was removed in the fall of 2011. Within two years, fish that had been extirpated from this river (Chinook, coho and steelhead), or at a very high risk of extinction (fall Chinook), had moved up above the dam and dramatically increased in abundance and distribution. Similarly, the Elwha and Glines Canyon Dams in Washington, built over 100 years ago, had 12 species of anadromous fish that immediately traveled above the dams upon removal, and increased in abundance and distribution. Dramatic increases in marine and wildlife species were also noted with the restoration of the Elwha River delta. The removal of the two dams on the Elwha River in 2012 and 2014 provided salmon access to an additional 71 miles of upstream habitat. Research showed that the fish migrated farther into the river and its tributaries following removal, with 58 Chinook nests identified above the dam removal sites in 2016, two years after dam removal.	The co-lead agencies used high quality information for the EIS analysis. The agencies did not rely on the Fish Passage Center (FPC) analysis used in the 2017 Annual Report, as the agencies contracted with the FPC to run the CSS model using both current hydrology simulations and each hypothetical operation and configuration represented in the alternatives. It is difficult to make direct comparisons between actions taken to breach other dams and the effects of breaching the four lower Snake River dams because of inherent differences in location, size, and purposes of the dams. For example, the effects of removal of the Elwha Dam and the effects of breaching the four lower Snake River dams are not comparable. Elwha Dam had a nameplate capacity of just under 15 megawatts. Its annual power production pales in comparison to the 1,100 aMW provided by the lower Snake River dams. Unlike the four Snake River projects, Elwha Dam did not have fish passage. Removal of the Elwha dam allowed the Elwha River to flow freely, whereas if the four lower Snake River dams were breached the Snake River would still have regulated flows due to the dams located upstream. Please also see the response to your comment 3970-10. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-lead agencies numerous legal obligations. The Preferred Alternative is predicted to benefit ESA-juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets most other EIS objectives including those for: resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. Different models predict different long-term survival benefits to ESA-listed species from dam breach, benefits that can contribute to recovery. Under the National Marine Fisheries Service (NMFS) COMPASS model, juvenile Snake River Spring/Summer Chinook in-river survival would improve by 9.6% due to dam breach, which is a 19% relative increase over the No Action Alternative. The NMFS Lifecycle model predicts an increase in adult returns of 13.6% for these same fish under MO3 (no latent mortality assumed) relative to the No Action Alternative (from 0.88% to 1%). Results for Snake River steelhead are similar (10% absolute improvement, or 23% relative juvenile survival increase; Smolt-to-Adult return rates (SARs) for steelhead were not modeled). Under the CSS model, juvenile in-river survival for the Snake River Spring/Summer Chinook is predicted to improve by 10.4% due to dam breach, which is an 18% relative increase over the No Action Alternative, while SARs would increase by 115% (from 2% to 4.2%). The CSS model predicts that Snake River steelhead would see juvenile survival increase by 25.8% which is a 46% relative increase over the No Action Alternative. The CSS model also predicts that SARs increase by 177% (from 1.8% to 5%). Though differing in predictions, both models predict dam breaching is the best CRSO EIS alternative for salmon and steelhead. One model simply predicts adult return increases an order of magnitude higher than the other. Because of delayed response time in MO3, and the potential severity of the short term effects, MO3 would likely have the most substantial uncertainty in terms of beneficial effects. The Draft EIS acknowledges and describes the temperature sensitivities of salmon and steelhead, as well as the many other factors that affect these fish. Water quality and hydrology modeling data were inputs into the fish survival models used to analyze the alternatives effects on Snake River stocks, so temperature effects to survival have been incorporated into the overall analyses of each alternative. Regarding climate change, the climate science community is still developing models that can be used to analyze possible effects to water temperature from climate change, and unfortunately, there are not reliable models at this time at the appropriate resolution (river-scale vs. global- or regional-scale). Therefore, it was not possible to reliably model water temperature changes under climate change for this EIS. In lieu of this information, the climate analysis used the output from the water quality models under historical conditions, climate change data, and scientific literature to qualitatively assess potential effects to water temperature (Section 4.2.3). Regarding lower Snake River water temperatures, the EIS analysis indicates that nighttime summer water temperatures, as well as fall water temperatures, would be cooler than No Action conditions if the lower Snake River dams were breached. However, even with the dams breached, maximum summer water temperatures would exceed state water quality standards (20C) at times, especially during hot weather events.
3970	12	Shelley Silbert	Great Old Broads for Wilderness	4. Without Restoration of ESA- Listed Species the Co-Lead Agencies Increase the Risk of Extinction The ESA requires the federal government to recover these salmon species28 . For the Snake River in particular, both old and new research shows that dams are a major cause of decline of the salmon runs. Both fall and spring-run Chinook (which had collapsed to near extinction) were listed as threatened in 1992. Snake River steelhead were listed as threatened in 1997. Wild salmon are a part of nature's trust which governmental agencies have a special management obligation to protect under the long-standing public trust doctrine. Federal and State agencies have an obligation to maintain the wild salmon legacy in good health for citizen beneficiaries of present and future generations. The extensive listing of Pacific salmon stocks under the ESA is a strong signal that the current salmon management paradigm has failed. The USACE is required to review federal dam operations when advisable, and to improve the quality of the environment for the overall public interest (33 U.S.C. 549a). The Preferred Alternative does not meet the legal test because it fails to restore the viability of salmon and steelhead to the regional recovery goals. Fishery managers avoid responsibility for their failure in leadership and stewardship with the excuse that degradation and loss of productivity is the inevitable result of population growth and its attendant demands for development and economic growth. An obvious example are Snake River coho where only one fish was counted in 1985 and 1986 crossing Lower Granite Dam in the Snake River. In 1987 none returned. Federal actions designed to recover listed salmon and steelhead populations have been mired in trying to "balance" the Columbia hydro system. Meanwhile, no salmon or steelhead populations have recovered enough to warrant delisting, and instead are headed toward extinction like the coho salmon. The Snake River Basin is the major upstream salmon-producing tributary in the Columbia River Basi n. The importance of Snake River salmonid production cannot be overstated with respect to life history types and diversity. Declines of Snake River salmon occurred over decades, but population decreases accelerated starting in the 1960s and 1970s with construction of the four lower Snake River Dams. Estimated annual returns of spring/summer Chinook declined from 125,000 fish in 1950-1960 to just 12,000 fish by 1979. By 1994, Chinook run size was estimated at less than 2,000 adults. Snake River fall Chinook numbers fell to 78 fish in 1990, and Snake River sockeye salmon to less than ten adults per year, with only a single fish returning in 1992. Status reviews of the Columbia River listed salmonids were conducted recently by NOAA Fisheries and released in 2016. The reviews supported continued listing for all Columbia River ESUs. After 26 years from the first listing in the Columbia River, all 13 ESUs remain under ESA protection. The status reviews found that the same suite of causes that led to the decline and listing of the populations continues to impede their recovery. The continuing failure of the federal planning and recovery effort for Pacific Northwest salmon is a result of the chasm that exists between a hydro system trying to maximize power and profit over the salmon and steelhead ecological and life history needs. We are in an urgent situation. We need to stop looking for short-term fixes and instead invest in improved ecosystem function. Removing the lower Snake River Dams would open up access to the best and most climate-resilient salmon spawning habitat remaining in the continental United State.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the CRS. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. Based on the fish analysis Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. The CSS model predicts that average Smolt-to-Adult return rates would increase for both Snake River spring Chinook and steelhead and would average above 2% (the lower end of Northwest Power and Conservation Council recovery targets for the region) as a result of the Preferred Alternative increasing from 2.0% to 2.7% for Chinook, a 35% relative increase. The National Marine Fisheries Service (NMFS) COMPASS and Lifecycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. To address uncertainty highlighted by the two models, the Preferred Alternative includes working with regional sovereigns to develop a study that assesses the effectiveness of the increased spill regime on adult returns as well as assessment and management of adverse negative unintended consequences, such as long delays of adult migrants, or total dissolved gas (TDG)-related mortality of juvenile migrants. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information. The public trust doctrine grants states title to beds and banks of navigable waterways upon admission to the United States. Such navigable waterways are subject to an overriding Federal navigational servitude. That servitude underpins the United States' constitutional authority to construct, operate, and maintain the four lower Snake River dams, the public trust doctrine notwithstanding.
3970	13	Shelley Silbert	Great Old Broads for Wilderness	5. Modeling of Fish Populations is Incorrectly Described and Fails to State the Most Important Point A. The Comparative Survival Study Models are Incorrectly Described The description of Comparative Survival Study (CSS) models in the CRSO-DEIS Executive Summary (p. 12) is inconsistent with descriptions of the CSS models developed by CSS scient ist s29 . These descriptions are available to the public. Also, the statement that CSS models make specific assumptions about delayed mortality is false. A section of the Executive Summary briefly describes the NOAA COMPASS and LCM modelling and CSS modeling (CRSO-DEIS Executive Summary, p. 12-13). The description clearly highlights the fact that these are two very different modeling approaches. However, the Federal agencies have failed to point out a very important consideration in their discussion which is significant and should be emphasized in the Executive Summary. The CSS models which generate results in Smolt to Adult return rate, and the NOAA model which generates results in terms of arrival time to the estuary/ocean, both converge on the dam breach alternative. Whether in terms of smolt to adult return rate or arrival timing at the estuary, both modeling approaches converge on the dam breach alternative as the best option to affect both arrival time to the	Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets most other EIS objectives including those for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS, the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams, because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. The co-lead agencies disagree that the CRSO EIS describes the CSS models inconsistently with published materials. The CRSO EIS describes how these different models predict different long-term survival benefits to ESA-listed species from dam breach, benefits that can contribute to recovery. Under the NMFS COMPASS model, juvenile Snake River spring/summer Chinook in-river survival would improve by 9.6% due to dam breach, which is a 19% relative increase over the No Action Alternative. The NMFS Life Cycle Model predicts an increase in adult returns of 13.6% for these same fish under MO3 (no latent mortality assumed) relative to the No Action Alternative (from 0.88% to 1%). Results for Snake River steelhead are

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				estuary and smolt to adult return rate. The document states the following: "CSS models treat the entire CRS as an aggregate of two routes of passage (number of powerhouses passed vs spilled on average). CSS models make statistical estimations of the effect of the freshwater CRS on latent ocean mortality" (CRSO DEIS, p. 3-359). The CSS cohort models generate five metrics including SARs, juvenile fish travel time, juvenile fish survival, ocean survival and in water transit time river ratio (Fish Passage Center 2020b). The CSS analyses indicate that the hydro system affects juvenile survival because spill and flow affect ocean survival, juvenile fish travel time, and juvenile fresh water survival. The CSS modeling does not make estimates of latent delayed mortality and the authors corrected observations on latent mortality in a memo30 .	similar (10% absolute improvement, or 23% relative juvenile survival increase -- Smolt-to-Adult returns (SARs) for steelhead were not modeled). Under the CSS model, juvenile in-river survival for the Snake River spring/summer Chinook is predicted to improve by 10.4% due to dam breach, which is an 18% relative increase over the No Action Alternative, while SARs would increase by 115% (from 2% to 4.2% 0.02 to 0.042). The CSS model predicts that Snake River steelhead would see juvenile survival increase by 25.8% which is a 46% relative increase over the No Action Alternative. The CSS model also predicts that SAR increase by 177% (from 1.8% to 5%). Though differing in predictions, both modeling groups predict dam breaching is the best CRSO EIS alternative for salmon and steelhead. One simply predicts adult return increases an order of magnitude higher than the other. These predictions are both discussed in the CRSO EIS, contrary to this comment.
3970	14	Shelley Silbert	Great Old Broads for Wilderness	B. The Comparison of the COMPASS and CSS Models Excludes the Most Important Point From Model Results. The discussion in the CROS-DEIS that compares COMPASS and CSS models excludes the most important point from model results (CRSO-DEIS, p. 3-362). The extensive discussion of comparison of NOAA COMPASS model results and CSS (collaborative agencies and tribes) model results is completely excluded from the discussion of model approaches. Although the CSS models are statistical empirical models based upon historic data, and the COMPASS model has a mechanistic structure, both models converge on one conclusion. The COMPASS model results attribute timing of juvenile fish to the estuary as a primary metric. The CSS model results include several metrics including SAR rates. However, both of these models agree that the most benefit (COMPASS arrival time to estuary and CSS Smolt to adult return rate) would result from breach of the four lower Snake River hydroelectric projects as discussed in MO3. This is the most important point in all of the discussion of model results and model structures, yet the federal action agencies have excluded this from discussion.	The EIS concluded MO3 would have greater improvement to certain salmon species in the lower Snake River. It did not conclude there was greater certainty of that result in MO3 over any other alternative. Because of delayed response time in MO3, and the potential severity of the short term effects, MO3 would likely have the most substantial uncertainty in terms of beneficial effects. Tthe co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the Columbia River System. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species.
3970	15	Shelley Silbert	Great Old Broads for Wilderness	6. Alternatives are Confounded, Cryptic and the Range of Alternative is Inadequate A. The Development of Alternatives are Confounded and Difficult to Compare The "Development of Alternatives" is confounded and difficult to compare (CRSO-DEIS Executive Summary, p. 15). The co-lead agencies chose to develop alternatives that each had a different combination of proposed measures. Therefore the comparison of alternatives with each other is not possible. As an example, the Preferred Alternative is discussed as a continuation of the present Flex Spill Agreement, but it includes measures that are not part of the Flex Spill agreement such as draft of reservoirs below flood control elevations in the winter months, and additional irrigation water withdrawals from the Columbia River that total 1.254 million acre-feet. There is no common foundation to compare alternatives. The co-lead agencies chose "Multiple Objective Alternatives" (CRSO-DEIS, p. 2-2). These multiple objective alternatives include a myriad of actions, some designed to be beneficial to power production and irrigation to the detriment of objectives to recovery salmon and steelhead. Because each of these alternatives is a combination of many actions, there is no common foundation upon which to compare alternative actions to each other or to recover listed salmon and steelhead.	The CRS is a complex system with multiple purposes. The Purpose and Need Statement and the objectives developed for this EIS reflect these multiple purposes, as do the alternatives developed to meet them. This EIS was developed to evaluate the operation and maintenance of the CRS. Although fish and wildlife conservation is one of the authorized purposes, it is not the only purpose, and the co-lead agencies must consider how to seek to balance of all purposes. The analysis of the Multiple Objective alternatives (MOs) reflect these trade-offs and have allowed the co-lead agencies to understand the effects of emphasizing some purposes differently while seeking the most acceptable balance for future operations and maintenance. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the Columbia River System. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. This EIS has been developed in consultation with National Marine Fisheries Service (NMFS) and U.S. Fish and Wildlife Service (USFWS) to find an acceptable balance that allows the co-lead agencies to meet the Purpose and Need Statement while minimizing impacts to affected ESA-listed species and their habitats. As required by the National Environmental Policy Act (NEPA), the co-lead agencies evaluated each alternative for its effects on a suite of resources. These effects are summarized in Section 3 of the Executive Summary, fully described by resource and alternative in Chapters 3, 4, 5, 6 and 7; summarized by resource and alternative in Table 3-1, and presented for comparison in Table 7-1 in the Draft EIS. Effects specific to anadromous fish are described in Sections 3.5.3 and 7.7.4. In the Draft EIS, Table 3-61 compares expected survival by alternatives, and Table 3-62 provides a comparison of the alternatives specific to anadromous fish. The commenter incorrectly states that the Preferred Alternative diverts an additional 1.254 MAF for irrigation. The Preferred Alternative diverts an additional 45 KAF for irrigation, a substantially lower value than what was evaluated in the MOs. The intent of the Executive Summary is to serve as a primer and broad summary of findings. The Final EIS will expand the table of contents that was in the draft EIS to assist readers in finding specific topics. The EIS also includes an index, so the public knows where to look for detailed analysis in either the main body of the EIS or the appendices.
3970	16	Shelley Silbert	Great Old Broads for Wilderness	B. The Stated Anadromous Fish Goals are Cryptic The stated goals for salmon and steelhead are broad meaningless statements about improvement, and do not reflect the regionally established goal of a 4% average Smolt to Adult Return rate with a range of 2% - 6%. For example, Objective 1 is to "Improve ESA-listed anadromous salmonid juvenile fish rearing, passage, and survival within the CRSO project area through actions including but not limited to project configuration, flow management, spill operations, and water quality management" (CRSO-DEIS, p. 2-3). The regionally established SAR goals are clear, easy to understand and based on decades of scientific data and analyses. Cryptic, vague goals such as "improvement" will simply continue the status quo. The alternatives are a mixture of varying measures making meaningful comparison of alternatives difficult (CRSO-DEIS p. 2-3 to 2-4). The Preferred Alternative illustrates the problem of multiple and varying measures within alternatives. Although couched in terms of the present limited flex spill agreement, the Preferred Alternative includes actions that represent a decrease in protection for listed stocks from previous biological opinions. As a result, the Preferred Alternative does not actually represent the current flex spill agreement. Individual adverse actions to salmon and steelhead are included in some alternatives but not all alternatives, such as shifting flow from spring to winter by allowing additional reservoir draft below flood control elevations in winter at Grand Coulee, Libby and Dworshak reservoirs. The Preferred Alternative includes new additional irrigation withdrawals totaling 1.254 million acre feet in the upper Columbia which would reduce summer flows for migrating fall Chinook during the summer. It is important to note that NOAA BiOP summer flow targets are almost never met, so this proposal in the Preferred Alternative would adversely impact critical summer flows for fall Chinook. These examples of the Preferred Alternative illustrate that a more reasonable approach is needed, one that would compare all alternative actions based on the likelihood of recovering ESA-listed salmon and steelhead against the present hydro system operation. Providing a common foundation for comparison of proposed actions to recover listed salmon and steelhead is critical. Once a proposal to recover salmon and steelhead is identified, increasing the efficiency of dam operation for power and irrigation, power replacement, alternative port developments can be considered. The NEPA process is not invoked here to save the power system generation profits.	The 2-6% Smolt-to-Adult return rate (SARs) target referenced refers to the Northwest Power and Conservation Councils (Council) target for broad-sense recovery and is separate and distinct from the obligations of any single entity or in this case a requirement to be met solely by the co-lead agencies. Just as the Councils fish and wildlife program encompasses both Federal and non-Federal stakeholders in the Columbia Basin, the Councils recovery goals are shared by many parties. Based on the fish analysis in Section 7.7.4, the Preferred Alternative will make a meaningful contribution to these goals, but the Councils broad sense recovery goals are beyond the scope of this EIS which contemplates the effects associated with the operation and maintenance of the 14 CRS projects. With respect to the Preferred Alternative, the CSS model predicts that average SARs would increase for both Snake River spring Chinook and steelhead and will average above 2% (the lower end of the Northwest Power and Conservation Councils recovery targets for the region) as a result of the Preferred Alternative increasing SARs from 2.0% to 2.7% for Chinook, a 35% relative increase. The National Marine Fisheries Service (NMFS) COMPASS and Lifecycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. To address uncertainty highlighted by the two models, the Preferred Alternative includes working with regional sovereigns to develop a study that assesses the effectiveness of the increased spill regime on adult returns as well as assessment and management of adverse negative unintended consequences, such as long delays of adult migrants, or total dissolved gas (TDG)-related mortality of juvenile migrants. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information. It is the intention of the co-lead agencies to engage regional state, tribal, and Federal biologists in the development of an appropriate adaptive management process utilizing their respective salmonid management expertise. The goal of that adaptive management process would be to consider additional opportunities to further the effectiveness of the operation while maintaining the goals of the flexible spill operation: additional improvements for salmon and steelhead, maintain opportunities to operate the CRS for hydropower generation in a flexible manner that provides value to the Northwest, is implementable by the dam operators, and provides opportunity to reduce uncertainty and improve the learning opportunities around how operations of the CRS can influence the magnitude of latent mortality effects. The co-lead agencies have not made any determinations on what the preferred approach would be for a regionally developed study plan, and intend to develop that study jointly with regional experts. Unforeseen outcomes or unintended consequences will be monitored and adjusted using current in-season management teams such as the Technical Management Team. If no adaptive management needs are identified, the operation would continue through the duration of the ESA consultation period. The co-lead agencies have provided additional clarifying text in Appendix R to make these points more clearly. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy designated critical habitat. The co-lead agencies completed consultation with the NMFS and U.S. Fish and Wildlife Service (USFWS) on the effects of the CRS on ESA-listed species, and the Biological Opinions are included in Appendix V of the Final EIS. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species as that is a broader goal with shared responsibility. Based on the fish resources in Section 7.7.4 for the Preferred Alternative, the co-lead agencies anticipate that the Preferred Alternative would provide meaningful benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the CRS. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. The Preferred Alternative does not contain any proposed decreases to river flow levels that are expected to impact juvenile salmon migrating during spring and summer. Any changes in flow would be small enough to have minor to negligible impacts or occur outside of the juvenile migration season and are limited to areas of the basin where the impact would be negligible or minor. Effects from each alternative are summarized in Section 3 of the Executive Summary, fully described by resource and alternative in Chapter 3, 4, 5, 6, and 7 summarized by resource and alternative in Table 3-1, and presented for comparison in Tables 7-1 and 7-55 in the Draft EIS. Effects specific to anadromous fish are described in Sections 3.5.3 and 7.7.4 In the Draft EIS, Table 3-61 compares expected survival by alternatives, and Table 3-62 provides a comparison of the alternatives specific to anadromous fish. Lastly, the commenter incorrectly states that the Preferred Alternative diverts an additional 1.254 MAF for irrigation. The Preferred Alternative diverts an additional 45 KAF for irrigation, a substantially lower value than what was evaluated in the Multiple Objective alternatives.
3970	17	Shelley Silbert	Great Old Broads for Wilderness	B. The Range of Alternatives is Inadequate The scope of alternatives considered by the action agencies is inadequate (CRSO-DEIs, p. 2-5). Although the federal agencies selected a power production focused alternative in the range of alternatives (MO2), the federal agencies did not consider a salmon and steelhead focused alternative. The 2017 CSS Annual Report was presented to the co-lead agencies by the Fish Passage Center, and provided a range of 24 operations alt ernat ives. 31 The authors evaluated various BiOP spills of 115% forebay/120% tailrace, 120% tailrace, 125% tailrace, and each of these alternatives was compared with and without breach of the four lower Snake River Dams. These alternatives were considered based on present hydro system and reservoir operations. One of these alternatives was breach of the four lower Snake River Dams, and spill to the 125% tailrace TDG limit, 24 hours per day at the middle Columbia projects (Bonneville, The Dalles, John Day, and McNary Dams). This alternative should have been considered in the Draft CRSO EIS but was not.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. The co-lead agencies are also required to evaluate a reasonable range of alternatives in the EIS. However, when there are potentially a very large number of alternatives, only a reasonable number of examples, covering the full spectrum of alternatives, must be analyzed and compared in the EIS. Alternatives for this EIS were developed from measures identified during public scoping, regional forums with scientists and technical experts from cooperating agencies, and expert opinion from within the co-lead agencies and in the literature. These alternatives represent a reasonable range of alternatives for the maintenance and operation of the CRS. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-lead agencies numerous legal obligations. Two of the objectives are directed at improvements for ESA-listed juvenile and adult anadromous salmonids. The agencies disagree that an alternative that includes breaching the four lower Snake River dams and spring spill operations to 125% total dissolved gas (TDG) at all four lower Columbia River dams is reasonable given the unacceptable risks to public safety from such an alternative. MO3 and Multiple Objective alternative 4 (MO4), individually each caused large loss-of-load probability (LOLP) results (e.g. increased incidence of blackouts). Without major addition of new resources, MO3 would result in power shortages in about one in seven years. MO4 would produce power shortages in about one in every four years. Combining breaching the four lower Snake River dams with spill up to 125% at the lower Columbia River projects is not a reasonable alternative under National Environmental Policy Act (NEPA). For power and transmission, MO3 and MO4, individually each caused large loss-of-load probability (LOLP) results (e.g. increased incidence of blackouts). Without major additional new resources, MO3 would result in power shortages in about one in seven years. MO4 would produce power shortages in about one in every four years. If MO4 were implemented, in addition to breaching the four lower Snake River projects as called for in MO3, then the LOLP would be even higher, with power shortages potentially occurring almost every year. Additionally, if these MOs were combined, in 5% of the years, the power shortages would average close to 1,000 MW in early August when the region might be experiencing a heatwave with particularly high demand for air conditioning. 1,000 aMW is about the average amount of power consumed by Seattle City Light. As shown in Section 3.7, MO3 causes an increase in power reliability concerns in the winter and the summer. MO4 increases power reliability concerns in the summer. Thus, the combination has the largest impact during the summer. The cost of zero-carbon replacement resources for MO3 and MO4 individually are up to $1 billion/year. Resource replacements and associated transmission interconnections for the combination of MO3 and MO4 would be higher, though not likely as high as the sum of the two Multiple Objective alternatives (MOs) individually. Assuming that the replacement resources consist largely of wind, solar, and batteries, this would require well over 50 square miles of solar power (more than two and a half times the size of Crater Lake), large areas of new wind generation, and unprecedented amounts of batteries (more batteries in the Northwest alone than the total projection of batteries expected in the entire US by 2023 per the Energy Information Administration). In addition, the reduced generation capability under MO3, particularly throughout the summer, in combination with the impacts of the measures in MO4 and the uncertainty about the characteristics of replacement resources, would result in less capability to provide voltage support and dynamic stability for transmission system reliability than under MO3 or MO4 individually. Thus, combining MO4 with breaching the four lower Snake River projects, would produce unreasonable power and transmission reliability impacts, and it is highly speculative that replacement resources could be sited, permitted and built to address these impacts. Thus, an alternative combining juvenile fish passage spill up to 125% and breaching the four lower Snake River dams is unreasonable, and was not proposed as an alternative.

Letter No.	Comment No.	Commenter Name/Email	Affiliation	Comment	Response[1/]
3970	18	Shelley Silbert	Great Old Broads for Wilderness	7. There are Many Misleading and False Statements in the CRSO-DEIS; Only Four Examples are Presented Below but There are Many More A. Downstream Juvenile Dam Survival Estimates in the CRSO-DEIS are Misleading. The co-lead federal action agencies should refrain from misleading statements about dam passage and survival. For example dam survival estimates are disingenuous (CRSO-DEIS, Executive Summary, p. 19). Figure Executive Summary ES-4 (the same Figure 3-113, p. 3- 302) is designed to mislead the public and fails to explain that dam survival is multiplicative.; that is, total survival through the hydro system from the Snake River to below Bonneville Dam is typically around 50%. Data on juvenile fish survival through the Snake and Columbia Rivers are easily accessible and available to the public for specific populations of salmon and steelhead. The representation in Figure ES-4 and Figure 3-113 specifically refers to "performance standard" testing at projects in 2010-2014. The inadequacies and issues associated with those performance standard tests affecting the validity of results are a matter of public record. As an example, using the chinook numbers in Figure ES-4 and assuming 98% survival for Ice Harbor Dam would imply that survival through the Lower Granite and Ice Harbor reaches would be 96%. However, juvenile survival through this river reach averages 72%. The performance standard concept and approach is fatally flawed because it does not account for decreased estuary and ocean survival resulting from powerhouse passage of juvenile salmon and steelhead. The actual reach survival rates are available, and should be incorporated into the Final EIS rather than giving false information. Similarly, the CRSO-DEIS claims that "To aid the downstream passage of juvenile salmon and steelhead, the co-lead agencies have worked to improve passage and survival past the dams and through the reservoirs of the CR" (CRSO-DEIS, p. 3-301). This figure gives overly optimist estimates of fish survival since it fails to show systemwide or latent effects on migrating fish. The CRSO-DEIS states that "In general, bypass and spillway routes are associated with relatively higher juvenile salmon survival than turbines routes. Spill levels, spill patterns, and turbine priorities also have significant effects on the survival rates of migrating juveniles via their influence on tailrace hydraulics and the formation of eddies" (CRSO-DEIS, p. 3-370). As a result, alternatives that route more fish through turbines would be associated with lower juvenile survival. Currently, between 48% - 82% percent of all juvenile salmon pass dams via spillway routes.32 Studies to evaluate route specific survival show that survival rates from spillway routes ranged from 96% to 100%. The CRSO-DEIS also states that "The adverse impact of past Columbia River System operations has been reduced over time, and multiple mitigation actions have improved habitat, hatchery operations, and predator management, thus increasing survival rates of individuals in these ESUs, reducing extinction risk, and thereby contributing to improvements in the likelihood of recovery" (p. 3-304). Data show that survival rate increases are miniscule, and still average 50% from Lower Granite to Bonneville. There are also latent effects of the hydro system that further diminish survival to often less than 20% by the time juvenile fish reach the ocean. These data are reflected in the SARs which show that Snake River anadromous fish generally have less than 1% SARs, and are continuing to slide toward extinction. Statements in the DEIS like the above demonstrate that tweaking the system over and over again has failed to make substantive changes in SARs, and that Snake River salmon and steelhead are likely headed towards extinction unless measures such as dam removal are implemented within the next five years.	Survival through the CRS dams is presented in Sections 3.5 and 7.7.4 and includes survival through the multiple dams as well as reservoirs. Even without dams and reservoirs, there would be some level of natural mortality of juveniles migrating in-river. The co-lead agencies presented factual information in the Draft EIS, and did not include information intended to "mislead" the public as the comment suggests. Latent effects were considered and factor prominently in the identification of the Preferred Alternative. The Preferred Alternative is not simply tweaking the system. The spill operation for juvenile fish passage in the Preferred Alternative is a significant departure from previous operations, so much so that the Washington and Oregon state water quality standards had to be changed to implement the new spill regime. The CSS model, which includes latent mortality effects, predicts that median Smolt-to-Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% (the lower end of Northwest Power and Conservation Council's recovery targets for the region) as a result of the Preferred Alternative. The National Marine Fisheries Service (NMFS) COMPASS and Lifecycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. To address uncertainty highlighted by the two models, the Preferred Alternative includes working with regional sovereigns to develop a study that assesses the effectiveness of the increased spill regime on adult returns as well as assessment and management of negative unintended consequences, such as long delays of adult migrants, or total dissolved gas (TDG)-related mortality of juvenile migrants. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy designated critical habitat. The co-lead agencies completed consultation with the NMFS and U.S. Fish and Wildlife Service (USFWS) on the effects of the CRS on ESA-listed species, and the Biological Opinions are included in Appendix V of the Final EIS.
3970	19	Shelley Silbert	Great Old Broads for Wilderness	B. The Preferred Alternative Overstates the Benefits of the Preferred Alt ernat iv e. Descriptions of benefits from the Preferred Alternative are extremely misleading and overstate the potential benefit of the Preferred Alternative (CRSO-DEIS, Executive Summary, p. 33). The discussion of the Preferred Alternative includes discussion of Comparative Survival Study model results of alternatives, stating a 35% and 28% benefit to Chinook and steelhead SARs respectively. The discussion is disingenuous and extremely misleading to the public reader of this draft EIS. A Fish Passage Center memo to the federal co-lead agencies presented the results of CSS model analyses of DEIS alternatives including the Preferred Alt ernat ive 33 . A review of the data tables in the numerous appendices of this memorandum revealed that the percent benefit described in the Executive Summary is derived from Comparative Survival Study (CSS) model analysis of the Preferred Alternative. The authors divided the average SAR predicted for the Preferred Alternative by the average SAR predicted for the No Action Alternative, and this resulted in the 35% and 28% benefit from the Preferred Alternative. This is a relative benefit and should be identified as such. A 35% relative increase of a small number still results in a small number. Most importantly, the same tables in the same memo to the co-lead agencies showed that neither the Preferred Alternative nor the No Action Alternative meet the regional 4% average SAR regional goal for recovery. The average Chinook SAR predicted for the No Action Alternative is 2%, while the average under the Preferred Alternative is 2.7%. Both results are far from the goal of a 4% regional average . More disturbing is that the Executive Summary fails to discuss that the same CSS analyses of the Preferred Alternative shows that at the lower quartile range, the prediction in this analysis is less than 1% SAR, well below the SAR needed for salmon and steelhead population replacement. Under increasing climate change conditions the lower quartile of the range represents poor ocean conditions and poor flow conditions that will occur more often. In other words, populations are likely to decline and go extinct under both the No Action and Preferred Alternatives.	The co-lead agencies contracted with the Fish Passage Center (FPC) to produce the CSS modeling results presented in the Draft EIS. The commenter correctly concludes that the percent benefit figures are derived from the CSS results. These are presented in Section 3.5 tables for each species as a percent change from the No Action Alternative (NAA) in the Draft EIS. Also presented are the median and average values for other metrics modeled, such as in-river system survival, proportion of powerhouse passage, total dissolved gas (TDG) exposure, etc. The co-lead agencies highlighted the more relevant metrics in the Executive Summary: median Smolt-to-Adult return rates (SARs) and their percent change from the NAA. When referencing these Preferred Alternative fish results the co-lead agencies are using language similar to this to help clarify any potential misunderstandings: The Preferred Alternative increases SARs from 2.0% to 2.7% for Chinook, a 35% relative increase. Regarding the extinction risks and the regional 4% SARs goal comment, the co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the CRS. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. Moreover, the 4% average SARs target referenced refers to the Northwest Power and Conservation Councils target for broad-sense recovery and is separate and distinct from the obligations of any single entity or in this case a requirement to be met solely by the co-lead agencies. Just as the Councils fish and wildlife program encompasses both Federal and non-Federal stakeholders in the Columbia Basin, the Councils recovery goals are shared by many parties. Based on the anadromous fish analysis in Section 7.7.4, the Preferred Alternative would make a substantial contribution, but the Councils broad sense recovery goals are beyond the scope of this EIS, which contemplates the effects associated with the operation and maintenance of the 14 CRS projects.
3970	20	Shelley Silbert	Great Old Broads for Wilderness	C. Adult Migration Delays Due to Spill Claims are Unfounded The CRSO-DEIS claims that adult migration delays occur due to higher spill conditions (CRSO Executive Summary, p. 330) are unfounded. The CRSO-DEIS claims that "In general, higher flows and higher spill levels lead to longer migration timing and can contribute to site specific delays for adult salmonids through the CRS projects" (CRSO-DEIS p.3-371). The Preferred Alternative increases spill at the four lower Snake River Dams for only 16 hours per day. The largest factor affecting upstream adult migration success and delay is the juvenile smolt transportation program. Upstream migration delay and success should be improved by eliminating the juvenile smolt transportation program. Also, the CRSO-DEIS fails to address the improvement in adult upstream migration that would occur as a result of dam breaching.	There is strong evidence that higher flow and higher spill (which often go together) are significantly correlated with slower migration rates for spring/summer Chinook salmon while steelhead and fall Chinook salmon, which predominately migrate during periods of little to no spill, are more influenced by water temperatures (Bjornn et al. 2000; Keefer et al. 2004; Keefer et al 2005a). At specific dams, passage times have been found to be higher during higher spill conditions (Bonneville Dam, Caudill et al. 2006; Little Goose Dam; Harnish et al. 2019; Jepson et al. 2009; Lower Monumental Dam, Keefer et al. 2006). In addition, all salmon species' migration rates are significantly slower for fish that fall back at dams and fallback is higher at higher spill (Bjornn et al. 2000; Bjornn et al. 2001; Boggs et al. 2005; Keefer at al. 2002; Keefer et al. 2004; Keefer at al. 2005a). While fish that were transported as juveniles can experience higher straying and fallback behavior than fish that were not transported (Keefer et al. 2008), overall stray rates are relatively low for adult migrants (2.2% of springsummer Chinook salmon, 4.2% of fall Chinook salmon, and 6.8% of steelhead strayed into non-natal tributaries overall; Keefer et al. 2005b). As most smolts migrate in-river and most transported fish do not stray or fallback, the commenter's statement The largest factor affecting upstream adult migration success and delay is the juvenile smolt transportation program. is not supported by references cited and conflicts with the sources utilized in the Draft EIS (complete citations below). Bjornn, Keefer, Peery, Tolotti, Ringe, Keniry, Stuehrenberg. 2000. Migration of adult spring and summer Chinook salmon past Columbia and Snake River dams, through reservoirs and distribution into tributaries, 1996. University of Idaho and NMFS; Technical Report 2000-5. Bjornn, Peery, Jepson, Tolotti, Ringe, Lee, Stuehrenberg, Matter. 2001. Adult Chinook salmon and steelhead fallbacks versus spill at Bonneville Dam in 2000. University of Idaho and NMFS; Technical Report 2001-3. Boggs, Keefer, Peery, Stuehrenberg, Burke. 2005. Fallback, reascension, and adjusted fishway escapement estimates for adult Chinook salmon and steelhead at Columbia and Snake River dams, 1996-2003. University of Idaho and NMFS; Technical Report 2005-6. Caudill, Peery, Daigle, Jepson, Boggs, Bjornn, Joosten, Burke, Moser. 2006. Adult Chinook salmon and steelhead dam passage behavior in response to manipulated discharge through spillways at Bonneville Dam. University of Idaho and NMFS; Technical Report 2006-5. Harnish, and 11 co-authors. 2019. Adult spring Chinook salmon passage at Little Goose Dam. 2018. Pacific Northwest National Laboratory. Jepson, Caudill, Clabough. Peery, Beeman, Fielding. 2009. Adult Chinook Salmon Passage at Little Goose Dam in Relation to Spill Operations- 2008. University of Idaho and USGS; Technical Report 2009-6. Keefer, Bjornn, Peery, Tolotti, Ringe, Keniry, Stuehrenberg. 2002. Migration of adult steelhead past Columbia and Snake River dams, through reservoirs and distribution into tributaries, 1996 University of Idaho and NMFS; Technical Report 2002-2. Keefer, Peery, Bjornn, Jepson, Stuehrenberg. 2004. Hydrosystem, dam, and reservoir passage rates of adult Chinook salmon and steelhead in the Columbia and Snake rivers. Trans Am Fish Soc 133:1413-1439. Keefer, Peery, Jepson, Bjornn, Stuehrenberg 2005a. Adult salmon and steelhead passage times through hydrosystem and riverine environments of the Columbia River Basin, 1996-2002 University of Idaho and NMFS; Technical Report 2005-3. Keefer, Peery, Firehammer, Moser. 2005b. Straying rates of known-origin adult chinook salmon and steelhead within the Columbia River Basin, 2000-2003. University of Idaho and NMFS; Technical Report 2005-5. Keefer, Peery, Tolotti, Jepson, Burke. 2006. Fishway entrance use and passage times of adult spring-summer Chinook salmon at Lower Monumental Dam, with an emphasis on effects of spillway deflectors: 2000-2004. University of Idaho and NMFS; Technical Report 2006-10 Draft.
3970	21	Shelley Silbert	Great Old Broads for Wilderness	D. Combined Annual Salmon and Steelhead Returns (all species) to Bonneville Dam from 1938- 2019 Mispresents Anadromous Fish Population Abundance The Figure 3-111 (CRSO-DEIS, p. 3-300) is misleading to the public (Figure 6). In this figure all species and all populations are combined into total counts at Bonneville Dam, and the discussion relative to this figure refers to NOAA's status of stock evaluat ions. This figure should be eliminated and replaced with figures of smolt to adult return rates for individual species and populations such as Snake River sockeye, Snake River steelhead, Snake River spring/summer Chinook and Snake River fall Chinook. Also, wild population data should be shown separately and not added to hatchery data. Increasing numbers of hatchery fish reared and added to the river can mask effects on wild populations. Populations of wild salmon and steelhead from the John Day and Yakima Rivers pass only three and four dams, respectively, and their SARs meet the regional 4% average most of the time. These populations, as well as populations of salmon and steelhead from other middle Columbia tributaries and major middle Columbia hatchery programs, are combined with poor adult returns to the Snake River and Upper Columbia rivers in the Bonneville Dam counts in Figure 6 (Figure 3-111 in the CRSO-DEIS). Mixing of these data hides the true impact of dams on Snake River ESA-listed salmon and st eelhead . [graph included in document: Combined Annual Returns of Salmon and Steelhead to Bonneville Dam] Figure 3-111, Combined Annual Salmon and Steelhead Returns (all species) to Bonnev ille Dam from 1938-2019. Figure 6. Figure 3-111 in the CRSO-DEIS of Adult Returns of all Salmon and Steelhead Species to Bonneville Dam from 1938 to 2019; includes combined hatchery and natural origin fish. (Data Source: University of Washington) (CRSO-DEIS, p. 300). The graph above implies to the public that salmon and steelhead are doing well and have not been impacted by the Columbia and Snake River dams. The following three graphs tell the real story about declines in salmon and steelhead in the Snake Ri ver with severely declining abundance of Snake River Adult Returns for wild Spring/Summer Chinook sal mon, sockeye salmon and steelhead: 1950s to 2019 (Figures 7-9)34 . Wild stocks of Chinook and sockeye salmon and steelhead are declining dramatically and urgent substantive action is needed to reduce their risk of extinction and restore their abundance to sustainable	The co-lead agencies respectfully disagree that Figure 3-111 on page 3-300 is either inaccurate or misleading. The title is "Combined Annual Returns of Salmon and Steelhead to Bonneville Dam 1938-2019." The caption reads: Figure 3-111. Combined Annual Salmon and Steelhead Returns (all species) to Bonneville dam from 1938-2019. The returns portrayed in this figure are a combination of hatchery and natural origin fish. (data Source: University of Washington-Data Access Real Time (DART) tool). This figure is part of a general overview of anadromous fish in the study area. The later Sections of the report do break out analyses and discussion by species and origin. The comment incorrectly implies that hatchery fish are not relevant to the Draft EIS. Hatchery origin fish are very important to Tribal and sport harvest in within the CRB, and many hatchery programs are important supplementation to rebuilding natural populations. The listings for several evolutionary significant units for salmonids include hatchery origin fish in the listing. Further, the three co-lead agencies have legal requirement to produce hatchery fish as mitigation for components of the CRS. The co-lead agencies used high quality information and best science in the analysis of the CRSO EIS. Specific to salmon and steelhead, the agencies used two primary modeling approaches which yielded a range of potential outcomes for the alternatives. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult return rates would increase for both Snake River spring Chinook and steelhead and will average above 2% (the lower end of the Northwest Power and Conservation Councils recovery targets for the region) as a result of the Preferred Alternative increasing SAR from 2.0% to 2.7% for Chinook, a 35% relative increase. The co-lead agencies disagree with the comment that notes a SAR of 2% will only maintain a population. A SAR rate of 2% can lead to significant population growth given adequate productivity and habitat quality. The COMPASS and NMFS Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. In relation to the comment that fish passing few dams have higher SARs and survival, the co-lead agencies follow the guidance from the Independent Science Advisory Board, to do not typically weigh performance of one population vs. another. It is difficult to isolate causative factors in those types of comparisons (ISAB 2020-1).

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				levels. [graph included in document: Wild Snake River Adult Spring/Summer Chinook] Figure 7. Wild Snake River Spring/Summer Chinook adult returns from 1954 to 2019. Historic annual Spring-Summer Chinook returns to the Snake River Basin were 2 million fish. Snake River Spring/Summer Chinook were ESA-listed in 1992 . [graph included in document: Wild Snake River Steelhead] Figure 8. Wild Snake River steelhead adult returns 1962 to 2017. Historic annual steelhead returns to the Snake River Basin were 1 million adults. Snake River steelhead were ESA listed in 1997. [graph included in document: Wild Snake River Sockeye] Figure 9. Wild Snake River sockeye from 1954 to 2019. Historic annual sockeye salmon returns to the Snake River Basin were greater than 100,000 fish to Central Idaho's high mountain lakes. Snake River sockeye was listed in 1991	
3970	22	Shelley Silbert	Great Old Broads for Wilderness	E. The CRSO-DEIS fails to Acknowledge the Importance of Restoration of Historic Spawning Habitat, Wetlands and Floodplains from Dam Breaching. The CRSO-DEIS states that "In Region C [which includes the Snake River], vegetation, habitat, and wildlife along the existing shorelines would either be lost or change how wildlife utilize the area. The CRSO-DEIS claims that new vegetation and habitat types along new shoreline would be added with dam breaching, resulting in negligible beneficial effects and major negative effects. Negligible effects on floodplains in Regions A, B, and D, with major beneficial effects in Region C below Dworshak Dam" (CRSO-DEIS, Table 3-1, p. 3-8). The CRSO-DEIS fails to acknowledge the importance of restoring fall Chinook spawning habitat and 15,000 acres of prime riverine habitat and agricultural land that is inundated by the lower Snake River dams.	If breaching were to be selected as part of the Preferred Alternative, further evaluation, studies, and NEPA would be needed along with congressional authorization and appropriations to assess the requirements of the project and would develop and analyze alternatives for land use and management. Please refer to Section 3.5 for discussions of fall chinook spawning habitat. For MO3, Section 3.6 describes the habitats that would be altered by the breaching of the four lower Snake River dams. Section 3.6 did not discuss agricultural land as a cover type because whether that is the future cover type for inundated areas below the current reservoir surface elevation would be determined during real estate transactions. The co-lead agencies do not manage agricultural use of those areas and most likely, if those uses were to return, it would be through real estate transactions. The riverine habitat is also speculative, given years of sediment accumulation and the unvegetated nature of what is now river bottom. Section 3.5.3.6 under the Larval Development/Juvenile rearing sub-heading (line 17110) of the Draft EIS describes that breaching the four lower Snake River Dams is estimated to increase the available spawning habitat for fall-run Chinook from 226 acres to 3,521 acres, an increase of 15 times the area available today. Shallow water rearing habitat is very important to juvenile Fall Chinook. The Final EIS has been updated to more clearly articulate this. Section 3.5.3.6 under the Larval Development/Juvenile rearing sub-heading (line 17110) of the Draft EIS describes that breaching the four lower Snake River Dams is estimated to increase the available spawning habitat for fall-run Chinook from 226 acres to 3,521 acres, an increase of 15 times the area available today. Shallow water rearing habitat is very important to juvenile Fall Chinook. The Final EIS has been updated to more clearly articulate this.
3970	23	Shelley Silbert	Great Old Broads for Wilderness	F. The CRSO=DEIS Misleads the Public by Claiming that the Historical River Temperatures in the Snake River Exceeded the 68F (20Q Standard The CRSO-DEIS states that: "Historical temperatures in the lower Snake River Basin prior to the construction of the lower Snake River Dams and the Hells Canyon Complex show that temperatures in the free-flowing lower Snake River often exceeded 68F/ 20C in July and August and occasionally exceeded 77F/25C. These measurements were taken near the mouth of the Snake River from 1955 to 1958 (Peery and Bjornn 2002)" (CRSO-DEIS p. 3-238). The CRSO-DEIS does not discuss that this area had already been largely impacted by upstream USACOE dams and other dams that affect water temperatures. The Fish Passage Center reported that "The construction of the hydropower system dramatically increased the cross - sectional area of the river, greatly slowing water velocity and slowing fish downstream travel time." This is a critical omission in this paragraph because one of the major benefits of breaching the four lower Snake River Dams is that water velocity would be much faster after breach. As a result, fish travel time would be much faster which would mean that juvenile fish would arrive at the estuary much earlier" 35 . EPA modeling showed that, when considered collectively, the four lower Snake River Dams can affect temperatures up to a potential maximum of 6.8C/12.2F 36 . More recent analyses clearly demonstrate the benefits of dam removal on lowering temperatures by changing backwater reservoirs from wide, slow-moving reaches to a free-flowing river37 . Schultz and Johnson's analyses showed that each dam of the four increased water temperatures by 2-4F /1.1-2.2C.	Historical water temperature measurements were collected from 1955 to 1958, which are reported in the EIS. This information helps to build historical context and provide an idea of what water temperatures would have looked like prior to the construction of the four lower Snake River and Hells Canyon Complex dams. The four lower Snake River dams include Lower Granite Dam (constructed in 1975), Little Goose Dam (constructed in 1970), Lower Monumental Dam (constructed in 1969) and Ice Harbor Dam (constructed in 1961), while the Hells Canyon reach dams include Brownlee (constructed in 1959), Oxbow Dam (constructed in 1961) and Hells Canyon Dam constructed in (1967). No Corps of Engineers dams existed on the Snake River prior to 1961. The fish benefits of breaching the four lower Snake River dams are discussed in the analyses of Snake River salmon and steelhead in the Section 3.5 of the Draft EIS. Faster travel times, among other parameters such as temperature differences, under a breach scenario were incorporated into both models that were used to estimate juvenile survival and, as reported in the Draft EIS, both indicated higher juvenile survival than the No Action Alternative. For Snake River Spring/Summer Chinook salmon, decreased travel time of 4.5 days and 5.5 days, respectively, were indicated by CSS and COMPASS models, as compared to the No Action Alternative. The water temperature model used to analyze all EIS alternatives underwent significant review by experts outside of the co-lead agencies, including scientists from the United States Environmental Protection Agency (USEPA), U.S. Geological Survey (USGS), and Portland State University. In addition, the USEPA and co-lead agencies worked together to compare the co-lead agencies' CE-QUAL W2/RAS model (used for EIS analysis) and the EPA's RBM-10 model (used for the TMDL assessment). Efforts included identifying and comparing similarities and differences in the two models and assessments, and concluded that both models provide useful and technically appropriate analyses of the Columbia and lower Snake River water temperatures. As such, the EPA agreed with the co-lead agencies that the CE-QUAL W2 and HEC RAS models are appropriate to use in developing the Draft EIS (see EPA review comment letter # 16-0059).
3970	24	Shelley Silbert	Great Old Broads for Wilderness	G. The CRSO-DEIS Misleads the Public by Claiming that Breaching will Causes Severe Short-Term Impacts The CRSO-DEIS claims that "Short term effects include high sediment and low oxygen concentrations that would likely lead to the loss of most of the fish in this reach during breaching, reduced forage and productivity for 2 to 7 years following breaching, and potential migration barriers at tributaries that may become perched during reservoir drawdown"(CRSO DEIS, p. 3-586). This has not been borne out by the many dams removed across the nation, including many that were 100 - 200 years old and had accumulated large amounts of sediment and toxins. Done carefully and at the correct time, dam removals have repeatedly demonstrated success in restoration of anadromous fish on the East and West coasts of this country.	As detailed in Chapter 2, the formulation of the drawdown and embankment removal plan associated with MO3 and breaching the four lower Snake River dams mirrored the plan developed in the 2002 Lower Snake River FR/EIS. Sediment loads to the Snake and Columbia Rivers that could occur under the MO3 under the Breach Snake Embankments measure were analyzed using water quality and sediment transport models as described in Appendices B & C. These analyses considered physical and chemical data, river bathymetry and hydrology, and other data specific to the lower Snake River. The sediment impounded behind the four lower Snake River Dams is predominately fine grained and readily transported in suspension. Analysis results for the MO3, under the Breach Snake Embankments measure indicate that increased sediment concentrations could occur during the construction season with impacts to dissolved oxygen as described in Section 3.4.1 of Appendix C. Mitigation actions to address these potential impacts are described in Chapter 5.4.3. Modeling suggests that impounded sediments within the historical river channel extents would scour back to the historical river-bed elevations over the near-term depending on the magnitude and duration of watershed hydrology. Impounded margin sediments remaining on higher elevation floodplain terraces would be expected to incrementally erode over a longer decadal time frame as seasonal floods access those surfaces. More detailed analyses to optimize the embankment removal plan (means, methods, timing, etc.) to minimize impacts and manage sedimentation could be conducted under a future environmental analysis, if dam breach was selected as the Preferred Alternative. Many dam removal projects that have occurred across the United States have very different circumstances than what is contemplated in MO3. The Elwha dam in Washington State, for example, has little relevance to the lower Snake River dams. The Elwha Dam had no fish passage and provided no economic benefits. In contrast, the four lower Snake River dams provide upstream and downstream fish passage, produce power, and provide navigation and recreation opportunities. For power, the four lower Snake River dams produce roughly 1,000 aMW of power, which is approximately 11 percent of the average power produced by the Federal Columbia River Power System. See Draft EIS, Section 3.7.3.5, Changes in Power Generation, Table 3-159. Losing this amount of power is equivalent to losing power capable of serving 730,000 homes in the Northwest. See Draft EIS, Section 3.7.3.5, Summary of Effect, at 9-935. The four lower Snake River dams would still have regulated flows due to the dams located upstream. A good information source related to removal of the Elwha and Glines Canyon Dams on the Elwha River is the National Park Services website on restoration and current research (https://www.nps.gov/olym/learn/nature/restoration-and-current-research.htm, accessed 5-25-2020). Findings in several research areas are summarized. On the topic of Sediment and Hydrology: Damming of the Elwha River dramatically reduced sediment flow to the coast leading to rapid erosion of the shoreline of the Elwha River delta. Removal of the dams has resulted in the release of millions of cubic yards of sand and silt to the nearshore waters of the Strait of Juan de Fuca. Specifically, sediment released during dam removal resulted in over a meter of sedimentation in the estuary and over 400 meters of expansion of the river mouth delta landform. Mitigation actions to address these potential impacts are described in Chapter 5.4.3. Modeling suggests that impounded sediments within the historical river channel extents would scour back to the historical river-bed elevations over the near-term depending on the magnitude and duration of watershed hydrology. Impounded margin sediments remaining on higher elevation floodplain terraces would be expected to incrementally erode over a longer decadal time frame as seasonal floods access those surfaces. More detailed analyses to optimize the embankment removal plan (means, methods, timing, etc.) to minimize impacts and manage sedimentation could be conducted under a future environmental analysis, if dam breach was selected as the Preferred Alternative. Many dam removal projects that have occurred across the United States have very different circumstances than what is contemplated in MO3. The Elwha dam in Washington State, for example, has little relevance to the lower Snake River dams. The Elwha Dam had no fish passage and provided no economic benefits. 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Findings in several research areas are summarized. On the topic of Sediment and Hydrology: Damming of the Elwha River dramatically reduced sediment flow to the coast leading to rapid erosion of the shoreline of the Elwha River delta. Removal of the dams has resulted in the release of millions of cubic yards of sand and silt to the nearshore waters of the Strait of Juan de Fuca. Specifically, sediment released during dam removal resulted in over a meter of sedimentation in the estuary and over 400 meters of expansion of the river mouth delta landform.
3970	25	Shelley Silbert	Great Old Broads for Wilderness	8. Climate Change is Causing and Will Continue to Increase the Risk of Extinction of Snake River Anadromous Fish Although the discussion of impacts of climate change is extensive, the Federal agencies have not included results of model analyses regarding climate change co nditions and smolt to adult returns (CRSO-DEIS, Chapter 4, p. 4-1 to 4-82). The chapter on climate change discusses expected changes to reservoirs and outflows due to climate change, but fails to discuss and even dismisses CSS analyses submitted to the Federal action agencies on January 24, 2020 38 . The Fish Passage Center data show predicted SARs in the lower quartile results, which represent poor ocean conditions and low flows which will occur more often than has occurred in the historic data time series. These analyses indicate that under climate change conditions, only the dam breach options predict SARs above 1% to avoid population decline. It is obvious that under climate change conditions, maximum spill and dam breach are required to increase juvenile survival and decrease delayed mortality. Although there is much discussion of climate change on hydro power production, there is no quantitative discussion of the impact of climate change on Snake River salmon and steelhead. The CSS results indicate that dam breaching is the only alternative that has the potential to maintain Snake River salmon and steelhead populations under poor ocean and flow conditions expected with climate change. In a letter to the West Coast Regional NOAA Fisheries M anager39 it was reported that the Northwest Power Council's Independent Science Advisory Board {ISAB) warned over a decade ago, in its report "Climate Change Impacts on Columbia Basin Fish and Wildlife," 40 that the impacts of climate change on Columbia Basin salmon would be profound. Even in 2007, these impacts were not obscure or unknown - warming water temperature, alterations in river and stream flows, and reduced ocean productivity were all effects that had been identified and document ed. Indeed, many of the scientific studies of these effects cited in the ISAB's 2007 review date back to the 1990s. Climate change further compounds the need for additional substantive measures for native anadromous fish restoration in the Snake River and its tributaries. Climate change will affect river and stream flow and water temperatures in the coming decades. Climate change affects on hydrology will include decreased snowpack, earlier snowmelt, earlier runoff, and potentially slightly more precipitation. Peak flows will be higher and summer low flows lower compared to existing conditions. With climate change trending towards warmer and drier conditions in the Pacific Northwest, "Summer base flows will be lower , and the network of perennially flowing streams in a drainage system will shrink during the summer dry period, forcing fish into smaller wetted channels and less diverse habitats" . An independent climate expert from the Climate Change Resource Center and the ISAB predicted that "Trout and salmon within the interior Columbia River Basin may be especially sensitive to climate change... Although the intensity of the effects will vary spat ially , climate change will alter virtually all streams and rivers in the basin. Current predictions suggest that temperature increases alone will render 2% - 7% of headwater trout habitat in the Pacific Northwest unsuitable by 2030, 5% - 20% by 2060, and 8% - 33% by 2090." ESA-listed fish species are already at risk due to cumulative impacts	Through on-going regional climate change studies and work, the co-lead agencies evaluated potential shifts in precipitation and temperature patterns and resulting changes in unregulated Columbia Basin streamflow timing and volumes. The evaluation consisted of the full range of the latest climate change projections developed using multiple global climate models, emissions scenarios, downscaling techniques, and hydrologic models. Details of this evaluation are in Chapter 4 of the EIS. This information was used to describe the potential effects (both beneficial and adverse) on the river systems and resources due to potential changes in climate for all alternatives. Quantitative data that describes how climate change hydrology will affect reservoir operations in the Columbia Basin in still under development and was not available for this EIS. The climate science community is still developing quantitative models that can address possible effects in water temperature from climate change, and unfortunately, there are not reliable models at the resolution (river-scale vs. global- or regional-scale) at this time. This data is critical to analyzing potential effects to fish quantitatively. In lieu of this information, the climate analysis used the output from resource models, like water quality and fish, under historical conditions, available climate change data, and scientific literature to qualitatively assess potential effects to resources (described in Chapter 4; see Section 7.8 for the climate effects under the Preferred Alternative). Hatchery programs have long been a part of the approach for salmon recovery. There are broad ecological effects concerning interactions of wild and hatchery fish, as well as harvest, throughout the basin. However, the actual mechanisms, effects, magnitudes, and processes are very complex and uncertain. The analyses used in the CRSO Draft EIS were for the purposes of comparing the effects of the Multiple Objective alternatives for operation, maintenance and configuration of the CRS projects to one another and to the No Action Alternative. Hatchery origin fish are very important to tribal and sport harvest within the Columbia River Basin, and many hatchery programs are important supplementation to rebuilding natural populations. Further, the co-lead agencies have legal requirements to produce hatchery fish as mitigation for components of the CRS. The effects of hatchery programs on ESA-listed fish are evaluated through individual consultations under the Endangered Species Act. These consultations ensure the hatchery programs are not appreciably reducing the likelihood of ESA-listed species survival and recovery, nor adversely modifying or destroying designated critical habitat. These consultations have resulted in many site-specific reforms to reduce effects of hatchery/wild fish interactions, such as decreasing the temporal and spatial overlap of wild and hatchery fish in integrated programs or transitioning to local broodstock in integrated programs.

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				from dam and reservoir passage mortality and t hermal regimes that cause chronic and acute mortality. With declining flow and warmer temperatures predicted in the coming decades, the Preferred Alternative largely ignores probable climate change impacts on fish in the Columbia and Snake River Basins. Extreme climate events such as drought, and ecological disturbances such as fl ooding, wildfire, and insect outbreaks are expected to increase. The ISAB reported that the evidence includes increases in global average air and ocean t emperat ures, widespread melting of snow and ice, and rising global mean sea level. Further, the ISAB predicts that salmon habitat loss would be most severe in Oregon and Idaho with potential losses exceeding 40% by 2090. However, recent research indicates that climate change is accelerating faster than earlier predictions from the ISAB (Figure 10) . [figure included in document: Reduced summer Flows] Figure 10. Projected changes in water runoff and streamflow for 2040, as compared to 1915- 2006 from the Climate Reality Project. Experts on climate change evaluated the vulnerability of salmon and steelhead stocks on the West Coast 45 and reported that "geographical patterns indicated a potential range contraction toward the coast for anadromous life histories unless access to higher-elevation habitats is restored and habitat quality in rearing areas and migration corridors is improved." The authors reported that Interior Columbia Chinook salmon had the highest vulnerability scores, and also face the largest percentage loss of snow-dominated habitat. The authors stated that reducing anthropogenic stressors would greatly improve responses to climate change by improving the overall status of these species in terms of abundance, productivity, spatial structure, and diversity. They also stated that reconnection of habitats blocked by artificial barriers, either longitudinally or laterally {floodplains), has been successful in expanding the effective climate space of a watershed. The authors recommended improvement of temperature or flow constraints to help reduce climate stresses. They suggested dam removals can be effective, and cited dam removals in recent years where salmon abundance and distribution {e.g., in the Elwha, Rogue, White Salmon, Sandy, and Carmel Rivers) has responded even more rapidly when multiple dams were removed {such as in the Rogue, Sandy and Elwha River basins). Climate experts on salmon and steelhead vulnerability also state that "Hatchery supplementation can reduce fitness in wild salmon populations both through introducing maladaptive genotypes and reducing the effective population size of wild populat ions. Therefore, reducing the number of hatchery-origin fish in general can be expected to improve the adaptive capacity of wild populations in the face of increasing exposure to climate cha nge." They acknowledge that in highly endangered populations (such as Snake River sockeye) hatcheries can provide a temporary buffer from extinction risks. The authors very specifically stated where dams block passage and interrupt ecological and physical processes, dam removals will likely result in habitat that diverges less from those seen historically and reduce impacts of climate change for fish at all life stages. They noted that recent dam removals and restoration activities had demonstrated reconnected floodplains, and that physical and ecological responses can be rapid and effectively reduce habitat constraints.	
3970	26	Shelley Silbert	Great Old Broads for Wilderness	9. Summary of Fish and Aquatic Concerns In summary, the Great Old Broads for Wilderness support the M03 Alternative (breaching the four lower Snake River Dams) in combination with the M04 Alternative {125% TDG) spill at the remaining dams on the Columbia River. The four lower Snake River Dams must be breached immediately to provide wild salmon runs on the Snake River the best chance to recover. Millions of dollars are spent by the federal agencies annually on salmon recovery measures. Yet all the experimentation with fish passage, barging, massive hatchery programs, and more have not worked. All options have been explored, and there are no solutions for the four deadly slack water reservoirs behind the Snake River Dams. Dam breaching makes both economic and ecological sense. It provides wild salmon and steelhead the best opportunity to survive and recover, and will bring back to health the ecosystem that depends on these keystone species. The past decades have shown that throwing money at the dams in the hope that wild salmon will recover does not produce results and is a waste of tax and rate payers' money. It's time to truly balance fish recovery with other hydro system benefits. It's time to remove the lower Snake River Dams and initiate high levels of spill at the remaining Columbia River Dams.	As addressed more fully in a prior response to a similar comment from your organization, the agencies disagree that an alternative that includes breaching the four lower Snake River dams and spring spill operations to 125% total dissolved gas (TDG) at all four lower Columbia River dams is reasonable given the unacceptable risks to public safety from such an alternative. If MO3 were selected, the Corps could use this EIS as a basis for seeking congressional authority to breach the four lower Snake River dams. After receiving both authority and appropriations from Congress, the Corps could initiate a detailed construction and design report for the breach measure, identification of disposal areas, real estate acquisition and disposal, permits, and mitigation requirements, including temporary fish hatchery production. Each of these actions are required prior to breaching, and the Corps does not have the authority or appropriations necessary to immediately breach the project's embankments. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the Columbia River System. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species.
3970	27	Shelley Silbert	Great Old Broads for Wilderness	1, The CRSO-DEIS's Findings and Conclusion on Sensitive Species Effects of M03 and Its Biological Assessment for Southern Resident Killer Whales are Flawed, as They Rely on Erroneous and Outdated Data and Speculative Mitigation Measures and Fail to Use Current and Best Available Science. Unfortunately, the DEIS fails to recognize the worldwide interest and irreplaceable value of these unique sea mammals, nor does it use current scientific data that are crucial to preserving this small, unique, ESA-listed Distinct Population Segment (DPS) The CRSO-DEIS's findings and conclusion about the impact of MO3 on the Southern Resident Killer Whale (SRKW) DPS are incorrect. Table 3-106, Sensitive Species Analysis for MO3 (p.3-759) states, "Prey Availability: Minor effect. The Snake River spring/summer Chinook salmon is a negligible portion of their overall diet." These findings ignore the important nutritional role of Snake River chinook salmon runs during critical winter and spring feeding times for SRKWs, as discussed in more detail below. Similarly, the conclusion that MO3 would have a "minor effect" on SRKWs is wrong. The CRSO DEIS states as support for this conclusion: "The food available to Southern Resident killer whales from the lower Snake River population is only a small percentage of their overall diet. Changes to food availability may change the whale's foraging behavior patterns slightly but will not change their overall condition or population dynamics." That statement is inaccurate according to the best available science discussed below. It fails to take into account how a substantially increased supply of nutritious, large Snake River chinook salmon is literally a matter of life and death for these starving, critically-endangered orcas."	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not require the co-lead agencies to take affirmative actions to recover ESA listed species. SRKW analysis has been described in the EIS, including in the FEIS Chapter 3 (Vegetation, Wetlands, Wildlife, and Floodplains) has been updated for SRKW (Section 3.6.2.6 and Table 3-102) and FEIS Chapter 7 (Preferred Alternative) with additional analysis information on SRKW and potential increase in forage fish, in particular, Chinook salmon in Section 7.7.8. The co-lead agencies utilized current high quality information and best available science in its analysis of the effects of the operation, maintenance, and configuration of the CRS projects. The SRKW analysis considered spring and fall Chinook within the Columbia River to be food sources for the SRKW. MO3 causes moderate increase to these two ESUs. This would cause a minor effect in SRKW food sources. The ocean factors are a major component of the condition and availability of the salmon to SRKW that needs further study. The population dynamics of the SRKW are complicated and there are multiple factors that contribute to the overall success of this species. The quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants as noted in the comment. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differently from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for the whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall-run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall-run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). Details on the most crucial prey stocks for Southern Resident killer whales, as well as their population and range, is available from several fact sheets and videos available here: https://www.fisheries.noaa.gov/species/killer-whale#spotlight. For more information, visit this NMFS StoryMap on Southern Resident killer whales: https://noaa.maps.arcgis.com/apps/Cascade/index.html?appid=3405e6637bf74e998d4ebe992c54f613. According to NMFS and the EPA, the estimated SRKW population has fluctuated between 67 and 98 whales between 1960 and 2015. The Snake River dams were constructed between 1962 and 1975. The SRKW population increased from a record low in 1970 to its highest population numbers in 1995. Those years were not high years for Snake or Columbia River Chinook Salmon. Ocean conditions between 2011 and 2013 were good years for salmon. At the same time, 2010 and 2013 were good outmigration years. Particularly, 2011 and 2012 were above normal in water supply, which would mean more cooler water was available and there was better survival of salmon, and 2011 through 2014 were higher than normal spill years as well. The combination of outmigration and ocean conditions created improved adult salmon returns. The EIS has analyzed spill as a measure in the Preferred Alternative and determined the overall effect to SRKW to be negligible in large part because hatchery production is consistent between the No Action Alternative and the Preferred Alternative. Because the impact from the Preferred Alternative was determined to be negligible, the agencies determined that existing hatchery production would be sufficient to address any potential impacts to prey availability for SRKWs. The co-lead agencies note the contribution to the prey of SRKW through the continued existence of their respective independent Congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as the Lower Snake River Compensation Plan (other than under MO3), which is administered by USFWS. The Preferred Alternative and Proposed Action in the agencies' biological assessment carry forward certain mitigation measures described in Chapters 2 and 7 of the EIS, which include continued salmon and steelhead hatchery production. The Preferred Alternative has negligible effects to SRKWs as described in Section 7.7.8. The Biological Assessment (BA) describes the effect of the Proposed Action on the SRKW forage species (see BA Section 3.5.1.2, Southern Resident Killer Whale). The proposed changes in operation of the Columbia River System include increased spring spill during the downstream migration of juvenile spring and summer run Chinook salmon. The result of this action includes potential increases of juvenile fish passing through the spillways, reductions in juvenile fish direct and indirect mortality associated with downstream passage, and the Comparative Survival Study (CSS) model predicts increases in numbers of returning adults, which will benefit SRKWs foraging in and around the mouth of the Columbia River in winter and spring (See EIS Section 7.7.8). The CSS model results predicts Snake River Chinook salmon would have relative improvements in smolt-to-adult returns of 35 percent (see EIS Section 7.7.4). The smolt-to-adult return ratio (SAR) is the rate at which of a group of fish survive from their smolt life stage to a defined ending point where they return as adults. While recovery targets will require more than just the efforts of federal agencies, the CSS models indicate the potential for SARs of Snake River Chinook salmon and steelhead to increase to levels that could approach recovery targets set by the Northwest Power and Conservation Council. The BA, also consistent with the EIS, acknowledges past improvements to the configuration and operation of the Columbia River System, additional improvements to the environmental baseline as a result of completed estuary and tributary habitat actions, and the prospective non-operational conservation measures proposed in Chapter 2 of the Draft EIS, all contribute towards maintaining and improving Chinook abundance. Relevant conservation measures include, among other things, a commitment to continue funding the conservation and safety net hatchery programs listed in Chapter 2 of the Draft EIS. As discussed above, the agencies will fulfill congressionally authorized hatchery mitigation objectives through the funding of hatchery programs that are operated consistent with their independent hatchery program consultations during the term covered by this consultation. Based on those hatchery program consultations, the production levels associated with congressionally authorized hatchery mitigation objectives will continue, at minimum, to be consistent with levels previously analyzed by NOAA in the system consultations in 2008, 2014, and 2019. For the 2020 ESA consultations, therefore, the agencies expect that collectively, all of the actions described above (substantial modifications to migration conditions designed to benefit key prey species, combined with improvements to Chinook spawning and rearing habitat in the tributaries and Columbia River estuary, and continued hatchery production) ensure that remaining Chinook mortality from all sources in the mainstem migratory corridor will continue to be more than offset, resulting in a net gain in Chinook salmon abundance available as a prey source for SRKW. Finally, the 2019 NMFS Fisheries BiOp included increased spring spill operations that are similar to operations evaluated in CRSO EIS, and NOAA validated that the hatchery production of Chinook salmon mitigates for the impacts of operating the Columbia River System and total mortality through the mainstem migratory corridor from all sources.
3970	28	Shelley Silbert	Great Old Broads for Wilderness	Similarly flawed is the Action Agencies' Biological Assessment (BA) (found in Appendix V, Section 3.5.1.2, pgs. 3-598-3-600). After reviewing the status, habitat and foraging of SRKWs, the BA concludes,"Any remaining Chinook mortality attributable to the Proposed Action is only a subset of the total mortality from all sources within the mainstem migratory corridor. Therefore, the Action Agencies have determined that management of the CRS may	The Biological Assessment (BA) describes the effect of the Proposed Action (PA) on the Southern Resident killer whale (SRKW) forage species (see BA Section 3.5.1.2, Southern Resident Killer Whale). The proposed changes in operation of the Columbia River System include increased spring spill during the downstream migration of juvenile spring and summer run Chinook salmon. The result of this PA includes potential increases of juvenile fish passing through the spillways, reductions in juvenile fish direct and indirect mortality associated with downstream passage, and the Comparative Survival Study (CSS) model predicts increases in numbers of returning adults, which will benefit SRKWs foraging in and around the mouth of the

Letter No.	Comment No.	Commenter Name/Email	Affiliation	Comment	Response[1/]
				aff ect, but is not likely to adversely affect, the SRKW species or designated critical habitat." This determination ignores the critically endangered status of the SRKWS, their reliance on dwindling Chinook salmon runs, and need for more food, especially the more nutritious and larger wild Chinook. SRKWs engage in crucial foraging in and around the mouth of the Columbia River in winter and spring, which are particularly key times for their health and reproductive success.	Columbia River in winter and spring (See BA Chapter 3.5). The CSS model results of the PA predicts Snake River Chinook salmon and steelhead would have relative improvements in Smolt-to-Adult return rates of 35 percent and 28 percent, respectively (see BA Chapter 3.5). The Smolt-to-Adult return rate (SAR) is the rate at which of a group of fish survive from their smolt life stage to a defined ending point where they return as adult. While recovery targets will require more than just the efforts of Federal agencies, the CSS models indicate the potential for SARs of Snake River Chinook salmon and steelhead to increase to levels that could approach recovery targets set by the Northwest Power and Conservation Council. The 2019 National Marine Fisheries Service (NMFS) Fisheries BiOp included increased spring spill operations that are similar to the operations proposed in the Draft EIS, and NMFS validated that the hatchery production of Chinook salmon mitigates for the impacts of operating the Columbia River System and total mortality through the mainstem migratory corridor from all sources. Appendix V of the Final EIS includes the NMFS and U.S. Fish and Wildlife Service (USFWS) Biological Opinions issued for the CRSO EIS, demonstrating ESA compliance.
3970	29	Shelley Silbert	Great Old Broads for Wilderness	NOAA lists the SRKWs as one of its nine "species in the spotlight," which it defines as "among the most at risk of extinction in the near fut ure."47 Furthermore, NOAA states that for species in the spotlight such as SRKWs "their populations are declining, and they are considered a recovery priority #1. A recovery priority #1 species is one whose extinction is almost certain in the immediate future because of rapid population decline or habitat destruction." Southern Resident Killer Whales are starving. This starvation causes them to metabolize stored fat, which releases toxins into their system, impacting their own health, and causing high rates of reproductive failures. Chinook salmon are over 80% of their diet, and they aren't getting enough to eat. Transient killer whales that are found in the same range as the SRKWs are healthy, enjoying great reproductive success and increasing their numbers because they have plenty of prey-seals and other marine mammal s.48	The co-lead agencies agree that the Southern Resident killer whales (SRKWs) are an icon of Pacific Northwest culture and an enduring legacy. As detailed in previous responses to comments from your organization, the co-lead agencies analyzed the effects of the CRSO Multiple Objective Alternatives, including the Preferred Alternative, in the FEIS and found that effects among the alternatives would vary from negligible (MO1, MO2, MO4, and Preferred Alternative) or minor beneficial effects (MO3). The Preferred Alternative has minor effects to SRKWs as described in Section 7.7.8. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Thus, the co-lead agencies expect salmon and steelhead increases would come from operational measures and existing hatchery production carried forward into the Preferred Alternative.
3970	30	Shelley Silbert	Great Old Broads for Wilderness	2. The Biological Assessment Fails to Accurately Assess the Proposed Action's Impacts on the Critically Endangered SRKWs Requiring a Recovery Priority #1. The BA contains several notable factual errors. One erroneous statement is that the SRKWs population is estimated at 73. (pg. 3-598). The BA's citation is from the Center for Whale Research (CWR) population data as of Sept. 6, 2019. However, well prior to the issuance of the DEIS on February 28, 2020, CWR reported on January 24, 2020 that L-41 Mega was missing from a sighting of his other family members and was presumed dead.49 Lynda Mapes of the Seattle Times reported on January 28, 2020, about the presumed death of L-41, bringing the population of Southern Resident areas to only 72, the lowest in 45 years. 50 His death was noted as particularly significant because "L41 was an important whale in the southern resident families. He and one other whale, JI, fathered most of the calves born to the pods since 1990." In this critically endangered SRKW population, the death of even one more member, especially a mature breeding male, is potentially devastating to further recovery. This key fact should have been reflected accurately in the BA, as their diminishing population is a crucial fact and compelling concern. At the time of their 2005 ESA listing, the SRKWs numbered 88. Fundamentally, an "endangered" listing means that the responsible agencies should be managing the species for recovery. In the SRKWs' case, the responsible federal agency, NOAA, established a recovery goal for down-listing of 2.3% increase annually, based on historic growth rates from 1984-1996 for the species. This 2.3%, recovery rate yields a projected increase of SRKWs at about 20+ per decade. Accordingly, based on NOAA's projections for recovery, there should be around 120 SRKWs by 2020. But instead of a healthy increase, the SRKWs have tragically decreased to just 72 now, with their prospects for recovery poor unless immediate, meaningful action is taken to save them. NOAA's recent findings recogni ze that the main obstacle to SRKW recovery is a severe shortage of their preferred food, Chinook sal mon.52	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not require the co-lead agencies to take affirmative actions to recover ESA listed species. The population dynamics of the SRKW are complicated and there are multiple factors that contribute to the overall success of this species. The quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differently from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for the whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall-run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall-run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). Details on the most crucial prey stocks for Southern Resident killer whales, as well as their population and range, is available from several fact sheets and videos available here: https://www.fisheries.noaa.gov/species/killer-whale#spotlight. For more information, visit this NMFS StoryMap on Southern Resident killer whales: https://noaa.maps.arcgis.com/apps/Cascade/index.html?appid=3405e6637bf74e998d4ebe992c54f613. According to NMFS and the EPA, the estimated SRKW population has fluctuated between 67 and 98 whales between 1960 and 2015. The Snake River dams were constructed between 1962 and 1975. The SRKW population increased from a record low in 1970 to its highest population numbers in 1995. Those years were not high years for Snake or Columbia River Chinook Salmon. Ocean conditions between 2011 and 2013 were good years for salmon. At the same time, 2010 and 2013 were good outmigration years. Particularly, 2011 and 2012 were above normal in water supply, which would mean more cooler water was available and there was better survival of salmon, and 2011 through 2014 were higher than normal spill years as well. The combination of outmigration and ocean conditions created improved adult salmon returns. The EIS has analyzed spill as a measure in the Preferred Alternative and determined the overall effect to SRKW to be negligible in large part because hatchery production is consistent between the No Action Alternative and the Preferred Alternative. Because the impact from the Preferred Alternative was determined to be negligible, the agencies determined that existing hatchery production would be sufficient to address any potential impacts to prey availability for SRKWs. The co-lead agencies note the contribution to the prey of SRKW through the continued existence of their respective independent Congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as the Lower Snake River Compensation Plan (other than under MO3), which is administered by USFWS. The Preferred Alternative and Proposed Action in the agencies' biological assessment carry forward certain measures described in Chapters 2 and 7 of the EIS, which include continued salmon and steelhead hatchery production. The Preferred Alternative has negligible effects to SRKWs as described in Section 7.7.8. FEIS Chapter 3 (Vegetation, Wetlands, Wildlife, and Floodplains) has been updated for SRKW (Section 3..6.2.6 and Table 3-102). FEIS Chapter 7 (Preferred Alternative), has been updated with additional analysis information on SRKW and potential increase in forage fish, in particular, Chinook salmon (Section 7.7.8). The Biological Assessment (BA) describes the effect of the Proposed Action on the SRKW forage species (see BA Section 3.5.1.2, Southern Resident Killer Whale). The proposed changes in operation of the Columbia River System include increased spring spill during the downstream migration of juvenile spring and summer run Chinook salmon. The result of this action includes potential increases of juvenile fish passing through the spillways, reductions in juvenile fish direct and indirect mortality associated with downstream passage, and the Comparative Survival Study (CSS) model predicts increases in numbers of returning adults, which will benefit SRKWs foraging in and around the mouth of the Columbia River in winter and spring (See EIS Section 7.7.8). The CSS model results predicts Snake River Chinook salmon would have relative improvements in smolt-to-adult returns of 35 percent (see EIS Section 7.7.4). The smolt-to-adult return ratio (SAR) is the rate at which of a group of fish survive from their smolt life stage to a defined ending point where they return as adults. While recovery targets will require more than just the efforts of federal agencies, the CSS models indicate the potential for SARs of Snake River Chinook salmon and steelhead to increase to levels that could approach recovery targets set by the Northwest Power and Conservation Council. The BA, also consistent with the EIS, acknowledges past improvements to the configuration and operation of the Columbia River System, additional improvements to the environmental baseline as a result of completed estuary and tributary habitat actions, and the prospective non-operational conservation measures proposed in Chapter 2 of the Draft EIS, all contribute towards maintaining and improving Chinook abundance. Relevant conservation measures include, among other things, a commitment to continue funding the conservation and safety net hatchery programs listed in Chapter 2 of the Draft EIS. As discussed above, the agencies will fulfill congressionally authorized hatchery mitigation objectives through the funding of hatchery programs that are operated consistent with their independent hatchery program consultations during the term covered by this consultation. Based on those hatchery program consultations, the production levels associated with congressionally authorized hatchery mitigation objectives will continue, at minimum, to be consistent with levels previously analyzed by NOAA in the system consultations in 2008, 2014, and 2019. For the 2020 ESA consultations, therefore, the agencies expect that collectively, all of the actions described above (substantial modifications to migration conditions designed to benefit key prey species, combined with improvements to Chinook spawning and rearing habitat in the tributaries and Columbia River estuary, and continued hatchery production) ensure that remaining Chinook mortality from all sources in the mainstem migratory corridor will continue to be more than offset, resulting in a net gain in Chinook salmon abundance available as a prey source for SRKW. Finally, the 2019 NMFS Fisheries BiOp included increased spring spill operations that are similar to operations evaluated in CRSO EIS, and NOAA validated that the hatchery production of Chinook salmon mitigates for the impacts of operating the Columbia River System and total mortality through the mainstem migratory corridor from all sources.
3970	32	Shelley Silbert	Great Old Broads for Wilderness	3. The BA Makes Misleading and Overly Broad Assertions about the SRK WS. The BA says that in the spring, summer , and fall, the SRKW are found in the inland waters of Puget Sound, the Northwest Straights [sic] and southern Georgia St rait ." [This area is commonly refer red to as the Salish Sea]. But this broad assertion ignores both the historical evidence that SRKWs range over half the year away from the Salish Sea, and recent patterns where they've been absent from the Salish Sea during summer mont hs, likely due to not enough prey being available. Both of these topics are described in more detail below. Historically, as noted in a recent scientific report by a group of distinguished kille r whale scientists, "Southern Resident Killer Whales & Columbia/Snake River Chinook: A Review of the Available Scientific Evidence, February 2020," 53 (hereafter "2020 SRKW Scientists Report "), the SRKWs' geographic range is not confined to the Salish Sea for over half the year : "The Southern "Resident" killer whales got their name because they used to be seen annually (i.e. " resident ") in the inland waters of the Salish Sea/Puget Sound during the late spring through early fall months. Even historically, however, this genetically distinct population of killer whales has spent more than half their time swimming back and forth throughout their known range as far south as Monterey, CA and as far north as Southeast Alaska. Their visits to the coastal waters off Westport, Washington and the mouth of the Columbia River coincide with high concentrations of spring Chinook salmon." Moreover, in the past few years, the SRKWs have not consistently been in their "resident areas" of the Salish Sea during the warmer months, but instead have been off the Pacific Coast. This pattern indicates that their foraging patterns are changing, likely due to the lack of Chinook salmon in the Salish Sea.	SRKW analysis has been described in the EIS, including in the FEIS Chapter 3 (Vegetation, Wetlands, Wildlife, and Floodplains) has been updated for SRKW (Section 3.6.2.6 and Table 3-102) and FEIS Chapter 7 (Preferred Alternative) with additional analysis information on SRKW and potential increase in forage fish, in particular, Chinook salmon in Section 7.7.8. The co-lead agencies utilized current high quality information and best available science in its analysis of the effects of the operation, maintenance, and configuration of the CRS projects. The SRKW analysis considered spring and fall Chinook within the Columbia River to be food sources for the SRKW. MO3 causes moderate increase to these two ESUs. This would cause a minor effect in SRKW food sources. The ocean factors are a major component of the condition and availability of the salmon to SRKW that needs further study. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Moreover, the EIS analysis found only a minor effect to the Southern Resident killer whale would result from implementing MO3 (which includes the dam breach measure). This conclusion is based on the fact that food available to Southern Resident killer whales from the lower Snake River comprises only a small percentage of their overall diet, however, it may be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). Changes to this portion of the whales food availability on the magnitudes predicted for MO3 may change the whales foraging behavior patterns slightly, but will not change their overall condition or population dynamics. The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). The co-lead agencies agree that the quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults form the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differentially from hatchery and wild fish. Hatchery fish today likely make up most fish consumed by SRKW (NOAA BiOp 2020). Additional details on the most crucial prey stocks for Southern Resident killer whales, as well as their population and range, is available from several fact sheets and videos available here: https://www.fisheries.noaa.gov/species/killer-whale#spotlight. For more information, visit this NMFS StoryMap on Southern Resident killer whales: https://noaa.maps.arcgis.com/apps/Cascade/index.html?appid=3405e6637bf74e998d4ebe992c54f613. The co-lead agencies note the contribution to the prey of Southern Resident killer whales through the continued existence of their respective independent congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as Lower Snake River Compensation Plan (LSRCP), which is administered by USFWS. The Biological Assessment (BA) describes the effect of the Proposed Action on the SRKW forage species (see BA Section 3.5.1.2, Southern Resident Killer Whale). The proposed changes in operation of the Columbia River System include increased spring spill during the downstream migration of juvenile spring and summer run Chinook salmon. The result of this action includes potential increases of juvenile fish passing through the spillways, reductions in juvenile fish direct and indirect

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					mortality associated with downstream passage, and the Comparative Survival Study (CSS) model predicts increases in numbers of returning adults, which will benefit SRKWs foraging in and around the mouth of the Columbia River in winter and spring (See EIS Section 7.7.8). The CSS model results predicts Snake River Chinook salmon would have relative improvements in smolt-to-adult returns of 35 percent (see EIS Section 7.7.4). The smolt-to-adult return ratio (SAR) is the rate at which of a group of fish survive from their smolt life stage to a defined ending point where they return as adults. While recovery targets will require more than just the efforts of federal agencies, the CSS models indicate the potential for SARs of Snake River Chinook salmon and steelhead to increase to levels that could approach recovery targets set by the Northwest Power and Conservation Council. The BA, also consistent with the EIS, acknowledges past improvements to the configuration and operation of the Columbia River System, additional improvements to the environmental baseline as a result of completed estuary and tributary habitat actions, and the prospective non-operational conservation measures proposed in Chapter 2 of the Draft EIS, all contribute towards maintaining and improving Chinook abundance. Relevant conservation measures include, among other things, a commitment to continue funding the conservation and safety net hatchery programs listed in Chapter 2 of the Draft EIS. As discussed above, the agencies will fulfill congressionally authorized hatchery mitigation objectives through the funding of hatchery programs that are operated consistent with their independent hatchery program consultations during the term covered by this consultation. Based on those hatchery program consultations, the production levels associated with congressionally authorized hatchery mitigation objectives will continue, at minimum, to be consistent with levels previously analyzed by NOAA in the system consultations in 2008, 2014, and 2019. For the 2020 ESA consultations, therefore, the agencies expect that collectively, all of the actions described above (substantial modifications to migration conditions designed to benefit key prey species, combined with improvements to Chinook spawning and rearing habitat in the tributaries and Columbia River estuary, and continued hatchery production) ensure that remaining Chinook mortality from all sources in the mainstem migratory corridor will continue to be more than offset, resulting in a net gain in Chinook salmon abundance available as a prey source for SRKW. Additional details on the most crucial Chinook salmon prey stocks for SRKW, as well as their population and range, are available from several fact sheets and videos available here: https://www.fisheries.noaa.gov/species/killer-whale#spotlight. For more information, visit this National Marine Fisheries Service (NMFS) StoryMap on SRKW: https://noaa.maps.arcgis.com/apps/Cascade/index.html?appid=3405e6637bf74e998d4ebe992c54f613.
3970	33	Shelley Silbert	Great Old Broads for Wilderness	4. The BA Discounts the Importance of Chinook Salmon Runs from the Columbia/Snake Basins to the SKRWs, Pointing Instead to Puget Sound and Fraser River Stocks. To a starving creature, every meal is important, and the Columbia/Snake runs are particularly so. The 2020 Scientists' Report provides a clear picture of the importance of Columbia/Snake River runs of Chinook salmon to the SRKWs: "The best available science indicates that the whales are likely to be especially reliant on the Columbia/Snake River watershed's early spring, nutrient-rich Chinook salmon runs. Indeed, the mouth of the Columbia Basin is one of the Southern Resident areas' favorite places to fish. Data compiled from tagged whales, dedicated surveys, and passive acoustic monitoring indicates the Southern Residents spend significant time in the winter and spring off the mouth of the Columbia and have been present there thirty-five times more often than would be expected by chance. Analysis of fish scale and Southern Resident fecal samples collected on the outer coast indicate that, as is the case in inland waters of the Salish Sea/Puget Sound, Chinook are the primary species consumed on the outer coast and that over half the Chinook consumed by the Southern Residents are from the Columbia River Basin.... In partnership with the Washington Department of Fish and Wildlife (WDFW), NOAA created a preliminary priority list of West Coast Chinook salmon stocks important to the Southern Resident areas' recovery. Of the top fifteen priority stocks, seven are from the Columbia Basin, including both fall and spring Chinook" 56 The link between the depleted Chinook salmon runs in the Columbia/Snake system and the depleted status of the SRKWs is clear. "The current depleted level of adult Chinook returns to the Columbia is a critical component of the prey scarcity these whales face . This shortage is compounded by the fact that adult Chinook returns, especially hatchery stocks t hat comprise most of these returns, consist of an increasing number of younger - and hence smaller - fish than in the past . This fact means that these whales must expend far more energy today to obtain the same caloric value of prey with the net effect of less nourishment. The claim that maintaining the continued low adult salmon returns to the Columbia does not harm these critically endangered whales is not scientifically supported"	SRKW analysis has been described in the EIS, including in the FEIS Chapter 3 (Vegetation, Wetlands, Wildlife, and Floodplains) has been updated for SRKW (Section 3.6.2.6 and Table 3-102) and FEIS Chapter 7 (Preferred Alternative) with additional analysis information on SRKW and potential increase in forage fish, in particular, Chinook salmon in Section 7.7.8. The co-lead agencies utilized current high quality information and best available science in its analysis of the effects of the operation, maintenance, and configuration of the CRS projects. The SRKW analysis considered spring and fall Chinook within the Columbia River to be food sources for the SRKW. MO3 causes moderate increase to these two ESUs. This would cause a minor effect in SRKW food sources. The ocean factors are a major component of the condition and availability of the salmon to SRKW that needs further study. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Moreover, the EIS analysis found only a minor effect to the Southern Resident killer whale would result from implementing MO3 (which includes the dam breach measure). This conclusion is based on the fact that food available to Southern Resident killer whales from the lower Snake River comprises only a small percentage of their overall diet, however, it may be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). Changes to this portion of the whales food availability on the magnitudes predicted for MO3 may change the whales foraging behavior patterns slightly, but will not change their overall condition or population dynamics. The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). The co-lead agencies agree that the quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults form the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differentially from hatchery and wild fish. Hatchery fish today likely make up most fish consumed by SRKW (NOAA BiOp 2020). Additional details on the most crucial prey stocks for Southern Resident killer whales, as well as their population and range, is available from several fact sheets and videos available here: https://www.fisheries.noaa.gov/species/killer-whale#spotlight. For more information, visit this NMFS StoryMap on Southern Resident killer whales: https://noaa.maps.arcgis.com/apps/Cascade/index.html?appid=3405e6637bf74e998d4ebe992c54f613. The co-lead agencies note the contribution to the prey of Southern Resident killer whales through the continued existence of their respective independent congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as Lower Snake River Compensation Plan (LSRCP), which is administered by USFWS. The Biological Assessment (BA) describes the effect of the Proposed Action on the SRKW forage species (see BA Section 3.5.1.2, Southern Resident Killer Whale). The proposed changes in operation of the Columbia River System include increased spring spill during the downstream migration of juvenile spring and summer run Chinook salmon. The result of this action includes potential increases of juvenile fish passing through the spillways, reductions in juvenile fish direct and indirect mortality associated with downstream passage, and the Comparative Survival Study (CSS) model predicts increases in numbers of returning adults, which will benefit SRKWs foraging in and around the mouth of the Columbia River in winter and spring (See EIS Section 7.7.8). The CSS model results predicts Snake River Chinook salmon would have relative improvements in smolt-to-adult returns of 35 percent (see EIS Section 7.7.4). The smolt-to-adult return ratio (SAR) is the rate at which of a group of fish survive from their smolt life stage to a defined ending point where they return as adults. While recovery targets will require more than just the efforts of federal agencies, the CSS models indicate the potential for SARs of Snake River Chinook salmon and steelhead to increase to levels that could approach recovery targets set by the Northwest Power and Conservation Council. The BA, also consistent with the EIS, acknowledges past improvements to the configuration and operation of the Columbia River System, additional improvements to the environmental baseline as a result of completed estuary and tributary habitat actions, and the prospective non-operational conservation measures proposed in Chapter 2 of the Draft EIS, all contribute towards maintaining and improving Chinook abundance. Relevant conservation measures include, among other things, a commitment to continue funding the conservation and safety net hatchery programs listed in Chapter 2 of the Draft EIS. As discussed above, the agencies will fulfill congressionally authorized hatchery mitigation objectives through the funding of hatchery programs that are operated consistent with their independent hatchery program consultations during the term covered by this consultation. Based on those hatchery program consultations, the production levels associated with congressionally authorized hatchery mitigation objectives will continue, at minimum, to be consistent with levels previously analyzed by NOAA in the system consultations in 2008, 2014, and 2019. For the 2020 ESA consultations, therefore, the agencies expect that collectively, all of the actions described above (substantial modifications to migration conditions designed to benefit key prey species, combined with improvements to Chinook spawning and rearing habitat in the tributaries and Columbia River estuary, and continued hatchery production) ensure that remaining Chinook mortality from all sources in the mainstem migratory corridor will continue to be more than offset, resulting in a net gain in Chinook salmon abundance available as a prey source for SRKW.
3970	34	Shelley Silbert	Great Old Broads for Wilderness	5. CRSO-DEI S Co- agencies Use of Old Data, Speculati on and Optimism Fails to Ensure Snake River Basin Salm on and So uthern Resid e nt Orea Survival and Recovery. The CRSO-DEIS BA is relying on an outdated 2008 determination that found that the Columbia River system management was based on expected status improvements for prey originat ing from the Columbia as a result of three key fact ors: (1) previous modifications to system operations and configuration to benefit salmonids; (2) ongoing artificial production programs in the Columbia River Basis; and (3) implementation of the 2008 BiOp ' s RPA actions, with further improvements to mainstem migration conditions, spawning and rearing habitat, predator manage ment, and hatchery reforms. This determination was speculative in 2008 , and with the benefit of hindsight, far too optimistic. The 2008 "expected status improvements" are not working for salmon or SRI<Ws, as shown by the alarming decr ease in populations of these species. Moreover, as pointed out in the 2020 SRI<W Scientists' Report, hatchery fish are inferior to wild salmon to fulfill the SRI<Ws' nutritional needs.	The co-lead agencies disagree with the commenter's characterization of the Biological Assessment (BA). The BA provides context associated with the 2008 Biological Opinion (BiOp), the supplemental 2014 BiOp, and 2019 BiOp and in all three BiOps, National Marine Services Fisheries (NMFS) analyzed the total mortality of Chinook salmon associated with the Columbia River System and concluded that improvements to the status of ESA-listed Chinook salmon stocks in the long-term, based on the reasons highlighted in this comment (e.g., modifications to system operations and configurations to benefit anadromous fish passage, upstream and downstream, coupled with artificial production and hatchery reform, with continued on-going mitigation, avian, fish and pinniped predator management, and tributary and habitat improvements), were not likely to adversely affect Southern Resident killer whale (SRKW). Comparative Survival Study (CSS) model predicts increases in numbers of returning adults, which will benefit SRKWs foraging in and around the mouth of the Columbia River in winter and spring (See EIS Section 7.7.8). The CSS model results predicts Snake River Chinook salmon would have relative improvements in smolt-to-adult returns of 35 percent (see EIS Section 7.7.4). The smolt-to-adult return ratio (SAR) is the rate at which of a group of fish survive from their smolt life stage to a defined ending point where they return as adults. While recovery targets will require more than just the efforts of federal agencies, the CSS models indicate the potential for SARs of Snake River Chinook salmon and steelhead to increase to levels that could approach recovery targets set by the Northwest Power and Conservation Council. The BA, also consistent with the EIS, acknowledges past improvements to the configuration and operation of the Columbia River System, additional improvements to the environmental baseline as a result of completed estuary and tributary habitat actions, and the prospective non-operational conservation measures proposed in Chapter 2 of the Draft EIS, all contribute towards maintaining and improving Chinook abundance. Relevant conservation measures include, among other things, a commitment to continue funding the conservation and safety net hatchery programs listed in Chapter 2 of the Draft EIS. As discussed above, the agencies will fulfill congressionally authorized hatchery mitigation objectives through the funding of hatchery programs that are operated consistent with their independent hatchery program consultations during the term covered by this consultation. Based on those hatchery program consultations, the production levels associated with congressionally authorized hatchery mitigation objectives will continue, at minimum, to be consistent with levels previously analyzed by NOAA in the system consultations in 2008, 2014, and 2019. For the 2020 ESA consultations, therefore, the agencies expect that collectively, all of the actions described above (substantial modifications to migration conditions designed to benefit key prey species, combined with improvements to Chinook spawning and rearing habitat in the tributaries and Columbia River estuary, and continued hatchery production) ensure that remaining Chinook mortality from all sources in the mainstem migratory corridor will continue to be more than offset, resulting in a net gain in Chinook salmon abundance available as a prey source for SRKW. The co-lead agencies note that, consistent with previous responses to comments from your organization, the referenced scientists report (Southern Resident Killer Whales & Columbia/Snake River Chinook: A Review of the Available Scientific Evidence, February 2020), had not been released at the time of writing the Draft EIS. The co-lead agencies have since considered the February 2020 referenced paper and have found that this paper does not change the analysis conducted for the CRSO EIS.
3970	35	Shelley Silbert	Great Old Broads for Wilderness	Conclusion Regarding Southern Resident Orea Survival Breaching the four Lower Snake River Dams (LSR Ds), according to the CSS modeling, would result in an estimated four times increase in the return of Chinook salmon within a few years. Consequently, independent SRI<W scientists have concluded that breaching the four LSRDs is the best, and likely only, way to recover SRI<Ws. "When all of this evidence is taken into account, we believe that , as a matter of scientific evidence, it is clear that lower Snake River restoration, including dam removal, is the single biggest and most effective step we can take to restore these two important species. The evidence of continued decline for both areas and Snake River Chinook also highlights the great urgency to take this action as soon as possible." Accordingly, the Co-agencies should revise the BA to determine that the Preferred Alternative will adversely affect the SRI<Ws, and instead implement a combination of LSRD breaching under MO3, plus 1 25% TOG spill at the 4 lower Columbia dams under MO4. This is the best and likely only ecological option that offers a near -term , meaningful route to recover this critically endangered species.	The Preferred Alternative (PA) from the CRSO Draft EIS forms the basis for the proposed action described in the Biological Assessment (BA). The co-lead agencies do not plan to update the content of the BA, but will continue coordinating with National Marine Fisheries Service (NMFS) and U.S. Fish and Wildlife Service (USFWS) to clarify content of this BA as needed (see Appendix V of Final EIS). If the clarifications affect the PA, the co-lead agencies will include those changes in the Final EIS. The EIS analysis found only a negligible to a minor effect to the Southern Resident killer whale (SRKW) would result from implementing MO3, which includes the measure to breach the four lower Snake River dams. This conclusion is based on the fact that Chinook available to SRKW from the lower Snake River comprises only a small percentage of their overall diet. Changes to this portion of the whales food availability of the magnitudes predicted for MO3 may change the whales foraging behavior patterns slightly, but would not change their overall condition or population dynamics. Under the Draft EIS PA, hatchery origin Chinook salmon contribute to the prey of SRKW through the continued existence of their respective independent congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as Lower Snake River Compensation Plan, which is administered by the U.S. Fish and Wildlife Service (USFWS). With respect to the request to consider a combination of MO3 and Multiple Objective alternative 4 (MO4), which includes the measure to spill at the lower Columbia River dams of 125% total dissolved gas (TDG) levels, the co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the Endangered Species Act (ESA), the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species.

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					The agencies disagree that an alternative that includes breaching the four lower Snake River dams and spring spill operations to 125% TDG at all four lower Columbia River dams is reasonable given the unacceptable risks to public safety from such an alternative. MO3 and MO4, individually each caused large loss-of-load probability (LOLP) results (e.g. increased incidence of blackouts). Without major addition of new resources, MO3 would result in power shortages in about one in seven years. MO4 would produce power shortages in about one in every four years. If MO4 were implemented, in addition to breaching the four lower Snake River projects as called for in MO3, then the LOLP would be even higher, with power shortages potentially occurring almost every year. Additionally, if these Multiple Objective alternatives (MOs) were combined, in 5% of the years, the power shortages would average close to 1,000 MW in early August when the region might be experiencing a heatwave with particularly high demand for air conditioning. 1,000 aMW is about the average amount of power consumed by Seattle City Light. As shown in Section 3.7, MO3 causes an increase in power reliability concerns in the winter and the summer. MO4 increases power reliability concerns in the summer. Thus, the combination has the largest impact during the summer. The cost of zero-carbon replacement resources for MO3 and MO4 individually are up to $1 billion/year. Resource replacements and associated transmission interconnections for the combination of MO3 and MO4 would be higher, though not likely as high as the sum of the two MOs individually. Assuming that the replacement resources consist largely of wind, solar, and batteries, this would require well over 50 square miles of solar power (more than two and a half times the size of Crater Lake), large areas of new wind generation, and unprecedented amounts of batteries (more batteries in the Northwest alone than the total projection of batteries expected in the entire United States by 2023 per the Energy Information Administration). In addition, the reduced generation capability under MO3, particularly throughout the summer, in combination with the impacts of the measures in MO4 and the uncertainty about the characteristics of replacement resources, would result in less capability to provide voltage support and dynamic stability for transmission system reliability than under MO3 or MO4 individually. Thus, combining MO4 with breaching the four lower Snake River projects, would produce unreasonable power and transmission reliability impacts, and it is highly speculative that replacement resources could be sited, permitted and built to address these impacts. Thus, an alternative combining juvenile fish passage spill up to 125% and breaching the four lower Snake River dams is unreasonable, and thus was not proposed as an alternative.
3970	36	Shelley Silbert	Great Old Broads for Wilderness	Balancing "Uses" Against "Resources,'1 aka "Natural Resources" As pointed out in the 2020 CRSO-DEIS Executive Summary, the Opinion and Order from the U.S. District Court for the District of Oregon 59 states that the EIS should evaluate how to ensure that the prospective management of the CRS is not likely to jeopardize the continued existence of any endangered or threatened species, or result in the destruction or adverse modification of designated critical habitat. Regarding operation of hydroelectric dams on the Columbia and Snake Rivers, in its 2000 Biological Opinion, NOAA Fisheries concluded, "breaching the four lower Snake River dams would provide more certainty of long-term survival and recovery [of salmon and steelhead] than would other measures ." Yet, beyond the status quo, the overall approach of the agencies in preparing the 2020 CRSO DEIS diffuses any focus on ensuring species survival, while instead belaboring complexity and a need for balancing uses. In doing so, the CRSO-DEIS functions as a diversion from the Court's mandate and fails to meet the expectations of the Court Order. The CRSO-DEIS's Preferred Alternative (PA) dismisses the scientifically soundest means of ensuring the continued existence of the Snake River Basin's endangered and threatened species -breaching of the 4 lower Snake River dams. About Alternative 3 (M03), including breaching, the CRSO-DEIS Executive Summary (ES) (page 24) states that M03 "predicts the highest benefit for several of the ESA -list ed juvenile and adult salmon." In light of Snake River salmon species' slide toward extinction, that statement alone satisfies the court mandate and leads to an obvious conclusion: M03 ought to be the "preferred alt ernat ive ." Yet, in denying M03 "preferred" status, the Executive Summary (p.29) notes, "...this alternative was not identified as the Preferred Alternative due to the adverse impacts to other resources such as transportation, power reliability and affordability, and greenhouse gas emissions." Today, calling transportation, power reliability and affordability, and greenhouse gas emissions "resources" amounts to basing CRSO-DEIS conclusions on a misnamed and nearly empty box. Let's first understand first that these are not "resources." Transportation and power production are uses of resources, and greenhouse gas emissions are a societal problem, not a resource. Resources related to the DEIS are water, habitat and fish. The court order mandates a protective focus, in decision-making, upon these " resources." Removal of the 4 lower Snake dams, plus a TDG of 125% sat urat ion at the tailraces of the 4 lower Columbia dams, preceded by an interim 125% TDG at all 8 dams, would be the best -action toward that focus. Further, that action would allow the co-agencies to meet their "Major Conclusion" of meeting "the congressionally authorized purposes of the system (ES, p.35), since all remaining hydropower dams in "the system" would remain intact, functional, and able to meet the Pacific Northwest's energy demand.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the Columbia River System. Recovery of ESA species is the purview of National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (USFWS). Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. This EIS has been developed in consultation with NMFS and USFWS to find an acceptable balance that allows the co-lead agencies to meet the Purpose and Need Statement while minimizing impacts to affected ESA-listed species and their habitats. The co-lead agencies are required to evaluate a reasonable range of alternatives in the EIS. Alternatives for this EIS were developed from measures identified during public scoping, regional forums with scientists and technical experts from cooperating agencies, and expert opinion from within the co-lead agencies and in the literature. These alternatives represent a reasonable range of alternatives for the maintenance and operation of the CRS. The National Environmental Policy Act (NEPA) and the ESA establish different standards for legal compliance and have different approaches to the analysis of the effects of the action. Because of these differences, the analyses performed in the Draft EIS and in the Biological Assessment (BA) are tailored to the requirements of each regulatory process. While the EIS analyzes effects of the alternatives on all resources, and compares these and the Preferred Alternative to the No Action Alternative, the BA examines the effects of the proposed action, consistent with the Preferred Alternative, on ESA-listed species and designated critical habitat. Under the ESA, the action agencies must develop an analysis of the effects of the action sufficient to allow the USFWS and NMFS to determine whether the action will jeopardize the continued existence of an ESA-listed species or destroy or adversely modify designated critical habitat. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-lead agencies numerous legal obligations. The Preferred Alternative is predicted to benefit ESA-listed juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3, which includes breaching the four lower Snake River dams. The Preferred Alternative also meets the EIS objectives including those for: resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS the co-lead agencies did not identify MO3 which includes breaching the four lower Snake River dams because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. The co-lead agencies disagree, however, that an alternative that includes breaching the four lower Snake River dams and spring spill operations to 125% TDG at all four lower Columbia River dams is reasonable given the unacceptable risks to public safety from such an alternative. For Power and Transmission, MO3 and MO4, individually each caused large loss-of-load probability (LOLP) results (e.g. increased incidence of blackouts). Without major addition of new resources, MO3 would result in power shortages in about one in seven years. MO4 would produce power shortages in about one in every four years. If MO4 were implemented, in addition to breaching the four lower Snake River projects as called for in MO3, then the LOLP would be even higher, with power shortages potentially occurring almost every year. Additionally, if these MOs were combined, in 5% of the years, the power shortages would average close to 1,000 MW in early August when the region might be experiencing a heatwave with particularly high demand for air conditioning. 1,000 aMW is about the average amount of power consumed by Seattle City Light. As shown in Section 3.7, MO3 causes an increase in power reliability concerns in the winter and the summer. MO4 increases power reliability concerns in the summer. Thus, the combination has the largest impact during the summer. The cost of zero-carbon replacement resources for MO3 and MO4 individually are up to $1 billion/year. Resource replacements and associated transmission interconnections for the combination of MO3 and MO4 would be higher, though not likely as high as the sum of the two MOs individually. Assuming that the replacement resources consist largely of wind, solar, and batteries, this would require well over 50 square miles of solar power (more than two and a half times the size of Crater Lake), large areas of new wind generation, and unprecedented amounts of batteries (more batteries in the Northwest alone than the total projection of batteries expected in the entire US by 2023 per the Energy Information Administration). In addition, the reduced generation capability under MO3, particularly throughout the summer, in combination with the impacts of the measures in MO4, and the uncertainty about the characteristics of replacement resources, would result in less capability to provide voltage support and dynamic stability for transmission system reliability than under MO3 or MO4 individually. Thus, combining MO4 with breaching the four lower Snake River projects, would produce unreasonable power and transmission reliability impacts, and it is highly speculative that replacement resources could be sited, permitted and built to address these impacts. This potential alternative has not been evaluated for direct, indirect and cumulative effects to other resources. Thus, an alternative combining juvenile fish passage spill up to 125% and breaching the four lower Snake River dams is unreasonable, and thus was not proposed as an alternative.
3970	37	Shelley Silbert	Great Old Broads for Wilderness	1. CRSO-DEIS Preferred Alternative Considerations of "Use" Values Do Not Economically, Socially, Legally, or Environmentally Justify Salmon and Steelhead Extinctions. As detailed within this comment document, the CRSO-DEIS arguments against Alternative 3 (MO3), particularly its arguments related to transportation and power reliability, are very weak, and growing weaker by the year. Further, suggestions that choosing MO3 would necessarily and irresolvably increase greenhouse gas emissions is at best flimsy. The Executive Summary (page 24) states, "...breaching the dams would not allow the co-lead agencies to operate and maintain the dams for their congressionally authorized, not mandated, purposes of navigation, hydropower, envisioned recreational benefits, and water supply for irrigation purposes." Speaking of balance, we suggest first that the co-agencies "envision" free flowing river recreational benefits equal to or surpassing reservoir recreation benefits, and also the social and economic effects of river recreation benefits. Second, we suggest that you jar yourselves out of the time period when the co-lead agencies were first congressionally authorized - not mandated - to operate and maintain the dams and lift yourselves into the present day- a much less positive-looking day for lower Snake River navigation and hydropower and a devastating day for salmon ... and, in turn, for Southern Resident areas. The CRSO-DEIS promotes improving the same or similar fish passage conditions that, in 2020, the agencies, the public and our policymakers clearly know have failed. Just visit nearly fish-less natal streams during spawning season, drop a line into the Clearwater River to catch no fish, or read local/regional newspaper coverage, such as Lewiston Tribune coverage of the salmon/steelhead decline issue and its painful effects on local people and communities. The agencies have asked the public and our policymakers to dismiss the scientifically validated soundest solution and to ignore a visible upriver scarcity of salmon, in favor of sustaining waning values, such as lower Snake waterway freight transportation, and an aging, unjustifiably costly, no longer essential lower Snake hydropower system. The agencies speak of "water supply" as if a free-flowing river is not itself a source of water - reservoir not required.	The EIS provides an evaluation of the social welfare and regional economic effects of the No Action Alternative and the Multiple Objective alternatives (MOs), including the effects on recreation (Section 3.11) and commercial fisheries (Section 3.15). The EIS described the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. NMFS estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which is described qualitatively. For the effects on recreational fishing under MO3 (Section 3.11.3.5) along the lower Snake River below Lewiston, the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River) as an indicator for fishing visitation in this reach. The EIS describes that the visitation in the long-term in the lower Snake River, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting outfitting and tourism businesses in the region. The social welfare values and regional economic effects associated with recreational fishing under the MOs, as well as river recreation post dam breach under MO3, were not estimated because of the uncertainty and large range in visitation and consumer surplus values among users. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. The Preferred Alternative (PA) for long-term system operations, maintenance and configuration of the CRS presented in the Draft EIS is based on todays conditions and environment. Technology is quickly changing, as is the regions dynamic environment and energy market, and the region needs to consider new information and adaptively manage resources. The co-lead agencies recognize that no matter which alternative in the CRSO EIS is identified as the PA, the identification would likely draw criticism from some stakeholders or sovereigns. The region includes stakeholders, sovereigns, and other interested parties with diverse and varied opinions on these very important topics, and many are strong in the belief that their perspective is the best path forward. Factors, both human-caused and natural, that are outside the responsibility and control of the co-lead Federal agencies also contribute to the decline and recovery of fish, and would continue to strongly influence fish and their habitat. Salmon and steelhead have been adversely affected in the Columbia River Basin over the last century by many activities including human population growth, urbanization, introduction of exotic species, overfishing, development of cities and other land uses in the floodplains, water diversions for all purposes, dams, mining, farming, ranching, logging, hatchery production, predation, ocean conditions, and loss of habitat. Operation, configuration and maintenance of the CRS requires mitigation for its effects, and the EIS is not intended or required to serve as an overall salmon recovery plan for the region. All of the human-caused impacts that have contributed to the decline of fish, and how the region should properly and effectively address those impacts, should be part of the continued regional discussion. The co-lead agencies look forward to participating in that discussion. For hydropower, the average annual value of the four lower Snake River dams exceeds the average annual equivalent costs. The generation value at the four lower Snake River dams can be described by a range between the cost to replace the generation through new conventional resources or through a portfolio of zero-carbon resources. Although the costs of replacing the power with market purchases was analyzed, it is unlikely that short-term wholesale power markets could reliably replace the power for the long-term. This range would put the annual value of power between $240 million and $500 million for the four dams combined. These numbers represent about 90 percent of the lost benefits cited in Table 3-171 of the Draft EIS because the four dams represent about 1,000 aMW of the 1,100 aMW of lost generation estimated in MO3. The average annual cost to operate and maintain all authorized purposes at the four lower Snake River dams is $75 million (Appendix Q, Table 5-1) and the annual-equivalent capital costs are $32 million (Appendix Q, Table 4-1). Hydropower costs funded by Bonneville represent about $50 million of the total annual operations and maintenance costs and nearly all of the annual capital costs, approximately $31 million. This puts the annual-equivalent power-specific costs at approximately $81 million a year. As a result, the net benefits from hydropower for the four lower Snake River dams are between $159 million and $419 million and the benefit-cost ratios are between 3.0 and 6.2. If the $34 million per year for the Lower Snake River Compensation Plan is added to the capital and expense costs, benefits still exceed costs under each replacement power scenario. Considering these costs, the net benefits range from $125 million to $385 million and the benefit-cost ratios range from 2.1 to 4.3. In the less-likely scenario that generation could be reliably replaced with short-term wholesale market purchases and assuming that the four dams represent 90% of the $150 million in market purchases required to replace the lost generation cited in MO3 (see Table 3-170), the lower bound for net benefits would fall to $54 million and the benefit-cost ratio would fall to 1.7. With the Lower Snake River Compensation Plan included, the lower bound for annual net benefits becomes $20 million and the benefit-cost ratio becomes 1.2. From a resource competitiveness perspective, the four lower Snake River dams are among the least costly generating resources in the Federal Columbia River Power System (FCRPS) and the planned investment strategy is expected to maintain that status. As shown in the Federal Hydropower presentation at the 2018 Integrated Program Review1/, the Headwater/Lower Snake Asset Class/2 is forecast to have a 50-year levelized cost of generation/3 of $11.41/MWh based on the direct funded capital and expense (O&M) programs outlined in that process. These costs remain competitive with volatile Mid-Columbia spot market energy prices, which averaged $37/MWh in 2019 and have averaged $21/MWh in 2020.

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					1/ The Integrated Program Review (IPR) allows interested parties to see and comment on all relevant FCRPS O&M spending level estimates in the same forum. The IPR occurs every two years, or just prior to each rate case, and is the public review for the costs that will be recovered through rates the following two-year rate period. Long-term forecasts for the next 50 years and major upcoming projects are also shared in this forum. This information is available here: https://www.bpa.gov/Finance/FinancialPublicProcesses/IPR/2018IPR/IPR%202018%20Fed%20Hydro%20Workshop.pdf and is incorporated by reference into this EIS. 2/ In the 2018 Integrated Program Review, the Headwater/Lower Snake Asset Class consisted of the four lower Snake River dams, Hungry Horse, Libby, and Dworshak dams. These projects were grouped together because they have similar cost characteristics. The Levelized Cost of Generation for the four lower Snake projects alone is slightly lower than that for the whole class including the headwater projects shown in the table. 3/ Levelized Cost of Generation is defined as the forecast direct costs and administrative overhead of producing power at a plant annualized over a 50-year period. This cost includes direct funded operations, maintenance, administrative and capital costs as well as Columbia River Fish Mitigation (CRFM) costs. Bonneville systemwide mitigation costs, such as its Fish and Wildlife program, are not included in this metric.
3970	38	Shelley Silbert	Great Old Broads for Wilderness	2. The CRSO-DEIS's Weighing of "Social Welfare" Costs is Imbalanced and Incomplete. To develop the PA, "the co-lead agencies selected a combination of suites of measures.'..based on how well the measures met the Purpose and Need Statement and EIS objectives, with consideration of environmental, economic and social effects." (ES, p..32} Yet, the co-agencies ask the public to favor, even sanction, the needs of fewer than two dozen irrigators all located on just one of the four reservoirs, the Ice Harbor Reservoir. The Executive Summary (p. 28} "assumes," were the dams breached, that 47,926 acres would no longer be irrigated at a social welfare cost of $458 million." That assumption is false on the face of it, since the river itself would remain available for irrigation. A one-time expense of aid to farmers to upgrade pumps and lengthen water lines could ensure sections of the 47,926 acres could be irrigated post breac hing. At the same time that it expresses concern for irrigators, the CRSO-DEIS circles widely around and/or disregards the needs of Oregon, Washington and north central Idaho fishing-related communities, which right now are suffering a severe "social welfare" cost due to the loss of thriving salmon and steelhead run s. The CRSO-DEIS disregards the individuals and businesses (largely small businesses) that create jobs in those communities and the significant positive impact of fishing on the overall economies of Washington, Oregon and Idaho. Sport fishing in Idaho generates hundreds of millions of dollars of spending every year, bringing much needed dollars to rural areas while adding millions in tax revenue to state co ff ers. Sport fishing in the state is a tremendous economic engine..." - IDFG 2001 Survey: Fishing Has Major Impact on Idaho Economy In 2019, the Idaho Department of Labor's economist for Region 2 (north central Idaho) reported that salmon and steelhead fishing cont ribut e an estimated $8.61 million per month to the region. That significant, indeed vit al, economic impact by far exceeds the $2-$3 million per year Port of Clarkston, Washington's Manager Wanda Keefer estimates is the impact of her port ' s cruise ship traffic on her community. The cruise ship passengers, incidentally, buy their trips from non local cruise ship companies; ar e dined, wined and lodged on-board; and passe ngers' tips go mostly to non-local cruise ship staff. It is not difficult to assume that, were t ourist cruise ships no longer able to use the Port of Clarkston due to lower Snake dam breaching, very few businesses in the Clarkston community would suffer. None would close. However, with the ongoing dramatic decline (and likely extinction) of salmon and steelhead runs, in the three states' rural fishing-relate d commun ities, nearly every business is negatively impacted, dropping some into suspension or closure, and even drawing a few whole communities to the brink of economic collapse. The CRSO-DEIS, however, fails to emphasize these fish-decline economic or social welfare imp act s. In fact, while analyzing the economic impacts of each alternative - including water supply, irrigat ion, nav igat io n, and hydropower impact s, the co-agencies ignored the sports fishing economy and its estimated $2 billion region-wide economic contribution. The co agencies neglected to use publicly available data sources that quantify the devastating economic impacts of declining salmon and steelhead population to the Northwest's rural communit ies. In 2005, Don C. Reading, Ph.D., presented the results of a study titled "The Potential Economic Impact of Restored Salmon and Steelhead Fishing in Idaho." Reading concluded, "The recovery of Snake River Basin salmon and steelhead runs would provide a truly renewable resource that brings substantial economic benefit to Idaho." The study states that a restored salmon and steelhead fishery could reap annual direct and indirect economic benefits of $544 million . In today's dollars, that level of impact would exceed an annual $700 million.63	While the EIS does evaluate and find that potential impacts to irrigators may occur under MO3, EIS also provides an evaluation of the social welfare and regional economic effects of the No Action Alternative and the alternatives, including the effects on recreation (Section 3.11) and commercial fisheries (Section 3.15). Effects of the Preferred Alternative can be found in Chapter 7. The recreation analysis for the EIS considered the broad range of recreational activities supported by the region, including recreational fishing. While the analysis described any potential impacts to recreational fishing visitation, the EIS did not estimate these impacts separately from the overall impacts to recreation, or estimate changes in fishing visitation related to changes in fish abundance. The EIS described the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. NMFS estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which is described qualitatively. For the effects on recreational fishing under MO3 (Section 3.11.3.5) along the lower Snake River below Lewiston, the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River) as an indicator for fishing visitation in this reach. The EIS describes that the visitation in the long-term in the lower Snake River, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting outfitting and tourism businesses in the region. The potential for changes in recreational fishing of anadromous fish under MO3 is described in Section 3.11, which could result in increases in recreational fishing in the long-term that would support jobs, income, and social benefits in Tribal and rural river communities. However, there is uncertainty around recreational fishing visitation in the long-term given the current measures to regulate, protect, and support ESA-listed fish populations and habitat in the region. The social welfare values and regional economic effects associated with recreational fishing under the action alternatives as well as river recreation post dam breach under MO3 were not estimated because of the uncertainty and large range in visitation and consumer surplus values among users. . Cruise ship visitation is characterized in Section 3.10 Navigation. Section 3.10.3.5 describes the contribution of cruise ships as providing demand for approximately 230 jobs in the region, which would include employment in the industry itself as well as increased demand for services at ports of call. The EIS does not claim that business closures would result from changes in the navigation channel access under MO3.
3970	39	Shelley Silbert	Great Old Broads for Wilderness	3. As Has Been the Multi-decade Pattern of the Co-agencies, the CRSO-DEIS's "Temporal Scope" a) Neglects the fact that Snake River Salmon and Steelhead Populations Have Been Severely Affected by the Lower Snake Dams So That Today the Extinction of the ESA Listed Salmon and Steelhead Looms Close in Time, and b) Ignores the Law. In view of the above dollar figures, keep in mind, too, that over the last thirty or so years, taxpayers and electricity ratepayers have spent a well-publicize d $16.8 billion attempting to recover thirteen threatened or endangered salmon and steelhead in the Columbia River Basin. None of the thirteen is on a path to recovery . In view of the above span of thirty years of failed effort, consider that in the CRSO-DEIS Executive Summary," (p.8) the agencies state that the "temporal scope of the EIS is assumed to be 25 years from the signing of the records of decision (RODs)... However, the socioeconomic analysis uses a 50-year period [which]... provides a long-term perspective that enables the co lead agencies to distinguish between short-term socioeconomic impacts that may occur during the implementation of alternatives and long-term effects that would occur after implementation is completed." Such a temporal span of 25-50 years is, as noted above, known by the river-using public, the newspaper-reading public, and by scientists and policymakers to be a scope that will ensure not salmon and steelhead recovery, but their extinction. We suspect the CRSO-DEIS co-agencies also know. Without designating Alternative 3 (MO3), breaching, as the preferred alternative, the DIES does nothing more than foretell and facilitate a natural resource tragedy. Documentation of the above characterization exists in three decades of court opinions that have rejected dam management plans for their failure to be science- base d, law-based, or genuine in their intent ions. For example (emphases added): In his 1993 court decision, Judge F. Marsh wrote: "NM FS {National Mar ine Fisheries Service} has clearly made an effort ... But the process is seriously, 'significantly,' flawed because it is too heavily geared towards the status quo that has allowed all forms of river activity to proceed in a deficit situation - that is, relatively small steps, minor improvements and adjustments when the situation literally cries out for a major overhaul. Instead of looking for what can be done to protect the species from jeopardy, NMFS and the action agencies have narrowly focused their attention on what the establishment is capable of handling with minimal disruption." In 2000, Judge Redden ruled that the 2000 BiOp was "arbitrary and capricious because it relied on 1) federal mitigation actions that were not subject to the consultation process that is required under the Endangered Species Act and 2) non-federal mitigation actions that were not shown to be reasonably certain to occur." The judge ordered a new BiOp be written by 2004. 64 By 2004, more populations of Columbia and Snake River salmon and steelhead had become listed as endangered or threatened, and Judge Redden rejected the federal government's 2004 BiOp. In 2005 - "The government's inaction appears to some parties to be a strategy intended to avoid making hard choices and offending those who favor the status quo. Without real action from the Action Agencies, the result will be the loss of the wild sal mon." 66 The 2008 BiOp was also rejected. - "Under this approach, a listed species could be gradually destroyed, so long as each step on the path to destruction is sufficiently modest. This type of slow slide into oblivion is one of the very ills the ESA [Endangered Species Act] seeks to prevent ." In 2011- "The history of the Federal Defendants' lack of, or at best, marginal compliance with the procedural and substantive requirements of the ESA [Endangered Species Act] ... has been laid out in prior Opinions and Orders in this case and is repeated here only where relevant. The court went on to call the federal defendants' plan "neither a reasonable, nor a prudent, course of action." In his 2011 decision, Judge Redden also wrote: "Instead of following this court's instructions, NOAA Fisheries abandoned the 2000 BiOp and altered its analytical framework to avoid the need for any ...reasonable and prudent alternatives. As the parties are well aware, the resulting BiOp was a cynical and transparent attempt to avoid responsibility for the decline of listed Columbia and Snake River salmon and steelhead there is ample evidence in the record that indicates that the operation of the FCRPS causes substantial harm to listed salmonids NOAA Fisheries acknowledges that the existence and operation of the dams accounts for most of the mortality of juveniles migrating through the FCRPS. As in the past, I find that irreparable harm will result to listed species as a result of the operation of the FCRPS." Judge Redden ordered a new biological opinion by 2014. In 2014, "the Court ruled that federal action agencies adopting a record of decision implementing a biological opinion must prepare an environmental impact statement when the relevant provisions of the National Environmental Policy Act have been triggered that the federal action agencies {here, the Corps, BPA and BOR) prepare a comprehensive environmental impact statement that evaluates a broad range of alternatives that may finally break the decades-long cycle of court-invalidated biological opinions that identify essentially the same narrow approach to the critical task of saving these dangerously imperiled species. The federal consulting and action agencies must do what Congress has directed them to do." In 2016 - Judge Simon wrote, "The Ninth Circuit has already cautioned that the Endangered Species Act prohibits any federal agency action from allowing a species to have a 'slow slide into oblivion' and that agency action may not 'tip a species from a state of precarious survival into a state of likely extinction.' " Yet that "slow slide" is exactly what the government agencies have set in motion, so that today the salmonids are indeed in a state of critical precariousness. NOAA Fisheries' Consultation Handbook recognizes that 'the longer a species remains at low population levels, the greater the probability of extinction from chance events, inbreeding depression, or additional environmental disturbance." We are inclined to believe NOAA Fisheries should have added, ...or the probability of extinction from a deceptive lack of meaningful action by federal agencies. Throughout these 3 decades the agencies seem hellbent on not only driving Snake River salmonids into extinction, but in the process to also drive the Endangered Species Act into nonexistence. And yes, we believe the 2020 DEIS co-agencies have set out to render the ESA powerless, simply by ignoring it. Today, with respect to the above mentioned "additional environmental disturbance," global warming rises to the top. In 2015, as widely known, Snake Basin fish	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the CRS. Recovery of ESA species is the purview of National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (USFWS). Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. This EIS has been developed in consultation with National Marine Fisheries Service and U.S. Fish and Wildlife Service to find an acceptable balance that allows the co-leads to meet the stated Purpose and Needs Statement while minimizing impacts to affected ESA species and their habitats. The co-lead agencies are required to evaluate a reasonable range of alternatives in the EIS. Alternatives for this EIS were developed from measures identified during public scoping, regional forums with scientists and technical experts from cooperating agencies, and expert opinion from within the co-lead agencies and in the literature. These alternatives represent a reasonable range of alternatives for the maintenance and operation of the CRS. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-lead agencies numerous legal obligations. The Preferred Alternative is predicted to benefit ESA-listed juvenile and adult anadromous salmonids (two of the objectives), but not as much as Multiple Objective 3 (MO3) which includes breaching the four lower Snake River dams. The Preferred Alternative also meets the EIS objectives for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS the co-lead agencies did not identify MO3 because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. The EIS concluded MO3, which includes breaching the four lower Snake River dams would have greater improvement to certain salmon species in the lower Snake River. It did not, however, conclude there was greater certainty of that result in MO3 over any other alternative. Because of delayed response time in MO3, and the potential severity of the short term effects, MO3 would likely have the most substantial uncertainty in terms of beneficial effects. Section 3.5 provides a summary of the fish analysis for the No Action Alternative and four of the multiple objective alternatives. Chapter 7 provides a summary of the fish analysis for the Preferred Alternative. With respect to the Preferred Alternative, the CSS model predicts that average Smolt to Adult return rates would increase for both Snake River spring Chinook and steelhead and will average above 2% (the lower end of the Northwest Power and Conservation Councils recovery targets for the region) as a result of the Preferred Alternative, increasing from 2.0% to 2.7% for Chinook, a 35% relative increase. The NMFS COMPASS and Life Cycle Models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information. Based on the EIS analysis of the Preferred Alternative, it will make a substantial contribution towards recovery targets. NEPA and the ESA establish different standards for legal compliance and have different approaches to the analysis of the effects of any action. Because of these differences, the analyses performed in the Draft EIS and in the Biological Assessment (BA) are tailored to the requirements of each regulatory process. While the EIS analyzes effects of the alternatives on all resources, and compares these and the Preferred Alternative to the No Action Alternative, the BA examines the effects of the proposed action, consistent with the Preferred Alternative, on ESA-listed species and designated critical habitat. Under the ESA, the Action Agencies must develop an analysis of the effects of the action sufficient to allow the USFWS and NMFS to determine whether the action will jeopardize the continued existence of an ESA-listed species or destroy or adversely modify designated critical habitat. The temporal scope of the EIS is assumed to be 25 years from the signing of the Record of Decision (ROD) in order to have a similar period of analysis for comparison of effects across resources for all multiple objective alternatives (with the exception of the socioeconomic-related resource analysis - 50 years). Regarding hydropower generation, conventional nuclear power units, as described in the comment, are not considered viable by the Council given various risks. The Council considers small modular nuclear reactors potentially viable as they address many of the risks identified with larger conventional nuclear units as described in the 7th Power Plan. For MO3, the EIS did consider small modular nuclear reactors (SMR) as a potential replacement for some of the attributes of the four lower Snake River dams and costs estimates were provided. See Draft EIS Section 3.7.3.5, Small Nuclear Reactor on page 3-909. However, as noted in the Draft EIS, the ramping capability of SMR is unknown. Thus it is unknown if a SMR would be able to provide ramping capability similar to the lower Snake River projects at this time. See Draft EIS on page 3-910. Appendix H provides further discussion on the selection of replacement power resources. The draft EIS also describes the operational characteristics of the four lower Snake River dams in Section 3.7.3.5, Lower Snake River Full Replacement (Used in Rate Sensitivity Analysis). As described in that section, although the dams are run-of-river, there is upstream storage that is used to increase their firm capacity, and they provide up to 2000 MW of sustained peaking capacity at certain times of the year. They also have unparalleled ramping capability the ability to quickly generate energy to match spikes in energy usage with over 2,000 to approximately 2,300 MW of capability in certain months of the year (see Table 3-160 in the draft EIS). The ramping capability is valuable for system balancing, which is used to serve load (consumed energy by houses, business, industry) and to balance out the variability that renewable generation causes to the system, such as when the wind does not blow or the sun is blocked by clouds. Finally, The comments suggestion that approximately $17 billion in fish and wildlife mitigation investment has been ineffective to recover ESA listed species is misplaced. Those investments delivered the intended results when considered in the appropriate statutory context of the Northwest Power Acts anadromous fish provisions which call for improved survival of such fish at FCRPS projects and sufficient flows between the projects to improve production, migration, and survival. For example, as of 2014 this investment had facilitated juvenile dam passage survival of 96% and 93% for spring and summer migrants respectively, see Endangered Species Act Federal Columbia River Power System 2016 Comprehensive Evaluation Section 1, at 17, t.2 (Jan. 2017), a marked improvement compared to when Congress passed the Northwest Power Act and the estimated average juvenile mortality at each mainstem dam and reservoir complex was 15-20% with losses recorded as high as 30%. See Nw. Res. Info. Ctr. v. Nw. Power Planning Council, 35 F.3d 1371, 1374 (9th Cir. 1994) (citing a Sept. 4, 1979 report by U.S. General Accounting Office describing the systems impacts on anadromous fish).

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				suffered severely from reservoir temperatures exceeding 68Q, and at times and in some locations, such as reservoirs and the mouths of tributaries that ordinarily would provide refuge, water temperatures reached a lethal-for-salmon 72 degrees. Warm water temperatures, especially since 2015, have continued to threaten fish survival, and that trend is, of course, predicted by scientists worldwide to continue. In a January 2020 "climate emergency" warning, 11,000 scientists in 153 countries said, "The climate crisis has arrived and is accelerating faster than most scientists expected." On October 27, 2015, eight former fish biologists and government fisheries department officials sent a letter to Will Stelle, Regional Administrator, West Coast Region, of the National Marine Fisheries Service (NOAA) regarding NOAA's climate change research and lack of application of that research to significant losses of Columbia and Snake Basin anadromous fish that occur (as in 2015} due to warm water temperatures. The letter speaks of NOAA's "unfortunate failure to take aggressive and necessary steps to address the effects of climate change on the freshwater habitat of threatened and endangered salmon and steelhead in the Columbia River Basi n. This failure is not new; it has accumulated over nearly two decades of inadequate and ineffective action. ... If the dead salmon up and down these rivers this summer [2015] did nothing else, they gave us a clear and unmistakable warning that continued reliance on the kinds of small steps and minimalist measures we have taken since Snake Ri ver sockeye were first listed under the Endangered Species Act over twenty years ago will not work." The temperature issue related to anadromous fish survival in the Columbia and Snake River basins is of such great import that on December 20, 2019, a 9th Circuit Court of Appeals panel ruled that the Environmental Protection Agency had failed to develop temperature limits [Total Maximum Daily Load (TMDL] required under the Clean Water Act. "Rising temperatures caused by dams that stagnate water flows, as well as discharges and climate change, are deadly to migrating fish like sa lmon . Anything above 68 degrees Fahrenheit makes it nearly impossible for fish to migrate upstream to spaw n." 73 The EPA petitioned for a rehearing of the case, but on March 30, 2020, a federal appeals court denied the EPA's petit ion. Clearly, for the past twenty-seven years, the agencies have been stuck on 'repeat.' The 2020 Preferred Alternative's phrase "additional combinat ion of measures" has exhausted itself. It's time the CRSO-DEIS co-agencies explain their malfeasance - to the public, the policymakers, and to the court. The agencies' stagnant approach to saving Snake River salmon and steelhead from extinction has way too long been mired in agency muck. Mr. Mainzer, General Helmlinger, Ms. Gray, and Mr. Mabe, you and we all know that the 2020 DEIS Preferred Alternative will also be castigated by the court. We all know the PA is designed to fail to recover Columbia Basin salmon and steelhead populations and is totally inadequate. We all know what these fish need for recovery. As so aptly put by Idaho's Representative Mike Simpson during a budget request hearing before a U.S. House of Representatives' subcommittee on Energy and Water Development on March 10, 2020, in Washington D.C.: "I noticed you all mentioned hydropower, irrigation and transportation and how important those are. Nobody mentioned fish. Nobody mentioned salmon that come back to Idaho, that in the next 15 years, if something isn't done, they will be extinct. There is no doubt about that, they will be extinct Any plan we come up with, any EIS had better recover salmon." Simpson added that the region has several options to replace the benefits of the dams, but the fish have only one option. "Those dams produce 3,000 megawatts of power. * You can put small modular reactors or other things in there. You can produce [power] differently. Everything we do, we can do differently. Salmon need one thing - they need a river."(Emphases added.) * While the four LSR dams have a nameplate capacity of 3033 aMW, they actually only produce an average of 1000 Megawatts. Over the last forty-eight years, the four dams, combined, have produced power to full nameplate capacity only on forty-six days. For the past nineteen years, their annual average has been 963 Megawatts. The submitted comments to the Army Corps of Engineers in late 2016 and early 2017 of approximately 400,000 members of the public, foretold the public's agreement with Rep. Simpson's March 2020 statements. A large majority of those comments urged the Corps to breach or remove the four lower Snake River dams in order to restore healthy populations of wild salmon and steelhead.	
3970	40	Shelley Silbert	Great Old Broads for Wilderness	4. The CRSO-DEIS Fails to Sufficiently Analyze and Factor into the Economics Picture the Steep Decline in Lower Snake River Transportation Waterway Freight Shipments. Continuing to ignore the above input with this current DEIS, the co-agencies find every excuse, every diversion from the fact that we humans have multiple options: like using other means of producing power- say, wind and solar, already existing and rapidly expanding in the Northwest and dramatically changing the Northwest energy sc ene. We also have options for replacing waterway transportation for cruise ships - say, buses and river tour boats with lodging/dining in Clarkston hotels and restaurants. We have options, too, for east/west freight. In fact, while in year 2000, the Port of Lewiston barged 17,590 TEUs of containerized freight, by 2017, container-on-barge shipping stood at zero. This steep decline began long before the Port of Portland closed its container operations in 2015 and was driven by the region's producers themselves. See Graph A below, Snake River Container Shipments by TEU, 2000-2017. [graph included in document Snake River Container Shipments] In 1995, the Port of Lewiston (POL) shipped 952,599 tons of wheat via the lower Snake River. By 2018, wheat volume had decreased by 332,013 tons, a drop of 35%. Today all wheat at the Lewiston port is shipped by the private corporation Lewis-Clark Terminal and over its own docks, not by the taxpayer-supported Port of Lewiston. See Graph B below displaying the wheat shipping decrease. [graph included in document Wheat Shipments by Ton] Total lower Snake River freight volume 2015-2018 averaged 2.64 million tons, a 40% decline since 2000. Paper, pulp, petroleum, pulse, logs and lumber are no longer shipped on the lower Snake - either by choice of the producers or, in the case of pulse, because containers are no longer shipped out of Port of Lewiston by barge. Grain shipping, too, has dropped as increasing numbers of grain growers shift to rail transport. The cooperatively operated McCoy Grain Loader on the Palouse Prairie serves as testimony to this fact. Of all freight shipped on the lower Snake today, 90% of it is grain, but, as you can see in Graph C below, volume of grain shipped has been in steady decline. [graph included in document Ice Harbor Lock Usage Report (Tons), by Commodity, 1999-2018] Regarding Graph C, note that freight locked through Ice Harbor Dam provides the most accurate measure of freight volume on the Lower Snake River Project (the 4 dams and their respective reservoirs). Freight shipped upriver on the Columbia River to the Port of Pasco, notably petroleum, travels a short distance on the Snake River but does not lock through any lower Snake dam. All waterborne freight to and from Lewiston, Idaho, passes through the lock at Lower Granite Dam. In 1994, 1,233 loaded barges were locked through Lower Granite. In 2017, just 314 were locked through - a decline of 75%. See below Graph D, Number of Loaded Barges through Lower Granite Lock, 1993-2018. [graph included in document: Number of Loaded Barges Through Lower Granite Lock 1993-2018] As the agencies know, the Corps classifies rivers by the number of ton-miles of freight (one ton of freight traveling one mile) a river carries each year. Annually: High use rivers transport 3+ billion ton-miles. Moderate use rivers transport 1-3 billion ton-miles. Low use rivers transport less than 1 billion ton-miles. The lower Snake River dams and reservoirs transport the next to the lowest freight volume among seventeen rivers in the Inland Waterways System. In 2014-2016, the annual average freight volume on the lower Snake totaled 0.28 billion ton-miles. If that volume tripled, the river would still be classified as a /ow use river. The truth is that compared to waterways throughout the United States, the lower Snake's importance as a transportation waterway is negligible. The Snake River transportation wat er way, to take this reality further, does not compare in any meaningful way to the importance of thriving anadromous fish populations to people, to rural economies, and to natural environments throughout the Snake River Basin. As of 2020, the probability of container shipping's return to the lower Snake River is zero. Freight transportation trends in the lower Snake River region make clear that the probability of the number of loaded barges increasing through Lower Granite locks is small. Thus, using lower Snake freight transportation as an excuse for allowing salmon and steelhead to go extinct is a false, unjustifiably expensive, and deeply amoral excuse. Were freight transportation via the lower Snake River a driver of prosperity in north central Idaho, as promised by the agencies and politicians when the four dams were first proposed in the 20t h century, or were freight volume increasing rather than steeply declining in the lower Snake waterway, the DEIS co-agencies may have valid reason to tout the necessity of these dams. However, prosperity and incr easing freight shipments have not and are not happening. See Graph E below, Growth of Jobs Since 1993. Mid-20th Century, agency and politician promises of prosperity due to dams was a false promise. Today it is a false premise upon which to base a decision to not breach the lower Snake River dams and a false premise upon which to not save Snake River Basin salmon and steelhead from extinction. [graph included in document: Growth of Jobs since 1993] Spanning 1993-2018, Idaho's job growth overall was 66%; but in Region 2, north central Idaho, job growth was 13%. In 2008, Region 2 averaged 42,645 employed workers. Ten years later, it averaged 41,858, a net loss of 787 jobs. Region 2 is the only region in Idaho that has not recovered from the 2008 great recession. Very likely, the decline in anadromous fish and concurrent fishing opportunities in north central Idaho are part of the reason for the region's inability to rebound. Any mid-20th-century forecast that Region2's "Inland Seaport," the Port of Lewiston, would usher in lasting prosperity was a disingenuous and false forecast. Downriver, in terms of a stoppage of barging, since Tri-Cities area farmers and others ship by barge on the lower Columbia River, their barging would be uninterrupted. Also, upriver-bound lower Columbia shipments of petroleum to Pasco would be unaffected by lower Snake breaching. Keep in mind, too, that about half of eastern Washington wheat growers already ship by rail. Also, an improved rail system from Lewiston downstream would further reduce (not expand) truck miles. New facilities needed for increased rail shipping could total $25-50 million, but this would be a one-time cost. Compare that figure to a yearly ongoing subsidy for barging of at least $25 million. Or to put it more simply: a subsidy per barge of at least $25,000. Northeast Oregon's local economies have suffered similar blows as Idaho's Region 2 related to declining anadromous fish runs. Greater Hells Canyon Council (GHCC) reports that in 2008, a sample year, fishers spent $12 million on fishing trips in Wallowa, Union and Baker counties. Salmon and steelhead were the target species for 110,000 fishing trips in eastern Oregon that year. Today local Oregon outfitters report significant declines in fishing business over	Access to barge transportation is the most cost effective means of accessing export markets for many of the grain producers in the Northwest currently, and removing that option would increase transportation costs for grain producers, as the EIS shows. This is different than container shipping, which the co-lead agencies agree is not currently occurring on the Snake River. It is true that barge movements on the Snake/Columbia river including grain and other commodities have declined over the past 20 years, but it also appears that the decline has stabilized over the past 10 years. The text of the EIS has been updated to describe how downriver shipment volumes have stabilized in recent years. While it is true that the Snake River freight volume is certainly smaller than the volume of the Mississippi and Ohio River systems, it is nonetheless an important transportation option for a large volume of freight, particularly for farm products, with the Columbia-Snake River system serving as one of the largest exporters of farm products in the U.S., and the largest exporter of wheat. The EIS analysis finds that transportation of freight that is currently barged on the lower Snake River could be accomplished via other transportation modes, but this change would not be without costs to farmers, would require public and private investment in infrastructure, and would result in some adverse regional economic effects, particularly in the short term. These effects are considered in the context of the overall objectives of the EIS. The EIS provides an evaluation of the social welfare and regional economic effects of the No Action Alternative and the multi-objectives alternatives, including the effects on recreation (Section 3.11) and fisheries (Section 3.15). The EIS described the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. NMFS estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which is described qualitatively. The potential for changes in recreational fishing of anadromous fish under MO3 in the Region C is described in Section 3.11. Increases in recreational fishing could support jobs, income, and social benefits in Tribal and rural river communities. For the effects on recreational fishing under MO3 (Section 3.11.3.5) along the Lower Snake River below Lewiston, the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River) as an indicator for fishing visitation in this reach. The EIS describes that the visitation in the long-term in the lower Snake River, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting outfitting and tourism businesses in the region. However, there is uncertainty around recreational fishing visitation in the long-term given the current measures to regulate, protect, and support ESA-listed fish populations and habitat in the region. For MO1, MO2, MO4, and the Preferred Alternative, the recreational fishing evaluation describes the impacts by referencing the potential effects on relevant fish populations, as described in Section 3.5. Aquatic Habitat, Aquatic Invertebrates, and Fish, modeling results vary for some of the alternatives, for example for the Preferred Alternative and MO4 (i.e., models show either beneficial or adverse effects to anadromous fish), so it is assumed that the potential changes in recreational fishing and associated social welfare and regional economic effects would follow these changes in fish abundance. The social welfare values and regional economic effects associated with recreational fishing under the MOs, as well as river recreation post dam breach under MO3, were not estimated because of the uncertainty and large range in visitation and consumer surplus values among users. The comment incorrectly suggests that the EIS failed to consider replacing the lost generation from the various MOs, including MO3, which includes breaching the four lower Snake River dams, with solar, wind and other resources. For each alternative that reduced hydropower generation and regional power reliability, the EIS analysis estimated the amount of replacement power generation required to return the region to the reliability levels of the No Action Alternative (NAA). See Draft EIS, Section 3.7.3.1, Step 2: Analyze Effects on Power System Reliability; Appendix H, Power and Transmission, Section 2.1. That analysis considered both least cost and zero-carbon based resource portfolios. For example, for MO3, the EIS found that to return regional reliability to the same level as the NAA, either 1,120 MW of natural gas (least cost option) or 2,550 MW of solar (zero-cost option) would be needed. See Draft EIS, Section 3.7.3.5, Potential Replacement Resources and Associated Costs, on page 3-904. Thus, the EIS did show that the four lower Snake River dams generation could be replaced with new variable, renewable power. The costs of these replacement resources are also considered by the EIS, and provided for in each MO. For MO3, the range of rate pressure for replacement resources is provided in Section 3.7.3.5, Table 3-166 in the Draft EIS.

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				the last fifteen years as runs continue their downward spiral. GHCC reports that at least sixty well paying rural northeast Oregon careers in watershed and fisheries management depend upon anadromous fish. Rural fishing-related economies are so vital to northeast Oregon that state and federal agencies funded 612 habitat restoration projects between 1995-2017, a taxpayer investment of more than $46 million. Yet now, the CRSO-DEIS co-agencies, through their Preferred Alternative are telling north central Idahoans, Oregonians, and Washingtonians engaged in fishing-related economies that their most abundant and continually renewable resource - salmon and steelhead - isn't worth saving. Northwesterners like us do not accept that position. The economic health of our rural fishing-related economies must be considered in any and all CRSO management alternatives. If considered, the weight of opinion will surely go to CRSO-DEIS Alternative 3 (MO3).	
3970	41	Shelley Silbert	Great Old Broads for Wilderness	5. The co-agencies Fail in Their Analyses to Acknowledge and Heed the Needs and Call of the People. The CRSO-DEIS speaks to the economic needs of farmers, barging companies, ports, and hydropower facilities, but ignores the above noted Idaho, Oregon and also Washington fishing related businesses and communities. Despite the availability of existing, publicly available data detailing elements of rural economies, in considering all system management alternatives and designating the preferred alternative, the co-agencies, astonishingly, did not account for the economies of recreation and fishing- guides, outfitters, motels/hotels, boat shops, restaurants, gas stations, license fees, convenience stores, grocery stores, pubs. Further, the co-agencies treat the costs to taxpayers of subsidizing barge shipments, supporting the non-shipping Port of Lewiston, and sustaining the aging, increasingly moot lower Snake River dams as inevitable far into a future that the co-agencies do not admit salmon and steelhead will not live to see - and fishing-related communities will not see - if the Preferred Alternative stands. The CRSO-DEIS also doesn't speak to the economic benefits of opening thousands of acres of riverside real estate for agricultural and other commercial, private, and community development. It doesn't speak of the economic benefits of dozens of riverbank habitat restoration jobs created due to breaching. Nor does the CRSO-DEIS speak of and ascribe value to the significant positive social welfare effects and just plain joy such habitat restoration would bring to Pacific Northwest Native Americans and thousands, if not millions, of other Americans . The above people's argument against the 2020 CRSO-DEIS Preferred Alternative is exemplified in a February 24, 2020, letter "written by leaders of small communities up and down the Clearwater and Salmon rivers that depend on salmon and steelhead fishing to fuel their economie s.83 Directed at Idaho Gov. Brad Little and all four members of the Idaho Congressional delegation, it pleaded for the leaders to "stop the downward trend of Idaho's salmon and steelhead toward ext inct ion." Also early 2020, PNW utility companies, conservation groups and even Port of Lewiston Manager David Doeringsfeld, wrote to the governors of Washington, Oregon, Idaho and Montana pleading for leadership. The coalition signers acknowledged that "Many Columbia Basin salmon and steelhead runs remain at risk of extinction and other fish and wildlife are threatened. The wellbeing of salmon is critical to our entire Pacific Northwest ecosystem, from the inland forests to ocean species," In their letter, they identified four shared goals - the first goal: "Abundant and harvestable fish originating in the Columbia River Basin are recovered." Clearly, it's time for the co-agencies to see beyond cement obstacles, aging turbines, barges, sediment removal, extraordinary fish mitigation costs which the co-agencies seem to carry as a banner of honor. This is the people's mandate to the co-agencies: Pacific Northwesterners demand a reversal of the devastation of our iconic, valuable resource: salmon and steelhead. To survive, these fish do not need barges and locks, cement and turbines. They need a river. In recent years, it has also come to light that the Southern Resident areas of the Salish Sea swim on the brink of extinction. Several factors play a role in their decline, but scientists have agreed, they're in decline primarily because of the loss of their key prey, Chinook salmon. Among Chinook runs vital to these endangered areas are Snake River Basin Chinook. In fact, the decline in Chinook populations resulting in a simultaneous decline in Southern Resident area viability moved Washington Governor Jay Inslee to request state funding for a "Lower Snake River Stakeholder Process." Recognizing the peril of both areas and Chinook, on February 19, 2020, forty-two Washington legislators sent a letter to Gov. Inslee in support of dedicating $750,000 for two years of funding for the stakeholder process. In February 2020, five scientists sent Northwest governors and Congressional delegations a document titled, "Southern Resident Killer Whales and Columbia/Snake River Chinook: A Review of the Available Scientific Evidence." In this document, the scientists state and demonstrate that"... substantial scientific evidence has highlighted the important relationship between salmon from the Columbia Basin, particularly Snake River Chinook, and the future survival of our critically endangered Southern Resident Killer Whales (SRKW or areas). Restoring healthy, abundant salmon to the Snake River is critical if we are going to provide a more adequate prey base for areas." On August 27, 2018, fifty-five "salmon scientists with decades of experience" wrote to to Governor Inslee and his Southern Resident Killer Whale Task Force co-chairs, Stephanie Solien and Thomas "les" Purce, to recommend "an Immediate Measure to Increase Columbia/Snake River chinook abundance." (acknowledging that the Southern Resident areas' key prey is chinook salmon) They recommended "total dissolved gas (TDG) levels up to 125% of saturation in the tailrace of each dam (without a forebay TDG limit) The evidence is compelling that the increase...will benefit salmon survival..." The scientists went on to recommend a "Permanent Measure ... the most effective measure we know of to permanently increase the sustained abundance of Chinook salmon from the Snake and Columbia Rivers: removing the four federal dams on the lower Snake River and restoring the ecological health of that river corri dor." 88 On February 11, 2020, Oregon Governor Kate Brown sent a letter to Gov. Inslee expressing support for exploring all possible solutions, including dam breaching, to the area and Chinook survival crisis. In her letter she expressed "her support to remove the earthen portions from the four concrete lower Snake River dams." She stated the science was clear - "removal is the most probable answer to salmon and steelhead population recovery in the Columbia River Basin, which could aid areas in their forage for fatty spring Chinook salmon off the mouth of the Columbia in late winter each year." 8 9 In April 2019, Idaho Governor Brad Little convened the "Governor's Salmon Workgroup" tasked to "Develop policy recommendations for Governor Little through a collaborative, consensus driven, public process to restore abundant, sustainable, and well distributed populations of salmon and steelhead in Idaho for present and future generations, while recognizing diverse interests throughout the St at e." 90 A group of Idaho elected and appointed officials, Chambers of Commerce, businesses and organizations wrote to Gov. Little and to Idaho's Congressional delegation members "to implore [their] immediate leadership to stop the downward trend of Idaho"s salmon and steelhead toward extinction. Once one of the largest migrations of anadromous fish in the world," they wrote, "Idaho's iconic fish are vanishing on our watch." 91 In other words, all three states and regional scientists are crying out for the recovery of their Northwest salmon and steelhead runs, a cry to which the CRSO-DEIS co-agencies remain deaf. The question arises: Why are the CRSO-DEIS co-agencies so dismally far behind the public, including scientists, on the salmon/steelhead issue? Why have the co-agencies not caught up with local-to-state Pacific Northwest officials who recognize that the 'status quo' Preferred Alternative is the wrong alternative for saving salmon and steelhead from extinction?	The EIS provides an evaluation of the social welfare and regional economic effects of the No Action Alternative and the multiple objective alternatives (MOs), including the effects on recreation (Section 3.11) and commercial fisheries (Section 3.15). The EIS describes the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. NMFS estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which is described qualitatively. The potential for changes in recreational fishing of anadromous fish under MO3 in the Region C is described in Section 3.11. Increases in recreational fishing could support jobs, income, and social benefits in Tribal and rural river communities. For the effects on recreational fishing under MO3 (Section 3.11.3.5) along the lower Snake River below Lewiston, the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River) as an indicator for fishing visitation in this reach. The EIS describes that the visitation in the long-term in the lower Snake River, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting outfitting and tourism businesses in the region. The potential for changes in recreational fishing of anadromous fish under MO3 is described in Section 3.11, which could result in increases in recreational fishing in the long-term that would support jobs, income, and social benefits in Tribal and rural river communities. However, there is uncertainty around recreational fishing visitation in the long-term given the current measures to regulate, protect, and support ESA-listed fish populations and habitat in the region. For MO1, MO2, MO4, and the Preferred Alternative, the evaluation qualitatively describes the potential for effects associated with recreational fishing by referencing the potential effects on relevant fish populations, as described in Section 3.5. Fish modeling results vary for some of the alternatives, for example for the Preferred Alternative and MO4 (i.e., models show either beneficial or adverse effects to anadromous fish), so it is assumed that the potential changes in recreational fishing would follow these changes in fish abundance in the long-term. Co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Moreover, the EIS analysis found only a minor effect to the Southern Resident killer whale would result from implementing MO3 (which includes the dam breach measure). MO3, the breaching of the Lower Snake River dams, found minor effect to SRKW. This is based on the following facts: The CSS and COMPASS modeling indicated a minor to major effect to spring chinook Smolt to adult returns. The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). The co-lead agencies agree that the quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differentially from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020). The co-lead agencies note the contribution to the prey of Southern Resident killer whales through the continued existence of their respective independent congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as Lower Snake River Compensation Plan (LSRCP), which is administered by USFWS. Removing the Snake River dams alone will not recover the Chinook salmon to 1 million. The CFC did independent research that indicated that if dams were breached and the spill to 125% over the lower Columbia dams would "recover" the salmon populations. However, for the CRS that was not an alternative because it would not serve the obligations of the Lead agencies, including the Pacific Northwest Power grid. Combining breaching the four lower Snake River dams with spill up to 125% at the lower Columbia River projects is not a reasonable alternative under NEPA. For power and transmission, MO3 and Multiple Objective alternative 4 (MO4) individually each caused large loss-of-load probability (LOLP) results (i.e., increased incidence of blackouts). Without major additional new resources, MO3 would result in power shortages in about one in every seven years. MO4 would produce power shortages in about one in every four years. If MO4 were implemented, in addition to breaching the four lower Snake River projects as called for in MO3, then the LOLP would be even higher, with power shortages potentially occurring almost every year. Additionally, if these MOs were combined, in 5% of the years the power shortages would average close to 1,000 MW in early August when the region might be experiencing a heatwave with particularly high demand for air conditioning. For reference, 1,000 aMW is about the average amount of power consumed by Seattle City Light. As shown in Section 3.7, MO3 causes an increase in power reliability concerns in the winter and the summer. MO4 increases power reliability concerns in the summer. Thus, the combination has the largest impact during the summer. The cost of zero-carbon replacement resources for MO3 and MO4 individually are up to $1 billion/year. Resource replacements and associated transmission interconnections for the combination of MO3 and MO4 would be higher, though not likely as high as the sum of the two MOs individually. Assuming that the replacement resources consist largely of wind, solar, and batteries, this would require well over 50 square miles of solar power (more than two and a half times the size of Crater Lake), large areas of new wind generation, and unprecedented amounts of batteries (more batteries in the Northwest alone than the total projection of batteries expected in the entire U.S. by 2023 per the Energy Information Administration). In addition, the reduced generation capability under MO3, particularly throughout the summer, in combination with the impacts of the measures in MO4 and the uncertainty about the characteristics of replacement resources, would result in less capability to provide voltage support and dynamic stability for transmission system reliability than under MO3 or MO4 individually. Thus, combining MO4 with breaching the four lower Snake River projects, would produce unreasonable power and transmission reliability impacts, and it is highly speculative that replacement resources could be sited, permitted and built to address these impacts. In the long-term, the co-lead agencies would likely not own or operate project lands after the projects are deauthorized under MO3. Project lands would be transferred through real estate actions, possibly to state or local government agencies. Because of the uncertainty regarding the ownership or management of the lands, no evaluation of the potential for land development was undertaken. If MO3 were selected, the Corps could use the CRSO EIS as a basis for seeking congressional authority to breach the four lower Snake River dams. After receiving both authority and appropriations from Congress, the Corps could initiate a detailed construction and design report for the breach measure, identification of disposal areas, real estate acquisition and disposal, permits, and mitigation requirements, including temporary fish hatchery production. Each of these actions are required prior to breaching, and the Corps does not have the authority or appropriations necessary to immediately breach the project's embankments.
3970	42	Shelley Silbert	Great Old Broads for Wilderness	6. Several CRSO-DEIS Statements and Implications Mislead and Misinform the Public. For example, let's remember that although the co-agencies and special interests speak of the "Columbia-Snake System" as single unit, and as if breaching the 4 dams would shut down all freight transportation in "the system," below Ice Harbor Dam, all waterway transportation and irrigation would continue as usual. This fact needs to be publicly stated. Let's also remember that grain and other products emanating from Idaho's Region 2 can be shipped via truck-rail, and negotiated agreements can be made to set ceilings on rail transportation costs, or the rail line from Lewiston to Ayer Junction (near Pasco), where it connects with the Union Pacific or BNSF rail lines, could be purchased. Such rail line purchases have occurred before in Washington, where the state bought three short lines under the Washington Department of Transportation's Grain Train Program. In other words, these are not unsolvable problems ... nor is salmon/steelhead survival endangerment an unsolvable problem. The co-agencies already have the solution in their hands: Alternative 3, breaching of the four lower Snake River dams, combined with a TDG level of 125% saturation at lower Columbia dam t ailraces .	The EIS does not assume that barge volumes would decrease substantially on the Columbia River as a result of MO3. The outcomes of the flows that end up on the Columbia River terminals are the product of all shippers in the area minimizing transportation costs and vary by rail rate increase scenario. Under scenario 1 (Effects of Dam Breach on Grain Transportation Assuming Constant Rail Rate), Columbia River barge transportation would continue to be important in the region downstream of Pasco under MO3, representing 32 percent of all grain moving to export (compared to 65 percent under the No Action Alternative). Grain transported on the river is assumed to arrive via truck. Under scenario 2 (Effects of Dam Breach on Grain Transportation Assuming Rail Rate Increase of 25 Percent), the EIS finds that the distribution of volume moving via different transportation modes would change substantially under this scenario, as the increase in rail rates would shift grain shipments away from shuttle rail lines to a combination of truck and barge. In Scenario 2, the total volume moving by shuttle rail to export ports would be 120 million bushels, a 67 percent increase from the No Action Alternative and a decrease of 14 percent from Scenario 1. The total volume moving by barge, 83 million bushels, decreases from the No Action Alternative estimate of 131 million (a decrease of 37 percent) and increases from the Scenario 1 estimate of 64 million (an increase of 29 percent). Note, river ports still operating on the Columbia River at Pasco, Washington, would experience a large volume increase, mostly from shipments arriving via truck traveling longer distances to access the river ports. As previously indicated in responses to similar comments from your organization, the agencies disagree that an alternative that includes breaching the four lower Snake River dams and spring spill operations to 125% total dissolved gas (TDG) at all four lower Columbia River dams is reasonable given the unacceptable risks to public safety from such an alternative; thus, it was not proposed as an alternative.
3970	43	Shelley Silbert	Great Old Broads for Wilderness	Conclusion Regarding Southern Resident Orca Survival Breaching the four Lower Snake River Dams (LSR Ds), according to the CSS modeling, would result in an estimated four times increase in the return of Chinook salmon within a few years. Consequently, independent SRl<W scientists have concluded that breaching the four LSRDs is the best, and likely only, way to recover SRl<Ws. "When all of this evidence is taken into account, we believe that , as a matter of scientific evidence, it is clear that lower Snake River restoration, including dam removal, is the single biggest and most effective step we can take to restore these two important species. The evidence of continued decline for both areas and Snake River Chinook also highlights the great urgency to take this action as soon as possible." Accordingly, the Co-agencies should revise the BA to determine that the Preferred Alternative will adversely affect the SRl<Ws, and instead implement a combination of LSRD breaching under MO3, plus 1 25% TOG spill at the 4 lower Columbia dams under MO4. This is the best and likely only ecological option that offers a near -term , meaningful route to recover this critically endangered species.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). The co-lead agencies agree that the quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults form the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built.

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					NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differentially from hatchery and wild fish. Hatchery fish today likely make up most fish consumed by SRKW (NOAA BiOp 2020). Additional details on the most crucial prey stocks for SRKW, as well as their population and range, is available from several fact sheets and videos available here: https://www.fisheries.noaa.gov/species/killer-whale#spotlight. For more information, visit this National Marine Fisheries Service (NMFS) StoryMap on SRKW: https://noaa.maps.arcgis.com/apps/Cascade/index.html?appid=3405e6637bf74e998d4ebe992c54f613. The co-lead agencies note the contribution to the prey of SRKW through the continued existence of their respective independent congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as Lower Snake River Compensation Plan, which is administered by the U.S. Fish and Wildlife Service (USFWS). The scientists from the Fish Passage Center (FPC) models predicted that breaching the four lower Snake River dams would result in an increase in about 100,000 adult Chinook salmon returning to the mouth of the Columbia River (see Section 3.5). The FPC has indicated that an alternative not analyzed in the CRSO, which includes breaching the four lower Snake River dams, along with increasing spill at the lower Columbia River projects to the 125% gas cap would result in about one million fish returns. This alternative was not analyzed in the CRSO EIS. Improving ESA-listed juvenile and adult anadromous salmonid conditions were two of the eight multiple objectives of the CRSO EIS. The agencies disagree, however, that an alternative that includes breaching the four lower Snake River dams and spring spill operations to 125% TDG at all four lower Columbia River dams is reasonable given the unacceptable risks to public safety from such an altenative. For power and transmission, MO3 and Multiple Objective alternative 4 (MO4), individually each caused large loss-of-load probability (LOLP) results (e.g. increased incidence of blackouts). Without major addition of new resources, MO3 would result in power shortages in about one in seven years. MO4 would produce power shortages in about one in every four years. If MO4 were implemented, in addition to breaching the four lower Snake River projects as called for in MO3, then the LOLP would be even higher, with power shortages potentially occurring almost every year. Additionally, if these MOs were combined, in 5% of the years, the power shortages would average close to 1,000 MW in early August when the region might be experiencing a heatwave with particularly high demand for air conditioning. 1,000 aMW is about the average amount of power consumed by Seattle City Light. As shown in Section 3.7, MO3 causes an increase in power reliability concerns in the winter and the summer. MO4 increases power reliability concerns in the summer. Thus, the combination has the largest impact during the summer. The cost of zero-carbon replacement resources for MO3 and MO4 individually are up to $1 billion/year. Resource replacements and associated transmission interconnections for the combination of MO3 and MO4 would be higher, though not likely as high as the sum of the two MOs individually. Assuming that the replacement resources consist largely of wind, solar, and batteries, this would require well over 50 square miles of solar power (more than two and a half times the size of Crater Lake), large areas of new wind generation, and unprecedented amounts of batteries (more batteries in the Northwest alone than the total projection of batteries expected in the entire US by 2023 per the Energy Information Administration). In addition, the reduced generation capability under MO3, particularly throughout the summer, in combination with the impacts of the measures in MO4, and the uncertainty about the characteristics of replacement resources, would result in less capability to provide voltage support and dynamic stability for transmission system reliability than under MO3 or MO4 individually. Thus, combining MO4 with breaching the four lower Snake River projects, would produce unreasonable power and transmission reliability impacts, and it is highly speculative that replacement resources could be sited, permitted and built to address these impacts. Thus, an alternative combining juvenile fish passage spill up to 125% and breaching the four lower Snake River dams is unreasonable, and thus was not proposed as an alternative.
3970	44	Shelley Silbert	Great Old Broads for Wilderness	One other distinction that needs to be made between the lower Snake's four dams and "the system's" other dams has to do with flood risk and management. In several places, the DEIS notes the importance of the system's dams for flood management. Quoting from the Executive Summary (p. 16) (Development and Comparison of Alternatives; Purpose and Need for Action): "The U.S. Congress authorized the Corps and [Bureau of] Reclamation to construct, operate, and maintain the system projects to meet multiple specified purposes, including flood control (also referred to as flood risk management) ... though not every project is authorized for every one of these purposes." The ES states that the PA " ...ensures that human life and safety can be protected through flood risk management." However, in the case of the lower Snake River, we are not talking about dams designed for flood control. The four lower Snake dams are run-of-the-river dams with little reservoir space for fluctuating water levels and with virtually no storage capacity, excepting perhaps a few hours of storage during peak flow. In fact, in Lewiston, Idaho, at the confluence of the Snake and Clearwater rivers, a levee exists to prevent overflooding from the reservoir. A few years ago, Lewistonians raised a ruckus over the possibility that the city's already imposing levee would need to be built higher due to possible reservoir overflow caused by sediment buildup at the Clearwater-Snake confluence. Indeed, build-up of sediment at the confluence is a continuous and costly problem that creates - as the rivers rise -flood risk for Lewiston. In 2012, for example, the prospect of needing a 3-foot higher levee created a community controversy in which community leaders strongly opposed raising the levee, one of whom said, "higher levees would further cut off Lewiston from its historic waterfront." "[Then] Lewiston Mayor Kevin Poole said dredging should be the first tool used to alleviate flood worries, and other actions should be favored over levee raising. 'Lewiston and Clarkston both always had a connection to the river,' he said. 'To put that barrier [a higher levee] there to me just doesn't make sense when there are some other things that they can do engineering-wise to handle the flood hydraulics." ' In response to the controversy, the U.S. Army Corps of Engineers opted to not raise the levee, but to "guard against long-term flood risks caused by the accumulation of sediment in the slackwater of the Snake River. The agency's 1000-page Programmatic Sediment Management Plan and environmental impact statement called for dredging at the ports of Lewiston and Clarkston and in the shipping channel of the lower Snake and Clearwater rivers." 93 Just to prepare the plan, the Corps spent more than 8 years and $16 million. Additional costs (also in the millions) accrued during the public review and final writing and adoption of the plan. In an April 8, 2013 interview with Boise State Public Radio reporter Aaron Kunz, the principal Corps spokesperson for the sediment management plan, Bruce Hendrickson, stated that the Corps needed $39 million from Congress before the Corps could begin work on the dredging project, as that was the cost of what the Corps planned to do. The bottom-line regarding flood risk and control is that the four lower Snake dams do nothing to prevent flooding at Lewiston-Clarkston or downstream but do create flood risk. With the Lewiston levee already built, landscaped and maintained, breaching of the lower Snake Dams would gradually yet relatively quickly eliminate sediment buildup, flood risk at Lewiston Clarkston, and the costs of continuously needing sediment dredging. In 2015, the actual cost to dredge 400,000 cubic yards of sediment from the navigation channel alone in the Lower Snake and Clearwater rivers near Lewiston-Clarkston (partly due to delay) was $9.9 million. 95 As the saying goes, "If you find yourself in a hole - particularly if it's filled with disappearing money, stop digging." Yet the Corps intends, at taxpayer expense and (currently) an invalid rationale, to keep on digging. The Great Old Broads for Wilderness urges the Corps of Engineers to toss its flawed rationale, and by doing so, save taxpayer money and reduce flood risk. It's time to "prefer" CRSO-DEIS Alternative 3, preferably combined with a TDG level of 125% saturation at the 4 lower Columbia dams.	The lower Snake River dams are not authorized for flood risk management as stated in the EIS in Section 1.2 of the EIS. Section 3.9, Section 7.7.11, and Table 7-1 indicate that there is no elevated risk to flooding in the Lower Snake River reach for any of the EIS alternatives. The Lower Granite reservoir is drawn down during high water events to ensure water levels remain low. Additionally, the Walla Walla District constructed eight miles of levees around Lewiston as part of the Lower Granite Project to help protect lives and property from potentially destructive high-water conditions after the dams were built. The most recent dredging in the Lewiston area has been to maintain a 14-foot depth in the Federal navigation channel, as discussed in the 2014 Programmatic Sediment Management Plan (PSMP). Although flood risk management is not an authorized project purpose of the lower Snake River projects, ensuring adequate flow conveyance through the Lewiston levee system supports the original Lower Granite Project design and all associated project purposes. Dredging outside of the navigation channel limits to maintain conveyance capacity has not been conducted since 1992. Dredging for channel conveyance capacity would only occur in the future if there were an observed accelerated rate of sediment accumulation and a heightened risk of levee overtopping, which does not appear to be the current trend. The PSMP identified the raising of the Lewiston levees up to three feet in selected areas as a potential system management option to manage flood risk, however this has not been evaluated further since the PSMP ROD. Channel capacity has been lost since the Lower Granite project was constructed, as early dredging efforts were not able to maintain the original capacity. However, provisional analyses described in the PSMP (Chapters 10-12) indicate that some segments of the channel in the upper reach of Lower Granite Reservoir are tending towards a state of relative morphological equilibrium under the prevailing sediment loads and discharges. Under the current flood control operations of Lower Granite Dam, during large flood flows, fluvial sediment transport processes were predicted to form an approximate equilibrium channel that maintains the conveyance capacity of the upper reach of Lower Granite Reservoir. During equilibrium sediment transport, the hydraulic conditions are great enough that sediment erosion balances sediment deposition so that there is no net change in the equilibrium depth of the channel segment. At even higher velocities, if sediment loading remains constant, the rate of sediment erosion will exceed deposition and a channel Section will tend to erode to reestablish a new deeper equilibrium depth. Sediment eroded from the confluence area was predicted to transport into the deeper reservoir reach downstream of Silcott Island where it has less effect on the flood stage at the Lewiston levees. According to the PSMP, levee capacity is predicted to remain adequate into the future. Modeling and monitoring of sediment accumulation were recommended in the PSMP for determining if/when channel conveyance dredging is required to maintain capacity, rather than attempting to maintain the original capacity, as was done during the early years of the project.
3970	45	Shelley Silbert	Great Old Broads for Wilderness	7. The CRSO-DEIS Fails to Take a Panoramic View of the PNW's Fast-Changing Energy Scene and to Account for an Increasing lack of Need for lower Snake Dam Energy Production. The fast-changing Pacific Northwest (PNW) energy scene also leads us to that same conclusion. As shown in Graph F below, the four lower Snake dams, combined, produce 3.3% of the PNW's power supply, and the PNW regional power surplus - with breaching of the lower Snake dams - would be 13.7%. For 2020, the projected regional load is 23,906 average Megawatts (aMW). Under critical water condit ion s, the projected generation in 2020 is 28,820 aMW, which leaves a surplus of 3,950 aMW - four times the average lower Snake production. In other words, were all four lower Snake dams breached, the PNW region would still have an energy surplus. [graph included in document Pacific Northwest Surplus Energy Relative to LSR Dams (1937 Critical Water Year)] [graph included in document: PNW Region Variability of Annual Hydro Generation OY 2020 through 2029 Under Different Water Conditions] Although the DEIS Executive Summary states that "Significant quantities of replacement resources would have to be built to maintain regional power reliability" or "the region would face the likelihood of a loss of load event, e.g. a power blackout, nearly one in every seven years in M03 ...," Graphs G above and H below suggest otherwise. First, the lower Snake power output is not particularly significant, nor are blackouts under any circumstances related to lower Snake output likely. This is especially true if one considers the already occurring energy efficiency gains, spoken of further below. Additionally, BPA's Strategic Plan calls for the export of surplus power. However, for that disappearing power too, there is a solution: don't export surplus power. Also, at the pace energy innovations are happening today, such as battery storage innovations, brownouts and blackouts will become even more rare. The 1937 "critical water year" represents the lowest recorded river flow; 1958 the "average water year;" and 1974 the "high water year." The amount of hydropower generated in any given operating year depends upon the volume of available water in the rivers. Bonneville Power Administration uses 1937 water levels in its energy forecast - understating, in effect, the volume of surplus power that will likely be available much of the year. But Graph G above shows variability in annual hydro generation projections for operating year 2020 through 2029 under different water conditions. That variability can alter the amount of PNW energy surplus, as shown in Graph H below. [graph included in document; Pacific Northwest Surplus Energy Relative to the LSR Dams 1958 Water Year] During an average water year, PNW surplus energy increases by an estimated 3,779 aMW, nearly four times the average output of all four lower Snake dams, combined. A high water year would produce an additional 3,127 aMW, more than three times the average output of all four dams, combined. In other words, the use of the critical water year, 1937, for power projections consistently underestimates the amount of surplus energy in the Pacific Northwest. According to the Corps of Engineers' Data Query website, the lower Snake dams 2004-2019 average annual Megawatt production was a mere 963 aM W.99 Thus, we reit erat e: Were all four lower Snake dams breached, the PNW region would still have a more than sufficient energy surplus. There would be no cause to fear any of the special-interest hyped power "blackouts." [graph included in documents: Seven Year Plan Resource Portfolio] In fact, the PNW could see that surplus grow higher due to efficiency gains. As shown in Graph I above, the Northwest Power and Conservation Council (NWPCC) projects additional power resulting solely from efficiency gains in 2020 will be 1000 aMW, slightly more than the above 2004-2019 annual output of the four lower Snake dams. In the DEIS Executive Summary (p.25), the co-agencies state that Alternative 3 (MO3) "would not meet the objective to Provide a Reliable and Economic Power Supply. Under MO3, hydropower generation would decrease by 1,100 aMW under average water conditions, and 730 aMW under low water conditions compared to the No Action Alternative. "	The EIS acknowledges that the energy sector is constantly undergoing transformation and that technological improvements will likely bring other options. To avoid speculation, the EIS analysis focuses on primary technologies identified by the Northwest Power and Conservation Council (Council) in their 7th Power Plan (page 13-5) that are deemed proven, commercially available, and deployable on a large enough scale in the Northwest. The EIS also examined the use of storage technologies considered a long term resource of the Council's 7th Power Plan, but has become more commercially available since the release of the 7th Power Plan, and will now likely be considered a primary resource in the Councils 8th Power Plan. The comment suggests that the regional supply of power is sufficient without the output of the four lower Snake River dams, and even sufficient without replacing the output of the lower Snake River dams with other resources. The comment reaches this conclusion by comparing the average resource output for the remaining regional resources (without the four lower Snake River dams) with average load in the region. Such an approach, however, only demonstrates that on average that is under average conditions - all power system needs would be met. This approach does not address conditions other than average. That is, regional demands for power would not be met at times of greater than average load or lower than average resource output. In those instances, power system emergencies or blackouts would occur. The EIS uses a more robust measure of power system reliability and resilience than the average MWs approach suggested by the commenter. Specifically, the EIS uses the loss-of-load probability (LOLP) metric utilized by the Council. See Section 3.7.2.2; Appendix H Power and Transmission, at Section 2.1 and Appendix I Hydroregulation, Section 2.4.4 in the draft EIS. The LOLP metric evaluates the adequacy of power supply in the region to meet firm power needs under various conditions. It is measured in terms of a percentage, and represents the likelihood of a blackout occurring in a year. See Appendix H Power and Transmission, at Section 2.1 in the draft EIS. The current LOLP under the No Action Alternative is 6.6 percent; this is equivalent to one blackout in every 15 years. The EIS uses this LOLP level as the benchmark from which to gauge the other Multiple Objective (MO) Alternatives. Under MO3, on average, the region has surplus generation leading to export sales during certain periods and water years. Nevertheless, to maintain regional reliability at the LOLP levels of the No Action Alternative, replacement resources would be needed. This is driven by the timing and magnitude of changes in hydropower generation analyzed in the EIS. As shown by the analysis of the LOLP, in some years and times of the year, particularly winter and later in the summer of drier years, without the four lower Snake River dams there would be insufficient power supply in the region leading to power emergencies and blackouts. Specifically, without replacing the power from the four lower Snake River dams, the LOLP of the region would more than double to 14 percent, which is equivalent to one blackout every seven years. See Section 3.7 in the draft EIS at page at 3-903 and Appendix H-Power and Transmission, at Table 2-1. The commenter also presumes that the power produced from the four lower Snake River dams is surplus and exported out of the region. The power output for the four lower Snake River dams are not exclusively sold as surplus as the commenter suggests. Bonneville sells power from the Federal Columbia River Power System (FCRPS) as a unified system, not from specific projects. In this regard, the power generated from the four lower Snake River dams are pooled with all other FCRPS power sold by Bonneville to meet Bonneville's collective power obligations. Most of this power is used to meet the loads of regional publicly owned utilities, such as municipalities, rural utilities, and public utility districts under long-term power-sales contracts (see Section 3.7.2.5 Bonneville Power and Transmission Customers in the draft EIS). A small portion of power is sold in the California energy market, but these sales are not from specific projects, but rather from the collective FCRPS. The comment suggests that the main benefits of the four lower Snake River dams are the average annual energy output these resources produce. While an important supply of actual power, these projects also provide generating capability that is critical to power system reliability function. As explained in Section 3.7.3.5 of the draft EIS, Potential Replacement Resources and Associated Costs, breaching the four lower Snake River dams would have a direct and substantial impact on the supply of Federal power to meet regional load requirements. These impacts would affect both actual energy to meet regional load requirements and generating capacity (peaking capacity) to meet variability in loads. The comment suggests that the output of regional resources are being underestimated because of the practice of using critical water assumptions for purposes of determining the available supply of power. However, the EIS power reliability analysis does not assume only critical water when determining the effects of the No Action and MOs on LOLP. Instead, the EIS relies on the full range of potential water years (including average water), not solely the critical water year as implied by the comment. Again, the timing and magnitude of changes in power supply and demand are important to consider not solely the total surplus in the region as provided in the comment. The profile of hydropower generation is described further in the draft EIS in Appendix J and the volume of surplus sold by Bonneville under each MO is described in Appendix H, Chapter 4 Power and Transmission Rates. In the rates analysis accompanying each MO, Bonneville does use critical water as an input to determining the power rates. Using critical water year assumptions for power planning and analysis is a well-established and long-standing practice in Bonneville ratemaking. Because the fuel of a hydropower system (water) is variable and unknown, Bonneville uses the minimum amount of power that may be expected in an adverse year to set its firm power obligations for rates. This metric,

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					while not a guarantee, creates a high degree of likelihood that the firm power obligations will be met with the existing hydropower system, minimizing the need to assume and forecast unnecessary and costly acquisitions. See Sections 3.7.2.5, 3.7.2.7 in the draft EIS. As the commenter notes, greater than critical water typically occurs. In these years, the additional power is sold as secondary or non-firm power. See Section 3.7, page 3-801 in the draft EIS. Projected sales from secondary power is included in Bonneville's rates, which is based on average water conditions across 80 water years of record. Finally, the EIS power analysis included all cost-effective conservation identified by the Council in the load forecasts analyzed in the power analysis (Section 3.7).All cost effective conservation identified by the Councils 7th Power Plan is included in the load forecast. Under Washington and Oregon law, all cost effective conservation must be acquired regardless of the status of the FCRPS. Therefore, conservation was not considered a potential resource replacement. The EIS analysis considers that all energy efficiency assumed in the Councils 7th Plan is appropriate and, likely, aggressive. The Councils recent State of the Columbia River System, Fiscal Year 2019 Annual Report, February 2020, p. 11 (https://www.nwcouncil.org/sites/default/files/2020-3.pdf), states While the region currently is on track to meet Seventh Plan goals, there are some areas to watch including forecasts of declining savings from efficiency programs. And whether the region will identify new savings opportunities to replace those of residential lighting. Utilities achievements in energy efficiency have been on an annual decline since 2016. Forecasts from utilities show that this trend is expected to continue, despite relatively stable funding levels. Given this trend, there is some uncertainty as to whether there will be enough savings from other mechanisms to reach the 1,400 average megawatt goal by the end of Fiscal Year 2021. This information indicates that it would be difficult to increase the energy efficiency goals beyond the Councils Plan. Based on this information, it is not likely that substantial amounts of additional energy efficiency would be available as prices increase, such as in MO3.
3970	46	Shelley Silbert	Great Old Broads for Wilderness	However, if the NWPCC efficiency-gain projection above is correct, as we believe it will be, Alternative 3, including breaching, would meet the DEIS systemwide objective: Provide a Reliable and Economic Power Supply. It follows, too, that efficiency gains will diminish the role the dams play in maintaining reliabilit y, flexibility and dispatchability, and diminish their effect on the region's risk of power shortages compared to the No Action Alternative. Efficiency gains would also then lessen any need for "significant quantities of replacement resources," and thereby, also save taxpayer dollars. The entire notion of a need for "significant quantities of replacement resources" with regards to power is dubious since that "need" is so minimal ... or nil ... and is, importantly, an already underway solvable "replacement" problem.	The EIS power analysis included all cost-effective conservation identified by the Northwest Power and Conservation Council (Council) in the load forecasts analyzed in the power analysis (Section 3.7). All cost effective conservation in the region is assumed to be acquired consistent with existing law and mandates regardless of the status of the four lower Snake River dams. The Council estimated available efficiency gain projection, then, is not a potential replacement resource for the lost capability from the four lower Snake River dams. To maintain regional reliability at the No Action Alternative levels, other types of replacement resources are needed. Appendix H, Section 2.2.2 in the Final EIS provides additional details regarding efficiency and the selection of replacement resources.
3970	47	Shelley Silbert	Great Old Broads for Wilderness	The CRSO-DEIS Pr efe rred Alternative fails on both the fish and power fronts. That is, it fails to ensure achievement of a needed average of 4% or higher smolt-to-adult return ratio (SARS) for run recoveries and fails to include PNW power surplus and power savings projected to be accomplished by increasing power usage efficiency, both of which render the four lower Snake dams moot. The PA's goal of ensuring "adequate, affordable and reliable power" (ES, p.32) will be fully met by Alt ernat ive 3; that is, breaching of the 4 lower Snake dams will not unhinge the meeting of that goal. Only Alternative 3, including breaching, will ensure an SAR of at least the needed average 4% baseline for fish run recoveries. [graph included in document: Balancing Authority Load & Total Wind, Hydro, Fossil/Biomass, Nuclear Generation, and Net Interchange] March 2019, 7-day BPA Power Generation Historically, BPA's revenue stream relied in part upon the sale of surplus energy. Today, however, due to fast-paced development of other energy sources in places such as California to which BPA previously sold surplus at a profit, BPA's surplus power is no longer in high demand. BPA now is, in fact, compelled at times to sell the Northwest's surplus power at negative prices. There are times today, too, such as during spring run-off, when surplus power significantly increases, and that increase causes BPA to reduce or shut down wind and other power sources as per its "Oversupply Management Protocol." Indeed, at times, as shown in Graph J above, BPA's combined power generation reaches a level approximately twice as great as its contracted power demand.	Contrary to the statement in the comment, the loss of the power generated from the four lower Snake River dams has adverse effects on regional power reliability and increases power costs. See Draft EIS at page 3-903 (describing the effect of MO3 on power system reliability); Section 3.7.3.5, Table 3-166 (describing power rate impacts of MO3 and a potential 40 percent increase above the No Action Alternative). For these reasons, and others stated in the EIS, MO3 was found to not meet the objective of ensuring an adequate, economical, efficient and reliable power supply. The statement that Bonneville revenues include the sale of surplus energy is accurate; however, Bonneville surplus power is still in demand and sold regionally and exported beyond the region, when available. If the output of the four lower Snake River dams is removed, then Bonneville would have less firm power (used to serve regional utilities) and less surplus power to sell. The rate pressure impacts of this outcome are described in Section 3.7.3.5, Table 3-166, Draft EIS. The comment notes that Bonneville sells surplus power during certain months of the year. However, Bonneville's firm power obligations are determined by the load placed on Bonneville throughout the year. These loads tend to be winter peaking, meaning the extra surplus produced in spring does not assist in meeting these firm obligations. Regarding oversupply management protocol and negative prices, it is Bonneville policy not to bid on negative market prices. It should be noted that the 4% Smolt-to-Adult return rate (SARs) target referenced throughout this comment refers to the Northwest Power and Conservation Councils (Council) target for broad-sense recovery and is separate and distinct from the obligations of any single entity or in this case a requirement to be met solely by the co-lead agencies. Just as the Councils fish and wildlife program encompasses both Federal and non-Federal stakeholders in the Columbia Basin, the Councils recovery goals are shared by many parties. However, the Councils broad sense recovery goals are beyond the scope of this EIS which contemplates the effects associated with the operation and maintenance of the 14 CRS projects. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy designated critical habitat. As of the time of the release of the Draft EIS, the co-lead agencies were in consultation with the National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (USFWS) on the effects of the proposed action on ESA-listed species. The Final EIS includes the final Biological Opinions in Appendix V. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species as that is a broader goal with shared responsibility. Based on the fish analysis in Section 7.7.4 for the Preferred Alternative, the co-lead agencies anticipate that the Preferred Alternative would provide benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. The CSS model predicts that average Smolt-to-Adult return rates would increase for both Snake River spring Chinook and steelhead and will average above 2% (the lower end of the Northwest Power and Conservation Councils recovery targets for the region) as a result of the Preferred Alternative, increasing from 2.0% to 2.7% for Chinook, a 35% relative increase. The National Marine Fisheries Service COMPASS and Lifecycle Models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information.
3970	48	Shelley Silbert	Great Old Broads for Wilderness	Currently, around the world, many developments in the arena of power generation lean toward power storage capability. Yet, the 2020 CRSO DEIS co-agencies apparently remain blind to the possibility that researching or creating and building storage facilities for surplus power and/or oversupply would be a more innovative, much less expensive, more consistently reliable, and finally, for the planet's sake, more resource friendly investment than continuing tax payer funded expenditures in support of the four aged and no longer essential lower Snake River dams. We suggest that the co-agencies designate Alternative 3, including breaching plus a 125% TDG spill at the lower Columbia tailraces, as the "preferred alternative" and add a "power storage development" component to that alternative.	The EIS analysis identified the most cost-effective resources to replace lost capability from the four lower Snake River dams. Battery storage alone, however, was not identified as independently cost effective as a replacement for the hydropower generation of the lower Snake River dams. However, the EIS did identify some potential benefits of storage technologies when coupled with another resource such as solar. Consistent with the commenters suggestion, a resource portfolio using both solar and battery technology is considered in the resource discussion of MO3. See Section 3.7.3.5, pages 3-905-910 in the Draft EIS. The EIS acknowledges that technological improvements will likely bring other options. See Section 3.7.3.5, page 3-907 in the Draft EIS. As previously indicated in responses to similar comments from your organization, the agencies disagree that an alternative that includes breaching the four lower Snake River dams and spring spill operations to 125% total dissolved gas (TDG) at all four lower Columbia River dams is reasonable given the unacceptable risks to public safety from such an alternative; thus, this alternative was not proposed for analysis.
3970	49	Shelley Silbert	Great Old Broads for Wilderness	Indeed, lower Snake dam breaching itself could leave infrastructure in place that may provide a foundation for an up-to-date power-savvy approach, such as development of a power storage facility. According to Wood Mackenzie, the global energy storage business will have a record year in 2020, with 12.6 gigawatts of battery storage to come online. 1 02 The CRSO-DEIS co agencies could become a party to that growt h. Both breaching and storage development would create needed new jobs. Consider too that, since the federal government owns the dams and transmission lines, the government is competing with private enterprise, which discourages, rather than encourages, development of new sources of PNW energy. For example, with wind projects, farmers benefit by leasing land to wind pro jects; local government and state taxes are paid; and wind project developments create both short-term (construction) and long-term (operation) jobs. The co agencies have an opportunity right now to leap t o the forefront of the power storage or power production frontier with a "Pacific Northwest Breach-and-Build Power Project." For the fish, "right now" is all the time they- and we - have. "We've taken huge hits in the secondary revenues market, with cheap gas, low load growth, and the oversupply conditions. It's been a bloodbath for folks in the wholesale market." - Elliot Mainzer, Administrator, Bonneville Power Admin. We believe the above Elliot Mainzer statement, and we believe it's time to eliminate the lower Snake dams from BPA's wholesale market. Prior to 2009, the price of surplus power averaged about $60 per Megawatt hour (M Wh). Since 2009, the average price for surplus power has been about $22 per MWh. As reflected in Graph K below, when surplus power sold for about $60 MWh, power from the lower Snake dams had an annual market value of $506 million. In today's surplus market, that power would earn $186 million - a drop in revenue of $320 million. [graph included in document: COB Electricity Prices Avg. by Day, 2002-2017] In fact, the ongoing decline in prices for surplus PNW energy has created a fiscal crisis for BPA, as BPA Administrator Elliott Mainzer has publicly acknowledged. As shown in Graph L below, beginning in 2008, in reaction to its loss of revenues, BPA drew down its fiscal reserves from $917 million in 2007 to a fragile $5 million in 2017. BPA's own documents show that BPA needs $300 million for six weeks operating capit al. 104 In 2011, as shown in Graph L below, BPA began raising the price of power for its contracted Tier 1 customers. Over a period of eight years, price increases totaled 30%. There were no winners - not BPA, not Tier 1 ratepaying customers, and not taxpayers. Yet, here we have another solvable crisis. Alternative 3 could usher all three of the injured-and the Pacific Northwest's iconic anadromous fish - back into flow. [graph included in document: BPA TI PF Rate and Reserves 2006 - 2019] BPA's surplus energy revenue losses forced BPA to raise its price, so that its 2018-2023 strategic plan calls for selling more surplus power at higher prices into a falling market. See Graph M below. So what's the outlook? Public Utility Districts (PUDs) that purchase BPA power are under contract until 2028. BPA currently charges them $35.57 per Megawatt-hour (MWh) for firm (guaranteed) power. If BPA is unable to offer power at a competitive price, PUDs will reduce their power purchases from BPA or simply not renew their contracts. For BPA, that is not a good outlook. So is BPA going to be able to offer power at a competitive price? [graph included in document: Historical Priority Firm Power Rates FY2010-2019] FY 2018-19 market estimated with BP-18 Rate Case market price forecast. Pacific Northwest wind power plants produce nearly three times the output of the four lower Snake dams, combined. In Montana, new wind power projects are predicted by 2030 to produce up to 5000 aMW targeted for export to the Pacific West Coast states. Near Pendleton, Oregon, the Wheatridge project will include 292 turbines with a peak capacity of 500 aMW and includes wind, solar and battery backup to offer firm power at competitive pricing. As shown in Graph N below, wind power costs have, since 2010, fallen and become cost competitive with BPA's rate for firm contracted power. [graph included in document: Lazard Onshore Wind Cost Reports] As Graph O below shows, from 2010 to 2017, the average solar energy price declined by 76% to $38.50 per MWh. Between 2018 and 2023, California, once a major buyer of BPA's surplus power, intends to add 14,037 aMW of new solar energy to its own energy portfolio. Again, is BPA going to be able to offer power at a competitive price? Is keeping the aging lower Snake River's four dams going to sustain and/or bolster BPA's viability? From a taxpayer perspective, is it worth continuing to pay the costs associated with the lower Snake's four dams and the costs of mitigating their negative effects on anadromous fish survival? [graph included in document: I ,aza rci Solar Cost Renorts] Graph P below shows the distribution of BPA's hydropower system program costs. [graph included in document: Program costs]	The EIS acknowledges the potential future role and benefit of energy storage as described in the comment. For instance, the zero-carbon resource portfolio for MO3 includes solar resources coupled with storage technologies. See Section 3.7.3.5, pages 3-905-910 in the Draft EIS. The cost of this portfolio is also described in Section 3.7.5.3, Table 3-166 in the Draft EIS. The socioeconomic impacts of the rate pressure caused by the cost of these replacement resources on regional consumers and business is described in the social and economic effects section of MO3. See Section 3.7.3.5, page 3-928 in the Draft EIS. In addition, while the comment describes the opportunity for the co-lead agencies to lead on power storage and power production, as described in the EIS, Bonneville cannot directly own a resource and, can only acquire a major resource (greater than 50 aMW and longer than 5 years) after following a statutory process that involves input from multiple constituencies. In recent rate cases, Bonneville has implemented significant cost reductions which have bent the curve of cost increases while balancing the need to protect fish. Lower market prices on the wholesale power market have increased cost pressures by decreasing the value of net secondary revenues which serve as an offset to revenue requirement costs collected in rates charged to long-term power customers. The need for Bonneville to remain competitive is addressed in Bonneville's strategic plan, and Bonneville is on its way to executing that plan. While competitive pressures on the wholesale market are expected to continue, the Preferred Alternative is predicted to benefit ESA-listed salmon and steelhead and also meets most of the other objectives of the EIS for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. In addition, as described in Section 3.7.3.5, Table 3-166, in the Draft EIS, the cost savings associated with the loss of the four lower Snake River dams would be offset by higher resource replacement costs, integration costs, and other cost pressures. The information from the comment regarding declining prices for renewable resources is consistent with historical trends. However, a projected future cost of a theoretical renewable portfolio is not enough information to determine its cost effectiveness relative to the four lower Snake River dams. For example, the specific capacity and reliability attributes of that portfolio must be considered as well as transmission costs and availability. Even if the physical characteristics were the same, and transmission available at the same cost, comparing the production cost of that potential future renewable portfolio to Bonneville's average wholesale rate is not an equivalent comparison. This is because roughly $9/MWh of Bonneville's average wholesale rate includes benefits to the region that would have to be added to the production cost of that renewable portfolio to make it more comparable. Specifically, Bonneville's average wholesale rate includes the cost of providing subsidies to utilities with higher average system costs (approximately $250 million annually), transmission costs associated with serving loads in other balancing authority areas (approximately $100 million annually), energy efficiency programs and incentives (approximately $125 million annually), subsidies to utilities with low densities (approximately $40 million annually), and subsidies to utilities with eligible irrigation loads (approximately $20 million annually).
3970	50	Shelley Silbert	Great Old Broads for Wilderness	From 2008 to 2017, BPA's cost for fish and wildlife mitigation in the Columbia Basin averaged $727 million per year, or about 24% of BPA's annual budget. Since 2001, the Corps of Engineers has spent at least $1.8 billion on "structural improvements" to lower Snake and lower Columbia dams in an attempt to increase juvenile fish survival. After 20-plus years and a cost of over $15 billion, no Columbia or Snake River threatened or endangered	Because structural changes to improve salmon and steelhead (e.g. spillway weirs) are in place at this point, there are few additional structural improvements proposed in the Preferred Alternative. Most of the structural improvements in the Preferred Alternative are focused on improvements for lamprey passage.

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				salmon or steelhead species is on a path to recovery. Some swim on the brink of extinction. With the 2020 DEIS Preferred Alternative, the co-agencies are unconscionably proposing to continue their failed "structural improvements" routine well into the future. Despite BPA's predictable lack of fiscal reprieve, the ongoing downward trend of hydropower load demand, the significant loss and high expense of lower Snake waterway barging, and the agonizing continual decline of anadromous Snake Basin fish runs, "structural improvements" is all the DEIS offers ... a bottom-rung, least effective effort. Also, we must note that the recent agreement to increase spill to 125% total dissolved gas was intended to be a temporary lifeline for the fish, not a long-term fix.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species as that is a broader goal with shared responsibility. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the Columbia River System. Recovery of ESA-listed salmon is outside of the authority of the co-lead agencies, and was not an objective of this EIS. Recovery of ESA species is the purview of the National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (USFWS). This EIS has been developed in consultation with NMFS and USFWS to find an acceptable balance that allows the co-lead agencies to meet the Purpose and Need Statement while minimizing impacts to affected ESA-listed species and their habitats. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. The commenter's suggestion that the flex spill operation is only planned for one year is not an accurate interpretation of the Preferred Alternative. The 2019-2021 Spill Operation Agreement was a short-term agreement that was intended to last until the Record of Decision for the CRSO EIS was signed. However, the fact that it was a short-term agreement did not preclude the co-lead agencies from considering the operation as a measure to include in the EIS. In fact, this operation would attempt to provide a high potential benefit to salmon and steelhead through increased spill while avoiding many of the adverse effects to power generation and reliability associated with Multiple Objective alternative 4. This measure also would allow the co-lead agencies to gather important scientific information on the relationship between the CRS and latent mortality. This measure would be managed adaptively, through the established Regional Forum processes, to address unexpected challenges, such as potential delays to adult migration, temporary operations needed to maintain navigation, and other challenges or opportunities that may require either a temporary or permanent change. If no adaptive management needs are identified, the operation would continue until modified by the co-lead agencies.
3970	51	Shelley Silbert	Great Old Broads for Wilderness	The dams' structures themselves add to the taxpayer burden of keeping the lower Snake dammed, rendering the above-noted routine effort even more ridiculous. By 2030, if still in place, nine lower Snake dam turbines will be 60 years of age, and twelve others will be 50-60 years of age. As reflected in Graph Q below, the Corps of Engineers has projected the design-life of each turbine at 35-45 years. In other words, all of these turbines need to be rehabbed. At what cost? In its FY2016-2030 Hydro Asset Strategy for Large Capital Forecast, BPA is budgeting approximately $42 million per turbine for rehabbing 14 turbines at the McNary Dam on the Columbia River. This same Capital Forecast includes $2.8-$3 million per year for "turbine reliability" at Little Goose, Lower Granite, Lower Monumental, and Ice Harbor dams on the lower Snake. Projected out, the estimated cost of an after-2030 rehab of 21 lower Snake dam turbines exceeds $1 billion. Realistically, current and projected power market conditions make it highly improbable that money will ... or ever should ... be spent to rehab the lower Snake dam turbines. In an inappropriately timed March 30,2020, publicly released email (prior to the April 13th public comment deadline), BPA appeared to attempt to preempt public commenters' input. In the release, BPA stated, "...powertrain replacements for the Snake River Dam hydroelectric assets are not currently forecasted to occur within our 20-year system asset plan." "Currently" seems a sly word, for BPA's management plan is altered at BPA's will, depending upon age and status of assets, like turbines. At Ice Harbor, BPA has already replaced one turbine, is installing a second, and has a third on order. Why? The aged turbines need replacement. Turbines in all four Snake River dams will need to be replaced within a much shorter time than BPA's stated "49-60 years." As stated above, the Corps has projected turbine design-life at 35-45 years. In not stating this fact, BPA's publicly released statement is at best an example of misinformation. [graph included in document Lower Snake River Dams]	Turbine replacement is critical to ensure a continuous supply of renewable energy. The installation of Improved Fish Passage Turbines at Snake and Columbia River projects would increase fish survival while continuing this important source of energy. At Ice Harbor Dam, the first turbine installation is complete and the second is underway. Initial testing of this turbine supported early modeling that showed significant improvements in the turbine environment that would lead to important increases in survival of juvenile salmon and steelhead. These results show survival rates of over 98 percent. The continued installation and use of these turbines could assist in salmon recovery while supplying energy for the northwest. Additionally, the four lower Snake River dams are among Bonneville's lowest cost resources. Although the turbines at the four lower Snake River dams are between 41 and 50 years old and nearing their design lives, there are no plans for any immediate replacements. Investment decisions are driven by equipment condition, probability and consequence of failure and, as such, it is common for equipment to be in service well past its design life. For example, some turbine runners at McNary dam will be over 70 years old by the time the replacement project is complete. Long-term planning analyses that calculate the optimal economic time to replace equipment based on current and expected equipment condition, probability of failure and outage consequence, point to the late 2030s as the earliest replacement dates for major powertrain equipment at the four lower Snake River dams. Most turbine replacements are forecasted between the 2040s and 2060s which would put the turbines at the four lower Snake River dams at about the same age at replacement as McNary.
3979	1	N/A	N/A	Flexible spill is the centerpiece of the EISs Preferred Alternative. Applicable science does show increased levels of spill can help fish migration and provide some additional time for more effective actions. However, increased spills alone simply do not support a long-term fish survival strategy, and certainly do not provide a recovery strategy. In fact, parties to the current, short-term Flexible Spill Agreement have made this explicit and respected regional scientists confirm that flexible spill included in the Preferred Alternative will not deliver salmon the survival benefits they need.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species as that is a broader goal with shared responsibility. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide meaningful benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the Columbia River System. Recovery of ESA-listed salmon is outside of the authority of the co-lead agencies, and was not an objective of this EIS. Recovery of ESA species is the purview of the National Marine Fisheries Service (NMFS) and the US Fish and Wildlife Service (USFWS). This EIS has been developed in consultation with NMFS and USFWS to find an acceptable balance that allows the co-lead agencies to meet the Purpose and Need Statement while minimizing impacts to affected ESA-listed species and their habitats. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. In regards to the comment on spill, the 2019-2021 Spill Operation Agreement was a short-term agreement that was intended to last until the Record of Decision for the CRSO EIS was signed. However, the fact that it was a short-term agreement did not preclude the co-lead agencies from considering the operation as a measure to include in the EIS. In fact, this operation had broad regional support, and would provide a high potential benefit to salmon and steelhead through increased spill while avoiding many of the adverse impacts to power generation and reliability associated with Multiple Objective alternative 4. This measure also would allow the co-lead agencies to gather important scientific information on the relationship between the CRS and latent mortality. This measure will be managed adaptively, through the established Regional Forum processes, to address unexpected challenges, such as potential delays to adult migration, effects to navigation, and other challenges or opportunities that may require either a temporary or permanent change. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information.
3979	2	N/A	N/A	After considerable study, the Northwest Power and Conservation Council established regional smolt to adult spawning return goals of 4% (on average) for recovery of the endangered fish populations, but none of the EISs alternatives achieve that goal except for dam removal.Warming temperatures as a result of changing climate will further erode any benefits of flexible spill as a long-term approach and underscore the urgent need for comprehensive and meaningful action. If the approach recommended by the EIS is adopted as a long-term strategy, recovery of salmon and steelhead is not viable. All indications are that extinction becomes nearly certain for them as well as the many rural communities whose economies rely on sport fishing on the Snake and Salmon Rivers.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the Columbia River System. Recovery of ESA-listed species is the purview of National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (USFWS). Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. This EIS has been developed in consultation with NMFS and USFWS to find an acceptable balance that allows the co-lead agencies to meet the Purpose and Need Statement while minimizing impacts to affected ESA-listed species and their habitats. The 4% average Smolt-to-Adult return rate (SARs) target referenced refers to the Northwest Power and Conservation Councils target for broad-sense recovery and is separate and distinct from the obligations of any single entity or in this case a requirement to be met solely by the co-lead agencies. Just as the Councils fish and wildlife program encompasses both Federal and non-Federal stakeholders in the Columbia Basin, the Councils recovery goals are shared by many parties. Based on the fish analysis in Section 7.7.4 the Preferred Alternative will make a substantial contribution to improving Snake River anadromous fish runs, but broad sense recovery goals are beyond the scope of this EIS which focuses on the effects associated with the operation and maintenance of the 14 CRS projects. The co-lead agencies used high quality information in the analysis of the CRSO EIS. Specific to salmon and steelhead, the agencies used two primary modeling approaches which yielded a range of potential outcomes for the alternatives. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult return rates would increase for both Snake River spring Chinook and steelhead and would average well above 2% (the lower end of Northwest Power and Conservation Council's recovery targets for the region) as a result of the Preferred Alternative increasing from 2.0% to 2.7% for Chinook, a 35% relative increase. The NMFS COMPASS and Lifecycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information.
3979	3	N/A	N/A	Add to this, that BPA has virtually exhausted its cash reserves, faces major repair/replacement costs for most of the turbines on the Lower Snake River, and is confronted with a dramatically changing Northwest energy market that will only get more competitive as more alternative clean energy sources come on line. BPA must significantly change its operations and divest itself of money losing assets like the Lower Snake River dams if it is to survive and provide reliable power at competitive rates. (See, Bonneville Power Administration and the Lower Snake River Dams: The Folly of Conventional Wisdom, June, 2018, by Jones & Laughy; also ttp://www.rmecon.co/RME%20Response%20to%20BPA%2020200330%20eMail.pdf), Yet, the Preferred Alternative fails to effectively address any of this.	Bonneville has high investment grade credit ratings from all three rating agencies who rate Bonneville's ability to pay its debt obligations over many years. These ratings factor for revenue producing assets, market dynamics, financial metrics including cash reserves and future capital needs among other things. In light of all factors, Bonneville has a very strong investment grade credit. As described in the Draft EIS, Section 3.7.2.5, on pages 3-801-802; and, Section 3.7.3.1, on pages 3-842-843, upward rate pressure is an important factor in the competitiveness of Bonneville's rates. The EIS describes the upward rate pressure caused by each of the Multiple Objective alternatives (MOs), the largest range of which is associated with the breaching of the four lower Snake River dams in MO3. The analysis includes assumptions about future operations and maintenance (O&M) and capital investment in the four lower Snake River dams. See Section 3.7.3.5, Table 3-166 in the Draft EIS. For hydropower, the average annual value of the four lower Snake River dams exceeds the average annual equivalent costs. The generation value at the four lower Snake River dams can be described by a range between the cost to replace the generation through new conventional resources or through a portfolio of zero-carbon resources. Although the costs of replacing the power with market purchases was analyzed, it is unlikely that short-term wholesale power markets could reliably replace the power for the long term. This range would put the annual value of power between $240 million and $500 million for the four dams combined. These numbers represent about 90 percent of the lost benefits cited in Table 3-171 in the Draft EIS because the four dams represent about 1,000 aMW of the 1,100 aMW of lost generation estimated in MO3. The average annual cost to operate and maintain all authorized purposes at the four lower Snake River dams is $75 million (Appendix Q, Table 5-1) and the annual-equivalent capital costs are $32 million (Appendix Q, Table 4-1). Hydropower costs funded by Bonneville represent about $50 million of the total annual operations and maintenance costs and nearly all of the annual capital costs, approximately $31 million. This puts the annual-equivalent power-specific costs at approximately $81 million a year. As a result, the net benefits from hydropower for the four lower Snake River dams are between $159 million and $419 million and the benefit-cost ratios are between 3.0 and 6.2. If the $34 million per year for the Lower Snake River Compensation Plan is added to the capital and expense costs, benefits still exceed costs under each replacement power scenario. Considering these costs, the net benefits range from $125 million to $385 million and the benefit-cost ratios range from 2.1 to 4.3. In the less-likely scenario that generation could be reliably replaced with short-term wholesale market purchases and assuming that the four dams represent 90% of the $150 million in market purchases required to replace the lost generation cited in MO3 (see Table 3-170, in the Draft EIS), the lower bound for net benefits would fall to $54 million and the benefit-cost ratio would fall to 1.7. With the Lower Snake River Compensation Plan included, the lower bound for annual net benefits becomes $20 million and the benefit-cost ratio becomes 1.2. From a resource competitiveness perspective, the four lower Snake River dams are among the least costly generating resources in the Federal Columbia River Power System (FCRPS) and the planned investment strategy is expected to maintain that status. As shown in the Federal Hydropower presentation at the 2018 Integrated Program Review (see Footnote 1 below), the Headwater/Lower Snake Asset Class (see Footnote 2 below) is forecast to have a 50-year levelized cost of generation (see Footnote 3 below) of $11.41/MWh based on the direct funded capital and expense (O&M) programs outlined in that process. These costs remain competitive with volatile Mid-Columbia spot market energy prices which averaged $37/MWh in 2019 and have averaged $21/MWh in 2020. Footnotes: 1. The Integrated Program Review (IPR) allows interested parties to see and comment on all relevant Federal Columbia River Power System (FCRPS) capital and expense (O&M) spending level estimates in the same forum. The IPR occurs every two years, or just prior to each rate case, and is the public review for the costs that will be recovered through rates the following two-year rate period. Long-term forecasts for the next 50 years and major upcoming projects are also shared in this forum. This information is available here: https://www.bpa.gov/Finance/FinancialPublicProcesses/IPR/2018IPR/IPR%202018%20Fed%20Hydro%20Workshop.pdf and is incorporated by reference into this EIS. 2. In the 2018 Integrated Program Review, the Headwater/Lower Snake Asset Class consisted of the four lower Snake River dams, Hungry Horse, Libby, and Dworshak dams. These projects were grouped together because they have similar cost characteristics. The Levelized Cost of Generation for the four lower Snake projects alone is slightly lower than that for the whole class including the headwater projects shown in the table. 3. Levelized Cost of Generation is defined as the forecasted direct costs and administrative overhead of producing power at a plant annualized over a 50-year period. This cost includes direct funded operations, maintenance, administrative and capital costs as well as Columbia River Fish Mitigation (CRFM) costs. Bonneville system-wide mitigation costs, such as its Fish and Wildlife program, are not included in this metric.

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					Under the Preferred Alternative the Bonneville wholesale power rate pressure is estimated to be 2.7 percent relative to the No Action Alternative. A portion of that rate pressure has already been incorporated into the BP-20 wholesale power rates; and, the remaining rate pressure likely falls within a level that Bonneville has historically been able to absorb through the costs over which it has significant control.
3993	1	N/A	N/A	Enhanced fish ladders and increased spill can solve the problem with hardly any disruption of power generation, irrigation availability, and recreational opportunities	The CRSO EIS evaluated improvements to fish ladders and increased levels and timing of spill in the Multiple Objective alternatives. The four lower Snake River and four lower Columbia River dams have fish ladders that safely and effectively pass millions of adult salmon upstream. Adult upstream passage success through these dams is relatively high, generally around 90% from Bonneville to Lower Granite dam. In addition to passing up to 60,000 salmon per day, some of these dams may pass upwards of 250,000 shad in a single day. As described in Section 7.6.2, the Preferred Alternatives includes the Bonneville Ladder Serpentine Weir Modification measure that is expected to reduce stress and delay for adult salmon, steelhead and bull trout and has the potential to increase adult salmon and steelhead survival by reducing upstream passage time at the dam. The Preferred Alternative provides a balance of resource benefits and effects with a flexible spill regime. The Preferred Alternative would be implemented using a robust monitoring plan to help evaluate the effectiveness of the spill program. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information.
3994	1	bsmathers@idahofb.org	N/A	Without the Snake River Dams, farmers would no longer have economical transportation to get crops to the coast and this will put many of them out of business. Crops would have to be transported by truck which would result in substantial cost and damage to our highways, not to mention the congestion that would result, thus creating safety hazards for other drivers.	The EIS evaluates potential effects on farmers associated with increased transportation costs under MO3 in Section 3.10.3.5. The EIS finds that under a dam breach scenario, average transportation costs for wheat farmers would increase 10 to 33 percent, but that individual farmers could experience increases that are doubled. The cost increases to specific shippers would depend upon location and would vary throughout the region, depending on transportation options at each location. Generally, those grain shippers that are the farthest from alternate shipping locations (shuttle rail facilities or river ports on the Columbia River) would be the most adversely impacted. The EIS recognizes that there is no guarantee wheat grown in the Northwest would be competitive now or in the future because there are many factors that influence international commodity markets (e.g., trade agreements, the U.S. dollar, global supply, etc.). However, the analysis finds that the cost to transport wheat to market would continue to be lower than costs paid by other wheat growers in the United States (e.g., the Dakotas and Midwest). Favorable conditions for Northwest wheat growers that help them stay competitive are: (1) the natural environment of the Palouse region (weather, soils) is ideal for growing this type of wheat, which leads to some of the highest yields per acre in the world, and (2) proximity of Northwest export ports. Currently, the cost to transport wheat to market is quite low relative to other parts of the United States and world. Environmental and human health impacts associated with increased emissions of shipping goods by rail or truck are evaluated and described in the Section 3.8 Air Quality, and increased health and safety concerns due to increased truck traffic on roadways and potential for increased accidents are described in the Navigation and Transportation Section for other social effects (Section 3.10.3.5).
3994	2	bsmathers@idahofb.org	N/A	There is low hanging fruit that should be looked at first but is hardly being talked about. First, Avian depredation of smolts travelling down the river is catastrophic. In fact, I have read in several reports that avian depredation is equivalent to all other forms of death loss combined for smolts traveling down the Columbia.	The co-lead agencies legal authorities relate to operating and maintaining the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy designated critical habitat. To comply with the ESA, the co-lead agencies have historically supported actions to mitigate adverse effects to ESA-listed species from CRS operations, through funding, direct implementation, and other means. Under the Preferred Alternative, those actions, including for the purpose of reducing avian predation on ESA-listed species, would generally continue to ensure compliance with the ESA. Other entities in the region have authorities and obligations to mitigate the impacts from avian predators and the co-lead agencies will continue to work closely with those entities to benefit ESA-listed salmonids. According to the avian management plan, the group is encouraging birds to nest in alternate locations outside of the Columbia River Basin. In addition, water management actions (Predator Disruption Operations measure) in the John Day reservoir is expected to further reduce avian predation on migrating juvenile fish.
3994	3	bsmathers@idahofb.org	N/A	Sea lions are eating and maiming a high percentage of adult salmon returning to spawn (possibly 30 to 40 percent or more). These sea lions are not endangered and are not native to the Columbia River system. They started turning up in the 1980s and are now numbering in the thousands in the lower Columbia River. I would ask that fish depredation by birds and seal lions be given more attention in the final EIS.	The co-lead agencies legal authorities relate to operating and maintaining the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy designated critical habitat. To comply with the ESA, the co-lead agencies have historically supported actions to mitigate adverse effects to ESA-listed species from CRS operations, through funding, direct implementation, and other means. Under the Preferred Alternative, those actions, including for the purpose of reducing pinniped and avian predation on ESA-listed species, would generally continue to ensure compliance with the ESA. Other entities in the region have authorities and obligations to mitigate the impacts from pinniped and avian predators and the co-lead agencies will continue to work closely with those entities to benefit ESA-listed salmonids. According to the avian management plan, the group is encouraging birds to nest in alternate locations outside of the Columbia River Basin. In addition, water management actions (Predator Disruption Operations measure) in the John Day reservoir is expected to further reduce avian predation on migrating juvenile fish.
3994	4	bsmathers@idahofb.org	N/A	Taking care of salmon and steelhead depredation would have no negative impact on the regional economy and would pay dividends toward restoring healthy salmon and steelhead runs. There are also innovations to move fish up and down the river that should be looked at in the final EIS like Whooshh Innovations.	The four lower Snake River and four lower Columbia River dams have fish ladders that safely and effectively pass millions of adult salmon upstream. Adult upstream passage success through these dams is relatively high, generally around 90% from Bonneville to Lower Granite dam. In addition to passing up to 60,000 salmon per day, some of these dams may pass upwards of 250,000 shad in a single day. The technology of fish cannons or similar devices has demonstrated some success on smaller scales, and their use will continue to be evaluated for future applications.
3999	1	ttrue@earthjustice.org	Earthjustice	The socioeconomic elements of the DEIS fail to address or employ widely accepted professional standards applicable to ensure a thorough, objective and transparent evaluation of the alternatives considered in the DEIS. These standards are expressed jointly in court interpretations of the National Environmental Policy Act (NEPA), the Corps guidance documents for socioeconomic analyses, the Principles, Requirements, and Guidelines for Federal Investments in Water Resources (PR&G) developed in response to the requirements of the Water Resources Development Act of 2007 (WRDA), the Department of Interiors Agency Specific Procedures for implementing the Principles, Requirements, and Guidelines, Executive Order 12866 Regulatory Planning and Review, and the Office of Management and Budgets Circular A-4. These deficiencies result in deep, systemic gaps in the socioeconomic elements of the DEIS, so that the document: A. Does not use all the available socioeconomic information that is relevant, accurate, and reliable.	The EIS evaluated benefits and adverse effects across an array of resource areas including potential effects at the national, regional and local level; effects are monetized and quantified, where possible, and also described qualitatively. As is common in NEPA analyses, the beneficial and adverse effects of the alternatives are expressed as a variety of qualitative and quantitative environmental and economic metrics throughout the EIS to inform decision-making. The EIS does not employ a cost-benefit framework for decision-making. Instead, the EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish a framework for evaluating the ability of an alternative to satisfy the co-lead agencies numerous legal obligations. Regarding the PR&G requirements, if an agency is seeking authorization and appropriations from Congress to fund a federal investment, it would be appropriate to analyze the alternatives under the PR&G framework. One of the goals of a PR&G analysis is to determine the economically justified alternative by conducting an economic cost benefit analysis, referred to as National Economic Development (NED) effects in the superseded P&Gs. In the NEPA context, the goal is not to determine the economically justified alternative for OMB approval. CEQ NEPA regulations (40 CFR 1502.23) address the role of cost benefit analysis within the context of NEPA compliance. The first half of Section 1502.23 discusses the incorporation of existing benefit-cost analyses into the NEPA evaluation process. The second half of Section 1502.23 states that (f)or purposes of complying with the Act, the weighing of the merits and drawbacks of the various alternatives need not be displayed in a monetary cost-benefit analysis and should not be when there are important qualitative considerations. Further there is no policy or law that requires the use of the PR&Gs.
3999	2	ttrue@earthjustice.org	Earthjustice	B. Does not make a substantial, objective effort at studying, analyzing, and evaluating, all the socioeconomic issues relevant to the actions considered insofar as it does not: Use all the available socioeconomic information that is relevant, accurate, and reliable Account fully for the socioeconomic importance of ecosystems and ecological risks Consider equally both effects that are monetized and effects that are not Take a hard look at all the socioeconomic consequences of the Preferred Alternative and other alternatives	The EIS evaluated benefits and adverse effects across an array of resource areas including potential effects at the national, regional and local level; effects are monetized and quantified, where possible, and also described qualitatively. Changes in ecosystem functions and services were addressed in the appropriate sections of the FEIS (for example, in water quality, water supply, air quality, recreation, etc.). As is common in NEPA analyses, the beneficial and adverse effects of the alternatives are expressed as a variety of qualitative and quantitative environmental and economic metrics throughout the EIS to inform decision-making. That the effects of the alternatives on fish are not expressed as monetized economic values does not mean that they were not considered in the context of the analysis. The EIS does not employ a cost-benefit framework for decision-making. Instead, the EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-lead agencies numerous legal obligations. As described in Chapter 7 of the Final EIS, the Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as the dam breaching alternative. However, the Preferred Alternative also meets the EIS objectives for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. Under the NEPA context, the goal is not to determine the economically justified alternative for OMB approval. CEQ's NEPA regulations (40 CFR 1502.23) address the role of cost benefit analysis within the context of NEPA compliance. The first half of Section 1502.23 discusses the incorporation of existing benefit-cost analyses into the NEPA evaluation process. The second half of Section 1502.23 states that (f)or purposes of complying with the Act, the weighing of the merits and drawbacks of the various alternatives need not be displayed in a monetary cost-benefit analysis and should not be when there are important qualitative considerations.
3999	3	ttrue@earthjustice.org	Earthjustice	C. Does not fully disclose all relevant information, and provide full transparency to the decision-making process, to enable the public or decision-makers to understand the rationale for selecting the Preferred Alternative.	The co-lead agencies used a multi-disciplinary and science-based approach to analyze the alternatives in the EIS analysis. The co-lead agencies invited a number of entities, including Tribes, states, and local agencies, from across the region to participate in the EIS process as cooperating agencies, and more than 30 of those invited agreed to participate. Staff from the cooperating agencies joined the technical teams and provided their expertise and review to the development and analysis of the alternatives. Leaders from the co-lead agencies met with Tribal leaders for formal consultation, and with other organizations and stakeholders to have dialogue and receive feedback as the EIS progressed. However, only the co-lead agencies have authority to make decisions regarding future operation and configuration of the dams in the Columbia River System. The co-lead agencies selected senior staff from across the country with expertise in their fields to serve on the EIS team. The draft EIS was subjected to two internal agency reviews by Corps' reviewers not involved in the development of the document. Then the document, analysis, and modeling were reviewed following an Independent External Peer Review (IEPR) process. The final IEPR report will be publicly available. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-lead agencies numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the EIS objectives) as well as the EIS objectives for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. The Preferred Alternative is also more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. As required by the National Environmental Policy Act (NEPA), the co-lead agencies evaluated each alternative for its effects on a suite of resources. These effects are summarized in Section 3 of the Executive Summary, fully described by resource and alternative in Chapters 3, 4, 5, 6 and 7; summarized by resource and alternative in Table 3-1, and presented for comparison in Tables 7-1 and 7-55 in the Draft EIS. Effects specific to anadromous fish are described in Sections 3.5.3 and 7.7.4. In the Draft EIS, Table 3-61 compares expected survival by alternatives, and Table 3-62 provides a comparison of the alternatives specific to anadromous fish. A robust analysis and fulll disclosure of the anticipated effects of all evaluated alternatives against the No Action Alternative has informed the public of the potential effects of the actions, as well as informed the decision makers of the potential adverse effects of any action that may be recommended.
3999	4	ttrue@earthjustice.org	Earthjustice	D. Does not describe the extent to which the Preferred Alternative, relative to other alternatives, will promote realization of the Federal Objective for water and land-related resources, as expressed in WRDA including: Maximizing sustainable economic development Avoiding the unwise use of floodplains and flood-prone areas Protecting and restoring the natural functions of natural systems E. Does not demonstrate that the Preferred Alternative will accomplish the Federal Objective, by maximizing the public benefits derived from the nations water and land-related resources.	The EIS evaluates the on-going operations, configuration, and maintenance of the 14 projects that make up the Columbia River System. Each alternative was evaluated for how changes in operations could reduce or eliminate adverse effects, while meeting EIS objectives and the Purpose and Need Statement. The Purpose and Need Statement includes both the federal objectives of each project, otherwise known as "authorized purposes", that came from previous WRDAs and Flood Control Acts, as well as statutory and legal commitments. The comparison of each alternative in meeting these federal purposes is in Chapter 7, Table 7-1. Chapter 3 includes discussion of any changes to floodplains, economies, and the natural environment. Summaries of the changes are in Chapter 7, Table 7-2. These 14 projects are ongoing projects, and not a new feasibility study. With the exception of MO3, implementing any of the alternatives proposed would not require WRDA authorization. However, as noted in the EIS, if M03 were recommended as the Preferred Alternative, it would require congressional authorization through WRDA or another authorization bill. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-lead agencies numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids, resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. The Preferred Alternative is most likely to satisfy multiple complex and at times conflicting legal requirements for a complex system.
3999	5	ttrue@earthjustice.org	Earthjustice	II. Socioeconomic Elements of the DEIS Fail to Satisfy Standards of Completeness and Objectivity Established by NEPA The requirements for a complete and objective analysis in environmental impact statements have evolved in response to recognition that, in the past, the activities of action agencies often were shaped by consideration of factors not relevant to a thorough analysis of the environmental consequences of a proposed action and its effects on the overall socioeconomic well-being of the American public. This negative effect on the American public as a whole came about as action agencies looked selectively at data and other information to justify decisions that produced benefits for the agencies, themselvese.g., increases in the amount of money they spend, job security, and political influenceand for their client industries. The relevant requirements for a complete and objective analysis thus aim to ensure that, when agencies develop resource-management actions/plans, they pursue the goal of producing maximum benefits for the public at large, with due consideration for the associated costs, and perform a complete, objective, and transparent analysis focused on the effects of the proposed action and a range of alternatives. In this case, though, the socioeconomic elements of the DEIS step back in time and disregard careful,	The co-lead agencies provided a robust analysis of socioeconomic effects in the EIS. As required by NEPA, the co-lead agencies evaluated each alternative for its effects on a suite of resources. These effects are summarized in Section 3 of the Executive Summary, fully described by resource and alternative in Chapters 3, 4, 5, 6 and 7; summarized by resource and alternative in Table 3-1, and once again presented for comparison in Table 7-1. Socioeconomic analysis are discussed under numerous resources: Power Generation and Transmission; Air Quality and Green House Gasses; Navigation and Transportation; Recreation; Water Supply; Fisheries and Passive Use; Environmental Justice; and Implementation and System Cost Analysis. The EIS evaluated benefits and adverse effects across an array of resource areas including potential effects at the national, regional and local level; effects are monetized and quantified, where possible, and also described qualitatively. Changes in ecosystem functions and services were addressed in the appropriate section of the Final EIS (for example, in water quality, water supply, air quality, recreation, etc.). The EIS also acknowledges the cumulative impacts to affected resources in Chapter 6 for the No Action Alternative as well as Multiple Objective alternative 1, Multiple Objective alternative 2, Multiple Objective alternative 3, and Multiple Objective alternative 4 and Chapter 7 for the Preferred Alternative as well as the climate effects in Chapters 4 and 7.

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				thorough, and objective application of these requirements. These primary and overlapping deficiencies include the failure to satisfy the standards and requirements for an adequate EIS established by the National Environmental Policy Act (NEPA). The National Environmental Policy Act (NEPA) sets the stage for defining the analytical standards the co-lead agencies must meet in developing an environmental impact statement (EIS) for the CRSO EIS and the alternatives it considers. NEPA states that federal agencies "to the fullest extent possible" must provide a detailed EIS.1 In applying this standard, courts have held that, at a minimum, NEPA imposes on an agency a duty to take a "hard look at environmental consequences" and a requirement of a substantial, good faith effort at studying, analyzing, and expressing the environmental issues in the EIS and the decisionmaking process.2 A sufficient EIS must provide good faith analysis and sufficient information to allow a firm basis for weighing the risks and benefits of a proposed action.3 A large gulf exists between the DEIS and these standards. For example: 1. The DEIS contains no consolidated, detailed, and comprehensive description of the socioeconomic costs, benefits, and impacts of the alternatives it considers on the regional economy As a result, it is impossible for the public or a decision-maker to determine, from reading the DEIS, the actual and full socioeconomic impacts of each alternative, the details of individual socioeconomic impacts on relevant socioeconomic issues for each alternative, or the relative socioeconomic impacts of the Preferred Alternative relative to other alternatives.	
3999	6	ttrue@earthjustice.org	Earthjustice	This example, from CHAPTER 6 CUMULATIVE EFFECTS, illustrates the agencies failure. The DEIS states: In general, relevant past cumulative actions that have affected aquatic species and other wildlife include construction and operation of dams, levees, and other river infrastructure; dredging and sediment 1 42 U.S.C. 4332. 2 Natural Resources Defense Council v. Morton, 458 F.2d 827, 838 (D.C. Cir., 1972) 3 County of Suffolk v. Secretary of the Interior, 562 F.2d 1368 (2nd Cir. 1977), cert. denied, 434 U.S. 1064 (1978) Natural Resource Economics, Inc. Comments on Socioeconomic Elements of CRSO DEIS 3 management; commercial and recreational fishing harvest; invasive species; floodplain development; water pollution; logging and mining; water withdrawals to support human development; and agricultural, urban, and transportation corridor development. Relevant past cumulative actions also include the voluntary actions and Federal- and state-mandated actions of private and public parties to create positive and offsetting effects for affected aquatic species and other wildlife. These include but are not limited to hatcheries and fisheries management; predation management; hydro operations and asset management; water quality management; and habitat, conservation, and land management. This statement includes no socioeconomic variables or relevant information, let alone detailed information, to evaluate the socioeconomic context in which the alternatives considered would be implemented. Thus, it excludes, for example, reference to trends that see many households placing greater value on actions that would yield increases (or diminish decreases) in salmon populations. It excludes changes in population that reflect the availability of natural resource amenities (more robust growth in population and household income for areas with more amenities). Moreover, it excludes recognition that public preferences matter. Thus, the agencies, themselves, determine what is and is not a positive effect, without describing or attempting to analyze available information about the publics preferences for increased numbers of fish that reproduce in the ecosystem, rather than for hydro operations. And the agencies never explain their failure to explain the socioeconomic value the public places on this and other tradeoffs. They simply do not acknowledge or address the strong and well-documented public preferences for increases in ecosystem health, and for abundant and resilient populations of orcas, and for ecosystem-reproduced salmon and steelhead. The agencies never analyze the socioeconomic importance of the alternatives effects of these and other variables.	The EIS evaluated benefits and adverse effects across an array of resource areas including potential effects at the national, regional and local level; effects are monetized and quantified, where possible, and also described qualitatively. Changes in ecosystem functions and services were addressed in the appropriate section of the EIS (for example, in water quality, water supply, air quality, recreation, etc.). As is common in NEPA analyses, the beneficial and adverse effects of the alternatives are expressed as a variety of qualitative and quantitative environmental and economic metrics throughout the EIS to inform decision-making. That the effects of the alternatives on fish are not expressed as monetized economic values does not mean that they were not considered in the context of the analysis. The EIS does not employ a cost-benefit framework for decision-making. Instead, the EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-lead agencies' numerous legal obligations. As described in Chapter 7 of the Final EIS, the Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as the MO3 which includes the dam breaching measure. The Preferred Alternative also meets the EIS objectives for: resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS the co-lead agencies did not identify MO3 because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. Finally, the EIS describes the multiple different ways that people may hold value for salmon and other natural resources, including non-use (i.e., "passive use") values that are not associated with direct experience (e.g., fishing, subsistence). As described in this comment, the EIS (Section 3.15.2.2) summarizes the existing literature on passive use values for salmon and affirms that the literature demonstrates that the general public holds value for the salmon and that the population that may benefit from increased salmon populations may be geographically far-reaching. However, due to limitations in the literature and uncertainty regarding the changes in overall fish abundance predicted under each alternative (as different fish are affected positively and adversely), the EIS does not rely on this literature to estimate a monetary value of the effects on fish. As is common in NEPA analyses, the beneficial and adverse effects of the alternatives are expressed as a variety of qualitative and quantitative environmental and economic metrics throughout the EIS to inform decision making, including the effects of the alternatives on fish as detailed in Sections 3.5 and 7.7.4. That the effects of the alternatives on passive use for fish are not expressed quantitatively (e.g., monetized economic values) does not mean that they were not considered in the context of the analysis. While Section 6.3.1.15 is titled "Fisheries and Passive Use," Table 6-40 in the draft EIS is described as "Reasonably Foreseeable Future Actions Relevant to Fisheries." As with commercial, subsistence, and ceremonial fishing, passive use values for fish are tied to cumulative actions that affect fish abundance. These actions are described in Tables 6-19 and 6-21 in the draft EIS.
3999	7	ttrue@earthjustice.org	Earthjustice	In Section 6.3.1.1 Hydrology and Hydraulics, the agencies further demonstrate their failure to address the socioeconomic issues and data on public preferences. In this section, the agencies speak about demand for consumptive water uses, energy development, and storage without recognition that prices play a role in determining and expressing the true, economic demand. If the prices for these goods go up, then the economic demand would go down, and vice versa, but the agencies never provide any analysis telling readers which to expect, and why. Thus, their use of the term, demand, is more a casual observation than any analysis of data, and it has little analytic meaning. Reinforcement for this conclusion comes from the agencies parallel failure to carefully examine the tradeoffsfor fish, ecosystem health, orcas, and other resourcesthat accompany the provision of consumptive water uses, energy development, and storage. These tradeoffs, and the publics preferences for the opposing outcomes, influence the true, economic demand. If preferences for fish go up, the true demand for consumptive water uses, energy development, and storage would go down, and vice versa, but the agencies never provide any analysis telling readers which to expect, and why. Moreover, the agencies never even attempt to provide a careful and complete description of how the realities of prices and tradeoffs will interact with the different CRSO alternatives to provide the public with different mixes of goods and services. In this section and others, the disregard for economic principles, and for the available socioeconomic data and tools for analyzing them, indicates that the agencies have failed to apply relevant expertise to their analysis in the DEIS.	The EIS applies economic principles and acknowledges the relationship of price and demand, including the elasticity of demand (i.e., how increasing prices may decrease demand, consistent with the statement in the comment). The power analysis applied elasticities in the retail rate analysis to assess regional economic effects. Specifically, the power analysis describes how increasing retail rates may decrease demand for electricity and applies these elasticities to the estimated demand of residential, commercial and industrial electricity consumers in the region (e.g., see Section 3.7.3.3 for the discussion of these effects on regional households under MO1). Section 5.2.2. Expenditure Analysis, of Appendix H, Power and Transmission, provides additional discussion on the demand for electricity and elasticities, including the specific elasticity estimates applied in the power socioeconomic analysis.
3999	8	ttrue@earthjustice.org	Earthjustice	The disregard for socioeconomic realities also appears in this sections description (p. 6-20) of the No Action Alternative, when it states: There could be substantial effects to hydraulics and hydrology (changes from existing condition) under the No Action Alternative from cumulative actions such as climate change. However, the contribution of the No Action Alternative to these combined cumulative effects would be negligible on its own, because the No Action Natural Resource Economics, Inc. Comments on Socioeconomic Elements of CRSO DEIS 4 Alternative operations do not appreciably change the hydrology and hydraulics in the Columbia River Basin from the existing conditions as described in Chapter 3. In an engineers eyes, it may be correct that the No Action Alternative will not appreciably change the hydrology and hydraulics in the Columbia River Basin, but the statement makes no sense from a socioeconomic perspective.4 No change in the physical characteristics of the Basin does not necessarily mean that continued operation of the existing infrastructure and programs will have no effect on the value of the goods and servicesincluding ecosystem servicesthe American public derives from these rivers and their ecosystems. Insofar as continued operation means, for example, that high levels of risk for at-risk species and for the overall health of ecosystems will persist and intensify, the No Action Alternative will absolutely have more than a negligible effect on the value of the ecosystem services associated with hydrology and hydraulics.5	The EIS evaluated benefits and adverse effects across an array of resource areas including potential effects at the national, regional and local level; effects are monetized and quantified, where possible, and also described qualitatively. Changes in ecosystem functions and services were addressed in the appropriate section of the EIS (for example, in water quality, water supply, air quality, recreation, etc.). As is common in NEPA analyses, the beneficial and adverse effects of the alternatives are expressed as a variety of qualitative and quantitative environmental and economic metrics throughout the EIS to inform decision-making. That the effects of the alternatives on fish are not expressed as monetized economic values does not mean that they were not considered in the context of the analysis. The EIS does not employ a cost-benefit framework for decision-making. Instead, the EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-lead agencies' numerous legal obligations. As described in Chapter 7 of the Final EIS, The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as the MO3 which includes the dam breaching measure. The Preferred Alternative also meets the EIS objectives for: resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS the co-lead agencies did not identify MO3 because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. The CRSO EIS appropriately evaluates the impacts to affected resources under the No Action Alternative and the Multiple Objective Alternatives, including the Preferred Alternative.
3999	9	ttrue@earthjustice.org	Earthjustice	Nowhere does the DEIS provide the public or decision-makers with the information they need to understand the significance of these potential changes in value, or to compare the changes under the No Action Alternative against the potential changes in value that might occur under other alternatives. Similarly, in Section 6.3.1.2 River Mechanics, the agencies ignore the socioeconomic importance of ecosystem services, when they state: The effects from dam breaching would be major and would be the largest influence on sediment process effects. [bold highlight added] This statement does not identify or explain the metrics the agencies used to determine what constitutes a major effect and by how much. Nowhere in this section does the DEIS incorporate socioeconomic concerns into its assessment of these effects. If, for example, the changes in sediment process from breaching were to have no effects on the value of goods and services derived from the sediment, would the agencies still consider the effects to be major? What changes in the value of goods and services constitute the boundary between major and minor effects? Between minor and insignificant?	As required by NEPA, the co-lead agencies evaluated each alternative for its effects on a suite of resources. These effects are summarized in Section 3 of the Executive Summary, fully described by resource and alternative in Chapters 3, 4, 5, 6 and 7; summarized by resource and alternative in Table 3-1, and once again presented for comparison in Tables 7-1 and 7-55. The effects determinations are described in Section 3.1. and are summarized as follows: No Effect: The action would result in no effect as compared to the No Action Alternative. Negligible Effect: The effect would not change the resource character in a perceptible way. Negligible is defined as of such little consequences as to not require additional consideration or mitigation. Minor Effect: The effect to the resource would be perceptible; however, it may result in a small overall change in resource character. Moderate Effect: The effect to the resource would be perceptible and may result in an overall change in resource character. Major Effect: The effect to the resource would likely result in a large overall change in resource character. Additionally, the co-lead agencies used current, high quality information and best science in the analysis of the CRSO EIS. Quantitative evaluations were conducted to determine the effects of each of the alternatives when appropriate. In instances where quantitative evaluations were not appropriate or possible, qualitative discussions are included to describe the effects of each alternative. The evaluations are clear, transparent, and repeatable based on high quality information. The rationale for why an impact is considered to fall under one of the intensity descriptors is included Section 3.1 and in each resource section in Chapter 3. The Alternative Comparison Thresholds subsection of Section 3.3.3.1, Analysis Metrics, provides a further summary of the impact assessment thresholds used for the River Mechanics assessment. The EIS evaluated benefits and adverse effects across an array of resource areas including potential effects at the national, regional and local level; effects are monetized and quantified, where possible, and also described qualitatively. Changes in ecosystem functions and services were addressed in the appropriate sections of the Final EIS (for example, in water quality, water supply, air quality, recreation, etc.). As is common in NEPA analyses, the beneficial and adverse effects of the alternatives are expressed as a variety of qualitative and quantitative environmental and economic metrics throughout the EIS to inform decision-making.
3999	10	ttrue@earthjustice.org	Earthjustice	The agencies compound their failure to consider socioeconomic variables and relationships in Table 6-19 Reasonably Foreseeable Future Actions Relevant to Anadromous Fish. They explain that the table provides a summary of the effects of these actions. Nowhere in this table, however, do the agencies describe foreseeable changes in the value the public, or specific groups, place on anadromous fish. Thus, the table states that Increase in Demand for New Water Storage Projects is a reasonably foreseeable future action that would have potential for 4 Note that the bio-physical assessment description of the No Action Alternatives conflicts with the facts. Evidence presented in Appendix V Biological Assessmente.g., the adjacent text and information in Tables 3-10, 3-18, 3-26, 3- 32, 3-34, and 3-41concede that the existing CRSO has on-going negative effects on anadromous fish. 5 The response to the COVID-19 outbreak illustrates this point. Some governments apparently assumed that the risk of a pandemic would not materialize and, accordingly invested what has proven to be an inefficient amount in the testing capacity, protective equipment, etc. needed to anticipate, detect, and respond to it. By doing so, it appears that they also increased the likelihood that the emergence of the virus would turn into a pandemic. To the extent that, with No Action, the agencies do not consider and anticipate similar kinds of ecological risk, then they will not be adequate to respond such risks and will be more likely to contribute to a failure to address the risk and make any risk that materializes worse than it otherwise would be. Thus, the No Action alternative is not a benign baseline against which it is appropriate to measure the ability of other alternatives to resolve ecological problems. It is, instead, a contributor to those problems but this aspect of the No Action Alternative is nowhere described, discussed or disclosed and, consequently, the presentation of the other alternatives and whether they are robust to such risks is not addressed in the DEIS. Natural Resource Economics, Inc. Comments on Socioeconomic Elements of CRSO DEIS 5 adverse effects [on anadromous fish] from changes to timing, delivery, and quantity of water in	The EIS (Section 3.15.2.2) describes the existing literature on passive use values for salmon, including the studies referenced in this comment, and affirms that the literature demonstrates that the general public holds value for the salmon and that the population that may benefit from increased salmon populations may be geographically far-reaching. However, as is common in NEPA analyses, the beneficial and adverse effects of the alternatives are expressed as a variety of qualitative and quantitative environmental and economic metrics throughout the EIS to inform decision making, including the effects of the alternatives on fish as detailed in Section 3.5. That the effects of the alternatives on fish are not expressed as monetized economic values does not mean that they were not considered in the context of the analysis. The EIS does evaluate the cumulative effects to Fisheries and Passive Use in Sections 6.3.1.15 and 7.9.18, but as described above, this analysis focuses on the effects to Fisheries given the wide-ranging uncertainty in the literature on passive use values. Finally, the United States Federal Government supports the development of alternative forms of energy through many different programs and policies. For example, the Bonneville Power Administration also has a robust conservation program, from which about 90 aMW in conservation are saved a year. Further, when acquiring long-term resources, the Bonneville Power Administration statutory directives give priority to conservation and renewable resources. The analysis for MO3 demonstrates what types of resources would be needed to replace the key attributes of the four lower Snake River dams. Included in this analysis is a resource portfolio made up of alternative forms of energy (i.e., wind, solar, and batteries). As described in Section 3.7, and Chapter 7,the adverse reliability and upward rate pressure impacts from breaching the four lower Snake River dams support retaining these resources over other alternative forms of energy.

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				different locations from new storage projects. Nowhere, however, does the table identify that an increase in the demand for higher fish populations, or for a free-flowing river, or for a reduction in overall risk to the ecosystem would have potential for positive effects on fish. Similarly, the table states that New and Alternative Energy Development is a reasonably foreseeable future action that would have a possible adverse effect from increase in lack-ofmarket or lack-of-turbine-capacity spill in the future and higher TDG levels if shifting away from hydropower to other sources occurs, but no recognition that such development could have a positive effect by showing consumers that they dont need to depend on hydropower from the Lower Snake River dams and, hence, they increase their preference for modifying the CRSO to yield higher fish populations. The agencies failure to recognize in Table 6-19 the socioeconomic issues and their potentially positive implications for anadromous fish does more than demonstrate an important vacancy in its identification of important potential effects from the CRSO, it also lays the foundation for the agencies subsequent failure to apply the relevant expertise to analyze these effects and their interactions with the different alternatives.	
3999	11	ttrue@earthjustice.org	Earthjustice	In the discussion of cumulative effects for MULTIPLE OBJECTIVE ALTERNATIVE 3, the agencies say there would be minor increases in juvenile survival and adult returns and fewer powerhouse encounters for upper Columbia River salmon and steelhead. Quite apart from the inaccuracy of this characterization, nowhere does the discussion describe the socioeconomic importance of minor increases or fewer powerhouse encounters. The discussion also says, The degree of cumulative benefits is uncertain, however, [as] there are other factors such as climate change (higher water temperatures, decreased in-river water flow, etc.) that could have adverse effects to anadromous species that outweigh benefits from measures in MO3 and other actions intended to benefit anadromous species. Nowhere does the text describe the socioeconomic importance of the uncertainty. How large are the cumulative benefits likely to be and what are the associated socioeconomic benefits? How big are the risks that things will go wrong? That is, what is the value of the ecosystem services that would be lost if the uncertainties manifested themselves as actual declines in populations of at-risk species? Also, nowhere does the text demonstrate that the agencies accounted for socioeconomic preferences and value when they concluded that the adverse effects would outweigh the benefits. From a socioeconomic perspective, these statements are meaningless and reveal only the agencies general and uninformed characterizations of some very limited aspects of the effects of the alternatives, characterizations that displace the hard look required by NEPA and fail to inform the public or decision-makers about the actual consequences of the choice among alternatives.	The EIS evaluated benefits and adverse effects across an array of resource areas including potential effects at the national, regional and local level; effects are monetized and quantified, where possible, and also described qualitatively. Changes in ecosystem functions and services were addressed in the appropriate section of the EIS (for example, in water quality, water supply, air quality, recreation, etc.). As is common in NEPA analyses, the beneficial and adverse effects of the alternatives are expressed as a variety of qualitative and quantitative environmental and economic metrics throughout the EIS to inform decision-making. That the effects of the alternatives on fish are not expressed as monetized economic values does not mean that they were not considered in the context of the analysis. The EIS does not employ a cost-benefit framework for decision-making. Instead, the EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-lead agencies' numerous legal obligations. As described in Chapter 7 of the Final EIS, the Preferred Alternative is predicted to benefit ESA-listed juvenile and adult anadromous salmonids (two of the objectives), The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as the MO3 which includes the dam breaching measure. The Preferred Alternative also meets the EIS objectives for: resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS the co-lead agencies did not identify MO3 because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. Finally, NEPA does not require the agencies to speculate on the effects of "worst-case" scenarios.
3999	12	ttrue@earthjustice.org	Earthjustice	In Section 6.3.1.8 Air Quality and Greenhouse Gases, the agencies state that their analysis identifies increased power generation from fossil fuels, including both coal and natural gas, even under the zero-carbon resource replacement portfolio, degrading air quality and increasing GHG emissions. Two sentences later, they indicate that their analysis reflects their assessment that, Based on currently available technology, other renewable resources (e.g., solar and wind) are intermittent [bold highlight added] This statement indicates that the agencies paid no attention to the socioeconomic forces and trends associated with these renewable technologies and, hence, failed to acknowledge that the prices of these technologies have been falling and probably will continue to fall rapidly. Falling prices means that these technologies will increasingly have economic incentives to find ways to overcome the intermittent character of the technology and, hence, to become competitive with, i.e., cheaper than, fossil-fuel electricity. Indeed, the falling prices indicate fossil-fuel generators may actually be unlikely to replace declines in hydropower from the CRSO. This is an especially critical omission, since the DEISs analysis of energy and other factors, albeit limited and incomplete, speaks of time lines that range from 25 to 50 years. Natural Resource Economics, Inc. Comments on Socioeconomic Elements of CRSO DEIS 6 Basing a discussion of these issues over this time horizon on currently available technology when information about future trends is readily available is not just short-sighted, it is inaccurate and misleading. In other words, the failure to integrate socioeconomics into the analysis using readily available tools and information renders the agencies analysis meaningless or worse.	The EIS acknowledges that the energy sector is constantly undergoing transformation and that technological improvements would likely bring other options. To avoid speculation, the EIS analysis focuses on primary technologies identified by the Northwest Power and Conservation Council (Council) in their Seventh Power Plan (Seventh Power Plan page 13-5) that are deemed proven, commercially available, and deployable on a large enough scale in the Northwest. The use of storage technologies is considered a long-term resource in the Seventh Power Plan, but has become more commercially available since the release of the Seventh Power Plan, will be considered a primary resource in the Councils Eighth Power Plan, and is examined in the EIS. To address concerns about potential reductions in resource costs, publicly released draft information, such as updated prices for solar and battery storage, from development of the Eighth Power Plan is included as rate sensitivities in the Final EIS. The Final EIS also includes the de-escalating cost curves prepared by the National Renewable Energy Laboratory (NREL) that will be used by the Council in the 8th Power Plan. See Final EIS Section 3.7.3.1
3999	13	ttrue@earthjustice.org	Earthjustice	In Section 6.3.1.15 Fisheries and Passive Use, the agencies show information (Table 6-40) describing reasonably foreseeable future actions relevant to fisheries. [bold highlight added] This section does not, however, include an analogous table showing information describing reasonably foreseeable future actions relevant to passive use. This failure deprives the public and decision-makers, for example, from research findings that indicate: o Valuing societal impacts from changes in salmon proceeds from recognizing various pathways of human benefit. Some benefits are relatively obvious, such as resource use and extraction in the market economy, e.g., commercial fish harvest, and revenue from fishing-related expenditures. A less recognized but important dimension are nonmarket benefits, such as the recreational enjoyment of a fishing experience. An angler may contribute only minimally to a local economy through the act of fishingyet the opportunity to engage in this pastime may be of extraordinarily high value to that individual. Yet human appreciation of natural resources such as salmon goes deeper still. For decades environmental economists have recognized an important category of benefits known as non-use values. Essentially, resources may be valued without the necessity of direct experience. Notions of value predicated on resource extraction, harvest, and even nonconsumptive recreational use are overly limiting. Categorically neglecting non-use values can lead to significant underestimates of public welfare. Salmon recovery within a relatively small watershed has been found to be valuable to households across the nation. [S]tudies consistently indicate that households in the Pacific Northwest and beyond have a high WTP [willingness to pay] for increased salmon.6 [citations omitted] This summary of relevant literature make clear that, because the agencies failed to consider the passive-use values of resources affected by the CRSO, it is reasonable to conclude that the DEIS probably significantly underestimated the public benefits from actions that would restore the Lower Snake to a free-flowing river; increase the populations of salmon, steelhead, orcas, and other at-risk species; and increase the area of healthy wildlife habitat. The agencies treatment, in Chapter 3, of research on passive use provides additional support for this conclusion (see further discussion of this issue, below).	The EIS describes the multiple different ways that people may hold value for salmon and other natural resources, including non-use (i.e., "passive use") values that are not associated with direct experience (e.g., fishing, subsistence). As described in this comment, the EIS (Section 3.15.2.2) summarizes the existing literature on passive use values for salmon and affirms that the literature demonstrates that the general public holds value for the salmon and that the population that may benefit from increased salmon populations may be geographically far-reaching. However, due to limitations in the literature and uncertainty regarding the changes in overall fish abundance predicted under each alternative (as different fish are affected positively and adversely), the EIS does not rely on this literature to estimate a monetary value of the effects on fish. As is common in NEPA analyses, the beneficial and adverse effects of the alternatives are expressed as a variety of qualitative and quantitative environmental and economic metrics throughout the EIS to inform decision making, including the effects of the alternatives on fish as detailed in Sections 3.5 and 7.7.4. That the effects of the alternatives on passive use for fish are not expressed quantitatively (e.g., monetized economic values) does not mean that they were not considered in the context of the analysis. It is correct that, while Section 6.3.1.15 is titled "Fisheries and Passive Use," Table 6-40 in the Draft EIS is described as "Reasonably Foreseeable Future Actions Relevant to Fisheries." As with commercial, subsistence, and ceremonial fishing, passive use values for fish are tied to cumulative actions that affect fish abundance. These actions are described in Tables 6-19 and 6-21 in the Draft EIS.
3999	14	ttrue@earthjustice.org	Earthjustice	o [T]he Total Economic Value [use value plus non-use value] for a species is likely to be underestimated when respondents feel that the population of the species is at a reasonably secure level. [Threatened and endangered (T&E)] species provide considerable benefits and have great value, pointing to the need for greater funding and more preventative measures in their recovery. Evidence from this study shows that people's valuation of T&E species has indeed increased over time.7 These findings suggest that it would be reasonable for the agencies to foresee future actions wherein Americans assign increasingly larger values to actions that promise 6 Weber, M.A. 2015. Navigating benefit transfer for salmon improvements in the Western US. 7 Richardson, L., and J. Loomis. 2008. The total economic value of threatened, endangered and rare species: an updated meta-analysis. Natural Resource Economics, Inc. Comments on Socioeconomic Elements of CRSO DEIS 7 to increases in salmon and steelhead populations. These larger values, which include both use value and non-use values (also known as passive-use values) likely will emerge if the public perceives an increase in the risk of extinction for salmon and steelhead, and in response to evidence indicating other species around the world are becoming increasingly threatened with extinction.	That scarcity influences the value people place on resources is a well-accepted economic principle. It pertains to threatened and endangered species, which are, by definition, at greater risk of extinction. This comment correctly highlights this point as does the summary of literature in Section 3.15 in the EIS on passive use values. Specifically, the literature identifies that people value recovery of ESA-listed species and increasing their abundance. However, the literature generally evaluates passive use benefits of large-scale population changes (including "restoring" salmon populations, "delisting" species, or doubling population sizes). Values people hold for such changes are not necessarily scalable for more marginal changes in population levels as are expected under the various alternatives in this EIS. The EIS is additionally consistent with this comment in describing that use (e.g., commercial and recreational fishing) values for salmon would increase with increased abundance.
3999	15	ttrue@earthjustice.org	Earthjustice	o The incremental passive use values for the increase in anadromous fish due to the dam breaching [on the Lower Snake River] is [sic] ranges from a high of $879 million for households in the Pacific Northwest and California to a low of $66 million with a middle range between $142 and $508 million. Also based on the existing literature there appears to be a passive use value of $420 million annually for returning the Lower Snake River to a free-flowing condition, independent of any effect on salmon populations.8 This statement demonstrates that, since at least 1999, economists have published estimates of the passive-use value the public would realize from increases in Snake River salmon populations on the Snake River and from restoring the free-flowing character of the Lower Snake River. Compounding the problem, in Table 6-41, the agencies purport to describe the social welfare effects and the regional economic effects of each alternatives impacts on fisheries, but they incorporate no socioeconomics in the text or in the underlying analysis. Thus, this table reinforces the conclusion that the agencies totally failed to conduct the careful, comprehensive analysis required to take a hard look at the socioeconomic impacts of the different alternatives for the CRSO.	The EIS provides an evaluation of the social welfare and regional economic effects of the alternatives, including the effects on recreation (Section 3.11) and commercial fisheries (Section 3.15). Additionally, the EIS (Section 3.15.2.2) describes the existing literature on passive use values for salmon and affirms that the literature demonstrates that the general public holds value for the salmon and that the population that may benefit from increased salmon populations may be geographically far-reaching. However, due to limitations in the literature and uncertainty regarding the changes in overall fish abundance predicted under each alternative (as different fish are affected positively and adversely), the EIS does not rely on this literature to estimate a monetary value of the effects on fish. As is common in NEPA analyses, the beneficial and adverse effects of the alternatives are expressed as a variety of qualitative and quantitative environmental and economic metrics throughout the EIS to inform decision making, including the effects of the alternatives on fish as detailed in Sections 3.5 and 7.7.4. That the effects of the alternatives on passive use for fish are not expressed quantitatively (e.g., monetized economic values) does not mean that they were not considered in the context of the analysis.
3999	16	ttrue@earthjustice.org	Earthjustice	2. The DEIS does not describe the costs and benefits that would accrue to the public from each alternative The DEIS focuses on describing the amounts of money the agencies would spend under each alternative. Thus, as the agencies sought to satisfy their duty to take a "hard look at the socioeconomic consequences of the alternatives they felt it necessary to detail the amounts of money they would spend under each alternative (and the DEIS devotes Appendix Q to this topic) but totally dismissed their obligation to let the public know what costsand benefits the public would experience. The co-lead agencies reveal their disregard for socioeconomic impacts accruing to the public, for example, in Section 5.2 DECISION FRAMEWORK AND SELECTION PROCESS, when they describe the criteria they used to select mitigation measures. The description for one of these criteria states: Feasibility: a qualitative assessment of the feasibility of implementing a measure based on technical and economic factors. For example, a mitigation measure may not be feasible if there are other technical actions that would effectively reduce the severity or duration of impact. Similarly, if the expense of implementing a measure would be unreasonable, then the measure would not be feasible. [bold highlight added] The highlighted sentence makes clear that the agencies fixed their concern on the expense they would incur to implement a given mitigation measure. This perspective ignores the potential external costs, monetized or not, that members of the public would incur from implementation of the measure. It also ignores the public benefits from the different potential mitigation measures and how these might affect a choice among available measures. Thus, it appears they would rank a measure with low financial costs above any measure with moderate or high financial costs, regardless of the size of the benefits to the public of any of the measures, and 8 Loomis, J. 1999. Passive use values of wild salmon and free-flowing rivers. Natural Resource Economics, Inc. Comments on	The EIS evaluated benefits and adverse effects across an array of resource areas including potential effects at the national, regional and local level; effects are monetized and quantified, where possible, and also described qualitatively. As is common in NEPA analyses (see 40 CFR 1502.23), the beneficial and adverse effects of the alternatives are expressed as a variety of qualitative and quantitative environmental and economic metrics throughout the EIS to inform decision-making. The EIS does not employ a cost-benefit framework for decision-making. Instead, the EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish a framework for evaluating the ability of an alternative to satisfy the co-lead agencies numerous legal obligations. The EIS does evaluate the costs of the alternatives in Sections 3.19 and 7.7.21 as well as in Appendix Q. The EIS also evaluates Passive Use values in Sections 3.15 and 7.7.17. To further address concerns about potential reductions in resource costs, consistent with the comment, publicly released draft information, such as updated prices for solar and battery storage, from development of the Northwest Power and Conservation Council's Eighth Power Plan is included as rate sensitivities in the Final EIS. The Final EIS includes the de-escalating cost curves (declining future cost trends for renewables) prepared by the National Renewable Energy Laboratory that will likely be used by the Council in the Eighth Power Plan.

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				Socioeconomic Elements of CRSO DEIS 8 even if these public benefits far outweighed the agencies additional financial costs. This illustration supports the conclusion that the agencies did not develop the DEIS and select the Preferred Alternative with the goal of producing the maximum net socioeconomic benefits for the American public, and they did not analyze or describe these benefits in a way that would enable the public or decision-makers to understand the effects of the choice among alternatives.	
3999	17	ttrue@earthjustice.org	Earthjustice	3. The DEIS does not describe the socioeconomic importance of changes in ecosystem services that would result from implementation of each alternative Ecosystem services are natures contributions to humans well-being. Extensive evidence indicates that the value of the services derived from ecosystems exceeds, often by a considerable amount, the value of goods and services produced by human activities, known as the gross domestic product.9 As a consequence, it is reasonable to conclude that the DEIS omits and disregards more than one-half of the potential socioeconomic impacts of the various alternatives. Particularly egregious is its failure to describe the increases in ecosystem services expected to materialize with the breaching of dams under the Multiple Objective 3 alternative, and the socioeconomic importance of those increases in services. Nowhere is there a chapter dedicated to defining and describing the ecosystem services derived from the ecosystemsindividually and in the aggregateaffected by the CRSO. Nowhere does the DEIS present a table, analogous to those that relate to the CRSs infrastructure, showing the reasonably foreseeable future actions that would affect the ecosystems ability to supply these ecosystem services or affect their socioeconomic value to the overall public or to different groups. The DEIS does not contain any description of the socioeconomic importance of the ecosystem services, individually or in the aggregate, or of how the several alternatives would affect these socioeconomic values. From reading the DEIS, no member of the public or decisionmaker can determine, even roughly, how the ecosystem services under the Multiple Objective 3 alternative comparein biophysical terms or socioeconomic valuewith those under the Preferred Alternative. The agencies and the DEIS ignore the socioeconomic importance of the improvements in ecosystem services that would occur with the Multiple Objective 3 alternative despite extensive, readily available evidence that shows the resulting improvements in ecosystem services would provide socioeconomic benefits that far outweigh the dam-removal costs.10 .9 A small selection of the relevant literature includes, for example: Li, G., and C. Fang. 2014. Global mapping and estimation of ecosystem services values and gross domestic product: a spatially explicit integration of national green GDP accounting; Costanza, R., et al. 2014. Changes in the global value of ecosystem services; Costanza, R. et al., 2017. Twenty years of ecosystem services: how far have we come and how far do we still need to go? Santos Gaspar, J., et al. 2017. The traditional energy-growth nexus: a comparison between sustainable growth and economic growth approaches; Hejnowicz, A.P. and M.A. Rudd. 2017. The value landscape in ecosystem services: value, value wherefore art thou value? Song, X-P. 2018. Global estimates of ecosystem service value and change: taking into account uncertainties in satellite-based land cover data; Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES). 2018. The IPBES regional assessment report on biodiversity and ecosystem services for the Americas; and Sannigrahi, S., et al. 2018. Estimating global ecosystem values and its response to land surface dynamics during 1995-2015. 10 See, for example, Domanski, A. 2019. Lower Snake River dams: economic tradeoffs of removal; and Lewis, D.J., et al. 2019. The non-market benefits of early and partial gains in managing threatened salmon. Natural Resource Economics, Inc. Comments on Socioeconomic Elements of CRSO DEIS 9	The EIS evaluated benefits and adverse effects across an array of resource areas including potential effects at the national, regional and local level; effects are monetized and quantified, where possible, and also described qualitatively. Changes in ecosystem functions and services were addressed in the appropriate section of the FEIS (for example, in water quality, water supply, air quality, recreation, etc.). As is common in NEPA analyses, the beneficial and adverse effects of the alternatives are expressed as a variety of qualitative and quantitative environmental and economic metrics throughout the EIS to inform decision-making. That the effects of the alternatives on fish are not expressed as monetized economic values does not mean that they were not considered in the context of the analysis. The EIS does not employ a cost-benefit framework for decision-making consistent with NEPA (40 C.F.R. 1502.23). Instead, the EIS set forth eight objectives which, in tandem with the purpose and need statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. As described in Chapter 7 of the FEIS, the preferred alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3, which includes breaching the four lower Snake River dams. The Preferred Alternative also meets the EIS objectives for resident fish, lamprey, hydropower generation, water management, water supply and greenhouse gas emissions, while minimizing adverse impacts to communities and the economy.
3999	18	ttrue@earthjustice.org	Earthjustice	4. The DEIS fails to describe the risks associated with ecosystems and biodiversity and the socioeconomic consequences 11 The choice among alternatives in the DEIS will affect the degree of risk facing the Columbia/Snake River ecosystem. Some alternatives will increase the level of risk, others will reduce it, and even among those that will reduce risk, the degree of reduced risk will vary. These varying degrees of risk have important implications for the costs and benefits from alternative approaches for managing the CRSO. Notably, recent summaries of the relevant scientific evidence conclude that: [B]iodiversity and ecosystem services are greater in restored than in degraded ecosystems but lower in restored than in intact remnant ecosystems [and there] There is considerable evidence that contemporary biodiversity declines will lead to subsequent declines in ecosystem functioning and ecosystem stability.12 Biodiversity loss is one of the greatest risks of the 21st century. It undermines human health and well-being, societal resilience and progress towards the SDGs. It places severe costs on our economies and makes addressing other global challenges, such as climate change, much more difficult. Ecosystems are moving closer to critical thresholds and tipping points which, if crossed, will result in persistent and irreversible (or very costly to reverse) changes to ecosystem structure, function and service provision, with the potential for profoundly negative environmental, economic and social consequences. The socio-economic case for more ambitious biodiversity action is clear. Thousands of valuation studies are available at the local, regional and global scales, providing estimates of the benefits delivered by biodiversity and ecosystem services (e.g. pollination, climate regulation and water purification). The most comprehensive global estimate suggests that ecosystem services provide benefits of USD 125-140 trillion (US dollars) per year i.e. more than one and a half times the size of global GDP. The costs of inaction on biodiversity loss are high and are anticipated to increase. The world lost an estimated USD 4-20 trillion per year in ecosystem services from 1997 to 2011, owing to land-cover change and an estimated USD 6-11 trillion per year from land degradation. Conserving, sustainably using and restoring biodiversity is vital to achieving many other policy objectives, including human health, climate-change mitigation and adaptation, disaster risk reduction, and water and food security. The benefits derived from biodiversity and ecosystem services are considerable, but are systematically undervalued or unvalued in day-to-day decisions, market prices and economic accounting. Conventional accounting approaches and measures of economic performance (such as GDP) provide only a limited picture of an economys health, and generally overlook the costs of ecosystem degradation.13 Other recent research demonstrates that local loss of biodiversity will affect the functioning and stability of ecosystems at macroscales, so that the stability of a regional ecosystem depends on the total number of species and on the variation in species exhibited by local areas within the regional ecosystem.14 This research highlights the socioeconomic risks stemming from the losses 11 See, for example, OECD. 2019. Biodiversity: Finance and the Economic and Business Case for Action; IPBES. 2019. Natures Dangerous Decline Unprecedented; Species Extinction Rates Accelerating; IPBES. 2019. Global Assessment Report on Biodiversity and Ecosystem Services 12 Isbell, F. 2010. Causes and consequences of biodiversity declines. 13 OECD (2019), Biodiversity: Finance and the Economic and Business Case for Action. 14 Catano, C.P., et al. 2020. Local species diversity, -diversity and climate influence the regional stability of bird biomass across North America Natural Resource Economics, Inc. Comments on Socioeconomic Elements of CRSO DEIS 10 of biodiversity brought about by the construction and long-term operation of the CRS. The likelihood that these losses will have adverse impacts on the sustainability of the regional ecosystem of the Columbia-Snake River Basin and on the sustainability of sub-regional ecosystems, including that of the Snake River Basin represents a potentially large negative impact on the economic well-being of the Basins residents and of all Americans.	The EIS evaluated benefits and adverse effects across an array of resource areas including potential effects at the national, regional and local level; effects are monetized and quantified, where possible, and also described qualitatively. Changes in ecosystem functions and services were addressed in the appropriate section of the Final EIS (for example, in water quality, water supply, air quality, recreation, etc.). The EIS also acknowledges the cumulative impacts to affected resources in Chapter 6 for the No Action Alternative as well as Multiple Objective alternative 1, Multiple Objective alternative 2, Multiple Objective alternative 3, and Multiple Objective alternative 4 and Chapter 7 for the Preferred Alternative as well as the climate effects in Chapters 4 and 7.
3999	19	ttrue@earthjustice.org	Earthjustice	The DEIS provides no description of the risks to the Basins ecosystems and their socioeconomic importance, nor does it describe how the CRSO will respond if the undesired outcomes inherent in these risks begin to materialize. As it fails to describe the ecosystem risks, the DEIS also fails to describe the extent to which breaching the Lower Snake River dams would mitigate the risks, and the socioeconomic importance of this mitigation. The most it does is to acknowledge that MO3 would produce the highest likelihood among the alternatives of reducing the risks facing Snake River salmon and steelhead. Leaving the dams in place and continuing their operation largely along lines that have been in place for years will have the opposite effect. Of course, considerable uncertainty exists regarding the potential mechanisms and timing of these risks, but not knowing how and when they will materialize is no excuse for not addressing and disclosing what scientists and economists do know and can say about these risks. Indeed, the uncertainty heightens the necessity for assessing and disclosing these risks so we can take precautionary measures now: When an activity raises threats of harm to human health or the environment, precautionary measures should be taken even if some cause-and-effect relationships are not fully established scientifically. One of the most important expressions of the precautionary principle internationally is the Rio Declaration from the 1992 United Nations Conference on Environment and Development, also known as Agenda 21. The declaration stated: In order to protect the environment, the precautionary approach shall be widely applied by States according to their capabilities. Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation. Because the United States signed and ratified the Rio Declaration, it is bound to use the precautionary principle.15 The Corps itself has explicitly identified and described the risk-management principles and best practices the agency should implement when faced with the kinds of uncertainty and risk posed by a choice among the alternatives in the DEIS: Risk Assessment Risk is typically defined by two characteristics or dimensions the likelihood and the consequence of adverse effects that may be approached in a variety of ways. Likelihood refers to the probability (numerically or qualitatively determined) that an adverse event will occur; consequence refers to the outcomes associated with the uncertain event. In a typical risk assessment, the following questions are addressed as part of the overall risk management process: What can go wrong? What is the likelihood that it will go wrong? What are the consequences?16 15 Tickner, J, C. Raffensperger, and N. Myers. 2006. The Precautionary Principle in action: a handbook. 16 Suedel, B.C., et al. 2012. Application of risk management and uncertainty concepts and methods for ecosystem restoration: principles and best practices. Natural Resource Economics, Inc. Comments on Socioeconomic Elements of CRSO DEIS 11 Nowhere in the DEIS, though, do the Corps and its co-lead agencies ask and answer these questions. Specifically, the DEIS fails to incorporate this guidance about assessing risks, uncertainties and consequences in Section	The EIS evaluated benefits and adverse effects across an array of resource areas including potential effects at the national, regional and local level; effects are monetized and quantified, where possible, and also described qualitatively. Changes in ecosystem functions and services were addressed in the appropriate section of the Final EIS (for example, in water quality, water supply, air quality, recreation, etc.). The EIS also acknowledges the cumulative impacts to affected resources in Chapter 6 for the No Action Alternative as well as Multiple Objective alternative 1, Multiple Objective alternative 2, Multiple Objective alternative 3, and Multiple Objective alternative 4 and Chapter 7 for the Preferred Alternative as well as the climate effects in Chapters 4 and 7. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA listed species. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-lead agencies numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3, which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets the EIS objectives for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams, because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. Additionally, the co-lead agencies evaluated many different flow and spill levels and as well as seasonal patterns for when flows are enhanced or reduced. The Preferred Alternative represents an operation that provides a balanced approach between spring and summer flow and spill levels to benefit salmon and steelhead, while also providing benefits to resident fish in the upper portion of the Columbia Basin. Both human-caused and natural factors that are outside the responsibility and control of the co-lead Federal agencies, also contribute to the decline and recovery of ESA-listed species, and would continue to strongly influence fish and their habitat. Salmon and steelhead have been adversely affected in the Columbia River Basin over the last century by many activities including human population growth, urbanization, introduction of exotic species, overfishing, development of cities and other land uses in the floodplains, water diversions for all purposes, dams, mining, farming, ranching, logging, hatchery production, predation, ocean conditions, and loss of habitat. Operation, configuration and maintenance of the CRS requires mitigation for its effects, and the EIS is not intended or required to serve as an overall salmon recovery plan for the region. Recovery of ESA-listed salmon is outside of the authority of the co-lead agencies, and was not an objective of this EIS. Recovery of ESA species is the purview of NMFS and the US Fish and Wildlife Service. This EIS has been developed in consultation with National Marine Fisheries Service and USFWS to minimize impacts to affected ESA species and their habitats. With respect to the Preferred Alternative, the fish analysis in Section 7.7.4 shows that it will provide substantial benefits to ESA-listed salmon and steelhead, which can help contribute to broader recovery goals. Finally, the NMFS and USFWS Biological Opinions demonstrate that CRS operations, maintenance and configuration do not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat and are included as an appendix to the EIS.

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				5.2 DECISION FRAMEWORK AND SELECTION PROCESS. Instead of addressing these relevant factors, assessing their significance, and developing appropriate responses to them, the agencies gloss over them. For example, Section 4.2.3.5 Anadromous Fish of the DEIS acknowledges some of the direct risks to anadromous fish [citations omitted]: o Many populations that are sensitive to non-climate threats are also most vulnerable to climate change. Overall, a warming climate could cause moderate to severe declines in salmon and steelhead populations. o Projected changes in stream and river temperatures (as described in Section 4.2.3) may cause direct mortality due to heat stress and greater disease susceptibility if the range of physiological tolerance is exceeded. For example, in the Columbia Basin, Snake River sockeye salmon (Oncorhynchus nerka) are at high risk from heat waves during their mid-summer adult migration. Historical water temperatures have already approached lethal limits for adult steelhead in the upper Snake and middle Columbia Rivers. Thus, even minor increases in thermal exposure put some of these populations above lethal limits. Increases in water temperatures could result in increased use of cold water refuges by adult salmon and steelhead. o But, salmon are becoming smaller and sometimes younger when they return to freshwater, potentially as a result of decreasing pH and increasing temperature. o Where high temperature exposure is already an issue, increasing temperatures inside fishways of dams could worsen thermal exposure for migrating adult sockeye, Chinook salmon, and steelhead. o Climate change is also projected to have consequences for the habitat of anadromous fish during the period of their lifecycle where they reside in the Pacific Ocean and Columbia River estuary. Several trends are expected: Reduction in thermal habitat for salmon Increasing ocean acidification Changing estuarine and plume environments o Outmigrating juveniles could experience increased predation risk as projected warmer water temperatures throughout the Columbia River Basin may increase the proportion of non-native predatory fish and their predation rates on juvenile salmon and steelhead. And Section 4.2.9 Fisheries briefly describes the potential risks to commercial and recreational fisheries.17 o Recreational opportunities could be affected by climate change primarily by changing seasonal access for in-water activities. Projected effects to other resources could also influence visitation related to specific recreational activities. For instance, potential effects to fish and wildlife (Section 4.2.4, 4.2.5) could influence sport fishing and hunting opportunities. Potential effects to water quality (Section 4.2.3) could affect swimming opportunities. o To the extent that climate change effects ameliorate or exacerbate the effects of the Multiple Objective Alternatives on fish in a way that increases or decreases abundance of target species, commercial and ceremonial and subsistence fishing opportunities, and the economic, social, and cultural values associated with them, then fisheries could be affected. Climate change may also affect fisheries if it results in a change in distribution of fish populations that increases the cost associated with fishing, or limits access in some way. Section 4.2.8 Recreation mentions, in general terms, some of the risks to ecosystem-use activities that the agencies apparently consider to be economically important: o Recreational opportunities could be affected by climate change primarily by changing seasonal access for in-water activities. Projected effects to other resources could also influence visitation related to 17 Like others, however, this section does not discuss the economic importance of risks to non-use values of fish and other species and ecosystems as a whole. Natural Resource Economics, Inc. Comments on Socioeconomic Elements of CRSO DEIS 12 specific recreational activities. For instance, potential effects to fish and wildlife (Section 4.2.4, 4.2.5) could influence sport fishing and hunting opportunities. Potential effects to water quality (Section 4.2.3) could affect swimming opportunities. o Climate change has the potential to disrupt hydrological processes that in turn may affect current water supply practices. These changes could affect surface and groundwater users, including users that use free flowing or natural/live6 [sic] flow systems. Climate change has the potential to affect water supply for irrigation, municipal, and industrial uses from surface water sources. Changes in natural/live flow to the system that reduces summer and fall stream flows may reduce the amount of available supply. Nowhere, however, does the DEIS then use the identification of these ecosystem-related risks to describe or discuss the likelihood that the risksindividually and in aggregatewill materialize or the socioeconomic and other consequences that likely would arise if the risks should materialize. Neither does it describe how the agencies and others likely will respond if the risks do materialize. By failing to explicitly identify risks, uncertainties and potential consequences and incorporate them into the decision framework and the process for choosing among alternatives, the action agencies have left out of the DEIS information the public and decision-makers must know to evaluate and prepare for a risky and uncertain future. By failing to evaluate these risks and uncertainties, the agencies hide from the public and decision-makers information they must know if they are to fully understand the basis for the agencies selection of the Preferred Alternative and this alternatives full socioeconomic consequences.	
3999	20	ttrue@earthjustice.org	Earthjustice	5. The DEIS fails to accurately or completely represent socioeconomic information The DEIS does not fully or accurately describe the economic importance of passive-use values (also called non-use values), which embrace the many people who realize a benefit from knowing that healthy and larger fish populations exist. Nor does it use available and credible information or tools to attempt to fully describe and evaluate these values. Moreover, the available research and information shows these values are quite large. For example a 1999 summary prepared for the Army Corps of Engineers reported that:18 The passive-use value of expected increases in fish populations resulting from breaching dams on the Elwha River would exceed $140 million per year. An increase of 1 million in the annual number of salmon returning to Eastern Washington would have a passive-use value of almost $900 million per year. The passive-use value for just the restoration of the free-flowing nature of the Lower Snake River would exceed $420 million per year. While this report is more than 20 years old, more recent research and analysis confirms and expands these values.19 The DEIS states that the agencies evaluated passive-use values and the DEIS contains a section headings called Fisheries and Passive Use (section 6.3.1.15 in Chapter 6: Cumulative effects). The heading of this section, though, is not consistent with the information in it. The information in this section contains only information about benefits people derive from directly interacting with fish through commercial and recreational fishing. That is, the heading for this section indicates it should include information about the passive use, i.e., explain that that fish (and other natural resources) have socioeconomic value insofar as Americans know that these resources exist, and these values are unrelated to uses or direct interactions with the fish. In 18 Loomis, J. 1999. Passive use values of wild salmon and free-flowing rivers. 19 See, e.g., Domanski, A. 2019. Lower Snake River dams: economic tradeoffs of removal; and Lewis, D.J., et al. 2019. The non-market benefits of early and partial gains in managing threatened salmon. Natural Resource Economics, Inc. Comments on Socioeconomic Elements of CRSO DEIS 13 stark contrast, however, the text in this section includes information only about uses of fish, particularly through commercial and recreational fishing, and nothing about passive uses. The disconnect between the heading and the text could not be more severe. How did this happen? How did the co-lead agencies misrepresent and disregard the concept of passive-use value, which is recognized by economists around the world as a key indicator of the socioeconomic value of natural resources? In the past, the Corps has demonstrated it understands the concept of passive-use values. For example, it has estimated that the continued operation of the navigation channel and the four lower Snake River dams would generate passive-use-value costs of up to $420 million annually by impeding the restoration of fish populations associated with more natural habitat conditions.20 Specifically the Corps stated: [Passive use value is] a benefit associated with knowing that a resource exists, even if no use is made of it. These values are typically referred to as passive use, non-use, or existence values. The passive use value of a near-natural lower Snake River was estimated at $420 million per year. These amounts represent the additional passive use value under this alternative relative to an alternative that would continue the fish passage facilities and project operations that were in place or under development at the time the Corps initiated its evaluation of the alternatives. (p. I ES-19) In the 2002 document from which these statements come, the Corps cited a bureaucratic restriction from the now-outdated Principles and Guidelines as its reason for not incorporating these passive use values in its calculation of economic costs and benefits from removing the dams. It did, however, present estimates of passive values as additional information for the decision maker to consider. The DEIS explains [p. 3-1322] that the co-lead agencies did not update the estimate of passive use value from the 2002 report because a review of that report concluded that it offered only a single estimate of the value per fish and did not account for how this value might decrease if fish populations expand or increase if fish populations diminish. The DEIS does not explain why it did not assemble the necessary data and expertise to overcome this limitation, even though it acknowledges that others have done so. Nor does it determine whether or not the 2002 estimate of passive use value reasonably indicates the lower bound of passive use value in the future, insofar as evidence indicates past estimates of passive use values likely understate the value households will place on salmon and other resources in the future (see the discussion of this issue, below). Thus, instead of using the knowledge embedded in the 2002 estimate, whatever its limitations, to inform readers of the importance of future passive use values, the agencies opted to disregard the information all together.	The EIS describes the multiple different ways that people may hold value for salmon and other natural resources, including non-use (i.e., "passive use") values that are not associated with direct experience (e.g., fishing, subsistence). As described in this comment, the EIS (Section 3.15.2.2) summarizes the existing literature on passive use values for salmon, including the studies referenced in this comment, and affirms that the literature demonstrates that the general public holds value for the salmon and that the population that may benefit from increased salmon populations may be geographically far-reaching. However, due to limitations in the literature and uncertainty regarding the changes in overall fish abundance predicted under each alternative (as different fish are affected positively and adversely), the EIS does not rely on this literature to estimate a monetary value of the effects on fish. As is common in NEPA analyses (see 40 CFR 1502.23), the beneficial and adverse effects of the alternatives are expressed as a variety of qualitative and quantitative environmental and economic metrics throughout the EIS to inform decision making, including the effects of the alternatives on fish as detailed in Sections 3.5 and 7.7.4. That the effects of the alternatives on fish are not quantified as monetized economic values does not mean that they were not considered in the context of the analysis. It is correct that, while Section 6.3.1.15 is titled "Fisheries and Passive Use," Table 6-40 in the Draft EIS is described as "Reasonably Foreseeable Future Actions Relevant to Fisheries." As with commercial, subsistence, and ceremonial fishing, passive use values for fish are tied to cumulative actions that affect fish abundance. These actions are described in Tables 6-19 and 6-21 in the Draft EIS.
3999	21	ttrue@earthjustice.org	Earthjustice	The DEIS also fails to correctly show socioeconomic information regarding the use values for ecosystem services. For example, it does not tell readers and decision-makers about the availability of large amounts of available information collected by multiple agencies and researchers regarding the amounts recreationists are willing to pay when they visit public lands and waters.21 These expenditures represent a lower boundary for the value recreationists place on being able to go fishing for salmon, steelhead, and enjoy other natural resources affected by 20 Corps of Engineers.2002. Final Lower Snake River Juvenile Salmon Migration Feasibility Report/Environmental Impact Statement. This amount would be larger if converted to current dollars. 21 See, for example, U.S. Forest Service. 2020. National visitor use monitoring program; U.S. Department of Interior. 2020. DOI contributions to the economy; Rosenberger, R.S.; E.M. White, J.D. Kline, and C. Cvitanovich. 2017. Recreation economic values for estimating outdoor recreation	The EIS evaluated beneficial and adverse effects across an array of resource areas including potential effects at the national, regional and local level; effects are monetized and quantified, where possible, and also described qualitatively. Use values associated with ecosystem services are evaluated in the relevant resource section, for example, in water quality (Section 3.4), water supply (Section 3.12), fisheries and passive use values (Section 3.15), recreation (Section 3.11), and others. Regarding the willingness to pay or social welfare values associated with recreation, the evaluation in Section 3.11.3 used the unit day value (UDV). Many of the reports and research cited by the commenter were reviewed for the recreation evaluation. The procedures described in the Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies (Water Resources Council 1983) (Principles and Guidelines) outline three generally accepted methods for measuring recreational benefits: the unit day value (UDV), the travel cost method, and contingent valuation. The EIS acknowledges that the UDV method can include estimates of economic value that are lower than those found in other available sources (e.g., Recreation Use Valuation Database [RUVD], Benefits Transfer Toolkit). The UDV approach is consistent Corps guidance and provides a consistent approach across all sites in the evaluation.

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				economic benefits from the National Forest System; Southwick Associates, Inc. 2009. Potential economics contributions of Spring and Summer Chinook had SAFE for Salmon been in effect; and Flores, L., et al. 2017. The value of natural capital in the Columbia River Basin: a comprehensive analysis. Natural Resource Economics, Inc. Comments on Socioeconomic Elements of CRSO DEIS 14 the CRS.22 The available analyses of these expenditures may indicate the lower-bound for value recreationists place on using these public resources because they do not examine or include the full range of use values or the fact that users may have been willing to pay more. For example, data from the Forest Services national visitor use monitoring program describe recreationists expenditures for travel to and from a recreational site, but not for all activities, such as boating and fishing, at the site. Thus, these data do not include expenditures associated with tackle companies, boat dealers, and other businesses directly related to recreational salmon fisheries.	
3999	22	ttrue@earthjustice.org	Earthjustice	Similarly, the DEIS fails to show socioeconomic information regarding the amount of economic activity (jobs, incomes, etc.) that takes place in the local, regional, and national economies where recreationists make the expenditures related recreational opportunities in the Snake River Basin. Some of these expenditures likely occur at or near the recreational site, but others occur at or near the recreationists residence, which may lie outside the Basin. Some of the expenditures are tied directly to recreationists usage of the resources, e.g., as they purchase groceries for a boat trip. Others are indirectly linked to usage, e.g., as the grocery store pays wages to its workers and these workers, in turn, spend their earnings on other good and services. These subsequent expenditures constitute what economists call the multiplier effect, with the total expenditures equal to the sum of the direct and indirect components. In 2015, economists estimated the direct expenditures and multiplier effect for recreational activities on public lands in Washington State.23 Their research showed that, for the state as a whole, these activities generated direct expenditures of more than $8 billion, and total expenditures of more than $13 billion. They also documented expenditures for recreation on public lands in each county. The co-lead agencies did not incorporate any of this or other similar information into the DEIS, and did not fold it into a detailed, comprehensive description of the potential socioeconomic consequences from each alternative. Thus, the agencies deprived the public and decision-makers from information they could use to assess the alternatives absolute and relative desirability. 22 The amount recreationists have to pay to enjoy a day of fishing typically is less than the total amount they would be willing to pay. 23 Briceno, T., and G. Schundler. 2015. Economic analysis of outdoor recreation in Washington State. Natural Resource Economics, Inc. Comments on Socioeconomic Elements of CRSO DEIS 15	The EIS provides an evaluation of the social welfare and regional economic effects of the No Action Alternative and the multiple objective alternatives, including the effects on recreation (Section 3.11). The EIS described the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. NMFS estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which is described qualitatively. A number of articles in the literature have been incorporated into the evaluation (for example, NMFS (2014); McKean et al. (2011); USFWS and US Census Bureau, (2011a); American Sportfishing Association (2013); O Laughlin (2005); Reading (2005); Donnelly et al. (1985)). The potential effects to recreational fishing are assessed qualitatively based on the description of effects to resident and anadromous fish in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. Under MO3, the EIS Section 3.5.3.6 describes the long-term effects to anadromous fish migration in the Snake River and tributaries that would occur under a dam breach scenario as major and beneficial, although quantitative impacts from fish modeling results are limited. The potential for increases in recreational fishing under MO3 in the Snake River Basin is described in Section 3.11.3.5, which would support jobs, income, and social benefits in Tribal and rural river communities. The effects to anadromous fish under MO3 in other locations would have negligible to minor changes from the No Action Alternative. For the effects on recreational fishing under MO3 (Section 3.11.3.5) along the lower Snake River below Lewiston, the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River) as an indicator for fishing visitation in this reach. Estimates of general river recreation (non-fishing) in the lower Snake River were described based on the evaluation conducted for the 2002 Lower Snake River Juvenile Salmon Migration Feasibility Report and EIS. The evaluation in Section 3.11.3.5 describes that the visitation in the long-term in the lower Snake River, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting outfitting and tourism businesses in the region. The social welfare values and regional economic effects associated with recreational fishing under the action alternatives as well as river recreation post dam breach under MO3 were not estimated because of the uncertainty, and large range in visitation and consumer surplus values among users
3999	23	ttrue@earthjustice.org	Earthjustice	III. The Socioeconomic Elements and Analyses of the DEIS Do Not Follow the Requirements of the Water Resources Development Act (2007) and the Principles, Requirements, and Guidelines for Federal Investments in Water Resources (PR&G) Until recently, when the Corps and/or Bureau developed water-resource plans, such as the one presented in the DEIS, they prepared the socioeconomic elements of the plans subject to the standards and obligations of the Principles and Guidelines (P&G) developed by the Water Resource Council under the Water Resources Planning Act of 1965. The Water Resources Development Act of 2007 (WRDA) called for a revamping of the P&G and, in 2013, the Council of Environmental Quality, with assistance from other federal agencies, issued the first replacement component, called the Principles and Requirements for Federal Investments in Water Resources, followed soon after by implementation Guidelines (together the PR&G).24 The PR&G apply to a broad range of Federal investments that by purpose, either directly or indirectly, affect water quality or water quantity. More specifically, they apply to (1) existing as well as potential federal investments, (2) investments having a water resources purpose or (direct or indirect) effects on water quality or quantity, and (3) investments being made through a project or a program. The standards and requirements in the PR&G provide required guidance the agencies must follow to satisfy NEPA and its requirement to take a hard look at the socioeconomic (as well as environmental) consequences of Federal actions that directly or indirectly affect investments in water and related resources. These standards and obligations also provide the best guidance currently available for satisfying the requirement to demonstrate a substantial, good faith effort at studying, analyzing, and expressing socioeconomic issues to the public and in decision-making processes. In other words, as they prepared and evaluated the alternatives in the DEIS for the CRSO and selected the Preferred Alternative, the co-lead agencies should have followed the standards of the PR&G but they did not nor did they explain why they did not do so. Specifically, the co-lead agencies should have satisfied the standards from the PR&G described below in their presentation of the socioeconomic information about each alternative and about their basis for selecting the Preferred Alternative.	If an agency is seeking authorization and appropriations from Congress to fund a Federal investment, it would be appropriate to analyze the alternatives under the PR&G framework. Under the NEPA context, the goal is not to determine the economically justified alternative for OMB approval. Section 1502.23 of the CEQ's NEPA regulations (40 CFR 1502.23) addresses the role of cost benefit analysis within the context of NEPA compliance. The first half of Section 1502.23 discusses the incorporation of existing benefit-cost analyses into the NEPA evaluation process. The second half of Section 1502.23 states that (f)or purposes of complying with the Act, the weighing of the merits and drawbacks of the various alternatives need not be displayed in a monetary cost-benefit analysis and should not be when there are important qualitative considerations. Further there is no policy or law that requires the use of the PR&Gs.
3999	24	ttrue@earthjustice.org	Earthjustice	1. The DEIS does not provide detailed, transparent analysis to support its recommendations to the fullest extent possible The standards and requirements established by the PR&G include: Make a substantial, good faith effort at studying, analyzing, and evaluating the socioeconomic issues raised by the alternatives and actions addressed in the DEIS and that will be affected by the decisionmaking process. Use only relevant, accurate, and reliable information. Use all the available information that is relevant, accurate, and reliable. Use evaluation methods that apply an ecosystem services approach. Fully disclose all relevant information to enable the public to understand the rationale for selecting the Preferred Alternative. To satisfy these standards and obligations, the co-lead agencies should have incorporated into the DEIS all the relevant information for describing and evaluating the socioeconomic impacts of each alternative, and for making the best decisions, using reliable, best-practice analytical 24 Council on Environmental Quality. Principles and Requirements for Federal Investments in Water Resources; Interagency Guidelines. Natural Resource Economics, Inc. Comments on Socioeconomic Elements of CRSO DEIS 16 methods. The agencies completely failed to meet these standards and obligations. They did not employ an analytical framework or individual analytical methods established by executive order, OMB guidance, and agency manuals that have been subjected to and passed intense professional scrutiny.25 As a consequence, they assembled a limited and unorganized amount of information on just some relevant issues, made no attempt to specify the criteria they used to search for and select socioeconomic information or to demonstrate that they gathered all the information that is relevant. They omitted vast amounts of clearly relevant, readily available information, including data from government agencies and peer-reviewed research reports. They even failed to include data and research findings prepared and used by the co-lead agencies in earlier planning exercises for the CRSO.26	The EIS evaluated benefits and adverse effects across an array of resource areas including potential effects at the national, regional and local level; effects are monetized and quantified, where possible, and also described qualitatively. Changes in ecosystem functions and services were addressed in the appropriate section of the Final EIS (for example, in water quality, water supply, air quality, recreation, etc.). As is common in NEPA analyses (see 40 CFR 1502.23), the beneficial and adverse effects of the alternatives are expressed as a variety of qualitative and quantitative environmental and economic metrics throughout the EIS to inform decision-making. That the effects of the alternatives on fish are not expressed as monetized economic values does not mean that they were not considered in the context of the analysis. The EIS does not employ a cost-benefit framework for decision-making. Instead, the EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-lead agencies numerous legal obligations. As described in Chapter 7 of the Final EIS, the Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as Multiple Objective alternative 3 which includes the measure to breach the four lower Snake River dams. However, the Preferred Alternative also meets the EIS objectives for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse impacts to communities and the economy. Regarding the PR&G requirements, if an agency is seeking authorization and appropriations from Congress to fund a Federal investment, it would be appropriate to analyze the alternatives under the PR&G framework. Under the NEPA context, the goal is not to determine the economically justified alternative for OMB approval. CEQ's NEPA regulations (40 CFR 1502.23) address the role of cost benefit analysis within the context of NEPA compliance. The first half of Section 1502.23 discusses the incorporation of existing benefit-cost analyses into the NEPA evaluation process. The second half of Section 1502.23 states that (f)or purposes of complying with the Act, the weighing of the merits and drawbacks of the various alternatives need not be displayed in a monetary cost-benefit analysis and should not be when there are important qualitative considerations. Further there is no policy or law that requires the use of the PR&Gs.
3999	25	ttrue@earthjustice.org	Earthjustice	The socioeconomic elements of the DEIS also fail to satisfy the standards and obligations for transparency. This failure includes: o The agencies did not provide a comprehensive description of local economies directly affected by the CRSO or of the more distant economies that are indirectly affected (e.g., by decisions that affect orca populations or decisions that may contribute to the development of solar/wind/battery or other clean energy investments).27 For example, the DEIS offers no explanation of the ways in which risks for the Salish Seas orca population might affect local tourism jobs and property values in local communities. It similarly fails to explain powerful forces that affect economic development in the western U.S. and influence population, jobs, incomes, and other characteristics of communities within the Snake River Basin. These forces include the ability of natural resource amenities, such as a healthy ecosystem with abundant salmon-related recreational opportunities, to attract workers, households, and investors to these communities and, hence, to stimulate diverse development across many sectors. o They did not explain the mechanisms by which different decisions for operating the CRS will affect these economies (e.g., they do not explain the mechanism whereby enhancements in natural resource amenities attract workers, households, and investors or analyze these consequences).28 The DEIS includes no discussion of ways in which differences among the alternatives might interact, for example, with the forces and mechanisms that link the availability of nearby natural resource amenities with economic development in local communities. o They did not use readily available information to quantify the potential effects of each alternative on these economies (this is especially true for breaching the Lower Snake River dams in Alternative 3). For example, the DEIS fails to show, evaluate, and incorporate into its decision-making process research that concluded the removal of the Lower Snake River dams would stimulate a net increase in jobs, wages, and the gross 25 See, for example, Executive Order 12866. 1993. Regulatory planning and review; Office of Management and Budget. 2003. Circular A-4: regulatory analysis; EPA. 2002. A framework for the economic assessment of ecological benefits; EPA. 2010. Guidelines for preparing economic analyses; and EPA Science Advisory Board. 2009. Valuing the protection of ecological systems and services. 26 For example, they ignore data they developed in: Corps of Engineers. 2002. Final Lower Snake River Juvenile Salmon Migration Feasibility Report/Environmental Impact Statement. 27 This information is readily available from Headwaters Economics. 2020. Economic profile system, which compiles public data by county and other geographic units. This interactive website was developed with funding from the Bureau of Land Management, USDA Forest Service, and the Kresge Foundation 28 See, for example, Headwaters Economics. 2020. Economic profile system; Pender, John, Alexander Marr, and Richard Reeder. 2012. Rural wealth creation: concepts, strategies and measures; McGranahan, D., T. Wojan, and D. Lambert. 2010b. The rural growth trifecta: outdoor amenities, creative class and entrepreneurial context; Henderson, J. 2002. Building the rural economy with high growth entrepreneurs; Irwin, E.G., A.M. Isserman, M. Kilkenny, and M.D. Partridge. 2010. A century of research on rural development and regional issues; Fisher, B., and R.K. Turner. 2008. Ecosystem service: classification for valuation. Natural Resource Economics, Inc. Comments on Socioeconomic Elements of CRSO DEIS 17 value of goods	The EIS evaluated benefits and adverse effects across an array of resource areas including potential effects at the national, regional and local level; effects are monetized and quantified, where possible, and also described qualitatively. As is common in NEPA analyses, the beneficial and adverse effects of the alternatives are expressed as a variety of qualitative and quantitative environmental and economic metrics throughout the EIS to inform decision-making, including the effects of the alternatives on fish as detailed in Sections 3.5 and 7.4.4. That the effects of the alternatives on fish are not expressed as monetized economic values does not mean that they were not considered in the context of the analysis. The EIS does not employ a cost-benefit framework for decision-making. Instead, the EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-lead agencies numerous legal obligations. The Preferred Alternative is predicted to benefit ESA-listed juvenile and adult anadromous salmonids (two of the objectives), but not as much as Multiple Objective alternative 3, which includes the measure to breach the four lower Snake River dams. However, the Preferred Alternative also meets most other objectives of the EIS for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse impacts to communities and the economy. The description of how the Preferred Alternative was chosen is provided in Chapter 7 of the EIS. Also, the overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. National Marine Fisheries Service (NMFS) and Washington Department of Fish and Wildlife (WDFW) have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for the whales (NMFS and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall-run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall-run, and Snake River spring/summer-run. SRKW also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKW are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKW feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). CSS and NMFS Lifecycle models predict that lower Snake River Chinook salmon Smolt-to-Adult return rates would have a moderate to major increase under MO3. Operation of Lower Snake River Compensation Plan fish hatcheries under MO3 is uncertain and therefore, production of Snake River hatchery fish is assumed to decline over the long term, while returning adult wild salmon are anticipated to increase. However, the co-lead agencies do not anticipate a lack of hatchery fish in the short-term based on the proposed fish hatchery mitigation described in Chapter 5. These additional hatchery fish should mitigate short-term construction effects to Snake River populations. Additionally, to address short-term effects to ESA-listed species, the co-lead agencies propose constructing a new trap and haul facility at McNary and conducting at least two years of trap and haul operations for Snake River fish (Chinook, sockeye, and steelhead). Therefore, there may be short-term adverse effects to the SRKW population as the lower Snake River wild salmon populations adjust to changes associated with dam breaching. The co-lead agencies agree that the quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKW, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these Federal dam and reservoir projects, and the associated effects would indirectly affect SRKW. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differently from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NMFS BiOp 2020). The co-lead agencies conclude there could be a negligible to minor beneficial effects to SRKW from implementing MO3.

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				and service produced in the regional economy.29 o They did not calculate each alternatives impacts on public benefits, relative to public costs. The DEIS does not mention the benefits and costs that would accrue to the American public from each alternative. o They did not fully show the information and reasoning used to select the Preferred Alternative (e.g., they did not explain their subjective, undocumented weighting of different effects as low, moderate, or otherwise). The DEIS does not compare the net public benefits across the alternatives, and show which alternative promises the greatest net public benefits. It does not use this information to select as its Preferred Alternative the one that promises the greatest net public benefit, or the reasoning for its choice if it choses another as its Preferred Alternative.	Additionally, MO3 is not likely to adversely affect the SRKW distinct population segment in the short term analysis because increased hatchery production and the new trap and haul facility at McNary proposed for MO3 in Chapter 5 would address any potential short-term impacts. For the effects on recreational fishing under MO3 (Section 3.11.3.5) along the lower Snake River below Lewiston, the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River) as an indicator for fishing visitation in this reach. The EIS describes that the visitation in the long-term in the lower Snake River, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting outfitting and tourism businesses in the region. The social welfare values and regional economic effects associated with recreational fishing under the action alternatives as well as river recreation post dam breach under MO3 were not estimated because of the uncertainty and large range in visitation and consumer surplus values among users.
3999	26	ttrue@earthjustice.org	Earthjustice	2. The DEIS does not demonstrate that the Preferred Alternative will yield sustainable economic development The PR&G establish standards intended to ensure that Federal investments improve economic well-being for present and future generations through the sustainable use and management of water resources. The DEIS, with its inadequate and incomplete socioeconomic analysis and selection of the Preferred Alternative, does not provide a rational basis for achieving this assurance. Indeed, the DEIS does not even provide a framework for defining what sustainable use and management of water resources means in the CRSO context, ascertaining appropriate criteria for measuring sustainable economic development, and applying the criteria to evaluate the different alternatives. In effect, the DEIS shows no serious concern about the potential sustainability of the CRSO impacts on local and regional economies. Instead, the DEIS indicates provides only information about how the CRSO can continue to operate in the future through large investments, of one kind or another. It does not disclose the effects of these investments on the relevant ecosystem and its sustainability, nor does it show other direct, indirect and induced costs and/or benefits that will accrue to the public from these investments. For example: o A review of CHAPTER 4 SOCIOECONOMIC EFFECTS ANALYSIS in Appendix N, reveals that it describes only the potential socioeconomic costs from the impacts of MO3 on water supplies in the Lower Snake River, and fails to describe the potential benefits in this or other areas. These benefits would materialize as this alternative results in improvements in the ability of the ecosystem to provide society with valuable goods and services, such as higher populations of anadromous fish, reduced risk to ecosystems from the interactions between the CRSO and climate change, increased recreational opportunities for the free-flowing river. These impacts will have both usevalues and passive-use values that may be substantial, but the DEIS does not address them identify and analyze them. o The agencies description of the potential socioeconomic costs from the impacts of MO3 on water supplies in the Lower Snake River fails to provide a reasonable, complete assessment of the costs associated with impacts to irrigated agriculture that the DEIS predicts (apart from whether they provide an accurate description of these impacts). They assume [p. N-4-4] that, with implementation of MO3, irrigation no longer would be feasible for 47,926 acres currently being irrigated from surface water and groundwater, and estimate that the lost crop production from these acres would result in a lost social benefit, i.e., socioeconomic cost, of up to $353 per acre per year (and for the next 50 years). The calculation of this amount, however, fails to account for the 29 Domanski, A. 2019. Lower Snake River dams: economic tradeoffs of removal. Natural Resource Economics, Inc. Comments on Socioeconomic Elements of CRSO DEIS 18 benefits American taxpayers would realize as they no longer would have to pay for infrastructure and activities of the CRSO that make the surface and groundwater available.30 In other words, the agencies provide an incomplete, skewed analysis: counting only the costs to farmland owners of MO3, ignoring the benefits to taxpayers, and failing to calculate the overall, net benefits to the American public as a whole (or maybe net costsit is impossible to tell from the information the agencies provide in the DEIS). o The agencies assumption that MO3 would result in the dewatering of 47,926 acres comes from conversations with several extension agents in WA and OR [N-4-18]. The agencies do not explain if this estimate of dewatered acreage represented the findings from a detailed, comprehensive analysis that took a hard look at the issue. It also does not reveal if these conversations included evidence regarding other factors that might influence farmers susceptibility to impacts from breaching the dams. For example, the agencies do not reveal if the conversations included a discussion of or data about markets now and over the next 50 years to assess the likelihood that demand for crops grown on these acres might change over time and, for example, lose some of their access to Asian markets or be outcompeted by other producers. Without such an analysis, it seems likely that projections of the lost social welfare based on these conversations are nothing more than speculation. o Questions about the reasonableness of the agencies failure to disclose the details of the analysis, if any, that yielded the estimates of dewatered acreage and the landowners loss per acre are amplified by some of their assumptions and data manipulations. For example, they calculate the total loss per acre by assuming the annual losses will remain constant for the next 50 years. They apparently made this assumption (they provide no details) without making any assessment of how market conditionsthe supply of and demand for landmight evolve over the next 50 years. They apparently made this assumption (they provide no details) without considering any plausible factors that plausibly might make the future annual loss per acre increase or decrease. These factors include, but are not limited to, changes in international trade relations (e.g., a trade war), crop technologies (e.g., new GMO varieties that require less irrigation), climate conditions (e.g., shifts in rainfall patterns), and irrigation technologies (e.g., the discovery of groundwater supplies and emergence of low-cost pumping systems). Such changes, if not currently anticipated by markets, would not be reflected in current land prices. If the agencies, in fact, failed to consider these factors as part of a detailed, comprehensive analysis of all the factors, including drawdown of the reservoirs, that affect prices of agricultural land in the region, then they violated standards and requirements applicable to this type of analysis.31 If they conducted such an analysis but failed to reveal their data, methods, and findings in the DEIS, then they have violated standards and requirements to make that information transparently accessible to the public and decision-makers.32 At least one of these violations seems to have occurred, undermining the confidence the public can place on the reasonableness of the numbers the agencies present regarding the irrigation impacts of MO3, and raising a reasonable inference that the agencies numbers are arbitrary. o The DEIS similarly fails to account for the benefits to taxpayers that might result if municipal and industrial water users lose subsidized access to water from Federal 30 The calculation, shown in Table 4-1 Irrigated Land Value Using Assessor Data, focuses solely on the benefits landowners realize from irrigation, not on the costs of providing the landowner with subsidized access to the water. 31 See, for example, Office of Management and Budget. 2003. Circular A-4: regulatory analysis. 32 See, for example, the transparency requirements explicitly expressed in the PR&G. Natural Resource Economics, Inc. Comments on Socioeconomic Elements of CRSO DEIS 19 investments in the CRSO. Instead, if focuses solely on the costs to water users. Hence, it is impossible to determine, from the information in Appendix N, Chapter 4 if MO3 would yield an overall net benefit or net cost even in the narrow area of water supply, which is just one of many examples of this problem in the DEIS.	Regarding the PR&G requirements, if an agency is seeking authorization and appropriations from Congress to fund a Federal investment, it would be appropriate to analyze the alternatives under the PR&G framework. One of the goals of a PR&G analysis is to determine the economically justified alternative by conducting an economic cost benefit analysis, referred to as National Economic Development (NED) effects in the superseded P&Gs. Under the NEPA context, the goal is not to determine the economically justified alternative for OMB approval. Measuring the social welfare effects, or NED effects, related to water supply would be time consuming and cannot be completed within the EIS imposed schedule. Section 1502.23 of the NEPA regulations (40 CFR 1502.23) addresses the role of cost benefit analysis within the context of NEPA compliance. The first half of Section 1502.23 discusses the incorporation of existing benefit-cost analyses into the NEPA evaluation process. The second half of Section 1502.23 states that (f)or purposes of complying with the Act, the weighing of the merits and drawbacks of the various alternatives need not be displayed in a monetary cost-benefit analysis and should not be when there are important qualitative considerations. Generally, the PR&Gs are intended as guidance for analyzing Federal investments. Further there is no policy or law that requires the use of the PR&Gs. Appendix N describes the analysis for water supply effects limited to irrigation and municipal water supply.
3999	27	ttrue@earthjustice.org	Earthjustice	3. The DEIS does not demonstrate that the Preferred Alternative will maximize the net public benefits derived from water and related land resources The PR&G emphasizes that Federal resource-managers, such as the co-lead agencies, must demonstrate that their decisions will maximize the net benefits the American public derives from the nations water and related land resources. Toward that objective, the PR&G establishes these standards and obligations: Provide a full comparison of costs and benefits for each alternative, including the Preferred Alternative, giving equal consideration to both effects that are monetized and effects that are not. Provide a forecast relevant to the socioeconomic problems and opportunities the Preferred Alternative is addressing; identify its specific socioeconomic objectives, and its expected ability to achieve them. Design the Preferred Alternative so that the public benefits will justify the Federal investments. Demonstrate that the Preferred Alternative will accomplish the Federal objective, by maximizing public benefits, thereby producing an increase in the net value of the national output of goods and services, marketed and not marketed. The co-lead agencies make no reference to these standards and obligations. They make no demonstrable effort to satisfy them. As described above, they ignore non-monetized costs and benefits. They ignore [monetized] costs and benefits that accrue to the public rather than to the agencies, themselves, or, in some cases, to their affected industries (e.g., hydropower, navigation, and irrigated agriculture). They do not conduct an analysis that identifies the socioeconomic problems and opportunities they are addressing in the DEIS and the Preferred Alternative.33 They do not demonstrate the Preferred Alternative has the ability to resolve the identified socioeconomic problems and to capitalize on the socioeconomic opportunities so that it (a) will yield positive net benefits to the American public, or (b) that it will yield greater net public benefits than other alternatives, especially the alternative that involves restoring the lower Snake River and breaching four dams there. These failings directly contradict the emphasis the PR&G place on ensuring that the Federal investment promotes the sustainable use and management of the nations water and related resources, thereby contributing to economic well-being for present and future generations. The Principles and Requirements identify sustainable economic development as one of the core principles that must guide Federal investments in water and related resources. Furthermore, it states, Federal investments in water resources as a whole should strive to maximize public benefits, with appropriate consideration of costs. Public benefits encompass environmental, economic, and social goals, include monetary and non-monetary effects and allow for the consideration of both quantified and unquantified measures.	The EIS evaluated benefits and adverse effects across an array of resource areas including potential effects at the national, regional and local level; effects are monetized and quantified, where possible, and also described qualitatively. Changes in ecosystem functions and services were addressed in the appropriate section of the Final EIS (for example, in water quality, water supply, air quality, recreation, etc.). As is common in NEPA analyses (see 40 CFR 1502.23), the beneficial and adverse effects of the alternatives are expressed as a variety of qualitative and quantitative environmental and economic metrics throughout the EIS to inform decision-making. That the effects of the alternatives on fish are not expressed as monetized economic values does not mean that they were not considered in the context of the analysis. The EIS does not employ a cost-benefit framework for decision-making. Instead, the EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-lead agencies' numerous legal obligations. As described in Chapter 7 of the Final EIS, the Preferred Alternative is predicted to benefit ESA-listed juvenile and adult anadromous salmonids (two of the objectives), but not as much as Multiple Objective alternative 3, which includes the measure to breach the four lower Snake River dams. However, the Preferred Alternative also meets most other objectives of the study for the EIS objectives for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. Regarding the PR&G requirements, if an agency is seeking authorization and appropriations from Congress to fund a Federal investment, it would be appropriate to analyze the alternatives under the PR&G framework. Under the NEPA context, the goal is not to determine the economically justified alternative for OMB approval. Section 1502.23 of the CEQ's NEPA regulations (40 CFR 1502.23) addresses the role of cost benefit analysis within the context of NEPA compliance. The first half of Section 1502.23 discusses the incorporation of existing benefit-cost analyses into the NEPA evaluation process. The second half of Section 1502.23 states that (f)or purposes of complying with the Act, the weighing of the merits and drawbacks of the various alternatives need not be displayed in a monetary cost-benefit analysis and should not be when there are important qualitative considerations. Further there is no policy or law that requires the use of the PR&Gs.
3999	28	ttrue@earthjustice.org	Earthjustice	The DEIS does not assess each alternatives potential for sustainable production of the quantity, quality, timing, location, accessibility, etc. of goods and services produced by the economy or the ecosystem. It also does not assess the sustainability of jobs, incomes and other relevant indicators of economic activity. And it omits or understates the sustainable economic impacts of environmental improvements that would result from dam breaching. As a consequence, its 33 Note: the specification of Purpose and Need does not satisfy this standard or provide an explanation for its failure to	The EIS evaluated benefits and adverse effects across an array of resource areas including potential effects at the national, regional and local level. The EIS does not employ a cost-benefit framework for decision-making. This is because, consistent with NEPA analysis frameworks (see 40 C.F.R. 1502.23), the beneficial and adverse effects are expressed as a variety of qualitative and quantitative environmental and economic metrics. Consequently, a focus solely on the monetized economic costs and benefits would exclude important tradeoffs associated with the alternatives communicated in the EIS, including effects on fish. Furthermore, while a cost-benefit framework generally results in a ratio of overall benefits to costs, the EIS evaluates the performance of the CRSO alternatives with respect to multiple stated objectives, for example related to improving fish passage and survival, reliable power generation, and minimizing greenhouse gas emissions.

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				do so. Natural Resource Economics, Inc. Comments on Socioeconomic Elements of CRSO DEIS 20 description and analysis of the Preferred Alternative does not demonstrate that it is superior to the other alternatives in its ability to generate net public benefits as described in the PR&G.	
3999	29	ttrue@earthjustice.org	Earthjustice	The DEIS presents a misleading and partial account of each alternatives impacts on a few selected and narrow market components of the economy (some commercial/industrial sectors). For example, it describes benefits from the navigation infrastructure for the barge industry and its clients under the Preferred Alternative, but it does not describe the benefits the rafting/paddling industry or other sport and recreational components of the economy would realize under Alternative 3, when breaching of the dams would restore free-flowing water in the Lower Snake River. Nor does it attempt to identify and describe the potential economic benefits of the investments necessary to river restoration or the economic potential of restoration of more than 14,000 acres of currently inundated riparian habitat, benefits that could even include additional agricultural activity. The DEIS recognizes the costs of breaching the dams and making compensatory investments in transportation and irrigation, but not the benefitsincreases in output of goods and services, increased local economic activity, including job creationfor example. It similarly recognizes but does not describe the socioeconomic benefits that would flow from investments in the solar/wind generators and related infrastructure that replace forgone hydroelectricity from the Lower Snake River dams.	The EIS evaluated beneficial and adverse effects across an array of resource areas including potential effects at the national, regional and local level; effects are monetized and quantified, where possible, and also described qualitatively. As is common in NEPA analyses (see 40 CFR 1502.23), the beneficial and adverse effects of the alternatives are expressed as a variety of qualitative and quantitative environmental and economic metrics throughout the EIS to inform decision-making, including the effects of the alternatives on fish as detailed in Sections 3.5 and 7.7.4. That the effects of the alternatives on fish and recreation are not expressed as monetized economic values does not mean that they were not considered in the context of the analysis. The EIS does not employ a cost-benefit framework for decision-making. Instead, the EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-lead agencies numerous legal obligations. The Preferred Alternative is predicted to benefit ESA-listed juvenile and adult anadromous salmonids (two of the objectives), but not as much as Multiple Objective alternative 3, which includes the measure to breach the four lower Snake River dams. However, the Preferred Alternative also meets other objectives of the EIS for resident fish,J amprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. Under MO3, the EIS describes that the visitation in the long-term in the lower Snake River, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting outfitting and tourism businesses in the region. A range of visitation is provided, based on the evaluation conducted for the 2002 Lower Snake River Juvenile Salmon Migration Feasibility Report and EIS. In addition, the potential for visitation under MO3 in the lower Snake River in the long-term is predicated on that access would be developed for the resource. As described in Section 3.11.3.5, access to the river and its recreational opportunities will be paramount for the reestablishment of river visitation to the lower Snake River. For example, parking lots, boat launches, new trailheads, access roads, etc., would need to be developed to facilitate the drawing of visitors to the region." The EIS described the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. National Marine Fisheries Service (NMFS) estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which is described qualitatively. Regarding the regional economic effects of the investments, the regional economic effects associated with the expenditures under the Multiple Objective alternatives are described in Section 3.19.3 and Appendix Q, Annex C. In the short-term, the regional economic benefits of construction under MO3 are higher than the other alternatives. However, in the long-term, lower regional economic benefits would occur under MO3 from reduced fish and wildlife mitigation spending, depending on Bonneville's Fish and Wildlife Program costs and resulting mitigation commitments. Regarding the potential for agricultural development on currently inundated lands under MO3, the co-lead agencies would no longer operate project lands after the projects are de-authorized. Under MO3, it is anticipated that the Corps would retain jurisdiction over the land holdings throughout the implementation period and biological evaluation process and that public control of a portion of public lands would be necessary to protect the environmental and natural benefits to salmon associated with dam breaching. Post dam breaching, the Corps may choose to transfer the lands to another Federal or state agency. It is uncertain and speculative to indicate that these lands would be available for agriculture. While it is true that investment in solar, wind, and other replacement resource investments would create economic benefits to the region, these effects are heavily dependent on which resource is constructed, where they are located in the region, and potentially how the construction is financed. The EIS acknowledges that these economic benefits would occur as a result of new resource development, but there is too much uncertainty to quantify this benefit. The potential for agricultural activities in the currently inundated area and associated effects would depend on multiple subjects for which information is not reasonably ascertainable, including the soil types, drainage conditions, topography, and water availability. Without this information, it is not feasible to determine if land can even be used for crops and, if so, for what type(s) of crops. Such an analysis would also need to consider additional information that is not available, such as the cost of land development (leveling, irrigation equipment, drainage infrastructure, pumps). To say that the inundated lands are suitable for crop production and that the agricultural benefit would outweigh the development costs is therefore speculative and not based on high quality information.
3999	30	ttrue@earthjustice.org	Earthjustice	At least some of these investments likely would materialize outside the CRSO river basins, but the DEIS fails to look that far afield for evaluating these benefits. This near-sighted focus contrast sharply with its broad (west-wide) concern for what it characterizes as the potential economic effects on electrical ratepayers. In Appendix J, CHAPTER 4 SYSTEM RELIABILITY, for example, the agencies evaluate the ability to meet forecasted electric load for the entire NW-US system, i.e., the northwest portion of Columbia River System in the United States. In reporting their analysis, the agencies recognize both the interconnectedness between the CRSO and other elements of a broader market and electricity network, as well as the importance of accounting for recent events and up-to-date forecasts.34	The statement that the EIS analyzed region-wide power system reliability is consistent with the EIS power analysis methodology. The EIS recognizes the interconnectedness and interactions across various regions of the power system as described in Section 3.7.3.2 Affected Environment and the power generation as well as greenhouse gas emissions effects were analyzed for the entire western United States (see Sections 3.7.3 and 3.8.3 and Chapter 7 of the Draft EIS). The EIS generally assumes replacement resources would occur within the Northwest in order to best address any effects of the CRSO EIS alternatives on regional reliability (see Section 3.7.3.1, Methodology and Chapter 2 of Appendix H for additional description of this methodology of the Draft EIS). The locations were selected for both performance of the wind and solar resources as well as for transmission interconnection. However, these resources could be acquired from any competitively priced resource option. While the EIS identified potential replacement portfolios, these were viewed as broad options representing the range in costs and generation characteristics that might be selected, but they are not necessarily the exact resources or locations that would be acquired. More analysis would be warranted to select the optimal mixture of replacement resources with the most current cost information and technological advances.
3999	31	ttrue@earthjustice.org	Earthjustice	The ecosystems affected by the CRSO are arguably even more interconnected and stretch over more distant horizons. Recent research demonstrates that local loss of biodiversity will affect the functioning and stability of ecosystems at macroscales, so that the stability of a regional ecosystem depends on the total number of species and on the variation in species exhibited by local areas within the regional ecosystem.35 Conversely, macro-level disturbances, such as those involving global warming, can have intense ecosystem impacts at microscales. Operation of the CRSO can interact with the status, processes, and functions, of ecosystems across all these levels. Moreover, the socioeconomic risks are high. Multiple lines of analysis indicate that the value of services derived from ecosystems can far exceed the value of goods and services derived from human-built systems.36 The agencies therefore should have evaluated the 34 The spatial and temporal connectedness and uncertainty are reflected, for example, in these statements: It is important to note that since the analysis for LOLP in the CRSO EIS was launched in 2017, utilities in the Pacific Northwest have announced the retirement of additional coal generation plants. Therefore, the analysis described here may be viewed as the 2017 view of the future. BPA is performing additional analyses to evaluate how these results would differ with fewer coal plants serving northwest loads. The reliability analyses were regional (NWUS) and were not performed for the CRS (Federal), Mid-Columbia, or Canadian systems. Because the utilities in the region can buy and sell power bilaterally with one another that is surplus to their retail load needs, the loss of generation by one entity can have adverse consequences to utilities relying on such generation. {J-4-1, and J-4-2] 35 Catano, C.P., et al. 2020. Local species diversity, -diversity and climate influence the regional stability of bird biomass across North America 36 Hejnowicz, A.P., and M.A. Rudd. 2017. The value landscape in ecosystem services: value, value wherefore art thou value? Natural Resource Economics, Inc. Comments on Socioeconomic Elements of CRSO DEIS 21 uncertainties and risks and determined how well each alternative would increase or decrease the likelihood of undesirable ecosystem outcomes at scales at least as large as and over a period of time at least as long as their analysis of rate impacts. That is, the available evidence suggests that the agencies should be at least as concerned about describing for the public and decisionmakers how the different alternatives might affect and be affected by ecosystem changes as they are about how they affect reliability of the electricity system and consumer rates. The DEIS, however, pays no attention to macroscale and microscale interactions between the CRSO and ecosystems, about how these interactions might exacerbate or mitigate uncertainties and risks for ecosystems near and far, or about the socioeconomic imperative for determining the potential effectiveness of each alternative for managing the uncertainties and risks for the public good. As a consequence, it fails to describe the potential adverse impacts of each alternative on the sustainability of the regional ecosystem of the Columbia-Snake River Basin, the larger ecosystems that extend into the Pacific Ocean, and on the sustainability of subregional ecosystems, including those of the Snake River Basin and the Lower Snake River. This failure constitutes a large gap in the ability of the DEIS to demonstrate that the co-lead agencies understand and have the ability and determination to objectively evaluate the narrow issues they do examine against the potentially large negative impacts to ecosystems and the publics socioeconomic well-being.	The EIS evaluated benefits and adverse effects across an array of resource areas including potential effects at the national, regional and local level; effects are monetized and quantified, where possible, and also described qualitatively. Changes in ecosystem functions and services were addressed in the appropriate section of the Final EIS (for example, in water quality, water supply, air quality, recreation, etc.). The EIS also acknowledges the cumulative impacts to affected resources in Chapter 6 for the No Action Alternative as well as Multiple Objective alternative 1, Multiple Objective alternative 2, Multiple Objective alternative 3, and Multiple Objective alternative 4 and Chapter 7 for the Preferred Alternative as well as the climate effects in Chapters 4 and 7. The sustainability of ecosystems is outside the scope of the CRSO EIS.
3999	32	ttrue@earthjustice.org	Earthjustice	More broadly, the DEIS fails to identify and evaluate the socioeconomic importance of each alternatives potential impacts on all non-market components of the economy. It does not quantify and estimate the socioeconomic value of increases in subsistence activities that might occur in response to increases in fish populations, for example, or the losses that would occur in response to further declines beyond those that have already occurred. It does not provide any meaningful description of the potential increase in well-being associated with the non-use, or passive use, values the public would assign to increases in population for anadromous fish and other species, to the restoration of a free-flowing water in the Lower Snake River, and to other resources enhanced by breaching the dams. It does not describe in a complete and transparent way the socioeconomic importance of reductions in well-being that past and on-going reductions in these values inflict on Tribal members and others who assign uniquely high benefits to these non-use values, or of the additional socioeconomic losses that would occur with continuation of current river operations under the Preferred Alternative.37 Moreover, the DEIS fails to recognize the research that indicates restoration of a free-flowing river likely would make local communities more attractive to many workers, families, and investors, providing a long-run boost to the sustainability of economic development.38 37 This failure becomes more glaringly apparent when the DEIS identifies, but then incompletely or inaccurately describes the reduction in well-being that would occur if breaching of the dams led to the cessation of river-boat tourism and caused Clarkston and nearby communities to lose their riverboat business without symmetrically identifying impacts of selecting an alternative that continues these activities to Tribal communities that have lost their ancestral character or for the rafting/paddling communities of interest that would realize an increase in well-being from restoration of the free-flowing character of the river with breaching of the dams. Nor does the DEIS address the effects of the choice among alternatives on communities of the Salish Sea that would lose their whale-watching character and culture associated with these whales if implementation of the Preferred Alternative were to stimulate reductions in orca populations. While these more geographically remote communities are within the area the DEIS analyzes for some impacts (e.g., electric rates), they are omitted here and elsewhere. 38 38 Headwaters Economics. 2020. Economic profile system; Pender, John, Alexander Marr, and	As is common in National Environmental Policy Act analyses, the beneficial and adverse effects of the alternatives are expressed as a variety of qualitative and quantitative environmental and economic metrics throughout the EIS to inform decision-making, including the effects of the alternatives on fish as detailed in Sections 3.5 and 7.7.4. That the effects of the alternatives on passive use for fish are not expressed quantitatively (e.g., monetized economic values) does not mean that they were not considered in the context of the analysis. The EIS describes the multiple different ways that people may hold value for salmon and other natural resources, including non-use (i.e., "passive use") values that are not associated with direct experience (e.g., fishing, subsistence). Section 3.15.2.2 of the EIS summarizes the existing literature on passive use values for salmon and affirms that the literature demonstrates that the general public holds value for the salmon and that the population that may benefit from increased salmon populations may be geographically far-reaching. However, due to limitations in the literature and uncertainty regarding the changes in overall fish abundance predicted under each alternative (as different fish are affected positively and adversely), the EIS does not rely on this literature to estimate a monetary value of the effects on fish. The information on values that people hold for these fish is then presented throughout the document (e.g., Section 3.15 on commercial fisheries, subsistence and passive use and Section 3.11 on recreational fishing). Additionally, the EIS describes the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. National Marine Fisheries Service (NMFS) estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which is described qualitatively. The potential for changes in recreational fishing for anadromous fish under Multiple Objective alternative 3 in the Region C is described in Section 3.11. Increases in recreational fishing could support jobs, income, and social benefits in Tribal and rural river communities.

Letter No.	Comment No.	Commenter Name/Email	Affiliation	Comment	Response[1/]
				Richard Reeder. 2012. Rural wealth creation: concepts, strategies and measures; McGranahan, D., T. Wojan, and D. Lambert. 2010b. The rural growth trifecta: outdoor amenities, creative class and entrepreneurial context; Henderson, J. 2002. Building the rural economy with high growth entrepreneurs; Irwin, E.G., A.M. Isserman, M. Kilkenny, and M.D. Partridge. 2010.	The co-lead agencies selected the size of the study area based on the area where the impacts from the proposed structural and operational measures are expected to occur. This study area is sufficient for the agencies to understand the effects of the different alternatives and to enable the agencies to make an informed evaluation of the alternatives. The co-lead agencies focused on the locations where there were understandable direct effects, as opposed to third and fourth order effects, which are harder to predict, and thus evaluate, as a part of the NEPA process. Based on the fish analysis in Section 7.7.4 of the Draft EIS, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Additionally, Section 7.7.8 states impacts to Southern Resident killer whales would be negligible.
3999	33	ttrue@earthjustice.org	Earthjustice	The asymmetrical and, hence, incomplete and misleading nature of the agencies failure to recognize, describe, and quantify the positive correlation between a free-flowing river and overall economic development becomes more glaring when considered alongside the agencies narrow focus on the economic importance of the current beneficiaries of existing river and dam operations. This disconnect in the scope of the analysis emerges, for example, as the DEIS uses obsolete data that masks the long-standing and on-going declines in the value of navigation demand for the locks and reservoirs on the Lower Snake River and its cursory description of the factors that contribute to these declines.39 These declines reflect many factors, including decreases in crop production and competition for barges from rail and truck transportation. Shipments likely will fall further in the future, insofar as the current market forecast expects U.S. wheat prices, acreage, and exports to decline:40 [W]heat plantings are expected to slowly decline. Exports are expected to remain flat as the U.S. share of global wheat trade continues to decline. Wheat prices parallel corn prices, dropping in the second half of the decade, in part due to increasing yields combined with relatively stable planted acreage.	The EIS evaluated benefits and adverse effects across an array of resource areas including potential effects at the national, regional and local level; effects are monetized and quantified, where possible, and also described qualitatively. Changes in ecosystem functions and services were addressed in the appropriate section of the Final EIS (for example, in water quality, water supply, air quality, recreation, etc.). Access to barge transportation is the most cost effective means of accessing export markets for many grain producers in the Northwest currently and removing that option will increase transportation costs for grain producers, as the EIS shows. It is true that barge movements on the Snake/Columbia river have declined somewhat over the past 20 years but the decline has stabilized over the past 10 years. That decline is most likely attributable to investments in shuttle rail terminals. The EIS utilizes the most recent 10 year average as a basis for its forecast volume of freight that would transit on the lower Snake River.
3999	34	ttrue@earthjustice.org	Earthjustice	The flaws in the DEIS are not limited to the co-lead agencies omitting information that suggests benefits from the CRSOs navigation system likely will decline in the future. The agencies similarly fail to report information that suggests the benefits from hydropower generation also will decline. This decline likely will come primarily from tougher market competition, as prices for electricity generated from solar and wind continue to fall dramatically, and new energystorage technologies, increases in energy efficiency and expanded demand response capabilities enable grid operators and others to derive increased economic benefits from other sources of energy production and allow consumers to both enjoy solar- or wind-generated power even when the sun doesnt shine and the wind doesnt blow and reduce their use of electricity overall.41 The DEIS also does not acknowledge the growing demand for these kinds of products and services except in examining the potential economic costs of replacing the power from the lower Snake River dams with clean energy and even in this narrow analysis, the information the agencies present is incomplete and misleading.42 By incorporating an incomplete and inaccurate slice of information about navigation and hydropower markets, the DEIS overstates the benefits Americans reasonably should expect from those beneficiaries of the Preferred Alternative. Those benefits also likely will shrink in the coming years. In contrast, the DEIS omits a broad body of data and research findings that suggest the benefits from breaching the Lower Snake River dams will grow or, conversely, the costs from implementing the Preferred Alternative and not breaching the dams will grow. In sum, the DEIS presents a materially incomplete, biased, and inaccurate picture of the costs and benefits of the alternatives, especially those associated with the preferred alternative and those associated with MO3, the river restoration and dam breach alternative. A century of research on rural development and regional issues; Fisher, B., and R.K. Turner. 2008. Ecosystem services: classification for valuation 39 For more information about the evidence underlying this discussion of declining demand for navigation, see the comments of Lin Laughy. 40 USDA, Office of the Office of the Chief Economist, World Agricultural Outlook Board, Interagency Agricultural Projections Committee. 2019. USDA agricultural projections to 2028. 41 See. For example, NREL. 2020. Declining renewable costs drive focus on energy storage; IRENA. 2017. Electricity storage and renewables: costs and markets for 2030; Whitlock, R. 2019. BNEF revises forecast for global investment in energy storage; and NREL. 2019. Cost projections for utility-scale battery storage. 42 For more information about the evidence underlying this discussion of changing energy markets and the analysis in the DEIS, see the comments of Northwest Energy Coalition on the DEIS. Natural Resource Economics, Inc. Comments on Socioeconomic Elements of CRSO DEIS 23	The EIS does evaluate competitive pressures on regional hydropower as well as the potential effects of future climate change scenarios on changes to hydropower generation (see Draft EIS Sections 4.2.5 and 7.8 for climate change results by scenario and Sections 3.7.2.5, pages 3-801-802 and Section 3.7.3.1, pages 3-842-843 for discussions on the importance of upward rate pressure on Bonneville rate competitiveness). The EIS additionally acknowledges that the energy sector is constantly undergoing transformation and that technological improvements would likely bring other options. To avoid speculation, the EIS analysis focuses on primary technologies identified by the Council in their Seventh Power Plan (Seventh Power Plan page 13-5) that are deemed proven, commercially available, and deployable on a large enough scale in the Northwest. The use of battery storage technologies is considered a long-term resource of the Seventh Power Plan, but has become more commercially available since the release of the Seventh Power Plan, will likely be a primary resource in the Council's Eighth Power Plan, and is included in the EIS. The EIS zero-carbon portfolios include demand response, and all cost-effective conservation is included in the load forecast. The EIS also addresses trends in renewable development in the region (see Draft EIS Section 3.7.2.1). To further address concerns about potential reductions in resource costs, consistent with the comment, publicly released draft information, such as updated prices for solar and battery storage, from development of the Eighth Power Plan is included as a new rate sensitivities in the Final EIS. The Final EIS includes the de-escalating cost curves (declining future cost trends for renewables) prepared by the National Renewable Energy Laboratory (NREL) that will likely be used by the Council in the Eighth Power Plan. Based on responses to public comments, the Final EIS contains an expanded description of how the potential replacement resource portfolios were selected for the EIS. (See Chapter 3, Section 3.7.3.1 and Appendix H, Chapter 2). Access to barge transportation is the most cost effective means of accessing export markets for the majority of grain producers in the Northwest currently and removing that option will increase transportation costs for grain producers, as the EIS shows. It is true that barge movements on the Snake/Columbia river have declined somewhat over the past 20 years but the decline has stabilized over the past 10 years. That decline is most likely attributable to investments in shuttle rail terminals. The EIS therefore utilizes the most recent 10 year average as a basis for its forecast volume of freight that would transit on the lower Snake River.
3999	35	ttrue@earthjustice.org	Earthjustice	4. The DEIS provides no science-based explanation for why the agencies use zero as the passive use value of salmon; marine species, such as orcas; free-flowing rivers; and other natural resources; as well as the health and functions of ecosystems, despite at least 18 studies that show the value is much greater. In Chapter 3, section 3.15.2.2 Passive Use, the agencies recognize that salmon; marine species, such as orcas; free-flowing rivers; and other natural resources; as well as the health and functions of ecosystems all provide Americans with socioeconomic benefits that economists call passive use values. For example, the DEIS [pp. 3-1317 1319] states: o Passive use values, also referred to as non-use values, are the values people hold for the continued existence of a resource beyond any current or future use. These values are thought to measure the intrinsic values people hold for natural resources or ecological health and functioning. o This review prioritizes studies focused on regional fish species found in the Columbia and Snake rivers and includes results from both primary survey research and benefit transfer methods. o Existing research also suggests that people may hold passive use values for other resources and species found in the Columbia and Snake River Basins, including marine species that prey on salmon as well as other threatened and endangered species. Additionally, the economics literature includes research on passive use values for free-flowing rivers. These studies generally bundle the environmental changes associated with free-flowing rivers, including, for example, specifying effects on fish populations. This section focuses on passive use research on o salmon. o This analysis acknowledges that the general public holds passive use values, and that the population that may experience social welfare benefits from increased salmon populations may be geographically far-reaching. The bottom line: the agencies admit that Americans derive a socioeconomic benefits from salmon; marine species, such as orcas; free-flowing rivers; and other natural resources; as well as the health and functions of ecosystems. They admit that this value has been and can be analyzed and described in economic terms. Yet they treat the value of the socioeconomic benefit as being zero. They offer no explanation for this approach.	This comment correctly summarizes the EIS assessment of the existing literature describing passive use values for salmon. As described, Section 3.15.2.2 concludes that the literature consistently identifies that the general public holds value for the salmon beyond any direct or indirect use (e.g., fishing, wildlife view, subsistence, etc.). Consistent with NEPA analysis frameworks, the EIS expresses beneficial and adverse effects across a variety of qualitative and quantitative environmental and economic metrics. That the effects of the alternatives on passive use for fish are not expressed as monetized economic values does not mean that they were not considered in the context of the analysis or are implicitly assigned a value of zero. As described in Section 3.15.2.2, the economics literature includes research on passive use values for free-flowing rivers. These studies generally bundle the environmental changes associated with free-flowing rivers, including, for example, specifying effects on fish populations. Thus, passive use values for free-flowing rivers are not necessarily distinct from or additive with passive use values for the fish within these rivers. The overall health and condition of the Southern Resident killer whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. National Marine Fisheries Service (NMFS) and Washington Department of Fish and Wildlife (WDFW) have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for the whales (NMFS and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall-run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall-run, and Snake River spring/summer-run. SRKW also are known to eat some steelhead, coho, and chum salmon, halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKW are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKW feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). CSS and NMFS Lifecycle models predict that lower Snake River Chinook salmon Smolt-to-Adult return rates would have a moderate to major increase under MO3. Operation of Lower Snake River Compensation Plan fish hatcheries under MO3 is uncertain and therefore, production of Snake River hatchery fish is assumed to decline over the long term, while returning adult wild salmon are anticipated to increase. However, the co-leads do not anticipate a lack of hatchery fish in the short term based on the proposed fish hatchery mitigation described in Chapter 5. These additional hatchery fish should mitigate short-term construction effects to Snake River populations. Additionally, to address short-term effects to ESA-listed species, the co-lead agencies propose constructing a new trap and haul facility at McNary and conducting at least two years of trap and haul operations for Snake River fish (Chinook, sockeye, and steelhead). Therefore, there may be short-term adverse effects to the SRKW population as the lower Snake River wild salmon populations adjust to changes associated with dam breaching. The co-lead agencies agree that the quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKW, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these Federal dam and reservoir projects, and the associated effects would indirectly affect SRKW. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differently from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020). The co-lead agencies conclude there could be a negligible to minor beneficial effects to SRKW from implementing MO3. Additionally, MO3 is not likely to adversely affect the SRKW distinct population segment in the short-term analysis because increased hatchery production and the new trap and haul facility at McNary proposed for MO3 in Chapter 5 would address any potential short-term impacts.
3999	36	ttrue@earthjustice.org	Earthjustice	The agencies also recognized that extensive research provides quantitative estimates of the passive use values associated with salmon and other resources that would be enhanced under MO3: o A total of 18 studies were identified that estimate passive use or TEV [total economic value] for salmon of relevance to the Columbia River Basin ecosystem, including 13 primary studies and 5 studies employing benefit transfer methods. o Every primary study included in this review identifies positive average WTP [willingness to pay] values for Pacific salmon, meaning the existing body of research consistently finds that the surveyed populations hold some value for salmon beyond any direct or indirect use. These statements are important: the agencies found 13 studies, by professional economists following analytical protocols, that directly provide evidence of the passive use value of salmon in the Columbia River System, and these studies consistently show that Americans realize a passive use benefit from salmon. Another five studies bolster these findings by finding passive use values for salmon in other, nearby locations. Despite recognizing this strong evidence, the agencies used zero as the passive use value of the alternatives considered in the DEIS, regardless of how each alternative affected salmon; marine species, such as orcas; free-flowing rivers; and other natural resources; as well as the health and functions of ecosystems. That is, they decided not to count passive use values in their Natural Resource Economics, Inc. Comments on Socioeconomic Elements of CRSO DEIS 24 description and analysis of MO3, or to consider passive use values in their comparison of the alternatives and the selection of the Preferred Alternative. The subsequent chapters of the DEIS, which describe similarities and differences among the alternatives, compare the alternatives, and select the Preferred Alternative, contain no substantive statements regarding the passive use value of salmon; marine species, such as orcas; free-flowing rivers; and other natural resources; as well as the health and functions of ecosystems. In other words, wherever the DEIS might show an estimates of the passive use value for any resource, the agencies treat that value as zero.	This comment is consistent with Section 3.15.2.2 of the EIS that summarizes the literature on passive use values, concluding that the literature consistently identifies that the general public holds value for the salmon beyond any direct or indirect use (e.g., fishing, wildlife view, subsistence, etc.). Consistent with NEPA analysis frameworks, the EIS expresses beneficial and adverse effects across a variety of qualitative and quantitative environmental and economic metrics. Assessment of the beneficial and adverse effects across the alternatives included careful evaluation regarding effects on fish (as described in Sections 3.5 and 7.7.4). The information on values that people hold for these fish is then presented throughout the document (e.g., Section 3.15 on commercial fisheries, subsistence and passive use and Section 3.11 on recreational fishing). That the effects of the alternatives on passive use are not expressed as monetized economic values (i.e., quantified) does not mean that they were implicitly assigned a value of zero or that they were not considered in selecting an alternative.
3999	37	ttrue@earthjustice.org	Earthjustice	Why? What reasons do the agencies give for disregarding evidence that they acknowledge is available and shows non-zero passive use values? The agencies offer five reasons, but each lacks a scientific basis. The agencies first reason is that the 18 studies dont provide a single, certain estimate of passive use value. o While the existing literature identifies a positive WTP [willingness to pay] for improving salmon populations, it is also clear that the specific value of a given population-level effect is uncertain. The agencies provide no statistical or socioeconomic evidence to back up this statement, however. They never provide any recognized criteria for determining that the specific estimate of passive use value is too uncertain to warrant inclusion in the chapters that describe the alternatives, analyze them, and use the analytical findings to justify selection of the Preferred Alternative over MO3. Nor do they explain why it is necessary to have a certain and specific value of a given population level effect before any estimate of passive use values	The EIS provides a qualitative discussion of passive use values for fish and does not imply that the values and impacts of the alternatives are zero. As described in Section 3.15.2.2, the existing literature on passive use and Total Economic Values (TEV) for salmon is generally based on changes in overall salmon abundance. The co-lead agencies agree that the studies do not need to identify a specific value of the specific population change relevant to the alternatives to inform the passive use effects of the alternatives. However, first, the literature generally evaluates passive use benefits of large-scale population changes (including "restoring" salmon populations, "delisting" species, or doubling population sizes). Values people hold for such changes are not necessarily scalable for more marginal changes in population levels. Second, the given population change for the CRSO EIS alternatives would need to be known to apply this literature. Due to the complexity in modeling changes in abundance for anadromous fish, the fish effects analysis in Sections 3.5 and 7.7.4 assesses effects of the alternatives on fish in terms of multiple different metrics, identifying a mix of beneficial and adverse effects depending on the specific type of fish, and assessing abundance effects only for some stocks. Note that life cycle model abundance estimates were only produced for a subset of Columbia River System species as described in Chapter 3.5.

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				can be considered or accounted for. And nothing in the literature on identifying and using passive use values indicates that they can be employed only where a specific value of a given population level effect is available. The agencies first reason for disregarding these values and the evidence of their magnitude is irrational and not support by the available and relevant information.	Benefit transfer is a methodology that applies results from existing relevant studies to a new resource or context. Best practices for benefit transfer for Federal agencies identified in the Office of Management and Budget (OMB) Circular A-4 describe that meeting all criteria for a reliable benefit transfer is difficult and that professional judgment is required in determining whether a particular transfer is too speculative (OMB 2003, 26). This EIS does not include a quantitative benefit transfer of passive use values but instead presents the findings of the existing literature acknowledging that the general public holds passive use values, and that the population that may experience social welfare benefits from increased salmon populations may be geographically far-reaching. In selecting an alternative, the effects on fish of each alternative were considered carefully in the context of all of the types of socioeconomic values (e.g., commercial and recreational fisheries, subsistence, passive use, etc.) This approach does not constitute disregarding the literature or the evidence of the magnitude of fish values, as described in this comment.
3999	38	ttrue@earthjustice.org	Earthjustice	The agencies second reason for disregarding the results from the 18 studies is that some of the studies were conducted 20-30 years ago. o Studies conducted 20 to 30 years ago rely on outdated survey methodologies and baseline conditions for salmon populations, calling into question whether they accurately reflect current values held by the public The agencies never offer any scientific, analytical support for concluding that it is reasonable for them to disregard estimates of passive use values from older studies. This omission stands out, because they acknowledge the existence of scientific research that appliedindeed, helped defineapplicable protocols and found that, over time, the passive use values American households place on salmon and other at-risk species have been increasing.43 This evidence supports the conclusion, that findings from the earlier studies cited in the DEIS probably understate the current passive use values but have not become irrelevant. It also supports the conclusion, that findings from all of the studies cited in the DEIS, including the most recent, probably understate the passive use values that will exist in the future. In other words, the evidence the agencies recognize as relevant supports the conclusion, that, over the DEISs period of analysis, the passive use values of salmon; marine species, such as orcas; free-flowing rivers; and other natural resources; as well as the health and functions of ecosystems will be at 43 Richardson, L., and J. Loomis. 2008. The total economic value of threatened, endangered and rare species: an updated meta-analysis Natural Resource Economics, Inc. Comments on Socioeconomic Elements of CRSO DEIS 25 least as great as the values indicated by the 18 studies. The agencies simply never offer a rational explanation for their decision to disregard the passive use values indicated by the 18 studies they identify because some of them were completed years ago.	This EIS does not include a quantitative benefit transfer of passive use values but instead presents the findings of the existing literature acknowledging that the general public holds passive use values, and that the population that may experience social welfare benefits from increased salmon populations may be geographically far-reaching. The EIS describes that the studies conducted 20 to 30 years ago rely on outdated survey methodologies and baseline conditions for salmon populations. Although there is reason to believe that passive use values by people have been increasing over time, the older studies do not apply the state of science methods for eliciting information on these values. This discussion in the EIS does not state that the passive use values literature is overestimating (or underestimating) values people hold for salmon. Rather, it identifies the various complexities with applying this literature to provide a monetized estimate of the passive use value effects of the CRSO EIS alternatives. In selecting an alternative, the effects on fish of each alternative were considered carefully in the context of all of the types of socioeconomic values (e.g., commercial and recreational fisheries, subsistence, passive use, etc.) This approach does not constitute disregarding the literature or the evidence of the magnitude of passive use values, as described in this comment.
3999	39	ttrue@earthjustice.org	Earthjustice	The agencies third reason for disregarding the results from the 18 studies is that some of the newer studies had too narrow a focus to satisfy the agencies. o The more recent surveys have generally involved small sample sizes, and narrowly define the resource change (e.g., restoring salmon or removing a specific dam). That is, the agencies discarded the estimates of passive use value from some studies because they felt that they did not gather data from a large enough sample of households to satisfy the agencies or because they looked at removing just a specific dam. The agencies, however, provide no explanation or analysis to support their conclusion that these studies are entirely irrelevant to the socio-economic effects of the actions they are considering. They never explain, for example, how large a sample must be for them to accept a studys findings or what analyses support their apparent conclusions about adequate sample size. They never recognize that the passive use value from removing one dam may provide an appropriate reference point for estimating the value from removing others. Nor do they identify evidence that explains why this would not be the case. They dont apply the principles of statistical analysis to describe how, from the data available to it, each of the studies provided two results: the most likely single-point estimate of passive use value, and an estimate of the extent to which the true value might be larger or smaller. Instead of evaluating these aspects of each studys findingswhich the agencies, themselves, determined to satisfy standard analytical protocolsthe agencies, instead, disregarded the studies findings altogether.	This EIS does not include a quantitative benefit transfer of passive use values but instead presents the findings of the existing literature acknowledging that the general public holds passive use values, and that the population that may experience social welfare benefits from increased salmon populations may be geographically far-reaching. The EIS does not state that the more recent passive use research that involves smaller sample sizes is "irrelevant to the socioeconomic effects." In fact, the findings of these studies are presented for consideration. The discussion in the EIS of passive use values does not state that the passive use values literature is overestimating (or underestimating) values people hold for salmon. Rather, it identifies the various complexities with applying this literature to provide a monetized estimate of the passive use value effects of the CRSO EIS alternatives. In selecting an alternative, the effects on fish of each alternative were considered carefully in the context of all of the types of socioeconomic values (e.g., commercial and recreational fisheries, subsistence, passive use, etc.) This approach does not constitute disregarding the literature or the evidence of the magnitude of passive use values, as described in this comment.
3999	40	ttrue@earthjustice.org	Earthjustice	The agencies fourth reason for disregarding the results from the 18 studies is that one study had too broad a focus. o [T]he study that most closely matches the policy context of an MO, the ECONorthwest lower Snake River dam removal study, presupposes that the dam breach will restore wild salmon. Apparently, the agencies felt that this studys use of the term, restore, was sufficiently offensive or inadequate in some unexplained way for them to disregard completely the studys findings regarding passive use value. Again, however, the agencies offer no scientific, analytical support for their decision. And they mischaracterize the study as based on a single survey of passive use value when, in fact, the study considered the estimates of value derived from multiple surveys and the value derived from survey cited by the agencies represents the lower range of those surveys in its analysis. Furthermore, the agencies do not provide any statistical assessment of the extent to which using the term affected the studys findings, if at all. Without such evidence, the study the agencies reject actually has far more scientific, analytical support than does the agencies arbitrary and unsupported decision to disregard those findings.	The ECONorthwest analysis and the EIS employ different analytical frameworks and rely on different findings with respect to the outcomes of breaching the four lower Snake River dams. First, the ECONorthwest report applies a cost-benefit analysis framework, emphasizing monetization of all categories of impacts. Consistent with NEPA analysis frameworks, the EIS expresses beneficial and adverse effects across a variety of qualitative and quantitative environmental and economic metrics. That the effects of the alternatives on fish are not quantified as monetized economic values does not mean that they were not considered in the context of the analysis. Second, the findings of the ECONorthwest report that the benefits outweigh the costs of breaching the dams rely on the implicit assumption that breaching would result in restoration of salmon populations. The fish effects analysis in Section 3.5 of the EIS does not find that Multiple Objective alternative 3 would result in recovery of salmon or steelhead populations or in restoring the populations to historical levels. Thus, the values presented in the ECONorthwest report should not be considered as representative of the benefits of MO3. However, the results from the ECONorthwest study contribute to the overarching conclusion of Section 3.15.2.2 that describes that the literature consistently demonstrates that people hold passive use values for salmon.
3999	41	ttrue@earthjustice.org	Earthjustice	The agencies fifth reason for disregarding the results from the 18 studies is their own unexplained judgment. o Best practices for benefit transfer identified in OMB Circular A-4 describe that meeting all criteria is difficult and that professional judgment is required in determining whether a particular transfer is too speculative... (OMB 2003, 26). Given the limitations of the existing literature, this EIS does not include a quantitative benefit transfer of passive use values. This statement means the agencies concluded that their professional judgment as to the relevance of the available information about passive use values described above is sufficient to Natural Resource Economics, Inc. Comments on Socioeconomic Elements of CRSO DEIS 26 render entirely irrelevant all of the information and analysis of all the professional economists who prepared the 18 studies or provided peer-review approval for the studies. And, they provide no rational account or support for this decision. They never demonstrate that their professional training and experience are superior to those of the economists who completed the 18 studies. None of the 18 studies was completed by the co-lead agencies. They never demonstrate why it would be reasonable for a member of public, decision-maker, or court to conclude that their using zero as the passive use value throughout the DEIS provides a reasonable, accurate representation of the full socioeconomic consequences from adopting any of the alternatives. Nor do they demonstrate why their using zero as the passive use value throughout the DEIS is consistent with their NEPA requirement to take a hard look at each alternatives effects.	Consistent with NEPA analysis frameworks, the EIS expresses beneficial and adverse effects across a variety of qualitative and quantitative environmental and economic metrics. That the existing literature on passive use values is not used to estimate a quantitative passive use value effect does not indicate, as described in this comment, that the literature is "irrelevant" nor does the EIS make judgments about the expertise of the economists that developed the studies. In fact, the literature is presented for consideration in Section 3.15.2.2 due to its relevance to the EIS. However, this comment implies that unless the information on passive use is used to quantify a specific monetized value of the alternatives that it is not considered at all. This is not the case. The NEPA analysis framework does not require monetization (i.e., quantification) of all types of potential effects of the alternatives (see 40 C.F.R 1502.23). Many categories of impacts are described qualitatively or in various quantitative metrics. In selecting an alternative, the effects on fish of each alternative were considered carefully in the context of all of the types of socioeconomic values (e.g., commercial and recreational fisheries, subsistence, passive use, etc.). This approach does not constitute disregarding the literature and the evidence of the magnitude of passive use values, as described in this comment.
3999	42	ttrue@earthjustice.org	Earthjustice	5. The DEIS fails to show quantitative estimates of passive use values even though the supporting evidence is actually more reliable than the evidence it employs to show quantitative estimates of industrial benefits. The preceding section explains that the DEIS does not include quantitative estimates of passive use values in the descriptions of alternatives, comparison of the alternatives, and selection of the Preferred Alternative. It excludes quantitative estimates despite the existence of 18 studies designed and implemented expressly to estimate either the passive use value or the total economic value households assign to salmon populations. This failure to show any quantitative value means that, in effect, these sections of the DEIS treat passive uses as if their value is zero. These sections do, however, contain many quantitative estimates of value for the benefits the alternatives, especially those other than MO3, would provide the irrigation, navigation, and hydropower industries. A comparison of the information available to the agencies for passive use values and the information available for industrial values shows a significant and unexplained difference in the reliability of the former (passive use data and analyses) as compared to the latter. For example, the agencies had access to 18 studies that provide quantitative estimates of passive use values. These studies were completed by professional economists and satisfied widely accepted analytical standards. They report both the expected passive use value and the statistical confidence interval surrounding this amount. A comparison of studies completed in different years indicates that the passive use values Americans assign to salmon and other atrisk species is increasing. In stark contrast, the agencies estimated the cost to irrigators of implementing MO3 based on conversations with several extension agents. The agencies do not report that these individuals conducted any statistical analysis and employed any data, or, instead, just communicated opinions based on hunch and intuition. The agencies estimate of these costs does not include any description of the statistical confidence interval surrounding this amount.	This comment correctly summarizes the EIS assessment of the existing literature describing passive use values for salmon. These studies are presented in the EIS due to their relevance. As described in Section 3.15.2.2, the co-lead agencies conclude that the literature consistently identifies that the general public holds value for the salmon beyond any direct or indirect use (e.g., fishing, wildlife view, subsistence, etc.). Consistent with NEPA analysis frameworks (see 40 C.F.R. 1502.23), the EIS expresses beneficial and adverse effects across a variety of qualitative and quantitative environmental and economic metrics. That the effects of the alternatives on passive use for fish are not quantified as monetized economic values does not mean that they were not considered in the context of the analysis or are implicitly assigned a value of zero.
3999	43	ttrue@earthjustice.org	Earthjustice	The authors of the 18 studies reported their findings with attention to the level of precision supported by the underlying data and statistical analysis. Their estimates of passive use value, therefore, show 12 decimal places. The agencies estimates of industrial values, however, show no regard for concerns about precision. In their Table 4-6. Summary of M&I Water Supply Modification Construction Costs, they estimate irrigators costs under MO3 to 8 decimal places. This detail implies that the agencies (or the several extension agents) have enough knowledge about each of the 47,926 allegedly affected acres to determine that the total annualized cost will be at least $4,894,782.68, or $102.13209281 per acre. This supposed level of detail contradicts all applicable standards of socioeconomic analysisthe agencies can know the costs to this level of precision only if they have measured them with microscopes. The Natural Resource Economics, Inc. Comments on Socioeconomic Elements of CRSO DEIS 27 assertion of this level of precision calls into question the agencies entire description of the irrigation costs from MO3. Similar levels of precision elsewhere in the DEIS call into question the reliability and rationality of the agencies estimates of other benefits and costs for irrigation, navigation, and hydropower. The agencies discredited some of the 18 studies of passive use values because they were conducted 20-30 years agocalling into question whether they accurately reflect current values held by the public. As explained above, evidence indicates that the passive use values held by the public for salmon and other at-risk species have been increasing, so that it appears the estimates from past studies likely understate the current values (or future values). The agencies dismissal of passive use value estimates from studies conducted 20-30 years ago contrasts with their willingness to base their estimates of irrigators costs under MO3 on the assumption that these estimates accurately reflect conditions extending 50 years into the future. Moreover, the agencies repeatedly relied on data and calculations from old studies to provide quantitative estimates in the DEIS of variables other than passive use value. For example, the agencies took specific estimates, from the Corps 2002 report, of recreation-visitor days in 1998 and scaled them upward by growth in population to estimate the	While the numbers quoted in the comment could not be located in the CRSO EIS, attempts were made to use a consistent rounding approach in the water supply section for the Final EIS. This comment correctly summarizes the EIS assessment of the existing literature describing passive use values for salmon. These studies are presented in the EIS due to their relevance. As described in Section 3.15.2.2, the co-lead agencies conclude that the literature consistently identifies that the general public holds value for the salmon beyond any direct or indirect use (e.g., fishing, wildlife view, subsistence, etc.). That these studies are presented in the EIS indicates that they were not "dismissed" but provided for consideration, both describing their relevance and their limitations with respect specifically to quantifying the passive use value effects of the CRSO EIS alternatives. Not using the studies specifically to monetize (i.e., quantify) passive use value effects of the CRSO EIS alternatives does not constitute "discrediting" the studies. The EIS describes that the studies conducted 20 to 30 years ago rely on outdated survey methodologies and baseline conditions for salmon populations. Although there is reason to believe that passive use values by people have been increasing over time, the older studies do not apply the state of science methods for eliciting information on these values. This discussion in the EIS does not state that the passive use values literature is overestimating (or underestimating) values people hold for salmon. Rather, it identifies the various complexities with applying this literature to provide a monetized estimate (i.e., quantification) of the passive use value effects of the CRSO EIS alternatives. Consistent with NEPA analysis frameworks, the EIS expresses beneficial and adverse effects across a variety of qualitative and quantitative environmental and economic metrics. That the effects of the alternatives on passive use for fish are not quantified as monetized economic values does not mean that they were not considered in the context of the analysis or are implicitly assigned a value of zero.

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				current visitor days [p. 3-1215 - 1217]. But they dont explain why they did not employ a similar approach to scale-upward the passive use value estimates from past studies. They also use estimates from the Corps 2002 study to quantify the increase in the available spawning habitat for fall-run Chinook [p. 3- 566], habitat losses [p. 3-749] and the ammonia eluriate concentrations for the four Lower Snake River reservoirs [p. 3-271] under MO3. To develop estimates of the infrastructure costs that would result under MO3, the agencies relied on estimates not just from the Corps 2002 but also an earlier study completed in 1999 [p. 3-1137]. These, and numerous other examples where the agencies employed data from studies completed in past decades to estimate the current or future value of other variables demonstrate the arbitrary nature of their decision not to employ past studies to estimate the current and future values for passive uses. This inconsistency also shows that the agencies provided no scientific, analytical explanation for why members of the public, decision-makers, or anyone else should assign any credibility to their estimates.44	
3999	44	ttrue@earthjustice.org	Earthjustice	6. The DEIS fails to provide information to show that the Preferred Alternative will yield socioeconomic benefits from healthy and resilient ecosystems and does not show that the Preferred Alternative will provide socioeconomic benefits that would be equal to or exceed those of Alternative MO3. The PR&G require the co-lead agencies to protect and restore the functions of ecosystems and mitigate any unavoidable damage to these natural systems. This requirement represents priorities for the ecosystems, themselves, but also a recognition that the short-and long-run socioeconomic well-being of local, regional, and national communities depends on healthy, resilient ecosystems. Implementation of the Preferred Alternative will not yield a healthy and resilient ecosystem in for the Columbia and Snake Rivers.45 Instead, it calls for repeated actionsinvestments in dredging, levees, locks, etc.that will continue the current trajectory of ecosystem degradation and place the ecosystem at greater risk than other alternatives like MO3. Continuing these conditions in the ecosystem may have negative repercussions in other ecosystems. For example, failure to restore a healthy and resilient ecosystem in the Lower Snake River likely will reduce the numbers and reliability of anadromous fish downstream and in the ocean, and further compromise the health and resilience of populations of orca and other species 44 The agencies recognize some uncertainty, insofar as they provide estimates representing the lower and upper bound of the potential costs. In each instance, though, they show estimates with an unbelievable level of precision. 45 For more information about these issues see other sections of these comments Natural Resource Economics, Inc. Comments on Socioeconomic Elements of CRSO DEIS 28 dependent on these fish. Failure to restore a healthy and resilient ecosystem in the Lower Snake River also likely will reduce the numbers and reliability of anadromous fish upstream. The diminished supply of nutrients carried by adult fish from the ocean to upstream locations will directly deprive upstream ecosystems of these nutrients with broader negative effects on other fauna and flora. The DEIS does not discuss or disclose these additional costs of the preferred alternative or the comparative benefits of alternative MO3.	The PR&G is intended to provide objectives and guidance to Reclamation and the Corps for new water resource investments, which include both structural and nonstructural approaches to water resource projects, water supply problems, investments in restoration, as well as other water-related investments. If an agency is seeking authorization and appropriations from Congress to fund a federal investment, it would be appropriate to analyze the alternatives under the PR&G framework. One of the goals of a PR&G analysis is to determine the economically justified alternative by conducting an economic cost benefit analysis, referred to as National Economic Development (NED) effects in the superseded P&Gs. In the NEPA context, the goal is not to determine the economically justified alternative for OMB approval. CEQ NEPA regulations (40 CFR 1502.23) address the role of cost benefit analysis within the context of NEPA compliance. The first half of Section 1502.23 discusses the incorporation of existing benefit-cost analyses into the NEPA evaluation process. The second half of Section 1502.23 states that (f)or purposes of complying with the Act, the weighing of the merits and drawbacks of the various alternatives need not be displayed in a monetary cost-benefit analysis and should not be when there are important qualitative considerations. The commenter is correct that the PR&G suggests using an Ecosystem Services Approach, which is not a requirement under NEPA. However, changes in ecosystem functions and services were addressed in the appropriate section of the FEIS (for example, in water quality, water supply, air quality, recreation, etc.). As is common in NEPA analyses, the beneficial and adverse effects of the alternatives are expressed as a variety of qualitative and quantitative environmental and economic metrics throughout the EIS to inform decision-making. That the effects of the alternatives on fish are not expressed as monetized economic values does not mean that they were not considered in the context of the analysis. The EIS does not employ a cost-benefit framework for decision-making. Instead, the EIS set forth eight objectives which, in tandem with the purpose and need statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The co-lead agencies did not initiate this EIS as a restoration project (which would be a new study), nor are they required to restore a healthy and resilient ecosystem in the lower Snake River. The focus of the CRSO EIS was on CRS operations, maintenance and configuration of which congress has previously authorized and appropriated for the co-lead agencies to construct and manage. Under NEPA, the co-lead agencies are required to analyze a range of alternatives to meet the purpose and need for the action. The CRS is a complex system with multiple, sometimes competing, congressionally authorized purposes. The Purpose and Need Statement and the objectives developed for this EIS reflect these multiple purposes, as do the alternatives developed to meet them. The analysis of the multiple objective alternatives allowed the co-lead agencies to understand the effects of emphasizing some purposes differently over others in order to find while seeking the most acceptable balance for future operations and maintenance.
3999	45	ttrue@earthjustice.org	Earthjustice	Concerns about ecological health and resilience embrace not just the potential for an ecosystem to adapt to the small perturbations generally expected to occur in the future, but also the potential for seeing an ecosystem move beyond a tipping point that will cause it to shift to a new state. The DEIS fails to exhibit any attention to, or even recognition of, the potential for ecosystemswithin the Lower Snake River Basin, upstream, downstream, or in the oceanto experience a tipping point. By failing to recognize, describe, and respond to potential threats and risks to ecosystem health and resilience, the DEIS fails to inform the public and decision-makers of some of the most significant socioeconomic impacts associated with the choice among the alternatives it considers. The absence of a complete, transparent and objective socioeconomic assessment of the alternatives considered in the DEIS, including but not limited to the Preferred Alternative indicates that selection of this alternative was arbitrary.	Selection of the Preferred Alternative was not arbitrary: it was based on the extensive analysis provided in the Draft EIS. Chapter 7 outlines the rationale for developing this alternative in detail. NEPA does not require agencies to define ecological tipping points, nor does NEPA require agencies to address potential threats and risks to ecosystem health and resilience. NEPA does require agencies to analyze the effects of potential actions and made this analysis available to the public and decision makers. The co-lead agencies provided a robust analysis of socioeconomic effects in the EIS. As required by NEPA, the co-lead agencies evaluated each alternative for its effects on a suite of resources. These effects are summarized in Section 3 of the Executive Summary, fully described by resource and alternative in Chapters 3, 4, 5, 6 and 7; summarized by resource and alternative in Table 3-1, and once again presented for comparison in Tables 7-1 and 7-55. Socioeconomic analysis are discussed under numerous resources: Power Generation and Transmission; Air Quality and Green House Gasses; Navigation and Transportation; Recreation; Water Supply; Fisheries and Passive Use; Environmental Justice; and Implementation and System Cost Analysis. The EIS considered the effects of all of the actions and measures in the alternatives for a multitude of ecological resources, such as water quality and fish, as time progresses from implementation into the future. There are many ecosystem and individual resource effects that occur outside the operation and maintenance of the CRS. Salmon and steelhead and other resources have been adversely affected in the Columbia River Basin over the last century by many activities including human population growth, urbanization, introduction of exotic species, overfishing, development of cities and other land uses in the floodplains, water diversions for all purposes, dams, mining, farming, ranching, logging, hatchery production, predation, ocean conditions, and loss of habitat (see Chapters 6 and 7 for additional information). The co-lead agencies analyzed the effects of the operation, maintenance, and configuration of the CRS projects on resources affected by the CRS. The co-lead agencies also looked at the cumulative effects of past, present, and reasonably foreseeable future actions and trends in Chapter 6 (Cumulative Effects) and Chapter 7 (Preferred Alternative), of the EIS. Further, Chapter 4 (Climate) provides an overview of the project changes in future regional climate and discusses how these changes would affect each of the resources under each alternative.
3999	46	ttrue@earthjustice.org	Earthjustice	7. The DEIS overstates negative regional economic effects. In Annex C of Appendix Q, the DEIS shows the agencies estimates of each alternatives effects on jobs, labor income, and sales. The estimates come from applying an input-output model to the estimated annual implementation and system costs for each alternative. This approach suffers from two flaws that render the findings incomplete and misleading. The first flaw comes from the agencies application of the input-output model. Embedded in the model are assumptions that fail to represent economic realities. Most notably, the model assumes that, once the agencies spend money and create new jobs, they will be filled by workers who otherwise would be unemployed. Conversely, if an alternative results in the cessation of a job, the model assumes the displaced worker will remain unemployed forever. Both of these assumptions are at odds with the available evidence of how the economy works. By using the model without accounting for these inaccurate assumptions, the agencies overstate the number of new jobs (and the labor income and output) from an increase in their spending, failing to recognize that some of the workers who fill the new jobs will do so by the leaving jobs where they are already employed, so the net increase in employment (and labor income and output) will be smaller than the estimate of gross impact coming from the model. And, if an alternative results in workers losing their jobs, some or all will find replacement jobs, sooner or later, at wage-levels that are higher or lower, but the agencies approach does not account for this economic reality either. There are many well-accepted approaches in the field of economics to addressing these two issues but they agencies employed none of them.	The regional economic effects evaluation uses IMPLAN, a standard economic impact analysis data and software system that uses input-output techniques to estimate direct and secondary jobs and income associated with changes in final demand. IMPLAN is widely used by academics, industry, and government agencies. The evaluation does not presume that new jobs would be created or would no longer exist; the evaluation describes how many jobs are supported by the level of Federal and contractor expenditures under each of the alternatives, based on current ratios and multipliers effects in the economy for a given industry or government sectors. For example, a higher level of expenditures would support a greater number of jobs, in general.
3999	47	ttrue@earthjustice.org	Earthjustice	The second flaw comes from the agencies focus on describing the economic effects from their own expenditures. This focus ignores the economic effects likely to result from changes in the ecosystem. Most notably, it ignores the potential increases in ecosystem-related jobs, labor income, and output that likely would follow from improvements in salmon populations, and other indicators of ecosystem health resulting from implementation of MO3. This excerpt and the related figure, which are from a report prepared for agencies in the Department of Interior, Natural Resource Economics, Inc. Comments on Socioeconomic Elements of CRSO DEIS 29 summarizes the importance of the relationship between ecosystem health and economic activity:46 o Restoration activities transform degraded ecosystems into restored ecosystems; figure 1 describes the potential economic effects of this transformation. Ecosystem restoration may also result in long-term economic impacts if the restored ecosystems support improved productivity of agriculture and forestry or increase recreation, tourism, or other business activity. Beyond generating economic activity, restored ecosystems provide substantial economic values through improved ecosystem services that directly and indirectly impact human welfare. Economic value is a measure of the benefits enjoyed by individuals or society from the use or existence of a good or service, and is a distinctly different measure than economic impact. Restoration projects can increase economic value by restoring and maintaining important habitat for fish and wildlife species, improving water quality, and reducing fire and flood risk. The DEIS ignores the Long-term economic impacts and Economic value shown in the figure. Other economists also have described the potential economic effects of ecosystem improvements, and the DEIS ignores their findings also.47 In sum, the agencies failed to provide accurate, reliable estimates of the effects likely to result from their expenditures under each alternative and to account for the socioeconomic effects of ecosystem improvements resulting from implementation of MO3. 46 Cullinane Thomas, C., C. Huber, K. Skrabis, and J. Sidon. 2016. Estimating the economic impacts of ecosystem restorationmethods and case studies. 47 See, for example, Headwaters Economics. 2020. Broader economic impact of national parks. Natural Resource Economics, Inc. Comments on Socioeconomic Elements of CRSO DEIS 30	The social welfare effects are not a measurement of agency expenditures, as the commenter states, but rather reflect the social welfare effect that could occur from change in consumer and/or producer surplus. For each economic activity addressed in the EIS, the analysis assesses potential effects of MOs on social welfare, regional economic spending patterns, as well as other social effects. Social welfare effects are changes to the economic value of the national output of goods and services. For example, economic value described in the navigation analysis includes producer surplus gained from commercial navigation activities, as well as the value, or the improved well-being, gleaned by tourists and recreationists associated with cruise line visits (referred to by economists as consumer surplus or net economic value).
3999	48	ttrue@earthjustice.org	Earthjustice	III. Socioeconomic Elements of the DEIS Show that Reclamation Failed to Apply the Department of the Interiors Agency-Specific Procedures for implementing the Principles, Requirements, and Guidelines On November 15, 2015, the Department of the Interior published its commitment to satisfy the standards and requirements of the PR&G, as well as the procedures it believed necessary for its bureausincluding Reclamationto do so.48 These procedures confirm what the other co-lead agencies must do to comply with WRDA and the PR&G. A. Reclamations failure to satisfy analytical and decision-making requirements Table 1 shows some of the general, analytical and decision-making requirements the Department of Interior has adopted and Reclamation should have employed in the DEIS. Table 1. Requirements for Implementing the PR&G, Expressed in the Department of Interiors Agency-Specific Procedures Analytical and Decision-Making Requirements The WRDA specifies that Federal water resources investments shall reflect national priorities, encourage economic development, and protect the environment by: 1) Seeking to maximize sustainable economic development; 2) Seeking to avoid the unwise use of floodplains and flood-prone areas and minimizing adverse impacts and vulnerabilities in any case in which a floodplain of flood-prone area must be used; and; 3) Protecting and restoring the functions of natural systems and mitigating any unavoidable damage to natural systems. The objectives identified above should be embodied in the Departments new water resource investments, which include both structural and non-structural approaches to water supply problems, investments in restoration, as well as other water-related investments. Two key concepts in the PR&G are Federal investment and public benefit.[footnote omitted] The term Federal investment is defined as (IG, p. 4): ...those [investments] that by purpose, either directly or indirectly, affect water quality or water quantity, including ecosystem restoration or land management	The co-lead agencies adhere to the Principles, Requirements, and Guidelines (PR&G) and the Water Development Resources Act (WDRA) by fully analyzing the effects of the alternatives, weighing the potential effects of the proposed alternatives, and considering the full economic effects of the alternatives. The NEPA process provides the analytical and decision-making standards of the PR&G. The co-lead agencies describe the effects to the natural environment, including floodplains and flood-prone areas, socioeconomic effects, and provide mitigation and adaptive management to offset the adverse environmental impacts. The PR&G is a statement of policy, not regulation, and are intended to articulate expectations for the internal management of the government. It does not impose any legally binding requirements on Federal agencies. NEPA however, does guide future decisions and would be binding. See response to Comment 3999-44.

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				activities. The total level of a given investment shall be determined on a present value basis over the life of the Federal investment. Public benefits encompass environmental, economic, and social goals, include monetary and non- monetary effects and allow for the inclusion of quantified and unquantified measures. The planning process will ensure that plan formulation, evaluation, and implementation of agency projects and programs adequately incorporate the Guiding Principles identified in the Principles and Requirements. To encourage efficiencies and foster understanding, bureaus and offices generally should integrate PR&G analysis into NEPA analysis for a proposed action by presenting the PR&G analysis in the NEPA document. A recommended plan for a Federal water resource investment that does not maximize net public benefits requires a Secretarial Exception. Comparing the DEIS with Table 1 reveals that Reclamation (and its co-lead agencies) systemically failed to satisfy these analytical and decision-making requirements in at least these ways: 48 Department of the Interior. 2015. Agency specific procedures for implementing the Council on Environmental Qualitys Principles, Requirements, and Guidelines for Water and Land Related Resources Implementation Studies. Natural Resource Economics, Inc. Comments on Socioeconomic Elements of CRSO DEIS 31 1. Reclamation failed to ensure that the DEIS accurately reflects national priorities, encourages economic development, and protects the environment, as required by WRDA. The WRDA specifies that Federal water resources investments shall (1) seek to maximize sustainable economic development; (2) seek to avoid the unwise use of floodplains and floodprone areas and minimize adverse impacts and vulnerabilities in any case in which a floodplain of flood-prone area must be used; and; (3) protect and restore the functions of natural systems and mitigating any unavoidable damage to natural systems. The DEIS does not acknowledge these standards and requirements and does not satisfy them for reasons already discussed and discussed further below.	
3999	49	ttrue@earthjustice.org	Earthjustice	2. Reclamation failed to describe pubic benefits that encompass environmental, economic, and social goals, include monetary and non- monetary effects and allow for the inclusion of quantified and unquantified measures. This failure applies especially to the potential public benefits from breaching the Lower Snake River dams, in Alternative 3. It also applies to the agencies selection of their Preferred Alternative. In CHAPTER 7 PREFERRED ALTERNATIVE, the agencies emphasize that they selected this alternative by balancing multiple purposes, and consider[ing] the benefits, environmental consequences, tradeoffs, and costs of alternatives. But these statements beg the questions: How did they determine the balance, and how did they consider the benefits, environmental consequences, tradeoffs, and costs, if the DEIS does not set forth, fully and objectively, the socioeconomic value of the environmental consequences, never describes the public benefits, and never weighs socioeconomic costs against the socioeconomic benefits? The absence of a detailed, complete socioeconomic analysis, as required by NEPA and the PR&G suggests that the agencies did the balancing and considering in an arbitrary, manner informed only by the decision-makers incomplete, monetary economic perceptions.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA listed species. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-lead agencies numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets most other EIS objectives including those for: resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams, because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. The co-lead agencies adhere to the Principles, Requirements, and Guidelines (PR&G) and the Water Development Resources Act (WDRA) by fully analyzing the effects of the alternatives, weighing the potential effects of the proposed alternatives, and considering the full economic effects of the alternatives. The NEPA process provides the analytical and decision-making standards of the PR&G. The co-lead agencies describe the effects to the natural environment, including floodplains and flood-prone areas, socioeconomic effects, and provide mitigation and adaptive management to offset the adverse environmental impacts. The PR&G is a statement of policy, not regulation, and are intended to articulate expectations for the internal management of the government. It does not impose any legally binding requirements on Federal agencies. Agencies apply the PR&G when conducting new analysis for new projects before seeking congressional authorization. NEPA however, does guide future decisions and would be binding. The EIS evaluated benefits and adverse effects across an array of resource areas including potential effects at the national, regional and local level; effects are monetized and quantified, where possible, and also described qualitatively. As is common in NEPA analyses, the beneficial and adverse effects of the alternatives are expressed as a variety of qualitative and quantitative environmental and economic metrics throughout the EIS to inform decision-making. The EIS does not employ a cost-benefit framework for decision-making. Instead, the EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish a framework for evaluating the ability of an alternative to satisfy the co-lead agencies numerous legal obligations. A Preferred Alternative was developed that meets the Purpose and Need Statement as well as certain objectives included in the EIS. Quantitative evaluations were conducted to determine the effects of each of the alternatives when appropriate. In instances where quantitative evaluations were not appropriate or possible, qualitative discussions are included to describe the effects of each alternative. The evaluations are clear, transparent, and repeatable based on high quality information. Regarding the PR&G requirements, if an agency is seeking authorization and appropriations from Congress to fund a federal investment, it would be appropriate to analyze the alternatives under the PR&G framework. One of the goals of a PR&G analysis is to determine the economically justified alternative by conducting an economic cost benefit analysis, referred to as National Economic Development (NED) effects in the superseded P&Gs. In the NEPA context, the goal is not to determine the economically justified alternative for OMB approval. CEQ NEPA regulations (40 CFR 1502.23) address the role of cost benefit analysis within the context of NEPA compliance. The first half of Section 1502.23 discusses the incorporation of existing benefit-cost analyses into the NEPA evaluation process. The second half of Section 1502.23 states that (f)or purposes of complying with the Act, the weighing of the merits and drawbacks of the various alternatives need not be displayed in a monetary cost-benefit analysis and should not be when there are important qualitative considerations. Further there is no policy or law that requires the use of the PR&Gs.
3999	50	ttrue@earthjustice.org	Earthjustice	3. Reclamation fails to show the full Federal investment of each alternative, including the Preferred Alternative. The DEIS fails to completely and adequately comply with explicitly stipulated requirements for describing the commitment of Federal assets, i.e., the Federal investment, that will follow from a decision to implement the Preferred Alternative. The DEIS similarly fails to completely and adequately describe the Federal investment for the other alternatives. For example, the agencies assert (p. 7-3) that, in selecting the Preferred Alternative, The co-lead agencies considered the ability of each alternative to comply with all Federal laws and regulation. This statement is inaccurate. As the DEIS, itself, shows, the co-lead agencies never presented any analysis to comply with WRDA, never presented any analysis to satisfy the standards and requirements established by the PR&G, never complied with the analytical requirements of Executive Order 12866 and OMB Circular A-4,49 and never took the hard look at the socioeconomic impacts of each alternative needed to comply with NEPA. The PR&G require the co-lead agencies to estimate the full value of the Federal investment that would be required with a decision to implement each alternative. Interiors Procedures define Federal investment as those [investments] that by purpose, either directly or indirectly, affect water quality or water quantity, including ecosystem restoration or land management activities. Some of this Federal investment comes from the commitment of ecosystem resources, e.g., wetlands, cold water temperatures, and fish. Others involve the commitment of recreational resources, e.g., opportunities for rafting on a free-flowing Lower Snake River. And yet others include the appropriation of cultural resources, such as sites, fish 49 Executive Order 12866. 1993. Regulatory planning and review; Office of Management and Budget. 2003. Circular A-4: regulatory analysis. Natural Resource Economics, Inc. Comments on Socioeconomic Elements of CRSO DEIS 32 populations, and river conditions important for Tribal ceremonies, fishing, and other activities. The DEIS does not describe or provide an estimate of the value of these elements of the Federal investment embedded in the Preferred Alternative or other alternatives that would keep the four Lower Snake River dams in place. Some of the Federal investment in the preferred Alternative and other alternatives that would keep the dams in places involves the expenditure of taxpayers money to operate, maintain, and rehabilitate the four Lower Snake River dams, hydropower generators and related equipment, and the navigation channel. The co-lead agencies did not include in the DEIS all the relevant, readily available information regarding these costs. For example, they fail to report, analyze, and incorporate into their decisions the findings of a 2015 estimate of the costs associated with (1) improving fish passage at the four dams, (2) O&M costs, including minor repairs to the four dams and O&M costs for system improvements, (3) turbine rehabilitation costs, (4) costs to mitigate for the loss of salmon and other fish, (5) dredging costs for rehabilitating the navigation system and meeting flow-conveyance targets, and O&M costs plus minor repairs for power generation system.50 The analysis concluded that, using 2015 as the analytical base and a discount rate of 6.88 percent per year, the average annual cost of keeping the four dams in place would cost taxpayers $313 million per year. This amount rises to more than $435 million per year using a lower discount rate, 4.75 percent per year to reflect the costs of capital in 2015. In todays economic environment, with the Federal Reserve Bank making money available with a cost of capital approximating zero, the annual cost would be much higher still. Thus, to calculate the Federal investment required with implementation of the Preferred Alternative, the co-lead agencies should have included the cash expenditures for any new infrastructure, the expenditures to operate and maintain and rehabilitate the infrastructure, the opportunity-cost value of the existing human-built assets (dams and other infrastructure), as well as opportunity-cost value of the continuing commitment of ecosystem assets.51 In other words, the agencies should have shown the total amount of Federal investmentcash, infrastructure, land, ecological functions, and equipmentthat this alternative will commit to continued operation of the CRSO. Reclamation and its co-lead agencies did not comply with this requirement to fully describe the Federal investment embedded in each alternative, including the Preferred Alternative. Interiors Procedures also stipulate that The total level of a given investment shall be determined on a present value basis over the life of the Federal investment, Not just over an period of time that the agencies choose. In other words, where the DEIS shows a specific investment under the Preferred Alternative, it is not sufficient for the agencies to show just the initial amount of the Federal investment. Instead, the DEIS must show the continuing, annual Federal investments that will follow from this initial amount, throughout the lifetime of the initial investment, and then convert this stream of annual expenditures to an equivalent, single value, called the present value.	The EIS evaluated benefits and adverse effects across an array of resource areas including potential effects at the national, regional and local level. The EIS does not employ a cost-benefit framework for decision-making. This is because, consistent with NEPA analysis framework (see 40 C.F.R. 1502.23), the beneficial and adverse effects are expressed as a variety of qualitative and quantitative environmental and economic metrics. Furthermore, the EIS evaluates the performance of the CRSO EIS alternatives with respect to multiple stated objectives, for example related to improving fish passage and survival, reliable power generation, and minimizing greenhouse gas emissions. Turbine replacement and other capital requirements to maintain the four lower Snake River projects are included in the cost analysis, as described in Section 3.19 and Appendix Q (see Section 4.2). Regarding the PR&G requirements, if an agency is seeking authorization and appropriations from Congress to fund a federal investment, it would be appropriate to analyze the alternatives under the PR&G framework. One of the goals of a PR&G analysis is to determine the economically justified alternative by conducting an economic cost benefit analysis, referred to as National Economic Development (NED) effects in the superseded P&Gs. In the NEPA context, the goal is not to determine the economically justified alternative for OMB approval. CEQ NEPA regulations (40 CFR 1502.23) address the role of cost benefit analysis within the context of NEPA compliance. The first half of Section 1502.23 discusses the incorporation of existing benefit-cost analyses into the NEPA evaluation process. The second half of Section 1502.23 states that (f)or purposes of complying with the Act, the weighing of the merits and drawbacks of the various alternatives need not be displayed in a monetary cost-benefit analysis and should not be when there are important qualitative considerations. The costs to implement the alternatives and operate the system are not an indication of the benefits that the system provides. The beneficial and adverse effects of the alternatives, including the No Action Alternative, are described in various sections in the EIS, including 3.5 (fish), 3.7 (power and transmission), 3.8 (air quality and greenhouse gases), 3.10 (navigation), 3.11 (recreation), 3.12 (water supply), 3.15 (fisheries and passive use), and others. The effects of MO3 on electricity rates are described in Section 3.7 and are not included in the cost estimates described in Section 3.19 and Appendix Q. Table 3-1 provides a summary of all of the effects on all resources, including beneficial and adverse effects. For example, beneficial effects under MO3 in Region C are described for anadromous fish, recreation, fisheries, and Tribal perspectives. Although an ecosystem services approach was not directly followed, ecosystem services were addressed in the appropriate resource section (for example, recreation, water quality, water supply, fisheries, etc.).
3999	51	ttrue@earthjustice.org	Earthjustice	Reclamation and its co-lead agencies fail to comply with this requirement. For example, they do not show the full Federal investmentcash, infrastructure, land, ecological functions, and equipmentthat will follow from a decision to implement the Preferred Alternative. 50 Waddell, J., and Laughy, L. 2015. The costs of keeping the four lower Snake River Dams: a reevaluation of the Lower Snake River Feasibility Report. 51 Opportunity-cost value means the forgone value of the assets used in their highest-value alternative use. Natural Resource Economics, Inc. Comments on Socioeconomic Elements of CRSO DEIS 33 These requirements have clear implications for the standards and requirements the agencies must satisfy when describing the Federal investment of each alternative. A decision to implement the Preferred Alternative, for example, would entail committinginvesting not just	The EIS evaluated benefits and adverse effects across an array of resource areas including potential effects at the national, regional and local level; effects are monetized and quantified, where possible, and also described qualitatively. Changes in ecosystem functions and services were addressed in the appropriate section of the Final EIS (for example, in water quality, water supply, air quality, recreation, etc.). These results are described in Chapters 3, 4, 5, 6 and 7 as well as the appropriate appendices. As is common in NEPA analyses (see 40 C.F.R. 1502.23), the beneficial and adverse effects of the alternatives are expressed as a variety of qualitative and quantitative environmental and economic metrics throughout the EIS to inform decision-making. That the effects of the alternatives on fish are not expressed as monetized economic values does not mean that they were not considered in the context of the analysis. The EIS does not employ a cost-benefit framework for decision-making. Instead, the EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-lead agencies numerous legal obligations. As described in Chapter 7 of the Final EIS, the Preferred Alternative is predicted to benefit ESA-listed juvenile and adult anadromous salmonids (two of the objectives), but not as much as Multiple Objective alternative 3, which includes the measure to

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				the expenditures of taxpayers cash, but also the infrastructurethe physical assets associated with the Lower Snake River dams, as well as the ecosystem assetsincluding all of the forgone benefitsused in implementing the Preferred Alternative. That is, the DEIS should show the opportunity-cost value of all Federal assets. These costs include all types of valuable resources. Thus, when specifying the Federal investment for the Preferred Alternative, they must include the value of all the assetscash, infrastructure, ecosystems, fish, land, etc.that will not be available to the American public for other uses as a result of keeping in place the four Lower Snake River dams. The DEIS does not show the full opportunity costs of all Federal assets that would be invested under each alternative, including the Preferred Alternative. The DEIS further fails to satisfy the requirement to describe the full commitment of the Federal investment in the Preferred Alternative insofar as it does not fully describe the risks to fish and ecosystems that would accompany implementation of this alternative. The investment associated with these risks is separate from and in addition to the investment that results from forgoing the benefits associated with declining quantities of fish and other resources because the Preferred Alternative will keep the dams in place. This investment occurs insofar as the publics actions are constrained by the expectation that resourcescash, ecosystem services, etc.must be kept in reserve, in case it appears that the risks will materialize.52 By not fully describing these risks, the agencies fail to let the public and decision-makers know that, some time in the foreseeable future, there is a significant likelihood that the Federal investment will prove to be not just those things (cash, infrastructure, land, etc.) that the agencies included in their description of the Preferred Alternative, but also the widespread loss of ecosystem services, including fish, that result from the CRSOs interactions with changes in climate, historic depletion of fish populations, and others factors.	breach the four lower Snake River dams. However, the Preferred Alternative also meets other objectives for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse impacts to communities and the economy. Regarding the PR&G requirements, if an agency is seeking authorization and appropriations from Congress to fund a federal investment, it would be appropriate to analyze the alternatives under the PR&G framework. Under the NEPA context, the goal is not to determine the economically justified alternative for OMB approval. 40 CFR 1502.23 addresses the role of cost benefit analysis within the context of NEPA compliance. The first half of 1502.23 discusses the incorporation of existing benefit-cost analyses into the NEPA evaluation process. The second half of 1502.23 states that (f)or purposes of complying with the Act, the weighing of the merits and drawbacks of the various alternatives need not be displayed in a monetary cost-benefit analysis and should not be when there are important qualitative considerations. Further there is no policy or law that requires the use of the PR&Gs. Subsequent studies, such as NEPA and feasibility studies, would be conducted prior to implementation.
3999	52	ttrue@earthjustice.org	Earthjustice	4. Reclamation failed to ensure that plan formulation, evaluation, and implementation of agency projects and programs included in the DEIS adequately incorporate the Guiding Principles identified in the Principles and Requirements The PR&G are absent from the DEIS. For example, the agencies do not include WRDA and the PR&G in their list (p. 5-2) of Federal laws, regulations, and Executive Orders they looked to for the requirements they had to satisfy when preparing the DEIS.53	Regarding the PR&G requirements, if an agency is seeking authorization and appropriations from Congress to fund a Federal investment, it would be appropriate to analyze the alternatives under the PR&G framework. One of the goals of a PR&G analysis is to determine the economically justified alternative by conducting an economic cost benefit analysis, referred to as National Economic Development (NED) effects in the superseded P&Gs. Under the NEPA context, the goal is not to determine the economically justified alternative for OMB approval. Measuring the social welfare effects, or NED effects, related to water supply would be time consuming and cannot be completed within the EIS imposed schedule. Section 1502.23 of the NEPA regulations (40 CFR 1502.23) addresses the role of cost benefit analysis within the context of NEPA compliance. The first half of Section 1502.23 discusses the incorporation of existing benefit-cost analyses into the NEPA evaluation process. The second half of Section 1502.23 states that (f)or purposes of complying with the Act, the weighing of the merits and drawbacks of the various alternatives need not be displayed in a monetary cost-benefit analysis and should not be when there are important qualitative considerations. Generally, the PR&Gs are intended as guidance for analyzing Federal investments. Further there is no policy or law that requires the use of the PR&Gs.
3999	53	ttrue@earthjustice.org	Earthjustice	5. Reclamation failed to declare that it will have to secure a Secretarial Exception before it can select a Preferred Alternative that does not maximize net public benefits. The DEIS fails to demonstrate that the Preferred Alternative will maximize net public benefits derived from the CRSO and the resources it affects. Relevant, readily available evidence, described above, suggests that an alternative that involves breaching the four Lower Snake 52 The risk-related element of the Federal investment is akin to the situation highlighted by the COVID-19 epidemic. Some state and local governments and corporations kept protective personal equipment in storage, to be made available if such a health threat should materialize. While in storage, these resources were not consumed, but also were not available for other uses. The co-lead agencies, and other entities, similarly should keep on hand cash, equipment, and ecosystem resources, such as undeveloped wetlands, and cold-water reserves, to be available should the outlook for salmon, other species, or entire ecosystems appear to be worse than expected. They should account for these investments, and for the extent to which the different alternatives increase or decrease the need for them. 53 This list includes only: Waters of the U.S. - Clean Water Act and EO 11990 Protection of Wetlands, Threatened and endangered species -Endangered Species Act and Lacey Act. This list also fails to include EO 12866, which governs regulatory economic analyses. Natural Resource Economics, Inc. Comments on Socioeconomic Elements of CRSO DEIS 34 River dams would yield higher net public benefits. The DEIS, however, does not explain these circumstance or demonstrate that Reclamation asked the Secretary for an exemption, allowing it to support selection of the Preferred Alternative rather than one that includes breaching. Indeed, the DEIS fails to even mention this requirement or to explain why it doesnt mention it.	Regarding the PR&G requirements, if an agency is seeking authorization and appropriations from Congress to fund a Federal investment, it would be appropriate to analyze the alternatives under the PR&G framework. One of the goals of a PR&G analysis is to determine the economically justified alternative by conducting an economic cost benefit analysis, referred to as National Economic Development (NED) effects in the superseded P&Gs. Under the NEPA context, the goal is not to determine the economically justified alternative for OMB approval. Measuring the social welfare effects, or NED effects, related to water supply would be time consuming and cannot be completed within the EIS imposed schedule. Section 1502.23 of the NEPA regulations (40 CFR 1502.23) addresses the role of cost benefit analysis within the context of NEPA compliance. The first half of Section 1502.23 discusses the incorporation of existing benefit-cost analyses into the NEPA evaluation process. The second half of Section 1502.23 states that (f)or purposes of complying with the Act, the weighing of the merits and drawbacks of the various alternatives need not be displayed in a monetary cost-benefit analysis and should not be when there are important qualitative considerations. Generally, the PR&Gs are intended as guidance for analyzing federal investments. Further there is no policy or law that requires the use of the PR&Gs.
3999	54	ttrue@earthjustice.org	Earthjustice	B. Reclamations failure to apply the required analytical framework Table 2 shows requirements Reclamation should have satisfied as it designed and implemented the analytical framework for the DEIS. Table 2. Requirements for Implementing the PR&G, Expressed in the Department of Interiors Agency-Specific Procedures Analytical Framework The PR&G require the use of an ecosystem services framework. Existing scoping processes may need to be adjusted to accommodate this framework. Such adjustments could include explicit identification of desired environmental conditions. Studies to decommission or remove existing dams would typically require the same level of analysis required for justifying construction of a facility. A summary of the specific economic, environmental, and social setting within the study area should cover the condition and functional relationships of affected resources; their development potentials and possible conflicts in producing affected ecosystem services; and the local situation with respect to investment, climate, markets, and basic economic productivity. Analysis to support the water resources alternatives should utilize the best available science, data, analytical techniques, procedures, models, and tools in ecology, hydrology, economics, engineering, biology, and other disciplines to the extent that sufficient funding is available. To the extent feasible, the effects of the alternatives should be quantified. Future land use patterns should be assessed and analyzed as part of the evaluation process and the best available data and forecast should be used to complete an analysis of these uncertain conditions. Future land use patterns should be evaluated based on historical trends and projections. When analyzing potential Federal water resource investments, areas of risk and uncertainty should be identified, described, quantified where possible, and considered as part of the decision. The first step to evaluate risk and uncertainty is to identify the nature of the harmful outcomes. The second step is to identify the likelihood of the outcome, either qualitatively or quantitatively. The third step is to identify a specific magnitude of the negative outcome relative to the proposed project objectives. An important aspect of evaluating ecosystem services is to identify those populations who will be impacted by a change in the resource. Comparing the DEIS with Table 2 reveals that Reclamation systemically failed to satisfy requirements for the agencies analytical framework in at least these ways: 1. Reclamation failed to use an ecosystem services framework. The scoping process did not use or explain an ecosystem services framework and, hence, neither does the DEIS. This failure can be seen, for example, from the documents table of contents, which does not list ecosystem services as a chapter or, more important, as the overriding organizational framework for the DEIS. The DEIS also does not include an explicit identification of desired environmental conditions. The agencies failure to begin the DEIS with an ecosystem services framework underlies the failure to fully describe the socioeconomic Natural Resource Economics, Inc. Comments on Socioeconomic Elements of CRSO DEIS 35 importance of different ecosystem services, to analyze the socioeconomic consequences from each alternatives potential impacts on ecosystem services, or to show how the agencies factored these socioeconomic consequences into their selection of the Preferred Alternative.	The PR&G is intended to provide objectives and guidance to Reclamation for new water resource investments, which include both structural and nonstructural approaches to water supply problems, investments in restoration, as well as other water-related investments. If an agency is seeking authorization and appropriations from Congress to fund a federal investment, it would be appropriate to analyze the alternatives under the PR&G framework. One of the goals of a PR&G analysis is to determine the economically justified alternative by conducting and economic cost benefit analysis, referred to as National Economic Development (NED) effects in the superseded P&G's. In the NEPA context, the goal is not to determine the economically justified alternative for OMB approval. CEQ NEPA regulations (40 CFR 1502.23) address the role of cost benefit analysis within the context of NEPA compliance. The first half of Section 1502.23 discusses the incorporation of existing benefit-cost analyses into the NEPA evaluation process. The second half of Section 1502.23 states that (f)or purposes of complying with the Act, the weighing of the merits and drawbacks of the various alternatives need not be displayed in a monetary cost-benefit analysis and should not be when there are important qualitative considerations. Further there is no policy or law that requires Reclamation to use the PR&G. The commenter is correct that the PR&G suggests using an Ecosystem Services Approach, which is not a requirement under NEPA and because the co-lead agencies were not required to do a PR&G framework of analysis, ecosystem services analysis was not required. The co-lead agencies used the high quality information, data, analytical techniques, procedures, models, and tools to examine the alternatives. Potential outcomes (effects) of the alternatives were described fully in Chapters 3, 4, 5, 6, and 7, including effects to communities.
3999	55	ttrue@earthjustice.org	Earthjustice	2. Reclamation failed to provide the same level of analysis for breaching the Lower Snake River dams as it provided for constructing new facilities under the Preferred Alternative. The DEISs analysis of the Preferred Alternative is far more extensive than the analysis of Alternative 3, which included breaching the dams. Much of this disparity comes from the agencies determination that the Preferred Alternative would, but Alternative 3 would not, meet the purpose and need and objectives of the CRSO EIS that they identify, insofar as the former would extend the ability of the Corps and Reclamation to operate and maintain the 14 CRSO projects, and the latter calls for breaching the four Lower Snake River dams. As a consequence, the DEIS identifies, describes, and evaluates potential benefits the Preferred Alternative would provide to consumers of hydropower, irrigating farmers, the navigation industry, and the riverboat tourism industry. It does not, however, similarly identify, describe, and evaluate potential benefits that would result from the characteristics that distinguish Alternative 3 from the Preferred Alternative (and the others), including these: o Economic benefits to the American public as a whole and to specific groups from the higher likelihood of significant future increases in ecosystem reproduced fish. o Economic benefits to the American public as a whole and to specific groups from the opportunities for unimpounded river boating and related recreational activities. o Economic benefits from reductions in the risks that the existing infrastructure, programs, and operations create for the survival and recovery of at-risk species. o Economic benefits from reductions in the Federal investment and other socioeconomic savings to American taxpayers, the American public, and specific groups insofar as Alternative 3 would reduce the risks to salmon and other at-risk species and ecosystems from climate change and others factors interacting with the CRSO. o Economic benefits to electricity consumers from replacing the generating capacity of the four Snake River dams with capacity associated with solar, wind, batteries, and other clean energy technologies that are experiencing dramatic reductions in price.	The scope of the CRSO EIS covered eight objectives of which salmon, steelhead, and resident fish were three. In particular, the co-lead agencies developed measures to improve fish passage and fish flows, and reduce adverse impacts to spawning habitat. The potential economic effects from breaching of the lower Snake River dams are presented in the EIS, organized by resource area and type of economic impact, with additional details provided in resource specific appendices. Economic effects are described for changes to Power and Transmission (Section 3.7), Navigation and Transportation (Section 3.10), Water Supply (Section 3.12), and Recreation (Section 3.11). Potential economic impacts are evaluated for social welfare effects (national economic effect), regional economic effects, and other social effects. Additionally, the environmental impacts associated with increased emissions from shipping goods by rail or truck are evaluated and described in the Air Quality Section (Section 3.8), and increase health and safety concerns are described in the Navigation and Transportation Section for other social effects (Section 3.10.3.5). Breach of the dams has the potential to drop surface and groundwater levels up to 100 feet and it is not possible from an engineering or cost standpoint to replace the delivery mechanisms. Assumptions regarding the cost of reconfiguring water supply systems are discussed in the Water Supply Environmental Consequences Section for MO3 (Section 3.12.3.4, Region C). Effects to livelihoods are captured to the extent possible in the regional economic effects and other social effects sections that follow. Please see Section 3.12 and Appendix N for additional information. As described in Section 3.15.3.5, under MO3 commercial and ceremonial and subsistence fisheries targeting anadromous fish species across all regions may see major beneficial effects in the long term. Ceremonial and subsistence fisheries targeting residential species in Region C may see long term benefits, while those in Regions A may experience some moderate adverse effects.
3999	56	ttrue@earthjustice.org	Earthjustice	3. Reclamation failed to provide a thorough summary of the specific economic, environmental, and social setting within the study area. The DEIS does not provide a thorough summary of the functional relationships between specific ecosystem resources and local, regional, and national economies, or of how the CRSOs impacts on these resources affects these relationships and, hence the composition, strengths, and weaknesses of these economies and the social well-being of affected communities. For example, the DEIS does not provide a summary of the socioeconomic setting and its relationship to ecosystems, as evidenced by Table 3-1 Summary of Expected Effects by Multiple Objective Alternative. The table: o Describes no socioeconomic effects stemming from projected changes in Vegetation, Wetlands, Wildlife, and Floodplains. The discussion describes apparently serious changes in the resources. Under MO3, these resources along existing shorelines would either be lost or change how wildlife utilize the area, [h]owever new vegetation and habitat types along the new shoreline would be added associated with dam breaching, resulting in negligible beneficial effects and major negative	The EIS evaluated benefits and adverse effects across an array of resource areas including potential effects at the national, regional and local level; effects are monetized and quantified, where possible, and also described qualitatively. As is common in NEPA analyses, the beneficial and adverse effects of the alternatives are expressed as a variety of qualitative and quantitative environmental and economic metrics throughout the EIS to inform decision-making. The EIS does not employ a cost-benefit framework for decision-making. Instead, the EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establishes a framework for evaluating the ability of an alternative to satisfy the co-lead agencies numerous legal obligations. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-lead's numerous legal obligations. In terms of Table 3-1, it provides a summary of the findings from each resource section in turn. As the commenter notes, adverse effects to socioeconomic resources can occur associated with changes in natural resource conditions. This type of evaluation is conducted in the analysis, and the results are evaluated in associated socioeconomic sections. For example, the EIS recognizes that adverse effects to vegetation could result in adverse effects to socioeconomic resources, particularly recreational activities. Rather than identify these in the vegetation row in the table, these effects are identified and evaluation in the recreation section. There was an error in the Draft EIS that resulted in effects related to the fisheries and passive use

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				effects. These statements indicate that the co-lead agencies concluded that negligible beneficial effects and major negative effects have no socioeconomic consequences worth mentioning. o Describes no socioeconomic effects stemming from projected changes in Resident Fish. Under MO3, [b]reaching of the lower Snake River projects would have major long-term Natural Resource Economics, Inc. Comments on Socioeconomic Elements of CRSO DEIS 36 beneficial effects to resident fish in the Snake River. The table does not, however, indicate that these major long-term beneficial effects to resident fish will lead to any socioeconomic consequences worth mentioning nor does it describe how these major benefits might affect other resources and hence have additional costs and/or benefits. o Has no section identifying socioeconomic effects as Expected Effects by Multiple Objective Alternative (from the tables title). In sharp contrast with the failure to mention socioeconomic effects associated with expected ecosystem changes, the table clearly describes socioeconomic effects from the alternatives effects on industries dependent on the CRSO. For example, the discussion of Power Generation and Transmission effects describes Long-term-major, adverse effects on power costs and rates under MO3. The discussion of Navigation and Transportation effects, says: MO3 would result in major adverse effects related to elimination of commercial navigation on the lower Snake River. Costs of shipping would increase 10% to 33% on average region-wide. Investments in infrastructure may be required. Cruise ship transit to the lower Snake River would not be possible. Additional dredging would be required in the McNary pool to access port facilities for 2 to 7 years. Reductions in regional economic benefits to port cities where cruise line expenditures would have occurred; redistribution of regional demands for material handlers. Even apart from whether this summary of effects on navigation and transportation is, itself, based on an accurate and objective analysis, the failure to incorporate socioeconomic effects in their description and evaluation of the Expected Effects of the alternatives disregards a large body of research on the socioeconomic significance of ecosystem impacts. Some of this research focuses on the cultural values of ecosystem services,54 the socioeconomic importance of recreational fishing,55 and the overall socioeconomic value of ecosystem resources.56 Other research focuses on how ecosystem resources interact with local economies.57 This research addresses, for example, relationships between the supply of natural resource amenities, such as free-flowing rivers and fishing opportunities, and indicators of economic well-being-job growth, household income, etc.in nearby communities.58 By not incorporating these research findings into the DEIS, Reclamation and the other co-lead agencies failed to satisfy not just the PR&G requirement to provide a thorough summary of the specific economic, environmental, and social setting within the study area, but also the NEPA requirement to take a hard look at all the expected effects associated with each alternative.	section of the analysis not being included in the table and the table has been updated for the Final EIS. This led many commenters to conclude that they were not considered. However, these effects are discussed in Section 3.15 of the EIS, and are now included in Table 3-1. This change, along with a number of other clarifications and improvements, have been made to in the Final EIS.
3999	57	ttrue@earthjustice.org	Earthjustice	4. Reclamation failed to utilize the best available science, data, analytical techniques, procedures, models, and tools in ecology, hydrology, economics, engineering, biology, and other disciplines. This failure is widespread within the DEIS. For example, the document fails to include the best available science, data, analytical techniques, models, and tools to describe and evaluate the non-monetized public benefits from actions that would improve ecosystem health, strengthen connections between the ecosystems and Tribes, and provide passive-use benefits to Americans 54 See, for example, Chan, K.M.A., T. Satterfield, and J. Goldstein. 2012. Rethinking ecosystem services to better address and navigate cultural values. 55 See, for example, Rosenberger, R.S.; E.M. White, J.D. Kline, and C. Cvitanovich. 2017. Recreation economic values for estimating outdoor recreation economic benefits from the National Forest System; Southwick Associates, Inc. 2009. Potential economics contributions of Spring and Summer Chinook had SAFE for Salmon been in effect. 56 See, for example, Flores, L., et al. 2017. The value of natural capital in the Columbia River Basin: a comprehensive analysis. 57 See , for example, the data available at the interactive website, Headwaters Economics. 58 See, for example, U.S. Bureau of Economic Analysis. 2019. Outdoor recreation satellite account, U.S. and prototype for states, 2017; Headwaters Economics. 2019. The outdoor recreation economy by state; Earth Economics. 2017. The value of natural capital in the Columbia River Basin: a comprehensive analysis; Hill, E., J. Bergstrom, H.K. Cordell, and J.M. Bowker. 2009. Natural resource amenity service values and impacts in the U.S. Natural Resource Economics, Inc. Comments on Socioeconomic Elements of CRSO DEIS 37 near and far. The DEIS also fails to quantify, to the extent possible, not just these benefits but it also fails to describe and quantify the socioeconomic risks to the limited range of benefits it ascribes to the Preferred Alternative that will come from trends and evolving market conditions affecting future agricultural output and the demand for navigation, competition to hydropower from solar/wind/energy-storage resources, and threats to anadromous fish populations from climate change and other factors.	The co-lead agencies used current, high quality information and in the analysis of the CRSO EIS. Quantitative evaluations were conducted to determine the effects of each of the alternatives when appropriate. In instances where quantitative evaluations were not appropriate or possible, qualitative discussions are included to describe the effects of each alternative. The socioeconomic analysis for the EIS was carefully performed and considered the most relevant information in the timeline provided for the work for the subjects of the analysis. The approach, analysis, and results were thoroughly reviewed by external reviewers, resource managers in the region, and the cooperating agencies. The evaluations are clear, transparent, and repeatable based on high quality information. The beneficial and adverse effects of the alternatives, including the No Action Alternative, are described in various sections in the EIS, including 3.5 (fish), 3.7 (power and transmission), 3.8 (air quality and greenhouse gases), 3.10 (navigation), 3.11 (recreation), 3.12 (water supply), 3.15 (fisheries and passive use), and others. Although an ecosystem services approach was not directly followed, ecosystem services were addressed in the appropriate resource section (for example, recreation, water quality, water supply, fisheries, etc.). Quantitative evaluations were conducted to determine the effects of each of the alternatives when appropriate. In instances where quantitative evaluations were not appropriate or possible, qualitative discussions are included to describe the effects of each alternative. Evolving market trends are discussed in the various Chapter 3 sections and carried through to Chapter 7 where appropriate. Further, the cumulative impacts analysis in Chapter 6 and Chapter 7 accounts for the effects of the alternatives when combined with past, present, and reasonably foreseeable future actions and trends. The socioeconomic impacts are addressed qualitatively and quantitatively in Chapter 6 and Chapter 7 where appropriate.
3999	58	ttrue@earthjustice.org	Earthjustice	5. Reclamation failed to assess and analyze future land use patterns as part of the evaluation process and failed to use the best available data and forecast to complete an analysis of these uncertain conditions. For example, the DEIS fails to describe how future land uses might emerge with breaching of the Lower Snake River dams and the restoration of a free-flowing river. As a consequence, it is impossible, from a reading of the DEIS, for the public and decision-makers to appreciate how these changes in land use might vary from those likely to emerge from implementations of the Preferred Alternative.	Without knowing the state of the land beneath the current reservoirs or the recovery time it will take once the dams are breached, it is speculative to assess any potential benefits from these lands. If MO3 were selected as the Preferred Alternative, further evaluations, engineering plans, and studies under NEPA would be required along with congressional authorization and appropriations to assess the engineering requirements of the project and to potentially further refine and develop mitigation measures. These further evaluations could include a more detailed evaluation of real estate disposal actions, effects to land use, and other related topics.
3999	59	ttrue@earthjustice.org	Earthjustice	6. Reclamation failed to identify all relevant areas of risk and uncertainty associated with each alternative, and it failed to describe, quantify where possible, and consider these risks and uncertainties as part of the decision to select the Preferred Alternative. The DEIS does not fully identify (1) the nature of all the harmful outcomes that would result from implementation of the Preferred Alternative; (2) identify the likelihood of the outcome, either qualitatively or quantitatively; or (3) a specific magnitude of the negative outcome relative to the proposed project objectives. For example, it does not fully describe the harmful outcomes that would occur if implementation of this alternative, interacting with changes in climate and other factors resulted in severe stress to one or more ecosystems and/or allowed the continued decline towards extinction of one or more species. The DEIS also does not fully describe the harmful outcomes that would occur if change in climate and known and likely market conditions were to markedly reduce agricultural production and the demand for barge traffic dependent on the CRSO. Nor does the DEIS fully describe the harmful outcomes that would materialize if changes in the supply of electricity from solar/wind/energy-storage technologies were to reduce demand for hydropower from the CRSO or alter the markets in which it is sold in ways that alter or undermine its value.	The purpose of the EIS is to evaluate options for the operation and configuration of the 14 dams in the CRS. As required by NEPA, the co-leads evaluated the effects of the alternatives on many resources. The EIS included quantitative and qualitative data and described in detail potential effects to resources. Frequency, likelihood, and magnitude of effects were analyzed. Climate change was discussed in Chapters 4 and 7 in great detail and effects to socioeconomics were described in chapters 3, 4, 5, 6, and 7. The EIS also analyzes impacts to power generation and transmission, including the interaction of renewable resources in Section 3.7 and 7.7.9.
3999	60	ttrue@earthjustice.org	Earthjustice	7. Reclamation failed to identify those populations who will be impacted by a change in the resource The DEIS primarily describes populations that will benefit from continued provision of benefits afforded by the Preferred Alternative, e.g., agricultural interests and the recreational riverboat industry. It fails to describe fully the many populations who would benefits from breaching the Lower Snake River dams, including: o Tribal members not living near the river o Americans who would enjoy an increase in passive-use value from restoration of the free-flowing river; improvements in the health of ecosystems adjacent to the freeflowing river, upstream and downstream, and marine; increases in non-hatchery populations of anadromous fish; and increases in food supplies for orcas o Recreational users of the ecosystems experiencing improvements in their health o Taxpayers who enjoy reduced risk of bearing costs to offset risks associated with implementation of the Preferred Alternative o Workers and business owners and communities experiencing the multiplier effects form the direct effects of implementing a river restoration alternative and the direct and indirect effects over time of a restored river. Natural Resource Economics, Inc. Comments on Socioeconomic Elements of CRSO DEIS 38	The comment is mistaken. The co-lead agencies have analyzed the effects of the dam breach measure across all affected resources, including tribal members, passive use values, riparian areas, river mechanics, recreation, resident and anadromous fish, and Southern Resident killer whales.
3999	61	ttrue@earthjustice.org	Earthjustice	C. Reclamations failure to satisfy requirements for defining, comparing, and evaluating alternatives Table 3 shows requirements Reclamation should have satisfied in the DEIS as it defined, compared, and evaluated alternatives. Table 3. Requirements for Implementing the PR&G, Expressed in the Department of Interiors Agency-Specific Procedures Defining, Comparing and Evaluating Alternatives When possible, alternatives should be developed to avoid the risk of adverse environmental impacts. In order to support full disclosure and promote transparency in the decision making process, the analysis of the final array of alternatives should include, at a minimum, the following: A discussion of: the primary purpose of the analysis; the geographic size of the study area; number of people potentially affected and anticipated degree of impact; the type of impacts; environmental justice considerations; and the size and location of communities potentially affected including the presence of Federally recognized tribes or tribal members; and the type of data and information available from collaboration, public involvement, and previous studies, if any. A without and a with-project alternative. Identification of an alternative that maximizes net public benefits. The PR&G also call for a transparent comparison of the effects of alternatives for their contribution to the Federal Objective and each of the Guiding Principles, using an ecosystem service approach and including a discussion of trade-offs in documentation provided in display and narrative form. Both quantified and unquantified effects should be considered as part of an ecosystem services analysis. Effects should be monetized to the greatest extent possible. [I]nvestments should maximize the present value of net public benefits. Net public benefits implies that the anticipated benefits will be presented relative to the costs associated with the accrual of those benefits. Net public benefits can include both quantified and non-quantified benefits. Public benefits should evaluate net changes in economic values associated with the market and nonmarket goods and services associated with alternative plans as well as changes in the economic values associated with external costs. Adverse effects should be valued at the opportunity costs of resources used in implementing a project, plan, or activity. These adverse effects could include: Implementation outlays, associated costs, the value of lost ecosystem services, and other direct costs. Comparing the DEIS with Table 3 reveals that Reclamation systemically and broadly failed in at least these ways to satisfy requirements for defining, comparing, and evaluating alternatives: 1. Reclamation failed to develop and fully analyze alternatives to avoid the risk of adverse environmental impacts that would result from implementation of the co-lead agencies current Preferred Alternative. Throughout the DEIS, Reclamation and the other co-lead agencies fail	The PR&G is intended to provide objectives and guidance to Reclamation for new water resource investments, which include both structural and nonstructural approaches to water supply problems, investments in restoration, as well as other water-related investments. If an agency is seeking authorization and appropriations from Congress to fund a federal investment, it would be appropriate to analyze the alternatives under the PR&G framework. One of the goals of a PR&G analysis is to determine the economically justified alternative by conducting an economic cost benefit analysis, referred to as National Economic Development (NED) effects in the superseded P&Gs. In the NEPA context, the goal is not to determine the economically justified alternative for OMB approval. CEQ NEPA regulations (40 CFR 1502.23) address the role of cost benefit analysis within the context of NEPA compliance. The first half of Section 1502.23 discusses the incorporation of existing benefit-cost analyses into the NEPA evaluation process. The second half of Section 1502.23 states that (f)or purposes of complying with the Act, the weighing of the merits and drawbacks of the various alternatives need not be displayed in a monetary cost-benefit analysis and should not be when there are important qualitative considerations. Further there is no policy or law that requires Reclamation to use of the PR&G framework. The commenter is correct that the PR&G suggests using an Ecosystem Services Approach, which is not a requirement under NEPA and because the co-lead agencies were not required to do a PR&G framework of analysis, ecosystem services analysis was not required. The co-lead agencies used the best available science, data, analytical techniques, procedures, models, and tools to examine the alternatives. Potential outcomes (impacts or effects) of the alternatives were described fully in Chapters 3, 4, 5, 6, and 7, including effects to communities.

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				to provide full disclosure and promote transparency. For example, they fail to provide a thorough discussion of: the primary purpose of the analysis; the geographic size of the study area (their reasons for varying it and the effects of these changes); the number of people potentially affected and anticipated degree of impact; the type of impacts; environmental justice considerations; and the size and location of communities potentially affected including the presence of Federally recognized tribes or tribal members; and the type of data and information available from collaboration, public involvement, and previous studies, if any. For example: o Before developing and describing the Preferred Alternative, the agencies determined that Alternative 3 would not meet their declaration of purpose and need and objectives, Natural Resource Economics, Inc. Comments on Socioeconomic Elements of CRSO DEIS 39 insofar as it would not extend the ability of the Corps and Reclamation to operate and maintain the four Lower Snake River dams. To the extent this led to an incomplete analysis of Alternative 3, the DEIS fails to fully and fairly identify, describe, and evaluate potential socioeconomic benefits that would result from the expected effects of the breaching on fish populations, wetlands, and other ecosystem resources. This failure contrasts sharply with their description of selected socioeconomic benefits they expect from the expected effects of the other alternatives on hydropower generation, navigation, and irrigation. o The DEIS looks outside the Columbia-Snake River Basin to examine the potential socioeconomic benefits from extending the production of hydropower from the four Lower Snake River dams. It does not similarly look outside the Basin to examine the potential socioeconomic costs stemming from the CRSOs impacts on ecosystems. That is, it fails to acknowledge that Americans living outside the Basin will realize benefits from MO3s positive impacts on ecosystems inside the Basin; that positive impacts will extend outside the Basin, e.g., to the Pacific Ocean and the Salish Sea; and that these more distant impacts also will yield socioeconomic benefits locally, regionally, and nationally. The DEIS never evaluates these broader ecosystem impacts, nor does it identify, describe, and evaluate the groups that would realize the benefits from them. o The failure to identify all the affected groups leaves the agencies unable to fully identify, describe, and evaluate the similarities and differences among the socioeconomic impacts on the different groups. Thus, the DEIS provides only a limited and incomplete examination of environmental-justice issues. It fails to describe how the different alternatives would affect minority populations, low-income populations, and Tribal members outside the Basin. Moreover, the DEIS looks for disproportionate impacts on these groups, and finds none, looking from the perspective of the agencies, themselves. For example, they conclude that, because groups of concern and the overall population would see the same changes in ecosystems, there would be no disparate impact on the groups of concern as a whole or individually. Looking from the perspective of these individual groups likely would yield the opposite conclusion. Some tribal members, for example, would see a reduction in salmon populations not just as a reduction in opportunities to catch fish, but also as further deterioration in cultural values resulting from the persistent effects of the CRSO on fish populations and overall ecosystems. o The failure to evaluate environmental justice effects from the perspective of those exposed to disparate impacts serves as proof that the agencies did too little to satisfy requirements for full and effective collaboration with groups of concern. Had they satisfied these requirements, they likely would have learned about the disparate socioeconomic effects of the CRSOs negative ecosystem impacts and included a true account of this information in the DEIS. o These comments describe information from previous studies that Reclamation and the other co-lead agencies failed to incorporate into the DEIS and provide citations to some of these studies to demonstrate that they were readily available to the agencies as they prepared the DEIS. Reclamation and the other co-lead agencies also fall short of requirements to fully analyze alternatives to avoid the risk of adverse environmental impacts insofar as they never identify or present an alternative that maximizes net public benefits. In sum, the DEIS fails to provide a full portrait of the socioeconomic requirements to implement each alternative or the full socioeconomic consequences from doing so. The DEIS fails even to mention public benefits of any type, for example, and especially the public benefits of ecosystem improvements. Other aspects of Reclamations failure to fully analyze alternatives to avoid the risk of adverse Natural Resource Economics, Inc. Comments on Socioeconomic Elements of CRSO DEIS 40 environmental impacts, many previously mentioned, include: o Reclamation failed to provide a transparent comparison of the effects of alternatives for their contribution to the Federal Objective and each of the PR&Gs Guiding Principles, using an ecosystem service approach and including a discussion of trade-offs in documentation provided in display and narrative form. The DEIS fails to conduct an ecosystem-services analysis. It never provides a transparent comparison of monetized, quantified-but-not-monetized, and unquantified effects as part of an ecosystem-services analysis. The DEIS does not monetize effects to the greatest extent possible, using reliable data and other information. o Reclamation failed to evaluate public benefits, i.e., net changes in economic values associated with the market and nonmarket goods and services associated with alternative plans as well as changes in the economic values associated with external costs. The DEIS fails to identify, describe, and evaluate public benefits or public costs. It fails to describe changes in public benefits or public costs associated with each alternative, or to compare these changes across all the alternatives. o Reclamation failed to employ opportunity-cost values to determine the value of resources used in implementing each alternative. The DEIS does not fully identify, describe, and evaluate all the adverse effects of each alternative, nor does it compare the full costs across the alternatives. Nowhere does the DEIS provide a full account of the adverse effects of each alternative that includes: implementation outlays, associated costs, the value of lost ecosystem services, and other direct and indirect costs that will be incurred with the implementation of each alternative.	
3999	62	ttrue@earthjustice.org	Earthjustice	D. Reclamations failure to select a Preferred Alternative that will maximize net public benefits Table 4 shows requirements Reclamation should have satisfied in the DEIS to select a Preferred Alternative that will maximize net public benefits from the water and related land resources affected by the CRSO. Table 4. Requirements for Implementing the PR&G, Expressed in the Department of Interiors Agency-Specific Procedures Maximize Public Benefits The recommended plan must maximize net public benefits. Public benefits encompass environmental, economic, and social goals, include monetary and non-monetary effects and allow for the consideration of both quantified and unquantified measures. [I]f initial analysis indicates that qualitative benefits represent a significant proportion (20% - 50% or more) of the total project benefits, then additional analysis must be undertaken to quantify the non-quantified services. The PR&G require an analysis of water projects in terms of changes to ecosystem service flows over time. At a minimum, a qualitative discussion of the relative value of each alternative should be included. This discussion should include an assessment of all components of the total economic value, including both use and non-use value. As stated in the PR&G it is intended that Federal investments in water resources as a whole should maximize public benefits, with appropriate consideration of costs. Public benefits encompass environmental, economic, and social goals, include monetary and non-monetary effects and allow for the consideration of both quantified and unquantified measures. Non-use values reflect the common observation that people are willing to pay for resources, especially those Natural Resource Economics, Inc. Comments on Socioeconomic Elements of CRSO DEIS 41 Table 4. Requirements for Implementing the PR&G, Expressed in the Department of Interiors Agency-Specific Procedures involving changes in unique natural resources, which they may never directly or indirectly use. Types of non-use values include: Existence values. Existence values are not derived from either direct or potential use and arises from the value placed on the intrinsic value of a resource apart from its use (e.g., individuals get pleasure from knowing a wilderness or animal and fish refugia exist). Bequest values. Bequest values arrive from and are based on the ideas of altruism. Bequest values are derived from individuals WTP for the pleasure they get from knowing that a resource is used by others, either currently or by future generations. Comparing the DEIS with Table 4 reveals that Reclamation, and the other co-lead agencies, systemically and broadly failed in at least three ways to satisfy requirements for maximizing public benefits derived from the water and related land resources affected by the CRSO: 1. Reclamation failed to select a proposed plan that will maximize net public benefits. To satisfy this requirement, Reclamation should have identified, described, and measured the net public benefits of each alternative and selected as the Preferred Alternative the one that promises the greatest net public benefits. In evaluating each alternatives net public benefits, Reclamation should have considered environmental, economic, and social goals, and included monetary and non-monetary effects and allowed for the consideration of both quantified and unquantified measures. Reclamation did not satisfy these requirements; the DEIS does not even exhibit an attempt to satisfy them, insofar as it ignores the concept of public benefits.	Under NEPA, the co-lead agencies are required to analyze a range of alternatives to meet the purpose and need of the Project. The CRS is a complex system with multiple, sometimes competing, congressionally authorized purposes. The Purpose and Need Statement and the objectives developed for this EIS reflect these multiple purposes, as do the alternatives developed to meet them. As required by NEPA, the co-lead agencies evaluated each alternative for its effects on a suite of resources. These effects are summarized in Section 3 of the Executive Summary, fully described by resource and alternative in Chapters 3, 4, 5, 6 and 7; summarized by resource and alternative in Table 3-1, and once again presented for comparison in Tables 7-1 and 7-55. The PR&G is intended to provide objectives and guidance to Reclamation for new water resource investments, which include both structural and nonstructural approaches to water supply problems, investments in restoration, as well as other water-related investments. If an agency is seeking authorization and appropriations from Congress to fund a federal investment, it would be appropriate to analyze the alternatives under the PR&G framework. One of the goals of a PR&G analysis is to determine the economically justified alternative by conducting an economic cost benefit analysis, referred to as National Economic Development (NED) effects in the superseded P&Gs. In the NEPA context, the goal is not to determine the economically justified alternative for OMB approval. CEQ NEPA regulations (40 CFR 1502.23) address the role of cost benefit analysis within the context of NEPA compliance. The first half of Section 1502.23 discusses the incorporation of existing benefit-cost analyses into the NEPA evaluation process. The second half of Section 1502.23 states that (f)or purposes of complying with the Act, the weighing of the merits and drawbacks of the various alternatives need not be displayed in a monetary cost-benefit analysis and should not be when there are important qualitative considerations. Further there is no policy or law that requires Reclamation to use the PR&G framework. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA listed species. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-lead agencies numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3, which includes breaching the four lower Snake River dams. The Preferred Alternative also meets the EIS objectives for: resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS the co-lead agencies did not identify MO3 because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system.
3999	63	ttrue@earthjustice.org	Earthjustice	2. Reclamation failed to give appropriate weight to public benefits that cant be fully quantified. The description and comparison of alternatives does not give equitable treatment to both quantifiable benefits and unquantifiable benefits, such as benefits to Tribal members and others who would derive benefits from breaching the Lower Snake River dams. This failure biases the DEIS against the interests of these groups and impedes the ability of the DEIS to fully represent the public benefits and costs of each alternative.	Under NEPA, the co-lead agencies are required to analyze a range of alternatives to meet the Purpose and Need Statement. The CRS is a complex system with multiple, sometimes competing, congressionally authorized purposes. . The co-lead agencies invited a number of entities (including Tribes, states, and agencies) from across the region to participate in the EIS process as cooperating agencies, and over 30 of those invited agreed to participate. Staff from the Cooperating Agencies joined the technical teams and provided their expertise and review of the development and analysis of the alternatives. Leaders from the co-lead agencies met with Tribal leaders for formal consultation, and with other organizations and stakeholders to have dialogue and receive feedback as the EIS progressed. However, only the co-lead agencies have authority to make decisions regarding future operation, maintenance and configuration of the dams in the CRS. The Preferred Alternative was chosen to meet the purpose and need to operate the system for the congressionally authorized multiple purposes, including fish, hydropower, and water supply, while minimizing adverse effect to biological and socioeconomic resources. The EIS evaluated benefits and adverse effects across an array of resource areas including potential effects at the national, regional and local level. Consistent with NEPA analysis framework, the beneficial and adverse effects are expressed as a variety of qualitative and quantitative environmental and economic metrics. Effects to Environmental Justice communities, tribal interests, and tribal perspectives were included and considered throughout the process and informed decision making. The EIS evaluated beneficial and adverse effects across an array of resource areas including potential effects at the national, regional and local level; effects are monetized and quantified, where possible, and also described qualitatively. As is common in NEPA analyses, the beneficial and adverse effects of the alternatives are expressed as a variety of qualitative and quantitative environmental and economic metrics throughout the EIS to inform decision-making, including the effects of the alternatives on fish as detailed in Section 3.5. That the effects of the alternatives on fish are not expressed as monetized economic values does not mean that they were not considered in the context of the analysis. The EIS does not employ a cost-

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					benefit framework for decision-making. Instead, the EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as the MO3, which includes the dam breaching measure. The Preferred Alternative also meets the EIS objectives for: resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy.
3999	64	ttrue@earthjustice.org	Earthjustice	3. Reclamation failed to fully identify, describe, and evaluate non-use values. The DEIS does not provide a complete and appropriate consideration of existence values and bequest values associated with healthy ecosystems, ecosystem-produced fish, a freeflowing river, healthy populations of orcas, or a non-industrialized river.	Section 3.15.2.2 includes existing research on the passive use values for fish. This information is considered alongside the analysis of effects of the Multiple Objective alternatives on fish abundance (Sections 3.5 and 7.7.5). As described in Section 3.15.2.2, the economics literature includes research on passive use values for free-flowing rivers. These studies generally bundle the environmental changes associated with free-flowing rivers, including, for example, specifying effects on fish populations. Thus, passive use values for free-flowing rivers are not necessarily distinct from or additive with passive use values for the fish within these rivers. The overall health and condition of the Southern Resident killer whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. National Marine Fisheries Service (NMFS) and Washington Department of Fish and Wildlife (WDFW) have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for the whales (NMFS and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall-run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall-run, and Snake River spring/summer-run. SRKW also are known to eat some steelhead, coho, and chum salmon, halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKW are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKW feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). CSS and NMFS Lifecycle models predict that lower Snake River Chinook salmon Smolt-to-Adult return rates would have a moderate to major increase under MO3. Operation of Lower Snake River Compensation Plan fish hatcheries under MO3 is uncertain and therefore, production of Snake River hatchery fish is assumed to decline over the long-term, while returning adult wild salmon are anticipated to increase. However, the co-leads do not anticipate a lack of hatchery fish in the short-term based on the proposed fish hatchery mitigation described in Chapter 5. These additional hatchery fish should mitigate short-term construction effects to Snake River populations. Additionally, to address short-term effects to ESA-listed species, the co-lead agencies propose constructing a new trap and haul facility at McNary and conducting at least two years of trap and haul operations for Snake River fish (Chinook, sockeye, and steelhead). Therefore, there may be short-term adverse effects to the SRKW population as the lower Snake River wild salmon populations adjust to changes associated with dam breaching. The co-lead agencies agree that the quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these Federal dam and reservoir projects, and the associated effects would indirectly affect SRKW. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differently from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA Biological Opinion 2020). The co-lead agencies conclude there could be a negligible to minor beneficial effects to SRKW from implementing MO3. Additionally, MO3 is not likely to adversely affect the SRKW distinct population segment in the short-term analysis because increased hatchery production and the new trap and haul facility at McNary proposed for MO3 in Chapter 5 would address any potential short-term impacts.
3999	65	ttrue@earthjustice.org	Earthjustice	E. Reclamations failure to satisfy transparency requirements Table 5 shows transparency requirements Reclamation should have satisfied in the DEIS. Natural Resource Economics, Inc. Comments on Socioeconomic Elements of CRSO DEIS 42 Table 5. Requirements for Implementing the PR&G, Expressed in the Department of Interiors Agency-Specific Procedures Transparency To promote consistency across bureaus the following tables and information should be included in the analysis and in the documentation prepared for a decision process: Resource/ecosystem service tradeoff matrix. A matrix summarizing the tradeoffs, relative to the baseline, resource-by-resource. The matrix should be constructed using an ecosystem service framework, and include the following: o The annual and total estimated changes in the quantity and/or quality of each affected resource relative to the baseline over the period of analysis. The metrics used to evaluate changes in services and display tradeoffs must be clearly defined. o A quantitative measure of affected ecosystem services, even if not monetary, that goes beyond biophysical measures to address relevant social welfare. o Changes in estimated benefits should be quantified and monetized to the greatest extent feasible. The value of the project benefits should be presented on an annual basis over the period of analysis as well as in present value terms. Achievement of objectives table. A table indicating the extent to which the PR&G Guiding Principles have been achieved. Risk and uncertainty. The PR&G analysis must include a section documenting the basis for selecting a preferred alternative. This section must provide a benefit-cost analysis (conducted in accordance with the general Federal guidance for these types of analysis as well as this guidance) and a discussion about the extent to which the preferred alternative maximizes net public benefits. Comparing the DEIS with Table 5 reveals that Reclamation systemically and broadly failed in at least the following ways to satisfy requirements for presenting information and making decisions in a transparent manner: 1. Reclamation failed to present socioeconomic information in a fully transparent manner and, hence, to satisfy the District Courts Opinion and Order. The DEIS does not present a matrix summarizing the socioeconomic characteristics of each alternative, nor does it reveal the socioeconomic tradeoffs among them, relative to the baseline, resource-by-resource, using an ecosystem-service framework.59 It does not contain a table showing the extent to which the Preferred Alternative will achieve the PR&Gs Guiding Principles.60 It does not present a table describing the risk and uncertainty embedded in each alternative and how they differ across the alternatives. The absence of the tradeoff matrix and tables regarding Guiding Principles and risk and uncertainty has implications that extend far beyond the omissions themselves. In particular, the gaps in the DEIS resulting from these omissions reveal that the agencies fail to provide an accurate, complete and objective analysis of the alternatives when they say (p. 7-4), 59 60 Moreover, the DEIS does not present and apply the general Federal guidance for these types of analysis, especially Executive Order 12866. 1993. Regulatory planning and review; Office of Management and Budget. 2003. Circular A-4: regulatory analysis; EPA. 2002. A framework for the economic assessment of ecological benefits; and EPA. 2010 (updated 2014). Guidelines for preparing economic analyses. Natural Resource Economics, Inc. Comments on Socioeconomic Elements of CRSO DEIS 43 [T]he dam breaching measures in MO3 were carried forward in the analysis to align with the District Court's Opinion and Order, and in response to comments received during public scoping that requested this alternative be evaluated. The omissions show that the agencies, in fact, did not carry forward the socioeconomic implications of dam breaching measures in the analysis, because there is no socioeconomic analysis at all. Thus, from reading the DEIS, the District Court and the public will learn that it fails to identify, describe, and analyze: o Potential economic benefits to the American public as a whole and to specific groups from the higher likelihood, with MO3 relative to other alternatives, of future increases in salmon and steelhead populations. o Potential economic benefits to the American public as a whole and to specific groups from the opportunities, with MO3 relative to other alternatives, for natural river boating and related recreational activities. o Potential economic benefits to the American public as a whole and to specific groups from the improvements in ecosystem health that would result from MO3 relative to other alternatives. o Potential economic benefits to the American public as a whole and to specific groups from reductions MO3, relative to other alternatives, would yield in the risks that the existing infrastructure, programs, and operations create for the survival and recovery of at-risk species. These benefits include potential economic costs savings to American taxpayers, the American public, and specific groups insofar as MO3 reduces the likelihood that the agencies and other parties will have to enact emergency measures in response to plummeting populations of at-risk species, occasioned by climate change and others factors interacting with the CRSO. They also include reduced likelihood that Americans and specific groups will experience reductions in, or complete losses of, the passive-use benefits they derive from fish, healthy ecosystems, etc. o Potential economic costs savings to American taxpayers from reductions MO3 would yield in the risks associated with using the existing infrastructure, programs, and operations to support navigation. Persistent downward trends in navigation demand indicate that vessel traffic will continue to decline and taxpayers subsidies per vessel will increase. If subsidies rise to levels that taxpayers find intolerable, the locks, levees, and related infrastructure will become stranded. o Potential economic costs savings to taxpayers from reductions MO3 would yield in the risks associated with using the existing infrastructure, programs, and operations to generate hydropower. Persistent downward trends in the prices of electricity from solar/wind/energy-storage technologies suggest that consumers increasingly will obtain electricity from them rather than from the Lower Snake River dams. This trend may render continued operation of the dams infeasible, so they become stranded assets. o The likelihood that MO3 will yield larger net public benefits than the other alternatives, including the agencies Preferred Alternative.	The co-leads have conducted an open and transparent NEPA process involving the public and cooperating agencies extensively. As required by NEPA, the co-lead agencies evaluated each alternative for its effects on a suite of resources. These effects are summarized in Section 3 of the Executive Summary, fully described by resource and alternative in Chapters 3, 4, 5, 6 and 7; summarized by resource and alternative in Table 3-1, and once again presented for comparison in Tables 7-1 and 7-55. The co-leads, including Reclamation, are not required to conduct an PR&G analysis. The PR&G is intended to provide objectives and guidance to Reclamation for new water resource investments, which include both structural and nonstructural approaches to water supply problems, investments in restoration, as well as other water-related investments. If an agency is seeking authorization and appropriations from Congress to fund a federal investment, it would be appropriate to analyze the alternatives under the PR&G framework. One of the goals of a PR&G analysis is to determine the economically justified alternative by conducting an economic cost benefit analysis, referred to as National Economic Development (NED) effects in the superseded P&Gs. In the NEPA context, the goal is not to determine the economically justified alternative for OMB approval. CEQ NEPA regulations (40 CFR 1502.23) address the role of cost benefit analysis within the context of NEPA compliance. The first half of Section 1502.23 discusses the incorporation of existing benefit-cost analyses into the NEPA evaluation process. The second half of Section 1502.23 states that (f)or purposes of complying with the Act, the weighing of the merits and drawbacks of the various alternatives need not be displayed in a monetary cost-benefit analysis and should not be when there are important qualitative considerations. Further there is no policy or law that requires the use of the PR&G framework. The co-leads, including Reclamation, are not required to conduct and PR&G analysis. Socioeconomic effects of MO3 were fully analyzed and the information presented in Chapters 3, 4, 5, 6, and 7.
3999	66	ttrue@earthjustice.org	Earthjustice	12. Reclamation failed to present full documentation for the selection of the Preferred Alternative. The DEIS does not provide a benefit-cost analysis that transparently compares the net public benefits expected with the implementation of each alternative, nor does it discuss the extent to which the Preferred Alternative maximizes net public benefits. Instead, the DEIS provides an incomplete and misleading comparison of the alternatives benefits and costs. Support for this conclusion comes from Table 3-1. Summary of Expected Effects by Multiple Objective Alternative. The bottom row of the table shows, Total Annual- Equivalent Costs for the Alternatives (2019 $). The data in this row show that the High estimate of the costs for MO3 Natural Resource Economics, Inc. Comments on Socioeconomic Elements of CRSO DEIS 44 is $1,002 million. This amount is less than the costs shown for the other alternatives. Thus, if the alternatives have only costs, but no benefits, then MO3s lowest costs are functionally equivalent to an indication that it has the highest benefits among the alternatives. In fact, the alternatives also will yield benefits. To some extent the cost estimates already encompass these benefits, for example, by showing (at least according to the agencies analysis) an increase in electricity rates as a cost for one alternative relative to no costs shown for an alternative with no rate increase. MO3 is different, however. Many, or most, of its socioeconomic benefits will result from its diverse, positive ecosystem impacts. Table 3-1 provides no information about these benefits and, hence, they exist entirely outside the tables data. This	As the commenter describes, MO3 is the least costly alternative, ranging from $53 to 158 million per year less costly than the No Action Alternative. The costs to implement the alternatives and operate the system are not an indication of the benefits that the system provides. The beneficial and adverse effects of the alternatives, including the No Action Alternative, are described in various sections in the EIS, including 3.5 (fish), 3.7 (power and transmission), 3.8 (air quality and greenhouse gases), 3.10 (navigation), 3.11 (recreation), 3.12 (water supply), 3.15 (fisheries and passive use), and others. The effects of MO3 on electricity rates are described in Section 3.7 and are not included in the cost estimates described in Section 3.19 and Appendix Q. Table 3-1 provides a summary of all of the effects on all resources, including beneficial and adverse effects. For example, beneficial effects under MO3 in Region C are described for anadromous fish, recreation, fisheries, and Tribal perspectives. Although an ecosystem services approach was not directly followed, ecosystem services were addressed in the appropriate resource section (for example, recreation, water quality, water supply, fisheries, etc.). Finally, a note was added to Table 3-1 to explain that the discussion of costs represents only direct expenditures. It does not represent costs to Bonneville in the form of lost revenues from reduced hydropower generation (discussed in Sections 3.7). It also does not include potential mitigation actions that were identified in Chapter 5 that could be implemented by other entities besides the co-lead agencies.

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				disparity in how the table treats MO3s benefits (it doesnt) and the benefits of the other alternatives (it buries them in the cross-alternative cost data) suggests that, if the agencies had included in Table 3-1 estimates of the ecosystem-related benefits of the alternatives, the table would show that MO3 promises the greatest, overall net public benefits.	
3999	67	ttrue@earthjustice.org	Earthjustice	Reclamation and the other co-lead agencies also fail to satisfy transparency requirements when they base their selection of the Preferred Alternative on an analytical framework that uses the No Action Alternative as the baseline for describing and measuring the impacts of the other alternatives. The DEIS attempts to define the No Action Alternative as the baseline, but fails to demonstrate that it adequately and appropriately serves as a credible basis for defining and measuring the Federal investment. In effect, using the No Action Alternative as the baseline for assessing the impacts of the other alternatives fails to account for the full Federal investment embodied in this alternative. For example, it fails to account for the full opportunity costs of committing wetlands and other resources to support continued operation of the existing infrastructure in place. This approach ignores the opportunity costs of the forgone salmon populations, recreational opportunities, and other goods and services that the public would realize if these resources were, instead released from this commitment.	The co-lead agencies defined the no action alternative consistent with NEPA and implementing regulations. In the case of an ongoing action, such as operation of the CRS, the no action alternative represents no change in current management direction or level of management intensity. The no action alternative thus assumes the existence of the CRS projects and does not attempt to hypothesize the direct and indirect costs of each of Congresss decisions to construct CRS projects. The EIS evaluated benefits and adverse effects across an array of resource areas including potential effects at the national, regional and local level. The EIS does not employ a cost-benefit framework for decision-making. This is because, consistent with NEPA analysis frameworks (see 40 C.F.R. 1502.23), the beneficial and adverse effects are expressed as a variety of qualitative and quantitative environmental and economic metrics. Consequently, a focus solely on the monetized economic costs and benefits would exclude important tradeoffs associated with the alternatives communicated in the EIS, including effects on fish. Furthermore, while a cost-benefit framework generally results in a ratio of overall benefits to costs, the EIS evaluates the performance of the CRSO alternatives with respect to multiple stated objectives, for example related to improving fish passage and survival, reliable power generation, and minimizing greenhouse gas emissions.
3999	68	ttrue@earthjustice.org	Earthjustice	The agencies use of the No Action Alternative as their baseline also fails applicable standards insofar as they fail to incorporate identifiable risks and uncertainties into their quantification of the No Action Alternative. For example, they do not attempt to quantify the ecological risks that would accompany continuation of current operations for the CRSO. They fail to do so, even as, in Chapter 4, Climate, they describe multiple indicators of these risks and uncertainties (pp. 4- 33, ff., and section 4.2.9.1): o For salmon and steelhead (Oncorhynchus mykiss) in the Columbia basin, climate change may affect the timing of spawning, emergence and migration, cause changes in growth and development, increase predation rates, and affect the availability of critical habitat. In turn, these physiological changes could affect species productivity and abundance (Link, Griffis, and Busch 2015). While habitat conditions may improve for some life stages in certain locations that are currently colder than optimum (Zhang et al. 2019), overall effects on populations due to climate changes that have already occurred in recent decades have been negative (Crozier and Hutchings 2014). Many populations that are sensitive to non-climate threats are also most vulnerable to climate change (Crozier et al. 2008; Crozier 2013). Overall, a warming climate could cause moderate to o Increased variability in flows and reservoir levels could increase stranding/dewatering of larval Pacific lamprey (Entosphenus tridentatus). Pacific eulachon (Thaleichthys pacificus) could experience a mismatch in adult spawning triggers and larval dispersal if winter spawning triggers remain similar but spring freshets peak sooner. Lower summer flows could decrease foraging habitat for green sturgeon (Acipenser medirostris) in the estuary and lower Columbia River. There are several potential outcomes from climate change that could lead to consequences for anadromous fish during the periods of their lifecycle where they reside in the inland water bodies of the Columbia River and its tributariessevere declines in salmon and steelhead populations (Crozier 2015). Natural Resource Economics, Inc. Comments on Socioeconomic Elements of CRSO DEIS 45 o Projected changes in stream and river temperatures (as described in Section 4.2.3) may cause direct mortality due to heat stress and greater disease susceptibility if the range of physiological tolerance is exceeded (Benda et al. 2015). For example, in the Columbia Basin, Snake River sockeye salmon (Oncorhynchus nerka) are at high risk from heat waves during their mid-summer adult migration (Keefer, Peery, and Caudill 2008; National Marine Fisheries Service 2016). Historical water temperatures have already approached lethal limits for adult steelhead in the upper Snake and middle Columbia Rivers (Wade et. al 2013). Thus, even minor increases in thermal exposure put some of these populations above lethal limits. Increases in water temperatures could result in increased use of cold water refuges by adult salmon and steelhead (EPA, 2019). o [S]almon are becoming smaller and sometimes younger when they return to freshwater, potentially as a result of decreasing pH and increasing temperature (Bisson et al. 2018). o Where high temperature exposure is already an issue, increasing temperatures inside fishways of dams could worsen thermal exposure for migrating adult sockeye, Chinook salmon, and steelhead (Keefer and Caudill 2015). Temperature gradients up to 4 degrees Celsius within fish ladders at dams in the Columbia River appear to block migration by causing adult fish to reverse movement in ladders and fall back downstream (Caudill et al. 2013). Already a serious concern, temperature-related fallback may increase if river temperatures continue to rise (Crozier 2013). o Climate change is also projected to have consequences for the habitat of anadromous fish during the period of their lifecycle where they reside in the Pacific Ocean and Columbia River estuary. Several trends are expected: Reduction in thermal habitat for salmon Increasing ocean acidification Changing estuarine and plume environments o As described in Section 4.2.4, the effects of climate change are expected to have an adverse effect overall on anadromous fish populations, which could lead to moderate to severe declines in salmon and steelhead populations. Available information also suggests that species such as Pacific lamprey, Pacific eulachon, and green sturgeon may also experience adverse impacts from the effects of climate change. Changes in air temperature, precipitation, stream flows, and water temperatures may also have adverse implications for resident fish, including changes in their distribution and abundance (see Section 4.2.3.6). Decreased abundance of anadromous and resident species of importance in commercial and ceremonial and subsistence fisheries could result in a decreased opportunity for harvest, and a decrease in the economic, social, and cultural values associated with fishing. Additionally, changes in the distribution of species associated with the effects of climate change could mean a loss of access to certain species, or increased costs associated with harvesting those species, which could adversely affect those fisheries. The agencies also fail to describe the financial and economic risks in the No Action Alternative associated with projected outputs from the CRSO that support the agencies industrial clients. For example, their depiction of this alternative fails to fully account for trends showing decreasing demand for navigation and increasing competition for hydropower from solar/wind/energy-storage technologies.	The co-lead agencies appropriately analyzed the effects of the No Action Alternative in Chapter 3, 4, 6, and 7. CRS operations, maintenance and configuration is an "on-going action" under NEPA, and thus, the co-lead agencies appropriately determined that the date of the Notice of Intent to Prepare the EIS was the start date of the No Action Alternative. Regarding climate effects to affected resources, please see Chapters 4 and 7. The technical and policy elements of this Draft EIS are in full compliance with binding USACE policy and guidance for qualitative assessment of climate change and its plausible effects. The primary controlling policy and guidance are the USACE Climate Adaptation Policy Statement, signed by the Assistant Secretary of the Army for Civil Works in 2011, updated and signed again in 2013, and remains in force now; and USACE Engineering and Construction Bulletin 2018-14, "Guidance for Incorporating Climate Change Impacts to Inland Hydrology in Civil Works Studies, Designs, and Projects." The numerical-model simulated outputs were evaluated by multiple technical means (see record of the full USACE Agency Technical Review), and were tested using the set of analytical measures created by the USACE Climate Preparedness and Resilience program to ensure that sound science and engineering was applied in compliance with USACE climate change policy and guidance. Those analytical tests are described in ECB 2018-14 (listed just above) and in USACE Engineer Technical Letter 1100-2-3, "Guidance for Detection of Nonstationarities in Annual Maximum Discharges." The assessment of the effects of climate change is qualitative only in the sense that the biological and other impacts models did not directly ingest the physical hydroclimatology outputs modeled for the assessment. Those hydroclimatology outputs are fully quantitative and so can be the basis for refined estimates of effects should those be required following this Draft EIS. The decline of salmon populations is complex and recovery of those species will take collaboration between various agencies including NOAA and the Tribes. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide meaningful benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. The climate science community is still developing quantitative models that can address possible effects in water temperature from climate change, and unfortunately, have not been fully applied and validated for use with climate affected regulated flow projections of large reservoir systems. These data are critical for analyzing potential effects to fish quantitatively. The same is true for projecting changes to TDG. In lieu of this information, the climate analysis used the output from resource models, like water quality and fish, under historical conditions, available climate change data, and scientific literature to qualitatively assess potential effects to resources (described in Chapter 4). These analyses are documented in Section 4.2.3 for the MO Alternatives and Section 7.8.4 for the Preferred Alternative. Overall, the Preferred Alternative is expected to result in benefits to anadromous salmon and steelhead. The analysis in Section 7.8.4 recognizes that some of the benefits to fish from the Preferred Alternative could be offset by the effects of climate change. Under a dam breach scenario, spring water temperatures will warm more quickly than No Action conditions. Similarly in the fall, under a dam breach scenario, fall water temperatures will cool more quickly than No Action conditions. These results make logical sense and are supported by results from CRSO numerical water quality modeling. What has surprised some stakeholders are the predicted summer water temperature effects under dam breaching. Many believe that removing the dams will result in colder water temperatures as compared to the No Action Alternative. While some cooler water temperatures may be observed in the summer under dam breaching, especially during cooler summer weather conditions and at night, water temperatures will remain warm and exceed the state water quality standard at times. This is because without the dams, the lower Snake River will be shallower and more susceptible to solar radiation and warming. Increases in water particle travel time are expected, but the lower Snake River has always been a warm system (USGS 1960, 1961, 1964; Corps 2002a) and breaching the dams will not change this fact. Regionally high air and water temperatures result in water quality standard exceedances and are beyond the ability of the CRS to cool; future climate change predictions will result in even more difficult challenges.
3999	69	ttrue@earthjustice.org	Earthjustice	In sum, the No Action Alternative fails to provide an appropriate baseline, consistent with widely accepted analytical principles, for measuring the impacts of the other alternatives. In effect, the No Action Alternative is a snapshot of today, when the baseline for analyzing the other alternatives must offer an interactive forecasting model of the future. Using the No Action Alternative as the baseline hides the Federal investment embedded in it that would be transferred to and prop up the other alternatives. Using it as the baseline similarly overlooks the risks and uncertainties embedded in it and that would be transferred to the other alternatives. Reclamation and the other co-lead agencies must make explicit these embedded socioeconomic costs before they can satisfy requirements to take a hard look at the alternatives and to identify the alternative that promises the greatest net public benefits. Natural Resource Economics, Inc. Comments on Socioeconomic Elements of CRSO DEIS 46	The co-lead agencies defined the No Action Alternative consistent with NEPA and implementing regulations. In the case of an ongoing action, such as operation of the CRS, the no action alternative represents no change in current management direction or level of management intensity. The no action alternative thus assumes the existence of the CRS projects and does not attempt to hypothesize the direct and indirect costs of each of Congress's decisions to construct CRS projects. Under NEPA, the co-lead agencies are required to analyze a range of alternatives, including the No Action Alternative, to meet the purpose and need of the Project. The EIS analyzing the effects of the No Action Alternative on resources, environmental and socioeconomic, at present and into the future. These effects are summarized in Section 3 of the Executive Summary, fully described by resource and alternative in Chapters 3, 4, 5, 6 and 7; summarized by resource and alternative in Table 3-1, and once again presented for comparison in Tables 7-1 and 7-55.
3999	70	ttrue@earthjustice.org	Earthjustice	Their use of the No Action Alternative is not the only place where the agencies made decisions that fail to fully disclose or describe impacts. They repeatedly assert that theyve conducted economic analysis, with no explanation or evidence showing that they did so, in fact. For example, they explain their development of the Preferred Alternative with this statement (p. 7- 21): Following the evaluation of the No Action and MO alternatives, the co-lead agencies selected a combination of measures for the Preferred Alternative based on how well the measures met the Purpose and Need and study objectives, with consideration of environmental, economic, and social effects. [bold highlight added] What does consideration of environmental, economic, and social effects mean? What information, exactly, did the agencies consider? How did they consider this information, i.e., what analytical framework did they apply to the information and what did the analysis show? What criteria were used to select the combination of measures? In the absence of data, analysis, and criteria, what steps did the agencies take to ensure that the selection does not simply represent the biases and preferences of individuals who lack sufficient information to make well-informed decision that will yield the maximum net public benefits? Reclamation and the other co-lead agencies never answer these questions. Their failure to do so indicates that their selection of the Preferred Alternative was arbitrary and not the product of a rational decision in light of all of the available and relevant evidence.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA listed species. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the Columbia River System. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. The EIS set forth eight objectives which, in tandem with the purpose and need statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes the dam breaching measure. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the EIS objectives) as well as the EIS objectives for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. The Preferred Alternative is also more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. The Co-Lead Agencies are required to evaluate a reasonable range of alternatives in the EIS. However, when there are potentially a very large number of alternatives, only a reasonable number of examples, covering the full spectrum of alternatives, must be analyzed and compared in the EIS. Alternatives for this EIS were developed from measures identified during public scoping, regional forums with scientists and technical experts from cooperating agencies, and expert opinion from within the co-lead agencies and in the literature. These alternatives represent a reasonable range of alternatives for the maintenance and operation of the CRS. The development process is included in Chapter 2 for the No Action and MOs, and Chapter 7 for the Preferred Alternative. The co-lead agencies provided a robust analysis of socioeconomic effects in the EIS. As required by NEPA, the co-lead agencies evaluated each alternative for its effects on a suite of resources. These effects are summarized in Section 3 of the Executive Summary, fully described by resource and alternative in Chapters 3, 4, 5, 6 and 7; summarized by resource and alternative in Table 3-1, and once again presented for comparison in Tables 7-1 and 7-55.
3999	71	ttrue@earthjustice.org	Earthjustice	In Section 7.7 EFFECTS OF THE PREFERRED ALTERNATIVE, the agencies state, The environmental, economic, and social effects of the Preferred Alternative were evaluated following its initial development. The effects of the Preferred Alternative have been evaluated both quantitatively and qualitatively, depending on the resource. The following same descriptors are used in this chapter to describe the level of effects: o No Effect: The action would result in no effect as compared to the No Action Alternative. o Negligible Effect: The effect would not change the resource character in a perceptible way. Negligible is defined as of such little consequence as to not require additional consideration or mitigation. o Minor Effect: The effect to the resource would be perceptible; however, it may result in a small overall change in resource character. o Moderate Effect: The effect to the resource would be perceptible and may result in an overall change in resource character. o Major Effect: The effect to the resource would likely result in a large overall change in resource character. How, exactly, did the agencies evaluate the socioeconomic effects of the Preferred Alternative? Did they rely solely on the socioeconomic information included in the DESIS? If so, does this mean they ignored passive-use values? Cultural values? Recreational values? Risks to ecosystems?61 Risks that CRSO will require increasing levels of subsidies or the stranding of infrastructure? If the agencies included this	The Federal agencies factored in this information in their evaluation of the alternatives. The intensity, or potential level of effect, on any resource analyzed across the suite of alternatives is characterized on in Section 3.1 (page 3-3 of the Draft EIS). As discussed in Section 7.7, the Preferred Alternative was evaluated using the same scale of effects that was applied in Chapter 3, 4, 5 and 6. The changes are measured in relation to the No Action Alternative. Similar to the other alternatives, the EIS evaluated benefits and adverse effects of the Preferred Alternative across an array of resource areas including potential effects at the national, regional and local level; effects are monetized and quantified, where possible, and also described qualitatively. As is common in NEPA analyses, the beneficial and adverse effects of the alternatives are expressed as a variety of qualitative and quantitative environmental and economic metrics throughout the various resource areas Chapter 3 and 7 of the EIS to inform decision-making. The effects of the Preferred Alternative on Passive Use is discussed in Section 7.7.17 (Fisheries and Passive Use), cultural in Sections 7.7.18 (Cultural Resources) and Section 7.7.19 (Indian Trust Assets, Tribal Perspectives, and Tribal Interests), Recreation in Section 7.7.13 (Recreation), and Costs (Section 7.7.2.1). In addition, Section 7.7.21.2 (Summary of Regional Economic Effects) has been added to the Final EIS to further summarize the economic effects associated with the Preferred Alternative. Although an ecosystem services approach was not directly followed, ecosystem services were addressed in the appropriate resource section (for example, recreation, water quality, water supply, fisheries, etc.) in Chapter 7.

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				information in their evaluation, where is the information? Why did the agencies not share it with the public? Reclamation and the other colead agencies never answer these questions. Nor did they provide a precise definition of each of the descriptors (No Effect, Negligible Effect, etc.)? They dont explain what information and criteria they used to make these 61 The agencies several times acknowledge that implementation of the Preferred Alternative would interact with expected changes in climate to intensify adverse impacts on ecosystems. For example, in Section 7.8.6 Vegetation, Wildlife, Wetlands, and Floodplain, they state: climate change could exacerbate the effects from the Preferred Alternative on vegetation, wetlands, wildlife, and floodplains. The agencies do not consider the potential interactions and adverse impacts if changes in climate prove to be worse than expected: see, for example, DeFries, et al. 2019. The missing economic risks in assessments of climate change impacts; World Economic Forum. 2019. These are the biggest risks facing our world in 2019; and Ripple, W.J., et al. 2019. World scientists warning of a climate emergency. Natural Resource Economics, Inc. Comments on Socioeconomic Elements of CRSO DEIS 47 definitions or how they applied them? In particular, they provide no information about the socioeconomic elements, if any, included in these criteriafor example, does a change in resource character include a change in its passive-use value? Its recreational value? Ecosystem risk? If so, what socioeconomic information did the agencies use and where did it come from (the DEIS does not contain this information)? Bottom line: insofar as it presents no socioeconomic analysis and supporting data, the DEIS does not demonstratetransparently, comprehensively, and in detailthat Reclamation and the other co-lead agencies satisfied the requirement to take a hard look at socioeconomic changes before they decided the degree to which each element of the Preferred Alternative represents a change in resource character. The absence of a hard look at the socioeconomic effects means Reclamation and the other colead agencies have no fact-based rationale for expecting that their selection and evaluation of the Preferred Alternative will satisfy NEPA, WRDA and the PR&G.	The agencies have evaluated climate change using high quality, current information. The evaluation consisted of the full range of the latest climate change projections developed using multiple global climate models, emissions scenarios, downscaling techniques, and hydrologic models. Details of this evaluation are in Chapter 4 of the EIS. This information was used to describe the potential effects (both beneficial and adverse) on the river systems and resources due to potential changes in climate for all alternatives. The rationale for why an impact is considered to fall under one of the preceding intensity descriptors is included in each resource section. Statements of significance are supported by text describing the context and intensity of the impact. As is common in NEPA analyses (see 40 CFR 1502.23), the beneficial and adverse effects of the alternatives are expressed as a variety of qualitative and quantitative environmental and economic metrics throughout the EIS to inform decision-making, including the effects of the alternatives on fish as detailed in Sections 3.5 and 7.7.4. That the effects of the alternatives on fish and recreation are not expressed as monetized economic values does not mean that they were not considered in the context of the analysis. The co-lead agencies took a hard look at each of the alternatives, including the Preferred Alternative. The co-lead agencies used high quality information in the analysis of the CRSO EIS. Quantitative evaluations were conducted to determine the effects of each of the alternatives when appropriate. In instances where quantitative evaluations were not appropriate or possible, qualitative discussions are included to describe the effects of each alternative. The socioeconomic analysis for the EIS was carefully performed and considered the most relevant information for the analysis. The approach, analysis, and results were thoroughly reviewed by external reviewers, resource managers in the region, and the cooperating agencies. The evaluations are clear, transparent, and repeatable based on high quality information.
3999	72	ttrue@earthjustice.org	Earthjustice	3. Reclamation failed to present an unbiased description of the socioeconomic impacts on different groups. The agencies compound the defects stemming from their use of a faulty No Action Alternative as the baseline with defects in their analysis of the other alternatives. For example, they provide detailed information (p. 7-12) about what they purport to be negative socioeconomic effects of MO3 on farmers. The description includes these details about the potential public costs from implementing MO3: MO3 would also increase transportation-related emissions for wheat that is currently transported along the lower Snake River by up to 53 percent (0.056 MMT of CO2). [T]he cost to transport goods to market would increase (the cost to transport wheat to market is estimated to increase by $0.07-$0.24/bushel. The certainty with which Reclamation and the other co-lead agencies predict these costs lacks evidentiary support and may bias readers and decision-makers against MO3. The agencies do not detail the analytical data, assumptions, and modeling they used to reach these conclusions, nor do they describe the types and levels of uncertainty embedded in these numbers. The agencies seem to be saying that these costs increases will, with absolute certainty, materialize and persist forever following implementation of MO3. Such certainty, absent supporting evidence, deviates from the requirements of widely accepted professional standards applicable to this type of forecast. The problem is compounded because the agencies do not acknowledge and estimate with commensurate certainty the benefits from MO3. Indeed, they overlook these benefits. For example, they dont provide detailed information about the recreational, commercial, or passive-use value of increased or restored fisheries. They dont provide data regarding potential recreationists spending for floating/boating on the free-flowing river, or the additional benefits (called consumers surplus) they would derive from such experiences. The vacuum may cause the public and decision-makers to conclude that the benefits dont exist.	Page 7-12 of the Draft EIS summarizes the impacts to the navigation industry. These impacts, including the analytical data, assumptions, and modeling used to reach these conclusions are described in more detail in Section 3.10. The paragraphs that follow the cited text acknowledge that impacts to the navigation industry would likely decrease over time as the industry shifts to reliance on rail and truck, and that long-term benefits to fish, wildlife, vegetation, floodplains, and wetlands are also anticipated under Multiple Objective alternative 3. The section also identifies potential beneficial effects due to improved fish conditions for recreational, tribal, and commercial fishing activities, and particularly river-based recreational activities. In terms of acknowledging uncertainties in navigation analysis, some additional discussion of the uncertainties has been added into the Final EIS in Section 3.10, and a section summarizing these uncertainties has been added to the Navigation Appendix L.
3999	73	ttrue@earthjustice.org	Earthjustice	The agencies also take a one-sided approach to their assessment of the potential negative effects MO3 would have on users of different types of boating. They openly criticize MO3 because breaching the dams would mean river cruise lines no longer would reach Clarkston, Lewiston, and Asotin, and these communities would lose their river port community identity. Nowhere, however, do the agencies express an analogous concern because the CRSOs past negative effects on fish and the ecosystems have caused Tribal communities to lose their cultural identities. Nowhere do they express an analogous concern because, with the loss of a Natural Resource Economics, Inc. Comments on Socioeconomic Elements of CRSO DEIS 48 free-flowing river, the Lower Snake River dams caused the community of boaters who used the unimpounded river to lose their identity. In their description of MO4 (p. 7-15), the agencies state: Overall, there would also be major adverse economic effects under MO4. For irrigation on the lower Columbia, the reservoirs levels may be lowered to the point where pumping could no longer be possible. Additionally, in low water years, major adverse effects to water-based recreational access at Lake Pend Oreille could occur. Who determined that these would be major adverse economic effects? What data did they use? What analysis did they conduct? What criteria did they apply to determine that these effects are major? Why did they not make symmetrical statements about any major beneficial economic effects that would materialize? The agencies provide no answers to these questions. Consequently, the DEIS is deeply flawed and incomplete.	The EIS evaluated benefits and adverse effects across an array of resource areas including potential effects at the national, regional and local level; effects are monetized and quantified, where possible, and also described qualitatively. The EIS does not employ a cost-benefit framework for decision-making. This is because, consistent with NEPA analysis framework (40 C.F.R. 1502.23), the beneficial and adverse effects are expressed as a variety of qualitative and quantitative environmental and economic metrics. The EIS provides an evaluation of the social welfare and regional economic effects of the No Action Alternative and the Multiple Objective alternatives, including the effects on recreation (Section 3.11) and commercial fisheries (Section 3.15). The EIS Section 3.5.3.6 describes the long-term effects to anadromous fish migration in the Snake River and tributaries that would occur under a dam breach scenario as major and beneficial, although quantitative impacts from fish modeling results are limited. The impacts to anadromous fish in other locations would have negligible to minor changes from the No Action Alternative. Sections 3.11.2 (Recreation Affected Environment) and 3.11.3 (Environmental Consequences) describes recreational fishing in the Snake River. The EIS described the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. NMFS estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which is described qualitatively. The EIS describes that the visitation in the lower Snake River, including rafting, kayaking, and recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting jobs, income, and tourism businesses. The social welfare values associated with this visitation were not estimated because of the uncertainty (and large range) in visitation and consumer surplus values among users. It is true that rafting would likely have a much higher consumer surplus value per day compared to other types of activities. Again, there is uncertainty around recreational and commercial fishing visitation in the long-term given the current measures to regulate, protect, and support ESA-listed fish populations and habitat in the region. However, the EIS describes that the visitation in the long-term in the lower Snake River, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting jobs, income, and tourism businesses. The contribution of Columbia River origin fish to ocean fisheries is described in Section 3.15.2.1. Because there is considerable uncertainty regarding the overall effects of the alternatives on regional fish populations, and how such changes may affect the management of the fisheries, the specific quantitative and monetized impacts associated with changes in commercial fisheries under the alternatives was limited. This analysis evaluates potential impacts on fisheries by referencing the potential effects on relevant fish populations, as described in Section 3.5.
3999	74	ttrue@earthjustice.org	Earthjustice	In their description of the Preferred Alternatives impact on recreation (Section 7.7.13), the agencies make these statements: In a low-water year, visitation [of reservoir boat ramps] would decrease by less than 1 percent relative to the No Action Alternative. Changes in social welfare value associated with the visitation change in a typical year would be about $3,000. The agencies offer no explanation why they were able to obtain and report data for changes in social welfare associated with a specific decline in reservoir boating but were unable to obtain and report analogous data for changes in social welfare associated with increases in boating on a free-flowing river in MO3 (or losses of social welfare for boaters unable to enjoy a free-flowing river under the Preferred Alternative). These discrepancies in analytical detail indicate biases in the agencies preparation of a DEIS that favors their traditional client industries (farming, navigation, hydropower, hatcheries). Natural Resource Economics, Inc. Comments on Socioeconomic Elements of CRSO DEIS 49	The EIS evaluated beneficial and adverse effects across an array of resource areas including potential effects at the national, regional and local level; effects are monetized and quantified, where possible, and also described qualitatively. As is common in NEPA analyses, the beneficial and adverse effects of the alternatives are expressed as a variety of qualitative and quantitative environmental and economic metrics throughout the EIS to inform decision-making, including the effects of the alternatives on fish as detailed in Section 3.5. That the effects of the alternatives on fish are not expressed as monetized economic values does not mean that they were not considered in the context of the analysis. The EIS does not employ a cost-benefit framework for decision-making. Instead, the EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-lead agencies numerous legal obligations. The Preferred Alternative is predicted to benefit ESA-listed juvenile and adult anadromous salmonids (two of the objectives), but not as much as Multiple Objective alternative 3, which includes a measure to breach the four lower Snake River dams. However, the Preferred Alternative also meets other objectives for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. The changes in social welfare are based on recreational access to reservoirs associated with changes in water surface elevations; when water surface elevations fall below and above operating thresholds of the boat-ramps, access and visitation would be affected Under MO3, the EIS describes that the visitation in the long-term in the lower Snake River, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting outfitting and tourism businesses in the region. A range of visitation is provided, based on the evaluation conducted for the 2002 Lower Snake River Juvenile Salmon Migration Feasibility Report and EIS. Although there is uncertainty regarding river recreation in the lower Snake River, in the long-term, there is the potential for river-based recreation and fishing in the long-term, once access has been developed. The EIS described the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. NMFS estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which is described qualitatively. However, there is considerable uncertainty regarding the overall effects of the alternatives on regional fish populations, and how such changes may affect the management of the fisheries, which limits the analysis of the specific impacts of each alternative on these recreational fishing values. Because of this uncertainty, the impacts to recreational fishing under MO3 were described qualitatively, indicating that MO3 would support the salmon and steelhead fishery in the Snake River Basin, supporting continued and possibly increased angler visitation in the long-term. The social welfare values and regional economic effects associated with visitation for river recreation post dam breach under MO3 were not monetized because of the uncertainty and large range in visitation and consumer surplus values among users.
3999	75	ttrue@earthjustice.org	Earthjustice	IV. The Socioeconomic Elements of the DEIS Show the Corps Fails to Apply the Agencys Planning Guidance (or Any Planning Guidance Whatsoever) The Corps is subject to the standards and obligations of NEPA and the PR&G, the same as Reclamation. It has not, however, published its agency-specific procedure for complying with the PR&G.62 The Corps website shows, however, that the agency believes the socioeconomic elements of the DEIS should comply with guidance expressed in the Planning and Guidelines (P&G). The agencys Planning Guidance Notebook (p. 2-5) states that the Corps is required to address the following matters in the formulation and evaluation of alternative plans:63 o Enhancing national economic development (including benefits to particular regions that are not transfers from other regions). o Protecting and restoring the quality of the total environment. o The well-being of the people of the United States. o The prevention of loss of life. o The preservation of cultural and historical values. These requirements resemble those of the PR&G and, thus, if the Corps prepared the DEIS under the standards and obligations to the P&G, it should have satisfied most, if not all of the standards and requirements described in the previous sections. In other words, its failure to have adopted agency-specific procedures for	The EIS evaluated benefits and adverse effects across an array of resource areas including potential effects at the national, regional and local level; effects are monetized and quantified, where possible, and also described qualitatively. Changes in ecosystem functions and services were addressed in the appropriate section of the Final EIS (for example, in water quality, water supply, air quality, recreation, etc.). As is common in NEPA analyses, the beneficial and adverse effects of the alternatives are expressed as a variety of qualitative and quantitative environmental and economic metrics throughout the EIS to inform decision-making. For example, although the effects of the alternatives on fish are not expressed as monetized economic values does not mean that they were not considered in the context of the analysis. Likewise, the EIS recognized and describes the economic and cultural importance of salmon to Tribes in a number of sections throughout the document. Thus the EIS does not employ a cost-benefit framework for decision-making. Instead, the EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-lead agencies numerous legal obligations. As described in Chapter 7 of the Final EIS, the Preferred Alternative is predicted to benefit ESA-listed juvenile and adult anadromous salmonids (two of the objectives), but not as much as Mutiple Objective alternative 3 (MO3), which includes the measure to breach the four lower Snake River dams. The Preferred Alternative also meets other objectives for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy.

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				complying with the PR&G and, instead, comply with the P&G does not justify its participation in and contributions to the failures described in the preceding sections. Other evidence suggests the Corps participated in and contributed to the preparation of the socioeconomic elements of the DEIS subject to no standards and obligations whatsoever. The preceding sections demonstrate that the DEIS does not satisfy standards and obligations of NEPA and the PR&G. If it had participated in and contributed to the preparation of the DEIS subject to the P&G, it would have produced a National Economic Development NED account describing the direct, monetized impacts of each alternative on the national economic wellbeing. The DEIS, however, does not contain a NED account.64 Thus, it appears the Corps failed to apply the standards and obligations of NEPA, the PR&G, the P&G and the Corps own Planning Guidance Notebook. 62 H.R. 1865, Further Consolidated Appropriations Act, 2020, notes that the Corps has yet to develop implementation rules and guidance for the PR&G, and requires the Corps to brief the House and Senate on its plans to do so. The failure to develop agency-specific rules and guidance does not, however, exempt the Corps from its obligations under the PR&G. 63 U.S. Army Corps of Engineers. 2020. Planning Guidance Notebook. This document states: The Planning Guidance Notebook provides the overall direction by which the Corps of Engineers civil works projects are formulated, evaluated, and selected for overall implementation. 64 The DEIS does, however, refer to NED-related guidance from a component of the Planning Guidance Notebook, p. 7-169): The Corps guidance describes the following: Primary benefit measure for hydropower: Market value of output, or alternative cost of providing equivalent output when market price does not reflect marginal costs. (Source: U.S. Army Corps of Engineers Institute for Water Resources. June 2009. National Economic Development Procedures Manual.) This statement indicates that, while preparing the DEIS, the Corps believed it was subject to the guidance from the Planning Guidance Notebook. The Corps, however, offers no explanation for why it cited the guidance when convenient, but did not endeavor to satisfy the full set of standards and obligations defined in the Planning Guidance Notebook. Natural Resource Economics, Inc. Comments on Socioeconomic Elements of CRSO DEIS 50	Regarding the P&G or PR&G requirements, if an agency is seeking authorization and appropriations from Congress to fund a Federal investment, it would be appropriate to analyze the alternatives under a P&G or PR&G framework. Under the NEPA context, the goal is not to determine the economically justified alternative for OMB approval. Section 1502.23 of the NEPA regulations (40 CFR 1502.23) addresses the role of cost benefit analysis within the context of NEPA compliance. The first half of Section 1502.23 discusses the incorporation of existing benefit-cost analyses into the NEPA evaluation process. The second half of Section 1502.23 states that (f)or purposes of complying with the Act, the weighing of the merits and drawbacks of the various alternatives need not be displayed in a monetary cost-benefit analysis and should not be when there are important qualitative considerations. Further there is no policy or law that requires the use of the PR&Gs. Furthermore subsequent studies, such as NEPA and feasibility studies, would likely be conducted prior to implementation of an alternative such as MO3.
3999	76	ttrue@earthjustice.org	Earthjustice	V. Illustrative List of Relevant Socioeconomic Information the Co-Lead Agencies Failed to Incorporate into the DEIS Table 6 provides a partial list of some of the relevant information that was readily available to, but not used by, the co-lead agencies. Failure to incorporate this information in the DEIS leaves large gaps in the DEISs identification, description, and analysis of the socioeconomic impacts of each alternative and the comparison of these impacts across the alternatives. These gaps, in turn, constitute a fatal flaw in the agencies attempts to satisfy NEPAs requirement, that they must take a hard look at all of each alternatives impacts. Table 6. Illustrative List of Readily Available, Relevant Information the Co-Lead Agencies Should Have, But Did Not, Incorporate into the DEIS Socioeconomic Standards and Requirementsa Relevant Information the Co-Lead Agencies Should Have, But Did Not, Incorporate into the DEISb Fully describe the Federal Investment embedded in each alternative. Waddell, J., and Laughy, L. 2015. The costs of keeping the four lower Snake River Dams: a reevaluation of the Lower Snake River Feasibility Report. Maximize public benefit (minimize public cost) from increase (decrease) in fish populations Domanski, A. 2019. Lower Snake River dams: economic tradeoffs of removal; Lewis, D.J., et al. 2019. The non-market benefits of early and partial gains in managing threatened salmon; Corps of Engineers. 2002. Final Lower Snake River Juvenile Salmon Migration Feasibility Report/Environmental Impact Statement; Weber, M.A. 2015. Navigating benefit transfer for salmon improvements in the Western US; Richardson, L., and J. Loomis. 2008. The total economic value of threatened, endangered and rare species: an updated metaanalysis; Brouwer, R. and O.Sheremet. 2017. The economic value of river restoration; Johnston, R.J., M.H. Ranson, E.Y. Besedin, and E.C. Helm. 2006. What determines willingness to pay per fish? A meta-analysis of recreational fishing values Maximize public benefit (minimize public cost) from increase (decrease) in nonmotorized boating, e.g., floating, kayaking, rafting Rosenberger, R.S.; E.M. White, J.D. Kline, and C. Cvitanovich. 2017. Recreation economic values for estimating outdoor recreation economic benefits from the National Forest System Maximize public benefit (minimize public cost) from actions that increase (decrease) wildlife habitat Loomis, J. 2001. Final Snake River contingent value methodology study report Maximize public benefit (minimize public cost) from actions that improve (diminish) health and resilience of the orca populations Earth Economics. 2019. The economic impact of killer whales in the Salish Sea Maximize public benefits and promote sustainable economic development, accounting for output, employment, and compensation from outdoor recreation, and extent to which these variables are growing faster than their counterparts in other sectors of the economy U.S. Bureau of Economic Analysis. 2019. Outdoor recreation satellite account, U.S. and prototype for states, 2017; Headwaters Economics. 2019. The outdoor recreation economy by state; Earth Economics. 2017. The value of natural capital in the Columbia River Basin: a comprehensive analysis; Hill, E., J. Bergstrom, H.K. Cordell, and J.M. Bowker. 2009. Natural resource amenity service values and impacts in the U.S. Natural Resource Economics, Inc. Comments on Socioeconomic Elements of CRSO DEIS 51 Socioeconomic Standards and Requirementsa Relevant Information the Co-Lead Agencies Should Have, But Did Not, Incorporate into the DEISb Maximize public benefit (minimize public cost) from actions that improve (diminish) the health and resilience of river ecosystems Loomis, J. 2006. Importance of including use and passive use values of river and lake restoration; Loomis, J. 1999. Passive use values of wild salmon and free-flowing rivers; Loomis, J., P. Kent, L. Strange, and K. Fausch. 2000. Measuring the total economic value of restoring ecosystem services in an impaired river basin: Results from a contingent valuation survey; Earth Economics. 2017. The value of natural capital in the Columbia River Basin: a comprehensive analysis; Brown, T.C., J.C. Bergstrom, and J. Loomis. 2006. Ecosystem goods and services: definition, valuation and provision; McCartney, C. Sullivan, and M.C. Acreman. 2001. Ecosystem impacts of large dams; EPA. 2002. A framework for the economic assessment of ecological benefits; EPA. 2010. Guidelines for preparing economic analyses; Barclay, E., and D. Batker. 2004. Untold value: natures services in Washington State; EPA Science Advisory Board. 2009. Valuing the protection of ecological systems and services; National Research Council. 2004. Valuing ecosystem services: toward better environmental decision-making; Olander, L., R.J. Johnston, H. Tallis, J. Kagan, L. Maguire, S. Polasky, D. Urban, J. Boyd, L. Wainger, and M. Palmer. 2015. Best practices for integrating ecosystem services into federal decision making; Scheuerell, M.D., P.S. Levin, R.W. Zabel, J.G. Williams, and B.L. Sanderson. 2005. A new perspective on the importance of marine-derived nutrients to threatened stocks of Pacific salmon; Kohler, A.E., P.C. Kusnierz, T. Copeland, D.A. Venditti, L. Denny, J. Gable, B.A. Lewis, R. Kinzer, B. Barnett, and M.S. Wipfli. 2013. Salmon-mediated nutrient flux in selected streams of the Columbia River Basin, USA; National Ecosystem Services Partnership (NESP). 2016. Federal resource management and ecosystem services guidebook 2nd ed.: Section1the guidebook and ecosystem services in federal decision making; Section 2federal agency use and examples; and Section 3ecosystem service assessment methods; Bartkowski, B. 2016. Are diverse ecosystems More valuable? A conceptual framework for economic valuation of biodiversity; Brander, L., E. Gomez-Baggethum, B. MartinLopez, and M. Verna. 2010. The economics of valuing ecosystem services and biodiversity; Collins, S.F., A.M. Marcarelli, C.V. Baxter, and M.S. Wipfli. 2015. A critical assessment of the ecological assumptions underpinning compensatory mitigation of salmon-derived nutrients Maximize public benefits and promote sustainable economic development, accounting for long-term trends in population, employment, personal income by industry, wages, and unemployment, by county and metro/rural areas Headwaters Economics. 2020. Economic profile system Maximize public benefits and promote sustainable economic development, accounting for age distribution, race and ethnicity, poverty, housing affordability, and education, by county, county subdivisions, metro/rural areas, cities and towns, and American Indian and Native areas Headwaters Economics. 2020. Economic profile system Maximize public benefits and promote sustainable economic development, accounting for land ownership, land cover, and Headwaters Economics. 2020. Economic profile system Natural Resource Economics, Inc. Comments on Socioeconomic Elements of CRSO DEIS 52 Socioeconomic Standards and Requirementsa Relevant Information the Co-Lead Agencies Should Have, But Did Not, Incorporate into the DEISb trends in residential development, by county and metro/rural areas Maximize public benefits and promote sustainable economic development, accounting for tourism-related industries and economies, by county and metro/rural areas Headwaters Economics. 2020. Economic profile system Maximize public benefits and promote sustainable economic development, accounting for trends in farm and ranch employment, personal income, corporate income, land use, and other agricultural characteristics, by county and metro/rural areas Headwaters Economics. 2020. Economic profile system Maximize public benefits and promote sustainable economic development, accounting for trends in employment and personal income earned in local, state, and federal jobs, by county and metro/rural areas Headwaters Economics. 2020. Economic profile system Maximize public benefits and promote sustainable economic development, accounting for components of the services sectors and trends in income, employment, and wages, by county and metro/rural areas Headwaters Economics. 2020. Economic profile system Maximize public benefits and promote sustainable economic development, accounting for indicators of natural-resource and other amenities associated with economic development, inmigration, and growth in services sectors, by county and metro/rural areas Headwaters Economics. 2020. Economic profile system; Pender, John, Alexander Marr, and Richard Reeder. 2012. Rural wealth creation: concepts, strategies and measures; McGranahan, D., T. Wojan, and D. Lambert. 2010b. The rural growth trifecta: outdoor amenities, creative class and entrepreneurial context; Henderson, J. 2002. Building the rural economy with high growth entrepreneurs; Irwin, E.G., A.M. Isserman, M. Kilkenny, and M.D. Partridge. 2010. A century of research on rural development and regional issues; Fisher, B., and R.K. Turner. 2008. Ecosystem service: classification for valuation Maximize public benefits and promote sustainable economic development, accounting for trends in non-labor income, such as retirement and investment income, and hardship-related transfer payments, by county and metro/rural areas Headwaters Economics. 2020. Economic profile system Maximize public benefits and promote sustainable economic development, accounting for economic impacts of national parks and related public lands	The EIS socioeconomics analysis reviewed a wide range of published sources, some of which were ultimately cited to support the approach and analysis, while others were not. While a few of the suggested references could have been cited in the EIS, they would not fundamentally change the approach or analysis, or lead to different determinations. Many of the suggested references are general literature or guidance documents. The socioeconomic analysis for the EIS was carefully performed and considered the most relevant information in the timeline provided for the work for the subjects of the analysis. The approach, analysis, and results were thoroughly reviewed by external reviewers, resource managers in the region, and the cooperating agencies.

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				Headwaters Economics. 2020. Broader economic impact of national parks; Cullinane Thomas, C., C. Huber, K. Skrabis, and J. Sidon. 2016. Estimating the economic impacts of ecosystem restorationmethods and case studies Maximize public benefits and promote sustainable economic development, accounting for trends in the outdoor recreation economy, and the likelihood that increases in natural resource amenities will attract new residents and higher incomes Headwaters Economics. 2020. Economic development; Lorah, P., and R. Southwick. 2003. Environmental protection, population change and economic development in the Western United States; Schmidt, Lucie G., and Paul Courant. 2006. Sometimes close is good enough: the value of nearby environmental amenities; Briceno, T., and G. Schundler. 2015. Economic analysis of outdoor recreation in Washington State. Maximize public benefits and promote sustainable economic development, accounting for cultural value of anadromous fish and a healthy and resilient ecosystem Earth Economics. 2017. The value of natural capital in the Columbia River Basin: a comprehensive analysis; Meyer Resources. 1999. Tribal circumstances and impacts of the Lower Snake River project on the Nez Perce, Yakama, Umatilla, Warm Springs and Shoshone Bannock Tribes; Hong, Y., R. Kahn, and R. Shirley. 2014. Supporting salmon, Natural Resource Economics, Inc. Comments on Socioeconomic Elements of CRSO DEIS 53 Socioeconomic Standards and Requirementsa Relevant Information the Co-Lead Agencies Should Have, But Did Not, Incorporate into the DEISb supporting communities; Columbia Basin Tribes and First Nations. 2015. Fish passage & reintroduction into the Upper Columbia Basin; Chan, K., T. Satterfield, and J. Goldstein. 2012. Rethinking ecosystem services to better address and navigate cultural values; Plieninger, Tobias, Sebastian Dijks, Elisa Oteros-Rozas, and Claudia Bieling. 2012. Assessing, mapping, and qualifying cultural ecosystem services at community level; Milcu, A.I., J. Hanspach, D. Abson, and J. Fischer. 2013. Cultural ecosystem Services: a literature review and prospects for future research Maximize public benefits and promote sustainable economic development, accounting for importance of tribal communities to the economy of Washington Taylor, J.B. 2019. The economic and community benefits of tribes in Washington Maximize public benefits and promote sustainable economic development, accounting for downward trends in the economic importance of Snake River navigation Earth Economics. 2017. The value of natural capital in the Columbia River Basin: a comprehensive analysis; Laughy, L. 2016. Lower Snake River transportation: twenty years of continuous decline; Laughy, L. 2019. New perspectives: freight transportation on the Lower Snake River; Bowe, R. 2016. With shipping on the decline, opportunity arises to save salmon; U.S. Army Corps of Engineers, Institute for Water Resources, The U.S. waterway system facts; U.S. Army Corps of Engineers Waterborne Commerce of the United States Statistical Data Center. Waterborne commerce cargo data; Port of Lewiston, Media Room. Shipping reports; USDA, Agricultural Marketing Service, Transportation Research & Analysis. Barge Maximize public benefits and promote sustainable economic development, accounting for downward trends in the economic importance of hydropower from Snake River dams NREL. 2020. Declining renewable costs drive focus on energy storage; IRENA. 2017. Electricity storage and renewables: costs and markets for 2030; Whitlock, R. 2019. BNEF revises forecast for global investment in energy storage; and NREL. 2019. Cost projections for utility-scale battery storage Maximize public benefits and promote sustainable economic development, accounting for the likelihood that the socioeconomic consequences from risks and uncertainties about the outlook for ecosystems and at-risk species affected by the CRSO will prove greater and more important than previously expected Cannamela, D, and others. 2019. Letter from 55 fisheries and natural resources scientists re science-based solutions are needed to address increasingly lethal water temperatures in the lower Snake River; Quiggin, J. 2017. The importance of extremely unlikely events: tail risk and the costs of climate change; Li, G., and C. Fang. 2014. Global mapping and estimation of ecosystem services values and gross domestic product: a spatially explicit integration of national green GDP accounting; Costanza, R., et al. 2014. Changes in the global value of ecosystem services; Costanza, R. et al., 2017. Twenty years of ecosystem services: how far have we come and how far do we still need to go? Santos Gaspar, J., et al. 2017. The traditional energy-growth nexus: a comparison between sustainable growth and economic growth approaches; Hejnowicz, A.P. and M.A. Rudd. 2017. The value landscape in ecosystem services: value, value wherefore art thou value? Song, X-P. 2018. Global estimates of ecosystem service value and change: taking into account uncertainties in satellite-based land cover data; Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES). 2018. The IPBES regional assessment report on biodiversity and ecosystem services for the Americas; and Sannigrahi, S., et al. Natural Resource Economics, Inc. Comments on Socioeconomic Elements of CRSO DEIS 54 Socioeconomic Standards and Requirementsa Relevant Information the Co-Lead Agencies Should Have, But Did Not, Incorporate into the DEISb 2018. Estimating global ecosystem values and its response to land surface dynamics during 1995-2015; Diefenderfer H.L., R.M. Thom, and K. Hofseth. 2005 (revised 2011). A framework for risk analysis for ecological restoration projects in the U.S. Army Corps of Engineers; Langsdale, S. 2008. Communication of climate change uncertainty to stakeholders using the scenario approach; Cole, R.A. 2010. A new nonmonetary metric for indicating environmental benefits from ecosystem restoration projects of the U.S. Army Corps of Engineers; Weitzman, M.L. 2001. Gamma discounting; EPA. 2015. National ecosystem services classification system (NESCS): framework design and policy application; Abson, D.J., and M. Termansen. 2010. Valuing ecosystem services in terms of ecological risks and returns; DeFries, et al. 2019. The missing economic risks in assessments of climate change impacts; World Economic Forum. 2019. These are the biggest risks facing our world in 2019; Maximize public benefits and promote sustainable economic development, using analytical standards, best practices, obligations, and methods appropriate for this environmental impact analysis Executive Order 12866. 1993. Regulatory planning and review; Office of Management and Budget. 2003. Circular A-4: regulatory analysis; EPA. 2002. A framework for the economic assessment of ecological benefits; EPA. 2010. Guidelines for preparing economic analyses; Barclay, E., and D. Batker. 2004. Untold value: natures services in Washington State; EPA Science Advisory Board. 2009. Valuing the protection of ecological systems and services; Suedel, B.C., et al. 2012. Application of risk management and uncertainty concepts and methods for ecosystem restoration: principles and best practices; Secretary of the Interior, The. 2016. Identifying opportunities for cooperative and collaborative partnerships with Federally Recognized Tribes in the management of Federal lands and resources a This list does not identify all the socioeconomic variables missing from the DEIS. Instead, it illustrates the variables the co-lead agencies should have included in the DEIS, and it provides a starting point for the agencies to correct the deficiencies as they prepare the final EIS. b This list does not identify all the information on each variable that is missing from the DEIS. Instead, it illustrates the information the co-lead agencies should have identified, reviewed, and included in the DEIS, and it provides a starting point for the agencies to correct the deficiencies as they prepare the final EIS.	
4003	1	hickorybiehn@yahoo.com	N/A	If salmonid species are truly the top priority forcing the removal of dams, try killing the sea lions hanging out at the mouth of the Columbia River or at Bonneville Dam. ODFW AND WDFW could both offer a hunting season on the sea lions, creating revenue for each state agency while protecting the fish.	The co-lead agencies legal authorities relate to operating and maintaining the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy designated critical habitat. To comply with the ESA, the co-lead agencies have historically supported actions to mitigate adverse effects to ESA-listed species from CRS operations, through funding, direct implementation, and other means. Under the Preferred Alternative, those actions, including for the purpose of reducing pinniped predation on ESA-listed species, would generally continue to ensure compliance with the ESA. Other entities in the region have authorities and obligations to mitigate the impacts from pinniped predators and the co-lead agencies will continue to work closely with those entities to benefit ESA-listed salmonids.
4007	1	N/A	N/A	Much like the Cle Elum dam in Washington, I suggest that we utilize the fish transporting system by Whooshh Innovations for the salmon. The mechanism is more cost efficient (roughly 1/6 of the cost of traditional fish passages), creates jobs, brings salmon back to native lands without harming them, and allows the dams to stay operational. While this system for transporting salmon may seem unusual, sometimes we need individuals that think outside the box to inspire change.	The four lower Snake River and four lower Columbia River dams have ladders installed that safely and effectively pass millions of adult salmon upstream. Adult upstream passage success through these dams is relatively high, generally around 90% from Bonneville to Lower Granite dam. In addition to passing up to 60,000 salmon per day, some of these dams may pass upwards of 250,000 shad in a single day. Passing this large number of fish over a false weir, sorting them, then passing them through single, wetted tubes, is not practical, or needed, and would require significant research and development, even if deemed feasible. The technology of fish cannons or similar devices has demonstrated some success on smaller scales, and their use will continue to be evaluated for future applications.
4011	1	fkmangan@hotmail.com	N/A	Also, I believe that a concerted effort to replace existing fish ladders with a better design would improve fish migration.	The CRSO EIS evaluated improvements to fish ladders in the Multiple Objective alternatives. Adult upstream passage success through the four lower Snake River and four lower Columbia River dams is relatively high (generally around 90% from Bonneville to Lower Granite dam). While there is some loss associated with dam passage, it is not typically a problem of ladder passage but rather fallback of adults over the spillway or through turbines, and unaccounted harvest and straying. However, the Draft EIS does present several measures to improve existing ladder designs (including improvements for temperature, traps that are part of the ladders, and the Bonneville Dam upper ladders). As described in Section 7.6.2, the Preferred Alternatives includes, for example, the Bonneville Ladder Serpentine Weir Modification measure that is expected to reduce stress and delay for adult salmon, steelhead and bull trout and has the potential to increase adult salmon and steelhead survival by reducing upstream passage time at the dam.
4021	1	paullindholdt@gmail.com	N/A	The federal agencies ignored the importance of salmon and steelhead sportfishing to Idahos river communities, as well as the many outdoor recreation opportunities possible on a restored Lower Snake River.	The EIS provides an evaluation of the social welfare and regional economic effects of the No Action Alternative and the multiple objective alternatives, including the effects on recreation (Section 3.11) and commercial fisheries (Section 3.15). The EIS described the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. NMFS estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which is described qualitatively. Under MO3, the EIS Section 3.5.3.6 describes the long-term effects to anadromous fish migration in Region C that would occur under a dam breach scenario as major and beneficial. The potential for increases in recreational fishing under MO3 in Region C is described in Section 3.11.3.5, which would support jobs, income, and social benefits in Tribal and rural river communities. For the effects on recreational fishing under MO3 (Section 3.11.3.5) along the lower Snake River below Lewiston, the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River) as an indicator for fishing visitation in this reach. The EIS describes that the visitation in the long-term in the lower Snake River, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No

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					Action Alternative, supporting outfitting and tourism businesses in the region. However, there is uncertainty around recreational fishing visitation in the long-term given the current measures to regulate, protect, and support ESA-listed fish populations and habitat in the region. For MO1, MO2, MO4, and the Preferred Alternative, the evaluation qualitatively describes the potential for effects associated with recreational fishing by referencing the potential effects on relevant fish populations, as described in Section 3.5. Fish modeling results vary for some of the alternatives, for example for the Preferred Alternative and MO4 (i.e., models show either beneficial or adverse effects to anadromous fish), so it is assumed that the potential changes in recreational fishing would follow these changes in fish abundance in the long-term.
4025	1	lvontersch@cityoflewiston.org	City of Lewiston, Idaho	2-36 lines 1151 through 1164. Closure of the hatcheries funded by BPA will result in a loss of 19 million salmon, steelhead and resident rainbow trout (3-897 24727) being cultivated and released to the Snake River on an annual basis. This Impact has been identified but no mitigation measure has been presented in the EIS.	The Draft EIS acknowledges that with breaching the four lower Snake River dams in MO3, there would no longer be an obligation for Bonneville to fund the U.S. Fish and Wildlife Service (USFWS) for operations of the the Lower Snake River Compensation Plan hatchery facilities, which account for much of the hatchery production in the basin and other Bonneville-funded mitigation activities could be adjusted. The effects to populations as they transition from primarily hatchery production to an increased wild production of fish is qualitatively discussed in Section 3.5.3.6. Over time, increased returns of wild fish would be expected as wild fish replace hatchery fish, and the Snake River resident fishery would improve as the reservoir habitats transition to riverine. The long term effect of MO3 would be beneficial for Snake River salmon and steelhead, so no mitigation for this effect was identified. Additional hatchery production would be in place for limited years to offset the short-term dam breaching and construction effects. Mitigation measures are proposed for both anadromous and resident fish for a transitional period for the breaching of the four lower Snake River dam embankments, as described in Sections 5.4.3.2 and 5.4.3.3. Proposed mitigation includes two years of hatchery production along with trap and haul operations for the anadromous and resident fish during this period. These mitigation measures would reduce adverse effects to resident and anadromous fish in Region C.
4025	2	lvontersch@cityoflewiston.org	City of Lewiston, Idaho	2-37 1161 through 1164. Corps also provides annual funding to implement other components of the LSRCP such as the management units for upland and riparian habitat (woody, riparian initiative), a game bird farm, and other ongoing habitat management at locations across the lower Snake River basin. LSRCP would be continued, consistent with the No Action Alternative, under all of the Multiple Objective Alternatives except for MO3. At what point would the Corps cease funding these environmental measures? What would that mean for the ownership of the property? The city would like to see a map of the management units in question at a scale sufficient to identify areas of concern and provide comments.	There is property owned by the Corps that is managed for wildlife habitat and other recreation as part of the Lower Snake River Compensation Plan. The commitments for woody riparian and game farm programs have beeen completed. If MO3 was selected as the Preferred Alternative, further evaluation and site-specific NEPA would be completed along with a request for congressional authorization and appropriations to complete the implementation of the alternative. Any real-estate transactions of current Federal properties would be included as part of implementation of the MO3 alternative.
4025	3	lvontersch@cityoflewiston.org	City of Lewiston, Idaho	3-272 6252 through 6254. The release of the currently shoaled sediment, which contains historical pollutants (pesticides, dioxins, other human-sourced pollutants and naturally occurring mercury in volcanic soils and from atmospheric deposition) would impact sediment quality in the lower Snake River. Improving Salmon Passage, February, 2002 pg. 30 indicates that manganese, and un-iodized ammonia are also a concern. Lewiston requests a specific study be conducted of the newly exposed sediment along the waterway. If any constituents of concern are discovered, Lewiston requests that they be mitigated.	If MO3 is identified as the selected alternative in the Record of Decision (ROD), the co-lead agencies would study potential site-specific contamination issues in a National Environmental Policy Act (NEPA) analysis for the implementation of that alternative. However, the co-lead agencies are unaware of any actions on their part that caused a release of hazardous substances into the reservoirs or river that has caused the potential contamination that the commenter identified. The existence of the dam and the fact that sediments are retained by the dam does not create liability for those potential hazardous substances in the sediment. Therefore, even if an evaluation identifies potential contamination in the sediments, without confirmation that the potential contamination was caused by a release of a hazardous substance by the co-lead agencies, the agencies would not have the authority to expend Federal appropriations on a cleanup of contamination that was caused by others. If there are areas where the co-lead agencies are the liable party for the release of hazardous substances into the environment, the co-lead agencies would evaluate and take appropriate actions to address the contamination. This includes areas that the co-lead agencies have already committed to monitoring if MO3 is the selected alternative.
4025	4	lvontersch@cityoflewiston.org	City of Lewiston, Idaho	3-548 16557 through 16558. Currently, hatchery fish account for 80-90 percent of all juvenile Snake River fish passing CRS projects. COMPASS and CSS models do not account for this potential major reduction in juvenile fish production. This impact, in regards to the entire size and health of the fishery, has not been evaluated. Without a robust analysis, persons may be misled as to the impact of dam breaching on the fishery.	The Draft EIS acknowledges that with breaching of the four lower Snake River dams in MO3, there would no longer be an obligation for Bonneville to fund the U.S. Fish and Wildlife Service (USFWS) for operations of the the Lower Snake River Compensation Plan hatchery facilities, which account for much of the hatchery production in the basin and other Bonneville-funded mitigation activities could be adjusted. The effects to populations as they transition from primarily hatchery production to an increased wild production of fish, as well as the abundance considering the cessation of transportation, is qualitatively discussed in Section 3.5.3.6. The fish models are based upon data collected from past fish runs and there is no data available to inform a quantitative analysis for wild fish in the absence of hatchery fish. The long-term overall effect of MO3 would be beneficial for Snake River salmon and steelhead as well as resident fish. Over time, recreational fishing gains would be expected as wild fish replace hatchery fish, but the timeframe and numbers of fish was speculative and not quantifiable for this analysis.
4025	5	lvontersch@cityoflewiston.org	City of Lewiston, Idaho	3-559 16895 through 16902. The COMPASS and CSS modeling results indicate that survival rates would increase by as much as 25% and travel times would decrease by as much as 30% relative to the No Action Alternative. However, as reductions in hatchery fish could reduce the numbers of juvenile Snake River Chinook by as much as 85%. This reduction in the number of hatchery fish would likely result in a reduction of these predicted survival rates of wild Chinook because of increased predation rates. The dam breach measures in MO 3 would eliminate the transportation program juvenile Snake River spring/summer-run Chinook. This impact is identified in the EIS but no mitigation measures have been provided.	The Draft EIS acknowledges that with breaching of the four lower Snake River dams in MO3, there would no longer be an obligation for Bonneville to fund the U.S. Fish and Wildlife Service (USFWS) for operations of the Lower Snake River Compensation Plan hatchery facilities, which account for much of the hatchery production in the basin, other Bonneville-funded mitigation activities could be adjusted, and transportation of Snake River salmon and steelhead would no longer occur. The effects to populations as they transition from primarily hatchery production to increased wild production, as well as the abundance considering the cessation of transportation, is discussed qualitatively in Section 3.5.3.6. The fish models are based upon data collected from past fish runs and there is no data available to inform a quantitative analysis for wild fish in the absence of hatchery fish. Over time, increased returns of wild fish would be expected as wild fish replace hatchery fish, and the models predict increased returns despite lack of transportation. The long-term effect of MO3 would be beneficial for Snake River salmon and steelhead so no mitigation for this effect was identified. Additional hatchery production would be in place for limited years to offset the short term dam breaching and construction effects. Mitigation measures are proposed for both anadromous and resident fish for a transitional period for the breaching of the four lower Snake River dam embankments as described in Sections 5.4.3.2 and 5.4.3.3. Proposed mitigation includes two years of hatchery production along with trap and haul operations for the anadromous and resident fish during this period. These measures would reduce adverse effects to resident and anadromous fish in Region C.
4025	6	lvontersch@cityoflewiston.org	City of Lewiston, Idaho	3-585 17794 through 17796. Short term effects include high sediment and low oxygen concentrations that would likely lead to the loss of most of the fish in this reach during breaching, reduced forage and productivity for 2-7 years following breaching, and potential migration barriers at tributaries that may become perched during reservoir drawdown. Xxx The Agencies should estimate the total size of the fishery (including all types of fish) before and after dam breaching. This impact has been identified but no mitigation measures presented in the EIS. Once the river is stabilized and fishing can resume, the City asks the Agencies to fund a robust marketing campaign to bring the fishermen back to the Snake and Clearwater Rivers.	Currently, there are not good estimates of resident fish populations in the lower Snake River. The best sources of information are localized reports on specific fish populations and angler catch information areas of the basin. The effects to populations as they transition from primarily hatchery production to an increased wild production, as well as the abundance considering the cessation of transportation, is qualitatively discussed in Section 3.5.3.6. The fish models are based upon data collected from past fish runs and there is no data available to inform a quantitative analysis for wild fish in the absence of hatchery fish. Over time, increased returns of wild fish would be expected as wild fish replace hatchery fish, and the models predict increased returns despite lack of transportation. The overall effect of MO3 would be beneficial for Snake River salmon and steelhead so no mitigation was identified. While the co-lead agencies recognize the importance of angling recreation to the region as stated in Section 3.1.3.5, Recreation Environmental Consequences Section for MO3, the co-lead agencies would not have a role in providing recreational facilities or recreational marketing. The National Environmental Policy Act (NEPA) requires that all relevant, reasonable mitigation measures that could diminish the adverse impacts of the project be identified in the document, even if they are outside the jurisdiction of the lead agency or the cooperating agencies. See 40 C.F.R. 1502.16(h) and 1505.2(c); 46 Fed. Reg. 18026. The mitigation requested is not within the co-lead agencies' current authorities.
4025	7	lvontersch@cityoflewiston.org	City of Lewiston, Idaho	3-732 22518 through 225225. It is not clear how raising the allowable reservoir elevation would impact the Lewiston levee system. Please explain so that the city may appropriately comment.	The commenter is correct that under Multiple Objective alternative 2 (MO2), the reservoir elevations at the four lower Snake River dams would differ from the No Action Alternative due to the Full Range Reservoir Operations measure, which calls for operating within the full reservoir operating range throughout the year. Under MO2, Lower Granite reservoir would still continue to have a hinge pool operation similar to the No Action Alternative during high flows, which would have the reservoir operate at lower levels to manage high flows on the levees near Lewiston, Idaho. There is no increase in flood risk under all alternatives examined in the EIS.
4025	8	lvontersch@cityoflewiston.org	City of Lewiston, Idaho	3-747 22976 through 22978. Approximately 3,000 acres of habitat management units that are currently irrigated under the No Action Alternative would no longer be irrigated, and these lands would transition to upland plant communities. Lewiston endured the loss of riverfront views and other amenities when slackwater arrived. We were compensated by the installation of recreational amenities along the levee including irrigation. The loss of irrigation will leave us in a brown bowl with significantly less natural beauty. The impact on Lewiston regarding visual impacts, recreation and sense of place should be evaluated and mitigated.	The visual resource analysis in the Final EIS summarized in Section 5.4.3.4 describes the visual change that would result from the 3,000 acres of habitat management units that would transition to upland plant communities under Multiple Objective alternative 3 (see also Section 3.13.3.4 in the Draft EIS). Mitigation actions have been identified to replant upland native vegetation in these areas.
4025	9	lvontersch@cityoflewiston.org	City of Lewiston, Idaho	3-746 22959 through 22963. In general, short-term effects to plant communities would occur within 10 years of dam breaching; long-term effects or changes would occur after a minimum of 60 years. To the extent that the plant communities stabilize river banks, provide recreational benefits, wildlife and fisheries food, cover and shade and will take 60 years to transition and stabilize, substantial mitigation efforts are needed for areas exposed by receding reservoirs. This mitigation should include removal of contaminated soils and 45 years of accumulated trash. 3-749. 23059 through 23061. Long-term gains are based on the assumption that habitats will return to their pre-project distribution. It does not assume that habitat management units or Corps managed lands will be maintained. Identified mitigation is based on the Corps owning and maintaining the land. Page 3-78 23007 indicates the Corps will not own the land in the future. Lewiston notes that pre-project distribution will never be attained adjacent to the levee structures with their large rip rapped water-side.	To offset effects to existing upland, wetland, and aquatic vegetation, reducing the quality, quantity, and distribution of habitats, mitigation proposed would be to replant approximately 13,000 acres of arid, upland native vegetation on newly exposed soils and approximately 1,500 acres of emergent and forested, scrub-shrub wetland habitat adjacent to the new surface elevations of the lower Snake River as described in Section 5.4.3 Mitigation Measures Proposed for MO3. NEPA requires that all relevant, reasonable mitigation measures that could diminish the adverse impacts of the project be identified in the document, even if they are outside the jurisdiction of the lead agency or the cooperating agencies. See 40 C.F.R. 1502.16(h) and 1505.2(c); 46 Fed. Reg. 18026. The inclusion of mitigation measures in Chapter 5 is not intended to indicate that the co-lead agencies, or the Federal government as a whole, has the authority to perform all of the measures listed. If the measures are outside the jurisdiction of the co-lead agencies, those measures will not be included in the Record of Decision (ROD). Their inclusion in Chapter 5 serves to alert other agencies, officials, and the public who can implement the measures to the potential benefits of the measure. The mitigation requested for removal of contaminated sediments, while identified in the Draft EIS, is not within the co-lead agencies' current authorities. If MO3 is identified as the selected alternative in the ROD, the co-lead agencies would study potential site-specific contamination issues in a NEPA analysis for the implementation of that alternative. However, the co-lead agencies are unaware of any actions on their part that caused a release of hazardous substances into the reservoirs or river that has caused the potential contamination that the commenter identified. The existence of the dam and the fact that sediments are retained by the dam does not create liability for those potential hazardous substances in the sediment. Therefore, even if an evaluation identifies potential contamination in the sediments, without confirmation that the potential contamination was caused by a release of a hazardous substance by the co-lead agencies, the agencies would not have the authority to expend Federal appropriations on a cleanup of contamination that was caused by others. If there are areas where the co-lead agencies are the liable party for the release of hazardous substances into the environment, the co-lead agencies would evaluate and take appropriate actions to address the contamination. This includes areas that the co-lead agencies have already committed to monitoring if MO3 is the selected alternative.
4025	10	lvontersch@cityoflewiston.org	City of Lewiston, Idaho	3-750. 23075 through 23079. Large mammals that are associated with forested wetland habitats, such as mule and white-tailed deer, would be temporarily adversely impacted by a reduction in suitable foraging habitats and protective cover during and immediately following dam breaching as existing wetland habitats transition to upland grassland or shrub-steppe habitats. The agencies are requested to evaluate how the loss of these animals may change hunting opportunities and the economic value of that recreational activity.	The potential for impacts under MO3 to vegetation, wildlife habitat, and associated impacts to hunters as the area transitions from reservoir to riverine are described qualitatively in Section 3.11.3.5. Due to the uncertainty surrounding the effects, these impacts are not quantified.
4025	11	lvontersch@cityoflewiston.org	City of Lewiston, Idaho	3-762 23468 through 23473. Lewiston requests a map of where vegetation mitigation and invasive species control will occur at sufficient scale so that we can identify any concerns and provide appropriate comments. (Also, Q-6-6 1015 through 1023).	The specific details of the mitigation plan for MO3 have not been developed, but are generally included in Chapter 5. If MO3 was selected and authorized by Congress, an implementation plan and associated National Environmental Policy Act (NEPA) analysis would be prepared that would include site specific information that details the construction, breaching, disposal, and mitigation actions required to implement MO3, as well as identifying all of the associated permitting for this action. The mitigation plan for the Preferred Alternative is described in Chapter 7.
4025	12	lvontersch@cityoflewiston.org	City of Lewiston, Idaho	3-936 28236 through 28238. The increased cost of electricity could increase the cost of living and doing business in the Pacific Northwest, resulting in regional economic impacts of $740 million in lost outputs (sales) and 4,900 jobs. This impact has been identified but no mitigation measure has been presented in the EIS..	The information provided in the comment regarding the power-related regional economic impacts of breaching the four lower Snake River dams is consistent with the findings of the EIS. Although there would be socioeconomic impacts of increased electrical costs, the loss of benefits provided by the system would not be mitigated.
4025	13	lvontersch@cityoflewiston.org	City of Lewiston, Idaho	3-1013 30524 through 30527. Overtime, the risk of fugitive dust likely declines as vegetation covers the exposed sediment, reducing the potentially erodible area. Additionally, potential effects may be mitigated by planting of vegetation, restrictions on activities on the sediment such as recreation and the use of vehicles, or by use of wind barriers for recreation areas. Lewiston would like a map prepared at sufficient scale to indicate where newly planted areas would be located so that we may provide appropriate comments. Project impacts to recreational visits should be expanded to include the loss of recreational use while newly exposed sediments are being revegetated. This section of the document seems to conflict with the 1992 OA/EIS. That document, Appendix pages 4-59 stated The 1992 OA/EIS identified three air quality concerns relative to operation of the reservoirs. The first was fugitive dust generated by strong winds blowing across exposed sediments during dry conditions. These conditions can result in high dust loadings and	The air quality analysis in Section 3.8 of the EIS evaluates potential effects from fugitive dust due to exposed sediment by considering wind speed and conditions from various locations in the region. This analysis additionally describes the potential for higher risk of adverse health effects from fugitive dust under MO3, which may acutely affect certain populations, such as people with asthma. Section 5.4.3.4 describes the mitigation plan for planting of exposed sediments following breaching of the four lower Snake River dams under MO3. Mitigation would include replanting approximately 13,000 acres of newly exposed soils and approximately 1,500 acres of emergent and forested, scrub-shrub wetland habitat. As described in this comment, Section 3.8 of the EIS identifies that, over time, there would be a reduction in the risk of fugitive dust due to growth of vegetation. Likewise, increased odor from exposed sediment would be temporary and would be reduced over time following mitigation. The cruise line analysis used the best available data at the time. Given an increase in passengers, it is possible that regional economic effects would also be proportionally higher. However, there is uncertainty in these figures and the resulting regional economic benefit estimates; it is likely that the evaluation has captured the numbers of passengers and regional economic effects within an acceptable range of uncertainty.

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				nuisance conditions for nearby residents and recreational users of the reservoirs. The second concern was odors that arise from decaying organic matter in sediments exposed to the air. The 2020 EIS does not address these nuisance conditions already documented by the Corps. The Agencies should note that Asotin County has an occurrence of asthma higher than neighboring counties. (Innovia Foundation. A Region-Wide Community Needs and Opportunity Assessment, January, 2020, Appendix F). 3-1081 32115. Cruise ship passengers are listed as 18,000 in 2017. According to the Port of Clarkstons December 2018 Outlook, cruise ships generated an estimated 25,000 visits to the LC Valley. Please update the economic analysis with this new number.	
4025	14	lvontersch@cityoflewiston.org	City of Lewiston, Idaho	3-1137 33517 through 33522. Infrastructure investments are transitional costs, and would primarily be borne by private entities including rail lines and grain shippers. Over time, prices should adjust to cover these costs. Some highway costs would be transferred to the trucking industry through fees, though most costs would likely be borne by public entities. State and local resources are not sufficient to maintain existing roads to an acceptable standard. The impact has been identified but no mitigation measure has been presented in the EIS. The 2002 EIS (Lower Snake River Juvenile Salmon Migration Feasibility Report and Environmental Impact Statement) identified 5 bridges in the Lewiston area that could be affected by permanent drawdown of the reservoirs: Red Wolf, Snake River Highway Bridge (Route 12), Southway, Lewiston (Camas Prairie) Railroad Bridge and Clearwater Memorial Bridge. (Appendix D, Annex E) These highway and railroad bridges were evaluated to determine the adequacy of the existing foundations and abutment protection to resist post drawdown flood scouring to natural stream levels. Almost all required some degree of protection. Each of these bridges should be evaluated and retrofitted as necessary by the agencies as mitigation of MO 3. The 2002 EIS, Appendix D, Annex H, states There is no doubt that many of the railroad and highway embankments will be damaged as a result of rapid reservoir drawdown. As drawdown occurs, areas of the embankments along the river are anticipated to fail due to steep slopes, saturated soils, and pore pressure increase. The 2002 EIS cites observations from the 1992 drawdown tests that include impacts to the Camas Prairie Railroad embankment, two small slides near Red Wolf Marina on US HWY 12, and disturbance of many survey monuments.	Mitigation was proposed for infrastructure affected by MO3 in Chapter 5. However, costs for roadway maintenance outside of the breaching action would remain the responsibilities of the agency with jurisdiction for the road. The National Environmental Policy Act (NEPA) requires that all relevant, reasonable mitigation measures that could diminish the adverse impacts of the project be identified in the document, even if they are outside the jurisdiction of the lead agency or the cooperating agencies. See 40 C.F.R. 1502.16(h) and 1505.2(c); 46 Fed. Reg. 18026. The inclusion of mitigation measures in Chapter 5 is not intended to indicate that the co-lead agencies, or the Federal government as a whole, have the authority to perform all of the measures listed. If the measures are outside the jurisdiction of the co-lead agencies, those measures would not be included in the Record of Decision (ROD). Their inclusion in Chapter 5 serves to alert other agencies, officials, and the public who can implement the measures to the potential benefits of the measure. If MO3 was selected and authorized by Congress, an implementation plan would be prepared that would include site specific information that details the construction, breaching, disposal, and mitigation actions required to implement MO3, as well as identifying all of the associated permitting for this action.
4025	15	lvontersch@cityoflewiston.org	City of Lewiston, Idaho	3-1141 33658. Update cruise ship passenger figure to 25,000. 3-1147 Table 3-248. Major adverse effects as the jobs and income provided by the four primary commercial navigation ports would be curtailed. Investment in infrastructure may be required, including upgrades to rail infrastructure, added shuttle rail capacity, and increased road maintenance costs. Adverse effects due to reductions in regional economic benefits to port cities where cruise line expenditures would have occurred. Although identified as major and adverse, no mitigation measures are put forward to offset these impacts. Area Ports have been partnering in a multi-year dark fiber project to improve broadband access throughout the region. Without the Ports and their revenues, this project is expected to come to a halt, impacting the regions ability to attract economic development.	The EIS discusses many of the potential concerns that you raise in Section 3.11 Navigation and Transportation, including increased shuttle rail capacity and road maintenance costs, as well as potential adverse effects on cruise ship operations under Multiple Objective alternative 3 (MO3). The cruise line analysis used current, high quality data at the time. Given an increase in passengers, it is possible that regional economic effects would also be proportionally higher. However, there is uncertainty in these figures and the resulting regional economic benefit estimates; it is likely that the evaluation has captured the numbers of passengers and regional economic effects within an acceptable range of uncertainty. The mitigation requested for effects to regional economic benefits is not within the co-lead agencies' current authorities. As described in Chapter 5 Mitigation, specific regulations guide the development of appropriate mitigation measures to address environmental effects. If breaching were selected as the Preferred Alternative, further, more detailed evaluations and National Environmental Policy Act (NEPA) analysis would be needed along with congressional authorization and appropriations to more completely assess the engineering requirements of the project and to potentially further refine and develop mitigation measures. As described in Section 5.1.1., Overview of Mitigation, mitigation measures developed as part of a NEPA process are not intended to indicate the co-lead agencies, or the Federal government as a whole, have the authority to perform all of the measures described. But, rather it provides a list of potential mitigation needs which could potentially include some infrastructure items, some of which could be implemented by other agencies, officials or the public who would potentially benefit from the mitigation measure.
4025	16	lvontersch@cityoflewiston.org	City of Lewiston, Idaho	3-1165 289 through 290. Region C encompasses at least 129 recreation points on or near water that are managed by Federal and state agencies and private (for profit) entities. This impact has been identified but no mitigation measure has been presented in the EIS. An appropriate mitigation would be evaluating each of these recreation points to determine how visitors could access the water. The federal agencies could then fund the access projects. 3-1213 1643 through 1645. Although it is uncertain who would own and manage the lands in the lower Snake River, recreational facilities, infrastructure and/or recreational access would need to be developed to facilitate river recreation visitation to the region. This impact has been identified but no mitigation measures presented in the EIS. Please provide a map at sufficient scale so that Lewiston can evaluate which properties might change hands and provide appropriate comments. Lewiston notes that sale of Federal land on the water side of the levee for any use other than open space and recreation could have an adverse impact on the community and its ability to see and access the rivers. Lewiston supports Corps ownership and maintenance of recreational amenities along the Snake and Clearwater rivers on both sides of the levee.	Chapter 5 in the EIS describes the proposed mitigation measures under each of the Multiple Objective alternatives (MOs). Section 5.4.3.6 describes the potential mitigation measures for recreation under MO3. No Federal mitigation is anticipated under MO3 to maintain access to the river. The mitigation requested is not within the co-lead agencies' current authorities. Since the four lower Snake River projects would be deauthorized, it is likely that the co-lead agencies would no longer operate the project lands for recreation. After project lands have been transferred to other agencies or entities, recreational sites and associated facilities could be modified as determined by others.
4025	17	lvontersch@cityoflewiston.org	City of Lewiston, Idaho	3-1214 1689 through 1691. Lake or flat-water recreational activities, including water skiing, sailing, motor boating (in fiberglass boats), fishing for some warm-water species, and sight seeing in tour boats that cruise between Portland and Lewiston, would no longer be possible if breaching would occur. Loss of local market value of these watercraft should be evaluated and mitigated. The registration fees for these watercraft are used to support waterway improvements at the county level including policing and search and rescue. The Nez Perce County Sheriff has two 23 long boats, too small to effect a complex rescue in high flow, fast water conditions. This community safety impact has not been measured in the EIS so mitigation measures can be confirmed. The Snake River reservoir also supports a Seaplane Base (SPB-78U). It is open to general aviation (private and commercial) and military aircraft that can land on water. During firefighting season this base may be of critical importance to the region. Seaplanes can only land on water, making this base of particular importance when planes need to be moved across-country. This impact has not been evaluated in the EIS nor mitigated.	Impacts to recreational activities, including adverse effects associated with flatwater recreation activities under the MO3 alternative, are described in Section 3.11. The mitigation requested for loss of market value of watercraft is speculative and not within the co-lead agencies' current authorities. While potential effects on seaplane use for firefighting were not described in the Draft EIS, and most firebombers in the region use retardant that is filled by trucks at airports, it is possible that Lower Granite pool in Lewiston/Clarkston may be used for firefighting planes and helicopters capable of picking up water from a large body of water. This use would be made more difficult following breaching of the four lower Snake River dams under MO3 due to reduced water depths and area. A description of this potential effect has been added into Section 3.10.3.5 under Navigation and Transportation.
4025	18	lvontersch@cityoflewiston.org	City of Lewiston, Idaho	3-1226 Table 3-264. Expand table to reflect loss of hunting visitor days, and associated value to the economy.	The visitation data described in Section 3.11.2.2 was obtained from state and Federal agencies; much of the available data reflected reservoir recreation. According to the types of visitors for the data provided, approximately 1% of visitation in Region C are hunters (Table 3-257 in Draft EIS). Hunters are categorized as land-based recreators. Under MO3, in the short-term, 1.7 million land-based visitors would be affected, including hunters. Additional description of the adverse effects in short-term to visitation, social welfare, and regional economic effects associated with MO3 are described qualitatively in Section 3.11.3.5. Due to the uncertainty surrounding the effects, these impacts are not quantified.
4025	19	lvontersch@cityoflewiston.org	City of Lewiston, Idaho	3-1245 2541 through 2542. The City of Lewiston and Potlatch Corporation (now Clearwater Paper) have water supply intakes on the Clearwater River above Lower Granite Dam. According to the 2002 Lower Snake River Juvenile Salmon Migration Feasibility Report and EIS, so does Atlas Sand and Rock, Lewiston Country Club Golf Course (a private entity) and the Clarkston Country Club (Tribal). The agencies should rebuild or relocate these intakes to function in Riverine conditions. (Appendix D, Annex R).	The National Environmental Policy Act (NEPA) requires that all relevant, reasonable mitigation measures that could diminish the adverse impacts of the project be identified in the document, even if they are outside the jurisdiction of the lead agency or the cooperating agencies. See 40 C.F.R. 1502.16(h) and 1505.2(c); 46 Fed. Reg. 18026. The inclusion of mitigation measures in Chapter 5 is not intended to indicate that the co-lead agencies, or the Federal government as a whole, have the authority to perform all of the measures listed. If the measures are outside the jurisdiction of the co-lead agencies, those measures will not be included in the Record of Decision (ROD). Their inclusion in Chapter 5 serves to alert other agencies, officials, and the public who can implement the measures to the potential benefits of the measure. The mitigation requested, while identified in the Draft EIS, is not within the co-lead agencies' current authorities. The co-lead agencies do not have the authority to provide mitigation for the effects to private infrastructure such as water supply intakes.
4025	20	lvontersch@cityoflewiston.org	City of Lewiston, Idaho	3-1286 3896 through 3898. The loss of the wide reservoirs would permanently expose portions of shoreline or reservoir bottom leading to temporary dust effects, erosion susceptibility, and rendering previous shoreline recreation obsolete. This impact has been identified but no mitigation measures presented in the EIS. Another impact not taken into account is the loss of property values associated with water views. These property premiums directly translate into property taxes with which the city funds critical services. This impact has not been measured nor mitigated.	Section 5.4.3 and Table 5-3 in the Draft EIS describe the mitigation measures that are identified to reduce the adverse effects of MO3. As described in this section to offset the adverse effects of the reservoir drawdown on vegetation and water quality, the mitigation proposed would be to replant approximately 13,000 acres of arid, upland native vegetation on newly exposed soils and approximately 1,500 acres of emergent and forested, scrub-shrub wetland habitat adjacent to the new surface elevations of the lower Snake River. This would mitigate dust effects and erosion, reducing effects on recreation and adjacent communities. The long-term effects of breaching the four lower Snake River dams would have both positive and adverse results depending on the context and individual preferences and values. If breaching were to be selected as the Preferred Alternative, further evaluation, studies, and the National Environmental Policy Act (NEPA) would be needed along with congressional authorization and appropriations to assess the requirements of the project and to potentially mitigate for the changes in river conditions. At this time, there is no mitigation proposed for adverse effects to recreation because the co-lead agencies would no longer operate the project lands after the projects are de-authorized. The mitigation requested for loss of property value is not within the co-lead agencies' current authorities.
4025	21	lvontersch@cityoflewiston.org	City of Lewiston, Idaho	3-1287 3907 through 3908. The loss of earthen embankments and some project infrastructure associated with dam breaching is mentioned several times. Leaving in place the powerhouses, spillways and other features will constitute an attractive nuisance and a hazard to river users. Rescuing trespassers would fall to local agencies. This impact is not discussed nor mitigated in the EIS. All power lines to the dams that are no longer needed should be removed.	The decision to leave some of the dam infrastructure in place was due to the removal of large dam infrastructure being very costly. Under MO3, structural protections would be built around the remaining dam and power infrastructure, which is described in Annex A of Appendix Q. In addition, security detail would occur at the projects to monitor the sites as they would remain Federal property, which is described in Section 5.2.4 of Appendix Q. These costs are included as part of the MO3 cost analysis (structural measures and operations and maintenance (O&M)).
4025	22	lvontersch@cityoflewiston.org	City of Lewiston, Idaho	3-1462 9416 through 9418. Under MO3, pumps and wells that supply municipal and industrial uses in the Lewiston area would no longer be operational once the dams were breached. The narrative goes on to describe the loss of 55 jobs and 9.8 million in labor and sales as minor. As the largest community in region C and on behalf of Clearwater Paper, the largest employer in the region, we do not agree these impacts are minor. We specifically request the agencies fund retrofits of our systems to operate in a riverine condition. On the subject of Clearwater Paper, they employ 1,400 persons who in turn support 2,246 jobs, and have an economic value to the community of $152,699,602. (EMSI Q2 2019 Data Set). The cumulative effect of increasing transportation costs, modifying intakes, modifying discharges and the cost and lack of certainty in the ability to obtain a new discharge permit may be a fatal blow to the company. This impact has not been measured in the EIS nor mitigated. Improving Salmon Passage, Final Lower Snake River Juvenile Salmon Mitigation Feasibility Report/EIS February, 2002, Summary Page 33 estimated the modification costs for pumps owned by industrial and municipal parties as $11,514,000 to $55,214,000. The 2020 EIS does not estimate the cost of upgrading these facilities.	The National Environmental Policy Act (NEPA) requires that all relevant, reasonable mitigation measures that could diminish the adverse impacts of the project be identified in the document, even if they are outside the jurisdiction of the lead agency or the cooperating agencies. See 40 C.F.R. 1502.16(h) and 1505.2(c); 46 Fed. Reg. 18026. The inclusion of mitigation measures in Chapter 5 is not intended to indicate that the co-lead agencies, or the Federal government as a whole, has the authority to perform all of the measures listed. If the measures are outside the jurisdiction of the co-lead agencies, those measures will not be included in the Record of Decision (ROD). Their inclusion in Chapter 5 serves to alert other agencies, officials, and the public who can implement the measures to the potential benefits of the measure. The mitigation requested, while identified in the Draft EIS, is not within the co-lead agencies' current authorities. The co-lead agencies do not have the authority to provide mitigation for the effects to private infrastructure such as irrigation pumps, wells, or private docks. This EIS discusses engineering solutions (pipeline extensions for example) in Section 3.12.3 Environmental Consequences; specifically in Region C under MO3, see page 3-1267, line 3244, in the Draft EIS and Appendix N. The report which this EIS draws upon, as discussed, concluded that modifying the existing pump system was cost prohibitive. In Region C, for MO3 the analysis accordingly assumes that pumps are unable to deliver water to estimated at 48,000 acres.
4025	23	lvontersch@cityoflewiston.org	City of Lewiston, Idaho	3-1463 9459 through 9466. Loss of visitors are described as costing the region $103 million, a decrease in 1,230 jobs and $39 million in labor income. These impacts should be evaluated as a percentage of job loss and labor income to the Lewis Clark Valley economy. The analysis should reflect that these losses may be sustained for approximately 10 years until the river stabilizes and the fish held at the hatcheries are released and later return to spawn. As a mitigation, Lewiston requests direct financial payments until pre-project visitation, jobs and sales return.	The commenter is correct that in the short-term during construction activities, a decrease of 2.3 million water- and land-based visitors in Region C could result in decreased visitor spending of $103 million, a decrease of 83 percent compared to non-local visitor spending under the No Action Alternative, as described in Section 3.11.3.5. Reduced visitor spending would result in a decrease of approximately 1,230 jobs, $39 million in labor income, and $147 million in sales during this construction period. After the construction and breaching period is over, access would be reopened to some of the recreation areas, and it is likely that a portion of the land-based visitors, such as sightseers, hikers, and others, would visit the region after construction while the reservoirs transition to river conditions. For comparison, all economic activity in Region C supports 216,800 jobs, $10.3 billion in labor income, and $31.4 billion in sales annually. As such, adverse effects under MO3 would represent less than one percent of jobs, income, or sales in the region. The mitigation requested for direct financial payments is not within the co-lead agencies' current authorities.
4025	24	lvontersch@cityoflewiston.org	City of Lewiston, Idaho	3-1479 10006 through 10010. Please explain how the agencies will be able to evaluate mitigation success and make adjustments over time if they no longer own the properties?	The Corps requires monitoring and adaptive management to ensure success of mitigation actions. Breaching the four lower Snake River dams would require additional site specific analysis and congressional authorization. A plan for disposal of existing Federal lands would be developed as part of that study.

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4025	25	lvontersch@cityoflewiston.org	City of Lewiston, Idaho	(Page 3-1213) 4-23. Reservoirs have a moderating effect on ambient air temperatures. The agencies recognize the summer water temperatures in a riverine condition will be higher. This coupled with projected power cost increases should be considered a cumulative effect.	The effect of reservoirs on modulating surface air temperature can be observed locally or very near the water body, however, this effect is negligible on resources outside the footprint of the reservoir. Cumulative effects to all resources are analyzed in Chapters 6 and for the Preferred Alternative in Chapter 7.
4025	26	lvontersch@cityoflewiston.org	City of Lewiston, Idaho	5-31 944 through 949. The co-lead agencies do not have authorities for removing in-stream contaminated sediments, and have not identified a feasible way to avoid mobilization. To offset this impact and any associated impacts to bioaccumulation in fish and other aquatic species, other entities could remove or cap contaminated sediment hot spots in the Lower Snake River prior to implementing the Breach Snake Embankment measures. Lewiston believes the deposition of contaminated sediment outside of the original (pre LSRD) floodplain was directly caused by the reservoirs associated with the dams. The federal agencies have an obligation to clean up the soils. The Corps owns the lands under the reservoirs (at least in the Lewiston region), and is the only party who would be allowed to perform this work. Leaving exposed, contaminated soils in the community, trash and debris, may be a violation of Federal,state and local laws. This impact has been identified but no mitigation measures have been presented in the EIS.	If MO3 is identified as the selected alternative in the Record of Decision (ROD), the co-lead agencies would study potential site-specific contamination issues in a National Environmental Policy Act (NEPA) analysis for the implementation of that alternative. However, the co-lead agencies are unaware of any actions on their part that caused a release of hazardous substances into the reservoirs or river that has caused the potential contamination that the commenter identified. The existence of the dam and the fact that sediments are retained by the dam does not create liability for those potential hazardous substances in the sediment. Therefore, even if an evaluation identifies potential contamination in the sediments, without confirmation that the potential contamination was caused by a release of a hazardous substance by the co-lead agencies, the agencies would not have the authority to expend Federal appropriations on a cleanup of contamination that was caused by others. If there are areas where the co-lead agencies are the liable party for the release of hazardous substances into the environment, the co-lead agencies will evaluate and take appropriate actions to address the contamination. This includes areas that the co-lead agencies have already committed to monitoring if MO3 is the selected alternative.
4025	27	lvontersch@cityoflewiston.org	City of Lewiston, Idaho	5-30. Deauthorized project lands are transferred to new ownership. Lewiston requests a map at appropriate scale to evaluate these deauthorized lands and provide appropriate comment.	Federal properties associated with the operation, maintenance, and mitigation for the four lower Snake River dams in MO3 would be transferred through a real estate process in accordance with Federal property laws. If MO3 was selected and authorized by Congress, an implementation plan would be prepared that would include site specific information (including maps) that details the construction, breaching, and disposal actions required to implement MO3, as well as identifying all of the associated permitting for this action.
4025	28	lvontersch@cityoflewiston.org	City of Lewiston, Idaho	5-31 950 through 960. Changes in river flows will cause changes in groundwater flows. This could cause movement from polluted sources of groundwater near Lewiston, Idaho (into the Snake River). This impact has been identified but no mitigation measure has been identified in the EIS.	NEPA requires that all relevant, reasonable mitigation measures that could diminish the adverse impacts of the project be identified in the document, even if they are outside the jurisdiction of the lead agency or the cooperating agencies. See 40 C.F.R. 1502.16(h) and 1505.2(c); 46 Fed. Reg. 18026. The inclusion of mitigation measures in Chapter 5 is not intended to indicate that the co-lead agencies, or the Federal government as a whole, have the authority to perform all of the measures listed. If the measures are outside the jurisdiction of the co-lead agencies, those measures will not be included in the Record of Decision (ROD). Their inclusion in Chapter 5 serves to alert other agencies, officials, and the public who can implement the measures to the potential benefits of the measure. The mitigation requested, while identified in the Draft EIS, is not within the co-lead agencies' current authorities. If MO3 is identified as the selected alternative in the ROD, the co-lead agencies would study potential site-specific contamination issues in a NEPA analysis for the implementation of that alternative. However, the co-lead agencies are unaware of any actions on their part that would cause a discharge of hazardous substances from groundwater into the river. The existence of the dam and the fact that sediments are retained by the dam does not create liability for those potential hazardous substances in the sediment. Therefore, even if an evaluation identifies potential contamination in the sediments or groundwater, without confirmation that the potential contamination was caused by a release of a hazardous substance by the co-lead agencies, the agencies would not have the authority to expend Federal appropriations on a cleanup of contamination that was caused by others. If there are areas where the co-lead agencies are the liable party for the release of hazardous substances into the environment, the co-lead agencies will evaluate and take appropriate actions to address the contamination. This includes areas that the co-lead agencies have already committed to monitoring if MO3 is the selected alternative.
4025	29	lvontersch@cityoflewiston.org	City of Lewiston, Idaho	6-36 827 through 832 Warmer air temperatures combined with decreased summer and fall flow volume could lead to increased riverine and reservoir water temperatures. This could exacerbate algal and nutrient problems, cyanobacterial blooms, and microbial activity at swim beaches; increase pH; and reduce dissolved oxygen within the regions reservoirs and river reaches. This warming could also increase the prevalence of invasive species This impact has been identified but no measures have been presented in the document. Two heavily used swim beaches are located within the Lewiston and Clarkston communities. Under this scenario, we may have none that are safe and pleasant to use.	Chapter 6 identifies those areas that may experience localized increases to water temperature. To implement the Preferred Alternative, there is not an anticipated adverse contribution to increasing temperatures over the No Action Alternative with or without anticipated climate variability. Increased monitoring may be necessary given future climate change and an alternative's effects on water quality, and those instances are identified in Chapter 5 Mitigation. Monitoring for the Preferred Alternative is part of the Monitoring and Adaptive Management Plan (Appendix R).
4025	30	lvontersch@cityoflewiston.org	City of Lewiston, Idaho	6-74 1599 through 1601. Overall, the effects of MO 3 on air quality would most likely be moderate and adverse over the short and long term, primarily in regions C and D. Revegetation of newly exposed soils has been identified as a mitigation measure. What has not been measured or evaluated for mitigation is the contamination of the newly exposed sediments and 45 years of accumulated trash as impacting the success of replanting efforts.	The co-lead agencies agree that appropriate preparation of the newly exposed shorelines and removal of trash would be required prior to any replanting efforts. Any contaminated sediments however would require responsible parties to remediate prior to the co-lead agencies revegetating. Chapter 5 disclosed any known potential hazard of sediments and other discharges into the system that could occur with drawdown and breaching of the four lower Snake River dams as described in MO3. If MO3 were identified as the selected alternative in the ROD, the co-lead agencies would study potential site-specific contamination issues in a NEPA analysis for the implementation of that alternative. However, the co-lead agencies are unaware of any actions on their part that caused a release of hazardous substances into the reservoirs or river that has caused the potential contamination that the commenter identified. The existence of the dam and the fact that sediments are retained by the dam does not create liability for those potential hazardous substances in the sediment. Therefore, even if an evaluation identifies potential contamination in the sediments, without confirmation that the potential contamination was caused by a release of a hazardous substance by the co-lead agencies, the agencies would not have the authority to expend Federal appropriations on a cleanup of contamination that was caused by others. If there are areas where the co-lead agencies are the liable party for the release of hazardous substances into the environment, the co-lead agencies would evaluate and take appropriate actions to address the contamination. This includes areas that the co-lead agencies have already committed to monitoring if MO3 is the selected alternative.
4025	31	lvontersch@cityoflewiston.org	City of Lewiston, Idaho	6-70 Table 6-28. Add Corps has documented fugitive dust generated by strong winds blowing across exposed sediments during dry conditions as being a nuisance.	This requested edit was made in the Final EIS.
4025	32	lvontersch@cityoflewiston.org	City of Lewiston, Idaho	6-87. Under visual impacts, please include mention that what was once beautiful water views will become a barren brown edge along the river for years to come. This impact has not been measured in the EIS so identified mitigation measures can not be confirmed.	The visual resource analysis of MO3 finds that there would be a major effect from breaching the four lower Snake River dams, as described in the Draft EIS, pages 3-1286 to 3-1287. Mitigation for the possible dam breaches have been identified, as described in the Draft EIS, page 5-35, lines 1096-1099. With this mitigation, the major effect on visual quality would diminish over time as the shoreline revegetates and blends into the surrounding landscape. The co-lead agencies have added language to the visual section to better describe this analysis.
4025	33	lvontersch@cityoflewiston.org	City of Lewiston, Idaho	7-71 1817 through 1821. Under the Preferred Alternative, the pattern of outflow changes from Dworshak Dam in January through March would continue downstream. While the percent changes in flow from the No Action Alternative would be pronounced in the Clearwater River system, they would become diluted at the confluence of the Clearwater River and the Snake River near Lewiston, Idaho. The Memorial Bridge on the Clearwater River in Lewiston is now experiencing scour. Lewiston requests that the structural integrity of the bridge be evaluated and mitigated as necessary. D-6-1 4381 through 4383. The sediment study for MO 3 did not include existing bridges and therefore does not consider bridge related scour and deposition potential. This impact has been identified but no mitigation measure has been presented in the EIS.	The U.S. Highway 12 Clearwater Memorial Highway Bridge is located on the Clearwater River approximately 1.5 miles upstream from the confluence of the Snake and Clearwater Rivers. The bridge is supported on multiple piers founded on footings. For this EIS, scour at the Clearwater Memorial Highway Bridge in Lewiston was not considered as requiring mitigation because it was considered as an escalated project cost relative to the 2002 Lower Snake River FR/EIS. In the 2002 study, the potential scour was evaluated at a 500-year flood event flow of 65 kcfs and a water elevation of 733 feet based on Corps river profiles. Estimated potential scour depths were 9 feet. It was estimated that this depth could undermine piers not founded on rock, even though this bridge was in place prior to reservoir impoundment. The 2002 study estimated that pier modifications would be required on Piers 2 through 7; piers 8, 9, and 10 are founded on rock and would not need protection; the existing ground surface of Piers 1 and 11 is at or above the 500-year flood level and, therefore, would not require protection; the 2002 analysis indicated that no abutment protection would be required. The Idaho Transportation Department (ITD) is currently in pre-coordination with USACE regarding the replacement of the existing super structure to provide a widened bridge crossing that meets current standards. Their work includes a geotechnical investigation of bridge pier foundations and scour assessment assuming free-flowing river conditions. The existing piers are supported by spread footings and are expected to stay in place and be utilized to support the new bridge superstructure. The current footings rest on generally competent, granular material, with the exception of Pier 4, which appears to be founded on loose to medium dense gravel. The record plans indicate that the streambed was capable of producing a presumed allowable 10 kcfs bearing capacity. Provisional ITD scour analysis results indicate that formation of channel bed scour holes at the bridge piers would extend below the pier footing bottoms for Piers # 3 9 and would require additional scour mitigation countermeasures. No additional bank protection is anticipated because the existing Lewiston levees constructed by the Corps in 1973 provide sufficient erosion resistance. The ITD report indicates that the pier footings are candidates for strengthening with micropiles. The concrete footings would first be cored and then a micropile would be installed through the footing for a depth of 20 to 40. Utilizing a foundation retrofit technique such as micropiles may also help to remove the scour critical rating for the bridge. Another advantage of using micropiles is that no cofferdam or pumping will need to take place in the waterway, minimizing the impact to the river. Potential alternatives to micropiles include enlarging the current footings or modifying the existing soil properties with a technique such as chemical grouting. These alternative methods would likely result in a larger impact on the river and are therefore undesirable.
4025	34	lvontersch@cityoflewiston.org	City of Lewiston, Idaho	D-6-73 5747 through 5750. Longer term impacts associated with a riverine system may include impacts to groundwater and impacts to point (NPDES) discharges along the River. Lewiston requests that the identified groundwater impacts and point sources be identified and mitigated.	The National Environmental Policy Act (NEPA) requires that all relevant, reasonable mitigation measures that could diminish the adverse impacts of the project be identified in the document, even if they are outside the jurisdiction of the lead agency or the cooperating agencies. See 40 C.F.R. 1502.16(h) and 1505.2(c); 46 Fed. Reg. 18026. The inclusion of mitigation measures in Chapter 5 is not intended to indicate that the co-lead agencies, or the Federal government as a whole, have the authority to perform all of the measures listed. If the measures are outside the jurisdiction of the co-lead agencies, those measures will not be included in the Record of Decision (ROD). Their inclusion in Chapter 5 serves to alert other agencies, officials, and the public who can implement the measures to the potential benefits of the measure. The mitigation requested, while identified in the Draft EIS, is not within the co-lead agencies' current authorities.
4025	35	lvontersch@cityoflewiston.org	City of Lewiston, Idaho	F-1-13. Table 1-4. Eleven of the listed plants have been identified by the State of Idaho as noxious weeds. Three are poisonous and one is prohibited. Tangly Ragwort is listed by Nez Perce County as a noxious weed. The city requests aggressive management of newly exposed sediments and planting plans to control for noxious weeds.	The analysis in the CRSO EIS focuses on effects of the operation, maintenance, and configuration of the CRS projects. Effects of this action on vegetation are analyzed in Sections 3.6 and 7.7.7. Outside of the scope of this EIS, the Corps does implement an invasive species management plan on Corps-managed lands as part of routine operations and maintenance and in accordance with applicable Federal laws, regulations, and Corps policy. Management of invasive species is discussed in Chapter 5 under Affected Resources, Sections 5.2.18, 5.4.1.4, 5.4.2.4, 5.4.3.4, and 5.4.4.4; Chapter 6 (Cumulative effects), and Chapter 7 (Preferred Alternative).
4025	36	lvontersch@cityoflewiston.org	City of Lewiston, Idaho	H-1-8 432 through 433. The increased cost of electricity may change household and business spending patterns on other regional goods and services, resulting in a reduction in annual regional economic output (sales) of $320 million to $740 million and cost 2,100 to 4,900 jobs.	The information provided in the comment regarding the regional economic impacts of breaching the lower Snake River dams is consistent with the findings of the EIS.
4025	37	lvontersch@cityoflewiston.org	City of Lewiston, Idaho	K-1-14 Table 1-16. Changes in flood risk annual exceedance probabilities under MO 3 in region C. Region C gage location, action stage flood stages show no change from the no action alternative. According to the Corps Lower Snake River Navigation Maintenance EIS, June 2005 page 4-10 A drawdown/sediment flushing event would likely result in adverse impacts to the Lewiston Levee System. The Hydraulic modeling accomplished utilizing the before and after drawdown conditions supports this statement, showing a rise in the SPF water surface profiles after the 1992 drawdown event. These two statements seem to contradict one another. What will be the impact to the Lewiston levee system? Where are the areas of past seepage located and discussed in the EIS where we can expect slope failures? Who is responsible for repairing slope failures?	The reservoir drawdown/sediment flushing event referenced in the comment has been evaluated previously but is different from the Breach Snake Embankments measure evaluated under MO3. Breaching the four lower Snake River dams under MO3 would eventually scour out legacy sediment deposits, lower the base level to historical river elevations, and reduce flood risk (the Lewiston levees still remain in place). As described in the Flood Risk Management Appendix K, Region C, MO3 would generally reduce river stages from the draining of Lower Granite Reservoir and the breaching of the other lower Snake River dams. Overall, in Region C under MO3, no effect to flood risk is expected. The rate of drawdown and construction over two years in the MO3 alternative is intended to reduce the likeliness of slumping as experienced in the 1992 drawdown event, and it is not anticipated that the Lewiston levee system would be significantly impacted.
4025	38	lvontersch@cityoflewiston.org	City of Lewiston, Idaho	M-2-10 373 through 376. Without the federal reservoir project, the Corps will not have a role in providing recreational facilities; therefore, in order to re-establish recreation opportunities and water access in the region, there would likely be a cost impact to a government agency to provide recreational infrastructure and access roads. This cost is not estimated nor the impact mitigated. Without the impact mitigated, the assumption that a riverine environment will ultimately provide a similar recreational value may not be justified. The Corps could provide adequate mitigation if ownership of the management units/recreation facilities were retained, and access from the upland facilities to the river was constructed. Another mitigation option to Corps ownership could be establishment of a permanent endowment to offset local maintenance costs of the recreational amenities along the levee system.	Chapter 5 in the EIS describes the proposed mitigation measures under each of the Multiple Objective alternatives (MOs) while Chapter 7 describes the mitigation for the Preferred Alternative. Section 5.4.3.6 describes the potential for mitigation measures for recreation under MO3. No Federal mitigation is anticipated under MO3 to maintain access to the river as the Federal agencies would no longer operate the project lands for recreation as the projects would be deauthorized. Recreational sites could be modified in the future as project land is transferred through real estate actions to other agencies and entities. As described in Section 3.11.3.5, access to the river and its recreational opportunities would be paramount for the reestablishment of river visitation to the lower Snake River in the long-term. The EIS generally describes the recreation infrastructure needs (recreation areas, parking lots, access roads, boat ramp extensions, etc.) post dam breach as well as some example costs to extend boat ramps and relocate recreation areas in the region. Post dam breach, it is anticipated that the Corps will not have a role in providing recreation facilities. However, other Federal, state, or local government agencies, or other entities could relocate existing recreation areas or extend boat ramps (from reservoir to river) so that water-based recreation for the river reach could occur in this region.

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					If MO3 was selected and authorized by Congress, an implementation plan and associated National Environmental Policy Act (NEPA) analysis would be prepared that would include site specific information that details the construction, breaching, disposal, and mitigation actions required to implement MO3, as well as identifying all of the associated permitting for this action.
4025	39	lvontersch@cityoflewiston.org	City of Lewiston, Idaho	M-3-27 Table 3-10, M-3-28 Table 3-11. Provide no recreational counts for Snake River below Hells Canyon dam. This is the reach of the river with the heaviest usage from the Lewis Clark Valley. Without this data, recreational impacts to the community are greatly underestimated. Idaho State Parks and Recreation commissioned a report by Boise State entitled Economic Impact and Importance of Power Boating in Idaho. The report was released in 2016 and reflects 2015 data. Power Boating generated 18,274 boating trips in Nez Perce County, generating $14,279,660 in direct spending for boats and moorage and an economic value of $22,810,512 annually (pages 10, 12 and 17). This report was not included in the EIS reference section and apparently not considered.	Section 3.11.2.2 describes gaps in the recreational visitation data. Data were not available for all sites, including along the Snake River below Hells Canyon Dam and above Lower Granite Lake. The 2016 report by Boise State entitled Economic Impact and Importance of Power Boating in Idaho was considered for the EIS, but not relied upon directly due to the limited types of visitation data in the report, so it does not appear in the references. In addition, this region was not anticipated to be affected by changes in water surface elevations. The EIS describes the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. NMFS estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which is described qualitatively. The potential for changes in recreational fishing of anadromous fish under MO3 in the Region C is described in Section 3.11. Increases in recreational fishing could support jobs, income, and social benefits in Tribal and rural river communities.
4025	40	lvontersch@cityoflewiston.org	City of Lewiston, Idaho	M-6-4 line 1028. This section should be expanded to include the loss of resident species with dam breaching. To place this section in context, the agencies should include mention that without the dams, BPA will no longer be legally obligated to support the hatcheries that produce 19 million juvenile fish per year. The combined impact on recreation fishing days with the loss of hatcheries and resident populations has not been measured in the EIS so identified mitigation measures can not be confirmed.	The Draft EIS acknowledges that with the breaching of the four lower Snake River dams in MO3, there would no longer be an obligation for Bonneville to fund the U.S. Fish and Wildlife Service for the operations of the Lower Snake River Compensation Plan hatchery facilities, which account for much of the hatchery production in the basin and other Bonneville-funded mitigation activities could be adjusted. The effects to populations as they transition from primarily hatchery production to an increased wild production of fish is qualitatively discussed in Section 3.5.3.6. Over time, increased returns of wild fish would be expected as wild fish replace hatchery fish, and the Snake River resident fishery would improve as the reservoir habitats transition to riverine. The long-term overall effect of MO3 would be beneficial for Snake River salmon and steelhead as well as resident fish, so no mitigation for this effect was identified. Additional hatchery production would be in place for limited years to offset the short-term dam breaching and construction effects. Mitigation measures are proposed for both anadromous and resident fish as the lower Snake embankments are breached during the transitional period (Sections 5.4.3.2 and 5.4.3.3 for short-term adverse effects). Proposed mitigation includes two years of hatchery production along with trap and haul operations for the anadromous and resident fish during this period. These measures would reduce adverse effects to resident and anadromous fish in Region C. Section 3.11.3.5 describes the impacts to all land- and water-based recreation as major and adverse in the short-term, during and immediately following breaching.
4025	41	lvontersch@cityoflewiston.org	City of Lewiston, Idaho	M-6-4 line 1036 through 1039. Pre-dam river stages under dam breaching would range from approximately 8 to 100 feet below current water surface elevations Existing water-based recreational facilities, such as boat ramps, swimming beaches, and moorage facilities, were designed to operate within very specific ranges of water elevations (generally within 5 feet of full pool). If dam breaching were to occur, none of these facilities could continue to be used without modification or relocation. This impact is addressed but not mitigated. M-6-5 1052 through 1055. Some (recreational) sites would simply cease to be used because the features that attracted people would be eliminated, while other sites would be abandoned because they would be so high above or far away from the river that access would be difficult and possibly dangerous. This impact is identified but not mitigated. M-6-5 1070 through 1073. The stated impact of $8.9 million and $24.5 million in annual economic impacts in the recreation category is underestimated without counts for Snake River below Hells Canyon Dam and is not mitigated. Idaho State Parks and Recreation commissioned a study by Boise State on the Economic Impact and Importance of State Parks in Idaho, January 2018 using 2016 data. Hells Gate State Park had 272,354 visitor days and $6,941,000 in visitor spending, page 41. M-6-7 1126 through 1127. Visitation to the lower snake river would be limited by the availability of infrastructure to access river recreational opportunities. This impact is identified but not mitigated. M-6-9 1189 through 1192. Recreational fishing visitation could be possible in the long-term although there is uncertainty around it being an allowable activity, given the current measures to regulate, protect and support ESA listed fish populations and habitat in the region. The Agencies estimate that the river will take 2-7 years to stabilize (D-6-44). The agencies should also estimate how many years after river stabilization that the runs will support recreational fishing and modify the recreational and economic impacts accordingly.	Visitation to Hells Gate State Park is reported in the EIS (Table 7 in Appendix M). This visitation was incorporated into the regional economic effects analysis under the No Action Alternative (Section 3.11.3.2). Section 3.11.2.2 describes gaps in the recreational visitation data. Data were not available for all sites, including along the Snake River below Hells Canyon Dam and above Lower Granite Lake. Section 5.4.3.6 describes the potential for mitigation measures for recreation under MO3. No Federal mitigation is anticipated under MO3 to maintain access to the river as the co-lead agencies would no longer operate the project lands for recreation as the projects are deauthorized. The mitigation described by the commenter is not within the co-lead agencies' current authorities. Recreational sites could be modified in the future as project land is transferred through real estate actions to other agencies and entities. The EIS provides an evaluation of the social welfare and regional economic effects of the No Action Alternative and the MOs, including the effects on recreation (Section 3.11) and commercial fisheries (Section 3.15). The EIS describes the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. NMFS estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which are described qualitatively. For the effects on recreational fishing under MO3 (Section 3.11.3.5) along the lower Snake River below Lewiston, the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River) as an indicator for fishing visitation in this reach. The EIS describes that the visitation in the long-term in the lower Snake River, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting outfitting and tourism businesses in the region. The potential for changes in recreational fishing of anadromous fish under MO3 is described in Section 3.11, which could result in increases in recreational fishing in the long-term that would support jobs, income, and social benefits in Tribal and rural river communities. However, there is uncertainty around recreational fishing visitation in the long-term given the current measures to regulate, protect, and support ESA-listed fish populations and habitat in the region.
4025	42	lvontersch@cityoflewiston.org	City of Lewiston, Idaho	M-6-11 Table 6-5 note 1, 1234 through 1237. Social welfare effects presented for Regions C and D represent short-term effects. The long-term impacts to visitation is uncertain. Some adaptation is likely over time. To the extent that increases in anadromous fish populations draws additional fishing to the region, increases in regional economic expenditures and effects would increase in the long term. Please provide mathematical evidence of the size of the anadromous fish population that would be needed to offset the loss of resident fish, hatchery production and ESA protections to increase fishing days and when that would occur. Add in the lack of access to the river as noted on M-2-10. Economic impacts can then be fairly evaluated and mitigated. M-6-14 1315-1317. As the river returns to natural conditions, river-based recreation would increase over time, given recreational access and infrastructure is developed. This impact has been identified but no mitigation measure presented in the EIS. Construction of this infrastructure is an appropriate mitigation measure.. This conclusion that recreation will increase contradicts what actually happened when slackwater arrived in Lewiston. As documented by Walla Walla College water activities relating to areas above Granite Lock and Dam have actually risen with the river. Marine-oriented businesses are showing increases of 25-40% from the 1974 levels. A careful check of operators in 1976 indicates that the growth in these businesses has not yet reached its full potential. Slackwater Comes to Clarkston, Washington (A Tale of Two Cities) pg 8. M-6-15 1332 through 1338. Economic impacts and social welfare in the recreation category are estimated at $109 million, 1,420 jobs, $59 million in labor income and $189 million less in sales. The cooperating agencies should mitigate these severe impacts through direct financial support until these jobs, sales and indicators recover to pre-project levels. M-6-16 Table 6-8. Economic impact numbers appear different than those given in the preceding narrative.	The EIS provides an evaluation of the social welfare and regional economic effects of the No Action Alternative and the Multiple Objective alternatives (MOs), including the effects on recreation (Section 3.11). The recreation analysis for the EIS considered the broad range of recreational activities supported by the region, including recreational fishing. While the analysis describes any potential impacts to recreational fishing visitation, the EIS did not estimate these impacts separately from the overall impacts to recreation, or estimate changes in fishing visitation related to changes in fish abundance. The EIS described the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The potential for changes in recreational fishing of anadromous fish under MO3 is described in Section 3.11, which could result in increases in recreational fishing in the long-term that would support jobs, income, and social benefits in Tribal and rural river communities. Chapter 5 in the EIS describes the proposed mitigation measures under each of the MOs. Section 5.4.3.6 describes the potential mitigation measures for recreation under MO3. No Federal mitigation is anticipated under MO3 to maintain access to the river as the Federal agencies would no longer operate the project lands for recreation as the projects are de-authorized. Recreational sites could be modified in the future as project land is transferred through real estate actions to other agencies and entities. The mitigation requested for direct financial payments is not within the co-lead agencies' current authorities. The EIS recognizes the important contribution that flatwater recreation activities, including motor boats, provide under current water management conditions to the economy of Region C, and also recognizes considerable uncertainty with regard to future recreational activities and associated regional economic effects of those changes. The regional economic effects associated with MO3 in the short-term with the loss of land- and water-based recreation are described in Table 6-8.
4025	43	lvontersch@cityoflewiston.org	City of Lewiston, Idaho	N-3-13 720 through 728. A map should be provided of the well locations that are expected to be impacted by a drop in groundwater elevations. This map should be at such a scale that persons or agencies can identify their specific well location and provide appropriate comments. This impact has been identified in a qualitative way, but no mitigation measure has been presented in the EIS.	There are several maps provided in Appendix N (Water Supply Physical and Socioeconomic Methods and Analysis) and a supporting technical reference called Columbia River Diversions and Irrigated Agriculture Acres (Reclamation 2019). The maps show the possibly affected points of diversion which include both surface diversions and wells within 1-mile of the river. The National Environmental Policy Act (NEPA) requires that all relevant, reasonable mitigation measures that could diminish the adverse impacts of the project be identified in the document, even if they are outside the jurisdiction of the lead agency or the cooperating agencies. See 40 C.F.R. 1502.16(h) and 1505.2(c); 46 Fed. Reg. 18026. The inclusion of mitigation measures in Chapter 5 is not intended to indicate that the co-lead agencies, or the Federal government as a whole, has the authority to perform all of the measures listed. If the measures are outside the jurisdiction of the co-lead agencies, those measures will not be included in the Record of Decision (ROD). Their inclusion in Chapter 5 serves to alert other agencies, officials, and the public who can implement the measures to the potential benefits of the measure. The mitigation requested, while identified in the Draft EIS, is not within the co-lead agencies' current authorities. The co-lead agencies do not have the authority to provide mitigation for the effects to private infrastructure such as irrigation pumps, wells, or private docks.
4025	44	lvontersch@cityoflewiston.org	City of Lewiston, Idaho	N-4-19 1294 through 1297. This decrease in household income ($5,849,112) has a negative effect on the regional economy. These impacts were estimated as a loss of 55 jobs, $2,261,000 of labor income and $7,518,00 in output (sales) annually. These severe impacts need to be mitigated.	Chapter 3 analyzes the social and economic effects of implementing this measure. The information provided in the comment regarding the regional economic impacts of breaching the four lower Snake River dams are consistent with the findings of the EIS. While regional impacts such as job loss and changes to household incomes are effects associated with the loss of benefits the dams currently provide, these effects are disclosed in EIS, but there is no identified mitigation within the co-lead agencies' current authorities to offset these effects.
4025	45	lvontersch@cityoflewiston.org	City of Lewiston, Idaho	Q-3-3. Under the dam breaching measures of MO 3, it could be necessary to negotiate agreements with affected parties and property owners and enter into relocation contracts for the alteration or replacement of affected structures. Lewiston would like a specific listing of structures within one mile of city limits the agencies are expecting to need to relocate or replace. We are specifically concerned with the water treatment plant intake, the wastewater plant discharge, the stormwater ponds installed by the Corps, Lindsey Creek and all city point sources; the Clearwater Paper water intake and effluent diffuser; the Corps irrigation system intake along the Snake and Clearwater Rivers. We would like the agencies to identify and evaluate each of these structures. According to the 2002 EIS, the outfall at Lindsey Creek and Memorial Bridge would have to be redesigned and replaced. On the subject of the Corps owned and operated storm ponds near the confluence of the Snake and Clearwater rivers, if they are to be retrofitted, Lewiston prefers a gravity fed system. Pumping would be limited to high flow events. Lewiston supports continued Corps ownership and operation of the ponds.	If MO3 was selected and authorized by Congress, an implementation plan and associated National Environmental Policy Act (NEPA) analysis would be prepared that would include site specific information that details the construction, breaching, disposal, and mitigation actions required to implement MO3, as well as identifying all of the associated permitting for this action.
4025	46	lvontersch@cityoflewiston.org	City of Lewiston, Idaho	Q-5-4 683 through 685. Operation and maintenance activities in the lower Snake River would be considerably reduced compared to the NAA, it would include maintenance of Clarkston and Lewiston levees, law enforcement, and engineering/safety inspections. Corps maintenance, engineering and safety inspections of the levees is important to Lewiston.	If MO3 was selected and authorized by Congress, an implementation plan and associated National Environmental Policy Act (NEPA) analysis would be prepared that would include site specific information that details the construction, breaching, disposal, and mitigation actions required to implement MO3, as well as identifying all of the associated permitting for this action. If MO3 were implemented the Corps would continue inspections of Lewiston and Clarkston levees as part of the ongoing levee inspection program.
4025	47	lvontersch@cityoflewiston.org	City of Lewiston, Idaho	The Corps owned island near the confluence of the Snake and Clearwater Rivers may be subject to scour in a riverine environment and release toxic materials to the Snake River. This impact has not been measured in the EIS nor mitigated.	If MO3 is identified as the selected alternative in the Record of Decision (ROD), the co-lead agencies would study potential site-specific contamination issues in a National Environmental Policy Act (NEPA) analysis for the implementation of that alternative. However, the co-lead agencies are unaware of any actions on their part that caused a release of hazardous substances into the reservoirs or river that has caused the potential contamination that the commenter identified. The existence of the dam and the fact that sediments are retained by the dam does not create liability for those potential hazardous substances in the sediment. Therefore, even if an evaluation identifies potential contamination in the sediments, without confirmation that the potential contamination was caused by a release of a hazardous substance by the co-lead agencies, the agencies would not have the authority to expend Federal appropriations on a cleanup of contamination that was caused by others. If there are areas where the co-lead agencies are the liable party for the release of hazardous substances into the environment, the co-lead agencies will evaluate and take appropriate actions to address the contamination. This includes areas that the co-lead agencies have already committed to monitoring if MO3 is the selected alternative.

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4025	48	lvontersch@cityoflewiston.org	City of Lewiston, Idaho	Q-6-5 1000 through 1002. As a result, Bonnevilles F & W program costs were provided as a range under MO 3: from $282 million annually to $177 million annually, (a decrease of $105 million annually compared to the NAA). Losing $105 million dollars annually that had been used to operate hatcheries, improve habitat and fund research is a significant adverse impact. This impact has not been fully measured or mitigation measures presented. Q-C-4 1653 through 1654. Under MO 3, CRS expenditures would decrease relative to the No Action Alternative, with decreases in employment ranging from 961 to 2,822 (-7 to -21 percent). This is a significant adverse impact. This impact has been identified in the EIS but no mitigation measure has been presented. Q-C-5. Table C-3 and Table C-4 go further to quantify the loss of jobs and their value as a low of $239.8 million to a high of $666.7 million. This significant adverse impact needs to be mitigated.	Bonneville's Fish and Wildlife (F&W) Program is estimated to cost $282 million annually, and includes fish and wildlife mitigation projects and studies across the Basin. Funding decisions for Bonneville's F&W Program are not being made through the CRSO EIS process. Future F&W Program funding-level decisions would be made in consultation with the region, through Bonneville's budget-making processes and other appropriate forums and consistent with existing agreements. Based on the inherent uncertainty of Bonneville's F&W Program funding requirements with lower Snake River dam breaching under MO3, F&W Program costs were provided in the EIS as a range, from current levels of $282 million, to $177 million. By analyzing a range of costs, Bonneville reflects the year-to-year fluctuations related to managing its F&W Program and also acknowledges the uncertainty around both the magnitude of biological benefits and the potential impacts on funding, including the timing of funding decisions. Thus, funding decisions are not being made as part of this EIS and would be decided in a future process. Because the outcome of these future processes is unknown, it is too speculative to propose mitigation, so none is proposed at this time. A similar approach was taken for the Preferred Alternative.
4032	1	maxrwilliams@aol.com	N/A	We should be looking at increasing the hatchery rates and adding hatcheries to the area to increase fish population, not breaching dams.	Hatchery programs are included in the No Action Alternative and would be expected to continue under Multiple Objective alternative 1 (MO1), Multiple Objective alternative 2 (MO2), and Multiple Objective alternative 4 (MO4), and certain hatcheries would continue under MO3. No new hatchery programs are considered as mitigation under any alternatives, but MO3 does include increased hatchery production due to short-term impacts from breaching the four lower Snake River dams.
4051	1	Flathead Electric Cooperative	Flathead Electric Cooperative	Today, electricity has become an essential public service and we all need to be mindful that policy changes that adversely impact the FCRPS will result in higher costs for FECs members which puts them at a higher risk that they wont have access to this essential public service. Even prior to COVID-19 pandemic, many of our members struggled to pay their power bill. In Lincoln and Flathead Counties where FEC primarily serves, 16% and 14% of the population respectively lives below the poverty line. Both numbers are higher than the national average.	The comment is consistent with information presented in the EIS. The Environmental Justice analysis in Section 3.18.3 and Chapter 7 provides further detail on potential disproportionate effects to tribal, low-income and minority populations.
4054	1	boswellco@cox-internet.com	N/A	My concern is with the lack of attention in the report of the immense benefits of a Lower Snake River restoration plan. Federal agencies have ignored the importance of salmon and steelhead sportfishing to Idahos river communities, as well as the many outdoor recreation opportunities possible on a restored Lower Snake River.	The EIS provides an evaluation of the social welfare and regional economic effects of the No Action Alternative and the multiple objectives alternatives, including the effects on recreation (Section 3.11) and commercial fisheries (Section 3.15). The EIS described the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. NMFS estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which is described qualitatively. Under MO3, the EIS Section 3.5.3.6 describes the long-term effects to anadromous fish migration in Region C that would occur under the measure to breach the four lower Snake River dams as major and beneficial. The potential for increases in recreational fishing under MO3 in Region C is described in Section 3.11.3.5, which would support jobs, income, and social benefits in Tribal and rural river communities. For the effects on recreational fishing under MO3 (Section 3.11.3.5) along the Lower Snake River below Lewiston, the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River) as an indicator for fishing visitation in this reach. The social welfare effects under MO3 on recreational fisheries are described as major and beneficial in the long-term, although there is uncertainty around recreational and commercial fishing visitation in the long-term given the current measures to regulate, protect, and support ESA-listed fish populations and habitat in the region. However, the EIS does describe that the visitation in the long-term, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting tourism businesses. For MO1, MO2, MO4, and the Preferred Alternative, the recreational fishing evaluation describes the impacts by referencing the potential effects on relevant fish populations, as described in Section 3.5. Aquatic Habitat, Aquatic Invertebrates, and Fish, modeling results vary for some of the alternatives, for example for the Preferred Alternative and MO4 (i.e., models show either beneficial or adverse effects to anadromous fish), so it is assumed that the potential changes in recreational fishing and associated social welfare and regional economic effects would follow these changes in fish abundance.
4074	1	N/A	N/A	We support the Preferred Alternative (PA) outlined in the DEIS. This could help us avoid further economic turmoil while at the same time, protect fish, birds and other animals covered under the Endangered Species Act (ESA). However, some debate exists about the benefits of allowing spills up to 125 percent of total dissolved gas. There is credible evidence to the contrary. An independent analysis should be completed to determine whether it is detrimental to the fish we are trying to help.	Total dissolved gas (TDG) levels are regulated under the Federal Clean Water Act, and administered by the States. Both Oregon and Washington have reassessed the available data on effects of TDG levels up to 125% of saturation on fish and other aquatic organisms. Based on this reassessment, Oregon issued a 5-year "standard modification" and Washington issued a permanent rule change, approved by the Environmental Protection Agency (EPA), to allow TDG saturation up to 125%. However, as noted by the commenter, there is considerable uncertainty in the effects; and therefore, monitoring was required by the states and EPA to ensure that any adverse effects are detected and allow for adaptive management. The Preferred Alternative will require a robust monitoring plan to help narrow the uncertainty between the biological models and will help determine how effective increased spill can be in increasing salmon and steelhead returns to the Columbia Basin. The effectiveness of the spill program will be monitored and effects from other sources such as harvest, ocean mortality, and straying will also be accounted for to the extent possible. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information.
4077	1	Arlene Montgomery	Friends of the Wild Swan	The CRSO EIS states: "The USFWS status review (2008b) reported bull trout were generally stable range-wide, with some core area populations decreasing, some stable, and some increasing. Since the listing of bull trout as threatened in 1999, there has been little change in the distribution of bull trout in the coterminous United States, with the exception of successful reintroduction into the Clackamas River, and occupied bull trout core areas have not been extirpated since the species listing (USFWS 2015)." However, the Bull Trout Five Year Status review painted a different picture than the DEIS characterizes. Substantial or moderate and imminent threats to bull trout, primarily related to habitat impacts, were found to exist in 75 of 121 bull trout core areas (62 percent) during the course of our analysis (USFWS 2005b) and only 13 of 121 core areas (11 percent) were ranked as slightly threatened or unthreatened. These threats occur across nearly the entire landscape (USFWS 2002b), with the exception of only a few core areas that are either wholly or mostly isolated in protected areas. Even in the latter cases, the migratory nature of the species may result in substantial effects during the time or stages of the life cycle when individuals are exposed to habitat impacts outside of these protected areas. The magnitude, severity, and intensity of threats in this category remain high for bull trout across its range. Fragmentation of habitat from dams, water withdrawals, diversion structures, culverts, thermal barriers, and other conditions continues to be a concern with fifty-seven percent of core areas (n=69) across the coterminous range having been characterized as having low to moderate connectivity (USFWS 2005b). Overall, the information indicates that connectivity of habitat within and among core areas is low (USFWS 2005b). Along with the nonnative species threat, the present or threatened destruction, modification, or curtailment of bull trout habitat or range must be considered the most significant determinant of the status of bull trout core areas into the foreseeable future.	The co-lead agencies recognize that threats to the bull trout remain across its range as described in the Bull Trout Five Year Status Review (U.S. Fish and Wildlife Service (USFWS) 2008b) and in the Bull Trout Recovery Plan (USFWS 2015). The 2015 Bull Trout Recovery Plan reported that "bull trout were generally "stable" overall range-wide (species status neither improved nor declined during the reporting year)" (USFWS 2015, p. iii) with habitat loss and fragmentation, interactions with nonnative species, and fish passage issues throughout the range posing primary threats to the species. The co-lead agencies do not disagree with the summary provided within the comment, however, the purpose of the EIS is not to recover ESA-listed species, in this case, bull trout, but rather the consideration of the long-term coordinated operation and management of the CRS projects for multiple purposes under the National Environmental Policy Act. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy designated critical habitat for those species. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed bull trout and is not expected to diminish the likelihood of recovery.
4077	2	Arlene Montgomery	Friends of the Wild Swan	Yet the DEIS does not even mention the Primary Constituent Elements (PCEs) that are vital components of bull trout habitat. It does not evaluate how the alternatives will improve or adversely modify the PCEs. The EIS did not address the impacts the dams are having on bull trout and designated critical habitat nor provide workable solutions to protect freshwater native fish. It eliminated from consideration removing dams that are fragmenting and impeding migration. It did not identify the bull trout core areas being impacted by the dams. And whether they are fragmenting habitat, disrupting migratory corridors, or limiting foraging.	The Draft EIS, as a National Environmental Policy Act (NEPA) document, is intended to evaluate alternatives compared to the No Action Alternative. The co-lead agencies recognize the elements vital to bull trout habitat and many of the factors mentioned are discussed in the Affected Environment and No Action Alternative. In the alternatives analyses, these were evaluated as to how the various alternatives would affect those habitat elements and relationship between those elements and the species. In the Preferred Alternative, a number of measures were included to improve conditions for bull trout and other resident fish species. The Biological Assessment is included as Appendix V for additional information on the effects analysis for the proposed action specific to ESA-listed species. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the Columbia River System. Recovery of ESA species is the purview of National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (USFWS). This EIS has been developed in consultation with NMFS and USFWS to meet the requirements of Section 7(a)(2). Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. Appendix V of the Final EIS includes the Biological Opinions issued by NMFS and USFWS demonstrating ESA compliance.
4077	3	Arlene Montgomery	Friends of the Wild Swan	We did not see an analysis of the impacts to wildlife and riparian areas from dam operations, not just construction. Riparian vegetation can be wiped out by fluctuating flows leading to erosion (water quality issues), sediment in gravels, loss of shade, increased water temperature, lack of cover for wildlife, reduced food sources (i.e., insects), impacts to amphibians and birds.	The vegetation assessment included evaluation of impacts to riparian vegetation based on inundation, erosion, and sediment deposition as well as potential impacts to wildlife as a result of vegetation changes (i.e. food, cover, and impacts to amphibians and birds). This assessment can be found in Section 3.6 (Vegetation, Wetlands, Wildlife, and Floodplains) and in Section 7.7.7 for effects of the Preferred Alternative on Vegetation, Wetlands, Wildlife, and Floodplains.
4077	4	Arlene Montgomery	Friends of the Wild Swan	The EIS did not address the protection of floodplains and channel migration zones, adequate streamside/riverside buffers to protect and improve water temperatures, re-regulating water withdrawal infrastructure to protect instream flows from overexploitation and restore migratory connectivity. Similarly dam operations must not increase water temperatures. Selective water withdrawals may alleviate this problem. There was some discussion in the EIS about selective withdrawal infrastructure but it seemed piecemeal and not part of a cohesive strategy. Bull trout rely heavily on upwelling groundwater that keeps water temperatures cold. Floodplain protection and restoration actions on larger alluvial streams and rivers were not included to protect or re-establish the natural exchange and underground storage of surface and subsurface waters that naturally recharges shallow alluvial aquifers and buffers summer and winter water temperatures against extremes.	Several of the issues that the commenter suggests addressing are outside of the scope of the operations and maintenance of the CRS EIS. The EIS is intended to evaluate alternatives compared to the No Action Alternative. Important elements that could be affected by the projects, such as temperatures and habitat elements, were evaluated to compare the alternatives to the No Action Alternative. The co-lead agencies recognize the elements vital to bull trout habitat and many of the factors mentioned are discussed in the Affected Environment and No Action Alternative. In the alternatives analyses, bull trout were evaluated as to how the various alternatives would affect those habitat elements and relationship between those elements and the species. Under the Preferred Alternative, a number of measures were included to improve conditions to bull trout and other resident fish species. Section 3.6 and Chapter 7 analyzes the impacts from the alternatives to floodplains. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the Columbia River System. Recovery of ESA species is the purview of National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (USFWS). This EIS has been developed in consultation with NMFS and USFWS to find an acceptable balance that allows the co-leads to meet authorized purposes while minimizing impacts to affected ESA-listed species and their habitats. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species.
4077	5	Arlene Montgomery	Friends of the Wild Swan	Climate change impacts on water temperature, quantity and quality is of utmost importance but is scantly covered in the DEIS. The Montana Climate Assessment (see montanaclimate.org) drew some key findings: "The results of this analysis produced several key messages, some of which are shown below, about how climate change will affect Montanas water resources (for a complete list of key messages, see the Water chapter). Rising temperatures will reduce snowpack, shift historical patterns of streamflow in Montana, and likely result in additional stress on Montanas water supply, particularly during summer and early fall. Key messages associated with these findings follow: Montanas snowpack has declined over the observational record (i.e., since the 1930s) in mountains west and east of the Continental Divide; this decline has been most pronounced since the 1980s. [high agreement, medium evidence] Warming temperatures over the next century, especially during spring, are likely to reduce snowpack at mid and low elevations. [high agreement, robust evidence] Historical observations show a shift toward earlier snowmelt and an earlier peak in spring runoff in the	Chapter 4 includes a discussion on the potential impacts that future climate change may have on resources including water quality and quantity. The co-lead agencies agree that climate change is a concern. The climate science community is still developing models that can be used to analyze possible effects to water temperature from climate change, and unfortunately, there are not reliable models at the required resolution (river-scale vs. global- or regional-scale) at this time. Therefore, it was not possible to reliably model water temperature changes under climate change for this EIS. In lieu of this information, the climate analysis used the output from the water quality models under historical conditions, climate change data, and scientific literature to qualitatively assess potential effects to water temperature and other water quality parameters (Section 4.2.3). Specific information in the Draft EIS on climate effects to hydrology and hydraulics can be found in Section 4.2.1, and how climate impacts water supply can be found in Section 4.2.9 and Section 7.8.1 (hydrology and hydraulics) and 7.8.12 (water supply).

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				Mountain West (including Montana). Projections suggest that these patterns are very likely to continue into the future as temperatures increase. [high agreement, robust evidence] Earlier onset of snowmelt and spring runoff will reduce late-summer water availability in snowmelt-dominated watersheds. [high agreement, robust evidence] Groundwater demand will likely increase as elevated temperatures and changing seasonal availability of traditional surface-water sources (e.g., dry stock water ponds or inability of canal systems to deliver water in a timely manner) force water users to seek alternatives. [high agreement, medium evidence] Rising temperatures will exacerbate persistent drought periods that are a natural part of Montanas climate. Key messages associated with these findings follow: Multi-year and decadal-scale droughts have been, and will continue to be, a natural feature of Montanas climate [high agreement, robust evidence]; rising temperatures will likely exacerbate drought when and where it occurs. [high agreement, medium evidence] Changes in snowpack and runoff timing will likely increase the frequency and duration of drought during late summer and early fall. [high agreement, medium evidence]	
4102	1	N/A	N/A	A key component of the preferred alternative MO4 is flexible spill, but studies by the Fish Passage Center have clearly shown that this practice is inadequate as a long-term strategy, and does not produce salmon survival benefits that are needed from the Columbia / Snake River dams.	Multiple Objective alternative 4 (MO4) was not identified in the Draft EIS as the Preferred Alternative. The Preferred Alternative included measures from various alternatives after consideration of beneficial and adverse effects of various measues. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the CRS. Recovery of ESA-listed salmon is outside of the authority of the co-lead agencies, and was not an objective of this EIS. Recovery of ESA species is the purview of National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (USFWS). This EIS has been developed in consultation with NMFS and USFWS to find an acceptable balance that allows the co-lead agencies to meet the Purpose and Need Statement while minimizing impacts to affected ESA-listed species and their habitats. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. The CSS model predicts that average Smolt-to-Adult return rates (SARs) will increase for both Snake River spring Chinook and steelhead and will average well above 2% as a result of the Preferred Alternative increasing from 2.0% to 2.7% for Chinook, a 35% relative increase. The NMFS COMPASS and Lifecycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-lead agencies numerous legal obligations. The Preferred Alternative is predicted to benefit ESA-listed juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets most other EIS objectives including those for: resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy.
4109	1	cwyatt@bbec.org	Big Bend Electric Cooperative	The cost to replace the essential energy-related capabilities of the lower Snake River dams with other zero-carbon options would be approximately $1 billion annually and would likely increase the average residential electric bill of our rural members by 20% or more. BBEC serves the rural areas of Adams and Franklin Counties. Most of area in these counties is already economically depressed and many members would have trouble with increased costs of an essential service.	The comment that replacing electricity generation from the four lower Snake River dams under MO3 would drive up costs in the region is consistent with EIS findings. See Draft EIS, Section 3.7.3.5, Table 3-166; and Appendix H, Table 2-1. The Environmental Justice analysis in Section 3.18.3 provides further detail on potential disproportionate effects to tribal, low-income and minority populations. Section 3.7.3.5, Residential Effects, page 3-929 in the Draft EIS, and Chapter 5 of Appendix H, Power and Transmission provides additional details on potential increases in rate pressures by county as well as for urban and rural utility customers.
4109	2	cwyatt@bbec.org	Big Bend Electric Cooperative	Additionally, the report shows that if the dams were replaced with natural gas resources, it would add an additional 3.3 million metric tons (MMT) of CO2 to the region each year--a 10% increase in the regions power-related emissions. However, it is very unlikely that any new carbon based generation could be permitted in Washington State where these dams are located since the passage of the 2019 Clean Energy Transformation Act. According to this law, all electric energy sold in Washington must be carbon-free by 2045. Regardless of how the electric generation would be replaced, the loss of the transportation barges on the lower Snake River would cause an increase in semi-truck traffic on two lane county roads and rail traffic which would in turn, increase CO2 emissions. This is in direct conflict with the Clean Energy goals of Washington State. The lower Snake River dams are vital for their flexibility to help safely add new intermittent resources, such as wind and solar power to the grid. The dams can store water and release it Page 2 of 2 past hydro turbines, when needed, such as during the night and on calm days, keeping the grid in perfect balance a requirement of science, not politics. The flexible capacity that the dams provide will only increase in need and value as the regions various state legislations and policies continue to drive the retirement of fossil-fueled base load resources and replace them with intermittent renewable generation.	The information in this comment is consistent with the findings of the EIS. A 3.3 million metric tons (MMT) CO2 increase in greenhouse gas (GHG) emissions under MO3 (a 8.9 percent increase in regional power sector emissions) is associated with a scenario in which only natural gas resources are developed or acquired to offset losses from the four lower Snake River dams. As discussed in the EIS, the analysis additionally considers a scenario assuming all renewable replacement resources (at a higher cost is discussed in Section 3.8). Under this scenario, the analysis finds a 2.7 percent increase in regional CO2 emissions relative to the No Action Alternative. Given that policy and legislative decisions in Oregon and Washington are targeting large reductions in GHG emissions, even the 2.7 percent increase in CO2 emissions makes these goals more difficult to achieve.
4109	3	cwyatt@bbec.org	Big Bend Electric Cooperative	The D-EIS estimates that dam breaching would result in $458 million from the inability to irrigate farmland. That is a large amount of dollars, but it doesnt account for the intangible losses to those families homes and livelihood. These communities, already in economic depressed counties, anticipate that the effects would ripple through education systems, social welfare programs, and local economies as a result of increased costs and job losses.	Along with describing the changes in irrigated acres, the EIS describes the regional economic and other social effects of these changes. As reported in the regional economic effects sub-section for Region C in Section 3.12.3.4, decreased production from loss of irrigated farmland would effect 4,800 jobs and decrease labor income from $232 million.
4114	1	N/A	N/A	The Montana Operations at Libby and Hungry Horse balance hydropower generation, flood management, and ecosystem benefits that improve conditions for resident species and their habitats without adversely affecting downstream and anadromous species. The inclusion of the Montana Operations in the CRSO EIS and the incorporation of future science-based improvements into this operational strategy are vital to continuing our shared progress toward improving riverine and flood plain habitats for resident fish and wildlife species. We appreciate the willingness you have shown to date to work with us to adjust annual operations and we look forward to your continued collaboration on these efforts, particularly on ways to improve flow patterns to benefit the overwinter survival of cottonwood stands and to promote burbot and sturgeon spawning and recruitment. Efforts such as these are vital in ensuring the CRSOs ability to provide both reliable power supplies and the ecological functions so critical to our fish and wildlife resources. These operations, of course, also remain integral to current and future Biological Opinions for endangered Kootenai white sturgeon and threatened bull trout and provide a sound basis for the future Columbia River Treaty.	The co-lead agencies also look forward to continued collaboration on the operations of these reservoirs. Elements of the Montana Operations have been incorporated into the Preferred Alternative and will be implemented in collaboration with our partners.
4118	1	mggerdes89@gmail.com	N/A	Your website required us to review 270 megabytes (over 5,000 pages) of information from a website to understand the entire proposal. Yet the co-lead agencies have made it extremely difficult to almost impossible to file comments online or hand-deliver comments. The filing online is limited to a maximum of 100 kb with no more than 5 attachments of 2 megabytes apiece. Therefore adding a few pictures, graphs or diagrams takes us over the 10 megabyte maximum very quickly. We have filed comments with many other federal agencies including the US Forest Service and US Bureau of Land Management and have never encountered such obstructive difficulties in filing comments. This is absolutely an unfair NEPA process to limit public comments in both manner and size limit. Further, when a friend tried to hand deliver comments to the one place in Portland, Oregon designated to take hand delivered comments, the place was locked to the public. When the person was able to finally use a call box outside, everyone she talked to in the building was clueless about the filing of a hand delivered document. This is completely unacceptable for 3 public agencies to make filing a document so challenging and difficult. We are including this problem in our comments to you so that the judge for this case will be aware of the difficulties you have made it for the public to file comments on this Draft EIS.	The co-lead agencies are sorry for any technical difficulty experienced. It is accurate that the website had file size limitations that were listed for a single entry. That was not to limit you in your comments, but to alert you to submit in multiple entries either contact the CRSO info helpline, or mail your materials to the P.O. Box listed on the CRSO website and on other news and informational releases. Hand delivery was not an option for public comments, and unfortunately with the COVID-19 pandemic response, the co-lead agencies would not have been able to accommodate you should we have had this request, as many office buildings were closed and personnel were directed to work from home. All comments mailed with the post-marked dates prior and up to April 13, 2020, or delivered by a delivery service with access to the mail room by 5:00 pm on April 13, 2020, were accepted.
4118	2	mggerdes89@gmail.com	N/A	The Low Amount of Energy Produced at the Lower Snake River Dams The 4 lower Snake dams together produce an average of 3.3% of the annual Pacific Northwest power supply. Yet the regional power surplus including breaching of the lower Snake dams is approximately 13.7%. A review of the regional energy load is that under critical, average and high-water years, the projected surplus from load generation is 3 to 4 times the average lower Snake River production. Essentially, even if the 4 lower Snake dams are breached, even under critical low water conditions, the Pacific Northwest region has an energy surplus. The Northwest Power and Conservation Council (NWPCC) projects additional power resulting solely from efficiency gains in 2020 will be 1000 aMW, which is a little more than the average annual output of the 4 lower Snake dams in the last 5 years. The CRSO-DEIS Executive Summary claims that Significant quantities of replacement resources would have to be built to maintain regional power reliabilitythe region would face the likelihood of a loss of load event, e.g. a power blackout, nearly one in every seven years in MO3, (CRSO-DEIS, Executive Summary, page 25). These claims are specious because the generation from the 4 lower Snake River dams is relatively significant, there is a surplus energy supply, there are increasing alternative energy sources from wind and solar, there are increased energy efficiencies, and blackouts are unrelated to lower Snake River dam outputs. More specifically, the Pacific Northwest wind power plants produce nearly three times the combined generation of the 4 lower Snake dams. Montana has new wind power projects which are predicted to produce up to 5000 aMW by 2030 and are targeted for export to the Pacific West Coast states. Additional projects in Oregon such as the Wheatridge project will include 292 turbines with a peak capacity of 500 aMW and proposes wind, solar and battery backup to offer firm power. California once was a major buyer of BPAs surplus power and is adding an 14,000+ aMW of new solar energy to its own energy portfolio between 2018 and 2023. With the addition of wind and solar energy and other states producing more power and importing less BPA surplus power, the value of the 4 lower Snake River dams for generation is obsolete. These dams cost more to produce and maintain power than the value of the power for sales. Taxpayers and ratepayers are paying for obsolete dams that the co-lead agencies falsely claim are necessary. The co-lead agencies use of the 4 lower Snake River dams energy production to rationalize allowing native salmon and steelhead to go extinct is another false justification to avoid a decision to not breach the lower Snake River dams.	The comment suggests that the regional supply of power is sufficient without the output of the four lower Snake River dams, and even sufficient without replacing the output of the lower Snake River dams with other resources. The comment reaches this conclusion by comparing the average resource output for the remaining regional resources (without the four lower Snake River dams) with average load in the region. Such an approach, however, only demonstrates that on average that is under average conditions - all power system needs would be met. This approach does not address conditions other than average. That is, regional demands for power would not be met at times of greater than average load or lower than average resource output. In those instances, power system emergencies or blackouts would occur. The EIS uses a more robust measure of power system reliability and resilience than the average MWs approach suggested by the commenter. Specifically, the EIS uses the loss-of-load probability (LOLP) metric utilized by the Northwest Power and Conservation Council (Council). See Draft EIS Section 3.7.2.2; Appendix H Power and Transmission, Section 2.1; Appendix I Hydroregulation, Section 2.4.4. The LOLP metric evaluates the adequacy of power supply in the region to meet firm power needs under various conditions. It is measured in terms of a percentage, and represents the likelihood of a year having one or more blackouts. See Appendix H Power and Transmission, Section 2.1. The current LOLP under the No Action Alternative is 6.6 percent; this is equivalent to one year with blackouts in every 15 years. The EIS uses this LOLP level as the benchmark from which to evaluate the other Multiple Objective alternatives (MOs). Under MO3, on average, the region has surplus generation leading to export sales during certain periods and water years. Nevertheless, to maintain regional reliability at the LOLP levels of the No Action Alternative, replacement resources would be needed. This is driven by the timing and magnitude of changes in hydropower generation analyzed in the EIS. As shown by the analysis of the LOLP, in some years and times of the year, particularly winter and later in the summer of drier years, without the four lower Snake River dams there would be insufficient power supply in the region leading to power emergencies and blackouts. Specifically, without replacing the power from the four lower Snake River dams, the LOLP of the region would more than double to 14 percent, which is equivalent to one year with blackouts every seven years. See Draft EIS page 3-903; and Appendix H Power and Transmission, Table 2-1. The commenter also presumes that the power produced from the four lower Snake River dams is surplus and exported out of the region. The power output for the four lower Snake River dams are not exclusively sold as surplus as the commenter suggests. Bonneville sells power from the Federal Columbia River Power System (FCRPS) as a unified system, not from specific projects. In this regard, the power generated from the four lower Snake River dams are pooled with all other FCRPS power sold by Bonneville to meet Bonneville's collective power obligations. Most of this power is used to meet the loads of regional publicly owned utilities, such as municipalities, rural utilities, and public utility districts under long-term power-sales contracts (see Draft EIS Section 3.7.2.5 Bonneville Power and Transmission Customers). A small portion of power is sold in the California energy market, but these sales are not from specific projects, but rather from the collective FCRPS. The references to a regional surplus does not take into account the accelerated loss of coal from the region in coming years. The EIS relied on existing coal retirements for its analysis. See Draft EIS, Section 3.7.3.5, page 3-841; and Appendix H, Section 2.3. As discussed in these sections, with accelerated coal retirements the region would likely experience a significant regional deficit of power, which will require adding additional power resources to maintain power system reliability at the No Action Alternative levels. See Draft EIS Sections 3.7.3.3 through 3.7.3.6; Section 3.7.3.5, Potential Replacement Resources and Associated Costs; and Section 3.7.3.2, Table 3-123. While the comment is accurate that additional renewable power development is occurring across the region, the EIS findings do not concur with the commenters conclusion that the four lower Snake River dams are unnecessary with the influx of new solar and wind. As discussed in Section 3.7.2.2, Power System Flexibility and Reliability, system reliability is maintained by relying on generating capacity that is dispatchable, meaning it is able to change on demand to meet fluctuations in supply

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					and demand. Solar and wind resources are generally not dispatchable because their output is dependent on the availability of wind or sunshine. Hydropower and natural gas are dispatchable because they can adjust production within minutes or seconds. The EIS describes how this dispatchability is provided through balancing reserves to meet system uncertainty and to integrate renewable resources, such as wind and solar. See Draft EIS, Section 3.7.2.2, Meeting System Uncertainty with Generation Balancing Reserves, Dispatchable Resources, and Ramping Capability. As explained in Section 3.7.3.5 of the EIS, Potential Replacement Resources and Associated Costs, the four lower Snake River dams are connected to Automatic Generating Control (AGC), making them among the few projects that are capable of providing balancing reserves. See Draft EIS, Section 3.7.3.5, Value of Lower Snake River Dam Ramping Capability. The four lower Snake River dams currently carry approximately 20 percent of upward flexibility and 8 percent of the downward flexibility held by the FCRPS for balancing reserves. Replacing hydropower generation with solar and wind does not replace the dispatchable characteristics of the four lower Snake River dams. Indeed, the EIS found that the demand for the dispatchable capability of the four lower Snake River dams would be needed to provide the balancing reserves to integrate additional wind and solar in the region. See Draft EIS, Section 3.7.3.5, Integration Services, page 3-832. It is true that Bonneville sells and buys power from California. While California continues to expand its fleet of renewable resources such as wind, the expectation is that power would continue to be traded between the regions as demand and generation are dynamic. For hydropower, the average annual value of the four lower Snake River dams exceeds the average annual equivalent costs. The generation value at the four lower Snake River dams can be described by a range between the cost to replace the generation through new conventional resources or through a portfolio of zero-carbon resources. Although the costs of replacing the power with market purchases was analyzed, it is unlikely that short-term wholesale power markets could reliably replace the power for the long-term. This range would put the annual value of power between $240 million and $500 million for the four lower Snake River dams combined. These numbers represent about 90 percent of the lost benefits cited in Table 3-171 of the Draft EIS because the four dams represent about 1,000 aMW of the 1,100 aMW of lost generation estimated in MO3. The average annual cost to operate and maintain all authorized purposes at the four lower Snake River dams is $75 million (Appendix Q, Table 5-1) and the annual-equivalent capital costs are $32 million (Appendix Q, Table 4-1). Hydropower costs funded by Bonneville represent about $50 million of the total annual operations and maintenance costs and nearly all of the annual capital costs, approximately $31 million. This puts the annual-equivalent power-specific costs at approximately $81 million a year. As a result, the net benefits from hydropower for the four lower Snake River dams are between $159 million and $419 million and the benefit-cost ratios are between 3.0 and 6.2. If the $34 million per year for the Lower Snake River Compensation Plan is added to the capital and expense costs, benefits still exceed costs under each replacement power scenario. Considering these costs, the net benefits range from $125 million to $385 million and the benefit-cost ratios range from 2.1 to 4.3. In the less-likely scenario that generation could be reliably replaced with short-term wholesale market purchases and assuming that the four dams represent 90% of the $150 million in market purchases required to replace the lost generation cited in MO3 (see Table 3-170, Draft EIS), the lower bound for net benefits would fall to $54 million and the benefit-cost ratio would fall to 1.7. With the Lower Snake River Compensation Plan included, the lower bound for annual net benefits becomes $20 million and the benefit-cost ratio becomes 1.2. From a resource competitiveness perspective, the four lower Snake River dams are among the least costly generating resources in the Federal Columbia River Power System (FCRPS) and the planned investment strategy is expected to maintain that status. As shown in the Federal Hydropower presentation at the 2018 Integrated Program Review (see Footnote 1 below) , the Headwater/Lower Snake Asset Class (see Footnote 2 below) is forecast to have a 50-year levelized cost of generation (see Footnote 3 below) of $11.41/MWh based on the direct funded capital and expense (O&M) programs outlined in that process. These costs remain competitive with volatile Mid-Columbia spot market energy prices which averaged $37/MWh in 2019 and have averaged $21/MWh in 2020. Footnotes: 1. The Integrated Program Review (IPR) allows interested parties to see and comment on all relevant Federal Columbia River Power System (FCRPS) capital and expense (O&M) spending level estimates in the same forum. The IPR occurs every two years, or just prior to each rate case, and is the public review for the costs that will be recovered through rates the following two-year rate period. Long-term forecasts for the next 50 years and major upcoming projects are also shared in this forum. This information is available here: https://www.bpa.gov/Finance/FinancialPublicProcesses/IPR/2018IPR/IPR%202018%20Fed%20Hydro%20Workshop.pdf and is incorporated by reference into this EIS. 2. In the 2018 Integrated Program Review, the Headwater/Lower Snake Asset Class consisted of the four lower Snake River dams, Hungry Horse, Libby, and Dworshak dams. These projects were grouped together because they have similar cost characteristics. The Levelized Cost of Generation for the four lower Snake projects alone is slightly lower than that for the whole class including the headwater projects shown in the table. 3. Levelized Cost of Generation is defined as the forecast direct costs and administrative overhead of producing power at a plant annualized over a 50-year period. This cost includes direct funded operations, maintenance, administrative and capital costs as well as Columbia River Fish Mitigation (CRFM) costs. Bonneville system-wide mitigation costs, such as its Fish and Wildlife program, are not included in this metric.
4118	3	mggerdes89@gmail.com	N/A	An Outdated Freight System East/west freight using the Columbia and Snake river transportation system has declined dramatically in the past 10-20 years. Container freight movement from the Port of Lewiston has dropped to zero since 2000. In addition, the transport of wheat has steadily dropped since 1995. All wheat at Lewiston is now shipped via a private corporation at its own docks and total lower Snake River freight volume has dropped 40% since 2000. Paper, pulp, petroleum, pulse, logs and lumber are no longer shipped on the lower Snake River while increasing numbers of grain growers have shifted to rail transport. All river transport to Lewiston could be changed in a onetime cost to rail transport, of which many exporters have already done so. For example, all waterborne freight from Lewiston locks through Lower Granite Dam. In 1994, 1,233 loaded barges locked through Lower Granite, while only 314 barges locked through in 2017, a decrease of 75%. In fact, compared to waterways throughout the country, the lower Snake Rivers value as a transportation waterway is insignificant. The co-lead agencies use of lower Snake River freight transportation to rationalize allowing native salmon and steelhead to go extinct is fictitious, costly, and unethical and is another false justification to avoid a decision to not breach the lower Snake River dams.	Access to barge transportation is the most cost effective means of accessing export markets for many of grain producers in the Pacific Northwest currently and removing that option would increase transportation costs for grain producers, as the EIS shows. This is different than container shipping, which the co-lead agencies acknowledge the decline to zero of container traffic on the lower Snake River in Section 3.10. It is true that barge movements on the Snake/Columbia river have declined somewhat over the past 20 years, but not by 70 percent. The co-lead agencies concur that upriver traffic seldom moves through any of the four Snake River dams, as is already discussed in the EIS. The co-lead agencies' working level of traffic for the model was 2.4 million, which reflects the average over the past 10 years. While it is true that the Snake River freight volume is certainly smaller than the volume of the Mississippi and Ohio River systems, it is nonetheless an important transportation option for a large volume of freight, particularly for farm products, with the Columbia-Snake River system serving as one of the largest exporters of farm products in the U.S., and the largest exporter of wheat. The EIS finds that transportation of freight that is currently barged on the Lower Snake River could be accomplished via other transportation modes, but this change would not be without costs to farmers, would require public and private investments in infrastructure, and would result in some adverse regional economic effects, particularly in the short term. These effects are considered in the context of the overall objectives of the EIS. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-lead agencies numerous legal obligations. The Preferred Alternative is predicted to benefit ESA-listed juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets most other EIS objectives including those for: resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3 by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams because the Preferred Alternative is more likely to satisfy multiple complex legal requirements for a complex system.
4118	4	mggerdes89@gmail.com	N/A	The U.S. Congress authorized the USACE and Bureau of Reclamation to construct, operate, and maintain the system projects to meet multiple specified purposes, including flood control. The Executive Summary asserts that the Preferred Alternative ensures that human life and safety can be protected through flood risk management (CRSO-DEIS Executive Summary, page 32). However, the 4 lower Snake dams are not flood control dams but are run-of-the-river dams with little reservoir space for fluctuating water levels and with virtually no storage capacity, excepting perhaps a few hours of storage during peak flow. Essentially, the 4 dams do nothing to control flood risk in downstream reaches but conversely they create flood risk in Lewiston, Idaho and Clarkston, Washington. The reservoir created by Lower Granite Dam backs up water 40 miles to Lewiston and Clarkston, which are at the confluence of the Snake and Clearwater rivers. Large levees have been built there to prevent overflooding from the Lower Granite Dam reservoir which has sediment buildup, which typically occurs at the inflow of reservoirs. The accumulation of sediment at Lewiston and Clarkston is a continuous and costly problem that creates flood risk for these communities. Breaching of the 4 lower Snake Dams would eliminate sediment buildup, reduce flood risk, make the communities at Lewiston-Clarkston safer from flooding, and eliminate the high costs of continuously needing sediment dredging. The co-lead agencies use of the argument of flood control and safety for selecting the Preferred Alternative and avoiding the breaching of the 4 lower Snake River dams is another fabrication of bogus information to support a false conclusion. Breaching of the 4 lower Snake River dams would have no effect on flood control for river reaches downstream of the dams because they are run-of-river dams. Breaching the dams would reduce the risk of flooding that occurs in Lewiston and Clarkston. Therefore, breaching the 4 lower Snake River dams would save Snake River salmon and steelhead while eliminating risk from floods and increasing community safety.	The commenter is correct that MO3 which includes a measure to breach the four lower Snake River dams would eliminate sediment buildup and reduce flood risk at the confluence area of the Snake and Clearwater rivers (clarifying information has been added to Appendix K.1.7.3.). However in general the four lower Snake River dams are not authorized for flood risk mitigation, and there is no elevated risk to flooding in the Lower Snake River reach for any of the alternatives. The commenter is correct in that the lower Snake River dams are not authorized for flood risk management and this is clearly stated in the EIS in Section 1.2.Chapter 7, Table 7-1, also indicates that there is no elevated risk to flooding in the lower Snake River reach for any of the alternatives. Unlike free-flowing channels, in Lower Granite Reservoir, the forebay elevation at the dam controls the energy grade-line of the water surface, and the reservoir is drawn down during high water events to ensure water levels remain low. Furthermore, the Corps Walla Walla District constructed eight miles of levees around Lewiston as mitigation to help protect lives and property from potentially destructive high-water conditions after the dams were built. Unlike freely flowing channels, in Lower Granite Reservoir the forebay elevation at the dam controls the energy grade-line of the water surface, and the reservoir is drawn down during high water events to ensure water levels remain low. The most recent dredging in the Lewiston area, has been to maintain a 14-foot depth in the navigation channel, as discussed in the 2014 Programmatic Sediment Management Plan. Dredging outside of the navigation channel limits to maintain conveyance capacity has not been conducted since 1992. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-lead agencies numerous legal obligations. The Preferred Alternative is predicted to benefit ESA-listed juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets most other EIS objectives including those for: resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3 by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system.
4118	5	mggerdes89@gmail.com	N/A	The CRSO-DEIS Executive Summary (page 24) states, breaching the dams would not allow the co-lead agencies to operate and maintain the dams for their congressionally authorized purposes of navigation, hydropower, envisioned recreational benefits, and water supply for irrigation purposes. The needs of fewer than two dozen irrigators which are all located on the Ice Harbor Reservoir are touted as one of the many reasons to maintain the 4 lower Snake River dams. For some unknown reason, the co-lead agencies assume that if the dams are breached, that 47,926 acres would no longer be irrigated at a social welfare cost of $458 million. That assumption is false on the face of it, since the river itself would remain available for irrigation. A one-time expense of aid to farmers to upgrade pumps and lengthen water lines would ensure much of the 47,926 acres are irrigated post-breaching. Further the CRSO-DEIS fails to acknowledge the importance of restoring fall Chinook spawning habitat and 15,000 acres of prime riverine habitat and agricultural land that is inundated by the lower Snake River dams.	The MO3, which includes breaching the four lower Snake River dams, would have adverse effects to farmers and irrigation. Currently and in the No Action Alternative, water is available from the pools of these facilities and from groundwater that results from the pools. Removing the earthen embankment portion of the dams would reduce pool elevations by up to 100 feet, which would make surface pumps inoperable. Groundwater pumps in the wells may also be affected due to decreased groundwater elevations depending on the connectivity of the aquifer to the pools. Municipal and industrial water pumps in the Lewiston area would also likely be adversely effected. The EIS describes the engineering solutions for irrigation (pipeline extensions, for example) in Section 3.12.3 Environmental Consequences under Region C for MO3. The EIS describes that modifying the existing pump system was cost prohibitive. In Region C for MO3, it is assumed that pumps are unable to deliver water to an estimated 47,926 acres.
4118	6	mggerdes89@gmail.com	N/A	The High Cost of the Hydro System Lower Snake River Dams The Bonneville Power Administration (BPA) is the federal agency that markets the dams power output, and the intent was to turn cheap electricity into a cornerstone of the regional economy. BPAs mission was realigned in 1980 under the Northwest Power Act to both maintain the reliability of power production and find the regional effort to recover wild salmon and steelhead. Currently, a third of the main-stem Columbia dam infrastructure has exceeded its design life, and shutdowns have pushed the systems reliability below the hydroelectric industry average. While much of the power is sold to public utilities under 20-year contracts, revenue to BPA has declined due to expanding wind, solar, and natural gas plants that have reduced energy prices in western markets. All the funds spent on restoring wild salmon and steelhead, including building and maintaining large fish hatcheries (intended to provide harvest or support wild fish restoration), barging juvenile salmon and steelhead, spilling water to support downstream juvenile migrations, improving juvenile bypass systems, and other programs, have failed to salvage declining salmon and steelhead runs. All of the Snake River salmon and steelhead runs are federally listed under the Endangered Species Act (ESA) as endangered or threatened and have been so for almost 30 years. Meanwhile, BPAs financial problems have increased as the agency has drawn from cash reserves and borrowed from private lenders and the U.S. Treasury with debt reaching $15 billion dollars. BPA has spent most of its reserves and faces large debt for required but unfunded retrofits and replacements to the turbines in the 4 lower Snake River dams (Figure 1). Figure 1. Rising maintenance costs of the US Army Corps of Engineers dams in the Columbia River basin1 . Since 2008 in response to revenue losses, BPA has drawn down its fiscal reserves from $917 million in 2007 to a fragile $5 million in 2017. BPAs historic revenue stream relied partly upon surplus energy sales. Yet, development of other energy sources in places such as California to which BPA previously sold surplus at a profit has rendered BPAs surplus power	Bonneville's revenues have not declined over time, but less of Bonneville's revenue requirement is covered by net secondary sales of surplus power due to an industry-wide decline in market prices for wholesale power, which has required rates to firm requirements customers under long-term contracts to increase. In light of these competitive pressures, Bonneville developed both strategic and financial plans to ensure Bonneville's rates continue to be competitive. See Draft EIS, Section 3.7.2.5, pages 3-801-802 and Section 3.7.3.1, pages 3-842-843. Bonneville has instilled a renewed focus on cost management discipline, resulting in a cost reduction of $66 million per year for the current rate periods operating costs compared to the last rate periods operating costs. This resulted in an average 0% base rate increase for power customers at a time when the general economy was facing material inflationary pressure. Bonneville's cost management discipline, and revenue enhancing activities continue to maintain Bonneville's competitiveness relative to other load serving power producers. However, analysis of removing the low cost four lower Snake River dams, which includes assumptions of expected operation and maintenance (O&M) and capital investment in the dams, demonstrates substantial upward rate pressure for Bonneville customers, moving Bonneville's competitive power products to be less competitive in the marketplace. See Draft EIS, Section 3.7.3.5, Table 3-166. The financial reserves figures described in the comment are inaccurate. As of the end of 2019, Bonneville's collective financial reserves were $731 million, not $5 million. Bonneville implemented the Financial Reserves Policy (FRP) alongside BP-18 rates, which added new tools to maintain Bonneville's financial health, including the FRP Surcharge, which adds revenue recovery above costs to rebuild Bonneville's financial reserves. The comment also suggests that with additional surplus energy and declining market prices on the wholesale power market, the region must also have a surplus of power for load service. However, the Loss of Load Probability (LOLP) studies used in the EIS indicate that, while the region has substantial amounts of energy on an interim basis due to renewable buildout supported by government legislation, there is a deficit of flexible and dispatchable resources needed to meet growing resource variability and ramping requirements associated with more extreme load shapes. And, the entire power and transmission rate analysis shows that building new resources to replace the lost flexibility is expensive. See Section 3.7.3.5, Lower Snake River Full Replacement Used in Rate Sensitivity Analysis, beginning on page3-905 in the Draft EIS. For hydropower, the average annual value of the four lower Snake River dams exceeds the average annual equivalent costs. The generation value at the four lower Snake River dams can be described by a range between the cost to replace the generation through new conventional resources or through a portfolio of zero-carbon resources. Although the costs of replacing the power with market purchases was analyzed, it is unlikely that short-term wholesale power markets could reliably

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				no longer in high demand. BPA is now obligated to sell the surplus power at negative prices. More specifically, the price of surplus power averaged about $60 per Megawatt hour (MWh) prior to 2009. Since 2009, the average price for surplus power has been about $22 per MWh. Revenue has consequently dropped dramatically as a result of drop in price. BPA began raising the price of power for its contracted users and over the last 8 years has increased prices by 30%. Further large expenses are for rehabilitating and replacing aging turbines in the 4 lower Snake River dams. All of the turbines as of 2020 are 40-50 years old and the USACE has stated that 1 Bernton, Seattle Times Report, July 21, 2019 4 Stuart and Gerdes Comments on CRSO-DEIS April 9, 2020 the life of each turbine is 35-45 years. They all need to be replaced. If the same costs are expected as turbine rehabilitation at McNary Dam on the Columbia River is true at the lower Snake River dams, then the estimated cost of replacement of 21 lower Snake River dam turbines exceeds $1 billion. Given that these dams provide little power in an energy surplus situation, the likelihood of replacement of these turbines is nil. The co-leads use of the 4 lower Snake River dams energy production to rationalize allowing native salmon and steelhead to go extinct is a false justification to avoid a decision to not breach the lower Snake River dams.	replace the power for the long-term. This range would put the annual value of power between $240 million and $500 million for the four lower Snake River dams combined. These numbers represent about 90 percent of the lost benefits cited in Table 3-171 of the Draft EIS because the four dams represent about 1,000 aMW of the 1,100 aMW of lost generation estimated in MO3. The average annual cost to operate and maintain all authorized purposes at the four lower Snake River dams is $75 million (Appendix Q, Table 5-1) and the annual-equivalent capital costs are $32 million (Appendix Q, Table 4-1). Hydropower costs funded by Bonneville represent about $50 million of the total annual operations and maintenance costs and nearly all of the annual capital costs, approximately $31 million. This puts the annual-equivalent power-specific costs at approximately $81 million a year. As a result, the net benefits from hydropower for the four lower Snake River dams are between $159 million and $419 million and the benefit-cost ratios are between 3.0 and 6.2. If the $34 million per year for the Lower Snake River Compensation Plan is added to the capital and expense costs, benefits still exceed costs under each replacement power scenario. Considering these costs, the net benefits range from $125 million to $385 million and the benefit-cost ratios range from 2.1 to 4.3. In the less-likely scenario that generation could be reliably replaced with short-term wholesale market purchases and assuming that the four dams represent 90% of the $150 million in market purchases required to replace the lost generation cited in Multiple Objective alternative 3 (see Table 3-170, Draft EIS), the lower bound for net benefits would fall to $54 million and the benefit-cost ratio would fall to 1.7. With the Lower Snake River Compensation Plan included, the lower bound for annual net benefits becomes $20 million and the benefit-cost ratio becomes 1.2. From a resource competitiveness perspective, the four lower Snake River dams are among the least costly generating resources in the Federal Columbia River Power System (FCRPS) and the planned investment strategy is expected to maintain that status. As shown in the Federal Hydropower presentation at the 2018 Integrated Program Review (see Footnote 1 below), the Headwater/Lower Snake Asset Class (see Footnote 2 below) is forecast to have a 50-year levelized cost of generation (see Footnote 3 below) of $11.41/MWh based on the direct funded capital and expense (O&M) programs outlined in that process. These costs remain competitive with volatile Mid-Columbia spot market energy prices which averaged $37/MWh in 2019 and have averaged $21/MWh in 2020. Footnotes: 1. The Integrated Program Review (IPR) allows interested parties to see and comment on all relevant Federal Columbia River Power System (FCRPS) capital and expense (O&M) spending level estimates in the same forum. The IPR occurs every two years, or just prior to each rate case, and is the public review for the costs that will be recovered through rates the following two-year rate period. Long-term forecasts for the next 50 years and major upcoming projects are also shared in this forum. This information is available here: https://www.bpa.gov/Finance/FinancialPublicProcesses/IPR/2018IPR/IPR%202018%20Fed%20Hydro%20Workshop.pdf and is incorporated by reference into this EIS. 2. In the 2018 Integrated Program Review, the Headwater/Lower Snake Asset Class consisted of the four lower Snake River dams, Hungry Horse, Libby, and Dworshak dams. These projects were grouped together because they have similar cost characteristics. The Levelized Cost of Generation for the four lower Snake projects alone is slightly lower than that for the whole class including the headwater projects shown in the table. 3. Levelized Cost of Generation is defined as the forecasted direct costs and administrative overhead of producing power at a plant annualized over a 50-year period. This cost includes direct funded operations, maintenance, administrative and capital costs as well as Columbia River Fish Mitigation (CRFM) costs. Bonneville system-wide mitigation costs, such as its Fish and Wildlife program, are not included in this metric. Although the turbines at the four lower Snake River dams are between 41 and 50 years old and nearing their design lives, there are no plans for any immediate replacements. Investment decisions are driven by equipment condition, probability and consequence of failure and, as such, it is common for equipment to be in service well past its design life. For example, some turbine runners at McNary dam will be over 70 years old by the time the replacement project is complete. Long-term planning analyses that calculate the optimal economic time to replace equipment based on current and expected equipment condition, probability of failure and outage consequence, point to the late 2030s as the earliest replacement dates for major powertrain equipment at the four lower Snake River dams. Most turbine replacements are forecasted between the 2040s and 2060s which would put the turbines at the four lower Snake River dams at about the same age at replacement as McNary.
4118	7	mggerdes89@gmail.com	N/A	Th co-lead agencies speciously claim a per-dam survival rate of approximately 95% (CRSODEIS Executive Summary, Figure ES-4, page 19 and Chapter 3, Figure 3-113, page 3-302), which sounds good on the surface. However, it fails to account for cumulative losses at all projects which are not additive but multiplicative. Studies have demonstrated that cumulative losses approach 50% for downstream migrating juveniles from Lower Granite Dam to the tailrace below Bonneville Dam, while delayed mortality below the hydro system causes additional mortality. Upon reaching the Columbia River estuary and Pacific Ocean, survival rates for juveniles from Lower Granite Dam to the ocean are typically less than 20%. Smolt-to-adult ratios (SARs) are the best benchmark for measuring survival since these ratios measure survival from the downstream migrating juvenile to the returning adult. A SAR of 2-6% is needed to assure the survival of a fish species and these SARs are the regional recovery goals of the Northwest Power and Conservation Council. However, Snake River fish typically have SARs less than 1-2%, hence the continued downward spiral to extinction. Anadromous fish that pass through fewer hydroelectric dams on the Columbia River system have higher SARs and higher levels of survival (Figures 2 and 3). Figure 2. Survival Rates (SARs) for Adult Returns of Anadromous Fish to the Deschutes, John, Day, Yakima and Lower Granite Dam on the Snake River. Fish that pass through more dams have lower survival rates with Snake River fish well below regional recovery goals. Figure 3. Smolt to Adult Return Ratios (SARs) for wild Chinook and Steelhead for the Deschutes, John Day, Yakima and Snake Rivers. Note that Snake River fish fail to meet break even goals. With cumulative impacts of direct and delayed mortality from the hydro system from the Snake River to the Pacific Ocean, It is obvious that salmon and steelhead cannot meet regional 2-6% SAR goals. Like the Snake River wild Coho that went extinct in the mid-1980s, Chinook, sockeye and steelhead are doomed to extinction unless a combination of dam breaching of the 4 lower Snake River dams, and the highest spill levels of 125% Total Dissolved Gas (TDG) at the remaining dams on the Columbia mainstem river are implemented.	These estimates are put in context in the Draft EIS on page 301: "To aid the downstream passage of juvenile salmon and steelhead, the co-lead agencies have worked to improve passage and survival past the dams and through the reservoirs of the CRS. Figure 3-112, shows recent estimates of survival at the eight lower CRS projects with fish passage. The dam survival estimates do not include systemwide or latent effects (see section 3.5.3.1). These estimates were developed [to] show progress towards meeting the individual dam survival goals developed during the 2008 Biological Opinion of 96 percent survival past each dam for yearling Chinook and steelhead, and 93 percent for Snake River sub-yearling fall Chinook." Later in this section (referenced in the quotations above) the analysis discusses system survival rates, as well as latent mortality. The analysis of alternatives presented in-river system survival, which reflects the commenter's "cumulative losses", and Smolt-to-Adult return rates (SARs), for those populations which could be modeled, among other metrics. The per-dam survival metric is both accurate and useful in measuring changes in near field survival at the dams due to structural modifications (e.g. surface passage routes) or operation changes (changes to spill levels or spill patterns). The per-dam survival estimates are multiplicative in nature and the improvements in at-dam survival over the past ten years have been shown to contribute to improvements in total in-river survival of smolts migrating through the CRS especially for steelhead. The focus of this EIS and the analysis presented throughout this EIS in Sections 3.5 and 7.7.4 hinge around total in-river survival, travel time, powerhouse passage rates, and SARs. Based on the EIS analysis of fish in Section 7.7.5, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the CRS. Recovery of ESA-listed species is the purview of National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (USFWS). This EIS has been developed in consultation with NMFS and USFWS to minimize impacts to affected ESA-listed species and their habitats. With respect to the Preferred Alternative, the CSS model predicts that average SARs will increase for both Snake River spring Chinook and steelhead and will average well above 2 percent (the lower end of Northwest Power and Conservation Council's recovery targets for the region) as a result of the Preferred Alternative increasing from 2.0 percent to 2.7 percent for Chinook, a 35 percent relative increase. The NMFS COMPASS and Lifecycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. These improvements are expected to benefit all of the stocks listed in this comment if latent mortality is reduced through higher spill levels.
4118	8	mggerdes89@gmail.com	N/A	Water Temperatures Another way that the hydro system dams cause impacts to migratory fish is the cumulative effects of high-water temperatures caused by Snake River and Columbia mainstem dams and associated reservoirs. Stagnant reservoirs in combination with increasingly hot temperatures due to climate change are lethal to migrating fish like salmon and steelhead. A water temperature above 680F delays upstream migrating adults, deplete energy reserves, increases respiration, and increases disease ultimately causing direct or delayed mortality. In the hot, dry summer of 2015, a harbinger of future summers in the Pacific Northwest, over 95% of returning Snake River sockeye salmon run died prematurely in the Columbia and Lower Snake rivers, most never making it to the Snake River. A study done by Schultz and Johnson in 2017 used an US Environmental Protection Agency (EPA) model and validated work by the EPA that showed a free-flowing Lower Snake River would have remained cooler than 68F during most of the hot summer of 2015. The analyses by Schultz and Johnson demonstrated that in dammed reaches of the lower Snake River, especially the three downstream reservoirs, water temperature reached 68F in mid to late June and remained near or above 68F until September (Figure 4). Figure 4. Contrast of 2015 summer water temperatures between the dammed Lower Snake River (left) and a modeled, free-flowing Lower Snake River (right). Note temperatures in the free-flow river would have largely remained below 68F through the summer. Essentially, as water moves slowly downstream through the 4 lower Snake River dams and associated reservoirs, each reservoir increases water temperature by about 20F or more. The free-flowing simulation showed no significant and long term rising temperatures and that without the dams, water temperatures in the lower Snake River would warm a relatively minor amount as it flowed to the Columbia River. Despite perilously hot air temperatures and low flows that occurred in 2015, the lower Snake River would have been cool enough for salmon and steelhead if the dams had not been present. While there would have been minor increases in temperatures, they would have been short lived. With the existing 8 dam complex that fish navigate from the Snake River to below Bonneville, Dam, and climate change intensifying the impacts of high temperatures and low flows, Snake River fish are at risk of extinction. High water temperatures above 68F are now common for lengthy periods in July, August, and September. The only way to ensure survival and avoid extinction of Snake River anadromous fish is to have a free-flowing lower Snake River.	The Draft EIS acknowledges and describes the temperature sensitivities of salmon and steelhead, as well as the many other factors that affect these fish. Water quality and hydrology modeling data were inputs into the fish survival models used to analyze the alternatives' effects on salmon and steelhead, so temperature effects to survival have been incorporated into the overall analyses of each alternative. Water temperatures under MO3, which includes breaching the four lower Snake River dams, indicates that nighttime summer water temperatures, as well as fall water temperatures, would be cooler than No Action conditions in the Snake River. However, even with the dams breached, maximum summer water temperatures would exceed state water quality standards (20C) at times, especially during hot weather events. The models showed minor changes in the Columbia River under this alternative. Regarding climate change, the climate science community is still developing models that can be used to analyze possible effects to water temperature from climate change, and unfortunately, there are not reliable models at the required resolution (river-scale vs. global- or regional-scale) at this time. Therefore it was not possible to reliably model water temperature changes under climate change for this EIS. In lieu of this information, the climate analysis used the output from the water quality models under historical conditions, climate change data, and scientific literature to qualitatively assess potential effects to water temperature (Section 4.2.3 and Section 7.8.3 in the Draft EIS). Regarding predicted water temperatures under MO3, as compared to the results documented by Schultz and Johnson (2017) and derived from past EPA analysis, there are a few key differences between these efforts that should be made clear. First, the RBM-10 (TMDL) model predicts a daily average water temperature, while the CE-QUAL W2/HEC-RAS (EIS) model predicts a daily maximum value. The co-lead agencies chose the daily maximum water temperature metric since most water quality standards are based on this metric. Second, the RBM-10 model uses weather data from airport weather stations with the longest records, whereas the co-lead agencies used weather stations with the most spatial coverage and spatial representation (airport and AgriMet weather stations). Lastly, RBM-10 was utilized for a free-flowing scenario. The free-flowing scenario includes the absence of Grand Coulee, Chief Joseph, the 5 mid-Columbia PUD dams, the lower four Columbia River and the lower four Snake River dams. However, this "free-flowing" scenario retains Dworshak Dam as a boundary condition and uses observed flows and temperatures. 2010 channel bathymetry is utilized throughout system. The TMDL assessment focused on quantifying the thermal load of the dams by comparing existing conditions to a free-flowing scenario. The co-lead agencies used HEC-RAS (1-dimensional model) for the MO3 alternative for the lower Snake River; CE-QUAL W2 (2-dimensional model) was used for the other mainstem CRS dams. MO3 includes removing the earthen embankments, abutments and portions of existing structures at the dams to eliminate reservoirs. All other CRS dams remain in place. Dworshak Dam uses modeled flows and temperature. 1934 (pre-dam) channel bathymetry was utilized throughout the lower Snake River; 2010 geometry was used elsewhere in the system. The CRSO EIS assessment focused on predicting water temperature and Total Dissolved Gas conditions under the MO3 alternative, which included a measure for breaching all four lower Snake River dams. Given the differences between the analysis in the Draft EIS and the 2017 study, direct comparisons between the two assessments are not appropriate. Both models have been reviewed extensively by the co-lead agencies and EPA and concluded that both temperature models provide useful and technically appropriate analyses of the Columbia and lower Snake River water temperatures. As stated in EPA's review letter (#16-0059), EPA agreed with the co-lead agencies that the CE-QUAL W2 and HEC RAS models were appropriate to use in developing the Draft EIS.
4118	9	mggerdes89@gmail.com	N/A	Alternatives The co-lead agencies tout the Flex Spill Agreement in the CRSO-DEIS as the basis for the Preferred Alternative and conclude that small adjustments in spill and other mechanistic fixes in the hydro system will improve survival of anadromous fish while retaining all the perceived benefits of the 4 lower Snake River dams energy, water transport of freight, flood control and irrigation. The Flex Spill Agreement was a process and intended to avoid litigation during the time that the CRSO-DEIS was developed. The Preferred Alternative is a version of the Flex Spill agreement with modifications that benefit power generation revenue and irrigation. There are no improvements for Snake River salmon and steelhead populations included in this alternative. It does not include operations for the long term, and only addresses operations for the last year of the Flex Spill Agreement in 2021. While co-lead agencies make references in the Preferred Alternative to an indeterminate and open-ended adaptive management process, there is no guarantee that the regional 4% average SAR goal will be met. Indeed, the Preferred Alternative includes measures that will cause additional harm to salmon and steelhead populations, such as additional irrigation water withdrawals from the Columbia River of 1.254 million acre-feet. While the Preferred Alternative claims to be a balanced approach, it is obviously a continuation of status quo management which has caused salmon and steelhead to reach the brink of extinction and in some measures, the Preferred Alternative causes additional harm to fish. A careful review of the Flex Spill in 2019 showed that downstream survival, from juvenile fish powerhouse encounters, and delayed water transit time was equal to or worse than the 2018 Biological Opinion (BiOP) spill flows. Essentially higher spill should equate to decreased mortality and higher juvenile survival because fish are passed over the spillways instead of going through the powerhouses. The Flex Spill agreement states that fish passage must be better or at least no worse than what would have occurred under the 2018 court ordered injunctive spill order. However, in 2019 juvenile fish passage through powerhouses was worse than the injunctive spill order and more fish went through powerhouses than would have occurred under the court ordered spill. Spill to the higher 125% TDG level was only provided at 4 of the 8 Columbia/Snake hydroelectric projects. For example, Bonneville, The Dalles, and John Day dams spill were capped at 120% TDG. Further all of the projects reduced spill for 8 of the 24-hour day cycle which decreased fish protection at these projects during those 8 hours of reduced spill. The Columbia/Snake hydropower system cannot meet the alleged purpose of the Flex Spill agreement because spill is a net reduction at the downriver projects. Therefore, Oregon and Washington fish stocks from the John Day, Deschutes and Yakima rivers had increased mortality and decreased survival from increased powerhouse encounters.	The spill operation for juvenile fish passage is a significant departure from previous operations, so much so that the Washington and Oregon state water quality standards had to be changed to implement the new spill regime. In the EIS analysis of effects, the co-lead agencies used high quality data and best science, including models and studies published in peer-reviewed science journals. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. The CSS model predicts that average Smolt-to-Adult return rates (SARs) will increase for both Snake River spring Chinook and steelhead and will average well above 2% (the lower end of Northwest Power and Conservation Council's (Council's) recovery targets for the region) as a result of the Preferred Alternative increasing from 2.0% to 2.7% for Chinook, a 35% relative increase. The National Marine Fisheries Service (NMFS) COMPASS and Lifecycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the Columbia River System. The commenter's suggestion that the flex spill operation is only planned for one year is not an accurate interpretation of the Preferred Alternative. The 2019-2021 Spill Operation Agreement was a short-term agreement that was intended to last until the Record of Decision for the CRSO EIS was signed. However, the fact that it was a short-term agreement did not preclude the co-lead agencies from considering the operation as a measure to include in the EIS. In fact, this operation proposes to provide a high potential benefit to salmon and steelhead through increased spill while avoiding many of the adverse impacts to power generation and reliability associated with Multiple Objective alternative 4 (MO4). This measure also would allow the co-lead agencies to gather important scientific information on the relationship between the CRS and latent mortality. This measure would be managed adaptively, through the established Regional Forum processes, to address unexpected challenges, such as potential delays to adult migration or temporary operations needed to maintain navigation. If no adaptive management needs are identified, the operation would continue until modified by a subsequent biological opinion (BiOp) or National Environmental Policy Act (NEPA) analysis. Regarding the performance of 2019 flex spill, which was planned for a 120% total dissolved gas (TDG) level: one year of in-river data to assess the benefits of flex spill is not adequate because the primary metrics will be SARs, so the co-lead agencies will have to wait for generations of adult returns to assess the effectiveness of the action. The Preferred Alternative includes working with regional sovereigns to develop a study that assesses the effectiveness of the increased spill regime on adult returns as well as assessment and management of negative unintended consequences, such as long delays of adult migrants, or Total Dissolved Gas (TDG)-related mortality of juvenile migrants. The framework for the adaptive management process is detailed in Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS. It is the intention of the co-lead agencies to engage regional state, tribal, and Federal biologists in the development of an appropriate adaptive management process utilizing their respective salmonid management expertise.

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4118	10	mggerdes89@gmail.com	N/A	The Fish Passage Center sent a memo to the co-lead agencies on January 24, 2020 that plainly showed that the Preferred Alternative is a high risk alternative for Snake River salmon and steelhead . In the lower quartile data range, low SARs and continued population decline (<1% SARs) are predicted to occur a majority of the time and even more expected with warming and drying climate conditions. The Preferred Alternative has no fundamental changes to restore Snake River salmon and steelhead. The ambiguous reference to adaptive management processes continues the status quo and fails to restore Snake River anadromous fish. This CRSO-DEIS fails to meet the purpose and need to evaluate how to insure that the prospective management of the System is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of designated critical habitat (CRSO-DEIS, Executive Summary, page 16). The only option for recovery and avoiding extinction of Snake River salmon and steelhead is to breach the 4 lower Snake River dams (Alternative MO3) and spill to the 125% tailrace TDG gas cap (Alternative MO4) at remaining projects, 24 hours per day. Until the dams are breached, spilling to 125% at all dams is an interim measure to keep these fish on life support. The combined MO3 and MO4 show the greatest improvements and the only path to successfully restore anadromous fish from the Snake River. These combined alternatives have the highest probability of meeting the 4% average SAR regional goal. Even the lower end of the predicted SAR range for MO3 was also above 1% for both Chinook and steelhead. The remaining alternatives (No Action, MO1, MO2, and the Preferred Alternative) fail to meet the regional 4% SAR goal, and the lower end of the predicted SAR ranges are well below 1%, indicating a high risk of extinction.	The co-lead agencies contracted with the Fish Passage Center (FPC) to produce the CSS modeling results presented in the Draft EIS. Any additional modeling that was not presented in the Draft EIS is not part of the CRSO EIS and was not developed by the co-lead and cooperating agencies. The co-lead agencies used the high quality data in the analysis of the CRSO EIS. This analysis is documented in Chapter 3 of the Draft EIS. Specific to salmon and steelhead, the agencies used two primary modeling approaches which yielded a range of potential outcomes for the alternatives. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult return rates (SARs) will increase for both Snake River spring Chinook and steelhead and will average well above 2% (the lower end of Northwest Power and Conservation Council's (Council's) recovery targets for the region) as a result of the Preferred Alternative increasing SARs from 2.0% to 2.7% for Chinook, a 35% relative increase. The National Marine Fisheries Service (NMFS) COMPASS and Lifecycle models predict different outcomes, depending on assumptions used for decreased latent mortality. To address this uncertainty, the Preferred Alternative will be implemented using a robust monitoring plan. In their 2017 report FPC, analyzed increased spill over BiOp spill and found that without dam breach, a 2.0-2.5 fold increased in abundance for Snake River salmon could be achieved with spill to the 120% and 125% gas cap. The 4% SARs target referenced in this comment refers to the Councils target for broad-sense recovery and is separate and distinct from the obligations of any single entity or in this case a requirement to be met solely by the co-lead agencies. Just as the Councils fish and wildlife program encompasses both Federal and non-Federal stakeholders in the Columbia Basin, the Councils recovery goals are shared by many parties. However, the Councils broad sense recovery goals are beyond the scope of this EIS which contemplates the effects associated with the operation and maintenance of the 14 CRS projects. With respect to the request to consider a combination of MO3, which includes a measure to breach the four lower Snake River dams, and Multiple Objective alternative 4 (MO4), which includes a measure to spill at the lower Columbia River dams to 125% total dissolved gas (TDG) levels, the co-lead agencies disagree that this is a reasonable alternative given public safety issues that would be expected from combining these two measures. MO3 and MO4, individually each caused large loss-of-load probability (LOLP) results (e.g. increased incidence of blackouts). Without major addition of new resources, MO3 would result in power shortages in about one in seven years. MO4 would produce power shortages in about one in every four years. If MO4 were implemented, in addition to breaching the four lower Snake River projects as called for in MO3, then the LOLP would be even higher, with power shortages potentially occurring almost every year. Additionally, if these Multiple Objective alternatives (MOs) were combined, in 5% of the years, the power shortages would average close to 1,000 MW in early August when the region might be experiencing a heatwave with particularly high demand for air conditioning. 1,000 aMW is about the average amount of power consumed by Seattle City Light. As shown in Section 3.7, MO3 causes an increase in power reliability concerns in the winter and the summer. MO4 increases power reliability concerns in the summer. Thus, the combination has the largest impact during the summer. The cost of zero-carbon replacement resources for MO3 and MO4 individually are up to $1 billion/year. Resource replacements and associated transmission interconnections for the combination of MO3 and MO4 would be higher, though not likely as high as the sum of the two MOs individually. Assuming that the replacement resources consist largely of wind, solar, and batteries, this would require well over 50 square miles of solar power (more than two and a half times the size of Crater Lake), large areas of new wind generation, and unprecedented amounts of batteries (more batteries in the Northwest alone than the total projection of batteries expected in the entire United States by 2023 per the Energy Information Administration). In addition, the reduced generation capability under MO3, particularly throughout the summer, in combination with the impacts of the measures in MO4 and the uncertainty about the characteristics of replacement resources, would result in less capability to provide voltage support and dynamic stability for transmission system reliability than under MO3 or MO4 individually. Thus, combining MO4 with breaching the four lower Snake River projects, would produce unreasonable power and transmission reliability impacts, and it is highly speculative that replacement resources could be sited, permitted and built to address these impacts. Thus, an alternative combining juvenile fish passage spill to 125% and breaching the four lower Snake River dams is unreasonable, and thus was not proposed as an alternative.
4130	1	dh@oregonwild.org	Oregon Wild	This project includes a goal to minimize GHG emissions. This is a laudable goal- one that should be embraced in the land management plans of the USDA Forest Service and USDI Bureau of Land Management. However, in the context of river management this goal should be broadened to embrace a more holistic climate strategy. Direct emissions of GHG is only part of the picture. The DEIS needs to recognize that: Replacement power can be obtained from renewable sources, not natural gas. This is increasingly true over time as investment in renewable energy continues and increases; Reservoirs of water tend to increase GHG emissions (including notably methane) compared to water moving more swiftly to the ocean. Prairie YT, Alm J, Beaulieu J, et al. Greenhouse Gas Emissions from Freshwater Reservoirs: What Does the Atmosphere See?. Ecosystems. 2018;21(5):10581071. doi:10.1007/s10021-017-0198-9. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6309167/pdf/nihms-1511344.pdf; Exposing and restoring the lands currently inundated by the lower Snake reservoirs will allow terrestrial ecosystems to increase carbon sequestration; Conservation and recovery of salmon populations will hypercharge the conveyor belt of nutrients from the ocean to the continent. Those salmon-derived nutrients will enhance ecosystem carbon uptake in riparian areas and a variety of carbon-rich terrestrial ecosystems; A free-flowing Snake River with a functioning floodplain will support ecosystem services that are more resilient to climate extremes;	The co-lead agencies appreciate this comment characterizing the complexity associated with system level analyses of greenhouse gas (GHG) emissions and climate resiliency effects. Sections 3.8 and 7.7.10 of the Draft EIS describes these multiple different ways that the CRSO EIS alternatives may affect sources and sinks of GHG emissions. Consistent with the considerations described in this comment, the analysis considers a scenario in which renewable resources are developed or acquired to replace reductions in hydropower (as opposed to natural gas), the potential for methane emissions reductions associated with breaching the lower Snake River dams (Appendix G and Section 3.8.3.5), and the potential effects of land use and land cover changes on landscape carbon sequestration capacity. Recognizing the importance of considering emissions and climate effects, the EIS considers these beneficial and adverse effects of the multiple objective alternatives within the broader context of tradeoffs, for example including the regional cost of power and water supply and costs to farmers of shipping commodities.
4156	1	staylor@cowlitzpud.org	Cowlitz PUD	Cowlitz PUD purchases over 90 percent of its wholesale power from BPA, the vast majority of which is generated by the Federal Columbia River Power System (FCRPS). The value of these purchases is equivalent to nearly 7% of BPAs total annual operating costs. Two-thirds (66%) of the PUDs electric load is derived from trade-exposed pulp and paper manufacturing industries, and the utilitys residential customer base is challenged with a disproportionate rate of poverty (16.9% vs. 11.8% U.S average). Substantive increases in utility rates have direct negative impacts on Cowlitz PUDs low-income families and could lead to cascading detrimental effects for the community in the event large industrial customers can no longer operate economically within our service area.	The comment that increases in utility costs can adversely affect vulnerable groups is consistent with discussions in the EIS. The Environmental Justice analysis in Sections 3.18.3 and 7.7.20 of the Draft EIS provide further detail on potential disproportionate effects including to tribal, low-income, and minority populations. The EIS also discusses the fact that Bonneville customers, such as cooperatives mentioned by the commenter, may be more directly affected by rate pressures than other regional utilities that do not purchase power directly from Bonneville (see Section 3.7.3.5 Summary of Effects).
4156	2	staylor@cowlitzpud.org	Cowlitz PUD	Preferred Alternative Concerns Reduction in Carbon-free Generating Capacity Implementation of the increased spring spill operations up to the proposed 125% total dissolved gas cap is projected to result in the loss of 160 aMW of clean, firm and flexible hydropower generation. The PAs actions project upward BPA rate pressure of 2.7%, but possibly as low as 0.4%, which, on its face, appear to be moderately impactful. However, this additional rate pressure is of great concern when placed in context with the escalating costs of Tier 1 power since the 2010-2011 rate periodincreases primarily attributed to the funding of fish and wildlife mitigation programs. Rate Period Tier 1 Rate Increase 2012-13 8.2% 2014-15 8.6% 2016-17 7.1% 2018-19 5.4% 2020-21 2.0%* *effective increase due to power reserve surcharge	The EIS recognizes the concern voiced in the comment regarding increasing power rates under the Preferred Alternative. The power rate increase quoted in the comment is consistent with the findings of the EIS; however, it is important to note these estimates compare the Preferred Alternative to the No Action Alternative, which is not the same as comparing the Preferred Alternative to current operations. Consequently, the estimates are not a comparison to the BP-20 wholesale power rates, which were set assuming the financial impact of the 2019-2021 Spill Operation Agreement, and therefore, already include a substantial portion of the cost pressures found in the Preferred Alternative. The remaining rate pressure associated with the Preferred Alternative falls within a level that Bonneville has historically been able to absorb through the costs over which it has significant control. See Draft EIS Section 3.7.3.1, page 3-817.
4156	3	staylor@cowlitzpud.org	Cowlitz PUD	Cowlitz PUD is also concerned these rate impacts are extremely optimistic and do not adequately account for the evolving energy landscape in the West as it is influenced by carbon-free policy initiatives and the early retirement of 2,505 MWs of coal-fired firm generation. The retirement of thermal resources is leading the region toward unacceptable levels of capacity deficiencies (from 6.5% to 24% loss of load probability), making this proposed reduction in FCRPS generation a move in the wrong direction as the electric sector seeks viable solutions to address the resource adequacy deficit. The PUD suggests the final EIS establish a new base case within the Power Generation and Transmission Analysis which incorporates the expected coal-fired generation loss and costs of replacing the lost hydropower capability with new carbon-free resources.	The commenter's statement that potential additional coal power retirements would decrease power reliability in the region is consistent with the findings in the EIS. As noted in the comment, existing coal projects were presumed to be online when developing the No Action Alternative. Since development of the Draft EIS, additional coal retirements have been announced. To address this concern, the EIS considered various sensitivity analyses as well as examining two potential coal retirement scenarios. See Draft EIS, Section 3.7.3.1, Availability of Coal Resources, pages 3-841-842; and Section 3.7.3.2, Table 3-123. The EIS acknowledges that assumptions regarding coal capacity have changed since the base case was developed in 2017, and the EIS presents base case analysis first before discussions of information resulting from additional sensitivities and potential cost pressures.
4156	4	staylor@cowlitzpud.org	Cowlitz PUD	Impacts to Large Industrial Facilities Access to an adequate, reliable, and affordable supply of power is integral to the viability of Cowlitz Countys large industrial base which, as stated above, comprises two-thirds of Cowlitz PUDs annual load. The manufacturing processes the facilities employ are highly sensitive to even minor system disturbances. Unplanned outages or rolling blackouts resulting from resource and transmission deficiencies have consequential impacts on these energy-intensive entities, which provide and support thousands of family-wage jobs in the local community. The pancaking of multiple cost layers associated with carbon-free power acquisition, regulation of carbon emissions, and salmonid preservation coupled with real concerns over the future reliable delivery of electricity has a significant detrimental effect on the competitive position of energy-intensive industries within our service area. While we recognize the PAs impacts are only one component of the broader picture, controlling BPA rates while maintaining system reliability is paramount to sustaining the industrial base and preserving local jobs.	The Preferred Alternative places additional rate pressure of 2.7 percent relative to the No Action Alternative consistent with the statement in the comment regarding increased rates. These estimates compare the Preferred Alternative to the No Action Alternative, which is not the same as comparing the Preferred Alternative to current operations. Consequently, the estimates are not a comparison to the BP-20 wholesale power rates, which were set assuming the financial impact of the 2019-2021 Spill Operation Agreement and therefore already include a substantial portion of the cost pressures found in the Preferred Alternative. The remaining rate pressure associated with the Preferred Alternative falls within a level that Bonneville has historically been able to absorb through the costs over which it has significant control. See Draft EIS Section 3.7.3.1, page 3-817. The analysis of the Preferred Alternative did not indicate an increase in the risk of power shortages compared to the No Action Alternative, as the decrease in generation is primarily in the spring when the system is least-likely to have a deficit.
4156	5	staylor@cowlitzpud.org	Cowlitz PUD	Biological Uncertainty of Increased Spill Cowlitz PUD is concerned about the biological uncertainty that the PA may create. The increased spill operations are intended to be a more effective passage method than turbine or bypass passage to avoid direct injury, therefore benefitting juvenile salmonid outmigration. However, the Action Agencies must question assumptions and predictions about the benefits of spill by monitoring the increased spill levels for unintended consequences. One consequence of increased spill is the uncharted increase to 125% of total dissolved gas standards and substantive impacts it will have on resident fish, other river organisms, and salmonids through Gas Bubble Trauma. Increased spill can also delay adult migration, harming the very salmonids the operations are intended to assist, even though the full effects will not be realized for years . Cowlitz PUD encourages the Action Agencies to include clear authorization language within the final EIS that allows for adaptive management should the high spill levels be shown, on a large scale, to be detrimental to either adult or juvenile resident or anadromous fish.	The commenter is correct regarding the uncertainty of effects on the Preferred Alternative on salmon and steelhead. Total dissolved gas (TDG) levels are regulated under the Federal Clean Water Act, and administered by the States. Both Oregon and Washington have reassessed the available data on effects of TDG levels up to 125% of saturation on fish and other aquatic organisms. Based on this reassessment, Oregon issued a 5-year "standard modification" and Washington issued a permanent rule change, approved by the Environmental Protection Agency (EPA), to allow TDG saturation up to 125%. However, as noted by the commenter, there is considerable uncertainty in the effects; and therefore, monitoring was required by the states and EPA to ensure that any negative effects are detected and allow for adaptive management. The Preferred Alternative will require a robust monitoring plan to help narrow the uncertainty between the biological models and will help determine how effective increased spill can be in increasing salmon and steelhead returns to the Columbia Basin. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information. As discussed in the EIS, the CSS assumptions and model structure predicted significant increases in average Smolt-to-Adult return rates (SARs) and therefore abundance over time. These increases were based on a predicted decrease in latent mortality rates. Neither the National Marine Fisheries Service (NMFS) COMPASS or Lifecycle models predict a decrease in latent mortality, and therefore the NMFS models predict a decrease in SARs and abundance of Snake River populations due to reductions in the proportions of Snake River salmon and steelhead that are transported. As also noted by the commenter, the effect of TDG levels up to 125% saturation in migrating populations is uncertain. The effectiveness of the spill program would be monitored and effects from other sources such as harvest, ocean mortality, and straying will also be accounted for to the extent possible.
4156	6	staylor@cowlitzpud.org	Cowlitz PUD	Predation Management Avian and pinniped predation are the largest individual contributors to endangered and threatened salmonid mortality, therefore Cowlitz PUD would like to see a stronger emphasis placed in the final EIS on predation management to improve salmon populations. Avian predation disruption measures currently in place at John Day Dam is a notable example of predation management that provides a cost-effective and measurable positive impact to fish population. However, Cowlitz PUD believes there are significantly more opportunities for the Region to address this critical issue.	The co-lead agencies' legal authorities relate to operating and maintaining the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy designated critical habitat. To comply with the ESA, the co-lead agencies have historically supported actions to mitigate adverse effects to listed species from CRS operations, through funding, direct implementation, and other means. Under the Preferred Alternative, those actions, including for the purpose of reducing pinniped and avian predation on ESA-listed species, would generally continue to ensure compliance with the ESA. Other entities in the region have authorities and obligations to mitigate the impacts from pinniped and avian predators and the co-lead agencies will continue to work closely with those entities to benefit ESA-listed salmonids. As the commenter notes, the Preferred Alternative also includes the Predator Disruption Operations measure in the John Day reservoir to further reduce avian predation on migrating juvenile fish.
4156	7	staylor@cowlitzpud.org	Cowlitz PUD	Ocean Conditions and Over-harvesting Dam survival rates are just one piece of a larger puzzle that includes in-river smolt predation, water temperature, ocean conditions, and adult salmonid predation/harvest rates, among other factors. Studies have found that the oceans absorb as much as 30 percent of the climates excess carbon and 90 percent of its excess heat . This absorption leads to warmer water temperatures and higher levels of acidity as well as lower levels of oxygen. NOAA Fisheries researcher Lisa Crosier recently stated that scientists worldwide have been documenting almost synchronous declines in salmon populations due to climate change . These results and conclusions underscore the fact that we must address climate change if we hope to restore healthy salmon populations. A 2016 report issued by the Alaska Department of Fish and Game identified that Chinook salmon from	The co-lead agencies also recognize that there are many effects to salmon and steelhead populations outside the operation of the dams; including those the commenter mentions. Research continues to evaluate the magnitude of these effects. For more information see the National Marine Fisheries Service (NMFS) website at: https://www.nwfsc.noaa.gov/research/index.cfm. The co-lead agencies also agree that climate change is a concern. However, the climate science community is still developing models that can be used to analyze possible effects to water temperature from climate change, and unfortunately, there are not reliable models at the required resolution (river-scale vs global- or regional-scale) at this time. Therefore it was not possible to reliably model water temperature changes under climate change for this EIS. In lieu of this information, the climate analysis used the output from the water quality models under historical conditions, climate change data, and scientific literature to qualitatively assess potential effects to water temperature (Sections 4.2.3 and Section 7.8).

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				Washington, Oregon and California made up 54 percent of the Chinook salmon that were intercepted in commercial troll fisheries and an estimated 48 percent of sport harvest in Alaska. Interior Columbia River Basin fall Chinook stocks accounted for 39 percent of the total troll harvest and 25 percent of the sport harvest in 2016. These harvest rates should be reduced to return more fish to the Columbia River Basin.	Finally, while harvest rates certainly have an effect on salmon populations, the co-lead agencies did not do an in depth analysis of those effects in the Draft EIS. NMFS conducted a complete analysis of harvest in a recent EIS. To see their conclusions and effects analyses please go to: https://www.fisheries.noaa.gov/resource/document/environmental-impact-statement-programmatic-review-harvest-actions-salmon-and.
4156	8	staylor@cowlitzpud.org	Cowlitz PUD	Equitably Sharing Environmental Mitigation Costs Cowlitz PUD is committed to mitigating the impacts of FCRPS operations, but public power customers should not solely bear incremental fish mitigation costs that provide broader social and environmental benefits. Fish and wildlife costs comprise roughly 25 percent of BPAs power bill to Cowlitz PUD, and the additional cost responsibilities resulting from the PAs implementation should be offset or reallocated to accurately reflect the benefits that the FCRPS brings to the entire Region.	The financial responsibility for fish mitigation is not solely allocated to Bonneville's power ratepayers as the comment suggests. Fish mitigation costs are assigned to each authorized project purpose based on each purposes overall share of project costs, as determined by the cost allocation, by recovering those costs through power rates. Bonneville is required to pay for its share of mitigation costs based on the existing cost allocation. Congress also granted Bonneville discretion to fund the power share directly to the Corps and Reclamation as part of the Energy Policy Act of 1992, in some situations, including the Columbia River Fish Mitigation program. (Energy Policy Act of 1992, Pub. L. No. 102-486, 2406, 106 Stat. 2776, 3009 (1992) (codified at 16 U.S.C. 839d-1 (2012)). Bonneville generally does not, however, directly pay for the capital costs of fish mitigation structures; instead, it reimburses the U.S. Treasury for the power share of appropriations used to construct the structure. Additionally, as described in Section 3.19 of the EIS and Appendix Q, funding to operate the system comes through multiple mechanisms, including Federal tax dollars appropriated to cover system costs as well as revenue generated from the marketing and sale of hydropower. For power-specific costs, Bonneville typically provides direct funds to both the Corps and Reclamation. For joint related costs, including funding for fish and wildlife mitigation actions, the Corps and Reclamation receive annual congressional appropriations to fund most, if not all, capital investments. Bonneville reimburses the U.S. Treasury for the power share of these appropriations. Once the investment is in place, Bonneville will typically direct fund the power share of the operations and maintenance costs associated with the facility. In addition to congressional appropriations for fish and wildlife and costs directly funded to Corps and Reclamation by Bonneville, the Bonneville Fish and Wildlife Program (which is separate and distinct from direct funding described above) funds hundreds of projects each year to mitigate the impacts of the Federal hydropower system on fish and wildlife. Bonneville began this program to fulfill mandates established by Congress in the Pacific Northwest Electric Power Planning and Conservation Act of 1980 to protect, mitigate, and enhance fish and wildlife affected by the development and operation of the Federal Columbia River Power System (FCRPS). Bonneville uses its authority under 16 U.S.C. 839b(h)(10)(A), to make expenditures to implement its Fish and Wildlife Program. These expenditures provide system-wide funding for actions that also mitigate for the non-power purposes of the CRS, so Bonneville recoups the non-power share of those expenditures from the U.S. Treasury as credit, as required under 16 U.S.C. 839b(h)(10)(C). Bonneville's Fish and Wildlife Program expenditures incurred mitigating the CRS operations identified in the Final EIS and adopted in Bonneville's Mitigation Action Plan would continue to be allocated and borne as provided by existing laws governing the FCRPS and the long-standing accounting procedures used to implement them. As described in Chapter 7 of the EIS, funding decisions for Bonneville's Fish and Wildlife Program are not being made as part of the CRSO EIS process. Future budget adjustments would be made in coordination with the regional entities that help Bonneville implement its Fish and Wildlife Program. The statement that roughly a quarter of costs from Bonneville's power rates are due to fish and wildlife spending is consistent with information provided in the EIS.
4156	9	staylor@cowlitzpud.org	Cowlitz PUD	Recognizing Region-wide Clean Energy Benefits A recent study published in the Proceedings of the National Academy of Sciences found that the Pacific Northwest Region produced and used the cleanest energy in the nation due primarily to BPAs renewable hydropower system. Washington States newly-adopted Clean Energy Transformation Act requires electric utilities to serve its customers with 100 percent carbon-free resources by 2045 and to achieve carbon neutrality by 2030. These standards cannot be feasibly met without the full capacity of the FCRPS to flexibly integrate intermittent wind and solar renewable generation onto the grid. The value derived from the FCRPS generating attributes toward achieving clean energy policy goals must be properly considered and accounted for, and the full costs of the system equitably allocated to all beneficiaries across the Region.	The information provided in the comment regarding the importance of hydropower for regional greenhouse gas emissions goals, and the integration of variable renewables is consistent with the findings of the EIS.
4162	1	Christopher Daniel	Advisory Council on Historic Preservation	On April 29, 2019, the Advisory Council on Historic Preservation (ACHP) received a letter jointly signed by the U.S. Army Corps of Engineers (Corps), the Bonneville Power Administration, and the Bureau of Reclamation, the Co-Lead Agencies (CLA) for the Federal Columbia River Power System (FCRPS) System-wide Programmatic Agreement (SWPA) for the Columbia River System Operations (CRSO). This letter informed consulting parties of the CLAs intent to utilize the SWPA to fulfill the agencys obligations under Section 106 of the National Historic Preservation Act (NHPA) for modifications in the operation, configuration, and maintenance of the 14 Federal Projects in the Columbia River System covered by the new CRSO Environmental Impact Statement (EIS). This new EIS will present a range of alternatives for long-term system operations and evaluate the potential environmental and socioeconomic impacts on flood risk management, irrigation, power generation, navigation, fish and wildlife conservation, cultural resources, water quality and recreation. The CLAs are required to develop this EIS in response to new information and changed conditions in the Columbia River Basin as well the Opinion and Order issued by the U.S. District Court for the District of Oregon related to endangered or threatened species. The CLAs have indicated they intend to conclude this review by September 2020. The CLAs also 2 intend to invite nine additional consulting parties to be signatory or concurring parties using the terms of the SWPA. The ACHP acknowledges that the use of the SWPA to address effects to historic properties from potential changes in the operations and management of FCRPS and to identify additional consulting parties appears appropriate; however, its provisions do not appear adequate to address the dam breaching alternative and related impacts. As such, the ACHP would urge the CLAs to carry out a Section 106 review for this action in one of two ways set out in the ACHPs regulations at 36 CFR 800.8(c) or 800.14(b). The ACHP offers the following recommendations and comments concerning several critical items. We appreciate the CLAs consideration of these comments and recommendations as it continues consultation on this matter.	The co-lead agencies appreciate the public comment submitted by the Advisory Council on Historic Preservation (ACHP) and acknowledge this comment was previously submitted to the co-lead agencies as part of a single letter dated June 19, 2019, during the ongoing Section 106 of the National Historic Preservation Act consultation process as a partial fulfillment for the CRSO EIS National Environmental Policy Act (NEPA) process. The co-lead agencies responded in writing to the ACHP on November 27, 2019. The co-lead agencies also acknowledged and appreciated the ACHP's support for using Stipulation XVI.F of the Federal Columbia River Power System (FCRPS) Systemwide Programmatic Agreement (SWPA) to add additional consulting parties who wish to be signatories to the SWPA and participate in the ongoing FCRPS Cultural Resource Program. The co-lead agencies further acknowledged the ACHP supports the use of the SWPA for compliance with Section 106 regarding the undertaking resulting from the CRSO EIS, with exception of the undertaking that includes dam breaching. However, the co-lead agencies believe additional Section 106 compliance cannot be completed at this time for an alternative that includes analyzing dam breach for the four lower Snake River dams (included in Multiple Objective Alternative 3) in the CRSO EIS. The reasons Section 106 cannot be completed at this time for MO3, are the requirement of the implementing regulations (36 C.F.R. 800.2(a)) "that an agency official with jurisdiction over an undertaking takes legal and financial responsibility for an undertaking .... The agency official has approval authority for the undertaking and can commit the Federal agency to take appropriate action for a specific undertaking as a result of section 106 compliance." Although an alternative that analyzes dam breach of the four lower Snake River dams could be selected as the alternative recommended by the co-lead agencies in their respective decisions, all the co-lead agency officials lack the approval authority and jurisdiction necessary to authorize dam breach of the four lower Snake River dams without first following the path described in the Declarations submitted to the United States District Court for the District of Oregon and summarized on the CRSO EIS website: https://www.nwd.usace.army.mil/Media/Fact-Sheets/Fact-Sheet-Article-View/Article/1708265/proiect-authorities-overview/ Starting a separate Section 106 process now, especially the drafting of a new programmatic agreement or utilizing the National Environmental Policy Act (NEPA) substitution process as suggested by the ACHP, would not enhance the evaluation of effects to historic properties in any meaningful way. A new programmatic agreement would not provide additional information about impacts to historic properties. Instead, it would simply lay out a process that the co-lead agencies have already committed to in the SWPA. In the same manner, the NEPA substitution process would rely on the CRSO EIS, and, therefore, that information would be the same regardless of whether the co-lead agencies explicitly used substitution or not. Furthermore, the co-lead agencies respectfully disagree with the ACHP's statement that selection of the alternative that includes dam breach of the four lower Snake River dams would conflict with the timing requirement of 36 C.F.R. 800.1(c) or restrict the ability of the co-lead agencies to identify measures to avoid, minimize, or mitigate adverse effects to historic properties. If the alternative that includes breaching the four lower Snake River dams were to become the selected alternative, the USACE would use the CRSO EIS, the subsequent recommendation of an alternative that includes dam breach in the Record of Decision (ROD), and the other necessary actions outlined in the Declarations to seek congressional authorization and appropriations. If Congress were to authorize dam breach of the four lower Snake River dams and appropriate funds, the designated agency or agencies would then embark on a NEPA process to identify a range of alternatives to avoid, minimize, or mitigate adverse effects, and conduct other necessary environmental compliance, prior to initiating and completing dam breach. Only when this subsequent NEPA process commences would dam breach be an undertaking with sufficient clarity to identify potential effects to historic properties and appropriate alternatives to avoid, minimize or mitigate those effects. The co-lead agencies appreciate the comments, recommendations, advice, and support from the ACHP as we move forward with Section 106 compliance and the continued implementation of the SWPA.
4162	2	Christopher Daniel	Advisory Council on Historic Preservation	Section 106 Compliance for Changes to CRSO As noted above, the ACHP agrees with the CLAs proposal to use the SWPA to address its ongoing Section 106 compliance responsibilities for any changes in the operation, configuration, and maintenance of the dams that might occur under the CRSO EIS decision. It appears, based on the information provided, that these changes would fall within the existing scope of the undertaking as described in the SWPA. We recommend the CLAs provide to the consulting parties an explanation of the spectrum of activities that might result from changes to CRSO and more specifically how the SWPAs provisions would be sufficient to address these changes and satisfy its consultation requirements. However, the ACHP is concerned that the SWPA, which was developed to address on-going maintenance and operations, is not sufficient to resolve the types of effects to historic properties that may result from the breaching of the four lower Snake River dams and believes that additional consultation is necessary to develop measures to resolve such effects, should the CLAs determine it appropriate to select this alternative directing them to seek congressional authorization for breaching. At this time, the full scope of the undertaking is unclear, but it is reasonable to assume that a decision to pursue breaching any or all of the four dams would affect historic properties. As stated in the April 29, 2019 letter to the ACHP, the Section 106 process will be carried out pursuant to the SWPA for all other alternatives with the exception of breaching. The ACHP agrees with this assertion, but disagrees that no additional Section 106 review would be required for the breaching alternative at this time. Previous documentation, such as the 2017 Ponganis Declaration, indicates that the CLAs, and specifically the Corps, would undertake additional environmental analysis, including Section 106 consultation, if the breaching alternative were to be selected and congressional authority granted for a breaching. It is our understanding that it is likely the development of the breaching alternative in the EIS would result in a specific proposal for action to be carried out by one of the CLAs and submitted for congressional authorization. Therefore, it follows that, should this course of action be selected and such authorization sought, alternatives to avoid, minimize, or mitigate adverse effects to historic properties would already have been restricted, if not eliminated, and thus, such decision making would conflict with the timing requirement stated in 36 CFR 800.1(c). The ACHP recognizes that conducting a Section 106 review for the breaching alternative would be challenging at this time based on the need for continued coordination and because effects to historic properties could not be fully determined prior to pursuing congressional authorization should this alternative be selected. In light of this situation, the ACHP recommends either, 1) the CLAs develop and execute a programmatic agreement pursuant to 36 CFR 800.14(b)(3) with identified consulting parties that would recognize the potential for adverse effects from any breaching, and would set forth further consultation, identification, and resolution efforts after such authority was granted; or 2) utilize the procedures and documentation required for the preparation of an EIS/Record of Decision to comply with Section 106, pursuant to 36 CFR 800.8(c). Both of these approaches allow the CLAs to recognize the need for further consultation if breaching is selected and authority granted; in the latter option, 3 compliance with Section 106 could be documented in the ROD without the need for a separate PA. Both of these solutions would also require the CLAs to consult on the potential effects of the breaching alternative, acknowledging that discussion would be limited to the information and documentation available at the time, and focused on establishing a process for continued consultation moving forward. Executing a separate PA or substituting the process and documentation required for preparation of the EIS for the Section 106 review, concluding with binding commitments in the ROD to resolve adverse effects, would assist in satisfying the CLAs Section 106 responsibility for this proposed action. If initiated soon, the development of measures for either of the above approaches could be accomplished quickly and without much difficulty. Additionally, the ACHP would commit to assisting the CLAs in this consultation as we recognize the timing constraints placed on the CRSO EIS.	The co-lead agencies appreciate the public comment submitted by the Advisory Council on Historic Preservation (ACHP) and acknowledge this comment was previously submitted to the co-lead agencies as part of a single letter dated June 19, 2019, during the ongoing Section 106 of the National Historic Preservation Act consultation process as a partial fulfillment for the CRSO EIS National Environmental Policy Act (NEPA) process. The co-lead agencies responded in writing to the ACHP on November 27, 2019. The co-lead agencies also acknowledged and appreciated the ACHP's support for using Stipulation XVI.F of the Federal Columbia River Power System (FCRPS) Systemwide Programmatic Agreement (SWPA) to add additional consulting parties who wish to be signatories to the SWPA and participate in the ongoing FCRPS Cultural Resource Program. The co-lead agencies further acknowledged the ACHP supports the use of the SWPA for compliance with Section 106 regarding the undertaking resulting from the CRSO EIS, with exception of the undertaking that includes dam breaching. However, the co-lead agencies believe additional Section 106 compliance cannot be completed at this time for an alternative that includes analyzing dam breach for the four lower Snake River dams (included in Multiple Objective Alternative 3) in the CRSO EIS. The reasons Section 106 cannot be completed at this time for MO3, are the requirement of the implementing regulations (36 C.F.R. 800.2(a)) "that an agency official with jurisdiction over an undertaking takes legal and financial responsibility for an undertaking .... The agency official has approval authority for the undertaking and can commit the Federal agency to take appropriate action for a specific undertaking as a result of section 106 compliance." Although an alternative that analyzes dam breach of the four lower Snake River dams could be selected as the alternative recommended by the co-lead agencies in their respective decisions, all the co-lead agency officials lack the approval authority and jurisdiction necessary to authorize dam breach of the four lower Snake River dams without first following the path described in the Declarations submitted to the United States District Court for the District of Oregon and summarized on the CRSO EIS website: https://www.nwd.usace.army.mil/Media/Fact-Sheets/Fact-Sheet-Article-View/Article/1708265/proiect-authorities-overview/ Starting a separate Section 106 process now, especially the drafting of a new programmatic agreement or utilizing the National Environmental Policy Act (NEPA) substitution process as suggested by the ACHP, would not enhance the evaluation of effects to historic properties in any meaningful way. A new programmatic agreement would not provide additional information about impacts to historic properties. Instead, it would simply lay out a process that the co-lead agencies have already committed to in the SWPA. In the same manner, the NEPA substitution process would rely on the CRSO EIS, and, therefore, that information would be the same regardless of whether the co-lead agencies explicitly used substitution or not. Furthermore, the co-lead agencies respectfully disagree with the ACHP's statement that selection of the alternative that includes dam breach of the four lower Snake River dams would conflict with the timing requirement of 36 C.F.R. 800.1(c) or restrict the ability of the co-lead agencies to identify measures to avoid, minimize, or mitigate adverse effects to historic properties. If the alternative that includes breaching the four lower Snake River dams were to become the selected alternative, the USACE would use the CRSO EIS, the subsequent recommendation of an alternative that includes dam breach in the Record of Decision (ROD), and the other necessary actions outlined in the Declarations to seek congressional authorization and appropriations. If Congress were to authorize dam breach of the four lower Snake River dams and appropriate funds, the designated agency or agencies would then embark on a NEPA process to identify a range of alternatives to avoid, minimize, or mitigate adverse effects, and conduct other necessary environmental compliance, prior to initiating and completing dam breach. Only when this subsequent NEPA process commences would dam breach be an undertaking with sufficient clarity to identify potential effects to historic properties and appropriate alternatives to avoid, minimize or mitigate those effects. The co-lead agencies appreciate the comments, recommendations, advice, and support from the ACHP as we move forward with Section 106 compliance and the continued implementation of the SWPA.
4162	3	Christopher Daniel	Advisory Council on Historic Preservation	Newly Identified Consulting Parties The ACHP is supportive of the CLAs approach to utilize Stipulation XVI.F of the SWPA to add additional consulting parties as this mechanism provides an avenue for new consulting parties to engage in consultation and participate in the cooperating groups that assist in guiding reviews under the SWPA. We request the CLAs keep the existing consulting parties informed as to the responses received to this request and that the SWPA document the outcomes via the annual report and share copies of any new signature sheets. In the future, if the SWPA were to be	The co-lead agencies appreciate the public comment submitted by the Advisory Council on Historic Preservation (ACHP) and acknowledge this comment was previously submitted to the co-lead agencies as part of a single letter dated June 19, 2019, during the ongoing Section 106 of the National Historic Preservation Act consultation process as a partial fulfillment for the CRSO EIS National Environmental Policy Act (NEPA) process. The co-lead agencies responded in writing to the ACHP on November 27, 2019, and thanked them for their letter. The co-lead agencies also acknowledged and appreciated the ACHP's support for using Stipulation XVI.F of the Federal Columbia River Power System (FCRPS) Systemwide Programmatic Agreement (SWPA) to add additional consulting parties who wish to be signatories to the SWPA and participate in the ongoing FCRPS Cultural Resource Program. The co-lead agencies will keep existing consulting parties informed of responses from

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				amended, the ACHP recommends assessing this section to adjust the current language to make it more precise on how to document the involvement of additional consulting parties.	new consulting parties, will continue documentation in our FCRPS annual report, and share copies of any new signatory sheets to the SWPA. The co-lead agencies further appreciate the ACHPs recommendation that, if the SWPA were to be amended, the co-lead agencies should reassess the section documenting the involvement of additional consulting parties.
4192	1	dlwhitcomb@aol.com	N/A	I read much removing dams to mitigate salmon decline on the Snake/Columbia River system but nothing about the effect of contaminant pollution and the viability of salmon on the many estuaries in the Puget Sound area. When are you going to recognize this impact. The following two studies clearly describe the significant metabolic effects of the contaminants being continually discharged into estuaries from the communities in the Puget Sound area on the salmon smolt. In addition to a know effect on the salmon, these contaminants include birth control drugs that could will concentrate in the fish fats and be consumed by the ORCA's--birth controll will effect the reproduction. Salmon recovery needs to address all the issues and not just the dams, which salmon mortality is being continually reduced by improvements in the turbines and other equipment. Contaminants of emerging concern in a large temperate estuary* James P. Meador a, b, *, Andrew Yeh b, 1, Graham Young c, d, 2, Evan P. Gallagher b, 1 a Ecotoxicology and Environmental Fish Health Program, Northwest Fisheries Science Center, NOAA Fisheries, Seattle, WA, 98112, USA b Department of Environmental and Occupational Health Sciences, University of Washington, Seattle, WA, USA c School of Aquatic and Fisheries Sciences, University of Washington, Seattle, WA, USA d Center for Reproductive Biology, Washington State University, Pullman, WA, USA Received 19 November 2015 Received in revised form 26 January 2016 Accepted 29 January 2016 Adverse metabolic effects in fish exposed to contaminants of emerging concern in the field and laboratory*,** James P. Meador a, b, *, Andrew Yeh b, 1, Evan P. Gallagher b, 1 a Environmental and Fisheries Sciences Division, Northwest Fisheries Science Center, National Marine Fisheries Service, National Oceanic and Atmospheric Administration, 2725 Montlake Blvd. East, Seattle, WA 98112, USA b Department of Environmental and Occupational Health Sciences, School of Public Health, University of Washington, Seattle, WA 98105, USA a r t i c l e i n f o Article history: Received 10 November 2017 Received in revised form 18 January 2018 Accepted 4 February 2018	The co-lead agencies agree that there are many effects to salmon and steelhead populations outside the operations of the dams. As these effects would be outside the Columbia River Basin, minimally affect any resource in the basin, and the same for all alternatives analyzed, they are minimally discussed in EIS where appropriate. Research continues to evaluate the magnitude of these effects. For more information see the National Marine Fisheries Service website at: https://www.nwfsc.noaa.gov/research/index.cfm
4223	1	Elizabeth McKeag	N/A	As far as the analysis being unacceptable, I will just reiterate the previous comments about how crazy it is that the economic implications of the sport fishing industry were not evaluated in this EIS, especially considering they were evaluated in previous EISs. And this information is publicly available through several sources, including the Idaho Fish and Game Department. And my understanding was that you were potentially given this information during the cooperating agency portion of the analysis. So anything moving forward must include that consideration, especially since barging, transportation, energy, everything else had a quantitative analysis, while for some reason fishing was only allowed a qualitative analysis.	The EIS provides an evaluation of the social welfare and regional economic effects of the No Action Alternative and the Multiple Objective alternatives (MOs), including the effects on recreation (Section 3.11) and commercial fisheries (Section 3.15). The recreation analysis for the EIS considered the broad range of recreational activities supported by the region, including recreational fishing. While the analysis described any potential impacts to recreational fishing visitation, the EIS did not estimate these impacts separately from the overall impacts to recreation, or estimate changes in fishing visitation related to changes in fish abundance. The EIS describes the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. NMFS estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which are described qualitatively. For the effects on recreational fishing under MO3 (Section 3.11.3.5) along the lower Snake River below Lewiston, the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River) as an indicator for fishing visitation in this reach. The EIS describes that the visitation in the long-term in the lower Snake River, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting outfitting and tourism businesses in the region. The potential for changes in recreational fishing of anadromous fish under MO3 is described in Section 3.11, which could result in increases in recreational fishing in the long-term that would support jobs, income, and social benefits in Tribal and rural river communities. However, there is uncertainty around recreational fishing visitation in the long-term given the current measures to regulate, protect, and support ESA-listed fish populations and habitat in the region. The social welfare values and regional economic effects associated with recreational fishing under the action alternatives as well as river recreation post dam breach under MO3 were not estimated because of the uncertainty and large range in visitation and consumer surplus values among users. For Multiple Objective alternative 1 (MO1), Multiple Objective alternative 2 (MO2), and Multiple Objective alternative 4 (MO4), and the Preferred Alternative (PA), the evaluation qualitatively describes the potential for effects associated with recreational fishing by referencing the potential effects on relevant fish populations, as described in Section 3.5. Fish modeling results vary for some of the alternatives, for example for the PA and MO4 (i.e., models show either beneficial or adverse effects to anadromous fish), so it is assumed that the potential changes in recreational fishing would follow these changes in fish abundance in the long-term. The contribution of Columbia River origin fish to ocean fisheries is described in Section 3.15.2.1. Because there is considerable uncertainty regarding the overall effects of the alternatives on regional fish populations, and how such changes may affect the management of the fisheries, effects associated with changes in commercial and recreational fisheries under the alternatives were described qualitatively. This analysis evaluates potential effects on fisheries by referencing the potential effects on relevant fish populations, as described in Section 3.5.
4224	1	jmichael.photo@gmail.com	N/A	And I just want to give a reminder that research at Washington State University in recent years has shown that these slack water reservoirs do produce significant amounts of methane. So it's not entirely honest to call the energy that these dams produce carbon-free.	The EIS evaluates the research pertaining to methane emissions from hydropower reservoirs. Appendix G, Chapter 5 of the EIS details the assessment of reservoir methane emissions from the CRS projects. The findings are summarized in Section 3.8. This assessment finds that reservoir characteristics and management substantially influence methane emissions. A 2016 study developed by the Corps' Walla Walla District concluded that for the relatively clean reservoirs of the Federal Columbia River Power System, which include the lower Snake River dams, conditions for low dissolved oxygen concentrations are not prevalent; thus methane gas is generally not an issue. Additionally, in 2017, the Northwest Power and Conservation Council found that data on these sites were insufficient to estimate the reservoir methane emissions specifically for the Columbia River hydrosystem, but that methane emissions at high levels are not likely due to the lower organic and nutrient loads to the system, and higher dissolved oxygen content. The EIS describes that emerging technologies will allow for better measuring and understanding the effects of reservoir methane emissions from CRS projects, including the four lower Snake River dams.
4225	1	Sarah Highfield	N/A	Since 1978, Whitman County has produced more wheat than any other county, not just in the state, but across the nation. The vitality of our agricultural communities and the continued operation of the dams cannot be disentangled, as dam breaching proponents would argue. Whitman County wheat growers owe their competitive edge to barging. About 80 to 90 percent of the grain grown in our region ships to oversea markets. Growers can compete internationally because of their high product quality and low price point, made possible by barging, the least-expensive means of transport. As the Draft EIS states, breaching the dams would eliminate this valuable shipping method, swelling transportation and associated product costs, crowding our roads, and compounding carbon emissions. This, coupled with the $500 million loss in irrigation, places many family farms at great risk. The Draft EIS captures some of this economic and societal impact, but we believe it is understated still. A study commissioned by the Pacific Northwest Waterways Association assessed the impacts that would result if barging on the Snake River is lost. The study found that if (inaudible), more than 1,100 farms could be at risk of bankruptcy. With wheat prices already down near the break-even point, the study calculates that the federal government would need to increase annual direct payments to farmers, that up to $38.8 million to maintain (inaudible) level. Among the farmers who escape bankruptcy, how many would rather retire than face steep losses?How many future generations would forfeit a rich farming tradition as their family operations go under? According to the 2017 Census of Agriculture, the average age of a farmer in the United States is 57.5, and 96 percent of farms and ranches are family-owned. Family farms, the foundation of our country, would crumble under an extreme decision to breach the lower Snake River dams —- consideration should be elaborated in the report as well. Nearly one in five people living in the 10-county area most impacted by a dam-breaching alternative, including Whitman County, are at or below the federal poverty level.	The EIS evaluates potential effects on farmers associated with increased transportation costs under MO3 in section 3.10.3.5. The EIS finds that under a dam breach scenario, average transportation costs for wheat farmers would increase 10 to 33 percent, but that individual farmers could experience increases that are doubled. The cost increases to specific shippers would depend upon location and would vary throughout the region, depending on transportation options at each location. Generally, those grain shippers that are the furthest from alternate shipping locations (shuttle rail facilities or river ports on the Columbia River) would be the most negatively impacted. The EIS recognizes that there is no guarantee wheat grown in the Northwest will be competitive now or in the future because there are many factors that influence international commodity markets (e.g., trade agreements, the U.S. dollar, global supply, etc.). However, the analysis finds that the cost to transport wheat to market would continue to be lower than costs paid by other wheat growers in the United States (e.g., the Dakotas and Midwest). Favorable conditions for Northwest wheat growers that help them stay competitive are: (1) the natural environment of the Palouse region (weather, soils) is ideal for growing this type of wheat, which leads to some of the highest yields per acre in the world, and (2) proximity of Northwest export ports. The Environmental Justice analysis (Sections 3.18.3 and 7.7.20 of the Draft EIS) provides further detail on potential disproportionate effects to Tribal, low-income, and minority populations from each of the alternatives, and finds that some disproportionate effects to agricultural communities may result under MO3 and MO4.
4227	1	Aaron Lieberman	N/A	But whereas the action agencies' plan details the impacts positive and negative across the different alternatives on other industries, including agriculture, including subsidized barging and power generation, Idaho's outfitters, guides, and rural fishing communities were literally and completely ignored from the impact analysis, as was mentioned, despite readily available information. For all management alternatives and their preferred alternative, the economies of recreation and fishing from diving, outfitting, hotels, restaurants, gas stations, boat shops, license fees, and on were not even accounted for, despite, again, existing, publicly available data. The economic and cultural impacts of salmon and steelhead in Idaho must be given full consideration by the federal agencies that control the system. As was also mentioned before, previous EISs included this information, but this newer iteration does not.	The EIS provides an evaluation of the social welfare and regional economic effects of the No Action Alternative and the Multiple Objective alternatives (MOs), including the effects on recreation (Section 3.11) and commercial fisheries (Section 3.15). The EIS describes the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The recreation analysis for the EIS considered the broad range of recreational activities supported by the region, including recreational fishing. While the analysis described any potential impacts to recreational fishing visitation, the EIS did not estimate these impacts separately from the overall impacts to recreation, or estimate changes in fishing visitation related to changes in fish abundance. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. NMFS estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which are described qualitatively. For the effects on recreational fishing under MO3 (Section 3.11.3.5) along the lower Snake River below Lewiston, the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River) as an indicator for fishing visitation in this reach. The EIS describes that the visitation in the long-term in the lower Snake River, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting outfitting and tourism businesses in the region. The potential for changes in recreational fishing of anadromous fish under MO3 is described in Section 3.11, which could result in increases in recreational fishing in the long-term that would support jobs, income, and social benefits in Tribal and rural river communities. However, there is uncertainty around recreational fishing visitation in the long-term given the current measures to regulate, protect, and support ESA-listed fish populations and habitat in the region. The social welfare values and regional economic effects associated with recreational fishing under the action alternatives as well as river recreation post dam breach under MO3 were not estimated because of the uncertainty and large range in visitation and consumer surplus values among users. For MO1, MO2, MO4, and the Preferred Alternative (PA), the evaluation qualitatively describes the potential for effects associated with recreational fishing by referencing the potential effects on relevant fish populations, as described in Section 3.5. Fish modeling results vary for some of the alternatives, for example for the PA and MO4 (i.e., models show either beneficial or adverse effects to anadromous fish), so it is assumed that the potential changes in recreational fishing would follow these changes in fish abundance in the long-term.
4228	1	Joseph Bogaard	N/A	One has to do with the process of public comment that's now underway. And of course, it was, in our minds, inadequate to start with, with a very short 45-day comment period for the purposes of receiving comments from the public on a document that exceeds 8,000 pages. This inadequacy and insufficiency on the part of the public comment process has been greatly exacerbated by the public health crisis, you know, caused by the coronavirus. It	The co-lead agencies considered requests to extend the public comment period. This National Environmental Policy Act (NEPA) process included a wide array of cooperating agencies whose close involvement throughout the process allowed the co-lead agencies to incorporate feedback. Given the broad range of comments received and the extensive Federal and non-Federal participation in the overall process as well as the level of public engagement in the six virtual public meetings in the

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				-- we appreciate the -- this opportunity for the teleconferences in lieu of public meetings, given that health crisis. But it just is undeniable that the -- given the commentary on different perspectives so far on this initial call, these are really big and important issues. And abbreviated or insufficient public comment period without public meetings and without more time, given the important issues and given the reality and disruptions and concerns around the coronavirus crisis, it's just unacceptable. And I'm speaking to the agencies here to encourage you once again to expand the public comment period to include rescheduled public hearings after a better time at which the coronavirus is no longer a threat and people can gather safely.	region, the co-lead agencies determined that an extension was not warranted and that the 45-day public comment period was consistent with NEPA regulations. The CRSO EIS website reminded the public on April 9, 2020, that they should plan to submit comments by the close of the comment period.
4233	1	Keith Kutchins	N/A	This EIS states in the introductory material that the EIS will allow the co-lead agencies and the region to evaluate cost and benefits of the various alternatives. I'm still looking for where that occurred. And in the spirit of several of the other commenters working together, that needs to be done. Otherwise, this EIS as drafted is flawed. As the first caller mentioned, Kurt Miller, Executive Director of Northwest River Partners, he mentioned -- I don't know if the number is right or not -- but if restoring the lower Snake to natural condition cost $1 billion, that's yet but a drop in the hat compared to the value of the natural capital in the Columbia River Basin is $198 billion a year.	The EIS evaluated beneficial and adverse effects across an array of resource areas including potential effects at the national, regional, and local level; effects are monetized and quantified, where possible, and also described qualitatively. As is common in National Environmental Policy Act (NEPA) analyses, the beneficial and adverse effects of the alternatives are expressed as a variety of qualitative and quantitative environmental and economic metrics throughout the EIS to inform decision-making, including the effects of the alternatives on fish as detailed in Section 3.5. That the effects of the alternatives on fish are not expressed as monetized economic values does not mean that they were not considered in the context of the analysis. The EIS does not employ a cost-benefit framework for decision-making consistent with NEPA (see 40 C.F.R. 1502.23). Instead, the EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-lead agencies numerous legal obligations. The Preferred Alternative is predicted to benefit ESA-listed juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets most other EIS objectives including those for: resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. Table 7-1 in Chapter 7 provides a summary of the beneficial and adverse effects of the alternatives, including the quantified social welfare costs and benefits for a number of the resource areas as well as the implementation costs of the alternatives.
4237	1	Marvin Entel	N/A	But anyway, the other question that I had is that the foreign fishing factories that are fishing off of our coast, it's my understanding that some of these foreign fishing ships take up to 600 ton of fish from the ocean in their (indiscernible). I have never seen any documentation about the number of tons of fish that the foreign fishing factories take from the -- they're supposed to be on the 200-mile limit, but often they get into the 100-mile limit. But there's no indication of the number of tons of fish that these foreign fishing factories take from the ocean that are stealing our fish that we send there.	While harvest rates certainly have an effect on salmon populations, the co-lead agencies did not do an in depth analysis of those effects in the Draft EIS. The National Marine Fisheries Service conducted a complete analysis of harvest in a recent EIS. To see their conclusions and effects analyses please go to: https://www.fisheries.noaa.gov/resource/document/environmental-impact-statement-programmatic-review-harvest-actions-salmon-and. The contribution of Columbia River origin fish to ocean fisheries is described in Section 3.15.2.1. Because there is considerable uncertainty regarding the overall effects of the alternatives on regional fish populations, and how such changes may affect the management of the fisheries, effects associated with changes in commercial and recreational fisheries under the alternatives were described qualitatively. This analysis evaluates potential effects on fisheries by referencing the potential effects on relevant fish populations, as described in Section 3.5.
4239	1	Amelia Gucker	N/A	My second point is that the collection of the mortality rate -- or the reporting of the mortality rate at the dams was significantly under-reported. According to biological standards of collection of fish mortality and (indiscernible), fish -- juvenile fish that are in stress or dying or dead migrate to the bottom of the raceways instead of floating to the top. It was standard practice to collect only the floating mortality of the juvenile salmon, at which point the juvenile salmon would only float if they've been dead for two to three days when the body organs began to bloat and causing the flotation. In my work at the dam, when I attempted --made a action to collect the mortality of fish at the bottom of the raceways versus only the floating mortality, it was significantly higher by a factor of about 10 to 1. So that -- the methods used by the biologists at the dams were —- okay -- were significant to under-report the mortality of the juvenile salmon.	The mortality rate the commenter is referring to is in the raceways which are at dams where fish are collected and transported. These dams are Lower Granite, Lower Monumental, and Little Goose.The commenter is correct that in the raceways, as well as in the transport barges, some fish that die sink to the bottom of raceways and tanks and are not included in facility mortality counts taken by the site staff. However, to assess the benefits of transport, versus in-river migration, returns of adult PIT-tagged fish are used, not facility mortality data. Smolt-to-Adult return rates (SARs) of fish known to migrate in-river versus fish known to have been transported show that transportation generally benefits Snake River hatchery and natural origin steelhead and spring/summer Chinook salmon.
4249	1	Nicholas Garcia	N/A	We have a technical question about the EIS. Specifically, we want to better understand the criteria you used to evaluate whether an alternative met the -- one of the fundamental objectives. And for example, the preferred alternative was indicated to meet -- that provides reliable and economic power supply. But this is despite the fact that it has a 160-megawatt decrease in the amount of power production, and we don't understand how the conclusion was made that it met the standard, despite the reduction in power production.	Table 7-1 in Chapter 7 summarizes how each alternative met or did not meet the objectives. As most objectives were to improve a specific resource condition, then analysis that demonstrated improvement was deemed successful in meeting that objective. The Preferred Alternative (PA) was deemed to have met the objective of supplying an adequate efficient, economical, and reliable power supply because the alternative has essentially the same reliability of the Northwest power system without needing additional resources. Overall, hydropower would decrease relative to the No Action Alternative under the PA. However, because of the shape of the remaining hydropower generation in the PA, the loss of load probability (LOLP) was essentially the same as that of the No Action Alternative and identification of replacement resources was not necessary. The Bonneville wholesale power rate pressure is estimated to be 2.7 percent relative to the No Action Alternative. A portion of that rate pressure has already been incorporated into the BP-20 wholesale power rates; and, the remaining rate pressure likely falls within a level that Bonneville has historically been able to absorb through the costs over which it has significant control.
4249	2	Nicholas Garcia	N/A	A similar question rolls around the emissions of carbon. The -- it -- the EIS indicates that it marginally met -- the preferred alternative marginally met the carbon reduction goal. However, carbon emissions would go up under the preferred alternative. So we don't understand just how the criteria was applied and that particular conclusion was made.	The EIS finds that under the Preferred Alternative, power sector greenhouse gas (GHG) emissions would increase by about 0.7 percent relative to the No Action Alternative. A discussion has been added to Chapter 7 Preferred Alternative regarding the degree to which this objective is not met, as compared to the other alternatives, including the No Action Alternative.
4250	1	Scott Simms	Public Power Council PPC	Northwest Public Power rate payers have a sterling track record of paying for its fair share of federal hydro mitigation responsibility. In fact, one can argue these investments have included quality-of-life benefits and positive environmental and commerce benefits that reach beyond our mitigation obligation. Yes, hatcheries, habitat, hydro, and harvest -- we have funded, and are still funding, all of the Hs. We in Public Power remain committed to upholding our fair share of the mitigation cost in the Basin. But the key words here are "fair share." The preferred alternative in this Draft EIS advances a number of proposed changes in system operation. Our comment is that any new costs resulting from these proposed actions should be equitably allocated and not borne exclusively by BPA's Public Power customers. Specifically, to the extent the preferred alternative results in additional costs allocated entirely to Public Power, it is time to find ways to build on existing federal law to more broadly share these regional costs. Not only is it appropriate to equitably align cost responsibility with public benefits, but doing so also recognizes the region's shared stake in both fish recovery and the financial health of BPA. Again, the Draft EIS is a starting point, and it creates an opinion for parties to find tangible measures to fund the cost impacts of these operation's changes rather than the usual default of sending the cost straight to the hard-working men and women who pay their bills to community-owned Northwest Public Power utilities.	For Bonneville's wholesale power rates, the Preferred Alternative places additional rate pressure of 2.7 percent relative to the No Action Alternative, which is not the same as comparing the Preferred Alternative to current operations. Consequently, the estimates are not a comparison to the BP-20 wholesale power rates, which were set assuming the financial impact of the 2019-2021 Spill Operation Agreement and therefore, already include a substantial portion of the cost pressures found in the Preferred Alternative. The financial responsibility for fish mitigation is not solely allocated to Bonneville's power ratepayers as the comment suggests. Fish mitigation costs are assigned to each authorized project purpose based on each purposes overall share of project costs, as determined by the cost allocation, by recovering those costs through power rates. Bonneville is required to pay for its share of mitigation costs based on the existing cost allocation. Congress also granted Bonneville discretion to fund the power share directly to the Corps and Reclamation as part of the Energy Policy Act of 1992, in some situations, including the Columbia River Fish Mitigation program. (Energy Policy Act of 1992, Pub. L. No. 102-486, 2406, 106 Stat. 2776, 3009 (1992) (codified at 16 U.S.C. 839d-1 (2012)). Bonneville generally does not, however, directly pay for the capital costs of fish mitigation structures; instead, it reimburses the U.S. Treasury for the power share of appropriations used to construct the structure. Additionally, as described in Section 3.19 of the EIS and Appendix Q, funding to operate the system comes through multiple mechanisms, including Federal tax dollars appropriated to cover system costs as well as revenue generated from the marketing and sale of hydropower. For power-specific costs, Bonneville typically provides direct funds to both the Corps and Reclamation. For joint related costs, including funding for fish and wildlife mitigation actions, the Corps and Reclamation receive annual congressional appropriations to fund most, if not all, capital investments. Bonneville reimburses the U.S. Treasury for the power share of these appropriations. Once the investment is in place, Bonneville will typically direct fund the power share of the operations and maintenance costs associated with the facility. In addition to congressional appropriations for fish and wildlife and costs directly funded to Corps and Reclamation by Bonneville, the Bonneville Fish and Wildlife Program (which is separate and distinct from direct funding described above) funds hundreds of projects each year to mitigate the impacts of the Federal hydropower system on fish and wildlife. Bonneville began this program to fulfill mandates established by Congress in the Pacific Northwest Electric Power Planning and Conservation Act of 1980 to protect, mitigate, and enhance fish and wildlife affected by the development and operation of the Federal Columbia River Power System (FCRPS). Bonneville uses its authority under 16 U.S.C. 839b(h)(10)(A), to make expenditures to implement its Fish and Wildlife Program. These expenditures provide system-wide funding for actions that also mitigate for the non-power purposes of the CRS, so Bonneville recoups the non-power share of those expenditures from the U.S. Treasury as credit, as required under 16 U.S.C. 839b(h)(10)(C). Bonneville's Fish and Wildlife Program expenditures incurred mitigating the CRS operations identified in the Final EIS and adopted in Bonneville's Mitigation Action Plan would continue to be allocated and borne as provided by existing laws governing the FCRPS and the long-standing accounting procedures used to implement them. As described in Chapter 7 of the EIS, funding decisions for Bonneville's Fish and Wildlife Program are not being made as part of the CRSO EIS process. Future budget adjustments would be made in coordination with the regional entities that help Bonneville implement its Fish and Wildlife Program.
4251	1	Rodney Cawston	Colville Confederated Tribes; Confederated Tribes of the Colville Reservation	I just hope that there will be consideration given to extend the deadline for submission of comments, you know, for the CRSO EIS.	The co-lead agencies considered requests to extend the public comment period. This National Environmental Policy Act (NEPA) process included a wide array of cooperating agencies whose close involvement throughout the process allowed the co-lead agencies to incorporate feedback. Given the broad range of comments received and the extensive Federal and non-Federal participation in the overall process as well as the level of public engagement in the six virtual public meetings in the region, the co-lead agencies determined that an extension was not warranted and that the 45-day public comment period was adequate consistent with NEPA regulations. The CRSO EIS website reminded the public on April 9, that they should plan to submit comments by the close of the comment period.
4256	1	David Ortman	N/A	A search of the DEIS chapters has not turned up any analysis, for example, of the Columbia River Systems Operation on the Yakima River. Yet we know that, partially due to the lower Snake River dams, excessively high temperatures of lower Columbia killed off returning sockeye in 2015 as well as in 2018 when the lower Yakima River itself had observed 12 80-degree days in July.	The scope of the Draft EIS is limited to the geographical area affected by the operation, maintenance and configuration of the Columbia River System projects. The Yakima River is not directly affected by the projects, but the effects to the populations of anadromous salmonids that use the Yakima River are analyzed in Section 3.5.3 for each alternative under the subheading "Middle Columbia River Salmon and Steelhead." CSS modeling was not available for populations outside of the Snake River. National Marine Fisheries Service (NMFS) COMPASS and Lifecycle models were available for Upper Columbia populations, but not Middle Columbia. Results from the COMPASS and Lifecycle models of Upper Columbia populations were used as a surrogate for Middle Columbia salmon and steelhead, including those in the Yakima River.
4257	1	Mike Gonzalez	N/A	If the dams were breached, we expect the cost of power to increase as much as 30, 40 percent. That would be devastating in a county where many residents are on strict budgets and considered low income. Seventy percent of our customers are Hispanic. For nearly 30 percent, English is a second language.	The magnitude of power rate effects described in the comment are consistent with the highest estimated effects under MO3 that could be experienced by Bonneville's utility customers. As described in Section 3.7.3.5 of the Draft EIS, the implications of the cost of electricity to end-users (such as residents and businesses) is upward rate pressure ranging from 1.6 to 3.6 percent relative to the No Action Alternative. The Environmental Justice analysis for MO3 in Section 3.18.3, describes that energy burdens in Region C are already likely unaffordable for all households with incomes below the Federal poverty level, and thus any upward rate pressure could impact low-income households for whom energy costs are a larger percentage of their income.
4262	1	Michael Kindall	N/A	That plan I was describing goes back to when we had Governor Andrus within the State of Idaho. And he and his friend that retired from the Forest Service had come up with this plan to have a floating tube that would facilitate moving the young fish at the proper level, dependent -- all dependent upon temperature so that the fish would not get injured on their way to the ocean. This plan was developed by the two of them that knew the -- this was a solution to this ongoing problem that has been discussed to death. For some reason at that point in time, this proposal that they came up with was not gone ahead with. Perhaps all of you that are in charge now have never even heard of this proposal. That is the reason why I called. I want you to hear the proposal, I want you to look it up, and I want you to see if it is a solution now. I see the steelhead and the salmon coming to extinction without doing something proactive. This is a very proactive plan, and I believe in this particular case -- and so did Governor Andrus and his friend that retired -- he was a biology guy. He retired from the Forest Service or who knows where. They came up with a great plan. Please look back into history to see what their plan was because, like I said before, we have that technology.	The commenter is correct that the co-lead agencies are not familiar with this specific plan developed by Governor Cecil Andrus. However, the Corps of Engineers has conducted Engineering Alternative Studies for each of the lower Snake and Columbia River dams that did examine similar approaches as well as many other innovative approaches. The major challenges for most of these ideas is the extreme difficulty of collecting substantial numbers of fish and safely moving them into the conveyance system. However, these ideas have led to structural changes to benefit fish passage including, spillways weirs, better bypass outfalls, and the other improvements in juvenile migration over the past 25 years.
4263	1	Keith Kutchins	N/A	Comments -- this EIS will provide for the -- it says in this EIS its operating agencies in the region will work together to evaluate the cost and benefits of the four lower Snake dams, and I'm not finding where that evaluation is or how it was performed. There's a tremendous debate on whether or not those four dams pay their own way, whether or not their revenues, the amount of money they generate, exceeds the amount of money it costs to keep them	The EIS evaluated beneficial and adverse effects across an array of resource areas including potential effects at the national, regional and local level; effects are monetized and quantified, where possible, and also described qualitatively. As is common in National Environmental Policy Act (NEPA) analyses, the beneficial and adverse effects of the alternatives are expressed as a variety of qualitative and quantitative environmental and economic metrics throughout the EIS to inform decision-making,

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				in operation. There are studies, some studies, that indicate it cost at least $100 million a year in excess of their worth, up to maybe closer to $200 million a year in excess of what their worth is. This was also indicated in the last system operation review and the associated lower Snake River juvenile salmon migration feasibility study when even the very conservative taxpayers for common sense supported the natural river alternative. So this EIS fails procedurally and substantively if this discrepancy is not resolved.	including the effects of the alternatives on fish as detailed in Section 3.5. That the effects of the alternatives on fish are not expressed as monetized economic values does not mean that they were not considered in the context of the analysis. The EIS does not employ a cost-benefit framework for decision-making. Instead, the EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-lead agencies numerous legal obligations. The Preferred Alternative is predicted to benefit ESA-juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets most other EIS objectives including those for: resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. Table 7-1 in Chapter 7 provides a summary of the beneficial and adverse effects of the alternatives, including the quantified social welfare costs and benefits for a subset of the resource areas (specifically, hydropower, navigation, and irrigation) as well as the implementation costs of the alternatives. For hydropower, the average annual value of the four lower Snake River dams exceeds the average annual equivalent costs. The generation value at the four lower Snake River dams can be described by a range between the cost to replace the generation through new conventional resources or through a portfolio of zero-carbon resources. Although the costs of replacing the power with market purchases was analyzed, it is unlikely that short-term wholesale power markets could reliably replace the power for the long term. This range would put the annual value of power between $240 million and $500 million for the four lower Snake River dams combined. These numbers represent about 90 percent of the lost benefits cited in Table 3-171 of the Draft EIS because the four dams represent about 1,000 aMW of the 1,100 aMW of lost generation estimated in MO3. The average annual cost to operate and maintain all authorized purposes at the four lower Snake River dams is $75 million (Appendix Q, Table 5-1) and the annual-equivalent capital costs are $32 million (Appendix Q, Table 4-1). Hydropower costs funded by Bonneville represent about $50 million of the total annual operations and maintenance costs and nearly all of the annual capital costs, approximately $31 million. This puts the annual-equivalent power-specific costs at approximately $81 million a year. As a result, the net benefits from hydropower for the four lower Snake River dams are between $159 million and $419 million and the benefit-cost ratios are between 3.0 and 6.2. If the $34 million per year for the Lower Snake River Compensation Plan is added to the capital and expense costs, benefits still exceed costs under each replacement power scenario. Considering these costs, the net benefits range from $125 million to $385 million and the benefit-cost ratios range from 2.1 to 4.3. In the less-likely scenario that generation could be reliably replaced with short-term wholesale market purchases and assuming that the four dams represent 90% of the $150 million in market purchases required to replace the lost generation cited in MO3 (see Table 3-170, Draft EIS), the lower bound for net benefits would fall to $54 million and the benefit-cost ratio would fall to 1.7. With the Lower Snake River Compensation Plan included, the lower bound for annual net benefits becomes $20 million and the benefit-cost ratio becomes 1.2. From a resource competitiveness perspective, the four lower Snake River dams are among the least costly generating resources in the Federal Columbia River Power System (FCRPS) and the planned investment strategy is expected to maintain that status. As shown in the Federal Hydropower presentation at the 2018 Integrated Program Review1/, the Headwater/Lower Snake Asset Class/2 is forecast to have a 50-year levelized cost of generation/3 of $11.41/MWh based on the direct funded capital and expense (O&M) programs outlined in that process. These costs remain competitive with volatile Mid-Columbia spot market energy prices, which averaged $37/MWh in 2019 and have averaged $21/MWh in 2020. 1/ The Integrated Program Review (IPR) allows interested parties to see and comment on all relevant Federal Columbia River Power System (FCRPS) capital and expense (O&M) spending level estimates in the same forum. The IPR occurs every two years, or just prior to each rate case, and is the public review for the costs that will be recovered through rates the following two-year rate period. Long-term forecasts for the next 50 years and major upcoming projects are also shared in this forum. This information is available here: https://www.bpa.gov/Finance/FinancialPublicProcesses/IPR/2018IPR/IPR%202018%20Fed%20Hydro%20Workshop.pdf and is incorporated by reference into this EIS. 2/ In the 2018 Integrated Program Review, the Headwater/Lower Snake Asset Class consisted of the four lower Snake River dams, Hungry Horse, Libby, and Dworshak dams. These projects were grouped together because they have similar cost characteristics. The Levelized Cost of Generation for the four lower Snake projects alone is slightly lower than that for the whole class including the headwater projects shown in the table. 3/ Levelized Cost of Generation is defined as the forecast direct costs and administrative overhead of producing power at a plant annualized over a 50-year period. This cost includes direct funded operations, maintenance, administrative and capital costs as well as Columbia River Fish Mitigation (CRFM) costs. Bonneville system-wide mitigation costs, such as its Fish and Wildlife program, are not included in this metric.
4263	2	Keith Kutchins	N/A	The impacts of alternative MO3, the impacts of that alternative to storage reservoir elevations is not complete. In the mid-1990s, the watershed equity team comprised of the Columbia Basin tribes, four state fish and wildlife agencies, and the U.S. Fish and Wildlife Service, and National Marine Fisheries Service, including modeling from the Northwest Power Planning Council, concluded that water velocity travel times met the needs of migrating spring salmon without needing additional flow augmentation from the storage reservoirs, like Grand Coulee, Dworshak, Hungry Horse, and Libby, if the four lower Snake Rivers were bypassed. That allows those storage reservoirs to remain relatively full and stable for other needs, such as resident fish, biological objectives, recreation, irrigation, power production, and flood risk management. So this EIS is flawed unless that alternative MO3 includes this analysis and type of modeling.	The modeling for MO3 was developed by the co-lead agencies, in coordination with multiple cooperating agencies, including former members of the watershed equity team. The modeling for MO3 relies on current, high quality information, including information on flow impacts to anadromous and resident fish species. A range of flow levels, and their impacts to fish as well as other project purposes were analyzed in both Multiple Objective alternative 2 (MO2) and Multiple Objective alternative 4 (MO4) and can be used to assess impacts based on storage reservoir modifications. Changes in flow were not proposed for this measure in an effort to better isolate and assess effects to anadromous stocks based on breaching the four lower Snake River dams from upstream flow-based effects to resident stocks
4264	1	Kristin Meira	N/A	We know that barging is the most efficient and environmentally friendly mode of cargo transportation, and we've heard folks in the past say that folks are leaving the river and that the tonnage numbers are down when it comes to barging. And I wanted to highlight the recent numbers that have come out for 2018, the most recent year that's now available. Tonnage has gone up on the Snake River. And in fact, in 2018, there was over 3.8 million tons of cargo that moved just on that part of our river system. If you wanted to move the cargo that moved on the Snake that year, if you wanted to take it off of barges and put it on trucks instead, it would have been over – or nearly 150,000 trucks that would have been required. And if you wanted to look at railcars instead, it would have taken over 38,000 railcars to move just what moved by barge in 2018 on the Snake River.	Access to barge transportation is the most cost effective means of accessing export markets for many grain producers in the Pacific Northwest currently and removing that option would increase transportation costs for grain producers, as the EIS shows. Depending on the scenario, truck ton-miles may experience an increase of 19 percent (under Scenario 1, when rail rates are not assumed to increase) to 84 percent (when rail rates increase by 50 percent) under MO3 when compared to the No Action Alternative. Rail ton-miles may increase by as much as 86 percent (under Scenario 1, when rail rates are not assumed to increase) or decrease by 2 percent (under Scenario 2, when rail rates increase by 50 percent). The EIS also found that truck trips could increase, ranging from an additional 14,000 to 79,000 truck trips per year, which would increase air pollutant and greenhouse gas emissions in the region and add to traffic and congestion in the region.
4265	1	Bill Arthur	N/A	My first comment would be to recommend that we extend the public comment period to at least 120 days and to reschedule the public meetings. It's irrational and long to not extend the public comment period, given the complexity and importance of this work and, particularly, a – in the midst of a national, international emergency	The co-lead agencies considered requests to extend the public comment period. This NEPA process included a wide array of cooperating agencies whose close involvement throughout the process allowed the co-lead agencies to incorporate feedback. Given the broad range of comments received and the extensive Federal and non-Federal participation in the overall process as well as the level of public engagement in the six virtual public meetings in the region, the co-lead agencies determined that an extension was not warranted and that the 45-day public comment period was adequate The co-lead agencies considered requests to extend the public comment period. The CRSO EIS website notified the public on April 9, that they should plan to submit comments by the close of the comment period.
4268	1	Nanette Jones	N/A	We need to breach those dams and take a look at what's happening on the Elwha, the productivity coming back into the river. That's proof that restoring habitat and removing manmade obstacles that stun, disorientate, and kill these migrating fish will improve their numbers.	The commenter is correct regarding success in restoration of spawning habitat and reintroduction into blocked areas following dam removal such as on the Elwha. However, this and other examples do not necessarily have relevance to the lower Snake River Dams. Using some prominent examples in the Pacific Northwest, the Elwha and Condit dams had no passage, and provided few economic benefits. The Draft EIS analysis predicts short term adverse effects including high sediment and low oxygen concentrations that will be harmful to fish as a result of dam breach. However, the Draft EIS also found that in the longer term, the alternative that includes the measure to breach the lower Snake River dams has the greatest predicted benefit for Snake River salmon and steelhead compared to the other alternatives. The EIS set forth eight objectives which, in tandem with the purpose and need statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as the alternative that includes the measure to breach the lower Snake River dams. However, the Preferred Alternative also meets the other objectives of the study for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse impacts to communities and the economy. The alternative that includes the measure to breach the lower Snake River dams, by contrast, has significant regional economic impacts and community effects, and meets only a small subset of the EIS objectives. Thus, the co-lead agencies did not recommend dam breaching because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system.
4269	1	Jim Wendland	N/A	Have they considered fish hatcheries as a dilemma of solving the salmon runs?For the money it would take to tear down the dams, they could put in an awful lot of fish hatcheries. Has anybody ever studied that?	Hatchery programs have long been a part of the approach for salmon recovery. Based on the EIS analysis of fish in Section 7.7.5, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and the Preferred Alternative is not expected to diminish the likelihood of recovery. Under this alternative, hatchery programs would continue as under the No Action Alternative, and a number of other mitigation measures would continue as well, but no new hatchery programs are proposed. Diversity is an important factor in an ESU's ability to persist and adapt, and is one of the factors considered in assessing an ESU's long term viability, along with abundance, productivity, and spatial structure. There is an extensive body of literature developed from studying these factors and managing the conservation of salmon and steelhead, including hatcheries as one tool. Figure 3-111, which combines hatchery and wild fish, in the Draft EIS was an illustration that the CRS can and has supported large numbers of returning adult salmon and steelhead. Over time, the Preferred Alternative is anticipated to benefit both wild and hatchery fish. Hatchery origin fish are very important to Tribal and sport harvest within the Columbia River Basin, and many hatchery programs are important supplementation to rebuilding natural populations. Further, the co-lead agencies have legal requirements to produce hatchery fish as mitigation for components of the CRS.
4271	1	Kurt Miller	Northwest River Partners	The DEIS shows that breaching the four lower Snake River Dams without replacing the generating capabilities would double the risk of region-wide blackouts throughout the Northwest. The DSI shows that replacing the dams with a carbon-free generation portfolio such as solar, wind and batteries would increase electricity cost by $1 billion annually, that's billion with a B. That would mean that millions of electricity customers across the Northwest would see their monthly electricity bills jump by 25 percent or more. Our most vulnerable communities would be hit the hardest.	The comment that electricity costs would increase under MO3, which includes the measure to breach the four lower Snake River dams, is consistent with the findings of the EIS. See Draft EIS, section 3.7.3.5, Table 3-166. Reliability would decrease unless and until sufficient replacement resources are acquired. Regarding the comment about the "most vulnerable communities" the Environmental Justice analysis in Section 3.18 of the EIS, provides further detail on potential disproportionate effects to Tribal, low-income and minority populations.
4271	2	Kurt Miller	Northwest River Partners	The DEIS shows that if we replace the lower Snake River Dams with less expensive fossil fuel resources, they would add three million metric tons of carbon to the atmosphere each year. Given worldwide declines in salmon populations due to warming and acidifying oceans, adding more carbon to the atmosphere is definitely a step in the wrong direction.	The agencies analyzed impacts to greenhouse gas emissions, which are identified in Sections 3.8 and 7.7.10. Effects to alternatives and resources from projected changes in climate are analyzed in Chapter 4 and Section 7.8. Greenhouse gas emissions under the Preferred Alternative are less than those expected under Multiple Objective alternative 3, which includes the measure to breach the four lower Snake River dams.
4271	3	Kurt Miller	Northwest River Partners	Beyond electricity, the DEIS shows that breaching the lower Snake River Dams would mean losing tens of thousands of acres of irrigated farmland that thousands of agricultural workers depend on as a source of income.	The comment is consistent with Section 3.12.3, for MO3, in Region C that pumps are unable to deliver water to an estimated 47,926 acres. MO3 was not identified as the Preferred Alternative in the Draft EIS.
4271	4	Kurt Miller	Northwest River Partners	The DEIS estimates that the region would lose $458 million in social welfare as a result.	The EIS provides an evaluation of the social welfare and regional economic effects of the No Action Alternative and the MOs. This comment is consistent with the findings in the EIS for Social Welfare Effects for irrigation under Multiple Objective alternative 3 in Section 3.12.3.4.
4273	1	Robb Krehbiel	N/A	We support breaching the four lower Snake River Dams and view it as a necessary action to prevent the extinction of the southern resident Orcas. However, any dam-breaching action must be coupled with infrastructure investments to support local communities and economies as they transition. Through forums like Governor Inslee's lower Snake River stakeholder process, people identified the investments needed, including expanded rail lines, extending irrigation lines, installing renewable energy and increasing energy efficiency. Unfortunately, the DEIS does not provide this holistic package of solutions and instead has chosen to maintain the status quo. The DEIS also fails to fully or accurately consider southern resident Orcas. The DEIS states that Snake River salmon runs are not important to the orcas. This is in conflict with the best available science. The country's leading southern resident Orca scientists have clearly stated that the four lower Snake River Dams must be breached if we hope to prevent the extinction of these Orcas. According to a study by NOAA and the Washington Department of Fish and Wildlife, two of the ten highest priority salmon runs for the southern residents are Snake River runs. GPS data from NOAA also shows that during the winter and spring, the orcas spend a considerable amount of time at the mouth of the Columbia River, foraging for salmon returning to both the Columbia and Snake Rivers to spawn.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Moreover, the EIS analysis found only a minor effect to the Southern Resident killer whale would result from implementing MO3 (which includes the dam breach measure). Changes to the portion of the whales food availability on the magnitudes predicted for MO3 may change the whales foraging behavior patterns slightly, but will not change their overall condition or population dynamics. The population dynamics of the SRKW are complicated and there are multiple factors that contribute to the overall success of this species. The quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differently from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for the

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					whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall-run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall-run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). Details on the most crucial prey stocks for Southern Resident killer whales, as well as their population and range, is available from several fact sheets and videos available here: https://www.fisheries.noaa.gov/species/killer-whale#spotlight. For more information, visit this NMFS StoryMap on Southern Resident killer whales: https://noaa.maps.arcgis.com/apps/Cascade/index.html?appid=3405e6637bf74e998d4ebe992c54f613. The co-lead agencies note the contribution to the prey of Southern Resident killer whales through the continued existence of their respective independent congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as Lower Snake River Compensation Plan (LSRCP), which is administered by USFWS. The Draft EIS meets the requirements of NEPA, as outlined in 42 U.S.C. 4331, et seq., 40 C.F.R. Parts 1500 1508 (CEQs regulations for implementing NEPA), and co-lead agency specific NEPA regulations. The Draft EIS' effects analysis of each resource is based on best available existing information as stated in Section 3.1.1. If MO3 were selected and authorized by Congress, then additional studies and site-specific NEPA analysis would be needed to provide the level of detail requested in this comment.
4273	2	Robb Krehbiel	N/A	The DEIS fails to fully assess climate change, and we request that the agencies add an assessment of the impact to (indiscernible) of increasing reservoir temperatures under various climate change scenarios. With climate change, the number of days where reservoir temperatures reach lethal levels to salmon is expected to increase. Independent research has stated that removing these four dams would ameliorate this hot water problem and increase salmon access to over 4,000 miles of free flowing, climate-resilient, federally-protected spawning habitat in central Idaho.	The CRSO EIS acknowledges and describes the temperature sensitivities of salmon and steelhead, as well as the many other factors that affect these fish. Water quality and hydrology modeling data were inputs into the fish survival models used to analyze the alternatives' effects on Snake River stocks, so temperature effects to survival have been incorporated into the overall analyses of each alternative. Regarding climate change, the climate science community is still developing models to the resolution required to analyze possible effects to water temperature from climate change, and unfortunately, there are not reliable models at this time. Therefore, it was not possible to reliably model water temperature changes under climate change for this EIS. In lieu of this information, the climate analysis used the output from the water quality models under historical conditions, climate change data, and scientific literature to qualitatively assess potential effects to water temperature (Section 4.2.3). Regarding water temperatures under dam breach scenarios, the analysis of MO3, which includes breaching the four Snake River dams, indicates that nighttime summer water temperatures, as well as fall water temperatures, would be cooler than No Action conditions in the Snake River. However, even with the dams breached, maximum summer water temperatures would exceed state water quality standards (20C) at times, especially during hot weather events. The models showed minor changes in the Columbia River under the dam breach scenario alternative. Without a reference to the independent research, the co-lead agencies cannot verify the statement regarding removal of the four dams.
4273	3	Robb Krehbiel	N/A	Lastly, I would ask that the agencies extend the comment period beyond 45 days, as that is a very short period to review 8,000 pages, especially in light of the current public health crisis.	The co-lead agencies considered requests to extend the public comment period. This NEPA process included a wide array of cooperating agencies whose close involvement throughout the process allowed the co-lead agencies to incorporate feedback. Given the broad range of comments received and the extensive Federal and non-Federal participation in the overall process as well as the level of public engagement in the six virtual public meetings in the region, the co-lead agencies determined that an extension was not warranted and that the 45-day public comment period was adequate consistent with NEPA regulations. The CRSO EIS website reminded the public on April 9 that they should plan to submit comments by the close of the comment period.
4274	1	Colleen Weiler	N/A	My comment is specific to the southern resident Orcas and the lack of information provided in the DEIS on this population. It only includes three sources of information for the southern resident Orcas and fails to incorporate the significant data collected by the National Marine Fishery Service that shows the mouth of the Columbia River as a hotspot for the orcas, particularly in the late winter and early spring when spring Chinook are congregating to return upriver. It also does not include information on the coastal prey sampling for southern resident Orcas, which further supports their preference for Chinook salmon in coastal waters, with over 60 percent of the samples Chinook salmon and more than half of those Chinooks from the Columbia River Basin. It is evident that the Columbia River Basin is a critical and seasonally important food source for southern resident Orcas. The primary threat to the thinning population of whales is a lack of adequate availability of Chinook salmon throughout their range, and the subsequent nutritional stress can cause negative individual and population level effects. Without enough food available now, the orcas are struggling just to survive, and they have no chance of recovery without increasing Chinook abundance throughout their range. The Columbia and Snake Rivers are a vital source of salmon for these whales, and the recovery potential for those salmon is significant in the Columbia River Basin. With the minor changes purposed in the DEIS, it maintains a status quo that will lead to the extinction of salmon and Orcas and maintains uncertainty in communities connected to the watershed and its salmon.	The co-lead agencies utilized current high quality information and best available science in its analysis of the effects of the operation, maintenance, and configuration of the CRS projects. SRKW analysis is described in the EIS, including in the FEIS Chapter 3 (Vegetation, Wetlands, Wildlife, and Floodplains) has been updated for SRKW (Section 3..6.2.6 and Table 3-102) and FEIS Chapter 7 (Preferred Alternative) with additional analysis information on SRKW and potential increase in forage fish, in particular, Chinook salmon in Section 7.7.8. This includes information on seasonal food sources and coastal waters as discussed below. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not require the co-lead agencies to take affirmative actions to recover ESA listed species. The population dynamics of the SRKW are complicated and there are multiple factors that contribute to the overall success of this species. The quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differently from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for the whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall-run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall-run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). Details on the most crucial prey stocks for Southern Resident killer whales, as well as their population and range, is available from several fact sheets and videos available here: https://www.fisheries.noaa.gov/species/killer-whale#spotlight. For more information, visit this NMFS StoryMap on Southern Resident killer whales: https://noaa.maps.arcgis.com/apps/Cascade/index.html?appid=3405e6637bf74e998d4ebe992c54f613. According to NMFS and the EPA, the estimated SRKW population has fluctuated between 67 and 98 whales between 1960 and 2015. The Snake River dams were constructed between 1962 and 1975. The SRKW population increased from a record low in 1970 to its highest population numbers in 1995. Those years were not high years for Snake or Columbia River Chinook Salmon. Ocean conditions between 2011 and 2013 were good years for salmon. At the same time, 2010 and 2013 were good outmigration years. Particularly, 2011 and 2012 were above normal in water supply, which would mean more cooler water was available and there was better survival of salmon, and 2011 through 2014 were higher than normal spill years as well. The combination of outmigration and ocean conditions created improved adult salmon returns. The EIS has analyzed spill as a measure in the Preferred Alternative and determined the overall effect to SRKW to be negligible in large part because hatchery production is consistent between the No Action Alternative and the Preferred Alternative. Because the impact from the Preferred Alternative was determined to be negligible, the agencies determined that existing hatchery production would be sufficient to address any potential impacts to prey availability for SRKWs. The co-lead agencies note the contribution to the prey of SRKW through the continued existence of their respective independent Congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as the Lower Snake River Compensation Plan (other than under MO3), which is administered by USFWS. The Preferred Alternative and Proposed Action in the agencies' biological assessment carry forward certain mitigation measures described in Chapters 2 and 7 of the EIS, which include continued salmon and steelhead hatchery production. The Preferred Alternative has negligible effects to SRKWs as described in Section 7.7.8. The Biological Assessment (BA) describes the effect of the Proposed Action on the SRKW forage species (see BA Section 3.5.1.2, Southern Resident Killer Whale). The proposed changes in operation of the Columbia River System include increased spring spill during the downstream migration of juvenile spring and summer run Chinook salmon. The result of this action includes potential increases of juvenile fish passing through the spillways, reductions in juvenile fish direct and indirect mortality associated with downstream passage, and the Comparative Survival Study (CSS) model predicts increases in numbers of returning adults, which will benefit SRKWs foraging in and around the mouth of the Columbia River in winter and spring (See EIS Section 7.7.8). The CSS model results predicts Snake River Chinook salmon would have relative improvements in smolt-to-adult returns of 35 percent (see EIS Section 7.7.4). The smolt-to-adult return ratio (SAR) is the rate at which of a group of fish survive from their smolt life stage to a defined ending point where they return as adults. While recovery targets will require more than just the efforts of federal agencies, the CSS models indicate the potential for SARs of Snake River Chinook salmon and steelhead to increase to levels that could approach recovery targets set by the Northwest Power and Conservation Council. The BA, also consistent with the EIS, acknowledges past improvements to the configuration and operation of the Columbia River System, additional improvements to the environmental baseline as a result of completed estuary and tributary habitat actions, and the prospective non-operational conservation measures proposed in Chapter 2 of the Draft EIS, all contribute towards maintaining and improving Chinook abundance. Relevant conservation measures include, among other things, a commitment to continue funding the conservation and safety net hatchery programs listed in Chapter 2 of the Draft EIS. As discussed above, the agencies will fulfill congressionally authorized hatchery mitigation objectives through the funding of hatchery programs that are operated consistent with their independent hatchery program consultations during the term covered by this consultation. Based on those hatchery program consultations, the production levels associated with congressionally authorized hatchery mitigation objectives will continue, at minimum, to be consistent with levels previously analyzed by NOAA in the system consultations in 2008, 2014, and 2019. For the 2020 ESA consultations, therefore, the agencies expect that collectively, all of the actions described above (substantial modifications to migration conditions designed to benefit key prey species, combined with improvements to Chinook spawning and rearing habitat in the tributaries and Columbia River estuary, and continued hatchery production) ensure that remaining Chinook mortality from all sources in the mainstem migratory corridor will continue to be more than offset, resulting in a net gain in Chinook salmon abundance available as a prey source for SRKW. Finally, the 2019 NMFS Fisheries BiOp included increased spring spill operations that are similar to operations evaluated in CRSO EIS, and NOAA validated that the hatchery production of Chinook salmon mitigates for the impacts of operating the Columbia River System and total mortality through the mainstem migratory corridor from all sources. Moreover, the EIS analysis found only a minor effect to the Southern Resident killer whale (SRKW) would result from implementing MO3, which includes the measure to breach the four lower Snake River dams. This conclusion is based on the fact that Chinook salmon available to SRKW from the lower Snake River comprises only a small percentage of their overall diet. Changes to this portion of the whales food availability of the magnitudes predicted for MO3 may change the whales foraging behavior patterns slightly, but will not change their overall condition or population dynamics. The co-lead agencies note the contribution to the prey of SRKW through the continued existence of their respective independent congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as Lower Snake River Compensation Plan, which is administered by the U.S. Fish and Wildlife Service.
4275	1	Scott Simms	Public Power Council PPC; Public Power Council (PPC)	Today I'd like to focus on the matter of juvenile salmon survival rates, an issue that appears to be the center of much debate in our region when it comes to current and future Columbia River System operations. A great deal of misinformation is leading to a misunderstanding among some about sources and investments in juvenile salmon production and the many factors contributing to juvenile salmon downstream mortality. In fact, many people are unaware that successful downstream juvenile passage rates through the federal hydrosystem are comparable to natural rates of mortality in an undammed river. Because of these misinformed impressions, I'd like to request that the federal co-lead agencies provide for the final CRSO EIS, a table of all known sources of juvenile salmon production and mortality in the Columbia River System. This is not a request for new analysis. This is a straightforward accounting request in the spirit of transparency so that the public can see the vast investments of millions of dollars and corresponding millions of juvenile salmon produced in this basin every single year, thanks to taxpayers, electricity rate payers, tribes and private parties.	The Draft EIS describes and acknowledges the multitude of factors that affect salmon and steelhead throughout their life cycle in the Affected Environment. Some factors, such as predation, disease, natural causes, etc. were discussed very briefly and more detail is incorporated by reference from NOAAs Biological Opinions in 2008, 2010, 2014, and 2019. The analyses used in this EIS were for the purposes of comparing the effects of the action alternatives for operation and configuration of the CRS projects to one another and to the No Action Alternative. To the extent that the different alternatives affect these processes, metrics were developed to measure changes; they were described in Section 3.5 qualitatively, and, in some cases, data was built into the fish models to be sensitive to these relationships. Of course, factors such as travel time and direct mortality from dam passage are most notably different among the alternatives and, as such, are discussed in more detail. Likewise, hatchery programs that produce salmon and steelhead are also mentioned briefly as part of the picture, but not the focus of analyses.

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4275	3	Scott Simms	Public Power Council PPC; Public Power Council (PPC)	As well, in the spirit of transparency, let's have the co-lead agencies shine the light on all the sources of juvenile mortality in the final CRSO EIS. Public power and tribes are aligned on the fact that avian predation of juvenile salmon is a leading source of juvenile salmon mortality, but see the numbers for all leading juvenile mortality factors so that together with the production figures we can have honest and informed conversations about factors impacting juvenile salmon in the final EIS.	See response to Comment 4275-1.
4275	4	Scott Simms	Public Power Council PPC; Public Power Council (PPC)	I'm speaking again today to show how easy it is to get back into the queue to make comments in this process. I resubmitted my request at 4:30 p.m., and here it is 20 minutes later. Many parties are attempting to attack the public comment process for this CRSO draft EIS. I want to state for the record today that the public comment process and opportunities for this draft EIS are sufficient, even with recent changes forced by completely unforeseen impacts of the global Coronavirus pandemic. The federal agencies gave sufficient notice for this process and have been transparent and available to all stakeholders in the period leading up to the release of the draft EIS, as well as after its release. There are a variety of channels available for public comments to be shared, whether parties are local, regional, national or international in nature.	Thank you for your comment.
4276	1	Mike Gonzalez	N/A	If the dams were breached, we expect the cost of power in our neighborhood to increase as much as 30 percent, and that would be devastating in a county where many residents are on strict budgets and considered low income.	The comment that electricity costs would increase under Multiple Objective alternative 3, which includes the measure to breach the four lower Snake River dams, is consistent with the findings of the EIS. See Draft EIS, Section 3.7.3.5, Table 3-166. The Environmental Justice analysis in Section 3.18.3 provides further detail on potential disproportionate effects to tribal, low-income and minority populations.
4276	2	Mike Gonzalez	N/A	The Pasco school district is our fifth-largest customer. They spend nearly $2 million a year on power. If rates rise 20 to 30 percent, that's an additional 400- to $600,000 not going towards education in a school district where more than 70 percent of the students are Hispanic, nearly half are considered low income.	The comment that electricity costs would increase under Multiple Objective alternative 3, which includes the measure to breach the four lower Snake River dams, is consistent with the findings of the EIS. See Draft EIS, Section 3.7.3.5, Table 3-166. The Environmental Justice analysis in Section 3.18 provides further detail on potential disproportionate effects to tribal, low-income and minority populations.
4277	1	Margie Van Cleve	N/A	Unfortunately, the CEIS does not deliver the comprehensive solution that Snake River salmon and Northwest communities require. We need a comprehensive plan that works for salmon, orca, farmers, river communities and meets our tribal treaty responsibilities. We need agency and political leadership to advance dialogue that develops a comprehensive and durable solution.	The co-lead agencies agree that there are many effects to salmon and steelhead populations outside the operation of the dams, and outside the authority of the co-lead agencies. Research continues to evaluate the magnitude of these effects. For more information see the NMFS website at: https://www.nwfsc.noaa.gov/research/index.cfm. The Preferred Alternative meets the Purpose and Need Statement and certain objectives identified in the EIS for operation of the Columbia River System. The co-lead agencies are committed to ongoing coordination with stakeholders through a variety of forums. In areas where the co-lead agencies have appropriate authority, we will continue to be strong regional partners.
4283	1	mljackson@clarkston.com	N/A	American family farms produce corn, soybeans, lentils, garbanzo beans, and of course wheat. Ten percent of all the wheat that leaves the United States for foreign locations goes through one of the four lower Snake River dams; 58% of all US exported wheat passes through the Columbia/Snake River system. Family farms feed the world now, but if it costs significantly more to transport their products, they will go out of business. Please see the $4 billion in impacts over the next 30 years to transportation identified by PNWA in its study found at: https://files.constantcontact.com/9a08bcf9001/8768ec34-9437-4adb-badb-477bde47019b.pdf Railroads increased prices dramatically during extended lock closures. If you hand them a monopoly by eliminating dams, prices will skyrocket. There is a shortage of truck drivers today, when there are three options for moving freight. If the range of options is narrowed down to only two, and those two are already inadequate, youre not going to have a good outcome. You can only put so many cars on the railroads. The right cars are not where they are needed (wheat requires Class A rail cars which are in limited supply). The $1.1 billion in needed infrastructure capital investment (also identified by PNWA in its study) is not factored into the CRSO EIS. To leave these costs out simply because they are not in the purview of the action agencies is unconscionable	The EIS evaluates potential effects on farmers associated with increased transportation costs under MO3 in Section 3.10.3.5. The EIS finds that under a dam breach scenario, average transportation costs for wheat farmers would increase 10 to 33 percent, but that individual farmers could experience increases that are doubled. The cost increases to specific shippers would depend upon location and would vary throughout the region, depending on transportation options at each location. Generally, those grain shippers that are the farthest from alternate shipping locations (shuttle rail facilities or river ports on the Columbia River) would be the most adversely impacted. The EIS recognizes that there is no guarantee wheat grown in the Northwest will be competitive now or in the future because there are many factors that influence international commodity markets (e.g., trade agreements, the U.S. dollar, global supply, etc.). However, the analysis finds that the cost to transport wheat to market would continue to be lower than costs paid by other wheat growers in the United States (e.g., the Dakotas and Midwest). Favorable conditions for Northwest wheat growers that help them stay competitive are: (1) the natural environment of the Palouse region (weather, soils) is ideal for growing this type of wheat, which leads to some of the highest yields per acre in the world, and (2) proximity of Northwest export ports. Currently, the cost to transport wheat to market is quite low relative to other parts of the United States and world.
4283	2	mljackson@clarkston.com	N/A	It is inappropriate for the Executive Summary to tout recreational fishing gains when neither the CSS or COMPASS models account for the loss of hatchery fish.	The Draft EIS acknowledges that breaching the four lower Snake River dams in Multiple Objective alternative 3, there would no longer be an obligation for Bonneville to fund U.S. Fish and Wildlife Service for the Lower Snake River Compensation Plan facilities, which accounts for much of the hatchery production in the basin and other mitigation activities could be adjusted. The effects to populations as they transition from primarily hatchery production to an increased wild production of fish is qualitatively discussed in Section 3.5.3.6. The fish models are based upon data collected from past fish runs, and there is no data available to inform an quantitative analysis for wild fish in the absence of hatchery fish. Over time, recreational fishing gains would be expected as wild fish replace hatchery fish, but the timeframe and numbers of fish was not quantifiable for this analysis.
4294	1	N/A	N/A	I am concerned that the number of rail and semi-trucks along the river will have to increase tremendously if the number of barges on the river are reduced. Barge transport is a clean alternative to the increase in train and truck pollution that would occur. Please weigh the benefits of barge transport.	The EIS evaluates the level of anticipated increases in truck and rail traffic that would occur under MO3 which includes a measure to breach the four lower Snake River dams. The EIS finds that truck ton-miles may experience an increase of 19 percent to 84 percent under MO3 when compared to the No Action Alternative, depending on the rail rate increases that occur. The EIS found that truck trips would increase between 14,000 to 79,000 truck trips per year, which would increase air pollutant and greenhouse gas emissions in the region and add to traffic and congestion in the region. Rail ton-miles would increase by as much as 86 percent (when rail rates are not assumed to increase) or decrease by 2 percent (when rail rates increase by 50 percent). The EIS acknowledges that depending on how rail rates respond to breaching the four lower Snake River dams, shortline rail capacity could be exceeded. The EIS also evaluates the additional transportation infrastructure investments and associated costs that would be required, as well as the increases in air emissions that would occur under MO3.
4303	1	amyannleslie@gmail.com	N/A	The DEIS itself recognizes that breaching the dams will deliver greater benefits to endangered Snake River fish populations, with greater certainty, than any other considered options. The federal governments current approach is not working for salmon, orcas, or our fishing and farming communities. Taxpayers and regional ratepayers have spent $17 billion on five insufficient Columbia Basin salmon plans over 25+ years, but failed to recover a single endangered population.	The EIS concluded that MO3 would have greater improvement to certain salmon species in the lower Snake River. It did not conclude there was greater certainty of that result in MO3 compared to other alternatives. The conclusions were based on the ranges predicted in two independent models, that have different parameters and limitations in their predictive capabilities. Because of delayed response time in MO3, and the potential severity of the short term effects, MO3 would likely have the most substantial uncertainty in terms of beneficial effects. The commenters suggestion that approximately $17 billion in fish and wildlife mitigation investment has been ineffective to recover ESA-listed species is misplaced. Those investments delivered the intended results when considered in the appropriate statutory context of the Northwest Power Acts anadromous fish provisions which call for improved survival of such fish at Federal Columbia River Power System (FCRPS) projects and sufficient flows between the projects to improve production, migration, and survival. For example, as of 2014 this investment had facilitated juvenile dam passage survival of 96 percent and 93 percent for spring and summer migrants respectively, see Endangered Species Act FCRPS 2016 Comprehensive Evaluation Section 1, at 17, t.2 (Jan. 2017), a marked improvement compared to when Congress passed the Northwest Power Act and the estimated average juvenile mortality at each mainstem dam and reservoir complex was 15 to 20 percent with losses recorded as high as 30 percent. See Nw. Res. Info. Ctr. v. Nw. Power Planning Council, 35 F.3d 1371, 1374 (9th Cir. 1994) (citing a Sept. 4, 1979 report by U.S. General Accounting Office describing the systems impacts on anadromous fish). The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-lead agencies numerous legal obligations. The Preferred Alternative is predicted to benefit ESA-listed juvenile and anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets most other EIS objectives including those for: resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams, because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. Different models predict different long-term survival benefits to ESA-listed species from dam breach, benefits that can contribute to recovery. Under the National Marine Fisheries Service (NMFS) COMPASS model, juvenile Snake River spring/summer Chinook in-river survival would improve by 9.6 percent due to breaching the four lower Snake River dams, which is a 19 percent relative increase over the No Action Alternative. The NMFS Lifecycle model predicts an increase in adult returns of 13.6 percent for these same fish under MO3 (no latent mortality assumed) relative to the No Action Alternative (from 0.88 to 1 percent). Results for Snake River steelhead are similar (10 percent absolute improvement, or 23 percent relative juvenile survival increase, Smolt-to-Adult return rates (SARs) for steelhead were not modeled). Under the CSS model, juvenile in-river survival for the Snake River Spring/Summer Chinook is predicted to improve by 10.4 percent due to dam breach, which is an 18 percent relative increase over the No Action Alternative, while SARs would increase by 115 percent (from 2 to 4.2 percent). The CSS model predicts that Snake River steelhead would see juvenile survival increase by 25.8 percent which is a 46 percent relative increase over the No Action Alternative. The CSS model also predicts that SARs increase by 177 percent (from 1.8 to 5 percent). Though differing in predictions, both modeling groups predict MO3, which includes the measure to breach the four lower Snake River dams is the best alternative for salmon and steelhead. One model simply predicts adult return increases an order of magnitude higher than the other.
4304	1	jason.mcandrew@umatillaelectric.com	N/A	The fishing rights and form of fishing the tribes have need to be changed to help preserve the salmon runs along with helping the sturgeon.	Alternatives to include changes to harvest are not within the scope of this EIS. The assumptions regarding harvest are taken from the NOAA 2018 EIS and reflect current harvest management guidelines. To see their conclusions and effects analyses please go to: https://www.fisheries.noaa.gov/resource/document/environmental-impact-statement-programmatic-review-harvest-actions-salmon-and. For harvest, fisheries in the Columbia River Basin and those that rely upon Columbia River fish stocks are managed by numerous entities, including Federal, state, and tribal governments. These entities are guided by a complex array of policies, laws, compacts, and agreements. The management of Pacific salmon fisheries in particular is complex, and involves numerous entities representing a variety of social, political, and conservation interests. Changes in allowable fishery harvest in the Columbia River Basin are a result of decisions made by State, Federal (i.e., NMFS), and tribal fishery managers based on a variety of environmental, biological, economic, and social factors. The co-lead agencies (Corps, Reclamation, and Bonneville) do not manage fish stocks, and do not have the authority to do so.
4305	1	N/A	N/A	I cannot say that I know of any individual, group, business or organization that can defy federal court instructions five times and do so while perpetuating an ongoing ecological travesty. But such is the case of the Army Corps of Engineers and their reluctance to earnestly, effectively address how Columbia River and Snake River dams negatively impact native salmon and steelhead populations.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the Columbia River System. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. The Preferred Alternative meets the anadromous fish, resident fish, lamprey, hydropower generation, water management, and water supply EIS objectives, while minimizing adverse effects impacts to communities and the economy. It is also more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system.
4305	2	N/A	N/A	To then in the midst of the COVID-19 pandemic fail to extend the public comment period for this issue is nothing less than an insult to the many diverse stakeholders who live in and love our world-class watershed and want nothing more than to help craft a creative, inclusive, forward-looking solution.	The co-lead agencies considered requests to extend the public comment period. This NEPA process included a wide array of cooperating agencies whose close involvement throughout the process allowed the co-lead agencies to incorporate feedback. Given the broad range of comments received and the extensive Federal and non-Federal participation in the overall process as well as the level of public engagement in the six virtual public meetings in the region, the co-lead agencies determined that an extension was not warranted and that the 45-day public comment period was adequate consistent with NEPA regulations. The CRSO EIS website reminded the public on April 9, that they should plan to submit comments by the close of the comment period.
4305	3	N/A	N/A	Accordingly, I am joining a host of others to demand that any Alternative Plan effectively address 1) the removal of Snake River dams 2) increasing flow over Columbia River dams 3) restoring sane river ecology and habitat, and 4) ending the persecution of native predators.	The CRSO EIS documents the assessment of benefits and impacts of changes to the operations of the 14 Federal projects of the Columbia River System. Using a multi-disciplinary approach and with the coordination and consideration of our cooperating agencies and Tribes, as well as public stakeholder input, and by using the best available information, the co-lead agencies developed the Preferred Alternative. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the EIS objectives) as well as the EIS objectives for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities

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					and the economy. The Preferred Alternative is also more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. Multiple objective alternative 3 (MO3) included a measure to breach the embankments of the four lower Snake River dams. This alternative was fully evaluated throughout Chapters 3, 4, 5, 6, and discussed in Chapter 7. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Increasing flows as a potential measure was evaluated in the EIS. In particular, the McNary flow measure in MO4 demonstrated significant adverse effects to upper Columbia basin fish and wildlife, as well as cultural resources. As described in Chapters 5 and 7, the agencies are proposing to continue habitat restoration actions described both under the No Action Alternative as well as new mitigation for the Preferred Alternative. Certain native predators adversely affect survival of listed fish species and taking actions to keep a balance is a tool in our strategy. These decisions aren't made lightly and are coordinated with resource agencies such as NMFS and USFWS. To comply with the ESA, the co-lead agencies have historically supported actions to mitigate adverse effects to listed species from CRS operations, through funding, direct implementation, and other means. Under the Preferred Alternative, those actions, including for the purpose of reducing pinniped and avian predation on listed species, would generally continue to ensure compliance with the ESA. Other entities in the region have authorities and obligations to mitigate the impacts from pinniped and avian predators and the co-lead agencies will continue to work closely with those entities to benefit ESA-listed salmonids.
4306	1	george@ttclabs.com	N/A	If the benefit of removing the dams is to help the salmon and other migrating fish, it would seem that better fish ladders with steady flow of water would be the ideal solution. Removing the dams adds more variation to the flow of water and replaces the ladders with much more significant barriers.	All eight dams on the lower Columbia and lower Snake River dams have significant infrastructure, including fish ladders, spillway weirs, and updated fish passage turbines that allow both upstream and downstream fish passage and do not preclude salmon passage. Specific fish, such as Pacific lamprey, require different passage measures, which are proposed for inclusion in the Preferred Alternative.
4307	1	nouveladam@hotmail.com	N/A	To Whom It Concerns: I cannot say that I know of any individual, group, business or organization that can defy federal court instructions five times and do so while perpetuating an ongoing ecological travesty. But such is the case of the Army Corps of Engineers and their reluctance to earnestly, effectively address how Columbia River and Snake River dams negatively impact native salmon and steelhead populations. Even more disconcerting: To then in the midst of the COVID-19 pandemic fail to extend the public comment period for this issue is nothing less than an insult to the many diverse stakeholders who live in and love our world-class watershed and want nothing more than to help craft a creative, inclusive, forward-looking solution.	The co-lead agencies considered requests to extend the public comment period. This NEPA process included a wide array of cooperating agencies whose close involvement throughout the process allowed the co-lead agencies to incorporate feedback. Given the broad range of comments received and the extensive Federal and non-Federal participation in the overall process as well as the level of public engagement in the six virtual public meetings in the region, the co-lead agencies determined that an extension was not warranted and that the 45-day public comment period was adequate consistent with NEPA regulations. The CRSO EIS website reminded the public on April 9 that they should plan to submit comments by the close of the comment period.
4313	1	N/A	N/A	I would suggest that all nets in the Columbia River be removed for at least 5 years and maybe as long as 10 years to give the salmon time to recover. Remove all commercial fishing in the Columbia River and have our Coast Guard and Navy do their job and stop all illegal fishing within our 200 mile limits enforce.	Alternatives to include changes to harvest are not within the scope of this EIS. The assumptions regarding harvest are taken from the NOAA 2018 EIS and reflect current harvest management guidelines. To see their conclusions and effects analyses please go to: https://www.fisheries.noaa.gov/resource/document/environmental-impact-statement-programmatic-review-harvest-actions-salmon-and. For harvest, fisheries in the Columbia River Basin and those that rely upon Columbia River fish stocks are managed by numerous entities, including Federal, state, and tribal governments. These entities are guided by a complex array of policies, laws, compacts, and agreements. The management of Pacific salmon fisheries in particular is complex, and involves numerous entities representing a variety of social, political, and conservation interests. Changes in allowable fishery harvest in the Columbia River Basin are a result of decisions made by State, Federal (i.e., NMFS), and tribal fishery managers based on a variety of environmental, biological, economic, and social factors. The co-lead agencies (Corps, Reclamation, and Bonneville) do not manage fish stocks, and do not have the authority to do so.
4315	1	duaneleinbach@hotmail.com	N/A	I hear concerns about the "native fish" runs being eliminated. What makes anyone believe we still have native fish that run in these waters, considering we have used hatcheries at the base of nearly every dam on the Snake and Columbia Rivers for over 40 years. In addition Fish and Wildlife allow farm raised fish to be marketed as Columbia River Salmon and Steelhead. A very important question is: How many years has Washington Fish and Game allowed the integration of Atlantic Salmon farming into the Western States Rivers and coastal areas? The last 2 years unfortunately Atlantic Salmon fish farms on the Northwest Coast (300,00+) have escaped into our Western Waters, again how can we continue to have "NATIVE Salmon"?	This comment is generally outside the scope of co-lead agency authority and is outside the scope of this EIS, which analyzes the effects of operation, maintenance, and configuration of the CRS projects. Hatchery programs have long been a part of the approach for salmon recovery. There are broad ecological effects concerning interactions of wild and hatchery fish, as well as harvest, throughout the basin. However, the actual mechanisms, effects, magnitudes, and processes are very complex and uncertain. The analyses used in the CRSO Draft EIS were for the purposes of comparing the effects of the Multiple Objective alternatives for operation, maintenance, and configuration of the CRS projects to one another and to the No Action Alternative. Hatchery origin fish are very important to tribal and sport harvest within the Columbia River Basin, and many hatchery programs are important supplementation to rebuilding natural populations. Further, the co-lead agencies have legal requirements to produce hatchery fish as mitigation for components of the CRS. The effects of hatchery programs on ESA-listed fish are evaluated through individual consultations under the Endangered Species Act. These consultations ensure the hatchery programs are not appreciably reducing the likelihood of ESA-listed species survival and recovery, nor adversely modifying or destroying designated critical habitat. These consultations have resulted in many site-specific reforms to reduce effects of hatchery/wild fish interactions, such as decreasing the temporal and spatial overlap of wild and hatchery fish in integrated programs or transitioning to local broodstock in integrated programs. (Please see the 2014 NMFS Final Environmental Impact Statement to Inform Columbia River Basin Hatchery Operations and the Funding of Mitchell Act Hatchery Programs at http://www.westcoast.fisheries.noaa.gov/publications/hatchery/mitchellact_feis/mitchell_act_hatcheries_feis_final.pdf.) Hatchery programs are included in the No Action Alternative and would be expected to continue under alternatives MO1, MO2, and MO4, and certain hatcheries would continue under MO3. No new hatchery programs are considered as mitigation under any alternatives, but MO3 does include increased hatchery production due to short-term impacts from breaching the four lower Snake River dams.
4317	1	sunsetjam@gmail.com	N/A	Restoring abundant salmon and steelhead and helping our starving Southern Resident Killer Whales (orca) is essential for our Northwest ecosystem and culture. There are now 72 Southern Resident Orcas living in the Puget Sound Region. Their numbers are at a 30 year low. Only half of the young born survive and 70% of the pregnancies fail. Scientist believe the orcas are starving with depleted salmon stocks a contributor to their demise. The DEISs treatment of orca is misleading and inaccurate. The DEIS claims that salmon from the Snake River are only a small percentage of the Southern Resident orcas overall diet and that neither the preferred alternative, nor dam removal, would appreciably benefit orca. Fact is that Southern Resident Orca are almost exclusively fish eaters. 85% of their diet is salmon, with Chinook being their favorite species of salmon.They look for their traditional runs which have been lost. The DEIS also ignores analysis from orca scientists – and even the Agencies' own analysis – that show the Snake and Columbia basin salmon are important to the orcas. Restoring abundant salmon runs would enable orca to access an historically important part of their diet, particularly at critical times of the year when female orcas are pregnant. A restored Snake River is the only action that will enable substantially increased abundance of salmon and allow for an increase in overall food supply for orca.	The co-lead agencies utilized current high quality information and best available science in its analysis of the effects of the operation, maintenance, and configuration of the CRS projects. SRKW analysis has been done and described in the EIS, including in the FEIS Chapter 3 (Vegetation, Wetlands, Wildlife, and Floodplains) has been updated for SRKW (Section 3..6.2.6 and Table 3-102) and FEIS Chapter 7 (Preferred Alternative) with additional analysis information on SRKW and potential increase in forage fish, in particular, Chinook salmon in Section 7.7.8. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not require the co-lead agencies to take affirmative actions to recover ESA listed species. The population dynamics of the SRKW are complicated and there are multiple factors that contribute to the overall success of this species. The quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differently from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for the whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall-run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall-run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). Details on the most crucial prey stocks for Southern Resident killer whales, as well as their population and range, is available from several fact sheets and videos available here: https://www.fisheries.noaa.gov/species/killer-whale#spotlight. For more information, visit this NMFS StoryMap on Southern Resident killer whales: https://noaa.maps.arcgis.com/apps/Cascade/index.html?appid=3405e6637bf74e998d4ebe992c54f613. According to NMFS and the EPA, the estimated SRKW population has fluctuated between 67 and 98 whales between 1960 and 2015. The Snake River dams were constructed between 1962 and 1975. The SRKW population increased from a record low in 1970 to its highest population numbers in 1995. Those years were not high years for Snake or Columbia River Chinook Salmon. Ocean conditions between 2011 and 2013 were good years for salmon. At the same time, 2010 and 2013 were good outmigration years. Particularly, 2011 and 2012 were above normal in water supply, which would mean more cooler water was available and there was better survival of salmon, and 2011 through 2014 were higher than normal spill years as well. The combination of outmigration and ocean conditions created improved adult salmon returns. The EIS has analyzed spill as a measure in the Preferred Alternative and determined the overall effect to SRKW to be negligible in large part because hatchery production is consistent between the No Action Alternative and the Preferred Alternative. Because the impact from the Preferred Alternative was determined to be negligible, the agencies determined that existing hatchery production would be sufficient to address any potential impacts to prey availability for SRKWs. The co-lead agencies note the contribution to the prey of SRKW through the continued existence of their respective independent Congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as the Lower Snake River Compensation Plan (other than under MO3), which is administered by USFWS. The Preferred Alternative and Proposed Action in the agencies' biological assessment carry forward certain mitigation measures described in Chapters 2 and 7 of the EIS, which include continued salmon and steelhead hatchery production. The Preferred Alternative has negligible effects to SRKWs as described in Section 7.7.8. The Biological Assessment (BA) describes the effect of the Proposed Action on the SRKW forage species (see BA Section 3.5.1.2, Southern Resident Killer Whale). The proposed changes in operation of the Columbia River System include increased spring spill during the downstream migration of juvenile spring and summer run Chinook salmon. The result of this action includes potential increases of juvenile fish passing through the spillways, reductions in juvenile fish direct and indirect mortality associated with downstream passage, and the Comparative Survival Study (CSS) model predicts increases in numbers of returning adults, which will benefit SRKWs foraging in and around the mouth of the Columbia River in winter and spring (See EIS Section 7.7.8). The CSS model results predicts Snake River Chinook salmon would have relative improvements in smolt-to-adult returns of 35 percent (see EIS Section 7.7.4). The smolt-to-adult return ratio (SAR) is the rate at which of a group of fish survive from their smolt life stage to a defined ending point where they return as adults. While recovery targets will require more than just the efforts of federal agencies, the CSS models indicate the potential for SARs of Snake River Chinook salmon and steelhead to increase to levels that could approach recovery targets set by the Northwest Power and Conservation Council. The BA, also consistent with the EIS, acknowledges past improvements to the configuration and operation of the Columbia River System, additional improvements to the environmental baseline as a result of completed estuary and tributary habitat actions, and the prospective non-operational conservation measures proposed in Chapter 2 of the Draft EIS, all contribute towards maintaining and improving Chinook abundance. Relevant conservation measures include, among other things, a commitment to continue funding the conservation and safety net hatchery programs listed in Chapter 2 of the Draft EIS. As discussed above, the agencies will fulfill congressionally authorized hatchery mitigation objectives through the funding of hatchery programs that are operated consistent with their independent hatchery program consultations during the term covered by this consultation. Based on those hatchery program consultations, the production levels associated with congressionally authorized hatchery mitigation objectives will continue, at minimum, to be consistent with levels previously analyzed by NOAA in the system consultations in 2008, 2014, and 2019. For the 2020 ESA consultations, therefore, the agencies expect that collectively, all of the actions described above (substantial modifications to migration conditions designed to benefit key prey species, combined with improvements to Chinook spawning and rearing habitat in the tributaries and Columbia River estuary, and continued hatchery production) ensure that remaining Chinook mortality from all sources in the mainstem migratory corridor will continue to be more than offset, resulting in a net gain in Chinook salmon abundance available as a prey source for SRKW. Finally, the 2019 NMFS Fisheries BiOp included increased spring spill operations that are similar to operations evaluated in CRSO EIS, and NOAA validated that the hatchery production of Chinook salmon mitigates for the impacts of operating the Columbia River System and total mortality through the mainstem migratory corridor from all sources. Moreover, the EIS analysis found only a minor effect to the Southern Resident killer whale (SRKW) would result from implementing MO3, which includes the measure to breach the four lower Snake River dams. This conclusion is based on the fact that Chinook salmon available to SRKW from the lower Snake River comprises only a small percentage of their overall diet. Changes to this portion of the whales food availability of the magnitudes predicted for MO3 may change the whales foraging behavior patterns slightly, but will not change their overall condition or population dynamics. The co-lead agencies note the contribution to the prey of SRKW through the continued existence of their respective independent congressionally

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					authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as Lower Snake River Compensation Plan, which is administered by the U.S. Fish and Wildlife Service.
4317	4	sunsetjam@gmail.com	N/A	The DEIS ignores avoided costs and future savings by restoring the lower Snake River Costs such as eliminating the rising capital, operations and maintenance costs for the four Snake River dams,more than $1 billion dollars could be saved . Costs to the rural communities and Tribes in terms of lost fishing opportunities, reduced jobs and incomes. Costs that would be gained in jobs created by the river restoration activities throughout the river system.	The EIS evaluates the system costs to operate and maintain (O&M) the lower Snake River dams, including capital costs, under the No Action Alternative and under MO3. Tables 4-1 and 5-1 in Appendix Q show the costs and cost savings under MO3. There would be approximately $107 million in annual capital and O&M cost savings under MO3 compared to the No Action Alternative for the lower Snake River projects over the 50-year period of analysis. The EIS describes the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. For the effects on recreational fishing under MO3 (Section 3.11.3.5) along the lower Snake River below Lewiston, the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River) as an indicator for fishing visitation in this reach. The EIS describes that the visitation in the long-term in the lower Snake River, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting outfitting and tourism businesses in the region. The potential for changes in recreational fishing of anadromous fish under MO3 is described in Section 3.11, which could result in increases in recreational fishing in the long-term that would support jobs, income, and social benefits in Tribal and rural river communities. However, there is uncertainty around recreational fishing visitation in the long-term given the current measures to regulate, protect, and support ESA-listed fish populations and habitat in the region. The social welfare values and regional economic effects associated with recreational fishing under the action alternatives as well as river recreation post dam breach under MO3 were not estimated because of the uncertainty and large range in visitation and consumer surplus values among users. The contribution of Columbia River origin fish to ocean fisheries is described in Section 3.15.2.1. Because there is considerable uncertainty regarding the overall effects of the alternatives on regional fish populations, and how such changes may affect the management of the fisheries, effects associated with changes in commercial and recreational fisheries under the alternatives were described qualitatively. This analysis evaluates potential effects on fisheries by referencing the potential effects on relevant fish populations, as described in Section 3.5. The EIS recognizes the importance of salmon to Tribes in a number of sections throughout the document. The Fisheries Section 3.15 as well as Section 3.17, in particular, include discussion of reductions in anadromous species catch and associated adverse social effects that have occurred in Tribal communities. The cultural significance and impacts of salmon and steelhead fisheries are described in the Fisheries Section 3.15.2.1, which includes sections that describe ceremonial and subsistence fisheries as well as the social importance of commercial, ceremonial and subsistence fisheries.
4325	1	N/A	N/A	The EIS used only a subjective alternatives analysis. There was no weighting given to the eight Colombia River System Objectives. For each of the major alternatives, they were only subjectively scored on meeting, or not, the eight objectives. It is highly likely that if a different set of agency analysts worked on coming up with a Preferred Alternative, that there would be a different Preferred Alternative. Similarly, if another organization (like Mitre), were to audit this EIS, they would discover that the analysis of the alternatives would not be repeatable. It would be totally dependent on WHO did the evaluations, and not at all dependent on a WEIGHTED VALUE OF EACH OF THE MAJOR OBJECTIVES. Therefore, the conclusion of this EIS, in creating the Preferred Alternative, is irrevocably flawed and the alternatives should be re-evaluated using an objective process.	The commenter is correct that no weighting was applied to the eight objectives in the EIS. A Preferred Alternative was developed that meets the Purpose and Need Statement as well as certain objectives included in the EIS. Quantitative evaluations were conducted to determine the effects of each of the alternatives when appropriate. In instances where quantitative evaluations were not appropriate or possible, qualitative discussions are included to describe the effects of each alternative. The evaluations are clear, transparent, and repeatable based on high quality information.
4332	1	tammydzi@yahoo.com	N/A	The impacts show that peaking at the claimed level is NOT feasible. The lower Snake River dams were never designed to allow anything more than 15 MW of peaking power (ACOE 2002 Feasibility Study). The unsupported sustained peaking claims are not valid; they need to be removed from the fact sheets.	Contrary to the information in the comment, the 2002 EIS identified the four lower Snake River dams as providing 15 percent, rather than 15 MW, of the FCRPS ramping capacity. The EIS analysis found that the four lower Snake River dams provide upwards of 2,000 MW of sustained peaking capacity. The dams also provide important ramping capability the ability to quickly generate energy to match spikes in energy usage with over 2,000 to 2,300 MW of capability in certain months of the year. See Draft EIS, Section 3.7.3.5, 3-906, Table 3-160. This amount of peaking capacity is slightly lower than that reported in the 2002 EIS cited by the commenter. The ramping and peaking capabilities are described in Section 3.7.3.5 Potential Replacement Resources and Associated Costs. The EIS relies on historical hydropower data to evaluate the potential generation of the Columbia River System projects including the peaking capability of the four lower Snake River dams. Table 3-160 in the Draft EIS presents the historical sustained ramping capability of the four lower Snake River dams.
4332	2	tammydzi@yahoo.com	N/A	Regarding the lower Snake River dams, their value needs to be based on the value they's shown in the past 50 years, and not with "proposed additional capabilities".	The EIS power analysis relies on historical data regarding the ramping and flexibility of the four lower Snake River dams. Table 3-160 in Section 3.7.3.5 in the Draft EIS, presents the historical sustained ramping capability of the four lower Snake River dams. In addition, Section 3.7.3.5, pages 3-905-907 in the Draft EIS, describes how Bonneville used historical rate case values to estimate the value of the historical generation profile of the dams.
4340	1	owyheeriver@comcast.net	N/A	Two often, the case for salmon restoration and the removal of the four Lower Snake River (LSR) dams has been presented as a choice between jobs or fish. Its a false choice. Restoring the river habitat to its natural state will benefit the salmon, people, wildlife in the river corridor, and the industries that rely on a healthy fishery. The four LSR dams were built primarily to enable barging to Lewiston, creating a false inland port in the land-lock state of Idaho. Between year 2000 and 2015, freight transport on the Lower Snake River has declined 69%, container shipping on the LSR has ceased. The lower Snake waterway is even categorized by the Corps of Engineers as a waterway of negligible use. While freight volume continues to trend down, the costs of maintaining the waterway continues to climb. If there is an economic case to be made, the cost-benefit of removing the four LSR dams favors removal. In the development of the 2002 LSRFR the Corps hired noted economist John Loomis to identify any increased economic value to the region from the breaching of the LSR dams. A reanalysis of the LSRFR by the highly respected non-profit Earth Economics revealed that the Walla Walla District misinterpreted Loomis work, and had they accurately interpreted it, the region stood to gain an average annual $1.5 billion in recreational dollars for businesses and the tourism industry, especially in north central Idaho and eastern Washington. Enabling the LSR dams to produce energy was an after-thought, and these four dams provide only 4% of the regions power, which has been replaced by wind & solar power. Additionally, there is reduced demand on the BPA power grid from California as they have moved to wind and solar power.	The EIS evaluated beneficial and adverse effects across an array of resource areas including potential effects at the national, regional and local level; effects are monetized and quantified, where possible, and also described qualitatively. As is common in NEPA analyses, the beneficial and adverse effects of the alternatives are expressed as a variety of qualitative and quantitative environmental and economic metrics, when appropriate, throughout the EIS to inform decision-making, including the effects of the alternatives on fish as detailed in Section 3.5. That the effects of the alternatives on fish are not expressed as monetized economic values does not mean that they were not considered in the context of the analysis. The EIS does not employ a cost-benefit framework for decision-making. Instead, the EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-lead agencies numerous legal obligations. The Preferred Alternative (PA) is predicted to benefit ESA-listed juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3, which includes breaching the four lower Snake River dams. However, the PA also meets most other objectives of the study for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. The EIS describes the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. NMFS estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which are described qualitatively. For the effects on recreational fishing under MO3 (Section 3.11.3.5) along the lower Snake River below Lewiston, the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River) as an indicator for fishing visitation in this reach. The EIS describes that the visitation in the long-term in the lower Snake River, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting outfitting and tourism businesses in the region. The potential for changes in recreational fishing of anadromous fish under MO3 is described in Section 3.11, which could result in increases in recreational fishing in the long-term that would support jobs, income, and social benefits in Tribal and rural river communities. However, there is uncertainty around recreational fishing visitation in the long-term given the current measures to regulate, protect, and support ESA-listed fish populations and habitat in the region. The social welfare values and regional economic effects associated with recreational fishing under the action alternatives as well as river recreation post dam breach under MO3 were not estimated because of the uncertainty and large range in visitation and consumer surplus values among users. The social welfare values and regional economic effects associated with recreational fishing under the action alternatives as well as river recreation post dam breach under MO3 were not estimated because of the uncertainty and large range in visitation and consumer surplus values among users. Finally, while the four lower Snake River dams account for a small portion of the total power of the region, they represent a larger portion of the Federal Columbia River Power System from which Bonneville markets power. The power generated from the four lower Snake River dams is used to meet Bonneville's collective power obligation, most of which is sold to meet the loads of publicly owned utilities, such as municipalities, rural utilities, and public utility districts. (See Draft EIS Section 3.7.2.5, Bonneville Power and Transmission Customers).
4340	2	owyheeriver@comcast.net	N/A	Taxpayers and regional ratepayers have spent $17 billion on five insufficient Columbia Basin salmon plans over 25+ years, but failed to recover a single endangered population.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA listed species. Similarly, the Northwest Power Act does not obligate the co-lead agencies to recover ESA listed species or to ensure restoration of other fish and wildlife. Instead, the co-lead agencies fish and wildlife mitigation responsibilities under Northwest Power Act are more limited primarily, managing and operating FCRPS projects, which includes the CRS, to protect, mitigate, and enhance (as opposed to recover) fish and wildlife affected by such projects in a manner that provides equitable treatment with the projects other authorized purposes and consistent with the purposes of the Act and applicable laws. In addition, Bonneville has a specific responsibility to fund protection, mitigation, and enhancement of fish and wildlife to the extent affected by development and operation of FCRPS projects consistent with the Northwest Power and Conservation Councils (Council) fish and wildlife program, the Councils power plan, and the purposes of the Act, which includes assurance of an adequate, efficient, economical, and reliable power supply. Therefore, contrary to the comments broad assertion, the Northwest Power Act does not make Bonneville responsible for funding the regional effort to recover wild salmon and steelhead. The commenters suggestion that approximately $17 billion in fish and wildlife mitigation investment has been ineffective to recover ESA-listed species is misplaced. Those investments delivered the intended results when considered in the appropriate statutory context of the Northwest Power Acts anadromous fish provisions which call for improved survival of such fish at Federal Columbia River Power System (FCRPS) projects and sufficient flows between the projects to improve production, migration, and survival. For example, as of 2014 this investment had facilitated juvenile dam passage survival of 96 percent and 93 percent for spring and summer migrants respectively, see Endangered Species Act FCRPS 2016 Comprehensive Evaluation Section 1, at 17, t.2 (Jan. 2017), a marked improvement compared to when Congress passed the Northwest Power Act and the estimated average juvenile mortality at each mainstem dam and reservoir complex was 15 to 20 percent with losses recorded as high as 30 percent. See Nw. Res. Info. Ctr. v. Nw. Power Planning Council, 35 F.3d 1371, 1374 (9th Cir. 1994) (citing a Sept. 4, 1979 report by U.S. General Accounting Office describing the systems impacts on anadromous fish).
4340	3	owyheeriver@comcast.net	N/A	A new approach is urgently needed. We suggest that the government could instead spend the money compensating the vested economic interests (Port of Lewiston, barge companies, irrigators, and farmers), for their losses due to this change in federal policy, and offer retraining to employees for 21st century jobs.	NEPA requires that all relevant, reasonable mitigation measures that could diminish the adverse effects of the project be identified in the document, even if they are outside the jurisdiction of the lead agency or the cooperating agencies. See 40 C.F.R. 1502.16(h) and 1505.2(c); 46 Fed. Reg. 18026. The inclusion of mitigation measures in Chapter 5 is not intended to indicate that the co-lead agencies, or the Federal government as a whole, has the authority to perform all of the measures listed. If the measures are outside the jurisdiction of the co-lead agencies, those measures will not be included in the Preferred Alternative or Record of Decision (ROD). Their inclusion in Chapter 5 serves to alert other agencies, officials, and the public who can implement the measures to the potential benefits of the measure. The mitigation requested, while identified in the Draft EIS, is not within the co-lead agencies' current authorities.
4340	4	owyheeriver@comcast.net	N/A	The proposed flexible spill plan is not sufficient to save salmon populations, especially because flex spill will not significantly reduce the transit time of juvenile fish, as shown from the implementation of a similar Flex Spill plan in 2019. One of the issues with flex spill is that it provides the Corps with the flexibility to spill when hydro needs are low, which is usually during the day,while salmon migrations are often highest at night, when spill is lower, reducing its beneficial effects.	The CSS model, predicts that Smolt-to-Adult return rates (SARs) will increase for both Snake River spring Chinook and steelhead with median values well above 2 percent (the lower end of Northwest Power and Conservation Council's recovery targets for the region) as a result of the Preferred Alternative increasing 2.0 percent to 2.7 percent for Chinook, a 35 percent relative increase. While the Draft EIS analysis did consider and present juvenile fish travel time through the Columbia River System, the benefit of flexible spill to salmon and steelhead relies largely on reduction in the proportion of fish passing through powerhouses, which in theory will result in increased SARs. Therefore in-river survival and travel time does not tell the whole story. It will take years to understand the true effect because adult returns are required to measure the key effect, SARs. The Preferred Alternative includes an adaptive management plan. This plan involves working with regional sovereigns to develop a study to assess the effectiveness of the increased spill regime on adult returns as well as an assessment and management of adverse unintended consequences, such as long delays of adult migrants, or Total Dissolved Gas (TDG)-related mortality of juvenile migrants. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information.
4340	5	owyheeriver@comcast.net	N/A	Southern Resident Orcas depend on abundant salmon for their survival, andbest available science says that breaching the lower four snake river dams gives Southern Resident Orca the best chance for recovery. The DEIS says that breaching the dams would have a negligible effect for orca, but the orca	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species.

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				scientists have repeatedly advocated for the breaching of the lower four Snake River dams to restore the salmon populations that the orca depend on as their main source of food.	FEIS Chapter 3 (Vegetation, Wetlands, Wildlife, and Floodplains) has been updated for SRKW (Section 3..6.2.6 and Table 3-102). FEIS Chapter 7 (Preferred Alternative), has been updated with additional analysis information on SRKW and potential increase in forage fish, in particular, Chinook salmon (Section 7.7.8). Moreover, the EIS analysis found only a minor effect to the Southern Resident killer whale would result from implementing MO3 (which includes the dam breach measure). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). The co-lead agencies agree that the quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults form the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differentially from hatchery and wild fish. Hatchery fish today likely make up most fish consumed by SRKW (NOAA BiOp 2020). Additional details on the most crucial prey stocks for Southern Resident killer whales, as well as their population and range, is available from several fact sheets and videos available here: https://www.fisheries.noaa.gov/species/killer-whale#spotlight. For more information, visit this NMFS StoryMap on Southern Resident killer whales: https://noaa.maps.arcgis.com/apps/Cascade/index.html?appid=3405e6637bf74e998d4ebe992c54f613. The co-lead agencies note the contribution to the prey of Southern Resident killer whales through the continued existence of their respective independent congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as Lower Snake River Compensation Plan (LSRCP), which is administered by USFWS. According to NMFS and the EPA, the estimated SRKW population has fluctuated between 67 and 98 whales between 1960 and 2015. The Snake River dams were constructed between 1962 and 1975. The SRKW population increased from a record low in 1970 to its highest population numbers in 1995. Those years were not high years for Snake or Columbia River Chinook Salmon. Ocean conditions between 2011 and 2013 were good years for salmon. At the same time, 2010 and 2013 were good outmigration years. Particularly, 2011 and 2012 were above normal in water supply, which would mean more cooler water was available and there was better survival of salmon, and 2011 through 2014 were higher than normal spill years as well. The combination of outmigration and ocean conditions created improved adult salmon returns. The EIS has analyzed spill as a measure in the Preferred Alternative and determined the overall effect to SRKW to be negligible in large part because hatchery production is consistent between the No Action Alternative and the Preferred Alternative. Because the impact from the Preferred Alternative was determined to be negligible, the agencies determined that existing hatchery production would be sufficient to address any potential impacts to prey availability for SRKWs. The Preferred Alternative and Proposed Action in the agencies' biological assessment carry forward certain measures described in Chapters 2 and 7 of the EIS, which include continued salmon and steelhead hatchery production. The Preferred Alternative has negligible effects to SRKWs as described in Section 7.7.8. The Biological Assessment (BA) describes the effect of the Proposed Action on the SRKW forage species (see BA Section 3.5.1.2, Southern Resident Killer Whale). The proposed changes in operation of the Columbia River System include increased spring spill during the downstream migration of juvenile spring and summer run Chinook salmon. The result of this action includes potential increases of juvenile fish passing through the spillways, reductions in juvenile fish direct and indirect mortality associated with downstream passage, and the Comparative Survival Study (CSS) model predicts increases in numbers of returning adults, which will benefit SRKWs foraging in and around the mouth of the Columbia River in winter and spring (See EIS Section 7.7.8). The CSS model results predicts Snake River Chinook salmon would have relative improvements in smolt-to-adult returns of 35 percent (see EIS Section 7.7.4). The smolt-to-adult return ratio (SAR) is the rate at which of a group of fish survive from their smolt life stage to a defined ending point where they return as adults. While recovery targets will require more than just the efforts of federal agencies, the CSS models indicate the potential for SARs of Snake River Chinook salmon and steelhead to increase to levels that could approach recovery targets set by the Northwest Power and Conservation Council. The BA, also consistent with the EIS, acknowledges past improvements to the configuration and operation of the Columbia River System, additional improvements to the environmental baseline as a result of completed estuary and tributary habitat actions, and the prospective non-operational conservation measures proposed in Chapter 2 of the Draft EIS, all contribute towards maintaining and improving Chinook abundance. Relevant conservation measures include, among other things, a commitment to continue funding the conservation and safety net hatchery programs listed in Chapter 2 of the Draft EIS. As discussed above, the agencies will fulfill congressionally authorized hatchery mitigation objectives through the funding of hatchery programs that are operated consistent with their independent hatchery program consultations during the term covered by this consultation. Based on those hatchery program consultations, the production levels associated with congressionally authorized hatchery mitigation objectives will continue, at minimum, to be consistent with levels previously analyzed by NOAA in the system consultations in 2008, 2014, and 2019. For the 2020 ESA consultations, therefore, the agencies expect that collectively, all of the actions described above (substantial modifications to migration conditions designed to benefit key prey species, combined with improvements to Chinook spawning and rearing habitat in the tributaries and Columbia River estuary, and continued hatchery production) ensure that remaining Chinook mortality from all sources in the mainstem migratory corridor will continue to be more than offset, resulting in a net gain in Chinook salmon abundance available as a prey source for SRKW. Finally, the 2019 NMFS Fisheries BiOp included increased spring spill operations that are similar to operations evaluated in CRSO EIS, and NOAA validated that the hatchery production of Chinook salmon mitigates for the impacts of operating the Columbia River System and total mortality through the mainstem migratory corridor from all sources.
4340	6	owyheeriver@comcast.net	N/A	The Draft EIS fails to honor our treaty promises. Native tribes are more than simply river stakeholders as they have inherent rights as first people. Native nations also have treaties with the United States government which gives them sovereign status. Indigenous people gave up thousands of acres of their land for the right to hunt and fish in their usual and accustomed places, a promise which has not been kept by the government. Restoring salmon runs honors these agreements and the moral imperative for justice. We must honor our commitments to the Nez Perce, Shoshone-Bannock, Umatilla, Warm Springs, and Yakama Tribes.	Tribal input, concerns, interests, and especially treaty rights were considered throughout the Draft EIS analyses and in the formulation of the Preferred Alternative. Treaty specific information is included in Section 3.17 as well as Chapter 7. The co-lead agencies recognize and respect the legal obligations treaties impose. The co-lead agencies accordingly included "Protecting Native American treaty and reserved rights and fulfilling trust obligations for natural and cultural resources throughout the environment affected by the Columbia River System operations" as a purpose in the Purpose and Need Statement in Chapter 1 to ensure treaty obligations were a key consideration of decision making.
4351	1	kjwientjes@hotmail.com	N/A	I have to believe that there are alternative solutions to solving the Salmon situation that would be agreeable to all parties involved in this situation. One Idea would be releasing water out of the dams at critical times to help the fish. Another idea would be to improve the fish ladders to improve the migration of these species of fish.	The Draft EIS Preferred Alternative does propose flows for fish, including increasing spill at the eight lower Columbia River System dams, as well as improvements to fish ladders. The Preferred Alternative also proposes to continue operations to augment flows from storage projects during key fish migration periods.
4364	1	megan.holloway80@gmail.com	N/A	The best option for the salmon was Option M03 which required breaching the dams. Model estimates for MO3 showed the highest predicted potential smolt-to-adult returns (SARs) for Snake River salmon and steelhead among the alternatives. Breaching of the lower Snake River projects would have major long-term beneficial effects to resident fish in the Snake River due to improved rearing and migration conditions.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the Endangered Species Act (ESA), in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-lead agencies numerous legal obligations. The Preferred Alternative is predicted to benefit ESA-listed juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets most other EIS objectives including those for: resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams, because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. Different models predict different long-term survival benefits to ESA-listed species from dam breach, benefits that can contribute to recovery. Under the National Marine Fisheries Service (NMFS) COMPASS model, juvenile Snake River spring/summer Chinook in-river survival would improve by 9.6 percent due to breaching the four lower Snake River dams, which is a 19 percent relative increase over the No Action Alternative. The NMFS Lifecycle model predicts an increase in adult returns of 13.6 percent for these same fish under MO3 (no latent mortality assumed) relative to the No Action Alternative (from 0.88 to 1 percent). Results for Snake River steelhead are similar (10 percent absolute improvement, or 23 percent relative juvenile survival increase, Smolt-to-Adult return rates (SARs) for steelhead were not modeled). Under the CSS model, juvenile in-river survival for the Snake River Spring/Summer Chinook is predicted to improve by 10.4 percent due to dam breach, which is an 18 percent relative increase over the No Action Alternative, while SARs would increase by 115 percent (from 2 to 4.2 percent). The CSS model predicts that Snake River steelhead would see juvenile survival increase by 25.8 percent which is a 46 percent relative increase over the No Action Alternative. The CSS model also predicts that SARs increase by 177 percent (from 1.8 to 5 percent). Though differing in predictions, both modeling groups predict MO3, which includes the measure to breach the four lower Snake River dams is the best alternative for salmon and steelhead. One model simply predicts adult return increases an order of magnitude higher than the other. For resident fish, breaching of the four lower Snake River projects would have major long-term beneficial effects to resident fish in the lower Snake River; however during the breaching, major short-term adverse effects would occur.
4369	1	mgrotbo@ravallielectric.com	N/A	We are concerned with the science of 125% spill. We should trust the science. There was a reason we originally settled on the spill amounts. There is a reason it has the name of 100% spill. Science got us there. Why are we letting political pressure move us to a place which will harm fish? If prior science showed about 100% harmed fish, what changed in the science? In closing, we are in support of rejecting MO-3 and MO-4. We ask that you take a holistic view of the problem. We encourage the report to re-evaluate the science of 125%.	Total Dissolved Gas (TDG) levels are regulated under the Federal Clean Water Act, and administered by the States. Both Oregon and Washington have reassessed the available data on effects of TDG levels up to 125 percent of saturation on fish and other aquatic organisms. Based on this reassessment Oregon issued a 5-year "standard modification" and Washington issued a permanent rule change, approved by the Environmental Protection Agency (EPA), to allow TDG saturation up to 125 percent. However, as noted by the commenter, there is considerable uncertainty in the effects; and therefore, monitoring was required by the states and EPA to ensure any adverse effects are detected and allow for adaptive management. Migrating salmon and steelhead may spend sufficient time at depths that will compensate for the high gas levels. However, fish and other organisms that spend extended times in less than a few meters of depth are at high risk. The Preferred Alternative will require a robust monitoring plan for salmon and steelhead to help narrow the uncertainty between the biological models and will help determine how effective increased spill can be in increasing salmon and steelhead returns to the Columbia River Basin. The effectiveness of the spill program will be monitored and effects from other sources such as harvest, ocean mortality, and straying will also be accounted for to the extent possible.
4385	1	willhartindc@hotmail.com	N/A	ICUA also rejects any proposal that will lead to blackouts. The DEIS concludes the dam breaching alternative would more than double the regions risk of power shortages. In addition, both the Northwest Power & Conservation Council and the Northwest Power Pool have issued serious warnings over the possibility of regional blackouts and resource adequacy issues facing the region.	The comments about the importance of the four lower Snake River dams for regional power reliability are consistent with the EIS findings. The EIS finds that, unless and until replacement resources are constructed, MO3 would lead to a doubling of the risk of regional power shortages with the current fleet of other resources in the region. See Draft EIS, Section 3.7.3.5, Table 3-166; and Appendix H, Table 2-1. With additional coal plants slated for retirement, the EIS finding is consistent with the comment and the Northwest Power and Conservation Councils findings of a high risk to regional resource adequacy. The Preferred Alternative improves system reliability while Multiple Objective alternative 1, MO3 and Multiple Objective alternative 4 did not meet or only partially met the objective to maintain a reliable and affordable power system.
4385	2	willhartindc@hotmail.com	N/A	The Pacific Northwest has a legacy of clean energy, and according to the DEIS, breaching the dams would create a 10% increase in power-related emissions across the Northwest. This is unacceptable during a time of continued climate warming which has caused severe adverse ocean conditions for fish.	The co-lead agencies thoroughly analyzed the impacts of the measure to breach the four lower Snake River dams, including effects to emissions, and did not include the measure to breach the four lower Snake River dams in the Preferred Alternative.
4397	1	djpotter@hotmail.com	N/A	The Preferred Alternative in the Draft EIS does not adequately provide for salmon and steelhead populations because it will not improve smolt to adult turn rates (SARs) to levels identified by scientists as necessary for harvest or recovery. Harvestable populations need a SAR around 4%, meaning 4 adults return for every 100 juvenile fish that head to the ocean. Under the Preferred Alternative, SARs for Snake River spring Chinook will reach 2.7% at best.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the Endangered Species Act (ESA), in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species as that is a broader goal with shared responsibility. Based on the fish analysis in Section 7.7.5, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species

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				The predicted SAR is even lower for Snake River steelhead at 2.4%. At worst, The Life Cycle Model predicts an extinction trajectory under the Preferred Alternative with a SAR below 1%.	and is not expected to diminish the likelihood of recovery. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the CRS. Recovery of ESA-listed species is the purview of National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (USFWS). This EIS has been developed in consultation with NMFS and USFWS to minimize impacts to affected ESA-listed species and their habitats. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. The co-lead agencies used current, high quality information in the EIS analysis. Specific to salmon and steelhead, the agencies used two primary modeling approaches which yielded a range of potential outcomes for the alternatives. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult return rates (SARs) will increase for both Snake River spring Chinook and steelhead and will average well above 2 percent (the lower end of Northwest Power and Conservation Council's (Council's) recovery targets for the region) increasing from 2.0 percent to 2.7 percent for Chinook, a 35 percent relative increase. The NMFS COMPASS and Lifecycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia River Basin. The 4 percent average SARs target referenced refers to the Councils target for broad-sense recovery and is separate and distinct from the obligations of any single entity or in this case a requirement to be met solely by the co-lead agencies. Just as the Councils fish and wildlife program encompasses both Federal and non-Federal stakeholders in the Columbia River Basin, the Councils recovery goals are shared by many parties. Based on the analysis, the Preferred Alternative will make a substantial contribution, but the Councils broad sense recovery goals are beyond the scope of this EIS which focuses on the effects associated with the operation and maintenance of the 14 CRS projects.
4397	2	djpotter@hotmail.com	N/A	When evaluating the economic impacts of each alternative, the analysis completely ignored the sportfishing economy and its estimated contribution of over $757 million in Idaho alone (over $2 billion region-wide). The Draft EIS relied on a qualitative, rather than quantitative, analysis to evaluate impacts despite the existence of several current studies on the economic contributions of outdoor recreation and sport fishing in states with salmon and steelhead. This is in contrast to water supply, irrigation, navigation, and hydropower generation, which were all evaluated quantitatively.	The EIS evaluated beneficial and adverse effects across an array of resource areas including potential effects at the national, regional and local level; effects are monetized and quantified, where possible, and also described qualitatively. In instances when quantitative evaluations were not appropriate or possible, qualitative discussions are included to describe the effects of each of the alternatives. As is common in NEPA analyses, the beneficial and adverse effects of the alternatives are expressed as a variety of qualitative and quantitative environmental and economic metrics throughout the EIS to inform decision-making, including the effects of the alternatives on fish as detailed in Section 3.5. That the effects of the alternatives on fish are not expressed as monetized economic values does not mean that they were not considered in the context of the analysis. The EIS does not employ a cost-benefit framework for decision-making. Instead, the EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The EIS provides an evaluation of the social welfare and regional economic effects of the No Action Alternative and the MOs, including the effects on recreation (Section 3.11) and commercial fisheries (Section 3.15). The EIS described the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. NMFS estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which is described qualitatively. For the effects on recreational fishing under MO3 (Section 3.11.3.5) along the lower Snake River below Lewiston, the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River) as an indicator for fishing visitation in this reach. The EIS describes that the visitation in the long-term in the lower Snake River, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting outfitting and tourism businesses in the region. The social welfare values and regional economic effects associated with recreational fishing under the MO alternatives as well as river recreation post dam breach under MO3 were not estimated because of the uncertainty and large range in visitation and consumer surplus values among users.
4397	3	djpotter@hotmail.com	N/A	It is unacceptable that the Draft EIS did not use publicly-available data sources to quantify the devastating financial impacts of declining salmon and steelhead populations on rural communities in Idaho and the Pacific Northwest.	The EIS used high-quality information to produce and inform the analysis. The co-lead agencies also had cooperating agencies on their technical teams to bring relevant information and data to the analysis. The Preferred Alternative is not anticipated to contribute to a decline in salmon and steelhead populations, and indirectly, have an adverse affect to communities in Idaho. In fact, it is anticipated to improve salmon and steelhead returns. For a full analysis, see Chapter 7. Additionally, the EIS described the potential effects to recreational fishing, an industry reliant on fish abundance, qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. NMFS estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which is described qualitatively in the EIS for each alternative.
4416	1	mwgillenwater@gmail.com	N/A	1) I find the draft EIS to be fatally flawed with regards to science and economics because it did not complete the analysis of the effects of climate change on river temperatures and salmon.	Through on-going regional climate change studies and work, the co-lead agencies evaluated potential shifts in precipitation and temperature patterns and resulting changes in unregulated Columbia River Basin streamflow timing and volumes. The evaluation consisted of the full range of the latest climate change projections developed using multiple global climate models, emissions scenarios, downscaling techniques, and hydrologic models. Details of this evaluation are in Chapter 4 of the EIS. This information was used to describe the potential effects (both beneficial and adverse) on the river systems and resources due to potential changes in climate for all alternatives. Quantitative data that describes how climate change hydrology will affect reservoir operations in the Columbia River Basin in still under development and was not available for this EIS. The climate science community is still developing quantitative models that can address possible effects in water temperature from climate change, and unfortunately, there are not reliable models at this time at the required resolution (river-scale vs. global or regional scale). This data is critical to analyzing potential effects to fish quantitatively. In lieu of this information, the climate analysis used the output from resource models, like water quality and fish, under historical conditions, available climate change data, and scientific literature to qualitative assess potential effects to resources (described in Chapter 4). Chapter 7 discusses the potential climate effects by resource under the Preferred Alternative.
4427	1	troutdna@gmail.com	N/A	The Preferred Alternative merely extends river management measures that have not worked to restore wild fish over the last 25 years. These failed efforts have been well documented. Wild Snake River salmon and steelhead listed under the provisions of the Endangered Species Act represent less than 2% of predevelopment numbers. Each species contains over two dozen unique sets of genes that resulted from thousands of years of adaptation. Are they worth saving? The federal agencies do not think so, saying it would be too expensive. The federal agencies will do anything to protect the four lower Snake River dams and have slanted the Preferred Alternative to do so. They have already sunk 17 billion dollars into failed fish mitigation.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes, including Section 7 of the Endangered Species Act. Under Section 7(a)(2) of the ESA, the co-lead agencies must insure that any action authorized, funded, or carried out is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of habitat of such species. Section 7(a)(2) does not require the co-lead agencies to take affirmative actions to recover ESA-listed species. Regardless, the co-lead agencies included objectives in the EIS to benefit ESA-listed species. The Preferred Alternative meets the requirements of Section 7(a)(2) and meets most of the objectives of the EIS. The spill operation for juvenile fish passage that is included in the Preferred Alternative is a significant departure from previous operations, so much so that the Washington and Oregon state water quality standards had to be changed to implement the new spill regime. Based on the fish analysis described in Section 7.7.5, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species. For example, the CSS and COMPASS models predict that power house encounters will be cut in half relative to the No-Action Alternative for Snake River spring/summer Chinook salmon. The real uncertainty lies in the hypothesis that reduced powerhouse encounters will result in increased adult returns. To address this uncertainty, the Preferred Alternative includes an adaptive management plan. This plan involves working with regional sovereigns to develop a study to assess the effectiveness of the increased spill regime on adult returns as well as assessment and management of adverse unintended consequences, such as long delays of adult migrants, or Total Dissolved Gas (TDG)-related mortality of juvenile migrants. The commenters suggestion that approximately $17 billion in fish and wildlife mitigation investment has been ineffective to recover ESA-listed species is misplaced. Those investments delivered the intended results when considered in the appropriate statutory context of the Northwest Power Acts anadromous fish provisions which call for improved survival of such fish at Federal Columbia River Power System (FCRPS) projects and sufficient flows between the projects to improve production, migration, and survival. For example, as of 2014 this investment had facilitated juvenile dam passage survival of 96% and 93% for spring and summer migrants respectively, see Endangered Species Act FCRPS 2016 Comprehensive Evaluation Section 1, at 17, t.2 (Jan. 2017), a marked improvement compared to when Congress passed the Northwest Power Act and the estimated average juvenile mortality at each mainstem dam and reservoir complex was 15-20% with losses recorded as high as 30%. See Nw. Res. Info. Ctr. v. Nw. Power Planning Council, 35 F.3d 1371, 1374 (9th Cir. 1994) (citing a Sept. 4, 1979 report by U.S. General Accounting Office describing the systems impacts on anadromous fish).
4427	2	troutdna@gmail.com	N/A	Restoration of wild fish requires smolt-to-adult returns (SARs) assessed at Lower Granite Dam of 2 to 6 percent (mean of 4%). That range has been attained only three times in the last two decades. Pristine spawning habitat in the Middle and South Fork Salmon rivers remains nearly unoccupied by adults. Twenty years of research has provided estimates of Middle Fork Salmon River spawner capacity of 48,000 fish. In 2019, only 322 Chinook returned to the Middle Fork of the Salmon River. Passage of wild spring/summer Chinook salmon destined for all tributaries upstream from Lower Granite Dam in 2019 totaled 4723 fish. The trajectory of returns of wild spring chinook and steelhead is toward extinction, not recovery.	Based on the fish analysis, the Preferred Alternative will make a substantial contribution to improving Snake River anadromous fish runs, but broad recovery goals are beyond the scope of this EIS, which focuses on the effects associated with the operation and maintenance of the 14 Columbia River System projects. The co-lead agencies used high quality information in the analysis of the CRSO EIS. Specific to salmon and steelhead, the agencies used two primary modeling approaches which yielded a range of potential outcomes for the alternatives. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult return rates (SAR) would increase for both Snake River spring Chinook and steelhead and would average well above 2 percent (the lower end of Northwest Power and Conservation Council's (Council's) recovery targets for the region) as a result of the Preferred Alternative (increasing from 2.0 percent to 2.7 percent for Chinook, a 35 percent relative increase). The NMFS COMPASS and Lifecycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia River Basin. It should be noted that the 4 percent average SAR target referenced refers to the Councils target for broad-sense recovery and is separate and distinct from the obligations of any single entity or in this case a requirement to be met solely by the co-lead agencies. Just as the Councils fish and wildlife program encompasses both Federal and non-Federal stakeholders in the Columbia River Basin, the Councils recovery goals are shared by many parties.
4428	1	medischner@gmail.com	N/A	The final EIS must thoroughly consider all those who travel to various rivers that are made more appealing when there are robust salmon and steelhead populations. Recreational tourism is an important economic driver. For me and many others – we will travel regardless of electric costs. We will not bother to travel if there are no fish.	The EIS evaluated beneficial and adverse effects across an array of resource areas including potential effects at the national, regional and local level; effects are monetized and quantified, where possible, and also described qualitatively. As is common in NEPA analyses, the beneficial and adverse effects of the alternatives are expressed as a variety of qualitative and quantitative environmental and economic metrics throughout the EIS to inform decision-making, including the effects of the alternatives on fish as detailed in Section 3.5. That the effects of the alternatives on fish are not expressed as monetized economic values does not mean that they were not considered in the context of the analysis. The EIS does not employ a cost-benefit framework for decision-making. Instead, the EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as the dam breaching alternative. However, the Preferred Alternative also meets most of the other objectives of the study for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. The EIS provides an evaluation of the social welfare and regional economic effects of the No Action Alternative and the Multiple Objective alternatives (MOs), including the effects on recreation (Section 3.11). The EIS describes the changes to visitation under MO3, including how dam breaching would affect the quality of the recreational experience. In addition, the evaluation of lower Snake River visitation in the long-term considered Dr. John Loomis survey that was completed as part of the 2002 Lower Snake River Juvenile Salmon Migration Feasibility Study and EIS. For the effects on recreational fishing under MO3 (Section 3.11.3.5) along the lower Snake River below Lewiston, the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River) as an indicator for fishing visitation in this reach. The EIS describes that the visitation in the long-term in the lower Snake River, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting outfitting and tourism businesses in the region.
4428	2	medischner@gmail.com	N/A	Finally, the process for getting to the final EIS MUST include thorough consultation with Tribal nations and heavily consider their long connection to these aquatic resources and rights in helping manage them.	Tribal input, concerns, interests, and especially treaty rights were considered throughout the Draft EIS analyses and in the formulation of the Preferred Alternative. The co-lead agencies are engaging in government-to-government consultation with the tribes, and several Tribes are cooperating agencies on the CRSO EIS.
4428	3	medischner@gmail.com	N/A	Science shows that removing the four Lower Snake River dams is an important tool to recover salmon and steelhead populations, but the DEIS appears to underestimate the benefits this action would have. This should be corrected in the final, with more robust analysis of these important benefits. As it	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-

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				stands, the preferred alternative in the DEIS does not appear to be adequate to restore these populations. In fact, the analysis does not even provide assurance that the preferred alternative will avoid EXTINCTION for some of these fish.	listed species as that is a broader goal with shared responsibility. Based on the fish analysis in Section 7.7.5, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the CRS. Recovery of ESA species is the purview of National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (USFWS). This EIS has been developed in consultation with NMFS and USFWS to minimize impacts to affected ESA-listed species and their habitats. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. The co-lead agencies used current, high quality information in the EIS analysis. Specific to salmon and steelhead, the agencies used two primary modeling approaches which yielded a range of potential outcomes for the alternatives. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2 percent (the lower end of the Northwest Power and Conservation Council's recovery targets for the region) increasing from 2.0 percent to 2.7 percent for Chinook, a 35 percent relative increase. The NMFS COMPASS and Lifecycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia River Basin.
4428	4	medischner@gmail.com	N/A	I also believe the DEIS may not adequately consider alternative energy options to the dams. Although these dams provide relatively cheap power, the environmental costs of this power are not thoroughly considered, and there could be other future options that are not addressed here. In other regions, different sorts of hydropower provide energy that is more fish-friendly and still economical. These are not thoroughly considered	The EIS examined all power resources identified by the Northwest Power and Conservation Council in their Seventh Power Plan. The resource portfolios considered to replace the four lower Snake River dams are discussed in Section 3.7.3.5, pages 3-904-911 in the Draft EIS. The EIS acknowledges that future technology changes may make other options available. See EIS, Section 3.7.3.1, at page 3-816 in the Draft EIS. Further, Appendices H (Chapter 2) and J (Chapter 4) provide additional details on resource selection.
4432	1	KTTECH@FRONTIER.COM	N/A	As far as the fish situation is concerned: the predation of adult salmonids by orcas and sea lions is well documented. But has any consideration been given to addressing the predation of spring smolts by pelicans, terns and cormorants? The islands these birds nest on are littered with pit tags every spring.	The co-lead agencies' legal authorities relate to operating and maintaining the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy designated critical habitat. To comply with the ESA, the co-lead agencies have historically supported actions to mitigate adverse effects to ESA-listed species from CRS operations, through funding, direct implementation, and other means. Under the Preferred Alternative, those actions, including reduction of pinniped and avian predation on ESA-listed species, would generally continue to ensure compliance with the ESA. The Preferred Alternative includes a large suite of predation mitigation measures, some of which include maintaining avian wires in the tailrace of lower Columbia and Snake River dams, active hazing of gulls at the dams, and the pattern of operating the spillway gates all mitigate for predation at the dams by birds and fish. The Predator Disruption Operations will mitigate Caspian Tern predation on juvenile salmon and steelhead in the lower Columbia Rivers. Management efforts are ongoing to reduce salmonid consumption by terns in the lower Columbia River, and similar efforts are in progress to reduce the nesting population of Double-crested cormorants in the estuary. In addition, other entities in the region have authorities and obligations to mitigate the impacts from pinniped and avian predators and the co-lead agencies will continue to work closely with those entities to benefit ESA-listed salmonids.
4435	1	N/A	N/A	Barging is the safe, economic and environmentally responsible way to move commodities. Loss of the dams would not only result in substantial impacts to regional traffic with the addition of thousands more truck trips each year (adding pollution, increased use of fossil fuels, and a infrastructure impacts on roads and bridges) but also a financial loss that would ripple across communities that depend on the River for safe, environmentally responsible, family-wage jobs and industries that are the backbone of state economies. It is estimated that it would cost the region an extra $2 billion dollars in additional transportation costs to replace the loss of barging along the Columbia-Snake-Willamette.	As described in the Section 3.10 Navigation and Transportation, an analysis of the increased costs to shippers (farmers) associated with breach of the four lower Snake River dams was completed, and found that transportation costs for wheat in the Palouse Region would increase from $0.07 to $0.24 per bushel. This would represent an increase in transportation costs of 10 to 33 percent for farmers, though increases for individual farmers could increase by double that amount depending on their location and other site-specific conditions.
4439	1	s.bare@outlook.com	N/A	The final EIS must include a preferred alternative that includes removal of the lower Snake River dams, which, in my humbug's;le opinion, is a viable alternative. Recovery of abundant, healthy and harvestable levels of Snake River salmon and steelhead is not achievable with the dams in place. This is well documented as several decades of failed recovery efforts and billions of dollars have revealed. The agencies should call on Congress to make the necessary investments to replace the dams benefits so we can both recover the fish and maintain a vibrant regional economy.	A range of alternatives were evaluated in the Draft EIS. This included an alternative that included a measure to breach the four lower Snake River dams. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-lead agencies numerous legal obligations. The Preferred Alternative is predicted to benefit ESA-listed juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets most other EIS objectives including those for: resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams, because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system.
4439	2	s.bare@outlook.com	N/A	Science consistently supports the removal of the four Lower Snake River dams as necessary to recover robust and fishable populations of salmon and steelhead in the Snake River basin. The DEIS makes it clear that removing the lower Snake River dams is the best option for Snake River salmon and steelhead, but substantially underestimates the level of benefit. The DEIS preferred alternative doesn't even provide any reasonable degree of assurance that it will avoid extinction of these keystone species, let alone recover Snake River salmon and steelhead to abundant, harvestable levels.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the Endangered Species Act (ESA), in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species as that is a broader goal with shared responsibility. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the CRS. Recovery of ESA species is the purview of National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (USFWS). This EIS has been developed in consultation with NMFS and USFWS to minimize impacts to affected ESA-listed species and their habitats. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. The co-lead agencies used current, high quality information in the EIS analysis. Specific to salmon and steelhead, the agencies used two primary modeling approaches which yielded a range of potential outcomes for the alternatives. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2 percent (the lower end of the Northwest Power and Conservation Council's recovery targets for the region). The NMFS COMPASS and Lifecycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin.
4449	1	lorifrand3@frontier.com	N/A	Actions can be taken that are not easy, but not as devastating as breaching dams that give us recreation, power, flood control, commerce. How about stopping all commercial fishing on the rivers, and even in areas of the ocean, or at least place limits on their take.	Alternatives to include changes to harvest are not within the scope of this EIS. The assumptions regarding harvest are taken from the 2018 NOAA EIS and reflect current harvest management guidelines. To see their conclusions and effects analyses please go to: https://www.fisheries.noaa.gov/resource/document/environmental-impact-statement-programmatic-review-harvest-actions-salmon-and. For harvest, fisheries in the Columbia River Basin and those that rely upon Columbia River fish stocks are managed by numerous entities, including Federal, state, and tribal governments. These entities are guided by a complex array of policies, laws, compacts, and agreements. The management of Pacific salmon fisheries in particular is complex, and involves numerous entities representing a variety of social, political, and conservation interests. Changes in allowable fishery harvest in the Columbia River Basin are a result of decisions made by state, Federal (i.e., NMFS), and tribal fishery managers based on a variety of environmental, biological, economic, and social factors. The co-lead agencies (Corps, Reclamation, and Bonneville) do not manage fish stocks, and do not have the authority to do so.
4459	1	juan@dancingredband.com	N/A	The EIS must include a basin-wide review of flood risk management and how the 2024 expiration of the coordinated flood control operations under the U.S.-Canada Columbia River Treaty will impact storage and flows in the Columbia and Snake.	The Range of Alternatives Section (Section 2.4 of the CRSO EIS) provides a brief discussion of the Columbia River Treaty, why it is not included in the CRSO EIS, and when it would be added to this NEPA effort. As stated in the CRSO Draft EIS, the information about CRT-related operations available in 2016 is applied in the Draft EIS analysis as the best-available information. The CRSO Draft EIS evaluated the implications of the CRS alternatives using the Treaty coordinated operations, including their relationship to hydropower, ecosystem, and flood risk management, with the best available information. As is also noted in the Draft EIS, if CRT-related operations change after 2024 in a manner that presents new information or circumstances resulting in significant changes that were not previously addressed, those changes will be addressed by this NEPA process if they are identified in time or subsequently in another NEPA process, if necessary.
4459	2	juan@dancingredband.com	N/A	The EIS must consider the impacts of future irrigation withdrawals, from the lower Snake, which are likely to increase due to climate change.	Through ongoing regional climate change studies and work, the co-lead agencies evaluated potential shifts in precipitation and temperature patterns and resulting changes in unregulated Columbia Basin streamflow timing and volumes. The evaluation consisted of the full range of the latest climate change projections developed using multiple global climate models, emissions scenarios, downscaling techniques, and hydrologic models. Details of this evaluation are in Chapter 4 of the EIS. This information was used to describe the potential effects (both beneficial and adverse) on the river systems and resources due to potential changes in climate for all alternatives.
4459	3	juan@dancingredband.com	N/A	The EIS must include consideration of fish passage and reintroduction above Grand Coulee and Chief Joseph dams to support tribal fishery restoration goals in the Upper Columbia	Measures to reintroduce salmon above Chief Joseph Dam and Grand Coulee Dam were evaluated early in the process to develop alternatives but eliminated from further consideration. Reintroduction is an important and complex, large-scale concept. Its consideration, evaluation, and implementation should involve multiple Tribal, Federal, state, and other entities. A coordinated approach among water users, Tribes, states, multiple Federal agencies, and others would be necessary. To allow so many differing interests to coordinate on such a complex topic, which may include international considerations, a decision-making framework and a series of regional workshops would be necessary just to approach the first step of defining reintroduction objectives. Given the incompatibility of such a wildlife management decision-making framework with an analysis of the operation of the CRS, it is not feasible to proceed with a detailed consideration of reintroduction in this EIS. Moreover, to meaningfully analyze reintroduction as a measure, the details of the proposal would need to be understood well enough to include in hydrologic, water quality, and fish models. That information is not presently available, and development of those details was not possible in the timeframe of this NEPA process. Nevertheless, the agencies and interested regional sovereigns are developing a framework to address critical information gaps.
4459	4	juan@dancingredband.com	N/A	The EIS must consider the proper context for addressing the benefits and costs of the Columbia-Snake hydropower system, which means properly addressing the enormous costs - past, present, and future - to the tribes within the basin from the loss and eventual extinction of salmon and steelhead.	Tribal input, concerns, interests, and especially treaty rights were considered throughout the Draft EIS analyses and in the formulation of the Preferred Alternative. Treaty specific information is included in Section 3.17 as well as Chapter 7. The co-lead agencies recognize and respect the legal obligations imposed by treaties. The co-lead agencies accordingly included Protecting Native American treaty and reserved rights and fulfilling trust obligations for natural and cultural resources throughout the environment affected by the Columbia River System operations as a purpose in the Purpose and Need Statement in Chapter 1 to ensure treaty obligations were a key consideration of decision making. The co-lead agencies are engaging in government-to-government consultation with the tribes, and several tribes are cooperating agencies on the CRSO EIS. The EIS recognizes the economic and cultural importance of salmon to Tribes in a number of sections throughout the document. The cultural significance and impacts of salmon and steelhead fisheries are described in the Ceremonial and Subsistence Fisheries sub-section and the Social Importance of Commercial, Ceremonial and Subsistence Fisheries sub-section of Section 3.15.2.1. Fisheries tribal interests are provided in Section 3.15.4. Treaty rights are discussed in the Executive Summary, Section 3.16 Cultural Resources, and Section 3.17 Indian Trust Assets, Tribal Perspectives, and Tribal Interests. Appendix P includes copies of tribal perspectives that were submitted by tribes. Tribal consultation is described in Sections 1.5, 3.5, and 3.15; and Chapter 9. Most sub-sections within Chapter 3 include a Tribal Interests section at the end of the sub-section that attempts to summarize tribal issues by resource.
4460	1	pmangarella44@gmail.com	N/A	One alternative that must be considered to be responsible and comply with NEPA regulations is dam removal and restoration, a strategy that has proven to be successful in numerous watersheds throughout the Unites States and is being considered for other important river systems (eg Klamath River in California and Oregon). Please be responsible and analyze in the DEIS this alternative and evaluate its potential efficacy relative to other alternatives.	The EIS studied breaching the four lower Snake River Dams as part of the MO3. Many dam removal projects that have occurred across the United States have very different circumstances than what is contemplated in MO3. Most other dam removal or breaching projects have been on dams that do not have fish passage, do not generate power or have very limited generation capacity, and have proximal and intact fish habitat. The lower Snake River dams have fish passage, an annual power production of approximately 1,000 aMW, and even with lower Snake River dam breach the Snake River would still have regulated flows due to the dams located upstream.
4472	1	skydive1955@yahoo.com	N/A	After talking with the the Washington Department of Fish and Wildlife concerning the success of fish population increases after the removal of dams on the west side of the state, the WDFW has said they are not even reviewing the effectiveness of the da renewal. They have no evidence the dam removal did anything to improve the fish return rates. Therefore, statements indicating dam removal would be an effective method for increasing fish return rates is not based on any facts gathered since the west side dam removal.	Modeling and analysis for the Draft EIS indicates that breaching would be beneficial to salmon and steelhead in the Snake River basin. However, the degree of that benefit is varies depending on modeling assumptions of the CSS and NOAA lifecycle models. The co-lead agencies primarily focused analysis on issues specific to Snake River dam removal, but did evaluate information from other areas such as Condit and Elwha Dams as mentioned in this comment.
4474	1	troutbumlg71-deis@yahoo.com	N/A	Dam removal is a proven method to restore fish populations as has been proven in Maine and the Olympic Peninsula of Washington State.	The EIS studied breaching the four lower Snake River dams as part of Multiple Objective alternative 3. Many dam removal projects that have occurred across the United States have very different circumstances than what is contemplated in MO3. The commenter is correct regarding Elwha Dam in Washington State, however, this example has little relevance to the four lower Snake River dams. Elwha Dam had no passage and did not provide economic benefits. In contrast, the four lower Snake River dams do have fish passage while also producing power, and providing navigation and recreation. The four lower Snake River dams would still have regulated flows due to the dams located upstream. The Preferred Alternative meets certain EIS objectives for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3 which includes breaching the four lower Snake River dams, by contrast, has significant regional economic and community effects, and meets only a small subset of the EIS objectives. Thus, the co-lead agencies did not recommend MO3 in the Draft EIS, because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system.

Letter No.	Comment No.	Commenter Name/Email	Affiliation	Comment	Response[1/]
4476	1	gb.pms83420@gmail.com	N/A	My main concern with the PA is increased spill of up to 125% total dissolved gas (TDG) levels, resulting in higher power costs and possibly adverse effects to ESA-listed species. I support higher spill levels and the resulting higher power costs only if scientific analyses clearly show a meaningful benefit to ESA-listed species.	The co-lead agencies used the high quality information in the analysis of the CRSO EIS. Specific to salmon and steelhead, the agencies used two primary modeling approaches which yielded a range of potential outcomes for the alternatives. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2 percent as a result of the Preferred Alternative increasing from 2.0 percent to 2.7 percent for Chinook, a 35 percent relative increase. The National Marine Fisheries Service COMPASS and Lifecycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. To address uncertainty highlighted by the two models, the Preferred Alternative includes working with regional sovereigns to develop a study that assesses the effectiveness of the increased spill regime on adult returns as well as assessment and management of adverse unintended consequences, such as long delays of adult migrants, or Total Dissolved Gas (TDG)-related mortality of juvenile migrants. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information.
4482	1	scotthomson@me.com	N/A	I am against removal of the lower four dams on the Snake River. Of the 15 dams on the Snake these four are the only ones with fish passage. If dam removal is a preferred option we would be much better served by removing four of the eleven other dams that lack fish passage. There are other issues such as ocean conditions that need to be addressed before any dam removal is considered. The fish runs on other Nortwest rivers without dams have declined as well over the same time period of time. Yet we seem fixated on removing the lower four dams on the Snake.	The Draft EIS acknowledges and describes the many factors that affect salmon and steelhead, including the effects of ocean conditions. Research continues to evaluate the magnitude of these effects. For more information see the National Marine Fisheries Service website at: https://www.nwfsc.noaa.gov/research/index.cfm. The agencies evaluated the management of the Federal projects and potential to improve conditions for ESA-listed species. The scope of the EIS is limited to analyzing the effects of operation, maintenance, and configuration of the Columbia River System projects under the jurisdiction of the co-lead agencies, which, in the Snake River, is limited to the four lower Snake River dams described in the Draft EIS. The breaching of these four dams was considered in Multiple Objective alternative 3, but not selected in the Preferred Alternative.
4484	1	Watershedfishbio@yahoo.com	N/A	Climate change will drastically and adversely affect water delivery timing, flood risk and late seasonal flow levels, temperatures, nutrients and forage, fish populations and wildlife habitats. In particular the EIS fails to evaluate the significant adverse effects of continued operation of Federal dams on the Columbia and Snake rivers in combination with the above highly foreseeable climate change impacts	Through on-going regional climate change studies and work, the co-lead agencies evaluated potential shifts in precipitation and temperature patterns and resulting changes in unregulated Columbia Basin streamflow timing and volumes. The evaluation consisted of the full range of the latest climate change projections developed using multiple global climate models, emissions scenarios, downscaling techniques, and hydrologic models. Details of this evaluation are in Chapter 4 of the EIS. This information was used to describe the potential effects (both beneficial and adverse) on the river systems and resources due to potential changes in climate for all alternatives. Quantitative data that describes how climate change hydrology will affect reservoir operations in the Columbia Basin in still under development and was not available for us in this study. The climate science community is still developing quantitative models that can address possible effects in water temperature from climate change, and unfortunately, there are not reliable models at this time at the resolution required (river scale vs. global or regional scale). This data is critical to analyzing potential effects to fish quantitatively. In lieu of this information, the climate analysis used the output from resource models, like water quality and fish, under historical conditions, available climate change data, and scientific literature to qualitative assess potential effects to resources (described in Chapter 4). Chapter 7 includes the climate effects to affected resources under the Preferred Alternative.
4484	2	Watershedfishbio@yahoo.com	N/A	In addition there would be significant recreational, economic and wetlands/wildlife benefits of dam breaching, which is a reasonable and viable alternative action which has not been included in the final set of alternatives.	The EIS evaluated beneficial and adverse effects across an array of resource areas including potential effects at the national, regional and local level; effects are monetized and quantified, where possible, and also described qualitatively. As is common in NEPA analyses, the beneficial and adverse effects of the alternatives are expressed as a variety of qualitative and quantitative environmental and economic metrics throughout the EIS to inform decision-making, including the effects of the alternatives on fish as detailed in Section 3.5. That the effects of the alternatives on fish are not expressed as monetized economic values does not mean that they were not considered in the context of the analysis. The EIS does not employ a cost-benefit framework for decision-making. Instead, the EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-lead agencies numerous legal obligations. The Preferred Alternative (PA) is predicted to benefit ESA-listed juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3, which includes breaching the four lower Snake River dams. However, the PA also meets most other objectives of the study for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. The effects of breaching the four lower Snake River dams (a measure included in MO3) is discussed in Chapter 3, including recreation in Section 3.11.3.5, transportation and navigation (which includes some economic effects) in Section 3.10.3.5, and vegetation, wetlands, wildlife, and floodplains in Section 3.6.3.5, among other resources.
4488	1	N/A	N/A	It is a fact that barging is the most efficient and least carbon-intensive mode of cargo transportation. Barging is almost 40% more fuel-efficient than trains and 270% more fuel-efficient than semi-trucks. Barging on the Snake River along keeps nearly 150,000 trucks off of our highways each year. Tug boats and barges have operated on the Columbia and Snake River system for decades and have proven to be the safest, most efficient, and most environmentally-friendly mode of transportation. Removing dams would have a direct impact on that portion of our transportation industry and global supply chain, and secondary effects that would impact millions of people.	Access to barge transportation is the most cost effective means of accessing export markets for many grain producers in the Northwest currently and removing that option would increase transportation costs for grain producers, as the EIS shows. Depending on the scenario, truck ton-miles may experience an increase of 19 percent (under Scenario 1, when rail rates are not assumed to increase) to 84 percent (when rail rates increase by 50 percent) under Multiple Objective alternative 3 when compared to the No Action Alternative. Rail ton-miles may increase by as much as 86 percent (under Scenario 1, when rail rates are not assumed to increase) or decrease by 2 percent (under Scenario 2, when rail rates increase by 50 percent). The EIS also found that truck trips could increase, ranging from an additional 14,000 to 79,000 truck trips per year, which would increase air pollutant and greenhouse gas emissions in the region and add to traffic and congestion in the region.
4489	1	jpolehn@yahoo.com	N/A	2) Also, the dams provide the ability to use more of our land productively/efficiently. 3) The dams provide for stored water in times when water is not plentiful. The dams are also an emergency preparedness approach to preventing floods. Removal of them would weaken our infrastructure and our nation.	Thank you for your comment.
4493	1	N/A	N/A	These same organizations also claim that commodity barge shipping could be converted to train and truck. The magnitude of this suggestion is almost laughable if it werent so serious! There is no way Washingtons highway and rail system could handle the freight currently carried by barges. Even if it could, how could the highways and rails be maintained when the majority of state transportation tax dollars are spent in the Puget Sound area..not eastern Washington, and with the result of recent initiatives making transportation projects even more minimal.	The Navigation and Transportation Section 3.10 reflects the adverse effects of implementing MO3 including discussions of transportation mode capacity and cost of grain transport. The EIS explains in Section 3.10.3.5 that additional costs for investments in infrastructure would be required separate from the increases in transportation costs to farmers. There would need to be investments in infrastructure if dams are breached, both public and private sector investment in the absence of river navigation. Section 3.10 provides an evaluation of the Columbia Snake River Navigation System, assessing its relative efficiency, low costs for shippers, safety considerations, and low air emissions relative to other transportation modes. The EIS acknowledges that depending on how rail rates respond to dam breach, shortline rail capacity could be exceeded. The EIS also evaluates the additional transportation infrastructure investments and associated costs that would be required, as well as the increases in air emissions that would occur. Under low rail rate increase scenarios, additional shortline rail capacity would be required that could cost $25 to $50 million. Under a scenario where rail rates increase by 50 percent, more shipping demand would be transferred to trucks, reducing the demands on rail infrastructure, but increasing demands on roads. Under this scenario, up to $10 million in additional road wear and tear costs may occur. The EIS finds that truck ton-miles may experience an increase of 19 percent to 84 percent under MO3 when compared to the No Action Alternative, depending on the rail rate increases that occur. The EIS analysis found that truck trips would increase between 14,000 to 79,000 truck trips per year, which would increase air pollutant and greenhouse gas emissions in the region and add to traffic and congestion in the region.
4493	2	N/A	N/A	The environmental groups have also suggested converting farms back to dry land crops, such as wheat. They give no suggestion as to replacement of the hundreds of thousands of acres of orchards, vineyards, and vegetables that are produced in this region and the enormity of the trickle-down impact on the economy (especially family-wage jobs) from it.	Section 3.12.3.4 discusses the assumptions related to the loss of irrigated acreage under MO3. This section also discusses the Regional Economic Effects analysis which estimates how the decreased agricultural production would affect employment, labor income and output (sales) in this region. The Preferred Alternative is not expected to change the ability to deliver existing water supply because the changes in flow and reservoir elevations are expected to be negligible.
4494	1	katiestuart33@gmail.com	N/A	Please accept these comments, conclusions and recommendations in regard to the CRSO-DEIS for the Columbia River System Operations. Your website required me to review 270 megabytes (over 5,000 pages) of information from a website to understand the entire proposal. Yet the co-lead agencies have made it extremely difficult to almost impossible to file comments online or hand-deliver comments. The filing online is limited to a maximum of 100 kb with no more than 5 attachments of 2 megabytes apiece. I have substantively reduced my comments, including graphs and charts to meet the newly assigned filing requirement. During my career, I received thousands of comments and never set such limitiations. In addition, I have filed comments with many other federal agencies including the US Forest Service and US Bureau of Land Management and have never encountered such obstructive difficulties in filing comments. It prejudicial and possibly illegal NEPA to limit public comments in both manner and size limit. This is completely unacceptable and likely illegal for 3 public agencies to make filing a document so challenging and difficult	The co-lead agencies apologize for any technical difficulty experienced. It is accurate that the website had file size limitations that were listed for a single entry. That was not to limit you in your comments, but to alert you to either submit them in batches on the website, or mail them to the comment mailbox, or call the information line so we could assist you.
4494	2	katiestuart33@gmail.com	N/A	1. The Soaring Costs of the Hydro System Lower Snake River Dams are too costly in both environmental and dollar costs The Bonneville Power Administration (BPA) is the federal agency that markets the dams power output, and the intent was to turn cheap electricity into a comerstone of the regional economy. BPAs mission was realigned in 1980 under the Northwest Power Act to both maintain the reliability of power production and find the regional effort to recover wild salmon and steelhead. Currently, a third of the main-stem Columbia dam infrastructure has exceeded its design life, and shutdowns have pushed the systems reliability below the hydroelectric industry average. While much of the power is sold to public utilities under 20-year contracts, revenue to BPA has declined due to expanding wind, solar, and natural gas plants that have reduced energy prices in western markets. All the funds spent on restoring wild salmon and steelhead, including building and maintaining large fish hatcheries (intended to provide harvest or support wild fish restoration), barging juvenile salmon and steelhead, spilling water to support downstream juvenile migrations, improving juvenile bypass systems, and other programs, have failed to salvage declining salmon and steelhead runs. All of the Snake River salmon and steelhead runs are federally listed under the Endangered Species Act (ESA) as endangered or threatened and have been so for almost 30 years. Meanwhile, BPAs financial problems have increased as the agency has drawn from cash reserves and borrowed from private lenders and the U.S. Treasury with debt reaching $15 billion dollars. BPA has spent most of its reserves and faces large debt for required but unfunded retrofits and replacements to the turbines in the 4 lower Snake River dams.	Bonneville's revenues have not declined over time, but less of Bonneville's revenue requirement is covered by net secondary sales of surplus power due to an industry-wide decline in market prices for wholesale power, which has required rates to firm customers under long-term contracts to increase. In light of these competitive pressures, Bonneville developed both strategic and financial plans to ensure Bonneville's rates continue to be competitive. See Draft EIS, Section 3.7.2.5, pages 3-801-802 and Section 3.7.3.1, pages 3-842-843. Bonneville has instilled a renewed focus on cost management discipline, resulting in a cost reduction of $66 million per year for the current rate periods operating costs compared to the last rate periods operating costs. This resulted in an average 0% base rate increase for power customers at a time when the general economy was facing material inflationary pressure. Bonneville's cost management discipline, and revenue enhancing activities continue to maintain Bonneville's competitiveness relative to other load serving power producers. However, actions such as removing the low-cost four lower Snake River dams would result in substantial upward rate pressure for Bonneville customers, moving Bonneville's competitive power products to be less competitive in the marketplace. See Draft EIS, Section 3.7.3.5, Table 3-166. The financial reserves figures described in the comment are inaccurate. As of the end of 2019, Bonneville's collective financial reserves were $731 million, not $5 million. Bonneville implemented the Financial Reserves Policy (FRP) in its BP-18 rates, which added new tools to maintain Bonneville's financial health, including the FRP Surcharge, which adds revenue recovery above costs to rebuild Bonneville's financial reserves. The comment also suggests that with additional surplus energy and declining market prices on the wholesale power market, the region must also have a surplus of power for load service. However, the loss of load probability studies used in the EIS indicate that while the region has substantial amounts of energy on an interim basis due to renewable buildout supported by government legislation, there is a deficit of flexible and dispatchable resources needed to meet growing resource variability and ramping requirements associated with more extreme load shapes. And, the entire power and transmission rate analysis shows that building new resources to replace the lost flexibility is expensive (See Section 3.7 and particularly Section 3.7.3.5, Lower Snake River Full Replacement Used in Rate Sensitivity Analysis, beginning on page 3-905 in the Draft EIS). For hydropower, the average annual value of the four lower Snake River dams exceeds the average annual equivalent costs. The generation value of the four lower Snake River dams can be described by a range between the cost to replace the generation through new conventional resources or through a portfolio of zero-carbon resources. Although the costs of replacing the power with market purchases was analyzed, it is unlikely that short-term wholesale power markets could reliably replace the power for the long-term. This range would put the annual value of power between $240 million and $500 million for the four dams combined. These numbers represent about 90 percent of the lost benefits cited in Table 3-171 of the Draft EIS because the four dams represent about 1,000 aMW of the 1,100 aMW of lost generation estimated in MO3. The average annual cost to operate and maintain all authorized purposes at the four lower Snake River dams is $75 million (Appendix Q, Table 5-1) and the annual-equivalent capital costs are $32 million (Appendix Q, Table 4-1). Hydropower costs funded by Bonneville represent about $50 million of the total annual operations and maintenance costs and nearly all of the annual capital costs, approximately $31 million. This puts the annual-equivalent power-specific costs at approximately $81 million a year. As a result, the net benefits from hydropower for the four lower Snake River dams are between $159 million and $419 million and the benefit-cost ratios are between 3.0 and 6.2. If the $34 million per year for the Lower Snake River Compensation Plan is added to the capital and expense costs, benefits still exceed costs under each replacement power scenario. Considering these costs, the net benefits range from $125 million to $385 million and the benefit-cost ratios range from 2.1 to 4.3. In the less-likely scenario that generation could be reliably replaced with short-term wholesale market purchases and assuming that the four dams represent 90 percent of the $150 million in market purchases required to replace the lost generation cited in MO3 (see Table 3-170, Draft EIS), the lower bound for net benefits would fall to $54 million and the benefit-cost ratio would fall to 1.7. With the Lower Snake River Compensation Plan included, the lower bound for annual net benefits becomes $20 million and the benefit-cost ratio becomes 1.2. From a resource competitiveness perspective, the four lower Snake River dams are among the least costly generating resources in the Federal Columbia River Power System (FCRPS) and the planned investment strategy is expected to maintain that status. As shown in the Federal Hydropower presentation at the 2018 Integrated Program Review (see Footnote 1 below), the Headwater/Lower Snake Asset Class (see Footnote 2 below) is forecast to have a 50-year levelized cost of generation (see Footnote 3 below) of $11.41/MWh based on the direct funded capital and expense (O&M) programs outlined in that process. These costs remain competitive with volatile Mid-Columbia spot market energy prices which averaged $37/MWh in 2019 and have averaged $21/MWh in 2020.

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					The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Similarly, the Northwest Power Act does not obligate the co-lead agencies to recover ESA-listed species or to ensure restoration of other fish and wildlife. Instead, the co-lead agencies fish and wildlife mitigation responsibilities under Northwest Power Act are more limited, primarily, managing and operating Federal Columbia River Power System (FCRPS) projects, which includes the CRS, to protect, mitigate, and enhance (as opposed to recover) fish and wildlife affected by such projects in a manner that provides equitable treatment with the projects other authorized purposes and consistent with the purposes of the Act and applicable laws. In addition, Bonneville has a specific responsibility to fund protection, mitigation, and enhancement of fish and wildlife to the extent affected by development and operation of FCRPS projects consistent with the Northwest Power and Conservation Councils (Council) fish and wildlife program, the Councils power plan, and the purposes of the Act, which includes assurance of an adequate, efficient, economical, and reliable power supply. Therefore, contrary to the comments broad assertion, the Northwest Power Act does not make Bonneville responsible for funding the regional effort to recover wild salmon and steelhead. Moreover, the comments suggestion that billions in fish and wildlife mitigation investment has been ineffective to recover ESA-listed species is misplaced. Those investments delivered the intended results when considered in the appropriate statutory context of the Northwest Power Acts anadromous fish provisions which call for improved survival of such fish at FCRPS projects and sufficient flows between the projects to improve production, migration, and survival. For example, as of 2014 this investment had facilitated juvenile dam passage survival of 96% and 93% for spring and summer migrants respectively, see Endangered Species Act Federal Columbia River Power System 2016 Comprehensive Evaluation Section 1, at 17, t.2 (Jan. 2017), a marked improvement compared to when Congress passed the Northwest Power Act and the estimated average juvenile mortality at each mainstem dam and reservoir complex was 15-20% with losses recorded as high as 30%. See Nw. Res. Info. Ctr. v. Nw. Power Planning Council, 35 F.3d 1371, 1374 (9th Cir. 1994) (citing a Sept. 4, 1979 report by U.S. General Accounting Office describing the systems impacts on anadromous fish). Footnotes: 1. The Integrated Program Review (IPR) allows interested parties to see and comment on all relevant Federal Columbia River Power System (FCRPS) capital and expense (O&M) spending level estimates in the same forum. The IPR occurs every two years, or just prior to each rate case, and is the public review for the costs that will be recovered through rates the following two-year rate period. Long-term forecasts for the next 50 years and major upcoming projects are also shared in this forum. This information is available here: https://www.bpa.gov/Finance/FinancialPublicProcesses/IPR/2018IPR/IPR%202018%20Fed%20Hydro%20Workshop.pdf and is incorporated by reference into this EIS. 2. In the 2018 Integrated Program Review, the Headwater/Lower Snake Asset Class consisted of the four lower Snake River dams, Hungry Horse, Libby, and Dworshak dams. These projects were grouped together because they have similar cost characteristics. The Levelized Cost of Generation for the four lower Snake projects alone is slightly lower than that for the whole class including the headwater projects shown in the table. 3. Levelized Cost of Generation is defined as the forecasted direct costs and administrative overheads of producing power at a plant annualized over a 50-year period. This cost includes direct funded operations, maintenance, administrative and capital costs as well as Columbia River Fish Mitigation (CRFM) costs. Bonneville system-wide mitigation costs, such as its Fish and Wildlife program, are not included in this metric. Finally, Although the turbines at the four lower Snake River dams are between 41 and 50 years old and nearing their design lives, there are no plans for any immediate replacements. Investment decisions are driven by equipment condition, probability and consequence of failure and, as such, it is common for equipment to be in service well past its design life. For example, some turbine runners at McNary dam will be over 70 years old by the time the replacement project is complete. Long-term planning analyses that calculate the optimal economic time to replace equipment based on current and expected equipment condition, probability of failure and outage consequence, point to the late 2030s as the earliest replacement dates for major powertrain equipment at the four lower Snake River dams. Most turbine replacements are forecasted between the 2040s and 2060s which would put the turbines at the four lower Snake River dams at about the same age at replacement as McNary.
4494	3	katiestuart33@gmail.com	N/A	Since 2008 in response to revenue losses, BPA has drawn down its fiscal reserves from $917 million in 2007 to a fragile $5 million in 2017. BPAs historic revenue stream relied partly upon surplus energy sales. Yet, development of other energy sources in places such as California to which BPA previously sold surplus at a profit has rendered BPAs surplus power no longer in high demand. BPA is now obligated to sell the surplus power at negative prices. More specifically, the price of surplus power averaged about $60 per Megawatt hour (MWh) prior to 2009. Since 2009, the average price for surplus power has been about $22 per MWh. Revenue has consequently dropped dramatically as a result of drop in price. BPA began raising the price of power for its contracted users and over the last 8 years has increased prices by 30%.	Bonneville's financial reserves at the end of 2017 were $765.7 million, and most recently at the end of 2019, $773.1 million. The BP-20 rate case marked an important milestone in Bonneville's implementation of its Strategic Plan. The power rate increase was zero percent. BP-18s rate increase was below the rate of inflation. Over the last four years, Bonneville has fundamentally changed course due to principled cost management. The comment also notes the competitive rate-pressures facing Bonneville. As discussed in the Draft EIS, Sections 3.7.2.5, pages 3-801-802 and Section 3.7.3.1, pages 3-842-843, upward rate pressure is an important factor in the competitiveness of Bonneville's rates. The EIS describes the upward rate pressure caused by each of the Multiple Objective alternatives, the largest range of which is associated with Multiple Objective alternative 3, which includes the measure to breach the four lower Snake River dams. See Draft EIS, Section 3.7.3.5, Table 3-166.
4494	4	katiestuart33@gmail.com	N/A	Further large expenses are for rehabilitating and replacing aging turbines in the 4 lower Snake River dams. All of the turbines as of 2020 are 40-50 years old and the USACE has stated that the life of each turbine is 35-45 years, requiring replacement. If the same costs are expected as turbine rehabilitation at McNary Dam on the Columbia River is true at the lower Snake River dams, then the estimated cost of replacement of 21 lower Snake River dam turbines exceeds $1 billion dollars. Given that these dams provide little power in an energy surplus situation, the likelihood of replacement of these turbines is zilch. The co-leads use of the 4 lower Snake River dams energy production to rationalize allowing native salmon and steelhead to go extinct is a false justification to avoid a decision to not breach the lower Snake River dams. It is stunning to me that you would allow these two native species to extinct in light of the negligible value of the four obsolescent and failing lower Snake River dams.	Bonneville, the Corps and Reclamation develop long-term strategies and plans that identify the optimal time to replace equipment based on equipment condition, criticality and risk. Age, although a factor in equipment condition, is not the determining factor when equipment is replaced. Existing strategies place the earliest optimal turbine replacement date in the 2030s, with the majority of the remaining 21 turbines falling in the 2040s and 2050s. Additionally, it has not been determined if all 6 units at each plant will be replaced at those times. Replacement costs for turbine runners and components are expected to be closer to $600 million in 2020 dollars, if all turbines are replaced. Generators windings would likely be replaced at the same time, which would add another $200 million. The 50-year levelized cost of generation, which includes costs for these replacements, is expected to be $11 to $12 per MWh. With allocations for Bonneville overhead, including Fish and Wildlife, the 50-year fully loaded cost is expected to be $25 to $30 per MWh for these dams. This means that we expect these resources to remain competitive while considering forecast replacement needs. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-lead agencies numerous legal obligations. The Preferred Alternative is predicted to benefit ESA-listed juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3, which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets the EIS objectives for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS the co-lead agencies did not identify MO3 because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. The EIS concluded MO3, which includes breaching the four lower Snake River dams would have greater improvement to certain salmon species in the lower Snake River. It did not, however, conclude there was greater certainty of that result in MO3 over any other alternative. Because of delayed response time in MO3, and the potential severity of the short term effects, MO3 would likely have the most substantial uncertainty in terms of beneficial effects. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% (the lower end of Northwest Power and Conservation Council's recovery targets for the region) as a result of the Preferred Alternative, as a result of the Preferred Alternative increasing SAR from 2.0% to 2.7% for Chinook, a 35% relative increase. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. To address uncertainty highlighted by the two models, the Preferred Alternative includes working with regional sovereigns to develop a study that assess the effectiveness of the increased spill regime on adult returns as well as assessment and management of adverse unintended consequences, such as long delays of adult migrants, or TDG-related mortality of juvenile migrants. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information. Based on the analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the CRS. This EIS has been developed in consultation with National Marine Fisheries Service (NMFS) and U.S. Fish and Wildlife Service (USFWS) to find an acceptable balance that allows the co-lead agencies to meet the Purpose and Need Statement while minimizing impacts to affected ESA-listed species and their habitats. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. Finally, While the four lower Snake River dams account for a small portion of the total power of the region, they represent a larger portion of the Federal Columbia River Power System (FCRPS) from which Bonneville markets power. As described in Section 3.7.3.5 of the draft EIS, Potential Replacement Resources and Associated Costs, the four lower Snake River dams are among the most valuable projects in the FCRPS. Further, the seasonality of the power supply is important. The region often has surplus power in the spring when the weather is mild and flows are high. The LOLP analysis of Multiple Objective Alternative 3 showed that the region would have an annual risk of power shortages of around 14 percent stemming from shortages in the winter and summer. See Appendix J, Hydropower, Section 4.1.2.4 in the draft EIS. As suggested by the comment, the EIS does identify ways of replacing the power from these dams, and the resulting costs impose substantial upward pressure on regional power rates.
4494	5	katiestuart33@gmail.com	N/A	2. A Trivial Amount of Energy is Produced at the 4 Lower Snake River Dams The 4 lower Snake dams together produce an average of 3.3% of the annual Pacific Northwest power supply. Yet the regional power surplus including breaching of the lower Snake dams is approximately 13.7%. A review of the regional energy load is that under critical, average and high-water years, the projected surplus from load generation is 3 to 4 times the average lower Snake River production. Essentially, even if the 4 lower Snake dams are breached, even under critical low water conditions, the Pacific Northwest region has an energy surplus. The Northwest Power and Conservation Council (NWPCC) projects additional power resulting solely from efficiency gains in 2020 will be 1000 aMW, which is a little more than the average annual output of the 4 lower Snake dams in the last 5 years. The CRSO-DEIS Executive Summary claims that Significant quantities of replacement resources would have to be built to maintain regional power reliabilitythe region would face the likelihood of a loss of load event, e.g. a power blackout, nearly one in every seven years in MO3, (CRSO-DEIS, Executive Summary, page 25). These claims are specious because the generation from the 4 lower Snake River dams is relatively insignificant, there is a surplus energy supply, there are increasing alternative energy sources from wind and solar, there are increased energy efficiencies, and blackouts are unrelated to lower Snake River dam outputs.	While the regional power system does have surplus in some periods, most typically in the spring of high-water years, there are also periods when the region has very little or no surplus. For example during a winter cold snap, demand for power may reach its annual peak. During a heat wave in summer, river flows may be relatively low and several Federal and non-Federal hydropower projects are spilling water for juvenile fish passage. The EIS analysis for MO3, which includes breaching the four lower Snake River dams, indicates that there is roughly a 14 percent chance of energy shortages in any given year (without factoring in the retirement of additional coal plants). See Section 3.7.3.5 of the Draft EIS (specifically Table 3-165). Appendix J, Chapter 4 shows the seasonal variation of the loss-of-load events. As explained in Section 3.7.3.5 of the EIS, Potential Replacement Resources and Associated Costs, MO3 would have a direct and substantial impact on the supply of Federal power to meet regional load requirements. Breaching the four lower Snake River dams would reduce energy to meet regional load requirements, and reduce generating capacity (peaking capacity) to meet variability in loads. The four lower Snake River dams are among the most valuable projects in Federal Columbia River Power System. These dams provide over 1,000 MW of carbon-free energy and up to 2,000 MW of sustained peaking capacity at certain times of the year. The dams also have unparalleled ramping capability, the ability to quickly generate energy to match spikes in energy usage, with over 2,000 to approximately 2,300 MW of capability in certain months of the year (see Table 3-160 in the draft EIS). To maintain regional reliability at the No Action Alternative levels, replacement resources would be needed under MO3. The cost of replacing the capability of the four lower Snake River dams is described in detail in the Draft EIS in Section 3.7.3.5, Potential Replacement Resources and Associated Costs. The EIS takes into account the cost savings from the breaching of the four lower Snake River dams. Even with these savings, base rates paid by customers of Bonneville (local public and community owned utilities) would likely increase. Using natural gas as the replacement resource (the least-cost resource portfolio) Bonneville's wholesale power rates could increase between 4 and 10 percent. Using zero-carbon resources to replace lost capacity under MO3, Bonneville's wholesale power rate could increase between 13 percent to 50 percent. See Draft EIS, section 3.7.3.5, Table 3-166.
4494	6	katiestuart33@gmail.com	N/A	More specifically, the Pacific Northwest wind power plants produce nearly three times the combined generation of the 4 lower Snake dams. Montana has new wind power projects which are predicted to produce up to 5000 aMW by 2030 and are targeted for export to the Pacific West Coast states. Additional projects in Oregon such as the Wheatridge project will include 292 turbines with a peak capacity of 500 aMW and proposes wind, solar and battery backup to offer firm power. California once was a major buyer of BPAs surplus power and is adding an 14,000+ aMW of new solar energy to its own energy portfolio between 2018 and 2023. With the addition of wind and solar energy and other states producing more power and importing less BPA surplus power, the value of the 4 lower Snake River dams for generation is fictitious. These dams cost more to produce and maintain power than the value of the power for sales. Taxpayers and ratepayers are paying for obsolete dams that the co-lead agencies falsely claim are necessary. The co-lead agencies use of the 4 lower Snake River dams energy production to rationalize allowing native salmon and steelhead to go extinct is another false justification to avoid a decision to not breach the lower Snake River dams.	While the comment is accurate that additional renewable power development is occurring across the region, the EIS findings are not consistent with the comments conclusion that the four lower Snake River dams are unnecessary with the influx of new solar and wind. As discussed in Section 3.7.2.2, Power System Flexibility and Reliability, system reliability is maintained by relying on generating capacity that is dispatchable, meaning it is able to change on demand to meet fluctuations in supply and demand. Solar and wind resources are generally not dispatchable because their output is dependent on the availability of wind or sunshine. Hydropower and natural gas are dispatchable because they can adjust production within minutes or seconds. A resource that is capable of producing power, but is unable to because of a lack of wind or sun, cannot be relied upon in the same way as a dispatchable resource, that can be called upon to deliver firm energy when requested. The EIS describes how this dispatchability is essential to providing balancing reserves, which is used to meet system uncertainty and to integrate renewable resources, such as wind and solar. See Draft EIS, Section 3.7.2.2, Meeting System Uncertainty with Generation Balancing Reserves, Dispatchable Resources, and Ramping Capability. As explained in Section 3.7.3.5 of the EIS, Potential Replacement Resources and Associated Costs, the four lower Snake River dams are connected to Automatic Generating Control (AGC), making them among the few projects that are capable of providing balancing reserves. See Draft EIS, Section 3.7.3.5, Value of Lower Snake River Dam Ramping Capability. The four lower Snake River dams currently carry approximately 20 percent of upward flexibility and 8 percent of the downward flexibility held by the Federal Columbia River Power System (FCRPS) for balancing reserves. Replacing hydropower with solar and wind does not replace the dispatchable characteristics of the four lower Snake River dams. Indeed, the EIS found that the demand for the dispatchable capability of the four lower Snake River dams would increase as the need for balancing reserves grows to integrate additional wind and solar in the region. See Draft EIS, Section 3.7.3.5, Integration Services, page 3-832.

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					The comment is also incorrect in suggesting that the four lower Snake River dams' power is unnecessary for regional power needs. Bonneville sells power from the FCRPS as a unified system, not from specific projects. In this regard, the power generated from the four lower Snake River dams are pooled with all other FCRPS power sold by Bonneville to meet Bonneville's collective power obligations. Most of this power is used to meet the loads of regional publicly owned utilities, such as municipalities, rural utilities, and public utility districts under long-term power-sales contracts (see Draft EIS Section 3.7.2.5 Bonneville Power and Transmission Customers). A small portion of power is sold in the California energy market when there is surplus, but these sales are not from specific projects, but rather from the collective FCRPS. As explained in Section 3.7.3.5 of the EIS, Potential Replacement Resources and Associated Costs, breaching the four lower Snake River dams would have a direct and substantial impact on the supply of Federal power to meet regional load requirements. These impacts would impact both actual energy to meet regional load requirements and generating capacity (peaking capacity) to meet variability in loads. The four lower Snake River dams are among the most valuable projects in FCRPS. These dams provide approximately 1,000 aMW of carbon-free energy on average and 2,000 MW of sustained peaking capacity at certain times of the year. See draft EIS, Section 3.7.3.5, Changes in Power Generation, Table 3-159. The dams also provide important ramping capability the ability to quickly generate energy to match spikes in energy usage with over 2,000 to 2,300 MW of capability in certain months of the year. See draft EIS, Section 3.7.3.5, Lower Snake River Full Replacement at pages 3-905-907 and Table 3-160.While the increase in solar and wind generation is consistent with the Draft EIS discussion in Section 3.7.2.1 Power Generation, the EIS still finds that the regional power system requires replacement power resources to maintain reliability under MO3. For hydropower, the average annual value of the four lower Snake River dams exceeds the average annual equivalent costs. The generation value at the four lower Snake River dams can be described by a range between the cost to replace the generation through new conventional resources or through a portfolio of zero-carbon resources. Although the costs of replacing the power with market purchases was analyzed, it is unlikely that short-term wholesale power markets could reliably replace the power for the long-term. This range would put the annual value of power between $240 million and $500 million for the four dams combined. These numbers represent about 90 percent of the lost benefits cited in Table 3-171 of the Draft EIS because the four dams represent about 1,000 aMW of the 1,100 aMW of lost generation estimated in MO3. The average annual cost to operate and maintain all authorized purposes at the four lower Snake River dams is $75 million (Appendix Q, Table 5-1) and the annual-equivalent capital costs are $32 million (Appendix Q, Table 4-1). Hydropower costs funded by Bonneville represent about $50 million of the total annual operations and maintenance costs and nearly all of the annual capital costs, approximately $31 million. This puts the annual-equivalent power-specific costs at approximately $81 million a year. As a result, the net benefits from hydropower for the four lower Snake River dams are between $159 million and $419 million and the benefit-cost ratios are between 3.0 and 6.2. If the $34 million per year for the Lower Snake River Compensation Plan is added to the capital and expense costs, benefits still exceed costs under each replacement power scenario. Considering these costs, the net benefits range from $125 million to $385 million and the benefit-cost ratios range from 2.1 to 4.3. In the less-likely scenario that generation could be reliably replaced with short-term wholesale market purchases and assuming that the four dams represent 90% of the $150 million in market purchases required to replace the lost generation cited in MO3 (see Table 3-170 in the Draft EIS), the lower bound for net benefits would fall to $54 million and the benefit-cost ratio would fall to 1.7. With the Lower Snake River Compensation Plan included, the lower bound for annual net benefits becomes $20 million and the benefit-cost ratio becomes 1.2. From a resource competitiveness perspective, the four lower Snake River dams are among the least costly generating resources in the Federal Columbia River Power System (FCRPS) and the planned investment strategy is expected to maintain that status. As shown in the Federal Hydropower presentation at the 2018 Integrated Program Review (see Footnote 1 below), the Headwater/Lower Snake Asset Class (see Footnote 2 below) is forecast to have a 50-year levelized cost of generation (see Footnote 3 below) of $11.41/MWh based on the direct funded capital and expense (O&M) programs outlined in that process. These costs remain competitive with volatile Mid-Columbia spot market energy prices which averaged $37/MWh in 2019 and have averaged $21/MWh in 2020. Footnotes: 1. The Integrated Program Review (IPR) allows interested parties to see and comment on all relevant Federal Columbia River Power System (FCRPS) capital and expense (O&M) spending level estimates in the same forum. The IPR occurs every two years, or just prior to each rate case, and is the public review for the costs that will be recovered through rates the following two-year rate period. Long-term forecasts for the next 50 years and major upcoming projects are also shared in this forum. This information is available here: https://www.bpa.gov/Finance/FinancialPublicProcesses/IPR/2018IPR/IPR%202018%20Fed%20Hydro%20Workshop.pdf and is incorporated by reference into this EIS. 2. In the 2018 Integrated Program Review, the Headwater/Lower Snake Asset Class consisted of the four lower Snake River dams, Hungry Horse, Libby, and Dworshak dams. These projects were grouped together because they have similar cost characteristics. The Levelized Cost of Generation for the four lower Snake projects alone is slightly lower than that for the whole class including the headwater projects shown in the table. 3. Levelized Cost of Generation is defined as the forecast direct costs and administrative overheads of producing power at a plant annualized over a 50-year period. This cost includes direct funded operations, maintenance, administrative and capital costs as well as Columbia River Fish Mitigation (CRFM) costs. Bonneville system-wide mitigation costs, such as its Fish and Wildlife program, are not included in this metric.
4494	7	katiestuart33@gmail.com	N/A	3. The River Transportation is an Outdated and Unnecessary Transport System The east-west freight using the Columbia and Snake river transportation system has declined dramatically in the past two decades. Container freight movement from the Port of Lewiston has dropped to zero since 2000. In addition, the transport of wheat has steadily dropped since 1995. All wheat at Lewiston is now shipped via a private corporation at its own docks and total lower Snake River freight volume has dropped 40% since 2000. Paper, pulp, petroleum, logs and lumber are no longer shipped on the lower Snake River while increasing numbers of grain growers have shifted to rail transport. All river transport to Lewiston could be changed in a one-time cost to rail transport, notably of which many exporters have already done so. The co-lead agencies use of lower Snake River for freight transportation is disingenuous, costly, and unethical and is another false justification to avoid a decision not to breach the lower Snake River dams.	The commenter is correct that currently there is no containerized cargo shipping out of Snake River ports. The EIS recognizes in Section 3.10.1 that the container freight that previously moved through the Port of Portland recently shifted to the Ports of Tacoma and Seattle, Washington. In January 2020, weekly container service resumed at the Port of Portland. While no service to the Snake River is currently anticipated, the potential exists for future expansion of this service. Access to barge transportation is the most cost effective means of accessing export markets for many grain producers in the Pacific Northwest currently and removing that option would increase transportation costs for grain producers, as the EIS shows. It is true that barge movements on the Snake/Columbia river have declined somewhat over the past 20 years. The EIS acknowledges that the decline is mostly attributed to investments in shuttle rail terminals. However, the EIS also acknowledges that shifting traffic to road and rail would increase costs to shippers and would require substantial infrastructure investments.
4494	8	katiestuart33@gmail.com	N/A	4. There are False Claims of Benefits for Flood Control and Irrigation The U.S. Congress authorized the USACE and Bureau of Reclamation to construct, operate, and maintain the system projects to meet multiple specified purposes, including flood control. The Executive Summary asserts that the Preferred Alternative ensures that human life and safety can be protected through flood risk management (CRSO-DEIS Executive Summary, page 32). However, the 4 lower Snake dams are not flood control dams but are run-of-the-river dams with little reservoir space for fluctuating water levels and with virtually no storage capacity. Essentially, the 4 dams do nothing to control flood risk in downstream reaches but conversely the dams create flood risk in Lewiston, Idaho and Clarkston, Washington. The reservoir created by Lower Granite Dam backs up water 40 miles to Lewiston and Clarkston, which are at the confluence of the Snake and Clearwater rivers. Large levees have been built there to prevent overflooding from the Lower Granite Dam reservoir which has sediment buildup, which typically occurs at the inflow of reservoirs. The accumulation of sediment at Lewiston and Clarkston is a continuous and costly problem that creates flood risk for these communities. Breaching of the 4 lower Snake Dams would eliminate sediment buildup, reduce flood risk, make the communities at Lewiston-Clarkston safer from flooding, and eliminate the high costs of continuously needed sediment dredging. The co-lead agencies use of the argument of flood control and safety for selecting the Preferred Alternative and avoiding the breaching of the 4 lower Snake River dams is fabrication to support a flawed conclusion. Breaching of the 4 lower Snake River dams would have no effect on flood control for river reaches downstream of the dams because they are run-of-river dams. Breaching the dams would reduce the risk of flooding that occurs in Lewiston and Clarkston. Therefore, breaching the 4 lower Snake River dams would save Snake River salmon and steelhead while eliminating risk from floods and increasing community safety.	The commenter is correct that the measure to breach the four lower Snake River dams in MO3 would eliminate sediment buildup and reduce flood risk at the confluence area of the Snake and Clearwater rivers (clarifying information has been added to Appendix K.1.7.3.). However, in general the four lower Snake River dams are not authorized for flood risk management, and there is no elevated risk to flooding in the lower Snake River reach for any of the EIS alternatives. Furthermore, the Corps Walla Walla District constructed eight miles of levees around Lewiston as mitigation to help protect lives and property from potentially destructive high-water conditions after the dams were built. Unlike freely flowing channels, in Lower Granite Reservoir the forebay elevation at the dam controls the energy grade-line of the water surface, and the reservoir is drawn down during high water events to ensure water levels remain low. The most recent dredging in the Lewiston area, has been to maintain a 14-foot depth in the navigation channel, as discussed in the 2014 Programmatic Sediment Management Plan (PSMP). Dredging outside of the navigation channel limits to maintain conveyance capacity has not been conducted since 1992. Provisional analyses described in the PSMP (Chapters 10-12) indicate that some segments of the channel in the upper reach of Lower Granite Reservoir are tending towards a state of relative morphological equilibrium under the prevailing sediment loads and discharges. Under the current flood control operations of Lower Granite Dam, during large flood flows, fluvial sediment transport processes were predicted to form an approximate equilibrium channel that maintains the conveyance capacity of the upper reach of Lower Granite Reservoir. During equilibrium sediment transport, the hydraulic conditions are great enough that sediment erosion balances sediment deposition so that there is no net change in the equilibrium depth of the channel segment. At even higher velocities, if sediment loading remains constant, the rate of sediment erosion will exceed deposition and a channel section will tend to erode to reestablish a new deeper equilibrium depth. Sediment eroded from the confluence area was predicted to transport into the deeper reservoir reach downstream of Silcott Island where it has less effect on the flood stage at the Lewiston levees. The co-lead agencies are legally obligated to operate and maintain the Columbia River System to meet multiple statutory purposes. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-lead agencies numerous legal obligations. Of the alternatives studied, the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system.
4494	9	katiestuart33@gmail.com	N/A	The CRSO-DEIS Executive Summary (page 24) states, breaching the dams would not allow the co-lead agencies to operate and maintain the dams for their congressionally authorized purposes of navigation, hydropower, envisioned recreational benefits, and water supply for irrigation purposes. The needs of fewer than two dozen irrigators which are all located on the Ice Harbor Reservoir are touted as one of the many reasons to maintain the 4 lower Snake River dams. For unknown reasons, the co-lead agencies assume that if the dams are breached, that 47,926 acres would no longer be irrigated at a social welfare and public taxpayer cost of $458 million. That assumption is false on the face of it, since the river itself would remain available for irrigation. A one-time expense of aid to farmers to upgrade pumps and lengthen water lines would ensure much of the 47,926 acres are irrigated post-breaching. Further the CRSO-DEIS fails to acknowledge the importance of restoring fall Chinook spawning habitat and 15,000 acres of prime riverine habitat and agricultural land that is inundated by the lower Snake River dams.	This EIS discusses engineering solutions including pipeline extensions, in Section 3.12.3. MO3, Region C discussion begins on page 3-1267 line 3244 and is also found in Appendix N. The EIS draws upon the 2002 Lower Snake River Juvenile Salmon Migration Feasibility Report and Environmental Impact Statement which concluded that modifying the existing pump system was cost prohibitive. Section 3.5.3.6 under the Larval Development/Juvenile rearing sub-heading (line 17110) of the Draft EIS describes that breaching the four lower Snake River dams is estimated to increase the available spawning habitat for fall-run Chinook from 226 acres to 3,521 acres, an increase of 15 times the area available today. Shallow water rearing habitat is very important to juvenile fall Chinook. The Final EIS has been updated to more clearly articulate this.
4494	10	katiestuart33@gmail.com	N/A	5. Saving Snake River Salmon and Steelhead Must Be a Top Priority to save the species from extinction and meet the Order from the U.S. District Court The Columbia-Snake River Watershed was once one of the top salmon-producing ecosystems in the world. Nearly 50% of the Columbia Rivers renowned historic runs of wild salmon and steelhead were from the Snake River and its tributaries. Since the completion of the 4 lower Snake River dams in the 1970s, wild Snake River salmon and steelhead have been on a steady decline toward extinction, despite spawning and rearing in rivers of central Idaho which have some of the best habitat in the lower 48 states. The 2019 returns of adult fish were near record lows for steelhead, sockeye and Chinook salmon and are near extinction. The Snake River dams have altered flow regimes, temperature, oxygen and sediment dynamics, and channel geomorphology, and inundated 140 miles of the lower Snake River, much of which was fall Chinook spawning habitat. The Columbia and Snake rivers were changed from free-flowing rivers to a series of dams, with slow moving reservoirs that delay downstream migrating juveniles. The reservoir pools become too hot for migratory salmon and steelhead and have abundant predators such as northern pikeminnow and smallmouth bass.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the Endangered Species Act (ESA), in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-lead agencies numerous legal obligations. The Preferred Alternative is predicted to benefit ESA-listed juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets most other EIS objectives including those for: resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams, because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system.
4494	11	katiestuart33@gmail.com	N/A	The Snake River, where anadromous fish species once measured in the hundreds of thousands or millions, is now home to declining populations of four ESA-listed species of anadromous fish: spring/summer Chinook, fall Chinook, sockeye and steelhead. Returning wild fish estimates are concealed by large numbers of hatchery-produced fish. Hatchery fish were intended as a temporary mitigation for producing harvestable fish due to anticipated losses from the construction of the dams and reservoirs. However, native wild runs remain at precariously low levels, and continue to decline.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the Endangered Species Act (ESA), in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. To comply with the ESA, the co-lead agencies have historically supported actions to mitigate adverse effects to ESA-listed species from CRS operations, through funding, direct implementation, and other means. Recovery is a broader regional goal and is above and beyond the co-lead agencies' obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the CRS. Recovery of ESA species is the purview of National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (USFWS). This EIS has been developed in consultation with NMFS and USFWS to minimize impacts to affected ESA-listed species and their habitats. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. Diversity is an important factor in an ESU's ability to persist and adapt, and is one of the factors considered in assessing an ESU's long term viability, along with abundance, productivity, and spatial structure. All these factors would be necessary for an ESA recovery analysis. The co-lead agencies have continuing hatchery obligations.
4494	12	katiestuart33@gmail.com	N/A	ish Passage - Upstream and downstream fish passage is one of the greatest impacts of the four lower Snake River dams despite having fish ladders for upstream migration and juvenile bypass systems for downstream migrating juveniles. Fish from the Snake River must navigate a cumulative of eight large dams on the Columbia and Snake river for upstream and downstream migration. For adults, typically 10-20% are lost on their upstream journey to	The co-lead agencies have incorporated extensive improvements to structures and operations to mitigate for the effects of run of river dams on the Snake and Columbia rivers. Fish ladders have been shown to be effective in passing upstream high numbers of adult salmon and steelhead, while spill and barging operations have improved downstream survival and passage.

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				the Snake River, traveling through warm slack water reservoirs and are subject to disease, predators, and fallbacks in fish ladders. The journey for young migrating fish from the Snake River historically took a few days to a week and can now take up to 3-4 weeks traveling through multiple dams and reservoirs. Downstream migrating juvenile losses are much higher than upstream migrating adults. Direct or delayed mortality results from passage through each dam and is due to severe changes in hydraulics, turbulence and turbine blades which cause death and injury from strike, shear, pressure gradients, and disorientation. After passing through each dam, juvenile fish are also more susceptible to predation. Additional losses are from swimming downstream through each reservoir. Rather than drifting with downstream currents of a large river, they are subject to additional mortality at each reservoir from expending energy to swim downstream, predators, and cumulative stresses. Further delayed mortality occurs below each dam from the cumulative effects of experiencing the hydro system.	
4494	13	katiestuart33@gmail.com	N/A	The co-lead agencies superficially claim a per-dam survival rate of approximately 95% (CRSO-DEIS Executive Summary, Figure ES-4, page 19 and Chapter 3, Figure 3-113, page 3-302). However, the claim fails to account for cumulative losses at all projects which are not additive but multiplicative. Studies have demonstrated that cumulative losses approach 50% for downstream migrating juveniles from Lower Granite Dam to the tailrace below Bonneville Dam, while delayed mortality below the hydro system causes additional mortality. Upon reaching the Columbia River estuary and Pacific Ocean, survival rates for juveniles from Lower Granite Dam to the ocean are typically less than 20%.	These estimates are put in context in the Draft EIS on page 301: "To aid the downstream passage of juvenile salmon and steelhead, the co-lead agencies have worked to improve passage and survival past the dams and through the reservoirs of the CRS. Figure 3-112, shows recent estimates of survival at the eight lower CRS projects with fish passage. The dam survival estimates do not include systemwide or latent effects (see section 3.5.3.1). These estimates were developed [to] show progress towards meeting the individual dam survival goals developed during the 2008 Biological Opinion of 96 percent survival past each dam for yearling Chinook and steelhead, and 93 percent for Snake River sub-yearling fall Chinook." Later in this section (referenced in the quotations above) the analysis discusses system survival rates, as well as latent mortality. The analysis of alternatives presented in-river system survival, which reflects the commenter's "cumulative losses," and Smolt-to-Adult return rates (SARs), for those populations which could be modeled, among other metrics. The per-dam survival metric is both accurate and useful in measuring changes in near field survival at the dams due to structural modifications (e.g. surface passage routes) or operation changes (changes to spill levels or spill patterns). The per-dam survival estimates are multiplicative in nature and the improvements in at-dam survival over the past ten years have been shown to contribute to improvements in total in-river survival of smolts migrating through the CRS especially for steelhead. These figures were used to provide context in the affected environment section. The focus of this EIS and the analysis presented throughout this EIS in Sections 3.5 and 7.7.4 hinge around total in-river survival, travel time, powerhouse passage rates, and SARs. Based on the EIS analysis of fish in Section 7.7.5, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the CRS. Recovery of ESA-listed species is the purview of National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (USFWS). This EIS has been developed in consultation with NMFS and USFWS to minimize impacts to affected ESA-listed species and their habitats. With respect to the Preferred Alternative, the CSS model predicts that average SARs will increase for both Snake River spring Chinook and steelhead and will average well above 2 percent (the lower end of Northwest Power and Conservation Council's recovery targets for the region) as a result of the Preferred Alternative increasing from 2.0 percent to 2.7 percent for Chinook, a 35 percent relative increase. The NMFS COMPASS and Lifecycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. These improvements are expected to benefit all of the stocks listed in this comment if latent mortality is reduced through higher spill levels.
4494	14	katiestuart33@gmail.com	N/A	Smolt-to-adult ratios (SARs) are the best benchmark for measuring survival since these ratios measure survival from the downstream migrating juvenile to the returning adult. A SAR of 2-6% is needed to assure the survival of a fish species and these SARs are the regional recovery goals of the Northwest Power and Conservation Council. However, Snake River fish typically have SARs less than 1-2%, hence the continued downward spiral to extinction. Anadromous fish that pass through fewer hydroelectric dams on the Columbia River system have higher SARs and higher levels of survival (Figures 2 and 3). With cumulative impacts of direct and delayed mortality from the hydro system from the Snake River to the Pacific Ocean, it is crystal clear that salmon and steelhead cannot meet regional 2-6% SAR goals. Like the Snake River wild Coho that went extinct in the mid-1980s, Chinook, sockeye and steelhead are doomed to extinction unless a combination of dam breaching of the 4 lower Snake River dams, and the highest spill levels of 125% Total Dissolved Gas (TDG) at the remaining dams on the Columbia mainstem river are implemented.	The 2 to 6 percent Smolt-to-Adult return rates (SARs) target referenced in this comment refers to the Northwest Power and Conservation Councils (Council's) target for broad-sense recovery and is separate and distinct from the obligations of any single entity or in this case a requirement to be met solely by the co-lead agencies. Just as the Councils fish and wildlife program encompasses both Federal and non-Federal stakeholders in the Columbia River Basin, the Councils recovery goals are shared by many parties. Based on the analysis, the Preferred Alternative will make a substantial contribution, but the Councils broad sense recovery goals are beyond the scope of this EIS which focuses on the effects associated with the operation and maintenance of the 14 CRS projects. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the Endangered Species Act (ESA), in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Based on the fish analysis in Section 7.7.5, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the Columbia River System. Recovery of ESA species is the purview of National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (USFWS). This EIS has been developed in consultation with NMFS and USFWS to minimize impacts to affected ESA-listed species and their habitats. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. The co-lead agencies used high quality information in the EIS analysis. Specific to salmon and steelhead, the agencies used two primary modeling approaches which yielded a range of potential outcomes for the alternatives. With respect to the Preferred Alternative, the CSS model predicts that average SARs will increase for both Snake River spring Chinook and steelhead and will average well above 2% (the lower end of the Council's recovery targets for the region) increasing from 2.0 percent to 2.7 percent for Chinook, a 35 percent relative increase. The NMFS COMPASS and Lifecycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information. In relation to the comment that fish passing few dams have higher SARs and survival, the co-lead agencies follow the guidance from the Independent Science Advisory Board, and do not typically weigh performance of one population vs. another. It is difficult to isolate causative factors in those types of comparisons.
4494	15	katiestuart33@gmail.com	N/A	Water Temperatures Another way that the hydro system dams cause impacts to migratory fish is the cumulative effects of high-water temperatures caused by Snake River and Columbia main stem dams and associated reservoirs. Stagnant reservoirs in combination with increasingly hot temperatures due to climate change are lethal to migrating fish like salmon and steelhead. A water temperature above 680F delays upstream migrating adults, depletes energy reserves, increases respiration, and increases disease ultimately causing direct or delayed mortality. In the hot, dry summer of 2015, a harbinger of future summers in the Pacific Northwest, over 95% of returning Snake River sockeye salmon run died prematurely in the Columbia and Lower Snake rivers, most of them never making it to the Snake River.	The EIS acknowledges and describes the temperature sensitivities of salmon and steelhead, as well as the many other factors that affect these fish. Water quality and hydrology modeling data were inputs into the fish survival models used to analyze the alternatives' effects on Snake River stocks, so temperature effects to survival have been incorporated into the overall analyses of each alternative. Regarding climate change, the climate science community is still developing models that can be used to analyze possible effects to water temperature from climate change, and unfortunately, there are not reliable models at this time at the resolution required (river scale vs. global or regional scale). Therefore it was not possible to reliably model water temperature changes under climate change for this EIS. In lieu of this information, the climate analysis used the output from the water quality models under historical conditions, climate change data, and scientific literature to qualitatively assess potential effects to water temperature (Sections 4.2.3 and 7.8). Regarding water temperatures under Multiple Objective alternative 3, which includes breaching the four lower Snake River dams, analysis indicates that nighttime summer water temperatures, as well as fall water temperatures, would be cooler than No Action Alternative conditions in the Snake River. However, even with the four lower Snake River dams breached, maximum summer water temperatures would exceed state water quality standards (20C) at times, especially during hot weather events. The models showed minor changes in the Columbia River under this alternative.
4494	16	katiestuart33@gmail.com	N/A	A study done by Schultz and Johnson in 2017 used an U.S. Environmental Protection Agency (EPA) model and validated work by the EPA that showed a free-flowing Lower Snake River would have remained cooler than 68F during most of the hot summer of 2015. The analyses by Schultz and Johnson demonstrated that in dammed reaches of the lower Snake River, especially the three downstream reservoirs, water temperature reached 68F in mid to late June and remained near or above 68F until September.	The Draft EIS acknowledges and describes the temperature sensitivities of salmon and steelhead, as well as the many other factors that affect these fish. Water quality and hydrology modeling data were inputs into the fish survival models used to analyze the alternatives' effects on salmon and steelhead, so temperature effects to survival have been incorporated into the overall analyses of each alternative. Water temperatures under MO3, which includes breaching the four lower Snake River dams, indicates that nighttime summer water temperatures, as well as fall water temperatures, would be cooler than No Action conditions in the Snake River. However, even with the four lower Snake River dams breached, maximum summer water temperatures would exceed state water quality standards (20C) at times, especially during hot weather events. The models showed minor changes in the Columbia River under this alternative. Regarding predicted water temperatures under MO3, as compared to the results documented by Schultz and Johnson (2017) and derived from past EPA analysis, there are a few key differences between these efforts that should be made clear. First, the RBM-10 (TMDL) model predicts a daily average water temperature, while the CE-QUAL W2/HEC-RAS (EIS) model predicts a daily maximum value. The co-lead agencies chose the daily maximum water temperature metric since most water quality standards are based on this metric. Second, the RBM-10 model uses weather data from airport weather stations with the longest records, whereas the co-lead agencies used weather stations with the most spatial coverage and spatial representation (airport and AgriMet weather stations). Lastly, RBM-10 was utilized for a free-flowing scenario. The free-flowing scenario includes the absence of Grand Coulee, Chief Joseph, the five mid-Columbia PUD dams, the lower four Columbia River and the lower four Snake River dams. However, this "free-flowing" scenario retains Dworshak Dam as a boundary condition and uses observed flows and temperatures. 2010 channel bathymetry is utilized throughout system. The TMDL assessment focused on quantifying the thermal load of the dams by comparing existing conditions to a free-flowing scenario. The co-lead agencies used HEC-RAS (1-dimensional model) for the MO3 alternative for the lower Snake River; CE-QUAL W2 (2-dimensional model) was used for the other mainstem CRS dams. MO3 includes removing the earthen embankments, abutments and portions of existing structures at the dams to eliminate reservoirs. For MO3 all other CRS dams remain in place, and Dworshak Dam uses the same operations, both modeled flows and temperature, from the No Action Alternative. For the lower Snake River 1934 (pre-dam) channel bathymetry was utilized; 2010 geometry was used elsewhere in the system. Given the differences between the analysis in the Draft EIS and the 2017 study, direct comparisons between the two assessments are not appropriate. Both models have been reviewed extensively by the co-lead agencies. EPA concluded that both temperature models provide useful and technically appropriate analyses of the Columbia and lower Snake River water temperatures. As stated in EPA's review letter (#16-0059), EPA agrees with the co-lead agencies that the CE-QUAL W2 and HEC RAS models were appropriate to use in developing the Draft EIS.
4494	17	katiestuart33@gmail.com	N/A	Essentially, as water moves slowly downstream through the four lower Snake River dams and associated reservoirs, each reservoir increases water temperature by about 2 degrees F. The free-flowing simulation showed no significant and long term rising temperatures, and that without the dams, water temperatures in the lower Snake River would warm a relatively minor amount as it flowed to the Columbia River. Despite perilously hot air temperatures and low flows that occurred in 2015, the lower Snake River would have been cool enough for salmon and steelhead if the dams had not been present. While there would have been minor increases in temperatures, they would have been short lived. With the existing 8 dam complex that fish navigate from the Snake River to below Bonneville, Dam, and climate change intensifying the impacts of high temperatures and low flows, Snake River fish are at risk of extinction. High water temperatures above 68F are now common for lengthy periods in July, August, and September. The only way to ensure survival and avoid extinction of Snake River anadromous fish is to have a free-flowing lower Snake River.	The EIS acknowledges and describes the temperature sensitivities of salmon and steelhead, as well as the many other factors that affect these fish. Water quality and hydrology modeling data were inputs into the fish survival models used to analyze the alternatives' effects on salmon and steelhead, so temperature effects to survival have been incorporated into the overall analyses of each alternative. Water temperatures under MO3, which includes breaching the four lower Snake River dams, indicates that nighttime summer water temperatures, as well as fall water temperatures, would be cooler than No Action Alternative conditions in the Snake River. However, even with the dams breached, maximum summer water temperatures would exceed state water quality standards (20C) at times, especially during hot weather events. The models showed minor changes in the Columbia River under this alternative. The co-lead agencies used HEC-RAS (1-dimensional model) for MO3 for the lower Snake River; CE-QUAL W2 (2-dimensional model) was used for the other mainstem CRS dams. MO3 includes removing the earthen embankments, abutments and portions of existing structures at the dams to eliminate the reservoirs. For MO3 all other CRS dams remain in place, and Dworshak Dam uses the same operations, both modeled flows and temperature, from the No Action Alternative. For the lower Snake River 1934 (pre-dam) channel bathymetry was utilized throughout lower Snake River; 2010 geometry was used elsewhere in the system. The EIS assessment focused on predicting water temperature and Total Dissolved Gas (TDG) conditions under the MO3 alternative, which included a measure for breaching all four lower Snake River dams. The models used in the Draft EIS have been reviewed extensively by experts including the EPA, USGS and Portland State University. As stated in EPA's review letter (#16-0059), EPA agrees with the co-lead agencies that the CE-QUAL W2 and HEC RAS models are appropriate to use in developing the Draft EIS.
4494	18	katiestuart33@gmail.com	N/A	Alternatives The co-lead agencies peddle the Flex Spill Agreement in the CRSO-DEIS as the basis for the Preferred Alternative and conclude that small adjustments in spill and other mechanistic fixes in the hydro system will improve survival of anadromous fish while retaining all the falsely claimed benefits of the four lower Snake River dams energy, water transport of freight, flood control and irrigation. The Flex Spill Agreement was a process and intended to avoid litigation during the time that the CRSO-DEIS was developed. The Preferred Alternative is a version of the Flex Spill agreement with modifications that benefit power generation revenue and irrigation. There are no improvements for Snake River salmon and steelhead populations included in this alternative. It does not include operations for the long term, and only addresses operations for the last year of the Flex Spill Agreement in 2021. While co-lead agencies make references in the Preferred Alternative to an indeterminate and open-ended adaptive management process, there is no guarantee nor likelihood that the regional 4% average SAR goal will be met. Indeed, the Preferred Alternative includes measures that will cause additional harm to salmon and steelhead populations, such as additional irrigation water withdrawals from the Columbia River of 1.254 million acre-	The spill operation for juvenile fish passage is a significant departure from previous operations, so much so that the Washington and Oregon state water quality standards had to be changed to implement the new spill regime. In the EIS analysis of effects, the co-lead agencies used high quality information, including models and studies published in peer-reviewed scientific journals. Based on the fish analysis in Section 7.7.5, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. The CSS model, which includes latent mortality effects predicts that median Smolt-to-Adult return rates (SARs) will increase for both Snake River spring Chinook and steelhead and will average well above 2 percent (the lower end of the Northwest Power and Conservation Council's recovery targets for the region) as a result of the Preferred Alternative increasing from 2.0 percent to 2.7 percent for Chinook, a 35 percent relative increase. While meeting the regional SARs goal of 4 percent is a worthwhile endeavor, it is a recovery goal. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the Endangered Species Act (ESA), in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the Columbia River System.

Letter No.	Comment No.	Commenter Name/Email	Affiliation	Comment	Response[1/]
				feet. While the Preferred Alternative claims to be a balanced approach, it is obviously a continuation of status quo management which has caused salmon and steelhead to reach the brink of extinction.	The commenter's suggestion that the flex spill operation is only planned for one year is not an accurate interpretation of the Preferred Alternative. If no adaptive management needs are identified, the operation would continue until modified by the co-lead agencies. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information. Three of the four Multiple Objective alternatives contemplate an additional water supply withdrawal of 1.254 million acre-feet at Hungry Horse, Grand Coulee, and the Chief Joseph Dam project. The Preferred Alternative included an additional 45,000 acre-feet of water withdrawal above the No Action due to the uncertainty over the timing and extent of the development of new water supply projects for the full volume.
4494	19	katiestuart33@gmail.com	N/A	A careful review of the Flex Spill in 2019 showed that downstream survival, from juvenile fish powerhouse encounters, and delayed water transit time was equal to or worse than the 2018 Biological Opinion spill flows. The Flex Spill agreement states that fish passage must be better or at least no worse than what would have occurred under the 2018 court ordered injunctive spill order. However, in 2019 juvenile fish passage through powerhouses was worse than the injunctive spill order and more fish went through powerhouses than would have occurred under the court ordered spill.	One year of in-river migration data is not adequate to assess the effects of the flex spill operation. The modeled benefits of this operation are based on multiple years of data, and will require Smolt-to-adult returns rates (SARs) to evaluate. The starting point for the Preferred Alternative is spill to the 125 percent Total Dissolved Gas (TDG) cap, so it will involve more spill than 2019 Flex Spill. After careful review of monitoring data from the 2019 flex spill operation, the flex spill signatory entities agreed that all biological, hydropower generation, and operational aspects of 2019 met all parties expectations. It is difficult, and not advisable to take a single year of data from an operation, such as the single year of 2019, and make long-term and long-range decisions based on a limited operation. That is why the parties to the agreement based their expected outcomes on multiple water conditions and potential outcomes. When considering benefits to fish, the flex spill parties used powerhouse encounter rate or PITPH as the primary metric, not in-river survival or even SARs due to the variation in those metrics and the limited opportunity to evaluate and monitor based on a single year of data.
4494	20	katiestuart33@gmail.com	N/A	Spill to the higher 125% TDG level was only provided at 4 of the 8 Columbia/Snake hydroelectric projects. For example, Bonneville, The Dalles, and John Day dams spill were capped at 120% TDG. All of the projects reduced spill for 8 of the 24-hour day cycle which decreased fish protection at these projects during those 8 hours of reduced spill. The Columbia/Snake hydropower system cannot meet the alleged purpose of the Flex Spill agreement because spill is a net reduction at the downriver projects. Therefore, Oregon and Washington fish stocks from the John Day, Deschutes and Yakima rivers had increased mortality and decreased survival from increased powerhouse encounters.	For 2019, the 2019-2021 Spill Operation Agreement involved spill to the 120 percent Total Dissolved Gas (TDG) cap. 2020 will be the first year of spill to 125% TDG under the 2019-2021 Spill Operation Agreement. Table 7.3 in the Draft EIS details the Preferred Alternative's spring fish passage spill for each project. Spill for 16 hours to the 125 percent TDG is prescribed for 6 of the 8 lower Snake and Columbia River dams, including Bonneville and McNary dams on the lower Columbia River.
4494	21	katiestuart33@gmail.com	N/A	The Fish Passage Center sent a memo to the co-lead agencies on January 24, 2020 that plainly showed that the Preferred Alternative is a high risk alternative for Snake River salmon and steelhead . In the lower quartile data range, low SARs and continued population decline (<1% SARs) are predicted to occur a majority of the time and even more can expected with warming and drying climate conditions. The Preferred Alternative makes no changes to restore Snake River salmon and steelhead. The ambiguous reference to adaptive management processes continues the status quo and fails to restore Snake River anadromous fish. This CRSO-DEIS fails to meet the purpose and need to evaluate how to insure that the prospective management of the System is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of designated critical habitat (CRSO-DEIS, Executive Summary, page 16). The only option for recovery and avoiding extinction of Snake River salmon and steelhead is to breach the 4 lower Snake River dams (Alternative MO3) and spill to the 125% tailrace TDG gas cap (Alternative MO4) at remaining projects, 24 hours per day. Until the dams are breached, spilling to 125% at all dams is only an interim measure to keep these fish on life support. The combined MO3 and MO4 show the greatest improvements and the only path to successfully restore anadromous fish from the Snake River. These combined alternatives have the highest probability of meeting the 4% average SAR regional goal. Even the lower end of the predicted SAR range for MO3 was also above 1% for both Chinook and steelhead. The remaining alternatives (No Action, MO1, MO2, and the Preferred Alternative) fail to meet the regional 4% SAR goal, and the lower end of the predicted SAR ranges are well below 1%, indicating a high probability of extinction.	The 4 percent Smolt-to-Adult return rate (SAR) target referenced in this comment refers to the Northwest Power and Conservation Councils (Council's) target for broad-sense recovery and is separate and distinct from the obligations of any single entity or in this case a requirement to be met solely by the co-lead agencies. Just as the Councils fish and wildlife program encompasses both Federal and non-Federal stakeholders in the Columbia River Basin, the Councils recovery goals are shared by many parties. Based on the EIS analysis, the Preferred Alternative will make a substantial contribution, but the Councils broad sense recovery goals are beyond the scope of this EIS which focuses on the effects associated with the operation and maintenance of the 14 CRS projects. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species as that is a broader goal with shared responsibility. Based on the fish analysis in Section 7.7.5, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the CRS. Recovery of ESA species is the purview of National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (USFWS). This EIS has been developed in consultation with NMFS and USFWS to minimize impacts to affected ESA-listed species and their habitats. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. The co-lead agencies used current, high quality information in the EIS analysis. Specific to salmon and steelhead, the agencies used two primary modeling approaches which yielded a range of potential outcomes for the alternatives. With respect to the Preferred Alternative, the CSS model predicts that average SARs will increase for both Snake River spring Chinook and steelhead and will average well above 2 percent (the lower end of the Council's recovery targets for the region) increasing from 2.0 percent to 2.7 percent for Chinook, a 35 percent relative increase. The NMFS COMPASS and Lifecycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. Improving anadromous fish conditions were two of the eight objectives of the EIS. The agencies disagree, however, that an alternative that includes breaching the four lower Snake River dams and spring spill operations to 125 percent Total Dissolved Gas (TDG) at all four lower Columbia River dams is reasonable given the unacceptable risks to public safety from such an alternative. For power and transmission, MO3 and Multiple Objective alternative 4 (MO4), individually each caused large loss-of-load probability (LOLP) results (e.g. increased incidence of blackouts). Without major addition of new resources, MO3 would result in power shortages in about one in seven years. MO4 would produce power shortages in about one in every four years. If MO4 were implemented, in addition to breaching the four lower Snake River projects as called for in MO3, then the LOLP would be even higher, with power shortages potentially occurring almost every year. Additionally, if these MOs were combined, in 5 percent of the years, the power shortages would average close to 1,000 MW in early August when the region might be experiencing a heatwave with particularly high demand for air conditioning. 1,000 aMW is about the average amount of power consumed by Seattle City Light. As shown in Section 3.7, MO3 causes an increase in power reliability concerns in the winter and the summer. MO4 increases power reliability concerns in the summer. Thus, the combination has the largest impact during the summer. The cost of zero-carbon replacement resources for MO3 and MO4 individually are up to $1 billion/year. Resource replacements and associated transmission interconnections for the combination of MO3 and MO4 would be higher, though not likely as high as the sum of the two MOs individually. Assuming that the replacement resources consist largely of wind, solar, and batteries, this would require well over 50 square miles of solar power (more than two and a half times the size of Crater Lake), large areas of new wind generation, and unprecedented amounts of batteries (more batteries in the Northwest alone than the total projection of batteries expected in the entire US by 2023 per the Energy Information Administration). In addition, the reduced generation capability under MO3, particularly throughout the summer, in combination with the impacts of the measures in MO4, and the uncertainty about the characteristics of replacement resources, would result in less capability to provide voltage support and dynamic stability for transmission system reliability than under MO3 or MO4 individually. Thus, combining MO4 with breaching the four lower Snake River projects, would produce unreasonable power and transmission reliability impacts, and it is highly speculative that replacement resources could be sited, permitted and built to address these impacts. Thus, an alternative combining juvenile fish passage spill up to 125% and breaching the four lower Snake River dams is unreasonable, and thus was not proposed as an alternative.
4494	22	katiestuart33@gmail.com	N/A	Further, the CRSO-DEIS proposes an alternative that continues decades of failed status quo management to the detriment of Snake River anadromous fish. Current SARs for Snake River fish are less than 1%, which means their populations are steadily dwindling and will continue to decline. Even worse, the Preferred Alternative includes actions that are likely to accelerate extinction of these fish such as additional appropriation of 1.254 million acre-feet of irrigation water further depleting flows for juvenile migration.	The Preferred Alternative is not simply a continuation of the status quo. The spill operation for juvenile fish passage in the Preferred Alternative is a significant departure from previous operations, so much so that the Washington and Oregon state water quality standards had to be changed to implement the new spill regime. Based on the analysis, the co-lead agencies anticipate that the Preferred Alternative would provide benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. The CSS model, which includes latent mortality effects, predicts that median Smolt-to-Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2 percent (the lower end of Northwest Power and Conservation Council's recovery targets for the region) as a result of the Preferred Alternative increasing from 2.0 percent to 2.7 percent for Chinook, a 35 percent relative increase. In three of the Multiple Objective alternatives a measure for additional water supply withdrawal from Lake Roosevelt of 1.15maf (approximately 1,150,000 acre-feet) was contemplated. This withdrawal directly reduces flows in the river, but these flow decreases associated with this additional water supply were on the order of 1 to 2 percent of total flows, see Section 3.2 for more information. In the Preferred Alternative, the additional water supply was substantially reduced to an additional 45,000 acre-feet. The impacts from this additional water supply is smaller than 1 percent of outflows from Grand Coulee.
4500	1	N/A	N/A	I would like to begin my comment with a Governmental report from 1949 regarding the proposed building of the Snake River dams: Another serious threat to the Columbia River fishery is the proposed construction by the US Army Engineers of Ice Harbor and three other dams on the lower Snake River between Pasco, WA and Lewiston, ID to provide slackwater navigation and a relatively minor block of power. The development would remove part of the cost of waterborne shipping from the shipper and place it on the taxpayer, jeopardizing more than of the Columbia River salmon production in exchange for 148 miles of subsidized barging route. The transportation saving to the shipper would amount to $2,000,000 annually, while salmon runs having a wholesale value of about $9,000,000 would be threatened with destruction. We knew over 70 years ago the destruction that these dams would pose to our environment, and it has turned out just as predicted. We taxpayers are subsidizing barging of wheat for a handful of farmers while we watch in horror the complete collapse of this once robust and lucrative salmon industry and all that relies on it. There is RAMPANT, shameful misinformation being spread about the importance of these dams by our own governmental agencies; NOAA, BPA and ACE. Their FAQs are full of propaganda to justify the existence of these dams. The bottom line is, these dams are benefitting few and harming multitudes. There is a reason they have been controversial since they were first proposed. There is a reason they have been identified as the best way to save our dwindling wild salmon runs. There is a reason the Army Corps of Engineers said that breaching the dams was the best way to save these salmon in their own Environmental Impact Statement of 2002. The damage these dams do to our environment far outweighs the meager benefits enjoyed by these few. There are other ways that already exist to get wheat to market. There are other ways that already exist to provide the power our region needs. There is no other way to save these fish that are a critical component to our ecosystem as a whole and are the lifeblood to our communities our commercial and recreational fishermen, our tribes, and our people.	The EIS evaluated beneficial and adverse effects across an array of resource areas including potential effects at the national, regional and local level; effects are monetized and quantified, where possible, and also described qualitatively. As is common in NEPA analyses, the beneficial and adverse effects of the alternatives are expressed as a variety of qualitative and quantitative environmental and economic metrics throughout the EIS to inform decision-making, including the effects of the alternatives on fish as detailed in Section 3.5. That the effects of the alternatives on fish are not expressed as monetized economic values does not mean that they were not considered in the context of the analysis. The EIS does not employ a cost-benefit framework for decision-making. Instead, the EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as the dam breaching alternative. However, the Preferred Alternative also meets most of the other objectives of the study for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. While the four lower Snake River dams account for a small portion of the total power of the region, they represent a larger portion of the Federal Columbia River Power System (FCRPS) from which Bonneville markets power. The power generated from the four lower Snake River dams is used to meet Bonneville's collective power obligation, most of which is sold to meet the loads of publicly owned utilities, such as municipalities, rural utilities, and public utility districts. (See EIS Section 3.7.2.5, Bonneville Power and Transmission Customers). It is true that the region has added substantial amounts of wind and solar generation; this is factored into the No Action Alternative. The EIS analysis finds that under Multiple Objective alternative 3, which includes breaching the four lower Snake River Dams, the region would roughly double its risk of power shortages unless and until new generation is acquired. See Section 3.7, Effects on Power System Reliability, page 3-903, in the Draft EIS. The EIS finds that transportation of freight that is currently barged on the lower Snake River could be accomplished via other transportation modes, but this change would not be without costs to farmers, would require public and private investment in infrastructure, and would result in some adverse regional economic effects, particularly in the short term. See Section 3.10 for a discussion on Transportation and Navigation effects. The EIS provides an evaluation of the social welfare and regional economic effects of the No Action Alternative and the multiple objective alternatives (MOs) on recreation (Section 3.11). The potential effects to recreational fishing are based on the description of effects to resident and anadromous fish in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The contribution of Columbia River origin fish to ocean fisheries is described in Section 3.15.2.1. Because there is considerable uncertainty regarding the overall effects of the alternatives on regional fish populations, and how such changes may affect the management of the fisheries, effects associated with changes in commercial and recreational fisheries under the alternatives were described qualitatively. This analysis evaluates potential effects on fisheries by referencing the potential effects on relevant fish populations, as described in Section 3.5. Tribal input, concerns, interests, and especially treaty rights were considered throughout the Draft EIS analyses and in the formulation of the Preferred Alternative. The co-lead agencies are engaging in government-to-government consultation with the Tribes, and several Tribes are cooperating agencies on the CRSO EIS. Fisheries tribal interests are described in Section 3.15.4. Additional details regarding the economic significance of salmon and steelhead fisheries have been added to the recreation analysis in Section 3.11, including Tribal interests in Section 3.11.3.7. Many sections of Chapter 3 include a Tribal Interests sub-section at the end that attempts to summarize tribal issues by topic and Chapter 7 also includes additional information on the Preferred Alternative's impacts on these resources.
4504	1	mary_dryburgh@hotmail.com	N/A	I think there are many problems on the west side beginning with the water offshore from the Columbia river including predatory mammals and fishing. Is Portland and Seattle doing all they can to improve the water quality from those two cities that flow into the sound?	The scope of the EIS focuses on the area affected by the alternatives presented for operation and configuration of the CRS projects. Only those factors that could be affected by the configuration and operation of the CRS projects were carried forward into the effects analyses and those effects were analyzed in Chapter 3.4. Ocean predation and water quality impacts from cities like Portland and Seattle are outside of the scope of this analysis. The co-lead agencies agree, however, that there are many effects to salmon and steelhead populations outside the operation of the dams. Research continues to evaluate the magnitude of these effects. For more information see the National Marine Fisheries Service website at: https://www.nwfsc.noaa.gov/research/index.cfm
4504	2	mary_dryburgh@hotmail.com	N/A	I have watched what happened when the Elian dams were removed on the Olympic Peninsula. While the results are now beautiful the amount of sediment that wash downstream from just that small river was huge.One can only imagine what would happen when the big dams on the Columbia and the Snake River were to be removed.	MO3 included a measure to breach the four lower Snake River dams and was not identified in the Preferred Alternative. For dam removals with large sediment deposits, predictions are generated for the amount of sediment estimated to erode and the downstream fate of that sediment. When there are potential impacts resulting from sediment release, mitigation measures are evaluated to reduce the impacts. For the Elwha and Glines Canyon dam (Washington, USA) removals, mitigation included a water treatment plant to address water quality impacts, increased levees or protection to address changes to flooding, a phased dam removal to reduce, but not eliminate, impacts to fisheries and the aquatic ecosystem and construction measures to protect cultural resources. The decision on what impacts and how to mitigate follow a robust formal process as part of an implementation EIS if a dam breach alternative is selected. The removal of the two large dams on the Elwha River exposed 27 million cubic yards of impounded sediment to fluvial erosion. This was approximately 84 years of sediment from the upstream watershed. Approximately 65 percent of the sediment was eroded, of which only about 10 percent was deposited in the fluvial system. This restored fluvial supply of sand, gravel, and wood substantially changed the

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					channel morphology. The remaining around 90 percent of the released sediment was transported to the coast, causing around 60hectares of delta growth. A few years after dam removal, the Elwha River sediment loads returned to the new levels of an equilibrium watershed with connected sediment processes from the upper to lower watershed. The formulation of the MO3 drawdown and embankment removal measure for the four lower Snake River dams mirrored that developed in the 2002 Lower Snake River FR/EIS. While the volume of lower Snake River reservoir sediment is much larger than the Elwha, when scaled to the size of the watershed and average incoming sediment load, the volume composes nearly 60 years of incoming sediment load. Predictions indicate that of the 180 million cubic yards of sediment in the system, that the drawdown and bypass would not scour all the sediment from the reservoirs and as much as 50 percent of the total sediment stored in each reservoir would deposit outside the historic channel in the pre-dam floodplain up to 15 feet thick. The Snake River would largely abandon these deposits in place following breaching, stranding them above the active channel. After the embankment removal, the channelized flows are not predicted to frequently inundate or erode these residual sediment deposits. Approximately 70 percent of the sediment scoured from the four lower Snake River reservoirs is predicted to deposit in McNary pool downstream of the Snake River confluence in shallow areas prone to shoaling. Stored sediment from dam breaching would deposit in the Columbia River portion of McNary reservoir, downstream of the Snake River confluence which is predicted to decrease reservoir storage capacity by less than 5 percent. After the river has eroded and transported the reservoir deposits, the system is expected to transition to an equilibrium state where the annual watershed sediment load of approximately 2.4 million cubic yards per year that historically deposited upstream of Lower Granite Reservoir near the Snake-Clearwater confluence would be routed downstream to the Snake-Columbia confluence.
4510	1	Kurt Miller	Northwest River Partners	We also appreciate the detailed analyses performed regarding the power generation and environmental implications of the various Multiple Objective (MO) alternatives. We recognize that since work began in 2016, many of the regions assumptions around power supply have changed, with thousands of megawatts of coal-fired generation now on the path to early retirement. This new paradigm is critical to consider, and we are pleased that the DEIS included additional outboard analyses to reflect this important change in the regions power supply resource stack.	The EIS did examine potential future coal retirements and identified future reliability concerns, consistent with the concern voiced in the comment. See draft EIS, Section 3.7.3.2, No Action Alternative at pages 3-845-87, Table 3-123 and Section 2.3 of Appendix H, Sensitivity of LOLP to Assumptions about Coal Capacity, for additional details.
4510	2	Kurt Miller	Northwest River Partners	We also recognize that the science of predicting adult salmon returns is still very uncertain, which makes it highly challenging to predict the relative effect of any particular operation on salmonid populations.	The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models (CSS and NMFS Life Cycle models) and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. Unforeseen outcomes or unintended consequences will lead to adjustments using current in-season management teams through the Regional Forum.
4510	3	Kurt Miller	Northwest River Partners	The DEIS demonstrates that breaching the LSRD (MO3) could More than double the risk of region-wide blackouts1	The measure to breach the four lower Snake River dams that was evaluated in MO3, was not included in the Preferred Alternative identified in the Draft EIS. The effects of the Preferred Alternative (PA) on power are described in Section 7.7.9 of the Draft EIS. Overall, hydropower would decrease relative to the No Action Alternative under the PA. However, because of the shape of the remaining hydropower generation in the PA, the loss of load probability was essentially the same as that of the No Action Alternative and identification of replacement resources was not necessary. The EIS analyzed two resource portfolios to replace the hydropower generation Multi-objective Alternative 3 (MO3, which included breaching the four lower Snake River dams), both of which maintain regional power system reliability. In the Draft EIS, see Section 3.7.3.5, pages 3-904-910. Under these replacement portfolios, regional power rate pressure increases (Section 3.7.3.5, at pages 3-918-924; and Table 3-166 in the Draft EIS). Without replacement resources, however, the statement about the effects of breaching the four lower Snake River dams on regional power reliability is consistent with the findings of the EIS. In the Draft EIS, see Section 3.7.3.5, Effects on Power System Reliability, page 3-903; and Appendix H, Table 2-1.
4510	4	Kurt Miller	Northwest River Partners	Add 3 million metric tons of carbon to the atmosphere each year from electricity production2	The EIS finds that under MO3, replacing the hydropower generation with natural gas power resources would increase regional CO2 emissions by 3.3 million metric tons, consistent with statement in the comment. See Section 3.8 of the EIS. However, the co-lead agencies did not identify MO3 as the Preferred Alternative. The Preferred Alternative estimates that GHG emissions would increase by 1.5% or 0.54 million metric tons compared to the No Action Alternative.
4510	5	Kurt Miller	Northwest River Partners	Cost up to $1 billion a year in additional power costs and raise Bonneville Power Administration (BPA) power costs rates by 50%3	The statement is consistent with the findings of the EIS on wholesale power rates under Multiple Objective 3 (which includes breaching the four lower Snake River dams). See Section 3.7.3.5 Electricity Rate Pressure, at pages 3-918-924 in the Draft EIS; see also Table 3-166 in the Draft EIS.
4510	6	Kurt Miller	Northwest River Partners	Harm the regional economy in the amount of $740 million a year in lost goods and services sold4	The statement is consistent with the findings of the EIS for the estimated regional economic effects under MO3. See Section 3.7.3.5 Social and Economic Effects of Changes in Power and Transmission in the Draft EIS.
4510	7	Kurt Miller	Northwest River Partners	Result in the loss of 4,900 jobs as a result of higher electricity rates5	The number of jobs cited in the comment is consistent with the findings of the EIS under MO3 with a renewable replacement resource portfolio. See Section 3.7.3.5, at 3-936 of the Draft EIS.
4510	8	Kurt Miller	Northwest River Partners	Reduce our ability to safely add new wind and solar power to the grid6	The statement in the comment that Multiple Objective Alternative 3 (which includes breaching the four lower Snake River dams) would reduce the ability of the power system to integrate new renewables is consistent with the findings of the EIS. See Section 3.7.3.1, Integration Services, at 3-832 in the draft EIS, and Appendix J, Section 4.3, Integration of Other Renewable Resources and Hydrosystem Flexibility Analysis at J-4-20 in the draft EIS.
4510	9	Kurt Miller	Northwest River Partners	Cost $458 million in social welfare from the loss of irrigated land and jobs for farm laborers7 Add 79,000 semi-trucks to the road each year8	As described in Section 3.12.3.4, under MO3, assuming that the entire 47,926 acres were no longer irrigated, the present value of the lost social welfare benefit under MO3 would be $447,174,000. In Section 3.10.3.5, the estimated increase in truck traffic is described. Under Scenario 1, the net additional trips is 13,515 truck trips compared to the No Action Alternative. Under Scenario 2, the total net additional trips under this scenario would be 32,249 truck trips compared to the No Action Alternative, with an additional 25,711 truck trips due to elevator to river port shipments. Truck shipments to shuttle elevators would decline under Scenario 2 compared Scenario 1, but would still be higher than under the No Action Alternative. Under Scenario 3, the net additional trips would increase to 79,250 truck trips compared the No Action Alternative, with the majority of that coming from elevator to river port movements.
4510	10	Kurt Miller	Northwest River Partners	While the numbers above are staggering, RiverPartners comments will demonstrate that the DEIS analysis does not go far enough to capture the full socioeconomic harm related to MO3 and MO4, which would have destructive and widespread impacts across the Northwest.	The EIS evaluated beneficial and adverse effects across an array of resource areas including potential effects at the national, regional and local level; effects are monetized and quantified, where possible, and also described qualitatively. As is common in NEPA analyses, the beneficial and adverse effects of the alternatives are expressed as a variety of qualitative and quantitative environmental and economic metrics throughout the EIS to inform decision-making. The EIS does not employ a cost-benefit framework for decision-making. Instead, the EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as the dam breaching alternative. However, the Preferred Alternative also meets most of the other objectives of the study for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy.
4510	11	Kurt Miller	Northwest River Partners	RiverPartners comments will also demonstrate that there is a lack of scientific evidence to support M03, MO4, or the Preferred Alternatives higher proposed spill levels, which will result in the exceedance of 115% Total Dissolved Gas (TDG) levels.	In its analysis of effects, the Draft EIS used current high quality information, including models and studies published in peer review science journals. Specific to salmon and steelhead, the agencies used two primary modeling approaches which yielded a range of potential outcomes for the alternatives. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% as a result of the Preferred Alternative. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. To address this uncertainty, the Preferred Alternative will be implemented using a robust monitoring plan and adaptive management plan. The impacts of the other alternatives were also evaluated with the CSS, COMPASS, and Life Cycle models.
4510	12	Kurt Miller	Northwest River Partners	Lastly, RiverPartners encourages the Action Agencies to work diligently with stakeholders to help threatened and endangered salmonid and orca populations in ways that do not diminish our critical hydroelectric resources. RiverPartners believes that more fully addressing the harmful impacts of avian predation is an excellent opportunity for this partnership.	The Preferred Alternative includes a large suite of predation mitigation measures. Some of which include maintaining avian wires in the tailrace of lower Columbia and Snake River dams, active hazing of gulls at the dams, and the pattern of operating the spillway gates all mitigate for predation at the dams by birds and fish. The Predator Disruption Operations will mitigate Caspian Tern predation on juvenile salmon and steelhead in the lower Columbia Rivers. Management efforts are ongoing to reduce salmonid consumption by terns in the lower Columbia River, and similar efforts are in progress to reduce the nesting population of Double-crested cormorants in the estuary.
4510	13	Kurt Miller	Northwest River Partners	ENERGY EQUITY, SOCIOECONOMICS, RELIABILITY, AND DECARBONIZATION Warning Signs of An Energy Shortage Regional power planners are in unison that the Pacific Northwest is headed for an electricity shortage. The Northwest Power & Conservation Council10, the Northwest Power Pool11, E312, and Energy Strategies13 have all issued significant warnings about a potential energy shortage or even blackouts resulting from the retirement of thousands of megawatts of the regions coal plants. Notably, all these forecasts assume that the LSRD remain in place. As noted above, as disturbing as this risk is, the CRSO DEIS indicates that removing the LSRD from the resource mix would more than double the possibility of blackouts in the region. In the midst of the coronavirus pandemic, many people have come to realize the critical dependence we have on basic services, like electricity. Right now, the nation is contending with the lack of hospital beds, medical equipment, personal protective equipment, and cleaning supplies. Imagine how these problems would be amplified by a region-wide loss of electricity. The grid must be ready for emergencies, or we risk making a crisis like this much more severe. It is also important to note that an energy shortage does not have to result in blackouts to be devastating. During the Western Energy Crisis of 2000-2001, the Northwest did not experience blackouts. However, the efforts to buy power to avoid blackouts cost the region thousands of living wage aluminum industry jobs, and retail energy bills skyrocketed. Even the Bonneville Power Administration had to hike its rates by 45% to cover the increased costs. In California, where blackouts are already occurring due to climate change and Pacific Gas & Electrics weakened infrastructure, a two-class electricity system has developed. Well-to-do customers who can afford solar rooftops, smart inverters, and backup generation are able to maintain electricity, while poorer communities cannot.14 Whether from blackouts or skyrocketing prices, it is imperative that our region is not exposed to the effects of an energy shortage. Because of the severe consequences that would be felt as a result of an energy shortage, RiverPartners also encourages the Action Agencies not to assume that the current COVID-19 economic slowdown serves as a reliable predictor of longer-term demands for electricity. It is far too early, and there are too many unknowns to reliably depend on a lower level of long-term demand for electricity, especially as the region contemplates economy-wide decarbonization goals that would likely shift demand from natural gas to electricity. Because the Action Agencies are directly responsible for grid reliability, it would not be appropriate to plan to a lower level of demand until we have more direct evidence of what the economic recovery will look like.	The comment makes various statements about the importance of a reliable power supply and grid as well as the potential resource adequacy concerns raised by recent analyses. Information presented in the EIS is consistent with these statements. Regarding the statement about lower potential demand, although the EIS analysis preceded any slowdown that could be attributed to the COVID-19 pandemic, the analysis relied on the high-quality information from the Northwest Power and Conservation Council for load and power data.
4510	14	Kurt Miller	Northwest River Partners	Vulnerable Communities Across the Northwest Would Be Disproportionately Affected by Dam Breaching or High Spill Levels As mentioned above, the nation has yet to determine the full effects of the COVID-19 pandemic on public health and on the economy, and it may be a long time before we can do so. However, we do know that hundreds of thousands of employees have been laid off from their jobs in the Northwest alone. The DEIS shows that dam breaching (MO3) or sustained high spill levels (MO4) would create an unbearable burden for many homes. As referenced above, the DEIS calculates the cost of replacing the full capabilities of the LSRD with a carbon-free portfolio of resources, such as solar, batteries, and demand response to be as high as $1 billion annually. This value is very consistent with the third-party analysis performed by a leading energy consulting group, EnergyGPS, earlier this year.15 As noted above, the DEIS shows that cost would equate to a 50% increase in BPAs wholesale power rates. Based on a general rule that power supply costs represent roughly half of total retail bills, that would equate to a 25% increase in monthly electric bills for the millions of residential and business customers who get their electricity from BPA requirements utilities. The DEIS indicates that the financial cost of MO4 would be even higher than breaching. This cost increase is not affordable to most people in the region, especially in light of the massive job losses mentioned above. Early reports show that the people most affected by job losses related to the COVID-19 pandemic have been lower-wage earners.16 In a best-case scenario, where the unemployed are able to quickly find jobs after COVID-19 related shutdowns are over, it will still take significant time for these	The statement that the cost of replacing the lower Snake River dams' full capability with renewables is up to $1 billion is consistent with the findings of the EIS. See Section 3.7.3.5, at 3-918-924; see also Table 3-166. The statements regarding the power-related regional economic impacts under MO3 and MO4 are consistent with the findings of the EIS. The statistic that wholesale power rates under MO3 would increase up to 50 percent is also consistent. The EIS did not use the rule of thumb described by the comment to calculate end user retail rate effects. Instead, the EIS relied on historical power rate data from the available sources. Further information on the methodology for retail rate effects can be found in Section 3.7.3.1, Methodology, of the EIS. Additional information on the effects of the alternatives on minority populations, low-income populations, or Indian tribes can be found in Sections 3.18 and 7.7.20 (Environmental Justice).

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				workers to achieve solid financial footing due to months of lost income. Implementing MO3 or MO4 and thereby substantially raising customer electricity bills would only serve to exacerbate the economic inequalities in the region.	
4510	15	Kurt Miller	Northwest River Partners	Many Traditionally Underserved Communities Are Dependent on Dams It is important to understand that communities across the Northwest have come to depend on dams to sustain their communities. Dams protect them from deadly flooding, provide irrigation for farming and jobs for agricultural workers, and create gathering points for recreation. At a press conference on Monday, March 2, Franklin Public Utility District public relations manager Mike Gonzalez stated that for his community of Pasco, Washington, Keeping the [lower Snake River] dams is a matter of social justice. Gonzalez shared that approximately 70% of Pascos residents identify as Latino/Latina and nearly 30% speak English as a second language. Additionally, Pascos Latino community provides a crucial source of labor for agriculture, and that irrigation from the lower Snake River dams supports the agricultural jobs that many people in his community rely upon for a secure economic future. He stated that if the dams were breached, the expected electric bill increase for Franklin PUDs customers would be as much as 30% and described the potential impact as devastating. Pasco, Washington is just one example of the diverse communities that depend on hydroelectric dams throughout our region. Without Ice Harbor Dam, 48,000 acres of farmland could lose access to irrigation in the Tri-Cities region17. As the DEIS notes, the loss of this irrigation would result in a $458 million loss to social welfare. It would mean the loss of jobs and homes, and it would deprive communities of a necessary economic base to support schools and social welfare programs. It is worth noting that during the COVID-19 pandemic, agricultural workers were deemed essential critical infrastructure workers by the federal and state governments and that agricultural communities have continued to risk their own health safety to ensure that food is available.	In Region C (lower Snake River) and potentially Region D (mainstem Columbia River) around the confluence of the lower Snake River, MO3, which includes breaching the earthen embankment of the four lower Snake River dams, would have adverse effects to farmers and irrigation. Currently and in the No Action Alternative (as described in Section 3.12), water is available from the pools of these facilities and from groundwater that results from the pools. Removing the earthen embankment portion of the dams will reduce pool elevations by up to 100 feet, which would make surface pumps inoperable. Groundwater pumps in the wells may also be affected due to decreased groundwater elevations depending on the connectivity of the aquifer to the pools. Municipal and industrial water pumps in the Lewiston area would also likely be adversely effected. Additionally, transportation of farming goods would expect to move off river and on to rail or trucks, as there would be a complete loss of commercial navigation on the lower Snake River and could not be feasibly mitigated. All ports along the Snake River would lose access to the navigation channel. Some ports at the confluence or the Snake and Columbia River could dredge new channels to the Federal channel in the confluence (McNary reservoir) to maintain access. Private or public entities or businesses could take actions and/or build infrastructure to extend pumps or water supply access for water. Ports and farmers can likewise change their transportation modes or connect to the navigation system at a different point on the river. The federal co-lead agencies would not mitigate for these impacts to water users or ports. See Chapter 3 analyzes the social and economic effects of implementing a dam breaching alternative (MO3) and Chapter 5 for mitigation discussion. Additional information on the effects of the alternatives on minority populations, low-income populations, or Indian tribes can be found in Sections 3.18 and 7.7.20 (Environmental Justice).
4510	16	Kurt Miller	Northwest River Partners	The LSRD Are Critical to Our Clean Energy Future We live in a carbon-constrained world due to legitimate concerns over climate change. To address these concerns, in 2019 the State of Washington passed a clean energy law that will mean the end of coal-fueled and natural gas-fueled generation in the state. Other regional government agencies have committed to carbon-free energy goals or are examining similar plans. Additionally, there have been calls for much more penetrating decarbonization goals for the Northwest economy. One such call has been for a requirement for all commercial buildings and new homes to get their heating and appliance-related energy from electricity instead of natural gas. According to a 2018 study, such a shift would likely double the regions peak electricity demand.18 Even without these calls for economy-wide decarbonization, the challenge of achieving the Northwests existing clean energy mandates means that thousands of additional megawatts of wind and solar power will be needed. As you know, in addition to being renewable, wind and solar power share a common trait they are intermittent. This means their electric output fluctuates based on the availability of wind and sunshine. The problem is that if the supply and demand for electricity arent in perfect balance every second, blackouts can occur. As a result, in the regions effort to add new renewables to the grid, hydroelectricity has become even more critical, because dams can store water and release it past hydroturbines to generate electricity when needed. The storage and release of water can be matched perfectly with wind and solar power to safely balance the grid. As the CRSO DEIS indicates, BPA will often carry up to 25% of its hourly reserves on the LSRD19in partto balance renewables on the grid. The CRSO DEIS notes that the LSRD provide roughly 1,100 average megawatts of carbon-free electricity each year, but they can provide over 2,000 megawatts under the right conditions.20 This flexibility makes the LSRD vital as the Northwest moves to a more renewable generation portfolio. The DEIS demonstrates that the LSRD capabilities could be replaced by natural gas-fueled resources, but that these fossil-fuel resources would add 3 million metric tons of carbon to the atmosphere each year, which equates to roughly a 10% increase in the entire Northwest power sector carbon emissions. Clearly, that would be a step in the wrong direction given the existential threat that climate change poses. As a result, it is critical that the Action Agencies do not adopt a plan that diminishes or eliminates the carbon-free capabilities of LSRD.	The comment contains multiple statements about the importance of hydropower for achieving regional clean energy goals and integrating renewables onto the grid. Although it is beyond the scope of the EIS to analyze the role of hydropower in achieving specific clean energy goals, the EIS does find that replacing the hydropower generation of the four lower Snake River dams would increase greenhouse gas emissions from power generation. See draft EIS, Section 3.8.3.5 at pages 3-1009-1010 in the draft EIS. The statements regarding the variability of other renewables and the importance of the four lower Snake River dams for integrating new renewables are consistent with the findings and discussions in the EIS. See draft EIS, Section 3.7.3.5, Lower Snake River Full Replacement at pages 3-905-907.
4510	17	Kurt Miller	Northwest River Partners	Need for Additional Economic Analysis for MO3 RiverPartners would like to mention one area of specific concern, which is the economic analysis performed for MO3. The DEIS did not evaluate the full amount of lost economic benefit associated with higher transportation from dam breaching (MO3). [graphic included in document: Supply Shock] Economic theory is clear that higher input costs (also known as a Negative Supply Shock) result in a depressed total volume of goods sold at higher prices (see figure to the left). According to the DEIS, breaching the four lower Snake River dams (LSRD) has the potential to greatly increase transportation rates for shippers who currently rely on barging to get their goods to market. For farmers, that means that they will be able sell less product and that the price of the product will be more expensive to buyers. This outcome results in a loss of economic value (price times quantity). This loss is depicted in the figure to the left as the difference between the green-dashed box and the yellow-dashed box. It is very important that the Action Agencies capture this lost value in the EIS analysis. Otherwise, there is a risk of significantly underestimating the costs of MO3.	Generally speaking, the commenter is correct that most products face downward facing demand curves. The EIS evaluates potential effects on farmers associated with increased transportation costs under MO3 in Section 3.10.3.5. The EIS finds that under a dam breach scenario, average transportation costs for wheat farmers would increase 10 to 33 percent, but that individual farmers could experience increases that are doubled. The cost increases to specific shippers would depend upon location and would vary throughout the region, depending on transportation options at each location. Generally, those grain shippers that are the furthest from alternate shipping locations (shuttle rail facilities or river ports on the Columbia River) would be the most negatively impacted. The EIS recognizes that there is no guarantee wheat grown in the Northwest will be competitive now or in the future because there are many factors that influence international commodity markets (e.g., trade agreements, the U.S. dollar, global supply, etc.). However, the analysis finds that the cost to transport wheat to market would continue to be lower than costs paid by other wheat growers in the United States (e.g., the Dakotas and Midwest). Favorable conditions for Northwest wheat growers that help them stay competitive are: (1) the natural environment of the Palouse region (weather, soils) is ideal for growing this type of wheat, which leads to some of the highest yields per acre in the world, and (2) proximity of Northwest export ports.
4510	18	Kurt Miller	Northwest River Partners	SCIENTIFIC REVIEW Hatchery Assumptions BPA provides funding of mitigation projectssuch as hatcheriesin the Snake River Basin. These projects are implemented by local, state, tribal, and federal entities. The funding of many of these programs is directly tied to the operation of the LSRD. Because MO3 would result in the breaching of the LSRD, the DEIS acknowledges continued funding of mitigation efforts for the LSRD may not be required under MO3.21 Birgit Koehler, Policy Lead for Power on the Columbia River System Operations Environmental Impact Statement highlighted this point in her public comments, There would be no line item in BPAs future budgets for Snake River hatcheries and habitat improvement.22 We note that the DEIS acknowledges the huge role that hatcheries play for Snake River salmonid populations. The DEIS states, . . . reductions in hatchery fish could reduce the numbers of juvenile Snake River Chinook by as much as 85%. This reduction in the number of hatchery fish would likely [also] result in a reduction of these predicted survival rates of wild Chinook because of increased predation rates However, the DEIS concedes that, COMPASS and CSS models do not account for this potential major reduction in juvenile fish production. RiverPartners is highly concerned that such a major impact was not quantified in the model runs. We note from having participated in all six of the CRSO DEIS public teleconferences that a great many proponents of MO3 have argued that the only way to save salmon and endangered Southern Resident orcas is to adopt MO3. However, their views might be very different if they were aware of the quantifiable impact that the potential loss of hatchery fish could mean for orcas and for cultural, commercial, and recreational fisheries. As a result, we encourage the Action Agencies to re-run these models to include the reasonable assumption that LSRD mitigation hatcheries could lose their funding as a result of MO3 implementation. The new model runs would give the Action Agency decisionmakers a much more informed basis for determining the best Preferred Alternative for the Columbia River System.	This is correct. Modeling of alternatives for the CRSO EIS did not consider additional mitigation programs such as hatchery production or habitat restoration projects, but existing hatchery production funded by the co-lead agencies is included in the No Action Alternative. Additional mitigation program measures are described in the EIS in Chapter 5. However, it would not be feasible to rerun scenarios of MO3 using NMFS COMPASS and CSS with Snake River hatchery production not included. The COMPASS model relies on the record of hydrosystem survival data estimated with both hatchery and wild tagged Chinook and steelhead. The NMFS Lifecycle model already reports only wild spawner abundance. Likewise, the CSS Chinook lifecycle model in the Grande Ronde/Imnaha also only included wild spawners. For both models, density related effects in downstream locations such as the mainstem, estuary and ocean could only be estimated with hatchery fish present.
4510	19	Kurt Miller	Northwest River Partners	Background on Competing Models We provide this section on modeling as a brief introduction to the following sections on Latent Mortality and TDG levels. As referenced above, two models have been relied on in the region to predict the effects of alternative juvenile salmonid passage methods and their effects on Columbia Basin adult salmonid returns. One model is the Life Cycle Model (LCM) used by the NOAA Fisheries Science Center. The other model is the Comparative Survival Study (CSS) model used by the Fish Passage Center. These two models have been at odds, with the CSS model predicting much higher adult salmon returns associated with increased spill levels and/or dam breaching than the LCM model. One major reason for the disparity between the CSS and LCM model results is that the CSS model depends on a theory referred to as latent mortality in its attempt to predict the rate of returning adult salmonids. The latent mortality theory posits that although juvenile salmon have a very high survival rateapproximately 96-97% averagepast each of the lower Columbia River dams and LSRD, that the act of going through fish bypass passage structures and powerhouses negatively impacts the health of juvenile salmonids and results in lower SARs. This theory suggests that the effects of the dams on salmon are not fully captured by juvenile migration survival rates. Therefore, according to the theory, more spill or dam breaching is needed improve the rate of adult salmon returns, also known as smolt-to-adult returns (SARs).	The co-lead agencies agree with this characterization.
4510	20	Kurt Miller	Northwest River Partners	CSS Model & the Challenge of Correlation Vs. Cause A difficulty for proponents of the latent mortality theory is that it is very hard to scientifically prove. The Action Agencies have acknowledged this challenge in the DEIS with the following statement, The degree to which latent mortality is affecting salmon and steelhead is one of the critical uncertainties in this EIS analysis.25 (emphasis added). The task of proving the existence of latent mortalityor its corollary that more spill is better for adult returnsis difficult because the ecosystems in which salmonids live are highly complex and constantly changing. In terms of in-river survival, SARs can be affected by factors including, but not limited to the number and type of salmonid predators, in-river harvest, river flows, river temperatures, pollution, the type and number of competing organisms, and spill levels. Because salmonids tend to spend most of their lives in the ocean, the model must also contend variables that are even more difficult to track. These variables include but are not limited to the availability of prey, the type and number of predators, the amount of in-ocean harvest, the type and number of competing organisms, pollution, acidity, and ocean temperatures. These challenges are summarized in the following quote from the Independent Scientific Advisory Board (ISAB), It is unlikely that overall changes in SARs [smolt to adult returns] can be isolated to conclude that spill is the causative factor for the system. The CSS approach uses correlations which do not by themselves determine cause and effect. There are many confounding factors and indirect effects of spill on fish survival including predation and other mortality in the reservoirs, deployment of new spillway weirs, delayed mortality, ocean conditions, habitat restoration activities, changes in toxic contaminants and other factors. Additionally, as mathematicians have noted, there is an imbedded challenge to isolating the effect of a particular variable when that variable, itself, is highly correlated with other model variables. This statistical concept is known as	The co-lead agencies acknowledge the many challenges associated with determining the magnitude of latent mortality associated with CRS operations. It it also acknowledged that further evaluation of all the models used in this process will continue over time. Given the challenges of determining and isolating a causal mechanism, the co-lead agencies intend to work with regional experts in salmon biology and quantitative analysis in an effort to develop a robust monitoring plan to reduce as much uncertainty as is possible in this complex situation. The co-lead agencies expect this process to take time to reduce the impact of multi-year variation in local, regional, and larger geographic scales that impact Columbia Basin species.

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				multicollinearity, which is defined as, The existence of such a high degree of correlation between supposedly independent variables being used to estimate a dependent variable that the contribution of each independent variable to variation in the dependent variable cannot be determined. In this context, it has been documented by NOAA and others that many of the variables assumed to affect adult salmon returns share a high degree of correlation among themselves. For example, shifts in river temperatures and ocean temperatures tend to be closely related. Also, runoff volume, amount of spill, and speed through the hydroelectric system tend to be closely related. Scientists have also noted a correlation between ocean temperatures, prey availability, and the abundance of salmon predators. In terms of predicting SARs, the challenge that arises is knowing how much each of the highly correlated explanatory variables is associated with changes in adult salmonid returns or if there is a deeper, underlying factor of which the model is not aware. A 2016 paper by NOAA Fisheries captures one example of the issue described above. NOAA writes, One concern for salmon is that unfavorable environmental conditions can impact multiple life stagesLarge-scale climate phenomena such as the PDO were already known to correlate with terrestrial precipitation patterns, but a new study further explores the relationship of these patterns with seasonal indices of the PDO and sea-surface temperature (SST) across the U.S. In support of the statistical difficulties listed above, we site a study written by Dr. John Skalski from the University of Washington School of Aquatic and Fishery Sciences, Over time, numerous investigators have modeled salmonid survival and adult return rates as functions of in-river and/or oceanographic covariatesThe majority of the analyses use basic multiple linear regression techniques and ignore higher-order processes, interactions, and the possibility of optima, thresholds, or spline relationships. The multicollinearity of in-river, ocean, and between in-river and ocean covariates makes identification of driving variables difficult at best We encourage the Action Agencies to consider these significant challenges to proving the veracity of the latent mortality theory as you determine how much credence to give to the CSS model results.	
4510	21	Kurt Miller	Northwest River Partners	CSS Model & Simplifying Assumptions In additions to the shortcomings identified above, the CSS model excludes potentially important variables that could influence its model outcomes. That issue is acknowledged by the ISAB in the following critique of the CSS model, six freshwater and marine variables examined by Haeseker et al. (2012) water transit time (WTT), spill, date of migration, upwelling, sea surface temperature (SST), and Pacific Decadal Oscillation (PDO) had all been identified as important in other studies, so the choice of these variables has support in the literature (Muir et al 2001, Scheuerell and Williams 2005, Schaller and Petrosky 2007, Petrosky and Schaller 2010). Nevertheless, to address alternative hypotheses additional candidate variables need to be evaluated, for example, biological measures of top-down (predation) and bottom-up (primary and secondary productivity) forcing, individual fish (age, growth, and condition), density-dependent effects, and anthropogenic forcing (habitat, harvest, and hatchery). We also note that the CSS models exclusion of juvenile fish size was identified as a problem in the 2019 NOAA Fisheries Science Center study.31 (Discussed in more detail in the subsequent section). Another potentially important explanatory variable exclusion is identified in the ISAB reference above. The CSS model explicitly excludes harvest quantities as a model variable. It tacitly assumes that year-to- year changes in harvest levels are not significant, so the model can exclude this variable and still produce meaningful results. A major problem arises, however, if this tacit assumption isnt accurate. It would mean that the model could conclude a spill regime from a particular year had a more meaningful impact on SARs than was truly the case. To elaborate, the model might see that some years with higher levels of spill corresponded to higher salmonid returns in later years. However, if the reason for the higher return rates was due to a much smaller harvest quantity, then the model could make false or even inverse predictions for future outcomes.	The co-lead agencies concur that model complexity is a critical factor when evaluating and using complex ecological models. This will continue to be an area of emphasis as information is gathered under the actual operating conditions of the Preferred Alternative. Both NMFS and CSS models have undergone and will continue to undergo independent peer review, both through this CRSO EIS process and into the future. Variables mentioned in this comment such as harvest assumptions and fish condition were both raised by the ISAB and through the IEPR process. The co-lead agencies acknowledge the inherent uncertainty that comes from basing decisions on models and will continue to improve and refine all of the models used through this process.
4510	22	Kurt Miller	Northwest River Partners	CSS Model & the Potential for Spurious Results It deserves notice that the Action Agencies are recommending higher levels of spill as part of the Preferred Alternative, due to CSS model predictions. Because the CRSO DEIS Preferred Alternative depends on these predictions, we encourage the Action Agencies to carefully test the reasonableness of the harvest assumption, as well as other simplifying model assumptions for which data is available. If it is scientifically demonstrated that harvest levels represent a substantial and significantly volatile value from year-to-year, such an outcome could invalidate the values produced by the CSS model. There is already good reason to question some of the CSS model assumptions and conclusions. For example, recent peer-reviewed study from NOAA Fisheries Science Center determined that there is little-to-no evidence of dam-related latent mortality. The study found that fish which go past turbines or through fish passage systems experience about the same estuary and ocean mortality levels as fish that travel through spillways.32 The study found that fish bypass structures tend to draw in smaller fish, which inherently have lower survival in the ocean. After controlling for size, these fish survived at about the same rate in the ocean as the fish that go through spillways and turbines. The size of the juvenile fish was the driving factor in ocean survival, not the route of dam passage. 33 Figure 2 (below) is from a separate peer-reviewed paper published in the Proceedings of the National Academy of Sciences. It compares survival of two groups of smolts. One group migrated through the LSRD and the other group migrated from the Yakima River. [graph included in document: Survival of Yakima River and Snake River smolts] The results are consistent with a lack of delayed mortality findings. The smolts from the Yakima River returned as adults at nearly the identical rate of smolts from the lower Snake River. In terms of basing public policy on model-based outcomes, it is critical to note that the CSS model performed very poorly in its predictive capabilities. Similarly, a separate peer-reviewed paper from March 2014 found no evidence of dam-caused latent mortality in salmonids.35 These important findings should encourage the Action Agencies to question assumptions and predictions about the benefits of spill, dam breaching, and the role that the lower Snake River and lower Columbia River dams play in overall salmon mortality. Further, if evidence mounts that the CSS model is producing spurious results, the Action Agencies must be willing to abandon its advice. In preparation for this potential outcome, we urge the Action Agencies to maintain, under adaptive management principles, the ability to reduce or eliminate spill for fish, if the basis for fish-related spill is nullified.	NMFS' Northwest Science Center study referred to in this comment was carried out by coauthors who contribute to the NMFS COMPASS and Life Cycle models (Faulkner et al. 2019). This study investigated selective use of various dam routes as a function of fish size, and by extension, addressed a causal relationship between route of passage and subsequent survival rates. Multiple mechanisms of delayed mortality or 'carryover effects' between experiences in one lifestage influencing survival or physiology in subsequent lifestages (Gosselin et al. 2018). These include transportation related delayed mortality, injuries caused by passing multiple dams via any route, delays caused by reservoir and dam passage, and exposure to toxins. NMFS' Life Cycle model chose to consider the effects of delayed mortality caused by any mechanism by treating it as a sensitivity analysis. Citations: Faulkner, J. R., Bellerud, B. L., Widener, D. L., & Zabel, R. W. (2019). Associations among Fish Length, Dam Passage History, and Survival to Adulthood in Two At Risk Species of Pacific Salmon. Transactions of the American Fisheries Society, 148(6), 1069-1087. Gosselin, J. L., Zabel, R. W., Anderson, J. J., Faulkner, J. R., Baptista, A. M., & Sandford, B. P. (2018). Conservation planning for freshwater-marine carryover effects on Chinook salmon survival. Ecology and evolution, 8(1), 319-332. The co-lead agencies agree with your point on adaptive management: the Preferred Alternative includes an adaptive management plan (Appendix R). This plan involves working with regional sovereigns to develop a study to assess the effectiveness of the increased spill regime on adult returns as well as assessment and management of negative unintended consequences, such as long delays of adult migrants, or TDG-related mortality of juvenile migrants. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin.
4510	23	Kurt Miller	Northwest River Partners	Early Flexible Spill Results Disappointing The higher sustained spill operations pursuant to the implementation of the Flexible Spill Agreement in 2019 represented uncharted territory. While there have been periods throughout history with high levels of uncontrolled TDGs, 2019 was the first time in the operation of the Federal Columbia River Power System where TDGs were maintained at levels as high as 120% on a planned and sustained basis for the entire spring spill period. It will take years before most of the surviving 2019 juvenile migrants return, but the earliest signs point to poor results for both juvenile salmonids and returning adults. As an example, according to a NOAA Fisheries Science Center memo from September 19th, 2019 on juvenile survival for the 2019 migration season, The combined yearling Chinook salmon survival estimate from the Snake River trap to Bonneville Dam tailrace was 41.3% (33.8-48.9%), which was below the long-term average of 48.9%.36 The memo goes on to note that, The combined Snake River steelhead survival estimate from the Snake River trap to Bonneville Dam tailrace was 41.2% (26.1-56.3%), which was below the long-term average of 45.7%.37 We also note that in 2019, adult salmon were stalled repeatedly in their efforts to make it upstream past Little Goose Dam, due to increased spill levels. Correspondingly, Claire McGrath at NOAA presented the attached report to the U.S. Army Corps of Engineers Technical Management Team Meeting on 7/10/2019. According to the TMT meeting minutes, Ms. McGrath concluded, that despite varying results from the data tools, all of the indicators did consistently point to lower than expected conversion rates and slower travel times in the Lower Monumental to Little Goose reach. The 2019 YTD (as of 7/10) conversion of PIT-tagged adult Chinook from Lower Monumental to Little Goose was 96.2%, whereas the historical average for EOY conversion is 98.3%. Given that adult spring Chinook are a culturally prized fish with the greatest biological value, and near their spawning grounds in this scenario, this lower conversion rate could represent a significant reduction in survival.	The benefit of the Preferred Alternative's flexible spill to salmon and steelhead relies largely on reduction in PITPH, which is projected to result in increased SARs. Therefore, in-river survival doesn't tell the whole story. The commenter is correct in that it will take years to understand the true effect because adult returns are needed to measure the key effect, Smolt-to-Adult return rates. One year of in-river data to assess the benefits of flex spill is not adequate. The Preferred Alternative includes working with regional sovereigns to develop a study that will assess the effectiveness of increased spill regime on adult returns as well as assessment and adaptive management in order to address negative unintended consequences, such as long delays of adult migrants, or TDG-related impact on juvenile migrants.
4510	24	Kurt Miller	Northwest River Partners	Higher Spill Levels Based on Linear Assumptions As mentioned previously, the basis for the Action Agencies adopting spill levels in excess of 115% TDG is predicated on CSS model results showing higher adult salmonid return rates. We have already detailed good reasons to doubt the veracity of the CSS model conclusions. However, there is an additional reason to question the models output when it comes to spill levels of 120% TDG or higher. A known shortcoming of multiple linear regression models, like the CSS model, is that they need a straight line or linear relationship between the independent variables and the dependent variable. Once that linear relationship breaks down and becomes curvilinear, the models can lose their ability to accurately predict outcomes.39 In the case of spill levels with TDG in excess of 115%, we have a perfect storm which could lead to errant results from the CSS model. To elaborate, while spill levels have occasionally reached or exceeded 125% TDGthe recommended level in the Preferred Alternativethey have never been managed to achieve that level continuously over the entire spring period at all eight lower river dams. This deficiency of experience means that the CSS model lacks the data to appropriately interpret the relationship between spill and adult salmon returns under this new spill regime. In short, the CSS will assume that the linear relationship for lower levels of spill in its database will hold constant for higher levels of spill beyond the models experience. However, we note that the Washington State Department of Ecology (Ecology) found that spill levels in excess of 115% TDG are known to cause harm to aquatic life. Ecology states, The weight of all the evidence from available scientific studies clearly points to detrimental effects on aquatic life near the surface when TDG approaches 120%. The detrimental effects ranged from behavior changes to high levels of mortality after a few days. There were fewer effects on aquatic life at 115% TDG. Ecology strongly encourages implementing actions that increase salmonid survival without further increasing total dissolved gas. This finding tells us there is a significant risk that the CSS models linear understanding between spill and adult salmon returns may break down in this uncharted territory.	The commenter is correct. Some measures included in the alternatives have not been implemented with modern monitoring techniques in place such as PIT-based survival and travel time estimates or fish condition monitoring. Models and qualitative evaluations developed for the CRSO EIS drew upon a combination of scientific literature developed at locations outside of the CRS, and short-term observations within the CRS. For example, some data is available indicating dam routes and survival during within-season periods with high TDG have occurred during high flow conditions in 2011, 2017-2018. For lower Snake River dam breach conditions, modelers could draw on the lower Snake River dam drawdown experiment conducted in 1992 (Dauble and Geist), or use fish survival and travel time data from reaches just downstream or upstream of reservoirs in the CRS, for example. Eder et al. (2009). To address this uncertainty and minimize risk, the Preferred Alternative includes an adaptive management plan (Appendix R). This plan involves working with regional sovereigns to develop a study to assess the effectiveness of the increased spill regime on adult returns as well as assessment and management of negative unintended consequences, such as long delays of adult migrants, or TDG-related impacts on juvenile migrants. TDG levels are regulated under the Federal Clean Water Act, and administered by the States. Both Oregon and Washington have reassessed the available data on effects of TDG levels up to 125% of saturation on fish and other aquatic organisms. Based on this reassessment Oregon issued a 5-year "standard modification" and Washington issued a permanent rule change, supported by the Environmental Protection Agency (EPA), to allow TDG saturation up to 125%. There is considerable uncertainty in the effects; and therefore, monitoring was required by the states and EPA to ensure any adverse effects are detected and allow for adaptive management. Migrating salmon and steelhead may spend sufficient time at depths that will compensate for the high gas levels. However, fish and other organisms that spend extended times in less than a few meters of depth are at high risk. The Preferred Alternative will require a robust monitoring plan for salmon and steelhead to help narrow the uncertainty between the biological models and will help determine how effective increased spill can be in increasing salmon and steelhead returns to the Columbia Basin. Please see Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information. Citations: Dauble, D D, and Geist, D R. Impacts of the Snake River drawdown experiment on fisheries resources in Little Goose and Lower Granite Reservoirs, 1992. United States: N. p., 1992. Eder, K., Thompson, D., Buchanan, R., Hublein, J., Groff, J., Dietrich, J., ... & Loge, F. J. (2009). Survival and travel times of in-river and transported yearling Chinook salmon in the lower Columbia River and estuary with investigation into causes of differential mortality. Final Report submitted to the USACE, Walla Walla District, Walla Walla, Washington.

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4510	25	Kurt Miller	Northwest River Partners	Call for Explicit Direct Tests If the Action Agencies proceed with spill levels in excess of 115%, we call for explicit direct tests of the effect of high TDG levels on smolt survival in the river and, ideally, in the early marine phase after the smolts leave the river, where predators are abundant. The tests should be conducted with test and control groups. Such a test would be the most scientifically valid way to determine the effect of higher spills levels on SARs. There is some published observational evidence that smolts exposed to high TDG levels may suffer high sublethal effects not captured in laboratory experiments, possibly because high TDG levels physically impairs smolts and makes them more vulnerable to predators.41 However, the reported results are purely observational. We believe that, given the importance of the issue, an explicit scientific experiment testing in-river and nearshore coastal ocean survival of smolt groups exposed to varying levels of TDG is called for. A test focusing on relative smolt survival would directly examine the key issue and also reduce the number of years required for a meaningful analysis. We also encourage the Action Agencies to include clear language in the Final EIS that allows for adaptive management, should those high spill levels be shown, on a large scale, to be detrimental to either adult or juvenile resident or anadromous fish. Among the possible detriments, the Action Agencies should specifically consider delayed travel times for migrating adults. The language should make clear that spill levels will be reduced to 115% TDG on a permanent basis, should large-scale negative impacts on resident or anadromous fish be discovered.	Tests as described by the commenter have been deemed as not necessary by the water quality agencies in the region. TDG levels are regulated under the Federal Clean Water Act, and administered by the States. Both Oregon and Washington have reassessed the available data on effects of TDG levels up to 125% of saturation on fish and other aquatic organisms. Based on this reassessment Oregon issued a 5-year "standard modification" and Washington issued a permanent rule change, supported by the Environmental Protection Agency (EPA), to allow TDG saturation up to 125%. There is considerable uncertainty in the effects; and therefore, monitoring was required by the states and EPA to ensure any adverse effects are detected and allow for adaptive management. Migrating salmon and steelhead may spend sufficient time at depths that will compensate for the high gas levels. However, fish and other organisms that spend extended times in less than a few meters of depth are at high risk. The Preferred Alternative will require a robust monitoring plan for salmon and steelhead to help narrow the uncertainty between the biological models and will help determine how effective increased spill can be in increasing salmon and steelhead returns to the Columbia Basin. Please see Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information.
4510	26	Kurt Miller	Northwest River Partners	Mixed Science on Dam-Related River Temperatures Several public comments from the CRSO DEIS public teleconferences advocated for MO3 in response to high temperatures in lower Snake River reservoirs. It is important for the Action Agencies to recognize that damaging water temperatures are not unique to impounded rivers. While it was widely reported in 2015 that 250,000 returning adult Snake River sockeye perished during an exceptionally dry and hot summer, mass die-offs have been observed in undammed rivers as well. For example, in 1994, due to record high water temperatures, approximately 466,000 adult fish perished in the undammed Fraser River before reaching their spawning grounds.42 More recently, record breaking temperatures in Alaska led to die-offs in several undammed rivers. One event in particular, originally reported by NPR, highlighted the problem. An official estimate was not released, but biologists believe as many as 200,000 to 300,000 fish were in the river during the extreme heat event. In terms of studies on the direct effect that Columbia Basin dams have on river temperatures, the results are mixed. A 2003 EPA study indicated that dams may exacerbate temperature issues on the rivers, but a 2002 peer-reviewed study performed by Pacific Northwest National Laboratory showed that dams within the Columbia and Snake river basins moderate extreme water temperatures. the reservoirs decrease the water temperature variability. The reservoirs also create a thermal inertia effect that tends to keep water cooler later into the spring and warmer later into the fall compared to the un-impounded river condition. Also, in 2002, a team of researchers conducted a water temperature study on behalf of the U.S. Army Corps of Engineers. The team compared pre-LSRD measurements of water temperature from 1955-1958 to measurements taken after the LSRD were constructed. They found no evidence that river temperatures had increased as a result of the dams, and instead appeared to have remained unchanged or slightly lower. The team identified air temperature and flow levels as the biggest influences on temperatures in the river.45 In fact, air temperatures have trended upward significantly since 1955. Data available through the University of Washingtons climate change tools show that the average air temperature recorded near Kennewick, Washington, has increased at a rate of 0.37 degrees Fahrenheit per decade. These conditions would suggest higher water temperatures in the river over time, but as noted above the river temperatures have remained unchanged or slightly lower. There have been occurrences of spikes in temperature due to soaring air temperatures during heat waves, but these events are outliers, not the norm. Appendix 2 of this document includes a graph provided through the University of Washingtons Pacific Northwest Temperature, Precipitation, and Snow Water Equivalent Trend Analysis Tool. ased on this evidence, the LSRDs are highly unlikely to cause high water temperatures capable of harming salmonids. Rather, their impoundment effect may actually help buffer against extreme temperatures because larger water volumes are more difficult to heat. We ask that you consider the weight of this research in continuing to reject MO3 and MO4.	The co-lead agencies agree with the commenter's concern relating to water temperatures in the Columbia and Snake rivers and that is why the agencies have used current high quality data and resources available to model and evaluate impacts from operations described in each of the alternatives on water temperatures. It is well understood that the CRS dams have an impact on natural riverine processes as well as anadromous fish migration. This is discussed throughout the EIS document. A system water quality model was developed to look water temperature and TDG effects throughout the Columbia and Snake River system for this EIS. Breaching the four lower Snake River dams would result in long-term benefits including improvements to fall water temperatures and the restoration of the river to more normative riverine processes; this is stated in Chapter 3, pages 3-271 through 3-272 and Appendix D, Section 6.2.3. Under a dam breach scenario, spring water temperatures will warm more quickly than No Action conditions. Similarly in the fall, under a dam breach scenario, fall water temperatures will cool more quickly than No Action conditions. These results make logical sense and are supported by results from CRSO numerical water quality modeling. What has surprised some stakeholders are the predicted summer water temperature effects under dam breaching. Many believe that removing the dams will result in colder water temperatures as compared to the No Action Alternative. While some cooler water temperatures may be observed in the summer under dam breaching, especially during cooler summer weather conditions and at night, water temperatures will remain warm and exceed the state water quality standard at times. This is because without the dams, the lower Snake River will be shallower and more susceptible to solar radiation and warming. Increases in water particle travel time are expected, but the lower Snake River has always been a warm system (USGS 1960, 1961, 1964; Corps 2002a) and breaching the dams will not change this fact. Regionally high air and water temperatures result in water quality standard exceedances and are beyond the ability of the CRS to cool; future climate change predictions will result in even more difficult challenges.
4510	27	Kurt Miller	Northwest River Partners	redation in The Columbia River Basin Avian An 11-year study conducted by regional biologists on upper Columbia steelhead smolts found that birds were responsible for between 31% and 53% of juvenile mortality in the river, and for steelhead, avian predation accounted for more mortality than all other sources combined.46 Comparatively, a study of lower Snake River steelhead populations produced similar results. To quote from the study, Avian predation was a major source of mortality in a 6-year study of ESA-listed Snake River steelhead.47 This high rate of predation carries on into the lower Columbia River as well. As noted by the ISAB, Smolt predation by Caspian terns and double-crested cormorants downstream of Bonneville Dam were also substantial and ranged from 14% to 28% of upper Columbia River steelhead smolts in the Columbia River estuary. Recently, presenters to the ISAB (Quinn Payton and Allen Evans, RTR, March 1, 2019) demonstrated results from their Joint Mortality and Survival (JMS) model. Using the 10-year dataset and partitioning sources of juvenile mortality, the model (Figure 11) estimated that in the absence of Caspian tern predation, UCR steelhead SARs would have been one (SARs 95% CRI of SARs = 0%-2%) to five percentage points higher (SARs 95% CRI = 3%-8%). In a presentation to the ISAB, Dr. Evans and Dr. Payton estimated that SARs, in the absence of terns would be, 3.2 times higher than observed averages for upper Columbia River steelhead.49 From these numbers it is clear that addressing avian predation of salmonids is foundational to healthy ESA-listed fish populations in the Columbia River Basin. We appreciate the efforts of the co-lead agencies to address avian predator disruption in the Preferred Alternative by including modification of the John Day Reservoir. Specifically, allowing The U.S. Army Corps of Engineers to raise John Day Dam Reservoir levels to decrease avian predation on ESA-listed juvenile salmon and steelhead in the lower Columbia River. However, much more must be done to control the fish-eating birds that significantly and adversely impact ESA-listed salmon and steelhead in the Northwest. Chapter 5 of the DEIS lacks a suitable level of specificity. We encourage the Action Agencies, in the Final EIS, to include a thorough and detailed plan so that regional stakeholders can have confidence in your solution. In terms of specific measures, we reference the Inland Avian Protection Management Plan (IAPMP) which was included as part of the 2008 Biological Opinion and intended to govern Columbia River System operations through 2018.50 The IAPMP was developed by the US Army Corps of Engineers and calls for management actions at Goose Island (Potholes Reservoir in Grant County, Wash.) and Crescent Island (McNary Reservoir on the Columbia River in Walla Walla County, Wash.) to dissuade Caspian terns from nesting at these locations. 51 The 2019 Biological Opinion proposed the continuation of IAPMP implementation to reduce the negative impact of avian predators on ESA-listed salmon and steelhead.52 However, as noted in the July 29, 2019 letter from the Priest Rapids Coordinating Committee (PRCC) to NOAA Fisheries Branch Chief Ritchie Graves in Appendix 3 of this document, the IAPMP requirements have not been fulfilled by the Action Agencies. As a specific example, the PRCC letter notes, In the 2019 BiOp, the U.S. BOR proposes to maintain the ropes and flagging and to monitor for tern presence on Goose Island throughout the Caspian tern nesting and salmonid smolt outmigration seasons of 2019 and 2020, until the proposed new BiOp is issued in September of 2020. However, the U.S. BORs proposed action and responsibility to the 2019 BiOp was not fulfilled in 2019. We note, for the 2020 season, that the Bureau of Reclamations budget for its Goose Island plan-of-action is only about 20% of what it had been for 2015-2018. The data demonstrate full funding for the full implementation of the actions & obligations of the IAPMP should be a top priority for the Action Agencies. We also adjure the Action Agencies to make the IAPMP more comprehensive. The plan should not be site-specific, but rather comprehensive in scope, since avian predators have demonstrated their ability to quickly move from one nesting site to another. The plan should also address other bird predators, such as cormorants, gulls, and pelicans.	The co-lead agencies legal authorities relate to operating and maintaining the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. To comply with the ESA, the co-lead agencies have historically supported actions to mitigate adverse effects to listed species from CRS operations, through funding, direct implementation, and other means. Under the Preferred Alternative, those actions, including for the purpose of reducing pinniped and avian predation on listed species, would generally continue to ensure compliance with the ESA. Other entities in the region have authorities and obligations to mitigate the impacts from pinniped and avian predators and the co-lead agencies will continue to work closely with those entities to benefit ESA-listed salmonids. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative, which includes measures to reduce predation by avian predators, would provide benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. The primary driver for these benefits to anadromous fish is increased spill during the juvenile fish migration. The Inland Avian Predation Management Plan (IAPMP) has been focused on reducing predation by Caspian terns with initial efforts being implemented at Goose Island (Potholes Reservoir near Othello, WA) and Crescent Island (McNary Reservoir near Burbank, WA). The objectives of the IAPMP have been met at these two locations in recent years and as of 2019, there has been a 49% reduction in the total number of Caspian terns nesting on the Columbia plateau region since implementation of the IAPMP begun (Collis et al. 2020; http://www.birdresearchnw.org/2019%20GPUD%20Final%20Report.pdf). Adaptive management efforts to dissuade incipient colonies that have formed following implementation of the IAPMP have been implemented where the co-lead agencies have authority and management responsibilities which includes Potholes Reservoir including at the NW Rocks starting in 2014 and at small islands in the northern portions of Potholes Reservoir starting in 2015. The co-lead agencies continue to monitor and adaptively manage all of Potholes Reservoir to dissuade terns from nesting on co-lead agency managed lands in the area and this is anticipated to continue as described in the Draft EIS. However, the co-lead agencies recognize that some Caspian terns have moved to other locations and that some of these locations are managed by other entities outside of the co-lead agencies current management abilities. The co-lead agencies will continue to work closely with these other entities in the region who have authorities and obligations to mitigate the impacts from avian predators to benefit ESA-listed salmonids as well as implement a new reservoir management operation for the John Day reservoir to dissuade nesting Caspian tern as described in the Draft EIS. The IAPMP was developed with the best information available at the time and gulls were not identified as warranting directed management efforts at nesting colony locations by the co-lead agencies at agency-managed properties at that time. The co-lead agencies propose to continue, under the Preferred Alternative, predation reduction measures such as hazing at the agencies' CRS facilities as described in the Draft EIS to ensure the operation of the CRS does not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat. The co-lead agencies can only address certain types of predation by gulls, such as when they are foraging within the direct footprint of the co-lead agencies' CRS facilities where the agencies have management abilities. Other entities in the region have authorities and obligations to mitigate the impacts from avian predators as well and the co-lead agencies will continue to work closely with those entities to benefit ESA-listed salmonids. Management of gulls at Miller Rocks just upstream of Miller Island is not feasible by the co-lead agencies as they do not own or manage this property and therefore do not have the authority or abilities to manage avian predation at this location. The Bureau of Reclamation has been engaged with and funding actions associated with management of piscivorous waterbirds on the Columbia River plateau including at Potholes Reservoir since 2010. Starting in 2014 when the implementation of the IAPMP begun, BOR began funding their respective commitments associated with implementation of the IAPMP in coordination with the other co-lead agencies. While the Priest Rapids Coordinating Committee has funded additional avian predation efforts in the region, and agreed to fund all 2019 activities at Potholes Reservoir, the Bureau of Reclamation intends to continue implementing and funding future actions necessary to implement the IAPMP where they are the responsible agency.
4510	28	Kurt Miller	Northwest River Partners	Piscivorous Fish It is notable that both native and non-native piscivorous fish play a significant role in the mortality of juvenile salmonids. For piscivorous fish, and specifically, for Northern Pike, the opportunity exists to recommend that Chapter 5 (Mitigation) and Chapter 7 (Preferred Alternative) of the DEIS focus not only on ongoing-existing predation actions/programs but outline specific new mitigation actions. New mitigation/measures/actions (above those already being implemented) would include: Increase Northern Pike suppression efforts in areas above Chief Joseph Dam Develop a comprehensive Rapid Response Plan that would be implemented if/when Northern Pike are detected below Chief Joseph Dam. Increase early detection measures for Northern Pike in areas below Grand Coulee Dam. Reduce the opportunity for Northern Pike to emigrate out of areas above Albeni Falls Dam. This could be accomplished through increased Northern Pike management by the appropriate state and federal regulatory agencies. **Relevant Northern Pike/Predation Sections of the DEIS: 5.2.1.1 Bonneville Power Administration Fish and Wildlife Program-Predation section 5.2.1.7 Predation Management 5.4 Potential Mitigation for Alternatives- New Mitigation Actions Chapter 7 (Preferred Alternative)-Other Fish- line 3851	For habitat improvements as described in Chapters 2 and 5, Bonneville works with states, Tribes, and watershed groups to protect, mitigate, and enhance spawning and rearing habitat, targeting factors that limit fish survival throughout the Columbia River Basin. Bonneville has funded hundreds of projects across the basin to restore natural stream channels, reconnect estuarine tidal channels, enhance flow volume and timing, and expand cold water refuges and open access to habitat (www.cbfish.org). These habitat improvement actions provide both near-term and long-term benefits to anadromous and resident species, including bull trout and westslope cutthroat, including those that will help address the effects of climate change. Actions that improve connectivity and streamflow will provide a buffer against the effects of climate change. In addition to habitat improvement actions, Bonneville works with willing landowners to protect land by putting it under permanent conservation easement to further support habitat and fish conservation in the short and long term. The co-lead agencies recognize the ongoing threat of downstream invasion of northern pike under the No Action Alternative and there would be a minor decrease in boat suppression efforts under the Preferred Alternative. The analyses showed there would be a minor effect (up to one week of boat ramp access impeded) in wet years only, and the resulting overall effect to the invasion of northern pike would be minor. The co-lead agencies recognize and appreciate the importance of northern pike invasion as a regional issue, but, in this EIS process, the co-lead agencies developed mitigation for moderate to major effects of the multiple purpose alternatives as compared to the No Action Alternative. Because the impact to northern pike was minor, mitigation was not appropriate for this effect.
4510	29	Kurt Miller	Northwest River Partners	Pinniped The up-river migration of California and Stellar sea lions have increased pressure on adult salmonids as well. New federal laws have granted state and tribal agencies, including Oregon and Washingtons fish and wildlife departments, to conduct removal efforts andin the case of the most problematic individualshumanely euthanize a limited number of the sea lions.53 We point to the successful paradigm that the Columbia River Inter-Tribal Fish Commission (CRITFC) established in working with regional stakeholders and elected officials to amend the Marine Mammal Protection Act. It seems likely that the result of that work was the rebound of Willamette River steelhead seen this year from critically low numbers of recent years.54 We encourage the Action Agencies to follow CRITFCs path in addressing other sources of predation noted above.	The co-lead agencies legal authorities relate to operating and maintaining the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. To comply with the ESA, the co-lead agencies have historically supported actions to mitigate adverse effects to listed species from CRS operations, through funding, direct implementation, and other means. Under the Preferred Alternative, those actions, including for the purpose of reducing pinniped and avian predation on listed species, would generally continue to ensure compliance with the ESA. Sea lion management decisions at Bonneville Dam rely on input from the Sea Lion Management Working Group. This Working Group is a collaborative effort with NOAA, USFWS, various Tribes, and the co-lead agencies. The co-lead agencies works to minimize the effects of sea lions on salmon by implementing Best Management Practices specified in the NOAA Biological Opinion and by implementing recommendations developed by the Working Group. The co-lead agencies will continue to use this process to minimize the effects of sea lions on salmon within their authorities. The EIS discusses the Working Group and sea lion management in Section 3.5, 3.6 and Chapters 5 and 7. Other entities in the region have authorities and obligations to mitigate the impacts from pinniped and avian predators and the co-lead agencies will continue to work closely with those entities to benefit ESA-listed salmonids.

Letter No.	Comment No.	Commenter Name/Email	Affiliation	Comment	Response[1/]
4510	30	Kurt Miller	Northwest River Partners	Salmon Recovery Hinges on Ocean Conditions Northwest RiverPartners has historically advocated for an All-H approach (hydro, habitat, hatchery, harvest) to salmon recovery. These principles still hold true, but we also note that too often, the habitat that gets policy makers attention is in-river habitat. Scientific research shows that the ocean deserves more attention. Studies have found that the oceans absorb as much as 30% of the climates excess carbon55 and 90% of its excess heat.56 This absorption leads to warmer waters with higher levels of acidity and lower levels of oxygen. The Intergovernmental Panel on Climate Change issued a 2019 report that warned of the highly negative impacts of carbon and heat absorption on marine life and fish populations. The report states, Projected ocean warming and changes in net primary production alter biomass, production and community structure of marine ecosystems. The global-scale biomass of marine animals across the foodweb is projected to decrease by 15.0 5.9% (very likely range) and the maximum catch potential of fisheries by 20.524.1% by the end of the 21st century relative to 19862005 under RCP8.5 (medium confidence). These changes are projected to be very likely three to four times larger under RCP8.5 than RCP2.6. This warning comes at a time when were already seeing the oceans depleted of critical prey that salmon rely on. As an example, Pacific herring are an important prey species for adult salmon in the ocean. The Washington Department of Fish and Wildlife is studying the decline of Pacific herring in the Salish Sea, which has been trending downward since the 1970s.58 They, too, are susceptible to poor ocean conditions and have been heavily harvested. Some Pacific herring stocks have declined by as much as 97%, and there has been a renewed discussion to potentially list these fish as threatened or endangered under the Endangered Species Act.59 Given this information, it is not surprising that NOAA Fisheries researcher Lisa Crosier recently stated that scientists worldwide have been documenting, almost synchronous declines in salmon populations, due to climate change.60 News articles this past year confirm the fact that the number of returning adult salmon to rivers from southern Oregon to southeastern Alaska have suffered from hostile ocean conditions.61 Most of these rivers do not have dams, which points to larger causes driving the declines. These dire results underscore the fact that climate change must be addressed to restore healthy salmonid populations. The pressure is further increased by warnings that suggest that our oceans may be approaching their threshold for carbon and heat absorption, which could lead to warming as monumental as the event that ended the last ice age.62 Given the serious implications of climate change for both marine and non-marine species, removing or diminishing carbon-free resources is a step in the wrong direction. This statement is especially true for the LSRD. As noted above, the ability of the LSRD to store and release water past hydroturbines is needed as we work to safely add intermittent renewables, like wind and solar power, to the grid.	While none of the alternatives would affect ocean conditions, the co-lead agencies recognize that these conditions are a major driver for adult fish returns and that numerous studies have shown the importance of this environment in the return of adult salmon and steelhead (Peterson et al. 2019). As such two of the models used in these analyses, NMFS Lifecycle and CSS models, use metrics of ocean productivity to predict adult returns.
4510	31	Kurt Miller	Northwest River Partners	The Role of the LSRD NOAA Fisheries has determined that Snake River salmon are not the limiting factor for SRKW populations. According to NOAA Fisheries, Since they feed on many different salmon stocks at different times, though, no one salmon recovery action on a single river, such as breaching dams on the Snake, would itself bring about the recovery of Southern Resident killer whales. In addition, the relative size of the Snake River salmon stocks compared to others on the West Coast means that increases in their numbers, whether from breaching dams or otherwise, would result in only a marginal change in the total salmon available to the killer whales. NOAA Fisheries also found that the hatchery Chinook in the Columbia and Snake river basins more than compensate for fish lost as a result of dams in terms of availability for orca whales.65 A joint 2018 report by the Washington State Department of Fish & Wildlife and NOAA Fisheries determined that Snake River Chinook salmon were only the 9th most important food source for SRKW. Unsurprisingly, the top priority SRKW food stocks came from the Puget Sound.66 In 2018 NOAA Fisheries noted that Puget Sound Chinook salmon populations hadnt seen the improvement experienced by other West Coast Chinook salmon populations in the last decade. The abundance of Chinook salmon returning to Puget Sound rivers has scarcely changed in recent decades, in large part because much of their habitat has been lost entirely or degraded so it cannot support healthy runs as it once did. In addition, many juvenile Puget Sound salmon and steelhead do not make it through their first few months at sea. NOAA Fisheries researchers have further found that young Puget Sound Chinook salmon carry high levels of contaminants of emerging concern such as prescription drugs and antibacterial compounds, likely from local wastewater, at levels high enough to adversely affect their growth, reproduction, and behavior. It is critical that more of the regions efforts are focused on restoring Puget Sound Chinook salmon populations, given their importance to the SRKW diet.	The co-lead agencies agree with these findings and the CRSO EIS reflects these findings. Regarding Puget Sound, the effects mentioned in the comment involve a variety of issues beyond the scope of the analysis in the CRSO EIS, which analyzes the effects of the operation, maintenance, and configuration of the CRS projects. However, water quality effects for the Columbia River Basin were considered in the EIS analysis and are described in Chapter 1, 2, and Section 7.8.3 of the EIS. Additionally, the U.S. Army Corps of Engineers is in partnership with other Federal, state and non-governmental organizations and have been implementing habitat projects for salmon, orcas, and wildlife all around the Puget Sound as part of the Puget Sound Nearshore Ecosystem Restoration Project.
4510	32	Kurt Miller	Northwest River Partners	The Role of Competition with Other Marine Mammals Since receiving federal protections, the population of seals and sea lions in the Northwest has exploded. A group of regional scientists estimate that these marine mammals have increased their consumption of salmon by up to nine times the historical amount.68 The increased competition from other marine mammals could potentially limit the availability of salmon for SRKW. Further, scientists found that Northern Resident killer whales, whose population is growing, may be directly outcompeting SRKW.	The co-lead agencies legal authorities relate to operating and maintaining the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. To comply with the ESA, the co-lead agencies have historically supported actions to mitigate adverse effects to listed species from CRS operations, through funding, direct implementation, and other means. Under the Preferred Alternative, those actions, including for the purpose of reducing pinniped and avian predation on listed species, would generally continue to ensure compliance with the ESA. Other entities in the region have authorities and obligations to mitigate the impacts from pinniped and avian predators and the co-lead agencies will continue to work closely with those entities to benefit ESA-listed salmonids. The population dynamics of the SRKW are complicated and there are multiple factors that contribute to the overall success of this species. The quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differently from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for the whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall-run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall-run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). Details on the most crucial prey stocks for Southern Resident killer whales, as well as their population and range, is available from several fact sheets and videos available here: https://www.fisheries.noaa.gov/species/killer-whale#spotlight. For more information, visit this NMFS StoryMap on Southern Resident killer whales: https://noaa.maps.arcgis.com/apps/Cascade/index.html?appid=3405e6637bf74e998d4ebe992c54f613.
4510	33	Kurt Miller	Northwest River Partners	he Role of Competition with Other Marine Mammals Since receiving federal protections, the population of seals and sea lions in the Northwest has exploded. A group of regional scientists estimate that these marine mammals have increased their consumption of salmon by up to nine times the historical amount.68 The increased competition from other marine mammals could potentially limit the availability of salmon for SRKW. Further, scientists found that Northern Resident killer whales, whose population is growing, may be directly outcompeting SRKW. The Role of Toxicity and Exposure to Pollution Human activity and development have had a direct and severe impact on the health of the Salish Sea and coastal waters of the Northwest. As a result, marine life has been negatively affected by pollution, toxic chemicals, and waste. Many of these pollutants and chemicals cannot be broken down or digested. Instead, they build up over time inside the living creatures that consume them. Through bioaccumulation, predators at the top of the food chain wind up with the most chemicals. One study found that salmon sampled from the Puget Sound contained 81 drugs and personal care products that included Prozac, Advil, Lipitor, and even cocaine.70 Additionally, the same study found high levels of contamination from human waste. A number of these toxic chemicals and pollutants are fat soluble, which means that they are stored in the fat cells. The SRKW population feeds almost entirely on fatty Chinook salmon, targeting the largest fish as referenced above. This means that SRKWs tend to accumulate extremely high levels of toxic chemicals and pollutants. Though the effects are not fully understood, there are two primary and widely accepted concerns: First, toxic chemicals and pollutants are passed to orca calves during their growth in the womb and after birth when they consume milk from their mother. Second, it is known that when food becomes scarce and orcas begin to burn fat, so the stored-up chemicals are released into their bloodstream. RiverPamters would like to summarize by saying that Southern Resident orcas desperately need and deserve the regions help. That said, the link between orca health and the existence of the LSRD is tenuous at best. A commonsense approach to improving orca health is to focus the regions efforts on improving the environment where the orcas spend the majority of their timein the Puget Sound and Salish Sea.	The co-lead agencies legal authorities relate to operating and maintaining the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. To comply with the ESA, the co-lead agencies have historically supported actions to mitigate adverse effects to listed species from CRS operations, through funding, direct implementation, and other means. Under the Preferred Alternative, those actions, including for the purpose of reducing pinniped and avian predation on listed species, would generally continue to ensure compliance with the ESA. Other entities in the region have authorities and obligations to mitigate the impacts from pinniped and avian predators and the co-lead agencies will continue to work closely with those entities to benefit ESA-listed salmonids. The population dynamics of the SRKW are complicated and there are multiple factors that contribute to the overall success of this species. The quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants as discussed in the comment. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differently from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for the whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall-run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall-run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). Details on the most crucial prey stocks for Southern Resident killer whales, as well as their population and range, is available from several fact sheets and videos available here: https://www.fisheries.noaa.gov/species/killer-whale#spotlight. For more information, visit this NMFS StoryMap on Southern Resident killer whales: https://noaa.maps.arcgis.com/apps/Cascade/index.html?appid=3405e6637bf74e998d4ebe992c54f613. Regarding Puget Sound, the effects mentioned in the comment involve a variety of issues beyond the scope of the analysis in the CRSO EIS, which analyzes the effects of the operation, maintenance, and configuration of the CRS projects. However, water quality effects for the Columbia River Basin were considered in the EIS analysis and are described in Chapter 1, 2, and Section 7.8.3 of the EIS. Additionally, the U.S. Army Corps of Engineers is in partnership with other Federal, state and non-governmental organizations and have been implementing habitat projects for salmon, orcas, and wildlife in the Puget Sound region as part of the Puget Sound Nearshore Ecosystem Restoration Project.
4510	34	Kurt Miller	Northwest River Partners	RESPONSES TO PRO-BREACHING REPORTS EnergyGPS Review of NWEC LSRD Replacement Study In 2018, the Northwest Energy Coalition (NWEC) released a theoretical studyproduced by Energy Strategiesthat indicated the LSRD could be cost-effectively and easily replaced, primarily by wind generation in Montana.72 The report relied largely on power supply assumptions from 2016. As mentioned above, since that time, the Northwest	The comment contains various concerns with the Northwest Energy Coalition (NWEC) lower Snake River dams power replacement study. The concerns voiced by this comment are largely consistent with the findings of the EIS. The EIS considered the NWEC study cited by the commenter, but finds that is not directly comparable with the EIS. This is for several reasons including that the EIS has a broader scope and relies on more recent regional load and resource availability and costs data, some of which is noted in the comment. See draft EIS, Section 3.7.3.1, Step 3 at page 3-820; Section 3.7.3.5, Related Study at page 3-913; and Appendix H, Power and Transmission, Section 2.4.

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				Power & Conservation Council, the Northwest Power Pool, and E3 have issued serious warnings over the possibility of regional blackouts. It is also noteworthy that Energy Strategies has updated many of its assumptions in a more recent analysis performed on behalf of Oregon, Washington, and several clean energy providers. In this updated analysis, Energy Strategies predicts an electricity capacity shortfall for the Northwest, even with the LSRD remaining in place.73 Despite the availability of updated information around coal plant retirements, people have continued to point to the NWEC study as proof that the LSRD arent necessary to the regions clean energy future. We believe it is potentially dangerous to rely on the NWEC-commissioned study determine the regions energy future, so we commissioned EnergyGPS, a leading energy consulting firm, to provide an analysis of NWECs 2018 report. The EnergyGPS critique demonstrates that the NWEC study was thorough but is based on questionable and dated assumptions that cast serious doubts on its conclusions. One example of a questionable assumption is that the studyin essencedouble counts the available transmission capacity freed up by coal plant retirements. The study assumes that the freed-up transmission will be used to import power to replace the LSRD. The study doesnt consider that the region will likely need those lines to replace the lost coal generation. This oversight means that incremental transmission would be needed to replace the energy from the dams. Transmission projects are both expensive and very difficult to site, which calls into question the viability of that plan. Importantly, the EnergyGPS analysis appropriately points out that we now live in a carbon-constrained world. The implication is thatgiven the legislative and political trends away from fossil fuelsit is likely not practicable to use coal or natural gas-fired power plants to replace the LSRD. Instead, if breached, the LSRD will have to be replaced by a carbon-free portfolio. Energy GPS forecasted that the least expensive combination of renewable generation and batteries would result in almost $1 billion in additional costs annually, which is very similar to the DEIS finding. Appendix 1 of this document includes the full EnergyGPS analysis of the NWEC study.	In addition, the EIS acknowledges the EnergyGPS study cited by the commenter in Appendix H, Section 2.4.5. The comparison of potential replacement costs up to $1 billion is also consistent with the findings of the EIS.
4510	35	Kurt Miller	Northwest River Partners	ECONorthwest Critique In 2019, Vulcan Inc. released the results of a report produced by ECONorthwest. The report indicated that the Northwest would receive economic gains by breaching the LSRD. Northwest RiverPartners reviewed the ECONorthwest report in-depth upon its release. We found that the report relied heavily on non-use value (i.e., a theoretical willingness of survey takers to pay) to reach its conclusion that breaching would provide an economic benefit to the region.74 The valuation was determined using a small survey, conducted by a dam breaching advocacy group. The survey question included language that guaranteed the restoration of wild salmon stocks if the dams were breached.75 It then asked how much the respondents would be willing to pay for that outcome. ECONorthwest took the average value provided by the respondents and multiplied across the populations of Northern California, Idaho, Montana, Oregon, and Washington to determine the theoretical non-use benefit. Despite its pro-breaching conclusion, the ECONorthwest report refers to extreme uncertainty around the potential benefits of dam breaching for salmon.76 This finding is a direct contradiction to the promise of guaranteed salmon restoration presented to the survey participants whose answers were used to calculate the non-use value. We believe that this contradiction, itself, invalidates the ECONorthwest analysis. The ECONorthwest analysis also notes that the population most likely to see a real benefit would be Snake River fall Chinooka species that is already a candidate for de-listing under the Endangered Species Act. Without the inclusion of non-use value, the report clearly shows a loss of around $2 billion dollars from breaching. Further, the report may have significantly overvalued its numbers on the recreational benefits of breaching by relying on studies with extremely limited sample sizes.79 Finally, in this section, we point to a separate study commissioned by the Pacific Northwest Waterways Association (PNWA). The PNWA study estimates an approximate net present value of $2 billion in harm to the region, just from the loss of barging, if the LSRD were breached.80 The study did not attempt to capture the costs of other impacts, such as the loss of hydroelectricity and irrigation.	Section 3.15.2.2 of the EIS describes the ECONorthwest study, highlighting the objective and approach to estimating willingness-to-pay for salmon restoration. Consistent with this comment, the EIS describes that the results of the study are designed to reflect the value people hold for restoring salmon populations, and therefore, have limited applicability to the benefits of the CRSO EIS alternatives. The Preferred Alternative provides substantial benefits to ESA-listed salmon and steelhead, which can make progress towards restoration or recovery; however, recovery targets are the responsibility of more entities than the co-lead agencies.
4510	36	Kurt Miller	Northwest River Partners	We caution the Action Agencies against adopting an alternative that increases spill beyond 115% TDG. We issue this caution due to the lack of solid scientific evidence showing higher spill levels lead to higher returns of adult salmonids. On the other hand, we note that scientific evidence does exist which shows spill levels which exceed 115% TDG can cause harm to both anadromous and resident fish. On this topic, we urge the Action Agencies to conduct explicit direct tests of the effect of high TDG levels on smolt survival in the river and, ideally, in the early marine phase after the smolts leave the river, where predators are abundant. The tests should be conducted with test and control groups. Such a test would be the most scientifically valid way to determine the effect of higher spills levels on SARs. Additionally, contingencies should be put in place to ensure that if higher spill results in negative impacts on salmonids or other native species of fish, that spill is decreased. The amount of the reduction should be determined based on further research into safe levels of TDG for the Columbia River System.	Tests as described by the commenter have been deemed as not necessary by the water quality agencies in the region. TDG levels are regulated under the Federal Clean Water Act, and administered by the States. Both Oregon and Washington have reassessed the available data on effects of TDG levels up to 125% of saturation on fish and other aquatic organisms. Based on this reassessment Oregon issued a 5-year "standard modification" and Washington issued a permanent rule change, supported by the Environmental Protection Agency (EPA), to allow TDG saturation up to 125%. There is considerable uncertainty in the effects; and therefore, monitoring was required by the states and EPA to ensure any adverse effects are detected and allow for adaptive management. Migrating salmon and steelhead may spend sufficient time at depths that will compensate for the high gas levels. However, fish and other organisms that spend extended times in less than a few meters of depth are at high risk. The Preferred Alternative will require a robust monitoring plan for salmon and steelhead to help narrow the uncertainty between the biological models and will help determine how effective increased spill can be in increasing salmon and steelhead returns to the Columbia Basin. Please see Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information.
4510	37	Kurt Miller	Northwest River Partners	Lastly, we encourage the action agencies to take additional steps to address the critical issue of avian predation. Such actions could have the greatest near-term improvements for struggling salmonid populations.	The co-lead agencies legal authorities relate to operating and maintaining the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. To comply with the ESA, the co-lead agencies have historically supported actions to mitigate adverse effects to listed species from CRS operations, through funding, direct implementation, and other means. Under the Preferred Alternative, those actions, including for the purpose of reducing pinniped and avian predation on listed species, would generally continue to ensure compliance with the ESA. Other entities in the region have authorities and obligations to mitigate the impacts from pinniped and avian predators and the co-lead agencies will continue to work closely with those entities to benefit ESA-listed salmonids. The Preferred Alternative includes a large suite of predation mitigation measures, some of which include maintaining avian wires in the tailrace of lower Columbia and Snake River dams, active hazing of gulls at the dams, and the pattern of operating the spillway gates all mitigate for predation at the dams by birds and fish. The Predator Disruption Operations will mitigate Caspian Tern predation on juvenile salmon and steelhead in the lower Columbia Rivers. Management efforts are ongoing to reduce salmonid consumption by terns in the lower Columbia River, and similar efforts are in progress to reduce the nesting population of Double-crested cormorants in the estuary. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative, which includes measures to reduce predation by avian predators, would provide benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. The primary driver for these benefits to anadromous fish is increased spill during the juvenile fish migration.
4512	1	mayfair9897@gmail.com	N/A	First, as you well know, the Snake River Basin probably has the greatest potential for wild fish recovery of any watershed in the Columbia Basin. Due to having the coldest, most undisturbed stream habitat in the Basin, many scientists predict it will continue to hold the majority of cold water habitat as the climate warms. As a result, we need to open this premier spawning habitat to more wild salmon and steelhead, not continue to deny access, as has been the case for two generations.	The lower Snake River and lower Columiba River dams provide upstream passage. Chapters 4 and 7 include analysis of the climate effects to resources affected by Columbia River Systems (CRS) operations, maintenance and configuration. Sections 3.4 and 7.7.3 discuss water quality impacts in the lower Snake and lower Columbia rivers. Both human-caused and natural factors that are outside the responsibility and control of the co-lead agencies, also contribute to the decline and recovery of fish, and will continue to strongly influence fish and their habitat. Salmon and steelhead have been adversely affected in the Columbia River Basin over the last century by many activities including human population growth, urbanization, introduction of exotic species, overfishing, development of cities and other land uses in the floodplains, water diversions for all purposes, dams, mining, farming, ranching, logging, hatchery production, predation, ocean conditions, and loss of habitat (see Chapters 6 and 7 for additional information). Operation, configuration and maintenance of the CRS requires mitigation for its effects, and the EIS is not intended or required to serve as an overall salmon recovery plan for the region. The co-lead agencies acknowledge there are many effects to salmon and steelhead populations outside the operation of the dams. Research continues to evaluate the magnitude of these effects. For more information see the National Marine Fisheries Service website at: https://www.nwfsc.noaa.gov/research/index.cfm.
4512	2	mayfair9897@gmail.com	N/A	Second, decades of scientific research and study has consistently supported removing all four Lower Snake River dams to allow better and more access to pristine spawning habitat as the best and most important requirement to recover robust populations of wild salmon and steelhead in the Snake River basin. Recovery in the Snake River system will also enhance total salmon and steelhead stock in the Columbia River.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the Endangered Species Act (ESA), in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the CRS. Recovery of ESA species is the purview of National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (USFWS). This EIS has been developed in consultation with NMFS and USFWS to minimize impacts to affected ESA-listed species and their habitats. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-lead agencies numerous legal obligations. The Preferred Alternative is predicted to benefit ESA-listed juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets certain objectives of the EIS for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets only a small subset of the EIS objectives. Thus, the co-lead agencies did not recommend the measure to breach the four lower Snake River dams because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system.
4512	3	mayfair9897@gmail.com	N/A	Third, as with some previous versions of the DEIS, this one also makes the clear point that removing the lower Snake River dams is the best option for Snake River salmon and steelhead recovery. However, it appears that his DEIS woefully underestimates and downplays the benefits of removing the dams. In other words, the DEIS rightly and correctly concludes that removing the four Lower Snake River dams is the best alternative, it downplays that conclusion so that the DEIS can propose a worst alternative as being its "preferred" alternative. This is scientifically wrong. Next, having choses another inadequate plan as its "preferred alternative," this DEIS fails to adequately and scientifically document how this "preferred alternative" will either ensure increased numbers and quality of Snake River salmon and steelhead, this DEIS option fails to provide any reasonable assurance that its "preferred alternative" will even avoid extinction of some--or all!--Snake River salmon and steelhead. As a result, this DEIS will probably fail to meet the requirements of the Endangered Species Act, thus result in everyone going back in court to start yet another cycle of litigation for years to come.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the CRS. Recovery of ESA species is the purview of National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (USFWS). This EIS has been developed in consultation with NMFS and USFWS to minimize impacts to affected ESA-listed species and their habitats. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative (PA) is predicted to benefit ESA-listed juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the PA also meets most other EIS objectives including those for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams, because the PA is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. With respect to salmon and steelhead impacts under the PA, the CSS model predicts that average Smolt-to-Adult return rates (SAR) will increase for both Snake River spring Chinook and steelhead and will average well above 2% as a result of the PA (increasing from 2.0% to 2.7% for Chinook, a 35% relative increase). Additionally, NMFS COMPASS and Lifecycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. To address the uncertainty due to the different model results, the PA includes working with regional sovereigns to develop a study that assesses the effectiveness of increased spill regime on adult returns as well as assessment and management of adverse unintended consequences, such as long delays of adult migrants, and Total Dissolved Gas-related mortality of juvenile migrants.

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					The co-lead agencies invited a number of entities (including Tribes, states, and local agencies) from across the region to participate in the EIS process as cooperating agencies, and more than 30 of those invited agreed to participate. Staff from the cooperating agencies joined the technical teams and provided their expertise and review of the development and analysis of the alternatives. Leaders from the co-lead agencies met with Tribal leaders for formal consultation, and with other organizations and stakeholders to have dialogue and receive feedback as the EIS progressed. However, only the co-lead agencies have authority to make decisions regarding future operation and configuration of the dams in the Columbia River Systerm (CRS). The co-lead agencies selected senior staff from across the country with expertise in their fields to serve on the EIS team. The draft EIS was subjected to two internal agency reviews by the Corps of Engineers experts not involved in the development of the document. Additionally, the entire document, analysis, and modeling were reviewed following an Independent External Peer Review (IEPR) process that meets OMB circular on peer review requirements under the "Information Quality Act" and the Final Information Quality Bulletin for Peer Review by the Office of Management and Budget (referred to as the "OMB Peer Review Bulletin). It also meets guidance for the implementation of both Sections 2034 and 2035 of the Water Resources Development Act (WRDA) of 2007 (Public Law (P.L.) 110-114) and standards of the National Academy of Sciences independent peer review. The final IEPR report will be publicly available.
4512	4	mayfair9897@gmail.com	N/A	Also, for those who fail to see dam removal as a proven method to restore fish populations, look to recent success stories from Maine to the Olympic Peninsula of Washington State. The next dam removals will soon occur in the Klamath River basin, but we the people need action in the Snake River now.	Recent examples of successful dam removals are encouraging. However, these examples have little relevance to the lower Snake River Dams. For example, the Elwha dam had no fish passage. By contrast, the lower Snake River dams have up and downstream fish passage and provide economic benefits to the region by producing power; and providing for navigation and recreation. The four lower Snake River dams produce upwards of 1,000 aMW of power, which is approximately 12 percent of the average power produced by the Federal Columbia River Power System (FCRPS). See Draft EIS, Section 3.7.3.5, Changes in Power Generation, Table 3-159. Losing this amount of power is equivalent to losing power capable of serving 730,000 homes in the Northwest. See Draft EIS, Section 3.7.3.5, Summary of Effect, page 9-935. The EIS finds that under the dam breach measure evaluated in MO3, average transportation costs for wheat farmers would increase 10 to 33 percent, but that individual farmers could experience increases that are doubled. Section 3.10 of the Draft EIS provides an evaluation of the Columbia Snake River Navigation System, assessing its relative efficiency, low costs for shippers, safety considerations, low air emissions relative to other transportation modes, potential regional economic, and other social effects that could occur under MO3. The lower Snake River projects currently support 2.6 million visitors and $24.5 million in social welfare value annually. Breaching the four lower Snake River dams would have both beneficial and adverse effects on recreation. Dam breach would preclude reservoir recreation during and shortly after the breach, eliminating reservoir recreation; over time, and as recreation areas and access are redeveloped by others, long-term beneficial effects to river recreation, including angling, are anticipated. Section 3.11 of the EIS describes that the visitation in the long-term in the lower Snake River would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting jobs, income, and tourism businesses. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-lead agencies numerous legal obligations. The Preferred Alternative is predicted to benefit ESA-listed juvenile and adult anadromous salmonids (two of the objectives), although not as much as MO3. However, the Preferred Alternative also meets certain objectives of the EIS for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets only a small subset of the EIS objectives. Thus, the co-lead agencies did not identify MO3 as the Preferred Alternative.
4518	1	Ellen_L_Saunders@me.com	N/A	The EIS is not taking into consideration the warming waters due to climate change.	The climate science community is still developing models that can be used to analyze possible effects to water temperature from climate change, and unfortunately, there are not reliable models at the required resolution available at this time (river scale vs global or regional scale). Therefore, it was not possible to reliably model water temperature changes under climate change for this EIS. In lieu of this information, the climate analysis used the output from the water quality models under historical conditions, climate change data, and scientific literature to qualitatively assess potential effects to water temperature and anadromous fish in Section 4.2.3 and 7.8.
4522	1	robert.zabrowski@jacobs.com	N/A	On October 22, 2019, a group of 55 leading scientists wrote a letter to policymakers in Washington, Idaho, and Oregon. The letter was titled: "Science-based solutions are needed to address increasingly lethal water temperatures in the lower Snake River." In this letter, our nation's experts on fisheries biology and water quality stated the issue very plainly: "Restoring the lower Snake River by removing its four federal dams will significantly reduce mainstem water temperatures on a long-term basis, and is likely the only action that can do so, substantially lowering the risk for salmon and steelhead here." This letter is just one of many, many examples of the state of the science-THE CONSENSUS- among our nation's experts on fisheries and water quality that the reomval of the four Lower Snake River dams is NECESSARY to recover robust and fishable populations of salmon and steelhead in the Snake River basin.	As required by NEPAs implementing regulations, the co-lead agencies used high quality information in the analysis of the CRSO EIS. In addition, the co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-lead agencies numerous legal obligations. The Preferred Alternative (PA) is predicted to benefit ESA-listed juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the PA also meets most other EIS objectives including those for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams, because the PA is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. Different models predict different long-term survival benefits to ESA-listed species from dam breach, benefits that can contribute to recovery. Under the NMFS COMPASS model, juvenile Snake River spring/summer Chinook in-river survival would improve by 9.6% due to dam breach, which is a 19% relative increase over the No Action Alternative. The NMFS Lifecycle model predicts an increase in adult returns of 13.6% for these same fish under MO3 (no latent mortality assumed) relative to the No Action Alternative (from 0.88% to 1%). Results for Snake River steelhead are similar (10% absolute improvement, or 23% relative juvenile survival increase, Smolt-to-Adult returns (SARs) for steelhead were not modeled). Under the CSS model, juvenile in-river survival for the Snake River spring/summer Chinook is predicted to improve by 10.4% due to dam breach, which is an 18% relative increase over the No Action Alternative, while SARs would increase by 115% (from 2% to 4.2% 0.02 to 0.042). The CSS model predicts that Snake River steelhead would see juvenile survival increase by 25.8% which is a 46% relative increase over the No Action Alternative. The CSS model also predicts that SARs increase by 177% (from 1.8% to 5%). Though differing in predictions, both modeling groups predict that MO3 which includes the measure to breach the four lower Snake River dams is the best CRSO EIS alternative for salmon and steelhead. One simply predicts adult return increases an order of magnitude higher than the other. The co-lead agencies selected senior staff from across the country with expertise in their fields to serve on the EIS team. The draft EIS was subjected to two internal agency reviews by the Corps of Engineers experts not involved in the development of the document. Additionally, the entire document, analysis, and modeling were reviewed following an Independent External Peer Review (IEPR) process that meets OMB circular on peer review requirements under the "Information Quality Act" and the Final Information Quality Bulletin for Peer Review by the Office of Management and Budget (referred to as the "OMB Peer Review Bulletin). It also meets guidance for the implementation of both Sections 2034 and 2035 of the Water Resources Development Act (WRDA) of 2007 (Public Law (P.L.) 110-114) and standards of the National Academy of Sciences independent peer review. The final IEPR report will be publicly available.
4522	2	robert.zabrowski@jacobs.com	N/A	In reading through the draft CRSO EIS document (DEIS), it is abundantly clear that your (USACE, USBR, BPA) own analysis agrees that removing the 4 lower Snake dams, specifically Multiple Objective Alternative 3 (MO3), is far and away the best option for Snake River salmon and steelhead, not to mention the only alternative that includes meaningful reparations for the native people of this region. These four dams have contributed to abhorent devastation of social values, cultural values, and the food sovereignty of these tribes. The importance of the Snake River basin's anadromuos fisheries- from an ecological, social, cultural, and economic standpoint- cannot be understated. This leads me to one of the most frustrating aspects of the DEIS: it substantially underestimates the level of benefit from the removal of the 4 lower Snake River dams. From an Idahoan perspective, the economic analysis is embarassingly lacking. I urge you to review the analysis performed by the independent economic consulting firm ECONorthwest in 2019- "Lower Snake River Dams, Economic Tradeoffs of Removal" to see why the DEIS economic analysis of dam removal is unacceptable. To quote their executive summary: "The results of the analysis suggest that society will incur some costs from dam removal due to lost barge transportaiton and effects on grid services, but the public benefits relative to costs strongly justify removing the Lower Snake River Dams. In other words, the benefits of dam removal are large enough to fully compensate individuals or industries that could experience costs if the dams are removed." And what's so frustrating about the DEIS preferred alternative: it doesn't even provide reasonable assurance that it will avoid extinction, let alone recover our salmon and steelhead to abundant, harvestable levels. As a resident of the region, this in simply unacceptable. As a society, we've spent BILLIONS of dollars trying to recover these species over the past several decades without any significant results. Dam removal has proven to be the best method to restore fish populations.	The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-lead agencies numerous legal obligations. The Preferred Alternative is predicted to benefit ESA-listed juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3, which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets most other EIS objectives including those for: resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams, because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Recovery of ESA-listed salmon is outside of the authority of the co-lead agencies, and was not an objective of this EIS. Recovery of ESA-listed species is the purview of National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (USFWS). This EIS has been developed in consultation with NMFS and USFWS to minimize impacts to affected ESA-listed species and their habitats. Both human-caused and natural factors that are outside the responsibility and control of the co-lead Federal agencies, also contribute to the decline and recovery of fish, and will continue to strongly influence fish and their habitat. Salmon and steelhead have been adversely affected in the Columbia River Basin over the last century by many activities including human population growth, urbanization, introduction of exotic species, overfishing, development of cities and other land uses in the floodplains, water diversions for all purposes, dams, mining, farming, ranching, logging, hatchery production, predation, ocean conditions, and loss of habitat. Operation, configuration and maintenance of the CRS requires mitigation for its effects, and the EIS is not intended or required to serve as an overall salmon recovery plan for the region. Tribal input, concerns, interests, and especially treaty rights were considered throughout the Draft EIS analyses and in the formulation of the Preferred Alternative. The co-lead agencies are engaging in government-to-government consultation with the tribes, and several tribes are cooperating agencies on the CRSO EIS. Section 3.15.2.2 of the EIS summarizes existing research regarding the publics willingness-to-pay for salmon conservation and restoration. This section specifically describes the ECONorthwest study referenced in this comment, highlighting the objective of the study and the approach to surveying rate payers to estimate willingness-to-pay for salmon restoration. The ECONorthwest analysis and the EIS employ different analytical frameworks and rely on different findings with respect to the outcomes of breaching the four lower Snake River dams. The findings of the ECONorthwest report that the benefits (of salmon restoration) outweigh the costs (increased power rates) of breaching the dams, rely on the implicit assumption that breaching will result in restoration of salmon populations. However, the fish effects analysis in Section 3.5 of the EIS does not find that MO3 would result in recovery of salmon or steelhead populations or restoring the populations to historical levels. Thus, the values presented in the ECONorthwest report should not be considered as representative of the benefits of MO3. The commenters suggestion that billions in fish and wildlife mitigation investment has been ineffective to recover ESA-listed species is misplaced. Those investments delivered the intended results when considered in the appropriate statutory context of the Northwest Power Acts anadromous fish provisions which call for improved survival of such fish at Federal Columbia River Power System (FCRPS) projects and sufficient flows between the projects to improve production, migration, and survival. For example, as of 2014 this investment had facilitated juvenile dam passage survival of 96% and 93% for spring and summer migrants respectively, see Endangered Species Act FCRPS 2016 Comprehensive Evaluation Section 1, at 17, t.2 (Jan. 2017), a marked improvement compared to when Congress passed the Northwest Power Act and the estimated average juvenile mortality at each mainstem dam and reservoir complex was 15-20% with losses recorded as high as 30%. See Nw. Res. Info. Ctr. v. Nw. Power Planning Council, 35 F.3d 1371, 1374 (9th Cir. 1994) (citing a Sept. 4, 1979 report by U.S. General Accounting Office describing the systems impacts on anadromous fish).
4523	1	bricehattel@gmail.com	N/A	The Draft EIS appropriately and correctly rejects alternative MO-3 which evaluated breaching of the Lower Snake River Dams and MO-4 which evaluated spill up to 125% TDG. Both of these alternatives would have extremely negative impacts on the hydropower system. MO-3 would more than double blackout risk in the region which is absolutely unacceptable. At this time of national emergency it is very difficult to imagine our customers trying to cope with a public health crisis with no power. An affordable and reliable power system is central to public health and welfare. Reducing power generation by 1,100 aMW of energy and elimination of over 2,000 MW of capacity under MO-3 is bad public policy and these extreme measures are not appropriate tools to assist salmon recovery. MO-4 is even worse with 1,300 aMW of lost generation coupled with 25% rate increases. As the economy slips into recession, these are unacceptable impacts on Montana ratepayers.	These comments are consistent with the EIS findings. See Draft EIS, Section 3.7.3.5 (MO3), Section 3.3.7.6 (MO4). Chapter 5 and Exhibit 1 of Appendix H, Power and Transmission provide additional details on potential rate increases by county as well as for urban and rural utility customers. The lost hydropower values cited are also consistent with the findings of the EIS with 1,100 aMW of hydropower generation and over 2,000 MW of sustained capacity lost under Multiple Objective alternative 3 (about 1,000 aMW attributed to breaching the four lower Snake River dams). For Multiple Objective alternative 4, the comment is consistent with the EIS findings that the reduction in system energy would be approximately 1,300 aMW and upwards of 25 percent of rate pressure. See Draft EIS, Section 3.7.3.6, Table 3-180, Table 3-182. The increased risk of power shortages, however, would only appear until adequate replacement resources are acquired. The cost of these replacement resources lead to the estimates of upward rate pressure.
4523	2	bricehattel@gmail.com	N/A	This leaves us with the Preferred Alternative which identified lamprey passage improvements plus adoption of a flexible spill program that would allow spill up to 125% TDG. We have very serious concerns about this operation which were identified directly in the Draft EIS. The Draft EIS acknowledges that this operation may actually reduce salmon survival by 7.5%! The loss of 160 aMW of generation on average while losing 300 aMW during low-water conditions does not represent an appropriate balancing of impacts for an operation that may end up killing more of the fish that it is intended to protect than the No-Action alternative. We have already seen a flexible spill operation in 2019 with spill up to 120% TDG that showed little benefit to fish with some evidence suggesting that survival was reduced.	The co-lead agencies used the current, high quality information in the analysis of the Draft EIS. Specific to salmon and steelhead, the agencies used two primary modeling approaches which yielded a range of potential outcomes for the alternatives. With respect to the Preferred Alternative, the CSS model, which includes latent mortality effects, predicts that median Smolt-to-Adult return rates (SARs) will increase for both Snake River spring Chinook and steelhead and will average well above 2 percent (the lower end of the Northwest Power and Conservation Council's recovery targets for the region) as a result of the Preferred Alternative increasing from 2.0 percent to 2.7 percent for Chinook, a 35 percent relative increase. The National Marine Fisheries Service COMPASS and Lifecycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. To address the uncertainty due to the different model results, the Preferred Alternative includes working with regional sovereigns to develop a study that assesses the effectiveness of increased spill regime on adult returns as well as assessment and management of negative unintended consequences, such as long delays of adult migrants, and Total Dissolved Gas (TDG)-related mortality of juvenile migrants. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information.

Letter No.	Comment No.	Commenter Name/Email	Affiliation	Comment	Response[1/]
4523	3	bricehattel@gmail.com	N/A	We do acknowledge that salmon and steelhead runs need support and assistance as these runs struggle to recover and tribes, sport and commercial fisherman and communities dependent upon salmon struggle, but the solution does not lie in destruction of the clean energy infrastructure of the Federal Columbia River Power System. The solutions lie in recognition that this is a Northwest-wide problem requiring significant change across the salmon life-cycle. People concerned about salmon are likely expecting far too much from an EIS limited to examination of operational changes for the federal hydrosystem when a comprehensive effort addressing Harvest, Hatcheries, Habitat and Hydro is required.	The co-lead agencies agree that salmon and steelhead are important resources in the Northwest and have invested substantial time and resources at the projects covered by this EIS to improve survival and adult returns. The co-lead agencies also recognize that there are many effects to salmon and steelhead populations outside the operation of the dams. Research continues to evaluate the magnitude of these effects. For more information see the National Marine Fisheries website at: https://www.nwfsc.noaa.gov/research/index.cfm.
4524	1	N/A	N/A	I oppose breaching the Snake River damns because that action would eliminate an essential component of the Northwest's supply of clean hydroelectric power and increase the regions power costs by $1 billion annually and raise residential utility bills by 25 percent or more. This is in comparison to the estimated rate increase of 2.5 percent associated with increased spills for fish.	The comment about potential increases in electricity costs under Multiple Objective alternative 3, which includes the measure to breach the four lower Snake River dams, is consistent with the findings of the EIS. See Draft EIS, Section 3.7.3.5, Table 3-166.
4524	2	N/A	N/A	It will also place additional demands on existing road and rail infrastructure as well as at barging facilities near the Tri-Cities, thereby increasing CO2 emissions by 17 percent. And cost the U.S. $4 billion over the next 30 years due to the loss of barging. It will also drive up production costs associated with higher transportation costs for upriver movements (i.e., fertilizer, crops) thus imposing a greater financial burden on Washington's farmer's who are cost takers and have no way to pass the expense on.	The EIS assesses potential increases in CO2 emissions as well as increases in transportation costs in Section 3.10.3.5 of the EIS.
4526	1	stevenandlinda@msn.com	N/A	As your preliminary draft found, there is no real evidence that removal would improve the number of fish returning up the river. I believe it would do more harm than good. For example, the evidence regarding removal of the Elwah dam show very few fish have returned. I and many others believe that there is strong that the reason they have not many years returned is the release of silt from behind the dam. There is much more silt behind the four Snake river dams. That silt has many toxins that when released would cause much worse damage than was caused by the Elwah dam to the Elwah river.	Water quality effects from MO3, which includes breaching the four lower Snake River dams, are described in Section 3.4.3.6 of the Draft EIS, and sediment dynamics are analyzed in Section 3.3.3.5 (River Mechanics) of the Draft EIS. The EIS concluded MO3 would have greater improvement to certain salmon species in the lower Snake River. It did not conclude there was greater certainty of that result in MO3 over any other alternative. Because of delayed response time in MO3, and the potential severity of the short term effects, MO3 would likely have the most substantial uncertainty in terms of beneficial effects. Under the National Marine Fisheries Service (NMFS) COMPASS model, juvenile Snake River spring/summer Chinook in-river survival would improve by 9.6 percent due to dam breach, which is a 19 percent relative increase over the No Action Alternative. The NMFS Lifecycle model predicts an increase in adult returns of 13.6 percent for these same fish under MO3 (no latent mortality assumed) relative to the No Action Alternative (from 0.88 percent to 1 percent). Results for Snake River steelhead are similar (10 percent absolute improvement, or 23 percent relative juvenile survival increase; Smolt-to-Adult return rates (SARs) for steelhead were not modeled). Under the CSS model, juvenile in-river survival for the Snake River Spring/Summer Chinook is predicted to improve by 10.4 percent due to dam breach, which is an 18 percent relative increase over the No Action Alternative, while SARs would increase by 115 percent (from 2 percent to 4.2 percent). The CSS model also predicts that SARs increase by 177 percent (from 1.8 percent to 5 percent). Though differing in predictions, both models predict MO3 is the best CRSO EIS alternative for salmon and steelhead. Based on the EIS analysis the Preferred Alternative would make a substantial contribution to improving Snake River anadromous fish runs. With respect to the Preferred Alternative, the CSS model predicts that average SARs would increase for both Snake River spring Chinook and steelhead and would average above 2 percent (the lower end of the Northwest Power and Conservation Councils recovery targets for the region) as a result of the Preferred Alternative, increasing from 2.0 percent to 2.7 percent for Chinook, a 35 percent relative increase. The NMFS COMPASS and Lifecycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the CRSO EIS for additional information.
4527	1	boyohboy41@aol.com	N/A	All of these states receive electricity that is generated by these dams. These dams have prevent flooding which was a major factor before the dams were built. Central Washington State relies upon the irrigation water for agriculture--this part of Washington State is the only true desert in the state and the water has made irrigated farm products an extremely important form of economic income for the state. These dams allow ships/barges/water craft to navigate the entire distance from the Pacific Ocean to Lewiston Idaho/Clarkston Washington. The farm commodities are shipped on this system of rivers to ports closer to the Pacific Ocean to be shipped to our international partner countries. This form of transportation is much less expensive than using rail service or trucks. People who advocate the removal of these dams are totally ignorant of the economic importance of these dams. They are obviously unaware of the negative effects that would happen should these dams be removed from the rivers. There is NO WAY to provide the amount of irrigation water that is provided by the these dams. There is no economically feasible way to provide the electric power that is generated by these dams should they be removed. It is totally obvious that those who are promoting the removal of the dams have NO knowledge of the history of the states in the Pacific Northwest. They also have NO knowledge of the geography of the Pacific Northwest. One example is that the aluminum industry located in Washington State during the Second World War because the low cost electric energy was available for their factories and they were able to use the aluminum for airplanes needed during the war effort. Any plan to remove the dams on the Snake and Columbia Rivers would have a horribly negative effect on the economy of the Pacific Northwest.	As described in Section 3.10.3.5, Navigation and Transportation analysis for MO3, the EIS finds that under a dam breach scenario, average transportation costs for wheat farmers would increase 10 to 33 percent, but that individual farmers could experience increases that are double, depending on their specific location and other conditions. As described in Section 3.12.3, Environmental Consequences for Water Supply, engineering solutions, such as pipeline extensions and/or modifying existing pump system would be cost prohibitive. Additional details are provided in Appendix N. In Region C under MO3, this analysis assumes that pumps are unable to deliver water to an estimated 47,926 acres, as discussed in Section 3.12.3.
4529	1	N/A	N/A	I would implore you to seek the preferred alternative that does not include breaching the critically important hydroelectric & navigation structure on this river system. Additionally, I would ask you to not seek additional spills as an option, with the many realized costs this would originate. Higher spill rates are counter to the intent of the proposal for fish survival rates. Higher nitrogen rates due to higher spill rates will instead cause higher mortality rates in the very fish populations we are trying to see stabilized growth in.	The co-lead agencies did not recommend the measure to breach the four lower Snake River dams that is included in MO3 because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-lead agencies numerous legal obligations. The Preferred Alternative is predicted to benefit ESA-listed juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets most other EIS objectives including those for: resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams, because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. The co-lead agencies used high quality information in the analysis of the EIS. Specific to salmon and steelhead, the agencies used two primary modeling approaches which yielded a range of potential outcomes for the alternatives. With respect to the Preferred Alternative, the CSS model, which includes latent mortality effects, predicts that median Smolt-to-Adult return rates (SARs) will increase for both Snake River spring Chinook and steelhead and will average well above 2 percent (the lower end of the Northwest Power and Conservation Council's (Council's) recovery targets for the region) as a result of the Preferred Alternative increasing from 2.0 percent to 2.7 percent for Chinook, a 35 percent relative increase. The National Marine Fisheries Service (NMFS) COMPASS and Lifecycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be for increasing salmon and steelhead returns to the Columbia Basin. This monitoring program will include substantial monitoring efforts to track the effects of dissolved gas levels on juvenile and adult fish. To address the uncertainty due to the different model results, the Preferred Alternative includes working with regional sovereigns to develop a study that assesses the effectiveness of increased spill regime on adult returns as well as assessment and management of negative unintended consequences, such as long delays of adult migrants, and Total Dissolved Gas (TDG)-related mortality of juvenile migrants. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information.
4529	2	N/A	N/A	Additionally, higher spill rates are expensive in flushing thousands of dollars of potential energy stores downstream without retrieving any transfer of energy from them in the process. This would dramatically increase electricity rates in the Northwest and have a devastating impact on business, from small business owners all the way up to corporations who need the less-expensive power rates to bring raw and polished goods to market at a competitive price.	The comment that higher spill would increase regional electricity rate pressure is consistent with findings of the EIS. The Environmental Justice analysis in Section 3.18.3 of the EIS provides further detail on potential disproportionate effects to tribal, low-income and minority populations.
4551	1	bicycle81@yahoo.com	N/A	1) The Draft EIS must profoundly consider the long-term probable effects of climate change on river temperatures, flow, water quality, and salmon.	Through on-going regional climate change studies and work, the co-lead agencies evaluated potential shifts in precipitation and temperature patterns and resulting changes in unregulated Columbia Basin streamflow timing and volumes. The evaluation consisted of the full range of the latest climate change projections developed using multiple global climate models, emissions scenarios, downscaling techniques, and hydrologic models. Details of this evaluation are in Chapter 4 of the EIS. This information was used to describe the potential effects (both beneficial and adverse) on the river systems and resources due to potential changes in climate for all alternatives. Quantitative data that describes how climate change hydrology will affect reservoir operations in the Columbia Basin in still under development and was not available for this EIS. The climate science community is still developing quantitative models that can address possible effects in water temperature from climate change, and unfortunately, there are not reliable models at the resolution required (river-scale vs. global or regional scale) at this time. This data is critical to analyzing potential effects to fish quantitatively. In lieu of this information, the climate analysis used the output from resource models, like water quality and fish, under historical conditions, available climate change data, and scientific literature to qualitative assess potential effects to resources (described in Chapters 4 and 7).
4551	2	bicycle81@yahoo.com	N/A	2) Steelhead have come back extraordinarily strongly after dam removal in the Elwha River. Dam breaching very likely offers the best chance to save steelhead based on Elwha experience, and may do the same for salmon.	The EIS studied breaching the four lower Snake River dams as part of MO3. Many dam removal projects that have occurred across the United States have very different circumstances than what is contemplated in MO3. The commenter is correct regarding Elwha dam in Washington State; however, this example has little relevance to the lower Snake River dams. The Elwha dam had no fish passage and provided no economic benefits. In contrast, the four lower Snake River dams provide upstream and downstream fish passage, produce power, and provide navigation and recreation opportunities. For power, the four lower Snake River dams produce upwards of 1,000 aMW of power, which is approximately 12 percent of the average power produced by the Federal Columbia River Power System. See Draft EIS, Section 3.7.3.5, Changes in Power Generation, Table 3-159. Losing this amount of power is equivalent to losing power capable of serving 730,000 homes in the Northwest. See Draft EIS, Section 3.7.3.5, Summary of Effects, page 9-935. The four lower Snake River dams would still have regulated flows due to the dams located upstream.
4551	3	bicycle81@yahoo.com	N/A	3) A free flowing Snake River will supercharge the existing recreational mecca, benefitting struggling rural economies along the river. The agencies must evaluate local economic benefits in the Final EIS.	The EIS provides an evaluation of the social welfare and regional economic effects of the No Action Alternative and the Multiple Objective alternatives (MOs), including the effects on recreation (Section 3.11) and commercial fisheries (Section 3.15). The EIS described the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. NMFS estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which is described qualitatively. For the effects on recreational fishing under MO3 (Section 3.11.3.5) along the lower Snake River below Lewiston, the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River) as an indicator for fishing visitation in this reach. The EIS describes that the visitation in the long-term in the lower Snake River, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting outfitting and tourism businesses in the region. The potential for changes in recreational fishing of anadromous fish under MO3 is described in Section 3.11, which could result in increases in recreational fishing in the long-term that would support jobs, income, and social benefits in Tribal and rural river communities. However, there is uncertainty around recreational fishing visitation in the long-term given the current measures to regulate, protect, and support ESA-listed fish populations and habitat in the region.

Letter No.	Comment No.	Commenter Name/Email	Affiliation	Comment	Response[1/]
4551	4	bicycle81@yahoo.com	N/A	5) The impacts of future irrigation withdrawals from the lower Snake are likely to feel pressure to increase due to climate change. The Klamath River had environmental struggles between fish and irrigation. This clouds the future of the Snake under the draft EIS incompleteness.	Warming temperatures could lead to increased evapotranspiration, which could increase irrigators need for water. Section 6.3.1.12 describes the potential cumulative effects of continued water withdrawals. The EIS did not identify any specific reasonably foreseeable additional future withdrawals to analyze.
4551	5	bicycle81@yahoo.com	N/A	6) The Final EIS must include consideration of fish passage and reintroduction above Grand Coulee and Chief Joseph dams to support tribal fishery restoration goals in the Upper Columbia.	Measures to reintroduce salmon above Grand Coulee and Chief Joseph were evaluated early in the alternative development process but eliminated from further consideration. Reintroduction is an important and complex, large-scale concept. Its consideration, evaluation, and implementation should involve multiple tribal, Federal, state, and other entities. A coordinated approach among water users, tribes, states, multiple Federal agencies, and others would be necessary. To allow so many differing interests to coordinate on such a complex topic, which may include international considerations, a decision-making framework and a series of regional workshops would be necessary just to approach the first step of defining reintroduction objectives. Given the incompatibility of such a wildlife management decision-making framework with an analysis of the operation of the Columbia River System, it is not feasible to proceed with a detailed consideration of reintroduction in this EIS. Moreover, to meaningfully analyze reintroduction as a measure, the details of the proposal would need to be understood well enough to include in hydrologic, water quality, and fish models. That information is not presently available, and development of those details was not possible in the timeframe of this NEPA process. Nevertheless, the agencies and interested regional sovereigns are developing a framework to address critical information gaps.
4551	6	bicycle81@yahoo.com	N/A	7) The Final EIS must consider the proper context for addressing the benefits and costs of the Columbia-Snake hydropower system, which means properly addressing the enormous costs - past, present, and future - to the tribes within the basin from the loss and eventual extinction of salmon and steelhead.	The EIS recognizes the economic and cultural importance of salmon to tribes in a number of sections throughout the document. The Fisheries Section 3.15 as well as Section 3.17, in particular, include discussion of reductions in anadromous species catch and associated adverse social effects that have occurred in tribal communities. The cultural significance and impacts of salmon and steelhead fisheries are described in the Fisheries Section 3.15.2.1, which includes sub-sections that describe ceremonial and subsistence fisheries as well as the social importance of commercial, ceremonial and subsistence fisheries. Section 6.3.1.5 examines the cumulative effects to fisheries resources.
4552	1	N/A	N/A	*The Draft EIS is deeply flawed because it did not complete the analysis of the effects of climate change on river temperatures and salmon.	Through on-going regional climate change studies and work, the co-lead agencies evaluated potential shifts in precipitation and temperature patterns and resulting changes in unregulated Columbia River Basin streamflow timing and volumes. The evaluation consisted of the full range of the latest climate change projections developed using multiple global climate models, emissions scenarios, downscaling techniques, and hydrologic models. Details of this evaluation are in Chapter 4 of the EIS. This information was used to describe the potential effects (both beneficial and adverse) on the river systems and resources due to potential changes in climate for all alternatives. Quantitative data that describes how climate change hydrology would affect reservoir operations in the Columbia Basin in still under development and was not available for use in this EIS. The climate science community is still developing quantitative models that can address possible effects in water temperature from climate change, and unfortunately, there are not reliable models at the required resolution (river-scale vs. global or regional scale) at this time. This data is critical to analyzing potential effects to fish quantitatively. In lieu of this information, the climate analysis used the output from resource models, like water quality and fish, under historical conditions, available climate change data, and scientific literature to qualitative assess potential effects to resources (described in Chapters 4 and 7).
4552	2	N/A	N/A	*Dam breaching offers the best chance to save salmon and steelhead. *Breaching and restoring the lower Snake to a free flowing recreational mecca will provide enormous economic activity for struggling rural economies.The agencies must evaluate these benefits in the Final EIS.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Recovery of ESA-listed salmon is outside of the authority of the co-lead agencies, and was not an objective of this EIS. Recovery of ESA species is the purview of National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (USFWS). This EIS has been developed in consultation with NMFS and USFWS to minimize impacts to affected ESA-listed species and their habitats. Both human-caused and natural factors that are outside the responsibility and control of the co-lead Federal agencies also contribute to the decline and recovery of fish, and will continue to strongly influence fish and their habitat. Salmon and steelhead have been adversely affected in the Columbia River Basin over the last century by many activities including human population growth, urbanization, introduction of exotic species, overfishing, development of cities and other land uses in the floodplains, water diversions for all purposes, dams, mining, farming, ranching, logging, hatchery production, predation, ocean conditions, and loss of habitat. Operation, configuration and maintenance of the CRS requires mitigation for its effects, and the EIS is not intended or required to serve as an overall salmon recovery plan for the region. The EIS evaluates the performance of the CRSO EIS alternatives with respect to multiple stated objectives, for example related to improving fish passage and survival, providing reliable power generation, and minimizing greenhouse gas emissions. The measures in the Preferred Alternative were determined to meet the Purpose and Need Statement of the project while also minimizing environmental, economic, and social impacts (see Table 7-1 in the Draft EIS). For example, the EIS provides an evaluation of the social welfare and regional economic effects of the No Action Alternative and the Multiple Objective alternatives (MOs), including the effects on recreation (Section 3.11) and commercial fisheries (Section 3.15). The EIS describes the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. NMFS estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which are described qualitatively. For the effects on recreational fishing under MO3 (Section 3.11.3.5) along the lower Snake River below Lewiston, the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River) as an indicator for fishing visitation in this reach. The EIS describes that the visitation in the long-term in the lower Snake River, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting outfitting and tourism businesses in the region. The potential for changes in recreational fishing of anadromous fish under MO3 is described in Section 3.11, which could result in increases in recreational fishing in the long-term that would support jobs, income, and social benefits in Tribal and rural river communities. However, there is uncertainty around recreational fishing visitation in the long-term given the current measures to regulate, protect, and support ESA-listed fish populations and habitat in the region.
4552	3	N/A	N/A	*The Final EIS must include a basin-wide review of flood risk management and how the 2024 expiration of the coordinated flood control operations under the U.S.-Canada Columbia River Treaty will impact storage and flows in the Columbia and Snake.	Section 3.9 of the EIS analyzes flood risk management effects from each of the Multiple Objective alternatives. The effects of the Preferred Alternative on flood risk management are described in Section 7.7.11. Section 2.4, Range of Alternatives, provides a brief discussion of the Columbia River Treaty. The 2016 Treaty-related operations, were applied in the EIS analysis, as the best-available information. No significant changes from the 2016 Treaty-related operations occured during this EIS so no changes were included in the Final EIS.
4552	4	N/A	N/A	*The Final EIS must consider the impacts of future irrigation withdrawals, from the lower Snake, which are likely to increase due to climate change.	Warming temperatures could lead to increased evapotranspiration, which could increase irrigators need for water. Section 6.3.1.12 describes the potential cumulative effects of continued water withdrawals. The EIS did not identify any specific reasonably foreseeable additional future withdrawals to analyze.
4552	5	N/A	N/A	*The Final EIS must include consideration of fish passage and reintroduction above Grand Coulee and Chief Joseph dams to support tribal fishery restoration goals in the Upper Columbia.	Measures to reintroduce salmon above Grand Coulee and Chief Joseph were evaluated early in the alternative development process but eliminated from further consideration. Reintroduction is an important and complex, large-scale concept. Its consideration, evaluation, and implementation should involve multiple tribal, Federal, state, and other entities. A coordinated approach among water users, tribes, states, multiple Federal agencies, and others would be necessary. To allow so many differing interests to coordinate on such a complex topic, which may include international considerations, a decision-making framework and a series of regional workshops would be necessary just to approach the first step of defining reintroduction objectives. Given the incompatibility of such a wildlife management decision-making framework with an analysis of the operation of the Columbia River System, it is not feasible to proceed with a detailed consideration of reintroduction in this EIS. Moreover, to meaningfully analyze reintroduction as a measure, the details of the proposal would need to be understood well enough to include in hydrologic, water quality, and fish models. That information is not presently available, and development of those details was not possible in the timeframe of this NEPA process. Nevertheless, the agencies and interested regional sovereigns are developing a framework to address critical information gaps.
4552	6	N/A	N/A	*The Final EIS must consider the proper context for addressing the benefits and costs of the Columbia-Snake hydropower system, which means properly addressing the enormous costs - past, present, and future - to the tribes within the basin from the loss and eventual extinction of salmon and steelhead. I	The EIS recognizes the economic and cultural importance of salmon to Tribes in a number of sections throughout the document. The Fisheries Section 3.15 as well as Section 3.17, in particular, include discussion of reductions in anadromous species catch and associated adverse social effects that have occurred in tribal communities. The cultural significance and impacts of salmon and steelhead fisheries are described in the Fisheries Section 3.15.2.1, which includes sections that describe ceremonial and subsistence fisheries as well as the social importance of commercial, ceremonial and subsistence fisheries. Section 6.3.1.5 of Chapter 6 and Section 7.9.18 of Chapter 7 examines the cumulative effects to fisheries, and Section 7.7.17 describes the effects of the Preferred Alternative on fisheries.
4555	1	N/A	N/A	Furthermore, as trustee for a 68,000 plus member cooperative AND as a landlord with tenants in a lower wage earners area, access and cost of wholesale energy and therefore cost of retail electricity is an absolutely critical aspect of this necessary commodity. Recent growth and spiking housing costs in this area have put many on the edge of affording housing. Indeed, the additional cost of electricity makes purchasing or renting a home daunting challenge. Unfortunately, some, or even many, are homeless in my area and since all housing includes an electric bill above the actual rental bill that cost is critical. Therefore, cost, availability and reliability of electricity is of critical importance to all. I can mention further, even more so in Montana winters. It was in Montana that the lowest recorded temperature in the continental 48 United States was recorded at 69* below zero. That recording was made at Rogers Pass, Montana, in winter of 1953-54. So cold was that temperature, the thermometer was sent to D.C. to be tested. It was found to be accurate. Lower temperatures and a failed electrical supply or grid along the I-5 corridor is indeed an unfortunate and inconvenient issue, but in the aforementioned Montana temperatures, it can easily be life or death. Perhaps even more so today than in 1954, because today, your modern efficient gas furnace will not fire without first the purge cycle evacuating possible latent gas, nor will the piezoelectric igniter spark to ignite the heat producing burning gas. A long mid- winter reliability issue is not an inconvenience, it can be a broad life-threatening experience for both gas and electrically heated homes which heats most Montana homes. Affordable, accessible, and reliable electricity is not a luxury, it is an absolute modern necessity. Furthermore, though reliability issues can occur randomly, the probability of a reliability issue increases exponentially in these times of higher usage and system stresses. I mention this in support of the necessity of keeping and maintaining the operation of the four Lower Snake River Dams (LSRD). These dams are critical today- and in a world of disappearing coal plants, the social undesirability of NEW Nuclear plants, emerging carbon emission legislation in our Northwest region, and frankly, the frightening emerging future reliability figures being seen, coupled with the possible cost aspects of having reliable electricity available in forward years make these LSRD far more critical in our future years. Everybody needs access to affordable reliable electricity. One can state the issue is even more insistent due to our past years of real efforts in efficiency and conservation practices in our region. Having done so much of that in our recent past will make it much more difficult and to accomplish those same goals in our future as the easier methods are done first and the difficult done last.	As explained in Section 3.7.3.5 of the EIS, Potential Replacement Resources and Associated Costs, the four lower Snake River dams are connected to Automatic Generating Control (AGC), making them among the few projects that are capable of providing balancing reserves. See Draft EIS, Section 3.7.3.5, Value of Lower Snake River Dam Ramping Capability. The four lower Snake River dams currently carry approximately 20 percent of upward flexibility and 8 percent of the downward flexibility held by the Federal Columbia River Power System for balancing reserves. Replacing hydropower with solar and wind does not replace the dispatchable characteristics of the four lower Snake River dams. Indeed, the EIS found that the demand for the dispatchable capability of the four lower Snake River dams would increase as the need for balancing reserves grows to integrate additional wind and solar in the region. See Draft EIS, Section 3.7.3.5, Integration Services, page 3-832.
4555	2	N/A	N/A	These Lower Snake River Dams (LSRDs) with their 2000 MGW of quick response continuous load following availability are needed today and will be more sorely needed in our carbon restrained future of disappearing out of vogue resources. Some of our own co-operative members have spoken with me about emerging renewables. To each of them I have responded, in truth, how renewables have a great role to play today and in our future. But, when you have to have that electricity, like on a calm cold well below Zero winters night, after the storm has passed and the cold below zero temperature air mass has settled in for however many days to come, you are now stuck with a stark reality of intermittent resourced electricity as your depending supplier. Because the wind does not blow after the cold air mass has settled in. Also, the sun is not shining on that cold winters night, nor can it dependably shine enough of those few hours of sun the next day to reliably carry you through. At those times of future real reliability deficits, null or	The EIS describes how this dispatchability is essential to providing balancing reserves, which is used to meet system uncertainty and to integrate renewable resources, such as wind and solar. See Draft EIS, Section 3.7.2.2, Meeting System Uncertainty with Generation Balancing Reserves, Dispatchable Resources, and Ramping Capability. The Preferred Alternative does not include the measure to breach the four lower Snake River dams that was analyzed in Multiple Objective alternative 3.

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				low capacity renewables may not only fail to provide, but actually exacerbate the problem because of no production at those most critical times. However, if we have unfreezable water from deep reservoirs behind a Hydroelectric dam we in essence already have the longest lived most dependable battery to get us through. Deepwater hydroelectric dams are truly the largest, continuously charged, long duration huge battery bank you can or will find for long time coming. AND, unbelievably, reliable and affordable enough even our low wage-earning fellow citizens can purchase that electricity. We all see the ubiquitous use of electricity around us. The rank and file of us who take it for granted, those who struggle in their need to keep the lights and, probably more importantly, also the heat on, and even seeing the summer irrigation producing the more copious and therefore more affordable foods we purchase. And, yes, all battery and renewable technology have a place. As such, hydroelectric dams are just the best batteries society has and they are the epitome of renewal and reliable. It would be folly to abandon them in such a future of questionable reliability.	
4555	3	N/A	N/A	That said, I do also consider the aquatic species survival aspect of these rivers as important. However, I do believe it could be a hugely complex and open question whether these Hydro-electric dams are causal in issues of inability of getting historic fish runs. I do also hear the survival rate of salmon in the FCRPS is very similar to dam free rivers. Meanwhile to expect historic fish runs might be unrealistic. Or certainly blaming the dams specifically is truly a myopic response. How many other factors are causal? How many millions of acres of suburban sprawl replete with manicured lawns with continued applications of herbicides and pesticides and unshaded or lost spawning streams have a possibly greater impact? Is it not possible these and the other multitude(s) of factors so complex with the modern complexities of current vast populations of humans with human needs juxtaposed to an earlier era vastly different are our issue. That seems an unsolvable conundrum to me. Much easier to point to a large concrete structure, but certainly far from the real historic runs truth. Looking through aspects of the CRSO DEIS, I do believe it was correct to negate the LSRD breeching studies as too societally costly and with little improvement for the aquatic specie(s) aspect. I believe that was the given charge of the CRSO: to weigh in a reasoned fashion the impact of these dams and how to best serve the modern needs which have evolved in todays world for the best benefit of all species-humans included.	The scope of the Draft EIS focuses on the area affected by the alternatives presented for operation, maintenance and configuration of the Columbia River System projects. There are many effects to salmon and steelhead populations outside the operation of the dams. Research continues to evaluate the magnitude of these effects. For more information see the National Marine Fisheries Service website at: https://www.nwfsc.noaa.gov/research/index.cfm. Section 3.5 of the EIS provides the analysis of the effects to fish under each of the Multiple Objective alternatives and Chapter 7 describes the impacts to fish under the Preferred Alternative.
4555	4	N/A	N/A	I do support the Preferred Alternative, but with a caveat of following tracking to determine if the the higher 125% TDG aspect of this approach might be harmful than helpful to in river salmon and steelhead. If it does appear more harmful than helpful, I would support a lower spill regime with lower TDG levels as a better approach for both fish and power cost and increased reliability purposes.	The Preferred Alternative includes working with regional sovereigns to develop a study that assesses the effectiveness of increased spill regime on adult returns as well as assessment and management of adverse unintended consequences, such as long delays of adult migrants, and Total Dissolved Gas (TDG)-related mortality of juvenile migrants. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information.
4571	1	N/A	N/A	The lakes the dams create preserve fire fighting capability for mega fires that can happen in the region. California had huge fires in 2019 and could not begin to control them. Its not the 1800s anymore. We will need bigger solutions to bigger problems. Its only a matter of time. What will populations be in 2100? What will fire issues be like?	Section 3.10 in the EIS has been revised to acknowledge that the reservoirs are used, or are capable of being used, for firefighting purposes. It is acknowledged that this use would be made more difficult following the breach of the four lower Snake River dams under MO3 due to reduced water depths and area.
4571	2	N/A	N/A	Increase pumping costs that would result in lower net farm income across the region, which translates to farm households having less money to spend within the regional economy as well as put pressures on other resources.	The effects of the increased pumping costs are included in the economic analysis described in Section 3.12.
4571	3	N/A	N/A	FURTHER IT WILL REQUIRE OTHER METHODS OF TRANSPORTATION THAT ARE LESS CLEAN. It will over burden roads and cost more dollars in other places to deal with NEW PROBLEMS. Residential drivers don't need more truck traffic.	The EIS acknowledges that depending on how rail rates respond to dam breach, shortline rail capacity could be exceeded. The EIS also evaluates the additional transportation infrastructure investments and associated costs that would be required, as well as the increases in air emissions that would occur. Under a scenario where rail rates increase by 50 percent, more shipping demand would be transferred to trucks, reducing the demands on rail infrastructure, but increasing demands on roads. The EIS finds that truck ton-miles may experience an increase of 19 percent to 84 percent under MO3 when compared to the No Action Alternative, depending on the rail rate increases that occur. The EIS analysis found that truck trips would increase between 14,000 to 79,000 truck trips per year, which would increase air pollutant and greenhouse gas emissions in the region and add to traffic and congestion in the region. The EIS also evaluates the additional transportation infrastructure investments and associated costs that would be required, as well as the increases in air emissions that would occur. There would need to be investments in infrastructure if dams are breached, both public and private sector investment in the absence of river navigation. These infrastructure improvements are discussed in section 3.10 of the EIS.
4571	4	N/A	N/A	HISTORY: The "Great Flood of 1894" was the highest-recorded flood along the Columbia of all time. Rainfall was heavy during the winter of 1893-94 resulting in a heavy snowpack. A dry and warm spring resulted in massive snowmelt. Peaks reached nearly 35 feet at Umatilla, Oregon, and Longview, Washington hit a record 24.0 feet (12 feet over flood stage). A measured peak at The Dalles was 1,240,000 cubic feet per second (enough flow to cover a standard-size football field with water 1,500 feet deep in just one minute) while flood stage on the Willamette River at Portland, Oregon was measured at 33.0 feet. The town of Cascades, located near the location of today's Bonneville Dam, was wiped out. That is not even a 500 year event. REMEMBER HISTORY AS HISTORY CAN REPEAT AND HUMANS WILL SUFFER.	Section 3.9 of the EIS analyzes flood risk management effects from each of the Multiple Objective alternatives within the CRSO study area. The effects of the Preferred Alternative on flood risk management are described in Section 7.7.11
4572	2	alvestadlaw@gmail.com	N/A	And while I make these comments based upon my near 20 year involvement in the industry and concern for PLC's members and the environment, I also am personally concerned that the alternatives do not adequately address shipping and navigation. I fear that carbon based cargo delivery alternatives will contribute even more to the environmental burden and burden on agriculture.	Section 3.10 of the EIS evaluates potential effects of MO3 on emissions due to shifts from use of barge shipping through the lower Snake River dams to road and rail transportation. The analysis does anticipate an increase in truck and rail transportation, and associated CO2 emissions, under MO3 relative to the No Action Alternative. Specifically, MO3 increases CO2 emissions by up to 0.06 MMT CO2.
4572	3	alvestadlaw@gmail.com	N/A	Peninsula Light Company supports the D-EIS Preferred Alternative option proposed by the co-lead agencies	Thank you for your comment.
4579	1	Ryan Poe	Washington Association of Wheat Growers	WAWG represent thousands of farmers across Eastern Washington and farm landowners throughout the region. We strongly support the Congressionally mandated multi-use functions of the Columbia-Snake River System and the preferred alternative brought forth in the EIS that rejects dam breaching measures as part of Multiple Objective Alternative 3.	Thank you for your comment.
4579	2	Ryan Poe	Washington Association of Wheat Growers	Without barging, the EIS estimates a 33% transportation cost increase. But with many factors at play, such as additional truck purchases that might be required in order to move grain further; freight rate increases; fuel, rail and road improvement expenses; and more that will assuredly be passed on to the farmer, we contend the increased cost to be much higher and request that the final EIS be updated to include these specific costs, including transition costs, that would be associated with no navigation on the lower Snake River.	The EIS evaluates potential effects on farmers associated with increased transportation costs under MO3 in Section 3.10.3.5. The EIS finds that under a dam breach scenario, average transportation costs for wheat farmers would increase 10 to 33 percent, but that individual farmers could experience increases that are doubled. The cost increases to specific shippers would depend upon location and would vary throughout the region, depending on transportation options at each location. The EIS finds that those grain shippers that are the farthest from alternate shipping locations (shuttle rail facilities or river ports on the Columbia River) would be the most adversely impacted.
4579	3	Ryan Poe	Washington Association of Wheat Growers	Even though I move most of my wheat on the rails, not on the river, the loss of barging as a transportation option will still impact my bottom line. Without the competition, rail rates are likely to rise, making it more expensive for me to ship my wheat. And as more wheat is pushed onto the rails, availability may become an issue, leaving me with no way to ship my wheat or having to deal with significant shipping delays, which will incur additional storage expenses	The EIS evaluates potential effects on farmers associated with increased transportation costs under MO3 in Section 3.10.3.5. The EIS finds that under a dam breach scenario, average transportation costs for wheat farmers would increase 10 to 33 percent, but that individual farmers could experience increases that are doubled. The cost increases to specific shippers would depend upon location and would vary throughout the region, depending on transportation options at each location. Generally, those grain shippers that are the farthest from alternate shipping locations (shuttle rail facilities or river ports on the Columbia River) would be the most adversely impacted. The EIS recognizes that there is no guarantee wheat grown in the Northwest would be competitive now or in the future because there are many factors that influence international commodity markets (e.g., trade agreements, the U.S. dollar, global supply, etc.). However, the analysis finds that the cost to transport wheat to market would continue to be lower than costs paid by other wheat growers in the United States (e.g., the Dakotas and Midwest). Favorable conditions for Northwest wheat growers that help them stay competitive are: (1) the natural environment of the Palouse region (weather, soils) is ideal for growing this type of wheat, which leads to some of the highest yields per acre in the world, and (2) proximity of Northwest export ports. Currently, the cost to transport wheat to market is quite low relative to other parts of the United States and world. Environmental and human health impacts associated with increased emissions to shipping goods by rail or truck (or both) are evaluated and described in Section 3.8 Air Quality, and increased health and safety concerns due to increased truck traffic on roadways and potential for increased accidents are described in the Navigation and Transportation Section for other social effects (Section 3.10.3.5).
4579	4	Ryan Poe	Washington Association of Wheat Growers	In the case of transportation, the river truly does flow in two directions. We request that the final EIS include the costs of lost barge service on all of the freight moving on the river, not just wheat moving downriver. At the same time, it must be recognized and accounted for in the final EIS, that rail rates throughout the Northwest for all commodities will rise as capacity is constrained.	In 2018, 72 percent of overall freight volume on the lower Snake River system traveled downriver, the majority of which (87 percent) was wheat and barley. As discussed in Section 3.10.2.1 of the Draft EIS, 28 percent of overall freight traveled upriver. In 2018, 25 percent of overall freight on the lower Snake River was petroleum products that terminated below Ice Harbor Dam. These shipments that do not utilize the Snake River locks would not be directly affected by dam breach under MO3. Other commodities that utilize the Snake River system include pulp and paper products (4 percent) as well as chemicals and iron/steel commodities (8.5 percent), some of which also terminate below Ice Harbor Dam. To the extent that these shipments utilize the Snake River locks and dams, they would be affected under MO3 by increased transportation costs. These potential effects are discussed qualitatively in Section 3.10.3.5. MO3 was not identified as the Preferred Alternative.
4582	1	N/A	N/A	Finally, regarding the consideration of the various replacement portfolios in the context of this EIS. It is unclear whether the co-lead agencies have the authority to acquire replacement resources under an MO3 Alternative (or any other MO that may require resource acquisition). We recommend further study of this issue between the Draft EIS and the final Record of Decision.	The EIS acknowledges that any acquisition of resources would require additional site specific environmental compliance, including NEPA analyses, permitting and a potential statutory process to allow Bonneville to acquire resources. Section 3(1) of the Northwest Power Act states that the Bonneville Administrator is not authorized to construct, or have ownership of, any electric generating facility. Section 3.7.3.1 Methodology, Step 3: Determine Need for Potential Replacement Resources in the draft EIS provides additional detail. Bonneville may acquire the output of a major resource, provided that such acquisitions follow certain statutory requirements as set forth in Section 6 of the Northwest Power Act. Appendix H, Section 2.2.4 in the Final EIS discusses the process for potentially acquiring new resources.
4582	2	N/A	N/A	one of our concerns with the Draft EISs analysis under all of the Multiple Objective Alternatives, not just MO3, is the vastly divergent range of scientific results between the federal governments National Marine Fisheries Service (NMFS) in its Life Cycle Model (LCM), and the Fish Passage Centers Comparative Survival Study (CSS) model. The disparate range of outcomes between the two bodies of science is particularly apparent when it comes to latent mortality, the delayed death of salmon following passage through the Columbia River System. Indeed, the co-leads analysis concluded that, The degree to which latent mortality is affecting salmon and steelhead is one of the critical uncertainties in this EIS analysis (ES, Page 25). This is a significant concern that we fear will continue to be a roadblock to durable consensus around Columbia River System Operations. We understand the significant challenges associated with resolving the divergent bodies of science presented in the Draft EIS, but encourage the co-lead agencies to work toward identifying additional sources of scientific expertise that can provide independent, objective advice such as the National Academy of Sciences.	The NMFS COMPASS and Life Cycle models and the CSS models use different statistical approaches and input variables. Both are able to provide a good fit to recent survival, and travel time estimates, but the models do have substantially contrasting forecasts for these metrics under hypothetical scenarios of CRS operation with respect to flow and spill. The Fish Technical Teams for the CRSO EIS made the decision to present results from both sets of models for the final evaluation, along with descriptions of methods. Many aspects of the Draft EIS analysis, including the Life Cycle model and CSS models, will undergo an independent external peer review before being finalized. The framework for the adaptive management process is detailed in Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS. It is the intention of the co-lead agencies to engage regional state, tribal, and federal fish managers in the development of an appropriate adaptive management process utilizing their respective salmonid management expertise. The goal of that adaptive management process would be to consider additional opportunities to further the effectiveness of the operation while maintaining the goals of the flexible spill operation: additional improvements for salmon and steelhead, maintain opportunities to operate the CRS for hydropower generation in a flexible manner that provides value to the Northwest, is implementable by the dam operators, and provides opportunity to reduce uncertainty and improve the learning opportunities around how operations of the CRS can influence the magnitude of latent mortality effects. The co-lead agencies have not made any determinations on what the preferred approach would be for a regionally developed study plan, and intend to develop that study jointly with regional experts. The Preferred Alternative will require a robust monitoring plan for salmon and steelhead to help narrow the uncertainty between the biological models and will help determine how effective increased spill can be in increasing salmon and steelhead returns to the Columbia Basin.
4582	3	N/A	N/A	From a reliability perspective, under MO4, the increase in spill (i.e. 125% TDG, 7 days a week, 24 hours a day from March 1 to August 31), together with a measure that provides dry-year augmentation of spring flow with water stored in upper basin reservoirs, was found to have the highest probability of power shortages of any of the MOs, with blackouts or emergency conditions in roughly one in three years (ES, Page 30). We know blackouts carry dire socio-economic impacts, and encourage the co-leads to further study the true effects of outage-related disruption.	The statement that the loss of hydropower under MO4 results in the largest reliability effects is consistent with the findings of the EIS. The EIS estimates the costs of replacement power and transmission resources needed to avoid increasing the risk of an outage, rather than estimating the costs of increased outage occurrence. Quantifying both the costs of restoring system reliability and the costs of outage events under the alternatives would risk double counting potential impacts. See Section 3.7.3.1 Methodology and Chapter 2 of Appendix H for additional details on the EIS approach to evaluating power system reliability and potential replacement resources and costs.

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4582	4	N/A	N/A	For BPAs wholesale power rates, MO4 places upward base rate pressure of 23.5 percent to 25.3 percent over the No Action Alternative depending on the type of resources acquired and the source of funding for those resources. Additional rate sensitivities around this base analysis . . . could lead to upward rate pressure as high as 41 percent in the Bonneville wholesale power rate (ES, Page 30). For all of the reasons described previously, our rural cooperative members simply cannot tolerate these rate increases.	Juvenile fish passage spill to 125% Total Dissolved Gas from March through August at the four lower Snake River and four lower Columbia River projects was evaluated in Multiple Objective 4 (MO4) but was not included in the Preferred Alternative identified in the EIS. The rate pressures identified in the comment are consistent with the findings of the MO4 in the EIS. Section 3.7.3.6, Electricity Rate Pressure, at pages 3-945-950, Table 3-182, in the Draft EIS. MO4 did not meet the EIS objective of providing an adequate, economical, efficient and reliable power supply, among others, and was thus not identified as the Preferred Alternative. See Section 7.3.5, Multiple Objective Alternative 4, at pages 7-13-15, in the Draft EIS. For Bonneville's wholesale power rates, the Preferred Alternative places additional rate pressure of 2.7 percent relative to the No Action Alternative consistent with the statement in the comment regarding increased rates. These estimates compare the Preferred Alternative to the No Action Alternative, which is not the same as comparing the Preferred Alternative to current operations. Consequently, the estimates are not a comparison to the BP-20 wholesale power rates, which were set assuming the financial impact of the 2019-2021 Spill Operation Agreement and therefore already include a substantial portion of the cost pressures found in the Preferred Alternative. The remaining rate pressure associated with the Preferred Alternative falls within a level that Bonneville has historically been able to mitigate through the costs over which it has significant control.
4582	5	N/A	N/A	PNGC finds that the NWEC analysis, along with similar studies, tends to assume-away transmission limitations on the Northwest grid. The co-leads addressed transmission limitations in the Draft EIS, however as described below, PNGC thinks further analysis is necessary in the final EIS.	The Northwest Energy Coalition analysis is discussed in Section 3.7.3.5, Related Studies. The EIS analysis included multiple transmission models to assess power flows, grid congestion, and to determine transmission costs as described in Section 3.7.3.1, Methodology in the Draft EIS. In order to perform the dynamic stability analysis, site-specific and resource-specific details for each replacement generator (such as manufacturers, control systems, precise placement locations, etc.) would need to be determined. The EIS examined the feasibility of potential replacement resources, but the methods used did not speculate as to the exact details for each resource. It is unnecessary and would be premature to perform a more complete analysis of the replacement resources until those details are known. That information would be evaluated in subsequent planning processes.
4582	6	N/A	N/A	Table 3-6 of Appendix H, summarizes the potential total energy above limit due to congestion on transmission lines if the LSRDs are removed for the Tri-Cities area. It is important to convert this vague language to plain language. This is what the Tri-Cities area can expect in the event of a possible blackout. We do not think the Draft EIS adequately converts technical impacts into real-world, socio-economic impacts. We encourage the federal agencies to perform analysis on this as suggested in our comments below on socio-economic impacts. Our preliminary assessment is that the social cost of these blackouts could be in the tens of millions of dollars per-year based on the total energy above limit figures in Table 3-6 of the Draft EIS.	The EIS analysis evaluates the costs of replacement resource portfolios including the necessary transmission interconnections and reinforcements that would be required to avoid increasing the risk of an outage. Given this, the analysis identifies that the expected outcome of MO3, which includes breaching the four lower Snake River dams, would be an increase in the cost of power and not in the risk of an outage. In the Draft EIS, please see Section 3.7.3.5, at pages 3-918-924; and Table 3-166. In the Draft EIS, Appendix H, Section 3.2.2, Bonneville Network Reinforcement Needs, describes the reinforcement of a 20-mile transmission line costing $94 million in capital costs to address the risks in the Tri-Cities area in Washington. These costs are included in the transmission rate pressures described in Section 4.2 and then factored into the retail rates analyzed in the Social and Economic Effects described in Chapter 5 of Appendix H.
4582	7	N/A	N/A	One of PNGCs most significant concerns about the transmission analysis is related to what has not been performed versus what has actually been performed. Based on the data and results presented in the Draft EIS, it appears that extensive power flow analysis has been performed to identify transmission limitations and impacts of the alternatives. However, it does not appear that dynamic stability analysis has been analyzed to adequately assess whether the replacement resource portfolios will perform adequately during contingency events and transmission outages.	In order to perform the dynamic stability analysis referred to in the comment, site-specific and resource-specific details, including: manufacturers, control systems, and precise placement locations for each replacement generator would need to be determined. The EIS examined the feasibility of potential replacement resources, but the methods used did not speculate as to the exact details for each resource. It is unnecessary and would be premature to perform a more complete analysis of the replacement resources until those details are known. That information would be evaluated in subsequent planning processes.
4582	8	N/A	N/A	Again, it is critical to translate this complex narrative into plain language. What this means is that we are not really sure the replacement resources will perform under system disturbance events, and we could see additional blackouts. Therefore, we encourage the federal agencies to work with organizations such as WECC to perform additional dynamic stability studies to assess how the replacement portfolios perform compared to the hydropower units among the various alternatives considered by the Draft EIS.	The measure to breach the four lower Snake River dams that was evaluated in MO3, was not included in the Preferred Alternative identified in the Draft EIS. The effects of the Preferred Alternative (PA) on power are described in Section 7.7.9 of the Draft EIS. Overall, hydropower would decrease relative to the No Action Alternative under the PA. However, because of the shape of the remaining hydropower generation in the PA, the loss of load probability (LOLP) was essentially the same as that of the No Action Alternative and identification of replacement resources was not necessary. The transmission analysis is not an exhaustive examination of all reliability requirements of the system under the assumed replacement resources. Rather, the EIS assessment examined whether the identified set of resources to replace the generation removed under the various Multiple Objective alternatives (MOs) might reasonably be able to restore the LOLP to a comparable level as the No Action. In the Draft EIS, see Section 3.7.3.5, Effects on Power System Reliability, at page 3-903; and Appendix H, Table 2-1. Much more detail and certainty about the replacement resources would be needed to provide the certainty suggested by the commenter and is not necessary for informed decision-making. In order to perform the dynamic stability analysis referred to in the comment, site-specific and resource-specific details, such as manufacturers, control systems, precise placement locations for each replacement generator would need to be determined. The EIS examined the feasibility of potential replacement resources, but the methods used did not speculate as to the exact details for each resource. It is unnecessary and would be premature to perform a more complete analysis of the replacement resources until those details are known. That information would be evaluated in a subsequent planning process.
4582	9	N/A	N/A	While we generally agree with and appreciate the Draft EISs careful and comprehensive review of related studies as well as development of new federal studies and analysis on which the Preferred Alternative was developed, we think the final EIS must address some open and uncertain issues as described above. The Draft EIS does a reasonable job of beginning to capture the full scope and scale of the value of the LSRDs and the federal hydropower system in general in the Northwest in terms of electric system reliability. However, it leaves open or unaddressed the uncertainty and issues created particularly by MO3 and MO4.	The EIS relies on high-quality information regarding replacement resources, transmission system reliability and the Northwest power system from a variety of data and information sources. Although it would be beyond the scope of the EIS to capture all possible sources of uncertainty, some of the uncertainty surrounding replacement resources are addressed either quantitatively or qualitatively in the EIS, particularly surrounding environmental compliance, permitting, location, and the effect of ongoing policy developments and coal power plant closures on replacement resources. In the Draft EIS, see section 3.7.3.1, Step 3: Determine Need for Potential Replacement Resources and Associated Costs, page 3-821.
4582	10	N/A	N/A	With respect to the proposed replacement portfolios studied in MO3 and MO4, it is imperative that the federal agencies further analyze both the potential socio-economic implications of substantial increases in LOLP, as well as the degree of confidence in whether the studied replacement resources perform sufficiently to mitigate the increases in LOLP as well as the transmission issues described above.	The EIS estimates the costs of replacement power resources and transmission infrastructure needed to avoid increasing the risk of an outage, rather than estimating the costs of increased outage occurrence. Section 3.7.3.1, Base Case Methodology, at pages 3-819-21, 3-822-23 in the Draft EIS. Quantifying both the costs of restoring system reliability and the costs of outage events under the alternatives would risk double-counting potential impacts. The EIS uses the Northwest Power and Conservation Council GENESYS model to analyze loss of load probability as well as a variety of industry standard models to assess the performance of potential replacement resource portfolios. See Section 3.7.3.1 Methodology and Chapter 2 of Appendix H of the Draft EIS for additional details on the EIS approach to evaluating power system reliability and potential replacement resources and costs.
4582	11	N/A	N/A	As noted previously, PNGC Power recommends that further analysis is needed before a final EIS is issued to sufficiently quantify the potential socio-economic costs of blackouts.	The EIS estimates the costs of replacement power resources and transmission infrastructure needed to avoid increasing the risk of an outage, rather than estimating the costs of increased outage occurrence. Section 3.7.3.1, Base Case Methodology, at pages 3-819-21, 3-822-23 in the Draft EIS. Quantifying both the costs of restoring system reliability and the costs of outage events under the alternatives would risk double-counting potential impacts. See Section 3.7.3.1, Methodology, and Chapter 2 of Appendix H in the Draft EIS for additional details on the EIS approach to evaluating power system reliability and potential replacement resources and costs.
4582	12	N/A	N/A	The system reliability section (Appendix J p. J-viii) describes Conditional Value at Risk (CVaR), which means the average load not served. Table ES-8 of Appendix J, is a summary of notable CVaR events. Without the underlying studies and data, it is difficult to completely ascertain the impacts on society based on possible blackouts. However, some of the notable CVaR events are breathtaking, and not in a good way. For example, we need to translate 725aMW at 23.8% in August under MO4 in to expected blackouts. 725aMW is about equal to of the load of Seattle. Does this mean that MO4 (prior to mitigation) could result in blackouts equal to of Seattle? If so, for how long is the next key question. What is needed to create a complete socio-economic impact of outages, is to translate and expand the CVaR results to the expected magnitudes and durations of loss of load. In-other-words, how big are the expected blackouts and how long? This analysis would produce the range of Expected Unserved Energy (EUSE) or Energy Not Served (ESN) that the different alternatives produce as an outcome. The magnitude and duration (hours or days) of potential blackouts (i.e. EUSE) is a central question that the Draft EIS does not sufficiently address. Using EUSE or ESN figures would enable the federal agencies to estimate socio-economic impacts of outages and changes in reliability.	The EIS reliability modeling used the Northwest Power and Conservation Councils 2011 loss-of-load probability metric and standard. Neither the Council nor the North American Electric Reliability Council has established metrics or standards for Expected Unserved Energy and Energy Not Served. The EIS estimates the costs of replacement power and transmission resources needed to avoid increasing the risk of an outage, rather than estimating the costs of increased outage occurrences. Quantifying both the costs of restoring system reliability and the costs of outage events under the alternatives would risk double counting potential impacts. See Section 3.7.3.1, Methodology, and Chapter 2 of Appendix H in the Draft EIS for additional details on the EIS approach to evaluating power system reliability and potential replacement resources and costs. However, the CvaR metric does give an indication of the reliability risk if replacement resources were not acquired. For the example cited by the comment, a CvaR of 725 aMW in the first half of August for Multiple Objective Alternative 4 means that in one year out of 20 (average of 308 of the 6160 simulations), the average power shortage would be 725 aMW for the first half of August. Most likely, it would be larger power shortages during the afternoon and early evening and less or potentially no shortages later at night for over two weeks. This is indeed a very large impact. The CvaR metric assesses the impact in the worst 5% of years. There are also smaller impacts in other years. The LOLP for the first half of August, at 23.8 %, means that in nearly one year out of four, there would be power shortages in the first half of August.
4582	13	N/A	N/A	Several organizations such as utilities and ISO/RTOs have developed excellent modeling methodologies or approaches to quantify the cost of EUSE or blackouts. This information is then used to develop reliability targets and standards such as reserve margins. A central component to these approaches, is the development of Value of Lost Load (VOLL) or Value of Service (VOS) or "unserved energy." In plain language, this means, "cost of blackouts."	The EIS reliability modeling used the Northwest Power and Conservation Councils 2011 loss-of-load probability metric and standard. Neither the Council nor the North American Electric Reliability Council has established metrics or standards for Expected Unserved Energy and Energy Not Served. The EIS estimates the costs of replacement power and transmission resources needed to avoid increasing the risk of an outage, rather than estimating the costs of increased outage occurrences. Quantifying both the costs of restoring system reliability and the costs of outage events under the alternatives would risk double counting potential impacts. See Section 3.7.3.1, Methodology, and Chapter 2 of Appendix H in the Draft EIS for additional details on the EIS approach to evaluating power system reliability and potential replacement resources and costs.
4582	14	N/A	N/A	The Northwest Power and Conservation Council (NWPCC) did a survey of worldwide use of VOLL and VOS in approximately 2016-2017, and we suggest that the federal agencies look to this work since the Draft EIS already relies on other NWPCC work.	The EIS reliability modeling used the Northwest Power and Conservation Councils 2011 loss-of-load probability metric and standard. Neither the Council nor the North American Electric Reliability Council has established metrics or standards for Expected Unserved Energy and Energy Not Served. The EIS estimates the costs of replacement power and transmission resources needed to avoid increasing the risk of an outage, rather than estimating the costs of increased outage occurrences. Quantifying both the costs of restoring system reliability and the costs of outage events under the alternatives would risk double counting potential impacts. See Section 3.7.3.1, Methodology, and Chapter 2 of Appendix H in the Draft EIS for additional details on the EIS approach to evaluating power system reliability and potential replacement resources and costs.
4582	15	N/A	N/A	PNGC Power suggests that the federal agencies analyze the potential socio-economic costs of EUSE, or blackouts associated with MO3 and MO4. The underlying work that produced the LOLP results in the Draft EIS is likely a source for EUSE. To complete this analysis, the federal agencies will need to start with the CVaR-based work, and create magnitudes (MW), durations (hours) and probabilities (%) to develop EUSE or ESN. Assuming a range of $5,000 to $30,000/MWH for VOLL (Value of Lost Load), the estimated social cost of blackouts could range from tens of millions of dollars to amounts in excess of billions of dollars per year depending on whether the proposed replacement resources are adequate to provide the same excellent reliability of the LSRDs and federal hydropower system as a whole.	Substantial costs would likely result should blackouts occur. The EIS methodology includes the full incremental replacement resource cost necessary to return the region to a level where the likelihood of blackouts is equal among all the alternatives, such that comparisons can be made among the alternatives on an equal basis. The EIS assumes for each multiple objective alternative (MO) that sufficient resources are acquired to reduce the risk of blackouts to the level of risk that existed prior to implementation of each MO. Once replacement resources have been acquired, the risk of a blackout for each MO is effectively the same as the No Action Alternative. If the EIS had then also added to each MO the additional cost of a blackout, then the MOs would have double-counted the impact of blackout risk (i.e. the MOs would have included the cost of avoiding blackouts and the costs of blackouts).
4582	16	N/A	N/A	In summary, MO3 and MO4 are extreme scenarios with profound reliability implications that need to be further assessed and understood more carefully. We think the reliability implications of MO3 and MO4 are unacceptable based on the information the federal agencies have already presented. We strongly suspect that the areas that we have identified above for further consideration, will reinforce our conclusion that MO3 and MO4 are potentially worse than the Draft EIS concludes	The statement that MO3 and Multiple Objective alternative 4 (MO4) would have profound regional power reliability effects is consistent with the power analysis findings of the EIS, if replacement resources were not built. See Sections 3.7.3.5 and 3.7.3.6 Effects on Power System Reliability in the Draft EIS. As discussed in Sections 3.7.3.5 and 3.7.3.6, Coal Retirement Considerations, the combination of reductions in hydropower generation and the retirement of most coal-fired generation in the region would magnify the impact on the region beyond that studied in the base-case analysis.
4582	17	N/A	N/A	We encourage more analysis ofthe replacement resource portfolios to assure high confidence that they can perform in a manner tocreate the same reliability result as the LSRDs and federal hydropower system as a whole.	As described in the draft EIS in Appendix H, Power and Transmission and Section 3.7.3.1, Base Case Methodology, the EIS employs a variety of industry standard models such as GENESYS, HYDSIM, AURORAxmp, GridView and powerflow modeling to assess the potential power and transmission effects of Multiple Objective Alternative 3 (which includes breaching of the four lower Snake River dams) and the replacement resource portfolios. And in particular, the Lower Snake River Full Replacement (Used in Rate Sensitivity Analysis) discussion in Section 3.7.3.5 of the EIS, on page 3-905 in the draft EIS, discusses what power resources would be needed to replace all attributes of the four lower Snake River Dams.
4582	18	N/A	N/A	Finally, as described in our comments above about transmission, the transmission reliability issues must be better understood and evaluated in order to fully capture the risks and costs of MO3 and MO4 from a transmission standpoint as well as resources standpoint.	As described in Appendix H, Power and Transmission and Section 3.7.3.1, Base Case Methodology, in the Draft EIS, the analysis employs a variety of industry standard models such as GridView and powerflow modeling to assess the potential transmission effects of MO3 and Multiple Objective alternative 4 (MO4) as well as HYDSIM and GENESYS for evaluating the power generation and replacement resource portfolios. This analysis provides the level of detail Bonneville needs to make informed decision making about power generation and transmission effects.
4582	19	N/A	N/A	In summary, MO3 and MO4 are extreme scenarios with profoundly negative reliability implications that need to be further assessed and understood more carefully. PNGC is concerned that the full social costs of MO3 and MO4 are not fully understood and likely are much higher. Additionally, the risks associated with the replacement portfolios are not completely understood and need further evaluation in a final EIS	The statement that MO3, which includes breaching the four lower Snake River dams, and Multiple Objective 4 (MO4) would decrease regional power reliability is consistent with the findings of the EIS, should replacement resources not be built. The EIS outlines the risks associated with constructing replacement resources, and acknowledges potential delays in environmental compliance, permitting and other delays that could cause power reliability concerns as described in Sections 3.7.3.5 and 3.7.3.6, Other Social Effects for MO3 and MO4, respectively in the draft EIS.

Letter No.	Comment No.	Commenter Name/Email	Affiliation	Comment	Response[1/]
4582	20	N/A	N/A	As we continue to pursue collaborative solutions as a region, such as the Flexible Spill Agreement, which is now a key component of the PA, we must be sure not to prioritize the promise of durable outcomes over informed, scientific-based decision making. One of the biggest risks associated with adopting Flexible Spill as a key component of the PA, is that it is by its nature a biological experiment that assumes unprecedented and yet-to-be tested new levels of spill. Most concerning, is that the extended operation at 125% Total Dissolved Gas (TDG) is an unprecedented action at these federal projects. We have already seen a flexible spill operation in 2019, with spill up to 120% TDG that showed little benefit to fish with some evidence suggesting that survival was reduced.	The benefit of flexible spill to salmon and steelhead relies largely on reduction in PITPH which is projected to result in increased SARs. Therefore in-river survival does not tell the whole story. It will take years to understand the true effect because adult returns are needed to calculate Smolt-to-Adult return rates. One year of in-river data to assess the benefits of flex spill is not adequate. The Preferred Alternative includes working with regional sovereigns to develop a study that will assess the effectiveness of increased spill regime on adult returns as well as assessment and adaptive management of negative unintended consequences, such as long delays of adult migrants, or TDG-related impacts on juvenile migrants.
4582	21	N/A	N/A	To ensure a science-based check on these limitless state water quality adjustments for TDG, we insist that spill operations adopted by the PA continue to be based on section 7 ESA requirements, stipulating that federal agencies must consult with the Fish and Wildlife Service and/or National Marine Fisheries Service (Services) on activities that may affect ESA-listed species. We echo the guidance included in U.S. EPAs March 5, 2020 action letter to Washington State regarding Ecologys permanent revision to its TDG standards.	The co-lead agencies are in consultation with National Marine Fisheries Service and the U.S. Fish and Wildlife Service under Section 7 of the Endangered Species Act for this CRSO EIS. The biological opinions that result from these consultations will be appended to the Final EIS.
4582	22	N/A	N/A	Throughout implementation of the current Flexible Spill operation, and as further adopted, we urge the co-lead agencies to keep a close eye on this new and untested operational paradigm, particularly spill to 125% TDG. Specifically, to continue to analyze the impacts of the proposed action on ESA-listed salmon species. This includes the development of a robust monitoring approach and platform for providing the public with transparent feedback on impacts to fish	The co-lead agencies used current high quality information in the analysis of the CRSO EIS. Specific to salmon and steelhead, the agencies used two primary modeling approaches which yielded a range of potential outcomes for the alternatives. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% as a result of the Preferred Alternative. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be in increasing salmon and steelhead returns to the Columbia Basin. In order to address the uncertainty of the effects of spill to 125%, the co-lead agencies have provided an adaptive management framework is described in Appendix R. The agencies will address any unintended consequences from operations through this framework.
4582	23	N/A	N/A	Additionally, we encourage the co-leads to continue to refine their adaptive management framework to ensure that their actions do not jeopardize the continued existence of any listed species (as directed by section 7 of the ESA).	The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. The framework for the adaptive management process is detailed in Appendix R, Part 2, Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS. It is the intention of the co-lead agencies to engage regional state, Tribal, and Federal fish managers in the development of an appropriate adaptive management process utilizing their respective salmonid management expertise. The goal of that adaptive management process would be to consider additional opportunities to further the effectiveness of the operation while maintaining the goals of the flexible spill operation: additional improvements for salmon and steelhead, maintain opportunities to operate the CRS for hydropower generation in a flexible manner that provides value to the Northwest, is implementable by the dam operators, and provides opportunity to reduce uncertainty and improve the learning opportunities around how operations of the CRS can influence the magnitude of latent mortality effects. Unforeseen outcomes or unintended consequences will be monitored and adjusted using current in-season management teams, such as the Technical Management Team. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. That call, however, is ultimately the role of NMFS and the USFWS. The final BiOps that analyze compliance with the ESA from NMFS and USFWS will be appended to the Final EIS.
4582	24	N/A	N/A	Along these lines, we support the co-lead agencies further review of concerns identified by Joe Lucas and Western Montana G&T related to increased spill operations under the PA. Specifically: 1) Risks identified by the NMFS LCM modeling saying that if latent mortality effects are not reduced under this operation, smolt-to-adult return (SAR) rates for Snake River spring Chinook may be lower than the No Action Alternative due to reduced rates of transportation (ES, Page 33); 2) Disproportionately negative impacts on steelhead due to their behavioral efforts to avoid Gas Bubble Trauma associated with the increased spill. Under this exceptionally high level of spill, we understand that steelhead will travel in the upper portion of the water column exposing them to greater avian predation; 3) Lack of comparative information in the Draft EIS around the impacts of the PA on steelhead. It appears that the co-lead agencies relied solely on the assumptions of the CSS modeling for claims about steelhead survival, noting that there is no NMFS LCM model for Snake River Steelhead; 4) Given the flexible spill component of the PA, and the associated risks to fish outlined in the Draft EIS, the co-leads must identify specifics around the study that will be conducted to either confirm or refute modeled assumptions related to reduced SARs under this untested operation; and 5) The need for much greater detail around fishery monitoring and how information about incidence and severity of Gas Bubble Trauma may be used to modify or reduce any unintended consequences associated with high levels of spill. Once again, we appreciate the input and expertise provided by Joe Lukas and Western Montana G&T, and urge the co-lead agencies to strongly consider these comments.	The CSS and NMFS Life Cycle models predicted different levels of effects of the preferred alternative on SARs, primarily due to how latent mortality is treated. To address this uncertainty and minimize risk, the Preferred Alternative includes an adaptive management plan. This plan involves working with regional sovereigns to develop a study to assess the effectiveness of the increased spill regime on adult returns as well as robust monitoring, assessment, and management of negative unintended consequences, such as long delays of adult migrants, or TDG-related impacts on juvenile migrants. The adaptive management framework is described in Appendix R.
4582	25	N/A	N/A	In summary, we cautiously support the PA developed by the co-lead agencies. However, we continue to have strong concerns around spill to 125% TDG (even for the limited durations specified in the Flexible Spill Agreement/PA). Therefore we request that the co-lead agencies develop programs to effectively monitor and evaluate impacts on fish, and adaptively manage the CRS as necessary to mitigate against further jeopardizing listed salmon species.	The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. The framework for the adaptive management process is detailed in Appendix R, Part 2, Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS. It is the intention of the co-lead agencies to engage regional state, Tribal, and Federal fish managers in the development of an appropriate adaptive management process utilizing their respective salmonid management expertise. The goal of that adaptive management process would be to consider additional opportunities to further the effectiveness of the operation while maintaining the goals of the flexible spill operation: additional improvements for salmon and steelhead, maintain opportunities to operate the CRS for hydropower generation in a flexible manner that provides value to the Northwest, is implementable by the dam operators, and provides opportunity to reduce uncertainty and improve the learning opportunities around how operations of the CRS can influence the magnitude of latent mortality effects. Unforeseen outcomes or unintended consequences will be monitored and adjusted using current in-season management teams, such as the Technical Management Team.
4582	26	N/A	N/A	We understand the significant challenges associated with addressing predation issues. Not the least of which, arise from multi-federal agency compliance with and implementation of the various (and often conflicting) federal laws that govern the management of the species at issue. To address this concern,we call on the co-lead agencies to take a leadership role in aligning with their federal agency partners, state fish and wildlife agencies, utilities and tribes to work collaboratively to develop a basin-wide strategy to combat the significant threat of predation to ESA-listed Columbia River Basin salmon and steelhead.	The co-lead agencies have historically supported actions to mitigate adverse effects to listed species from CRS operations, through funding, direct implementation, and other means. Under the Preferred Alternative, those actions, including for the purpose of reducing pinniped and avian predation on listed species, would generally continue to ensure compliance with the ESA. Other entities in the region have authorities and obligations to mitigate the impacts from pinniped and avian predators and the co-lead agencies will continue to work closely with those entities to benefit ESA-listed salmonids. As for the suggestion that the three co-lead agencies (Corps, Reclamation, and Bonneville) take a leadership role in aligning regional entities, the species that are of concern due to their predation of anadromous fish in the Columbia River are managed by numerous entities, including Federal, state, and Tribal governments. These entities are guided by a complex array of policies, laws, and agreements. The three co-lead agencies (Corps, Reclamation, and Bonneville) have limited authority to manage avian predators.
4583	1	barbarajoblair@gmail.com	N/A	Beyond supporting the stated positions of the various Tribes included in Appendix P and otherwise previously stated, NCAG also supports the rights of any other native peoples who may not have been expressly included in the DEIS, such as the rights of individual Native landowners, including Palouse Tribal members, who have been removed and displaced from their ancestral lands due to these dams. Their rights to fish, access cultural and sacred areas, and practice traditions would also best be honored by breaching the 4 lower Snake River dams.	Tribal input was received during the entire development of the Columbia River System Operations Environmental Impact Statement (EIS) and tribal concerns, rights and interests, including treaty rights, were considered and incorporated throughout this EIS. Native Americans from non-Federally recognized tribes were provided the same opportunities to follow development of and comment on this EIS as the public-at-large.
4583	2	barbarajoblair@gmail.com	N/A	Sadly, by recommending their economic-driven Preferred Alternative, the co-agencies have once again failed to honor treaty rights, the U.S. governments fiduciary obligation to native people, and related social and environmental justice imperatives.	Tribal input, concerns, interests, and especially treaty rights were considered throughout the Draft EIS analyses and in the formulation of the Preferred Alternative. Treaty specific information is included in Section 3.17 as well as Chapter 7. The co-lead agencies recognize and respect the legal obligations treaties impose. The co-lead agencies accordingly included Protecting Native American treaty and reserved rights and fulfilling trust obligations for natural and cultural resources throughout the environment affected by the Columbia River System operations as a purpose in the Purpose and Need Statement in Chapter 1 to ensure treaty obligations were a key consideration of decision making. The co-lead agencies are engaging in government-to-government consultation with the tribes, and several tribes are cooperating agencies on the CRSO EIS. Analysis shows that the Preferred Alternative would meet the objectives for improving juvenile salmon, adult salmon, resident fish and lamprey. The analysis found ranges in potential effects due to different assumptions included in each of the fish models used in the study. Using the Comparative Survival Study (CSS), Snake River Chinook salmon and steelhead are expected to see relative improvements in smolt-to-adult returns of 35 percent and 28 percent, respectively. The Smolt-to-Adult return ratio (SAR) is the rate at which of a group of fish survive from their smolt life stage to a defined ending point where they return as adult. While achieving long-term recovery targets will require more than just the efforts of Federal agencies, the CSS models indicate the potential for SARs of Snake River Chinook salmon and steelhead to increase to levels that could approach recovery targets set by the Northwest Power and Conservation Council. If latent mortality effects are reduced by passing more juvenile fish through the spillway, the NMFS Lifecycle Model (LCM) also shows that levels of SARs would increase. However, if latent mortality effects are not reduced, or are different than modeled, the LCM predicts that SARs for Snake River spring Chinook salmon may be lower than the No Action Alternative (a range of -7.5 percent to +28 percent change relative to the No Action Alternative) due to reduced opportunities for fish transportation. Results for upper Columbia River stocks are beneficial based on LCM estimates. In-river survival and SARs are anticipated to increase. The CSS model does not currently model upper Columbia fish. The Preferred Alternative also has measures intended to increase upstream passage success and reduce injury and mortality for Pacific lamprey. These measures are proposed structural improvements that include converting extended-length submersible bar screen material to screen material that would not impinge or entangle juvenile lamprey, expanding the network of lamprey passage structures to bypass impediments in fish ladders, changing the design for turbine cooling water strainers, and replacing turbines for safer fish passage. The Preferred Alternative would also meet the objective to improve resident fish. Effects to resident fish vary by region and species, but are generally minor relative to the No Action Alternative. The co-lead agencies have strived to promote environmental justice, consistent with Executive Order 12898, in selection of the Preferred Alternative. The co-lead agencies analyzed the environmental effects, including human health, economic, and social effects, of the proposed action on tribal, minority and low-income communities across all alternatives. The Environmental Justice analysis in Sections 3.18.3 and 7.7.20 of the Draft EIS provides further detail on potential disproportionate effects to tribal, low-income and minority populations.
4583	3	barbarajoblair@gmail.com	N/A	NCAG also agrees with the significant deficiencies the Tribes have pointed out with the CRSO-DEIS process, such as: --The co-lead agencies failure to conduct an updated comprehensive survey like the 1999 Meyer Report, which was part of the last NEPA review, the Lower Snake River Juvenile Salmon Migration Feasibility Study, which final ROD issued in 2002; and --The co-leads failure to recognize the broader indigenous perspectives on what are trust assets, which the federal government has a fiduciary obligation to manage on behalf of the Tribes.	Tribal input, concerns, interests, and especially treaty rights were considered throughout the Draft EIS analyses and in the formulation of the Preferred Alternative. Treaty specific information is included in Section 3.17 as well as Chapter 7. As stated in that section, the treaties bind all parties and are the supreme law of the land. The co-lead agencies recognize and respect that supremacy. In terms of honoring our treaty obligations the co-lead agencies included as a purpose in the Purpose and Need Statement in Chapter 1: Protecting Native American treaty and reserved rights and fulfilling trust obligations for natural and cultural resources throughout the environment affected by the Columbia River System operations to ensure treaty obligations were a key consideration of decision making. The co-lead agencies are engaging in government-to-government consultation with the tribes, and several tribes are cooperating agencies on the Columbia River System Operation Environmental Impact Statement.
4596	1	powersupply@lcpud.org	Lewis County PUD	Public Utility District No. 1 of Lewis County, Washington (District) supports the findings of the draft EIS, most notably the exclusion of removal of the lower Snake River dams (LSRDs) as a preferred option moving forward.	Thank you for your comment.

Letter No.	Comment No.	Commenter Name/Email	Affiliation	Comment	Response[1/]
4596	2	powersupply@lcpud.org	Lewis County PUD	With consideration to the findings outlined in the Draft EIS, the District asks that the agencies continue to steer away from any preferred alternative that includes breaching the lower Snake River dams or reducing their effectiveness through increased levels of spill.	Thank you for your comment.
4596	3	powersupply@lcpud.org	Lewis County PUD	We encourage you to work with stakeholders on meaningful ways to help threatened and endangered salmonid populations without destroying this critical infrastructure. We also caution against any alternative that increases spill beyond 125% TDG without, at minimum, further research on how spill impacts out-migrating juveniles and returning adults. Additionally, contingencies should be put in place to ensure that if higher spill results in negative impacts on salmonids or other native species of fish, that spill is decreased to lower TDG levels	The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. The framework for the adaptive management process is detailed in Appendix R, Part 2, Process for Adaptive Implementation of the Flexible Spill Operational Component, of the Columbia River System Operations EIS. It is the intention of the co-lead agencies to engage regional state, Tribal, and Federal fish managers in the development of an appropriate adaptive management process utilizing their respective salmonid management expertise. The goal of that adaptive management process would be to consider additional opportunities to further the effectiveness of the operation while maintaining the goals of the flexible spill operation: additional improvements for salmon and steelhead, maintain opportunities to operate the CRS for hydropower generation in a flexible manner that provides value to the Northwest, is implementable by the dam operators, and provides opportunity to reduce uncertainty and improve the learning opportunities around how operations of the CRS can influence the magnitude of latent mortality effects. Unforeseen outcomes or unintended consequences will be monitored and adjusted using current in-season management teams, such as the Technical Management Team.
4599	1	Clark Mather	Tacoma Power	Tacoma Power supports the Preferred Alternative and the significant progress it will provide toward ESA-listed species recovery and other impacted fish and wildlife. Tacoma Power believes that the Preferred Alternative represents a significant step forward for listed species recovery while limiting impacts to regional electric customers and our environment.	Thank you for your comment.
4599	2	Clark Mather	Tacoma Power	Tacoma Power is particularly sensitive to rate impacts that would add additional strain on limited-income customers, as approximately 25 percent of our customers qualify for our needs-based bill assistance programs.	The EIS evaluated potential effects to low-income populations in the Environmental Justice analysis. Section 3.18.3 of the EIS provides further detail on potential disproportionate effects to tribal, low-income and minority populations. The Preferred Alternative is expected to result in upward rate pressure around 0.33 percent for regional average residential retail rates. The effect would be larger for public power customers and range up to +1.1 percent in some counties (see Section 7.7.20 in the Draft EIS). Additionally, under the Preferred Alternative the Bonneville wholesale power rate pressure is estimated to be 2.7 percent relative to the No Action Alternative. A portion of that rate pressure has already been incorporated into the BP-20 wholesale power rates; and, the remaining rate pressure likely falls within a level that Bonneville has historically been able to absorb through the costs over which it has significant control.
4599	3	Clark Mather	Tacoma Power	Any outcome that reduces baseload carbon-free generation, like hydropower, jeopardizes future opportunities to achieve the requirements of Washington states Clean Energy Transformation Act, as well as reduction of greenhouse gas (GHG) emissions from other sectors of the economy.	The Preferred Alternative identified in the Draft EIS meets the Purpose and Need Statement and also seeks to meet the EIS objectives. While the Preferred Alternative meets the objectives for ESA-listed juvenile and adult anadromous salmonids, resident fish, lamprey, hydropower generation, water management and water supply; it does not meet the objective for greenhouse gas. The Preferred Alternative would increase greenhouse gases would by 1.5% or 0.54 million metric tons above the levels in the No Action Alternative.
4610	1	N/A	N/A	The Draft EIS fails to honor our treaty promises to native tribes. In 1855 the Natives Peoples of the NW signed a treaty with the U.S. government that ceded most of their lands (in Washington, Oregon and Idaho) in return for the right to have and to fish for salmon and steelhead in the usual and accustomed places. The United States has failed in its obligation to the Natives Peoples. The removal of the lower Snake River dams would go a long way in helping to restore the salmon to levels necessary to meet treaty obligations.	Tribal input, concerns, interests, and especially treaty rights were considered throughout the Draft EIS analyses and in the formulation of the Preferred Alternative. Treaty specific information is included in Section 3.17 as well as Chapter 7. The co-lead agencies recognize and respect the legal obligations treaties impose. The co-lead agencies accordingly included Protecting Native American treaty and reserved rights and fulfilling trust obligations for natural and cultural resources throughout the environment affected by the Columbia River System operations as a purpose in the Purpose and Need Statement in Chapter 1 to ensure treaty obligations were a key consideration of decision making. The co-lead agencies are engaging in government-to-government consultation with the tribes, and several tribes are cooperating agencies on the CRSO EIS. Analysis shows that the Preferred Alternative would meet the objectives for improving juvenile salmon, adult salmon, resident fish and lamprey. The analysis found ranges in potential effects due to different assumptions included in each of the fish models used in the study. Using the Comparative Survival Study (CSS), Snake River Chinook salmon and steelhead are expected to see relative improvements in smolt-to-adult returns of 35 percent and 28 percent, respectively. The Smolt-to-Adult return ratio (SAR) is the rate at which of a group of fish survive from their smolt life stage to a defined ending point where they return as adult. While achieving long-term recovery targets will require more than just the efforts of Federal agencies, the CSS models indicate the potential for SARs of Snake River Chinook salmon and steelhead to increase to levels that could approach recovery targets set by the Northwest Power and Conservation Council. If latent mortality effects are reduced by passing more juvenile fish through the spillway, the NMFS Lifecycle Model (LCM) also shows that levels of SARs would increase. However, if latent mortality effects are not reduced, or are different than modeled, the LCM predicts that SARs for Snake River spring Chinook salmon may be lower than the No Action Alternative (a range of -7.5 percent to +28 percent change relative to the No Action Alternative) due to reduced opportunities for fish transportation. Results for upper Columbia River stocks are beneficial based on LCM estimates. In-river survival and SARs are anticipated to increase. The CSS model does not currently model upper Columbia fish. The Preferred Alternative also has measures intended to increase upstream passage success and reduce injury and mortality for Pacific lamprey. These measures are proposed structural improvements that include converting extended-length submersible bar screen material to screen material that would not impinge or entangle juvenile lamprey, expanding the network of lamprey passage structures to bypass impediments in fish ladders, changing the design for turbine cooling water strainers, and replacing turbines for safer fish passage. The Preferred Alternative would also meet the objective to improve resident fish. Effects to resident fish vary by region and species, but are generally minor relative to the No Action Alternative.
4619	1	Jack Janda	N/A	Removing the dams will most likely increase our use of carbon-based generation and does not support the Washington State energy goals.	Section 3.8 and Chapter 7 of the EIS evaluates the extent to which the CRSO EIS alternatives influence the ability of the region to meet Washington State energy goals for carbon emissions reductions. Section 3.8 finds that Multiple Objective Alternative 3, which includes breaching the four lower Snake River dams would make these goals more difficult to meet. The Preferred Alternative estimates that GHG emissions would increase by 1.5% or 0.54 million metric tons compared to the No Action Alternative.
4619	2	Jack Janda	N/A	Removing the dams makes resource adequacy a challenge for the future and sets us up for our failure to meet our energy needs.	The measure to breach the four lower Snake River dams that was evaluated in MO3, was not included in the Preferred Alternative identified in the Draft EIS. The effects of the Preferred Alternative (PA) on power are described in Section 7.7.9 of the Draft EIS. Overall, hydropower would decrease relative to the No Action Alternative under the PA. However, because of the shape of the remaining hydropower generation in the PA, the loss of load probability was essentially the same as that of the No Action Alternative and identification of replacement resources was not necessary. The EIS analyzed two resource portfolios to replace the hydropower generation of the four lower Snake River dams, both of which maintain regional power system reliability. See Section 3.7.3.5, at pages 3-904-910 in the Draft EIS. Under these replacement portfolios, regional power rate pressure increases. In the Draft EIS, see Section 3.7.3.5, at pages 3-918-924; and Table 3-166. Without replacement resources, however, the statement about the effects of breaching the four lower Snake River dams on regional resource adequacy is consistent with the findings of the EIS. In the Draft EIS, see Section 3.7.3.5, Effects on Power System Reliability, at page 3-903; and also Appendix H, Table 2-1.
4619	3	Jack Janda	N/A	Losing our dams has a negative effect on other river users, such as navigation, recreation, agriculture and will increase truck traffic along the Columbia River corridor.	The potential environmental, economic and social impacts from breaching of the lower Snake River dams are evaluated and described throughout the EIS organized by resource area. Human health and well-being are described in several socioeconomic-related resource areas including Power and Transmission (Section 3.7), Navigation and Transportation (Section 3.10) , Water Supply (Section 3.12), and Recreation (Section 3.11). Environmental and human health impacts associated with increased emissions to shipping goods by rail and/or truck are evaluated and described in the Air Quality Section (3.8), and increase health and safety concerns due to increased truck traffic on roadways and potential for increased accidents are described in the Navigation and Transportation Section for other social effects (Section 3.10.3.5).
4624	1	Joel Kawahara	N/A	Finally, with respect to the multiple objective alternatives, they do not really represent public sentiment. There have been very strong comments, mine included, on salmon recovery that are not fully addressed by any of the multiple objective alternatives. I suggest an analysis of a full recovery alternative.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Recovery of ESA species is the purview of NMFS and the US Fish and Wildlife Service. This EIS has been developed in consultation with NMFS and USFWS to find an acceptable balance that allows the co-leads to meet congressionally authorized purposes while minimizing impacts to affected ESA species and their habitats. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the Columbia River System. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. The Preferred Alternative is nevertheless predicted to benefit salmon and steelhead. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. The effects of delayed mortality are discussed throughout the EIS analysis for each alternative and current high quality data and the best available scientific information was used for this analysis. Based on analysis by the CSS, SARs associated with population declines (SARs of less than 1%) have the potential to be greatly reduced under the Preferred Alternative, and on average, SARs are expected to be well above 2.0% for Snake River spring Chinook salmon and steelhead. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the EIS objectives) as well as the EIS objectives for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. The Preferred Alternative is also more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system.
4624	2	Joel Kawahara	N/A	I have a comment about the preferred alternative, which says that economic and social disruption is minimized. I dispute that. That analysis does not take into account lost fisheries revenue from the building of the Columbia River System.	The co-lead agencies recognize that the maintenance and operation of dams in the CRS create effects to salmon and steelhead populations in the Columbia River Basin. However, the co-lead agencies also recognize that there are many stressors to these fish populations from outside the CRS hydro-system, including poor ocean conditions, harvest, and access to habitat. Current ocean conditions have limited adult returns up and down the west coast regardless of migration impediments. All four lower Snake River dams have high adult passage rates with conversion rates and juvenile survival rates in the mid to high 90%. In the recent screening conference held in Walla Walla this past year, Washington, Oregon and Idaho reported that between 70 and 80% of tributary habitats in their states had access issues either from perched culverts, unscreened irrigation returns, or blockages. A study conducted on one stream in the Salmon Basin reported that nearly all fish emigrating downstream were diverted in irrigation withdrawals. The EIS provides an evaluation of the social welfare and regional economic effects of the No Action Alternative and the Multiple Objective alternatives, including the effects on recreation (Section 3.11) and commercial fisheries (Section 3.15). The EIS Section 3.5.3.6 describes the long-term effects to anadromous fish migration in the Snake River and tributaries as major and beneficial. The EIS described the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. NMFS estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which is described qualitatively. For the effects on recreational fishing under MO3 (Section 3.11.3.5) along the lower Snake River below Lewiston, the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River) as an indicator for fishing visitation in this reach. Again, there is uncertainty around recreational and commercial fishing visitation in the long-term given the current measures to regulate, protect, and support ESA-listed fish populations and habitat in the region. However, the EIS describes that the visitation in the long-term in the lower Snake River, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting jobs, income, and tourism businesses. The social welfare effects under MO3 on commercial fisheries are described as major and beneficial in the long-term in this reach, with increases in regional economic effects if commercial fish catch rates increase.

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4626	1	Elaine Kuen	N/A	We need to have extended hearings on this. This should not be decided in the middle of the Coronavirus epidemic. This should be postponed.	The co-lead agencies considered requests to extend the public comment period. This NEPA process included a wide array of cooperating agencies whose close involvement throughout the process allowed the co-lead agencies to incorporate feedback. Given the broad range of comments received and the extensive Federal and non-Federal participation in the overall process as well as the level of public engagement in the six virtual public meetings in the region, the co-lead agencies determined that an extension was not warranted and that the 45-day public comment period was adequate consistent with NEPA regulations. On April 9, the CRSO EIS website was updated to inform the public that they should plan to submit comments by the close of the comment period.
4627	1	Terri Wright	N/A	First, I would like to stress that the comment period during this Coronavirus pandemic needs to be extended or rescheduled. Wading through the more than 5,000 pages of the draft Environmental Impact Statement in order to offer thoughtful comments is challenging in the best of times. These are not the best of times	The co-lead agencies considered requests to extend the public comment period. This NEPA process included a wide array of cooperating agencies whose close involvement throughout the process allowed the co-lead agencies to incorporate feedback. Given the broad range of comments received and the extensive Federal and non-Federal participation in the overall process as well as the level of public engagement in the six virtual public meetings in the region, the co-lead agencies determined that an extension was not warranted and that the 45-day public comment period was adequate consistent with NEPA regulations. The CRSO EIS website reminded the public on April 9, that they should plan to submit comments by the close of the comment period.
4627	2	Terri Wright	N/A	Orca conservancy firmly believes the restoration of the Snake River is vital for preserving our salmon and our southern residents. We must continue the discussions that have been started between stakeholders to address and ensure the wholeness of each affected community, not only on what this will look like without the Snake River dams but how to get to that point	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. The co-lead agencies conclude there could be a negligible to minor beneficial effects to SRKW from implementing MO3. CSS and NMFS Lifecycle models predict that lower Snake River Chinook salmon smolt-to-adult returns would have a moderate to major increase under MO3. Operation of Lower Snake River Compensation Plan fish hatcheries under MO3 is uncertain and therefore, production of Snake River hatchery fish is assumed to decline over the long term, while returning adult wild salmon are anticipated to increase. However, the co-leads do not anticipate a lack of hatchery fish in the short term based on the proposed fish hatchery mitigation described in Chapter 5. These additional hatchery fish should mitigate short-term construction effects to Snake River populations. Additionally, to address short-term effects to ESA-listed species, the co-lead agencies propose constructing a new trap and haul facility at McNary and conducting at least two years of trap and haul operations for Snake River fish (Chinook, sockeye, and steelhead). The co-lead agencies agree that the quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differently from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for the whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall-run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall-run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). The co-lead agencies note the contribution to the prey of Southern Resident killer whales through the continued existence of their respective independent congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as Lower Snake River Compensation Plan, which is administered by USFWS.
4627	3	Terri Wright	N/A	As the National marine Fishery Service acknowledged, new information confirms that southern residents spend substantial time in coastal areas of Washington, Oregon and California and utilize salmon returns to these areas. These coastal waters are recognized as an essential forging area for this critically endangered population in the winter and spring.	The co-lead agencies utilized current high quality information and best available science in its analysis of the effects of the operation, maintenance, and configuration of the CRS projects, including information from NMFS regarding SRKW foraging behaviors. The population dynamics of the SRKW are complicated and there are multiple factors that contribute to the overall success of this species. The quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differently from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for the whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall-run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall-run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). Details on the most crucial prey stocks for Southern Resident killer whales, as well as their population and range, is available from several fact sheets and videos available here: https://www.fisheries.noaa.gov/species/killer-whale#spotlight. For more information, visit this NMFS StoryMap on Southern Resident killer whales: https://noaa.maps.arcgis.com/apps/Cascade/index.html?appid=3405e6637bf74e998d4ebe992c54f613.
4628	1	Nina Sarmiento	N/A	MO-3 has been poisoned by including more spill, structural measures, and mitigation on other lower Columbia dams. Overestimated breach costs and unnecessary mitigation costs further poison the (inaudible). Thus, the actual cost of breaching has been inflated upwards of $600 million, despite analysis already done that it can be accomplished in half a million.	The Purpose and Need Statement of this EIS requires that the co-lead agencies develop alternatives to operate the CRS to meet congressionally authorized purposes. A single purpose alternative, such as dam breaching would not meet the purpose and need, nor would it provide a strategy and NEPA coverage for future operations and configurations of the CRS. As for the cost estimate, the co-lead agencies place priority on human health and safety. The plan proposed for breaching was developed to provide maximum safety for humans, including contractors doing the work, and those living in the vicinity of the breach and affected downstream areas. Cost estimates were developed to implement the plan using 2019 price levels.
4628	3	Nina Sarmiento	N/A	Closer look at the Appendix Q, cost analysis table or (inaudible) -3, shows that the breach estimate for the new EIS includes $212 million in annual capital costs from other dams. The four lower Snake Dams have no capital cost (inaudible).	The commenter is correct that under MO3, which includes breaching the four lower Snake River dams, Section 3.19 and Appendix Q correctly remove capital costs. Under MO3, it is assumed that future capital costs for end-of-life equipment replacements for the four lower Snake River Dams would not proceed as the dams are breached. For the remaining CRS projects, planned capital replacements are largely not affected by breaching the four lower Snake River dams.
4628	4	Nina Sarmiento	N/A	Similarly, the operation and maintenance cost for all other Columbia River System dams included in annual cost (indiscernible) breaching, when in reality only operation and maintenance costs for recreation will remain post-breaching. MO-3 has been falsely presented as extremely expensive; even so, evidence in MO-3 points to breaching as the only alternative that saves money, ratepayer money, and has the highest probability of recovering salmon and orca.	The Cost Analysis Appendix Q describes the costs by project for capital and operations and maintenance costs. Under MO3, the co-lead agencies would save approximately $107 million annually in these costs (Tables 4-1 and 5-1). Under MO3, there would no longer be co-lead agency costs incurred for recreation because it is anticipated that the co-lead agencies would no longer operate project lands for recreation after the projects are deauthorized. Recreational sites could be modified in the future as project land is transferred through real estate actions. Costs under MO3 include costs to breach and drawdown the four lower Snake River dams (see Annex A in Appendix Q) as well as additional mitigation measures to reduced adverse effects under MO3 (See Annex B of Appendix Q). From a resource competitiveness perspective, the four lower Snake River dams are among the least costly generating resources in the Federal Columbia River Power System (FCRPS) and the planned investment strategy is expected to maintain that status. As shown in the Federal hydropower presentation at the 2018 Integrated Program Review, the Headwater/Lower Snake Asset Class is forecast to have a 50-year levelized cost of generation of $11.41/MWh based on the direct funded capital and expense programs outlined in that process. These costs remain competitive with volatile Mid-Columbia spot market energy prices which averaged $37/MWh in 2019 and have averaged $21/MWh in 2020. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the Endangered Species Act (ESA), in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Similarly, the Northwest Power Act does not obligate the co-lead agencies to recover ESA-listed species or to ensure restoration of other fish and wildlife. Instead, the co-lead agencies fish and wildlife mitigation responsibilities under Northwest Power Act are more limited primarily, managing and operating FCRPS projects, which includes the CRS, to protect, mitigate, and enhance (as opposed to recover) fish and wildlife affected by such projects in a manner that provides equitable treatment with the projects other authorized purposes and consistent with the purposes of the Act and applicable laws. In addition, Bonneville has a specific responsibility to fund protection, mitigation, and enhancement of fish and wildlife to the extent affected by development and operation of FCRPS projects consistent with the Northwest Power and Conservation Council (Council) fish and wildlife program, the Councils power plan, and the purposes of the Act, which includes assurance of an adequate, efficient, economical, and reliable power supply. The EIS analysis in Section 3.6 (Wildlife section) found only a potential for negligible to minor beneficial effect to the Southern Resident killer whale (SRKW) would result from implementing MO3 (which includes breaching the four lower Snake River dams). Operation of Lower Snake River Compensation Plan fish hatcheries under MO3 is uncertain and therefore, production of Snake River hatchery fish is assumed to decline over the long term, while returning adult wild salmon are anticipated to increase. CSS and NMFS Lifecycle models predict that lower Snake River Chinook salmon smolt-to-adult returns would have a moderate to major increase under MO3, with long-term increases in wild prey. The co-leads do not anticipate a lack of hatchery fish in the short term based on the proposed fish hatchery mitigation described in Chapter 5 and the fact that these additional hatchery fish should mitigate short-term construction effects to Snake River populations.
4628	5	Nina Sarmiento	N/A	The next thing I want to point out that that person stated is that the connection between orca, salmon, orca and the Snake River is very clear. And the fact that it's not even in the EIS is a fatal flaw.	The co-lead agencies utilized current high quality information and best available science in its analysis of the effects of the operation, maintenance, and configuration of the CRS projects. The discussion of the issue identified in this comment is provided throughout the CRSO EIS, including in the FEIS Chapter 3 (Vegetation, Wetlands, Wildlife, and Floodplains) has been updated for SRKW (Section 3.6.2.6 and Table 3-102) and FEIS Chapter 7 (Preferred Alternative) with additional analysis information on SRKW and potential increase in forage fish, in particular, Chinook salmon in Section 7.7.8. The population dynamics of the SRKW are complicated and there are multiple factors that contribute to the overall success of this species. The quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differently from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for the whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall-run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall-run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early

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					spring months near the mouth of the Columbia River (Ford 2016). Details on the most crucial prey stocks for Southern Resident killer whales, as well as their population and range, is available from several fact sheets and videos available here: https://www.fisheries.noaa.gov/species/killer-whale#spotlight. For more information, visit this NMFS StoryMap on Southern Resident killer whales: https://noaa.maps.arcgis.com/apps/Cascade/index.html?appid=3405e6637bf74e998d4ebe992c54f613.
4628	6	Nina Sarmiento	N/A	I'm going to specifically cite Appendix Q, cost analysis Annex B, multiple objective specific mitigation cost, resource is anadromous fish. And so it's included in this breach alternative 78 million to release hatchery fish to help address the loss of fish in the river during breaching. And so clearly the mitigation action was misguided here because breaching has to occur when there are no fish in the river.	The breaching would be timed as well as can be controlled to take place outside of the migration period. The method proposed for breaching the four lower Snake River dams is based on extensive analysis completed for the 2002 Feasibility Study, which also considered dam breaching. The methodology developed is intended to minimize effects to ESA-listed fish runs, other aquatic organisms and the built environment, while providing maximum protection to human health and safety. The CRSO EIS uses the same assumptions. The co-lead agencies will continue to adhere to Federal standards for dam and levee safety and human life safety considerations. In the event that breaching of the four lower Snake River dams is implemented, additional analysis will be conducted to refine methods and costs. NEPA requires that all relevant, reasonable mitigation measures that could diminish the adverse impacts of the project be identified in the document, even if they are outside the jurisdiction of the lead agency or the cooperating agencies. See 40 C.F.R. 1502.16(h) and 1505.2(c); 46 Fed. Reg. 18026. The inclusion of mitigation measures in Chapter 5 is not intended to indicate that the co-lead agencies, or the Federal government as a whole, have the authority to perform all of the measures listed. If the measures are outside the jurisdiction of the co-lead agencies, those measures will not be included in the Preferred Alternative or Record of Decision (ROD). Their inclusion in Chapter 5 serves to alert other agencies, officials, and the public who can implement the measures to the potential benefits of the measure. The mitigation requested, while identified in the Draft EIS, is not within the co-lead agencies' current authorities. The co-lead agencies do not have the authority to provide mitigation for the effects to private infrastructure such as irrigation pumps, wells, or private docks. The co-lead agencies do not have the authority to provide direct payments to farmers related to increased operation costs.
4628	7	Nina Sarmiento	N/A	Appendix Q, Annex B, multiple objective specific mitigation costs, navigation, transportation. And so it says that the impact of breaching MO-3 would result in high water velocities which would result in damage to the piers and the bridges. So we would need to protect them from erosion, and this would cost $203 million. And so this is an inconsistency that I thought that was wrong, because the armor is already on the piers and the bridges, because those piers and bridges were built before the lower Snake River dams were built	The co-lead agencies did use the information in the 2002 EIS to identify 25 existing bridges in the lower Snake River, their infrastructure assessment, and the Snake River embankments able to withstand scour at 500 year flow events. The 2002 EIS evaluation identified the piers and abutments of these 25 bridges would need additional armoring as well as 80 miles of embankment fill. Review of these findings concluded this would still be true for the CRSO EIS Multiple Objective alternative 3. The costs developed are based on these findings.
4628	8	Nina Sarmiento	N/A	I'll continue on to my next critique, which is in Appendix Q, Annex B, specific mitigation costs under navigation and transportation where it says breaching of the lower Snake River dams would cause sediment deposit in the navigation channel at the confluence of the Columbia upper part of McNary Reservoir. And so this is completely false. They allocate $108 million for mitigating this sediment that they say would be deposited so they would have to dredge. However, this mitigation cost was not in the 2002 EIS breach alternative mitigation cost. And so why? So it's because it's not a real mitigation cost.	The EIS estimates the costs to operate the CRS dams, as well as the costs to the navigation industry that would be occur if the lower Snake River dams are breached under MO3. The EIS evaluated all of the tradeoffs associated with the management of the system, which has multiple purposes. It was not an analysis that aimed to compare the benefits of navigation against the costs to salmon. Direct and indirect effects of MO3, as compared to the No Action Alternative, include downriver sedimentation as described in cumulative effects Table 6-11 (Section 6.3.1.2.4). Near-term sedimentation effects following the MO3 Breach Snake Embankments measure are predicted to last up to ten years (depending on the hydrologic regime) as legacy sediment deposits within the former reservoirs are incrementally eroded and re-deposited throughout the lower Snake Reach. Near-term sedimentation effects are expected to be particularly large in the upstream end of Lake Wallula on the Columbia River. The impacts of sediment deposition at left bank recreation and boat-launch sites below the Snake confluence would likely be permanent. Long-term sedimentation effects would include continued deposition in quiescent areas prone to shoaling as a result of annual sediment delivery that had previously been trapped by the lower Snake River dams, but not directly interfere with Columbia River navigation. Mitigation actions for these potential impacts to navigation are detailed in Section 5.4.3.5 and propose dredging to maintain this reach of the Federal navigation channel. Likewise, public and private port facilities both near the confluence of the lower Snake River and on the left bank of Lake Wallula would need to conduct sequential dredging in order to avoid interruptions in service and maintain access to the navigation channel. Dredging mitigation for maintaining the Federal navigation channel would be a Corps' expense, while dredging to maintain port facilities and access to the Federal navigation channel would not be a Corps' expense. Dredging operations are expected to remain similar to No Action Alternative in the remaining reach of the Columbia River navigation channel.
4628	9	Nina Sarmiento	N/A	And federal agencies in this DEIS gave a price tag of 400 million for irrigation mitigation. And they got to that price by devaluing the amount of irrigated land and then recording that loss. And that's just absurd. That solution is not helpful for anyone.	In Region C (lower Snake River), and potentially Region D (mainstem Columbia River) around the confluence of the lower Snake River, MO3 alternative, which includes breaching the earthen embankment of the four lower Snake River dams, would have adverse effects to farmers and irrigation. Currently and in the No Action Alternative, water is available from the pools of these facilities and from groundwater that results from the pools. Removing the earthen embankment portion of the dams will reduce pool elevations by up to 100 feet, which would make surface pumps inoperable. Groundwater pumps in the wells may also be affected due to decreased groundwater elevations depending on the connectivity of the aquifer to the pools. Municipal and industrial water pumps in the Lewiston area would also likely be adversely effected. Additionally, transportation of farming goods would expect to move off river and on to rail or trucks, as there would be a complete loss of commercial navigation on the lower Snake River and could not be feasibly mitigated. All ports along the Snake River would lose access to the navigation channel. Some ports at the confluence or the Snake and Columbia River could dredge new channels to the Federal channel in the confluence (McNary reservoir) to maintain access. Private or public entities or businesses could take actions and/or build infrastructure to extend pumps or water supply access for water. Ports and farmers can likewise change their transportation modes or connect to the navigation system at a different point on the river. The federal co-lead agencies would not mitigate for these impacts to water users or ports. See Chapter 3 analyzes the social and economic effects of implementing a dam breaching alternative (MO3) and Chapter 5 for mitigation discussion.
4630	1	LeeAnne Beris	N/A	The federal agencies' approach in this DEIS maintains the status quo that resolves none of these challenges and meets no one's needs. The state's community is calling on Northwest elected officials, federal agencies, and policymakers to work with each other as well as Northwest tribes, farmers, fishermen, community leaders, and all other river stakeholders, to develop a salmon recovery -- -- to develop a salmon recovery plan that actually restores salmon and ensures a prosperous region for everyone.	The co-lead agencies concur that regional salmon recovery planning is best accomplished collaboratively and is more suitable for completion outside of an EIS process. Based on our analysis, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Recovery is a broader regional goal and is above and beyond the co-lead agencies' obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the CRS. That call, however, is ultimately the role of NMFS and the USFWS. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. In compliance with ESA, the co-lead agencies submitted biological assessments to NMFS and USFWS (Appendix V). In this Final EIS, the Biological Opinions from NMFS and USFWS can be found in Appendix V, completing this projects ESA consultation.
4631	1	Chad Jensen	N/A	I'm Chad Jensen, and I'm honored to serve as the CEO of Inland Power and Light based here in Spokane, Washington. The draft EIS is an impressive document, and I tip my hat to all the effort put in by the three agencies. I want to start off by saying dams are meaningful to our area and the entire Northwest. Dams provide us with carbon-free power that meets our state mandates and provides a reliable backup for renewables. If the dams are removed, the impact on rates and our Northwest economy would be significant.	The comment that Multiple Objective 3, which includes breaching the four lower Snake River dams, would increase power costs and adversely affect the integration of renewables in the region are consistent with the findings in the EIS. See Section 3.7.3.5, at pages 3-918-924 in the Draft EIS; see also Table 3-166 in the Draft EIS.
4631	2	Chad Jensen	N/A	Dam removal is projected to raise BPA rate by as much as 50 percent. To us, that translates to up to 25 percent for our members. This power also cannot be replaced without impacting rates in our carbon-free footprint.	The statement that wholesale power rates could increase up to 50 percent is consistent with the findings for Multiple Objective alternative 3 of the EIS. See Section 3.7.3.5, at pages 3-918-924 and Table 3-166 in the Draft EIS. The statement that replacing lost hydropower could increase carbon emissions is consistent with the findings of the EIS. See Section 3.8.3.5, pages 3-1009-1010 in the Draft EIS.
4631	3	Chad Jensen	N/A	I support the EIS suggested action and note that even the draft EIS shows that losing the lower Snake River dams would double the risk of regional blackouts. They are important to our economy. They're important to our future.	The EIS analyzed two resource portfolios to replace the hydropower generation of the four lower Snake River dams, both of which maintain regional power system reliability. See Section 3.7.3.5, at pages 3-904-910 in the Draft EIS. Under these replacement portfolios, regional power rate pressure increases. Without replacement resources, however, the statement about the effects of breaching the four lower Snake River dams on regional power reliability is consistent with the findings of the EIS. In the Draft EIS, see Section 3.7.3.5, Effects on Power System Reliability, at 3-903; and Appendix H, Table 2-1.
4632	1	John Francisco; John Francisco	Northwest Requirements Utilities (NRU)	The spill regime identified in the preferred alternative relies on spill to generate total dissolved gasses well above recommended levels. Spill at this level has not yet proven to be beneficial to fish stocks. NRU strongly encourages the lead agencies to expeditiously design and implement a robust fish monitoring program to ensure the proposed spill levels deliver the increases in population shown in the model. Implementation and monitoring must be followed by a willingness to invoke the adaptive management protocols to quickly adjust spill levels and increased fish survival is not shown.	TDG levels are regulated under the Federal Clean Water Act, and administered by the states. Both Oregon and Washington have reassessed the available data on effects of TDG levels up to 125% of saturation on fish and other aquatic organisms. Based on this reassessment Oregon issued a five-year "standard modification" and Washington issued a permanent rule change, supported by the Environmental Protection Agency (EPA), to allow TDG saturation up to 125%. However, as noted by the commenter, there is considerable uncertainty in the effects of free swimming fish; and therefore, monitoring was required by the states and EPA to ensure any negative effects are detected and allow for adaptive management. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. The framework for the adaptive management process is detailed in Appendix R, Part 2, Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS. It is the intention of the co-lead agencies to engage regional state, Tribal, and Federal biologists in the development of an appropriate adaptive management process utilizing their respective salmonid management expertise. The goal of that adaptive management process would be to consider additional opportunities to further the effectiveness of the operation while maintaining the goals of the flexible spill operation: additional improvements for salmon and steelhead, maintain opportunities to operate the CRS for hydropower generation in a flexible manner that provides value to the Northwest, is implementable by the dam operators, and provides opportunity to reduce uncertainty and improve the learning opportunities around how operations of the CRS can influence the magnitude of latent mortality effects. Unforeseen outcomes or unintended consequences will be monitored and adjusted using current in-season management teams, such as the Technical Management Team.
4633	1	Gary Wiens	N/A	The draft EIS points out that the cost of replacing these dams would result in approximately$1 billion annual increase to electricity costs. This would result in a 25 percent increase in our folks' monthly electric power bills. That's just simply unacceptable, unaffordable. Montanans, we're generally a low-income state. And I know many of the people that are served by our electric co-ops, they are low-income people. They just simply can't afford a 25 percent increase.	The comment that power costs in the region would increase under Multiple Objective 3, which includes breaching the four lower Snake River dams, is consistent with EIS findings. See Section 3.7.3.5, at pages 3-918-924 and Table 3-166 in the Draft EIS. Chapter 5 of Appendix H, Power and Transmission, provides additional details on potential rate increases by county as well as for urban and rural utility customers. The comment that increases in utility costs can adversely affect vulnerable groups is also consistent with discussions in the EIS. The Environmental Justice analysis in Section 3.18.3 and Chapter 7 provides further detail on potential disproportionate effects including to Tribal, low-income and minority populations. For Bonneville's wholesale power rates, the Preferred Alternative places additional rate pressure of 2.7 percent relative to the No Action Alternative consistent with the statement in the comment regarding increased rates. These estimates compare the Preferred Alternative to the No Action Alternative, which is not the same as comparing the Preferred Alternative to current operations. Consequently, the estimates are not a comparison to the BP-20 wholesale power rates, which were set assuming the financial impact of the 2019-2021 Spill Operation Agreement and therefore already include a substantial portion of the cost pressures found in the Preferred Alternative. The remaining rate pressure associated with the Preferred Alternative falls within a level that Bonneville has historically been able to mitigate through the costs over which it has significant control.
4634	1	Joshua Crowe	N/A	As a recreation professional, I implore you to look closely at the economic benefits that a free-flowing 200-mile section of river would bring to the region. On a purely economic basis, a free-flowing Snake River would greatly benefit the region. But the benefits of a free-flowing lower Snake River — would extend far beyond purely the economic.	The EIS provides an evaluation of the social welfare and regional economic effects of the No Action Alternative and the multi-objectives alternatives, including the effects on recreation (Section 3.11) and fisheries (Section 3.15). The EIS described the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. NMFS estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which is described qualitatively. The potential for changes in recreational fishing of anadromous fish under MO3 in the Region C is described in Section 3.11. Increases in recreational fishing could support jobs, income, and social benefits in Tribal and rural river communities. For the effects on recreational fishing under MO3 (Section 3.11.3.5) along the Lower Snake River below Lewiston, the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River) as an indicator for fishing visitation in this reach. The EIS describes that the visitation in the long-term in the lower Snake River, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting outfitting and tourism businesses in the region. However, there is uncertainty around recreational fishing visitation in the long-term given the current measures to regulate, protect, and support ESA-listed fish populations and habitat in the region.
4638	1	Julia Good Stefani	N/A	My name is Julia Good Stefani. I'm an attorney with the Natural Resources Defense Council. My first request on this call is for an extension of the public comment period. Given the COVID-19 situation, I don't believe the public has a meaningful opportunity here with just 45 days to comment on a nearly 8,000-page document. And we'd ask the agencies, as we've done in writing, to consider an extension so that more people can join.	The co-lead agencies considered requests to extend the public comment period. This NEPA process included a wide array of cooperating agencies whose close involvement throughout the process allowed the co-lead agencies to incorporate feedback. Given the broad range of comments received and the extensive Federal and non-Federal participation in the overall process as well as the level of public engagement in the six virtual public meetings in the region, the co-lead agencies

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					determined that an extension was not warranted and that the 45-day public comment period was adequate consistent with NEPA regulations. The CRSO EIS website reminded the public on April 9, that they should plan to submit comments by the close of the comment period.
4639	1	Laura Ackerman	N/A	I would ask that we expand the comment period to 120 days, because every American has had their lives upturned by the coronavirus. People are distracted and worried, and we need more time.	The co-lead agencies considered requests to extend the public comment period. This NEPA process included a wide array of cooperating agencies whose close involvement throughout the process allowed the co-lead agencies to incorporate feedback. Given the broad range of comments received and the extensive Federal and non-Federal participation in the overall process as well as the level of public engagement in the six virtual public meetings in the region, the co-lead agencies determined that an extension was not warranted and that the 45-day public comment period was adequate consistent with NEPA regulations. The CRSO EIS website reminded the public on April 9, that they should plan to submit comments by the close of the comment period.
4640	1	grooovyjake@gmail.com	N/A	Climate change is a real threat to our region, but we must understand why that is. Warming temperatures mean warmer rivers and an increasingly acidified ocean. The series of dams on the lower Snake and lower Columbia rivers nullify the cooling properties of a free-flowing river, creating a homogenous body of slow, hot water.	The decline of salmon populations is complex and recovery of those species will take collaboration between various agencies including NOAA and the Tribes. The co-lead agencies acknowledges that the ocean environment is a contributor to the decline in salmon populations that is beyond the scope of the CRSO EIS. While none of the alternatives would affect ocean conditions, we recognize that these conditions are a major driver for adult returns and that numerous studies have shown the importance of this environment in the return of adult salmon and steelhead (Peterson et al. 2019). As such, two of the models used in these analyses, NMFS Lifecycle and CSS models, use metrics of ocean productivity to predict adult returns. The carbon-free attributes of the Federal hydropower system are described in the Air Quality Section of the Draft EIS (Section 3.8). The analysis includes the effects to GHG emissions resulting from changes in hydropower generation for each alternative, including breaching the Lower Snake River dams in MO3. Breaching the four lower Snake River dams would result in long-term benefits including improvements to fall water temperatures and the restoration of the river to more normative riverine processes; this is stated in Chapter 3, pages 3-271 through 3-272 and Appendix D, Section 6.2.3. Under a dam breach scenario, spring water temperatures will warm more quickly than No Action conditions. Similarly in the fall, under a dam breach scenario, fall water temperatures will cool more quickly than No Action conditions. These results make logical sense and are supported by results from CRSO numerical water quality modeling. What has surprised some stakeholders are the predicted summer water temperature effects under dam breaching. Many believe that removing the dams will result in colder water temperatures as compared to the No Action Alternative. While some cooler water temperatures may be observed in the summer under dam breaching, especially during cooler summer weather conditions and at night, water temperatures will remain warm and exceed the state water quality standard at times. This is because without the dams, the lower Snake River will be shallower and more susceptible to solar radiation and warming. Increases in water particle travel time are expected, but the lower Snake River has always been a warm system (USGS 1960, 1961, 1964; Corps 2002a) and breaching the dams will not change this fact. Regionally high air and water temperatures result in water quality standard exceedances and are beyond the ability of the CRS to cool; future climate change predictions will result in even more difficult challenges.
4641	1	Jim Bryne	N/A	In this DEIS, not all costs are included. For example, the cost to dredge Snake River annually is $12.8 million a year, and that's not referenced. In the breaching option, increases in appliance efficiencies, wind, and solar power are downplayed.	Costs to dredge the lower Snake River are included in the cost analysis described in Section 3.19 and Appendix Q; they are included in the operations and maintenance costs, described in Appendix Q, Section 5.1.2.3. According to Corps district navigation experts, dredging costs for the four lower Snake River projects are estimated to cost $3 million annually. Dredging costs were developed based upon historic dredging quantities and costs. Although these costs may generally be referred to as simply dredging costs or navigation dredging costs, dredging outside of the federal navigation channel could still occur in the future if needed and are captured within the historic quantities. Dredging costs were included for all alternatives, and it is recognized that dredging would no longer be needed on the lower Snake near Lewiston, ID under MO3. All cost effective conservation (energy efficiency) identified by the Councils 7th Power Plan is included in the load forecast. Under Washington and Oregon law, all cost effective conservation must be acquired regardless of the status of the FCRPS. Therefore, conservation was not considered a potential resource replacement, as this would have risked double counting. The source of resource information used in the EIS is from the Northwest Power and Conservation Council's 7th Power Plan and Mid-term update. The EIS identified solar was a component of a potential portfolio of replacement resources for MO3. See Section 3.7.3.5. Wind was also considered, but was not as cost-effective for replacing the lost hydropower generation in this alternative.
4641	2	Jim Bryne	N/A	We would also like to see an extension to the comment period.	The co-lead agencies considered requests to extend the public comment period. This NEPA process included a wide array of cooperating agencies whose close involvement throughout the process allowed the co-lead agencies to incorporate feedback. Given the broad range of comments received and the extensive Federal and non-Federal participation in the overall process as well as the level of public engagement in the six virtual public meetings in the region, the co-lead agencies determined that an extension was not warranted and that the 45-day public comment period was adequate consistent with NEPA regulations. The CRSO EIS website notified the public on April 9, that they should plan to submit comments by the close of the comment period.
4642	1	Scott Simms	Public Power Council PPC; Public Power Council (PPC)	since the time the DEIS was initiated, the regional power supply outlook has been evolving rapidly, due to accelerated retirements of thousands of megawatts of coal capacity and with the addition of more intermittent renewals on the grid. The Northwest Power Pool and regional utilities have identified a growing resource adequacy need in coming years to maintain reliability and prevent blackouts.	Consistent with this comment, the EIS finds that increasing retirement of coal power plants would adversely affect regional power reliability (see Section 3.7.3.2, Effects on Power System Reliability, and Section 2.3 of Appendix H, Sensitivity of LOLP to Assumptions about Coal Capacity in the draft EIS).
4642	2	Scott Simms	Public Power Council PPC; Public Power Council (PPC)	At the same time, hydro played an ever increasing critical role in integrating intermittent renewable resources. DEIS, particularly MO-3 and MO-4, show the replacement cost of the lower Snake River dam capacity with zero emissions carbon resources would cost nearly $1 billion every year.	The statements that hydropower is important for the integration of new renewable power and that power costs in the region would increase under Multiple Objective (MO) Alternative 3 (which includes breaching the four lower Snake River dams) and MO4 are consistent with the findings of the EIS. See draft EIS, Section 3.7.3.1, Integration Services at page 3-832; Section 3.7.3.5 at page 3-904; Section 3.7.5.6 starting on page 3-940; and Appendix J, Section 4.3.Integration of Other Renewable Resources and Hydrosystem Flexibility Analysis at pages H-4-20 to 4-H-4-24.
4642	3	Scott Simms	Public Power Council PPC; Public Power Council (PPC)	So given this reality of thermal retirements, the cost of full replacement of lost hydro capability from alternative operations, including the ability to integrate other renewables into the grid, we believe such issues should be updated with more recent developments in the co-lead agency CRSO documentation and that the matter should be taking center stage in the final EIS.	As explained in Section 3.7.3.5 of the draft EIS, Potential Replacement Resources and Associated Costs, breaching the four lower Snake River dams would have a direct and substantial impact on the supply of Federal power to meet regional load requirements. These impacts would impact both actual energy to meet regional load requirements and generating capacity (peaking capacity) to meet variability in loads. The four lower Snake River dams are among the most valuable projects in FCRPS. These dams provide over 1,000 MW of carbon-free energy and up to 2,000 MW of sustained peaking capacity at certain times of the year. The dams also have unparalleled ramping capability the ability to quickly generate energy to match spikes in energy usage with over 2,000 to approximately 2,300 MW of capability in certain months of the year (see Table 3-160 in the draft EIS). While the increase in solar and wind generation is consistent with the EIS discussion in 3.7.2.1 Power Generation in the draft EIS, the EIS still finds that the regional power system requires replacement power resources to maintain reliability under Multiple Objective Alternative 3. For hydropower, the average annual value of the four lower Snake River dams exceeds the average annual equivalent costs. The generation value at the four lower Snake River dams can be described by a range between the cost to replace the generation through new conventional resources or through a portfolio of zero-carbon resources. Although the costs of replacing the power with market purchases was analyzed, it is unlikely that short-term wholesale power markets could reliably replace the power for the long term. This range would put the annual value of power between $240 million and $500 million for the four dams combined. These numbers represent about 90 percent of the lost benefits cited in Table 3-171 of the Draft EIS because the four dams represent about 1,000 aMW of the 1,100 aMW of lost generation estimated in MO3. The average annual cost to operate and maintain all authorized purposes at the four lower Snake River dams is $75 million (Appendix Q, Table 5-1) and the annual-equivalent capital costs are $32 million (Appendix Q, Table 4-1). Hydropower costs funded by Bonneville represent about $50 million of the total annual operations and maintenance costs and nearly all of the annual capital costs, approximately $31 million. This puts the annual-equivalent power-specific costs at approximately $81 million a year. As a result, the net benefits from hydropower for the four lower Snake River dams are between $159 million and $419 million and the benefit-cost ratios are between 3.0 and 6.2. If the $34 million per year for the Lower Snake River Compensation Plan is added to the capital and expense costs, benefits still exceed costs under each replacement power scenario. Considering these costs, the net benefits range from $125 million to $385 million and the benefit-cost ratios range from 2.1 to 4.3. In the less-likely scenario that generation could be reliably replaced with short-term wholesale market purchases and assuming that the four dams represent 90% of the $150 million in market purchases required to replace the lost generation cited in MO3 (see Table 3-170), the lower bound for net benefits would fall to $54 million and the benefit-cost ratio would fall to 1.7. With the Lower Snake River Compensation Plan included, the lower bound for annual net benefits becomes $20 million and the benefit-cost ratio becomes 1.2. From a resource competitiveness perspective, the four lower Snake River dams are among the least costly generating resources in the Federal Columbia River Power System (FCRPS) and the planned investment strategy is expected to maintain that status. As shown in the Federal Hydropower presentation at the 2018 Integrated Program Review (see Footnote 1 below), the Headwater/Lower Snake Asset Class (see Footnote 2 below) is forecast to have a 50-year levelized cost of generation (see Footnote 3 below) of $11.41/MWh based on the direct funded capital and expense (O&M) programs outlined in that process. These costs remain competitive with volatile Mid-Columbia spot market energy prices which averaged $37/MWh in 2019 and have averaged $21/MWh in 2020. Footnotes: 1. The Integrated Program Review (IPR) allows interested parties to see and comment on all relevant Federal Columbia River Power System (FCRPS) capital and expense (O&M) spending level estimates in the same forum. The IPR occurs every two years, or just prior to each rate case, and is the public review for the costs that will be recovered through rates the following two-year rate period. Long-term forecasts for the next 50 years and major upcoming projects are also shared in this forum. This information is available here: https://www.bpa.gov/Finance/FinancialPublicProcesses/IPR/2018IPR/IPR%202018%20Fed%20Hydro%20Workshop.pdf and is incorporated by reference into this EIS. 2. In the 2018 Integrated Program Review, the Headwater/Lower Snake Asset Class consisted of the four lower Snake River dams, Hungry Horse, Libby, and Dworshak dams. These projects were grouped together because they have similar cost characteristics. The Levelized Cost of Generation for the four lower Snake projects alone is slightly lower than that for the whole class including the headwater projects shown in the table. 3. Levelized Cost of Generation is defined as the forecasted direct costs and administrative overheads of producing power at a plant annualized over a 50-year period. This cost includes direct funded operations, maintenance, administrative and capital costs as well as Columbia River Fish Mitigation (CRFM) costs. Bonneville system-wide mitigation costs, such as its Fish and Wildlife program, are not included in this metric.
4643	6	kairos42@earthlink.net	N/A	And when you use correct assumptions, and I'm just talking about assumptions, some basic fatal flaws in the assumption and the planning process back in 2000, which has been repeated now in this DEIS when they said they basically escalated cost from 2019 -- or 1999. And what you get is, is if you correct these costs, it turns out breaching by itself will save $100 million a year in terms of capital, O&M, and construction cost for additional hardware on lower Columbia dams and Snake River dams. Even if you keep all that stuff in there, it still saves $57 million a year. So the preferred alternative is going to cost $51 million a year, but breaching will save anywhere from 50 to 100 million dollars a year.	The EIS evaluated beneficial and adverse effects across an array of resource areas including potential effects at the national, regional and local level; effects are monetized and quantified, where possible, and also described qualitatively. As is common in NEPA analyses, the beneficial and adverse effects of the alternatives are expressed as a variety of qualitative and quantitative environmental and economic metrics throughout the EIS to inform decision-making, including the effects of the alternatives on fish as detailed in Section 3.5. That the effects of the alternatives on fish are not expressed as monetized economic values does not mean that they were not considered in the context of the analysis. The EIS does not employ a cost-benefit framework for decision-making. Instead, the EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. A table added to Section 7.4 provides a summary of the beneficial and adverse effects of the alternatives, including the quantified social welfare costs and benefits for a number of the resource areas as well as the implementation costs of the alternatives. The commenter is correct when describing the costs to operate and maintain the lower Snake River dams. Compared to the No Action Alternative, MO3 would reduced costs between $53 and $158 million annually. Compared to the No Action Alternative, the Preferred Alternative would range from a decrease in costs of $40 million to an increase in costs of $7 million annually. However, these figures do not consider the benefits provided by the lower Snake River dams, including hydropower, navigation, water supply, and recreation.
4644	1	Bob Sallinger	N/A	Tonight I am testifying on behalf of Portland Audubon and our 17,000 members. I would simply begin by thanking you for the opportunity to testify before you, but I don't feel thankful for this opportunity tonight. The decision to move forward with these phone hearings in the midst of the COVID-19 crisis just two days after Oregon issued its stay-at-home orders is a disgrace. My organization, like so many others, is working nonstop to take care of our staff, support our volunteers and communities, maintain critical operations and comply with best practices in light of an unprecedented crisis. Even prior to the COVID-19 outbreak, you chose the process with a public comment period of only 45 days, a length of time that you were fully aware was inadequate to allow for meaningful public review of a document that's over 8,000 pages. This is a highly complex plan. Your decision to proceed with	The co-lead agencies considered requests to extend the public comment period. This NEPA process included a wide array of cooperating agencies whose close involvement throughout the process allowed the co-lead agencies to incorporate feedback. Given the broad range of comments received and the extensive Federal and non-Federal participation in the overall process as well as the level of public engagement in the six virtual public meetings in the region, the co-lead agencies determined that an extension was not warranted and that the 45-day public comment period was adequate consistent with NEPA regulations. The CRSO EIS website notified the public on April 9, that they should plan to submit comments by the close of the comment period.

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				hearings and refusal to extend deadlines cuts the public out of this process and benefits big corporate stakeholders that have the capacity to respond under these circumstances. Again, it's simply a disgrace and it shows a stunning indifference to public participation process.	
4644	4	Bob Sallinger	N/A	And you have scapegoated native predator species such as cormorants and sea lions, despite overwhelming public opposition as a way to divert attention from your chronic failures. The slaughter of cormorants on East Sand Island will range among the great wildlife travesties of the last century.	The co-leads appreciate your concern for native predator species. However, the co-lead agencies are required to ensure operation of the CRS complies with the law. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. To comply with the ESA, the co-lead agencies have historically supported actions to mitigate adverse effects to listed species from CRS operations, through funding, direct implementation, and other means. Under the Preferred Alternative, those actions, including for the purpose of reducing pinniped and avian predation on listed species, would generally continue to ensure compliance with the ESA. Other entities in the region have authorities and obligations to mitigate the impacts from pinniped and avian predators and the co-lead agencies will continue to work closely with those entities to benefit ESA-listed salmonids.
4644	5	Bob Sallinger	N/A	the strategy appears to be to bring forward plans that you know are inadequate, get sued, lose in court, and then wash, rinse, and repeat. And sadly, this has worked for you. You have delayed recoveries for nearly a quarter of a century. Unfortunately, what it has not worked for is the salmon and the communities that depend on them, and the salmon move closer and closer to extinction. And your current plan — perpetuates this trend. We have lost faith in you and your process. We look to Northwest policymakers to step in and craft real solutions that you have so carefully avoided. We look to the federal courts to truly hold individuals and agencies accountable for chronic and systemic flouting of the law.	Based on our analysis, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Recovery is a broader regional goal and is above and beyond the co-lead agencies' obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the CRS. That call, however, is ultimately the role of NMFS and the USFWS. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. In compliance with ESA, the co-lead agencies submitted biological assessments to NMFS and USFWS (Appendix V). In this Final EIS, the Biological Opinions from NMFS and USFWS can be found in Appendix V, completing this projects ESA consultation.
4645	3	Manly Norris	N/A	I would also request that they extend the comment period in light of the coronavirus.	The co-lead agencies considered requests to extend the public comment period. This NEPA process included a wide array of cooperating agencies whose close involvement throughout the process allowed the co-lead agencies to incorporate feedback. Given the broad range of comments received and the extensive Federal and non-Federal participation in the overall process as well as the level of public engagement in the six virtual public meetings in the region, the co-lead agencies determined that an extension was not warranted and that the 45-day public comment period was adequate consistent with NEPA regulations. The CRSO EIS website notified the public on April 9, that they should plan to submit comments by the close of the comment period.
4648	1	Keith Kutchins	N/A	So the way this EIS develops alternative is to meet fish needs only after the primary manmade uses of the river, such as water supply and electricity production have been met. But instead, this EIS should develop the preferred alternative that first meets the needs of the fish, then meets the other multiple objectives of built capacity of manmade uses	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3, which includes breaching the four lower Snake River dams. The Preferred Alternative also meets the EIS objectives including those for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS, the co-lead agencies did not recommend MO3 because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system.
4649	1	Kurt Miller	Northwest River Partners	There is overwhelming evidence shown in the EIS and very clearly documented, but also supported by many of the region's energy forecasters, including Energy Strategies, which is the group that wrote the Northwest Energy Coalition Study, which had earlier, based on 2016 assumptions, said that the lower Snake River dams could be easily and affordably breached. They have now come forward and said that they're actually forecasting an energy shortage for the Pacific Northwest. The fact is that so many coal-fired generating units have retired, it's actually put us in a much different situation than we were in 2016, when they developed their assumptions. Even though the actual forecast wasn't released from them until 2018, they used those older assumptions	The statements regarding potential resource adequacy concerns are consistent with the discussions in the EIS. See draft EIS, Section 3.7.3.5, Effects on Power System Reliability at page 3-903 and Appendix H, Table 2-1. Given upcoming coal retirements, the EIS findings indicate that the region would likely experience a significant regional deficit of power, which would require adding additional power resources to maintain power system reliability at the No Action Alternative levels. See Sections 3.7.3.3 through 3.7.3.6 in the draft EIS.
4664	1	Jacqueline@waptus.com	N/A	So I also want to add to my comment the fact that there's great frustration that this comment period was shortened and that agencies refuse to consider the implications of the coronavirus on public participation for the comment period. In short, the public participation cannot be at its fullest when we are all dealing in this context of a global pandemic.	The co-lead agencies considered requests to extend the public comment period. This NEPA process included a wide array of cooperating agencies whose close involvement throughout the process allowed the co-lead agencies to incorporate feedback. Given the broad range of comments received and the extensive Federal and non-Federal participation in the overall process as well as the level of public engagement in the six virtual public meetings in the region, the co-lead agencies determined that an extension was not warranted and that the 45-day public comment period was adequate consistent with NEPA regulations. The CRSO EIS website notified the public on April 9, that they should plan to submit comments by the close of the comment period.
4665	1	Joel Brady-Power	N/A	We need to restore our salmon runs and protect the vibrant coastal communities who depend on them. The preferred alternative in the DEIS fails to do this. It does not meet the needs of Northwest communities and it has threatened the survival of salmon, orcas, and the livelihoods of fishermen and their communities. Salmon returns to the Snake and Columbia River are currently at all-time lows. Scientists tell us that the single best action we can take to help these endangered salmon is to restore the Snake River by removing its four dams.	The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets most other EIS objectives including those for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS, the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams, because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. There has been a decline in returns of upper Columbia and Snake river Chinook and steelhead between 2016-2020, however salmon returns are not at an all time low to the Columbia. Following construction of Bonneville Dam in 1937, ladder counts of hatchery plus wild adults from all salmonids combined averaged approximately 600,000 between the 1930s-1990s. Adult returns trended upwards in the most recent 20 years, with average returns from 1-1.5 million. Fall Chinook are the most important ESU for coastal fishing and orcas because they tend to stay close to the coastal shelf; the upper Columbia summer/fall ESU remains unlisted, and the Snake River fall Chinook ESU has been trending towards recovery. Multiple factors could contribute to the increase in abundance and recent decline including increased hatchery production, habitat restoration, ocean conditions and climate, and changes in hydrosystem operations. The CRS technical teams designed Multiple Object alternatives to evaluate different levels of spill in MO1 ,2, and 4 based on extensive public comment and technical literature that showed evidence for the effectiveness of spill operations and surface passage structures that reduce forebay delay times and increase juvenile fish passage survival. Spill was a key strategy for improving dam passage since the 1990s with research carried out to determine appropriate volumes at a range of river flows, balance across the different spillbays, and design of surface level intakes. If dam survival and adult abundance had continued to sharply decline despite adoption of higher spill levels, this would be poor evidence for the success of the strategy. There are still many uncertainties related to the upper limits of spill when high TDG conditions may cause physiological harm to smolts and high spill has resulted in poor tailrace conditions for both adult passage and juvenile travel. In addition, there are other concerns: potential deleterious effects of hatchery production on recovery of wild populations, climate change and more. The Preferred Alternative includes an adaptive management plan (Appendix R). This plan involves working with regional sovereigns to develop a study to assess the effectiveness of the increased spill regime on adult returns as well as assessment and management of negative unintended consequences, such as long delays of adult migrants, or TDG-related impacts on juvenile migrants.
4666	1	Tela Aadsen	N/A	Restoring and preserving salmon is critical to our region's well-being. The DEIS does not meet this need. The salmon returns to the Snake and Columbia River is at an all-time low. Scientists have repeatedly identified the removal of the four lower Snake River dams as the single best action we can take.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA listed species as that is a broader goal with shared responsibility. Based on our analysis of the fish resources section of Chapter 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. The EIS set forth eight objectives which, in tandem with the purpose and need statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as the dam breaching alternative. However, the preferred alternative also meets the other objectives of the study for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse impacts to communities and the economy. The alternative that includes a measure to breach the lower Snake River dams, by contrast, has significant regional economic impacts and community effects, and meets only a small subset of the EIS objectives. Thus, the co-lead agencies did not recommend dam breaching because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system.
4667	1	William Grimes	N/A	First, while I appreciate the opportunity to participate via this conference call, it's a poor substitute for an in-person hearing. It should not remain the only opportunity we have to present our comments, to hear from others interested in this proposal.	The co-lead agencies considered requests to extend the public comment period. This NEPA process included a wide array of cooperating agencies whose close involvement throughout the process allowed the co-lead agencies to incorporate feedback. Given the broad range of comments received and the extensive Federal and non-Federal participation in the overall process as well as the level of public engagement in the six virtual public meetings in the region, the co-lead agencies determined that an extension was not warranted and that the 45-day public comment period was adequate consistent with NEPA regulations. On April 9, the CRSO EIS website was updated to inform the public that they should plan to submit comments by the close of the comment period. In response to COVID-19 concerns and public health requirements within the comment period, the agencies converted the six planned in-person regional public comment meetings to conference calls that provided an approach consistent with the format of the planned in-person comment meetings. To ensure adequate opportunity for the public to provide comments on the Draft EIS, the agencies hosted an online comment platform, providing mailing addresses for written comments, and hosted a series of public comment meetings by telephone. The co-lead agencies offered these public comment meetings by telephone to maintain our commitment to accepting verbal comments in accordance with current public health guidelines. These teleconference meetings were structured similarly to the previously scheduled in-person public comment meetings and provided speakers with the same amount of time to submit a verbal comment.
4667	2	William Grimes	N/A	the draft EIS appears to only superficially describe the impacts to communities and facilities if the dams are to be retained. Rising sediment levels and the difficulties in dredging will likely require building taller levies and constructing multiple road and rail bridges in response. These changes will have significant impact on the communities along the river, impact that must be more fully identified and addressed in the draft. As it is written, it appears that dam retention simply maintains a status quo, and that is both misleading and untrue.	Maintaining flood risk management operations of the Columbia River System has informed both the alternative development and evaluation process. However, the four lower Snake River dams are not authorized for flood risk mitigation and there is no elevated flood risk for any of the EIS alternatives. The EIS alternative evaluation also accounts for any dredging that may be necessary for flood conveyance in the Lewiston area. See Section 3.9 and Section 7.7.11 for more information on flood risk management.
4667	5	William Grimes	N/A	I ask that you extend the comment period both to allow opportunities for those unable to participate tonight and to permit public review and comment of a more honest dam retention alternative, one that adequately addresses community impact and the cost of rising river levels.	The co-lead agencies considered requests to extend the public comment period. This NEPA process included a wide array of cooperating agencies whose close involvement throughout the process allowed the co-lead agencies to incorporate feedback. Given the broad range of comments received and the extensive Federal and non-Federal participation in the overall process as well as the level of public engagement in the six virtual public meetings in the region, the co-lead agencies determined that an extension was not warranted and that the 45-day public comment period was adequate consistent with NEPA regulations. The CRSO EIS website notified the public on April 9, that they should plan to submit comments by the close of the comment period.
4668	1	Peter Sallinger	N/A	I'm disappointed that federal agencies have decided to move forward with phone hearings and ignored requests to allow a reasonable timeline for public comment. It shows a real disrespect for public engagement.	The co-lead agencies considered requests to extend the public comment period. This NEPA process included a wide array of cooperating agencies whose close involvement throughout the process allowed the co-lead agencies to incorporate feedback. Given the broad range of comments received and the extensive Federal and non-Federal participation in the overall process as well as the level of public engagement in the six virtual public meetings in the region, the co-lead agencies determined that an extension was not warranted and that the 45-day public comment period was adequate consistent with NEPA regulations. The CRSO EIS website notified the public on April 9, that they should plan to submit comments by the close of the comment period.
4668	2	Peter Sallinger	N/A	I urge you to select an alternative that does the following: number one, breach the four obsolete Snake River dams; two, improve flows over the Columbia River dams to benefit salmon; three, stop scapegoating native predator species such as cormorants and sea lions.	The CRSO EIS documents the assessment of benefits and impacts of changes to the operations of the 14 Federal projects of the Columbia River System. Using a multi-disciplinary approach and with the coordination and consideration of our cooperating agencies and Tribes, as well as public stakeholder input, and by using high quality information, the co-lead agencies developed the Preferred Alternative.

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					The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the EIS objectives) as well as the EIS objectives for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. The Preferred Alternative is also more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. The effects of delayed mortality are discussed throughout the EIS analysis for each alternative and current high quality data and the best available scientific information was used for this analysis. Based on analysis by the CSS, SARs associated with population declines (SARs of less than 1%) have the potential to be greatly reduced under the Preferred Alternative, and on average, SARs are expected to be well above 2.0% for Snake River spring Chinook salmon and steelhead. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. Increasing flows as a potential measure was evaluated in the EIS. In particular, the McNary flow measure in MO4 demonstrated significant adverse effects to upper Columbia basin fish and wildlife, as well as cultural resources. Certain native predators adversely affect survival of listed fish species and taking actions to keep a balance is a tool in our strategy. These decisions aren't made lightly and are coordinated with resource agencies such as NMFS and USFWS. To comply with the ESA, the co-lead agencies have historically supported actions to mitigate adverse effects to listed species from CRS operations, through funding, direct implementation, and other means. Under the Preferred Alternative, those actions, including for the purpose of reducing pinniped and avian predation on listed species, would generally continue to ensure compliance with the ESA. Other entities in the region have authorities and obligations to mitigate the impacts from pinniped and avian predators and the co-lead agencies will continue to work closely with those entities to benefit ESA-listed salmonids.
4669	1	Lucy Depaolo	N/A	And I also believe deeply in inclusion of public comments and public process, and I would like to ask for an extension of this process.	The co-lead agencies considered requests to extend the public comment period. This NEPA process included a wide array of cooperating agencies whose close involvement throughout the process allowed the co-lead agencies to incorporate feedback. Given the broad range of comments received and the extensive Federal and non-Federal participation in the overall process as well as the level of public engagement in the six virtual public meetings in the region, the co-lead agencies determined that an extension was not warranted and that the 45-day public comment period was adequate consistent with NEPA regulations. The CRSO EIS website notified the public on April 9, that they should plan to submit comments by the close of the comment period.
4672	1	Bob Rees	N/A	The federal government has had two decades and several federal lawsuits to get it right, but the salmon crisis remains an obstacle to robust borough commerce and propagates an adversarial environment between neighbors in our rural communities. The current DEIS does much of the same and, most importantly, continues the trajectory of the extinction of wild salmon forever from the Columbia River basin. This is something we simply cannot accept as a society. While the warm-water blob and poor ocean conditions do have a role in the downturn of Snake River salmon, in 2015, the lethal summer water temperatures in the main stem Columbia and Snake rivers killed over 90 percent of sockeye salmon return and compromised countless baby salmon en route to the Pacific Ocean. Countless broodstock sturgeon were also killed in the hot water in the pools above Bonneville Dam, compromising the future of this 200 million-year-old species.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the Endangered Species Act (ESA), in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. This EIS has been developed in consultation with National Marine Fisheries Service (NMFS) and U.S. Fish and Wildlife Service (USFWS) to find an acceptable balance that allows the co-lead agencies to meet the Purpose and Need Statement while minimizing impacts to affected ESA-listed species and their habitats. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-lead agencies numerous legal obligations. The Preferred Alternative is predicted to benefit ESA-listed juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets most other EIS objectives including those for: resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams, because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system.
4677	1	Roberta Joyntner	N/A	My concern is that we are about to embark with the preferred alternative on one that will not work, because it doesn't address the two remaining factors. Granted, there are other global issues at play here. But without additional flow over the Columbia River dam, habitat restoration, and, most important, removal of the four Snake River dams, we're not addressing the key limiting factors in the system. The Snake River basin is huge. The pools above the dam preclude the smolts from getting to the ocean in time for their ocean window. And any plan that doesn't include addressing those dams won't work and will perpetuate the status quo, waste a lot of resources and a lot more time and end up in court more.	The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-lead agencies numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. The Preferred Alternative also meets the EIS objectives for: resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS the co-lead agencies did not identify MO3 because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. The EIS concluded MO3, which includes breaching the four lower Snake River dams would have greater improvement to certain salmon species in the lower Snake River. It did not, however, conclude there was greater certainty of that result in MO3 over any other alternative. Because of delayed response time in MO3, and the potential severity of the short term effects, MO3 would likely have the most substantial uncertainty in terms of beneficial effects. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species as that is a broader goal with shared responsibility. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. The effects of delayed mortality are discussed throughout the EIS analysis for each alternative and current high quality data scientific information was used for this analysis. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult return rates (SARs) will increase for both Snake River spring Chinook and steelhead and will average well above 2 percent (the lower end of Northwest Power and Conservation Council's recovery targets for the region) as a result of the Preferred Alternative increasing from 2.0 percent to 2.7 percent for Chinook, a 35 percent relative increase. The National Marine Fisheries Service (NMFS) COMPASS and Lifecycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. To address the uncertainty due to the different model results, the Preferred Alternative includes working with regional sovereigns to develop a study that assesses the effectiveness of increased spill regime on adult returns as well as assessment and management of adverse unintended consequences, such as long delays of adult migrants, and Total Dissolved Gas (TDG)-related mortality of juvenile migrants. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information. The Preferred Alternative also carries forward existing habitat restoration programs and proposes additional actions in certain areas affected by CRS operations, maintenance and configuration. Increasing flows as a potential measure was evaluated in the EIS. In particular, the McNary flow measure in MO4 demonstrated significant adverse effects to upper Columbia basin fish and wildlife, as well as cultural resources.
4681	1	Barbara Hachmann-Sarmiento	N/A	From an economic standpoint, I think that the draft Environmental Impact Statement is not going to save taxpayer money. The lower Snake River dams are losing money every year. And choosing a breach would actually safe money. Breaching the lower Snake River dams is not only a good choice economically, but also biologically. The Southern Resident killer whales and the Snake River salmon and steelhead will not survive this new Environmental Impact Statement study process. As a first step, the federal agencies can and they need to begin breaching the four lower Snake River dams this year. The federal agencies can no longer afford to drag the process out with another Environmental Impact Statement that will take years while the salmon and the orca go extinct. In addition, the BPA's financial situation will worsen each year and that money will (inaudible) on the dams. Expensive bypass systems and more spill have been tried, and, yet, 2019 was another year of costly efforts to recover Snake River salmon with no results.	The Corps does not have authority to breach the four lower Snake River dams. Consistent with the twin aims of NEPA, the agencies provided notice to the public in the Draft EIS of the Corps' existing authorities and the stepwise process that would be required if the co-lead agencies selected Multiple Objective 3 (MO3) as the Preferred Alternative (PA). If this occurred, the PA would serve as a recommendation to Congress, which Congress would need to authorize. Congress would also need to authorize additional studies, including NEPA analysis, and funding for implementation. The EIS does not employ a cost-benefit framework for decision-making. Instead, the EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-lead agencies numerous legal obligations. The Preferred Alternative is predicted to benefit ESA-listed juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3, which includes breaching the four lower Snake River dams. The Preferred Alternative meets the EIS objectives for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. Table 7-1 in Chapter 7 provides a summary of the beneficial and adverse effects of the alternatives, including the quantified social welfare costs and benefits for a subset of the resource areas (specifically, hydropower, navigation, and irrigation) as well as the implementation costs of the alternatives. Contrary to the comment, the EIS analysis did determine that the four lower Snake River dams are cost-effective. For hydropower, the average annual value of the four lower Snake River dams exceeds the average annual equivalent costs. The generation value at the four lower Snake River dams can be described by a range between the cost to replace the generation through new conventional resources or through a portfolio of zero-carbon resources. Although the costs of replacing the power with market purchases was analyzed, it is unlikely that short-term wholesale power markets could reliably replace the power for the long term. This range would put the annual value of power between $240 million and $500 million for the four dams combined. These numbers represent about 90 percent of the lost benefits cited in Table 3-171 of the Draft EIS because the four dams represent about 1,000 aMW of the 1,100 aMW of lost generation estimated in MO3. The average annual cost to operate and maintain all authorized purposes at the four lower Snake River dams is $75 million (Appendix Q, Table 5-1) and the annual-equivalent capital costs are $32 million (Appendix Q, Table 4-1). Hydropower costs funded by Bonneville represent about $50 million of the total annual operations and maintenance costs and nearly all of the annual capital costs, approximately $31 million. This puts the annual-equivalent power-specific costs at approximately $81 million a year. As a result, the net benefits from hydropower for the four lower Snake River dams are between $159 million and $419 million and the benefit-cost ratios are between 3.0 and 6.2. If the $34 million per year for the Lower Snake River Compensation Plan is added to the capital and expense costs, benefits still exceed costs under each replacement power scenario. Considering these costs, the net benefits range from $125 million to $385 million and the benefit-cost ratios range from 2.1 to 4.3. In the less-likely scenario that generation could be reliably replaced with short-term wholesale market purchases and assuming that the four dams represent 90% of the $150 million in market purchases required to replace the lost generation cited in MO3 (see Table 3-170), the lower bound for net benefits would fall to $54 million and the benefit-cost ratio would fall to 1.7. With the Lower Snake River Compensation Plan included, the lower bound for annual net benefits becomes $20 million and the benefit-cost ratio becomes 1.2. From a resource competitiveness perspective, the four lower Snake River dams are among the least costly generating resources in the Federal Columbia River Power System (FCRPS) and the planned investment strategy is expected to maintain that status. As shown in the Federal Hydropower presentation at the 2018 Integrated Program Review1/, the Headwater/Lower Snake Asset Class/2 is forecast to have a 50-year levelized cost of generation/3 of $11.41/MWh based on the direct funded capital and expense (O&M) programs outlined in that process. These costs remain competitive with volatile Mid-Columbia spot market energy prices, which averaged $37/MWh in 2019 and have averaged $21/MWh in 2020. 1/ The Integrated Program Review (IPR) allows interested parties to see and comment on all relevant Federal Columbia River Power System (FCRPS) capital and expense (O&M) spending level estimates in the same forum. The IPR occurs every two years, or just prior to each rate case, and is the public review for the costs that will be recovered through rates the following two-year rate period. Long-term forecasts for the next 50 years and major upcoming projects are also shared in this forum. This information is available here: https://www.bpa.gov/Finance/FinancialPublicProcesses/IPR/2018IPR/IPR%202018%20Fed%20Hydro%20Workshop.pdf and is incorporated by reference into this EIS. 2/ In the 2018 Integrated Program Review, the Headwater/Lower Snake Asset Class consisted of the four lower Snake River dams, Hungry Horse, Libby, and Dworshak dams. These projects were grouped together because they have similar cost characteristics. The Levelized Cost of Generation for the four lower Snake projects alone is slightly lower than that for the whole class including the headwater projects shown in the table. 3/ Levelized Cost of Generation is defined as the forecasted direct costs and administrative overheads of producing power at a plant annualized over a 50-year period. This cost includes direct funded operations, maintenance, administrative and capital costs as well as Columbia River Fish Mitigation (CRFM) costs. Bonneville system-wide mitigation costs, such as its Fish and Wildlife program, are not included in this metric. There are also benefits and costs associated with operating the lower Snake River projects. The EIS evaluated beneficial and adverse effects across an array of resource areas including potential effects at the national, regional and local level; effects are monetized and quantified where possible, and also described qualitatively. As is common in NEPA analyses, the beneficial and adverse effects of the alternatives are expressed as a variety of qualitative and quantitative environmental and economic metrics throughout the EIS to inform decision-making, including the effects of the alternatives on fish as detailed in Section 3.5. That the effects of the alternatives on fish are not expressed as monetized economic values does not mean that they were not considered in the context of the analysis. The the EIS analysis found only a minor effect to the Southern Resident killer whale would result from implementing MO3 (which includes the dam breach measure). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for whales (NOAA and WDFW 2018). This list includes many Columbia River Basin

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					Chinook salmon stocks including Lower Columbia fall run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults form the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differentially from hatchery and wild fish. Hatchery fish today likely make up most fish consumed by SRKW (NOAA BiOp 2020). The EIS has analyzed spill as a measure in the Preferred Alternative and determined the overall effect to SRKW to be negligible in large part because hatchery production is consistent between the No Action Alternative and the Preferred Alternative. Because the impact from the Preferred Alternative was determined to be negligible, the agencies determined that existing hatchery production would be sufficient to address any potential impacts to prey availability for SRKWs. The co-lead agencies note the contribution to the prey of SRKW through the continued existence of their respective independent congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as the Lower Snake River Compensation Plan, which is administered by U.S. Fish and Wildlife Service. The Preferred Alternative and Proposed Action in the agencies' biological assessment carry forward certain mitigation measures described in Chapters 2 and 7 of the EIS, which include continued salmon and steelhead hatchery production. The Preferred Alternative has negligible effects to SRKWs as described in Section 7.7.8. The Biological Assessment (BA) describes the effect of the Proposed Action on the SRKW forage species (see BA Section 3.5.1.2, Southern Resident Killer Whale). The proposed changes in operation of the CRS include increased spring spill during the downstream migration of juvenile spring and summer run Chinook salmon. The result of this action includes potential increases of juvenile fish passing through the spillways, reductions in juvenile fish direct and indirect mortality associated with downstream passage, and the Comparative Survival Study (CSS) model predicts increases in numbers of returning adults, which will benefit SRKW foraging in and around the mouth of the Columbia River in winter and spring (See EIS Section 7.7.8). The CSS model results predicts Snake River Chinook salmon would have relative improvements in smolt-to-adult returns of 35 percent (see EIS Section 7.7.5). The smolt-to-adult return ratio (SAR) is the rate at which of a group of fish survive from their smolt life stage to a defined ending point where they return as adults. While recovery targets will require more than just the efforts of Federal agencies, the CSS models indicate the potential for SARs of Snake River Chinook salmon and steelhead to increase to levels that could approach recovery targets set by the Northwest Power and Conservation Council.
4692	1	Leah Sarmiento	N/A	In order to save endangered Snake River salmon, Southern Resident orca, and ratepayer money, the federal agencies should address the Columbia River system in a two-tiered process. Tier one is an emergency response action for the immediate drawdown and breach of Lower Granite and Little Goose Dam, followed by the remaining two dams in subsequent years. Tier two is addressing system operations and further mitigation activities in the rest of the Columbia River basin using the new EIS, assuming that the four lower Snake River dams are breached. The two-tiered approach should be initiated for the following biological and economic reasons: endangered Snake River salmon and steelhead have not recovered since 2002 EIS was implemented and have gotten much worse over the last four years; wild stocks may not survive further studies foreseen in the CRSO process; the economic benefits of the dams to the region have declined and operational costs have risen. The Army Corps of Engineers already spent seven years and 33 million of rate and taxpayer money on the 2002 EIS with a breach alternative. The two-tiered approach can be accomplished following the existing guidelines. The Army Corps of Engineers has a fiduciary responsibility to cease operations and place a project into a non-operational status when projects are losing money economically or causing unresolved or biological harm, that the Corps doesn't need specific authorization to secure the project by breaching. The federal agencies have responsibility to comply with the Endangered Species Act and to take actions necessary to recover endangered salmon, steelhead, and Southern Resident orca. Breaching can be paid for by BPA as the least cost way to accomplish fish mitigation under the 1980 Northwest Power and Conservation Act and as a means of transferring savings from lower Snake River dams to other Columbia River dams.	Contrary to the commenter's suggestion, the Corps does not have the authority to immediately breach the four lower Snake River dams. If MO3 were selected, the Corps could use the CRSO EIS as a basis for seeking congressional authority to breach the four lower Snake River dams. After receiving both authority and appropriations from Congress, the Corps could initiate a detailed construction and design report for the breach measure, identification of disposal areas, real estate acquisition and disposal, permits, and mitigation requirements, including temporary fish hatchery production. Each of these actions are required prior to breaching, and the Corps does not have the authority or appropriations necessary to immediately breach the project's embankments. More information is available in the Corps Engineering Regulation (ER) 1165-2-119 Water Resources Policies and Authorities, Modifications to Completed Projects (Sept. 20, 1982) or ER 1105-2- 100, Appendix G, Section III Post Authorization Changes. Chapter 7, Preferred Alternative, describes the process used to select the Preferred Alternative. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as the dam breaching alternative. However, the Preferred Alternative also meets most of the other objectives of the study for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. The EIS evaluated benefits and adverse effects across an array of resource areas including potential effects at the national, regional and local level. The costs to operate the system and implement the selected alternative are funded through multiple mechanisms including Federal appropriations to cover system costs, as well as revenue generated through the marketing and sale of hydropower. The Corps and Reclamation receive annual Congressional appropriations to fund system capital, and operations and maintenance activities. Bonneville funds the power-share of these costs to the Corps, Reclamation and USFWS. In addition, Bonneville is responsible for repaying the U.S. Treasury for a share of the appropriations if it is determined that the costs are appropriately allocated to power. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Similarly, the Northwest Power Act does not obligate the co-lead agencies to recover ESA-listed species or to ensure restoration of other fish and wildlife. Instead, the co-lead agencies fish and wildlife mitigation responsibilities under Northwest Power Act are more limited primarily, managing and operating FCRPS projects, which includes the CRS, to protect, mitigate, and enhance (as opposed to recover) fish and wildlife affected by such projects in a manner that provides equitable treatment with the projects other authorized purposes and consistent with the purposes of the Act and applicable laws. In addition, Bonneville has a specific responsibility to fund protection, mitigation, and enhancement of fish and wildlife to the extent affected by development and operation of FCRPS projects consistent with the Northwest Power and Conservation Council (Council) fish and wildlife program, the Councils power plan, and the purposes of the Act, which includes assurance of an adequate, efficient, economical, and reliable power supply. Therefore, contrary to the comments broad assertion, the Northwest Power Act does not make Bonneville responsible for funding the regional effort to recover wild salmon and steelhead. Regarding orca recovery, the EIS analysis found only a negligible to minor effect to the Southern Resident killer whale would result from implementing MO3 (which includes the dam breach measure). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults form the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differentially from hatchery and wild fish. Hatchery fish today likely make up most fish consumed by SRKW (NOAA BiOp 2020). Moreover, the comments suggestion that approximately $33 billion in ratepayer funding has been ineffective to recover ESA-listed species is misplaced. Those investments delivered the intended results when considered in the appropriate statutory context of the Northwest Power Acts anadromous fish provisions which call for improved survival of such fish at FCRPS projects and sufficient flows between the projects to improve production, migration, and survival. For example, as of 2014 this investment had facilitated juvenile dam passage survival of 96% and 93% for spring and summer migrants respectively, see Endangered Species Act Federal Columbia River Power System (FCRPS) 2016 Comprehensive Evaluation Section 1, at 17, t.2 (Jan. 2017), a marked improvement compared to when Congress passed the Northwest Power Act and the estimated average juvenile mortality at each mainstem dam and reservoir complex was 15-20% with losses recorded as high as 30%. See Nw. Res. Info. Ctr. v. NW. Power Planning Council, 35 F.3d 1371, 1374 (9th Cir. 1994) (citing a Sept. 4, 1979 report by U.S. General Accounting Office describing the systems impacts on anadromous fish). Considering hydropower costs and values of the lower Snake River dams, the average annual value of the four lower Snake River dams exceeds the average annual equivalent costs. The generation value at the four lower Snake River dams can be described by a range between the cost to replace the generation through new conventional resources or through a portfolio of zero-carbon resources. Although the costs of replacing the power with market purchases was analyzed, it is unlikely that short-term wholesale power markets could reliably replace the power for the long term. This range would put the annual value of power between $240 million and $500 million for the four dams combined. These numbers represent about 90% of the lost benefits cited in Table 3-171 of the Draft EIS because the four dams represent about 1,000 aMW of the 1,100 aMW of lost generation estimated in MO3. The average annual cost to operate and maintain all authorized purposes at the four lower Snake River dams is $75 million (Appendix Q, Table 5-1) and the annual-equivalent capital costs are $32 million (Appendix Q, Table 4-1). Hydropower costs funded by Bonneville represent about $50 million of the total annual operations and maintenance costs and nearly all of the annual capital costs, approximately $31 million. This puts the annual-equivalent power-specific costs at approximately $81 million a year. As a result, the net benefits from hydropower for the four lower Snake River dams are between $156 million and $417 million and the benefit-cost ratios are between 2.9 and 6.1. If the generation could be reliably replaced with short-term wholesale market purchases (see Table 3-170 of the Draft EIS), the lower bound for net benefits would fall to $57 million and the benefit-cost ratio would fall to 1.7. From a resource competitiveness perspective, the four lower Snake River dams are among the least costly generating resources in the FCRPS and the planned investment strategy is expected to maintain that status. As shown in the Federal Hydropower presentation at the 2018 Integrated Program Review , the Headwater/Lower Snake Asset Class is forecast to have a 50-year levelized cost of generation of $11.41/MWh based on the direct funded capital and expense programs outlined in that process. These costs remain competitive with volatile Mid-Columbia spot market energy prices which averaged $37/MWh in 2019 and have averaged $21/MWh in 2020. 1/The Integrated Program Review (IPR) allows interested parties to see and comment on all relevant FCRPS capital and expense spending level estimates in the same forum. The IPR occurs every two years, or just prior to each rate case, and is the public review for the costs that will be recovered through rates the following two-year rate period. Long-term forecasts for the next 50 years and major upcoming projects are also shared in this forum. This information is available here: https://www.bpa.gov/Finance/FinancialPublicProcesses/IPR/2018IPR/IPR%202018%20Fed%20Hydro%20Workshop.pdf and is incorporated by reference into this EIS. 2/In the 2018 Integrated Program Review, the Headwater/Lower Snake Asset Class consisted of the four lower Snake River dams, Hungry Horse, Libby, and Dworshak dams. These projects were grouped together because they have similar cost characteristics. The Levelized Cost of Generation for the four lower Snake projects alone is slightly lower than that for the whole class including the headwater projects shown in the table. 3/Levelized Cost of Generation is defined as the forecasted direct costs and administrative overheads of producing power at a plant annualized over a 50-year period. This cost includes directed funded operations, maintenance, administrative and capital costs as well as Columbia River Fish Mitigation (CRFM) costs. Bonneville systemwide mitigation costs, such as its Fish and Wildlife program, are not included in this metric.
4696	1	will.e.putnam@gmail.com	N/A	But from what I've gathered about these dams, based on the benefit to cost ratio being far below one, I've read that the cost to benefit ratio of the four lower Snake River dams is point one five. It's actually a fiduciary duty of the U.S. Army Corps of Engineers to put those dams on non-operation status. And if that happens, then that's it. I'm afraid that that's not going to happen in time for us to save the orcas. I'm afraid that's not going to happen in time for us to save the salmon. But it seems like, regardless of those concerns, it seems like that's going to happen. It seems like because these dams are not providing the benefits that we're -- in relation to spending, it seems like they are going to get shut down. So it seems like this opportunity we have for everyone to get what they want, for the wildlife advocates to get what they want and for farmers and shippers, people working the barges, et cetera, on the river, for us all to get what we want, the lifetime of this opportunity is rapidly diminishing. And I would like to see the money that's currently being	The EIS evaluated beneficial and adverse effects across an array of resource areas including potential effects at the national, regional and local level; effects are monetized and quantified, where possible, and also described qualitatively. As is common in NEPA analyses, the beneficial and adverse effects of the alternatives are expressed as a variety of qualitative and quantitative environmental and economic metrics throughout the EIS to inform decision-making. The EIS does not employ a cost-benefit framework for decision-making. Instead, the EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as the dam breaching alternative. However, the Preferred Alternative also meets most of the other objectives of the study for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy.

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				wasted on fish mitigation, the hundreds of millions of dollars, if not billions at this point since this — EIS came out. I would like to see that money being spent to help farmers and others.	
4697	1	Randy Friedlander	N/A	The next one is just a, I guess just a tribal thing. Maybe you guys can work on the language a little bit. Noticed in your executive summary it talks about all the tribes have ceded their lands. So I guess if you take a look at executive order versus treaty tribes --treaty tribes expressly ceded their lands, executive order tribes did not. Also, you have verbiage that says something to the effect that some tribes through treaties retain the right to hunt and fish on their usual and accustom areas. Again, that's referring only to treaty tribes. The Colville tribe is an executive order tribe that does retain rights on some of its, or we say all of our usual and accustom areas. And we do have cases where those rights have been expressed or they are known, I guess. So anyway, just wanted to see if you can correct that verbiage.	Thank you for bringing this to our attention. This information in the Executive Summary has been reviewed and corrected, as appropriate in the Final EIS.
4697	2	Randy Friedlander	N/A	The first comment is just really on the process in the midst of the global pandemic with the coronavirus U19, I just thought it would be important to note that the amount of time to be able to sufficiently give you good comments on any additional changes that have been done could be -- is a little more difficult at this time.	Thank you for your comment.
4697	3	Randy Friedlander	N/A	And then the next comment is, if you could, can you tell me how you all have taken previous comments submitted by the Colville Tribe and incorporated those? It'd be helpful to know if there are specific points that you guys have heard us loud and clear and you made some adjustments, especially considering the amount of time available and the, I think around a 5,000-page document.	Tribal input, concerns, interests, and especially treaty rights were considered throughout the Draft EIS analyses and in the formulation of the Preferred Alternative. Treaty specific information is included in Section 3.17 as well as Chapter 7. The co-lead agencies recognize and respect the legal obligations imposed by treaties. The co-lead agencies accordingly included Protecting Native American treaty and reserved rights and fulfilling trust obligations for natural and cultural resources throughout the environment affected by the Columbia River System operations as a purpose in the Purpose and Need Statement in Chapter 1 to ensure treaty obligations were a key consideration of decision making. The co-lead agencies are engaging in government-to-government consultation with the tribes, and several tribes are cooperating agencies on the CRSO EIS. The EIS recognizes the economic and cultural importance of salmon to Tribes in a number of sections throughout the document. The cultural significance and impacts of salmon and steelhead fisheries are described in the Ceremonial and Subsistence Fisheries sub-section and the Social Importance of Commercial, Ceremonial and Subsistence Fisheries sub-section of Section 3.15.2.1. Fisheries tribal interests are provided in Section 3.15.4 and the economic significance of salmon and steelhead fisheries have been added to the recreation analysis (Section 3.11) including tribal interests (Section 3.11.3.7). Treaty rights are discussed in the Executive Summary, Section 3.16 Cultural Resources, and Section 3.17 Indian Trust Assets, Tribal Perspectives, and Tribal Interests. Appendix P includes copies of tribal perspectives that were submitted by tribes. Tribal consultation is described in Sections 1.5, 3.5, and 3.15; and Chapter 9. Most sub-sections within Chapter 3 include a Tribal Interests section at the end of the sub-section that attempts to summarize tribal issues by resource.
4698	1	William Barquin	N/A	This is Billy Barquin of Kootenai Tribe of Idaho. So the Kootenai Tribe may be submitting written comments, we were also a cooperating agency. But I do have to make one statement about this call. I was under the understanding that we were going to have a dialog with the federal officials between the tribes and the fed as part of this meeting. I didn't know it was just really going to be speaking into a recording. So with that, I guess the question is how we're going to handle government-to-government consultation and an actual dialogue about this process and about this EIS.	The tribal-only comment meetings for the Draft EIS were scheduled on the same day as the public comment meetings using the same format as the public meetings. The purpose of these meetings during this phase of the Draft EIS was to take testimony. This was explained in the notices for both the public meetings and through direct emails sent to tribal representatives for the tribal-only meetings. While originally planned as conventional in-person public testimony meetings, all meetings were converted to phone conference only due to the COVID-19 pandemic.
4699	1	Whitney Fraser	N/A	I am a contractor working for the Confederated Tribes of the Colville Reservation. I have one fairly specific comment, which is that the topographic information, bathymetric information used for Lake Roosevelt, is referenced in a few places as being 1974 measurements, and there was an updated bathymetric survey done and released by the Bureau of Reclamation in 2010, that I previously commented we would like to see that used instead of the older information. But it didn't seem to be updated in this draft. So I would like to continue that as a comment.	The EIS used the best available topographic surface for Lake Roosevelt. This best available surface (often referred to as 2010-11 reservoir topography) was generated from a 2010-11 bathymetric data set supplemented with 1974 aerial photogrammetry, 2007 bathymetry of the upper reservoir, and 2009-10 Light Detection and Ranging (LiDAR) surveys. The older 1974 dataset was developed from photogrammetric data when the water level was drafted to an elevation of 1161 feet during construction of the third powerhouse at Grand Coulee Dam. The 20102011 bathymetric survey noted by the commenter was collected by Reclamation (Ferrari, RL. 2012) using multibeam transducers to collect underwater data between water surface elevation 1,260 and spilling elevation 1,290 (project datum in feet), and coarser single-beam equipment in shallower regions and coves. The 2010-11 bathymetric data was the first detailed bottom information of the deeper portions of Lake Roosevelt, below elevation 1,160. Additional LiDAR data for the reservoir perimeter was collected in 2009-2010 at a pool elevation of 1290 ft. The LiDAR survey covered the majority of the Columbia River reach of Lake Roosevelt, but only a small portion of the Spokane River arm. For the reservoir areas not covered by the 2010-11 bathymetric data or 2009-2010 LiDAR data, such as the Sanpoil River across from Keller Ferry and the upper Spokane River, the 1974 data were used to complete the topographic surface. The storage reservoir diagram used for the hydrology and hydraulics reservoir operations modeling and calibration for the run-of-river modeling does utilize this newer data. EIS text has been clarified in River Mechanics Section 3.3.2.3.1.4.
4700	1	Amelia Marchand	N/A	My name's Amelia Marchand. I'm a Colville Tribal member residing on the Colville Reservation in the town of Elmer City right next to Grand Coulee Dam. I'd like to reiterate all the comments that were previously provided. One, it was my understanding that this was going to be a dialogue between the federal agencies and the various federally recognized tribes involved.	The tribal-only comment meetings for the Draft EIS were scheduled on the same day as the public comment meetings using the same format as the public meetings. The purpose of these meetings during this phase of the Draft EIS was to take testimony. This was explained in the notices for both the public meetings and through direct emails sent to tribal representatives for the tribal-only meetings. While originally planned as conventional in-person public testimony meetings, all meetings were converted to phone conference only due to the COVID-19 pandemic.
4700	2	Amelia Marchand	N/A	Two, that this process is a little bit concerning, given the issues going on not just locally on my reservation within my region of Washington, Idaho, and Oregon, but nationally and internationally as well because of the COVID-19 pandemic.	While originally planned as more conventional and familiar in-person public comment meetings, all meetings were converted to phone conferences due to the COVID-19 pandemic, social distancing and public health considerations.
4700	3	Amelia Marchand	N/A	Two (sic), I also wanted to reiterate the request to have the bathymetric information that was most recently updated by the Bureau of Reclamation in 2010, to be included as the topographic information. And I think that that also goes to show that some of the comments that tribes have submitted, in particular the Colville Tribe, have not been incorporated into the document, which is a concern.	The EIS used the best available topographic surface for Lake Roosevelt. This best available surface (often referred to as 2010-11 reservoir topography) was generated from a 2010-11 bathymetric data set supplemented with 1974 aerial photogrammetry, 2007 bathymetry of the upper reservoir, and 2009-10 Light Detection and Ranging (LiDAR) surveys. The older 1974 dataset was developed from photogrammetric data when the water level was drafted to an elevation of 1161 feet during construction of the third powerhouse at Grand Coulee Dam. The 2010–2011 bathymetric survey noted by the commenter was collected by Reclamation (Ferrari, RL. 2012) using multibeam transducers to collect underwater data between water surface elevation 1,260 and spilling elevation 1,290 (project datum in feet), and coarser single-beam equipment in shallower regions and coves. The 2010-11 bathymetric data was the first detailed bottom information of the deeper portions of Lake Roosevelt, below elevation 1,160. Additional LiDAR data for the reservoir perimeter was collected in 2009-2010 at a pool elevation of 1,290 ft. The LiDAR survey covered the majority of the Columbia River reach of Lake Roosevelt, but only a small portion of the Spokane River arm. For the reservoir areas not covered by the 2010-11 bathymetric data or 2009-2010 LiDAR data, such as the Sanpoil River across from Keller Ferry and the upper Spokane River, the 1974 data were used to complete the topographic surface. The storage reservoir diagram used for the hydrology and hydraulics reservoir operations modeling and calibration for the run-of-river modeling does utilize this newer data. EIS text has been clarified in River Mechanics Section 3.3.2.3.1.4.
4700	4	Amelia Marchand	N/A	And the last couple comments are pertaining to the executive order 12898, which is the Environmental Justice Executive Order, and Executive Order 13007, the Indian Sacred Sites Order. And to that, I'm going to read some statements. In 2003, the United Nations Educational Scientific and Cultural Organization, known as UNESCO, adopted a convention for the safeguarding of the intangible cultural heritage. Intangible cultural heritage, or ICH, is defined by UNESCO as the practices, representations, expressions, knowledge, skills as well as the instrument, objectives, artifacts, and cultural spaces associated therewith, that communities, groups, and, in some cases individuals recognized as part of their cultural heritage. It is transmitted from generation to generation, constantly evolved by communities and groups in response to their environment, interactions with nature and unique histories, and provides identity and continuity. ICH includes, but is not limited to, oral traditions and expressions, including language as a vehicle of ICH, performing arts, social practices, rituals, and festive events, knowledge and practices concerning nature and the universe, and traditional craftsmanship. The most common terminology used to express ICH by indigenous people is traditional knowledge, or TK. TK broadly refers to indigenous ways of knowing that both guide and result from their community members' close relationships with and responsibilities towards the landscapes, waterscapes, plants, and animal that are vital for the flourishing of indigenous communities. They're transmitted primarily through intergenerational oral tradition and physical practices. This place-based knowledge grounds members of the society and its deep understanding of humanities rule and specifically their cultural groups and their individual role in the world. Because the knowledge is transmitted through multiple generations, it contains thousands of years of knowledge and is cumulative of evolving adapted long-term observations and technologies. World views provide a point of reference for how knowledges and, therefore, values are transmitted throughout the society system. Indigenous world views are holistic in nature, mimicking symbiotic and reciprocal relationships throughout their society structure. By contrast, the world view of Western colonialists maintains compartmentalized sectors with only give-and-take relationships of benefits and gains. Article 1 of the UNESCO Convention identifies its primary purpose to safeguard ICH, while it's second is to ensure respect for ICH of the communities, groups, and individuals concerned. In 2015, Ethical Sensibles for Safeguarding ICH were adopted by the convention's intergovernmental committee and were intended to serve as a basis for the development of specific codes of ethics and tools adapted to local and sectoral conditions. Importantly, the convention recognizes that globalization and social transformation provides avenues for intolerance to grave threats of deterioration, and the disappearance and destruction of ICH around the world. In developing the Ethical Sensibles for Safeguarding ICH, the convention identified nine threat categories. The first, negative attitudes. The second, demographic issues. The third, decontextualization. The fourth, environmental degradation. The fifth, weakened practice and transmission, followed by cultural globalization, new products and technologies, loss of object persistence, and economic pressure. The convention also identified 46 different risks to ICH, which were each placed within one of the threat categories. None of these threats or risks address the imperialist and colonialist roots of the Western world view, which results with the systematic and institutional exclusion of indigenous values and knowledges. Additionally, none of the threats or risks address the capitalism and globalization impacts of the Western world views legal, social, and political framework against indigenous people. This results with the collective destruction of indigenous heritage, identity, ownership, governance, religion, and, ultimately, exclusion and removal. And this is where I need to point out that the preferred alternative as the draft is written right now is believed to not cause disproportionately high and adverse effects on any environmental justice populations. And the draft identifies that the impact to (indiscernible) within the preferred area location are insignificant or unimportant. This is a significant concern to myself and to several other tribal members of my family and friends. Impacts to our food and water system, such as access and availability, purity, and diversity, continue to be impacted by the CRSO operation. Impact to our sacred sites, including legendary landscape, food, water, medicine, and mineral sources, as well as our graves, sacred and ceremony sites continue to be impacted by the CRSO operations. The rites and practices of life and death in our tribal communities continue to be impacted, including those associated with birth, maturity, transitions, and passing, decision-making, conflict revolution – conflict resolution and communication, and well as familial ties and governance responsibilities within our tribal communities; those continue to be impacted by the CRSO operations. Additionally, our art texture and technology, our	The co-lead agencies understand the concern regarding the continued impacts of the CRS on intangible cultural heritage, traditional knowledge, and other tribal interests. The co-lead agencies appreciate the unique connection between tribes and the Columbia River Basin ecosystems and recognize the difficulty in fully communicating these connections in the context of the EIS. In order to ensure tribal interests were represented as accurately as possible, Appendix P presents first-hand tribal perspectives that were provided by 11 tribes on the operations and maintenance of the Columbia River System, and the effects it has had on tribal life for consideration in the EIS. Section 3.17 summarizes these perspectives on the importance of the Columbia River Basin resources and landscapes to tribes and the potential impacts of the CRSO EIS alternatives. In addition, where applicable or pertinent, for specific EIS resources, the EIS described how tribal interests would be impacted by the different Multiple Objective Alternatives in Chapters 3 and 7. As the commenter notes, based on the analysis presented in the EIS, the Preferred Alternative is not expected to have a disproportionately high and adverse effect on low income populations, minority populations, or Indian Tribes. This is due to the expected magnitude of the effects of the Preferred Alternative in comparison to the No Action Alternative.

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				traditional knowledges associated with those, including adaptive education, our place-based history, and our sustainable requirement resilient architectures and technologies continue to be impacted. Time and again, we collectively and cumulatively report the negative impacts of imperialism, colonialism, capitalism, and globalization to our heritage, identity, culture, values, life ways, environments, and bodies. Unfortunately, I recognize that this framework will not resolve any of the concerns I continue and others continue to bring forward, not in reporting these things, mitigating, reprimanding, holding accountable or suspending these activities. What needs to be known is that this is a staggering lack of accountability not just for the federal government but for all imperialists, colonialist governments. And these are actually acts of cultural genocide because they are threatening and risking indigenous heritage and identity and the intangible cultural heritage of communities. I hope that this information does not fall of deaf ears. I appreciate the opportunity to comment and I look forward to the best for all of us. Thank you	
4702	1	Keith Kutchins	N/A	Tonight I'd like to talk about the electricity production and try to elucidate a little bit of fact that might be skewed in this analysis. Justification of the four lower Snake dams are essential because of their flexibility in producing electricity for peaking and for filling gaps and load demands contradicts the congressionally-mandated purpose of the dams. Only 5 percent of their purpose is mandated for electricity production. Conversely, 80 percent of their purpose is to provide commodities transportation via barging, to make ocean ports far inland along the lower Snake River, culminating at Idaho's only ocean port corner, 65 miles from the ocean at Lewiston. Congress wouldn't approve these four dams at first because the only purpose was for navigation. So finally, Congress did end up mandating that 80 percent of the purpose is for navigation, which is a very heavily skewed unilateral purpose that was rare by the congressional standards of the late '60s and early '70s. By that time, Congress had started to only authorize multipurpose projects, 20 percent navigation, 20 percent recreation, 20 percent irrigation, 20 percent electricity, and flood control. But no, not these dams; 80 percent navigation, only 5 percent for electricity. I felt profound sadness and guilt when I learned yesterday from the Nez Perce traveler during this hearing when he said the then Governor Cecil Andrus lamented the coming end of the wild Idaho salmon in his comments at the ceremony commemorating the 1975 Bicentennial. Some folks saw this coming with the authorization of the dams and appropriation. Anyway, back to my point. Only 20 percent of the congressional mandate for the four lower Snake dams is for recreation, irrigation, electricity production. Bypassing the four dams which provide recreation opportunities that would equal or exceed existing levels. Existing irrigation on the lower Snake River is all pumped water that could still be provided by simply extending the pumps from the (indiscernible) river pool, the natural river lowers with no loss of irrigation -- the entire 35,000 irrigable acres. The flawed draft EIS should be corrected so that the importance of electricity produced by the four lower Snake dams is based on fact. Fact, only 5 percent of the congressionally-mandated purpose of the four dams is for electricity production. Fact, the dams combined generation capacity is only 5 percent of the Columbia River Power system. And the EIS needs to consider the percentage of total electricity produced in the EIS project area, not just the portion of the Federal Columbia River Power System, but the entire Columbia River power system. And, again, that 5 percent is capacity when its real production is 1.8 to 2.6 production. This small amount can very economically be replaced with conservation to help the river production.	The comment is incorrect in suggesting that the four lower Snake River dams' power is unnecessary for regional power needs. Bonneville sells power from the Federal Columbia River Power System (FCRPS) as a unified system, not from specific projects. In this regard, the power generated from the four lower Snake River dams are pooled with all other FCRPS power sold by Bonneville to meet Bonneville's collective power obligations. Most of this power is used to meet the loads of regional publicly owned utilities, such as municipalities, rural utilities, and public utility districts under long-term power-sales contracts (see Draft EIS Section 3.7.2.5 Bonneville Power and Transmission Customers). A small portion of power is sold in the California energy market when there is surplus, but these sales are not from specific projects, but rather from the collective FCRPS. This EIS discusses engineering solutions, including pipeline extensions, in Section 3.12.3. MO3, Region C discussion begins on page 3-1267 line 3244 in the Draft EIS and is also found in Appendix N. The EIS draws upon the 2002 Lower Snake River Juvenile Salmon Migration Feasibility Report and Environmental Impact Statement, which concluded that modifying the existing pump system was cost prohibitive. As discussed in Section 3.12.3, for MO3, in Region C this analysis assumes that pumps are unable to deliver water to an estimated 47,926 acres. The four lower Snake River projects currently support 2.6 million visitors and $24.5 million in social welfare value annually. Breaching the four lower Snake River dams would have both beneficial and adverse effects on recreation. Dam breach would preclude reservoir recreation during and shortly after the breach, eliminating reservoir recreation; over time, and as recreation areas and access are redeveloped by others, long-term beneficial effects to river recreation, including angling, are anticipated. Section 3.11 of the EIS describes that the visitation in the long-term in the lower Snake River would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting jobs, income, and tourism businesses. No Federal mitigation is anticipated under MO3 to maintain access to the river. Since the lower Snake River projects would be deauthorized, Federal agencies would no longer operate the project lands for recreation. After project lands have been transferred to other agencies or entities (or both), and recreational sites and associated facilities could be modified as determined by others.
4704	1	Sean O'Leary	Northwest Energy Coalition	We're glad the DEIS assessment of MO-3, the dam removal alternative, confirmed the ability of new renewable resources and customer site resources to reliably replace the power and grid services currently provided by the dams. However, the DEIS analysis greatly overestimates the cost and the amount of new generating resources required to do so. This exaggeration of costs and resources arose because, first, the DEIS makes several inaccurate assumptions regarding the cost to replace -- or to acquire the replacement resources. It also assumes an impractical and wholly arbitrary implementation date of the year 2022. Then, in considering replacement resources, it failed to consider the full range of available technologies, including wind power and additional demand-side and storage resources. It also assumes the EPA will shoulder the full cost of power replacement and that these costs will be recovered only from public utility customers. In addition, the DEIS assessment fails to meet even the minimum standards to which utilities and the Northwest Power and Conservation Council adhere when they do resource planning. Under that standard, the DEIS should have first examined energy and capacity needs and resource costs over a span of years rather than just as a snapshot of the year 2022. Second, it should have fully explored demand requirements and resource options. Third, it should have tested and optimized combinations of those options. Then it should have considered the interaction of the federal Columbia River System resources with the Western Regional resources and markets, and it should have analyzed the cost incidents of the replacement alternative to determine how costs would have been allocated among Northwest customers. Had the DEIS done these things, the projected cost of the clean power replacement scenario would come down in concert with ongoing declines in costs for wind power, solar power, and storage. The amount of required replacement power would have been significantly reduced because demand response and energy efficiency would have made a far larger contribution. The enhanced cost efficiency of the replacement resources would have further reduced costs. And the cost of power replacement would have been shared by public and private utilities, thereby reducing the impact on a per-customer basis. We're especially disappointed that the energy replacement analysis within the dam removal alternative has these shortcomings because the DEIS shows it's the only alternative that restores return rates to the level required to restore the endangered species.	The comment is correct that the EIS considers a renewable replacement portfolio under MO3. The EIS used the most recent data from the Council's Seventh Power plan and Mid-term Assessment to analyze regional reliability, the need for replacement resources, the costs of those resources, and the potential for additional energy efficiency. The Councils Seventh Power Plan was issued in February 2016 and the Mid-Term Update was issued in February 2019. However, the cost of this portfolio is quite large, and the EIS did not assess the availability of integration services for such a large fleet of variable renewable energy. The implementation date of 2022 was used in the power analysis to be consistent with the implementation date used by the cost and implementation analysis. Rather than speculating on how soon the dams could be breached, the EIS focused on the process of breaching the dams and the conditions expected following dam breaching, and thus analyzed dam breaching as beginning with completion of the EIS. For hydropower, the analysis focused on the difference between the No Action Alternative and the condition after dam breaching, where the exact year of breaching is not important. See EIS Section 3.19 and Appendix Q for additional discussion of the rationale for this date. Contrary to statements in the comment, the EIS considered both wind and storage options. The EIS examined the full range of resources defined as primary by the Northwest Power and Conservation Council. This included solar, wind, natural gas, batteries, demand response and combinations of solar and wind. See Draft EIS, Section 3.7.3.5, Replacement Resource Options, pages 3-907-3-910. For all portfolios, the most cost effective was natural gas and the most cost-effective renewable option was solar. See Draft EIS, Section 3.7.3.5, Potential Replacement Resources and Associated Costs, pages 3-904-905. Also, in response to commenters suggestion that additional energy efficiency and demand response would have reduced the cost of the resource portfolios, the EIS assumed that all cost effective conservation was achieved in MO3. See Draft EIS, Section 3.7.3.1, Demand Response, pages 3-836-838. Wind was not selected because of its lower reliability benefit to cost ratio as described in Appendix J. The comment suggests that the EIS only considered Bonneville public power customers as financing the costs of replacement resources for the four lower Snake River dams. That conclusion is inconsistent with the analysis in the EIS. The EIS evaluated the costs of replacement resources assuming two different sources of financing: (1) Bonneville; or (2) regional utilities. See Draft EIS, Section 3.7.3.1, Step 3 Determine Need For Potential Replacement Resources and Associated Costs, pages 3-821-22. The power rates analysis for each Multiple Objective alternative (MO), including MO3, evaluates the power rate impacts for replacing the four lower Snake River dams using both financing assumptions. See Draft EIS, Section 3.7.3.5, Electricity Rate Pressure, page 3-918 (Bonneville finances), Table 3-166, 3-925, Table 3-167. The rates analysis also models the full impact and distribution of rate and socioeconomic effects across the affected area. See EIS, Section 3.7.3.5, Social and Economic Effects of Changes in Power and Transmission. The comment also mentions that costs would be allocated to EPA - no power replacement costs are allocated to the Environmental Protection Agency. The EIS uses high quality information as well as industry standard models to determine the potential power system effects. See Draft EIS Section 3.7.2.2; Appendix H Power and Transmission, at Section 2.1; Appendix I Hydroregulation, Section 2.4.4. The commenter suggests or questions why a competitive resource review, also known as an integrated resource plan (IRP), was not performed as part of the EIS analysis. An IRP is a resource planning tool that utilities use to plan for future resource builds and acquisitions to fulfill the utility's specific needs over a certain planning horizon, typically 20 years. Some utilities are required to conduct an IRP by their local or state utility commissions. Bonneville is not required to perform an IRP, but does perform resource planning to inform its decisions, including for this EIS. There are many different methods and tools that are used by utilities when performing an IRP. Furthermore, the output of an IRP is often driven by state energy policies, such as carbon emission requirements. Even if an IRP optimizes resource portfolios, the real costs of that portfolio are not known until a competitive request for proposal solicitation can be completed and evaluated. As explained in the EIS Chapter 3, Section 3.7.3.1, Base Case Methodology and Cost Sensitivities Analysis, the EIS analysis evaluates the power impacts of the MOs on regional power system reliability, as measured through loss of load probability (LOLP). The regional scope of the EIS is necessary because the impacts of the MOs on power system reliability and costs transcend individual utilities and states. Thus, for example, the EIS addresses the cost impacts of replacement resources for each MO regardless of whether Bonneville pays for the replacement resources. If Bonneville does not replace the lost capability caused by an MO, regional reliability would still be worse than the No Action Alternative and above the Northwest Power and Conservation Councils (Council) 5 percent standard, leaving other regional utilities to acquire the necessary resources. The EIS addressed the regional nature of the costs and resources needed to maintain power system reliability under the MOs. The EIS analysis looked at all potential resources as identified by the Council. Specifically, the EIS used data from the resources in the Councils Seventh Power Plan (2016) and Mid-Term Update (2019) to develop various resource portfolios. The cost of batteries came from more recent utility IRP data from 2018 and 2019 instead of 2013 data used in the Councils Seventh Power Plan. Seven trial resources portfolios, one carbon and six carbon-free were produced for each MO and then ranked based on their ability to cost-effectively reduce the loss of load probability (LOLP). From these portfolios, the EIS identified the two least-cost portfolios that reduced LOLP to the No Action Alternative levels. These least-cost portfolios include a (1) conventional resources (natural gas), and (2) a least cost portfolio using zero-carbon resources (primarily solar). These resource portfolios represent a range of least-cost resources that could be available to restore regional reliability to the No Action Alternative level. Based on responses to public comments, the Final EIS contains an expanded description of how the potential replacement resource portfolios were selected for the EIS. (See Appendix H, Section 2.2 and Chapter 3, Section 3.7.3.1 in the Final EIS). Based on the fish analysis, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Recovery is a broader regional goal and is above and beyond the co-lead agencies' obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the Columbia River System. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species.
4705	1	Whitney Neugebauer	N/A	The DEIS under-represents the importance of Columbia-basin salmon in the diet and fitness of endangered southern resident killer whales. These whales need salmon from a variety of river systems throughout the entire west coast. They cannot depend on the three river systems or seasonal periods of abundance to provide adequate prey resources. Southern resident killer whales spend over half of the year in coastal waters. During that time, Columbia-basin salmon comprise over half of their diet. These spring chinook are of particular importance for southern resident killer whales. We'll follow up with additional written comments providing sources of scientific information that were not cited in the DEIS. Dam breaching, or the MO-3, give salmon the best chance of recovery of the alternatives presented in the DEIS. However, agencies should also consider another option to breach the four lower Snake River dams and utilize spill at the Columbia River dams up to 125 percent TDG. This results in the best scenario for salmon recovery. This management option is outlined in detail as the MO-3/4, alternative, proposed by the Fish Passage Center in Chapter 2 of their Comparative Survival Study 2019 report.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the Endangered Species Act (ESA), in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. The population dynamics of the SRKW are complicated and there are multiple factors that contribute to the overall success of this species. The quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differently from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for the whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall-run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall-run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). Details on the most crucial prey stocks for Southern Resident killer whales, as well as their population and range, is available from several fact sheets and videos available here: https://www.fisheries.noaa.gov/species/killer-whale#spotlight. For more information, visit this NMFS StoryMap on Southern Resident killer whales: https://noaa.maps.arcgis.com/apps/Cascade/index.html?appid=3405e6637bf74e998d4ebe992c54f613. According to NMFS and the EPA, the estimated SRKW population has fluctuated between 67 and 98 whales between 1960 and 2015. The Snake River dams were constructed between 1962 and 1975. The SRKW population increased from a record low in 1970 to its highest population numbers in 1995. Those years were not high years for Snake or Columbia River Chinook Salmon. Ocean conditions between 2011 and 2013 were good years for salmon. At the same time, 2010 and 2013

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					were good outmigration years. Particularly, 2011 and 2012 were above normal in water supply, which would mean more cooler water was available and there was better survival of salmon, and 2011 through 2014 were higher than normal spill years as well. The combination of outmigration and ocean conditions created improved adult salmon returns. The EIS has analyzed spill as a measure in the Preferred Alternative and determined the overall effect to SRKW to be negligible. Because the impact from the Preferred Alternative was determined to be negligible, the agencies determined that existing hatchery production would be sufficient to address any potential impacts to prey availability for SRKWs. The co-lead agencies note the contribution to the prey of SRKW through the continued existence of their respective independent Congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as the Lower Snake River Compensation Plan (other than under MO3), which is administered by USFWS. The final EIS in Vegetation, Wetlands, Wildlife,and Floodplains (Section 3..6.2.6 and Table 3-102), and Chapter 7 (Preferred Alternative), has been updated with additional analysis information on SRKW and the potential increase in forage fish, in particular, Chinook salmon (Section 7.7.8). Moreover, NMFS concluded in its 2020 CRS BiOp that operations, maintenance and configuration of the CRS is not likely to adversely affect SRKW. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-lead agencies numerous legal obligations. Two of those objectives are directed at salmon and steelhead. Additionally, the CRSO EIS evaluated spill at ranges from 125 percent to 110 percent Total Dissolved Gas (TDG) across the alternatives including under MO3 which includes the measure to breach the four lower Snake River dams, where 120 percent TDG spill was evaluated at the four lower Columbia River dams. The Preferred Alternative is predicted to benefit ESA-listed juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. The Preferred Alternative also meets the EIS objectives for: resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3 and MO4, by contrast, have significant regional economic and community effects, and meet fewer of the EIS objectives. Thus, the co-lead agencies did not recommend MO3 or MO4 because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. Thus, an alternative that includes breaching the four lower Snake River dams and spring spill operations to 125 percent TDG at all four lower Columbia River dams is unreasonable given the unacceptable risks to public safety from such an alternative. For example, for impacts to Power and Transmission, MO3 and MO4, individually each caused large loss-of-load probability (LOLP) results (e.g. increased incidence of blackouts). Without major addition of new resources, MO3 would result in power shortages in about one in seven years. MO4 would produce power shortages in about one in every four years. If MO4 were implemented, in addition to breaching the four lower Snake River projects as called for in MO3, then the LOLP would be even higher, with power shortages potentially occurring almost every year. Additionally, if these MOs were combined, in 5% of the years, the power shortages would average close to 1,000 MW in early August when the region might be experiencing a heatwave with particularly high demand for air conditioning. 1,000 aMW is about the average amount of power consumed by Seattle City Light. As shown in Section 3.7, MO3 causes an increase in power reliability concerns in the winter and the summer. MO4 increases power reliability concerns in the summer. Thus, the combination has the largest impact during the summer. The cost of zero-carbon replacement resources for MO3 and MO4 individually are up to $1 billion/year. Resource replacements and associated transmission interconnections for the combination of MO3 and MO4 would be higher, though not likely as high as the sum of the two MOs individually. Assuming that the replacement resources consist largely of wind, solar, and batteries, this would require well over 50 square miles of solar power (more than two and a half times the size of Crater Lake), large areas of new wind generation, and unprecedented amounts of batteries (more batteries in the Northwest alone than the total projection of batteries expected in the entire US by 2023 per the Energy Information Administration). In addition, the reduced generation capability under MO3, particularly throughout the summer, in combination with the impacts of the measures in MO4, and the uncertainty about the characteristics of replacement resources, would result in less capability to provide voltage support and dynamic stability for transmission system reliability than under MO3 or MO4 individually. Thus, combining MO4 with breaching the four lower Snake River projects, would produce unreasonable power and transmission reliability impacts, and it is highly speculative that replacement resources could be sited, permitted and built to address these impacts. Thus, an alternative combining juvenile fish passage spill up to 125% and breaching the four lower Snake River dams is unreasonable, and thus was not proposed as an alternative.
4706	1	N/A	N/A	So I want the federal agencies to address the Columbia River system in a two-tiered process. Tier 1 is an emergency response action for the immediate drawdown and breach of the Lower Granite and Little Goose dam, followed by the remaining two dams in subsequent years. Tier 2 is addressing system operations and further mitigation activities in the rest of the Columbia River basin using the new EIS, assuming that the four lower Snake River dams are breached.	The agencies would have to seek congressional authority and appropriations for breaching the four lower Snake River dams and could not immediately breach the dams. The ESA does not require the co-lead agencies to take affirmative actions to support recovery of ESA-listed species. The EIS evaluated under MO3 removal of the earthen embankment of the four lower Snake River dams (referenced as tier 1 in the comment) including operations (referenced as tier 2 in the comment) of the other ten Federal dams in the Columbia River System and mitigation for effects to resources from implementing this alternative.
4707	1	rosenbergjohn@comcast.net	N/A	A reasonable person might think that after five rejections by the federal court, each more scathing than the previous one, the agencies might consider a different approach. However, they seem to be so locked into preserving the status quo that apart from minor tinkering, they keep producing the same worn-out plan over and over again. Something needs to change if Columbia and Snake River salmon and steelhead are to survive. The urgency has never been greater. Not only are salmon and steelhead threatened with extinction, but so are the orcas that depend upon them as a primary food source; so are coastal communities in Oregon and Washington that depend upon them as a primary source of income; so are the outfitters in Idaho that depend on abundant salmon and steelhead for their livelihood; so are tribes who have a treaty right to catch salmon and steelhead and for whom they are integral to their self-understanding and way of life. The only economic impacts the draft EIS takes into consideration are to the barging industry, a small number of farmers who rely on the Snake River for transportation and irrigation, and utilities who are rapidly developing alternative energy sources to replace their need for power from the four dams on the lower Snake.	The EIS evaluated beneficial and adverse effects across an array of resource areas including potential effects at the national, regional and local level; effects are monetized and quantified, where possible, and also described qualitatively. As is common in NEPA analyses, the beneficial and adverse effects of the alternatives are expressed as a variety of qualitative and quantitative environmental and economic metrics throughout the EIS to inform decision-making, including the effects of the alternatives on fish as detailed in Section 3.5. That the effects of the alternatives on fish are not expressed as monetized economic values does not mean that they were not considered in the context of the analysis. The EIS does not employ a cost-benefit framework for decision-making. Instead, the EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as the dam breaching alternative. However, the Preferred Alternative also meets most of the other objectives of the study for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. The EIS provides an evaluation of the social welfare and regional economic effects of the No Action Alternative and the Multiple Objective alternatives, including the effects on recreation (Section 3.11) and commercial fisheries (Section 3.15). The EIS described the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. NMFS estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which is described qualitatively. For MO1, MO2, MO4, and the Preferred Alternative, the recreational fishing evaluation describes the impacts by referencing the potential effects on relevant fish populations, as described in Section 3.5. Fish, modeling results vary for some of the alternatives, for example for the Preferred Alternative and MO4 (i.e., models show either beneficial or adverse effects to anadromous fish), so it is assumed that the potential changes in recreational fishing would follow these changes in fish abundance. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the Columbia River System. The overall health and condition of the Southern Resident killer whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. National Marine Fisheries Service (NMFS) and Washington Department of Fish and Wildlife (WDFW) have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for the whales (NMFS and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall-run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall-run, and Snake River spring/summer-run. SRKW also are known to eat some steelhead, coho, and chum salmon, halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKW are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKW feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). CSS and NMFS Lifecycle models predict that lower Snake River Chinook salmon Smolt-to-Adult return rates would have a moderate to major increase under MO3. Operation of Lower Snake River Compensation Plan fish hatcheries under MO3 is uncertain and therefore, production of Snake River hatchery fish is assumed to decline over the long term, while returning adult wild salmon are anticipated to increase. However, the co-leads do not anticipate a lack of hatchery fish in the short term based on the proposed fish hatchery mitigation described in Chapter 5. These additional hatchery fish should mitigate short-term construction effects to Snake River populations. Additionally, to address short-term effects to ESA-listed species, the co-lead agencies propose constructing a new trap and haul facility at McNary and conducting at least two years of trap and haul operations for Snake River fish (Chinook, sockeye, and steelhead). Therefore, there may be short-term adverse effects to the SRKW population as the lower Snake River wild salmon populations adjust to changes associated with dam breaching. The co-lead agencies agree that the quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKW, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these Federal dam and reservoir projects, and the associated effects would indirectly affect SRKW. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differently from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020). The co-lead agencies conclude there could be a negligible to minor beneficial effects to SRKW from implementing MO3. Additionally, MO3 is not likely to adversely affect the SRKW distinct population segment in the short-term analysis because increased hatchery production and the new trap and haul facility at McNary proposed for MO3 in Chapter 5 would address any potential short-term impacts. The EIS recognizes the economic and cultural importance of salmon to Tribes in a number of sections throughout the document. Section 3.15, Fisheries and Passive Use Section and, in particular, Section 3.17, Indian Trust Assets, Tribal Perspectives, and Tribal Interests, include discussions of reductions in anadromous species catch and associated adverse social effects that have occurred in Tribal communities. The cultural significance and impacts of salmon and steelhead fisheries are described in Section 3.15.2.1, Fisheries and Passive Use, which includes subsections that describe ceremonial and subsistence fisheries as well as the social importance of commercial, ceremonial and subsistence fisheries.
4707	2	rosenbergjohn@comcast.net	N/A	I have a master's degree in Pacific Northwest History from Portland State University, where the subject of my research was Columbia and Snake River salmon and steelhead. Someone said that one definition of insanity is to keep repeating the same action over and over and expecting a different result. By that definition, the latest draft EIS could be fairly described as an exercise in insanity. A reasonable person might think that after five rejections by the federal court, each more scathing than the previous one, the agencies might consider a different approach. However, they seem to be so locked into preserving the status quo that apart from minor tinkering, they keep producing the same worn-out plan over and over again. Something needs to change if Columbia and Snake River salmon and steelhead are to survive. The urgency has never been greater. Not only are salmon and steelhead threatened with extinction, but so are the orcas that depend upon them as a primary food source; so are coastal communities in Oregon and Washington that depend upon them as a primary source of income; so are the outfitters in Idaho that depend on abundant salmon and steelhead for their livelihood; so are tribes who have a treaty right to catch salmon and steelhead and for whom they are integral to their self-understanding and way of life. The only economic impacts the draft EIS takes into consideration are to the barging industry, a small number of farmers who rely on the Snake	The CRSO EIS documents the assessment of benefits and impacts of changes to the operations of the 14 Federal projects of the Columbia River System. Using a multi-disciplinary approach and with the coordination and consideration of our cooperating agencies and Tribes, as well as public stakeholder input, and by using current, high quality information, the co-lead agencies developed the Preferred Alternative. This alternative best meets the purpose and need for the system operations in the region, as well as meets most of the objectives of the EIS in consideration of changing operations. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the Columbia River System. Recovery of ESA species is the purview of NMFS and the US Fish and Wildlife Service. This EIS has been developed in consultation with National Marine Fisheries Service and USFWS to minimize impacts to affected ESA species and their habitats. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as the MO3 which includes the dam breaching measure. The Preferred Alternative also meets the EIS objectives for: resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS the co-lead agencies did not identify MO3 because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system.

Letter No.	Comment No.	Commenter Name/Email	Affiliation	Comment	Response[1/]
				River for transportation and irrigation, and utilities who are rapidly developing alternative energy sources to replace their need for power from the four dams on the lower Snake. If we want a different outcome, Congress needs to take the process out of the hands of federal agencies who have repeatedly demonstrated their unwillingness to take the necessary steps to address this crisis. Instead, Congress should give it back to Pacific Northwesterners who can come up with real solutions; sovereign tribes, all stakeholders, not just barge operators, farmers and utility executives, and regional citizens who can craft inclusive creative solutions that are lawful, science-based, and address the concerns of the people of the region today, and not just the open river boosters who promoted the dam 70 years ago. If we want different outcomes – – we need a different process with different players. If the Corps of Engineers, the Bureau of Reclamation and BPA have demonstrated anything over the past 30 years, it's that they're incapable of addressing this crisis in a meaningful way.	Moreover, the co-lead agencies disagree the Preferred Alternative is a continuation of the status quo. The spill operation for juvenile fish passage is a significant departure from previous operations, so much so that the Washington and Oregon state water quality standards had to be changed to implement the new spill regime. The Preferred Alternative also includes other operational, structural and mitigation measures to improve conditions for ESA-listed salmon and steelhead. The EIS recognizes the social and economic values associated with salmon although these values are not all expressed in monetary terms. Section 3.15 provides a discussion of the value of fisheries (commercial and subsistence) associated with salmon, as well as passive use values that people hold for these fish. Section 3.11 describes recreational values associated with the fish. Regarding southern resident killer whales (SRKW), the co-lead agencies agree that the quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults form the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differentially from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020).
4711	1	harryrjag@gmail.com	N/A	And I've looked into the EIS – the DEIS. The best recovery is given with the MO-3, which is removing the Snake River dams. Just a few facts from the Idaho Conservation League, which talks about SARs. I'm sure most of the people that worked on the EIS knew about SARs. The Deschutes River with two dams has the SARs of 5.94. You need at least a SARs of 2 to at least maintain the population, and 4 would be better. The John Day Dam, with three dams in the way, has a SARs rate of 6.06. The Yakima River, with four dams, has a SARs of 4.58. The Snake River Basin above Lower Granite Dam, where we have eight dams, the SARs rate is 1.84.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the Endangered Species Act (ESA), in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-lead agencies numerous legal obligations. The Preferred Alternative is predicted to benefit ESA-listed juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets most other EIS objectives including those for: resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams, because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. Different models predict different long-term survival benefits to ESA-listed species from breaching the four lower Snake River dams, benefits that can contribute to recovery. Under the National Marine Fisheries Service (NMFS) COMPASS model, juvenile Snake River spring/summer Chinook in-river survival would improve by 9.6 percent due to dam breach, which is a 19 percent relative increase over the No Action Alternative. The NMFS Lifecycle Model predicts an increase in adult returns of 13.6 percent for these same fish under MO3 (no latent mortality assumed) relative to the No Action Alternative (from 0.88 percent to 1 percent). Results for Snake River steelhead are similar (10 percent absolute improvement, or 23 percent relative juvenile survival increase, Smolt-to-Adult returns (SARs) for steelhead were not modeled. Under the CSS model, juvenile in-river survival for the Snake River spring/summer Chinook is predicted to improve by 10.4 percent due to breach of the four lower Snake River dams, which is an 18 percent relative increase over the No Action Alternative, while SARs would increase by 115 percent (from 2 percent to 4.2 percent). The CSS model predicts that Snake River steelhead would see juvenile survival increase by 25.8 percent which is a 46 percent relative increase over the No Action Alternative. The CSS model also predicts that SARs increase by 177 percent (from 1.8 percent to 5 percent). Though differing in predictions, both models predict MO3 is the best alternative for salmon and steelhead. One model simply predicts adult return increases an order of magnitude higher than the other. With respect to the Preferred Alternative, the CSS model, which includes latent mortality effects predicts that median SARs will increase for both Snake River spring Chinook and steelhead and will average well above 2 percent (the lower end of the Northwest Power and Conservation Council's recovery targets for the region) as a result of the Preferred Alternative increasing from 2.0 percent to 2.7 percent for Chinook, a 35 percent relative increase. A SARs rate of 2 percent can lead to substantial population growth given adequate productivity and habitat quality. The NMFS COMPASS and Lifecycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. To address the uncertainty due to the different model results, the Preferred Alternative includes working with regional sovereigns to develop a study that assesses the effectiveness of increased spill regime on adult returns as well as assessment and management of negative unintended consequences, such as long delays of adult migrants, and Total Dissolved Gas (TDG)-related mortality of juvenile migrants. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information.
4713	1	Caitlin Straubinger	N/A	The DEIS, in the preferred alternative, falls short of providing comprehensive solutions that address all parties. It fails our community of guides and outfitters who rely on bountiful fish returns for their livelihood. And it fails salmon and steelhead. These iconic endangered fish deserves every chance to thrive in the wild as they have for hundreds of thousands of years before we got involved. Salmon returns to the Snake and Columbia Rivers are dreadful. Current wild returns are just 1 to 3 percent of historic returns. In Idaho, that number is even lower. Scientists tell us that the single best action we can take to recover salmon and steelhead is to restore the lower Snake River by breaching the four dams. Small river towns like Salmon, Riggins and Orofino rely on outdoor recreation and fishing. Outdoor guiding and recreation in Idaho provides over 70,000 jobs and $2.3 billion in direct and indirect salaries and wages. The DEIS doesn't account for this. The DEIS should include a comprehensive economic analysis of Idaho's salmon sport fishery and its great potential should wild salmon and steelhead return in abundance. The DEIS furthers an approach that isn't working. Salmon and steelhead in the Columbia and Snake Rivers are endangered and threatened. We've spent over $17 billion on recovery, and yet wild salmon and steelhead throughout the Columbia and Snake River basins are still on the endangered species list. We need collaborative solutions that meet the needs of all interest groups in the Pacific Northwest, and DEIS and the preferred alternative, don't do this	The EIS provides an evaluation of the social welfare and regional economic effects of the No Action Alternative and the MOs, including the effects on recreation (Section 3.11) and commercial fisheries (Section 3.15). The EIS describes the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. NMFS estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which is described qualitatively. Under MO3, the EIS Section 3.5.3.6 describes the long-term effects to anadromous fish migration in Region C that would occur under a dam breach scenario as major and beneficial. The potential for increases in recreational fishing under MO3 in Region C is described in Section 3.11.3.5, which would support jobs, income, and social benefits in Tribal and rural river communities. For the effects on recreational fishing under MO3 (Section 3.11.3.5) along the lower Snake River below Lewiston, the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River) as an indicator for fishing visitation in this reach. The EIS describes that the visitation in the long-term in the lower Snake River, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting outfitting and tourism businesses in the region. However, there is uncertainty around recreational fishing visitation in the long-term given the current measures to regulate, protect, and support ESA-listed fish populations and habitat in the region. The commenters suggestion that approximately $17 billion in fish and wildlife mitigation investment has been ineffective to recover ESA-listed species is misplaced. Those investments delivered the intended results when considered in the appropriate statutory context of the Northwest Power Acts anadromous fish provisions which call for improved survival of such fish at Federal Columbia River Power System (FCRPS) projects and sufficient flows between the projects to improve production, migration, and survival. For example, as of 2014 this investment had facilitated juvenile dam passage survival of 96% and 93% for spring and summer migrants respectively, see Endangered Species Act Federal Columbia River Power System 2016 Comprehensive Evaluation Section 1, at 17, t.2 (Jan. 2017), a marked improvement compared to when Congress passed the Northwest Power Act and the estimated average juvenile mortality at each mainstem dam and reservoir complex was 15-20% with losses recorded as high as 30%. See Nw. Res. Info. Ctr. v. Nw. Power Planning Council, 35 F.3d 1371, 1374 (9th Cir. 1994) (citing a Sept. 4, 1979 report by U.S. General Accounting Office describing the systems impacts on anadromous fish). With respect to the Preferred Alternative (PA), the CSS model predicts that average Smolt-to-Adult return (SAR) rates will increase for both Snake River spring Chinook and steelhead and will average above 2% (the lower end of Northwest Power and Conservation Council recovery targets for the region) as a result of the PA (increasing from 2.0% to 2.7% for Chinook, a 35% relative increase). The NMFS COMPASS and Lifecycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The PA will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS, for additional information.
4713	2	Caitlin Straubinger	N/A	Finally, and especially in light of these unusual circumstances, the DEIS comment period should be extended. At a minimum, the comment period should be 120 days.	The co-lead agencies considered requests to extend the public comment period. This NEPA process included a wide array of cooperating agencies whose close involvement throughout the process allowed the co-lead agencies to incorporate feedback. Given the broad range of comments received and the extensive Federal and non-Federal participation in the overall process as well as the level of public engagement in the six virtual public meetings in the region, the co-lead agencies determined that an extension was not warranted and that the 45-day public comment period was adequate consistent with NEPA regulations. On April 9, the CRSO EIS website was updated to inform the public, that they should plan to submit comments by the close of the comment period.
4716	1	will.e.putnam@gmail.com	N/A	Your draft EIS is missing a vital piece of context that must be included. I'm going to get into that right now. On May 4th, 2016, in a federal district court ruling, three U.S. government agencies deeply involved in the Columbia River system were found to be in violation of the Endangered Species Act and the National Environmental Policy Act. I think this can be referred to as National Wildlife Federation, et alia vs. National Marine Fisheries Service, et alia. And I want to read a portion of that, page five, from Judge Michael Simon. He states, and I quote: In this lawsuit, plaintiffs raised two primary questions. First, did defendant, NOAA Fisheries act arbitrarily and capriciously when it issued its latest biological opinion (the '2014 BiOp') concluding that the operations of the Federal Columbia River Power System do not violate the Endangered Species Act of 1973, based on the 73 'reasonable and prudent alternatives' described in the 2014 BiOp? Second, did Defendants U.S. Army Corps of Engineers and U.S. Bureau of Reclamation violate the National Environmental Policy Act of 1969 by failing to prepare an environmental impact statement in connection with their records of decisions implementing the 73 reasonable and prudent alternatives described in the 24 BiOp. The answers to both questions are yes. End quote. As it is in your draft, on the first page of your executive summary, you state – and this is the first paragraph, we prepared this document in response to the need to review and update management of the CRS. I find that that's inaccurate and that it fails to disclose the true circumstances of the inception of this EIS. The purpose of this report is to fulfill the demands of the court order that ruled against NOAA, and the Corps, and the Bureau of Reclamation. The context of this court order must be included on the first page of that executive summary as well as the full report, any explanations for making alternative decisions as well as any other conclusions. This must be included because the public and everyone who encounters this report, including employees and contractors of these federal agencies, they all need to know whether the actions based on this report are in continued violation of the laws of which these agencies were previously found to be in violation. By failing to disclose those ongoing violations and the court order, this EIS hides the criminal negligence, if not criminal recklessness, of NOAA, the Corps and BOR. I would Bonneville Power to that list as well. They have all failed to rectify the violations. These agencies have published information that prove that the river system — will not reduce the damage to salmon and other endangered species. I propose the need for an unbiased third-party team of experts, scientists of all types, biologists, environmental science and financial experts and economists to analyze the information. Otherwise, there's no government accountability here. And the need for government accountability is why DEIS started. Since this DEIS – introduced major changes, this DEIS does not rectify the criminal negligence or the criminal recklessness of the violation of both the Endangered Species Act and National Environmental Policy Act.	The co-lead agencies take all legal and NEPA responsibilities very seriously and disagree with the comment. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA listed species. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the Columbia River System. Recovery of ESA species is the purview of NMFS and the US Fish and Wildlife Service. This EIS has been developed in consultation with National Marine Fisheries Service and USFWS to minimize impacts to affected ESA species and their habitats. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as the MO3 which includes the dam breaching measure. The Preferred Alternative also meets the EIS objectives for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS the co-lead agencies did not identify MO3 because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% (the lower end of Northwest Power and Conservation Council's recovery targets for the region) as a result of the Preferred Alternative, as a result of the Preferred Alternative increasing SAR from 2.0% to 2.7% for Chinook, a 35% relative increase. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. To address uncertainty highlighted by the two models, the Preferred Alternative includes working with regional sovereigns to develop a study that assess the effectiveness of the increased spill regime on adult returns as well as assessment and management of adverse unintended consequences, such as long delays of adult migrants, or TDG-related mortality of juvenile migrants. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information. The Preferred Alternative will make a meaningful contribution towards recovery. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information.
4716	2	will.e.putnam@gmail.com	N/A	My name is William Putnam. I spoke earlier. I'm a private citizen. And I just wanted to get back on the line and add my name to the list of people that are demanding for an extension of this public comment period. In part, the purpose of this public comment period is government accountability. And I find	The co-lead agencies considered requests to extend the public comment period. This NEPA process included a wide array of cooperating agencies whose close involvement throughout the process allowed the co-lead agencies to incorporate feedback. Given the broad range of comments received and the extensive Federal and non-Federal participation in the overall process as well as the level of public engagement in the six virtual public meetings in the region, the co-lead agencies

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				this period to be insufficient to allow for that. I just kinda want to put that in perspective a little bit. February 28 to April 13th is 46 days, but the EIS is 7,620 pages. So if you were to split that up per day, that would be 165 pages per day. And with the conservative assumption that the average page has 300 words. That's about half a page, half of a page's worth of words. And using an average of 300 words per minute as a reading speed for an adult, that comes about 2 hours and 45 minutes of reading a day, every day for 46 six days. If you want that together, the 7,620 pages would take about 126 hours. That comes to a full three workweeks – three full 40-hour work weeks with six hours of overtime. And that's three full workweeks over the course of a seven-week time period, a time period in which many Americans are struggling to maintain their normal employment due to COVID-19 pandemic, as others have said. Again, three full workweeks and that's just consuming your content here. That doesn't include the work of cross-referencing that's necessary for adequate government accountability. And as we've seen from some of the callers, there are some people out here that are making use of this time to dig into the details of this report. It seems like Jim Waddell is one of those people. Chris Pinney another. But getting back to your page numbers and specific analysis that could, and I daresay – dare I say it should be invaluable to you as retired Army Corps of Engineers that are working for you for free, if you'll take it. So this time period needs to be extended in my opinion.	determined that an extension was not warranted and that the 45-day public comment period was adequate consistent with NEPA regulations. The CRSO EIS website notified the public on April 9, that they should plan to submit comments by the close of the comment period.
4718	1	John Francisco; John Francisco	Northwest Requirements Utilities (NRU)	The draft speaks extensively to concerns around the losses related to avian predation, and we must all consider what can be done to mitigate these losses and others. Every variable that contributes to lower than expected salmon and steelhead returns must be put under the microscope. Only when we all agree that every factor that contributes to salmon population is on the table for discussion, will we be able to collaboratively address salmon returns without choosing winners or losers.	The co-lead agencies agree that salmon and steelhead are important resources in the Northwest and have invested significant time and resources at the projects covered by this EIS to improve survival and adult returns. The co-lead agencies also recognize that there are many effects to salmon and steelhead populations outside the operation of the dams. Research continues to evaluate the magnitude of these effects. For more information see the National Marine Fisheries Service website at: https://www.nwfsc.noaa.gov/research/index.cfm. As analyzed in Section 7.7.7, the Predator Disruption Operations measure could delay nesting waterbirds, forego nesting, or relocate to other areas. As discussed in Section 3.6.3.2, Caspian terns are highly mobile during the breeding season and move between breeding colonies in a given year and between years, demonstrating a willingness to nest away from the Columbia River while still foraging on juvenile salmonids (Corps 2014, 2018, 2019). As part of this projects monitoring and adaptive management plan (Appendix R, part 1), monitoring of the Predator Disruption Operations measure would determine the measure effectiveness on reducing the avian predators nesting habitat and monitor if the migratory bird species (Caspian terns) would remain at healthy and sustainable levels. Under the Preferred Alternative, those actions, including for the purpose of reducing avian predation on ESA-listed species, would generally continue to ensure compliance with the ESA. Other entities in the region have authorities and obligations to mitigate the impacts from pinniped and avian predators and the co-lead agencies will continue to work closely with those entities to benefit ESA-listed salmonids.
4722	1	Jill Heine	N/A	From what I can see, the DEIS, as written, doesn't represent the importance of the Columbia Basin salmon for the southern resident killer whales. They need salmon from a variety of rivers throughout the entire West Coast. They can't depend on two to three river systems or seasonal periods of abundance to provide adequate prey resources. The southern resident killer whales spend over half the year in coastal waters. Columbia Basin salmon make up more than half of their outer coast diet. Spring chinook are of particular importance for these whales and dam removal gives salmon and steelhead the best chance of recovery. This report and previous models find that breaching the four lower Snake River dams and utilizing spill at the Columbia River dams results is the best scenario for salmon and steelhead recovery. Even NOAA's own recovery plan starts with "Perhaps the single greatest change in food availability for resident killer whales since the late 1800s has to be the decline of salmon in the Columbia River Basin."	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets most other EIS objectives including those for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS, the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams, because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. SRKW analysis has been done and described in the EIS, including in the FEIS Chapter 3 (Vegetation, Wetlands, Wildlife, and Floodplains) has been updated for SRKW (Section 3..6.2.6 and Table 3-102) and FEIS Chapter 7 (Preferred Alternative) with additional analysis information on SRKW and potential increase in forage fish, in particular, Chinook salmon in Section 7.7.8. The co-lead agencies utilized current high quality information and best available science in its analysis of the effects of the operation, maintenance, and configuration of the CRS projects. The population dynamics of the SRKW are complicated and there are multiple factors that contribute to the overall success of this species. The quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differently from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for the whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall-run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall-run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). Details on the most crucial prey stocks for Southern Resident killer whales, as well as their population and range, is available from several fact sheets and videos available here: https://www.fisheries.noaa.gov/species/killer-whale#spotlight. For more information, visit this NMFS StoryMap on Southern Resident killer whales: https://noaa.maps.arcgis.com/apps/Cascade/index.html?appid=3405e6637bf74e998d4ebe992c54f613. According to NMFS and the EPA, the estimated SRKW population has fluctuated between 67 and 98 whales between 1960 and 2015. The Snake River dams were constructed between 1962 and 1975. The SRKW population increased from a record low in 1970 to its highest population numbers in 1995. Those years were not high years for Snake or Columbia River Chinook Salmon. Ocean conditions between 2011 and 2013 were good years for salmon. At the same time, 2010 and 2013 were good outmigration years. Particularly, 2011 and 2012 were above normal in water supply, which would mean more cooler water was available and there was better survival of salmon, and 2011 through 2014 were higher than normal spill years as well. The combination of outmigration and ocean conditions created improved adult salmon returns. The EIS has analyzed spill as a measure in the Preferred Alternative and determined the overall effect to SRKW to be negligible in large part because hatchery production is consistent between the No Action Alternative and the Preferred Alternative. Because the impact from the Preferred Alternative was determined to be negligible, the agencies determined that existing hatchery production would be sufficient to address any potential impacts to prey availability for SRKWs. The co-lead agencies note the contribution to the prey of SRKW through the continued existence of their respective independent Congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as the Lower Snake River Compensation Plan (other than under MO3), which is administered by USFWS. The Preferred Alternative and Proposed Action in the agencies' biological assessment carry forward certain measures described in Chapters 2 and 7 of the EIS, which include continued salmon and steelhead hatchery production. The Preferred Alternative has negligible effects to SRKWs as described in Section 7.7.8. The Biological Assessment (BA) describes the effect of the Proposed Action on the SRKW forage species (see BA Section 3.5.1.2, Southern Resident Killer Whale). The proposed changes in operation of the Columbia River System include increased spring spill during the downstream migration of juvenile spring and summer run Chinook salmon. The result of this action includes potential increases of juvenile fish passing through the spillways, reductions in juvenile fish direct and indirect mortality associated with downstream passage, and the Comparative Survival Study (CSS) model predicts increases in numbers of returning adults, which will benefit SRKWs foraging in and around the mouth of the Columbia River in winter and spring (See EIS Section 7.7.8). The CSS model results predicts Snake River Chinook salmon would have relative improvements in smolt-to-adult returns of 35 percent (see EIS Section 7.7.4). The smolt-to-adult return ratio (SAR) is the rate at which of a group of fish survive from their smolt life stage to a defined ending point where they return as adults. While recovery targets will require more than just the efforts of federal agencies, the CSS models indicate the potential for SARs of Snake River Chinook salmon and steelhead to increase to levels that could approach recovery targets set by the Northwest Power and Conservation Council. The BA, also consistent with the EIS, acknowledges past improvements to the configuration and operation of the Columbia River System, additional improvements to the environmental baseline as a result of completed estuary and tributary habitat actions, and the prospective non-operational conservation measures proposed in Chapter 2 of the Draft EIS, all contribute towards maintaining and improving Chinook abundance. Relevant conservation measures include, among other things, a commitment to continue funding the conservation and safety net hatchery programs listed in Chapter 2 of the Draft EIS. As discussed above, the agencies will fulfill congressionally authorized hatchery mitigation objectives through the funding of hatchery programs that are operated consistent with their independent hatchery program consultations during the term covered by this consultation. Based on those hatchery program consultations, the production levels associated with congressionally authorized hatchery mitigation objectives will continue, at minimum, to be consistent with levels previously analyzed by NOAA in the system consultations in 2008, 2014, and 2019. For the 2020 ESA consultations, therefore, the agencies expect that collectively, all of the actions described above (substantial modifications to migration conditions designed to benefit key prey species, combined with improvements to Chinook spawning and rearing habitat in the tributaries and Columbia River estuary, and continued hatchery production) ensure that remaining Chinook mortality from all sources in the mainstem migratory corridor will continue to be more than offset, resulting in a net gain in Chinook salmon abundance available as a prey source for SRKW. Finally, the 2019 NMFS Fisheries BiOp included increased spring spill operations that are similar to operations evaluated in CRSO EIS, and NOAA validated that the hatchery production of Chinook salmon mitigates for the impacts of operating the Columbia River System and total mortality through the mainstem migratory corridor from all sources.
4726	1	kairos42@earthlink.net	N/A	I would like to point out some specific comments in the EIS that are wildly inaccurate. First off, in terms of irrigation on page 3-1270, the EIS gives impacts for the breaching of the lower Snake dams in terms of $313 million lost land value, $232 million in lost labor income, $460 million in lost output, and a loss of 4,800 jobs. They say this because the EIS drafters accepted the 2002 EIS assumption that irrigation modifications would cost far more than the land values. While this is true, these modification estimates were revised by water supply engineers who showed that all irrigation systems on the lower Snake Ice Harbor pool can be modified with extended pipes and additional pumps for $20 million. That's correct, a $20 million fix versus a billion dollars in impact claimed in this EIS is just another egregious example of gross exaggerations. Indeed, breaching will allow reclamation of orchards, vineyards in the lower Snake Valley that existed before the dams, along with the recreation and synergistic development, such as wineries, hotels, restaurants, etc., this, according to economists, can generate 3- to 4,000, jobs, yielding $200 to $300 million in annual benefits to the six-county area in eastern Washington along the Snake. This DEIS has this one absolutely backwards.	This EIS discusses engineering solutions, including pipeline extensions, in Section 3.12.3. MO3, Region C discussion begins on page 3-1267 line 3244 in the Draft EIS and is also found in Appendix N. The EIS draws upon the 2002 Lower Snake River Juvenile Salmon Migration Feasibility Report and Environmental Impact Statement which, concluded that modifying the existing pump system was cost prohibitive. As discussed in Section 3.12.3, for MO3, in Region C this analysis assumes that pumps are unable to deliver water to an estimated 47,926 acres. There is a physical limitation to delivering water to these lands in the absence of the dams. Breach of the dams has the potential to drop surface and groundwater levels up to 100 feet and it is not possible from an engineering or cost standpoint to replace the delivery mechanisms, nor do the co-lead agencies have the authority to do so currently.
4726	2	kairos42@earthlink.net	N/A	Another area, transportation. MO-3 breach impacts that indicate the rail rates will increase by 50 percent are not based on any kind of modeling or transportation movements. And I talked to a Corps of Engineers planner today that I verified this with. But what they did is they basically both based these increases on opinions from a few individuals. This wonky, unprofessional set of assumptions leads to a fatally flawed impact. The DEIS further says there is a concern over lost — (inaudible) while not a legitimate rationale according to engineer planning guidance. There are two Class I railroads, five	How rail rates would change without lower Snake River shallow draft barging cannot be known with certainty. Therefore, to evaluate the impacts of potential rate increases, a range of rail rate increases are evaluated, from 0 to 50 percent. As the modeling effort shows, if rail rates are not increased, freight volume would likely exceed current capacity, which would put upward pressure on rail rates. If rail rates increase by 50 percent, truck transport would be relatively attractive to shippers, which would put competitive pressure on rail companies not to increase rail rates much higher. As such, the modeled range of increased rates appears reasonable.

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				short lines, and the infrastructure is supported by the state of Washington. I think this leads, again, to the point that the impacts provided in the EIS for breaching are essentially wrong and grossly in error. And, basically, they're so fatally flawed and of such a magnitude that this makes this DEIS unusable at this point in time and it should be withdrawn immediately.	The co-lead agencies invited a number of entities (including Tribes, states, and agencies) from across the region to participate in the EIS process as cooperating agencies, and more than 30 of those invited agreed to participate. Staff from the cooperating agencies joined the technical teams and provided their expertise and review of the development and analysis of the alternatives. The co-lead agencies selected senior staff from across the country with expertise in their fields to serve on the EIS team. The draft EIS was subjected to two internal agency reviews by the Corps of Engineers experts not involved in the development of the document. Additionally, the entire document, analysis, and modeling were reviewed following an Independent External Peer Review (IEPR) process that meets OMB circular on peer review requirements under the "Information Quality Act" and the Final Information Quality Bulletin for Peer Review by the Office of Management and Budget (referred to as the "OMB Peer Review Bulletin). It also meets guidance for the implementation of both Sections 2034 and 2035 of the Water Resources Development Act (WRDA) of 2007 (Public Law (P.L.) 110-114) and standards of the National Academy of Sciences independent peer review. The final IEPR report will be publicly available.
4726	3	kairos42@earthlink.net	N/A	This is Jim Waddell, civil engineer, former Corps of Engineers. I want to point out something about the trucking of grain. Every grain of wheat, like the lady said, goes on the truck. It starts in a truck and goes to a grain elevator someplace. And with breaching and change of barging to -- the elimination of barging, what you end up with, though, is all those grain elevators are still there. So wherever those trucks are going now, they'll pretty much go to the same place. The only difference is the grain elevators on the river, who all, but one, are served by a rail line right now, many of them can put grain on rail right now. And with some upgrades, they can handle a lot more capacity. So basically, truck traffic, theoretically, or in real life shouldn't change at all for the farmers. It's just a matter of where that grain elevator puts it. Right now, they have a choice between putting it on a barge or putting it on the railcar. And so, what will happen is, it will all go by rail. And because there's several railroads -- two main railroads, Union Pacific and Burlington Northern, you still have competitive forces going on there. Also, because the state of Washington basically supports all those short line railroads, they're not going to let rates go up if it costs the farmers. So that's an important point to get across there. And so that's the main thing I wanted to clarify on that particular point.	Much of this comment about the options for shipping wheat is correct, but the assumption that farmers would not be impacted during a dam breach scenario is incorrect. Under Multiple Objective alternative 3, which includes a measure to breach the four lower Snake River dams, a farmer's options would be more limited, and because shipping rates are higher for rail and truck, shipping costs would increase. The analysis evaluates a scenario where rail rates do not increase further under the breach scenario, and finds that the volume of freight that would move to rail would exceed shortline rail capacity in the short-term, though it could be accommodated in the long-term with capacity increases. Under a scenario where rail rates increase by 50 percent, a significant volume would move to truck and rail freight ton-miles would not increase.
4726	4	kairos42@earthlink.net	N/A	The other thing is we heard earlier the unique capability of the dams to ramp up in the morning to meet daytime peaks, that's on page 3-906 of the EIS. All the dams in the hydrosystem do that every night. They're just following load. But I'd say what is unique about the Snake River dams is their inability to ramp and provide peak power for balancing, for reserves, or just any of this kind of stuff because they're run-of-river dams. And to do that would require them to be drawn down below the minimum operating pool, which they're not allowed to do. So this is all fantastical kind of thinking on the part of whoever put this work together at Bonneville Power Administration to think that you can get these kind of power benefits out of these dams. You can't. They basically can supply what they're doing now and they're generating power pretty much all the time that they can in light of spill requirements, and that's about it. So it's a misnomer to give these unique abilities to these dams in some sort of beneficial way. They don't have -- I'm finished. Thank you.	The commenters statement that the four lower Snake River dams do not provide peaking capacity for balancing reserves is inconsistent with the findings in the EIS. While the four lower Snake River dams are considered run-of-river projects, their forebay range is large enough to allow some water to be stored for release later, though more on the scale of hours. In contrast, storage dams can store some water between seasons. With the amount of storage that is available at the four lower Snake River projects, and constrained by water conditions, they are often able to increase generation to serve loads during peak demand periods and reduce generation during low-demand periods. Likewise, the four lower Snake River dams can provide balancing reserves, particularly outside the juvenile fish passage season when they are not spilling water for fish passage and when the elevation range of operations is larger. See Draft EIS, Section 3.7.3.5, Potential Replacement Resources And Associated Costs, pages 3-904-905; and Table 3-160 (showing the sustained ramping capability of the four lower Snake River dams). Breaching of the four lower Snake River dams under MO3 would have a direct and substantial impact on the supply of Federal power to meet regional load requirements. These impacts would reduce both actual energy to meet regional load requirements and generating capacity (peaking capacity) to meet variability in loads. The four lower Snake River dams are among the most valuable projects in the Federal Columbia River Power System. These dams provide over 1,000 aMW of carbon-free energy and up to 2,000 MW of sustained peaking capacity at certain times of the year. The dams also have unparalleled ramping capability, the ability to quickly generate energy to match spikes in energy usage,with over 2,000 to approximately 2,300 MW of capability in certain months of the year. Table 3-160 of the Draft EIS presents the historical sustained ramping capability of the four lower Snake River dams. While the four lower Snake River dams are indeed run-of-river projects, upstream storage projects (Dworshak and Brownlee) regulate some of the water flowing into the lower Snake River, which flows year-round. In particular, the lower four Snake River projects produce a substantial amount of power in the winter, which is currently the region's highest demand period.
4730	1	Kristin Meira	N/A	We are concerned with some of the analysis that was performed regarding barging on the Snake River. In particular, we're concerned that only wheat shipments on the Snake River were modeled when it comes to characterizing the increased cost as well as the increased carbon emissions, which would occur if barging is taken away as a mode of cargo transport. And when you only take into account wheat shipments, you end up underestimating the transportation impacts of dam breaching by at least 38 percent. And then when it comes to capturing the air pollution impacts that would occur if the dams are breached and barging is taken away, this DEIS also only looks at truck trips as being one way, when, of course, the trucks would return empty back to the farms with carbon emissions all along the way. And in contrast with a previous caller, we believe that the real rate increases that are presented in the DEIS are actually low. As most people know, when two modes of transportation compete, rates are typically kept in check.	In 2018, 72 percent of overall freight volume on the lower Snake system traveled downriver, the majority of which (87 percent) was wheat and barley. As discussed in Section 3.10.2.1 of the Draft EIS, 28 percent of overall freight traveled upriver. In 2018, 25 percent of overall freight on the lower Snake River was petroleum products that terminated below Ice Harbor Dam. These shipments do not utilize the Snake River locks and would not be directly affected by dam breach under Multiple Objective alternative 3. Other commodities that utilized the Snake River system include pulp and paper products (4 percent) as well as chemicals and iron/steel commodities (8.5 percent), some of which also terminate below Ice Harbor Dam. To the extent that these shipments utilize the Snake River locks and dams, they would be affected under Multiple Objective alternative 3 by increased transportation costs. These potential effects are discussed qualitatively in Section 3.10.3.5.
4731	1	Bob Rees	N/A	Factually, here are some figures that should be considered when pursuing solutions to the crisis of salmon recovery in the Columbia Basin. These facts come from state agencies and an economic study conducted by the American Sport Fishing Association. In particular, mortality rates of wild spring chinook by source, hydropower kills 42 percent of wild chinook juveniles. Hydropower kills 18 percent of adults spring Chinook. Predatory birds kill 6 percent of juveniles. Predatory fish kill about 6 percent of juveniles. Marine mammals kill about 4 percent of adults. And both in river and ocean fisheries harvest about 10 percent of spring Chinook adults. Fall chinook mortality is even more telling. Hydropower kills about 88 percent of juveniles. Hydropower kills about 29 percent of the adults. Predatory fish kill about 10 percent. Predatory birds kill about 5 percent. -- kill about 2 percent. And the ocean and in-river sport and commercial fisheries kill about 45 percent. The economics of the region, sport fishing in Oregon, Washington, Idaho, counting the multiplier effect is worth about $3.8 billion and produces about 34,500 jobs in the region.	The myriad of factors that affect salmon and steelhead survival are acknowledged and described in the Affected Environment. Those factors that could be affected by the operation and configuration of CRS projects were described in the No Action Alternative analysis and then evaluated under each alternative. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the Columbia River System. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the CRS. Recovery of ESA species is the purview of National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (USFWS). This EIS has been developed in consultation with NMFS and USFWS to minimize impacts to affected ESA-listed species and their habitats. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. There are many effects to salmon and steelhead populations outside the operation of the dams. Research continues to evaluate the magnitude of these effects. For more information see the National Marine Fisheries Service website at: https://www.nwfsc.noaa.gov/research/index.cfm.
4734	1	Kenneth Balcombe	N/A	Hi. My name is Kenneth Balcombe. I'm the senior scientist at the Center for Whale Research. We've been studying the southern resident Killer Whale since 1976 and provide our data to the U.S. government and Canadian government for their management programs. There's no question that the southern residents are following the salmon to extinction. And what we're witnessing right now is a serious lack in reproductive capability. There are probably only six females producing calves at five- to ten-year intervals. This can't go on. It's tragic that the Snake River salmon, which were the mainstay of their diet, have been characterized in the DEIS as being an insignificant portion of the food they require. Obviously, if food isn't there, you can't eat it. And the studies that have been taken on the diet of the southern resident killer whales has primarily been in the Salish Sea showing that they also eat the salmon in this region. But they spend most of their time on the coast eating the salmon from the large runs that used to be from the Columbia and Snake. It's just tragic. They have no options. And the other stakeholders here in this business do have options. And I urge just to exercise those options and get rid of those dams immediately and start the restoration of this ecosystem.	SRKW analysis is described in the EIS including in the FEIS Chapter 3 (Vegetation, Wetlands, Wildlife, and Floodplains) which has been updated for SRKW (Section 3.6.2.6 and Table 3-102) and FEIS Chapter 7 (Preferred Alternative) with additional analysis information on SRKW and potential increase in forage fish, in particular, Chinook salmon in Section 7.7.8. The co-lead agencies utilized current high quality information and best available science in its analysis of the effects of the operation, maintenance, and configuration of the CRS projects. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets most other EIS objectives including those for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS, the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams, because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for the whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall-run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall-run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). Details on the most crucial prey stocks for Southern Resident killer whales, as well as their population and range, is available from several fact sheets and videos available here: https://www.fisheries.noaa.gov/species/killer-whale#spotlight. For more information, visit this NMFS StoryMap on Southern Resident killer whales: https://noaa.maps.arcgis.com/apps/Cascade/index.html?appid=3405e6637bf74e998d4ebe992c54f613. The quantity and quality of prey is one of the limiting factors identified by the National Marine Fisheries Service (NMFS) in recovery of Southern Resident killer whales (SRKW), along with vessel traffic and noise, toxic contaminants, and other health risks (e.g., inbreeding). The operation of the CRS directly affects Chinook salmon, both wild, natural and hatchery origin fish, which migrate past these Federal dam and reservoir projects, and the associated effects would indirectly affect SRKW. However, according to NMFS, in terms of abundance of salmon available to SRKW for prey, populations of some Snake River adults stocks are now greater than they were in the 1960s, before the four lower Snake River dams were built. NMFS scientists maintain that recovering salmon stocks for SRKW goes beyond the Columbia River Basin (CRB), and that hatcheries produce more than enough Chinook salmon in the Columbia River Basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between hatchery and wild fish. The EIS analysis in Section 3.6 (Vegetation, Wetlands, Wildlife and Floodplains) found only a minor effect to the SRKW would result from implementing MO3, which includes breaching the four lower Snake River dams, with modest long-term increases in prey, while recognizing that salmon and steelhead hatchery production contemplated under the No Action Alternative would continue. This conclusion is based on the fact that Chinook salmon available to SRKW from the lower Snake River comprises only a small percentage of their overall diet, although lower Snake River Chinook are important prey during certain times of the year. Changes to this portion of the whales food availability of the magnitudes predicted for MO3 may change the whales foraging behavior patterns slightly, but will not change their overall condition or population dynamics (NOAA fact sheet: https://www.nwfsc.noaa.gov/publications/documents/FAQ%20SRKW%20Factsheet%20DRAFT2%20OCT2018%20508.pdf). The Preferred Alternative (PA) has negligible effects to SRKWs as described in Section 7.7.8 in large part because hatchery production is consistent between the No Action Alternative and the Preferred Alternative. The co-lead agencies note the contribution to the prey of SRKWs through the continued existence of their respective independent, congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation, and programs funded and administered by other entities, such as Lower Snake River Compensation Plan, which is administered by the U.S. Fish and Wildlife Service (USFWS).
4735	1	Albert Becker	N/A	Also, one thing in the draft EIS that is very significant, is they did not recognize the recreational value of restoration of salmon and steelhead in the Salmon River drainage in the Snake River. There would be major economic benefits that has been presented earlier by Mr. Rees.	The EIS provides an evaluation of the social welfare and regional economic effects of the No Action Alternative and the Multiple Objective alternatives (MOs), including the effects on recreation (Section 3.11) and commercial fisheries (Section 3.15). The EIS described the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. NMFS estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which is described qualitatively.

Letter No.	Comment No.	Commenter Name/Email	Affiliation	Comment	Response[1/]
					For the effects on recreational fishing under MO3 (Section 3.11.3.5) along the lower Snake River below Lewiston, the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River) as an indicator for fishing visitation in this reach. The EIS describes that the visitation in the long-term in the lower Snake River, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting outfitting and tourism businesses in the region. The potential for changes in recreational fishing of anadromous fish under MO3 is described in Section 3.11, which could result in increases in recreational fishing in the long-term that would support jobs, income, and social benefits in Tribal and rural river communities. However, there is uncertainty around recreational fishing visitation in the long-term given the current measures to regulate, protect, and support ESA-listed fish populations and habitat in the region. The social welfare values and regional economic effects associated with recreational fishing under the action alternatives as well as river recreation post dam breach under MO3 were not estimated because of the uncertainty and large range in visitation and consumer surplus values among users.
4738	1	Shari Tarantino	N/A	This is Shari Tarantino, executive director of Orca Conservancy. First and foremost, the comment period deadline will not allow enough time for thoughtful and educated comments. Therefore, we request an extension to the current April 13th deadline.	The co-lead agencies considered requests to extend the public comment period. This NEPA process included a wide array of cooperating agencies whose close involvement throughout the process allowed the co-lead agencies to incorporate feedback. Given the broad range of comments received and the extensive Federal and non-Federal participation in the overall process as well as the level of public engagement in the six virtual public meetings in the region, the co-lead agencies determined that an extension was not warranted and that the 45-day public comment period was adequate consistent with NEPA regulations. On April 9, the CRSO EIS website was updated to inform the public that they should plan to submit comments by the close of the comment period.
4743	1	Nick Calero	N/A	Right now, I want to say that the current EIS does not solve the crisis of declining runs of salmon and steelhead. A better solution and one that I've been involved with in a multitude of different states, the best solutions come about through a collaborative process and when a multitude of different stakeholders are involved. Those are the solutions that last the test of time. And I currently feel like that is not been replicated here and is a model that should be tackled here in the future with regards to this issue.	It was very important to the co-lead agencies to seek input from a wide variety of stakeholders in the region as the EIS was developed. Not surprisingly, there is a wide range of views and opinions about the best approaches to managing the CRS. However, it was also apparent that people throughout the Northwest share many common values and interests. The goal has been to develop an approach to river management that balances these multiple perspectives and can serve as a springboard to continued progress. More than 30 entities from across the region, consisting of Tribes, Federal agencies, and state and local governments, agreed to participate as cooperating agencies in this NEPA process. The co-lead agencies greatly appreciate their technical expertise and input on early versions of this document. The co-lead agencies are especially grateful to our Tribal partners for helping ensure that the document reflects tribal perspectives on the CRS. While the Preferred Alternative represents a meaningful step forward for salmon that seeks to balance the many purposes of the CRS and statutory obligations of the co-lead agencies, the co-lead agencies recognize that it will not end the debate about the future of the Columbia River and salmon. The co-lead agencies are responding to the voices calling for additional collaborative dialogue across the region about the future of salmon recovery, affordable and reliable clean electricity, and economic and cultural vitality for the tribes and other communities who depend on the CRS for their way of life. The co-lead Federal agencies will be active participants in developing solutions for achieving broader recovery objectives that address the effects of the CRS and the other key variables that impact salmon across their life cycle. The CRSO EIS is intended to evaluate options for future operation and configuration of the 14 dams in the CRS. The purpose of this EIS was not to consider ways to recover ESA-listed salmon and steelhead, though the EIS does consider options for management that may benefit fish, and evaluates effects to ESA-listed fish, as required by NEPA.
4744	1	commcomm2@gmail.com	N/A	The EIS process taking four years and $80 million justifies non-breach alternatives by presenting MO-3, or the breach alternative as the poison pill. MO-3, the breach alternative has been poisoned by including more spill structural measures and mitigation on other lower Columbia dams. Overestimated breach costs and unnecessary mitigation costs further poisoned the breach alternative. MO-3 has been falsely presented as extremely expensive. Even so, evidence in MO-3 points to breaching as the only alternative that saves money and has the highest probability of recovering salmon and orca.	The method proposed for breaching the lower Snake River Dams is based on extensive analysis completed for the 2002 Feasibility Study, which also considered dam breaching. The methodology developed is intended to minimize impacts to ESA fish runs, other aquatic organisms, the built environment, and provide maximum protection to human health and safety. The EIS uses the same assumptions. For the purposes of this EIS, the 2002 cost estimates were inflated to 2019 price levels. The co-lead agencies will continue to adhere to Federal standards for dam and levee safety and human life safety considerations. In the event that breaching of the lower Snake River dams is implemented, additional analysis will be conducted to refine methods and costs. Different models predict different long-term survival benefits to ESA listed species from dam breach, benefits that can contribute to recovery. Under the NMFS COMPASS model, juvenile Snake River Spring/Summer Chinook in-river survival would improve by 9.6% due to dam breach, which is a 19% relative increase over the No Action Alternative. The NMFS Lifecycle Model predicts an increase in adult returns of 13.6% for these same fish under MO3 (no latent mortality assumed) relative to the No Action Alternative (from 0.88% to 1%). Results for Snake River steelhead are similar (10% absolute improvement, or 23% relative juvenile survival increase - Smolt-to-Adult returns (SARs) for steelhead were not modeled). Under the CSS model, juvenile in-river survival for the Snake River Spring/Summer Chinook is predicted to improve by 10.4% due to dam breach, which is an 18% relative increase over the No Action Alternative, while SARs would increase by 115% (from 2% to 4.2% 0.02 to 0.042). The CSS model predicts that Snake River steelhead would see juvenile survival increase by 25.8% which is a 46% relative increase over the No Action Alternative. The CSS model also predicts that SAR increase by 177% (from 1.8% to 5%). Though differing in predictions, both modeling groups predict dam breaching is the best CRSO EIS alternative for salmon and steelhead. One simply predicts adult return increases an order of magnitude higher than the other. The EIS concluded MO3 would have greater improvement to certain salmon species in the lower Snake River. It did not conclude there was greater certainty of that result in MO3 over any other alternative. The conclusions were based on the ranges predicted in two independent models that have different parameters and limitations in their predictive capabilities. Because of delayed response time in MO3, and the potential severity of the short term effects, MO3 would likely have the most substantial uncertainty in terms of beneficial effects. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% (the lower end of Northwest Power and Conservation Council's recovery targets for the region) as a result of the Preferred Alternative, as a result of the Preferred Alternative increasing SAR from 2.0% to 2.7% for Chinook, a 35% relative increase. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. To address uncertainty highlighted by the two models, the Preferred Alternative includes working with regional sovereigns to develop a study that assess the effectiveness of the increased spill regime on adult returns as well as assessment and management of adverse unintended consequences, such as long delays of adult migrants, or TDG-related mortality of juvenile migrants. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information. The Preferred Alternative will make a meaningful contribution towards recovery. The quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of Southern Resident killer whales (SRKWs), along with vessel traffic and noise, toxic contaminants, and other health risks (e.g., inbreeding). The operation of the Columbia River System directly affects Snake River and Columbia River Chinook salmon, both wild and hatchery origin fish, which migrate past these Federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of abundance of Chinook salmon available to SRKW for prey, populations of some Snake River adult Chinook salmon stocks are now greater than they were in the 1960s, before the four lower Snake River dams were built. NMFS scientists maintain that recovering Chinook salmon stocks for SRKW goes beyond the Columbia River Basin, and that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW. (NMFS BiOp 2020). The EIS analysis found only a minor effect to the Southern Resident killer whale would result from implementing MO3 (which includes the dam breach measure). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall run (tules and brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults form the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differentially from hatchery and wild fish. Hatchery fish today likely make up most fish consumed by SRKW (NOAA BiOp 2020).
4744	2	commcomm2@gmail.com	N/A	The economic benefits of the dams to the region have declined and operational costs have risen. The Army Corps of Engineers already spent seven years and $33 million of rate and taxpayer money on the 2002 EIS with a breach alternative. The Army Corps of Engineers has a fiduciary responsibility to cease operations and place a project into a non-operational status when the projects are losing money economically or causing unresolvable biological harm. Thus, the Corps does not need specific authorization to secure the project by breaching. The federal agencies have a responsibility to comply with the Endangered Species Act and to take action is necessary to recover endangered salmon, steelhead, and the southern resident orca population. Breaching can be paid for by BPA as the least cost way to accomplish fish mitigation under the 1980 Northwest Power and Conservation Act, and as a means of transferring savings from lower Snake River dams to other Columbia River dams.	The EIS evaluated beneficial and adverse effects across an array of resource areas including potential effects at the national, regional and local level; effects are monetized and quantified, where possible, and also described qualitatively. As is common in NEPA analyses, the beneficial and adverse effects of the alternatives are expressed as a variety of qualitative and quantitative environmental and economic metrics throughout the EIS to inform decision-making, including the effects of the alternatives on fish as detailed in Section 3.5. That the effects of the alternatives on fish are not expressed as monetized economic values does not mean that they were not considered in the context of the analysis. The EIS does not employ a cost-benefit framework for decision-making. Instead, the EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as the dam breaching alternative. However, the Preferred Alternative also meets most of the other objectives of the study for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. The commenter's assertions about authority and funding are incorrect. If MO3 were selected, the Corps could use the CRSO EIS as a basis for seeking congressional authority to breach the four lower Snake River dams. After receiving both authority and appropriations from Congress, the Corps could initiate a detailed construction and design report for the breach measure, identification of disposal areas, real estate acquisition and disposal, permits, and mitigation requirements, including temporary fish hatchery production. Each of these actions are required prior to breaching, and the Corps does not have the authority or appropriations necessary to immediately breach the project's embankments. More information is available in the Corps Engineering Regulation (ER) 1165-2-119 Water Resources Policies and Authorities, Modifications to Completed Projects (Sept. 20, 1982) or ER 1105-2- 100, Appendix G, Section III Post Authorization Changes. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species.
4749	1	Deanna Mueller-Crispin	N/A	And finally, it is unconscionable to continue with a public comment period when the entire country is struggling with and absorbed by the spread of a lethal pandemic. The comment period should be extended to allow for in-person testimony.	The co-lead agencies considered requests to extend the public comment period. This NEPA process included a wide array of cooperating agencies whose close involvement throughout the process allowed the co-lead agencies to incorporate feedback. Given the broad range of comments received and the extensive Federal and non-Federal participation in the overall process as well as the level of public engagement in the six virtual public meetings in the region, the co-lead agencies determined that an extension was not warranted and that the 45-day public comment period was adequate consistent with NEPA regulations. The CRSO EIS website notified the public on April 9, that they should plan to submit comments by the close of the comment period.
4754	1	seanallen83@ymail.com	N/A	In order to have endangered Snake River salmon, southern resident orca and ratepayer money, in order to save them, the federal agencies should address the Columbia River system in a two-tiered process. Tier one is an emergency response action for the immediate drawdown and breach of the lower Granite and the lower Goose Dam, followed by the remaining two dams in subsequent years. Tier two is addressing system operations and further mitigation activities in the rest of the Columbia River basin using the new EIS, assuming that the four lower Snake River dams are breached. The two-tiered approach should be initiated for biological and economic reasons. Endangered Snake River salmon and steelhead have not recovered since the 2002 EIS was implemented, and I've gotten much worse over the last four years. Wild stocks may not survive further studies foreseen in the CRSO process. The economic benefits of the region have declined and operational costs have risen. The Army Corps of Engineers already spent seven years and $33 million of rate and taxpayer money on the 2002 EIS with a breach alternative.	The agencies would have to seek congressional authority for breaching the four lower Snake River dams and could not immediately breach the dams. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the Endangered Species Act (ESA), in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the CRS. Recovery of ESA species is the purview of National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (USFWS). This EIS has been developed in consultation with NMFS and USFWS to find an acceptable balance that allows the co-lead agencies to meet the Purpose and Need Statement while minimizing impacts to affected ESA-listed species and their habitats. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. The Draft EIS evaluated a measure to breach the four lower Snake River dams, in Multiple Objective alternative 3, (referenced as tier one in the comment) including operations (referenced as tier two in the comment) of the other ten Federal dams in the Columbia River System and mitigation for effects to resources from implementing this alternative.

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4756	1	Steven Pfeifer	N/A	This DEIS has ignored a crucial window of time, in which actions taken now to recover salmon will build their resilience to challenges ahead.	The EIS considered the impact of all of the actions and measures in the alternatives as time progresses from implementation into the future. The benefits of actions implemented as part of the Preferred Alternative would begin to accrue as soon as the actions are taken, many of which would occur shortly after the co-lead agencies issue the Record of Decision or would continue to accrue if they are being carried forward from the No Action Alternative.
4756	2	Steven Pfeifer	N/A	This federal report examines restoring the lower Snake River via dam breaching. It only takes a cursory glance at the immense benefits that subsequent return to abundant levels of salmon steelhead would entail. It completely ignores the sportfishing economy that is so important to guides, outfitters and small towns throughout Idaho. But also ignores the large economic impact anadromous fish in a restored section of river would have on outdoor recreation industries throughout the Northwest.	The EIS provides an evaluation of the social welfare and regional economic effects of the No Action Alternative and the Multiple Objective alternatives (MOs), including the effects on recreation (Section 3.11) and commercial fisheries (Section 3.15). The EIS described the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. NMFS estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which is described qualitatively. For the effects on recreational fishing under MO3 (Section 3.11.3.5) along the lower Snake River below Lewiston, the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River) as an indicator for fishing visitation in this reach. The EIS describes that the visitation in the long-term in the lower Snake River, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting outfitting and tourism businesses in the region. The potential for changes in recreational fishing of anadromous fish under MO3 is described in Section 3.11, which could result in increases in recreational fishing in the long-term that would support jobs, income, and social benefits in Tribal and rural river communities. However, there is uncertainty around recreational fishing visitation in the long-term given the current measures to regulate, protect, and support ESA-listed fish populations and habitat in the region. The social welfare values and regional economic effects associated with recreational fishing under the action alternatives as well as river recreation post dam breach under MO3 were not estimated because of the uncertainty and large range in visitation and consumer surplus values among users.
4757	1	reputnam@gmail.com	N/A	I would first extremely advocate for a longer period of comment time, not only because of the virus, but just because of the fact that it's such a long report and full of information that needs to be really studied and sorted out as to what's true and what's not. As an engineer, I would think that this report almost needs to be rewritten. I appreciate the amount of time that's gone into this thing, but you're not giving the public commenters, us, enough time to sort it out. We were getting 3 percent of the time that you put into it to read it, to understand it. If we were to do this on a daily basis, it'd be one 173 pages approximately every day that we'd have to sort through. That's way too much for a 45 day comment period, which is the minimum for an EIS. There's no reason that we can think of that you couldn't make it longer.	The co-lead agencies considered requests to extend the public comment period. This NEPA process included a wide array of cooperating agencies whose close involvement throughout the process allowed the co-lead agencies to incorporate feedback. Given the broad range of comments received and the extensive Federal and non-Federal participation in the overall process as well as the level of public engagement in the six virtual public meetings in the region, the co-lead agencies determined that an extension was not warranted and that the 45-day public comment period was adequate consistent with NEPA regulations. The CRSO EIS website notified the public on April 9, that they should plan to submit comments by the close of the comment period.
4757	2	reputnam@gmail.com	N/A	I guess, in addition, the Columbia River watershed has 60 dams, at least; 14 on the Columbia, 20 on the Snake, generating 36 megawatts. The lower salmon dams only generate about one, on average. I think there's a whole lot more that could have gone into a report like this. Alternatives, such as -- why not get rid of the dams for a period of time. Pick a decade or two where the dams temporarily breached and see what happens. It's been a 15-year experiment that hasn't been working very well so far, so why don't we try something really different?	The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3, which includes breaching the four lower Snake River dams. The Preferred Alternative also meets the EIS objectives for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS, the co-lead agencies did not identify MO3 because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. Your suggestion to temporarily breach the dams did not result in meeting objectives of the study is noted and would also, of course, have to be studied and effects evaluated. While the four lower Snake River dams account for a small portion of the total number of dams in the region, they represent a larger portion of the Federal Columbia River Power System (FCRPS) from which Bonneville markets power. They provide approximately 1,000 aMW of carbon-free energy on average, enough to power about 730,000 Northwest homes, and 2,000 MW of sustained peaking capacity at certain times of the year. See draft EIS, Section 3.7.3.5, Changes in Power Generation, Table 3-159. The dams also provide important ramping capability the ability to quickly generate energy to match spikes in energy usage with over 2,000 to 2,300 MW of capability in certain months of the year. See draft EIS, Section 3.7.3.5, Lower Snake River Full Replacement at pages 3-905-907 and Table 3-160. As described in Section 3.7.3.5 of the EIS, the LOLP analysis of Multiple Objective Alternative 3, where dam breaching accounts for about 90 percent of the power impact, showed that the region would have an annual risk of power shortages of around 14 percent stemming from shortages in the winter and summer. See also Appendix J, Hydropower, Section 4.1.2.4 in the draft EIS.
4759	1	Nanette Jones	N/A	I'm supporting Chris Pinney's comments, Jim Waddell's comments tonight. I think it's absolutely imperative, too, that we allow a longer comment period on this process. So we could have more collaboration.	The co-lead agencies considered requests to extend the public comment period. This NEPA process included a wide array of cooperating agencies whose close involvement throughout the process allowed the co-lead agencies to incorporate feedback. Given the broad range of comments received and the extensive Federal and non-Federal participation in the overall process as well as the level of public engagement in the six virtual public meetings in the region, the co-lead agencies determined that an extension was not warranted and that the 45-day public comment period was adequate consistent with NEPA regulations. The CRSO EIS website notified the public on April 9, that they should plan to submit comments by the close of the comment period.
4761	1	Julie Van Middlesworth	N/A	I feel that the proposed alternative does not go far enough to ensure that the native salmon and steelhead populations safe. And I would also like to state that my main concern is, of course, for the salmon and steelhead, but also for the central Idaho complex, which is comprised of the Frank Church River of No Return Wilderness, the Selway-Bitterroot Wilderness, the Gospel Hump Wilderness. And those headwaters areas are critical and one of the last intact ecosystems in the continental U.S. They are critical for other endangered species, like, grizzly bears. And the salmon and steelhead are keystone species that provide nutrients all the way in those rugged inland northwest areas. And we need the salmon back there. They're a critical link to the Yellowstone to Yukon corridor. And it not only affects threatened and endangered salmon, but grizzly bear and, of course, I'm sure many people have said, the southern resident orca as well. So it's not just the fish, but all of the ecosystems that they support.	The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-lead agencies numerous legal obligations. The Preferred Alternative is predicted to benefit ESA-listed juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets most other EIS objectives including those for: resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams, because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. Grizzly bears within the Columbia River System project area do not feed on salmon as the current grizzly bear population reside above anadromy. They eat other fish, animals, as well as vegetation within their natural range as described in Section 3.6 Vegetation, Wetlands, Wildlife and Floodplains.
4762	1	Steve Weber	N/A	As I've read the draft EIS, I believe it was written with the end goal already predetermined. To the credit of the authors, they admit that MO-3, breaching the dams, would provide the best outcome for the salmon. But the rest of the report is written in a confusing way that's really meant to preserve the status quo.	As required by the National Environmental Policy Act (NEPA), the co-lead agencies evaluated each alternative for its effects on a suite of resources. These effects are summarized in Section 3 of the Executive Summary, fully described by resource and alternative in Chapters 3, 4, 5, 6 and 7; summarized by resource and alternative in Table 3-1, and presented for comparison in Tables 7-1 and 7-55 in the Draft EIS. Effects specific to anadromous fish are described in Sections 3.5.3 and 7.7.4. In the Draft EIS, Table 3-61 compares expected survival by alternatives, and Table 3-62 provides a comparison of the alternatives specific to anadromous fish. The Executive Summary serves as a primer and broad summary of findings. The Final EIS expands the table of contents that was in the draft EIS to assist readers in finding specific topics. The EIS also includes an index, so the public knows where to look for detailed analysis in either the main body of the EIS or the appendices. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA listed species. The EIS set forth eight objectives, which in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-lead agencies numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as the MO3 which includes the dam breaching measure. The Preferred Alternative also meets the EIS objectives for: resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS the co-lead agencies did not identify MO3 because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. The EIS concluded MO3, which includes breaching the four lower Snake River dams would have greater improvement to certain salmon species in the lower Snake River. It did not, however, conclude there was greater certainty of that result in MO3 over any other alternative. Because of delayed response time in MO3, and the potential severity of the short term effects, MO3 would likely have the most substantial uncertainty in terms of beneficial effects. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% (the lower end of Northwest Power and Conservation Council's recovery targets for the region) as a result of the Preferred Alternative, as a result of the Preferred Alternative increasing SAR from 2.0% to 2.7% for Chinook, a 35% relative increase. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. To address uncertainty highlighted by the two models, the Preferred Alternative includes working with regional sovereigns to develop a study that assess the effectiveness of the increased spill regime on adult returns as well as assessment and management of adverse unintended consequences, such as long delays of adult migrants, or TDG-related mortality of juvenile migrants. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information. The Preferred Alternative will make a meaningful contribution towards recovery.
4802	1	j.comrada@comcast.net	N/A	Since only 1 in 1,000 (.01%) salmonids return to spawn any loss due to predation on the trip to the Pacific Ocean can be seen as major losses in returning salmonids to begin with. Avian predation from Caspian terns on Crescent Island and cormorants on Foundation Island, both located in the mid-Columbia River just below the confluence with the Snake River consume large numbers of salmonid juveniles yearly. Between 2004 and 2009 it was estimated that the annual take of juvenile salmonids by the tern colony on Crescent Island ranged from 470,000 to 800,000 and the Foundation Island cormorant colony consumption ranged from 333,000 to 500,000. As numbers of both species have increased in the last decade, it can be assumed that the take of salmonid juveniles has also increased. A well thought out solution needs to be addressed regarding what number of Caspian Terns and Cormorants are acceptable for the ecosystem as it exists today.	Through the Inland Avian Management Plan, the Crescent Island tern colony was eliminated by habitat management prior to the 2015 nesting season, with off setting habitat created in San Francisco Bay. Since 2015, there has been no tern nesting. However, a portion of the Crescent Island colony has moved to the Blalock Island complex. The Preferred Alternative includes a measure to disrupt this colony. The Preferred Alternative also includes avian deterrence at the lower Snake and Columbia River dams, and management actions at East Sand Islands for Caspian tern and double-crested cormorants. Other opportunities may exist to reduce the effects of colonial water birds on salmon and steelhead populations, but most would be outside the scope of this EIS and the authority of the co-lead agencies.
4802	2	j.comrada@comcast.net	N/A	Removing dams would have a positive effect on the general health of salmonids with regards to water temperature. The stagnant reservoirs behind the dams create dangerously hot water, and climate change is pushing the river over the edge. Year after year, the river gets hotter. The system is broken, but we can fix it, said Brett VandenHeuvel, with Columbia Riverkeeper, in a statement. As Brett VandenHeuvel suggests above, one of the most important limiting factors for cold water fish like salmonids is water temperature. And it can be problematic when a large body of water exists behind dams. The risk to salmon and trout populations associated with temperature is perceived to be high because: 1) the potential for biological effects exists according to laboratory-derived results; and, 2) many populations are already exposed to temperatures exceeding those believed to induce negative biological consequences. Water temperature plays a role in virtually every aspect of salmon life (Brett 1995; Weatherly and Gill 1995), and adverse levels of temperature can affect behavior (e.g. migration delays and timing), disease resistance, growth, and mortality (Brett 1956). From- AN ANALYSIS OF THE EFFECTS OF TEMPERATURE ON SALMONIDS OF THE PACIFIC NORTHWEST WITH IMPLICATIONS FOR SELECTING TEMPERATURE CRITERIA; December 2000 By Kathleen Sullivan of Sustainable Ecosystems Institute, Portland Oregon, Douglas J. Martin of Martin Environmental Seattle, Washington, Richard D. Carwell, Parametrix Inc., Kirkland, Washington, John E. Toll of Parametrix Inc., Kirkland, Washington, and the Weyerhaeuser Company, Tacoma, Washington	The EIS acknowledges and describes the temperature sensitivities of salmon and steelhead, as well as the many other factors that affect these fish. Water quality and hydrology modeling data were inputs into the fish survival models used to analyze the alternatives' effects on Snake River stocks, so temperature effects to survival have been incorporated into the overall analyses of each alternative. Regarding water temperatures under dam breach scenarios, the EIS analysis of Multiple Objective alternative 3, which includes breaching the four lower Snake River dams, indicates that nighttime summer water temperatures, as well as fall water temperatures, would be cooler than No Action Alternative conditions in the Snake River. However, even with the dams breached, maximum summer water temperatures would exceed state water quality standards (20C) at times, especially during hot weather events. The models showed minor changes in the Columbia River under this alternative.

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4851	1	beachbum@nehalemtel.net	N/A	The Final EIS must include consideration of fish passage and reintroduction above Grand Coulee and Chief Joseph dams to support tribal fishery restoration goals in the Upper Columbia.	Measures to reintroduce salmon above Chief Joseph and Grand Coulee dams were evaluated early in the alternative development process but eliminated from further consideration. Reintroduction is an important and complex, large-scale concept. Its consideration, evaluation, and implementation should involve multiple tribal, Federal, state, and other entities. A coordinated approach among water users, tribes, states, multiple Federal agencies, and others would be necessary. To allow so many differing interests to coordinate on such a complex topic, which may include international considerations, a decision-making framework and a series of regional workshops would be necessary just to approach the first step of defining reintroduction objectives. Given the incompatibility of such a wildlife management decision-making framework with an analysis of the operation of the Columbia River System, it is not feasible to proceed with a detailed consideration of reintroduction in this EIS. Moreover, to meaningfully analyze reintroduction as a measure, the details of the proposal would need to be understood well enough to include in hydrologic, water quality, and fish models. That information is not presently available, and development of those details was not possible in the timeframe of this NEPA process. Nevertheless, the agencies and interested regional sovereigns are developing a framework to address critical information gaps.
4887	1	Madeleine Wiley	N/A	Incorrect EIS statements that say that congressional authorization is required to breach the dams. This is not true; our senators or Governor can demand that the dams be breached. Chapter 7.2 says:BEGIN QUOTE (slightly edited for brevity)The co-lead agencies determined that the No Action Alternative, as well as the following alternatives, MO1, MO2, and MO4 allow for the operation of the projects (meaning dams) in furtherance of all of the congressionally authorized purposes to varying degrees.Alternative MO3 would not meet the congressionally authorized purposes of operating and maintaining the four lower Snake River dams for navigation, hydropower, recreation, and irrigation.New congressional authority through new laws and associated funding would be required to implement dam breaching measures.END QUOTESo to summarize what I just read, the three agencies, do one thing. The build and maintain dams. That is their life. That is their congressional authorization (MAGIC WORDS). If you want to remove the dams, go get Congress to authorize that and get some money, because it will not happen with the local Corp of Engineers, or BPA, or Bureau of Reclamation.Thats their story, but it is totally wrong. Those magic words: congressional authorization are a smoke screen by the local lead agencies to make us believe that they cant take out the dams. In fact, they could do that very thing without additional congressional authorization.	If MO3 were selected as the Preferred Alternative, the Corps could use this EIS as a basis for seeking congressional authority to breach the four lower Snake River dams. After receiving both authority and appropriations from Congress, the Corps could initiate a detailed construction and design report for the breach measure, identification of disposal areas, real estate acquisition and disposal, permits, and mitigation requirements, including temporary fish hatchery production. Each of these actions are required prior to breaching, and the Corps does not have the authority or appropriations necessary to immediately breach the project's embankments.
4887	2	Madeleine Wiley	N/A	Who (from which organizations) evaluated the various options?Why did you (the lead agencies) not use a third-party organization such as Mitre to help evaluate the various options (alternatives) in order to generate an objective solution instead of keeping the decision "in-house". By not outsourcing the analysis you have put the agencies in the position of being totally biased regarding the "preferred alternative". I would think that this puts the lead organizations legally at risk.	The co-lead agencies used a multi-disciplinary and science based approach to analyze the alternatives in the EIS. The co-lead agencies invited a number of entities (including Tribes, states, and agencies) from across the region to participate in the EIS process as cooperating agencies, and over 30 of those invited agreed to participate. Staff from the cooperating agencies joined the technical teams and provided their expertise and review to the development and analysis of the alternatives. Leaders from the co-lead agencies met with Tribal leaders for formal consultation, and with other organizations and stakeholders to have dialogue and receive feedback as the EIS progressed. However, only the co-lead agencies have authority to make decisions regarding future operation and configuration of the dams in the Columbia River System and NEPA does not require a third party to evaluate the alternatives or to propose a specific solution, these are the responsibilities of the co-lead agency. The co-lead agencies selected senior staff from across the country with expertise in their fields to serve on the EIS team. The draft EIS was subjected to two internal agency reviews by the Corps of Engineers experts not involved in the development of the document. Additionally, the entire document, analysis, and modeling were reviewed following an Independent External Peer Review (IEPR) process that meets OMB circular on peer review requirements under the "Information Quality Act" and the Final Information Quality Bulletin for Peer Review by the Office of Management and Budget (referred to as the "OMB Peer Review Bulletin). It also meets guidance for the implementation of both Sections 2034 and 2035 of the Water Resources Development Act (WRDA) of 2007 (Public Law (P.L.) 110-114) and standards of the National Academy of Sciences independent peer review. The final IEPR report will be publicly available. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-lead agencies numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the EIS objectives) as well as the EIS objectives for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. The Preferred Alternative is also more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. A list of the primary authors is included in Chapter 10.
4887	3	Madeleine Wiley	N/A	Did all organizations agree on the current draft EIS?Several sentences from the draft EIS make it appear that many organizations came together to work on this EIS. One such sentence is from the Preface:"More than 30 entities from across the region, consisting of tribes, Federal agencies, andstate and local governments, agreed to participate as cooperating agencies in thisNEPA process."However, another sentence from the draft EIS is quite troubling:" ..., the co-lead agencies identified a Preferred Alternative..."I could find no information that said that after the three co-lead government organizations picked "the final solution", that it was accepted and approved by each of the 30 entities that originally participated.Was there a vote, or other form of acceptance by each of the 30 organizations, or was the final alternative just decided by the three lead organizations. If the other organizations did not have a significant voice, then this EIS is flawed.	The co-lead agencies invited a number of entities (including tribes, states, and agencies) from across the region to participate in the EIS process as cooperating agencies, and over 30 of those invited agreed to participate. Staff from the cooperating agencies joined the technical teams and provided their expertise and review of the development and analysis of the alternatives. Leaders from the co-lead agencies met with tribal leaders for formal consultation, and with other organizations and stakeholders to have dialogue and receive feedback as the EIS progressed. However, only the co-lead agencies have authority to make decisions regarding future operation and configuration of the dams in the Columbia River System. Thus, the co-lead agencies identified the Preferred Alternative.
4887	4	Madeleine Wiley	N/A	Flawed methodology for evaluating alternatives. The EIS used only a subjective alternatives analysis. There was no weighting given to the eight Colombia River System Objectives. For each of the major alternatives, they were only subjectively scored on meeting, or not, the eight objectives. It is highly likely that if a different set of agency analysts worked on coming up with a Preferred Alternative, that there would be a different Preferred Alternative. Similarly, if another organization (like Mitre), were to audit this EIS, they would discover that the analysis of the alternatives would not be repeatable. It would be totally dependent onwhodid the evaluations, and not at all dependent ona weighted value of each of the major objectives. Therefore, the conclusion of this EIS, in creating the Preferred Alternative, is irrevocably flawed and the alternatives should be re-evaluated.	The co-lead agencies used a multi-disciplinary and science-based approach to analyze the alternatives in the EIS analysis. The co-lead agencies invited a number of entities, including Tribes, states, and local agencies, from across the region to participate in the EIS process as cooperating agencies, and more than 30 of those invited agreed to participate. Staff from the cooperating agencies joined the technical teams and provided their expertise and review to the development and analysis of the alternatives. Leaders from the co-lead agencies met with Tribal leaders for formal consultation, and with other organizations and stakeholders to have dialogue and receive feedback as the EIS progressed. However, only the co-lead agencies have authority to make decisions regarding future operation and configuration of the dams in the Columbia River System and are not required to seek a third party reviewer for a NEPA document. The co-lead agencies selected senior staff from across the country with expertise in their fields to serve on the EIS team. The draft EIS was subjected to two internal agency reviews by the Corps of Engineers experts not involved in the development of the document. Additionally, the entire document, analysis, and modeling were reviewed following an Independent External Peer Review (IEPR) process that meets OMB circular on peer review requirements under the "Information Quality Act" and the Final Information Quality Bulletin for Peer Review by the Office of Management and Budget (referred to as the "OMB Peer Review Bulletin). It also meets guidance for the implementation of both Sections 2034 and 2035 of the Water Resources Development Act (WRDA) of 2007 (Public Law (P.L.) 110-114) and standards of the National Academy of Sciences independent peer review. The final IEPR report will be publicly available. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-lead agencies numerous legal obligations. The Preferred Alternative meets the objectives of the EIS for ESA-listed juvenile and adult anadromous salmonids, resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy.
4964	1	N/A	N/A	Regardless of any hyped up representations of special interest groups or media our resource adequacy needs cannot be addressed by wind, solar, or energy storage technologies. In fact, as Washington's Clean Energy Transformation Act makes clear in its introductory language, Washington State's 100% clean energy goals would completely nonviable without the support of the federal hydro projects on the Columbia River.	The findings and discussion in Section 3.8, Air Quality and Greenhouse Gases, support the statement that hydropower is important for regional greenhouse gas emissions goals and future clean energy goals. Even with a renewable resource portfolio, the EIS finds that greenhouse gas emissions would increase under Multiple Objective alternative 3 and Multiple Objective alternative 4 consistent with the concern in the comment. Draft EIS, Section 3.8.3.5, pages 3-1009-1010.
4982	1	19timsorensen56@gmail.com	N/A	Additionally, I urge you to include in the final Record of Decision (ROD) strengthened and expanded measures to mitigate the predation of tens of millions of ESA-listed juvenile fish each year, particularly in the lower Columbia River, by various birds and predatory fish. I also hope the federal agencies will take full advantage of the provisions of the Endangered Salmon Predation Prevention Act to strengthen and expand protections for returning adult fish and I would like to see a strong commitment to do so reflected in the final ROD.	The Endangered Salmon Predation Prevention Act authorizes NOAA to issue permits to states and Tribes to kill sea lions in the lower Columbia River and some tributaries in order to protect certain fish from sea lion predation. The co-lead agencies do not have authorities to administer the Act. However, the co-lead agencies have supported actions to mitigate adverse effects to listed species from CRSO operations, through funding, direct implementation, and other means. Under the Preferred Alternative, those actions, including for the purpose of reducing pinniped and avian predation on listed species, would generally continue as described in Chapter 7.
5001	2	Mike Petersen	The Lands Council	The DIES would have been more user friendly had all the data for the various options been put into each alternative. That is, all the mitigation, costs, etc. for each alternative put in one chapter instead of spreading it out in categories would have been easier to read. The public, if you sincerely want our input, needs to be able to see the alternatives holistically, and not flip from chapter to chapter to chapter.	The Final EIS will expand the table of contents that was in the draft EIS to assist readers in finding specific topics. The EIS also includes an index, so the public knows where to look for detailed analysis in either the main body of the EIS or the appendices.
5001	5	Mike Petersen	The Lands Council	California (and we dont sell that state nearly the amount of electricity we used to) is the most populous state in the nation. Yet that state, according to the Energy Information Agency, Jan. 16, 2020 update, says that is has the lowest per capita energy consumption level in the U.S except Hawaii. It does use a variety of energy forms, but nuclear capacity has declined and indeed there are fluctuations in the hydro generation there. But is has made extensive efforts to increase energy efficiency and implement alternative technologies that have slowed growth in energy demand. California has been proactive and creative. Here in the NW, the Federal agencies have not. Innovation is apparently too difficult to assess and is modeled on keeping the LSRDs in every way possible. Clean renewable energy forms dont get the press that they should. But a few clean energy projects are mentioned in the DEIS mitigation. Nor does battery storage improvement stories get mention. Lithium-ion batteries for example according to a Bloomberg NFF report, have fallen in price by 87% since 2010. Reading the Institute for Energy Economics and Financial Analysis would be very helpful in learning more about alternative and viable energy forms.	The comment compares clean energy development in California and the Pacific Northwest. Contrary to the comment, the EIS considered a variety of clean energy forms as well as energy storage. See draft EIS, Section 3.7.3.5, Potential Replacement Resources And Associated Costs at pages 3-904-909 and Table 3-162. The EIS analysis focuses on primary technologies identified by the Northwest Power and Conservation Council (Council) in its 7th Power Plan (7th Power Plan, page 13-5) that are deemed proven, commercially available, and deployable on a large enough scale in the Northwest. See draft EIS, Section 3.7.3.1, Step 3: Determine Need for Potential Replacement Resources and Associated Costs at page 3-821 and Appendix H, Power and Transmission, Section 2.2. The EIS also examined the use of storage technologies considered a long-term resource of the Council's 7th Power Plan, but has become more commercially available since the release of the 7th Power Plan, and will likely now be considered a primary resource in the Councils 8th Power Plan. The comment suggests that additional energy efficiency should be assumed in the EIS, beyond what is achieved in the Councils Plan. The EIS analysis considers that all energy efficiency assumed in the Councils 7th Plan is appropriate and, likely, aggressive. The Councils recent State of the Columbia River System, Fiscal Year 2019 Annual Report, February 2020, p. 11 (https://www.nwcouncil.org/sites/default/files/2020-3.pdf), states While the region currently is on track to meet Seventh Plan goals, there are some areas to watch including forecasts of declining savings from efficiency programs. And whether the region will identify new savings opportunities to replace those of residential lighting. Utilities achievements in energy efficiency have been on an annual decline since 2016. Forecasts from utilities show that this trend is expected to continue, despite relatively stable funding levels. Given this trend, there is some uncertainty as to whether there will be enough savings from other mechanisms to reach the 1,400 average megawatt goal by the end of Fiscal Year 2021. This information indicates that it would be difficult to increase the energy efficiency goals beyond the Councils Plan. Based on this information, it is not likely that substantial amounts of additional energy efficiency would be available as prices increase, such as in Multiple Objective Alternative 3. The EIS power analysis included all cost-effective conservation identified by the Council in the load forecasts analyzed in the power analysis (Section 3.7.3). All cost effective conservation in the region is assumed to be acquired consistent with existing law and mandates regardless of the status of the four lower Snake River dams. See draft EIS, Appendix H, Power and Transmission, Section 2.2 at H-2-3.
5001	9	Mike Petersen	The Lands Council	But, there is a better process. Congress should run it and write it and not the Federal agencies. It would be a full, honest stakeholder progress (including agencies) that acknowledges the prejudice of the dams and the Federal agencies who promote them. It would involve history, economics, biology, culture, politics and power that is seriously inclusive of more than just white wheat farmers and white people from Lewiston to the Tri-Cities. The main focus should be taking out the four LSRDs and then tweaking the subsidies for farmers and economics for recreation for the cities along the Snake. We could have a thriving economy for Snake River cities, farmers could still irrigate and get their wheat to market, our recreational fishers and ocean fishing vessels could still operate and make a living, and we could honor our Tribal treaties and have abundant fish and orcas if we are willing to be brave and honest and completely change our model. Its called collaboration and here are a few examples of how its been done in the Northwest. These two examples are diverse groups in a rural and urban setting. 1. The Northeast Washington Forest Coalition has worked with the Colville National Forest for 18 years and successfully restored nearly 100,000 acres of forest. In 2019, the Colville had the highest timber volume in the country, remarkable since it is one of the smaller national forests. 2. The Spokane River Regional Toxics Task Force has tackled reducing PCBs in the Spokane River. In doing so they are leading the way to find and mitigate this health problem and all without a court order. Setting up a collaborative process would bring all interested parties to the table to work out solutions to help salmon, farmers, fishermen, and utility users. We ask that you shift gears and try something new it works!	The dam breaching alternative, MO3 alternative, was considered and analyzed by the co-lead agencies in the Draft EIS. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3, which includes breaching the four lower Snake River dams. The Preferred Alternative also meets the EIS objectives including those for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS, the co-lead agencies did not recommend MO3 because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. Socioeconomic effects were analyzed in the Draft EIS. Any subsidies to economic sectors and investing in communities, including recreation, fishing, or towns, however, is outside the scope of this EIS and outside the authorities of the co-lead agencies. Tribal input, concerns, interests, and especially treaty rights were considered throughout the Draft EIS analyses and in the formulation of the Preferred Alternative. Treaty specific information is included in Section 3.17 as well as Chapter 7. The treaties bind all parties and are the supreme law of the land. The co-lead agencies recognize and respect that supremacy. In terms of honoring our treaty obligations, the co-lead agencies included "Protecting Native American treaty and reserved

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					rights and fulfilling trust obligations for natural and cultural resources throughout the environment affected by the Columbia River System operations" as a purpose in the Purpose and Need Statement in Chapter 1 to ensure treaty obligations were a key consideration of decision making. The co-lead agencies recognize the desire to continue the conversation across the region about the future of salmon recovery, affordable and reliable clean electricity, Tribal perspectives, and economic vitality for the many people who depend on the Columbia River System for their way of life. The co-lead agencies will be active participants in regional discussions and solutions for mitigating the effects of the CRS and achieving broader recovery objectives.
5003	1	N/A	N/A	You could use this new EIS process to undertake **FUTURE** actions. Isn't it possible that BPA's financial situation will worsen with money lost on dams? Expensive spill and bypass systems do not seem to be working as well as the breaches would. Could you please have the federal agencies begin breaching *this year*? If you need more workers, surely there are so many out of work now that you could help the unemployed, dams, BPA, salmon, steelhead, and Orca and future generations.	The costs of breaching the four lower Snake River dams are described in Section 3.19.2 and in Appendix Q. MO3 would result in decreased costs or funding requirements for the four lower Snake River projects compared to the No Action Alternative, including capital costs, operations and maintenance, non-routine navigation, non-routine extraordinary costs, and fish and wildlife mitigation costs. However, breaching the four lower Snake River dams would also result in construction costs and costs for additional mitigation measures to address the adverse effects of MO3 consistent with information presented in Section 3.19. Based on the analysis of fish in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species. Moreover, the Corps does not have authority to breach the four lower Snake River dams. Consistent with the twin aims of NEPA, the agencies provided notice to the public in the Draft EIS of the Corps' existing authorities and the stepwise process that would be required if the co-lead agencies recommended MO3 as the Preferred Alternative. If this occurred, the Preferred Alternative would serve as a recommendation to Congress, which Congress would need to authorize. Congress would also need to authorize additional studies, including NEPA analysis, and funding for implementation. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-lead agencies numerous legal obligations. The Preferred Alternative is predicted to benefit ESA-listed juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3, which includes breaching the four lower Snake River dams. The Preferred Alternative also meets most other EIS objectives for: resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS the co-lead agencies did not identify MO3 because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system.
5005	1	N/A	N/A	Air Quality: Farmers are taking care of this earth and are good stewards of the land, air and water. They depend on the rivers to get wheat to market. Barges move more wheat, use less fuel than trucks or rail cars. Adding more trucks and rail cars would add TONS of carbon to the Northwest skies. Per the 1992 OA/EIS (Appendix 4-59), there are air quality concerns relating to drawdown of reservoirsfugitive dust generated by strong winds blowing across exposed sediments during dry conditions (which can) result in high dust loadings and nuisance conditions for nearby residents and recreational users. There is a population of 60,000 people at the confluence of the Snake and Clearwater Rivers whose air quality will be significantly diminished until vegetation can be grown where acidic sand is revealed. The draft does not include adequate resources for revegetation and fails to take into account climatic conditions where re-revegation is to be done. Per 3-746, lines 22959 through 22963, it could take up to 10 years within dam breaching, to establish plan communities. Ten years is NOT an acceptable timeframe.	As described in this comment, the EIS evaluates the air quality and greenhouse gas emissions effects of modal shifts in shipping wheat from barges to road- and rail-based methods under MO3, finding up to a 53 percent increase in CO2 emissions (0.06 MMT CO2) relative to the No Action Alternative. The analysis additionally describes air pollution effects associated with increased potential for fugitive dust due to exposed riverbed along the Snake River. Multiple Objective alternative 3 was not identified as the Preferred Alternative and should alleviate concerns regarding revegetation that would have been implemented with that alternative.
5005	2	N/A	N/A	Cost: 3-1463, lines 9459 through 9466 discusses the loss of visitors costing the region 103 million, decrease in jobs and $39 million in labor income. The bulk of this impact is felt in a concentrated area. As a small community, these are significant losses that will have lasting effects.	The commenter is correct that in the short term during construction activities, a decrease of 2.3 million water- and land-based visitors in Region C could result in decreased visitor spending of $103 million, a decrease of 83 percent compared to non-local visitor spending under the No Action Alternative, as described in Section 3.11.3.5. Reduced visitor spending would result in a decrease of approximately 1,230 jobs, $39 million in labor income, and $147 million in sales during this construction period. After the construction and breaching period is over, access would be reopened to some of the recreation areas, and it is likely that a portion of the land-based visitors, such as sightseers, hikers, and others, would visit the region after construction while the reservoirs transition to river conditions. For comparison, all economic activity in Region C supports 216,800 jobs, $10.3 billion in labor income, and $31.4 billion in sales annually. As such, adverse effects under Multiple Objective alternative 3 would represent less than one percent of jobs, income, or sales in the region.
5005	3	N/A	N/A	Fish: Removing the Lower Snake River dams would have marginal salmon recovery benefits at significant cost to the region. Federal Data shows the dams in the system have world class fish passage facilities that see over 95% of salmon pass each of the dams on their journeys up and downriver. On January 7th 2020 Nez Perce Tribal Fisheries expert David Johnson stated that without hatchery fish, there would be no fishing. Recreational fishing does not allow to take of wild, endangered species of fish.	The co-lead agencies agree that salmon and steelhead are important resources of the Northwest and have invested significant time and resources at the projects covered by this EIS to improve survival and adult returns. The co-lead agencies also recognize that there are many effects to salmon and steelhead populations outside the operation of the dams. Research continues to evaluate the magnitude of these effects. For more information see the National Marine Fisheries Service website at: https://www.nwfsc.noaa.gov/research/index.cfm.
5005	4	N/A	N/A	Recreation: The Columbia Snake River System supports water recreation and tourism, cruise ships, boating, fishing, jet skiing, paddle boarding, parks, public docks, camping, swimming, kayaking, and walking trails. Major loss of recreation would result if the four lower Snake River dams were breached. In FY2018, the U.S. Army Corp of Engineers counted over $1.7 million visits to the 26 area parks, boat ramps, beaches, and other recreational areas they manage within the Lower Granite Pool (see Attachment 1). Just one of those amenities. The Port of Clarkston has Cruise Boat traffic that generates over 25,000 passengers annually to the Lewis Clark Valley. Passenger surveys from cruise boats consistently identify with touring the deepest gorge in America as the very highlight of their week-long cruise in the Pacific Northwest. The Hells Canyon National Recreation area is only accessible by boat and increased visits in the past 10 years show increasing in numbers of visitors. In 2016, 6he Idaho Department of Parks and Recreation completed a study titled Economic Impact and Importance of Power Boating in Idaho (see Attachment 2). In this report, economists found spending in 2015 on power boating related products and services in Nez Perce County was over $14 million (p. 12). An additional $8.55 million was expended on other goods and services. This is a total impact of over $22.55 million. The draft EIS has vastly underestimated recreational impacts that would diminish or disappear altogether under MO3.	Cruise ship visitation is characterized in Section 3.10, including a description of its economic contribution to the region. Section 3.10.3.5 describes the contribution of cruise ships as supporting approximately 230 jobs in the region, $6.2 million in labor income, and $17.8 million in annual output (sales). Section 3.11.2.2 describes gaps in the recreational visitation data. Data are not available for all sites, including Hells Canyon National Recreation Area. The note under Table 3-256 in Section 3.11.2.2 in the Draft EIS states that visitation to National Forests and other USFS-managed lands is estimated for the entire unit, not specifically for recreation sites along rivers. The 2016 report by Boise State entitled Economic Impact and Importance of Power Boating in Idaho was considered for the EIS, but not relied upon directly due to the limited types of visitation data in the report. In addition, this region was not anticipated to be affected by changes in water surface elevations. However, additional information has been added to better describe fishing visitation in this region, its economic contribution to the communities along the Snake River and its tributaries, and the potential effects to fishing visitation under Multiple Objective alternative 3 in Section 3.11. Estimates of power boating use from that study are broadly consistent with visitation data from Federal and state agencies used in the EIS where data is available. The expenditure data collected for that study cover power boating in Idaho, while the recreational expenditure data applied in the EIS cover the Columbia River System basin and the broader range of activities reflected in the Federal and state visitation data.
5005	5	N/A	N/A	Energy and Navigation: The Columbia River System provides the Pacific Northwest with 90% of our renewable energy, supports tens of thousands of families, provides cultural and recreational opportunities, moves our food, raw materials and fuels. The Snake River provides power for our region and supports thousands of jobs. The Columbia River is the Trade corridor to the nation. Economists for PNWA, in the study at https://files.constantcontact.com/9a08bcf9001/8768ec34-9437-4adb-badb-477bde47019b.pdf, shows that the net present value of losses just for navigation is $1.9 billion. Lower Snake River dam breaching will likely increase the costs for farmers to get their wheat to market 50-100%. New carbon releases from truck and train movement of cargo will increase carbon emission by over 1.2 million tons per year (see PNWA study). The lower Snake River dams provide low-cost, carbon-free energy that cannot be replicated by other resources. The rural areas in the 10 counties most affected by an increase in rates are already at or below the federal poverty level, and dam breaching would affect the people and these communities that can least afford it. Our community, Clarkston, Lewiston, and Asotin would be devastated if dam breaching would occur.	The co-lead agencies did not include the measure to breach the four lower Snake River dams, which was evaluated in MO3, in the Preferred Alternative identified in the Draft EIS. As described in Section 3.10.3.5, Navigation and Transportation analysis for MO3, the EIS finds that under a dam breach scenario, average transportation costs for wheat farmers would increase 10 to 33 percent, but that individual farmers could experience increases that are double, depending on their specific location and other conditions. The EIS evaluates the level of anticipated increases in truck and rail traffic that would occur under MO3. The EIS finds that truck ton-miles may experience an increase of 19 percent to 84 percent under MO3 when compared to the No Action Alternative, depending on the rail rate increases that occur. The EIS found that truck trips would increase between 14,000 to 79,000 truck trips per year, which would increase air pollutant and greenhouse gas emissions in the region and add to traffic and congestion in the region. Rail ton-miles would increase by as much as 86 percent (when rail rates are not assumed to increase) or decrease by 2 percent (when rail rates increase by 50 percent). The EIS also evaluates the additional transportation infrastructure investments and associated costs that would be required, as well as the increases in air emissions that would occur. As described in the Section 3.8.3.5, Air Quality and Greenhouse Gas Emissions, for navigation and transportation emissions could increase from 17 percent to 53 percent depending upon how rail rates increase. The EIS findings regarding the importance of the four lower Snake River dams for the power system, low power costs and greenhouse gases are consistent with the statements in the comment. Regarding the specific power rate effects on certain counties cited by the comment, the EIS evaluated potential effects to power rates at a county level. See EIS, Section 3.7.3.5, Social and Economic Effects of Changes in Power and Transmission; see also Chapter 5 and Exhibit 1of Appendix H. Regarding the comment about the "most vulnerable communities" the Environmental Justice analysis in Section 3.18.3 provides further detail on potential disproportionate effects to tribal, low-income and minority populations.
5005	6	N/A	N/A	Visual: The once beautiful views of the reservoir will become a narrow stream. Per 3-747, lines 22976 through 22978, Approximately 3,000 acres of habitat management units that are currently irrigated under the No Action Alternative would no longer be irrigated and these lands would transition to upland plant communities. Brown barren acres will exist along the river where once the Clearwater Snake National Recreation Trail was green. It will remain this way for many years to come until it gets filled with noxious weeds and invasive plants. Per 3-749 23059 through 23061, long-term [vegetative] gains are based on the assumption that habitats will return to their pre-project distribution. It does not assume that habitat management units or Corps managed lands will be maintained. These conclusions are logical because surface water will not be accessible for irrigation. For one thing, there will be less of it. For another, a substantial amount of water is owed to the Nez Perce Tribe under the Snake River Basin Adjudication.	The visual impact analysis of MO3 finds that there would be a major effect from breaching the four lower Snake River dams. See Draft EIS pages 3-1286 to 3-1287. Mitigation has been identified. See Draft EIS lines 1096-1099 on page 5-35. With this mitigation, the major effect on visual quality would diminish over time as the shoreline revegetates and blends into the surrounding landscape. The co-lead agencies have added language to the visual section to expand this analysis. The measure to breach the four lower Snake River dams which was evaluated in MO3 was not included in the Preferred Alternative. The co-lead agencies are not aware of any factual basis to support the claim that "a substantial amount of water is owed to the Nez Perce Tribe under the Snake River Basin Adjudication." Rather, the co-lead agencies understand that the Tribe's water rights claims in the Adjudication were resolved in the Snake River Water Rights Act of 2004, Pub. L. 104-447. The effects of utilization of those water rights, as well as others in the Snake River Basin, are reflected in the hydrological modeling of flows incoming to the lower Snake River.
5005	7	N/A	N/A	Water supply: As mentioned above, there was a negotiation relating to water rights, and the Nez Perce Tribe received substantial entitlement. How has water supply been addressed in the DEIS given that entitlement? Other entities could not take on responsibility for green space along the Clearwater Snake National Recreation Trail, if they are not allowed to use surface water for parks and grassland that have been managed by the Corps under the Lower Granite project until now.	In Region C (lower Snake River), and potentially Region D (mainstem Columbia River) around the confluence of the lower Snake River, the MO3, which includes breaching the earthen embankment of the four lower Snake River dams, would have adverse effects to farmers and irrigation. Currently and in the No Action Alternative, water is available from the pools of these facilities and from groundwater that results from the pools. The co-lead agencies understand that the Tribe's water rights claims in the Adjudication were resolved in the Snake River Water Rights Act of 2004, Pub. L. 104-447. The effects of utilization of those water rights, as well as others in the Snake River Basin, are reflected in the hydrological modeling of flows incoming to the lower Snake River. The EIS did not identify any effects to the Nez Perce Tribe water rights settlement.
5005	8	N/A	N/A	Indian Tribes: On P.24 of the Executive Summary, ongoing and disproportionate, social, cultural and socioeconomic effects to Indian Tribes and Tribal Communities is discussed. I would like to point out that since the Nez Perce Tribe began receiving rate payer money for hatchery and habitat programs, employment increases at the Tribe have grown exponentially. Natural Resource programs were a foundation for the Tribe that grew into creation of tribal casinos, the first Fiber-To-The-Home projectslocated on housing districts on the reservation--in North central Idaho, and most recently, the purchase of the Clarkston Golf and Country Club. While I may agree to a certain extent that something was lost culturally to the Tribes, no one can solely attribute loss solely as a result of river operations. Cultural losses began when others immigrated to historic Nez Perce grounds. Its due to the Federal Governments partnership with Tribes that they are better off than others non-Tribal residents of the Pacific Northwest. Returning the Lower Snake River to a riverine condition will not restore what has been lost by an infusion of the pop culture. MO3 will make very few properties of significance newly available because locations like Celilo Falls will not experience changes in any of the alternatives. Some cultural properties are actually protected because people cannot reach them. The Tribe can tell their story to obtain better understanding by other people today while Cruise Boat visitation occurs because historical and cultural information is supplied all along the tour, but when the dams go away this opportunity is lost.	Tribal input, concerns, interests, and especially treaty rights were considered throughout the Draft EIS analyses and in the formulation of the Preferred Alternative. Appendix P includes copies of tribal perspectives that were submitted by the tribes.
5007	1	mbk@joycekeefer.com	N/A	I have seen changes in marketing wheat after the dams went in. Selling our wheat was limited when we were farming in Montana. Now tremendous amounts of wheat are produced, not just in Montana but in Asotin and nearby Whitman County, which goes to feed the world. I believe that the Columbia/Snake River system is the largest wheat export gateway in the United States. Almost half of all wheat exports get to ocean-going vessel loading facilities on the coast by barges coming down the Snake and Columbia Rivers. Removal of lower Snake River Dams would stop that. Wheat prices per bushel today are not much different than they were in the 1960s and 1970s. Farmers would be out of business, because all their costs have gone up, if they hadnt worked with scientists to increase volumes per acre of production. Even so, wheat farming is subsistence living.	The EIS evaluates potential effects on farmers associated with increased transportation costs under Multiple Objective alternative 3 in Section 3.10.3.5. The EIS finds that under a dam breach scenario, average transportation costs for wheat farmers would increase 10 to 33 percent, but that individual farmers could experience increases that are doubled. The cost increases to specific shippers would depend upon location and would vary throughout the region, depending on transportation options at each location. Generally, those grain shippers that are the farthest from alternate shipping locations (shuttle rail facilities or river ports on the Columbia River) would be the most adversely impacted. The EIS recognizes that there is no guarantee wheat grown in the Northwest would be competitive now or in the future because there are many factors that influence international commodity markets (e.g., trade agreements, the U.S. dollar, global supply, etc.). However, the analysis finds that the cost to transport wheat to market would continue to be lower than costs paid by other wheat growers in the United States (e.g., the Dakotas and Midwest). Favorable conditions for Northwest wheat growers that help them stay competitive are: (1) the natural environment of the Palouse region (weather, soils) is ideal for growing this type of wheat, which leads to some of the highest yields per acre in the world, and (2) proximity of Northwest export ports. Currently, the cost to transport wheat to market is quite low relative to other parts of the United States and world.

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5014	1	caleb.j.merendino@gmail.com	N/A	Thus I must express my alarm at the way this comment period was conducted. The Draft EIS is a highly controversial and complicated document. The complexity of this issue, as well as the global emergency caused by the spread of the Corona Virus in the Pacific Northwest and across the country, calls for an extension of the comment period to provide adequate opportunity for feedback.	The co-lead agencies considered requests to extend the public comment period. This NEPA process included a wide array of cooperating agencies whose close involvement throughout the process allowed the co-lead agencies to incorporate feedback. Given the broad range of comments received and the extensive Federal and non-Federal participation in the overall process as well as the level of public engagement in the six virtual public meetings in the region, the co-lead agencies determined that an extension was not warranted and that the 45-day public comment period was adequate consistent with NEPA regulations. The CRSO EIS website notified the public on April 9, that they should plan to submit comments by the close of the comment period.
5014	2	caleb.j.merendino@gmail.com	N/A	In addition to a lack of adequate response time, the mechanism used to collect comments through phone calls faced significant challenges, limiting participation in the public comment process, I do not feel that the public has been given adequate opportunity to make concerns fully heard.	The co-lead agencies are sorry you had difficulties. The public had several ways to submit comments such as the online comment form and through the mail. Given the broad range of comments received and the extensive Federal and non-Federal participation in the overall process as well as the level of public engagement in the six virtual public hearings in the region, the co-lead agencies determined the 45-day public comment period was adequate consistent with NEPA regulations.
5014	3	caleb.j.merendino@gmail.com	N/A	The DEIS recommendation of a Preferred Alternative essentially amounts to business as usual with minor modifications, and does not reflect the depth of the change needed to recover salmon populations and the species which depend on them. Experts agree that the past 25 years has shown that this approach is costly and ineffective, and a violation of federal law. The Draft EIS also fails to fully address the significant impact that the dams along these river systems have on the critically endangered Southern Resident Orca population. Accepted science indicates that restoring the lower Snake River would lead to stabilization of Chinook runs and provide critical food sources for the Southern Resident Orca.	There are many factors that effect salmonid populations, many of which are outside the control of the co-lead agencies. Both human-caused and natural factors that are outside the responsibility and control of the co-lead federal agencies, also contribute to the decline and recovery of fish, and will continue to strongly influence fish and their habitat. Salmon and steelhead have been adversely affected in the Columbia River Basin over the last century by many activities including human population growth, urbanization, introduction of exotic species, overfishing, development of cities and other land uses in the floodplains, water diversions for all purposes, dams, mining, farming, ranching, logging, hatchery production, predation, ocean conditions, and loss of habitat. While many measures have been included in the Preferred Alternative are from the No Action Alternative, most of these are measures that are know to provide benefits to ESA-listed species. These past actions by the co-lead agencies have resulted in a large percentage of fish being able to pass both upstream and downstream of the lower Snake River and lower Columbia River projects. See Section 3.5.2.3 titled Anadromous Fish. The EIS concluded MO3, which includes breaching the four lower Snake River dams would have greater improvement to certain salmon species in the lower Snake River. It did not, however, conclude there was greater certainty of that result in MO3 over any other alternative. Because of delayed response time in MO3, and the potential severity of the short term effects, MO3 would likely have the most substantial uncertainty in terms of beneficial effects. Section 3.5 provides a summary of the fish analysis for the No Action Alternative and four of the multiple objective alternatives. Chapter 7 provides a summary of the fish analysis for the Preferred Alternative. With respect to the Preferred Alternative, the CSS model predicts that average Smolt to Adult return rates would increase for both Snake River spring Chinook and steelhead and will average above 2% (the lower end of the Northwest Power and Conservation Councils recovery targets for the region) as a result of the Preferred Alternative, increasing from 2.0% to 2.7% for Chinook, a 35% relative increase. The NMFS COMPASS and Life Cycle Models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information. Based on the EIS analysis of the Preferred Alternative, it will make a substantial contribution towards recovery targets. The population dynamics of the SRKW are complicated and there are multiple factors that contribute to the overall success of this species. The quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differently from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for the whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall-run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall-run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). Details on the most crucial prey stocks for Southern Resident killer whales, as well as their population and range, is available from several fact sheets and videos available here: https://www.fisheries.noaa.gov/species/killer-whale#spotlight. For more information, visit this NMFS StoryMap on Southern Resident killer whales: https://noaa.maps.arcgis.com/apps/Cascade/index.html?appid=3405e6637bf74e998d4ebe992c54f613. According to NOAA and the EPA, the estimated SRKW population has fluctuated between 67 and 98 whales between 1960 and 2015. The Snake River dams were constructed between 1962 and 1975. The SRKW population increased from a record low in 1970 to its highest population numbers in 1995. Those years were not high years for Snake or Columbia River Chinook Salmon. Ocean conditions between 2011 and 2013 were good years for salmon. At the same time, 2010 and 2013 were good outmigration years. Particularly, 2011 and 2012 were above normal in water supply, which would mean more cooler water was available and there was better survival of salmon, and 2011 through 2014 were higher than normal spill years as well. The combination of outmigration and ocean conditions created improved adult salmon returns. The EIS has analyzed spill as a measure in the Preferred Alternative and determined the overall effect to SRKW to be negligible. Because the impact from the Preferred Alternative was determined to be negligible, the agencies determined that existing hatchery production would be sufficient to address any potential impacts to prey availability for SRKWs. The co-lead agencies note the contribution to the prey of SRKW through the continued existence of their respective independent Congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as the Lower Snake River Compensation Plan (other than under MO3), which is administered by USFWS. The final EIS in Vegetation, Wetlands, Wildlife, and Floodplains (Section 3..6.2.6 and Table 3-102), and Chapter 7 (Preferred Alternative), has been updated with additional analysis information on SRKW and the potential increase in forage fish, in particular, Chinook salmon (Section 7.7.8). Moreover, NMFS concluded in its 2020 CRS BiOp that operations, maintenance and configuration of the CRS is not likely to adversely affect SRKW. The co-lead agencies do not view the Preferred Alternative as a continuation of "business as usual." The spill operation for juvenile fish passage in the Preferred Alternative is a significant departure from previous operations. See Section 7.6.3 titled Preferred Alternative Operational Measures. In addition, a large number of structural changes are included to benefits salmonid species and Pacific lamprey. See Section 7.6.2 titled Preferred Alternative Structural Measures.
5014	4	caleb.j.merendino@gmail.com	N/A	Removal of the dams would also have economic benefits for recreation The Draft EIS does not address the positive impact that removing dams along the Snake and Columbia river would hold in terms of preserving our important natural resources as well as to boost tourism and the outdoor recreation economy.	The EIS provides an evaluation of the social welfare and regional economic effects of the No Action Alternative and the multi-objectives alternatives, including the effects on recreation (Section 3.11) and fisheries (Section 3.15). The EIS described the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. NMFS estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which is described qualitatively. The potential for changes in recreational fishing of anadromous fish under MO3 in the Region C is described in Section 3.11. Increases in recreational fishing could support jobs, income, and social benefits in Tribal and rural river communities. For the effects on recreational fishing under MO3 (Section 3.11.3.5) along the Lower Snake River below Lewiston, the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River) as an indicator for fishing visitation in this reach. The EIS describes that the visitation in the long-term in the lower Snake River, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting outfitting and tourism businesses in the region. However, there is uncertainty around recreational fishing visitation in the long-term given the current measures to regulate, protect, and support ESA-listed fish populations and habitat in the region.
5014	5	caleb.j.merendino@gmail.com	N/A	A free flowing river is not only an essential for salmon recovery, but is necessary in order to right historical wrongs done to the Native American tribes of the Pacific Northwest region, who did not consent to the construction of these dams on their land, and whose important cultural sites including grave sites, were flooded by dam construction . The Palouse tribe was forcibly evacuated from the lands flooded by the Snake River dam construction, and continue to fight for recognition and return of their ancestral lands. In conclusion, a new approach is urgently needed to develop a comprehensive plan.	The CRSO EIS evaluated alternative plans for operation, maintenance and configuration of the system and identified the Preferred Alternative as the plan that best balances the multiple congressionally authorized project purposes and avoids, minimizes or offsets (to the extent possible) the associated environmental effects. Analysis shows that the Preferred Alternative would meet the objectives for improving juvenile salmon, adult salmon, resident fish and lamprey. The analysis found ranges in potential effects due to different assumptions included in each of the fish models used in the study. Using the Comparative Survival Study (CSS), Snake River Chinook salmon and steelhead are expected to see relative improvements in smolt-to-adult returns of 35 percent and 28 percent, respectively. The Smolt-to-Adult return ratio (SAR) is the rate at which of a group of fish survive from their smolt life stage to a defined ending point where they return as adult. While achieving long-term recovery targets will require more than just the efforts of Federal agencies, the CSS models indicate the potential for SARs of Snake River Chinook salmon and steelhead to increase to levels that could approach recovery targets set by the Northwest Power and Conservation Council. If latent mortality effects are reduced by passing more juvenile fish through the spillway, the NMFS Lifecycle Model (LCM) also shows that levels of SARs would increase. However, if latent mortality effects are not reduced, or are different than modeled, the LCM predicts that SARs for Snake River spring Chinook salmon may be lower than the No Action Alternative (a range of -7.5 percent to +28 percent change relative to the No Action Alternative) due to reduced opportunities for fish transportation. Results for upper Columbia River stocks are beneficial based on LCM estimates. In-river survival and SARs are anticipated to increase. The CSS model does not currently model upper Columbia fish. The Preferred Alternative also has measures intended to increase upstream passage success and reduce injury and mortality for Pacific lamprey. These measures are proposed structural improvements that include converting extended-length submersible bar screen material to screen material that would not impinge or entangle juvenile lamprey, expanding the network of lamprey passage structures to bypass impediments in fish ladders, changing the design for turbine cooling water strainers, and replacing turbines for safer fish passage. The Preferred Alternative would also meet the objective to improve resident fish. Effects to resident fish vary by region and species, but are generally minor relative to the No Action Alternative.
5014	6	caleb.j.merendino@gmail.com	N/A	I strongly urge this body to extend the comment period to provide adequate opportunity for thorough feedback from the public and to restructure their Preferred Alternative proposal to reflect independent science around the urgency of dam impacts on salmon, tribal communities and Southern Resident Orca.	See response to Comment 5014-1.
5018	1	kanepat@hotmail.com	N/A	Many low lying areas on the lower river will be flooded during high run off if the dams are removed. Much of Portland and other cities will find themselves with flooding on a yearly basis like they did before the dams were built.	As described in Section 1.9.2.2 of the EIS, the four lower Snake River projects (Lower Granite, Little Goose, Lower Monumental and Ice Harbor) are run of river projects, and are not authorized for a flood risk management purpose. They were primarily developed for navigation or hydropower generation or both. Additionally, flood risk management analysis was completed for all CRSO EIS alternatives, evaluating flows and stages, both downstream of reservoirs and in reservoir pools, for each of the alternatives (No Action Alternative, Multiple Objective alternatives, and the Preferred Alternative). As described in summary of effects for Multiple Objective alternative 3 in Section 3.9.4.5, no change in flood risk is anticipated with the breaching of the four lower Snake River projects.
5021	1	N/A	N/A	I am also concerned about the impact the removal of the dams in this area would have on the water flow and supply systems.	Section 3.12.3.4 of the EIS describes that approximately 47,840 acres of land would be expected to go out of production with implementation of MO3. MO3 was not identified as the Preferred Alternative.
5022	1	N/A	N/A	Breaching the dams will negatively affect the amount of agricultural land we can utilize.	The Draft EIS analysis is consistent with this comment. Under Multiple Objective alternative 3 approximately 48,000 acres of land would no longer be irrigated.

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5024	1	monika.wieland@gmail.com	N/A	Since Columbia Basin salmon stocks were listed on the Endangered Species List in the 1990s, recovery plans have been in and out of courts multiple times, always failing to meet species recovery objectives. This time, it was specifically ordered to re-evaluate a dam breaching scenario, in light of the fact that previous plans continue to fall short on salmon recovery. It is time to do not only what is morally right, but what the law mandates, and that is to find a way to take the actions that are needed on behalf of salmon, and to deal with the difficult but surmountable consequences of that choice.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the Endangered Species Act (ESA), in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-lead agencies numerous legal obligations. The Preferred Alternative is predicted to benefit ESA-listed juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets most other EIS objectives including those for: resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams, because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system Based on the EIS analysis the Preferred Alternative will make a substantial contribution to improving Snake River anadromous fish runs. With respect to the Preferred Alternative, the CSS model, which includes latent mortality effects, predicts that median Smolt-to-Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2 percent (the lower end of the Northwest Power and Conservation Council's recovery targets for the region) as a result of the Preferred Alternative increasing from 2.0 percent to 2.7 percent for Chinook, a 35 percent relative increase. The National Marine Fisheries Service COMPASS and Lifecycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. To address uncertainty highlighted by the two models, the Preferred Alternative includes working with regional sovereigns to develop a study that assesses the effectiveness of the increased spill regime on adult returns as well as assessment and management of adverse unintended consequences, such as long delays of adult migrants, or Total Dissolved Gas (TDG)-related mortality of juvenile migrants. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information.
5024	2	monika.wieland@gmail.com	N/A	In addition to recovering endangered salmon, your report fails to take adequate consideration of the Southern Resident killer whales and their dependence on Columbia-Snake River fish. I was surprised to note the Southern Residents were not mentioned once in your 36- page executive summary, and only in passing in the report itself. The report states that Puget Sound is a more significant source of salmon for Southern Residents than the Columbia Basin, but thats just not true: the two largest salmon-producing river systems in the Southern Resident killer whale range are the Fraser River and the Columbia River. The Southern Residents only spend a fraction of their year in the Puget Sound region, a percentage of the year that has steadily declined over the last decade. The Southern Residents need abundant food sources year-round, including during the ample time they spend on the outer coast.	The Executive Summary is a high level summary of the CRSO EIS and is not intended to represent the importance of species and issues related to the CRS. SRKW analysis is described in the EIS including in the FEIS Chapter 3 (Vegetation, Wetlands, Wildlife, and Floodplains) has been updated for SRKW (Section 3.6.2.6 and Table 3-102) and FEIS Chapter 7 (Preferred Alternative) with additional analysis information on SRKW and potential increase in forage fish, in particular, Chinook salmon in Section 7.7.8. The co-lead agencies utilized current high quality information and best available science in its analysis of the effects of the operation, maintenance, and configuration of the CRS projects. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not require the co-lead agencies to take affirmative actions to recover ESA listed species. The population dynamics of the SRKW are complicated and there are multiple factors that contribute to the overall success of this species. The quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differently from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for the whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall-run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall-run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). Details on the most crucial prey stocks for Southern Resident killer whales, as well as their population and range, is available from several fact sheets and videos available here: https://www.fisheries.noaa.gov/species/killer-whale#spotlight. For more information, visit this NMFS StoryMap on Southern Resident killer whales: https://noaa.maps.arcgis.com/apps/Cascade/index.html?appid=3405e6637bf74e998d4ebe992c54f613. According to NMFS and the EPA, the estimated SRKW population has fluctuated between 67 and 98 whales between 1960 and 2015. The Snake River dams were constructed between 1962 and 1975. The SRKW population increased from a record low in 1970 to its highest population numbers in 1995. Those years were not high years for Snake or Columbia River Chinook Salmon. Ocean conditions between 2011 and 2013 were good years for salmon. At the same time, 2010 and 2013 were good outmigration years. Particularly, 2011 and 2012 were above normal in water supply, which would mean more cooler water was available and there was better survival of salmon, and 2011 through 2014 were higher than normal spill years as well. The combination of outmigration and ocean conditions created improved adult salmon returns. The EIS has analyzed spill as a measure in the Preferred Alternative and determined the overall effect to SRKW to be negligible in large part because hatchery production is consistent between the No Action Alternative and the Preferred Alternative. Because the impact from the Preferred Alternative was determined to be negligible, the agencies determined that existing hatchery production would be sufficient to address any potential impacts to prey availability for SRKWs. The co-lead agencies note the contribution to the prey of SRKW through the continued existence of their respective independent Congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as the Lower Snake River Compensation Plan (other than under MO3), which is administered by USFWS. The Preferred Alternative and Proposed Action in the agencies' biological assessment carry forward certain measures described in Chapters 2 and 7 of the EIS, which include continued salmon and steelhead hatchery production. The Preferred Alternative has negligible effects to SRKWs as described in Section 7.7.8. The Biological Assessment (BA) describes the effect of the Proposed Action on the SRKW forage species (see BA Section 3.5.1.2, Southern Resident Killer Whale). The proposed changes in operation of the Columbia River System include increased spring spill during the downstream migration of juvenile spring and summer run Chinook salmon. The result of this action includes potential increases of juvenile fish passing through the spillways, reductions in juvenile fish direct and indirect mortality associated with downstream passage, and the Comparative Survival Study (CSS) model predicts increases in numbers of returning adults, which will benefit SRKWs foraging in and around the mouth of the Columbia River in winter and spring (See EIS Section 7.7.8). The CSS model results predicts Snake River Chinook salmon would have relative improvements in smolt-to-adult returns of 35 percent (see EIS Section 7.7.4). The smolt-to-adult return ratio (SAR) is the rate at which of a group of fish survive from their smolt life stage to a defined ending point where they return as adults. While recovery targets will require more than just the efforts of federal agencies, the CSS models indicate the potential for SARs of Snake River Chinook salmon and steelhead to increase to levels that could approach recovery targets set by the Northwest Power and Conservation Council. The BA, also consistent with the EIS, acknowledges past improvements to the configuration and operation of the Columbia River System, additional improvements to the environmental baseline as a result of completed estuary and tributary habitat actions, and the prospective non-operational conservation measures proposed in Chapter 2 of the Draft EIS, all contribute towards maintaining and improving Chinook abundance. Relevant conservation measures include, among other things, a commitment to continue funding the conservation and safety net hatchery programs listed in Chapter 2 of the Draft EIS. As discussed above, the agencies will fulfill congressionally authorized hatchery mitigation objectives through the funding of hatchery programs that are operated consistent with their independent hatchery program consultations during the term covered by this consultation. Based on those hatchery program consultations, the production levels associated with congressionally authorized hatchery mitigation objectives will continue, at minimum, to be consistent with levels previously analyzed by NOAA in the system consultations in 2008, 2014, and 2019. For the 2020 ESA consultations, therefore, the agencies expect that collectively, all of the actions described above (substantial modifications to migration conditions designed to benefit key prey species, combined with improvements to Chinook spawning and rearing habitat in the tributaries and Columbia River estuary, and continued hatchery production) ensure that remaining Chinook mortality from all sources in the mainstem migratory corridor will continue to be more than offset, resulting in a net gain in Chinook salmon abundance available as a prey source for SRKW. Finally, the 2019 NMFS Fisheries BiOp included increased spring spill operations that are similar to operations evaluated in CRSO EIS, and NOAA validated that the hatchery production of Chinook salmon mitigates for the impacts of operating the Columbia River System and total mortality through the mainstem migratory corridor from all sources.
5024	3	monika.wieland@gmail.com	N/A	NOAAs Southern Resident killer whale recovery plan states that perhaps the single greatest change in food availability for resident killer whales since the late 1800s has been the decline of salmon in the Columbia River basin. Their winter satellite tagging of Southern Residents further demonstrates the importance of Columbia River fish to K- and L-Pods in particular, with whales spending a significant portion of the late winter and early spring in the vicinity of the mouth of the Columbia River. Spring Chinook, including those that return to the Snake River, are of particular importance to the Southern Residents. It is irresponsible to downplay the importance of Columbia River fish and the impact of the Snake River dams on these endangered whales.	SRKW analysis is described in the EIS including in the FEIS Chapter 3 (Vegetation, Wetlands, Wildlife, and Floodplains) which has been updated for SRKW (Section 3.6.2.6 and Table 3-102) and FEIS Chapter 7 (Preferred Alternative) with additional analysis information on SRKW and potential increase in forage fish, in particular, Chinook salmon in Section 7.7.8. The co-lead agencies utilized current high quality information and best available science in its analysis of the effects of the operation, maintenance, and configuration of the CRS projects. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not require the co-lead agencies to take affirmative actions to recover ESA listed species. The population dynamics of the SRKW are complicated and there are multiple factors that contribute to the overall success of this species. The quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differently from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for the whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall-run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall-run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). Details on the most crucial prey stocks for Southern Resident killer whales, as well as their population and range, is available from several fact sheets and videos available here: https://www.fisheries.noaa.gov/species/killer-whale#spotlight. For more information, visit this NMFS StoryMap on Southern Resident killer whales: https://noaa.maps.arcgis.com/apps/Cascade/index.html?appid=3405e6637bf74e998d4ebe992c54f613. According to NMFS and the EPA, the estimated SRKW population has fluctuated between 67 and 98 whales between 1960 and 2015. The Snake River dams were constructed between 1962 and 1975. The SRKW population increased from a record low in 1970 to its highest population numbers in 1995. Those years were not high years for Snake or Columbia River Chinook Salmon. Ocean conditions between 2011 and 2013 were good years for salmon. At the same time, 2010 and 2013 were good outmigration years. Particularly, 2011 and 2012 were above normal in water supply, which would mean more cooler water was available and there was better survival of salmon, and 2011 through 2014 were higher than normal spill years as well. The combination of outmigration and ocean conditions created improved adult salmon returns. The EIS has analyzed spill as a measure in the Preferred Alternative and determined the overall effect to SRKW to be negligible in large

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					part because hatchery production is consistent between the No Action Alternative and the Preferred Alternative. Because the impact from the Preferred Alternative was determined to be negligible, the agencies determined that existing hatchery production would be sufficient to address any potential impacts to prey availability for SRKWs. The co-lead agencies note the contribution to the prey of SRKW through the continued existence of their respective independent Congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as the Lower Snake River Compensation Plan (other than under MO3), which is administered by USFWS. The Preferred Alternative and Proposed Action in the agencies' biological assessment carry forward certain mitigation measures described in Chapters 2 and 7 of the EIS, which include continued salmon and steelhead hatchery production. The Preferred Alternative has negligible effects to SRKWs as described in Section 7.7.8. The Biological Assessment (BA) describes the effect of the Proposed Action on the SRKW forage species (see BA Section 3.5.1.2, Southern Resident Killer Whale). The proposed changes in operation of the Columbia River System include increased spring spill during the downstream migration of juvenile spring and summer run Chinook salmon. The result of this action includes potential increases of juvenile fish passing through the spillways, reductions in juvenile fish direct and indirect mortality associated with downstream passage, and the Comparative Survival Study (CSS) model predicts increases in numbers of returning adults, which will benefit SRKWs foraging in and around the mouth of the Columbia River in winter and spring (See EIS Section 7.7.8). The CSS model results predicts Snake River Chinook salmon would have relative improvements in smolt-to-adult returns of 35 percent (see EIS Section 7.7.4). The smolt-to-adult return ratio (SAR) is the rate at which of a group of fish survive from their smolt life stage to a defined ending point where they return as adults. While recovery targets will require more than just the efforts of federal agencies, the CSS models indicate the potential for SARs of Snake River Chinook salmon and steelhead to increase to levels that could approach recovery targets set by the Northwest Power and Conservation Council. The BA, also consistent with the EIS, acknowledges past improvements to the configuration and operation of the Columbia River System, additional improvements to the environmental baseline as a result of completed estuary and tributary habitat actions, and the prospective non-operational conservation measures proposed in Chapter 2 of the Draft EIS, all contribute towards maintaining and improving Chinook abundance. Relevant conservation measures include, among other things, a commitment to continue funding the conservation and safety net hatchery programs listed in Chapter 2 of the Draft EIS. As discussed above, the agencies will fulfill congressionally authorized hatchery mitigation objectives through the funding of hatchery programs that are operated consistent with their independent hatchery program consultations during the term covered by this consultation. Based on those hatchery program consultations, the production levels associated with congressionally authorized hatchery mitigation objectives will continue, at minimum, to be consistent with levels previously analyzed by NOAA in the system consultations in 2008, 2014, and 2019. For the 2020 ESA consultations, therefore, the agencies expect that collectively, all of the actions described above (substantial modifications to migration conditions designed to benefit key prey species, combined with improvements to Chinook spawning and rearing habitat in the tributaries and Columbia River estuary, and continued hatchery production) ensure that remaining Chinook mortality from all sources in the mainstem migratory corridor will continue to be more than offset, resulting in a net gain in Chinook salmon abundance available as a prey source for SRKW. Finally, the 2019 NMFS Fisheries BiOp included increased spring spill operations that are similar to operations evaluated in CRSO EIS, and NOAA validated that the hatchery production of Chinook salmon mitigates for the impacts of operating the Columbia River System and total mortality through the mainstem migratory corridor from all sources.
5025	1	eplucinak@gmail.com	N/A	And maybe more fish farms specifically to raise food for the orcas	The co-lead agencies note the contribution to the prey of Southern Resident killer whales through the continued existence of their respective independent congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as Lower Snake River Compensation Plan, which is administered by USFWS. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Additionally, Section 7.7.8 states impacts to Southern Resident killer whales would be minor. Thus, the co-lead agencies expect salmon and steelhead increases would come from operational measures and existing hatchery production, including the mitigation hatcheries mentioned above, carried forward into the Preferred Alternative.
5026	1	hartsisk@frontier.com	N/A	Instead of spending millions on more studies and surveys about the dams, and billions on removing them, we would be better off spending that money on improving salmon habitat, installing better fish ladders, and cleaning up Puget Sound.	The co-lead agencies agree that salmon and steelhead are important resources of the Northwest and have invested significant time and resources at the projects covered by this EIS to improve survival and adult returns. The co-lead agencies also recognize that there are many effects to salmon and steelhead populations outside the operation of the dams. Research continues to evaluate the magnitude of these effects. For more information see the National Marine Fisheries Service website at: https://www.nwfsc.noaa.gov/research/index.cfm. Actions in Puget Sound are outside the scope of this EIS, which focuses on Columbia River System operations, maintenance and configuration. The Corps is in partnership with other Federal, state and non-governmental organizations and have been implementing habitat projects for salmon, orcas, and wildlife all around the Puget Sound as part of the Puget Sound Nearshore Ecosystem Restoration Project.
5031	1	N/A	N/A	Before any consideration is given to removal of the lower snake river dams there is a more easily reversible study that should be done. Open the Ballard locks and restore the riparian area of Lake Washington. If this results in a large increase in salmon it may be enough to support the Orca population. The Snake River dams are infinitely more costly to remove/bypass and even more costly to restore if the the salmon population did not return to desired levels. Loss of clean energy, efficient transportation and cruise ships/tourism would have a devastating impact on the inland northwest not to mention the ecosystems that have evolved around the slack water.	The CRSO EIS is intended to evaluate options for future operation and configuration of the 14 dams in the CRS. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy species habitat. As such, the co-lead agencies analyzed effects of the alternatives on Southern Resident killer whale (SRKW), in particular how impacts to salmon and steelhead due to operations may influence prey availability for SRKW. Regarding the conditions of Ballard Locks and Lake Washington, those involve a variety of issues beyond the scope of this CRSO EIS. However, water quality effects for the Columbia River Basin were considered in the EIS analysis and are described in Sections 3.4 and 7.8.3 of the EIS. Actions in Puget Sound are outside the scope of this EIS, which focuses on CRS operations, maintenance and configuration. Additionally, the US Army Corps of Engineers is in partnership with other Federal, state and non-governmental organizations and have been implementing habitat projects for salmon, orcas, and wildlife all around the Puget Sound as part of the Puget Sound Nearshore Ecosystem Restoration Project.
5039	1	wiensthac@yahoo.com	N/A	First, I am deeply disappointment in the Draft EIS. Rather than embracing calls dating back to the 1990s for a major overhaul of hydrosystem operations to protect threatened and endangered salmon and steelhead, this new report recommends only minor adjustments to a status quo plan that will perpetuate many serious mistakes from the past. The draft report does not offer a new approach; rather it recommends minor tweaks to a 25-year federal approach that has cost billions of dollars, brought salmon and steelhead today to some of their lowest levels on record, helped push orcas to the edge of extinction, increased uncertainty for communities across the region, and has been invalidated five times consecutively in federal court. Flexible spill is the centerpiece of the governments Preferred Alternative. While the science shows that increased levels of spill can buy some additional time to put in place more effective actions for imperiled fish populations, it is not, by itself, a long-term survival strategy, let alone a recovery strategy. Indeed the parties to the current, short-term Flexible Spill Agreement made this explicit and respected regional scientists have confirmed that the flexible spill included in the Preferred Alternative will NOT deliver salmon the survival benefits through the hydrosystem they need. The changing climate will further erode any benefits of flexible spill as a long-term approach and only underscores the urgency for meaningful action.	The spill operation for juvenile fish passage in the Preferred Alternative is a significant departure from previous operations, so much so that the Washington and Oregon state water quality standards had to be changed to implement the new spill regime. The CSS model, which includes latent mortality effects, predicts that median Smolt-to-Adult return rates (SARs) will increase for both Snake River spring Chinook and steelhead and will average well above 2 percent (the lower end of the Northwest Power and Conservation Council's recovery targets for the region) as a result of the Preferred Alternative increasing from 2.0 percent to 2.7 percent for Chinook, a 35 percent relative increase. That result, however depends upon the latent mortality hypothesis central to the CSS model being correct. To address this uncertainty and minimize risk, the Preferred Alternative includes an adaptive management plan. This plan involves working with regional sovereigns to develop a study to assess the effectiveness of the increased spill regime on adult returns as well as assessment and management of adverse unintended consequences, such as long delays of adult migrants, or Total Dissolved Gas (TDG)-related mortality of juvenile migrants. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information.
5039	2	wiensthac@yahoo.com	N/A	Finally, a dramatically new approach is urgently needed to develop the comprehensive plan the people of the Northwest and nation require and deserve one that (1) recovers salmon abundance, (2) invests in fishing and farming communities to provide them a healthier future, and (3) supports a reliable, affordable and increasingly decarbonized regional energy system. Recovering salmon, protecting orca and meeting the needs of communities will require Northwest policymakers to actively support and work with stakeholders, sovereigns and citizens to build the package of investments and actions that can deliver the kind of comprehensive solutions we need. We can do this together. The conversations have begun, among farmers and fishers, conservation interests and utilities, and people from across the state and the region. This is the way forward. Our elected leaders must step up and lean in to help bring us all forward together.	The co-lead agencies recognize the desire to continue the conversation across the region about the future of salmon recovery, affordable and reliable clean electricity, tribal perspectives, and economic vitality for the many people who depend on the CRS for their way of life. The co-lead agencies will be active participants in regional discussions and solutions for mitigating the effects of the CRS and achieving broader recovery objectives. The Preferred Alternative for long-term system operations, maintenance and configuration of the Columbia River System presented in the EIS is based on todays conditions and environment. Technology is quickly changing, as is the regions dynamic environment and energy market, and the region needs to consider new information and adaptively manage resources. The co-lead agencies recognize that no matter which alternative in the CRSO EIS is identified as the Preferred Alternative, the decision would likely draw criticism from some stakeholders or sovereigns. The region includes stakeholders, sovereigns, and other interested parties with diverse and varied opinions on these very important topics, and many are strong in the belief that their perspective is the best path forward. It is important to keep in mind that factors, both human-caused and natural, that are outside the responsibility and control of the co-lead agencies also contribute to the decline and recovery of fish, and will continue to strongly influence fish and their habitat. Salmon and steelhead have been adversely affected in the Columbia River Basin over the last century by many activities including human population growth, urbanization, introduction of exotic species, overfishing, development of cities and other land uses in the floodplains, water diversions for all purposes, dams, mining, farming, ranching, logging, hatchery production, predation, ocean conditions, and loss of habitat. Operation, configuration and maintenance of the Columbia River System requires mitigation for its effects, and the EIS is not intended or required to serve as an overall salmon recovery plan for the region. All of the human-caused impacts that have contributed to the decline of fish, and how the region should properly and effectively address those impacts, should be part of the continued regional discussion. The co-lead agencies look forward to participating in that discussion. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the EIS objectives) as well as the EIS objectives for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. The Preferred Alternative is also more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% (the lower end of Northwest Power and Conservation Council's recovery targets for the region) as a result of the Preferred Alternative, as a result of the Preferred Alternative increasing SAR from 2.0% to 2.7% for Chinook, a 35% relative increase. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. To address uncertainty highlighted by the two models, the Preferred Alternative includes working with regional sovereigns to develop a study that assess the effectiveness of the increased spill regime on adult returns as well as assessment and management of adverse unintended consequences, such as long delays of adult migrants, or TDG-related mortality of juvenile migrants. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information. The Preferred Alternative will make a substantial contribution towards recovery.
5041	1	N/A	N/A	The dams not only provide power and shipping possibilities (yes I know it is a corridor for shipping ~15B of goods annually), but upriver shipping is redundant - we have the means to compensate. The power output of the dams can be compensated for as well - the sedimentation of the dams is an inevitability and incurs further capital expenditure.	The EIS analyzed the effects on regional reliability if the four lower Snake River dams were breached in Multiple Objective alternative 3. To maintain regional power reliability at the No Action Alternative levels, additional replacement resources would be necessary. The EIS considered two resource portfolios to replace the power output of the lower Snake River dams: a least-cost conventional portfolio (natural gas) and a zero-carbon portfolio (primarily solar). See Section 3.7.3.5, pages 3-904-910 in the Draft EIS. Under both of these replacement portfolios, however, regional power rate pressure increases considerably. The rate impacts of these replacement resources, which includes cost savings from breaching the four lower Snake River dams, is described in Section 3.7.3.5, Table 3-166, pages 3-920-924 in the Draft EIS. As described in the EIS, even with the cost savings associated with reductions in dam operating and fish and wildlife mitigation costs, the net impact on power rates is in the range of between 13 to 50 percent (for zero carbon resources replacements) and 4 to 10 percent (for natural gas/least cost replacements).
5041	2	N/A	N/A	The economic benefit for fishing and recreation to the states of washington, oregon and Idaho are tremendous. Every year hundreds if not thousands of anglers make their trek to try their luck for this incredible resource that runs on our back yard. These people help prop up economies - no not like a big power corporation, but the small mom and pop fly shops, river shuttles, inns, restaurants, small rural towns. This is a resource that once lost cannot be brought back - we are quickly approaching the precipice of no return for what was once the greatest salmon run on earth.	The EIS provides an evaluation of the social welfare and regional economic effects of the No Action Alternative and the Multiple Objective alternatives (MOs), including the effects on recreation (Section 3.11) and commercial fisheries (Section 3.15). The EIS describes the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. NMFS estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which are described qualitatively.

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					For the effects on recreational fishing under MO3 (Section 3.11.3.5) along the lower Snake River below Lewiston, the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River) as an indicator for fishing visitation in this reach. The EIS describes that the visitation in the long-term in the lower Snake River, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting outfitting and tourism businesses in the region. The potential for changes in recreational fishing of anadromous fish under MO3 is described in Section 3.11, which could result in increases in recreational fishing in the long-term that would support jobs, income, and social benefits in Tribal and rural river communities. However, there is uncertainty around recreational fishing visitation in the long-term given the current measures to regulate, protect, and support ESA-listed fish populations and habitat in the region. The social welfare values and regional economic effects associated with recreational fishing under the action alternatives as well as river recreation post dam breach under MO3 were not estimated because of the uncertainty and large range in visitation and consumer surplus values among users. Broad-sense recovery goals are beyond the scope of this EIS, which focuses on the effects associated with the operation and maintenance of the 14 CRS projects. However, fish analysis in Section 7.7.4 shows that the Preferred Alternative (PA) will provide substantial benefits to ESA-listed salmon and steelhead, which can help contribute to broader recovery goals. The CSS model predicts that the PA average Smolt-to-Adult return (SAR) rates would increase for both Snake River spring Chinook and steelhead and will average above 2% (the lower end of the Northwest Power and Conservation Councils recovery targets for the region) as a result of the PA, increasing from 2.0% to 2.7% for Chinook, a 35% relative increase. The National Marine Fisheries Service COMPASS and Lifecycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. To address uncertainty highlighted by the two models, the PA includes working with regional sovereigns to develop a study that assesses the effectiveness of the increased spill regime on adult returns as well as assessment and management of adverse unintended consequences, such as long delays of adult migrants or Total Dissolved Gas-related mortality of juvenile migrants. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS, for additional information.
5043	1	N/A	N/A	Topic 1 Regards the topic describe in this quote... "There is also the potential for additional major adverse effects to archaeological sites at Hungry Horse Reservoir due to the increased frequency and size of draw-downs to compensate for the removal of the Lower Snake River dams." (see Executive Summary p. 29) Western GeoArch Research conducted geoarchaeological investigations at 10 priority archaeological shoreline sites on Hungry Horse Reservoir in A.D. 2000. The investigation was oriented towards an evaluation of the site's National Register of Historic Places, criterion D, research potential. By and large these sites had been subject to decades of reservoir-induced, wave-swash that has eroded artifacts from their original behavioral-spatial spatial context. As a result of this erosion and displacemnt, the artifacts lacked archaeological stratigraphic provenience, spatial associations to one another, as well as lacked archaeological context. Archaeological data from these sites is unable to address any research question that relies on archaeological spatial integrity (see National Park Service 1990:49). REFERENCES CITED: Eckerle, William 2000 "Geoarchaeological Evaluation of 10 Priority Sites at Hungry Horse Reservoir, Flathead County, Montana, 2000-2001", Submitted to Flathead National Forest by Western GeoArch Research. Copies available from Western GeoArch Research, Driggs, ID. Lyman, R. Lee 2011 A Historical Sketch on the Concepts of Archaeological Association, Context, and Provenience. "Journal of Archaeology Method and Theory" 19:207-240. National Park Service 1990 "National Register Bulletin 15: How to Apply the National Register Criteria for Evaluation". Revised 1997. Washington D.C. CONTINUED...	In Section 3.16.1, the co-lead agencies state they choose to focus on assessing impacts to cultural resources regardless of whether or not the resource had been determined eligible for the National Register of Historic Places (NRHP). This allowed the co-lead agencies to consider the entire set of resources known to exist within the cultural resources study area and enabled the best comparative impact assessment across the system for every alternative considered. Over time, additional resources could be identified, or some resources may prove to not be eligible for the NRHP. Therefore, the co-lead agencies chose not to use eligibility as a requirement to include, or discount, a resource within the impact analysis. The total number of resources subject to impacts would likely change over time but for the purposes of this analysis, all resources were considered on an equal basis.
5043	2	N/A	N/A	TOPIC 2: Another topic, the United States' trust relationship with Indigenous Native American communities (United States v. Mitchell 1983) is discussed. The permitting and building of dams in the Columbia River Basin has greatly hampered the recovery of the fishery from early historic unregulated fishing (itself a breach in trust by the U.S.) as described in the following article in the Mountain Journal November 21, 2019. "Removing Lower Snake River Dams Is Best Chance For Salmon and Steelhead Recovery" https://mountainjournal.org/the-debate-over-saving-salmon-and-taking-down-dams By Helen Neville (Dr. Helen Neville, a senior scientist with Trout Unlimited) In his recent op-ed, Kurt Miller, the executive director of Northwest River Partners, an association of businesses that supports retention of the federal dams on the Columbia and Snake rivers, argued against removing the four lower Snake River dams to save gravely imperiled salmon and steelhead in the Snake River Basin. To support his case, Mr. Miller spliced together several pieces of information some accurate, some not that ultimately didnt support his conclusion. Mr. Miller argued historical commercial over-fishing was the primary culprit behind declines in the Columbia and Snake rivers. He was correct that unregulated commercial fishing caused severe declines in the late 1800s and early 1900s. But as agencies regulated harvest, stocks responded and remained relatively robust, even as the lower Columbia River dams were built. In fact, the precipitous declines in wild Snake River salmon directly mirrored the timing of the completion of the lower Snake River dams. Mr. Miller also noted that salmon and steelhead declines track recent ocean conditions. The ocean is an important driver of salmon abundance and has been for millions of years. Luckily, salmon and steelhead have developed remarkable life histories that lend resiliency in a highly dynamic freshwater and ocean environment until the last five decades, when Snake River stocks seemingly approached the limits of their resiliency (in contrast, stocks in tributaries below the Snake River dams have 2 to 4 times the adults returning from a given cohort of smolts, despite using the same ocean). After more than $16 billion invested to ameliorate the effects of the Columbia Basin hydro system on fish and wildlife, Snake River spring/summer chinook and steelhead are at record low abundances, and sockeye are barely hanging on. Climate change increases the urgency to restore passage. After more than $16 billion invested to ameliorate the effects of the Columbia Basin hydro system on fish and wildlife, Snake River spring/summer chinook and steelhead are at record low abundances, and sockeye are barely hanging on. Climate change increases the urgency to restore passage. How many fish do we need to achieve abundant, resilient, fishable levels? A diverse group of stakeholders from across the region, including Trout Unlimited and several members of Northwest River Partners Mr. Millers organization worked collaboratively over several years to come up with the answer. The group, known as the Columbia Basin Partnership, agreed that for spring/summer chinook salmon, 124,000 naturally reproducing adults in the Snake system would be an appropriate recovery goal. For steelhead, the recovery goal was set at 104,000 naturally reproducing adults. And according to the Columbia Basin Partnership, the Snake has, by a long shot, the greatest production potential for spring/summer chinook and steelhead. How do we meet these collaborative goals for wild, naturally producing Snake River spring/summer chinook and steelhead and sustain them through fluctuating ocean conditions and a warming climate? Mr. Miller says he supports science-based decision-making, so I ask him to join me in looking at the overwhelming scientific evidence that we need a free-flowing lower Snake River. Multiple collaborative, peer-reviewed, high-integrity scientific assessments that have included tribal, federal, university, consultant and state agency (including Idaho) scientists, have come to this conclusion. As a science-based organization, this is why we support removal of the lower Snake dams as the best way to give these fish a chance."	Tribal input, concerns, interests, and especially treaty rights were considered throughout the Draft EIS analyses and in the formulation of the Preferred Alternative. The EIS recognizes the economic and cultural importance of salmon to tribes in a number of sections throughout the document. Treaty rights are discussed in the Executive Summary, Section 3.16 Cultural Resources, and Section 3.17 Indian Trust Assets, Tribal Perspectives, and Tribal Interests. Both human-caused and natural factors that are outside the responsibility and control of the co-lead agencies, also contribute to the decline and recovery of ESA-listed species, and would continue to strongly influence fish and their habitat. Salmon and steelhead have been adversely affected in the Columbia River Basin over the last century by many activities including human population growth, urbanization, introduction of exotic species, overfishing, development of cities and other land uses in the floodplains, water diversions for all purposes, dams, mining, farming, ranching, logging, hatchery production, predation, ocean conditions, and loss of habitat. Operation, configuration and maintenance of the Columbia River System requires mitigation for its effects, and the EIS is not intended or required to serve as an overall salmon recovery plan for the region. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the Columbia River System. Recovery of ESA species is the purview of National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (USFWS). This EIS has been developed in consultation with NMFS and USFWS to find an acceptable balance that allows the co-lead agencies to meet the Purpose and Need Statement while minimizing impacts to affected ESA-listed species and their habitats. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. Based on the EIS analysis the Preferred Alternative will make a substantial contribution to improving Snake River anadromous fish runs. With respect to the Preferred Alternative, the CSS model, which includes latent mortality effects, predicts that median Smolt-to-Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2 percent (the lower end of the Northwest Power and Conservation Council's recovery target for the region) as a result of the Preferred Alternative increasing from 2.0 percent to 2.7 percent for Chinook, a 35 percent relative increase. The commenters suggestion that approximately $17 billion in fish and wildlife mitigation investment has been ineffective to recover ESA-listed species is misplaced. Those investments delivered the intended results when considered in the appropriate statutory context of the Northwest Power Acts anadromous fish provisions which call for improved survival of such fish at Federal Columbia River Power System projects and sufficient flows between the projects to improve production, migration, and survival. For example, as of 2014 this investment had facilitated juvenile dam passage survival of 96 percent and 93 percent for spring and summer migrants respectively, see Endangered Species Act Federal Columbia River Power System 2016 Comprehensive Evaluation Section 1, at 17, t.2 (Jan. 2017), a marked improvement compared to when Congress passed the Northwest Power Act and the estimated average juvenile mortality at each mainstem dam and reservoir complex was 15 to 20 percent with losses recorded as high as 30%. See Nw. Res. Info. Ctr. v. Nw. Power Planning Council, 35 F.3d 1371, 1374 (9th Cir. 1994) (citing a Sept. 4, 1979 report by U.S. General Accounting Office describing the systems impacts on anadromous fish).
5044	1	N/A	N/A	3. The DEIS overstates the cost of replacing power from the Snake River dams with clean energy	The EIS describes the replacement resources that would be needed to maintain regional reliability at the No Action Alternative (NAA) levels based on two replacement portfolios: one based on renewable resources and another based on natural gas resources, which are generally the least cost means to maintain reliability (Section 3.7.3.5 Potential Replacement Resources and Associated Costs in the Draft EIS). The EIS uses the best available resource cost information from the Northwest Power and Conservation Councils, Seventh Power Plan and Mid-term Assessment to estimate the potential range in costs of these replacement resources. The basis for developing both of these portfolios may be found in Section 3.7.3.1, Methodology, and Section 3.7.3.5 of the Draft EIS, Potential Replacement Resources and Associated Costs for Multiple Objective alternative 3 specifically. Based on responses to public comments, the Final EIS contains an expanded description of how the potential replacement resource portfolios were selected for the EIS. See Chapter 3, Section 3.7.3.1.
5044	2	N/A	N/A	4. The DEIS ignores salmon and orca science: It dismisses the overwhelming scientific research that restoring the lower Snake River will provide salmon and steelhead with their best chance to recover, and it ignores the benefits of increasing those runs for critically endangered orcas and struggling fishing communities. 5. The DEIS fails to protect salmon: It fails to acknowledge that its recommendation for flexible spill at the federal dams will not deliver sufficient survival benefits for endangered salmon and steelhead.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the Endangered Species Act (ESA), in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. The Draft EIS analysis found only a minor effect to the Southern Resident killer whale (SRKW) would result from implementing MO3, which includes a measure to breach the four lower Snake River dams. This conclusion is based on the fact that Chinook available to Southern Resident killer whales from the lower Snake River comprises only a small percentage of their overall diet. Changes to this portion of the SRKW food availability of the magnitudes predicted for MO3 may change the whales foraging behavior patterns slightly, but will not change their overall condition or population dynamics. The co-lead agencies note independent congressional authorizations will contribute to prey abundance for SRKW through the continued existence of authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as Lower Snake River Compensation Plan, which is administered by U.S. Fish and Wildlife Service (USFWS). However under MO3, the co-lead agencies would no longer have an obligation to fund USFWS for the operations and maintenance of the Lower Snake River Comprehensive Plan facilities upon the breaching of the four lower Snake River dams due to the funding authority directly tied to the operation of the four lower Snake River dams. Additional details on the most crucial prey stocks for SRKW, as well as their population and range, is available from several fact sheets and videos available here: https://www.fisheries.noaa.gov/species/killer-whale#spotlight. For more information, visit this NMFS StoryMap on SRKW: https://noaa.maps.arcgis.com/apps/Cascade/index.html?appid=3405e6637bf74e998d4ebe992c54f613. The spill operation for juvenile fish passage in the Preferred Alternative is a significant departure from previous operations, so much so that the Washington and Oregon state water quality standards had to be changed to implement the new spill regime. The CSS model, which includes latent mortality effects, predicts that median Smolt-to-Adult return rates (SARs) will increase for both Snake River spring Chinook and steelhead and will average well above 2 percent (the lower end of the Northwest Power and Conservation Council's recovery targets for the region) as a result of the Preferred Alternative increasing from 2.0 percent to 2.7 percent for Chinook, a 35 percent relative increase. That result, however depends upon the latent mortality hypothesis central to the CSS model being correct. To address this uncertainty and minimize risk, the Preferred Alternative includes an adaptive management plan. This plan involves working with regional sovereigns to develop a study to assess the effectiveness of the increased spill regime on adult returns as well as assessment and management of adverse unintended consequences, such as long delays of adult migrants, or Total Dissolved Gas (TDG)-related mortality of juvenile migrants. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information.
5044	3	N/A	N/A	6. The DEIS ignores the benefits and opportunities of salmon recovery for communities: The DEIS focuses on the financial costs of salmon recovery and ignores the enormous sacrifices already made by Tribes and rural communities in terms of lost fishing opportunity, reduced jobs and incomes, impacts on Tribal cultures and diets, and other socio-economic effects.	The EIS provides an evaluation of the social welfare and regional economic effects of the No Action Alternative and the Multiple Objective alternatives (MOs), including the effects on recreation (Section 3.11) and commercial fisheries (Section 3.15). The EIS described the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. NMFS estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and

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					other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which is described qualitatively. For the effects on recreational fishing under MO3 (Section 3.11.3.5) along the lower Snake River below Lewiston, the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River) as an indicator for fishing visitation in this reach. The EIS describes that the visitation in the long-term in the lower Snake River, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting outfitting and tourism businesses in the region. The potential for changes in recreational fishing of anadromous fish under MO3 is described in Section 3.11, which could result in increases in recreational fishing in the long-term that would support jobs, income, and social benefits in Tribal and rural river communities. However, there is uncertainty around recreational fishing visitation in the long-term given the current measures to regulate, protect, and support ESA-listed fish populations and habitat in the region. The social welfare values and regional economic effects associated with recreational fishing under the action alternatives as well as river recreation post dam breach under MO3 were not estimated because of the uncertainty and large range in visitation and consumer surplus values among users. The EIS recognizes the economic and cultural importance of salmon to Tribes in a number of sections throughout the document. In particular, the cultural significance and impacts of salmon and steelhead fisheries are described in the Fisheries section 3.15.2.1, which includes sections that describe ceremonial and subsistence fisheries as well as the social importance of commercial, ceremonial and subsistence fisheries.
5044	4	N/A	N/A	11. Unfortunately, despite the DEIS' recognition that restoring the lower Snake River would deliver the greatest survival benefits to Snake River fish compared to any of the other options, it instead recommends a Preferred Alternative with only minor modifications to a longstanding approach that has proven to be illegal, costly and ineffective over 25 years. 12. As stated in Chapter 2 of the Comparative Survival Study (CSS) Annual Report for 2019, "Among the federal alternatives, MO3 (the four dam breach alternative) resulted in the highest SARs (Smolt to Adult Return) and in-river survivals In light of looming salmon and steelhead extinctions, MO3 (4-dam breach) must be implemented. Nothing less will enable fish survival. 13. The draft report does not offer a new approach; rather it recommends minor tweaks to a 25-year federal approach that has cost billions of dollars, brought salmon and steelhead today to some of their lowest levels on record, helped push orcas to the edge of extinction, and has been invalidated five times consecutively in federal court.	The co-lead agencies used high quality information in the EIS analysis. Specific to salmon and steelhead, the agencies used two primary modeling approaches which yielded a range of potential outcomes for the alternatives. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult return rates would increase for both Snake River spring Chinook and steelhead and would average well above 2 percent (the lower end of the Northwest Power and Conservation Council's recovery targets for the region), increasing from 2.0 percent to 2.7 percent for Chinook, a 35 percent relative increase. The National Marine Fisheries Service COMPASS and Lifecycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia River Basin. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information.
5048	1	N/A	N/A	Removing the dams would remove over 48000 acres of land from being irrigated and greatly impact agriculture and needed agriculture.	This comment is consistent with the analysis in Section 3.12 of the EIS.
5049	1	younksky@gmail.com	N/A	Please, PLEASE consider that while the intent to protect native fish populations is good, other measures (such as dam improvements like spillways and increased spilling in the spring) MUST be taken instead, thus preserving the integrity of our beloved dam system.	The co-lead agencies evaluated numerous measures intended to benefit resident and anadromous fish, including spill, improvements to fish ladders, and improved fish passage turbines. The Preferred Alternative includes many measures to improve conditions for fish at the dams and spill for juvenile fish.
5050	1	beyer.aarohn2015@gmail.com	N/A	Sending barges to lewiston Idaho was never a good idea and it did not live up to expectation that the government had promised such as economic activity that it would supposedly bring in. We would need a different approach in exporting our crops if the dams do get taken out. Rail, the answer is rail! Our country was built by the railways and its time to go back to that method. Look at the data, AKA the feasible studies they have done and they state they are no longer feasible.	The EIS evaluates the impacts of the loss of barge services in the lower Snake River under MO3 and finds that costs to farmers would increase if barge transit is not possible. Transit of all shipments would be feasible at an increased cost via truck and rail, and increased air emissions would result. MO3 was not identified as the Preferred Alternative in the Draft EIS.
5050	2	beyer.aarohn2015@gmail.com	N/A	Our electrical grid can afford to lose 12% energy being produced. Which is what all 4 of them can produce. Yes lower granite does have turbines that can produce more than dworshalk alone but since they are a "run of a river type dam" they can NEVER take full advantage of the turbines in the 4 dams.	Though it does not happen routinely, there are times when all of the six turbines at dams on the lower Snake River may run at the same time. Contrary to the statement in the comment, however, the EIS finds that the loss of the hydropower generation under Multiple Objective alternative 3, which includes the measure to breach the four lower Snake River dams, has adverse effects on regional power reliability, increasing the likelihood of power shortages unless and until replacement resources are acquired. See Draft EIS, Section 3.7.3.5, Effects on Power System Reliability, page 3-903; and Appendix H, Table 2-1. While the four lower Snake River dams are indeed run-of-river projects, upstream storage projects (Dworshak and Brownlee), regulate some of the water flowing into the lower Snake River, which flows year-round. In particular, the lower Snake River projects produce a substantial amount of power in the winter, which is currently the region's highest demand period. The comment suggests that the region is energy surplus. This surplus is an average figure, which assumes average conditions. While the regional power system does have surplus on average and in some periods, most typically in the spring of high-water years, there are also periods when the region has very little or no surplus. For example during a winter cold snap, demand for power may reach its annual peak. During a heat wave in summer when demand for power is high, river flows may be relatively low and several Federal and non-Federal hydropower projects are spilling water for juvenile fish passage. The EIS analysis for Multiple Objective alternative 3 indicated that there is roughly a 14% chance of energy shortages in any given year (without factoring in the retirement of additional coal plants). See Section 3.7.3.5 of the Draft EIS, Table 3-165. Appendix J, Chapter 4 shows the seasonal variation of the loss-of-load events.
5050	3	beyer.aarohn2015@gmail.com	N/A	They are useful for only 1 reason and that is barges. Now if you look to see how much it costs each year to keep the locks and dams maintained every year and also add up the dredging of the river channel the total cost exceeds what we get back in the economy from the barges. Plain and simple. Add in the millions of dollars the BPA has spent on salmon and steelhead which is obviously not working as well. You want results that work? Tear the dams out. Take the Elwa dam removal for example. It will cost less money to removed the dams than it will be to maintain them for the next 50 years. People that are educated on the matter all know that they are in need of major repairs that cost millions of dollars.	The EIS evaluated the tradeoffs associated with the management of the system, which has multiple objectives. It was not an analysis that aimed to compare the benefits of navigation against the costs to salmon. The EIS estimates the costs to operate the Columbia River System dams, as well as the costs to the navigation and transportation industry that would occur if the four lower Snake River dams are breached under Multiple Objective alternative 3 as part of this analysis that aims to balance the objectives for the system.
5055	1	epfuerst@frontier.com	N/A	One is that impact on Southern Resident Orcas is not even mentioned.	SRKW analysis is described in the EIS including in the FEIS Chapter 3 (Vegetation, Wetlands, Wildlife, and Floodplains) which has been updated for SRKW (Section 3.6.2.6 and Table 3-102) and FEIS Chapter 7 (Preferred Alternative) with additional analysis information on SRKW and potential increase in forage fish, in particular, Chinook salmon in Section 7.7.8. The co-lead agencies utilized current high quality information and best available science in its analysis of the effects of the operation, maintenance, and configuration of the CRS projects.
5055	2	epfuerst@frontier.com	N/A	Another is that there is absolutely no consideration of the huge impact of failing salmon and steelhead returns on sports fishing businesses and communities in Idaho and Washington was not a factor.	The EIS provides an evaluation of the social welfare and regional economic effects of the No Action Alternative and the Multiple Objective alternatives, including the effects on recreation (Section 3.11) and commercial fisheries (Section 3.15). The EIS described the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. NMFS estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which is described qualitatively. For the effects on recreational fishing under MO3 (Section 3.11.3.5) along the lower Snake River below Lewiston, the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River) as an indicator for fishing visitation in this reach. The EIS describes that the visitation in the long-term in the lower Snake River, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting outfitting and tourism businesses in the region. The social welfare values and regional economic effects associated with recreational fishing under the MOs, as well as river recreation post dam breach under MO3, were not estimated because of the uncertainty and large range in visitation and consumer surplus values among users.
5055	3	epfuerst@frontier.com	N/A	Lastly, I believe that to make no adjustments to the 45 day limit for comments on an 8,000 page document, while the coronavirus has changed everything in our lives, makes me wonder if you take this feedback seriously, or if you have already made up your collective minds.	The co-lead agencies considered requests to extend the public comment period. This NEPA process included a wide array of cooperating agencies whose close involvement throughout the process allowed the co-lead agencies to incorporate feedback. Given the broad range of comments received and the extensive Federal and non-Federal participation in the overall process as well as the level of public engagement in the six virtual public meetings in the region, the co-lead agencies determined that an extension was not warranted and that the 45-day public comment period was adequate consistent with NEPA regulations. The CRSO EIS website notified the public on April 9, that they should plan to submit comments by the close of the comment period.
5055	5	epfuerst@frontier.com	N/A	III. The DEIS overstates the cost of replacing power from the Snake River dams with clean energy.	The EIS relies on the resource cost analysis provided by the Northwest Power and Conservation Council in their 7th Power Plan and the Mid-term Update. See Section 3.7.3.1, Step 3: Determine Need for Potential Replacement Resources and Associated Costs, at 3-821 and Appendix H, Power and Transmission, at Section 2.2 in the draft EIS. The EIS analysis used the Councils GENESYS model to assess the reliability of each of the alternatives, including Multiple Objective (MO) Alternative 3. While MO3 includes other measures besides breaching the four lower Snake River dams, the majority of the power impact is due to the loss in generation from the four dams. There are a number of uncertain factors in the cost of replacing the power in MO3, discussed in Section 3.7.3.5, in particular in Electricity Rate Pressure, and highlighted in the rate sensitivity analysis, (see Table 3-166 in the draft EIS). To address concerns about potential reductions in resource costs, publicly released draft information, such as updated prices for solar and battery storage, from development of the 8th Power Plan is included as rate sensitivities in the Final EIS. The Final EIS will include the de-escalating cost curves prepared by the National Renewable Energy Laboratory (NREL) that will be used by the Council in the 8th Power Plan.
5055	6	epfuerst@frontier.com	N/A	IV. The DEIS ignores salmon and orca science: It dismisses the overwhelming scientific research that restoring the lower Snake River will provide salmon and steelhead with their best chance to recover, and it ignores the benefits of increasing those runs for critically endangered orcas and struggling fishing communities. V. The DEIS fails to protect salmon: It fails to acknowledge that its recommendation for flexible spill at the federal dams will not deliver sufficient survival benefits for endangered salmon and steelhead. VI. The DEIS ignores the benefits and opportunities of salmon recovery for communities: The DEIS focuses on the financial costs of salmon recovery and ignores the enormous sacrifices already made by Tribes and rural communities in terms of lost fishing opportunity, reduced jobs and incomes, impacts on Tribal cultures and diets, and other socio-economic effects.	Based on our analysis, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Recovery is a broader regional goal and is above and beyond the co-lead agencies' obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the CRS. That call, however, is ultimately the role of NMFS and the USFWS. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. In compliance with ESA, the co-lead agencies submitted Biological Assessments to NMFS and USFWS (Appendix V). In this Final EIS, the Biological Opinions from NMFS and USFWS can be found in Appendix V, completing ESA consultation on the Preferred Alternative. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult return (SAR) rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% (within the Council's recovery targets for the region) as a result of the Preferred Alternative. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. The co-lead agencies conclude there could be a negligible to minor beneficial effects to SRKW from implementing MO3. CSS and NMFS Lifecycle models predict that lower Snake River Chinook salmon smolt-to-adult returns would have a moderate to major increase under MO3. In Section 7.7.8, the co-lead agencies conclude that impacts from the Preferred Alternative on Southern Resident killer whales would be minor. Thus, the co-lead agencies expect salmon and steelhead increases would come from operational measures and existing hatchery production carried forward into the Preferred Alternative. The Draft EIS provides extensive analysis of the impacts of the Preferred Alternative in comparison to the No Action Alternative to Tribes and rural communities cited by the commenter in Section 7.7.17, 7.7.19, and 7.7.20, while socioeconomic effects are discussed throughout Chapter 7 and summarized in Table 7-45.
5057	1	dcll1960@gmail.com	N/A	Secondly, I find a great miscarriage to the Clearwater communities and other communities the rely on economic benefit from sport fishing that those benefits were completely ignored in the draft EIS. There are numerous economic studies that have evaluated economic contributions of outdoor recreation and sport fishing within this system. Including economic benefit from irrigation, navigation and hydropower, yet leaving out sport fishing and associated recreation is completely unacceptable and ignores the devastating economic impacts the declining salmon and steelhead population populations have on these communities.	The EIS provides an evaluation of the social welfare and regional economic effects of the No Action Alternative and the Multiple Objective alternatives (MOs), including the effects on recreation (Section 3.11) and commercial fisheries (Section 3.15). The EIS described the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. NMFS estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this

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					region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which is described qualitatively. For the effects on recreational fishing under MO3 (Section 3.11.3.5) along the lower Snake River below Lewiston, the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River) as an indicator for fishing visitation in this reach. The EIS describes that the visitation in the long-term in the lower Snake River, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting outfitting and tourism businesses in the region. The potential for changes in recreational fishing of anadromous fish under MO3 is described in Section 3.11, which could result in increases in recreational fishing in the long-term that would support jobs, income, and social benefits in Tribal and rural river communities. However, there is uncertainty around recreational fishing visitation in the long-term given the current measures to regulate, protect, and support ESA-listed fish populations and habitat in the region. The social welfare values and regional economic effects associated with recreational fishing under the action alternatives as well as river recreation post dam breach under MO3 were not estimated because of the uncertainty and large range in visitation and consumer surplus values among users.
5082	1	Opal R.	N/A	Please supplet[sic] the 2002 Environmental Impact Statement Immediately and use alternative #4 to breach the Lower Four Snake River Dams in 2019.	The EIS acknowledges previous analyses conducted in the 2002 Lower Snake River Juvenile Salmon Migration Feasibility Report and Environmental Impact Statement. However, the EIS relies on the high quality information to evaluate the tradeoffs associated with breaching the four lower Snake River dams under MO3. The EIS acknowledges previous analyses of breaching the four lower Snake River dams, such as the 2002 Lower Snake River Juvenile Salmon Migration Feasibility Report and Environmental Impact Statement analysis referenced in this comment. However, the EIS relies on current information to evaluate the tradeoffs associated with dam breach under MO3. This includes applying current models and data rather than relying on findings from studies conducted nearly 20 years ago. Thus, the agencies chose to prepare a new EIS focused more broadly on Columbia River System operations, maintenance and configuration, using updated information.
5084	1	N/A	N/A	See attached Comment Letter.	Unfortunately, an attachment was not received from the commenter. The commenter did not provide any contact information the co-lead agencies could use to request these comments, so a response was not provided.
5089	1	christy1125@msn.com	N/A	However, the most immediate and significant affect will surely be that of increased electrical costs. It is projected that the current plan, endorsed by the salmon advocates (removing dams on the Snake River), will raise the cost of electricity by 50% wholesale and 25% retail. The EIS reports these estimated increases to be "reasonable". It is suggested that more natural gas production and usage can offset any of these negative impacts. The impact on blackouts also dramatically increases - which is devastating for those using medical equipment needing electricity. The majority of those being impacted by breaching these dams will be in the state of Washington. However, little note is made to surrounding states that also depend on either the purchase of water or electricity from these rivers. I live in the Teton Valley in the far eastern edge of Idaho and I believe that the economic effects will be dramatic for me and my neighbors. There is no natural gas energy available in all of our valley. There is some propane available, however the vast majority of residents are completely dependent upon electricity for all of their energy needs. We have an electric cooperative here which has managed to keep our costs fairly stable, however still on the high side compared to communities that have more energy competition.	The comment that replacing the four lower Snake River dams under Multiple Objective alternative 3 would drive up costs in the region is consistent with EIS findings. See Draft EIS, Section 3.7.3.5, Table 3-166. The comment that breaching the four lower Snake River dams would increase the frequency of power shortages unless and until replacement resources were built is also consistent with EIS findings. See Draft EIS, Section 3.7.3.5, Effects on Power System Reliability, page 3-903; and Appendix H, Table 2-1. The EIS power analysis considers Teton Valley and all of Idaho in the analysis of potential power effects. The Environmental Justice analysis in Section 3.18.3 provides further detail on potential disproportionate effects to tribal, low-income and minority populations. Chapter 5 of Appendix H, Power and Transmission provides additional details on potential rate increases by county as well as for urban and rural utility customers.
5094	1	paul@Presari.com	N/A	It is really difficult to read the summary and understand the difference between the Alternatives. There is no easy way to even compare and contract the alternatives against the Preferred Alternative. So I find the Summary to be inadequate in that it fails to communicate and distinguish the alternatives from each other in a meaning, logical and concise manner. There is not even one table or graphic which seeks to describe the key proposals and use illustrations to define and depict the differences so that anyone can grasp the significance of the major factors in play. This deficiency renders the process useless for sound decision-making.	The Draft EIS includes analysis of five Multiple Objective alternatives (MOs) and a No Action Alternative (NAA). The Executive Summary provides an overview of the much longer Draft EIS, which contains highly detailed analysis and results. The Executive Summary also provides an overview of the major environmental effects of the Preferred Alternative, but it is not intended to be a substitute for the CRSO EIS document, which includes in Chapter 7, a comprehensive and detailed description of the environmental effects and mitigation for the Preferred Alternative. Table 2-12 on page 2-75 of the Draft EIS lists the measures that are in each of the MOs and the NAA and Table 7-2 lists the measures that were carried forward, modified, or added to the Preferred Alternative. The Final EIS includes a comparison among the No Action Alternative and the five MOs, including the Preferred Alternative.
5103	1	N/A	N/A	Truth be known the seals and sea lions in the Columbia River as far inland as Bonneville Dam harvest an undocumented number of salmon. A protected species (Seals and Sea Lions) in an area that they are not indigenous to is a complete denial of the real problem.	Sea lions are protected under the Marine Mammal Protection Act and are an indigenous species to the Columbia River. The co-lead agencies legal authorities relate to operating and maintaining the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy designated critical habitat. To comply with the ESA, the co-lead agencies have historically supported actions to mitigate adverse effects to ESA-listed species from CRS operations, through funding, direct implementation, and other means. Under the Preferred Alternative, those actions, including reduction of pinniped and avian predation on ESA-listed species, would generally continue to ensure compliance with the ESA. Other entities in the region have authorities and obligations to mitigate the impacts from pinniped and the co-lead agencies will continue to work closely with those entities to benefit ESA-listed salmonids.
5106	1	chipd30@comcast.net	N/A	The biggest stress on the CRS is overpopulation. If that is not addressed, anything done regarding dams will at best only have a minor temporary effect. Commercial fishing off the coast sucks up fish 24 hours a day to feed our population. Anyone that's driven up the Columbia Gorge can't help but notice the numerous floats with nets attached. Between the commercial fishing, recreational fishing and Indian fishing, it amazes me that any fish make it to spawn. The Indians have adapted and they sell their fish year around at many places along the river. This hurts their claim of loss. The dams on the lower Salmon River have the lowest fish casualty rates of dams in the world. Their removal will not bring the desired change in fish populations.	The co-lead agencies also recognize that there are many effects to salmon and steelhead populations outside the operation of the dams; including those the commenter mentions. Research continues to evaluate the magnitude of these effects. For more information see the National Marine Fisheries Service website at: https://www.nwfsc.noaa.gov/research/index.cfm. Harvest certainly has an impact on salmon and steelhead populations. The co-lead agencies do not manage fish stocks, and do not have the authority to do so. For harvest, fisheries in the Columbia River Basin and those that rely upon Columbia River fish stocks are managed by numerous entities, including Federal, state, and tribal governments. These entities are guided by a complex array of policies, laws, compacts, and agreements. The management of Pacific salmon fisheries in particular is complex, and involves numerous entities representing a variety of social, political, and conservation interests. Changes in allowable fishery harvest in the Columbia River Basin are a result of decisions made by state, Federal (i.e., NMFS), and tribal fishery managers based on a variety of environmental, biological, economic, and social factors. Alternatives to include changes to harvest are not within the scope of this EIS. The assumptions regarding harvest are taken from the NOAA 2018 EIS and reflect current harvest management guidelines. To see their conclusions and effects analyses please go to: https://www.fisheries.noaa.gov/resource/document/environmental-impact-statement-programmatic-review-harvest-actions-salmon-and.
5106	2	chipd30@comcast.net	N/A	Climate change is reducing water flows in many rivers in the US. That will mean less water for all that depend on it. Taking out dams will not reduce the impact of climate change on water flows and availability.	Climate change is more complex than stating that water flows in the United States are being reduced. In the Northwest, many of the climate projections indicate increased winter and spring runoff and decreased summer and fall flows. Please see Chapters 4 and 7 for more information.
5113	1	hall.sue60@me.com	N/A	I understand these dams were built in the 60's & 70's to generate hydroelectricity for the Northwest & provide transportation of goods by barges. The Northwest can now replace the energy produced by these dams many times through wind & solar energy. The energy produced by these dams is now surplus & no longer needed. The use of barges for transportion of goods has dwindled more than 70% & is no longer cost effective. Grain is apparently the main product shipped by barge & is occurring only because it is subsidized by the federal government. However the cost of the operation of the locks & dredging every 3 to 5 years is prohibitive. Then there is still the exorbitant cost of maintaining the dams that are 50 to 60 years old which will no doubt increase as time goes by. By removing these dams the 140 miles of Snake River & the salmon population will be restored. It has happened in the removal of other dams.	While the four lower Snake River dams account for a small portion of the total power of the region, they represent a larger portion of the Federal Columbia River Power System (FCRPS) from which Bonneville markets power. As explained in Section 3.7.3.5 of the Draft EIS, Potential Replacement Resources and Associated Costs, the four lower Snake River dams are among the most valuable projects in the FCRPS. Breaching the four lower Snake River dams would have a direct and substantial impact on the supply of Federal power and require replacement resources (either natural gas or renewables), placing upward pressure on power rates. Contrary to the statement in the comment, the EIS finds that the loss of the hydropower generation under MO3, which includes breaching of the four lower Snake River dams, has adverse effects on regional power reliability, increasing the likelihood of power shortages. See Draft EIS, Section 3.7.3.5, Effects on Power System Reliability, page 3-903; and Appendix H, Table 2-1. The four lower Snake River dams are cost effective. Hydropower benefits exceed costs by $209M to $513M annually. The average annual costs to operate and maintain the four lower Snake River projects is $75M (Appendix Q, Table 5-1) and the annual-equivalent capital costs are $32M (Appendix Q, Table 4-1). The annual hydropower (Table 3-171, Draft EIS) and navigation (Table 3-244 and Table 3-246, Draft EIS) benefits alone for these projects are estimated at $284M to $588M in the base case analysis for MO3. These hydropower values include the effect of other measures in MO3, but the majority of this value stems from generation at the four lower Snake River dams. This estimate is derived from what the hydropower analysis called the base case and does not account for the full characteristics of the lower Snake River projects generation such as sustained peaking capability and fast ramping ability to integrate variable renewable energy sources. Fully replacing the generation capabilities of the four lower Snake River dams could roughly double estimated replacement resource costs as described in Section 3.7.3.5. It is true that barge movements on the Snake/Columbia river have declined somewhat over the past 20 years, but not by 70 percent. While it is true that the Snake River freight volume is certainly smaller than the volume of the Mississippi and Ohio River systems, it is nonetheless an important transportation option for a large volume of freight, particularly for farm products, with the Columbia-Snake River system serving as one of the largest exporters of farm products in the U.S., and the largest exporter of wheat. The co-lead agencies' analysis finds that transportation of freight that is currently barged on the lower Snake River could be accomplished via other transportation modes, but this change would not be without costs to farmers, would require public and private investment in infrastructure, and would result in some adverse regional economic effects, particularly in the short-term. These effects are considered in the context of the overall objectives of the EIS.
5127	1	flint.stephan@gmail.com	N/A	There will be ample time to pursue an array of improvements to accommodate the intermittent nature of renewable energy that will replace the lost power: Expansion and increased connectivity of the power grid. [Aside from a discussion of a Tri-Cities to Ice Harbor link, and mention of grid congestion, there seemed to be no discussion on increased connectivity to distant resources. Isnt this typically used to accommodate the intermittent nature of renewable energy?] Demand-side reduction [lots of potential here new products like heat-pump water heaters keep showing up on the market, as do induction cooktops, small heat pump units replacing resistance heating, etc; time-of-day metering may also play a role now that we all have smart meters and appliances with programmable operating times]. Pumped storage [I could not find any entries under pumped storage in the index! This has been done for years at Banks Lake, yet this is not in the index either! There is one paragraph in Ch 3 that assumes (and dismisses) one huge pumped storage facility, rather than integrating it as a smaller part of a larger plan.] Dispersed generation [The document assumes renewable generation would consume large amounts of land, but an aggressive campaign for options like net-metered rooftop solar could decrease this and be implemented quickly without the lengthy permitting process needed for large facilities.]	The comments that the EIS modeled transmission system congestion as well as power flows and identified a concern in the Tri-Cities area are correct. The EIS analysis considers the role of imports and exports of power; however, additional new transmission interconnections were not considered a viable way to replace lost power. The commenter describes multiple technologies, both emerging and currently available, that may serve as potential replacement resources for lost hydropower. The EIS acknowledges that technological improvements would likely bring other options; many of the concepts suggested by the commenter could feasibly provide benefit, but are currently not available in quantities sufficient to maintain regional reliability as described in the EIS. The energy sector is constantly undergoing transformation. With new technologies and practices being introduced all the time, the analysis in the EIS is unable to capture all potential permutations of resources. The EIS examined all potential resources identified in the Northwest Power and Conservation Council's Seventh Power Plan and Mid-term Assessment, relying on these sources for resource information. The commenter specifically raised three areas of note: expansion and interconnectivity of the power grid, demand side reduction, and pumped storage. With respect to expansion and increased interconnection of the electric grid, the EIS concentrated on a minimal set of transmission infrastructure to replace the resources (speaking specifically to renewable resources for this comment). While additional transmission could be developed to incorporate more remote resources, those transmission additions would bring additional costs. Rather, the EIS considered wind and solar resources that were in promising areas for wind and solar resources as well as closer to existing infrastructure to take advantage of the latent capacity on the system without the added cost of integrating more remote resources. The EIS in the carbon free portfolios included the Northwest Power and Conservation Council's Seventh Power Plan 600 MW target for demand response and all cost effective conservation in the load forecast, which did not include pump storage as among these resources. Nevertheless, the EIS did evaluate pumped storage as a potential replacement resource among other storage technologies. See Draft EIS, Section 3.7.3.5, page 3-909. While there are several feasible sites in the region that could provide pumped storage capacity, those projects have additional cost, permitting and environmental concerns. There is also uncertainty that these resources would provide sufficient energy and capacity to provide a credible source of replacement resources; the capability of pumped storage would not be able to address the scope considered in the EIS. See Draft EIS, Section 3.7.3.5, page 3-909. Appendix H (Chapter 2) provides additional details on resource selection, including discussion of pumped storage.
5130	1	N/A	N/A	Dam breaching (MO3) gives salmon the best chance of recovery of the alternatives presented in the DEIS. The DEIS should consider another option to breach the four lower Snake River dams and utilize spill at the Columbia River dams to 125% TDG. This results in the best scenario for salmon recovery. This management option is outlined in detail as the MO34 alternative proposed by the Fish Passage Center in Chapter 2 of their Comparative Survival Study 2019 report. NOAAs own recovery plan states, [p]erhaps the single greatest change in food availability for resident killer whales since the late 1800s has been the decline of salmon in the Columbia River basin. The DEIS underrepresents the importance of Columbia basin salmon in the diet and fitness of Southern Resident killer whales. In fact, they are not mentioned once in the 36- page executive summary.	The Preferred Alternative includes fish passage spill that is similar to the spill analyzed in Multiple Objective alternative 4 (MO4). The Preferred Alternative is described in Chapter 7, including a description of the measures being used and the rationale for why other alternatives, including MO3 and MO4, were not selected as the Preferred Alternative. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the Endangered Species Act (ESA), in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. Two of those objectives are directed at salmon and steelhead. Additionally, the CRSO EIS evaluated spill at ranges from 125 percent to 110 percent Total Dissolved Gas (TDG) across the alternatives including under MO3, which includes the measure to breach the four lower Snake River dams, where 120 percent TDG spill was evaluated at the four lower Columbia River dams. The Preferred Alternative is predicted to benefit ESA-listed juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3. However, the Preferred Alternative also meets most other EIS objectives including those for: resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS the co-lead agencies did not recommend MO3, which includes breaching the four lower Snake River

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					dams, because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. MO4 also had significant regional economic impacts, specifically to power. The proposed combination of MO3 and MO4 would likely satisfy fewer EIS objectives to lesser degrees. For power and transmission, for example, MO3 and MO4, individually each caused large loss-of-load probability (LOLP) results (e.g. increased incidence of blackouts). Without major addition of new resources, MO3 would result in power shortages in about 1 in 7 years. MO4 would produce power shortages in about 1 in every 4 years. If MO4 were implemented, in addition to breaching the four lower Snake River projects as called for in MO3, then the LOLP would be even higher, with power shortages potentially occurring almost every year. Additionally, if these MOs were combined, in 5 percent of the years, the power shortages would average close to 1,000 MW in early August when the region might be experiencing a heatwave with particularly high demand for air conditioning. 1,000 aMW is about the average amount of power consumed by Seattle City Light. As shown in Section 3.7, MO3 causes an increase in power reliability concerns in the winter and the summer. MO4 increases power reliability concerns in the summer. Thus, the combination has the largest impact during the summer. The cost of zero-carbon replacement resources for MO3 and MO4 individually are up to $1 billion/year. Resource replacements and associated transmission interconnections for the combination of MO3 and MO4 would be higher, though not likely as high as the sum of the two MOs individually. Assuming that the replacement resources consist largely of wind, solar, and batteries, this would require well over 50 square miles of solar power (more than two and a half times the size of Crater Lake), large areas of new wind generation, and unprecedented amounts of batteries (more batteries in the Northwest alone than the total projection of batteries expected in the entire US by 2023 per the Energy Information Administration). In addition, the reduced generation capability under MO3, particularly throughout the summer, in combination with the impacts of the measures in MO4, and the uncertainty about the characteristics of replacement resources, would result in less capability to provide voltage support and dynamic stability for transmission system reliability than under MO3 or MO4 individually. Thus, combining MO4 with breaching the four lower Snake River dams, would produce unreasonable power and transmission reliability impacts, and it is highly speculative that replacement resources could be sited, permitted and built to address these impacts. Thus, an alternative combining juvenile fish passage spill up to 125 percent and breaching the four lower Snake River dams is unreasonable, and thus was not proposed as an alternative.
5130	2	N/A	N/A	In the full DEIS, all of the alternatives were predicted to have a negligible effect on Southern Resident killer whales with the exception of MO3 (dam breaching) which predicted a minor effect.	The Preferred Alternative is anticipated to have negligible effects to SRKW (see Section 7.7.8), while MO3 is anticipated to have a minor effect (see Section 3.6 of the FEIS).
5130	3	N/A	N/A	The report also states that Puget Sound Chinook salmon stocks are more important than Snake River stocks due to their availability for greater periods of time during the year but fails to recognize the biological need of Southern Resident killer whales to have continuous access to salmon from a variety of river systems. The orcas cannot depend on 2-3 river systems or seasonal periods of abundance to provide adequate prey resources all year. Southern Resident killer whales spend over half of the year in coastal waters. Columbia basin salmon comprise over half of their outer coast diet. Spring Chinook are of particular importance for Southern Resident killer whales.	The quantity and quality of prey is one of the limiting factors identified by the National Marine Fisheries Service (NMFS) in recovery of Southern Resident killer whales (SRKW), along with vessel traffic and noise, toxic contaminants, and other health risks (e.g., inbreeding). The operation of the CRS directly affects Chinook salmon, both wild, natural and hatchery origin fish, which migrate past these Federal dam and reservoir projects, and the associated effects would indirectly affect SRKW. However, according to NMFS, in terms of abundance of salmon available to SRKW for prey, populations of some Snake River adults stocks are now greater than they were in the 1960s, before the four lower Snake River dams were built. NMFS scientists maintain that recovering salmon stocks for SRKW goes beyond the Columbia River Basin, and that hatcheries produce more than enough Chinook salmon in the Columbia River Basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW. Additional details on the most crucial prey stocks for SRKW, as well as their population and range, is available from several fact sheets and videos available here: https://www.fisheries.noaa.gov/species/killer-whale#spotlight. For more information, visit this NMFS StoryMap on SRKW: https://noaa.maps.arcgis.com/apps/Cascade/index.html?appid=3405e6637bf74e998d4ebe992c54f613 The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for the whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall-run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall-run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). Details on the most crucial prey stocks for Southern Resident killer whales, as well as their population and range, is available from several fact sheets and videos available here: https://www.fisheries.noaa.gov/species/killer-whale#spotlight. For more information, visit this NMFS StoryMap on Southern Resident killer whales: https://noaa.maps.arcgis.com/apps/Cascade/index.html?appid=3405e6637bf74e998d4ebe992c54f613. The Preferred Alternative (PA) carries forward certain mitigation measures described in Chapters 2 and 7 of the EIS, which include continued salmon and steelhead hatchery production. The PA has negligible effects on SRKW as described in Section 7.7.8 in large part because hatchery production is consistent between the No Action Alternative and the PA. Again, this conclusion is based on the fact that Chinook salmon available to SRKW from the lower Snake River comprises only a small percentage of their overall diet. The co-lead agencies note the contribution to the prey of SRKW through the continued existence of their respective independent, congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation, and programs funded and administered by other entities, such as Lower Snake River Compensation Plan, which is administered by the U.S. Fish and Wildlife Service (USFWS).
5146	1	N/A	N/A	Surely we can design passage ways for fish to cross each dam in both directions and still generate electricity and barge transport. Screens above the dam could direct fingerling toward sloped ladders, these same passages should allow adult fish cross the dams. Screens would be swinging gates that open to allow barges to pass.	Over the last 20 years researchers, scientists and biologists have worked to improve survival and passage of salmon and steelhead at dams and projects in the Columbia River Basin. For this EIS, alternatives were developed from actions identified in public scoping and in meetings with regional scientists and biologists. New fish passage structures and improvements to existing structures were discussed and some were included in the current alternatives. Other measures were removed from consideration because they were not technically feasible.
5162	1	N/A	N/A	In reading the DEIS, I tried to develop a data-driven viewpoint by extracting numbers for both direct and indirect costs of removing the dams and also for the effect that removing the dams would have on the survival of salmon and steelhead. Not only what the total costs would be for physically removing the dams, but also for replacing the lost hydropower and peaking power, barge transportation and irrigation. I looked for an assessment of indirect costs to consumers such as the increased expenses to retail ratepayers, the added prices of food products, and increased fuel costs. I also scoured the Executive Summary and the report appendices for meaningful numbers for predicted fish restoration based on the models used. This buried information was nearly impossible to assess, but here's what I learned or inferred: Direct costs of removing the dams would run about 2 billion $ for breaching. Replacing lost hydropower with greenhouse-gas-producing coal/gas fired plants and developing the presently lacking battery storage technology needed to provide steady power from wind or solar generation would cost unknown billions of $ more. Less tangible costs would come from assuring vital peaking power to avoid brownouts when the other sources are not available. Indirect costs would include an estimated 50% rate increase for retail users. More useful numbers may be in the report, but are hard to find. Assessments given in the main report sections were qualitative rather than quantitative, i.e., more fish etc. Against the high costs of dam removal is balanced the projected increases in salmon and steelhead populations.	The EIS evaluated benefits and adverse effects across an array of resource areas including potential effects at the national, regional and local level. The EIS does not employ a cost-benefit framework for decision-making. Consistent with NEPA analysis framework, the beneficial and adverse effects are expressed as a variety of qualitative and quantitative environmental and economic metrics. Consequently, a focus solely on the monetized economic costs and benefits would exclude important tradeoffs associated with the alternatives communicated in the EIS, including effects on fish. The EIS evaluates the performance of the CRSO EIS alternatives against the Purpose and Need Statement and EIS objectives, for example improving fish passage and survival, providing for reliable power generation, and minimizing greenhouse gas emissions. Chapter 7 provides a summary of the beneficial and adverse effects of the alternatives, including the quantified social welfare costs and benefits for a subset of the resource areas (specifically, hydropower, navigation, and irrigation) as well as the implementation costs of the alternatives.
5162	2	N/A	N/A	However, the projected long-term increases in fish populations based on models described in the DEIS are not large. For example, the predicted survival of yearling chinook salmon in the report's CSS model would only increase from 0.58% to 0.68%. This seems a small improvement that might well not be realized considering the variable effects of global warming and unpredictability of ocean conditions. Could the report include uncertainty estimates for these numbers? In another model, the maximum predicted fish return to the Lower Granite dam site would increase by a factor of 1.7. In other words, the predicted return would less than double not exactly overwhelming. The DEIS modeling does not indicate anything like restoring the historic salmon and steelhead runs as some have suggested.	Estimates of uncertainty were included in the later results from the CSS fish modeling group. These estimates have been included in Appendix E of the Final EIS. The co-lead agencies used high quality data and modeling to evaluate effects to salmon and steelhead from each alternative. The Lifecycle models from National Marine Fisheries Service (NMFS) and the CSS group are both peer-reviewed and regionally accepted models that have been used to predict the effects of actions on anadromous fish for many years. The comment is correct, the model results do not show great differences in juvenile survival among the alternatives. Still a 10 percent increase in juvenile survival would be a significant benefit for any of the ESA-listed salmon population. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the Endangered Species Act (ESA), in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the CRS. Recovery of ESA species is the purview of NMFS and the U.S. Fish and Wildlife Service (USFWS). This EIS has been developed in consultation with NMFS and USFWS to find an acceptable balance that allows the co-lead agencies to meet the Purpose and Need Statement while minimizing impacts to affected ESA-listed species and their habitats. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species.
5162	3	N/A	N/A	A major improvement in the DEIS would be to develop and include summary quantitative assessments of projected dam removal costs and of projected fish population increases. Another useful inclusion would be an assessment of how the dam removal would affect job numbers. The comments above apply mainly to the predicted long-term impact of breaching the LSR dams. The report also indicates a major adverse effect on fish populations in the short term during and following dam removal. How long would the transient effects persist, and how much would fish populations decline in this period? It seems worth noting that challenged species such as salmon-eating orca would also be negatively affected during the dam removal phase and recovery period. Could their short-term survival be assessed?	A summary of the environmental consequences is provided in Chapter 3, Table 3-1. This table provides an overview of the effects of the alternatives on the fish as well as the anticipated changes in costs to operate the system. The regional economic effects associated with the alternatives is described in Section 3.19.3 and Annex C of Appendix Q. The construction activity associated with dam breaching at the lower Snake River projects would be anticipated to support approximately 12,000 jobs over a 2 year period. Section 3.3 describes the near-term sedimentation effects following dam embankment breaching, which are expected to last up to 10 years as legacy sediment deposits within the reservoirs are incrementally eroded and re-deposited throughout the lower Snake River reach. The sedimentation and water quality effects of the dam breach on fish are described in Section 3.5. The estimated severity of the sediment pulse varies for the type of fish and the mitigation measures implemented under MO3. However, major short-term effects would occur due to the large amount of suspended sediment during dam breaching. There is the potential for large-scale mortality for any fish in the river during this construction work. The effects of MO3 on the orca are described in Section 3.6. The construction disturbance under MO3 would not affect habitat for the Southern Resident killer whales. Table 3-106 describes a minor effect to orca from changes in prey availability under MO3. Moreover, the EIS analysis found only a minor effect to the Southern Resident killer whale would result from implementing MO3 (which includes the dam breach measure). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults form the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differentially from hatchery and wild fish. Hatchery fish today likely make up most fish consumed by SRKW (NOAA BiOp 2020).
5167	1	N/A	N/A	The initial concept that these dams provide flood control is not based on fact. Actually the reservoirs silt up and increase the potential for flooding. The silt needs to be constantly removed at a high cost.	The lower Snake River dams are not authorized for flood risk management and this is clearly stated in the EIS in Section 1.2. Chapter 7, Table 7-1, also indicates that there is no elevated risk to flooding in the lower Snake River reach for any of the alternatives examined in the EIS. Unlike free-flowing channels, in Lower Granite Reservoir the forebay elevation at the dam controls the energy grade-line of the water surface, and the reservoir is drawn down during high water events to ensure water levels remain low. Furthermore, the Walla Walla District of the Corps constructed 8 miles of levees around Lewiston as mitigation to help protect lives and property from potentially destructive high-water conditions after the dams were built.

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					The most recent dredging in the Lewiston area, has been to maintain a 14-foot depth in the Federal navigation channel, as discussed in the 2014 Programmatic Sediment Management Plan (https://www.nww.usace.army.mil/Missions/Projects/Programmatic-Sediment-Management-Plan/) and also referenced in the EIS.
5167	2	N/A	N/A	The reservoirs increase water temperatures which endangers the health and viability of androgynous species which need cool water to survive.	Many reservoirs within the Columbia River System exhibit the typical water temperature lag that is commonly seen in impounded waterbodies. The reservoirs tend to be cooler in the spring and warmer in the fall as compared to undammed rivers. Reservoirs do not necessarily increase water temperatures. In fact, data demonstrates that some reservoirs, such as Dworshak Reservoir, provide cold water and are operated to improve downstream water temperature conditions to support anadromous fish populations.
5167	3	N/A	N/A	Irrigation needs of crops to feed cattle is not sustainable. Hay and alfalfa are water hungry crops. We need to subsidize farmers so that they can shift to other human food crops.	NEPA requires that all relevant, reasonable mitigation measures that could diminish the adverse impacts of the project be identified in the document, even if they are outside the jurisdiction of the lead agency or the cooperating agencies. (see 40 C.F.R. 1502.16(h) and 1505.2(c); 46 Fed. Reg. 18026). The mitigation requested is not within the co-lead agencies' current authorities.
5169	1	jimretired42@gmail.com	N/A	In the spring , summer of 2000 there was an abundance of fish. so much so the authorities increast the daily bag limit. Since that time our fish runs have been dwindling evey year until now they are in peril of vanishing completly. One reason is the California sea lion which has made its way up the Columbia River to the Bonnivile Dam and the Willamette Falls. These sea lions should be removed from the river by what ever means it takes and not allowed to return. Maybe we could herd a pod of Orcas up the river and they would take care of the sea lions.	The co-lead agencies legal authorities relate to operating and maintaining the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy designated critical habitat. To comply with the ESA, the co-lead agencies have historically supported actions to mitigate adverse effects to ESA-listed species from CRS operations, through funding, direct implementation, and other means. Under the Preferred Alternative, those actions, including reduction of pinniped and avian predation on ESA-listed species, would generally continue to ensure compliance with the ESA. Other entities in the region have authorities and obligations to mitigate the impacts from pinniped and avian predators and the co-lead agencies will continue to work closely with those entities to benefit ESA-listed salmonids.
5169	2	jimretired42@gmail.com	N/A	. Yes the dams have taken a toll on the fish but the Corps of Engineers have provided funds to build hatcheries to maintain the runs. Several of these hatcheries have been shut down and need to be reopened. I belive a lot of this is the lack of good judgement on the part of some poor leadership.	Hatchery programs are included in the No Action Alternative and would be expected to continue under the Preferred Alternative (PA), and Multiple Objective alternative 1, Multiple Objective alternative 2, and Multiple Objective alternative 4, and certain hatcheries would continue under MO3. No new hatchery programs are considered as mitigation under any alternatives, but MO3 does include increased hatchery production due to short-term impacts from breaching the four lower Snake River dams. Based on the anadromous fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Under this alternative, hatchery programs would continue as proposed under the No Action Alternative, and a number of other mitigation measures would continue as well.
5170	1	Michaeled223@comcast.net	N/A	Rather than proposing a meaningful alteration to hydro system operations to protect threatened and endangered salmon and steelhead, the Draft Environmental Impact Statement (DEIS) recommends only minor adjustments to the status quo, a routine that has cost billions of dollars, resulted in salmon and steelhead runs of perilously low levels, increased the extinction risk for orcas, and resulted in uncertainty for communities across the region. Similar plans have been rejected five times in a row by the federal courts. The DEIS preferred alternative based on flexible spill does not even provide reasonable assurance that it will avoid extinction, let alone recover Snake River salmon and steelhead to abundant, harvestable levels. Indeed, both the parties to the current, short-term Flexible Spill Agreement and respected scientists have asserted that flexible spill will not deliver the long-term relief these fish require. The intensifying impacts of a changing climate will further erode the benefits of flexible spill. There is a good chance this alternative will not meet the requirements of the Endangered Species Act and will likely land everyone back in court starting yet another cycle of expensive litigation that keeps the region mired in uncertainty	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the Endangered Species Act (ESA), in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the CRS. Recovery of ESA-listed species is the purview of National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (USFWS). This EIS has been developed in consultation with NMFS and USFWS to minimize impacts to affected ESA-listed species and their habitats. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. Both human-caused and natural factors that are outside the responsibility and control of the co-lead Federal agencies, also contribute to the decline and recovery of fish, and will continue to strongly influence fish and their habitat. Salmon and steelhead have been adversely affected in the Columbia River Basin over the last century by many activities including human population growth, urbanization, introduction of exotic species, overfishing, development of cities and other land uses in the floodplains, water diversions for all purposes, dams, mining, farming, ranching, logging, hatchery production, predation, ocean conditions, and loss of habitat. Operation, configuration and maintenance of the CRS requires mitigation for its effects, and the EIS is not intended or required to serve as an overall salmon recovery plan for the region. The spill operation for juvenile fish passage in the Preferred Alternative is a significant departure from previous operations, so much so that the Washington and Oregon state water quality standards had to be changed to implement the new spill regime. The CSS model, which includes latent mortality effects, predicts that median Smolt-to-Adult return rates (SARs) will increase for both Snake River spring Chinook and steelhead and will average well above 2 percent (the lower end of the Northwest Power and Conservation Council's recovery targets for the region) as a result of the Preferred Alternative increasing from 2.0 percent to 2.7 percent for Chinook, a 35 percent relative increase. That result, however depends upon the latent mortality hypothesis central to the CSS model being correct. To address this uncertainty and minimize risk, the Preferred Alternative includes an adaptive management plan. This plan involves working with regional sovereigns to develop a study to assess the effectiveness of the increased spill regime on adult returns as well as assessment and management of adverse unintended consequences, such as long delays of adult migrants, or Total Dissolved Gas (TDG)-related mortality of juvenile migrants. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information.
5170	2	Michaeled223@comcast.net	N/A	The colder, more abundant and more undisturbed stream habitat in the Snake River Basin presents the greatest potential for wild fish recovery of any watershed in the Columbia Basin. For more than two decades, tribal, federal, state, and independent research has repeatedly confirmed that river restoration that includes dam removal will work. While this might have been a radical idea at some point in time, it is not any longer. Dam removals from Maine to Washington Stat have abundantly illustrated this now proven method to restore fish populations. Indeed, the DEIS itself recognizes that breaching the dams will deliver greater benefits to endangered Snake River fish populations, with greater certainty, than any other option. Several decades of failed recovery efforts should adequately illustrate that recovery of robust, harvestable levels of Snake River salmon and steelhead is not achievable with the dams in place.	Section 3.5.3.6 under the Larval Development/Juvenile rearing sub-heading (line 17110) of the Draft EIS describes that breaching the four lower Snake River Dams is estimated to increase the available spawning habitat for fall-run Chinook from 226 acres to 3,521 acres, an increase of 15 times the area available today. Shallow water rearing habitat is very important to juvenile fall Chinook. The Final EIS has been updated to more clearly articulate this. The EIS studied breaching the four lower Snake River dams as part of MO3. Many dam removal projects that have occurred across the United States have very different circumstances than what is contemplated in MO3. For example, the Elwha dam in Washington State, has little relevance to the lower Snake River dams. Elwha Dam had no passage and provided no economic benefits. In contrast, the lower Snake River dams provide upstream and downstream passage and also produce power and provide navigation and recreation opportunities. The EIS concluded MO3 would have greater improvements to certain salmon species in the lower Snake River. It did not conclude there was greater certainty of that result in MO3 over any other alternative. The conclusions were based on the ranges predicted in two independent models that have different parameters and limitations in their predictive capabilities. Because of delayed response time in MO3, and the potential severity of the short-term effects, MO3 would likely have the most substantial uncertainty in terms of beneficial effects. Based on the EIS analysis, the Preferred Alternative would make a substantial contribution to improving Snake River anadromous fish runs. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult return rates would increase for both Snake River spring Chinook and steelhead and will average above 2 percent (the lower end of the Northwest Power and Conservation Councils recovery targets for the region) as a result of the Preferred Alternative, increasing from 2.0 percent to 2.7 percent for Chinook, a 35 percent relative increase. The National Marine Fisheries Service COMPASS and Lifecycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information.
5171	1	tomstuart@cableone.net	N/A	I'm angry about the alternatives studied to date in the court-ordered EIS process, the analyses conducted, and the "preferred alternative" selected. Selection of alternatives: the agencies failed to evaluate or consider the option that would be most beneficial for ESA-listed fish populations in the Columbia basin: undamming the lower Snake River, while spilling to 125% TDG at Lower Columbia projects during the salmon migration. This option was widely discussed in many venues during the past three years, but was ignored in this EIS. Should we conclude then, that the object of this entire NEPA process was not to find a strategy that would actually restore endangered salmon?	Improving anadromous fish conditions were two of the eight multiple objectives of the CRSO EIS. The co-lead agencies disagree, however, that an alternative that includes breaching the four lower Snake River dams and spring spill operations to 125 percent Total Dissolved Gas (TDG) at all four lower Columbia River dams is reasonable given the unacceptable risks to public safety from such an alternative. MO3 and Multiple Objective alternative 4 (MO4), individually each caused large loss-of-load probability (LOLP) results (e.g. increased incidence of blackouts). Without major addition of new resources, MO3 would result in power shortages in about one in seven years. MO4 would produce power shortages in about one in every four years. If MO4 were implemented, in addition to breaching the four lower Snake River projects as called for in MO3, then the LOLP would be even higher, with power shortages potentially occurring almost every year. Additionally, if these MOs were combined, in 5 percent of the years, the power shortages would average close to 1,000 MW in early August when the region might be experiencing a heatwave with particularly high demand for air conditioning. 1,000 aMW is about the average amount of power consumed by Seattle City Light. As shown in Section 3.7, MO3 causes an increase in power reliability concerns in the winter and the summer. MO4 increases power reliability concerns in the summer. Thus, the combination has the largest impact during the summer. The cost of zero-carbon replacement resources for MO3 and MO4 individually are up to $1 billion/year. Resource replacements and associated transmission interconnections for the combination of MO3 and MO4 would be higher, though not likely as high as the sum of the two MOs individually. Assuming that the replacement resources consist largely of wind, solar, and batteries, this would require well over 50 square miles of solar power (more than two and a half times the size of Crater Lake), large areas of new wind generation, and unprecedented amounts of batteries (more batteries in the Northwest alone than the total projection of batteries expected in the entire US by 2023 per the Energy Information Administration). In addition, the reduced generation capability under MO3, particularly throughout the summer, in combination with the impacts of the measures in MO4 and the uncertainty about the characteristics of replacement resources, would result in less capability to provide voltage support and dynamic stability for transmission system reliability than under MO3 or MO4 individually. Thus, combining MO4 with breaching the four lower Snake River projects, would produce unreasonable power and transmission reliability impacts, and it is highly speculative that replacement resources could be sited, permitted and built to address these impacts. Thus, an alternative combining juvenile fish passage spill up to 125 percent and breaching the four lower Snake River dams is unreasonable, and was not proposed as an alternative. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the CRS. Recovery of ESA species is the purview of National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (USFWS). This EIS has been developed in consultation with NMFS and USFWS to find an acceptable balance that allows the co-lead agencies to meet the Purpose and Need Statement while minimizing impacts to affected ESA-listed species and their habitats. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species.
5171	2	tomstuart@cableone.net	N/A	Second, agency leaders should be ashamed for failing to fully evaluate and incorporate the economic impact of the various alternatives on the sportfishing and commercial fishing enterprises of the NW. You've studied in great detail the impacts for energy production, shipping, and agriculture, albeit with some errors and exaggerations. But you've ignored fishery-based economies and tribal cultures -- the people, jobs, families, and towns that suffer the most with an FCRPS status quo that does not restore abundant salmon runs. The estimated contribution of fisheries in Idaho alone is over $757 annually, and over $2 billion region-wide. The Idaho Department of Labor estimated the Clearwater region of Idaho lost $8.6 million each month during the steelhead season curtailment and closure in 2019. Commercial fishers, sportfishing guides, outfitters, tackle shops, hotels, restaurants and businesses in every riverside town from Astoria OR to Stanley ID are suffering. How can federal agencies ignore those jobs, families and towns? Are they less important to the region? It is outrageous that you've ignored these people in this EIS, while favoring other interests.	The EIS provides an evaluation of the social welfare and regional economic effects of the No Action Alternative and the MOs, including the effects on recreation (Section 3.11) and commercial fisheries (Section 3.15). The EIS described the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. NMFS estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which is described qualitatively. For the effects on recreational fishing under MO3 (Section 3.11.3.5) along the lower Snake River below Lewiston, the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River) as an indicator for fishing visitation in this reach. The EIS describes that the visitation in the long-term in the lower Snake River, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting outfitting and tourism businesses in the region. The potential for changes in recreational fishing of anadromous fish under MO3 is described in Section 3.11, which could result in increases in recreational fishing in the long-term that would support jobs, income, and social benefits in Tribal and rural river communities. However, there is uncertainty around recreational fishing visitation in the long-term given the current measures to regulate, protect, and support ESA-listed fish populations and habitat in the region. The social welfare values and regional economic effects associated with recreational fishing under the action alternatives as well as river recreation post dam breach under MO3 were not estimated because of the uncertainty and large range in visitation and consumer surplus values among users. For MO1, MO2, MO4, and the Preferred Alternative (PA), the evaluation qualitatively describes the potential for effects associated with recreational fishing by referencing the potential effects on relevant fish populations, as described in Section 3.5. Fish modeling results vary for some of the alternatives, for example for the PA and MO4 (i.e., models show either beneficial or adverse effects to anadromous fish), so it is assumed that the potential changes in recreational fishing would follow these changes in fish abundance in the long-term. The contribution of Columbia River origin fish to ocean fisheries is described in Section 3.15.2.1. Because there is considerable uncertainty regarding the overall effects of the alternatives on regional fish populations, and how such changes may affect the management of the fisheries, effects associated with changes in commercial and recreational fisheries under the alternatives were described qualitatively. This analysis evaluates potential effects on fisheries by referencing the potential effects on relevant fish populations, as described in Section 3.5. The EIS recognizes the economic and cultural importance of salmon and steelhead fisheries. The cultural significance and impacts of salmon and

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					steelhead fisheries are described in the Ceremonial and Subsistence Fisheries sub-section and the Social Importance of Commercial, Ceremonial and Subsistence Fisheries sub-section of Section 3.15.2.1. Fisheries Tribal interests are described in Section 3.15.4. Additional details regarding the economic significance of salmon and steelhead fisheries have been added to the recreation analysis (Section 3.11) including Tribal interests (Section 3.11.3.7). Chapter 7 also includes impacts of the PA on fisheries.
5171	3	tomstuart@cableone.net	N/A	To rebuild those populations and the valuable fisheries they support requires a smolt-to-adult return rate (SAR) of 4% on average, within a 2-6% range for good and bad years. Your PA doesn't even come close, and in fact, predicts actual SARs under 1% about 40% of the time, pushing the fish even closer to extinction. The PA leaves Idaho salmon on an extinction path. The flex spill agreement reached two years ago was never intended to be the basis for long term salmon recovery; it is unacceptable, and not likely legal, to simply tweak the system and hope for a miracle. The failure to deal with a warming climate in any substantive way is an egregious fault in the EIS, and in the PA.	The 2 to 6 percent Smolt-to-Adult return rate (SAR) target referenced in this comment refers to the Northwest Power and Conservation Councils (Council's) target for broad-sense recovery and is separate and distinct from the obligations of any single entity or in this case a requirement to be met solely by the co-lead agencies. Just as the Councils fish and wildlife program encompasses both Federal and non-Federal stakeholders in the Columbia River Basin, the Councils recovery goals are shared by many parties. Based on the EIS analysis the Preferred Alternative will make a substantial contribution, but the Councils broad sense recovery goals are beyond the scope of this EIS which only contemplates the effects associated with the operation and maintenance of the 14 CRS projects. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species as that is a broader goal with shared responsibility. The spill operation for juvenile fish passage is a significant departure from previous operations, so much so that the Washington and Oregon State water quality standards had to be changed to implement the new spill regime. Based on the fish analysis in Section 7.7.5, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the CRS. Recovery of ESA-listed species is the purview of National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (USFWS). This EIS has been developed in consultation with NMFS and USFWS to minimize impacts to affected ESA-listed species and their habitats. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. For the Preferred Alternative, the CSS model, predicts that SARs will increase for both Snake River spring Chinook and steelhead with median values well above 2 percent (the lower end of the Council's recovery targets for the region) as a result of the Preferred Alternative increasing from 2.0 percent to 2.7 percent for Chinook, a 35 percent relative increase. The NMFS COMPASS and Lifecycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. To address the uncertainty due to the different model results, the Preferred Alternative includes working with regional sovereigns to develop a study that assesses the effectiveness of increased spill regime on adult returns as well as assessment and management of negative unintended consequences, such as long delays of adult migrants, and Total Dissolved Gas (TDG)-related mortality of juvenile migrants. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information. Finally, the climate effects to resources affected by CRS operations, maintenance, and configuration are discussed in Chapters 4 and 7.
5172	1	markham_julie@hotmail.com	N/A	Fisheries Biologists have been studying the causes of decline in Chinook salmon and Steelhead ever since they were listed back in the early 1990's, back when I started working as a Fisheries Technician for the Salmon Challis National Forest 28 years ago now, and they have always known that 80% to 90% of our loss of anadromous fish come from the dams slackwater and turbine mortality on outmigrating smolts. Back when they were listed we already had incredible amounts of good habitat for them to spawn and rear in all five states: Washington, Oregon, Idaho, Montana and Nevada as well as in Canada, so habitat has never been a limiting factor. I personally helped survey the amazingly beautiful and abundant anadromous habitat we had in the Frank Church River of No Return Wilderness Area. With ocean conditions changing it adds another hit on their survival. We can't fix the ocean, but we can remove a dam.	The commenter's assertion that biologists have always known that 80 to 90 percent of losses to anadromous fish come from the dams is in error. The run of river dams in this EIS are required to maintain juvenile fish survival for downstream at a rate of over 93 percent. Overall system survival has been, and continues to be, approximately 50 percent. This accounts for all forms of mortality, including predation. Some unknown degree of predation would continue to impact survival even under a dam breach scenario. Upstream survival of adult salmon and steelhead is between 80 and 90 percent and has been as high as 99 percent for some species on some years. Extensive work has been conducted to improve the survival of these species at CRS dams. This work continues with the installation of Improved Fish Passage turbines at Ice Harbor Dam. Recent testing shows juvenile survival rates through these turbines of over 98 percent. While the EIS did not evaluate habitat needs, recent presentations from the states of Washington, Idaho and Oregon reported that between 70 and 80 percent of the streams in these states have passage issues, either through perched culverts or a lack of diversion screens to protect outmigrating smolts. In one study in the Salmon River drainage, one small stream diverted nearly all fish into irrigation channels with very few passing downstream. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-lead agencies numerous legal obligations. The Preferred Alternative is predicted to benefit ESA-listed juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes the measure to breach the four lower Snake River dams. However, the Preferred Alternative also meets most other objectives of the study for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets only a small subset of the EIS objectives. Thus, the co-lead agencies did not recommend the measure to breach the four lower Snake River dams within MO3, because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system.
5172	2	markham_julie@hotmail.com	N/A	I would like to see us adopt a strategy that is being used for the dams on the Kalamath. The formation of a corporation with the whole objective of collecting non-profit volunteer funding for the cost of removal and becoming the experts through hiring biologist, hydrologist and designing plans on the process of dam removal. The Federal government could and should be funding this effort but are obviously still reluctant. The four lower Snake dams are known to be the ones to remove. They are aging and cost rate and tax payers millions if not billions annually in maintenance and mitigation. It might come down to cost benefit where it might be better financially for BPA/Federal government to turn over licensing of one or more of these dams to a corporation for eventual removal. I've always hoped we could keep hydropower in the grid mix because it is a clean and no-brainer safe power source, so still think there might be some innovation, something new that needs to happen, using BPA/BOR/USACE and outsourced multi agency, multi entity think-tank - expertise on turbines and hydrology; to lower dams to more of river flow level, or remove them and have power generation with a portion of the flow off to the side. Irrigation water could be lifted from the river with pumps or simply tiered paddle wheels. With other power sources coming on line we shouldn't need as much of it as hydropower and we could fill in power needs during low flows during the summer use using locally at place of use - generated solar and wind. Bottom line though is we definitely need dam removal to save these fish. I absolutely will not accept an option that suggests extinction as inevitable. I've worked too hard too many years for this.	The co-lead agencies analyzed the effects of breaching the earthen portions of the four Lower Snake River dams in MO3. Chapter 3 describes effects to hydropower, irrigation, fish and all other affected resources and provides a cost analysis for all the alternatives. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit ESA-listed juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. The Preferred Alternative also meets most other objectives of the study for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effect to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets only a small subset of the EIS objectives. Thus, the co-lead agencies did not recommend the measure to breach the four lower Snake River dams within MO3, because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. Different models predict different long-term survival benefits to ESA-listed species from breaching the four lower Snake River dams, benefits that can contribute to recovery. Under the National Marine Fisheries Service (NMFS) COMPASS model, juvenile Snake River Spring/Summer Chinook in-river survival would improve by 9.6 percent due to dam breach, which is a 19 percent relative increase over the No Action Alternative. The NMFS Lifecycle model predicts an increase in adult returns of 13.6 percent for these same fish under MO3 (no latent mortality assumed) relative to the No Action Alternative (from 0.88 percent to 1 percent). Results for Snake River steelhead are similar (10 percent absolute improvement, or 23 percent relative juvenile survival increase; Smolt-to-Adult return rates (SARs) for steelhead were not modeled). Under the CSS model, juvenile in-river survival for the Snake River spring/summer Chinook is predicted to improve by 10.4 percent due to dam breach, which is an 18 percent relative increase over the No Action Alternative, while SARs would increase by 115 percent (from 2 percent to 4.2 percent). The CSS model predicts that Snake River steelhead would see juvenile survival increase by 25.8 percent which is a 46 percent relative increase over the No Action Alternative. The CSS model also predicts that SARs increase by 177 percent (from 1.8 percent to 5 percent). Though differing in predictions, both modeling groups predict dam breaching is the best CRSO EIS alternative for salmon and steelhead. One simply predicts adult return increases an order of magnitude higher than the other. For hydropower, the average annual value of the four lower Snake River dams exceeds the average annual equivalent costs. The generation value at the four lower Snake River dams can be described by a range between the cost to replace the generation through new conventional resources or through a portfolio of zero-carbon resources. Although the costs of replacing the power with market purchases was analyzed, it is unlikely that short-term wholesale power markets could reliably replace the power for the long-term. This range would put the annual value of power between $240 million and $500 million for the four lower Snake River dams combined. These numbers represent about 90 percent of the lost benefits cited in Table 3-171 Draft EIS, because the four lower Snake River dams represent about 1,000 aMW of the 1,100 aMW of lost generation estimated in MO3. The average annual cost to operate and maintain all authorized purposes at the four lower Snake River dams is $75 million (Appendix Q, Table 5-1) and the annual-equivalent capital costs are $32 million (Appendix Q, Table 4-1). Hydropower costs funded by Bonneville represent about $50 million of the total annual operations and maintenance costs and nearly all of the annual capital costs, approximately $31 million. This puts the annual-equivalent power-specific costs at approximately $81 million a year. As a result, the net benefits from hydropower for the four lower Snake River dams are between $159 million and $419 million and the benefit-cost ratios are between 3.0 and 6.2. If the $34 million per year for the Lower Snake River Compensation Plan is added to the capital and expense costs, benefits still exceed costs under each replacement power scenario. Considering these costs, the net benefits range from $125 million to $385 million and the benefit-cost ratios range from 2.1 to 4.3. In the less-likely scenario that generation could be reliably replaced with short-term wholesale market purchases and assuming that the four lower Snake River dams represent 90 percent of the $150 million in market purchases required to replace the lost generation cited in MO3 (see Table 3-170, Draft EIS), the lower bound for net benefits would fall to $54 million and the benefit-cost ratio would fall to 1.7. With the Lower Snake River Compensation Plan included, the lower bound for annual net benefits becomes $20 million and the benefit-cost ratio becomes 1.2. From a resource competitiveness perspective, the four lower Snake River dams are among the least costly generating resources in the Federal Columbia River Power System (FCRPS) and the planned investment strategy is expected to maintain that status. As shown in the Federal Hydropower presentation at the 2018 Integrated Program Review1/, the Headwater/Lower Snake Asset Class/2 is forecast to have a 50-year levelized cost of generation/3 of $11.41/MWh based on the direct funded capital and expense (O&M) programs outlined in that process. These costs remain competitive with volatile Mid-Columbia spot market energy prices, which averaged $37/MWh in 2019 and have averaged $21/MWh in 2020. 1/ The Integrated Program Review (IPR) allows interested parties to see and comment on all relevant Federal Columbia River Power System (FCRPS) capital and expense (O&M) spending level estimates in the same forum. The IPR occurs every two years, or just prior to each rate case, and is the public review for the costs that will be recovered through rates the following two-year rate period. Long-term forecasts for the next 50 years and major upcoming projects are also shared in this forum. This information is available here: https://www.bpa.gov/Finance/FinancialPublicProcesses/IPR/2018IPR/IPR%202018%20Fed%20Hydro%20Workshop.pdf and is incorporated by reference into this EIS. 2/ In the 2018 Integrated Program Review, the Headwater/Lower Snake Asset Class consisted of the four lower Snake River dams, Hungry Horse, Libby, and Dworshak dams. These projects were grouped together because they have similar cost characteristics. The Levelized Cost of Generation for the four lower Snake projects alone is slightly lower than that for the whole class including the headwater projects shown in the table. 3/ Levelized Cost of Generation is defined as the forecasted direct costs and administrative overhead of producing power at a plant annualized over a 50-year period. This cost includes direct funded operations, maintenance, administrative and capital costs as well as Columbia River Fish Mitigation (CRFM) costs. Bonneville system-wide mitigation costs, such as its Fish and Wildlife program, are not included in this metric.
5173	1	N/A	N/A	Historically half of all the salmon returning to the Columbia Basin were bound for the Snake River. But after the river was dammed more than half a century ago, the wild salmon runs plummeted and left the orcas with fewer fish to eat. Despite the fish ladders and the current interim spill measures, dams continue to cause serious salmon declines by directly killing and preventing their migration. Breaching these dams will cut dam-caused mortality by at least 50%.	The commenters mention of 50 percent mortality is inconsistent with the fish analysis provided in the EIS in Sections 3.5 and 7.7.4. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-lead agencies numerous legal obligations. The Preferred Alternative is predicted to benefit ESA-listed juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets most other EIS objectives including those for: resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams, because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. Regarding orcas: the EIS analysis found only a minor effect to the Southern Resident killer whale would result from implementing MO3 (which includes the dam breach measure). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild

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					and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults form the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differentially from hatchery and wild fish. Hatchery fish today likely make up most fish consumed by SRKW (NOAA BiOp 2020).
5173	2	N/A	N/A	I am also very disappointed that the DEIS failed to fully or accurately consider southern resident orcas. The DEISs treatment of orca is, in fact, misleading and inaccurate. The DEIS claims that salmon from the Snake River are not important to the orcasclaiming that they comprise only a small percentage of the southern resident orca's overall dietand that neither the preferred alternative, nor dam removal, would appreciably benefit orca. This is patently false and ignores analysis from orca scientistsand even the agencies' own analysisthat shows the Snake and Columbia basin salmon are important to the orcas. These orcas primarily eat Chinook salmon and forage for these fish from central California into the Salish Sea. The Columbia basin supports salmon runs that the orcas have relied on for centuries, and, according to a study by the National Oceanic and Atmospheric Administration (NOAA) and the Washington Department of Fish and Wildlife, two of the ten highest priority salmon runs for the southern residents are Snake River runs. Historical evidence indicates that prior to the Snake River dams being built, there were many more Snake River salmon, and that these fish likely constituted a larger portion of the orcas' diet. Once-abundant species such as Chinook salmon, which make up 80 percent of an orca's diet, are only returning at a small fraction of historic levels. Starving female orcas are experiencing high rates of pregnancy loss, a heartbreaking statistic that was starkly illustrated recently by a grieving mother who refused to let her dead newborn calf go.	SRKW analysis is described in the EIS including in the FEIS Chapter 3 (Vegetation, Wetlands, Wildlife, and Floodplains) which has been updated for SRKW (Section 3.6.2.6 and Table 3-102) and FEIS Chapter 7 (Preferred Alternative) with additional analysis information on SRKW and potential increase in forage fish, in particular, Chinook salmon in Section 7.7.8. The co-lead agencies utilized current high quality information and best available science in its analysis of the effects of the operation, maintenance, and configuration of the CRS projects. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not require the co-lead agencies to take affirmative actions to recover ESA listed species. The population dynamics of the SRKW are complicated and there are multiple factors that contribute to the overall success of this species. The quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. 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Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). Details on the most crucial prey stocks for Southern Resident killer whales, as well as their population and range, is available from several fact sheets and videos available here: https://www.fisheries.noaa.gov/species/killer-whale#spotlight. For more information, visit this NMFS StoryMap on Southern Resident killer whales: https://noaa.maps.arcgis.com/apps/Cascade/index.html?appid=3405e6637bf74e998d4ebe992c54f613. According to NMFS and the EPA, the estimated SRKW population has fluctuated between 67 and 98 whales between 1960 and 2015. The Snake River dams were constructed between 1962 and 1975. The SRKW population increased from a record low in 1970 to its highest population numbers in 1995. Those years were not high years for Snake or Columbia River Chinook Salmon. Ocean conditions between 2011 and 2013 were good years for salmon. At the same time, 2010 and 2013 were good outmigration years. Particularly, 2011 and 2012 were above normal in water supply, which would mean more cooler water was available and there was better survival of salmon, and 2011 through 2014 were higher than normal spill years as well. The combination of outmigration and ocean conditions created improved adult salmon returns. The EIS has analyzed spill as a measure in the Preferred Alternative and determined the overall effect to SRKW to be negligible in large part because hatchery production is consistent between the No Action Alternative and the Preferred Alternative. Because the impact from the Preferred Alternative was determined to be negligible, the agencies determined that existing hatchery production would be sufficient to address any potential impacts to prey availability for SRKWs. The co-lead agencies note the contribution to the prey of SRKW through the continued existence of their respective independent Congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as the Lower Snake River Compensation Plan (other than under MO3), which is administered by USFWS. The Preferred Alternative and Proposed Action in the agencies' biological assessment carry forward certain mitigation measures described in Chapters 2 and 7 of the EIS, which include continued salmon and steelhead hatchery production. The Preferred Alternative has negligible effects to SRKWs as described in Section 7.7.8. The Biological Assessment (BA) describes the effect of the Proposed Action on the SRKW forage species (see BA Section 3.5.1.2, Southern Resident Killer Whale). The proposed changes in operation of the Columbia River System include increased spring spill during the downstream migration of juvenile spring and summer run Chinook salmon. The result of this action includes potential increases of juvenile fish passing through the spillways, reductions in juvenile fish direct and indirect mortality associated with downstream passage, and the Comparative Survival Study (CSS) model predicts increases in numbers of returning adults, which will benefit SRKWs foraging in and around the mouth of the Columbia River in winter and spring (See EIS Section 7.7.8). The CSS model results predicts Snake River Chinook salmon would have relative improvements in smolt-to-adult returns of 35 percent (see EIS Section 7.7.4). The smolt-to-adult return ratio (SAR) is the rate at which of a group of fish survive from their smolt life stage to a defined ending point where they return as adults. While recovery targets will require more than just the efforts of federal agencies, the CSS models indicate the potential for SARs of Snake River Chinook salmon and steelhead to increase to levels that could approach recovery targets set by the Northwest Power and Conservation Council. The BA, also consistent with the EIS, acknowledges past improvements to the configuration and operation of the Columbia River System, additional improvements to the environmental baseline as a result of completed estuary and tributary habitat actions, and the prospective non-operational conservation measures proposed in Chapter 2 of the Draft EIS, all contribute towards maintaining and improving Chinook abundance. Relevant conservation measures include, among other things, a commitment to continue funding the conservation and safety net hatchery programs listed in Chapter 2 of the Draft EIS. As discussed above, the agencies will fulfill congressionally authorized hatchery mitigation objectives through the funding of hatchery programs that are operated consistent with their independent hatchery program consultations during the term covered by this consultation. Based on those hatchery program consultations, the production levels associated with congressionally authorized hatchery mitigation objectives will continue, at minimum, to be consistent with levels previously analyzed by NOAA in the system consultations in 2008, 2014, and 2019. For the 2020 ESA consultations, therefore, the agencies expect that collectively, all of the actions described above (substantial modifications to migration conditions designed to benefit key prey species, combined with improvements to Chinook spawning and rearing habitat in the tributaries and Columbia River estuary, and continued hatchery production) ensure that remaining Chinook mortality from all sources in the mainstem migratory corridor will continue to be more than offset, resulting in a net gain in Chinook salmon abundance available as a prey source for SRKW. Finally, the 2019 NMFS Fisheries BiOp included increased spring spill operations that are similar to operations evaluated in CRSO EIS, and NOAA validated that the hatchery production of Chinook salmon mitigates for the impacts of operating the Columbia River System and total mortality through the mainstem migratory corridor from all sources.
5173	3	N/A	N/A	abundant salmon runs would enable orca to access a historically important part of their diet, particularly at critical times of the year when female orcas are pregnant. The country's leading southern resident orca scientists have clearly stated that the four lower Snake River dams must be breached if we hope to prevent the extinction of these orcas. Scientists from the Fish Passage Center have stated that breaching all four of these dams would result in roughly one million adult Chinook salmon returning to the mouth of the Columbia River, providing a significant and important source of food for endangered southern resident orcas. The DEIS itself recognizes that breaching the dams will deliver greater benefits to endangered Snake River fish populations, with greater certainty, than any other option. With only 72 southern resident orcas left in the wild, there is little time to act and prevent their extinction. A restored Snake River is the only action that will enable substantially increased abundance of salmon and allow for an increase in overall food supply for orca. Moreover, restored abundance will also benefit sport, commercial, and tribal fishing economies and communities.	SRKW analysis is described in the EIS including in the FEIS Chapter 3 (Vegetation, Wetlands, Wildlife, and Floodplains) which has been updated for SRKW (Section 3.6.2.6 and Table 3-102) and FEIS Chapter 7 (Preferred Alternative) with additional analysis information on SRKW and potential increase in forage fish, in particular, Chinook salmon in Section 7.7.8. The co-lead agencies utilized current high quality information and best available science in its analysis of the effects of the operation, maintenance, and configuration of the CRS projects. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not require the co-lead agencies to take affirmative actions to recover ESA listed species. The determination for SRKW in regards to MO3 was based on the following facts: the population dynamics of the SRKW are complicated and there are multiple factors that contribute to the overall success of this species. The quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differently from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for the whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall-run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall-run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). Details on the most crucial prey stocks for Southern Resident killer whales, as well as their population and range, is available from several fact sheets and videos available here: https://www.fisheries.noaa.gov/species/killer-whale#spotlight. For more information, visit this NMFS StoryMap on Southern Resident killer whales: https://noaa.maps.arcgis.com/apps/Cascade/index.html?appid=3405e6637bf74e998d4ebe992c54f613. According to NMFS and the EPA, the estimated SRKW population has fluctuated between 67 and 98 whales between 1960 and 2015. The Snake River dams were constructed between 1962 and 1975. The SRKW population increased from a record low in 1970 to its highest population numbers in 1995. Those years were not high years for Snake or Columbia River Chinook Salmon. Ocean conditions between 2011 and 2013 were good years for salmon. At the same time, 2010 and 2013 were good outmigration years. Particularly, 2011 and 2012 were above normal in water supply, which would mean more cooler water was available and there was better survival of salmon, and 2011 through 2014 were higher than normal spill years as well. The combination of outmigration and ocean conditions created improved adult salmon returns. The EIS has analyzed spill as a measure in the Preferred Alternative and determined the overall effect to SRKW to be negligible in large part because hatchery production is consistent between the No Action Alternative and the Preferred Alternative. Because the impact from the Preferred Alternative was determined to be negligible, the agencies determined that existing hatchery production would be sufficient to address any potential impacts to prey availability for SRKWs. The co-lead agencies note the contribution to the prey of SRKW through the continued existence of their respective independent Congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as the Lower Snake River Compensation Plan (other than under MO3), which is administered by USFWS. The Preferred Alternative and Proposed Action in the agencies' biological assessment carry forward certain mitigation measures described in Chapters 2 and 7 of the EIS, which include continued salmon and steelhead hatchery production. The Preferred Alternative has negligible effects to SRKWs as described in Section 7.7.8. The Biological Assessment (BA) describes the effect of the Proposed Action on the SRKW forage species (see BA Section 3.5.1.2, Southern Resident Killer Whale). The proposed changes in operation of the Columbia River System include increased spring spill during the downstream migration of juvenile spring and summer run Chinook salmon. The result of this action includes potential increases of juvenile fish passing through the spillways, reductions in juvenile fish direct and indirect mortality associated with downstream passage, and the Comparative Survival Study (CSS) model predicts increases in numbers of returning adults, which will benefit SRKWs foraging in and around the mouth of the Columbia River in winter and spring (See EIS Section 7.7.8). The CSS model results predicts Snake River Chinook salmon would have relative improvements in smolt-to-adult returns of 35 percent (see EIS Section 7.7.4). The smolt-to-adult return ratio (SAR) is the rate at which of a

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					group of fish survive from their smolt life stage to a defined ending point where they return as adults. While recovery targets will require more than just the efforts of federal agencies, the CSS models indicate the potential for SARs of Snake River Chinook salmon and steelhead to increase to levels that could approach recovery targets set by the Northwest Power and Conservation Council. The BA, also consistent with the EIS, acknowledges past improvements to the configuration and operation of the Columbia River System, additional improvements to the environmental baseline as a result of completed estuary and tributary habitat actions, and the prospective non-operational conservation measures proposed in Chapter 2 of the Draft EIS, all contribute towards maintaining and improving Chinook abundance. Relevant conservation measures include, among other things, a commitment to continue funding the conservation and safety net hatchery programs listed in Chapter 2 of the Draft EIS. As discussed above, the agencies will fulfill congressionally authorized hatchery mitigation objectives through the funding of hatchery programs that are operated consistent with their independent hatchery program consultations during the term covered by this consultation. Based on those hatchery program consultations, the production levels associated with congressionally authorized hatchery mitigation objectives will continue, at minimum, to be consistent with levels previously analyzed by NOAA in the system consultations in 2008, 2014, and 2019. For the 2020 ESA consultations, therefore, the agencies expect that collectively, all of the actions described above (substantial modifications to migration conditions designed to benefit key prey species, combined with improvements to Chinook spawning and rearing habitat in the tributaries and Columbia River estuary, and continued hatchery production) ensure that remaining Chinook mortality from all sources in the mainstem migratory corridor will continue to be more than offset, resulting in a net gain in Chinook salmon abundance available as a prey source for SRKW. Finally, the 2019 NMFS Fisheries BiOp included increased spring spill operations that are similar to operations evaluated in CRSO EIS, and NOAA validated that the hatchery production of Chinook salmon mitigates for the impacts of operating the Columbia River System and total mortality through the mainstem migratory corridor from all sources.
5173	4	N/A	N/A	It is also important that we protect and restore salmon runs throughout the orcas' seasonal range. Typically, the southern residents forage for salmon off the west coast of the U.S. in the winter and spring. According to GPS data from NOAA, they spend a considerable amount of time at the mouth of the Columbia River foraging for salmon returning to both the Columbia and Snake Rivers to spawn. Despite the scientific consensus that orcas rely on Snake River salmon and the hundreds of thousands of comments the agencies received about orcas, there were roughly two paragraphs about the orcas in the entire 7,584-page document. I strongly urge the agencies to update this section of the DEIS and reevaluate the impact of all the alternatives on southern resident orcas.	SRKW analysis is described in the EIS including in the FEIS Chapter 3 (Vegetation, Wetlands, Wildlife, and Floodplains) which has been updated for SRKW (Section 3.6.2.6 and Table 3-102) and FEIS Chapter 7 (Preferred Alternative) with additional analysis information on SRKW and potential increase in forage fish, in particular, Chinook salmon in Section 7.7.8. The co-lead agencies utilized current high quality information and best available science in its analysis of the effects of the operation, maintenance, and configuration of the CRS projects. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat. 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As discussed above, the agencies will fulfill congressionally authorized hatchery mitigation objectives through the funding of hatchery programs that are operated consistent with their independent hatchery program consultations during the term covered by this consultation. Based on those hatchery program consultations, the production levels associated with congressionally authorized hatchery mitigation objectives will continue, at minimum, to be consistent with levels previously analyzed by NOAA in the system consultations in 2008, 2014, and 2019. For the 2020 ESA consultations, therefore, the agencies expect that collectively, all of the actions described above (substantial modifications to migration conditions designed to benefit key prey species, combined with improvements to Chinook spawning and rearing habitat in the tributaries and Columbia River estuary, and continued hatchery production) ensure that remaining Chinook mortality from all sources in the mainstem migratory corridor will continue to be more than offset, resulting in a net gain in Chinook salmon abundance available as a prey source for SRKW. Finally, the 2019 NMFS Fisheries BiOp included increased spring spill operations that are similar to operations evaluated in CRSO EIS, and NOAA validated that the hatchery production of Chinook salmon mitigates for the impacts of operating the Columbia River System and total mortality through the mainstem migratory corridor from all sources.
5173	5	N/A	N/A	The agencies also failed to fully analyze the economic benefits of dam breaching, particularly for tribal, commercial, or recreational fishing businesses. When discussing the costs of replacing the energy from these dams with other renewable energy sources, the agencies grossly over-estimated the costs. A report from the Northwest Energy Coalition shows that through strategic investments, the energy produced by these dams can be replaced at a miniscule cost to ratepayers while also improving the reliability of the electrical grid. The DEIS also did not accurately assess the projected costs associated with maintaining the four lower Snake River dams.	The EIS provides an evaluation of the social welfare and regional economic effects of the No Action Alternative and the Multiple Objective alternatives (MOs), including the effects on recreation (Section 3.11) and fisheries (Section 3.15). The EIS described the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. NMFS estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which is described qualitatively. The potential for changes in recreational fishing of anadromous fish under MO3 is described in Section 3.11, which could result in increases in recreational fishing in the long-term that would support jobs, income, and social benefits in Tribal and rural river communities. However, there is uncertainty around recreational fishing visitation in the long-term given the current measures to regulate, protect, and support ESA-listed fish populations and habitat in the region. The social welfare values and regional economic effects associated with recreational fishing under the action alternatives as well as river recreation post dam breach under MO3 were not estimated because of the uncertainty and large range in visitation and consumer surplus values among users. Section 3.11.3.7 describes the potential economic impacts to tribes related to recreation. The EIS analyzed the effects on regional reliability if the four lower Snake River dams were breached in MO3. To maintain regional power reliability at the No Action Alternative levels, additional replacement resources would be necessary. The EIS considered two resource portfolios to replace the power output of the lower Snake River dams: a least-cost conventional portfolio (natural gas) and a zero-carbon portfolio (primarily solar). See Draft EIS, Section 3.7.3.5, at Pages 3-904-910. Under both of these replacement portfolios, however, regional power rate pressure increases considerably. The rate impacts of these replacement resources, which includes cost savings from breaching the four lower Snake River dams, is described in Section 3.7.3.5, Table 3-166, pages 3-920-924 in the Draft EIS. As described in the EIS, even with the cost savings associated with reductions in dam operating and fish and wildlife mitigation costs, the net impact on power rates is in the range of between 13-50 percent, for zero carbon resources replacements, and 4-10 percent, for natural gas/least cost replacements. The EIS considered the Northwest Energy Coalition (NWEC) study cited by the commenter. See Draft EIS, Section 3.7.3.1, Step 3, at page 3-820, and Section 3.7.3.5, Related Study, at page 3-913 in the Draft EIS. However, that study is not directly comparable with the EIS for several reasons, including that the EIS has a broader scope and relies on more recent regional load and resource availability and costs data. See Appendix H, Power and Transmission, Section 2.4, in the Draft EIS.
5173	6	N/A	N/A	The DEIS also fails to meet tribal cultural, health, and economic needs, or treaty trust obligations. For tens of thousands of years, Native peoples have lived with abundant salmon. Restoring plentiful salmon to the Columbia and Snake rivers is not just ecologically important, it is an environmental justice issue.	Tribal input, concerns, interests, and especially treaty rights were considered throughout the Draft EIS analyses and in the formulation of the Preferred Alternative. Treaty specific information is included in Section 3.17 as well as Chapter 7. The treaties bind all parties and are the supreme law of the land. The co-lead agencies recognize and respect that supremacy. In terms of honoring our treaty obligations, the co-lead agencies included Protecting Native American treaty and reserved rights and fulfilling trust obligations for natural and cultural resources throughout the environment affected by the Columbia River System operations as a purpose in the Purpose and Need Statement in Chapter 1 to ensure treaty obligations were a key consideration of decision making. The co-lead agencies are engaging in government-to-government consultation with the tribes, and several tribes are cooperating agencies on the CRSO EIS. The purpose of the Environmental Justice analysis included in Section 3.18 of the Draft EIS is to determine "whether there may be disproportionately high and adverse human health or environmental effects on minority populations, low-income populations, or Indian tribes (CEQ 1997). The environmental justice analysis considers the extent to which the alternatives have the potential to affect the availability of fish for commercial, ceremonial and subsistence fishing for Indian tribes, relying on analysis presented in the Section 3.15.4 of the fisheries analysis as well, in making this determination.

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					In addition, Section 3.17 of the Draft EIS discusses how the analysis evaluated impacts to tribal interests, including treaty rights. Where applicable or pertinent for specific EIS resources, the EIS described how tribal interests would be impacted by the different action alternatives in Chapters 3 and 7. Further, impacts to cultural resources are considered in Section 3.16, impacts to tribal health and economic needs are evaluated in Section 3.18 Environmental Justice, and impacts to fisheries are addressed in Section 3.15.
5177	1	jtmaxwell08@gmail.com	N/A	Your alternatives do not include the breaching of only 1 of the 4 dams as a potential alternative, why? You immediately discount breaching based off issues related to power generation and GHG without giving any evaluation to renewable energy as an alternative to breaching. Alternative energy can account for 600 MW (1 dam) and would also keep Ice Harbor in place for grid connectivity. Did you make this choice because you had a pre-determined preferred alternative, and only taking out one dam and seeing if it benefits endangered species would be too competitive of an option compared to the preferred alternative?	It is accurate that the co-lead agencies did not consider dam breaching of only one of the four Lower Snake River dams. The co-lead agencies instead proposed an alternative that evaluated normative river flows in the lower Snake River, which responded to direction from the U.S. District Court for the District of Oregon's Order and Opinion and comments received during scoping to evaluate breaching all four dams. This allowed the agencies to analyze what the greatest extent of beneficial and adverse impacts to affected resources would be if all four lower Snake River dams were breached. Breaching one or two of lower Snake River dam would not allow the co-lead agencies to operate for navigation in most situations (except in high flow situations), would likely not meet the objectives for greenhouse gas or power reliability, while also not likely making a substantial change for migrating salmon in the Snake River based on analysis of breaching all four projects and in comparison to other alternatives. The United States Federal government supports the development of alternative forms of energy through many different programs and policies. For example, the Bonneville Power Administration also has a robust conservation program, from which about 90 aMW in conservation are saved a year. Further, when acquiring long-term resources, the Bonneville Power Administration statutory directives give priority to conservation and renewable resources. The analysis for MO3 demonstrates what types of resources would be needed to replace the key attributes of the four lower Snake River dams. Included in this analysis is a resource portfolio made up of alternative forms of energy (i.e., wind, solar, and batteries). As described in Section 3.7, and Chapter 7, the adverse reliability and upward rate pressure impacts from breaching the four lower Snake River dams support retaining these resources over other alternative forms of energy.
5177	2	jtmaxwell08@gmail.com	N/A	Water temperature and total dissolved gas concentrations have no solution in your collaborative approach. That is what is killing the fish and you acknowledge your cant fix the problem and give no guarantee the preferred alternative will do so in future.	The EIS acknowledges and describes the temperature sensitivities of salmon and steelhead, as well as the many other factors that affect these fish. Water quality and hydrology modeling data were inputs into the fish survival models used to analyze the alternatives' effects on Snake River stocks, so temperature effects to survival have been incorporated into the overall analyses of each alternative. Total Dissolved Gas (TDG) levels are regulated under the Federal Clean Water Act, and administered by the States. Both Oregon and Washington have reassessed the available data on effects of TDG levels up to 125 percent of saturation on fish and other aquatic organisms. Based on this reassessment Oregon issued a 5-year "standard modification" and Washington issued a permanent rule change, approved by the Environmental Protection Agency (EPA), to allow TDG saturation up to 125 percent. However, given the uncertainty in the effects, monitoring was required by the states and EPA to ensure any negative effects are detected and allow for adaptive management. Based on the EIS analysis the Preferred Alternative will make a substantial contribution to improving Snake River anadromous fish runs. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult return rates would increase for both Snake River spring Chinook and steelhead and will average above 2 percent (the lower end of the Northwest Power and Conservation Councils recovery targets for the region) as a result of the Preferred Alternative, increasing from 2.0 percent to 2.7 percent for Chinook, a 35 percent relative increase. The National Marine Fisheries Service COMPASS and Lifecycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information.
5177	3	jtmaxwell08@gmail.com	N/A	You purposely gloss over and avoid addressing this issue because your solution doesnt work (despite supposedly having used a collaborative approach to address concerns about river operations the last several years). Your report is a failure for this reason and shows that you did not have enough time to complete the report and do a full analysis. That or you were under politic pressure not to avoid alternatives like partial breaching. Is that due to the new time restrictions on EIS documents placed in by this administration or were you just oblivious?	The co-lead agencies appropriately analyzed all direct, indirect and cumulative effects to resources affected by Columbia River System operations, maintenance and configuration and presented this information to the public in the Draft EIS. The co-lead agencies instead proposed an alternative that evaluated normative river flows in the lower Snake River, which responded to direction from the U.S. District Court for the District of Oregon's Order and Opinion and comments received during scoping to evaluate breaching all four dams. This allowed the agencies to analyze what the greatest extent of beneficial and adverse impacts to affected resources would be if all four lower Snake River dams were breached. Breaching only one or two of lower Snake River dam would not allow the co-lead agencies to operate for navigation in most situations (except in high flow situations), would likely not meet the objectives for greenhouse gas or power reliability, while also not likely making a substantial change for migrating salmon in the Snake River based on analysis of breaching all four projects and in comparison to other alternatives.
5188	1	N/A	N/A	The Draft EIS proposes a plan of action that does not significantly modify previously utilized methods such as increasing spill rates or collecting and transporting juvenile salmon and steelhead around dams. The current and proposed plans will not achieve consistent smolt-to-adult return rates (SARs) of 2%-6% which are necessary to rebuild the Snake and Columbia River Salmon and Steelhead. Nor will they mitigate the documented rise of water temperatures at the dams proposed for removal. The U. S. Environmental Protection Agency (EPA) 2003 modeling found that the water temperature in an undammed river could reduce water temperatures up to 6.8 degrees increasing the survival rate of salmon species. Numerous scientific reports including the 1996 Return to River, NOAA Fisheries in the 2000 Biological Opinion for Federal Columbia River Power System (FCRPS) operations, the 2000 U.S. Fish and Wildlife Service report to the U.S. Army Corps of Engineers and the interagency Comparative Survival Study (CSS) of 2017, all identify the benefits for salmon survival which would occur after the removal of the four lower Snake River dams.	The spill operation for juvenile fish passage is a significant departure from previous operations, so much so that the Washington and Oregon State water quality standards had to be changed to implement the new spill regime. Section 7.7.4.1. describes that: The transport of juvenile salmon collected at Lower Granite, Little Goose, and Lower Monumental projects could begin as early as April 15, approximately two weeks earlier than current fish transport operations described in the No Action Alternative. Transport operations would end, September 30 at Lower Monumental and October 31 at Lower Granite and Little Goose. Collected juvenile fish would be transported to a location below Bonneville Dam via barge or truck on a daily or every-other-day schedule, depending on the numbers of fish collected at the collector projects. This action could increase the number of juvenile fish transported to the estuary. Regarding water temperatures under the measure to breach the four lower Snake River dams in MO3, the EIS analysis indicates that night time summer water temperatures, as well as fall water temperatures, would be cooler than No Action Alternative conditions in the Snake River. However, even with the dams breached, maximum summer water temperatures would exceed state water quality standards (20C) at times, especially during hot weather events. The models showed minor changes in the Columbia River under this alternative. Regarding the analysis of effects, the co-lead agencies used the high quality information in the CRSO EIS. Specific to salmon and steelhead, the co-lead agencies used two primary modeling approaches which yielded a range of potential outcomes for the alternatives. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2 percent (the lower end of Northwest Power and Conservation Councils recovery targets for the region) as a result of the Preferred Alternative, increasing from 2.0 to 2.7 percent for Chinook, a 35 percent relative increase. The National Marine Fisheries Service COMPASS and Lifecycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information.
5188	2	N/A	N/A	There are other issues that are relevant to the removal of these dams. These dams do not provide flood control. In fact, they are creating a risk to cities such as Clarkston and Lewiston because silt is accumulating behind the Lower Granite Dam. This is raising the level of the river and thus increasing the risk of flood. Among the options being considered by the Corps of Engineers is raising levees, dredging and other measures. The volume of sediment may be not be solvable by dredging.	The lower Snake River dams are not authorized for flood risk management and this is clearly stated in the EIS in Section 1.2. Chapter 7, Table 7-1, also indicates that there is no elevated risk to flooding in the lower Snake River reach for any of the EIS alternatives. Unlike free-flowing channels, in Lower Granite Reservoir the forebay elevation at the dam controls the energy grade-line of the water surface, and the reservoir is drawn down during high water events to ensure water levels remain low. Furthermore, the Walla Walla District of the Corps of Engineers constructed eight miles of levees around Lewiston as mitigation to help protect lives and property from potentially destructive high-water conditions after the dams were built. The most recent dredging in the Lewiston area, has been to maintain a 14-foot depth in the Federal navigation channel, as discussed in the 2014 Programmatic Sediment Management Plan (https://www.nww.usace.army.mil/Missions/Projects/Programmatic-Sediment-Management-Plan/) and also referenced in the EIS.
5188	3	N/A	N/A	Also these options will cost millions of dollars over the long term and also pose threats to fish, wildlife and recreational opportunities. These dams only provide 4% of power and the Bonneville Power Administration (BPA) has surplus dam-produced power currently. Additionally, renewable wind and solar and natural gas thermal energy are available at cost-effective pricing currently. Expansion of these energy sources plus dam removal work will create jobs. Funding for enhanced rail transport may or may not be necessary because freight transport on the Lower Snake River has been in decline for decades because fewer items like paper, pulp, logs, etc. are shipped on barges. Crops and other products can be freighted by rail or trucked to Pasco, WA for barge loading or railed and trucked to Portland for distribution. Improvements in the rail system and highways to replace the barges is affordable using moneys necessary for the maintenance of these four dams and would benefit not only the regions farmers but also businesses, manufacturers and communities from Spokane to eastern Washington.	While the four lower Snake River dams account for a small portion of the total power of the region, they represent a larger portion of the Federal Columbia River Power System (FCRPS) from which Bonneville markets power. As explained in Section 3.7.3.5 of the Draft EIS, Potential Replacement Resources and Associated Costs, the four lower Snake River dams are among the most valuable projects in the FCRPS. The four lower Snake River dams produce around 1,000 aMW of power, which is approximately 12 percent of the average power produced by the FCRPS. See EIS, Section 3.7.3.5, Changes in Power Generation, Table 3-159 in the Draft EIS. Losing this amount of power is equivalent to losing power capable of serving 730,000 homes in the Northwest. See EIS, Section 3.7.3.5, Summary of Effect, page 9-935 in the Draft EIS. Whether Bonneville will have surplus power to sell is dependent upon water conditions and availability of generation. In most average water years, Bonneville will have surplus or secondary power to sell on the open market. This type of power, however, is made on an as available basis and is not the same quality or dependability as firm power, which is power available under extremely low water conditions. See EIS, Section 3.7.2.7, Firm Power, pages 3-802-803 in the Draft EIS. The four lower Snake River dams supply both firm power and secondary power to support Bonneville's power obligations. See Draft EIS, Section 3.7.2.7, Table 3-111. As such, breaching the four lower Snake River dams would have a direct and substantial impact on the supply of Federal power and require replacement resources (either natural gas or renewables), placing upward pressure on power rates. The rate impacts of these replacement resources, which includes the cost savings from the breaching of the four lower Snake River dams, is described in Section 3.7.3.5, Table 3-166, pages 3-920-924 in the Draft EIS. As described in the EIS, even with the cost savings associated with reductions in dam operating and fish and wildlife mitigation costs, the net impact on power rates is in the range of between 13-50 percent (for zero carbon resources replacements) and 4-10 percent (for natural gas/least cost replacements). Potential effects from removal of the lower Snake River shallow draft barge are described in Section 3.10.3.5, Navigation and Transportation analysis for MO3. The EIS finds that potential improvements to the rail or road system (or both) are highly dependent on how rail rates would change without lower Snake River shallow draft. How the rates would change without barging can not be known with certainty and would ultimately affect the rail and the road systems. The EIS acknowledges that depending on how rail rates respond to breaching of the four lower Snake River dams, shortline rail capacity could be exceeded. The EIS also evaluates the additional transportation infrastructure investments and associated costs that would be required.
5198	1	debbie@alexanderzoo.com	N/A	We can provide better fish ladders and other solutions to keep the fish from declining.	Alternatives were developed from actions identified in public scoping and in meetings with regional scientists and biologists. New fish passage structures and improvements to existing structures were discussed and some were included in the Multiple Objective alternatives. Other measures were removed from consideration because they were not technically feasible. See Chapters 2 and 7 for additional information on structural measures included in the MOs, including the Preferred Alternative.
5208	2	dinoatgs@gmail.com	N/A	The 4 lower Snake River dams do provide electricity and navigation benefits, but I would speculate that alternatives to those dams could be developed. It will not be inexpensive, but if a honest cost benefit-analysis of improved anadromous fish runs compared to the current situation is done, that removing the dams will prove over time to be the most beneficial solution to society.	The EIS evaluated benefits and adverse effects across an array of resource areas including potential effects at the national, regional and local level. The EIS does not employ a cost-benefit framework for decision-making. This is because, consistent with NEPA analysis framework, the beneficial and adverse effects are expressed as a variety of qualitative and quantitative environmental and economic metrics. Consequently, a focus solely on the monetized economic costs and benefits would exclude important tradeoffs associated with the alternatives communicated in the EIS, including effects on fish. Furthermore, the EIS evaluates the performance of the CRSO EIS alternatives with respect to EIS objectives, for example improving fish passage and survival, providing for reliable power generation, and minimizing greenhouse gas emissions. Chapter 7 provides a summary of the beneficial and adverse effects of the alternatives, including the quantified social welfare costs and benefits for a subset of the resource areas (specifically, hydropower, navigation, and irrigation) as well as the implementation costs of the alternatives.
5212	1	N/A	N/A	The proposed EIS does not adequately address the impacts of these dams on the salmon and the environment. Nor is there evidence to presume that minor changes to the plan will be effective. Even though billions of dollars have been spent on mitigation of the environmental effects of the dams, salmon and steelhead are at some of their lowest levels on record, orcas are on the edge of extinction, and the plan has been invalidated five times in federal courtits time to come up with a new approach.	The EIS uses high quality information in analyzing effects to resources from the alternatives evaluated. Modeling from two peer reviewed and regionally accepted models was used to compare the alternatives' effects to salmon, while qualitative analyses conducted by regional teams were used to evaluate effects to species without accepted models. The Preferred Alternative is not simply a minor change to the plan. The spill operation for juvenile fish passage in the Preferred Alternative is a significant departure from previous operations, so much so that the Washington and Oregon state water quality standards had to be changed to implement the new spill regime. The CSS model, which includes latent mortality effects, predicts that median Smolt-to-Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2 percent (well within the range of the Northwest Power and Conservation Councils recovery targets for the region) as a result of the Preferred Alternative, increasing from 2.0 percent to 2.7 percent for Chinook, a 35 percent relative increase. The National Marine Fisheries Service COMPASS and Lifecycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information. The quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differently from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020).

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					The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for the whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall-run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall-run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). The co-lead agencies legal authorities relate to operating and maintaining the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. To comply with the ESA, the co-lead agencies have historically supported actions to mitigate adverse effects to listed species from CRS operations, through funding, direct implementation, and other means. Under the Preferred Alternative, those actions would generally continue to ensure compliance with the ESA. Regarding Puget Sound, the effects mentioned in the comment involve a variety of issues beyond the scope of the CRS project. However, water quality effects for the Columbia River Basin were considered in the EIS analysis and are described in Chapter 1, 2, and Section 7.8.3 of the EIS. Additionally, the U.S. Army Corps of Engineers is in partnership with other Federal, state and non-governmental organizations and have been implementing habitat projects for salmon, orcas, and wildlife all around the Puget Sound as part of the Puget Sound Nearshore Ecosystem Restoration Project.
5212	2	N/A	N/A	Exceeding the established water quality standard of 68 degrees F has been a long-standing problem. Studies indicate that dam removal, in returning the natural flow of the river, will cool the waters by as much as 12 degrees F and address this issue. The dam removal will also recover 15,000 acres of riverine habitat and agricultural land.	The analysis of MO3, which includes a measure to breach the four lower Snake River dams, shows that the lower Snake River water temperature regime would reflect that of a natural river system, without the water temperature lagging effect that reservoirs create. Spring water temperatures would warm faster, while fall water temperatures would cool faster, as compared to current conditions. The EIS analysis also indicates that summer water temperatures would cool to a greater extent at night, but some exceedances in the 68F water quality standard would still occur, especially during hot weather events. Breaching the four lower Snake River dams would not return the river to natural flow conditions since there would still be multiple hydroelectric facilities (dams and impoundments) upstream of the lower Snake River reach that would effect the hydrology of the system. The EIS analysis does not support the portion of the comment that references recovering 15,000 acres of riverine habitat and agricultural land under MO3. Section 3.5.3.6 under the Larval Development/Juvenile rearing sub-heading (line 17110) of the Draft EIS describes that breaching the four lower Snake River dams is estimated to increase the available spawning habitat for fall-run Chinook from 226 acres to 3,521 acres. Section 3.12.3, documents for MO3 in Region C, pumps are unable to deliver water to an estimated 47,926 acres.
5212	3	N/A	N/A	The dams are a flood threat to cities of Clarkston and Lewiston due to growing sediment deposits. It is agreed that even costly dredging would not be enough to solve the sediment problem. And, cities do not want levees built to cut them off from the river.	The lower Snake River dams are not authorized for flood risk management and this is clearly stated in the EIS in Section 1.2. Chapter 7, Table 7-1, also indicates that there is no elevated risk to flooding in the lower Snake River reach for any of the EIS alternatives. Unlike free-flowing channels, in Lower Granite Reservoir the forebay elevation at the dam controls the energy grade-line of the water surface, and the reservoir is drawn down during high water events to ensure water levels remain low. Furthermore, the Walla Walla District of the Corps of Engineers constructed eight miles of levees around Lewiston as mitigation to help protect lives and property from potentially destructive high-water conditions after the dams were built. The most recent dredging in the Lewiston area, has been to maintain a 14-foot depth in the Federal navigation channel, as discussed in the 2014 Programmatic Sediment Management Plan (https://www.nww.usace.army.mil/Missions/Projects/Programmatic-Sediment-Management-Plan/) and also referenced in the EIS.
5213	1	g_bailey@stjohncable.com	N/A	As a Whitman county wheat grower, I want to keep a functional river transportation system to get our product to market. Washington wheat growers export nearly 90% of their wheat overseas, and both the river and railroad are necessary to efficiently move products to market as well as deliver inputs necessary for our operations. Losing either system would leave us as captive shippers, and transportation costs would certainly increase dramatically. The dams provide much more than just transportation for ag products. The hydropower supplied by the dams provide the region with clean, carbon free electricity. Irrigation provided by snake river waters benefit many farmers who raise row crops and grapes. The river also provides many recreational opportunities.	As described in Section 3.10.3.5, Navigation and Transportation, the analysis of MO3, which includes the measure to breach the four lower Snake River dams, finds that average transportation costs for wheat farmers would increase 10 to 33 percent, but that individual farmers could experience increases that are double, depending on their specific location and other conditions. The statement that the four lower Snake River dams generate carbon free power is consistent with discussions in the EIS, as is the statement recognizing the transportation and irrigation benefits of the system. MO3 was not identified as the Preferred Alternative in the Draft EIS.
5213	2	g_bailey@stjohncable.com	N/A	Overfishing, pollution, ocean conditions, changing climate, predators, and dams have all contributed to the challenges faced by the salmon. River systems without dams have also experienced declining fish runs. Improvements in fish passage, increasing hatchery output, and changing stream flows are all important to increase salmon survival	The co-lead agencies also recognize that there are many effects to salmon and steelhead populations outside the operation of the dams, including those mentioned in this comment. Research continues to evaluate the magnitude of these effects. For more information see the National Marine Fisheries Service website at: https://www.nwfsc.noaa.gov/research/index.cfm. Chapters 6 and 7 also discuss the impacts from past, present and reasonably foreseeable future actions on anadromous fish.
5229	1	frsuter@comcast.net	N/A	There are stories of the millions of salmon that migrated the Columbia and Snake Rivers before all of the dams were built. Today, we breathe a sigh of relief if the winter run of chinook salmon reaches 60,000. Snake River sockeye were listed as endangered since 1991; Snake River chinook were listed as threatened since 1992. In 1993, US District Judge Malcolm F. Marshs ruling found that the National Marine Fisheries Service - instead of looking for what could be done to protect the species from jeopardy - took action that was too heavily geared towards a status quo that has allowed all forms of river activity to proceed in a deficit situation - that is, relatively small steps, minor improvements and adjustments when the situation literally cries out for a major overhaul. (This was sourced from the US District Court, District of Oregon, May 2016 finding). Now, TWENTY-SEVEN YEARS LATER, on page 18 of the DEIS Executive Summary, Columbia River System Operations Objectives are stated as: Improve Juvenile Salmon Improve Adult Salmon Improve Resident Fish Provide a Reliable and Economic Power Supply Minimize GHG Emissions Maximize Adaptable Water Management Provide Water Supply Improve Lamprey Where in the DEIS Executive Summary, under Columbia River Systems Operations Objectives are the objectives: Restore Juvenile Salmon and Steelhead populations Restore Adult Salmon and Steelhead populations Restore Resident Fish populations Facilitate the recovery of threatened and endangered species that have inhabited the Columbia and Snake Rivers Provide a Reliable and Economic Power Supply Minimize GHG Emissions Maximize Adaptable Water Management Provide Water Supply Restore Lamprey populations To abide by the US District Courts order, shouldnt these be your objectives? How long are the agencies involved in Columbia River Systems Operations going to disregard repeated court orders to address the significant decline of Columbia and Snake River salmon and steelhead? The fish are facing extinction in these waters and the agencies answer is to continue with the status quo - a status quo that has placed these fish in this perilous situation. The Preferred Alternative pits two diametrically opposed objectives against each other - increasing spill to aid juvenile salmon migration against the objective to provide reliable power supply. The first time these two objectives face a challenge (drought caused by climate change, for example), which objective will take precedence? We all know the answer to that - salmon and steelhead loose.	The CRSO EIS documents the assessment of benefits and impacts of changes to the operations of the 14 Federal projects of the CRS. Using a multi-disciplinary approach and with the coordination and consideration of cooperating agencies and Tribes, as well as public stakeholder input, and by using high quality information, the co-lead agencies developed the Preferred Alternative. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the EIS objectives) as well as the EIS objectives for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. The Preferred Alternative is also more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. The co-lead agencies, working with the cooperating agencies, developed the objectives for operating the system, using the Purpose and Need Statement and input from Tribes, cooperating agencies, and the public. The eight objectives are what the Federal agencies are trying to accomplish (the why). They are statements of the desired outcome of the EIS, as identified by the Federal agencies and from scoping comments. An example of an objective is to improve ESA-listed anadromous salmonid adult fish migration within the project area. Objectives do not include language to "restore" populations. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the Endangered Species Act (ESA), in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Recovery of ESA-listed salmon is outside of the authority of the co-lead agencies, and was not an objective of this EIS. Recovery of ESA species is the purview of National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (USFWS). This EIS has been developed in consultation with NMFS and USFWS to minimize impacts to affected ESA-listed species and their habitats. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. As required by NEPA, the co-lead agencies evaluated each alternative for its effects on a suite of resources. These effects are summarized in Section 3 of the Executive Summary, and fully described by resource and alternative in Chapter 3, 4, 6, and 7. Effects are summarized by resource and alternative in Table 3-1 in the Draft EIS, and presented for comparison in Tables 7-1 and 7-55 in the EIS. Effects specific to anadromous fish are described in Sections 3.5.3 and 7.7.4. Table 3-61 in the Draft EIS compares expected survival by alternatives, and Table 3-62 in the Draft EIS provides a comparison of the alternatives specific to anadromous fish. Impacts to CRS affected resources from climate change and cumulative effects are described in Chapters 4, 6, and 7. The co-lead agencies used high quality information in the analysis of the CRSO EIS. Specific to salmon and steelhead, the agencies used two primary modeling approaches which yielded a range of potential outcomes for the alternatives. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult (SAR) return rates will increase for both Snake River spring Chinook and steelhead and will average above 2% (the lower end of Northwest Power and Conservation Council's (Council's) recovery targets for the region) as a result of the Preferred Alternative increasing SAR from 2.0% to 2.7% for Chinook, a 35% relative increase. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information. Based on the EIS analysis of the Preferred Alternative, it will make a substantial contribution towards recovery targets.
5229	2	frsuter@comcast.net	N/A	Where in the DEIS is the study that values the economic loss, in terms of revenue, jobs and loss of life should the continued status quo operation result in the collapse of the food chain? Where in the DEIS is the study that values the jobs created by improving the electrical grid to satisfy the addition of renewable energy sources (wind and solar)? Where in the DEIS is the study that values the jobs created by producing energy storage systems that facilitate the use of wind and solar energy sources? Where in the DEIS is the study that values the impact on GHG emissions that embrace renewable energy sources or the latest energy efficient appliances and building codes? Or the positive impact on the rail system? Or the electrification of the rail system?	Estimating the potential regional economic benefits of clean energy development, including job creation, that are described in the comment are beyond the scope of the EIS. The EIS acknowledges the importance of renewable energy for achieving clean energy goals, and evaluated the change in greenhouse gas emissions for the two resource replacement portfolios evaluated under each alternative. Under Multiple Objective alternative 1, Multiple Objective alternative 3, and Multiple Objective alternative 4, the EIS finds an increase in emissions, which were monetized based on the social cost of carbon. See Section 3.8.3.5 pages 3-1014 and 3-1017 in the Draft EIS for the results of these analyses.
5255	1	2015johnpwells@gmail.com	N/A	The DEIS must include a comprehensive economic analysis of Idaho'ssportfisheryand itspotential if abundant wild salmon and steelhead runs are restored. In 2003 during an average return year, in the Clearwater region alone salmon and steelhead fisherman spent $8.6 million a MONTH. In 2019 anglers of all persuasions spent a total of $750 million in the entire STATE in the YEAR. Salmon and steelhead fishing supports guides, outfitters and businesses in river towns throughout the State of Idaho. The people and towns that largely depend on wild salmon and steelhead for their livelihoods have been given less than equal consideration in the DEIS and your current PA.	The EIS provides an evaluation of the social welfare and regional economic effects of the No Action Alternative and the Multiple Objective alternatives (MOs), including the effects on recreation (Section 3.11) and commercial fisheries (Section 3.15). The EIS described the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. NMFS estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which is described qualitatively. For the effects on recreational fishing under MO3 (Section 3.11.3.5) along the lower Snake River below Lewiston, the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River) as an indicator for fishing visitation in this reach. The EIS describes that the visitation in the long-term in the lower Snake River, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting outfitting and tourism businesses in the region. The potential for changes in recreational fishing of anadromous fish under MO3 is described in Section 3.11, which could result in increases in recreational fishing in the long-term that would support jobs, income, and social benefits in Tribal and rural river communities. However, there is uncertainty around recreational fishing visitation in the long-term given the current measures to regulate, protect, and support ESA-listed fish populations and habitat in the region. The social welfare values and regional economic effects associated with recreational fishing under the action alternatives as well as river recreation post dam breach under MO3 were not estimated because of the uncertainty and large range in visitation and consumer surplus values among users.
5255	2	2015johnpwells@gmail.com	N/A	The dam breaching alternative is the only option that meets life-cycle survival criteria, achieves meaningful recovery and minimizes the jeopardy of extinction. The science indicates that only the removal ofthe dams will result in SARs that meet the regional goals of 4%. A SAR range of 2% to 6% has been deemed necessary for recovery to sustainable harvestable numbers of fish. Breaching is the only alternative that adequately minimizes the risk of extinction for Snake River stocks as a baseline which is required by the DEIS.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the CRS. Recovery of ESA species is the purview of National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (USFWS). This EIS has been developed in consultation with NMFS and USFWS to find an acceptable balance that allows the co-lead agencies to meet the Purpose and Need Statement while minimizing impacts to affected ESA-listed species and their habitats. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species.

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					With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult return rates (SARs) will increase for both Snake River spring Chinook and steelhead and will average well above 2 percent (the lower end of the Northwest Power and Conservation Council's recovery targets for the region), increasing from 2.0 percent to 2.7 percent for Chinook, a 35 percent relative increase. The National Marine Fisheries Service COMPASS and Lifecycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia River Basin. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information. The 4 percent average SARs target and range of 2 percent to 6 percent referenced, refers to the Northwest Power and Conservation Councils (Council's) target for broad-sense recovery and is separate and distinct from the obligations of any single entity or in this case a requirement to be met solely by the co-lead agencies. Just as the Councils fish and wildlife program encompasses both Federal and non-Federal stakeholders in the Columbia River Basin, the Councils recovery goals are shared by many parties. Based on the EIS analysis the Preferred Alternative will make a substantial contribution, but the Councils broad sense recovery goals are beyond the scope of this EIS which focuses on the effects associated with the operation and maintenance of the 14 CRS projects.
5255	3	2015johnpwells@gmail.com	N/A	Your alternative MO3 needs to include an honest cost-benefit analysis of the 4 LSRD and the powerthey generate. Purchasing power on the open market in today's market placeis significantly cheaper than than estimated annual LSRD maintenance and operations. Turbine replacements and maintenance in the next decade for the 4 dams will cost tens of millions of dollars in addition to the on-going mitigation efforts which have failed. Removing the 4 LSRD is both a win for the fish and a long term financial win for the BPA.	The findings of this EIS do not support these claims. MO3 showed significant rate impacts relative to the No Action Alternative, after accounting for avoided spending at the four lower Snake River dams under the alternative. See Draft EIS, Section 3.7.3.5, Table 3-166. Additionally, a calculation of a benefit-to-cost ratio is not a requirement of NEPA or the basis of alternative selection under NEPA (see 40 C.F.R. 1502.23). Instead, the direct and indirect effects to the natural and human environment were evaluated, including some effects that were evaluated quantitatively and monetized, while others were evaluated qualitatively. The EIS estimates the costs to operate the Columbia River System dams, as well as the costs to the power system that would occur if the four lower Snake River dams are breached under MO3. Further, the commenters suggestion that the firm power produced by the four lower Snake River dams could be replaced with spot market purchases at substantially lower prices is not supported by the analysis in the EIS. The power provided by Bonneville from the collective Federal Columbia River Power System, which includes the four lower Snake River dams, is sold as firm power to its customers under long-term contracts. See Draft EIS, Section 3.7.2.7. Under these contracts, Bonneville meets its customers firm power load with firm power in every hour as determined by the customers contracts. Power sold at spot or market prices are generally sold for shorter durations and are generally sold in blocks or whole quantities. As such, these spot power prices are not a reasonable comparison to the power sold by Bonneville, because there are a variety of additional benefits from firm Federal power, such as reliability and dependable supply at a fixed price as opposed to the volatility of the market. Although the turbines at the four lower Snake River dams are between 41 and 50 years old and nearing their design lives, there are no plans for any immediate replacements. Investment decisions are driven by equipment condition, probability and consequence of failure and, as such, it is common for equipment to be in service well past its design life. For example, some turbine runners at McNary dam will be over 70 years old by the time the replacement project is complete. Long-term planning analyses that calculate the optimal economic time to replace equipment based on current and expected equipment condition, probability of failure and outage consequence, point to the late 2030s as the earliest replacement dates for major powertrain equipment at the four lower Snake River dams. Most turbine replacements are forecasted between the 2040s and 2060s which would put the turbines at the four lower Snake River dams at about the same age at replacement as McNary. For hydropower, the average annual value of the four lower Snake River dams exceeds the average annual equivalent costs. The generation value at the four lower Snake River dams can be described by a range between the cost to replace the generation through new conventional resources or through a portfolio of zero-carbon resources. Although the costs of replacing the power with market purchases was analyzed, it is unlikely that short-term wholesale power markets could reliably replace the power for the long-term. This range would put the annual value of power between $240 million and $500 million for the four dams combined. These numbers represent about 90 percent of the lost benefits cited in Table 3-171 of the Draft EIS because the four dams represent about 1,000 aMW of the 1,100 aMW of lost generation estimated in MO3. The average annual cost to operate and maintain all authorized purposes at the four lower Snake River dams is $75 million (Appendix Q, Table 5-1) and the annual-equivalent capital costs are $32 million (Appendix Q, Table 4-1). Hydropower costs funded by Bonneville represent about $50 million of the total annual operations and maintenance costs and nearly all of the annual capital costs, approximately $31 million. This puts the annual-equivalent power-specific costs at approximately $81 million a year. As a result, the net benefits from hydropower for the four lower Snake River dams are between $159 million and $419 million and the benefit-cost ratios are between 3.0 and 6.2. If the $34 million per year for the Lower Snake River Compensation Plan is added to the capital and expense costs, benefits still exceed costs under each replacement power scenario. Considering these costs, the net benefits range from $125 million to $385 million and the benefit-cost ratios range from 2.1 to 4.3. In the less-likely scenario that generation could be reliably replaced with short-term wholesale market purchases and assuming that the four dams represent 90% of the $150 million in market purchases required to replace the lost generation cited in MO3 (see Table 3-170 in the Draft EIS), the lower bound for net benefits would fall to $54 million and the benefit-cost ratio would fall to 1.7. With the Lower Snake River Compensation Plan included, the lower bound for annual net benefits becomes $20 million and the benefit-cost ratio becomes 1.2. From a resource competitiveness perspective, the four lower Snake River dams are among the least costly generating resources in the Federal Columbia River Power System (FCRPS) and the planned investment strategy is expected to maintain that status. As shown in the Federal Hydropower presentation at the 2018 Integrated Program Review , the Headwater/Lower Snake Asset Class is forecast to have a 50-year levelized cost of generation of $11.41/MWh based on the direct funded capital and expense (O&M) programs outlined in that process. These costs remain competitive with volatile Mid-Columbia spot market energy prices which averaged $37/MWh in 2019 and have averaged $21/MWh in 2020. 1/ The Integrated Program Review (IPR) allows interested parties to see and comment on all relevant Federal Columbia River Power System (FCRPS) capital and expense (O&M) spending level estimates in the same forum. The IPR occurs every two years, or just prior to each rate case, and is the public review for the costs that will be recovered through rates the following two-year rate period. Long-term forecasts for the next 50 years and major upcoming projects are also shared in this forum. This information is available here: https://www.bpa.gov/Finance/FinancialPublicProcesses/IPR/2018IPR/IPR%202018%20Fed%20Hydro%20Workshop.pdf and is incorporated by reference into this EIS. 2/ In the 2018 Integrated Program Review, the Headwater/Lower Snake Asset Class consisted of the four lower Snake River dams, Hungry Horse, Libby, and Dworshak dams. These projects were grouped together because they have similar cost characteristics. The Levelized Cost of Generation for the four lower Snake projects alone is slightly lower than that for the whole class including the headwater projects shown in the table. 3/ Levelized Cost of Generation is defined as the forecasted direct costs and administrative overhead of producing power at a plant annualized over a 50-year period. This cost includes direct funded operations, maintenance, administrative and capital costs as well as Columbia River Fish Mitigation (CRFM) costs. Bonneville system-wide mitigation costs, such as its Fish and Wildlife program, are not included in this metric.
5255	4	2015johnpwells@gmail.com	N/A	The DEIS needs a much more thorough economic analysis of the benefits of restoring the Lower Snake River corridor. One-seventh or 140 river miles of the entire Snake River would be reclaimed by dam removal. This would provide and restore opportunities for fishing, hunting, rafting and general tourism which would add significantly to the economies of the area. The management plans of the federal agencies have proven numerous times to be significantly flawed over the last 25 years. A total of $18 billion federal dollars has been spent on recovery efforts since 1981, yet wild salmon and steelhead throughout the Columbia-Snake basin are still ESA listed.	The EIS provides an evaluation of the social welfare and regional economic effects of the No Action Alternative and the MOs, including the effects on recreation (Section 3.11) and commercial fisheries (Section 3.15). The recreation analysis for the EIS considered the broad range of recreational activities supported by the region, including recreational fishing. While the analysis described any potential impacts to recreational fishing visitation, the EIS did not estimate these impacts separately from the overall impacts to recreation, or estimate changes in fishing visitation related to changes in fish abundance. The EIS described the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. NMFS estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which is described qualitatively. For the effects on recreational fishing under MO3 (Section 3.11.3.5) along the lower Snake River below Lewiston, the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River) as an indicator for fishing visitation in this reach. The EIS describes that the visitation in the long-term in the lower Snake River, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting outfitting and tourism businesses in the region. The potential for changes in recreational fishing of anadromous fish under MO3 is described in Section 3.11, which could result in increases in recreational fishing in the long-term that would support jobs, income, and social benefits in Tribal and rural river communities. However, there is uncertainty around recreational fishing visitation in the long-term given the current measures to regulate, protect, and support ESA-listed fish populations and habitat in the region. The social welfare values and regional economic effects associated with recreational fishing under the Multiple Objective alternatives, as well as river recreation post dam breach under MO3, were not estimated because of the uncertainty and large range in visitation and consumer surplus values among users. The commenters suggestion that $18 billion in fish and wildlife mitigation investment has been ineffective to recover ESA-listed species is misplaced. Those investments delivered the intended results when considered in the appropriate statutory context of the Northwest Power Acts anadromous fish provisions which call for improved survival of such fish at Federal Columbia River Power System (FCRPS) projects and sufficient flows between the projects to improve production, migration, and survival. For example, as of 2014 this investment had facilitated juvenile dam passage survival of 96% and 93% for spring and summer migrants respectively, see Endangered Species Act Federal Columbia River Power System 2016 Comprehensive Evaluation Section 1, at 17, t.2 (Jan. 2017), a marked improvement compared to when Congress passed the Northwest Power Act and the estimated average juvenile mortality at each mainstem dam and reservoir complex was 15-20% with losses recorded as high as 30%. See Nw. Res. Info. Ctr. v. Nw. Power Planning Council, 35 F.3d 1371, 1374 (9th Cir. 1994) (citing a Sept. 4, 1979 report by U.S. General Accounting Office describing the systems impacts on anadromous fish). Bonneville uses its authority under 16 U.S.C. 839b(h)(10)(A), to make expenditures to implement its Fish and Wildlife Program. These expenditures provide systemwide funding for actions that also mitigate for the non-power purposes of the CRS, so Bonneville recoups the non-power share of those expenditures from the U.S. Treasury as credit, as required under 16 U.S.C. 839b(h)(10)(C).
5264	1	N/A	N/A	INACCURATE and MISLEADING INFORMATION In 2016, I attended the Court ordered CRSO scoping meeting held in Boise and was surprised to see charts labelled salmon and steelhead abundance is improving. The charts stated These graphs show the number of natural-origin adult fish returning to spawn. They represent the most complete data available on abundance for natural origin fish. The creators of these graphs had deliberately misled the public by selectively parsing out data from 1990-2015 and ignoring decades of data from 1957 to 1990. This was a focused effort to distort the truth and a seemingly unethical attempt to characterize fish status as being much better than the actual data clearly demonstrate.	The co-lead agencies take the responsibility to provide high quality information very seriously and disagree with the statement that any information has been used to deliberately mislead during any portion of this NEPA process. The intent of the graphs referenced that were presented at the scoping meetings were to show trends in wild fish populations since the 1990s when the stocks were listed under the Endangered Species Act. The intent was to focus on recent trends due to current dam operations combined with contemporary environmental variables. In 2016, the recent trends were generally positive for most stocks in the Columbia River Basin.
5264	2	N/A	N/A	It is disappointing (and surprising) that, in several locations, the EIS similarly presents inaccurate information in an apparent continuing effort to mislead the public: 1.) The Figure on pg. 3-300 distorts the truth and misleads the public by plotting combined salmon and steelhead return to Bonneville Dam from 1938-2019. To be accurate, this Figure needs to plot data by species and by wild and hatchery fish separately to avoid actual wild fish abundance from being hidden by hatchery fish.	Figure 3-111 on page 3-300 in the Draft EIS, is neither inaccurate nor misleading. The title is "Combined Annual Returns of Salmon and Steelhead to Bonneville Dam 1938-2019." The caption is: Figure 3-111. Combined Annual Salmon and Steelhead Returns (all species) to Bonneville dam from 1938-2019. These returns are a combination of hatchery and natural origin fish (data source: University of Washington-Data Access Real Time (DART) tool). This figure is part of the general overview of anadromous fish in the study area. The later sections of the EIS break out analyses and discussion by species and origin. The comment implies that hatchery fish are not relevant to the EIS. However, since ESA-listed salmonid species often include both naturally spawning and hatchery fish in the listing designation, many hatchery programs provide important benefits to ESA-listed species. In addition, hatchery origin fish are very important to Tribal and sport harvest within the Columbia River Basin, and are important supplementation to rebuilding natural populations.
5264	3	N/A	N/A	2.) The EIS contains misleading Figures and inaccurate statements about smolt survival, especially on pg. 3-302. Despite all the data to the contrary, the EIS continues to tout a per-dam survival metric. This metric is inaccurate for multiple reasons: it ignores delayed mortality, it ignores reservoir mortality, and it fails to illustrate that dam mortality is additive. In contrast to the touted >96% survival per dam, actual smolt survival from the Snake River to below Bonneville Dam averages about 50% (FPC 2019). For decades, the essential role of SARs in stock persistence and productivity has been clearly established and re-affirmed. In the 1960s, with four Federal Columbia River Power System (FCRPS) projects in place, SARs ranged from 3.5% to 6.5%	The metric "dam survival rate", is an empirical estimate (or modeled based on empirical data) of the survival rate of a specific group of fish from the immediate forebay through the structures and tailrace, or the inverse of the mortality rate induced by passing through the immediate forebay, structures, and tailrace. It is the most sensitive metric for assessing effects of operations and configuration of dams and therefore is frequently used. Dam survival rates were a key metric for the 2008 National Marine Fisheries Service Biological Opinion. When first mentioned at line 7247 on page 3-301 in the Draft EIS, the co-lead agencies have clearly stated that this metric does not include system or latent mortality. The next section discusses reach survival rates, which do include all mortality from passing the dams, the reservoirs and any other source in the system. By using total in-river survival, travel time, powerhouse passage rates,

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				(Raymond 1988; McCann et. al 2015, 2016). Dramatic changes have resulted from completion of all eight FCRPS projects. Water travel times from Lower Granite to Bonneville Dam, for example, increased from 2 days to a range of 40 days and an average of 19 days (Tuomikoski et al. 2009; Petrosky and Schaller 2010) and 76% of juvenile salmon that pass through the Columbia River hydro system died as a result of injury or stress incurred while migrating (Schaller et al. 2014). The PATH (Plan for Analyzing and Testing Hypotheses) process linked SARs to the probability of achieving NOAA interim survival and recovery standards in the 2000 FCRPS BIOP (Marmorek et al. 1998). The PATH analyses confirmed that a median SAR of 2% was necessary to achieve the 100-year interim survival standard for spring/summer Chinook salmon; a median 4% SAR was necessary to achieve the 48-year interim survival standard; and a median 6% SAR was necessary to achieve the 24-year interim survival standard (Marmorek et al. 1998). The Northwest Power Planning Council Fish and Wildlife Program (NPCC 2003, 2014) has consistently established an SAR goal with a 4% mean and range from 2%-6%. In 2018, the Independent Science advisory Board stated, SARs Objectives provide a readily measured, 1st-order objective for restoring stocks. Recent SARs for Snake River wild spring/summer Chinook salmon have averaged 0.7% above 8 dams in comparison to SARs for non-ESA listed wild spring Chinook salmon that have remained within the NPPC SAR objectives above fewer dams in the mid-Columbia River (McCann et al. 2019). From 2000-2017, wild Chinook salmon SARs averaged 3.6% in the John Day River above 3 dams, 2.5% in the Yakima River above 4 dams, and 0.7% in the Snake River above 8 dams (McCann et al. 2019). The John Day, Yakima, and Snake River populations experience the same treaty and non-treaty fisheries, pinniped predation, and ocean conditions; the primary differences among them are the number of dams they pass. A 4-fold increase in SARs will be necessary to meet survival standards and reduce extirpation risks for Snake River stocks. Eighty percent of the variation in salmon survival is explained by SARs (CSS 2017). Consequently, a more evidence-based approach is needed in the final EIS to evaluate each alternative and its ability to substantially improve SARs and meet the 4% SAR mean goal.	and Smolt-to-Adult return rates (SARs), the analysis done by the co-lead agencies is providing a full picture of the impacts to ESA-listed fish throughout their life cycle from the different approaches of operations, maintenance, and configuration captured in the alternatives. The SARs target of 4 percent and the range of 2 to 6 percent referenced in this comment refers to the Northwest Power and Conservation Councils (Council) target for broad-sense recovery and is separate and distinct from the obligations of any single entity or in this case a requirement to be met solely by the co-lead agencies. Just as the Councils fish and wildlife program encompasses both Federal and non-Federal stakeholders in the Columbia Basin, the Councils recovery goals are shared by many parties. Based on the EIS analysis the Preferred Alternative will make a substantial contribution, but the Councils broad sense recovery goals are beyond the scope of this EIS which contemplates the effects associated with the operation and maintenance of the 14 CRS projects. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit ESA-listed juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative best meets all the other objectives of the study for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. The agencies used current, high quality modeling information consistent with NEPA and did not rely on information contained in the Plan for Analyzing and Testing Hypotheses (PATH) Weight of Evidence Report (ESSA Technologies 1998), which is over twenty-years-old and does not reflect current CRS operations.
5264	4	N/A	N/A	3.) The statement on pg. 3-304 is very misleading: The adverse impact of past Columbia River System operations has been reduced over time, and multiple mitigation actions have improved habitat, hatchery operations, and predator management, thus increasing survival rates of individuals in these ESUs, reducing extinction risk, and thereby contributing to improvements in the likelihood of recovery. First, it implies that the likelihood of recovery is increasing, see Figure 1 above and the text describing the status of Central Idaho wild stocks to illustrate the continuing high risk of extinction for Snake River populations. Second, it implies that the actions taken over the past 30+ years have been effective. They have not, despite nearly $17 billion spent.	The co-lead agencies agree that more can and should be done to further improve the status of salmon and steelhead in the Columbia Basin. The co-lead agencies contribution to those additional efforts is reflected in the Preferred Alternative. The statement referenced on page 3-304 in the Draft EIS is accurate. The Preferred Alternative will continue progress and build off of the improvements of previous Federal efforts. The commenters suggestion that approximately $17 billion in fish and wildlife mitigation investment has been ineffective to recover ESA-listed species is misplaced. Those investments delivered the intended results when considered in the appropriate statutory context of the Northwest Power Acts anadromous fish provisions which call for improved survival of such fish at Federal Columbia River Power System projects and sufficient flows between the projects to improve production, migration, and survival. For example, as of 2014 this investment had facilitated juvenile dam passage survival of 96 percent and 93 percent for spring and summer migrants respectively, see Endangered Species Act Federal Columbia River Power System 2016 Comprehensive Evaluation Section 1, at 17, t.2 (Jan. 2017), a marked improvement compared to when Congress passed the Northwest Power Act and the estimated average juvenile mortality at each mainstem dam and reservoir complex was 15-20% with losses recorded as high as 30 percent. See Nw. Res. Info. Ctr. v. Nw. Power Planning Council, 35 F.3d 1371, 1374 (9th Cir. 1994) (citing a Sept. 4, 1979 report by U.S. General Accounting Office describing the systems impacts on anadromous fish).
5264	5	N/A	N/A	Lack of a Full Suite of Alternatives: A full range of alternatives is needed, including an alternative that maximizes recovery of anadromous fish. The core of an effective EIS is the inclusion and evaluation of a Full Range of reasonable alternative, including a rigorous assessment of how well alternatives meet stated SAR goals.	The co-lead agencies are required to evaluate a reasonable range of alternatives in the EIS. However, when there are potentially a very large number of alternatives, only a reasonable number of examples, covering the full spectrum of alternatives, must be analyzed and compared in the EIS. Alternatives for this EIS were developed from measures identified during public scoping, regional forums with scientists and technical experts from cooperating agencies, and expert opinions from within the co-lead agencies and in the literature. These alternatives represent a reasonable range of alternatives for the maintenance and operation of the CRS. While meeting the regional Smolt-to-Adult return rates (SARs) goals is a worthwhile endeavor, it is a recovery goal. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the Endangered Species Act (ESA), in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the CRS. Recovery of ESA-listed species is the purview of National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (USFWS). This EIS has been developed in consultation with NMFS and USFWS to find an acceptable balance that allows the co-lead agencies to meet the Purpose and Need Statement while minimizing impacts to affected ESA-listed species and their habitats. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species.
5264	6	N/A	N/A	Inadequate Climate Assessment: I could find no quantitative discussion of the effect of climate change on Snake River salmon and steelhead. Climate effects are predicted to worsen and the EIS needs to more thoroughly describe potential climate effects for each alternative.	Regarding climate change, the climate science community is still developing models that can be used to analyze possible effects to water temperature from climate change, and unfortunately, there are not reliable models at this time at the required resolution (river-scale vs global- or regional-scale). Therefore it was not possible to reliably model water temperature changes under climate change for this EIS. In lieu of this information, the climate analysis used the output from the water quality models under historical conditions, climate change data, and scientific literature to qualitatively assess potential effects to water temperature (Sections 4.2.3 and 7.8).
5264	7	N/A	N/A	Inadequate Assessment of the Importance of Wild populations: Similarly, I could find no discussion of the importance of maintaining wild population abundances and their ability to maintain life history and genetic diversity. As described above, diverse wild populations provide the best opportunities for stocks to persist and adapt in an uncertain future. Each alternative should be evaluated to assess its ability to maintain wild stock diversity and adaptability.	Diversity is an important factor in an evolutionarily significant unit's (ESU) ability to persist and adapt, and is one of the factors considered in assessing an ESU's long term viability, along with abundance, productivity, and spatial structure. Analyzing all of these factors is appropriate for an Endangered Species Act (ESA) recovery analysis and is typically done by National Marine Fisheries Service in a Biological Opinion. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the CRS. Recovery efforts will continue to be led by National Marine Fisheries Service and the U.S. Fish and Wildlife Service and will to continue to involve parties across the region that have an influence and impact on ESA-listed species. The co-lead agencies performed an appropriate level of analysis to assess the effects of operation and maintenance of the CRS on ESA-listed species. A full analysis of recovery is not required under either NEPA or the ESA.
5264	8	N/A	N/A	Vague EIS Goals: On pg. 2-3, Objective 1 is to: Improve ESA-listed anadromous salmonid juvenile fish rearing, passage, and survival within the CRSO project area through actions including but not limited to project configuration, flow management, spill operations, and water quality management. What exactly does this mean? As described above, Snake River stocks are a HIGH risk of extinction, including wild stocks in wilderness. A more rigorous and evidence-based goal is needed to achieve recovery. SARs, as described above, provide a rigorous and widely accepted goal within the basin. The EIS needs to re-state its goal to reflects recovery, not simply include something as vague as to improve.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the Endangered Species Act (ESA), in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Based on the fish analysis in Section 7.7.5, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the CRS. Recovery of ESA-listed species is the purview of National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (USFWS). This EIS has been developed in consultation with NMFS and USFWS to find an acceptable balance that allows the co-lead agencies to meet the Purpose and Need Statement while minimizing impacts to affected ESA-listed species and their habitats. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. The co-lead agencies used high quality information in the analysis of the CRSO EIS. Specific to salmon and steelhead, the agencies used two primary modeling approaches which yielded a range of potential outcomes for the alternatives. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% (the lower end of Northwest Power and Conservation Council's recovery targets for the region), increasing from 2.0 percent to 2.7 percent for Chinook, a 35 percent relative increase. The NMFS COMPASS and Lifecycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information.
5264	9	N/A	N/A	Over Estimated Preferred Alternative Benefits: The Preferred Alternative (PA) fails to meet Court ordered mandates for recovery and will not improve the probability of persistence for ESA listed stocks. The stated benefits list an improvement of 35% and 28% for Chinook salmon and steelhead SARs, respectively. In truth, this is a relative benefit. However, even if that benefit were real, a 35% improvement for SARs averaging 0.7 % (see above) would ensure population declines because SARs would remain near or less than 1%. When SARs are below 1%, steep populations declines occur (ISAB 2018). Instead of recovering populations, the PA is more likely to result in continued population declines toward extinction. Of the alternatives evaluated in the Draft EIS, only MOA 3 (Multiple Objective Alternative 3) would result in an improvement in survival that would be sufficient to move toward recovery of Snake River salmon and steelhead. The CSS (Comparative Survival Study 2019) estimated a 2 to 3-fold increase in salmon abundance with the Natural River option and a 4-fold increase if Natural River is coupled with maximum spill over the Columbia River dams. SUMMARY Please correct the flaws listed above and more rigorously evaluate a full range of alternatives. Most importantly, please meet the Court ordered mandate and select a preferred alternative that will move past decades of ineffective actions and establish an evidence-based and effective path toward recovery.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species as that is a broader goal with shared responsibility. Based on the fish analysis in Section 7.7.5, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the CRS. Recovery of ESA species is the purview of National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (USFWS). This EIS has been developed in consultation with NMFS and USFWS to find an acceptable balance that allows the co-lead agencies to meet the Purpose and Need Statement while minimizing impacts to affected ESA-listed species and their habitats. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. The co-lead agencies used high quality information in the EIS analysis. Specific to salmon and steelhead, the agencies used two primary modeling approaches which yielded a range of potential outcomes for the alternatives. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2 percent (the lower end of the Northwest Power and Conservation Council's recovery targets for the region), increasing from 2.0 percent to 2.7 percent for Chinook, a 35 percent relative increase. The NMFS COMPASS and Lifecycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. Improving anadromous fish conditions were two of the eight objectives of the CRSO EIS. The agencies disagree, however, that an alternative that includes breaching the four lower Snake River dams and spring spill operations to 125 percent Total Dissolved Gas (TDG) at all four lower Columbia River dams is reasonable given the unacceptable risks to public safety from such an alternative. For power and transmission, MO3 and Multiple Objective alternative 4 (MO4), individually each caused large loss-of-load probability (LOLP) results (e.g. increased incidence of blackouts). Without major addition of new resources, MO3 would result in power shortages in about one in seven years. MO4 would produce power shortages in about one in every four years. If MO4 were implemented, in addition to breaching the four lower Snake River projects as called for in MO3, then the LOLP would be even higher, with power shortages potentially occurring almost every year. Additionally, if these MOs were combined, in 5 percent of the years, the power shortages would average close to 1,000 MW in early August when the region might be experiencing a heatwave with particularly high demand for air conditioning. 1,000 aMW is about the average amount of power consumed by Seattle City Light. As shown in Section 3.7, MO3 causes an increase in power reliability concerns in the winter and the summer. MO4 increases power reliability concerns in the summer. Thus, the combination has the largest impact during the summer. The cost of zero-carbon replacement resources for MO3 and MO4 individually are up to $1 billion/year. Resource replacements and associated transmission interconnections for the combination of MO3 and MO4 would be higher, though not likely as high as the sum of the two MOs individually. Assuming that the replacement resources consist largely of wind, solar, and batteries, this would require well over 50 square miles of solar power (more than two and a half times the size of Crater Lake), large areas of new wind generation, and unprecedented amounts of batteries (more batteries in the Northwest alone than the total projection of batteries expected in the entire US by 2023 per the Energy Information Administration). In addition, the reduced generation capability under MO3, particularly throughout the summer, in combination with the impacts of the measures in MO4, and the uncertainty about the characteristics of replacement resources, would result in less capability to provide voltage support and dynamic stability for transmission system reliability than under MO3 or MO4 individually. Thus, combining MO4 with breaching the four lower Snake River projects, would produce unreasonable power and transmission reliability impacts, and it is highly speculative that replacement resources could be sited, permitted and built to address these impacts. Thus, an alternative combining juvenile fish passage spill up to 125 percent and breaching the four lower Snake River dams is unreasonable, and thus was not proposed as an alternative.
5281	1	N/A	N/A	Mitigation efforts on the Snake River system toward the protection of Salmon continue to fail. Numerous studies reflect that fish hatcheries present on the River are actually reducing the survival of Wild Fish. The failings occur as the larger hatchery smolts released into the system prey upon their smaller	Based on the fish analysis in Section 7.7.5, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Under this alternative, hatchery programs would continue as described under the No Action Alternative in Chapters 2 and 7, and a number of other mitigation measures would continue as well. The Preferred Alternative proposes measures such as increased spill

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				wild counterparts. Hatcheries also over time, dilute the genetics of Wild Fish resulting in marked degradation in their overall size. An example of this genetic interference is that the once mighty Snake River Chinook Salmon species historically that approached 100 pounds in size, is now after years of hatchery operations reduced returning fish to average in the 20 to 30 pound range.	intended to improve survival of anadromous salmonids. Figure 3-111 in the Draft EIS was an illustration that the CRS can and has supported large numbers of returning adult salmon and steelhead. As noted, this figure combines hatchery and wild fish. Over time, the Preferred Alternative is anticipated to benefit both wild and hatchery fish. Hatchery origin fish are very important to Tribal and sport harvest within the Columbia River Basin, and many hatchery programs are important supplementation to rebuilding natural populations. Further, the co-lead agencies have legal requirements to produce hatchery fish as mitigation for components of the CRS.
5281	2	N/A	N/A	This EIS makes little mention of the Endangered Southern Resident Orcas and minimizes the significance of Snake River Chinook Salmon as their prey. In doing so, this EIS draft ignores NOAA data on the diet of the SRKWs. The narrow scope of this EIS fails to account for the immeasurable cultural value, and economic benefits to the Pacific Northwest of protecting both Wild Snake River Salmon and The Southern Resident Orcas from Extinction. This EIS draft ignores the stark evidence that, as the 4 Lower Snake River Dams continue to block the River, significantly contributing to the lack of Wild Salmon available to the SRKWs such that, these dams are contributing in starving them toward extinction. This omission is a stark and critical failure of the bureaucracy to reconcile the obligations of the US Corps of Engineers, NOAA, and The Bonneville Power Administration under The Endangered Species Act and, once again sets these parties up for more costly litigation defending their self serving positions at the publics expense.	SRKW analysis is described in the EIS including in the FEIS Chapter 3 (Vegetation, Wetlands, Wildlife, and Floodplains) which has been updated for SRKW (Section 3.6.2.6 and Table 3-102) and FEIS Chapter 7 (Preferred Alternative) with additional analysis information on SRKW and potential increase in forage fish, in particular, Chinook salmon in Section 7.7.8. The co-lead agencies utilized current high quality information and best available science in its analysis of the effects of the operation, maintenance, and configuration of the CRS projects. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the Columbia River System. Recovery of ESA species is the purview of NMFS and the US Fish and Wildlife Service. This EIS has been developed in consultation with National Marine Fisheries Service and USFWS to minimize impacts to affected ESA species and their habitats. The Preferred Alternative meets all eight objectives of the EIS and the purpose and need, including improving fish passage and survival for ESA listed fish. However, the Preferred Alternative also meets most other EIS objectives including those for: resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. The population dynamics of the SRKW are complicated and there are multiple factors that contribute to the overall success of this species. The quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differently from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for the whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall-run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall-run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). Details on the most crucial prey stocks for Southern Resident killer whales, as well as their population and range, is available from several fact sheets and videos available here: https://www.fisheries.noaa.gov/species/killer-whale#spotlight. For more information, visit this NMFS StoryMap on Southern Resident killer whales: https://noaa.maps.arcgis.com/apps/Cascade/index.html?appid=3405e6637bf74e998d4ebe992c54f613. According to NMFS and the EPA, the estimated SRKW population has fluctuated between 67 and 98 whales between 1960 and 2015. The Snake River dams were constructed between 1962 and 1975. The SRKW population increased from a record low in 1970 to its highest population numbers in 1995. Those years were not high years for Snake or Columbia River Chinook Salmon. Ocean conditions between 2011 and 2013 were good years for salmon. At the same time, 2010 and 2013 were good outmigration years. Particularly, 2011 and 2012 were above normal in water supply, which would mean more cooler water was available and there was better survival of salmon, and 2011 through 2014 were higher than normal spill years as well. The combination of outmigration and ocean conditions created improved adult salmon returns. The EIS has analyzed spill as a measure in the Preferred Alternative and determined the overall effect to SRKW to be negligible in large part because hatchery production is consistent between the No Action Alternative and the Preferred Alternative. Because the impact from the Preferred Alternative was determined to be negligible, the agencies determined that existing hatchery production would be sufficient to address any potential impacts to prey availability for SRKWs. The co-lead agencies note the contribution to the prey of SRKW through the continued existence of their respective independent Congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as the Lower Snake River Compensation Plan (other than under MO3), which is administered by USFWS. The Preferred Alternative and Proposed Action in the agencies' biological assessment carry forward certain mitigation measures described in Chapters 2 and 7 of the EIS, which include continued salmon and steelhead hatchery production. The Preferred Alternative has negligible effects to SRKWs as described in Section 7.7.8. The Biological Assessment (BA) describes the effect of the Proposed Action on the SRKW forage species (see BA Section 3.5.1.2, Southern Resident Killer Whale). The proposed changes in operation of the Columbia River System include increased spring spill during the downstream migration of juvenile spring and summer run Chinook salmon. The result of this action includes potential increases of juvenile fish passing through the spillways, reductions in juvenile fish direct and indirect mortality associated with downstream passage, and the Comparative Survival Study (CSS) model predicts increases in numbers of returning adults, which will benefit SRKWs foraging in and around the mouth of the Columbia River in winter and spring (See EIS Section 7.7.8). The CSS model results predicts Snake River Chinook salmon would have relative improvements in smolt-to-adult returns of 35 percent (see EIS Section 7.7.4). The smolt-to-adult return ratio (SAR) is the rate at which of a group of fish survive from their smolt life stage to a defined ending point where they return as adults. While recovery targets will require more than just the efforts of federal agencies, the CSS models indicate the potential for SARs of Snake River Chinook salmon and steelhead to increase to levels that could approach recovery targets set by the Northwest Power and Conservation Council. The BA, also consistent with the EIS, acknowledges past improvements to the configuration and operation of the Columbia River System, additional improvements to the environmental baseline as a result of completed estuary and tributary habitat actions, and the prospective non-operational conservation measures proposed in Chapter 2 of the Draft EIS, all contribute towards maintaining and improving Chinook abundance. Relevant conservation measures include, among other things, a commitment to continue funding the conservation and safety net hatchery programs listed in Chapter 2 of the Draft EIS. As discussed above, the agencies will fulfill congressionally authorized hatchery mitigation objectives through the funding of hatchery programs that are operated consistent with their independent hatchery program consultations during the term covered by this consultation. Based on those hatchery program consultations, the production levels associated with congressionally authorized hatchery mitigation objectives will continue, at minimum, to be consistent with levels previously analyzed by NOAA in the system consultations in 2008, 2014, and 2019. For the 2020 ESA consultations, therefore, the agencies expect that collectively, all of the actions described above (substantial modifications to migration conditions designed to benefit key prey species, combined with improvements to Chinook spawning and rearing habitat in the tributaries and Columbia River estuary, and continued hatchery production) ensure that remaining Chinook mortality from all sources in the mainstem migratory corridor will continue to be more than offset, resulting in a net gain in Chinook salmon abundance available as a prey source for SRKW. Finally, the 2019 NMFS Fisheries BiOp included increased spring spill operations that are similar to operations evaluated in CRSO EIS, and NOAA validated that the hatchery production of Chinook salmon mitigates for the impacts of operating the Columbia River System and total mortality through the mainstem migratory corridor from all sources.
5281	3	N/A	N/A	We must acknowledge that the primary purpose of these 4 dams was historically for the transportation of exports by barge and, it is important to note that now far less products are transported annually by barge than when the dams were built. The only reason barging remains the preferred option by farmers in the region shipping their wheat to market, over the rail option running directly beside the Snake River is that, the barging option continues to be heavily subsidized by rate hydro payers. The fact a newly upgraded rail line running beside the Snake River is not mentioned in this EIS, raises additional concerns around the objectivity of the draft report in this seemingly convenient omission of information that in effect downplays the viability of breach option for the 4 Lower Snake River Dams. The absence of this information raises flags of a perceived lack of accountability and bias by the bureaucracy responsible for producing the document.	Barging is not subsidized by rate hydro payers. Costs for construction and operations and maintenance are based on cost allocations for the projects. Costs for work on navigation features (navigation lock) is attributed to the navigation purpose. Costs for features serving multiple purposes are assigned to the purposes according to the approved cost allocation. The Great Northwest Railroad, owned by WATCO, is a short-line railroad that runs along the Snake River from Lewiston, ID to Ayer Junction, WA. Research completed for the EIS suggests that elevator to river port movements via short line rail are not currently occurring because in order for them to ship grain to river terminals on the Columbia River, they must operate on part of Union Pacific's rail line and WATCO's operating agreement with Union Pacific does not allow for these shipments. The effect of including this assumption and allowing movements on these short lines during a breach scenario would be to somewhat reduce the anticipated increases in shipping costs to shippers. A statement has been added to Section 3.10.3.5 to this effect, along with a reference to Appendix L that provides additional discussion of the impacts of modifying this assumption on quantified costs to shippers.
5281	4	N/A	N/A	We know the Lower 4 Snake River Dams produce nominal power for the grid and typically do so at times of year, when market demand is reduced. Arguments that these dams are crucial back up power for the grid fail to take into account and acknowledge the new technologies available in alternate green power options. In this there is also lack of objectivity in reconciling this with the significant costs of annually maintaining 4 obsolete dams.	The commenters statements are inconsistent with the findings in the EIS. Specifically, the four lower Snake River dams produce around 1,000 aMW of power, which is approximately 12 percent of the average power produced by the Federal Columbia River Power System (FCRPS). See Draft EIS, Section 3.7.3.5, Changes in Power Generation, Table 3-159. This amount of lost power is equivalent to the amount of power used to serve 730,000 homes in the Northwest. See EIS, Section 3.7.3.5, Summary of Effect, page 9-935 in the Draft EIS, noting that generation from the four lower Snake River dams is approximately 90 percent of the power loss in MO3. While the regional power system does have surplus in some periods, most typically in the spring of high-water years, there are also periods when the region has very little or no surplus. For example during a winter cold snap demand for power may reach its annual peak. During a heat wave in summer when demand for power is high, river flows may be relatively low and several Federal and non-Federal hydropower projects are spilling water for juvenile fish passage. The EIS analysis for MO3, which includes a measure to breach the four lower Snake River dams, indicates that there is roughly a 14 percent chance of energy shortages in any given year (without factoring in the retirement of additional coal plants). See Section 3.7.3.5 of the Draft EIS, Table 3-165; Appendix J, Chapter 4 shows the seasonal variation of the loss-of-load probability (LOLP) events. For hydropower, the average annual value of the four lower Snake River dams exceeds the average annual equivalent costs. The generation value at the four lower Snake River dams can be described by a range between the cost to replace the generation through new conventional resources or through a portfolio of zero-carbon resources. Although the costs of replacing the power with market purchases was analyzed, it is unlikely that short-term wholesale power markets could reliably replace the power for the long-term. This range would put the annual value of power between $240 million and $500 million for the four dams combined. These numbers represent about 90 percent of the lost benefits cited in Table 3-171 of the Draft EIS because the four dams represent about 1,000 aMW of the 1,100 aMW of lost generation estimated in MO3. The average annual cost to operate and maintain all authorized purposes at the four lower Snake River dams is $75 million (Appendix Q, Table 5-1) and the annual-equivalent capital costs are $32 million (Appendix Q, Table 4-1). Hydropower costs funded by Bonneville represent about $50 million of the total annual operations and maintenance costs and nearly all of the annual capital costs, approximately $31 million. This puts the annual-equivalent power-specific costs at approximately $81 million a year. As a result, the net benefits from hydropower for the four lower Snake River dams are between $159 million and $419 million and the benefit-cost ratios are between 3.0 and 6.2. If the $34 million per year for the Lower Snake River Compensation Plan is added to the capital and expense costs, benefits still exceed costs under each replacement power scenario. Considering these costs, the net benefits range from $125 million to $385 million and the benefit-cost ratios range from 2.1 to 4.3. In the less-likely scenario that generation could be reliably replaced with short-term wholesale market purchases and assuming that the four dams represent 90% of the $150 million in market purchases required to replace the lost generation cited in MO3 (see Draft EIS Table 3-170), the lower bound for net benefits would fall to $54 million and the benefit-cost ratio would fall to 1.7. With the Lower Snake River Compensation Plan included, the lower bound for annual net benefits becomes $20 million and the benefit-cost ratio becomes 1.2. From a resource competitiveness perspective, the four lower Snake River dams are among the least costly generating resources in the Federal Columbia River Power System (FCRPS) and the planned investment strategy is expected to maintain that status. As shown in the Federal Hydropower presentation at the 2018 Integrated Program Review1/, the Headwater/Lower Snake Asset Class/2 is forecast to have a 50-year levelized cost of generation/3 of $11.41/MWh based on the direct funded capital and expense (O&M) programs outlined in that process. These costs remain competitive with volatile Mid-Columbia spot market energy prices, which averaged $37/MWh in 2019 and have averaged $21/MWh in 2020. 1/ The Integrated Program Review (IPR) allows interested parties to see and comment on all relevant Federal Columbia River Power System (FCRPS) capital and expense (O&M) spending level estimates in the same forum. The IPR occurs every two years, or just prior to each rate case, and is the public review for the costs that will be recovered through rates the following two-year rate period. Long-term forecasts for the next 50 years and major upcoming projects are also shared in this forum. This information is available here: https://www.bpa.gov/Finance/FinancialPublicProcesses/IPR/2018IPR/IPR%202018%20Fed%20Hydro%20Workshop.pdf and is incorporated by reference into this EIS.

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					2/ In the 2018 Integrated Program Review, the Headwater/Lower Snake Asset Class consisted of the four lower Snake River dams, Hungry Horse, Libby, and Dworshak dams. These projects were grouped together because they have similar cost characteristics. The Levelized Cost of Generation for the four lower Snake projects alone is slightly lower than that for the whole class including the headwater projects shown in the table. 3/ Levelized Cost of Generation is defined as the forecast direct costs and administrative overhead of producing power at a plant annualized over a 50-year period. This cost includes direct funded operations, maintenance, administrative and capital costs as well as Columbia River Fish Mitigation (CRFM) costs. Bonneville system-wide mitigation costs, such as its Fish and Wildlife program, are not included in this metric.
5281	5	N/A	N/A	The cost of maintaining the 4 Lower Snake River Dams to the national economy is set conservatively at about $150million per year, yet clearly, these dams are largely responsible for the destruction of Wild Salmon runs which used to be seen way up into the Rocky Mountains of Idaho. If we remove the earthen berms around the Lower 4 Snake River Dams, Salmon and Steelhead would again have access to those areas and, their return would bring with them vitality and economic benefits to the region. Economic studies already completed for the region, warrant review and attachment to this EIS draft as they support significant benefits that would be realized to the Tri-Cities region once Snake River again runs free. In transitioning to breach the dams, rate payer funding already allocated to maintaining the 4 obsolete dams, could be used to support a smooth transition of the breach option. Farmers reliant on irrigation could be supported for associated costs of extending piping and pumping capacity from the returnees lower elevations of a free running Snake River.	The four lower Snake River dams do provide for fish passage. Breaching the dams would not give anadromous fish access to currently-blocked areas. Bonneville (or its ratepayers) does not have authority to fund the breach of dams under its statutory authorities. First, Congress granted Bonneville's discretionary direct funding authority (16 U.S.C. 839d-l) for Bonneville, the Corps, and Reclamation to proceed with funding additions, improvements, or replacements to the multiple purpose projects of the CRS without having to first wait for appropriations for the entire activity. Instead, Bonneville provides the power share directly so that the Corps and Reclamation need only seek appropriations to cover the non-power share; that is, the share attributed to the non-power purposes of the dam. Stated another way, Bonneville can provide direct funding to cover only hydropower costs, whereas costs attributable to or shared by other purposes of the dams would be joint projects and would require congressional appropriations to cover the non-hydropower share of the cost. The breach of a dam is not an addition, improvement, or replacement of a dams power features, so the direct funding authority does not apply to the breach of a dam. And, even if Bonneville could provide funding for breach, it could provide no more than the power share of the cost of breaching. Congress would still have to provide appropriations to the Corps for the non-power share. The use of Bonneville's discretionary direct funding authority therefore cannot provide a means of funding the breach of dams absent an act of Congress. Second, Bonneville cannot use its authority under the Northwest Power Act section 4(h)(10)(A) (16 U.S.C. 839(b)(h)(10)(A)) to fund dam breach. The Bonneville Administrator must use the Bonneville Fund to protect, mitigate, and enhance fish and wildlife affected by the operation and development of the Federal Columbia River Power System in a manner consistent with the Northwest Power and Conservation Councils (Council) Fish and Wildlife Program, the Councils Power Plan, and the purposes of the Act. Currently, dam breaching is not part of the current Council Fish and Wildlife Program, the Seventh Power Plan, or evident within the purposes of Act. For example, dam breaching is inconsistent with the statutory purpose of Section 2(6) of the Act, which says in relevant part that anadromous fish are dependent on environmental conditions substantially obtainable from operations and management of the Columbia River System and other hydropower facilities in the basin. Additionally, as demonstrated in Section 3.7 (Power Generation and Transmission) of the EIS demonstrates, dam breaching is also inconsistent with another purpose of the Northwest Power Act, Section 2(2), which provides for assuring the Pacific Northwest an adequate, efficient, economical, and reliable power supply. Section 4(h)(10)(A) therefore does not mandate or confer authority on the Administrator to fund the dam breach. The costs to operate and maintain as well as provide capital investments for the lower Snake River dams are described in Appendix Q, Tables 4-1 and 5-1. For hydropower, the average annual value of the four lower Snake River dams exceeds the average annual equivalent costs. The generation value at the four lower Snake River dams can be described by a range between the cost to replace the generation through new conventional resources or through a portfolio of zero-carbon resources. Although the costs of replacing the power with market purchases was analyzed, it is unlikely that short-term wholesale power markets could reliably replace the power for the long-term. This range would put the annual value of power between $240 million and $500 million for the four dams combined. These numbers represent about 90 percent of the lost benefits cited in Table 3-171 of the Draft EIS because the four dams represent about 1,000 aMW of the 1,100 aMW of lost generation estimated in MO3. The average annual cost to operate and maintain all authorized purposes at the four lower Snake River dams is $75 million (Appendix Q, Table 5-1) and the annual-equivalent capital costs are $32 million (Appendix Q, Table 4-1). Hydropower costs funded by Bonneville represent about $50 million of the total annual operations and maintenance costs and nearly all of the annual capital costs, approximately $31 million. This puts the annual-equivalent power-specific costs at approximately $81 million a year. As a result, the net benefits from hydropower for the four lower Snake River dams are between $159 million and $419 million and the benefit-cost ratios are between 3.0 and 6.2. If the $34 million per year for the Lower Snake River Compensation Plan is added to the capital and expense costs, benefits still exceed costs under each replacement power scenario. Considering these costs, the net benefits range from $125 million to $385 million and the benefit-cost ratios range from 2.1 to 4.3. In the less-likely scenario that generation could be reliably replaced with short-term wholesale market purchases and assuming that the four dams represent 90% of the $150 million in market purchases required to replace the lost generation cited in MO3 (see Table 3-170, Draft EIS), the lower bound for net benefits would fall to $54 million and the benefit-cost ratio would fall to 1.7. With the Lower Snake River Compensation Plan included, the lower bound for annual net benefits becomes $20 million and the benefit-cost ratio becomes 1.2. From a resource competitiveness perspective, the four lower Snake River dams are among the least costly generating resources in the Federal Columbia River Power System (FCRPS) and the planned investment strategy is expected to maintain that status. As shown in the Federal Hydropower presentation at the 2018 Integrated Program Review1/, the Headwater/Lower Snake Asset Class2/ is forecast to have a 50-year levelized cost of generation3/ of $11.41/MWh based on the direct funded capital and expense (O&M) programs outlined in that process. These costs remain competitive with volatile Mid-Columbia spot market energy prices, which averaged $37/MWh in 2019 and have averaged $21/MWh in 2020. 1/ The Integrated Program Review (IPR) allows interested parties to see and comment on all relevant Federal Columbia River Power System (FCRPS) capital and expense (O&M) spending level estimates in the same forum. The IPR occurs every two years, or just prior to each rate case, and is the public review for the costs that will be recovered through rates the following two-year rate period. Long-term forecasts for the next 50 years and major upcoming projects are also shared in this forum. This information is available here: https://www.bpa.gov/Finance/FinancialPublicProcesses/IPR/2018IPR/IPR%202018%20Fed%20Hydro%20Workshop.pdf and is incorporated by reference into this EIS. 2/ In the 2018 Integrated Program Review, the Headwater/Lower Snake Asset Class consisted of the four lower Snake River dams, Hungry Horse, Libby, and Dworshak dams. These projects were grouped together because they have similar cost characteristics. The Levelized Cost of Generation for the four lower Snake projects alone is slightly lower than that for the whole class including the headwater projects shown in the table. 3/ Levelized Cost of Generation is defined as the forecast direct costs and administrative overhead of producing power at a plant annualized over a 50-year period. This cost includes direct funded operations, maintenance, administrative and capital costs as well as Columbia River Fish Mitigation (CRFM) costs. Bonneville system-wide mitigation costs, such as its Fish and Wildlife program, are not included in this metric. The mitigation requested, while identified in the Draft EIS, is not within the co-lead agencies' current authorities. The co-lead agencies do not have the authority to provide mitigation for the effects to private infrastructure such as irrigation pumps, wells, or private docks. However, private and public entities could extend intake pumps, groundwater wells, or other infrastructure. MO3 was not identified as the Preferred Alternative in the Draft EIS.
5339	1	N/A	N/A	For a plan of this scope and magnitude that effects huge numbers of citizens it is beyond unfortunate that such a minimal open comment period was offered. That is not transparency in government. Several of my friends were not aware of this DEIS and the short time frame to comment. If the intent was to fly under the radar it was wildly successful.	The co-lead agencies considered requests to extend the public comment period. This NEPA process included a wide array of cooperating agencies whose close involvement throughout the process allowed the co-lead agencies to incorporate feedback. Given the broad range of comments received and the extensive Federal and non-Federal participation in the overall process as well as the level of public engagement in the six virtual public meetings in the region, the co-lead agencies determined that an extension was not warranted and that the 45-day public comment period was adequate consistent with NEPA regulations. On April 9, the CRSO EIS website was updated to inform the public that they should plan to submit comments by the close of the comment period.
5379	1	smitchel@alscott.com	N/A	attachment below	Unfortunately, an attachment was not received from the commenter. The co-lead agencies requested the commenter resubmit via e-mail on June 25, 2020; however, the co-lead agencies did not receive a response to this request.
5384	1	bjohnstone1@cableone.net	N/A	MO3 needs an accurate cost-benefits analysis of the four lower Snake river dams and the actual power they generate not the design generation capabilities. 8-9 months of the year these dams are not capable of meeting anywhere near design capabilities due to lack of water flow in the river itself. Turbine and generator maintenance cost will be in the 10s of millions of dollars per year. The MO needs a more thorough and realistic economics analysis on the benefits of a restored lower Snake River corridor. Fishing, hunting, rafting and general tourism need to be considered using a actual model.	The EIS evaluated beneficial and adverse effects across an array of resource areas including potential effects at the national, regional and local level; effects are monetized and quantified, where possible, and also described qualitatively. As is common in NEPA analyses, the beneficial and adverse effects of the alternatives are expressed as a variety of qualitative and quantitative environmental and economic metrics throughout the EIS to inform decision-making, including the effects of the alternatives on fish as detailed in Section 3.5. That the effects of the alternatives on fish are not expressed as monetized economic values does not mean that they were not considered in the context of the analysis. The EIS does not employ a cost-benefit framework for decision-making. Instead, the EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-lead agencies numerous legal obligations. While a cost-benefit analysis was not performed, the EIS analysis included a thorough analysis of quantifiable impacts of each Multiple Objective alternative, including impacts on power generation. For MO3, the costs of replacing the lost generating capability of the four lower Snake River dams is discussed in Section 3.7.3.5, Lower Snake River Replacement, page 3-905 in the Draft EIS. The rate impacts of these replacement resources, which includes cost savings from breaching the four lower Snake River dams, is described in Section 3.7.3.5, Table 3-166, page 3-920-924 in the Draft EIS. As described in the EIS, even with the cost savings associated with reductions in dam operating and fish and wildlife mitigation costs, the net impact on power rates is in the range of between 13-50 percent (for zero carbon resources replacements) and 4-10 percent (for natural gas/least cost replacements). The comment is also correct that the four lower Snake River projects do not operate at full capacity all year. However, this is the case for most resources. Very few hydropower projects or other resources, including natural gas, wind, and solar, operate at their designated name-plate capacity for most of any year. On average, these projects produce power year-round, including during times of peak demand. For example, using average water conditions, and an 80-year water data, the four lower Snake River dams produce between 460 aMW to upwards of 1,400 aMW of power during the winter months of December through February, which are typically the most energy intensive months for Bonneville. See EIS, Section 3.7.3.5, Changes in Power Generation, Table 3-159 in the Draft EIS. For hydropower, the average annual value of the four lower Snake River dams exceeds the average annual equivalent costs. The generation value at the four lower Snake River dams can be described by a range between the cost to replace the generation through new conventional resources or through a portfolio of zero-carbon resources. Although the costs of replacing the power with market purchases was analyzed, it is unlikely that short-term wholesale power markets could reliably replace the power for the long-term. This range would put the annual value of power between $240 million and $500 million for the four dams combined. These numbers represent about 90 percent of the lost benefits cited in Table 3-171 of the Draft EIS because the four dams represent about 1,000 aMW of the 1,100 aMW of lost generation estimated in MO3. The average annual cost to operate and maintain all authorized purposes at the four lower Snake River dams is $75 million (Appendix Q, Table 5-1) and the annual-equivalent capital costs are $32 million (Appendix Q, Table 4-1). Hydropower costs funded by Bonneville represent about $50 million of the total annual operations and maintenance costs and nearly all of the annual capital costs, approximately $31 million. This puts the annual-equivalent power-specific costs at approximately $81 million a year. As a result, the net benefits from hydropower for the four lower Snake River dams are between $159 million and $419 million and the benefit-cost ratios are between 3.0 and 6.2. In the less-likely scenario that generation could be reliably replaced with short-term wholesale market purchases and assuming that the four dams represent 90% of the $150 million in market purchases required to replace the lost generation cited in MO3 (see Table 3-170, Draft EIS), the lower bound for net benefits would fall to $54 million and the benefit-cost ratio would fall to 1.7. With the Lower Snake River Compensation Plan included, the lower bound for annual net benefits becomes $20 million and the benefit-cost ratio becomes 1.2. From a resource competitiveness perspective, the four lower Snake River dams are among the least costly generating resources in the Federal Columbia River Power System (FCRPS) and the planned investment strategy is expected to maintain that status. As shown in the Federal Hydropower presentation at the 2018 Integrated Program Review1/, the Headwater/Lower Snake Asset Class/2 is forecast to have a 50-year levelized cost of generation/3 of $11.41/MWh based on the direct funded capital and expense (O&M) programs outlined in that process. These costs remain competitive with volatile Mid-Columbia spot market energy prices, which averaged $37/MWh in 2019 and have averaged $21/MWh in 2020. 1/The Integrated Program Review (IPR) allows interested parties to see and comment on all relevant Federal Columbia River Power System (FCRPS) capital and expense (O&M) spending level estimates in the same forum. The IPR occurs every two years, or just prior to each rate case, and is the public review for the costs that will be recovered through rates the following two-year rate period. Long-term forecasts for the next 50 years and major upcoming projects are also shared in this forum. This information is available here: https://www.bpa.gov/Finance/FinancialPublicProcesses/IPR/2018IPR/IPR%202018%20Fed%20Hydro%20Workshop.pdf and is incorporated by reference into this EIS. 2/In the 2018 Integrated Program Review, the Headwater/Lower Snake Asset Class consisted of the four lower Snake River dams, Hungry Horse, Libby, and Dworshak dams. These projects were grouped together because they have similar cost characteristics. The Levelized Cost of Generation for the four lower Snake projects alone is slightly lower than that for the whole class including the headwater projects shown in the table. 3/Levelized Cost of Generation is defined as the forecast direct costs and administrative overheads of producing power at a plant annualized over a 50-year period. This cost includes directed funded operations, maintenance, administrative and capital costs as well as Columbia River Fish Mitigation (CRFM) costs. Bonneville system-wide mitigation costs, such as its Fish and Wildlife program, are not included in this metric.
5416	1	N/A	N/A	Removal of the four lower Snake River dams would also limit the regions ability to meet its clean energy goals. The four dams combined generate more than 1,000 average megawatts of affordable, carbon-free electricity. They allow us the flexibility to safely integrate other renewables such as wind and solar into the grid. We need these resources to build upon as we work toward a clean, renewable energy future.	The information provided in the comment regarding greenhouse gas emissions and the integration of renewables is consistent with the findings of the EIS. See Draft EIS, Section 3.7.3.5, Lower Snake River Full Replacement, pages 3-905-907.

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5416	2	N/A	N/A	Reliable service is also critical to the success of our local economy. When a pear is picked from a tree in the fall, that pear must be transported to a controlled atmosphere environment and cooled from the ambient temperature of perhaps 90 degrees to 30 degrees in 24 hours or less in order to maintain peak quality and marketability through next several months. According to the DEIS, the loss of the lower Snake River dams would double the regions risk of blackouts. A blackout during harvest could result in financial ruin for the fruit producers in our service territory and throughout the region.	The comments that breaching the four lower Snake River dams would increase the frequency of power shortages unless replacement resources were built and could have adverse socioeconomic effects are consistent with EIS findings. See Draft EIS, Section 3.7.3.5, page 3-903. The co-lead agencies did not include the measure to breach the four lower Snake River dams, which was evaluated in MO3, in the Preferred Alternative identified in the Draft EIS.
5443	1	beverlynichols58@yahoo.com	N/A	Within the United States, the Columbia-Snake River watershed is the most important source of salmon for the endangered Puget Sound orcas. In its 2008 Recovery Plan for Southern Resident Killer Whales, NOAA Fisheries underscored the importance of this watershed to the orcas, stating that, [p]erhaps the single greatest change in food availability for resident killer whales since the late 1800s has been the decline of salmon from the Columbia River basin. The endangered orcas forage in the coastal waters of the Northeast Pacific Ocean more than half the year. According to satellite tags, the orcas travels often center around the mouth of the Columbia River when Snake River Chinook are returning to the Columbia. The births of eight surviving orca calves between December 2014 and January 2016 coincided with larger Snake River hatchery salmon runs that occurred in 2013 through 2015, in association with a hatchery research project that greatly inflated the runs. Although the research project has ended, it provides good evidence that when there are plentiful Snake River Chinook, the endangered orcas can conceive, reproduce, survive and recover. Breaching the dams would be the single measure most likely to recover abundant salmon and steelhead in time to enable the endangered Puget Sound orcas to survive.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets most other EIS objectives including those for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS, the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams, because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. SRKW analysis is described in the EIS including in the FEIS Chapter 3 (Vegetation, Wetlands, Wildlife, and Floodplains) which has been updated for SRKW (Section 3.6.2.6 and Table 3-102) and FEIS Chapter 7 (Preferred Alternative) with additional analysis information on SRKW and potential increase in forage fish, in particular, Chinook salmon in Section 7.7.8. The co-lead agencies utilized current high quality information and best available science in its analysis of the effects of the operation, maintenance, and configuration of the CRS projects. The determination for SRKW in regards to MO3 was based on the following facts: The population dynamics of the SRKW are complicated and there are multiple factors that contribute to the overall success of this species. The quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differently from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for the whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall-run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall-run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). Details on the most crucial prey stocks for Southern Resident killer whales, as well as their population and range, is available from several fact sheets and videos available here: https://www.fisheries.noaa.gov/species/killer-whale#spotlight. For more information, visit this NMFS StoryMap on Southern Resident killer whales: https://noaa.maps.arcgis.com/apps/Cascade/index.html?appid=3405e6637bf74e998d4ebe992c54f613. According to NMFS and the EPA, the estimated SRKW population has fluctuated between 67 and 98 whales between 1960 and 2015. The Snake River dams were constructed between 1962 and 1975. The SRKW population increased from a record low in 1970 to its highest population numbers in 1995. Those years were not high years for Snake or Columbia River Chinook Salmon. Ocean conditions between 2011 and 2013 were good years for salmon. At the same time, 2010 and 2013 were good outmigration years. Particularly, 2011 and 2012 were above normal in water supply, which would mean more cooler water was available and there was better survival of salmon, and 2011 through 2014 were higher than normal spill years as well. The combination of outmigration and ocean conditions created improved adult salmon returns. The EIS has analyzed spill as a measure in the Preferred Alternative and determined the overall effect to SRKW to be negligible in large part because hatchery production is consistent between the No Action Alternative and the Preferred Alternative. Because the impact from the Preferred Alternative was determined to be negligible, the agencies determined that existing hatchery production would be sufficient to address any potential impacts to prey availability for SRKWs. The co-lead agencies note the contribution to the prey of SRKW through the continued existence of their respective independent Congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as the Lower Snake River Compensation Plan (other than under MO3), which is administered by USFWS. The Preferred Alternative and Proposed Action in the agencies' biological assessment carry forward certain mitigation measures described in Chapters 2 and 7 of the EIS, which include continued salmon and steelhead hatchery production. The Preferred Alternative has negligible effects to SRKWs as described in Section 7.7.8. The Biological Assessment (BA) describes the effect of the Proposed Action on the SRKW forage species (see BA Section 3.5.1.2, Southern Resident Killer Whale). The proposed changes in operation of the Columbia River System include increased spring spill during the downstream migration of juvenile spring and summer run Chinook salmon. The result of this action includes potential increases of juvenile fish passing through the spillways, reductions in juvenile fish direct and indirect mortality associated with downstream passage, and the Comparative Survival Study (CSS) model predicts increases in numbers of returning adults, which will benefit SRKWs foraging in and around the mouth of the Columbia River in winter and spring (See EIS Section 7.7.8). The CSS model results predicts Snake River Chinook salmon would have relative improvements in smolt-to-adult returns of 35 percent (see EIS Section 7.7.4). The smolt-to-adult return ratio (SAR) is the rate at which of a group of fish survive from their smolt life stage to a defined ending point where they return as adults. While recovery targets will require more than just the efforts of federal agencies, the CSS models indicate the potential for SARs of Snake River Chinook salmon and steelhead to increase to levels that could approach recovery targets set by the Northwest Power and Conservation Council. The BA, also consistent with the EIS, acknowledges past improvements to the configuration and operation of the Columbia River System, additional improvements to the environmental baseline as a result of completed estuary and tributary habitat actions, and the prospective non-operational conservation measures proposed in Chapter 2 of the Draft EIS, all contribute towards maintaining and improving Chinook abundance. Relevant conservation measures include, among other things, a commitment to continue funding the conservation and safety net hatchery programs listed in Chapter 2 of the Draft EIS. As discussed above, the agencies will fulfill congressionally authorized hatchery mitigation objectives through the funding of hatchery programs that are operated consistent with their independent hatchery program consultations during the term covered by this consultation. Based on those hatchery program consultations, the production levels associated with congressionally authorized hatchery mitigation objectives will continue, at minimum, to be consistent with levels previously analyzed by NOAA in the system consultations in 2008, 2014, and 2019. For the 2020 ESA consultations, therefore, the agencies expect that collectively, all of the actions described above (substantial modifications to migration conditions designed to benefit key prey species, combined with improvements to Chinook spawning and rearing habitat in the tributaries and Columbia River estuary, and continued hatchery production) ensure that remaining Chinook mortality from all sources in the mainstem migratory corridor will continue to be more than offset, resulting in a net gain in Chinook salmon abundance available as a prey source for SRKW. Finally, the 2019 NMFS Fisheries BiOp included increased spring spill operations that are similar to operations evaluated in CRSO EIS, and NOAA validated that the hatchery production of Chinook salmon mitigates for the impacts of operating the Columbia River System and total mortality through the mainstem migratory corridor from all sources.
5443	2	beverlynichols58@yahoo.com	N/A	The recent Ninth Circuit decision in United States v. Washington, No. 13-35474, 2016 U.S. App. LEXIS 11709 (9th Cir. June 27, 2016), held that both Washington State and the United States governments are liable to signatory tribes for blocking or impeding salmon migration in violation of the 1855 Stevens Treaties. This exposes the United States and potentially Washington State to huge damages liability to the tribes, if the dams continue to be maintained. This liability can be cut off by breaching the dams this year.	Tribal input, concerns, interests, and especially treaty rights were considered throughout the Draft EIS analyses and in the formulation of the Preferred Alternative. Treaty specific information is included in Section 3.17 as well as Chapter 7. The co-lead agencies recognize and respect the legal obligations imposed by treaties. The co-lead agencies accordingly included Protecting Native American treaty and reserved rights and fulfilling trust obligations for natural and cultural resources throughout the environment affected by the Columbia River System operations as a purpose in the Purpose and Need Statement in Chapter 1 to ensure treaty obligations were a key consideration of decision making. The co-lead agencies are engaging in government-to-government consultation with the tribes, and several tribes are cooperating agencies on the CRSO EIS. The EIS recognizes the economic and cultural importance of salmon to Tribes in a number of sections throughout the document. The cultural significance and impacts of salmon and steelhead fisheries are described in the Ceremonial and Subsistence Fisheries sub-section and the Social Importance of Commercial, Ceremonial and Subsistence Fisheries sub-section of Section 3.15.2.1. Fisheries tribal interests are provided in Section 3.15.4 additional details regarding the economic significance of salmon and steelhead fisheries have been added to the recreation analysis (Section 3.11) including tribal interests (Section 3.11.3.7). Treaty rights are discussed in the Executive Summary, Section 3.16 Cultural Resources, and Section 3.17 Indian Trust Assets, Tribal Perspectives, and Tribal Interests. Appendix P includes copies of tribal perspectives that were submitted by tribes. Tribal consultation is described in Sections 1.5, 3.5, and 3.15; and Chapter 9. Most sub-sections within Chapter 3 include a Tribal Interests section at the end of the sub-section that attempts to summarize tribal issues by topic. Currently, fish ladders are proven effective at moving adult fish upstream at the dams that have them. In terms of bypassing fish upstream, the current configurations of the CRS dams that have fish ladders already have effective upstream adult passage. The 4 lower Snake and 4 lower Columbia River dams also have systems for bypassing fish around turbines and powerhouses. Analysis shows that the Preferred Alternative would meet the objectives for improving juvenile salmon, adult salmon, resident fish and lamprey. The analysis found ranges in potential effects due to different assumptions included in each of the fish models used in the study. Using the Comparative Survival Study (CSS), Snake River Chinook salmon and steelhead are expected to see relative improvements in smolt-to-adult returns of 35 percent and 28 percent, respectively. The Smolt-to-Adult return ratio (SAR) is the rate at which of a group of fish survive from their smolt life stage to a defined ending point where they return as adult. While achieving long-term recovery targets will require more than just the efforts of Federal agencies, the CSS models indicate the potential for SARs of Snake River Chinook salmon and steelhead to increase to levels that could approach recovery targets set by the Northwest Power and Conservation Council. If latent mortality effects are reduced by passing more juvenile fish through the spillway, the NMFS Lifecycle Model (LCM) also shows that levels of SARs would increase. However, if latent mortality effects are not reduced, or are different than modeled, the LCM predicts that SARs for Snake River spring Chinook salmon may be lower than the No Action Alternative (a range of -7.5 percent to +28 percent change relative to the No Action Alternative) due to reduced opportunities for fish transportation. Results for upper Columbia River stocks are beneficial based on LCM estimates. In-river survival and SARs are anticipated to increase. The CSS model does not currently model upper Columbia fish. The Preferred Alternative also has measures intended to increase upstream passage success and reduce injury and mortality for Pacific lamprey. These measures are proposed structural improvements that include converting extended-length submersible bar screen material to screen material that would not impinge or entangle juvenile lamprey, expanding the network of lamprey passage structures to bypass impediments in fish ladders, changing the design for turbine cooling water strainers, and replacing turbines for safer fish passage. The Preferred Alternative would also meet the objective to improve resident fish. Effects to resident fish vary by region and species, but are generally minor relative to the No Action Alternative.
5447	1	ttidwell1@hotmail.com	N/A	The Executive Summary and the DEIS are misleading when they over emphasize the consequences of power generation reduction with alternative MO3, breaching the 4 lower Snake River (LSR) dams. These dams produce only 4-5% of FCRPS average power generation and produce less power than BPA currently exports to other regions. The secondary power generation from the other dams easily replaces the power generation from the lower Snake River dams. Given there maybe a few days of peak power use in the winter and summer when the LSR dams add system capacity, but this can be provided by other resources. The DEIS does reference that the loss of power generation with MO3 could be replaced through conservation, solar, wind,	The comment suggests that the regional supply of power is sufficient without the output of the four lower Snake River dams, and even sufficient without replacing the output of the four lower Snake River dams with other resources. The comment reaches this conclusion by comparing the average resource output for the remaining regional resources (without the four lower Snake River dams) with average load in the region. Such an approach, however, only demonstrates that on average that is under average conditions - all power system needs would be met. This approach does not address conditions other than average. That is, regional demands for power would not be met at times of greater than average load or lower than average resource output. In those instances, power system emergencies or blackouts would occur. The EIS uses a more robust measure of power system reliability and resilience than the average MWs approach suggested by the commenter. Specifically, the EIS uses the loss-of-load probability (LOLP) metric utilized by the Northwest Power and Conservation Council. See draft EIS, Section 3.7.2.2; Appendix H Power and Transmission, at Section 2.1; Appendix I Hydroregulation, Section 2.4.4. The LOLP metric evaluates the adequacy of the power supply in the region to meet firm power

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				and batteries. In addition the DEIS does not show the potential for increased power generation from more efficient turbines or increasing the average capacity at CRS dams.	needs under various conditions. It is measured in terms of a percentage, and represents the likelihood of a year having one or more blackouts. See Appendix H Power and Transmission, at Section 2.1 in the draft EIS. The current LOLP under the No Action Alternative is 6.6 percent; this is equivalent to a year with one or more blackouts in every 15 years. The EIS uses this LOLP level as the benchmark from which to gauge the other MOs. Under Multiple Objective (MO) Alternative 3, on average, the region has surplus generation leading to export sales during certain periods and water years. Nevertheless, to maintain regional reliability at the LOLP levels of the No Action Alternative, replacement resources would be needed. This is driven by the timing and magnitude of changes in hydropower generation analyzed in the EIS. As shown by the analysis of the LOLP, in some years and times of the year, particularly winter and later in the summer of drier years, without the four lower Snake River dams there would be insufficient power supply in the region leading to power emergencies and blackouts. Specifically, without replacing the power from the four lower Snake River dams, the LOLP of the region would more than double to 14 percent, which is equivalent to one or more blackouts every seven years. See Section 3.7, page 3-903 and Appendix H-Power and Transmission, at Table 2-1 in the draft EIS. The commenter also presumes that the power produced from the four lower Snake River dams is surplus and exported out of the region. The power output for the four lower Snake River dams are not exclusively sold as surplus as the commenter suggests. Bonneville sells power from the Federal Columbia River Power System (FCRPS) as a unified system, not from specific projects. In this regard, the power generated from the four lower Snake River dams are pooled with all other FCRPS power sold by Bonneville to meet Bonneville's collective power obligations. Most of this power is used to meet the loads of regional publicly owned utilities, such as municipalities, rural utilities, and public utility districts under long-term power-sales contracts (see Section 3.7.2.5 Bonneville Power and Transmission Customers in the draft EIS). A small portion of power is sold in the California energy market, but these sales are not from specific projects, but rather from the collective FCRPS. Finally, the references to a regional surplus does not take into account the accelerated loss of coal from the region in coming years. The EIS relied on existing coal retirements for its analysis. See draft EIS, Section 3.7.3.5, at page 3-841 and Appendix H, Section 2.3. As discussed in these parts of the EIS, with accelerated coal retirements, the region would likely experience a significant regional deficit of power, which would require adding additional power resources to maintain power system reliability at the No Action Alternative levels. See draft EIS Sections 3.7.3.3 through 3.7.3.6 and in Section 3.7.3.5, Potential Replacement Resources and Associated Costs; see also Section 3.7.3.2, Table 3-12. The No Action Alternative incorporates turbine upgrades at McNary dam and Ice Harbor dam. Therefore, these increases in efficiency are already included in the evaluation of the current reliability. (See draft EIS Section 2.4.2.1.) The action alternatives, including the Preferred Alternative, include planned turbine upgrades at John Day Dam, as discussed in the draft EIS in Sections 2.4.3.1, 2.4.4.1, 2.4.5.1, 2.4.6.1, and 7.6.2.15.
5447	2	ttidwell1@hotmail.com	N/A	The DEIS does describe in detail the less cost and GHG consequences of replacing the loss of power generation with fossil fuel production (coal and natural gas) which would lead the public to think that this is the only option. This is contrary to what is happening in the west with more renewable energy on the market and more being developed. One example is all new housing construction in California is required to have solar panels. The DEIS quantifies by acreage the number of solar panels needed to replace both the primary and secondary power generation of the 4 LSR dams, but the final EIS needs to display the annual increase in renewable power generation that has been occurring and projections for the future especially if there is an increase in market. According to an article in the New York Times, in 2019 solar capacity increased 23% from the year before and is projected to increase by another 19% this year. In several western states wind turbines and solar panels now produce electricity at a lower cost than natural gas and coal. Over the next 5 years total solar capacity will more than double (SEIA).	The EIS acknowledges the increase in renewable power generation occurring in the region in Section 3.7.2.1, Power Generation (see Figure 3-160 in the draft EIS). The EIS also uses the best available resource information from the Northwest Power and Conservation Councils, 7th Power Plan and Mid-term Update to evaluate potential replacement resources. The basis for developing both of these portfolios may be found in Section 3.7.3.1, Methodology, and Section 3.7.3.5, Potential Replacement Resources and Associated Costs for Multiple Objective Alternative 3, specifically. In addition, regarding the potential increase in renewable power generation, the EIS presents the increased solar generation from the replacement portfolios. See Table 5-16 in Section 5.2.1 of Appendix H in the draft EIS. As described in Section 3.7.3.1, Availability of Coal Resources (page 3-841 in the draft EIS) and Section 3.7.3.2, Effects on Power System Reliability (pages 3-845-847 in the draft EIS), the region is retiring the majority of coal-fired generation, and it is likely that the region could develop considerable quantities of solar generation to replace the coal generation. Based on responses to public comments, the final EIS contains an expanded description of how the potential replacement resource portfolios were selected for the EIS. (See Section 3.7.3.1 in the draft EIS).
5447	3	ttidwell1@hotmail.com	N/A	The DEIS indicates the cost of electricity with alternative MO3 will increase which is misleading. Especially after 2028 when firm power sales contracts expire and preference customers will have a choice to purchase power from other power suppliers. As stated in the DEIS the average spot market price for power has steadily declined due to the abundance of low-cost natural gas and large-scale development of variable renewable energy resources, such as wind and solar. There is nothing in the law that directs BPA to maximize power generation and BPA currently over produces power generation and then sells secondary power at a significant discount. The final EIS needs to display the price for secondary power compared to what their find and preference customers pay.	Chapter 4.1 of Appendix H presents both the average market prices and Bonneville wholesale power rates for all alternatives. The surplus power price is below that of Bonneville's wholesale power rates, but the comment incorrectly suggests that: (a) the wholesale spot-market price for power is equivalent to the firm power provided under Bonneville's long-term power sales contracts; and, (b) that customers could purchase all their power from the spot market. The spot market price is for wholesale market energy purchases for surplus energy. It does not ensure availability nor deliverability, and is not suitable for load service, i.e., service to a load in any amount at all times. It is suitable only for buying and selling around firm load and resource forecast error, and for reducing system and fuel costs where and when more optimal and lower cost dispatch of energy resources is possible. The spot market does not always have power available. Bonneville's long-term power sales are sold at a rate that is designed for firm load service; it ensures that what is needed is provided regardless of weather, hydrologic conditions, load, wind, market depth, or solar variability. See Section 3.7.2.7, Power Rate Determination, for additional details. The commenter is correct that preference customers will have a choice in 2028 to purchase power from Bonneville or from other sources. See Section 3.7.2.5, at pages 3-801-02 in the Draft EIS; Section 3.7.3.1, at pages 3-842-43 in the Draft EIS. This option is captured in Section 3.7.3.1, Financing Portfolios, page 3-815 in the Draft EIS. Whether Bonneville acquires new resources or customers acquire new resources themselves, the end-user rates will increase to cover this cost. For Multiple Objective 3, Section 3.7.3.5, Table 3-172 in the Draft EIS shows the effect on retail rates for these options, and Table 3-176 in the Draft EIS shows the impact on commercial and industrial customers. Finally, to maintain regional reliability at the No Action Alternative levels, replacement resources would be needed under Multiple Objective 3 (MO3). The cost of replacing the capability of the four lower Snake River dams is described in detail in the Draft EIS in Section 3.7.3.5, Potential Replacement Resources and Associated Costs. The Draft EIS takes into account the cost savings from the breaching of the four lower Snake River dams. Even with these savings, base rates paid by customers of Bonneville (local public and community owned utilities) would likely increase. Using natural gas as the replacement resource (the least-cost resource portfolio) Bonneville's wholesale power rates could increase 4 percent to 10 percent. See Table 3-166 in the Draft EIS. Using zero-carbon resources to replace lost capability from the four lower Snake River dams capability, Bonneville's wholesale power rate could increase 13 percent to 50 percent. See Table 3-166 in the Draft EIS.
5447	4	ttidwell1@hotmail.com	N/A	With river navigation, the DEIS states that downriver tonnage on the Columbia River has increased but on the Snake River it has decreased. In 2018 less than 6% of downriver tonnage passed through the locks on the lower Snake River dams with over 94% entering below Ice Harbor Dam and on the Columbia River. The DEIS overestimates that the cost of transportation of agriculture products will increase with the breaching of the 4 LSR dams. According to the DEIS there has been a 47-50% reduction in downriver wheat and barley tonnage on the LSR and no indication that it will increase. Construction of shuttle rail facilities in the Palouse is just one example of how the market and designation of product determines the mode of transportation. By using examples that transportation costs will increase with the breaching of the 4 LSR dams is misleading since the data indicates that less tonnage is being transported on the lower Snake River which indicates that truck and/or rail is a viable transportation option. Also I did not find in the DEIS that commercial river navigation does not pay for the locks O&M costs and the necessary dredging. This cost is covered by the public through Congressional appropriations. In the final EIS, this cost should be displayed to show the true cost comparison of river transportation versus land transportation.	Access to barge transportation is the most cost effective means of accessing export markets for many of grain producers in the Northwest currently and removing that option will increase transportation costs for grain producers, as the EIS shows. It is true however, that barge movements on the Snake/Columbia river have declined over the past 20 years, but it also appears that the decline has stabilized over the past 10 years. The commenter is correct that the lower Columbia River volumes have increased downriver from Portland, Oregon due to the expansion of export terminals that ship soybeans/corn coming from the Midwest U.S. The EIS provides the history of volumes moving down the Snake River in Section 3.10. Cost analysis results for alternatives and associated system operations are described in Section 3.18. Appendix Q provides additional details regarding O&M costs, including dredging.
5447	5	ttidwell1@hotmail.com	N/A	With alternative MO3 there will be economic impacts to some ongoing river activities. Definitely the cruise boats operating on the Snake River will have to change their operation. However the DEIS just shares information on current operations and does not use economic data that would offset the economic losses. The final EIS needs to display the potential for different recreation opportunities that would occur with a free flowing river and still have the cruise boats operating on the Columbia River.	Cruise ship visitation is characterized in Section 3.10, including a description of its economic contribution to the region. Section 3.10.3.5 describes the contribution of cruise ships as supporting approximately 230 jobs in the region, $6.2 million in labor income, and $17.8 million in annual output (sales). Impacts on the industry are described in Section 3.10.3.5. Under MO3, it is assumed that cruise boats would no longer be able to operate on the lower Snake River. River recreation that would occur post dam breach in the long-term under MO3 is described in Section 3.11.3.5.
5447	6	ttidwell1@hotmail.com	N/A	As I stated before, the navigation economics uses data that is no longer relevant and needs to use current information to show the economic impact to river transportation. According to the DEIS downriver tonnage of wheat and barley through the locks on the LSR dams has decreased from 4.8 million tons to the low of 2.4-2.7 million tons annually. The vast majority of the annual 67 million tons of downriver tonnage occurs below Ice Harbor Dam on the Columbia River. The lower Snake River only supports 5-6%. And again the final EIS needs to include the cost of O&M for locks and dredging when discussing the economics of river navigation.	Access to barge transportation is the most cost effective means of accessing export markets for many grain producers in the Pacific Northwest currently and removing that option will increase transportation costs for grain producers, as the EIS shows. It is true however, that barge movements on the Snake/Columbia river have declined over the past 20 years, but it also appears that the decline has stabilized over the past 10 years. For evaluating effects, 2.4 million tons is used, which reflects the average over the past 10 years. The forecast of tonnage on the lower Snake River is 2.4 million tons, as described in Section 3.10.3.5. Cost analysis results for alternatives and associated system operations are described in Section 3.18. Appendix Q provides additional details regarding O&M costs, including dredging.
5447	7	ttidwell1@hotmail.com	N/A	With irrigation benefits from the lower Snake River dams the DEIS states that the water table will drop and modifying existing pump systems is cost prohibitive. I question this statement where upgrading the surface and groundwater infrastructure can be done with one estimate of $200 million.	In Region C (lower Snake River), and potentially Region D (mainstem Columbia River) around the confluence of the lower Snake River, MO3 alternative, which includes breaching the earthen embankment of the four lower Snake River dams, would have adverse effects to farmers and irrigation. Currently and in the No Action Alternative, water is available from the pools of these facilities and from groundwater that results from the pools. Removing the earthen embankment portion of the dams will reduce pool elevations by up to 100 feet, which would make surface pumps inoperable. Groundwater pumps in the wells may also be affected due to decreased groundwater elevations depending on the connectivity of the aquifer to the pools. Municipal and industrial water pumps in the Lewiston area would also likely be adversely effected. The analysis in the EIS estimates a range of $132,145,280 to $205,656,518 for municipal and industrial (not including irrigation) water supply modification construction costs for pumps and wells. Private or public entities or businesses could take actions and/or build infrastructure to extend pumps or water supply access for water. The Corps (2002b) report analyzed dam breaching and its effect on water supply. This analysis considered several system modifications that would allow for the continuation of water deliveries to existing farmlands. The report concluded that modifying the existing pump system was cost prohibitive. See Chapter 3 analyzes the social and economic effects of implementing a dam breaching alternative (MO3) and Chapter 5 for mitigation discussion.
5447	8	ttidwell1@hotmail.com	N/A	The final EIS also needs to display the increase in costs to the public when interest on BPA debt increases and also what happens if interest rates increase. The public needs to be aware that BPA loses millions of dollars each year with the operation of dams that are not economically viable. The final EIS needs to clearly state that the operation of the 4 LSR dams results in a net annual loss of $71 million to BPA. The final EIS needs to document the economic impact of both past and future land management activities on both public and private land to help mitigate the dam impacts to anadromous fish. Yes, BPA has provided funding to offset some costs of structures and habitat improvement, but here is no compensation to land owners or the public for actions that have been implemented to prevent the loss of anadromous fisheries especially in Washington, Oregon, Idaho and Montana. The economic impacts include but not limited to impact on ranching and farming operations, costs to maintain forest resiliency, impacts to recreation and O & G businesses, impacts to communities that depend on anadromous fisheries as a main economic activity and also the loss to the public with the reduction in opportunities to fish and now with the high likelihood of eliminating the viability of wild anadromous fish in Idaho.	The EIS provides an evaluation of the social welfare and regional economic effects of the No Action Alternative and the Multiple Objective alternatives, including the effects on recreation (Section 3.11) and commercial fisheries (Section 3.15). The EIS Section 3.5.3.6 describes the long-term effects to anadromous fish migration in the Snake River and tributaries that would occur under a dam breach scenario as major and beneficial, although quantitative impacts from fish modeling results are limited. The EIS described the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. NMFS estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which is described qualitatively. For the effects on recreational fishing under MO3 (Section 3.11.3.5) along the lower Snake River below Lewiston, the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River) as an indicator for fishing visitation in this reach. The EIS describes that the visitation in the long-term in the lower Snake River, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting outfitting and tourism businesses in the region. The social welfare values and regional economic effects associated with recreational fishing under the MOs, as well as river recreation post dam breach under MO3, were not estimated because of the uncertainty and large range in visitation and consumer surplus values among users. For hydropower, the average annual value of the four lower Snake River dams exceeds the average annual equivalent costs. The generation value at the four lower Snake River dams can be described by a range between the cost to replace the generation through new conventional resources or through a portfolio of zero-carbon resources. Although the costs of replacing the power with market purchases was analyzed, it is unlikely that short-term wholesale power markets could reliably replace the power for the long term. This range would put the annual value of power between $240 million and $500 million for the four dams combined. These numbers represent about 90 percent of the lost benefits cited in Table 3-171 of the Draft EIS because the four dams represent about 1,000 aMW of the 1,100 aMW of lost generation estimated in MO3. The average annual cost to operate and maintain all authorized purposes at the four lower Snake River dams is $75 million (Appendix Q, Table 5-1) and the annual-equivalent capital costs are $32 million (Appendix Q, Table 4-1). Hydropower costs funded by Bonneville represent about $50 million of the total annual operations and maintenance costs and nearly all of the annual capital costs, approximately $31 million. This puts the annual-equivalent power-specific costs at approximately $81 million a year. As a result, the net benefits from hydropower for the four lower Snake River dams are between $156 million

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					and $417 million and the benefit-cost ratios are between 2.9 and 6.1. If the generation could be reliably replaced with short-term wholesale market purchases (see Table 3-170 of the Draft EIS), the lower bound for net benefits would fall to $57 million and the benefit-cost ratio would fall to 1.7. From a resource competitiveness perspective, the four lower Snake River dams are among the least costly generating resources in the Federal Columbia River Power System (FCRPS) and the planned investment strategy is expected to maintain that status. As shown in the Federal Hydropower presentation <Blockedhttps://www.bpa.gov/Finance/FinancialPublicProcesses/IPR/2018IPR/IPR%202018%20Fed%20Hydro%20Workshop.pdf> at the 2018 Integrated Program Review1/, the Headwater/Lower Snake Asset Class/2 is forecast to have a 50-year levelized cost of generation/3 of $11.41/MWh based on the direct funded capital and expense (O&M) programs outlined in that process. These costs remain competitive with volatile Mid-Columbia spot market energy prices which averaged $37/MWh in 2019 and have averaged $21/MWh in 2020. 1/ The Integrated Program Review (IPR) allows interested parties to see and comment on all relevant Federal Columbia River Power System (FCRPS) capital and expense spending level estimates in the same forum. The IPR occurs every two years, or just prior to each rate case, and is the public review for the costs that will be recovered through rates the following two-year rate period. Long-term forecasts for the next 50 years and major upcoming projects are also shared in this forum. This information is available here: Blockedhttps://www.bpa.gov/Finance/FinancialPublicProcesses/IPR/2018IPR/IPR%202018%20Fed%20Hydro%20Workshop.pdf <Blockedhttps://www.bpa.gov/Finance/FinancialPublicProcesses/IPR/2018IPR/IPR%202018%20Fed%20Hydro%20Workshop.pdf> and is incorporated by reference into this EIS. 2/ In the 2018 Integrated Program Review, the Headwater/Lower Snake Asset Class consisted of the four lower Snake River dams, Hungry Horse, Libby, and Dworshak dams. These projects were grouped together because they have similar cost characteristics. The Levelized Cost of Generation for the four lower Snake projects alone is slightly lower than that for the whole class including the headwater projects shown in the table. 3/ Levelized Cost of Generation is defined as the forecasted direct costs and administrative overheads of producing power at a plant annualized over a 50-year period. This cost includes direct funded operations, maintenance, administrative and capital costs as well as Columbia River Fish Mitigation (CRFM) costs. Bonneville systemwide mitigation costs, such as its Fish and Wildlife program, are not included in this metric.
5447	9	ttidwell1@hotmail.com	N/A	In the section of the DEIS addressing climate change I appreciate that the current science is shared that shows how the climate is warming and will only increase in the near future. The DEIS also indicates how climate change will affect stream flow, amount and timing of spring runoff, and snow pack. But the final EIS also needs to emphasize that fish access to the cold water habitat provided in the Snake River drainage is essential to maintain the viability of wild anadromous fisheries.	The scope of the EIS includes areas affected by the operations and configuration of the CRS projects; the comment is not clear as to what portion of the Snake River drainage is the subject of the comment. The Snake River basin upstream of the Lower Snake River projects is currently accessible to anadromous fish via fish ladders on these projects, and the effects to fish from each of the alternatives is analyzed in Chapter 3 of the Draft EIS. The Snake River drainage above the Hells Canyon Complex is outside of the scope of this EIS as the co-lead agencies do not have jurisdiction over these projects.
5447	10	ttidwell1@hotmail.com	N/A	The DEIS is very clear that with the preferred alternative, unless there is a significant reduction in latent mortality, which the DEIS provides no assurances, we will continue to see a reduction in SAR. We are on the cusp where it will only take a few years with low SAR and we could lose the wild anadromous fisheries in the Snake drainage. The DEIS states that BPA is not responsible for the recovery of threatened and endangered fish species. BPA is required by law to not likely jeopardize the continued existence of any threatened or endangered species, but BPA is also responsible for recovery of the anadromous species to ensure viability.	Based on our analysis, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Recovery is a broader regional goal and is above and beyond the co-lead agencies' obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the Columbia River System. That call, however, is ultimately the role of NMFS and the USFWS. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. In compliance with ESA, the co-lead agencies submitted biological assessments to NMFS and USFWS (Appendix V). In this Final EIS, the Biological Opinions from NMFS and USFWS can be found in Appendix V, completing ESA consultation on the Preferred Alternative. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult return (SAR) rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% (within the Council's recovery targets for the region) as a result of the Preferred Alternative. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin.
5447	11	ttidwell1@hotmail.com	N/A	The final EIS needs to fully display the benefits of MO3, present the beneficial economics and provide reasonable estimates of what it will take to mitigate effects to river transportation, irrigation, and a reduction in secondary power production. The final EIS should include the economic analysis from the ECONorthwest study on the Lower Snake River Dams Economic Tradeoffs of Removal.	The EIS provides an evaluation of the social welfare and regional economic effects of the No Action Alternative and the Multiple Objective alternatives, including the effects on recreation (Section 3.11) and commercial fisheries (Section 3.15). The EIS Section 3.5.3.6 describes the long-term effects to anadromous fish migration in the Snake River and tributaries as major and beneficial. The EIS described the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. NMFS estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which is described qualitatively. For the effects on recreational fishing under MO3 (Section 3.11.3.5) along the lower Snake River below Lewiston, the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River) as an indicator for fishing visitation in this reach. The EIS describes that the visitation in the long-term in the lower Snake River, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting outfitting and tourism businesses in the region. The social welfare values and regional economic effects associated with recreational fishing under the MOs, as well as river recreation post dam breach under MO3, were not estimated because of the uncertainty and large range in visitation and consumer surplus values among users. As described in Chapter 5 Mitigation, specific regulations guide the development of appropriate mitigation measures to address environmental impacts. If in a future analysis, breaching were to be selected as the Preferred Alternative, further, more detailed evaluations and NEPA would be needed along with congressional authorization and appropriations to assess the engineering requirements of the project and to potentially further refine and develop mitigation measures. However, it should be noted that as described in Section 5.1.1., Overview of Mitigation, mitigation measures developed as part of a NEPA process are not intended to indicate the co-lead agencies, or the Federal government as a whole, has the authority to perform all of the measures described. But rather provide a list of potential mitigation needs, some of which could be implemented by other agencies, officials and/or the public who would potentially benefit from the mitigation measures. The mitigation requested, while identified in the Draft EIS, is not within the co-lead agencies' current authorities. The ECONorthwest analysis and the EIS employ different analytical frameworks and rely on different findings with respect to the outcomes of breaching the four lower Snake River dams. First, the ECONorthwest report applies a cost-benefit analysis framework, emphasizing monetization of all categories of impacts. Consistent with NEPA analysis frameworks, the EIS expresses beneficial and adverse effects across a variety of qualitative and quantitative environmental and economic metrics. That the effects of the alternatives on fish are not quantified as monetized economic values does not mean that they were not considered in the context of the analysis. Second, the findings of the ECONorthwest report that the benefits outweigh the costs of breaching the dams rely on the implicit assumption that breaching would result in restoration of salmon populations. The fish effects analysis in Section 3.5 of the EIS does not find that Multiple Objective alternative 3 would result in recovery of salmon or steelhead populations or in restoring the populations to historical levels. Thus, the values presented in the ECONorthwest report should not be considered as representative of the benefits of MO3.
5473	1	vicredding@sbcglobal.net	N/A	It does not appear that enough consideration has been given to the cost/benefit of removing the 4 Lower Snake River Dams, thus the DEIS is incomplete and not responsive. Rather than litigate this which is certainly the outcome if using this inadequate document, I request further study be completed.	The EIS evaluated benefits and adverse effects across an array of resource areas including potential effects at the national, regional and local level, which is a different charge than the referenced study. The EIS evaluated beneficial and adverse effects across an array of resource areas including potential effects at the national, regional and local level; effects are monetized and quantified, where possible, and also described qualitatively. As is common in NEPA analyses, the beneficial and adverse effects of the alternatives are expressed as a variety of qualitative and quantitative environmental and economic metrics throughout the EIS to inform decision-making, including the effects of the alternatives on fish as detailed in Section 3.5. That the effects of the alternatives on fish are not expressed as monetized economic values does not mean that they were not considered in the context of the analysis. The EIS does not employ a cost-benefit framework for decision-making consistent with NEPA (see 40 C.F.R. 1502.23). Instead, the EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as the dam breaching alternative. However, the Preferred Alternative also meets most of the other objectives of the study for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy.
5495	1	N/A	N/A	Thriving shipping and recreation industries along the Columbia River at Umatilla, Irrigon and Boardman would be adversely affected by dam removal or river drawdowns in the inland Northwest. Regarding the impact on UECs residential members, our incomes are lower and poverty rates are higher than in urban areas. Many of our members have fixed or low incomes, and absolutely do not have the budget flexibility for rate increases of 25%.	The EIS evaluates potential effects on farmers associated with increased transportation costs under MO3 in Section 3.10.3.5. Evaluating the impact of removing the lower Snake River locks and barge navigation above Pasco, Washington, is completed using a transportation optimization model that does not allow shipments on river terminals along the lower Snake River. The EIS finds that under a dam breach scenario, average transportation costs for wheat farmers would increase 10 to 33 percent, but that individual farmers could experience increases that are doubled. The cost increases to specific shippers would depend upon location and would vary throughout the region, depending on transportation options at each location. Generally, those grain shippers that are the furthest from alternate shipping locations (shuttle rail facilities or river ports on the Columbia River) would be the most negatively impacted. Note, cost scenarios for specific farmers are presented below in the Regional Economic Effects Section in Section 3.10.3.5. Information regarding expected effects from MO3 to recreation are discussed in Section 3.11. Additionally, the comment indicating increases in electricity costs can adversely affect vulnerable groups is consistent with discussions in the EIS. The EIS recognizes concerns around the affordability of electricity, and the Environmental Justice analysis (Section 3.18.3 of the EIS) provides further detail on this as well as the potential disproportionate effects to Tribal, low-income and minority populations. Chapter 5 of Appendix H, Power and Transmission, provides additional details on potential rate increases by county as well as for urban and rural utility customers mentioned in the comment.
5495	2	N/A	N/A	Without the lower Snake River dams, the region would likely have no other alternative than to build fossil fuel combustion plants to replace the lost generating capacity and avoid blackouts. This would increase regional CO2 production at a time when state and federal regulators are cutting emissions through Renewable Portfolio Standards and other restrictions.	The EIS considers two scenarios for replacing power from the four lower Snake River dams. One scenario considers developing or acquiring natural gas resources to offset losses from the four lower Snake River dams. This results in a 3.3 MMT CO2 increase in greenhouse gas emissions under MO3 (a 8.9 percent increase in regional power sector emissions). Another scenario considers all renewable replacement resources (at a higher cost as discussed in Section 3.8). Under this scenario, the analysis finds a 2.7 percent increase in regional CO2 emissions relative to the No Action Alternative. The analysis finds that, under MO3, both replacement resource scenarios make emissions reductions targets more difficult to achieve.
5495	3	N/A	N/A	Regarding the Preferred Alternative, please note UECs ongoing concern about the efficacy of increased spill up to 125% of dissolved gas levels. The possible harmful effects and additional costs to ratepayers must be further analyzed.	The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the biological models and will help to determine how effective increased spill can be in increasing salmon and steelhead returns to the Columbia River Basin. The effectiveness of the spill program will be monitored, as will the effects to generating resources around the basin. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information. For Bonneville's wholesale power rates, the Preferred Alternative places additional rate pressure of 2.7 percent relative to the No Action Alternative consistent with the statement in the comment regarding increased rates. These estimates compare the Preferred Alternative to the No Action Alternative, which is not the same as comparing the Preferred Alternative to current operations. Consequently, the estimates are not a comparison to the BP-20 wholesale power rates, which were set assuming the financial impact of the 2019-2021 Spill Operation Agreement and therefore already include a substantial portion of the cost pressures found in the Preferred Alternative. The remaining rate pressure associated with the Preferred Alternative falls within a level that Bonneville has historically been able to mitigate through the costs over which it has significant control.
5512	1	kellshan@hotmail.com	N/A	During the call, I also was reminded of the lack of truth to the EIS report, specifically stating that our SRKW will be slightly impacted. This does not align at all to the research conducted by Dr. Giles and many other orca specialists. We know, specifically, our resident orca rely on WILD Chinook salmon, in fact, they rely on 547,500 wild Chinook salmon per year to survive, yet NOAA and the Pacific Salmon Commission have allocated ZERO to the SRKW. Cynically, one could say that it is due to false reporting and downplaying of the true impacts of functional extinction of of Wild chinook, such as the misreported impact in the EIS draft. In fact, the draft should state that the lack of fish is the NUBMER ONE impact that is impeding their survival is food! We know this, as our transient orca are thriving, in spite of the pollution, boat traffic, and all other topics where blame has been falsely misplaced. We know the number one issue is food security.	SRKW analysis is described in the EIS including in the FEIS Chapter 3 (Vegetation, Wetlands, Wildlife, and Floodplains) which has been updated for SRKW (Section 3.6.2.6 and Table 3-102) and FEIS Chapter 7 (Preferred Alternative) with additional analysis information on SRKW and potential increase in forage fish, in particular, Chinook salmon in Section 7.7.8. The co-lead agencies utilized current high quality information and best available science in its analysis of the effects of the operation, maintenance, and configuration of the CRS projects. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for the whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall-run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run,

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					Middle Columbia River fall-run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). Details on the most crucial prey stocks for Southern Resident killer whales, as well as their population and range, is available from several fact sheets and videos available here: https://www.fisheries.noaa.gov/species/killer-whale#spotlight. For more information, visit this NMFS StoryMap on Southern Resident killer whales: https://noaa.maps.arcgis.com/apps/Cascade/index.html?appid=3405e6637bf74e998d4ebe992c54f613. According to NMFS and the EPA, the estimated SRKW population has fluctuated between 67 and 98 whales between 1960 and 2015. The Snake River dams were constructed between 1962 and 1975. The SRKW population increased from a record low in 1970 to its highest population numbers in 1995. Those years were not high years for Snake or Columbia River Chinook Salmon. Ocean conditions between 2011 and 2013 were good years for salmon. At the same time, 2010 and 2013 were good outmigration years. Particularly, 2011 and 2012 were above normal in water supply, which would mean more cooler water was available and there was better survival of salmon, and 2011 through 2014 were higher than normal spill years as well. The combination of outmigration and ocean conditions created improved adult salmon returns. The EIS has analyzed spill as a measure in the Preferred Alternative and determined the overall effect to SRKW to be negligible in large part because hatchery production is consistent between the No Action Alternative and the Preferred Alternative. Because the impact from the Preferred Alternative was determined to be negligible, the agencies determined that existing hatchery production would be sufficient to address any potential impacts to prey availability for SRKWs. The co-lead agencies note the contribution to the prey of SRKW through the continued existence of their respective independent Congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as the Lower Snake River Compensation Plan (other than under MO3), which is administered by USFWS. The Preferred Alternative and Proposed Action in the agencies' biological assessment carry forward certain mitigation measures described in Chapters 2 and 7 of the EIS, which include continued salmon and steelhead hatchery production. The Preferred Alternative has negligible effects to SRKWs as described in Section 7.7.8.
5513	1	grooovyjake@gmail.com	N/A	The failure of this DEIS to meet legal requirements should be no surprise to anyone involved in drafting the document or even the most casual reader. Because the agencies fail to set goals for themselves commensurate with what is expected of a managing agency by the Endangered Species Act, even a perfect application of the preferred alternative would land the agencies back in court for a sixth time. Citizens of a nation that upholds the rule of law expect better from their government - they deserve better. The obvious shortcomings of the DEIS are not merely a threat to salmon and orca, they are a direct affront to the intelligence of the citizens of this nation. I am of course referring to the objectives that the agencies have set for themselves. By setting out to improve survival of salmon, lamprey, and resident fish, the agencies have started from a point of failure. Improvement is not recovery. It is the obligation of the agencies in compliance with the Endangered Species Act to recover endangered salmon and steelhead, not merely improve their chances of survival. The preferred alternative set forth in this DEIS draws heavily from the 2008 BiOp and establishes a survival goal of 96% for juvenile out migration at each dam in the Spring, and 93% juvenile survival at each dam in the summer. While that might sound like an impressive survival rate, when multiplied eight times to account for all eight dams that Snake Basin salmon and steelhead smolts must traverse, that figure becomes a 32 - 56 % mortality rate across the system. Allowing for that level of mortality at the projects themselves, not to mention the mortality that occurs at other points in the reservoir chain will never achieve the smolt to adult return rate (SAR) required for recovery in the Snake Basin. As a management plan, this leaves the door wide open for failure if any of the conditions outside of the agencies control lead to increased mortality elsewhere in either the ocean or tributaries. At best, this plan will result in a stabilization of the population at its current level. At worst it will lead to extinction.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the Columbia River System. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. Finally, the survival through the dams estimates are put in context in the draft EIS on page 301: "To aid the downstream passage of juvenile salmon and steelhead, the co-lead agencies have worked to improve passage and survival past the dams and through the reservoirs of the CRS. Figure 3-112, shows recent estimates of survival at the eight lower CRS projects with fish passage. The dam survival estimates do not include systemwide or latent effects (see section 3.5.3.1). These estimates were developed to show progress towards meeting the individual dam survival goals developed during the 2008 Biological Opinion of 96 percent survival past each dam for yearling Chinook and steelhead, and 93 percent for Snake River sub-yearling fall Chinook." Later in this section (referenced in the quotations above) the Chapter 3 analysis discusses system survival rates, as well as latent mortality. The analysis of alternatives presented in-river system survival, which reflects the commenter's 'cumulative losses', and SARs (for those populations which could be modeled), among other metrics. The analysis of alternatives presents estimates of survival rates from Lower Granite to Bonneville dam (eight dams) for Snake River spring/summer Chinook and Snake River steelhead from two different models, with the estimates ranging from 40-60%. The mechanism and magnitude of latent mortality are not well understood, as presented in the discussion of Independent Scientific Review on Page 381.
5513	2	grooovyjake@gmail.com	N/A	In addition to the inadequacy of the 96% survival goal, this benchmark provides a convenient bit of misinformation in the halls of Congress and in the media as anti-salmon commentators and Congresspeople hold up the survival goal as if it were an SAR value. Congresswoman McMorris Rodgers has said several times on the record that salmon survival is at 96% when in fact the SAR is less than 2%. This misconception is not directly the responsibility of the agencies, but the failure of Reclamation and ACOE officials to clarify these terms when they are called to testify in Congressional hearings demonstrates either a shared misunderstanding of the facts, or an intention to propagate the spread of misinformation that justifies inaction on the part of the agencies.	The per-dam survival metric is both accurate and useful in measuring changes in near field survival at the dams due to structural modifications (e.g., surface passage routes) or operation changes (changes to spill levels or spill patterns). The per-dam survival estimates are multiplicative in nature and the improvements in at-dam survival over the past 10 years has been shown to contribute to improvements in total in-river survival of smolts migrating through the CRS, especially for steelhead. These figures were used to provide context in the Affected Environment section. The focus of this EIS and the analysis presented throughout this EIS in Section 3.5 and Chapter 7 hinged around several metrics, including total in-river survival, travel time, powerhouse passage rates, and Smolt-to-Adult return (SAR) rates. It should be noted that the 2-6% SAR target referenced in this comment refers to the Northwest Power and Conservation Councils (Council) target for broad-sense recovery and is separate and distinct from the obligations of any single entity or in this case a requirement to be met solely by the co-lead agencies. Just as the Councils fish and wildlife program encompasses both Federal and non-Federal stakeholders in the Columbia Basin, the Councils recovery goals are shared by many parties. Based on our analysis of the Preferred Alternative, it will make a substantial contribution, but the Councils broad sense recovery goals are beyond the scope of this EIS which focuses on the effects associated with the operation and maintenance of the 14 CRS projects. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species as that is a broader goal with shared responsibility. Based on our analysis of the fish resources section of Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the CRS. That call, however, is ultimately the role of NMFS and the USFWS. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species.
5513	3	grooovyjake@gmail.com	N/A	Within the DEIS there is an alternative that--if implemented--could keep the agencies out of court. This is MO3 - the dam breaching alternative. Study of this alternative was the sole basis for restarting this process back in 2016, yet despite three years and plentiful publicly available data from decades of study by both government and private parties, the agencies failed to honestly consider this option and have not selected it as the prefered alternative. The data shows that which is perfectly obvious to observers of river recovery efforts around the globe: dam breaching provides great benefit to anadromous fish. Dam breaching results in the best SAR (4% or higher) because without the dams in place, the benefits of cold water being infused from the Clearwater and Salmon Rivers would be felt all the way down to Pasco, rather than merely cooling Lower Granite pool. I have observed the forebay temperatures on a daily basis at each of the Snake Dams. Summer release from Dworshak dam only affects the temperature of one of the four reservoirs. If that water was allowed to flow unimpeded, this cold water would spread much further and could even improve SARs in the Umatilla and Yakima Rivers. Yet this alternative was not selected, due to increased cost and potential instability of power production and transportation. These outcomes are the result of a mandate to replace both production and storage of power equivalent to the dams operating at their peak. This study was done assuming that the power storage that the dams provide by impounding water would need to be replaced with lithium battery storage--an extremely expensive method. I am not an expert on the energy front, so I will direct whoever is reading this to consult the comments of the NorthWest Energy Coalition and the 2018 study conducted by Energy Strategies.	The co-lead agencies disagree with the comment that the agencies failed to consider dam breaching in the analysis of alternatives. MO3, which includes breaching the four lower Snake River dams provides substantial potential benefits for Snake River salmon and steelhead than any other measure analyzed, and the effects of the various alternatives, including Smolt-to-Adult returns, are discussed in detail in Section 3.5. These benefits could contribute to recovery of these species. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets the EIS objectives for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects. Thus, in the draft EIS, the co-lead agencies did not identify MO3 as Preferred Alternative, and instead identified an alternative that is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. Although the EIS generally used resources identified by the Northwest Power and Conservation Council as primary resources in their 7th Power Plan, the EIS did look at battery storage because it is a rapidly evolving technology and will be considered a primary resource in the Council's 8th Power Plan. The Council has released draft pricing information for battery storage, and the EIS uses these prices in the final EIS. The comment cites the Northwest Energy Coalition (NWEC) report by Energy Strategies. As described in the draft EIS in Appendix H, Power and Transmission and Section 3.7.3.5, the EIS considered the NWEC study cited in the comment, but it is not directly comparable with the EIS for several reasons, including that the EIS has a broader scope and relies on more recent regional load and resource availability and costs data. Further information on batteries, however, is available in the response to the comment from NWEC and in Appendix H, Section 2.2.
5513	4	grooovyjake@gmail.com	N/A	As for the transportation angle, the study conducted by ECONorthwest resulted in a much lower price tag for rail and truck replacement. The general public has been mislead by a few members of Congress and interest groups like Northwest River Partners to believe that replacing barge transportation would mean that a fleet of trucks would drive from Lewiston to Portland every day, when in fact truck traffic would not need to be any heavier than what is currently required to carry farm products to the river corridor. The fact that the trucks would be traveling to a rail loader instead of a port does not change the overall number of trips made. The operating budget of the barge system and the construction of expensive salmon and lamprey bypass systems, coupled with some funding from State and Federal governments and private contributions by railroad companies could easily cover the cost of that infrastructure that would be required to make a smooth transition away from river traffic.	Access to barge transportation is the most cost effective means of accessing export markets for many grain producers in the Pacific Northwest currently and removing that option will increase transportation costs for grain producers, as the EIS described in Section 3.10.3.5. The EIS finds that transportation of freight that is currently barged on the Lower Snake River could be accomplished via other transportation modes, but this change would not be without costs to farmers, would require public and private investment in infrastructure, and would result in some adverse regional economic effects, particularly in the short term. The EIS finds that truck ton-miles may experience an increase of 19 percent to 84 percent under MO3 when compared to the No Action Alternative, depending on the rail rate increases that occur. The EIS analysis found that truck trips would increase between 14,000 to 79,000 truck trips per year, which would increase air pollutant and greenhouse gas emissions in the region and add to traffic and congestion in the region. Rail ton-miles would increase by as much as 86 percent (when rail rates are not assumed to increase) or decrease by 2 percent (when rail rates increase by 50 percent). The ECONorthwest analysis and the EIS employ different analytical frameworks and rely on different findings with respect to the outcomes of breaching the four lower Snake River dams. First, the ECONorthwest report applies a cost-benefit analysis framework, emphasizing monetization of all categories of impacts. Consistent with NEPA analysis frameworks, the EIS expresses beneficial and adverse effects across a variety of qualitative and quantitative environmental and economic metrics. That the effects of the alternatives on fish are not quantified as monetized economic values does not mean that they were not considered in the context of the analysis. Second, the findings of the ECONorthwest report that the benefits outweigh the costs of breaching the dams rely on the implicit assumption that breaching would result in restoration of salmon populations. The fish effects analysis in Section 3.5 of the EIS does not find that Multiple Objective alternative 3 would result in recovery of salmon or steelhead populations or in restoring the populations to historical levels. Thus, the values presented in the ECONorthwest report should not be considered as representative of the benefits of MO3. However, the results from the ECONorthwest study contribute to the overarching conclusion of Section 3.15.2.2 that describes that the literature consistently demonstrates that people hold passive use values for salmon.
5513	5	grooovyjake@gmail.com	N/A	What was not adequately considered when weighing the costs of dam breaching against the benefits of keeping the dams in place, was the fishing economy. Whole towns in Idaho like Orofino survive on the basis of a reliable steelhead fishing season bringing in tourists. Coastal towns from Astoria, OR to Sitka, AK are reliant on salmon fishing for an income and a way of life. Fishermen all along the west coast catch salmon from hatcheries in the Columbia-Snake Basin.	Chapter 7, Preferred Alternative, describes the process to select the Preferred Alternative. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as the dam breaching alternative. However, the Preferred Alternative also meets most of the other objectives of the study for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. The EIS evaluated benefits and adverse effects across an array of resource areas including potential effects at the national, regional and local level. Where possible, these effects were monetized or quantified. Consistent with NEPA analysis framework, the beneficial and adverse effects are expressed as a variety of qualitative and quantitative environmental and economic metrics. The EIS provides an evaluation of the social welfare and regional economic effects of the No Action Alternative and the Multiple Objective alternatives, including the effects on recreation (Section 3.11) and commercial fisheries (Section 3.15). The EIS Section 3.5.3.6 describes the long-term effects to anadromous fish migration in the Snake River and tributaries as major and beneficial, although quantitative impacts from fish modeling results are limited. The impacts to anadromous fish in other locations would have negligible to minor changes from the No Action Alternative. The EIS described the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. NMFS estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which is described qualitatively. For the effects on recreational fishing under MO3 (Section 3.11.3.5) along the lower Snake River below Lewiston, the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River) as an indicator for fishing visitation in this reach. The EIS describes that the visitation in the long-term in the lower Snake River, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No

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					Action Alternative, supporting outfitting and tourism businesses in the region. The social welfare values and regional economic effects associated with recreational fishing under the MOs, as well as river recreation post dam breach under MO3, were not estimated because of the uncertainty and large range in visitation and consumer surplus values among users. Hatchery contributions are considered in the analysis. As described in chapter 3.5, the co-lead agencies anticipate that changes in hatchery funding may occur as needs and obligations shift. The co-lead agencies do not anticipate that hatchery operations would be shuttered. As noted in Section 3.5, the co-lead agencies also recognize that there would be transitional needs that would be addressed in the additional mitigation measures for MO3 discussed in Chapter 5. Additionally, the Bonneville F&W Program funding for offsite mitigation projects in the Snake River Basin, implemented by local, state, Tribal, and Federal entities, would be reviewed, and potentially adjusted. Any changes of this nature would be implemented over time as the effectiveness of dam breaching is observed and would be done in consultation with fish and wildlife managers, regulatory agencies, and the Northwest Power and Conservation Council. Consistent with this, offsite mitigation projects for the other CRS dams would be reviewed and could be adjusted as operations change over time. Proposed project modifications would be coordinated with project sponsors and regional stakeholders to determine appropriate funding levels." Although Bonneville's funding of the Lower Snake River Compensation Plan hatcheries would no longer be authorized, remaining fish hatcheries would continue to produce fish and other Federal or state entities may continue funding the hatcheries. The contribution of Columbia River origin fish to ocean fisheries is described in Section 3.15.2.1. Because there is considerable uncertainty regarding the overall effects of the alternatives on regional fish populations, and how such changes may affect the management of the fisheries, the specific quantitative and monetized impacts associated with changes in commercial fisheries under the alternatives was limited. This analysis evaluates potential impacts on fisheries by referencing the potential effects on relevant fish populations, as described in Section 3.5.
5513	6	grooovyjake@gmail.com	N/A	Causing the decline of steelhead to the point that members of the Nez Perce Tribe cannot catch a single fish, let alone enough to sustain themselves, is a violation of the Treaty of 1855 which was upheld as the supreme law in 1985 and again in 2018.	Tribal input, concerns, interests, and especially treaty rights were considered throughout the Draft EIS analyses and in the formulation of the Preferred Alternative. Treaty specific information is included in Section 3.17 as well as Chapter 7. The co-lead agencies recognize and respect the legal obligations imposed by treaties. The co-lead agencies accordingly included Protecting Native American treaty and reserved rights and fulfilling trust obligations for natural and cultural resources throughout the environment affected by the Columbia River System operations as a purpose in the Purpose and Need Statement in Chapter 1 to ensure treaty obligations were a key consideration of decision making. The co-lead agencies are engaging in government-to-government consultation with the tribes, and several tribes are cooperating agencies on the CRSO EIS. The EIS recognizes the economic and cultural importance of salmon to Tribes in a number of sections throughout the document. The cultural significance and impacts of salmon and steelhead fisheries are described in the Ceremonial and Subsistence Fisheries sub-section and the Social Importance of Commercial, Ceremonial and Subsistence Fisheries sub-section of Section 3.15.2.1. Fisheries tribal interests are provided in Section 3.15.4 additional details regarding the economic significance of salmon and steelhead fisheries have been added to the recreation analysis (Section 3.11) including tribal interests (Section 3.11.3.7). Treaty rights are discussed in the Executive Summary, Section 3.16 Cultural Resources, and Section 3.17 Indian Trust Assets, Tribal Perspectives, and Tribal Interests. Appendix P includes copies of tribal perspectives that were submitted by tribes. Tribal consultation is described in Sections 1.5, 3.5, and 3.15; and Chapter 9. Most sub-sections within Chapter 3 include a Tribal Interests section at the end of the sub-section that attempts to summarize tribal issues by topic. Analysis shows that the Preferred Alternative would meet the objectives for improving juvenile salmon, adult salmon, resident fish and lamprey. The analysis found ranges in potential effects due to different assumptions included in each of the fish models used in the study. Using the Comparative Survival Study (CSS), Snake River Chinook salmon and steelhead are expected to see relative improvements in smolt-to-adult returns of 35 percent and 28 percent, respectively. The Smolt-to-Adult return ratio (SAR) is the rate at which of a group of fish survive from their smolt life stage to a defined ending point where they return as adult. While achieving long-term recovery targets will require more than just the efforts of Federal agencies, the CSS models indicate the potential for SARs of Snake River Chinook salmon and steelhead to increase to levels that could approach recovery targets set by the Northwest Power and Conservation Council. If latent mortality effects are reduced by passing more juvenile fish through the spillway, the NMFS Lifecycle Model (LCM) also shows that levels of SARs would increase. However, if latent mortality effects are not reduced, or are different than modeled, the LCM predicts that SARs for Snake River spring Chinook salmon may be lower than the No Action Alternative (a range of -7.5 percent to +28 percent change relative to the No Action Alternative) due to reduced opportunities for fish transportation. Results for upper Columbia River stocks are beneficial based on LCM estimates. In-river survival and SARs are anticipated to increase. The CSS model does not currently model upper Columbia fish. The Preferred Alternative also has measures intended to increase upstream passage success and reduce injury and mortality for Pacific lamprey. These measures are proposed structural improvements that include converting extended-length submersible bar screen material to screen material that would not impinge or entangle juvenile lamprey, expanding the network of lamprey passage structures to bypass impediments in fish ladders, changing the design for turbine cooling water strainers, and replacing turbines for safer fish passage. The Preferred Alternative would also meet the objective to improve resident fish. Effects to resident fish vary by region and species, but are generally minor relative to the No Action Alternative
5513	7	grooovyjake@gmail.com	N/A	Any analysis that prefers the production of electricity and one form of transportation over the fishing economy and the legal and moral obligation that we have to the tribes is deeply flawed. Regardless of how the study is conducted as to the cost-benefit of hydropower, water supply, transportation, and fish survival, the fact that the agencies have engaged in a weighted process that does not hold species recovery as an absolute requirement of the final plan means that the plan will be ruled inadequate and illegal once again. The Endangered Species Act does not allow room for economic considerations to be weighed against species recovery. Unless the God Squad is invoked, the managing agencies are legally bound to pursue efforts to achieve recovery, not merely improved survival.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the Columbia River System. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species.
5517	1	N/A	N/A	While the preferred alternative looks at spill, I dont think spill is a viable option. Spill causes turbulence which creates dissolved nitrogen in the water leading to nitrogen supersaturation. Too much nitrogen is lethal to fish as it causes gas bubble disease. Relying on an increase in spill for safe fish passage is not reasonable since it creates a new problem the fish must overcome.	TDG levels are regulated under the Federal Clean Water Act, and administered by the states. Both Oregon and Washington have reassessed the available data on effects of TDG levels up to 125% of saturation on fish and other aquatic organisms. Based on this reassessment Oregon issued a five-year "standard modification" and Washington issued a permanent rule change, supported by the Environmental Protection Agency (EPA), to allow TDG saturation up to 125%. However, as noted by the commenter, there is considerable uncertainty in the effects of free swimming fish; and therefore, monitoring was required by the states and EPA to ensure any negative effects are detected and allow for adaptive management. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. The framework for the adaptive management process is detailed in Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS. It is the intention of the co-lead agencies to engage regional state, Tribal, and Federal biologists in the development of an appropriate adaptive management process utilizing their respective salmonid management expertise. The goal of that adaptive management process would be to consider additional opportunities to further the effectiveness of the operation while maintaining the goals of the flexible spill operation: additional improvements for salmon and steelhead, maintain opportunities to operate the CRS for hydropower generation in a flexible manner that provides value to the Northwest, is implementable by the dam operators, and provides opportunity to reduce uncertainty and improve the learning opportunities around how operations of the CRS can influence the magnitude of latent mortality effects. Unforeseen outcomes or unintended consequences will be monitored and adjusted using current in-season management teams, such as the Technical Management Team.
5533	1	Kristin Masteller	N/A	The electricity generated by the Snake River dams is mostly used by consumer-owned utilities like mine in rural communities. And the cost of replacing that power from the dams would hit my utility and customers disproportionately, as much as 25 percent is the projection. So basically, a senior citizen making $800 a month on Social Security who already struggles to pay their $200 power bill in January, would then have to contend with the decision to either pay another $50 a month to keep their lights on and stay warm or buy food and prescriptions.	The concern surrounding potential increases to electricity costs under MO3, which includes breaching the four lower Snake River dams, is consistent with the findings of the EIS. See Draft EIS, Section 3.7.3.5, Table 3-166. The Environmental Justice analysis in Section 3.18.3 provides further detail on potential disproportionate effects to tribal, low-income, and minority populations under MO3. MO3 was not identified as the Preferred Alternative in the Draft EIS.
5538	1	Mark Busto	N/A	The DEIS, in our opinion, perpetuates an approach that has pushed salmon, orca, and other fish and wildlife populations to the edge of extinction. This approach has been extremely costly and it's been deemed illegal five different times. It has harmed fishing communities on the coast and inland, reducing fishing opportunity, fishing jobs and fishing income for both tribal and non-native peoples.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the CRS. Recovery of ESA species is the purview of National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (USFWS). Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. This EIS has been developed in consultation with National Marine Fisheries Service and U.S. Fish and Wildlife Service to find an acceptable balance that allows the co-leads to meet the stated Purpose and Needs Statement while minimizing impacts to affected ESA species and their habitats. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-lead agencies numerous legal obligations. The Preferred Alternative is predicted to benefit ESA-listed juvenile and adult anadromous salmonids (two of the EIS objectives) as well as the EIS objectives for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. The Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. The Preferred Alternative is not simply a continuation of the status quo. The spill operation for juvenile fish passage in the Preferred Alternative is a significant departure from previous operations, so much so that the Washington and Oregon state water quality standards had to be changed to implement the new spill regime. With respect to the Preferred Alternative, the CSS model predicts that average Smolt to Adult return rates would increase for both Snake River spring Chinook and steelhead and will average above 2% (the lower end of the Northwest Power and Conservation Councils recovery targets for the region) as a result of the Preferred Alternative, increasing from 2.0% to 2.7% for Chinook, a 35% relative increase. The NMFS COMPASS and Life Cycle Models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information. Based on the EIS analysis of the Preferred Alternative, it will make a substantial contribution towards recovery targets. Regarding Southern Resident killer whales, the EIS determined the overall effect to SRKW to be negligible in large part because hatchery production is consistent between the No Action Alternative and the Preferred Alternative. Because the impact from the Preferred Alternative was determined to be negligible, the agencies determined that existing hatchery production would be sufficient to address any potential impacts to prey availability for SRKWs. The co-lead agencies note the contribution to the prey of SRKW through the continued existence of their respective independent congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as the Lower Snake River Compensation Plan, which is administered by U.S. Fish and Wildlife Service. The Preferred Alternative and Proposed Action in the agencies' biological assessment carry forward certain mitigation measures described in Chapters 2 and 7 of the EIS, which include continued salmon and steelhead hatchery production. The Preferred Alternative has negligible effects to SRKWs as described in Section 7.7.8. For additional information on the effects to Other Fish, see Sections 3.5 and 7.7.4; Wildlife effects, Recreation, see Section 7.7.13; and for Fisheries, see Section 7.7.17 in the EIS. Tribal input, concerns, interests, and especially treaty rights were considered throughout the Draft EIS analyses and in the formulation of the Preferred Alternative. Treaty specific information is included in Section 3.17 as well as Chapter 7. The treaties bind all parties and are the supreme law of the land. The co-lead agencies recognize and respect that supremacy. In terms of honoring our treaty obligations, the co-lead agencies included "Protecting Native American treaty and reserved rights and fulfilling trust obligations for natural and cultural resources throughout the environment affected by the Columbia River System operations" as a purpose in the Purpose and Need Statement in Chapter 1 to ensure treaty obligations were a key consideration of decision making.
5541	1	Dave Hagen	N/A	Clearwater serves some of the most remote and sparsely populated areas within Northern Idaho. The state of Idaho is one of the fastest growing states in the nation. Unfortunately, Clearwater Power has not enjoyed the same. In fact, over the last five years, Clearwater Power has added less than 100 new customers per year on average, and Clearwater weather-adjusted energy sales have declined approximately seven percent over the same period. Because of very slow account growth, declining sales, rising cost, including the wholesale cost of power from the Bonneville Power Administration, Clearwater has the highest retail residential rates in the state of Idaho. In 2019, the wholesale cost of power accounted for 43 percent of our members'	The comment expresses concerns regarding potential cost pressures to rural public utility customers of Bonneville. The EIS examined potential retail rate effects to both rural and urban end users, Chapter 5 of Appendix H describes this analysis in additional detail. In developing a Preferred Alternative, the co-lead agencies considered the need for an adequate, efficient, economic and reliable power supply, and to provide benefits to salmon, steelhead, and resident fish while meeting the EIS objectives for water management and water supply. The Preferred Alternative shows a rate impact relative to the No Action Alternative of 2.7 percent, which is among the smallest impacts to rates considered in the EIS.

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				monthly power bill. As the single largest expense of providing safe, reliable, and affordable power to our member owners, the ability of the Federal Action Agencies to control their cost is imperative.	
5541	2	Dave Hagen	N/A	The four lower Snake River dams provide more than 2,000 megawatts of peaking capability and play an important role in maintaining reliability in the region. As some of the lowest cost carbon-free generation in the Northwest, their flexibility and dispatchability are valuable components of the FCRPS. Their removal would more than double the risk of regional blackouts and would have a tremendous social economic impact on the region.	The comment about the importance of the four lower Snake River dams for regional power reliability and the integration of renewable power are consistent with the EIS findings. Please see Draft EIS, Section 3.7.3.5, Lower Snake River Full Replacement, pages 3-905-907.
5542	1	Debra Ellers	N/A	Both scientists and the agencies know the lower Snake River dams are the major problem with restoring wild fish runs, not the other dams in the system. The lower Snake River dams and their stagnant reservoirs are cutting off salmon migration to and from the 5,500 miles of pristine spawning habitat above them. Including the other dams has been a waste of taxpayer time and agency resources.	The scope suggested by this comment would inappropriately narrow the examination of the broader operation of the Columbia River System. The co-lead agencies descriptions of the Purpose and Need Statement and scope of the project are in Sections 1.2 and 1.3 of the EIS. The co-lead agencies recognize that the maintenance and operation of dams in the CRS creates effects to salmon and steelhead populations in the Columbia River Basin. However, the co-lead agencies also recognize that there are many stressors to these fish populations from outside the CRS. These include, poor ocean conditions, harvest, and access to habitat. Current ocean conditions have limited adult returns up and down the west coast regardless of migration impediments. The commenters assertion that the four lower Snake River dams cut off salmon from thousands of miles of habitat is in error. All four dams have fish passage with high adult passage rates with conversion rates and juvenile survival rates in the mid to high 90 percent range. In the recent screening conference held in Walla Walla this past year, Washington, Oregon and Idaho reported that between 70 and 80 percent of tributary habitats in their states had access issues either from perched culverts, unscreened irrigation returns, or blockages. A study conducted on one stream in the Salmon River Basin reported that nearly all fish emigrating downstream were diverted in irrigation withdrawals. Thus, other passage barriers may be preventing access to these habitats.
5542	2	Debra Ellers	N/A	The DEIS is an even bigger fail on recovering the Southern Resident orcas. It uses outdated data and science dating back to 2008. It ignores the more recent scientific knowledge about the importance of Snake River Chinook to our starving Southern Resident orcas. These orcas rely on the nutritious salmon from the Snake River at key times of the year. Their numbers have been reduced to just 72. The best available science says that breaching the four lower Snake River dams gives these orcas a meaningful chance for recovery.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Recovery of ESA-listed salmon is outside of the authority of the co-lead agencies, and was not an objective of this EIS. Recovery of ESA species is the purview of National Marine Fisheries Services (NMFS) and the U.S. Fish and Wildlife Service (USFWS). This EIS has been developed in consultation with NMFS and USFWS to minimize impacts to affected ESA-listed species and their habitats. The quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of Southern Resident killer whales (SRKW), along with vessel traffic and noise, toxic contaminants. The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differentially from hatchery and wild fish. Hatchery fish today likely make up most fish consumed by SRKW (NOAA BiOp 2020). Sections 3.6 and 7.7.8 discuss the effects to SRKW from the multiple objective alternatives, including the Preferred Alternative. The Preferred Alternative carries forward certain mitigation measures described in Chapters 2 and 7 of the EIS, which include continued salmon and steelhead hatchery production. The EIS analysis of the Preferred Alternative determined the overall effect to SRKW to be negligible in large part because hatchery production is consistent between the No Action Alternative and the Preferred Alternative. Because the effect from the Preferred Alternative was determined to be negligible, the agencies determined that existing hatchery production would be sufficient to address any potential impacts to prey availability for SRKWs. The co-lead agencies note the contribution to the prey of SRKW through the continued existence of their respective independent congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as the Lower Snake River Compensation Plan, which is administered by U.S. Fish and Wildlife Service. The Preferred Alternative and Proposed Action in the agencies' biological assessment carry forward certain mitigation measures described in Chapters 2 and 7 of the EIS, which include continued salmon and steelhead hatchery production. The Preferred Alternative has negligible effects to SRKWs as described in Section 7.7.8.
5542	3	Debra Ellers	N/A	Regarding power and transportation, the cost associated with the Snake River dams are exaggerated and the benefits understated. Billions of taxpayer dollars have been spent in the last few decades trying to improve fish patches, and it's been a big fail. It's time to admit we can't engineer salmon passage for the lower Snake River dams, and let Mother Nature do it with a free-flowing Snake River dam. With a free-flowing lower Snake River, we're talking about weighing the loss of irreplaceable species like salmon and Southern Resident orcas, while we have alternatives for barging and power. Improving railroads to give farmers increased flexibility for shipping their crops instead of keeping the highly taxpayer-subsidized barging would be a win-win for farmers — and the public. Improved trains would bolster our supply chain and transportation system.	Access to barge transportation is the most cost effective means of accessing export markets for many grain producers in the Pacific Northwest currently and removing that option will increase transportation costs for grain producers, as the EIS described in Section 3.10.3.5. The EIS finds that transportation of freight that is currently barged on the Lower Snake River could be accomplished via other transportation modes, but this change would not be without costs to farmers, would require public and private investment in infrastructure, and would result in some adverse regional economic effects, particularly in the short term. For hydropower, the average annual value of the four lower Snake River dams exceeds the average annual equivalent costs. The generation value at the four lower Snake River dams can be described by a range between the cost to replace the generation through new conventional resources or through a portfolio of zero-carbon resources. Although the costs of replacing the power with market purchases was analyzed, it is unlikely that short-term wholesale power markets could reliably replace the power for the long term. This range would put the annual value of power between $240 million and $500 million for the four dams combined. These numbers represent about 90 percent of the lost benefits cited in Table 3-171 of the Draft EIS because the four dams represent about 1,000 aMW of the 1,100 aMW of lost generation estimated in MO3. The average annual cost to operate and maintain all authorized purposes at the four lower Snake River dams is $75 million (Appendix Q, Table 5-1) and the annual-equivalent capital costs are $32 million (Appendix Q, Table 4-1). Hydropower costs funded by Bonneville represent about $50 million of the total annual operations and maintenance costs and nearly all of the annual capital costs, approximately $31 million. This puts the annual-equivalent power-specific costs at approximately $81 million a year. As a result, the net benefits from hydropower for the four lower Snake River dams are between $159 million and $419 million and the benefit-cost ratios are between 3.0 and 6.2. If the $34 million per year for the Lower Snake River Compensation Plan is added to the capital and expense costs, benefits still exceed costs under each replacement power scenario. Considering these costs, the net benefits range from $125 million to $385 million and the benefit-cost ratios range from 2.1 to 4.3. In the less-likely scenario that generation could be reliably replaced with short-term wholesale market purchases and assuming that the four dams represent 90% of the $150 million in market purchases required to replace the lost generation cited in MO3 (see Table 3-170), the lower bound for net benefits would fall to $54 million and the benefit-cost ratio would fall to 1.7. With the Lower Snake River Compensation Plan included, the lower bound for annual net benefits becomes $20 million and the benefit-cost ratio becomes 1.2. From a resource competitiveness perspective, the four lower Snake River dams are among the least costly generating resources in the Federal Columbia River Power System (FCRPS) and the planned investment strategy is expected to maintain that status. As shown in the Federal Hydropower presentation at the 2018 Integrated Program Review1/, the Headwater/Lower Snake Asset Class/2 is forecast to have a 50-year levelized cost of generation/3 of $11.41/MWh based on the direct funded capital and expense (O&M) programs outlined in that process. These costs remain competitive with volatile Mid-Columbia spot market energy prices, which averaged $37/MWh in 2019 and have averaged $21/MWh in 2020. 1/ The Integrated Program Review (IPR) allows interested parties to see and comment on all relevant Federal Columbia River Power System (FCRPS) capital and expense (O&M) spending level estimates in the same forum. The IPR occurs every two years, or just prior to each rate case, and is the public review for the costs that will be recovered through rates the following two-year rate period. Long-term forecasts for the next 50 years and major upcoming projects are also shared in this forum. This information is available here: Blockedhttps://www.bpa.gov/Finance/FinancialPublicProcesses/IPR/2018IPR/IPR%202018%20Fed%20Hydro%20Workshop.pdf and is incorporated by reference into this EIS. 2/ In the 2018 Integrated Program Review, the Headwater/Lower Snake Asset Class consisted of the four lower Snake River dams, Hungry Horse, Libby, and Dworshak dams. These projects were grouped together because they have similar cost characteristics. The Levelized Cost of Generation for the four lower Snake projects alone is slightly lower than that for the whole class including the headwater projects shown in the table. 3/ Levelized Cost of Generation is defined as the forecasted direct costs and administrative overheads of producing power at a plant annualized over a 50-year period. This cost includes direct funded operations, maintenance, administrative and capital costs as well as Columbia River Fish Mitigation (CRFM) costs. Bonneville system-wide mitigation costs, such as its Fish and Wildlife program, are not included in this metric. Moreover, not all effects of dam breach are monetized in the EIS, but unquantified effects are nonetheless considered in decision making. The analysis finds that transportation of freight that is currently barged on the lower Snake River could be accomplished via other transportation modes, but this change would not be without costs to farmers, would require public and private investment in infrastructure, and would result in some adverse regional economic effects, particularly in the short-term. A description of the effects to navigation and transportation can be found in Section 3.10. Both human-caused and natural factors that are outside the responsibility and control of the co-lead agencies also contribute to the decline and recovery of ESA-listed species, and would continue to strongly influence fish and their habitat. Salmon and steelhead have been adversely affected in the Columbia River Basin over the last century by many activities including human population growth, urbanization, introduction of exotic species, overfishing, development of cities and other land uses in the floodplains, water diversions for all purposes, dams, mining, farming, ranching, logging, hatchery production, predation, ocean conditions, and loss of habitat. Operation, configuration and maintenance of the CRS requires mitigation for its effects, and the EIS is not intended or required to serve as an overall salmon recovery plan for the region. Recovery of ESA-listed salmon is outside of the authority of the co-lead agencies, and was not an objective of this EIS. Recovery of ESA species is the purview of National Marine Fisheries Services (NMFS) and the U.S. Fish and Wildlife Service (USFWS). This EIS has been developed in consultation with NMFS and USFWS to find an acceptable balance that allows the co-lead agencies to meet the Purpose and Need Statement while minimizing impacts to affected ESA-listed species and their habitats. Based on the EIS analysis, the Preferred Alternative (PA) will make a substantial contribution to improving Snake River anadromous fish runs. The CSS model predicts that average Smolt-to-Adult return rates (SAR) would increase for both Snake River spring Chinook and steelhead and will average above 2% (the lower end of the Northwest Power and Conservation Councils recovery targets for the region) as a result of the PA, increasing from 2.0% to 2.7% for Chinook, a 35% relative increase. The NMFS COMPASS and Lifecycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The PA will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS, for additional information. The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild

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					produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differentially from hatchery and wild fish. Hatchery fish today likely make up most fish consumed by SRKW (NOAA BiOp 2020). The EIS analysis of the Preferred Alternative determined the overall effect to SRKW to be negligible in large part because hatchery production is consistent between the No Action Alternative and the Preferred Alternative. Because the impact from the Preferred Alternative was determined to be negligible, the agencies determined that existing hatchery production would be sufficient to address any potential impacts to prey availability for SRKWs. The co-lead agencies note the contribution to the prey of SRKW through the continued existence of their respective independent congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as the Lower Snake River Compensation Plan, which is administered by U.S. Fish and Wildlife Service. The Preferred Alternative and Proposed Action in the agencies' biological assessment carry forward certain mitigation measures described in Chapters 2 and 7 of the EIS, which include continued salmon and steelhead hatchery production. The Preferred Alternative has negligible effects to SRKWs as described in Section 7.7.8.
5542	4	Debra Ellers	N/A	Finally, breaching the four lower Snake River dams, MO-3 provides the best option for honoring tribal rights and restoring cultural sites for native people. The lower Snake River dams were a gross violation of sovereign rights.	Tribal input, concerns, interests, and especially treaty rights were considered throughout the Draft EIS analyses and in the formulation of the Preferred Alternative. Treaty specific information is included in Section 3.17 as well as Chapter 7. The co-lead agencies recognize and respect the legal obligations treaties impose. The co-lead agencies accordingly included Protecting Native American treaty and reserved rights and fulfilling trust obligations for natural and cultural resources throughout the environment affected by the Columbia River System operations as a purpose in the Purpose and Need Statement in Chapter 1 to ensure treaty obligations were a key consideration of decision making. The co-lead agencies are engaging in government-to-government consultation with the Tribes, and several Tribes are cooperating agencies on the CRSO EIS. Treaty rights are discussed in the Executive Summary, Section 3.16 Cultural Resources, and Section 3.17 Indian Trust Assets, Tribal Perspectives, and Tribal Interests. Appendix P includes copies of tribal perspectives that were submitted by tribes. Tribal consultation is described in Sections 1.5, 3.5, and 3.15; and Chapter 9. Most sub-sections within Chapter 3 include a Tribal Interests section at the end of the sub-section that attempts to summarize tribal issues by topic. Chapter 7 provides the effects analysis on Cultural Resources and Indian Trust Assets, Tribal Perspectives, and Tribal Interests, in Sections 7.7.18 and 7.7.19 in the Draft EIS, respectively. Analysis shows that the Preferred Alternative would meet the objectives for improving juvenile salmon, adult salmon, resident fish and lamprey. The analysis found ranges in potential effects due to different assumptions included in each of the fish models used in the study. Using the Comparative Survival Study (CSS), Snake River Chinook salmon and steelhead are expected to see relative improvements in smolt-to-adult returns of 35 percent and 28 percent, respectively. The Smolt-to-Adult return ratio (SAR) is the rate at which of a group of fish survive from their smolt life stage to a defined ending point where they return as adult. While achieving long-term recovery targets will require more than just the efforts of Federal agencies, the CSS models indicate the potential for SARs of Snake River Chinook salmon and steelhead to increase to levels that could approach recovery targets set by the Northwest Power and Conservation Council. If latent mortality effects are reduced by passing more juvenile fish through the spillway, the NMFS Lifecycle Model (LCM) also shows that levels of SARs would increase. However, if latent mortality effects are not reduced, or are different than modeled, the LCM predicts that SARs for Snake River spring Chinook salmon may be lower than the No Action Alternative (a range of -7.5 percent to +28 percent change relative to the No Action Alternative) due to reduced opportunities for fish transportation. Results for upper Columbia River stocks are beneficial based on LCM estimates. In-river survival and SARs are anticipated to increase. The CSS model does not currently model upper Columbia fish. The Preferred Alternative also has measures intended to increase upstream passage success and reduce injury and mortality for Pacific lamprey. These measures are proposed structural improvements that include converting extended-length submersible bar screen material to screen material that would not impinge or entangle juvenile lamprey, expanding the network of lamprey passage structures to bypass impediments in fish ladders, changing the design for turbine cooling water strainers, and replacing turbines for safer fish passage. The Preferred Alternative would also meet the objective to improve resident fish. Effects to resident fish vary by region and species, but are generally minor relative to the No Action Alternative.
5544	1	brianbrooks59@msn.com	N/A	We've been learning quite a lot over the last year about what we need for our fish to survive. And the key indicator of recovery is reaching a two to six percent smolt-to-adult return ratio, or SAR. A two percent SAR will keep the fish at a plateau, not recovering them, but just keeping them sustained at the same level. A four percent average is what is considered healthy and harvestable, an abundance that allows meaningful harvest for tribes, sportsmen, and the outfitting industry here in Idaho. The preferred alternative, unfortunately, fails on several fronts for Idaho anglers and outfitters and guides. By the acting agencies' own admittance, the smolt-to-adult return ratio for Idaho stocks under these preferred alternative, will only reach two percent, one out of every three years, ensuring we remain on extinction trajectory.	Based on the EIS analysis of the Preferred Alternative (PA), it will make a substantial contribution to improving Snake River anadromous fish runs. Broad recovery goals are beyond the scope of the EIS, which focuses on the effects associated with the operation and maintenance of the 14 CRS projects. The co-lead agencies used current, high-quality information in the analysis of the CRSO EIS. Specific to salmon and steelhead, the agencies used two primary modeling approaches which yielded a range of potential outcomes for the alternatives. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult return rates (SAR) would increase for both Snake River spring Chinook and steelhead and would average above 2% (the lower end of the Northwest Power and Conservation Council's recovery targets for the region) as a result of the PA. The co-lead agencies disagree with the comment that a SAR rate of 2% will only maintain a population. A SAR rate of 2% can lead to significant population growth given adequate productivity and habitat quality.
5544	2	brianbrooks59@msn.com	N/A	Further, the DEIS did not even account for the economic impact of fishing in Idaho. In one good year, the town of Riggins made $40 million in primary and secondary spending from just one season of good returns. With steelhead season closure last year, Clearwater County lost $8 million a month just on steelhead. We have economic data; and it's omissions from the DEIS is, quite honestly, mind boggling. When that was presented to the Governor's Workgroup, it was pretty confusing why that was left out.	The EIS provides an evaluation of the social welfare and regional economic effects of the No Action Alternative and the Multiple Objective alternatives (MOs), including the effects on recreation (Section 3.11) and commercial fisheries (Section 3.15). The EIS described the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and Tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. The National Marine Fisheries Service (NMFS) estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million; $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which is described qualitatively. For the effects on recreational fishing under MO3 in Section 3.11.3.5 along the lower Snake River below Lewiston, the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River) as an indicator for fishing visitation in this reach. The EIS describes that the visitation in the long-term in the lower Snake River, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting outfitting and tourism businesses in the region. The social welfare values and regional economic effects associated with recreational fishing under the action alternatives as well as river recreation post dam breach under MO3 were not estimated because of the uncertainty and large range in visitation and consumer surplus values among users.
5544	3	brianbrooks59@msn.com	N/A	By their own strategic plan, BPA has stated that they will reach their federal borrowing cap by 2023. And the only way they've extended it so long is by spreading the federal debt to private debtors totaling over $15 billion in debt. That does not sound like financial solvency. In fact, the impacts of their financial situation has already resulted in less money going towards fish mitigation projects in Idaho, when, arguably, we need more money for fish than ever. That has been clearly communicated to the Governor's Workgroup. BPA charges $36 per megawatt hour, while their competitors charge $22 per megawatt hour on the wholesale market. PUDs and other customers are leaving. One PUD in Idaho is investing in new transmission lines to leave BPA behind for another producer. Those who stay behind with BPA will be forced to incur the new cost for every PUD that leaves.	The comment incorrectly suggests that the wholesale spot-market price for power (here described as $22/MWh) is equivalent to the firm power provided under Bonneville's long-term power sales contracts for $36/MWh. The $22/MWh spot market purchase is for market energy purchases from the wholesale power market for surplus energy. It does not ensure availability nor deliverability, and is not suitable for load service, i.e., service to a load in any amount at all times. It is suitable only for buying and selling around firm load and resource forecast error, and for reducing system and fuel costs where more optimal and lower cost dispatch of energy resources is possible. Bonneville's long-term power sales are sold at a rate that is designed for firm load service; it ensures that what is needed is provided regardless of weather, hydrologic conditions, load, wind, market depth, or solar variability. Moreover, the carbon content of the Federal system, which is almost entirely carbon free, is not comparable to market purchases with the regional carbon mix, which contains a substantial amount of carbon-emitting resources (such as coal and natural gas). Regarding Bonneville's debt, Bonneville uses U.S. Treasury borrowing authority, non-Federal and other sources to fund Bonneville's ongoing capital program. Bonneville signaled in its Strategic Plan that, barring no changes, Bonneville would exhaust U.S. Treasury borrowing authority by 2023, so Bonneville's plan was to look at all available options to ensure U.S. Treasury borrowing would not be exhausted. For example, Bonneville recently made additional payments, through Transmission rates, to reduce the outstanding principal amount of bonds issued by Bonneville to the U. S. Treasury to help restore or preserve Bonneville's available capacity of its United States Treasury Borrowing. Paying additional debt is one action, but Bonneville is continuing to explore other options to assure sufficient borrowing authority on an ongoing basis. At the same time, it is also ensuring the amount of debt Bonneville incurs is also prudent. To that end, Bonneville instituted a leverage policy to ensure the amount of debt Bonneville incurs is prudent relative to the value of its revenue-producing assets that will repay that debt through future revenues. Bonneville's leverage ratio has declined over the past decade which is good (less debt relative to revenue producing assets), and the leverage policy ensures this will continue into the future resulting in less debt relative to the value of Bonneville's assets over time.
5546	1	tvstanger@gmail.com	N/A	Lincoln Electric believes that there needs to be a holistic view of the entire fish lifecycle, not just the impacts of the dams. The solutions need to include hydro, hatcheries, harvesting, and habitat, since they are all crucial to fish restoration efforts.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. The co-lead agencies recognize that there are many effects to salmon and steelhead populations outside the operation of the dams. The co-lead agencies analyzed the effects of the operation and configuration of the CRS projects on resources affected by the CRS, and they also looked at the cumulative effects of other actions, including harvest in Chapters 6 and 7 of the EIS. Moreover, research continues to evaluate the magnitude of these effects. For more information see the NMFS website at: https://www.nwfsc.noaa.gov/research/index.cfm Harvest certainly has an impact on salmon and steelhead populations. Alternatives to include changes to harvest are not within the scope of this EIS. The assumptions regarding harvest are taken from the 2018 EIS from NOAA and reflect current harvest management guidelines. To see their conclusions and effects analyses please go to: https://www.fisheries.noaa.gov/resource/document/environmental-impact-statement-programmatic-review-harvest-actions-salmon-and. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Improving survival of ESA-listed fish is one of several objectives of the Draft EIS and one of many resources analyzed. That said, the other areas mentioned by the commenter have been considered and included in mitigation measures as appropriate.
5546	2	tvstanger@gmail.com	N/A	Lincoln Electric believes the financial responsibility for fish restoration should be borne by everyone that benefit from the clean affordable energy provided by the Columbia River System, including special interest groups.	The financial responsibility for fish mitigation is not solely allocated to Bonneville's power ratepayers as the comment suggests. Fish mitigation costs are assigned to each authorized project purpose based on each purposes overall share of project costs, as determined by the cost allocation, by recovering those costs through power rates. Bonneville is required to pay for its share of mitigation costs based on the existing cost allocation. Congress also granted Bonneville discretion to fund the power share directly to the Corps and Reclamation as part of the Energy Policy Act of 1992, in some situations, including the Columbia River Fish Mitigation program. (Energy Policy Act of 1992, Pub. L. No. 102-486, 2406, 106 Stat. 2776, 3009 (1992) (codified at 16 U.S.C. 839d-1 (2012)). Bonneville generally does not, however, directly pay for the capital costs of fish mitigation structures; instead, it reimburses the U.S. Treasury for the power share of appropriations used to construct the structure. Additionally, as described in Section 3.19 of the EIS and Appendix Q, funding to operate the system comes through multiple mechanisms, including Federal tax dollars appropriated to cover system costs as well as revenue generated from the marketing and sale of hydropower. For power-specific costs, Bonneville typically provides direct funds to both the Corps and Reclamation. For joint related costs, including funding for fish and wildlife mitigation actions, the Corps and Reclamation receive annual congressional appropriations to fund most, if not all, capital investments. Bonneville reimburses the U.S. Treasury for the power share of these appropriations. Once the investment is in place, Bonneville will typically direct fund the power share of the operations and maintenance costs associated with the facility. In addition to congressional appropriations for fish and wildlife and costs directly funded to Corps and Reclamation by Bonneville, the Bonneville Fish and Wildlife Program (which is separate and distinct from direct funding described above) funds hundreds of projects each year to mitigate the impacts of the Federal hydropower system on fish and wildlife. Bonneville began this program to fulfill mandates established by Congress in the Pacific Northwest Electric Power Planning and Conservation Act of 1980 to protect, mitigate, and enhance fish and wildlife affected by the development and operation of the Federal Columbia River Power System (FCRPS). Bonneville uses its authority under 16 U.S.C. 839b(h)(10)(A), to make expenditures to implement its Fish and Wildlife Program, which is funded by Bonneville's electricity ratepayers as part of the rates that Bonneville sets to recover its costs. These expenditures provide system-wide funding for actions that also mitigate for the non-power purposes of the CRS, so Bonneville recoups the non-power share of those expenditures from the U.S. Treasury as credit, as required under 16 U.S.C. 839b(h)(10)(C). Bonneville's Fish and Wildlife Program expenditures incurred mitigating the CRS operations identified in the Final EIS and adopted in Bonneville's Mitigation Action Plan would continue to be allocated and borne as provided by existing laws governing the FCRPS and the long-standing accounting procedures used to implement them.
5547	1	Ron Gold	N/A	The salmon that go up the Fraser River is also a major source of food for the South Residency pod. And their runs are no better than the runs that come back up to the Snake River. There is no impairments on the Snake River dams, other than – excuse me –none on the Fraser River system. They had a bad landslide this past summer and it caused some problems with fisheries. But the true fact is, the resident's population of orcas on the west side of	The co-lead agencies recognize that there are many effects to salmon and steelhead populations outside the operation of the dams. Research continues to evaluate the magnitude of these effects. For more information see the NMFS website at: https://www.nwfsc.noaa.gov/research/index.cfm Harvest certainly has an impact on salmon and steelhead populations. A recent EIS addressing harvest was conducted by NMFS. To see their conclusions and effects analyses please go to: https://www.fisheries.noaa.gov/resource/document/environmental-impact-statement-programmatic-review-harvest-actions-salmon-and.

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				Vancouver Island's over 300. The biggest problem is over harvesting of the fish. The Puget Sound itself is a cesspool. Part of the problem the reason the Chinook are not doing as well is that their main food source, herring, in the Puget Sound, is over harvested.	Regarding impacts to orcas, the co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. The EIS analysis found only a minor effect to the Southern Resident killer whale would result from implementing MO3 (which includes the dam breach measure). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults form the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differentially from hatchery and wild fish. Hatchery fish today likely make up most fish consumed by SRKW (NOAA BiOp 2020). The EIS has analyzed spill as a measure in the Preferred Alternative and determined the overall effect to SRKW to be negligible in large part because hatchery production is consistent between the No Action Alternative and the Preferred Alternative. Because the impact from the Preferred Alternative was determined to be negligible, the agencies determined that existing hatchery production would be sufficient to address any potential impacts to prey availability for SRKWs. The co-lead agencies note the contribution to the prey of SRKW through the continued existence of their respective independent congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as the Lower Snake River Compensation Plan, which is administered by U.S. Fish and Wildlife Service. The Preferred Alternative and Proposed Action in the agencies' biological assessment carry forward certain mitigation measures described in Chapters 2 and 7 of the EIS, which include continued salmon and steelhead hatchery production. The Preferred Alternative has negligible effects to SRKWs as described in Section 7.7.8. The Biological Assessment (BA) describes the effect of the Proposed Action on the SRKW forage species (see BA Section 3.5.1.2, Southern Resident Killer Whale). The proposed changes in operation of the CRS include increased spring spill during the downstream migration of juvenile spring and summer run Chinook salmon. The result of this action includes potential increases of juvenile fish passing through the spillways, reductions in juvenile fish direct and indirect mortality associated with downstream passage, and the Comparative Survival Study (CSS) model predicts increases in numbers of returning adults, which will benefit SRKW foraging in and around the mouth of the Columbia River in winter and spring (See EIS Section 7.7.8). The CSS model results predicts Snake River Chinook salmon would have relative improvements in smolt-to-adult returns of 35 percent (see EIS Section 7.7.5). The smolt-to-adult return ratio (SAR) is the rate at which of a group of fish survive from their smolt life stage to a defined ending point where they return as adults. While recovery targets will require more than just the efforts of Federal agencies, the CSS models indicate the potential for SARs of Snake River Chinook salmon and steelhead to increase to levels that could approach recovery targets set by the Northwest Power and Conservation Council. The US Army Corps of Engineers is in partnership with other Federal, state and non-governmental organizations and have been implementing habitat projects for salmon, orcas, and wildlife all around the Puget Sound as part of the Puget Sound Nearshore Ecosystem Restoration Project.
5550	1	Rebecca Sayre	N/A	As I said, the dam removal is the best way to restore the salmon runs of the Columbia and Snake River systems. This option is appropriate action at a time of extinction crisis for the fish stock and the orca. Their condition is considered to be imminent if we don't act and act boldly. We must absolutely mitigate the impact to the communities who have to deal with the project changes.	Broad-sense recovery goals are beyond the scope of the EIS which focuses on the effects associated with the operation and maintenance of the 14 CRS projects. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. With respect to the Preferred Alternative, the anadromous fish analysis in Section 7.7.4 shows that the Preferred Alternative will provide substantial benefits to ESA-listed salmon and steelhead, which can help contribute to broader recovery goals. Regarding impacts to orcas, the EIS analysis found only a minor effect to the Southern Resident killer whale would result from implementing MO3 (which includes the dam breach measure). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults form the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differentially from hatchery and wild fish. Hatchery fish today likely make up most fish consumed by SRKW (NOAA BiOp 2020). Mitigation for each of the alternatives is discussed in Chapter 5 and Chapter 7. NEPA requires that all relevant, reasonable mitigation measures that could diminish the adverse impacts of the project be identified in the document, even if they are outside the jurisdiction of the lead agency or the cooperating agencies. See 40 C.F.R. 1502.16(h) and 1505.2(c); 46 Fed. Reg. 18026. The inclusion of mitigation measures in this Chapter 5 is not intended to indicate that the co-lead agencies, or the Federal government as a whole, has the authority to perform all of the measures listed. If the measures are outside the jurisdiction of the co-lead agencies, those measures will not be included in the Preferred Alternative or Records of Decision (ROD). Their inclusion in this Chapter 5 serves to alert other agencies, officials, and the public who can implement the measures to the potential benefits of the measure.
5553	1	David Doeringsfeld	N/A	Concerning transportation, the EIS does not reflect the total transportation cost increases if dams are breached. Short-line rail tracks are not adequate to handle increased grain exports. Unit train loading facilities are not adequate to handle increased grain exports. The cost to improve rail service will be made by private sector rail companies, and these private sector companies may choose not to make an investment of hundreds of millions of dollars. We would see rail rates skyrocket. The cost to improve road, bridge, and rail track and rail loading facilities could easily be ten times higher than the cost reflected in the EIS.	Rail rates are likely to increase under MO3, which includes a measure to breach the four lower Snake River dams. The impacts of rate increases are described in Section 3.10.3.5 of the EIS. If rail rates increase by 50 percent, truck transport would be relatively attractive to shippers, which would put competitive pressure on rail companies not to increase rail rates much higher. As such, price increases are unlikely to dramatically exceed estimates in the Draft EIS. The commenter is correct that some short-line rail tracks are currently inadequate to handle an increase in grain exports that would be anticipated and would require improvements. The EIS also evaluates the additional transportation infrastructure investments and associated costs that would be required, as well as the increases in air emissions that would occur. The EIS provides some estimates of these improvements in Section 3.10.3.5. The EIS finds that under low rail rate increase scenarios, additional shortline rail capacity would be required that could cost $25 to $50 million. Under a scenario where rail rates increase by 50 percent, more shipping demand would be transferred to trucks, reducing the demands on rail infrastructure, but increasing demands on roads. Under this scenario, up to $10 million in additional road wear and tear costs may occur. The EIS acknowledges that substantial uncertainty exists with regard to specific infrastructure costs that would be required.
5553	2	David Doeringsfeld	N/A	The preferred alternative increases the gas cap to 125 percent. We have concerns whether smolts can physically handle 125 percent gas gap. The preferred alternative does not provide the science to support 125 percent gas cap. We recommend an incremental approach to increasing the gas cap and to scientifically evaluate – – whether smolts can handle this increase.	Total Dissolved Gas (TDG) levels are regulated under the Federal Clean Water Act and administered by the states. Both Oregon and Washington have reassessed the available data on effects of TDG levels up to 125% of saturation on fish and other aquatic organisms. Based on this reassessment, Oregon issued a 5-year "standard modification" and Washington issued a permanent rule change, approved by the Environmental Protection Agency (EPA), to allow TDG saturation up to 125%. However, as noted by the commenter, there is considerable uncertainty in the effects; therefore, monitoring was required by the states and EPA to ensure any negative effects are detected and allow for adaptive management. Migrating salmon and steelhead may spend sufficient time at depths that will compensate for the high gas levels. However, fish and other organisms that spend extended times in less than a few meters of depth are at high risk. The Preferred Alternative will require a robust monitoring plan for salmon and steelhead to help narrow the uncertainty between the biological models and will help determine how effective increased spill can be in increasing salmon and steelhead returns to the Columbia Basin. Please see Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information.
5554	1	Jean Murphy Ouellette	N/A	Another serious threat to the Columbia River Fishery is the proposed construction by the U.S. Army Corps of Engineers of Ice Harbor and three other dams on the lower Snake River between Pasco, Washington and Lewiston, Idaho, to provide flat water navigation and a relatively minor block of power. The development would remove part of the cost of waterborne shipping from the shipper and place it on the taxpayer, jeopardizing more than one half of the Columbia River salmon production in exchange for 148 miles of subsidized barging route. The transportation saver to the shipper would amount to $2 million annually, while salmon runs, having a wholesale value of $9 million, would be threatened with destruction.	The four lower Snake River projects have been operational for more than 30 years. Additional information about each project can be found at https://www.nww.usace.army.mil/Missions/Lower-Snake-River-Dams/. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-lead agencies numerous legal obligations. The Preferred Alternative provides flexibility to adapt to changing conditions in the Columbia River Basin, ensures that human life and safety can be protected through flood risk management, protects valuable fish and wildlife resources, supplies water to farmers and cities, and ensures adequate, affordable, and reliable power. The EIS does not employ a cost-benefit framework for decision-making. Instead, the EIS evaluated beneficial and adverse effects across an array of resource areas including potential effects at the national, regional and local level; effects are monetized and quantified, where possible, and also described qualitatively. As is common in NEPA analyses, the beneficial and adverse effects of the alternatives are expressed as a variety of qualitative and quantitative environmental and economic metrics throughout the EIS to inform decision-making, including the effects of the alternatives on fish as detailed in Section 3.5. That the effects of the alternatives on fish are not expressed as monetized economic values does not mean that they were not considered in the context of the analysis. Impacts to navigation and transportation under MO3, which includes breaching the four lower Snake River dams, are provided in Section 3.10.
5556	1	Edwina Allen	N/A	After five rejections in court of the federal agency plans, to manage the Columbia River basin dams, the major objective of the current DEIS should be to produce a plan that will, in fact, meet legal requirements, recovery of salmon and steelhead in the Snake River.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Recovery of ESA-listed salmon is outside of the authority of the co-lead agencies, and was not an objective of this EIS. Recovery of ESA-listed species is the purview of National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (USFWS). This EIS has been developed in consultation with National Marine Fisheries Service (NMFS) and U.S. Fish and Wildlife Service (USFWS) to find an acceptable balance that allows the co-lead agencies to meet the Purpose and Need Statement while minimizing impacts to affected ESA-listed species and their habitats. Both human-caused and natural factors that are outside the responsibility and control of the co-lead Federal agencies also contribute to the decline and recovery of ESA-listed species, and would continue to strongly influence fish and their habitat. Salmon and steelhead have been adversely affected in the Columbia River Basin over the last century by many activities including human population growth, urbanization, introduction of exotic species, overfishing, development of cities and other land uses in the floodplains, water diversions for all purposes, dams, mining, farming, ranching, logging, hatchery production, predation, ocean conditions, and loss of habitat. Operation, configuration and maintenance of the CRS requires mitigation for its effects, but the EIS is not intended or required to serve as an overall salmon recovery plan for the region. The co-lead agencies used high quality information in the analysis of the CRSO EIS. Specific to salmon and steelhead, the agencies used two primary modeling approaches which yielded a range of potential outcomes for the alternatives. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult (SAR) return rates will increase for both Snake River spring Chinook and steelhead and will average above 2% (the lower end of Northwest Power and Conservation Council's (Council's) recovery targets for the region) as a result of the Preferred Alternative increasing SAR from 2.0% to 2.7% for Chinook, a 35% relative increase. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine

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					how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information. Based on the EIS analysis of the Preferred Alternative, it will make a substantial contribution towards recovery targets.
5557	1	dstempf@comcast.net	N/A	We've spent 17 billion on salmon restoration and haven't recovered a single run of our salmon, our salmon.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA listed species. Similarly, the Northwest Power Act does not obligate the co-lead agencies to recover ESA listed species or to ensure restoration of other fish and wildlife. Instead, the co-lead agencies fish and wildlife mitigation responsibilities under Northwest Power Act are more limited primarily, managing and operating FCRPS projects, which includes the CRS, to protect, mitigate, and enhance (as opposed to recover) fish and wildlife affected by such projects in a manner that provides equitable treatment with the projects other authorized purposes and consistent with the purposes of the Act and applicable laws. In addition, Bonneville has a specific responsibility to fund protection, mitigation, and enhancement of fish and wildlife to the extent affected by development and operation of FCRPS projects consistent with the Northwest Power and Conservation Councils (Council) fish and wildlife program, the Councils power plan, and the purposes of the Act, which includes assurance of an adequate, efficient, economical, and reliable power supply. Therefore, contrary to the comments broad assertion, the Northwest Power Act does not make Bonneville responsible for funding the regional effort to recover wild salmon and steelhead. The comments suggestion that approximately $17 billion in fish and wildlife mitigation investment has been ineffective to recover ESA-listed species is misplaced. Those investments delivered the intended results when considered in the appropriate statutory context of the Northwest Power Acts anadromous fish provisions, which call for improved survival of such fish at Federal Columbia River Power System (FCRPS) projects and sufficient flows between the projects to improve production, migration, and survival. For example, as of 2014 this investment had facilitated juvenile dam passage survival of 96% and 93% for spring and summer migrants respectively; see Endangered Species Act Federal Columbia River Power System 2016 Comprehensive Evaluation Section 1, at 17, t.2 (Jan. 2017), a marked improvement compared to when Congress passed the Northwest Power Act and the estimated average juvenile mortality at each mainstem dam and reservoir complex was 15-20% with losses recorded as high as 30%. See Nw. Res. Info. Ctr. v. Nw. Power Planning Council, 35 F.3d 1371, 1374 (9th Cir. 1994) (citing a Sept. 4, 1979 report by U.S. General Accounting Office describing the systems impacts on anadromous fish).
5559	1	Julia Reitan	N/A	I'm calling in to oppose the preferred alternative that fails to recover salmon and, by extension, also fails our orcas, and to speak in support of removing the four lower Snake River dams. That alternative was looked at, but rejected largely on the basis of a flawed economic analysis. The economic analysis of why breaching the Snake River dams is too expensive for us does not include at all, does not factor in the cost of maintaining the dams, the turbines, and the locks over the next 20 to 30 years. These costs are considerable because the dams and locks and turbines are now 40-some years old and maintenance has been delayed. The estimates are north of a billion dollars to keep the dams, turbines, and locks running. And the economic analysis also does not assign any value, any economic value to the recovery of salmon, and that is patently false.	Broad recovery goals are beyond the scope of the EIS, which focuses on the effects associated with the operation and maintenance of the 14 CRS projects. With respect to the Preferred Alternative, the anadromous fish analysis in Section 7.7.4 shows that the Preferred Alternative will help contribute to broader recovery goals. Regarding impacts to orcas, the EIS analysis found only a minor effect to the Southern Resident killer whale would result from implementing MO3 (which includes the measure to breach the four lower Snake River dams). The overall health and condition of the Southern Resident killer whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. National Marine Fisheries Service (NMFS) and Washington Department of Fish and Wildlife (WDFW) have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for whales (NMFS and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKW are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKW feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these Federal dam and reservoir projects, and the associated effects would indirectly affect SRKW. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differentially from hatchery and wild fish. Hatchery fish today likely make up most fish consumed by SRKW (NOAA BiOp 2020). The cost analysis in the EIS does account for the costs of operating and maintaining the dams as well as capital costs (See Section 3.19 and Appendix Q). Although the turbines at the four lower Snake River dams are between 41 and 50 years old and nearing their design lives, there are no plans for any immediate replacements. Investment decisions are driven by equipment condition, probability and consequence of failure and, as such, it is common for equipment to be in service well past its design life. For example, some turbine runners at McNary dam will be over 70 years old by the time the replacement project is complete. Long-term planning analyses that calculate the optimal economic time to replace equipment based on current and expected equipment condition, probability of failure and outage consequence, point to the late 2030s as the earliest replacement dates for major powertrain equipment at the four lower Snake River dams. Most turbine replacements are forecasted between the 2040s and 2060s which would put the turbines at the four lower Snake River dams at about the same age at replacement as McNary. For hydropower, the average annual value of the four lower Snake River dams exceeds the average annual equivalent costs. The generation value at the four lower Snake River dams can be described by a range between the cost to replace the generation through new conventional resources or through a portfolio of zero-carbon resources. Although the costs of replacing the power with market purchases was analyzed, it is unlikely that short-term wholesale power markets could reliably replace the power for the long-term. This range would put the annual value of power between $240 million and $500 million for the four dams combined. These numbers represent about 90 percent of the lost benefits cited in Table 3-171 of the Draft EIS because the four dams represent about 1,000 aMW of the 1,100 aMW of lost generation estimated in MO3. The average annual cost to operate and maintain all authorized purposes at the four lower Snake River dams is $75 million (Appendix Q, Table 5-1) and the annual-equivalent capital costs are $32 million (Appendix Q, Table 4-1). Hydropower costs funded by Bonneville represent about $50 million of the total annual operations and maintenance costs and nearly all of the annual capital costs, approximately $31 million. This puts the annual-equivalent power-specific costs at approximately $81 million a year. As a result, the net benefits from hydropower for the four lower Snake River dams are between $159 million and $419 million and the benefit-cost ratios are between 3.0 and 6.2. If the $34 million per year for the Lower Snake River Compensation Plan is added to the capital and expense costs, benefits still exceed costs under each replacement power scenario. Considering these costs, the net benefits range from $125 million to $385 million and the benefit-cost ratios range from 2.1 to 4.3. In the less-likely scenario that generation could be reliably replaced with short-term wholesale market purchases and assuming that the four dams represent 90% of the $150 million in market purchases required to replace the lost generation cited in MO3 (see Table 3-170 in the Draft EIS), the lower bound for net benefits would fall to $54 million and the benefit-cost ratio would fall to 1.7. With the Lower Snake River Compensation Plan included, the lower bound for annual net benefits becomes $20 million and the benefit-cost ratio becomes 1.2. From a resource competitiveness perspective, the four lower Snake River dams are among the least costly generating resources in the Federal Columbia River Power System (FCRPS) and the planned investment strategy is expected to maintain that status. As shown in the Federal Hydropower presentation at the 2018 Integrated Program Review , the Headwater/Lower Snake Asset Class is forecast to have a 50-year levelized cost of generation of $11.41/MWh based on the direct funded capital and expense (O&M) programs outlined in that process. These costs remain competitive with volatile Mid-Columbia spot market energy prices which averaged $37/MWh in 2019 and have averaged $21/MWh in 2020. 1/ The Integrated Program Review (IPR) allows interested parties to see and comment on all relevant Federal Columbia River Power System (FCRPS) capital and expense (O&M) spending level estimates in the same forum. The IPR occurs every two years, or just prior to each rate case, and is the public review for the costs that will be recovered through rates the following two-year rate period. Long-term forecasts for the next 50 years and major upcoming projects are also shared in this forum. This information is available here: https://www.bpa.gov/Finance/FinancialPublicProcesses/IPR/2018IPR/IPR%202018%20Fed%20Hydro%20Workshop.pdf and is incorporated by reference into this EIS. 2/ In the 2018 Integrated Program Review, the Headwater/Lower Snake Asset Class consisted of the four lower Snake River dams, Hungry Horse, Libby, and Dworshak dams. These projects were grouped together because they have similar cost characteristics. The Levelized Cost of Generation for the four lower Snake projects alone is slightly lower than that for the whole class including the headwater projects shown in the table. 3/ Levelized Cost of Generation is defined as the forecasted direct costs and administrative overhead of producing power at a plant annualized over a 50-year period. This cost includes direct funded operations, maintenance, administrative and capital costs as well as Columbia River Fish Mitigation (CRFM) costs. Bonneville system-wide mitigation costs, such as its Fish and Wildlife program, are not included in this metric.
5561	1	yuiqwe1@gmail.com	N/A	It is time to remove the earthen portions of these dams. The material can be stockpiled. If after 20 years there's no improvement in fish populations, then rebuild the dams.	The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-lead agencies numerous legal obligations. The Preferred Alternative (PA) is predicted to benefit ESA-listed juvenile and adult anadromous salmonids (two of the objectives), but not as much as Multiple Objective 3 (MO3) which includes breaching the four lower Snake River dams. The PA also meets the EIS objectives for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams, because the PA is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. The commenter's suggestion to stockpile and rebuild the dams if breaching did not result in meeting the anadromous fish objectives of the EIS would have to be studied and effects evaluated. Siting locations for materials of this amount for long-term storage and new construction costs to rebuild would be part of that analysis. The alternative suggested by the commenter would include the adverse effects of implementing MO3 and potentially irretrievable losses to communities and economy. Therefore, the co-lead agencies do not consider this to be a reasonable variation of MO3, which included breaching the four lower Snake River dams.
5562	1	Aviar Bhandari	N/A	A number of people who have testified in favor of DEIS have argued for keeping the dams because of the electricity they produce. But the simple truth is, we do not need the electricity from these dams to meet BPA energy contracts. The four lower Snake River dams produce only two to four percent of the electricity used in the Pacific Northwest. Not only are they not needed, but the power they produce just contributes to a surplus. In 2016, the Pacific Northwest had a surplus of 16 percent in energy. Currently, in the Northwest, we have two point times more energy from clean energy, wind and solar, than that produced by these dams.	While the four lower Snake River dams account for a small portion of the total power of the region, they represent a larger portion of the Federal Columbia River Power System (FCRPS) from which Bonneville markets power. The four lower Snake River dams are among the most valuable projects in the FCRPS. These dams provide over 1,000 aMW of carbon-free energy and up to 2,000 MW of sustained peaking capacity at certain times of the year. The dams also have unparalleled ramping capability, the ability to quickly generate energy to match spikes in energy usage, with over 2,000 to 2,300 MW of capability in certain months of the year. Table 3-160 of the Draft EIS presents the historical sustained ramping capability of the four lower Snake River dams. The power output for the four lower Snake River dams is not sold exclusively as surplus as the comment suggests. Bonneville sells power from the FCRPS as a unified system, not from specific projects. In this regard, the power generated from the four lower Snake River dams are pooled with all other FCRPS power sold by Bonneville to meet Bonneville's collective power obligations. Most of this power is used to meet the loads of regional publicly owned utilities, such as municipalities, rural utilities, and public utility districts under long-term power-sales contracts (see EIS Section 3.7.2.5, Bonneville Power and Transmission Customers). While the regional power system does have surplus in some periods, most typically in the spring of high-water years, there are also periods when the region has very little or no surplus. For example during a winter cold snap demand for power may reach its annual peak. During a heat wave in summer when demand for power is high, river flows may be relatively low and several Federal and non-Federal hydropower projects are spilling water for juvenile fish passage. The EIS analysis for MO3, which includes breaching the four lower Snake River Dams, indicated that there is roughly a 14% chance of any given year having one or more power shortages (without factoring in the retirement of additional coal plants). See Section 3.7.3.5 of the EIS (Table 3-165 in the Draft EIS); and, Appendix J, Chapter 4, shows the seasonal variation of the loss-of-load events.
5562	2	Aviar Bhandari	N/A	Irrigation. Only the lowest or last of the four lower Snake River dams provides any irrigation water. Only about 14 farms and 40,000 acres are irrigated from this dam by pumping water from the reservoir. These farms could continue to irrigate by simply extending pump intakes, a longer straw.	The EIS discusses engineering solutions, including pipeline extensions. MO3 Region C discussion begins on page 3-1267, line 3244, in the Draft EIS and is also found in Appendix N. The EIS draws upon the 2002 Lower Snake River Juvenile Salmon Migration Feasibility Report and Environmental Impact Statement which concluded that modifying the existing pump system was cost prohibitive. As discussed in Section 3.12.3, for MO3, in Region C this analysis assumes that pumps are unable to deliver water to an estimated 47,926 acres.
5562	3	Aviar Bhandari	N/A	Transportation of grain. Barge shipping is down 70 percent in the last 20 years. Grain volume has decreased 45 percent in favor of rail shipping. The Port Lewiston is heavily subsidized by taxpayers and is rarely profitable. Barge shipping is an unsustainable financial burden on the residents of the U.S.A. and Idaho. Taxpayers and ratepayers subsidize each and every barge shipment to the tune of about 20,000 per barge. Modern, affordable transportation alternatives exist for the transporting grain and other goods.	Access to barge transportation is the most cost effective means of accessing export markets for the majority of grain producers in the Northwest currently and removing that option would increase transportation costs for grain producers, as the EIS analysis describes in Section 3.10. It is true that barge movements on the Snake and Columbia rivers have declined somewhat over the past 20 years. The EIS analysis finds that transportation of freight that is currently barged on the lower Snake River could be accomplished via other transportation modes, but this change would not be without costs to farmers, would require public and private investment in infrastructure, and would result in some adverse regional economic effects, particularly in the short term.

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5563	1	Al Jenkins	N/A	I support alternative number three, breach the lower four Snake River dams. And I know the Snake River dams are important to a lot of people. But we can come up with a plan that transitions and gives economic benefits to a lot of people and invest in other ways to transport product and other irrigation. You don't need dams to have irrigation. And the power generated is small. Just talking about dams, there's 60 dams on the whole Columbia Snake River system. Sixty. So we're talking about 4 out of 60. That's seven percent of the total and they generate less than seven percent of the Northwest power. So is 60 the right number? Is 64 the right number of dams? What's wrong with the number 56? That's still a lot of damn dams. So the salmon and steelhead and orcas and the people that depend on them, commercial fishers, tribal fishers, recreational fishers, professional guides that serve recreational fishermen, and businesses in small towns like Orofino, Idaho, depend on people coming back and supporting their economy. They've lost a lot of business over the last several years because the fish are not returning to Idaho and they're not returning to Eastern Washington in significant numbers. Talking about the seven percent of the dams, we also need to recognize that a, quote/unquote, balanced approach has led to a 95 percent reduction in wild salmon and steelhead that come back to the Columbia Snake River system. It used to be between 15 and 20 million salmon and steelhead came back every year and nobody had to do anything. They just showed up by the grace of God and creation and biology, and that's amazing. And so now we're talking about balancing out the last five percent. So I don't know why we can't lose seven percent of the dams, but we have to go ahead and lose 95-plus percent of the salmon.	While the four lower Snake River dams account for a small portion of the total power of the region, they represent a larger portion of the Federal Columbia River Power System (FCRPS) from which Bonneville markets power. For example, the four lower Snake River dams produce upwards of 1,100 aMW of power, which is approximately 13 percent of the average power produced by the FCRPS. See EIS, section 3.7.3.5, Changes in Power Generation, Table 3-159 in the Draft EIS. This amount of lost power is equivalent to the amount of power used to serve 900,000 homes in the Pacific Northwest. See Section 3.7.3.5, Summary of Effects. The EIS also provides an evaluation of the social welfare and regional economic effects of the No Action Alternative and the multi-objectives alternatives, including the effects on recreation (Section 3.11) and commercial fisheries (Section 3.15). Because there is considerable uncertainty regarding the overall effects of the alternatives on regional fish populations, and how such changes may affect the management of the fisheries, effects associated with changes in commercial and recreational fisheries under the alternatives were described qualitatively. This analysis evaluates potential effects on fisheries by referencing the potential effects on relevant fish populations, as described in Section 3.5. Regarding the balancing of objectives, the EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3, which includes breaching the four lower Snake River dams. The Preferred Alternative also meets EIS objectives for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse impacts to communities and the economy. MO3, by contrast, has significant regional economic impacts and community effects, and meet only a small subset of the EIS objectives. Thus, the co-lead agencies did not recommend MO3 because the Preferred Alternative is more likely to satisfy multiple complex, and at times, conflicting legal requirements for a complex system.
5564	1	Dave Schneider	N/A	One hundred percent of our power is from the Bonneville Power Administration. Midstate Electric is relieved that the EIS rejected Multiple Objective 3, breaching the lower four Snake River dams and rejected increased spill as envisioned by the Multiple Objective 4. Both MOUs would have had major adverse effects on rates that could cause up to a 50 percent increase in wholesale power cost. The 50 percent increase in BPA's rate could lead to an increase of several hundred dollars a year for our members. Demographically, most of our members are senior citizens and many on fixed incomes. They should not have to choose between medicine, food, or paying their electric bill.	The comment that replacing the four lower Snake River dams under MO3 would drive up costs in the region is consistent with EIS findings. See Draft EIS, Section 3.7.3.5, Table 3-166. Multiple Objective alternative 4 (MO4) would also drive up costs. The Environmental Justice analysis in Section 3.18.3 of the EIS provides further detail on potential disproportionate effects including to tribal, low-income and minority populations. The Preferred Alternative identified in the Draft EIS did not include either the measure to breach the four lower Snake River dams in MO3, or the measure to spill to 125% Total Dissolved Gas from MO4. The Preferred Alternative does meet the hydropower generation objective to provide an adequate, efficient, economical, and reliable power supply that supports the integrated Columbia River Power System.
5564	2	Dave Schneider	N/A	The DEIS concludes MO-3 and MO-4 creates a higher risk of brownouts and blackouts in the Pacific Northwest. It is not uncommon for temperatures to be well below zero in Midstate Electric service territory. Reliable base load generation is critical for the safety of our communities. Our resource needs can almost double overnight due do huge temperature swings that can last anywhere from a couple of hours to weeks. These are the times that Midstate Electric needs insurance against blackouts, which is exactly what the hydro system provides.	The comments about the impact of MO3 (which includes breaching the four lower Snake River dams) and MO4 on regional power reliability, unless and until replacement resources are added, is consistent with the EIS findings. See EIS, section 3.7.3.5, Effects on Power System Reliability, at 3-903; see also Appendix H, Table 2-1. The concern voiced by the comment towards health and safety effects is consistent with discussions in the EIS.
5564	3	Dave Schneider	N/A	Wind and solar implement and cannot alone meet the needs of the grid to have a precise balance of electricity production and consumption. Although battery storage is being developed to make wind and solar resources more reliable, they're a long way from being economical and having the needed storage capacity for our service territory with our cold weather extremes.	The suggestion that hydropower is a reliable source of power is consistent with the findings of the EIS. See Draft EIS, Section 3.7.3.5, Lower Snake River Full Replacement, at pages 3-905-907. The findings of the power replacement resources indicated that more installed capacity for renewable resources (e.g., solar) would be needed due to the lower capacity factors of these resources, consistent with the comment. See Draft EIS, Section 3.7.3.1, Integration Services, at page 3-832. If lost hydropower were replaced largely by new variable, renewable energy sources, the existing dispatchable resources would need to provide integration services for these new resources.
5565	1	Dan Drase	N/A	I'm kind of surprised that you're not extending the comment period. My agency would likely have allowed an extended comment period for (indiscernible) scope and importance and controversy, even without a global pandemic interfering in the ability of the public and the tribes and the agencies to review and comment on it. I think it's generally unwise and inefficient not to take advantage of the input that you can get at this stage of the process to make a better final document, especially because you're on a extremely tight timeline and especially because you're going to get sued no matter what you do, you might as well make a bulletproof document and take advantage of what you're going to hear from people who are critical of it and fix those things now, because the flaws that are not raised and addressed now may well support successful appeals further on.	The co-lead agencies considered requests to extend the public comment period. This NEPA process included a wide array of cooperating agencies whose close involvement throughout the process allowed the co-lead agencies to incorporate feedback. Given the broad range of comments received and the extensive Federal and non-Federal participation in the overall process as well as the level of public engagement in the six virtual public meetings in the region, the co-lead agencies determined that an extension was not warranted and that the 45-day public comment period was adequate consistent with NEPA regulations. On April 9, the CRSO EIS website was updated to inform the public that they should plan to submit comments by the close of the comment period.
5566	1	Kim Jones	N/A	I am a concerned Washington citizen; extremely, extremely concerned about this whole ecosystem of Washington state. And it's basically in violation of the Endangered Species Act to blatantly fail to protect wild Chinook salmon as well as the Southern Resident orca.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not require the co-lead agencies to take affirmative actions to recover ESA listed species. The Preferred Alternative complies with the ESA (see Chapter 8, Compliance with Environmental Laws, Regulations and Executive Orders, for more information). The population dynamics of the Southern Resident killer whale (SRKW) are complicated and there are multiple factors that contribute to the overall success of this species. The quantity and quality of prey is one of the limiting factors identified by National Marine Fisheries Service (NMFS) in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the CRS directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these Federal dam and reservoir projects, and the associated effects would indirectly affect SRKW. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differently from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020). The overall health and condition of the SRKW depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and Washington Department of Fish and Wildlife (WDFW) have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for the whales (NMFS and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall-run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall-run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea. SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKW feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). Details on the most crucial prey stocks for SRKW, as well as their population and range, is available from several fact sheets and videos available here: https://www.fisheries.noaa.gov/species/killer-whale#spotlight. For more information, visit this NMFS StoryMap on SRKW: https://noaa.maps.arcgis.com/apps/Cascade/index.html?appid=3405e6637bf74e998d4ebe992c54f613. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Additionally, Section 7.7.8 states impacts to SRKW would be minor. Thus, the co-lead agencies expect salmon and steelhead increases will come from operational measures and existing hatchery production carried forward into the Preferred Alternative. These hatcheries include conservation and safety net hatcheries, as well as through the continued existence of certain independent congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as the Lower Snake River Compensation Plan, which is administered by U.S. Fish and Wildlife Service. Moreover, NMFS concluded in its 2020 CRS BiOp that operations, maintenance and configuration of the CRS is not likely to adversely affect SRKW.
5567	1	Dallas Reed	N/A	And let's not overlook the disgusting cesspool that the Puget Sound is. So in regard to the Southern Residents and maybe some of the chemicals that are washed into the Puget Sound from Seattle and the greater Seattle area, birth control could very well be the number one reason for unsuccessful reproduction for the Southern Resident. Not to mention heroin and other opioids that are rinsed into the Puget Sound. So as far as the salmon supply from the Snake River, NOAA has found that 90 percent of the diet from the Chinook for the Southern Residents come from the Fraser River in British Columbia. And during the other half of the year, the orcas are so far out that scientists don't even know what the hell they eat. And if all that needs to be done is to help supplement fish for orcas, which is what hatcheries are, just a supplement, and I think they're supposed to produce somewhere around two percent of the salmon population for recreational needs and supplemental population needs, why don't we just increase the flow during times when juvenile salmon are out migrating.	Regarding Puget Sound, the effects mentioned in the comment involve a variety of issues beyond the scope of the analysis in the CRSO EIS, which analyzes the effects of the operation, maintenance, and configuration of the CRS projects. However, water quality effects for the Columbia River Basin were considered in the EIS analysis and are described in Chapter 1, 2, and Section 7.8.3 of the EIS. Additionally, the U.S. Army Corps of Engineers is in partnership with other Federal, state and non-governmental organizations and have been implementing habitat projects for salmon, orcas, and wildlife all around the Puget Sound as part of the Puget Sound Nearshore Ecosystem Restoration Project. The population dynamics of the SRKW are complicated and there are multiple factors that contribute to the overall success of this species. The quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differently from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for the whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall-run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall-run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). Details on the most crucial prey stocks for Southern Resident killer whales, as well as their population and range, is available from several fact sheets and videos available here: https://www.fisheries.noaa.gov/species/killer-whale#spotlight. For more information, visit this NMFS StoryMap on Southern Resident killer whales: https://noaa.maps.arcgis.com/apps/Cascade/index.html?appid=3405e6637bf74e998d4ebe992c54f613. According to NMFS and the EPA, the estimated SRKW population has fluctuated between 67 and 98 whales between 1960 and 2015. The Snake River dams were constructed between 1962 and 1975. The SRKW population increased from a record low in 1970 to its highest population numbers in 1995. Those years were not high years for Snake or Columbia River Chinook Salmon. Ocean conditions between 2011 and 2013 were good years for salmon. At the same time, 2010 and 2013 were good outmigration years. Particularly, 2011 and 2012 were above normal in water supply, which would mean more cooler water was available and there was better survival of salmon, and 2011 through 2014 were higher than normal spill years as well. The combination of outmigration and ocean conditions created improved adult salmon returns. The EIS has analyzed spill as a measure in the Preferred Alternative and determined the overall effect to SRKW to be negligible in large part because hatchery production is consistent between the No Action Alternative and the Preferred Alternative. Because the impact from the Preferred Alternative was determined to be negligible, the agencies determined that existing hatchery production would be sufficient to address any potential impacts to prey availability for SRKWs. The co-lead agencies note the contribution to the prey of SRKW through the continued existence of their respective independent Congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as the Lower Snake River Compensation Plan (other than under MO3), which is administered by USFWS. The Preferred Alternative and Proposed Action in the agencies' biological assessment carry forward certain mitigation measures described in Chapters 2 and 7 of the EIS, which include continued salmon and steelhead hatchery production. The Preferred Alternative has negligible effects to SRKWs as described in Section 7.7.8.
5569	1	Shiva Rajbhandari	N/A	The four lower Snake River dams are a financial burden to Idaho taxpayers and ratepayers, and that burden is likely to increase sharply in the near future as expensive repair costs are incurred. Today, taxpayers that support the operation and maintenance of these dams get back 17 cents for every dollar invested. The dams do not supply energy that is needed by Idahoans. They simply contribute to a surplus of energy. As much as 16 percent power	Breaching the dams and ending power generation would be a large loss for the regions electricity ratepayers as the value of the power produced by the dams is significantly more than the cost of maintaining them. The costs to operate and maintain (O&M), including needed capital investments, the lower Snake River dams are described in Appendix Q, Tables 4-1 and 5-1 in the Draft EIS. MO3 would result in a cost savings of $107 million in capital and O&M costs, annually. Capital cost estimates

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				surplus in the Pacific Northwest in 2016. If it is needed at all in the future, it can be supplied by less lethal generating sources. By preventing wild salmon from returning to their pristine Idaho habitat, these dams suppress an economic opportunity unique to the lower 48 -sport fishing in a wild pristine, incredibly beautiful natural setting. The dams keep the city of Lewiston stuck in a dream of the past, a booming inland seaport. This seaport is rarely profitable. Lewiston and Riggins is easily transitioned to a vastly more successful economy based upon a sport fishing economy that is valued at about $500 million annually.	are based on information from the Strategic Asset Management Plan, including investment needs over the long-term based on the hydropower engineering requirements and needs over the life of the asset, including replacement costs when assets are at the end of their use life. The EIS described the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. National Marine Fisheries Service (NMFS) estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million; $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The Multiple Objective alternatives (MOs) are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which is described qualitatively. For hydropower, the average annual value of the four lower Snake River dams exceeds the average annual equivalent costs. The generation value at the four lower Snake River dams can be described by a range between the cost to replace the generation through new conventional resources or through a portfolio of zero-carbon resources. Although the costs of replacing the power with market purchases was analyzed, it is unlikely that short-term wholesale power markets could reliably replace the power for the long-term. This range would put the annual value of power between $240 million and $500 million for the four dams combined. These numbers represent about 90 percent of the lost benefits cited in Table 3-171 of the Draft EIS because the four dams represent about 1,000 aMW of the 1,100 aMW of lost generation estimated in MO3. The average annual cost to operate and maintain all authorized purposes at the four lower Snake River dams is $75 million (Appendix Q, Table 5-1) and the annual-equivalent capital costs are $32 million (Appendix Q, Table 4-1). Hydropower costs funded by Bonneville represent about $50 million of the total annual operations and maintenance costs and nearly all of the annual capital costs, approximately $31 million. This puts the annual-equivalent power-specific costs at approximately $81 million a year. As a result, the net benefits from hydropower for the four lower Snake River dams are between $159 million and $419 million and the benefit-cost ratios are between 3.0 and 6.2. If the $34 million per year for the Lower Snake River Compensation Plan is added to the capital and expense costs, benefits still exceed costs under each replacement power scenario. Considering these costs, the net benefits range from $125 million to $385 million and the benefit-cost ratios range from 2.1 to 4.3. From a resource competitiveness perspective, the four lower Snake River dams are among the least costly generating resources in the Federal Columbia River Power System (FCRPS) and the planned investment strategy is expected to maintain that status. As shown in the Federal Hydropower presentation at the 2018 Integrated Program Review 1/, the Headwater/Lower Snake Asset Class /2 is forecast to have a 50-year levelized cost of generation 3/ of $11.41/MWh based on the direct funded capital and expense (O&M) programs outlined in that process. These costs remain competitive with volatile Mid-Columbia spot market energy prices which averaged $37/MWh in 2019 and have averaged $21/MWh in 2020. 1/ The Integrated Program Review (IPR) allows interested parties to see and comment on all relevant Federal Columbia River Power System (FCRPS) capital and expense (O&M) spending level estimates in the same forum. The IPR occurs every two years, or just prior to each rate case, and is the public review for the costs that will be recovered through rates the following two-year rate period. Long-term forecasts for the next 50 years and major upcoming projects are also shared in this forum. This information is available here: https://www.bpa.gov/Finance/FinancialPublicProcesses/IPR/2018IPR/IPR%202018%20Fed%20Hydro%20Workshop.pdf and is incorporated by reference into this EIS. 2/ In the 2018 Integrated Program Review, the Headwater/Lower Snake Asset Class consisted of the four lower Snake River dams, Hungry Horse, Libby, and Dworshak dams. These projects were grouped together because they have similar cost characteristics. The Levelized Cost of Generation for the four lower Snake projects alone is slightly lower than that for the whole class including the headwater projects shown in the table. 3/ The Levelized Cost of Generation is defined as the forecast direct costs and administrative overheads of producing power at a plant annualized over a 50-year period. This cost includes direct funded operations, maintenance, administrative and capital costs as well as Columbia River Fish Mitigation (CRFM) costs. Bonneville systemwide mitigation costs, such as its Fish and Wildlife program, are not included in this metric.
5570	1	grooovyjake@gmail.com	N/A	The stated objectives of the EIS are to operate the system in a way that, quote, improves fish survival. And you divide it into four parts here. But also to provide lost-cost electricity with minimal greenhouse gas emissions and reliable water supply. Failure to meet Endangered Species Act benchmarks for salmon recovery is what instigated this renewed process in the first place. Yet, your own objectives fall far short of what would be required to achieve that and stay out of the courtroom for the sixth time. If you only seek to improve fish survival rather than setting a more reasonable goal of achieving fish recovery, you will never develop a plan that means ESA requirements.	The purpose of the EIS is to evaluate options for the operation and configuration of the 14 dams in the CRS system. As required by NEPA, the co-lead agencies evaluated the effects of the Multiple Objective alternatives (MOs) on many resources, including effects to fish and wildlife. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Recovery of ESA-listed species is the purview of National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (USFWS). This EIS has been developed in consultation with NMFS and USFWS to minimize impacts to affected ESA-listed species and their habitats. Both human-caused and natural factors that are outside the responsibility and control of the co-lead agencies also contribute to the decline and recovery of fish, and would continue to strongly influence fish and their habitat. Salmon and steelhead have been adversely affected in the Columbia River Basin over the last century by many activities including human population growth, urbanization, introduction of exotic species, overfishing, development of cities and other land uses in the floodplains, water diversions for all purposes, dams, mining, farming, ranching, logging, hatchery production, predation, ocean conditions, and loss of habitat. Operation, configuration and maintenance of the CRS requires mitigation for its effects, but the EIS is not intended or required to serve as an overall salmon recovery plan for the region. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-lead agencies numerous legal obligations. The Preferred Alternative (PA) is predicted to benefit ESA-listed juvenile and adult anadromous salmonids (two of the objectives), as well as meets the other EIS objectives including those for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. Additionally, the PA is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system.
5570	2	grooovyjake@gmail.com	N/A	The preferred alternative draws heavily from the 2008 biological opinion that was ruled inadequate, which established the survival goal of 96 percent for juvenile migration at each dam in the spring and 93 percent at each dam in the summer. While that might sound like an impressive survival rate, when you multiply that over eight dams that Snake River salmon must traverse, you get a 32 to 56 percent die-off of juvenile fish across the system. And that's if you meet the goal that you set for yourselves.	The cited goals are not an objective of this Draft EIS. However, they were important in developing and accessing specific operational and configuration changes at the dams that did result in increased survival through the system, particularly for steelhead. Section 3.5 presents predicted system, or in-river survival, from either McNary or Lower Granite to Bonneville, for each modeled fish population. It is important to note that these goals account for all mortality within this reach. It should also be noted that juvenile salmon would die during the outmigration due to congenital problems, infectious disease, injuries, and predation. Welch et al. (2008) reported that cumulative mortality of yearly Chinook in the Snake and Columbia over 500 km of in-river migrating fish (~50%) is similar to that estimated for unregulated rivers of similar length (e.g., Fraser River (Welch et al. 2008)).
5570	3	grooovyjake@gmail.com	N/A	Continuing down the road of installing extremely expensive bypass systems rather than taking an honest look at the value of the projects themselves, makes neither biological nor fiscal sense. If the federal entities and, by extension, the tax and rate payers ever want to be free of the high cost of Endangered Species Act-mandated salmon mitigation, then they need to work with regional stakeholders, sovereigns, and legislators to fund replacement infrastructure for the four lower Snake River dams so that those dams can be removed.	The Preferred Alternative does not include any new bypass systems. It does included replacing the turbine intake screen material with a finer spacing to increase protections to juvenile lamprey. IFP turbines are not a bypass system, but is an increased investment over replacing in-kind. However, the extra design effort and increased construction costs yield a multitude of benefits including creating a much safer passage route for fish, while increasing the power production efficiency, decreasing the probability of petroleum leaks (fixed blade runners have no internal lubrication and adjustable blade units would have redundant seals), and lowering maintenance cost due to greatly reduced cavitation and petroleum leaks.
5571	1	Kurt Miller	Northwest River Partners	It's important to realize that juvenile sockeye salmon and the hydro system from Lower Granite Dam to Bonneville Dam survive at nearly the same rates, 46 percent, as salmon before they entered the hydro system from Redfish Lake to Lower Granite Dam at 48 percent. This is according to data from NOAA fisheries covering the period of 1997 to 2018. During that same time period, spring Chinook smolt survival from Lower Granite Dam to Bonneville Dam averaged 50 percent. A 2013 peer review study in the prestigious Proceedings of National Academy of Sciences showed that salmon pass through the lower Snake River and lower Columbia rivers as they do through the free-flowing Fraser River. Lastly, in 2014, the independent scientific advisory board found in its critique of the comparative survival study model, that increased spill levels have not proven to have a cause-and-effect relationship to adult salmon return rates because there are too many moving parts in the river and the ocean ecosystems.	The co-lead agencies recognize that there are many effects to salmon and steelhead populations outside the operation of the dams (see discussion of cumulative effects in Chapters 6 and 7 for more information). Research continues to evaluate the magnitude of these effects. For more information see the NMFS website at: https://www.nwfsc.noaa.gov/research/index.cfm. Underlying model assumptions for both CSS and NOAA based models were reviewed by independent experts as part of the Corps' IEPR process. The results of that review will be posted publicly. The primary models associated with this EIS process will also continue to undergo peer review as their development continues and as data associated with the Preferred Alternative is added to both modeling approaches.
5571	2	Kurt Miller	Northwest River Partners	On the other hand ---- it has been well documented that warming to a point in oceans may be causing salmon populations around the world to decline at a near synchronous rate. These declines have from been felt from Southern Oregon to Southeastern Alaska and include both rivers with and without dams. In 2019, the United Nations Intergovernmental Panel on Climate Change found that these conditions are being – MS. HABIBI: Your time has lapsed. KURT MILLER: -- caused by climate change.	The Draft EIS acknowledges and describes the temperature sensitivities of salmon and steelhead (Sections 3.4 and 7.7), as well as the many other factors that affect these fish, including factors outside of the influence of the Columbia River System projects, such as ocean conditions. Research continues to evaluate the magnitude of these effects. For more information see the NMFS website at: https://www.nwfsc.noaa.gov/research/index.cfm.
5572	1	Jessica Zimmerle	Earth Ministry in Washington Interfaith Power and Light	Earth Ministry has been honored to partner with the Nez Perce group Niimiipuu for protecting the environment. And at their request, we have helped hold space for dialog that explores river management solutions that work for everyone. In the process of doing so, we've heard numerous tribal leaders share how their communities' livelihood and culture have been profoundly and adversely affected by the loss of Columbia and Snake River salmon. Treaty rights should not be treated as an afterthought. Sovereign nations are not just another stakeholder. The first peoples of this land have the inherent and treaty-protected right to fish in their usual and accustom places. It is unacceptable that five plans over 30 years have failed to meet salmon recovery goals, thereby violating this important treaty right.	Tribal input, concerns, interests, and especially treaty rights were considered throughout the Draft EIS analyses and in the formulation of the Preferred Alternative. Treaty specific information is included in Section 3.17 as well as Chapter 7. The co-lead agencies recognize and respect the legal obligations treaties impose. In terms of honoring our treaty obligations, the co-lead agencies comply with environmental laws and regulations and all other applicable Federal statutory and regulatory requirements, included "Protecting Native American treaty and reserved rights and fulfilling trust obligations for natural and cultural resources throughout the environment affected by the Columbia River System operations" as a purpose in the Purpose and Need Statement in Chapter 1 to ensure treaty obligations were a key consideration of decision making. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as the dam breaching alternative. However, the Preferred Alternative also meets most of the other objectives of the study for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Based on the fish analysis in Section 7.7.5, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the Columbia River System. Recovery determinations are ultimately the role of NMFS and the USFWS. Recovery efforts will need to continue to involve more parties than just the co-lead agencies across the region that have an influence and impact on ESA-listed species. Analysis shows that the Preferred Alternative would meet the objectives for improving juvenile salmon, adult salmon, resident fish and lamprey. The analysis found ranges in potential effects due to different assumptions included in each of the fish models used in the study. Using the Comparative Survival Study (CSS), Snake River Chinook salmon and steelhead are expected to see relative improvements in smolt-to-adult returns of 35 percent and 28 percent, respectively. The Smolt-to-Adult return ratio (SAR) is the rate at which of a group of fish survive from their smolt life stage to a defined ending point where they return as adult. While achieving long-term recovery targets will require more than just the efforts of Federal agencies, the CSS models indicate the potential for SARs of Snake River Chinook salmon and steelhead to increase to levels that could approach recovery targets set by the Northwest Power and Conservation Council. If latent mortality effects are reduced by passing more juvenile fish through the spillway, the NMFS Lifecycle Model (LCM) also shows that levels of SARs would increase. However, if latent mortality effects are not reduced, or are different than modeled, the LCM predicts that SARs for Snake River spring Chinook salmon may be lower than the No Action Alternative (a range of -7.5 percent to +28 percent change relative to the No Action Alternative) due to reduced opportunities for fish transportation. Results for upper Columbia River stocks are beneficial based on LCM estimates. In-river survival and SARs are anticipated to increase. The CSS model does not currently model upper Columbia fish. The Preferred Alternative also has measures intended to increase upstream passage success and reduce injury and mortality for Pacific lamprey. These measures are proposed structural improvements that include converting extended-length submersible bar screen material to screen material that would not impinge or entangle juvenile lamprey, expanding the network of lamprey passage structures to bypass impediments in fish ladders, changing the design for turbine cooling water strainers, and replacing turbines for safer fish passage. The Preferred Alternative would also meet the objective to improve resident fish. Effects to resident fish vary by region and species, but are generally minor relative to the No Action Alternative.

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5573	1	Cindy Hansen; Howard Garrett	Orca Network	We would like to express our disappointment that the draft EIS does not adequately represent the importance of Columbia basin salmon to the endangered Southern Resident orcas and it fails to recognize the biological need of Southern Residents to have continuous access to salmon from a variety of river systems throughout their range. The report states that Puget Sound Chinook salmon stocks are more important than Snake River stocks due to their availability for greater periods of the year. However, we know from a variety of research and data sources that Southern Resident orcas spend over half the year in coastal waters and that Columbia basin salmon make up over half of their outer coastal diet. We also know, as evidenced in 2018 and 2019, that Southern Residents will shift their patterns and feed off the coast during the summer when there is little to no salmon available in the Salish Sea, underscoring the importance of these coastal runs as Puget Sound and Fraser River stocks continue to decline or fail to improve. Of the alternatives presented in the draft EIS, MO-3, Snake River dam breaching plus increased spill over the Columbia River dams, represents the best chance of recovery for Snake River salmon and for Southern Resident orcas. The benefits of dam breaching were demonstrated in a recent whitepaper entitled Southern Resident Killer Whales and Columbia Snake River Chinook, A Review of the Available Scientific Evidence, which was written by five PhDs. We urge you to read it in its entirety. Our concern is that the preferred alternative is going to simply repeat the status quo and do little more than incorporate the interim agreement for increased spill. While this agreement is certainly a positive step for salmon, it is not enough to result in the salmon recovery needed for the survival of Southern Resident orcas and to restore salmon and cultural resources that were lost to local tribes.	SRKW analysis is described in the EIS including in the FEIS Chapter 3 (Vegetation, Wetlands, Wildlife, and Floodplains) which has been updated for SRKW (Section 3.6.2.6 and Table 3-102) and FEIS Chapter 7 (Preferred Alternative) with additional analysis information on SRKW and potential increase in forage fish, in particular, Chinook salmon in Section 7.7.8. The co-lead agencies utilized current high quality information and best available science in its analysis of the effects of the operation, maintenance, and configuration of the CRS projects. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not require the co-lead agencies to take affirmative actions to recover ESA listed species. The population dynamics of the SRKW are complicated and there are multiple factors that contribute to the overall success of this species. The quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differently from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for the whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall-run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall-run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). Details on the most crucial prey stocks for Southern Resident killer whales, as well as their population and range, is available from several fact sheets and videos available here: https://www.fisheries.noaa.gov/species/killer-whale#spotlight. For more information, visit this NMFS StoryMap on Southern Resident killer whales: https://noaa.maps.arcgis.com/apps/Cascade/index.html?appid=3405e6637bf74e998d4ebe992c54f613. According to NMFS and the EPA, the estimated SRKW population has fluctuated between 67 and 98 whales between 1960 and 2015. The Snake River dams were constructed between 1962 and 1975. The SRKW population increased from a record low in 1970 to its highest population numbers in 1995. Those years were not high years for Snake or Columbia River Chinook Salmon. Ocean conditions between 2011 and 2013 were good years for salmon. At the same time, 2010 and 2013 were good outmigration years. Particularly, 2011 and 2012 were above normal in water supply, which would mean more cooler water was available and there was better survival of salmon, and 2011 through 2014 were higher than normal spill years as well. The combination of outmigration and ocean conditions created improved adult salmon returns. The EIS has analyzed spill as a measure in the Preferred Alternative and determined the overall effect to SRKW to be negligible in large part because hatchery production is consistent between the No Action Alternative and the Preferred Alternative. Because the impact from the Preferred Alternative was determined to be negligible, the agencies determined that existing hatchery production would be sufficient to address any potential impacts to prey availability for SRKWs. The co-lead agencies note the contribution to the prey of SRKW through the continued existence of their respective independent Congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as the Lower Snake River Compensation Plan (other than under MO3), which is administered by USFWS. The Preferred Alternative and Proposed Action in the agencies' biological assessment carry forward certain mitigation measures described in Chapters 2 and 7 of the EIS, which include continued salmon and steelhead hatchery production. The Preferred Alternative has negligible effects to SRKWs as described in Section 7.7.8. The Biological Assessment (BA) describes the effect of the Proposed Action on the SRKW forage species (see BA Section 3.5.1.2, Southern Resident Killer Whale). The proposed changes in operation of the Columbia River System include increased spring spill during the downstream migration of juvenile spring and summer run Chinook salmon. The result of this action includes potential increases of juvenile fish passing through the spillways, reductions in juvenile fish direct and indirect mortality associated with downstream passage, and the Comparative Survival Study (CSS) model predicts increases in numbers of returning adults, which will benefit SRKWs foraging in and around the mouth of the Columbia River in winter and spring (See EIS Section 7.7.8). The CSS model results predicts Snake River Chinook salmon would have relative improvements in smolt-to-adult returns of 35 percent (see EIS Section 7.7.4). The smolt-to-adult return ratio (SAR) is the rate at which of a group of fish survive from their smolt life stage to a defined ending point where they return as adults. While recovery targets will require more than just the efforts of federal agencies, the CSS models indicate the potential for SARs of Snake River Chinook salmon and steelhead to increase to levels that could approach recovery targets set by the Northwest Power and Conservation Council. The BA, also consistent with the EIS, acknowledges past improvements to the configuration and operation of the Columbia River System, additional improvements to the environmental baseline as a result of completed estuary and tributary habitat actions, and the prospective non-operational conservation measures proposed in Chapter 2 of the Draft EIS, all contribute towards maintaining and improving Chinook abundance. Relevant conservation measures include, among other things, a commitment to continue funding the conservation and safety net hatchery programs listed in Chapter 2 of the Draft EIS. As discussed above, the agencies will fulfill congressionally authorized hatchery mitigation objectives through the funding of hatchery programs that are operated consistent with their independent hatchery program consultations during the term covered by this consultation. Based on those hatchery program consultations, the production levels associated with congressionally authorized hatchery mitigation objectives will continue, at minimum, to be consistent with levels previously analyzed by NOAA in the system consultations in 2008, 2014, and 2019. For the 2020 ESA consultations, therefore, the agencies expect that collectively, all of the actions described above (substantial modifications to migration conditions designed to benefit key prey species, combined with improvements to Chinook spawning and rearing habitat in the tributaries and Columbia River estuary, and continued hatchery production) ensure that remaining Chinook mortality from all sources in the mainstem migratory corridor will continue to be more than offset, resulting in a net gain in Chinook salmon abundance available as a prey source for SRKW. Finally, the 2019 NMFS Fisheries BiOp included increased spring spill operations that are similar to operations evaluated in CRSO EIS, and NOAA validated that the hatchery production of Chinook salmon mitigates for the impacts of operating the Columbia River System and total mortality through the mainstem migratory corridor from all sources.
5573	2	Cindy Hansen; Howard Garrett	Orca Network	The benefits of dam breaching were demonstrated in a recent whitepaper entitled Southern Resident Killer Whales and Columbia Snake River Chinook, A Review of the Available Scientific Evidence, which was written by five PhDs. We urge you to read it in its entirety.	Thank you for providing this reference. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. The co-lead agencies conclude there could be a negligible to minor beneficial effects to SRKW from implementing MO3. CSS and NMFS Lifecycle models predict that lower Snake River Chinook salmon smolt-to-adult returns would have a moderate to major increase under MO3. Operation of Lower Snake River Compensation Plan fish hatcheries under MO3 is uncertain and therefore, production of Snake River hatchery fish is assumed to decline over the long term, while returning adult wild salmon are anticipated to increase. However, the co-leads do not anticipate a lack of hatchery fish in the short term based on the proposed fish hatchery mitigation described in Chapter 5. These additional hatchery fish should mitigate short-term construction effects to Snake River populations. Additionally, to address short-term effects to ESA-listed species, the co-lead agencies propose constructing a new trap and haul facility at McNary and conducting at least two years of trap and haul operations for Snake River fish (Chinook, sockeye, and steelhead). The co-lead agencies agree that the quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differently from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for the whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall-run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall-run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). Additional details on the most crucial prey stocks for Southern Resident killer whales, as well as their population and range, is available from several fact sheets and videos available here: https://www.fisheries.noaa.gov/species/killer-whale#spotlight. For more information, visit this NMFS StoryMap on Southern Resident killer whales: https://noaa.maps.arcgis.com/apps/Cascade/index.html?appid=3405e6637bf74e998d4ebe992c54f613. The co-lead agencies note the contribution to the prey of Southern Resident killer whales through the continued existence of their respective independent congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as Lower Snake River Compensation Plan (LSRCP), which is administered by USFWS.
5573	3	Cindy Hansen; Howard Garrett	Orca Network	In 2018, Governor Inslee, Southern Resident Orca Task Force recommended a stakeholder process to discuss potential breaching or removal of he lower Snake River dams. This process was just completed. And while the final report is not perfect, we do not want to see this time and effort wasted. We would like to see some of this information incorporated into a dam removal plan and use to support stakeholders and make them whole as they transition to a free-flowing Snake River that can continue to meet their needs.	Thank you for your comment. We acknowledge this effort was occurring at the same time as the development of the CRSO EIS. As part of the NEPA process, we have coordinated with a number of stakeholders who participated in the report's process, state, tribal, and federal cooperating agencies, including the state of Washington. Their viewpoints have been considered in the development of the CRSO EIS and incorporated where appropriate.
5573	4	Cindy Hansen; Howard Garrett	Orca Network	Finally, we would like to request that you extend the current comment period.	The co-lead agencies considered requests to extend the public comment period. This NEPA process included a wide array of cooperating agencies whose close involvement throughout the process allowed the co-lead agencies to incorporate feedback. Given the broad range of comments received and the extensive Federal and non-Federal participation in the overall process as well as the level of public engagement in the six virtual public meetings in the region, the co-lead agencies determined that an extension was not warranted and that the 45-day public comment period was adequate consistent with NEPA regulations. The CRSO EIS website notified the public on April 9, that they should plan to submit comments by the close of the comment period.
5575	1	Mark Hayden	N/A	The draft EIS also indicates that the cost of replacing clean energy benefits provided by the lower Snake River dams would add $1 billion annually to electricity costs. For millions of people across the Northwest, this would result in a 25 percent increase in their monthly energy bills.	The information provided in the comment regarding increased power-related costs under Multiple Objective alternative 3, which includes breaching the four lower Snake River dams, is consistent with the findings of the EIS. See Draft EIS, Section 3.7.3.5, Table 3-166. The Preferred Alternative identified in the Draft EIS did not include the measure to breach the four lower Snake River dams that was analyzed in MO3. The Preferred Alternative does meet the hydropower generation objective to provide an adequate, efficient, economical, and reliable power supply that supports the integrated Columbia River Power System.
5576	1	Colleen Weiler	N/A	I would first like to say that the short time allowed for this comment period, particularly in the midst of a global crisis is insufficient for the public to review and provide much-needed input.	The co-lead agencies considered requests to extend the public comment period. This NEPA process included a wide array of cooperating agencies whose close involvement throughout the process allowed the co-lead agencies to incorporate feedback. Given the broad range of comments received and the extensive Federal and non-Federal participation in the overall process as well as the level of public engagement in the six virtual public meetings in the region, the co-lead agencies

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					determined that an extension was not warranted and that the 45-day public comment period was adequate consistent with NEPA regulations. On April 9, the CRSO EIS website was updated to inform the public that they should plan to submit comments by the close of the comment period.
5576	2	Colleen Weiler	N/A	The timeline adopted by the agencies also limits their ability to fully consider the extensive ecosystem impacts of the CRSO and the DEIS is lacking information in several key areas, especially for the Southern Resident orcas. The primary threat to the survival of this unique population is a lack of their main food, Chinook salmon, throughout their range. Data increasingly shows that salmon from various river systems in the Pacific Northwest and California are important to Southern Resident orcas at different times of the year, and the movement of the orcas through their habitat is tied to the return of Chinook to these major river systems, including the Columbia. Research from the National Marine Fishery Service shows the Columbia River is a hotspot for the orcas and that more than half of the time they spend in coastal waters is in the area between the Columbia and Grays Harbor. Chinook salmon from the Columbia basin specifically comprise more than half of the Chinook consumed by the orcas when they are in coastal waters. However, the DEIS does not include any of this information in its review and, therefore, grossly under represents the importance of Columbia and Snake River salmon, the survival of the Southern Resident orcas.	The co-lead agencies were not able to extend the timeline to prepare the EIS. SRKW analysis is described in the EIS including in the FEIS Chapter 3 (Vegetation, Wetlands, Wildlife, and Floodplains) which has been updated for SRKW (Section 3.6.2.6 and Table 3-102) and FEIS Chapter 7 (Preferred Alternative) with additional analysis information on SRKW and potential increase in forage fish, in particular, Chinook salmon in Section 7.7.8. The co-lead agencies utilized current high quality information and best available science in its analysis of the effects of the operation, maintenance, and configuration of the CRS projects. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not require the co-lead agencies to take affirmative actions to recover ESA listed species. The population dynamics of the SRKW are complicated and there are multiple factors that contribute to the overall success of this species. The quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differently from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for the whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall-run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall-run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). Details on the most crucial prey stocks for Southern Resident killer whales, as well as their population and range, is available from several fact sheets and videos available here: https://www.fisheries.noaa.gov/species/killer-whale#spotlight. For more information, visit this NMFS StoryMap on Southern Resident killer whales: https://noaa.maps.arcgis.com/apps/Cascade/index.html?appid=3405e6637bf74e998d4ebe992c54f613. According to NMFS and the EPA, the estimated SRKW population has fluctuated between 67 and 98 whales between 1960 and 2015. The Snake River dams were constructed between 1962 and 1975. The SRKW population increased from a record low in 1970 to its highest population numbers in 1995. Those years were not high years for Snake or Columbia River Chinook Salmon. Ocean conditions between 2011 and 2013 were good years for salmon. At the same time, 2010 and 2013 were good outmigration years. Particularly, 2011 and 2012 were above normal in water supply, which would mean more cooler water was available and there was better survival of salmon, and 2011 through 2014 were higher than normal spill years as well. The combination of outmigration and ocean conditions created improved adult salmon returns. The EIS has analyzed spill as a measure in the Preferred Alternative and determined the overall effect to SRKW to be negligible in large part because hatchery production is consistent between the No Action Alternative and the Preferred Alternative. Because the impact from the Preferred Alternative was determined to be negligible, the agencies determined that existing hatchery production would be sufficient to address any potential impacts to prey availability for SRKWs. The co-lead agencies note the contribution to the prey of SRKW through the continued existence of their respective independent Congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as the Lower Snake River Compensation Plan (other than under MO3), which is administered by USFWS. The Preferred Alternative and Proposed Action in the agencies' biological assessment carry forward certain measures described in Chapters 2 and 7 of the EIS, which include continued salmon and steelhead hatchery production. The Preferred Alternative has negligible effects to SRKWs as described in Section 7.7.8. The Biological Assessment (BA) describes the effect of the Proposed Action on the SRKW forage species (see BA Section 3.5.1.2, Southern Resident Killer Whale). The proposed changes in operation of the Columbia River System include increased spring spill during the downstream migration of juvenile spring and summer run Chinook salmon. The result of this action includes potential increases of juvenile fish passing through the spillways, reductions in juvenile fish direct and indirect mortality associated with downstream passage, and the Comparative Survival Study (CSS) model predicts increases in numbers of returning adults, which will benefit SRKWs foraging in and around the mouth of the Columbia River in winter and spring (See EIS Section 7.7.8). The CSS model results predicts Snake River Chinook salmon would have relative improvements in smolt-to-adult returns of 35 percent (see EIS Section 7.7.4). The smolt-to-adult return ratio (SAR) is the rate at which of a group of fish survive from their smolt life stage to a defined ending point where they return as adults. While recovery targets will require more than just the efforts of federal agencies, the CSS models indicate the potential for SARs of Snake River Chinook salmon and steelhead to increase to levels that could approach recovery targets set by the Northwest Power and Conservation Council. The BA, also consistent with the EIS, acknowledges past improvements to the configuration and operation of the Columbia River System, additional improvements to the environmental baseline as a result of completed estuary and tributary habitat actions, and the prospective non-operational conservation measures proposed in Chapter 2 of the Draft EIS, all contribute towards maintaining and improving Chinook abundance. Relevant conservation measures include, among other things, a commitment to continue funding the conservation and safety net hatchery programs listed in Chapter 2 of the Draft EIS. As discussed above, the agencies will fulfill congressionally authorized hatchery mitigation objectives through the funding of hatchery programs that are operated consistent with their independent hatchery program consultations during the term covered by this consultation. Based on those hatchery program consultations, the production levels associated with congressionally authorized hatchery mitigation objectives will continue, at minimum, to be consistent with levels previously analyzed by NOAA in the system consultations in 2008, 2014, and 2019. For the 2020 ESA consultations, therefore, the agencies expect that collectively, all of the actions described above (substantial modifications to migration conditions designed to benefit key prey species, combined with improvements to Chinook spawning and rearing habitat in the tributaries and Columbia River estuary, and continued hatchery production) ensure that remaining Chinook mortality from all sources in the mainstem migratory corridor will continue to be more than offset, resulting in a net gain in Chinook salmon abundance available as a prey source for SRKW. Finally, the 2019 NMFS Fisheries BiOp included increased spring spill operations that are similar to operations evaluated in CRSO EIS, and NOAA validated that the hatchery production of Chinook salmon mitigates for the impacts of operating the Columbia River System and total mortality through the mainstem migratory corridor from all sources.
5576	3	Colleen Weiler	N/A	The preferred alternative is only a minor adjustment to status quo conditions which has not been sufficient to support the recovery of Columbia basin Chinook or of Southern Resident orcas. The DEIS does not offer the region-wide discussions or solutions that will be necessary to support this transition and will not be enough to support Northwest tribes and communities. A restored Snake River provides ecosystem-wide benefits that support a healthy river, habitat, and the communities. But the DEIS and federal agencies alone cannot accomplish this. This is a time for Northwest policymakers, stakeholders, leaders, and communities to work together to create inclusive, science-based, and supportive solutions for these region-wide issues.	There are many factors that affect salmonid populations, many of which are outside the control of the co-lead agencies. The Preferred Alternative (PA) carries forward certain mitigation measures that are known to provide benefits to ESA-listed species from the No Action Alternative. These actions by the co-lead agencies have resulted in a large percentage of fish being able to pass both upstream and downstream of the lower Snake River and lower Columbia River projects. See Section 3.5.2.3 Anadromous Fish for additional discussion. The co-lead agencies do not view the Preferred Alternative as a continuation of the status quo. The spill operation for juvenile fish passage in the PA is a significant departure from previous operations. See Section 7.6.3 Preferred Alternative Operational Measures for additional discussion. In addition, a large number of structural changes are included to benefits salmonid species and Pacific lamprey. See Section 7.6.2 Preferred Alternative Structural Measures for additional discussion. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Recovery of ESA-listed species is the purview of National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (USFWS). This EIS has been developed in consultation with NMFS and USFWS to minimize impacts to affected ESA-listed species and their habitats. Both human-caused and natural factors that are outside the responsibility and control of the co-lead Federal agencies also contribute to the decline and recovery of ESA-listed species, and would continue to strongly influence fish and their habitat. Salmon and steelhead have been adversely affected in the Columbia River Basin over the last century by many activities including human population growth, urbanization, introduction of exotic species, overfishing, development of cities and other land uses in the floodplains, water diversions for all purposes, dams, mining, farming, ranching, logging, hatchery production, predation, ocean conditions, and loss of habitat. Operation, configuration and maintenance of the CRS requires mitigation for its effects, but the EIS is not intended or required to serve as an overall salmon recovery plan for the region.
5577	1	Stan Thayne	N/A	From a historical perspective, it is clear these four dams are controversial from the very beginning before they were authorized, precisely because of the negative impacts it would have on salmon and particularly in migrating juvenile salmon. And these concerns outweighed for many the potential benefits. There was intense opposition in the 1940s and '50s, and many agency directors and politicians were reluctant to repeat the errors and calamities that had already been perpetuated upon salmon in Europe, the East Coast, California, and the Columbia main Salmon tributaries. And even after Congress authorized these dams, actual construction was stalled for years because it was clear these dams would devastate salmon runs. Among the strategies that finally were pivotal in pushing through the opposition, one was an appeal to national beauty, an argument was made that Hanford would need more power. That's a moot point today, but I'd point out that we're still trying to clean up the mess that that effort has left us and these dams are not unlinked to that. The second was basically congressional maneuvering as this slid into a Civil Works Appropriation bill. And ironically, then it was two Democrats acting against Republican opposition to the dams. My point here is that these four dams went in against the better judgment and opposition of many agencies, citizens, scientists, and politicians, but they are not the status quo. And one point that's often made, currently, in defense of that status quo is the argument that power rates may increase for local users. I would like to suggest that there are other was that agency heads could work to flatten out increases by distributing that burden more broadly in the region among the power users. And as a power user, I would willingly pay more if that would help others pay less to shoulder this burden. I think we all throughout the region should do so. Another defense that is often raising the spectra of new coal plants to compensate for loss of power generation. I suggest that there are alternative routes we should pursue, including responsible energy conservation practices. And some economists have argued that taking out just these four dams, and my comments are specifically about these four dams, off the grid, would have negligible overall effects. And the DEIS is structured in such a way that it obscures the very context that brought it about. In 2016 and 2018, two court decisions ordered an outdated biop and EIS would take into account effects of climate change in considering the impacts of the Columbia and Snake River system operation on 13 species of — population of threatened and endangered steelhead and salmon. And I would add also lamprey and freshwater mussels and allother aspects of the threatened submerged and strangled native ecology. The DEIS itself makes clear that alternative three, breaching the four lower Snake River dams is the best choice for salmon, steelhead, lamprey, and all other native life in the Snake and Salmon River and tributaries.	We agree that the four lower Snake River projects have a long and complicated history. MO3 was not identified as the Preferred Alternative (PA) for reasons described in Sections 7.2, 7.3, and 7.4 of the EIS. The co-lead agencies expect that the alternative identified as the PA will allow them to meet the EIS intent as expressed in the Purpose and Need Statement and the EIS objectives, including those to benefit ESA-listed species. The PA also includes measures to benefit lamprey and seeks to balance the multiple purposes of the Federal projects, while complying with the applicable Federal environmental laws, including the ESA, regulations, and executive orders. Please see Chapter 8, Compliance with Environmental Laws, Regulations and Executive Orders, for more information. Regarding replacement resources, the CRSO EIS does not propose a new coal plan to replace the lost generation from the four lower Snake River dams. Instead, two portfolios were used to outline the potential resource options: a least-cost conventional portfolio (natural gas) and a zero-carbon portfolio (primarily solar). See Section 3.7 in the Draft EIS. Finally, the EIS includes climate change analysis in Chapters 4 and 7.
5578	1	Jason Williams	N/A	It is very important to recognize that the CRSO draft EIS shows that losing the lower Snake River dams would double the risk of region-wide blackouts	The comments about the impact of breaching the four lower Snake River dams on regional power reliability is consistent with the EIS findings unless and until replacement resources are constructed. See Draft EIS, Section 3.7.3.5, Effects on Power System Reliability, page 3-903; and, Appendix H, Table 2-1.

Letter No.	Comment No.	Commenter Name/Email	Affiliation	Comment	Response[1/]
5579	1	Scott Simms	Public Power Council PPC	Today, I'd like to focus on the matters of continued monitoring and adaptive management, with are aspects of the preferred alternative that commit federal co-agency resources to the review of action, some of which remain untested in this preferred alternative. First and foremost, Public Power's committed to mitigation efforts for impacts of federal projects operations. Our approach is that mitigation must scientific, cost-effective, and have a nexus with these operations. Improving survival, habitat, and conditions for these fish is important to the Northwest ecosystem, economy, and tribal way of life. PPC members pay substantial fish and wildlife costs through their wholesale power rate, on the order of 25 percent or more. These funds pay for fisheries that feed the ocean's food chain and feed people. The preferred alternative calls for an unprecedented level of spill and resultant TDZ in the Columbia River System. Specifically 125 percent TDZ is untested and creates significant biological uncertainty for the threatened endangered species the operation is, in fact, intended to benefit. We at PPC maintain that effective monitoring for unintended consequences from TDZ is essential, including ongoing transparency and public availability of information. This is in consideration that, first, the levels of TDZ in the preferred alternative exceed those recommended by the EPA and represent unchartered territory in Columbia River basin operation. In trying to help juvenile salmon, spill may result in compromising resident fish, other river organisms, and salmon via gas bubble trauma. And last, monitoring for gas level trauma and other side effects would be important to the adaptive management plan. And speaking of adaptive management, the federal co-lead agencies should consider the following in the final EIS: given the different predicted outcomes of the NOAA and CSS models are directly conflicting, the federal agencies need to establish a clear methodology to monitor and address the impacts of the final EIS on basin fish and wildlife and determine whether the measures help meet the defined objective. The co-lead agencies need --Thank you. The co-lead agencies need to be given the flexibility under the final EIS to execute the adapted management plan. Governance and decision making for these management plans need to reflect the broad range of stakeholders in the basin.	Total Dissolved Gas (TDG) levels are regulated under the Federal Clean Water Act, and administered by the states. Both Oregon and Washington have reassessed the available data on effects of TDG levels up to 125% of saturation on fish and other aquatic organisms. Based on this reassessment Oregon issued a five-year "standard modification" and Washington issued a permanent rule change, approved by the Environmental Protection Agency (EPA), to allow TDG saturation up to 125%. However, as noted by the commenter, there is considerable uncertainty in the effects; and therefore, monitoring was required by the states and EPA to ensure any negative effects are detected and allow for adaptive management. Migrating salmon and steelhead may spend sufficient time at depths that will compensate for the high gas levels. However, fish and other organisms that spend extended times in less than a few meters of depth are at high risk. The Preferred Alternative will require a robust monitoring plan for salmon and steelhead to help narrow the uncertainty between the biological models and will help determine how effective increased spill can be in increasing salmon and steelhead returns to the Columbia Basin. The effectiveness of the spill program will be monitored and effects from other sources such as harvest, ocean mortality, and straying will also be accounted for to the extent possible. The framework for the adaptive management process is detailed in Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS. It is the intention of the co-lead agencies to engage regional state, Tribal, and Federal biologists in the development of an appropriate adaptive management process utilizing their respective salmonid management expertise. The goal of that adaptive management process would be to consider additional opportunities to further the effectiveness of the operation while maintaining the goals of the flexible spill operation: make additional improvements for salmon and steelhead and maintain opportunities to operate the CRS for hydropower generation in a flexible manner that provides value to the Northwest, is implementable by the dam operators, and provides opportunities to reduce uncertainty and improve the learning opportunities around how operations of the CRS can influence the magnitude of latent mortality effects. The co-lead agencies have not made any determinations on what the preferred approach would be for a regionally developed study plan, and intend to develop that study jointly with regional experts. Unforeseen outcomes or unintended consequences would be monitored and adjusted using current in-season management teams such as the Technical Management Team.
5581	1	Eloise Getton	N/A	With my respect, the EIS from 2014 has failed. You were already talking about immediate need action in your alternative with involvement (indiscernible) dragging at four location in the lower Snake River and lower Clearwater River in Washington and Idaho consist with the (indiscernible) long-term PSMP in concurrence with the PMSP's implementation. So we are now in 2020. Salmon population are further decline. For example, Snake River sockeye salmon were less endangered in November 1991, and their listing was reaffirmed in June 2005. So this list from 2005 includes five anadromous salmon population and three anadromous steelhead (indiscernible) population present in the LSRP. And nothing in your actual past EIS indicate the repercussion on the greater environment of the ocean, including orcas from the -- sorry --including the resident killer whale who are directly impacted by. And they are already on the list since 2005 for the endangered species. The federal agencies have spent nearly three decades fighting in court to (indiscernible). Five federal (indiscernible) have been declared illegal by three federal judge. The corps and Bonneville Power spend money on (indiscernible) and on repeated plans with no tangible results. The spending of this money could have been avoided. EPA documents show the four lower Snake River dams have been a problem since the beginning, by (indiscernible) Indentured Physicist Act, the Fish and Wildlife Coordination Act of 1958 and the Water Resource Development Act of 1976. How long this complaint can continue before you take the immediate and radical solution that is breaching the obsolete salmon-killing dams. How can it be true, the investigation led by the U.S. Army Corps of Engineers when all the EIS documents don't match with your actual Environmental Act?	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy species habitat. See Chapter 8, Compliance with Environmental Laws, Regulations and Executive Orders, for more information. This EIS has been developed in consultation with National Marine Fisheries Service (NMFS) and U.S. Fish and Wildlife Service (USFWS) to find an acceptable balance that allows the co-leads to meet the stated Purpose and Needs Statement while minimizing impacts to affected ESA species and their habitats. Both human-caused and natural factors that are outside the responsibility and control of the co-lead agencies, also contribute to the decline and recovery of ESA-listed species, and would continue to strongly influence fish and their habitat. Salmon and steelhead have been adversely affected in the Columbia River Basin over the last century by many activities including human population growth, urbanization, introduction of exotic species, overfishing, development of cities and other land uses in the floodplains, water diversions for all purposes, dams, mining, farming, ranching, logging, hatchery production, predation, ocean conditions, and loss of habitat. See Chapters 6 and 7 for information on cumulative effects to ESA-listed species. Regarding Southern Resident killer whales (SRKW), the population dynamics of the SRKW are complicated and there are multiple factors that contribute to the overall success of this species. The quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKW, along with vessel traffic and noise, and toxic contaminants. The operation of the CRS directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these Federal dam and reservoir projects, and the associated effects would indirectly affect SRKW. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differently from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020). The overall health and condition of the SRKW depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and Washington Department of Fish and Wildlife (WDFW) have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for the whales (NMFS and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall-run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall-run, and Snake River spring/summer-run. SRKW also are known to eat some steelhead, coho, and chum salmon, halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea. SRKW are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKW feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). Details on the most crucial prey stocks for SRKW, as well as their population and range, is available from several fact sheets and videos available here: https://www.fisheries.noaa.gov/species/killer-whale#spotlight. For more information, visit this NMFS StoryMap on SRKW: https://noaa.maps.arcgis.com/apps/Cascade/index.html?appid=3405e6637bf74e998d4ebe992c54f613. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Additionally, Section 7.7.8 states impacts to SRKW would be minor. Thus, the co-lead agencies expect salmon and steelhead increases will come from operational measures and existing hatchery production carried forward into the Preferred Alternative. These hatcheries include conservation and safety net hatcheries, as well as through the continued existence of certain independent congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as the Lower Snake River Compensation Plan, which is administered by USFWS. Moreover, NMFS concluded in its 2020 CRS BiOp that operations, maintenance and configuration of the CRS is not likely to adversely affect SRKW.
5582	1	Tim Stearns	N/A	The analysis demonstrates that removal of the four lower Snake dams has the highest likelihood to restore viable salmon and steelhead populations. Instead, the agencies crafted a preferred alternative with yet a new laundry list of techno-fixes and operational changes.	MO3 was not identified as the Preferred Alternative for reasons described in Sections 7.2, 7.3, and 7.4 of the EIS. The co-lead agencies expect that the Preferred Alternative (PA) will allow them to meet the EIS intent as expressed in the Purpose and Need Statement and the EIS objectives, including those to benefit ESA-listed species. The PA seeks to balance the multiple purposes of the Federal projects, while complying with the applicable Federal environmental laws, implementing regulations, and executive orders. See Chapter 8, Compliance with Environmental Laws, Regulations and Executive Orders. The PA carries forward certain mitigation measures that are known to provide benefits to ESA-listed species from the No Action Alternative. These actions by the co-lead agencies have resulted in a large percentage of fish being able to pass both upstream and downstream of the lower Snake River and lower Columbia River projects. See Section 3.5.2.3 Anadromous Fish for additional discussion. The co-lead agencies do not view the PA as a continuation of the status quo. The spill operation for juvenile fish passage in the PA is a significant departure from previous operations. See Section 7.6.3 Preferred Alternative Operational Measures for additional discussion. In addition, a large number of structural changes are included to benefit salmonid species and Pacific lamprey. See Section 7.6.2 Preferred Alternative Structural Measures for additional discussion.
5582	2	Tim Stearns	N/A	The document instead should have analyzed what investments could have been made to mitigate the impacts of dam removal. The region has 281 hydropower dams and 200 dams built for other purposes in the Columbia River basin, according to the Northwest Power Planning Council. We're not talking about removing the Columbia River hydro system, but we're talking about rebalancing it so that it works for the broad range of interests.	The EIS did evaluate the impacts of dam breaching on all resources and recommended mitigation for those effects. The description of these effects is within Chapter 3, organized by resource. Mitigation for impacts associated with dam breaching, included in MO3, is described in Chapter 5. Additionally, the EIS analyzes what resources would be needed to replace power loss from dam breach and included mitigation associated with breaching the four lower Snake River dams for certain resources. The analysis for MO3 demonstrates what types of resources would be needed to replace the key attributes of the four lower Snake River dams. Included in this analysis is a resource portfolio made up of alternative forms of energy (i.e., wind, solar, and batteries). As described in Section 3.7, and Chapter 7, the adverse reliability and upward rate pressure impacts from breaching the four lower Snake River dams support retaining these resources over other alternative forms of energy. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative (PA) is predicted to benefit ESA-listed juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. The PA also meets the EIS objectives including those for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams, because the PA is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system.
5583	1	kate@columbiariverkeeper.org	N/A	Water temperature is a major problem for salmon and steelhead. Between 1960 and 2015, water temperature in the Columbia and Snake River have increased by an average of 1.4 degrees Fahrenheit. Salmon are sensitive to water temperature at many stages of their lives. Warmer water can negatively affect fish, making it more difficult for them to swim upstream and making fish more susceptible to disease. In the lower Snake River, temperatures in the reservoirs exceed 68 degrees Fahrenheit for weeks or months at a time during the summer when many salmon migrate to or from the ocean. Temperatures above 68 degrees are very harmful to salmon. Salmon populations in the Snake River basin are increasingly threatened by warmer rivers, including significant warming from the reservoirs behind the four dams on the lower Snake River. The DEIS analysis is insufficient on several levels. In the analysis of climate change, the EIS should model water temperatures in the Columbia and Snake rivers under the climate conditions we expect to see in the next 20 to 50 years. In addressing the challenges that salmon face in the Columbia River and estuary, existing dams and worsening climate change are making the lower Columbia and estuaries too hot for fish. The DEIS does not explain this or provide any solution. The DEIS implies that lower Snake River dam removal would not significantly change water temperatures or improve conditions for salmon. This is not true. Summer and fall water temperature conditions in the lower Snake would be significantly better for salmon and steelhead with the dams gone.	The Draft EIS acknowledges and describes the temperature sensitivities of salmon and steelhead, as well as the many other factors that affect these fish. Water quality and hydrology modeling data were inputs into the fish survival models used to analyze the alternatives' effects on Snake River stocks, so temperature effects to survival have been incorporated into the overall analyses of each alternative. Regarding climate change, the climate science community is still developing models that can be used to analyze possible effects to water temperature from climate change, and unfortunately, there are not reliable models at the resolution required at this time. Therefore, it was not possible to reliably model water temperature changes under climate change for this EIS (river vs. regional or global scale). In lieu of this information, the climate analysis used the output from the water quality models under historical conditions, climate change data, and scientific literature to qualitatively assess potential effects to water temperature (Section 4.2.3). Regarding water temperatures under the dam breach measure, the analysis of MO3, which includes breaching the four lower Snake River dams, indicates that nighttime summer water temperatures, as well as fall water temperatures, would be cooler than No Action Alternative conditions in the Snake River. However, even with the dams breached, maximum summer water temperatures would exceed state water quality standards (20C) at times, especially during hot weather events. The models showed minor changes in the Columbia River under this alternative. The fish benefits of breaching the Snake River dams is discussed in the analyses of Snake River salmon and steelhead in the Draft EIS (see Section 3.5). Faster travel times, among other parameters such as temperature differences, under a breach scenario were incorporated into both models that were used to estimate juvenile survival and, as reported in the Draft EIS, both indicated higher juvenile survival than the No Action Alternative. For Snake River spring/summer Run Chinook Salmon, decreased travel time of 4.5 days and 5.5 days, respectively, were indicated by CSS and NMFS COMPASS models, compared to the No Action Alternative
5586	1	kairos42@earthlink.net	N/A	I'm a civil engineer. I spent 35 years with the Army Corps of Engineers and was a deputy district engineer in Walla Walla. I'm also a public utility commissioner here in the state of Washington. And I'm speaking as a citizen today, 'cause I'm just covering a lot of waterfront here. But I feel like I'm in a deja vu all over again, because I sat down in Walla Walla district when I was there and went over the feasibility EIS study at that point that we did 20 years ago on all this, and I'm seeing a lot of the same things but in a worse state, actually. What we saw back then or what happened back then was the cost of breaching was grossly over estimated in various means, and we've seen how to correct that and reduce that cost significantly. The other thing is the cost of the mitigation features, a couple hundred million dollars here and there to improve fish passage and so forth were grossly under estimated. And so what's happened in the last 20 years is those instead of $200 million price tag, we've got a billion dollar price tag on mitigational measures just on the dams. Now, that's ratepayer money that's paying for that. And my concern here is largely – well, what I'm telling you right now is for the ratepayers, because we're going to do this all over again. Even though the preferred alternative has stripped out most of the measures that you find on all the other multiple objectives, which doesn't make any sense, it's just basically then whitewashed to be a low-cost alternative to make it financially attractive versus the other alternatives, especially the breach alternative. And so my concern is, we're going to see these increases in cost on these measures go up and up and up. At the same time, another outlay just kind of feature of this thing is this claim that a billion dollars worth of value is attributed to the Snake	The Preferred Alternative (PA) carries forward certain mitigation measures that are known to provide benefits to ESA-listed species from the No Action Alternative. These actions by the co-lead agencies have resulted in a large percentage of fish being able to pass both upstream and downstream of the lower Snake River and lower Columbia River projects. See Section 3.5.2.3 Anadromous Fish for additional discussion. The spill operation for juvenile fish passage in the PA is a significant departure from previous operations. See Section 7.6.3 Preferred Alternative Operational Measures for additional discussion. In addition, a large number of structural changes are included to benefit salmonid speicies and Pacific lamprey. See Section 7.6.2 Preferred Alternative Structural Measures for additional discussion. Finally, cost information is provided in Chapter 7 and Appendix Q. For hydropower, the average annual value of the four lower Snake River dams exceeds the average annual equivalent costs. The generation value at the four lower Snake River dams can be described by a range between the cost to replace the generation through new conventional resources or through a portfolio of zero-carbon resources. Although the costs of replacing the power with market purchases was analyzed, it is unlikely that short-term wholesale power markets could reliably replace the power for the long term. This range would put the annual value of power between $240 million and $500 million for the four dams combined. These numbers represent about 90% of the lost benefits cited in Table 3-171 of the Draft EIS because the four dams represent about 1,000 aMW of the 1,100 aMW of lost generation estimated in MO3. The average annual cost to operate and maintain all authorized purposes at the four lower Snake River dams is $75 million (Appendix Q, Table 5-1) and the annual-equivalent capital costs are $32 million (Appendix Q, Table 4-1). Hydropower costs funded by Bonneville represent about $50 million of the total annual operations and maintenance costs and nearly all of the annual capital costs, approximately $31 million. This puts the annual-equivalent power-specific costs at approximately $81 million a year. As a result, the net benefits from hydropower for the four lower Snake River dams are between $159 million and $419 million and the benefit-cost ratios are between 3.0 and 6.2. If the $34 million per year Lower Snake River Compensation Plan is added to the capital and expense costs, benefits still exceed costs under each replacement power scenario. Considering these costs, the net benefits range from $125 million to $385 million and the benefit-cost ratios range from 2.1 to 4.3. In the less-likely scenario that generation could be reliably replaced with short-term wholesale market purchases and assuming

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				River hydropower. Most of that value is attributed to the flexibility offered by ramping and sustained peaking power and reserve capability, none of which was identified 20 years ago. So somehow the dams have generated new value out of nowhere. So that again is just another exaggeration.	that the four dams represent 90% of the $150 million in market purchases required to replace the lost generation cited in MO3 (see Table 3-170 in the Draft EIS), the lower bound for net benefits would fall to $54 million and the benefit-cost ratio would fall to 1.7. With the Lower Snake River Compensation Plan included, the lower bound for annual net benefits becomes $20 million and the benefit-cost ratio becomes 1.2. From a resource competitiveness perspective, the four lower Snake River dams are among the least costly generating resources in the Federal Columbia River Power System (FCRPS) and the planned investment strategy is expected to maintain that status. As shown in the Federal Hydropower presentation at the 2018 Integrated Program Review1/, the Headwater/Lower Snake Asset Class2/ is forecast to have a 50-year levelized cost of generation3/ of $11.41/MWh based on the direct funded capital and expense (O&M) programs outlined in that process. These costs remain competitive with volatile Mid-Columbia spot market energy prices which averaged $37/MWh in 2019 and have averaged $21/MWh in 2020. 1/ The Integrated Program Review (IPR) allows interested parties to see and comment on all relevant Federal Columbia River Power System (FCRPS) capital and expense (O&M) spending level estimates in the same forum. The IPR occurs every two years, or just prior to each rate case, and is the public review for the costs that will be recovered through rates the following two-year rate period. Long-term forecasts for the next 50 years and major upcoming projects are also shared in this forum. This information is available here: https://www.bpa.gov/Finance/FinancialPublicProcesses/IPR/2018IPR/IPR%202018%20Fed%20Hydro%20Workshop.pdf and is incorporated by reference into this EIS. 2/ In the 2018 Integrated Program Review, the Headwater/Lower Snake Asset Class consisted of the four lower Snake River dams, Hungry Horse, Libby, and Dworshak dams. These projects were grouped together because they have similar cost characteristics. The Levelized Cost of Generation for the four lower Snake projects alone is slightly lower than that for the whole class including the headwater projects shown in the table. 3/ Levelized Cost of Generation is defined as the forecasted direct costs and administrative overheads of producing power at a plant annualized over a 50-year period. This cost includes direct funded operations, maintenance, administrative and capital costs as well as Columbia River Fish Mitigation (CRFM) costs. Bonneville systemwide mitigation costs, such as its Fish and Wildlife program, are not included in this metric.
5588	1	Cassie Paumard	N/A	First, I'd like to state that the BPA is violating the Endangered Species Act by failing to protect wild Chinook salmon as well as the Southern Resident orcas.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy species habitat. See Chapter 8, Compliance with Environmental Laws, Regulations and Executive Orders, for more information. This EIS has been developed in consultation with National Marine Fisheries Service (NMFS) and U.S. Fish and Wildlife Service (USFWS) to find an acceptable balance that allows the co-leads to meet the stated Purpose and Needs Statement while minimizing impacts to affected ESA species and their habitats. Both human-caused and natural factors that are outside the responsibility and control of the co-lead agencies, also contribute to the decline and recovery of ESA-listed species, and would continue to strongly influence fish and their habitat. Salmon and steelhead have been adversely affected in the Columbia River Basin over the last century by many activities including human population growth, urbanization, introduction of exotic species, overfishing, development of cities and other land uses in the floodplains, water diversions for all purposes, dams, mining, farming, ranching, logging, hatchery production, predation, ocean conditions, and loss of habitat. See Chapters 6 and 7 for information on cumulative effects to ESA-listed species. The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). The co-lead agencies agree that the quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults form the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differentially from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020).
5588	2	Cassie Paumard	N/A	hese dams kill eight million smolt per year and we lost $100 million in 2019 because of them. I know there has been talk of supplementation from hatcheries. But artificial hatcheries will not help restore wild population. I want to bring light to a case study on captive salmon that I learned as a marine biology student at the time, and one that really stuck with me. In this study, the hatchery reared smaller egg sizes from 1996 to the year 2000. The scientific reason for this study is simply that hatcheries provide conditions that select for increased (indiscernible) at the cost of decreased egg size. This further caused wild populations once supplemented from hatcheries to decrease in egg size. This put wild populations of salmon at a deficit against predators. If we choose hatcheries, we choose less viable salmon for us and our starving Southern Resident orcas.	Hatchery programs have long been a part of the approach for salmon recovery. Based on the analysis of anadromous fish in Section 7.7.5, the co-lead agencies anticipate that the Preferred Alternative (PA) would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Under this alternative, hatchery programs would continue as under the No Action Alternative, and a number of other mitigation measures would continue as well, but no new hatchery programs are proposed. The PA proposes measures such as increased spill intended to improve survival of anadromous salmonids. Figure 3-111 in the Draft EIS was an illustration that the CRS can and has supported large numbers of returning adult salmon and steelhead. As noted, this figure combines hatchery and wild fish. Overtime, the PA is anticipated to benefit both wild and hatchery fish. Hatchery origin fish are very important to tribal and sport harvest within the Columbia River Basin (CRS), and many hatchery programs are important supplementation to rebuilding natural populations. Further, the three co-lead agencies have legal requirements to produce hatchery fish as mitigation for components of the CRS. The PA carries forward certain mitigation measures described in Chapters 2 and 7 of the EIS, which include continued salmon and steelhead hatchery production. The PA has negligible effects to Southern Resident killer whales (SRKWs) as described in Section 7.7.8, in large part because hatchery production is consistent between the No Action Alternative and the PA. The co-lead agencies note the contribution to the prey of SRKW through the continued existence of their respective independent, congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation, and programs funded and administered by other entities, such as Lower Snake River Compensation Plan, which is administered by U.S. Fish and Wildlife Service. Additional details on the most crucial prey stocks for SRKW, as well as their population and range, is available from several fact sheets and videos available here: https://www.fisheries.noaa.gov/species/killer-whale#spotlight. For more information, visit this NMFS StoryMap on SRKW: https://noaa.maps.arcgis.com/apps/Cascade/index.html?appid=3405e6637bf74e998d4ebe992c54f613.
5591	1	David Dane	N/A	I would like to request an extension (indiscernible) written comment. The EIS is thousands of pages long and restrictions on activity due to COVID-19 limit opportunity to meet with colleagues efficiently and access older and other written materials in libraries that are not readily available online. More time is needed to provide well-reasoned comment.	The co-lead agencies considered requests to extend the public comment period. This NEPA process included a wide array of cooperating agencies whose close involvement throughout the process allowed the co-lead agencies to incorporate feedback. Given the broad range of comments received and the extensive Federal and non-Federal participation in the overall process as well as the level of public engagement in the six virtual public meetings in the region, the co-lead agencies determined that an extension was not warranted and that the 45-day public comment period was adequate consistent with NEPA regulations. On April 9, the CRSO EIS website was updated to inform the public that they should plan to submit comments by the close of the comment period.
5591	2	David Dane	N/A	Significant weakness in the DEIS is its consideration of impacts from endangered Southern Resident killer whale, Salish Sea's critical habitat, and part in migration of the Columbia River System Chinook salmon. Further, an instance proposed expanding critical habitat to include a much larger portion of the CRS Chinook salmon range along the Pacific Coast. The DEIS relies on an incomplete report on the importance of different river systems and providing food for SRKW. The authors noted many sources of bias; they do not have time for drafts. These biases lead to an underestimation of the importance of Columbia River Chinook. The DEIS relies on an inaccurate description of the distribution of SRKW. In fact, the majority of SRKW spend the majority of the year within the range of Columbia River Chinook. This portion of the range increases the Snake River Chinook rather than decline, indicating river runs are likely to be more important in the coming years than they were in the first 40 years of our study on resident killer -- The report failed to consider the effects of inbreeding on jeopardy to the DPS survival. Maintaining constant numbers will result in loss of genetic diversity and increased inbreeding, both of which reduce the likelihood of recovery. That is, a climate does not contribute or significantly increase in the Southern Resident killer whale numbers results in jeopardy. As early on, on the Maury Island Gravel Mine case, Judge Martinez noted that even small trucks to an already endangered population are likely to result in jeopardy. Thus, the DEIS should have concluded the preferred alternative is likely to adversely affect Southern Resident killer whales and results in jeopardy to the DPS survival. Alternative three, which calls for removal of the Snake River dams was for recovery of SRKWs, but was not seriously considered, to be combined with spill up to 125 percent total dissolved gas.	SRKW analysis is described in the EIS including in the FEIS Chapter 3 (Vegetation, Wetlands, Wildlife, and Floodplains) which has been updated for SRKW (Section 3.6.2.6 and Table 3-102) and FEIS Chapter 7 (Preferred Alternative) with additional analysis information on SRKW and potential increase in forage fish, in particular, Chinook salmon in Section 7.7.8. The co-lead agencies utilized current high quality information and best available science in its analysis of the effects of the operation, maintenance, and configuration of the CRS projects. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not require the co-lead agencies to take affirmative actions to recover ESA listed species. The determination for SRKW in regards to MO3 was based on the following facts: the population dynamics of the SRKW are complicated and there are multiple factors that contribute to the overall success of this species. The quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differently from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for the whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall-run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall-run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). Details on the most crucial prey stocks for Southern Resident killer whales, as well as their population and range, is available from several fact sheets and videos available here: https://www.fisheries.noaa.gov/species/killer-whale#spotlight. For more information, visit this NMFS StoryMap on Southern Resident killer whales: https://noaa.maps.arcgis.com/apps/Cascade/index.html?appid=3405e6637bf74e998d4ebe992c54f613. According to NMFS and the EPA, the estimated SRKW population has fluctuated between 67 and 98 whales between 1960 and 2015. The Snake River dams were constructed between 1962 and 1975. The SRKW population increased from a record low in 1970 to its highest population numbers in 1995. Those years were not high years for Snake or Columbia River Chinook Salmon. Ocean conditions between 2011 and 2013 were good years for salmon. At the same time, 2010 and 2013 were good outmigration years. Particularly, 2011 and 2012 were above normal in water supply, which would mean more cooler water was available and there was better survival of salmon, and 2011 through 2014 were higher than normal spill years as well. The combination of outmigration and ocean conditions created improved adult salmon returns. The EIS has analyzed spill as a measure in the Preferred Alternative and determined the overall effect to SRKW to be negligible in large part because hatchery production is consistent between the No Action Alternative and the Preferred Alternative. Because the impact from the Preferred Alternative was determined to be negligible, the agencies determined that existing hatchery production would be sufficient to address any potential impacts to prey availability for SRKWs. The co-lead agencies note the contribution to the prey of SRKW through the continued existence of their respective independent Congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as the Lower Snake River Compensation Plan (other than under MO3), which is administered by USFWS. The Preferred Alternative and Proposed Action in the agencies' biological assessment carry forward certain mitigation measures described in Chapters 2 and 7 of the EIS, which include continued salmon and steelhead hatchery production. The Preferred Alternative has negligible effects to SRKWs as described in Section 7.7.8. The Biological Assessment (BA) describes the effect of the Proposed Action on the SRKW forage species (see BA Section 3.5.1.2, Southern Resident Killer Whale). The proposed changes in operation of the Columbia River System include increased spring spill during the downstream migration of juvenile spring and summer run Chinook salmon. The result of this action includes potential increases of juvenile fish passing through the spillways, reductions in juvenile fish direct and indirect mortality associated with downstream passage, and the Comparative Survival Study (CSS) model predicts increases in numbers of returning adults, which will benefit SRKWs foraging in and around the mouth of the Columbia River in winter and spring (See EIS Section 7.7.8). The CSS model results predicts Snake River Chinook salmon would have relative improvements in smolt-to-adult returns of 35 percent (see EIS Section 7.7.4). The smolt-to-adult return ratio (SAR) is the rate at which of a group of fish survive from their smolt life stage to a defined ending point where they return as adults. While recovery targets will require more than just the efforts of federal agencies, the CSS models indicate the potential for SARs of Snake River Chinook salmon and steelhead to increase to levels that could approach recovery targets set by the Northwest Power and Conservation Council.

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					The BA, also consistent with the EIS, acknowledges past improvements to the configuration and operation of the Columbia River System, additional improvements to the environmental baseline as a result of completed estuary and tributary habitat actions, and the prospective non-operational conservation measures proposed in Chapter 2 of the Draft EIS, all contribute towards maintaining and improving Chinook abundance. Relevant conservation measures include, among other things, a commitment to continue funding the conservation and safety net hatchery programs listed in Chapter 2 of the Draft EIS. As discussed above, the agencies will fulfill congressionally authorized hatchery mitigation objectives through the funding of hatchery programs that are operated consistent with their independent hatchery program consultations during the term covered by this consultation. Based on those hatchery program consultations, the production levels associated with congressionally authorized hatchery mitigation objectives will continue, at minimum, to be consistent with levels previously analyzed by NOAA in the system consultations in 2008, 2014, and 2019. For the 2020 ESA consultations, therefore, the agencies expect that collectively, all of the actions described above (substantial modifications to migration conditions designed to benefit key prey species, combined with improvements to Chinook spawning and rearing habitat in the tributaries and Columbia River estuary, and continued hatchery production) ensure that remaining Chinook mortality from all sources in the mainstem migratory corridor will continue to be more than offset, resulting in a net gain in Chinook salmon abundance available as a prey source for SRKW. Finally, the 2019 NMFS Fisheries BiOp included increased spring spill operations that are similar to operations evaluated in CRSO EIS, and NOAA validated that the hatchery production of Chinook salmon mitigates for the impacts of operating the Columbia River System and total mortality through the mainstem migratory corridor from all sources. Moreover, the commenter is asking for determinations made under the ESA and not impacts analysis as required under NEPA. For ESA, as described in the 2020 National Marine Fisheries Service (NMFS) BiOp, NMFS concluded the agencies are producing more hatchery fish than is needed to mitigate for their impacts to SRKW prey species, and thus, the agencies were not likely to adversely affect SRKWs. Both the benefits and adverse effects of MO3 and MO4 are included in the analysis. The impacts of both MO3 and MO4 are significant to several resources, but especially power generation and reliability. An alternative combining the two would exacerbate, not resolve, those power impacts. MO3 and MO4, individually each caused large loss-of-load probability (LOLP) results (e.g., increased incidence of blackouts). Without major additional of new resources, MO3 would result in power shortages in about one in seven years. MO4 would produce power shortages in about one in every four years. If MO4 were implemented, in addition to breaching the four lower Snake River projects as called for in MO3, then the LOLP would be even higher, with power shortages potentially occurring almost every year. Additionally, if these MOs were combined, in 5% of the years, the power shortages would average close to 1,000 MW in early August when the region might be experiencing a heatwave with particularly high demand for air conditioning. 1,000 aMW is about the average amount of power consumed by Seattle City Light. As shown in Section 3.7, MO3 causes an increase in power reliability concerns in the winter and the summer. MO4 increases power reliability concerns in the summer. Thus, the combination has the largest impact during the summer. The cost of zero-carbon replacement resources for MO3 and MO4 individually are up to $1 billion/year. Resource replacements and associated transmission interconnections for the combination of MO3 and MO4 would be higher, though not likely as high as the sum of the two MOs individually. Assuming that the replacement resources consist largely of wind, solar, and batteries, this would require well over 50 square miles of solar power (more than two and a half times the size of Crater Lake), large areas of new wind generation, and unprecedented amounts of batteries (more batteries in the Northwest alone than the total projection of batteries expected in the entire U.S. by 2023, per the Energy Information Administration). In addition, the reduced generation capability under MO3, particularly throughout the summer, in combination with the impacts of the measures in MO4 and the uncertainty about the characteristics of replacement resources, would result in less capability to provide voltage support and dynamic stability for transmission system reliability than under MO3 or MO4 individually. Thus, combining MO4 with breaching in MO3 would produce unreasonable power and transmission reliability impacts, and it is highly speculative that replacement resources could be sited, permitted and built to address these impacts. In developing the Preferred Alternatives, the agencies used the alternative analysis to optimize the combination of measures based on the measures' intent and performance minimize impacts and meet the Purpose and Need Statement and EIS objectives. See Chapter 7. In regards to moving barging facilities, these are not Federal facilities, and thus would be the responsibility of ports, private industry, regional or local entities. Relocation would not be a proposed alternative that the Federal agencies would propose. However, breaching the earthen embankment and the changes to regional economies related to changes in navigation is included in the analysis of MO3. It is anticipated these entities would not move, but that industry would change to a different transportation option, such as trucking or rail.
5591	3	David Dane	N/A	Failed to consider expanding rail capacity to replace barges. Failed to consider alternative means for (indiscernible) flows providing irrigation and water to farmers, ensuring the farms would remain viable without irrigation. Failed to consider continued hatchery operations as a conservation measure rather than as a mitigation measure. I'm rooting that congressional action may be required to reprioritize purposes of the lower Snake River dams — (indiscernible) elected offices to do just that.	The effects on transportation, including rail, and on irrigation and hatchery operations are described in Sections 7.7.12, 7.7.14, and 7.6.4.1, respectively. The co-lead agencies used current, high-quality information to evaluate the effects to transportation and irrigation. Hatchery operations are an ongoing action that is being carried forward from the No Action Alternative through existing authorities. A conservation measure is a term under the ESA and not NEPA, although the EIS does acknowledge certain conservation measures included in the associated CRS consultations for the ESA and the Fish and Wildlife Conservation Act.
5595	1	Julie Weichel	N/A	With respect to the real cost of time to mitigate the damage that the dams do to our salmon populations, BPA has spent between $15 and $17 billion in mitigation efforts.	Bonneville's mitigation investments have delivered the intended results when considered in the appropriate statutory context of the Northwest Power Acts anadromous fish provisions, which call for improved survival of such fish at Federal Columbia River Power System (FCRPS) projects and sufficient flows between the projects to improve production, migration, and survival. For example, as of 2014 this investment had facilitated juvenile dam passage survival of 96% and 93% for spring and summer migrants respectively, see Endangered Species Act Federal Columbia River Power System 2016 Comprehensive Evaluation Section 1, at 17, t.2 (Jan. 2017), a marked improvement compared to when Congress passed the Northwest Power Act and the estimated average juvenile mortality at each mainstem dam and reservoir complex was 15-20% with losses recorded as high as 30%. See Nw. Res. Info. Ctr. v. Nw. Power Planning Council, 35 F.3d 1371, 1374 (9th Cir. 1994) (citing a Sept. 4, 1979 report by U.S. General Accounting Office describing the systems impacts on anadromous fish).
5597	1	kellshan@hotmail.com	N/A	Scientists agree that the most efficient and effective way to increase the wild salmon and steelhead populations is to restore the damaged ecosystem, and that is to breach the dams. The economic benefits of the dams and the regions have continued to decline and will continue to decline. The federal agencies have a responsibility to comply with the endangered species act and take the necessary actions to recover salmon, steelhead, and out Southern Resident killer whales.	The EIS evaluated benefits and adverse effects across an array of resource areas including potential effects at the national, regional and local level; effects are monetized and quantified, where possible, and also described qualitatively. As is common in NEPA analyses (see 40 C.F.R. 1502.23), the beneficial and adverse effects of the alternatives are expressed as a variety of qualitative and quantitative environmental and economic metrics throughout the EIS to inform decision-making. The EIS set forth eight objectives which, in tandem with the Purpose and Need statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. As described in Chapter 7 of the FEIS, the preferred alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as Multiple Objective Alternative 3 (MO3), which includes breaching the four lower Snake River dams. However, the preferred alternative also meets the EIS objectives for resident fish, lamprey, hydropower generation, water management, and water supply and greenhouse gas emissions, while minimizing adverse impacts to communities and the economy. The EIS concluded MO3, which includes breaching the four lower Snake River dams would have greater improvement to certain salmon species in the lower Snake River. It did not, however, conclude there was greater certainty of that result in MO3 over any other alternative. Because of delayed response time in MO3, and the potential severity of the short term effects, MO3 would likely have the most substantial uncertainty in terms of beneficial effects. Section 3.5 provides a summary of the fish analysis for the No Action Alternative and four of the multiple objective alternatives. Chapter 7 provides a summary of the fish analysis for the Preferred Alternative. With respect to the Preferred Alternative, the CSS model predicts that average Smolt to Adult return rates would increase for both Snake River spring Chinook and steelhead and will average above 2% (the lower end of the Northwest Power and Conservation Councils recovery targets for the region) as a result of the Preferred Alternative, increasing from 2.0% to 2.7% for Chinook, a 35% relative increase. The NMFS COMPASS and Life Cycle Models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information. The population dynamics of the SRKW are complicated and there are multiple factors that contribute to the overall success of this species. The quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differently from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for the whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall-run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall-run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). Details on the most crucial prey stocks for Southern Resident killer whales, as well as their population and range, is available from several fact sheets and videos available here: https://www.fisheries.noaa.gov/species/killer-whale#spotlight. For more information, visit this NMFS StoryMap on Southern Resident killer whales: https://noaa.maps.arcgis.com/apps/Cascade/index.html?appid=3405e6637bf74e998d4ebe992c54f613. According to NOAA and the EPA, the estimated SRKW population has fluctuated between 67 and 98 whales between 1960 and 2015. The Snake River dams were constructed between 1962 and 1975. The SRKW population increased from a record low in 1970 to its highest population numbers in 1995. Those years were not high years for Snake or Columbia River Chinook Salmon. Ocean conditions between 2011 and 2013 were good years for salmon. At the same time, 2010 and 2013 were good outmigration years. Particularly, 2011 and 2012 were above normal in water supply, which would mean more cooler water was available and there was better survival of salmon, and 2011 through 2014 were higher than normal spill years as well. The combination of outmigration and ocean conditions created improved adult salmon returns. The EIS has analyzed spill as a measure in the Preferred Alternative and determined the overall effect to SRKW to be negligible. Because the impact from the Preferred Alternative was determined to be negligible, the agencies determined that existing hatchery production would be sufficient to address any potential impacts to prey availability for SRKWs. The co-lead agencies note the contribution to the prey of SRKW through the continued existence of their respective independent Congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as the Lower Snake River Compensation Plan (other than under MO3), which is administered by USFWS. The Preferred Alternative and Proposed Action in the agencies' biological assessment carry forward certain mitigation measures described in Chapters 2 and 7 of the EIS, which include continued salmon and steelhead hatchery production. The Preferred Alternative has negligible effects to SRKWs as described in Section 7.7.8 in large part because hatchery production is consistent between the No Action Alternative and the Preferred Alternative. The Biological Assessment (BA) describes the effect of the Proposed Action on the SRKW forage species (see BA Section 3.5.1.2, Southern Resident Killer Whale). The proposed changes in operation of the Columbia River System include increased spring spill during the downstream migration of juvenile spring and summer run Chinook salmon. The result of this action includes potential increases of juvenile fish passing through the spillways, reductions in juvenile fish direct and indirect mortality associated with downstream passage, and the Comparative Survival Study (CSS) model predicts increases in numbers of returning adults, which will benefit SRKWs foraging in and around the mouth of the Columbia River in winter and spring (See EIS Section 7.7.8). The CSS model results predicts Snake River Chinook salmon would have relative improvements in smolt-to-adult returns of 35 percent (see EIS Section 7.7.4). The smolt-to-adult return ratio (SAR) is the rate at which of a group of fish survive from their smolt life stage to a defined ending point where they return as adults. While recovery targets will require more than just the efforts of federal agencies, the CSS models indicate the potential for SARs of Snake River Chinook salmon and steelhead to increase to levels that could approach recovery targets set by the Northwest Power and Conservation Council. The BA, also consistent with the EIS, acknowledges past improvements to the configuration and operation of the Columbia River System, additional improvements to the environmental baseline as a result of completed estuary and tributary habitat actions, and the prospective non-operational conservation measures proposed in Chapter 2 of the Draft EIS, all contribute towards maintaining and improving Chinook abundance. Relevant conservation measures include, among other things, a commitment to continue funding the conservation and safety net hatchery programs listed in Chapter 2 of the Draft EIS. As discussed above, the agencies will fulfill congressionally authorized hatchery mitigation objectives through the funding of hatchery programs that are operated consistent with their independent hatchery program consultations during the term covered by this consultation. Based on those hatchery program consultations, the production levels associated with

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					congressionally authorized hatchery mitigation objectives will continue, at minimum, to be consistent with levels previously analyzed by NOAA in the system consultations in 2008, 2014, and 2019. For the 2020 ESA consultations, therefore, the agencies expect that collectively, all of the actions described above (substantial modifications to migration conditions designed to benefit key prey species, combined with improvements to Chinook spawning and rearing habitat in the tributaries and Columbia River estuary, and continued hatchery production) ensure that remaining Chinook mortality from all sources in the mainstem migratory corridor will continue to be more than offset, resulting in a net gain in Chinook salmon abundance available as a prey source for SRKW. Finally, the 2019 NMFS Fisheries BiOp included increased spring spill operations that are similar to operations evaluated in CRSO EIS, and NOAA validated that the hatchery production of Chinook salmon mitigates for the impacts of operating the Columbia River System and total mortality through the mainstem migratory corridor from all sources. FEIS Chapter 3 (Vegetation, Wetlands, Wildlife, and Floodplains) has been updated for SRKW (Section 3..6.2.6 and Table 3-102). FEIS Chapter 7 (Preferred Alternative), has been updated with additional analysis information on SRKW and potential increase in forage fish, in particular, Chinook salmon (Section 7.7.8). Consistent with NEPA analysis frameworks, the EIS expresses beneficial and adverse effects across a variety of qualitative and quantitative environmental and economic metrics. For hydropower, the average annual value of the four lower Snake River dams exceeds the average annual equivalent costs. The generation value at the four lower Snake River dams can be described by a range between the cost to replace the generation through new conventional resources or through a portfolio of zero-carbon resources. Although the costs of replacing the power with market purchases was analyzed, it is unlikely that short-term wholesale power markets could reliably replace the power for the long term. This range would put the annual value of power between $240 million and $500 million for the four dams combined. These numbers represent about 90 percent of the lost benefits cited in Table 3-171 of the Draft EIS because the four dams represent about 1,000 aMW of the 1,100 aMW of lost generation estimated in MO3. The average annual cost to operate and maintain all authorized purposes at the four lower Snake River dams is $75 million (Appendix Q, Table 5-1) and the annual-equivalent capital costs are $32 million (Appendix Q, Table 4-1). Hydropower costs funded by Bonneville represent about $50 million of the total annual operations and maintenance costs and nearly all of the annual capital costs, approximately $31 million. This puts the annual-equivalent power-specific costs at approximately $81 million a year. As a result, the net benefits from hydropower for the four lower Snake River dams are between $159 million and $419 million and the benefit-cost ratios are between 3.0 and 6.2. If the $34 million per year for the Lower Snake River Compensation Plan is added to the capital and expense costs, benefits still exceed costs under each replacement power scenario. Considering these costs, the net benefits range from $125 million to $385 million and the benefit-cost ratios range from 2.1 to 4.3. In the less-likely scenario that generation could be reliably replaced with short-term wholesale market purchases and assuming that the four dams represent 90% of the $150 million in market purchases required to replace the lost generation cited in MO3 (see Table 3-170), the lower bound for net benefits would fall to $54 million and the benefit-cost ratio would fall to 1.7. With the Lower Snake River Compensation Plan included, the lower bound for annual net benefits becomes $20 million and the benefit-cost ratio becomes 1.2. From a resource competitiveness perspective, the four lower Snake River dams are among the least costly generating resources in the Federal Columbia River Power System (FCRPS) and the planned investment strategy is expected to maintain that status. As shown in the Federal Hydropower presentation at the 2018 Integrated Program Review1/, the Headwater/Lower Snake Asset Class/2 is forecast to have a 50-year levelized cost of generation/3 of $11.41/MWh based on the direct funded capital and expense (O&M) programs outlined in that process. These costs remain competitive with volatile Mid-Columbia spot market energy prices, which averaged $37/MWh in 2019 and have averaged $21/MWh in 2020. 1/ The Integrated Program Review (IPR) allows interested parties to see and comment on all relevant Federal Columbia River Power System (FCRPS) capital and expense (O&M) spending level estimates in the same forum. The IPR occurs every two years, or just prior to each rate case, and is the public review for the costs that will be recovered through rates the following two-year rate period. Long-term forecasts for the next 50 years and major upcoming projects are also shared in this forum. This information is available here: https://www.bpa.gov/Finance/FinancialPublicProcesses/IPR/2018IPR/IPR%202018%20Fed%20Hydro%20Workshop.pdf and is incorporated by reference into this EIS. 2/ In the 2018 Integrated Program Review, the Headwater/Lower Snake Asset Class consisted of the four lower Snake River dams, Hungry Horse, Libby, and Dworshak dams. These projects were grouped together because they have similar cost characteristics. The Levelized Cost of Generation for the four lower Snake projects alone is slightly lower than that for the whole class including the headwater projects shown in the table. 3/ Levelized Cost of Generation is defined as the forecasted direct costs and administrative overheads of producing power at a plant annualized over a 50-year period. This cost includes direct funded operations, maintenance, administrative and capital costs as well as Columbia River Fish Mitigation (CRFM) costs. Bonneville system-wide mitigation costs, such as its Fish and Wildlife program, are not included in this metric.
5597	2	kellshan@hotmail.com	N/A	Breaching the dam can be paid for by PBA (sic), and they'll at least cover the cost a way to accomplish fish mitigation under the 1980 Northwest Power and Conservation Act.	Bonneville does not have authority to breach dams. Commenters that mistakenly contend Bonneville has authority to fund the breach of dams typically suggest two statutory alternatives. The first is Bonneville's discretionary direct funding authority found at 16 U.S.C. 839d-l. Congress granted this authority as a means for Bonneville, the Corps, and Reclamation to proceed with funding additions, improvements, or replacements to the multiple purpose projects of the CRS without having to first wait for appropriations for the entire activity. Instead, Bonneville provides the power share directly so that the Corps and Reclamation need only seek appropriations to cover the non-power share; that is, the share attributed to the non-power purposes of the dam. Stated another way, Bonneville can provide direct funding to cover only hydropower costs, whereas costs attributable to or shared by other purposes of the dams would be joint projects and would require congressional appropriations to cover the non-hydropower share of the cost. The breach of a dam is not an addition, improvement, or replacement of a dams power features, so the direct funding authority does not apply to the breach of a dam. Moreover, even if for arguments sake it did, Bonneville could provide no more than the power share of the cost of breaching. Congress would still have to provide appropriations to the Corps for the non-power share. The use of Bonneville's discretionary direct funding authority therefore cannot provide a means of funding the breach of dams absent an act of Congress. The second statutory authority suggested for Bonneville to fund the breach of dams is the Northwest Power Act section 4(h)(10)(A) found at 16 U.S.C. 839(b)(h)(10)(A). The Bonneville Administrator must use the Bonneville Fund to protect, mitigate, and enhance fish and wildlife affected by the operation and development of the FCRPS in a manner consistent with the Northwest Power and Conservation Councils (Council) Fish and Wildlife Program, the Councils Power Plan, and the purposes of the Act. Currently, dam breaching is not part of the current Council Fish and Wildlife Program, the Seventh Power Plan, or evident within the purposes of Act. For example, dam breaching is inconsistent with the statutory purpose of Section 2(6) of the Act, which says in relevant part that anadromous fish are dependent on environmental conditions substantially obtainable from operations and management of the Columbia River System and other hydropower facilities in the basin. Additionally, as Section 3.7 (Power Generation and Transmission) demonstrates, dam breaching is also inconsistent with another purpose of the Northwest Power Act, Section 2(2), which provides for assuring the Pacific Northwest an adequate, efficient, economical, and reliable power supply. Section 4(h)(10)(A) therefore does not mandate or confer authority on the Administrator to fund the breach of a dam.
5598	1	Deborah Giles	N/A	I'm a killer whale biologist with the University of Washington, Center for Conservation Biology, and the science and research director for a non-profit called Wild Orca. My research focuses on the endangered Southern Resident fish-eating killer whales, a distinct population of whales that number a mere 72 animals, down from 99 in 1995. This population of whales eats only fish, with as much as 90 percent of their diet being Chinook salmon. The Southern Residents co-evolved eating the once massive Chinook that historically spawned the Snake River watershed. Recovering the Snake River Salmonids to more historic numbers would significantly help the struggling Southern Residents. People in Puget Sound, Salish Sea like to claim the Southern Residents as their own. But even in the best salmon years, the whales only spend at most six months of the year in this part of the state. The rest of the year, fall through spring, the whales are utilizing the rest of their range, from northern Vancouver Island to Monterrey, California. And they spend a disproportionate amount of time in the early spring at the mouth of the Columbia River looking for returning lipid-rich Snake River Chinook salmon. In 2009, I started working for Dr. Sam Wasser, who pioneered the use of scat detection dogs to non-invasively sniff out killer whale floating feces on the water. Our first paper based on these samples was published in 2012, and it became evident that vessels are a problem, most significantly when the whales are not getting enough to eat. This realization was important because it turned my attention from being mostly focused on vessel effects to looking at the interactions between food-deprived whales and stress hormones. Our most recent paper was published in 2017, and that one showed that 69 percent of females are getting pregnant. Those that are getting pregnant are spontaneously miscarrying their calves. And these miscarriages are directly related to lack of nutrition in the would-be moms.	Thank you for your contribution to SRKW research. Many of the points you make in your comment have been incorporated into the SRKW analysis that is described in the EIS, including in the FEIS Chapter 3 (Vegetation, Wetlands, Wildlife, and Floodplains) has been updated for SRKW (Section 3.6.2.6 and Table 3-102) and FEIS Chapter 7 (Preferred Alternative) with additional analysis information on SRKW and potential increase in forage fish, in particular, Chinook salmon in Section 7.7.8. The co-lead agencies utilized current high quality information and best available science in its analysis of the effects of the operation, maintenance, and configuration of the CRS projects. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not require the co-lead agencies to take affirmative actions to recover ESA listed species. The population dynamics of the SRKW are complicated and there are multiple factors that contribute to the overall success of this species. The quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differently from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for the whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall-run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall-run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). Details on the most crucial prey stocks for Southern Resident killer whales, as well as their population and range, is available from several fact sheets and videos available here: https://www.fisheries.noaa.gov/species/killer-whale#spotlight. For more information, visit this NMFS StoryMap on Southern Resident killer whales: https://noaa.maps.arcgis.com/apps/Cascade/index.html?appid=3405e6637bf74e998d4ebe992c54f613. According to NMFS and the EPA, the estimated SRKW population has fluctuated between 67 and 98 whales between 1960 and 2015. The Snake River dams were constructed between 1962 and 1975. The SRKW population increased from a record low in 1970 to its highest population numbers in 1995. Those years were not high years for Snake or Columbia River Chinook Salmon. Ocean conditions between 2011 and 2013 were good years for salmon. At the same time, 2010 and 2013 were good outmigration years. Particularly, 2011 and 2012 were above normal in water supply, which would mean more cooler water was available and there was better survival of salmon, and 2011 through 2014 were higher than normal spill years as well. The combination of outmigration and ocean conditions created improved adult salmon returns. The EIS has analyzed spill as a measure in the Preferred Alternative and determined the overall effect to SRKW to be negligible in large part because hatchery production is consistent between the No Action Alternative and the Preferred Alternative. Because the impact from the Preferred Alternative was determined to be negligible, the agencies determined that existing hatchery production would be sufficient to address any potential impacts to prey availability for SRKWs. The co-lead agencies note the contribution to the prey of SRKW through the continued existence of their respective independent Congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as the Lower Snake River Compensation Plan (other than under MO3), which is administered by USFWS. The Preferred Alternative and Proposed Action in the agencies' biological assessment carry forward certain mitigation measures described in Chapters 2 and 7 of the EIS, which include continued salmon and steelhead hatchery production. The Preferred Alternative has negligible effects to SRKWs as described in Section 7.7.8. The Biological Assessment (BA) describes the effect of the Proposed Action on the SRKW forage species (see BA Section 3.5.1.2, Southern Resident Killer Whale). The proposed changes in operation of the Columbia River System include increased spring spill during the downstream migration of juvenile spring and summer run Chinook salmon. The result of this action includes potential increases of juvenile fish passing through the spillways, reductions in juvenile fish direct and indirect mortality associated with downstream passage, and the Comparative Survival Study (CSS) model predicts increases in numbers of returning adults, which will benefit SRKWs foraging in and around the mouth of the Columbia River in winter and spring (See EIS Section 7.7.8). The CSS model results predicts Snake River Chinook salmon would have relative improvements in smolt-to-adult returns of 35 percent (see EIS Section 7.7.4). The smolt-to-adult return ratio (SAR) is the rate at which of a group of fish survive from their smolt life stage to a defined ending point where they return as adults. While recovery targets will require more than just the efforts of federal agencies, the CSS models indicate the potential for SARs of Snake River Chinook salmon and steelhead to increase to levels that could approach recovery targets set by the Northwest Power and Conservation Council. The BA, also consistent with the EIS, acknowledges past improvements to the configuration and operation of the Columbia River System, additional improvements to the environmental baseline as a result of completed estuary and tributary habitat actions, and the prospective non-operational conservation measures proposed in Chapter 2 of the Draft EIS, all contribute towards maintaining and improving Chinook abundance. Relevant conservation measures include, among other things, a commitment to continue funding the conservation and safety net hatchery programs listed in Chapter 2 of the Draft EIS. As discussed above, the agencies will fulfill congressionally authorized hatchery mitigation objectives through the funding of hatchery programs that are operated consistent with their independent hatchery program consultations during the term covered by this consultation. Based on those hatchery program consultations, the production levels associated with congressionally authorized hatchery mitigation objectives will continue, at minimum, to be consistent with levels previously analyzed by NOAA in the system consultations in 2008, 2014, and 2019. For the 2020 ESA consultations, therefore, the agencies expect that collectively, all of the actions described above (substantial modifications to migration conditions designed to benefit key prey species, combined with improvements to Chinook spawning and rearing habitat in the tributaries and

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					Columbia River estuary, and continued hatchery production) ensure that remaining Chinook mortality from all sources in the mainstem migratory corridor will continue to be more than offset, resulting in a net gain in Chinook salmon abundance available as a prey source for SRKW. Finally, the 2019 NMFS Fisheries BiOp included increased spring spill operations that are similar to operations evaluated in CRSO EIS, and NOAA validated that the hatchery production of Chinook salmon mitigates for the impacts of operating the Columbia River System and total mortality through the mainstem migratory corridor from all sources.
5598	2	Deborah Giles	N/A	Besides those comments, I would also like to respectfully request that he comment period be extended in light of this really amazing period of time that we're in, giving the public an opportunity to review the document with more time —- to consider – more consideration would be much appreciated.	The co-lead agencies considered requests to extend the public comment period. This NEPA process included a wide array of cooperating agencies whose close involvement throughout the process allowed the co-lead agencies to incorporate feedback. Given the broad range of comments received and the extensive Federal and non-Federal participation in the overall process as well as the level of public engagement in the six virtual public meetings in the region, the co-lead agencies determined that an extension was not warranted and that the 45-day public comment period was adequate consistent with NEPA regulations. The CRSO EIS website notified the public on April 9, that they should plan to submit comments by the close of the comment period.
5598	3	Deborah Giles	N/A	Thank you very much for holding these webinars. I think that they've gone really well.	Thank you for your comment.
5599	1	Lori Gogitsch	N/A	Columbia River basin salmon have continued to drastically decline, even though $17 billion have been spent on salmon recovery.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA listed species. Similarly, the Northwest Power Act does not obligate the co-lead agencies to recover ESA listed species or to ensure restoration of other fish and wildlife. Instead, the co-lead agencies fish and wildlife mitigation responsibilities under Northwest Power Act are more limited primarily, managing and operating FCRPS projects, which includes the CRS, to protect, mitigate, and enhance (as opposed to recover) fish and wildlife affected by such projects in a manner that provides equitable treatment with the projects other authorized purposes and consistent with the purposes of the Act and applicable laws. In addition, Bonneville has a specific responsibility to fund protection, mitigation, and enhancement of fish and wildlife to the extent affected by development and operation of FCRPS projects consistent with the Northwest Power and Conservation Councils (Council) fish and wildlife program, the Councils power plan, and the purposes of the Act, which includes assurance of an adequate, efficient, economical, and reliable power supply. Therefore, contrary to the comments broad assertion, the Northwest Power Act does not make Bonneville responsible for funding the regional effort to recover wild salmon and steelhead. Bonneville's mitigation investments have delivered the intended results when considered in the appropriate statutory context of the Northwest Power Acts anadromous fish provisions which call for improved survival of such fish at Federal Columbia River Power System (FCRPS) projects and sufficient flows between the projects to improve production, migration, and survival. For example, as of 2014 this investment had facilitated juvenile dam passage survival of 96% and 93% for spring and summer migrants respectively, see Endangered Species Act Federal Columbia River Power System 2016 Comprehensive Evaluation Section 1, at 17, t.2 (Jan. 2017), a marked improvement compared to when Congress passed the Northwest Power Act and the estimated average juvenile mortality at each mainstem dam and reservoir complex was 15-20% with losses recorded as high as 30%. See Nw. Res. Info. Ctr. v. Nw. Power Planning Council, 35 F.3d 1371, 1374 (9th Cir. 1994) (citing a Sept. 4, 1979 report by U.S. General Accounting Office describing the systems impacts on anadromous fish).
5599	2	Lori Gogitsch	N/A	Bold, proactive new actions need to be implemented to ensure an effective solution to declining salmon population. These actions need to address the following issues: One, restore abundant fishable salmon and steelhead populations in the Columbia River basin, which, in turn, will provide more food for the critically endangered Southern Resident killer whale; And two, honor our nation's treaty commitments to Native American tribes and culture.	Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the CRS . Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. The Preferred Alternative is nevertheless predicted to benefit salmon and steelhead. It also meets the EIS objectives for resident fish, lamprey, hydropower, water management, and water supply, while minimizing adverse impacts to communities and the economy. The EIS analysis found only a minor effect to the Southern Resident killer whale would result from implementing MO3 (which includes the dam breach measure). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults form the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differentially from hatchery and wild fish. Hatchery fish today likely make up most fish consumed by SRKW (NOAA BiOp 2020). Tribal input, concerns, interests, and especially treaty rights were considered throughout the Draft EIS analyses and in the formulation of the Preferred Alternative. Treaty specific information is included in Section 3.17 as well as Chapter 7. The treaties bind all parties and are the supreme law of the land. The co-lead agencies recognize and respect that supremacy. In terms of honoring our treaty obligations, the co-lead agencies included "Protecting Native American treaty and reserved rights and fulfilling trust obligations for natural and cultural resources throughout the environment affected by the Columbia River System operations" as a purpose in the Purpose and Need Statement in Chapter 1 to ensure treaty obligations were a key consideration of decision making.
5602	1	Lori Ody	N/A	If we want to see how the lower Snake River would perform if the dams were removed, we need only look at the Yakama River basin. Before the lower Snake River dams were built, the journey of smolt to the seas took about one week. Now it takes one month or more, if they survive at all. Smolts that survive may suffer from the journey only to die later. This is called delayed mortality. By contrast, in the Yakama River basin, fish have only four dams on the lower Columbia to pass. Yakama basin salmon are not impacted in the way that Idaho's wild fisheries have been impacted. The Yakama River populations demonstrate that the four lower Snake River dams are the problem, because, by comparison, Yakama River basin salmon populations remain viable while Snake River salmon are nearing extinction. Our salmon populations began their slide toward extinction after the lower Snake River dams were built. When both rivers populations only had four dams to navigate, both were healthy and viable. This point is further proven by the fact that historically the Snake River populations were much more viable and productive than the Yakama River populations. Today, the reverse is true.	The Draft EIS compares the effects of the No Action Alternative to the effects of each of the Multiple Objective alternatives. The CSS and National Marine Fisheries Services COMPASS/LCIM fish models allowed estimation of the effects of MO3 which includes the lower Snake River dam breaching measure as well as other measures such that the co-lead agencies were able to analyze the impacts to salmon and steelhead from breach of the four lower Snake River dams. Therefore, a comparison to another watershed or other species (i.e., species that return to the Yakama River basin) was not necessary.
5602	2	Lori Ody	N/A	Other dam removal projects undertaken in this country demonstrate how river restoration will restore salmon runs and many other benefits of free-flowing rivers: the Elwha, Kennebec, Rogue, (indiscernible) Salmon, and (indiscernible) rivers are prime examples.	The EIS studied breaching the four Lower Snake River Dams as a measure in MO3. Many dam removal projects that have occurred across the United States have very different circumstances than what is contemplated under MO3. The Elwha dam in Washington State has little relevance to the lower Snake River dams. The Elwha dam had no fish passage and provided no economic benefits. In contrast, the four lower Snake River dams provide upstream and downstream fish passage, produce power, and provide navigation and recreation opportunities. The four lower Snake River dams would still have regulated flows due to the dams located upstream. For power, the four lower Snake River dams produce upwards of 1,000 aMW of power, which is approximately 11 percent of the average power produced by the Federal Columbia River Power System. See Draft EIS, Section 3.7.3.5, Changes in Power Generation, Table 3-159. Losing this amount of power is equivalent to losing power capable of serving 730,000 homes in the Northwest. See Draft EIS, Section 3.7.3.5, Summary of Effect, at page 9-935, noting that loss of generation from the four lower Snake River Dams accounts for about 90% of the power loss in MO3.
5605	1	tim@timpalmer.org	N/A	Except for reports of entities paying for the reports that support keeping the dams intact and by agencies deeply invested in sustaining the status quo, the evidence of both biologists and economists say that we need to remove these dams to sustain our fish and to make our public agency solvent.	Based on the EIS analysis of fish in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative (PA) would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. The PA also meets most of the EIS, including those for resident fish, lamprey, hydropower, water management, and water supply, while minimizing adverse effects on communities and the economy. The EIS relies on high-quality information to evaluate the costs and benefits of the four lower Snake River dams. For hydropower, the average annual value of the four lower Snake River dams exceeds the average annual equivalent costs. The generation value at the four lower Snake River dams can be described by a range between the cost to replace the generation through new conventional resources or through a portfolio of zero-carbon resources. Although the costs of replacing the power with market purchases was analyzed, it is unlikely that short-term wholesale power markets could reliably replace the power for the long-term. This range would put the annual value of power between $240 million and $500 million for the four dams combined. These numbers represent about 90% of the lost benefits cited in Table 3-171 of the Draft EIS because the four dams represent about 1,000 aMW of the 1,100 aMW of lost generation estimated in MO3. The average annual cost to operate and maintain all authorized purposes at the four lower Snake River dams is $75 million (Appendix O, Table 5-1) and the annual-equivalent capital costs are $32 million (Appendix O, Table 4-1). Hydropower costs funded by Bonneville represent about $50 million of the total annual operations and maintenance costs and nearly all of the annual capital costs, approximately $31 million. This puts the annual-equivalent power-specific costs at approximately $81 million a year. As a result, the net benefits from hydropower for the four lower Snake River dams are between $159 million and $419 million and the benefit-cost ratios are between 3.0 and 6.2. If the $34 million per year for the Lower Snake River Compensation Plan is added to the capital and expense costs, benefits still exceed costs under each replacement power scenario. Considering these costs, the net benefits range from $125 million to $385 million and the benefit-cost ratios range from 2.1 to 4.3. In the less-likely scenario that generation could be reliably replaced with short-term wholesale market purchases and assuming that the four dams represent 90% of the $150 million in market purchases required to replace the lost generation cited in MO3 (see Table 3-170), the lower bound for net benefits would fall to $54 million and the benefit-cost ratio would fall to 1.7. With the Lower Snake River Compensation Plan included, the lower bound for annual net benefits becomes $20 million and the benefit-cost ratio becomes 1.2. From a resource competitiveness perspective, the four lower Snake River dams are among the least costly generating resources in the Federal Columbia River Power System (FCRPS) and the planned investment strategy is expected to maintain that status. As shown in the Federal Hydropower presentation at the 2018 Integrated Program Review1/, the Headwater/Lower Snake Asset Class2/ is forecast to have a 50-year levelized cost of generation3/ of $11.41/MWh based on the direct funded capital and expense (O&M) programs outlined in that process. These costs remain competitive with volatile Mid-Columbia spot market energy prices which averaged $37/MWh in 2019 and have averaged $21/MWh in 2020. 1/The Integrated Program Review (IPR) allows interested parties to see and comment on all relevant Federal Columbia River Power System (FCRPS) capital and expense (O&M) spending level estimates in the same forum. The IPR occurs every two years, or just prior to each rate case, and is the public review for the costs that will be recovered through rates the following two-year rate period. Long-term forecasts for the next 50 years and major upcoming projects are also shared in this forum. This information is available here: https://www.bpa.gov/Finance/FinancialPublicProcesses/IPR/2018IPR/IPR%202018%20Fed%20Hydro%20Workshop.pdf and is incorporated by reference into this EIS. 2/In the 2018 Integrated Program Review, the Headwater/Lower Snake Asset Class consisted of the four lower Snake River dams, Hungry Horse, Libby, and Dworshak dams. These projects were grouped together because they have similar cost characteristics. The Levelized Cost of Generation for the four lower Snake projects alone is slightly lower than that for the whole class including the headwater projects shown in the table. 3/Levelized Cost of Generation is defined as the forecast direct costs and administrative overheads of producing power at a plant annualized over a 50-year period. This cost includes direct funded operations, maintenance, administrative and capital costs as well as Columbia River Fish Mitigation (CRFM) costs. Bonneville system-wide mitigation costs, such as its Fish and Wildlife program, are not included in this metric.
5605	2	tim@timpalmer.org	N/A	I urge you to consider the full cost of these dams and a full accounting of the benefits in restoring our salmon and building a sustainable economy that is not predicated on the extinction of our salmon.	The EIS includes economic analysis of power and transmission (Section 3.7), costs to navigation and transportation (Section 3.10), and a cost analysis of the system implementation (Section 3.19) as well as mitigation, and cost analysis of the Preferred Alternative (Section 7.7). As analyzed in the Draft EIS, none of the alternatives would result in extinction of salmon. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy

Letter No.	Comment No.	Commenter Name/Email	Affiliation	Comment	Response[1/]
					designated critical habitat. This EIS has been developed in consultation with National Marine Fisheries Service (NMFS) and U.S. Fish and Wildlife Service (USFWS) to find an acceptable balance that allows the co-lead agencies to meet the Purpose and Need Statement while minimizing impacts to affected ESA-listed species and their habitats. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as the MO3 which includes the dam breaching measure. The Preferred Alternative also meets the EIS objectives for: resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS the co-lead agencies did not identify MO3 because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. The EIS does not employ a cost-benefit framework for decision-making consistent with NEPA (40 C.F.R 1502.23). Instead, the EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-lead agencies numerous legal obligations. The EIS evaluated beneficial and adverse effects across an array of resource areas including potential effects at the national, regional and local level; effects are monetized and quantified, where possible, and also described qualitatively. As is common in NEPA analyses, the beneficial and adverse effects of the alternatives are expressed as a variety of qualitative and quantitative environmental and economic metrics throughout the EIS to inform decision-making, including the effects of the alternatives on fish as detailed in Section 3.5. That the effects of the alternatives on fish are not expressed as monetized economic values does not mean that they were not considered in the context of the analysis.
5606	1	reputnam@gmail.com	N/A	We're both from Washington state and citizens, retired. A lot of time this last weekend reading a great deal about the EIS report, looking at the various alternatives. Then I got to Chapter 7 titled Preferred Alternative. Wait a minute. I thought, where is there some kind of analysis that takes all the pros and cons of the alternatives and evaluates them against the goals? How can you just jump to a solution, which is in Chapter 7, the preferred alternative, without considering the other choices, especially something this complicated?Where's the objective, numerical, quantitative, repeatable analysis? Well, there isn't one. There's no fair objective analysis. It's all subjective and intuitive. Okay. Well, let's see what it says. So I looked at Chapter 7.2. And I'm going to kind of quote things here, but for sake of brevity, I'm going to summarize a little bit, too. Chapter 7.2. The co-lead agencies determine that the no-action alternative and the other four alternatives that had nothing to do with dam removal allow for the operation of the projects, meaning dams, in furtherance of all of the congressionally authorized purposes, to varying degrees. Okay. There are some magic words in there. Alternative -- I'm still basically quoting. Alternative 3, which is the dam removal alternative, would not meet the congressionally authorized purposes of operating and maintaining the four lower Snake River dams. And again we see these magic words, congressionally authorized. So then it says, new congressional authority through new laws and associated funding would be required to implement dam breaching measures. So now I'm going to stop reading. And basically to summarize, these three agencies do one thing. They build and maintain dams - that's their life. That is their congressional authorization. Those are the magic words, congressional authorization. They say if you want to remove the dams, go get Congress to authorize that and get some money, because it will not happen with the local Corps of Engineers or BPA or Bureau of Reclamation. That's their story, but it's totally wrong. Those magic words, congressional authorization, are a smokescreen by the local lead agencies to make us believe that they can't take out the dams. In fact —- they could do that. They could do everything without additional congressional authorization. It doesn't take Congress to decommission a Navy ship, like it didn't take congressional action for the Portland Corps of Engineers to decommission the Willamette lock and dam in Portland. It's part of what they're responsible for.	The co-lead agencies are responsible for operating and maintaining the CRS to meet multiple requirements set forth by Congress as discussed in the EIS. The Purpose and Need Statement and eight objectives in the EIS were used to help identify a Preferred Alternative (PA). The four Multiple Objective alternatives (MOs) are evaluated throughout Chapters 3-6. The conclusions are represented in the discussion in Chapter 7, as the co-lead agencies used those evaluations to improve outcomes by building the PA based on lessons of the alternatives analysis. MO3 would only partially meet the objective for an adequate, efficient, economical, and reliable power supply due to the loss of hydropower generation, system flexibility and peaking capabilities at the four lower Snake River projects. MO3 is farther from meeting the objective to minimize greenhouse gas emissions because of the loss of hydropower and the loss of navigation on the Snake River compared to the PA. MO3 would also result in adverse effects on irrigation in the lower Snake River. Additionally, Snake River barge navigation would be eliminated. We are uncertain about the process the U.S. Navy uses to decommission ships. As to Willamette Falls Locks (this Corps' navigation project does not include a dam), the commenter is mistaken. The Corps has administrative discretion to (1) place the locks in a minimal maintenance caretaker status, on account of lack of funding associated with a decline in commercial tonnage through the locks, and (2) close the locks to vessel traffic, due to life safety concerns associated with unsafe physical conditions of the locks. The Corps lacks authority to deauthorize the project for its navigation purpose or dispose of the land and improvements prior to such deauthorization. Only Congress can deauthorize the project. The Corps has evaluated the feasibility of deauthorization and disposal, and understands that congressional committees are considering whether to include such a deauthorization in the next Water Resources Development Act (or WRDA). As such, the Corps administratively closing the locks to vessel traffic due to life safety concerns is quite different than Congress legislatively deauthorizing the project and directing disposal.
5608	1	Scott Levy	N/A	I liked what Deborah Giles said just a little while ago. She really showed what has got to happen with this EPA document. So she's an expert on the Salish Sea whales. Said, if I got the quote right, about LSR dam breaching, and then she goes, quote, could significantly help the recovery of Salish Sea orcas. Now, that rung counter to what the EIS says, has negligible effect. Let's see, page --Chapter 3, dash, 759, effects of MO-3, conclusion was minor effect for the orca with MO-3. The food available to Southern Resident killer whales and the lower Snake River population is only a smaller percentage of their overall diet. Change of food availability may change a whale's (indiscernible) behaviors sadly, but will not change their overall condition. The population dynamics in rep 3 is not likely to adversely affect the Southern Resident... So there you go right there. That's a point you guys can all get to work on right away, because you got no evidence that counters what Deborah Giles was saying and Ken Balcomb. Whoever's trying to say this, I suspect more fisheries, they don't have any science to back it up.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. The overall health and condition of the Southern Resident killer whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKWs are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for the whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall-run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall-run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). CSS and NMFS Lifecycle models predict that lower Snake River Chinook salmon smolt-to-adult returns would have a moderate to major increase under MO3. Operation of Lower Snake River Compensation Plan fish hatcheries under MO3 is uncertain and therefore, production of Snake River hatchery fish is assumed to decline over the long term, while returning adult wild salmon are anticipated to increase. However, the co-leads do not anticipate a lack of hatchery fish in the short term based on the proposed fish hatchery mitigation described in Chapter 5. These additional hatchery fish should mitigate short-term construction effects to Snake River populations. Additionally, to address short-term effects to ESA-listed species, the co-lead agencies propose constructing a new trap and haul facility at McNary and conducting at least two years of trap and haul operations for Snake River fish (Chinook, sockeye, and steelhead). Therefore, there may be short-term adverse effects to the SRKW population as the lower Snake River wild salmon populations adjust to changes associated with dam breaching. The co-lead agencies agree that the quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differently from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020). The co-lead agencies conclude there could be a negligible to minor beneficial effects to SRKW from implementing MO3. Additionally, MO3 is not likely to adversely affect the SRKW distinct population segment in the short term analysis because increased hatchery production and the new trap and haul facility at McNary proposed for MO3 in Chapter 5 would address any potential short-term impacts. The final EIS, Vegetation, Wetlands, Wildlife, and Floodplains (Section 3..6.2.6 and Table 3-102) and Chapter 7 (Preferred Alternative), has been updated with additional analysis information on SRKW and potential increase in forage fish, in particular, Chinook salmon (Section 7.7.8).
5610	1	Julian Matthews	N/A	I'm Nez Perce. Lived in Pullman, Washington, for 25 years, Nez Perce tribal member. And I'd like to say -- make a -- there's some Whitman County commissioner came on there earlier and I heard him say he represents all Whitman County residents and Columbia County. That's not true. He doesn't represent my viewpoints. And I'd just like to say that I mentioned this before, that I'm in favor of including the breaching of the Snake River dams, because, as many people have said, we have treaty rights to fish, to take salmon, and our ability to take salmon along the Columbia and the Snake were in place long before the U.S. became a country and before the state of Washington, Oregon, and Idaho. So I feel that's really important for the American people to stick up for that and ensure those treaty rights are enforceable. Right now -- and I will say also that the Nez Perce Tribal Government doesn't necessarily speak on my behalf. I don't support, necessarily, their plan. And I believe the spills are a part of -- I don't think -- I don't know for sure if the spills that they're talking about are part of our SRBA water, which I don't agree with at all, and I need to clarify that. When they talk about these spills off these two dams, I believe they're talking about taking that water from our settlement. That's the Snake River Basin Adjudication Settlement, which I don't agree with, and I need to clarify that.	Tribal input, concerns, interests, and especially treaty rights were considered throughout the Draft EIS analyses and in the formulation of the Preferred Alternative. Treaty specific information is included in Section 3.17 as well as Chapter 7. The co-lead agencies recognize and respect the legal obligations treaties impose. In terms of honoring our treaty obligations, the co-lead agencies comply with environmental laws and regulations and all other applicable Federal statutory and regulatory requirements, included "Protecting Native American treaty and reserved rights and fulfilling trust obligations for natural and cultural resources throughout the environment affected by the Columbia River System operations" as a purpose in the Purpose and Need Statement in Chapter 1 to ensure treaty obligations were a key consideration of decision making. Analysis shows that the Preferred Alternative would meet the objectives for improving juvenile salmon, adult salmon, resident fish and lamprey. The analysis found ranges in potential effects due to different assumptions included in each of the fish models used in the study. Using the Comparative Survival Study (CSS), Snake River Chinook salmon and steelhead are expected to see relative improvements in smolt-to-adult returns of 35 percent and 28 percent, respectively. The Smolt-to-Adult return ratio (SAR) is the rate at which of a group of fish survive from their smolt life stage to a defined ending point where they return as adult. While achieving long-term recovery targets will require more than just the efforts of Federal agencies, the CSS models indicate the potential for SARs of Snake River Chinook salmon and steelhead to increase to levels that could approach recovery targets set by the Northwest Power and Conservation Council. If latent mortality effects are reduced by passing more juvenile fish through the spillway, the NMFS Lifecycle Model (LCM) also shows that levels of SARs would increase. However, if latent mortality effects are not reduced, or are different than modeled, the LCM predicts that SARs for Snake River spring Chinook salmon may be lower than the No Action Alternative (a range of -7.5 percent to +28 percent change relative to the No Action Alternative) due to reduced opportunities for fish transportation. Results for upper Columbia River stocks are beneficial based on LCM estimates. In-river survival and SARs are anticipated to increase. The CSS model does not currently model upper Columbia fish. The Preferred Alternative also has measures intended to increase upstream passage success and reduce injury and mortality for Pacific lamprey. These measures are proposed structural improvements that include converting extended-length submersible bar screen material to screen material that would not impinge or entangle juvenile lamprey, expanding the network of lamprey passage structures to bypass impediments in fish ladders, changing the design for turbine cooling water strainers, and replacing turbines for safer fish passage. The Preferred Alternative would also meet the objective to improve resident fish. Effects to resident fish vary by region and species, but are generally minor relative to the No Action Alternative.
5612	1	Nina Sarmiento	N/A	I want to start off by saying I've heard a lot of power groups, PUD groups listening in who have a lot of fear in their hearts about what would happen to our power if the dams were breached. This fear has been instilled in them by misinformation from hydropower sales groups such as Northwest RiverPartners and the Public Power Council and the federal agencies I am speaking to right now. These fear tactics similar to the ones our current administration uses, is why people believe there will be blackouts and our rates will spike and they won't be able to pay their bills anymore. And propaganda by these federal agencies I'm speaking to are why people believe there's still 97 percent survival for fish through the dam. So this really has to stop. I don't blame these people. Until now, these have been the only groups giving them information about breaching. But that's changing because they cannot be counted on to tell the truth about these dams, the endangered salmon, or the endangered orca. I just looked up Appendix H, Figure 5.4, that one of the callers previous told us to look at. And MO-3 shows that rate -- there's a big map. It shows that rates in five counties will increase less than one percent with breaching, but in the preferred alternative, all of the counties in Washington, Oregon, Montana, and Idaho, will see an increase in utility rates upwards of one percent. So that is amazing, Appendix H, Figure 5.6, 5.4, just to show you that these fear tactics are making people believe their rates are going to increase by breaching, and that is false.	The co-lead agencies provided a rigorous analysis of the effects of various alternatives in the EIS. For MO3, which includes the measure to breach the four lower Snake River dams, the EIS finds that absent construction of a large fleet of new resources, the region would face more than a doubling of the risk of regional power shortages (loss-of-load instances, such as blackouts). See Draft EIS, Section 3.7.3.5, Effects on Power System Reliability, page 3-903; and Appendix H, Table 2-1. With a large investment in new resources, the reliability of the power supply can be maintained at the current level of reliability. However, this will increase wholesale and retail electricity rates, especially for customers whose power is supplied by the Federal Columbia River Power System (FCRPS). The figure that the commenter cites, Appendix H, Figure 5-4, displays the data for Multiple Objective alternative 2, but was inadvertently mislabeled in the Draft EIS. Figure 3-186 in Chapter 3, Section 7, of the Draft EIS, shows the correct figure for MO3. The Tables in Appendix H, Chapter 5, correctly show rate increases for MO3. The error in the graphs in Appendix H should be correct in the Final EIS.
5612	2	Nina Sarmiento	N/A	So another propaganda thing that's been showing up everywhere and it's in the DEIS, is the peaking power capability of the dams, which is impossible based on the run of river configurations. The claim has no citations. It's not found in the appendices. It has never occurred in the history of —- the basin. So that needs to be addressed in the final.	Page 3-906 and 3-907 of the Draft EIS discuss how the ramping capability of the lower Snake River projects was calculated. The lower Snake River projects have the unique ability during certain times of the year to back down their generation to very low levels at night and then increase (ramp) the generation during the day to meet daytime peaks. This ability may be less obvious when looking at only heavy load and light load hour generation. To assess the ability of the lower Snake River projects to ramp, Bonneville looked at actual generation to derive a sustained peak value (6 peak hours per weekday for a month). This value is representative of the average of the super-peak hours when the highest generation is needed. This super-peak value is used to represent what can be sustained over a period of time as opposed to a single hour of generation. Once the super-peak value was derived from historic generation, it was then compared to the minimum generation required of those

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					projects, to derive how much the dams can ramp from minimum generation to a sustained peak. Depending on the time of the year, this can be over 2,000 MW. Also of significant importance is the ramping speed of hydro resources like the lower Snake River projects, which can change their output by hundreds of megawatts in just a few minutes. Table 3-160 presents the historical ramps for the lower Snake River projects with over 2,000 to 2,300 MW of capability in certain months of the year.
5612	3	Nina Sarmiento	N/A	The next critique I had was that Appendix M, page 1353, regional economic effects are forecasted with big numbers, large percentages of deficits. There's no analysis done to forecast benefits to regional economy. So in order to be able to make a clear decision on -- MS. HABIBI: Your time has lapsed. NINA SARMIENTO: -- rate alternatives, that needs to happen	The EIS provides an evaluation of the social welfare and regional economic effects of the No Action Alternative and the multi-objectives alternatives, including the effects on recreation (Section 3.11) and fisheries (Section 3.15). The EIS described the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. NMFS estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which is described qualitatively. The potential for changes in recreational fishing of anadromous fish under MO3 in the Region C is described in Section 3.11. Increases in recreational fishing could support jobs, income, and social benefits in Tribal and rural river communities. For the effects on recreational fishing under MO3 (Section 3.11.3.5) along the Lower Snake River below Lewiston, the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River) as an indicator for fishing visitation in this reach. The EIS describes that the visitation in the long-term in the lower Snake River, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting outfitting and tourism businesses in the region. However, there is uncertainty around recreational fishing visitation in the long-term given the current measures to regulate, protect, and support ESA-listed fish populations and habitat in the region. Other economic beneficial and adverse effects are described in Section 3.10 (Transportation and Navigation), Section 3.11 (Recreation), Section 3.12 (Water Supply), and Section 3.15 (Fisheries). Additional information regarding the effects of the Preferred Alternative can be found in Chapter 7.
5614	1	N/A	N/A	So what I want to say is that your draft Environmental Impact Statement and the Environmental Impact Statement that will be done in September will drive the orcas and the salmon to extinction, unless you change it. The Southern Resident killer whales are starving; they are going extinct and the salmon are too. And ratepayers are losing money every year. And what are you doing? You're violating the Endangered Species Act and the National Environmental Policy Act.	SRKW analysis is described in the EIS including in the FEIS Chapter 3 (Vegetation, Wetlands, Wildlife, and Floodplains) which has been updated for SRKW (Section 3.6.2.6 and Table 3-102) and FEIS Chapter 7 (Preferred Alternative) with additional analysis information on SRKW and potential increase in forage fish, in particular, Chinook salmon in Section 7.7.8. The co-lead agencies utilized current high quality information and best available science in its analysis of the effects of the operation, maintenance, and configuration of the CRS projects. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not require the co-lead agencies to take affirmative actions to recover ESA listed species. The population dynamics of the SRKW are complicated and there are multiple factors that contribute to the overall success of this species. The quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differently from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for the whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall-run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall-run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). Details on the most crucial prey stocks for Southern Resident killer whales, as well as their population and range, is available from several fact sheets and videos available here: https://www.fisheries.noaa.gov/species/killer-whale#spotlight. For more information, visit this NMFS StoryMap on Southern Resident killer whales: https://noaa.maps.arcgis.com/apps/Cascade/index.html?appid=3405e6637bf74e998d4ebe992c54f613. According to NMFS and the EPA, the estimated SRKW population has fluctuated between 67 and 98 whales between 1960 and 2015. The Snake River dams were constructed between 1962 and 1975. The SRKW population increased from a record low in 1970 to its highest population numbers in 1995. Those years were not high years for Snake or Columbia River Chinook Salmon. Ocean conditions between 2011 and 2013 were good years for salmon. At the same time, 2010 and 2013 were good outmigration years. Particularly, 2011 and 2012 were above normal in water supply, which would mean more cooler water was available and there was better survival of salmon, and 2011 through 2014 were higher than normal spill years as well. The combination of outmigration and ocean conditions created improved adult salmon returns. The EIS has analyzed spill as a measure in the Preferred Alternative and determined the overall effect to SRKW to be negligible in large part because hatchery production is consistent between the No Action Alternative and the Preferred Alternative. Because the impact from the Preferred Alternative was determined to be negligible, the agencies determined that existing hatchery production would be sufficient to address any potential impacts to prey availability for SRKWs. The co-lead agencies note the contribution to the prey of SRKW through the continued existence of their respective independent Congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as the Lower Snake River Compensation Plan (other than under MO3), which is administered by USFWS. The Preferred Alternative and Proposed Action in the agencies' biological assessment carry forward certain mitigation measures described in Chapters 2 and 7 of the EIS, which include continued salmon and steelhead hatchery production. The Preferred Alternative has negligible effects to SRKWs as described in Section 7.7.8. The Biological Assessment (BA) describes the effect of the Proposed Action on the SRKW forage species (see BA Section 3.5.1.2, Southern Resident Killer Whale). The proposed changes in operation of the Columbia River System include increased spring spill during the downstream migration of juvenile spring and summer run Chinook salmon. The result of this action includes potential increases of juvenile fish passing through the spillways, reductions in juvenile fish direct and indirect mortality associated with downstream passage, and the Comparative Survival Study (CSS) model predicts increases in numbers of returning adults, which will benefit SRKWs foraging in and around the mouth of the Columbia River in winter and spring (See EIS Section 7.7.8). The CSS model results predicts Snake River Chinook salmon would have relative improvements in smolt-to-adult returns of 35 percent (see EIS Section 7.7.4). The smolt-to-adult return ratio (SAR) is the rate at which of a group of fish survive from their smolt life stage to a defined ending point where they return as adults. While recovery targets will require more than just the efforts of federal agencies, the CSS models indicate the potential for SARs of Snake River Chinook salmon and steelhead to increase to levels that could approach recovery targets set by the Northwest Power and Conservation Council. The BA, also consistent with the EIS, acknowledges past improvements to the configuration and operation of the Columbia River System, additional improvements to the environmental baseline as a result of completed estuary and tributary habitat actions, and the prospective non-operational conservation measures proposed in Chapter 2 of the Draft EIS, all contribute towards maintaining and improving Chinook abundance. Relevant conservation measures include, among other things, a commitment to continue funding the conservation and safety net hatchery programs listed in Chapter 2 of the Draft EIS. As discussed above, the agencies will fulfill congressionally authorized hatchery mitigation objectives through the funding of hatchery programs that are operated consistent with their independent hatchery program consultations during the term covered by this consultation. Based on those hatchery program consultations, the production levels associated with congressionally authorized hatchery mitigation objectives will continue, at minimum, to be consistent with levels previously analyzed by NOAA in the system consultations in 2008, 2014, and 2019. For the 2020 ESA consultations, therefore, the agencies expect that collectively, all of the actions described above (substantial modifications to migration conditions designed to benefit key prey species, combined with improvements to Chinook spawning and rearing habitat in the tributaries and Columbia River estuary, and continued hatchery production) ensure that remaining Chinook mortality from all sources in the mainstem migratory corridor will continue to be more than offset, resulting in a net gain in Chinook salmon abundance available as a prey source for SRKW. Finally, the 2019 NMFS Fisheries BiOp included increased spring spill operations that are similar to operations evaluated in CRSO EIS, and NOAA validated that the hatchery production of Chinook salmon mitigates for the impacts of operating the Columbia River System and total mortality through the mainstem migratory corridor from all sources.
5614	2	N/A	N/A	To save the endangered Snake River salmon, the Southern Resident orcas, and ratepayers money, the federal agencies need to address the Columbia River System in a two-tiered process. Tier 1 is an emergency response action for the immediate drawdown and breach of the Lower Granite and Little Goose Dam followed by the remaining two dams in subsequent years. Tier 2 is addressing system operations and further mitigation activities in the rest of the Columbia River basin using the new EIS, assuming that the four lower Snake River dams are breached.	The agencies would have to seek congressional authority for breaching the lower Snake River dams and could not immediately breach the dams. The ESA does not require the co-lead agencies to take affirmative actions to support recovery of ESA-listed species. The Draft EIS evaluated removal of the earthen embankment of the four lower Snake River dams (referenced as Tier 1 in the comment) under Multiple Objective alternative 3 including operations (referenced as Tier 2 in the comment) of the other ten Federal dams in the Columbia River System and mitigation for effects to resources from implementing this alternative.
5616	1	verandafay@gmail.com	N/A	For more than two decades, tribal,federal, state, and independent research has repeatedly confirmed that river restoration that includes dam removal will work. The DEIS itself recognizes that breaching the dams will deliver greater benefits to endangered Snake River fish populations, with greater certainty, than any other option. The draft EIS proposes a plan of action that does not offer a new approach; rather it recommends minor tweaks to a 25-year federal approach that has cost billions of dollars, brought salmon and steelhead today to some of their lowest levels on record, helped push orcas to the edge of extinction, increased uncertainty for communities across the region, and has been invalidated five times consecutively in federal court.	The EIS concluded MO3 would have greater improvement to certain salmon species in the lower Snake River. It did not conclude there was greater certainty of that result in MO3 over any other alternative. The conclusions were based on the ranges predicted in two independent models that have different parameters and limitations in their predictive capabilities. Because of delayed response time in MO3, and the potential severity of the short term effects, MO3 would likely have the most substantial uncertainty in terms of beneficial effects. Different models predict different long-term survival benefits to ESA-listed species from dam breach, benefits that can contribute to recovery. Under the NMFS COMPASS model, juvenile Snake River Spring/Summer Chinook in-river survival would improve by 9.6% due to dam breach, which is a 19% relative increase over the No Action Alternative. The NMFS Lifecycle Model predicts an increase in adult returns of 13.6% for these same fish under MO3 (no latent mortality assumed) relative to the No Action Alternative (from 0.88% to 1%). Results for Snake River steelhead are similar (10% absolute improvement, or 23% relative juvenile survival increase - smolt-to-adult returns (SARs) for steelhead were not modeled). Under the CSS model, juvenile in-river survival for the Snake River Spring/Summer Chinook is predicted to improve by 10.4% due to dam breach, which is an 18% relative increase over the No Action Alternative, while SARs would increase by 115% (from 2% to 4.2% 0.02 to 0.042). The CSS model predicts that Snake River steelhead would see juvenile survival increase by 25.8% which is a 46% relative increase over the No Action Alternative. The CSS model also predicts that SAR increase by 177% (from 1.8% to 5%). Though differing in predictions, both modeling groups predict that MO3 which includes the dam breaching measure is the best CRSO EIS alternative for salmon and steelhead. One simply predicts adult return increases an order of magnitude higher than the other. The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the

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					associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differentially from hatchery and wild fish. Hatchery fish today likely make up most fish consumed by SRKW (NOAA BiOp 2020). The EIS analysis of the Preferred Alternative determined the overall effect to SRKW to be negligible in large part because hatchery production is consistent between the No Action Alternative and the Preferred Alternative. Because the impact from the Preferred Alternative was determined to be negligible, the agencies determined that existing hatchery production would be sufficient to address any potential impacts to prey availability for SRKWs. The co-lead agencies note the contribution to the prey of SRKW through the continued existence of their respective independent congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as the Lower Snake River Compensation Plan, which is administered by U.S. Fish and Wildlife Service. The Preferred Alternative and Proposed Action in the agencies' biological assessment carry forward certain mitigation measures described in Chapters 2 and 7 of the EIS, which include continued salmon and steelhead hatchery production. The Preferred Alternative has negligible effects to SRKWs as described in Section 7.7.8. The final EIS, Vegetation, Wetlands, Wildlife, and Floodplains (Section 3..6.2.6 and Table 3-102) and Chapter 7 (Preferred Alternative), has been updated with additional analysis information on SRKW and potential increase in forage fish, in particular, Chinook salmon (Section 7.7.8).
5616	2	verandafay@gmail.com	N/A	Taxpayers and regional ratepayers have spent $17 billion on five insufficient Columbia Basin salmon plans over 25+ years, but failed to recover a single endangered population.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA listed species. Similarly, the Northwest Power Act does not obligate the co-lead agencies to recover ESA listed species or to ensure restoration of other fish and wildlife. Instead, the co-lead agencies fish and wildlife mitigation responsibilities under Northwest Power Act are more limited primarily, managing and operating FCRPS projects, which includes the CRS, to protect, mitigate, and enhance (as opposed to recover) fish and wildlife affected by such projects in a manner that provides equitable treatment with the projects other authorized purposes and consistent with the purposes of the Act and applicable laws. In addition, Bonneville has a specific responsibility to fund protection, mitigation, and enhancement of fish and wildlife to the extent affected by development and operation of FCRPS projects consistent with the Northwest Power and Conservation Councils (Council) fish and wildlife program, the Councils power plan, and the purposes of the Act, which includes assurance of an adequate, efficient, economical, and reliable power supply. Therefore, contrary to the comments broad assertion, the Northwest Power Act does not make Bonneville responsible for funding the regional effort to recover wild salmon and steelhead. The comments suggestion that approximately $17 billion in fish and wildlife mitigation investment has been ineffective to recover ESA-listed species is misplaced. Those investments delivered the intended results when considered in the appropriate statutory context of the Northwest Power Acts anadromous fish provisions, which call for improved survival of such fish at Federal Columbia River Power System (FCRPS) projects and sufficient flows between the projects to improve production, migration, and survival. For example, as of 2014 this investment had facilitated juvenile dam passage survival of 96% and 93% for spring and summer migrants respectively, see Endangered Species Act Federal Columbia River Power System 2016 Comprehensive Evaluation Section 1, at 17, t.2 (Jan. 2017), a marked improvement compared to when Congress passed the Northwest Power Act and the estimated average juvenile mortality at each mainstem dam and reservoir complex was 15-20% with losses recorded as high as 30%. See Nw. Res. Info. Ctr. v. Nw. Power Planning Council, 35 F.3d 1371, 1374 (9th Cir. 1994) (citing a Sept. 4, 1979 report by U.S. General Accounting Office describing the systems impacts on anadromous fish).
5616	3	verandafay@gmail.com	N/A	The proposed flexible spill plan is not sufficient to save salmon populations, especially because flex spill will not significantly reduce the transit time of juvenile fish, as shown from the implementation of a similar Flex Spill plan in 2019. One of the issues with flex spill is that it provides the Corps with the flexibility to spill when hydro needs are low, which is usually during the day, while salmon migrations are often highest at night, when spill is lower, reducing its beneficial effects.	The spill operation for juvenile fish passage is a significant departure from previous operations, so much so that the Washington and Oregon state water quality standards had to be changed to implement the new spill regime. Based on fish analysis as described in Section 7.7.5, the co-lead agencies anticipate that the Preferred Alternative (PA) would provide substantial benefits to ESA-listed species. For example, the CSS and NMFS COMPASS models predict that power house encounters will be cut in half relative to the No Action Alternative for Snake River spring/summer Chinook salmon. The real uncertainty lies in the hypothesis that reduced powerhouse encounters would result in increased adult returns. To address this uncertainty, the PA includes an adaptive management plan. This plan involves working with regional sovereigns to develop a study to assess the effectiveness of the increased spill regime on adult returns as well as assessment and management of negative unintended consequences, such as long delays of adult migrants, or Total Dissolved Gas-related mortality of juvenile migrants. Please see Appendix R, Part 2, Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS, for additional information.
5616	4	verandafay@gmail.com	N/A	The DEIS says that breaching the dams would have a negligible effect for orca, but the orca scientists have repeatedly advocated for the breaching of the lower four Snake River dams to restore the salmon populations that the orca depend on as their main source of food.	MO3 was considered to have minor (not negligible) effect because of the following facts: The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). The co-lead agencies agree that the quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults form the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differentially from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020). The co-lead agencies note the contribution to the prey of Southern Resident killer whales through the continued existence of their respective independent congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as Lower Snake River Compensation Plan (LSRCP), which is administered by USFWS.
5616	5	verandafay@gmail.com	N/A	The Draft EIS fails to honor our treaty promises. Native tribes are more than simply river stakeholders as they have inherent rights as first people. Native nations also have treaties with the United States government which gives them sovereign status. Indigenous people gave up thousands of acres of their land for the right to hunt and fish in their usual and accustomed places, a promise which has not been kept by the government. Restoring salmon runs honors these agreements and the moral imperative for justice.	Tribal input, concerns, interests, and especially treaty rights were considered throughout the Draft EIS analyses and in the formulation of the Preferred Alternative. Treaty specific information is included in Section 3.17 as well as Chapter 7. The co-lead agencies recognize and respect the legal obligations treaties impose. In terms of honoring our treaty obligations, the co-lead agencies comply with environmental laws and regulations and all other applicable Federal statutory and regulatory requirements, included "Protecting Native American treaty and reserved rights and fulfilling trust obligations for natural and cultural resources throughout the environment affected by the Columbia River System operations" as a purpose in the Purpose and Need Statement in Chapter 1 to ensure treaty obligations were a key consideration of decision making. Moreover, the co-lead agencies are engaging in government-to-government consultation with the Tribes, and several Tribes are cooperating agencies on the CRSO EIS. Tribal input was received during the development of this EIS and Tribal concerns, rights and interests, including treaty rights, were considered and incorporated throughout this EIS. Please see the treaty rights discussed in the Executive Summary, Section 3.16 Cultural Resources, and Section 3.17 Indian Trust Assets, Tribal Perspectives, and Tribal Interests. Tribal consultation is described in Sections 1.5, 3.5, and 3.15; and Chapter 9, Coordination and Public Involvement Process. Analysis shows that the Preferred Alternative would meet the objectives for improving juvenile salmon, adult salmon, resident fish and lamprey. The analysis found ranges in potential effects due to different assumptions included in each of the fish models used in the study. Using the Comparative Survival Study (CSS), Snake River Chinook salmon and steelhead are expected to see relative improvements in smolt-to-adult returns of 35 percent and 28 percent, respectively. The Smolt-to-Adult return ratio (SAR) is the rate at which of a group of fish survive from their smolt life stage to a defined ending point where they return as adult. While achieving long-term recovery targets will require more than just the efforts of Federal agencies, the CSS models indicate the potential for SARs of Snake River Chinook salmon and steelhead to increase to levels that could approach recovery targets set by the Northwest Power and Conservation Council. If latent mortality effects are reduced by passing more juvenile fish through the spillway, the NMFS Lifecycle Model (LCM) also shows that levels of SARs would increase. However, if latent mortality effects are not reduced, or are different than modeled, the LCM predicts that SARs for Snake River spring Chinook salmon may be lower than the No Action Alternative (a range of -7.5 percent to +28 percent change relative to the No Action Alternative) due to reduced opportunities for fish transportation. Results for upper Columbia River stocks are beneficial based on LCM estimates. In-river survival and SARs are anticipated to increase. The CSS model does not currently model upper Columbia fish. The Preferred Alternative also has measures intended to increase upstream passage success and reduce injury and mortality for Pacific lamprey. These measures are proposed structural improvements that include converting extended-length submersible bar screen material to screen material that would not impinge or entangle juvenile lamprey, expanding the network of lamprey passage structures to bypass impediments in fish ladders, changing the design for turbine cooling water strainers, and replacing turbines for safer fish passage. The Preferred Alternative would also meet the objective to improve resident fish. Effects to resident fish vary by region and species, but are generally minor relative to the No Action Alternative.
5626	1	N/A	N/A	The available science suggests removing lower Snake River dams and increasing the spill of other existing dams would significantly advance salmon recovery goals toward healthy levels, which, in turn, will greatly benefit endangered Southern Resident killer whales and other wildlife by increasing prey availability. This action should be coupled with others including establishing passage above blocked areas and aggressive habitat restoration. Timely action is paramount given the perilous state of salmon and killer whales, especially considering the increasing threats from climate change. With this draft EIS, the Action Agencies have failed to take the comprehensive approach that this region desperately needs to move forward. The result is a shortsighted analysis with inadequate conservation measures that doom wild salmon and wildlife. In moving forward, we urge you to work with the regions leaders to develop a comprehensive plan to restore salmon and steelhead for people and for killer whales, invest in fishing and farming communities, honor commitments to Native American tribes, and support the development of a clean, renewable energy system.	The co-lead agencies recognize the desire to continue the conversation across the region about the future of salmon recovery, affordable and reliable clean electricity, Tribal perspectives, and economic vitality for the many people who depend on the CRS for their way of life. The co-lead agencies will be active participants in regional discussions on achieving broader recovery objectives. The Preferred Alternative for long-term system operations, maintenance and configuration of the CRS presented in the draft CRSO EIS is based on todays conditions and environment. Its also important to note that technology is quickly changing, as is the regions dynamic environment and energy market, and the region needs to consider new information and adaptively manage resources. The co-lead agencies recognize that no matter which alternative in the CRSO Draft EIS we choose as the Preferred Alternative, the decision would likely draw criticism from some stakeholders or sovereigns. The region includes stakeholders, sovereigns, and other interested parties with diverse and varied opinions on these very important topics, and many are strong in the belief that their perspective is the best path forward. It is important to keep in mind that factors, both human-caused and natural, that are outside the responsibility and control of the co-lead Federal agencies also contribute to the decline and recovery of fish, and will continue to strongly influence fish and their habitat. Salmon and steelhead have been adversely affected in the Columbia River Basin over the last century by many activities including human population growth, urbanization, introduction of exotic species, overfishing, development of cities and other land uses in the floodplains, water diversions for all purposes, dams, mining, farming, ranching, logging, hatchery production, predation, ocean conditions, and loss of habitat. Operation, configuration and maintenance of the CRS requires mitigation for its effects, and the EIS is not intended or required to serve as an overall salmon recovery plan for the region. All of the human-caused impacts that have contributed to the decline of fish, and how the region should properly and effectively address those impacts, should be part of the continued regional discussion. We look forward to participating in that discussion. Measures to reintroduce salmon above Chief Joseph and Grand Coulee dams were evaluated early in the alternative development process but eliminated from further consideration. Reintroduction is an important and complex, large-scale concept. Its consideration, evaluation, and implementation should involve multiple Tribal, Federal, state, and other entities. A coordinated approach among water users, Tribes, states, multiple Federal agencies, and others would be necessary. To allow so many differing interests to coordinate on such a complex topic, which may include international considerations, a decision-making framework and a series of regional workshops would be necessary just to approach the first step of defining reintroduction objectives. Given the incompatibility of such a wildlife management decision-making framework with an analysis of the operation of the CRS, it is not feasible to proceed with a detailed consideration of reintroduction in this EIS. Moreover, to meaningfully analyze reintroduction as a measure, the details of the proposal would need to be understood well enough to include in hydrologic, water quality, and fish models. That information is not presently available, and development of those details was not possible in the time frame of this NEPA process. Nevertheless, the agencies and interested regional sovereigns are developing a framework to address critical information gaps. This effort was initiated on June 23, 2020 when the co-lead agencies participated in a discussion with regional sovereigns concerning fish management in blocked areas. In terms of this Draft EIS, the co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Recovery of ESA species is the purview of National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (USFWS). This EIS has been developed in consultation with NMFS and USFWS to find an

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					acceptable balance that allows the co-leads to meet congressionally authorized purposes while minimizing impacts to affected ESA species and their habitats. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the CRS. That call, however, is ultimately the role of NMFS and the USFWS. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the EIS objectives) as well as the EIS objectives for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. The Preferred Alternative is also most likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% (the lower end of Northwest Power and Conservation Council's recovery targets for the region) as a result of the Preferred Alternative, as a result of the Preferred Alternative increasing SAR from 2.0% to 2.7% for Chinook, a 35% relative increase. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. To address uncertainty highlighted by the two models, the Preferred Alternative includes working with regional sovereigns to develop a study that assess the effectiveness of the increased spill regime on adult returns as well as assessment and management of adverse unintended consequences, such as long delays of adult migrants, or TDG-related mortality of juvenile migrants. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information. The Preferred Alternative will make a meaningful contribution towards recovery. The EIS analysis of the Preferred Alternative found the overall effect to SRKW to be negligible in large part because hatchery production is consistent between the No Action Alternative and the Preferred Alternative. Because the impact from the Preferred Alternative was determined to be negligible, the agencies determined that existing hatchery production would be sufficient to address any potential impacts to prey availability for SRKWs. The co-lead agencies note the contribution to the prey of SRKW through the continued existence of their respective independent congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as the Lower Snake River Compensation Plan, which is administered by USFWS. The Preferred Alternative and Proposed Action in the agencies' biological assessment carry forward certain mitigation measures described in Chapters 2 and 7 of the EIS, which include continued salmon and steelhead hatchery production. The Preferred Alternative has negligible effects to SRKWs as described in Section 7.7.8. Socioeconomic effects were analyzed in the Draft EIS. Investing in fishing and farming communities, however, is outside the scope of this project and outside the authorities of the co-lead agencies. Tribal input, concerns, interests, and especially treaty rights were considered throughout the Draft EIS analyses and in the formulation of the Preferred Alternative. Treaty specific information is included in Section 3.17 as well as Chapter 7. The treaties bind all parties and are the supreme law of the land. The co-lead agencies recognize and respect that supremacy. In terms of honoring our treaty obligations, the co-lead agencies included "Protecting Native American treaty and reserved rights and fulfilling trust obligations for natural and cultural resources throughout the environment affected by the Columbia River System operations" as a purpose in the Purpose and Need Statement in Chapter 1 to ensure treaty obligations were a key consideration of decision making. The U.S. Government supports the development of alternative forms of energy through many different programs and policies. For example, the Bonneville Power Administration also has a robust conservation program, from which about 90 aMW in conservation are saved a year. Further, when acquiring long-term resources, the Bonneville Power Administration statutory directives give priority to conservation and renewable resources.
5651	1	john_twa@yahoo.com	N/A	It has been stated by BPA that the dams can produce 2650 MW of power for 10 hours per day in the event of a cold snap. This is false. Cold snaps occur in winter. The lower Snake River has low flows in winter. To run all the turbines needed to produce that much power, and still maintain water levels behind each dam to keep barges from grounding, the river would have to flow at 43,500 cfs. Flows in winter on the Snake are around 25,000 cfs. And during the spring fish passage season, dams are managed for fish passage, not power production. See attachment Peaking Power 4-9-2020-1.	Pages 3-906 and 3-907 of the Draft EIS discuss how the ramping capability of the four lower Snake River projects was calculated in the EIS. When flows are insufficient for all turbines to operate full time, the four lower Snake River projects generally operate at a lower generation level for most of the day, but are able to ramp up to provide higher generation levels to help meet demand during the highest-load hours. The dams provide over 2,000 to 2,300 MW of ramping capability in certain months of the year. See draft EIS, Section 3.7.3.5, Lower Snake River Full Replacement at pages 3-905-907 and Table 3-160.
5651	3	john_twa@yahoo.com	N/A	Breaching costs have also been inflated. In this DEIS costs are close to $1 billion dollars. Hydraulic breaching could be done safely, effectively, and at a much lower cost ($400M). It has been used safely at other dams in the past. Instead, the Army Corps came up with their own extremely elaborate, overly inflated method to remove the dams. See attachment Summary 2016 Breach on Lower Granite Dam.	The method proposed for breaching the lower Snake River Dams is based on the extensive analysis of breaching completed for the 2002 Feasibility Study, but refined to reflect information learned from updated hydraulic modeling. The 2016 breaching methodology also reflects lessons regarding methods, sediment movement, and river recovery learned from other dam-breaching efforts undertaken in the United States. The methodology described in the Draft EIS is intended to minimize impacts on ESA-listed fish and other aquatic organisms, on the built environment, and to provide maximum protection to human health and safety. Regarding costs, for the purposes of this EIS, the 2002 cost estimates were adjusted to reflect the proposed plan (i.e., some features such as training walls and levees were removed as described in the updated methodology) and escalated to 2019 price levels to account for inflation. The co-lead agencies would continue to adhere to Federal standards for dam and levee safety and human life safety considerations. In the event that breaching of the lower Snake River dams is recommended for implementation, additional analysis would be conducted to refine methods and costs.
5651	4	john_twa@yahoo.com	N/A	he need for the power that the lower Snake River dams produce has also been inflated. If you look at BPA's 2018 FERC 714 filing, you will see that BPA exported 4 to 5 times as much power to California utilities as the lower Snake River dams produced that year. So why on God's green earth would BPA need to replace that power with nuclear plants, coal fired plants, or natural gas fired plants costing hundreds of millions of dollars? All they have to do is lower exports of power. Problem solved. Idaho's Snake River salmon should not be sacrificed to keep the lights on in California. See Part II, Schedule 5 in attached file FERC714 2018 Masterx.	The Federal Energy Regulatory Commission (FERC) Form 714 is not a measure of Bonneville's resource adequacy or load resource balance. Rather, Form 714 gathers utility operating and planning information for the purpose of evaluating utility mergers and dispositions, jurisdictional services, jurisdictional rates, energy market oversight, and wholesale market changes and competitive force. See Electronic Filing of FERC Form No. 714, 119 FERC 61,048 (April 19, 2007). As such, Form 714 gathers all loads and resources in the Bonneville control area, including non-Federal resources and non-Federal loads. Thus, any exports seen in the Form 714 are not directly attributed to any specific resource. The Form also omits Bonneville resources and Bonneville loads that are not in Bonneville's Balancing Authority Area, such as loads in Seattle, Tacoma, and parts of Oregon, and southeast Idaho, and Federal resources located in Idaho and Oregon. The EIS uses a more robust measure of power system reliability and resilience than the average MWs approach suggested by the commenter. Specifically, the EIS uses the loss-of-load probability (LOLP) metric utilized by the NW Power and Conservation Council (Council). See EIS Section 3.7.2.2; Appendix H Power and Transmission, at section 2.1; Appendix I Hydroregulation, section 2.4.4. The LOLP metric evaluates the adequacy of power supply in the region to meet firm power needs under various conditions. It is measured in terms of a percentage, and represents the likelihood of a year having one or more blackouts. See Appendix H Power and Transmission at section 2.1. The current LOLP under the No Action Alternative is 6.6 percent; this is equivalent to a year with one or more blackouts in every 15 years. The EIS uses this LOLP level as the benchmark from which to gauge the other Multi-Objective Alternatives. The EIS analysis focuses on primary technologies identified by the Council in their Seventh Power Plan (page 13-5) that are deemed proven, commercially available, and deployable on a large enough scale in the Northwest. Contrary to the comment, Bonneville did not include nuclear power or coal-fired power plants as potential replacement resources as they are not considered primary technologies by the Council. The analysis does consider natural gas as a potential conventional least-cost portfolio as this is considered a primary resource.
5651	5	john_twa@yahoo.com	N/A	And lastly, the effects on the farmers has been inflated. The DEIS states that loss of irrigation from Ice Harbor reservoir would cause hundreds of millions of dollars in losses. Independent studies have shown that irrigation could continue with an investment of $20 million in upgraded pumping equipment. There is no need for the farmers to suffer any loss of irrigation water. The Corps likes doing irrigation projects, so let them do this one. See attachment Irrigation Impacts LSR Dams The other inflated effect on farmers is the cost of transportation by rail. The DEIS states that shipping cost for farmers would rise 25 50% based on the opinion of some stakeholders. Without cost estimate modeling and supporting data, this is mere guessing. I have spoken to farmers in this region and asked about shipping costs during times that the lower Snake River locks were down for maintenance. Did they pay more for shipping during this time? No, they did not. Rail and truck can be competitive with barging.	This EIS discusses engineering solutions, including pipeline extensions, in Section 3.12.3. MO3 Region C discussion begins on page 3-1267, line 3244, in the Draft EIS and is also found in Appendix N. The EIS draws upon the 2002 Lower Snake River Juvenile Salmon Migration Feasibility Report and Environmental Impact Statement which concluded that modifying the existing pump system was cost-prohibitive. As discussed in Section 3.12.3, for MO3, in Region C this analysis assumes that pumps are unable to deliver water to an estimated 47,926 acres.
5651	6	john_twa@yahoo.com	N/A	One thing not addressed in this DEIS are the methane emissions from the reservoirs created by these four dams. The Army Corps of Engineers has attempted many times to shrug off the methane emissions from these dams. There is new evidence showing that their assumption (with no analysis to back it up) that the reservoirs do not have the right conditions for methane generation have been wrong. It is time for them to acknowledge that methane emissions do occur, they have been measured at Lower Monumental Dam, and they could be an issue. See PNNL attachment Methane Emissions in Temperate Hydropower Reservoirs and Implications for US Policy on Greenhouse Gas Emissions.	Appendix G, Chapter 5, of the Draft EIS details the assessment of reservoir methane emissions from the CRS projects. The findings are summarized in Section 3.8. This assessment finds that reservoir characteristics and management substantially influence methane emissions. A 2016 study developed by the Corps Walla Walla District concluded that for the relatively clean reservoirs of the Federal Columbia River Power System, which include the lower Snake River dams, conditions for low dissolved oxygen concentrations are not prevalent; thus methane gas is generally not an issue. Additionally, in 2017, the Northwest Power and Conservation Council found that data on these sites were insufficient to estimate the reservoir methane emissions specifically for the Columbia River hydrosystem, but that methane emissions at high levels are not likely due to the lower organic and nutrient loads to the system, and higher dissolved oxygen content. The EIS describes that emerging technologies will allow for better measuring and understanding the effects of reservoir methane emissions from CRS projects, including the four lower Snake River dams.
5680	1	evansdavid@frontier.com	N/A	If people want to help the salmon runs then clean up Puget Sound, stop all commercial salmon fishing, and expand fish hatcheries and the funding for them.	Puget Sound, commercial fishing, and hatchery expansion are outside of the scope of this EIS. This EIS focuses on the operation, maintenance, and configuration of the Columbia River System federal dams.
5684	1	billwarthur@gmail.com	N/A	Taxpayers and ratepayers have invested over $16 Billion over the past thirty years to attempt to protect these remaining wild salmon and steelhead runs.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA listed species. Similarly, the Northwest Power Act does not obligate the co-lead agencies to recover ESA listed species or to ensure restoration of other fish and wildlife. Instead, the co-lead agencies fish and wildlife mitigation responsibilities under Northwest Power Act are more limited primarily, managing and operating FCRPS projects, which includes the CRS, to protect, mitigate, and enhance (as opposed to recover) fish and wildlife affected by such projects in a manner that provides equitable treatment with the projects other authorized purposes and consistent with the purposes of the Act and applicable laws. In addition, Bonneville has a specific responsibility to fund protection, mitigation, and enhancement of fish and wildlife to the extent affected by development and operation of FCRPS projects consistent with the Northwest Power and Conservation Councils (Council) fish and wildlife program, the Councils power plan, and the purposes of the Act, which includes assurance of an adequate, efficient, economical, and reliable power supply. Therefore, contrary to the comments broad assertion, the Northwest Power Act does not make Bonneville responsible for funding the regional effort to recover wild salmon and steelhead. Investments through fish and wildlife programs have delivered the intended results when considered in the appropriate statutory context of the Northwest Power Acts anadromous fish provisions which call for improved survival of such fish at Federal Columbia River Power System (FCRPS) projects and sufficient flows between the projects to improve production, migration, and survival. For example, as of 2014 this investment had facilitated juvenile dam passage survival of 96% and 93% for spring and summer migrants respectively, see Endangered Species Act Federal Columbia River Power System 2016 Comprehensive Evaluation, Section 1, at 17, t.2 (Jan. 2017), a marked improvement compared to when Congress passed the Northwest Power Act and the estimated average juvenile mortality at each mainstem dam and reservoir complex was 15-20% with losses recorded as high as 30%. See Nw. Res. Info. Ctr. v. Nw. Power Planning Council, 35 F.3d 1371, 1374 (9th Cir. 1994) (citing a Sept. 4, 1979 report by U.S. General Accounting Office describing the systems impacts on anadromous fish).
5684	2	billwarthur@gmail.com	N/A	The DEIS serves as stark reminder that the federal agencies, if left to their own accord, will continue to imperil our fish, orca and communities and perpetuate the cycle of failure and litigation. That is why our region needs a new fresh approach that enables stakeholders, agencies, and political leaders to work together to forge a lasting durable solution that works for everyone.	The co-lead agencies must operate the Columbia River System for multiple, sometimes conflicting, purposes while complying with Section 7(a)(2) of the Endangered Species Act. There are many factors outside the control of the co-lead agencies that effect salmonid populations. Each of the dams on the lower Snake and lower Columbia rivers allow for a high percentage of adult and juvenile fish to bypass the dams. See Figure ES-4 in Executive Summary and a more detailed discussion in Section 3.5.2.3, Anadromous Fish, of the EIS. The co-lead agencies are committed to ongoing coordination with stakeholders through a variety of forums.
5684	3	billwarthur@gmail.com	N/A	The DEIS Alternatives and Analysis is Inadequate: The range of alternative is limited, inadequate, and fails to provide the hard look and meaningful comparison of the environmental consequences of all alternatives as intended by the National Environmental Policy Act. The federal agencies also made a decision in the statement of purpose and need to select and unreasonably narrow and inadequate goal for conservation of wild salmon and steelhead. The ESA defines conservation as returning a species to a self-supporting and sustainable condition in its native ecosystem. Yet the federal agencies arbitrarily decide to narrow their focus to only assuring their actions do notreduce appreciably the likelihood of both the survival and recovery of a listed species... NEPA does permit this kind of arbitrary limit to performing analysis on the effects of the alternatives to this narrow scope of the ESA	As stated in Chapter 2, the co-lead agencies developed the reasonable range of alternatives to meet the objectives and the Purpose and Need Statement. The purpose and need describes the congressionally authorized purposes of the system, which include hydropower generation, inland navigation, and irrigation, among others as well as the legal and institutional purposes the agencies evaluated the alternatives against. Sections 7.3 and 7.4 of the EIS provide a descriptive comparison of the alternatives evaluated. This information is also provided in Table 7-1, Evaluation of Alternatives in the Draft EIS and Table 7-55. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy species designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Recovery of ESA-listed salmon is outside of the authority of the co-lead agencies, and was not an objective of this EIS. Recovery of ESA-listed species is the purview of National Marine Fisheries Service (NMFS) and the U.S. Fish and

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				without a fully rational explanation. However, the federal agencies do not provide any such rational explanation. So, once again, the federal agencies are selecting a goal that does not achieve recovery and very likely doesnt avoid extinction or jeopardy. Additionally, other statutes require even more of the agencies. Specifically, the Northwest Power and Conservation Act requires conservation and rebuilding of salmon and steelhead populations, e.g. adequately protect, mitigate, and enhance fish and wildlife, including related spawning grounds and habitat. To honor our treaties with Tribes of the Columbia Basin also requires healthy harvestable fish runs. The federal agencies never explain why these statutory and treaty requirements are not relevant to the purpose and need for the CRSO EIS or examine how or to what extent which of the alternatives they do consider would meet these requirements.	Wildlife Service (USFWS). This EIS has been developed in consultation with National Marine Fisheries Service (NMFS) and U.S. Fish and Wildlife Service (USFWS) to find an acceptable balance that allows the co-lead agencies to meet the Purpose and Need Statement while minimizing impacts to affected ESA-listed species and their habitats. Both human-caused and natural factors that are outside the responsibility and control of the co-lead Federal agencies, also contribute to the decline and recovery of fish, and will continue to strongly influence fish and their habitat. Salmon and steelhead have been adversely affected in the Columbia River Basin over the last century by many activities including human population growth, urbanization, introduction of exotic species, overfishing, development of cities and other land uses in the floodplains, water diversions for all purposes, dams, mining, farming, ranching, logging, hatchery production, predation, ocean conditions, and loss of habitat. Operation, configuration and maintenance of the CRS requires mitigation for its effects, but the EIS is not intended or required to serve as an overall salmon recovery plan for the region. The Pacific Northwest Electric Power and Conservation Act (Northwest Power Act) defines conservation, and it means any reduction in electric power consumption as a result of increases in the efficiency of energy use, production, or distribution. 16 U.S.C. 839a(3). The term conservation is not used in any provision of the Act to describe mandates regarding fish and wildlife. Similarly, the Act does not use the terms rebuild or rebuilding; they do not apply to the agencies statutory compliance. While the Northwest Power and Conservation Council and others use the terms conservation, rebuilding, and restoring when discussing fish and wildlife mitigation, the Northwest Power Acts legal mandates do not. Instead, the Act consistently uses the terms protect, mitigate and enhance when discussing fish and wildlife. 16 U.S.C. 839 b(h)(1), (2), (5), (10), and (11). For example, a purpose of the Act is to protect, mitigate and enhance the fish and wildlife, including related spawning grounds and habitat, of the Columbia River and its tributaries, particularly anadromous fish which are of significant importance to the social and economic well-being of the Pacific Northwest and the Nation and which are dependent on suitable environmental conditions substantially obtainable from the management and operation of Federal Columbia River Power System and other power generating facilities on the Columbia River and its tributaries. 16 U.S.C. 839(6). This language is also reflected in the Purpose and Need Statement for the EIS. Regarding treaties, treaty specific information is included in Section 3.17 as well as Chapter 7. As stated in that section, the treaties bind all parties and are the supreme law of the land. The co-lead agencies recognize and respect that supremacy. In terms of honoring our treaty obligations, the co-lead agencies included "Protecting Native American treaty and reserved rights and fulfilling trust obligations for natural and cultural resources throughout the environment affected by the Columbia River System operations" as a purpose in the Purpose and Need statement in Chapter 1 to ensure treaty obligations were a key consideration of decision making. Tribal input was received during the development of the EIS and Tribal concerns, rights and interests, including treaty rights, were considered and incorporated throughout the EIS. Please see treaty rights discussed in the Executive Summary, Section 3.16 Cultural Resources, and Section 3.17 Indian Trust Assets, Tribal Perspectives, and Tribal Interests. Tribal consultation is described in Sections 1.5, 3.5, and 3.15; and Chapter 9.
5684	4	billwarthur@gmail.com	N/A	Of the alternatives identified only MO3 (Dam Removal) and MO4 (spill to 125%) have any real potential for recovering salmon and steelhead and meeting the requirements of law. The No Action Alternative which is used for baseline comparison was found inadequate and illegal by the Court in 2016. The alternatives, other the Preferred Alternative and MO3 and MO4, provide even lower benefits for salmon recovery.	The CRSO EIS documents the assessment of benefits and impacts of changes to the operations of the 14 Federal projects of the CRS. Using a multi-disciplinary approach and with the coordination and consideration of cooperating agencies and tribes, as well as public stakeholder input, and by using high-quality information, the co-lead agencies developed the Preferred Alternative (PA). The PA meets the Purpose and Need Statement for the system operations in the region, as well as most of the EIS objectives. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The PA is predicted to benefit ESA-listed juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. The PA also meets the EIS objectives including those for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams, because the PA is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. The effects of delayed mortality are discussed throughout the EIS analysis for each alternative and current high quality data and the best available scientific information was used for this analysis. Based on analysis by the CSS, SARs associated with population declines (SARs of less than 1%) have the potential to be greatly reduced under the Preferred Alternative, and on average, SARs are expected to be well above 2.0% for Snake River spring Chinook salmon and steelhead. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin.
5684	5	billwarthur@gmail.com	N/A	The Preferred Alternative (PAA) is essentially the flex spill agreement that was agreed to by the states of Washington and Oregon, the Nez Perce Tribe, and BPA. At the time of the agreement it was put forward as an interim, short-term, measure not a long-term solution. We supported the flex spill agreement as a short-term action that provides some benefit to young fish migrating downstream. It was never intended to be a long-term solution and indeed it not sufficient to recovery our endangered salmon and steelhead. The CSS evaluation of the PAA demonstrated that the Smolt to Adult Returns (SARs) it would produce would be inadequate for recovery. The SARs are the consistent standard that must be used to evaluate the relative effectiveness between alternatives rather than selected metrics that only look at potential benefit for smolts passing from the forebay to the tailrace of the dams themselves. The Northwest Power and Conservation Council have selected SARs as the key metric for recovery and identified 4% SAR as the objective to achieve. A 2% SAR means we are simply at replacement level for our depleted and endangered runs of salmon and steelhead. The Chinook of the Snake River hover near 1% meaning a population decline over time with the risk of genetic and geographic extirpation. SARs of 4% and above demonstrate a trend toward recovery. Only MO3 (dam removal) showed an ability to achieve SARs of this level with any degree of consistency. MO4 (higher spill) also showed beneficial SARs but not as consistent or strong as dam removal. The PAA seldom achieved any consistent SARs within the magnitude of recovery. Not surprisingly the DEIS identified MO3 as providing the most benefit for recovering salmon and steelhead. Then chose not to select this option based on an inaccurate assessment of costs and benefits. However, the conclusion of MO3 (dam removal) is consistent, and builds on the abundant evidence, of prior analysis regarding the benefit for salmon recovery of dam removal. In 1998 The Plan for Analyzing and Testing Hypotheses (PATH), commissioned by the federal agencies, concluded that a natural river (breaching the dams) was the only option that would high probability for recovering salmon. This option had the greatest certainty for success and lowest risk of failure. In its 2000 Biological Opinion for operation of the dams on the Snake and Columbia Rivers, NOAA Fisheries also concluded that: breaching the four lower Snake River dams would provide more certainty of long-term survival and recovery than would other measures. Additional reports and studies in the intervening years have also pointed to the lethal impacts of the dams and slack water on the lower Snake River for salmon and steelhead. And, the Cumulative Survival Study repost (CSS) of 2019 predicts a two to three fold increase in salmon abundance with removal of the four lower Snake River dams. And, a potential for a four-fold increase if dam removal is combined with maximum spill over the lower Columbia River dams. A new alternative should be formulated and evaluated that is a combination of MO3 and MO4. The CSS 2017 Annual report looked at a combination of removing the four lower Snake River dams and spilling to 125% at the four lower Columbia River dams. This alternative was also presented to the CRSO-EIS Fish Technical Team on September 21, 2017 by the CSS Committee. The initial CSS analysis indicated that this combination of dam removal and spill produced the highest SARs leading to recovery yet the federal agencies did not consider it in the DEIS. This is a glaring failure and must be remedied.	The co-lead agencies understand that the 2019-2021 Spill Operation Agreement was not initially identified as a long-term solution at the time it was developed. After the alternatives were initially developed, the implementation of spring spill operations in 2018 and the development of the fish operations plan for 2019 led to new information regarding spill for juvenile fish passage to benefit downstream migration. With this information, the co-lead agencies modified the juvenile fish spill operation for the Preferred Alternative (PA) using the analysis from the range of spill levels evaluated in the MOs. The intent was to create an opportunity for a major potential benefit to salmon and steelhead through increased spill, as indicated by the CSS model, while avoiding many of the adverse effects to power generation and reliability associated with juvenile spill operations analyzed in Multiple Objective alternative 4 (MO4). The primary method to accomplish this in the PA is a spring juvenile fish passage spill operation that spills more for fish passage when power generation is less valuable and spills less when power generation is more valuable. The PA also acknowledges the range of potential outcomes predicted by the models used to estimate impacts to anadromous fish, and therefore includes a study to evaluate the potential benefits and unintended consequences of higher spill levels. The underlying principles and model of constructive collaboration established through the 2019-2021 Spill Operation Agreement have been carried forward in the PA. The spill operation for juvenile fish passage is a significant departure from previous operations, so much so that the Washington and Oregon state water quality standards had to be changed to implement the new spill regime. Based on the EIS analysis of the fish resources as described in Section 7.7.4, the co-lead agencies anticipate that the PA would provide substantial benefits to ESA-listed species. For example, the CSS and NMFS COMPASS models predict that powerhouse encounters will be cut in half relative to the No Action Alternative for Snake River spring/summer Chinook salmon. The real uncertainty lies in the hypothesis that reduced powerhouse encounters will result in increased adult returns. To address this uncertainty, the PA includes an adaptive management plan. This plan involves working with regional sovereigns to develop a study to assess the effectiveness of the increased spill regime on adult returns as well as assessment and management of adverse unintended consequences, such as long delays of adult migrants, or Total Dissolved Gas-related mortality of juvenile migrants. The EIS concluded that MO3 would have greater improvement to certain salmonid species in the lower Snake River. It did not conclude there was greater certainty of that result in MO3 over any other alternative. The conclusions were based on the ranges predicted in two independent models that have different parameters and limitations in their predictive capabilities. Because of delayed response time in MO3, and the severity of the short-term effects, MO3 would likely have the most uncertainty. With respect to the PA, the CSS model predicts that average Smolt-to-Adult return (SAR) rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% (the lower end of Northwest Power and Conservation Council's recovery targets for the region). The NMFS COMPASS and Lifecycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The PA will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. Moreover, the agencies used current, high-quality modeling information consistent with NEPA and did not rely on information contained in the Plan for Analyzing and Testing Hypotheses (PATH) Weight of Evidence Report (ESSA Technologies 1998), which is over 20 years old and does not reflect current CRS operations. The commenter requests information about the potential benefits to salmonids from including an alternative that includes the dam breaching measure and spill up to 125% TDG at the four lower Columbia River projects. However, combining these measure would not be a reasonable alternative. Based on the power impacts under MO3 and Multiple Objective alternative 4 (MO4) discussed in Section 3.7, individually each caused large loss-of-load probability (LOLP) results (i.e., increased incidence of blackouts). Without major addition of new resources, MO3 would result in power shortages in about one in every seven years. MO4 would produce power shortages in about one in every four years. If MO4 were implemented, in addition to breaching the four lower Snake River projects as called for in MO3, then the LOLP would be even higher, with power shortages potentially occurring almost every year. Additionally, if these MOs were combined, in 5% of the years, the power shortages would average close to 1,000 MW in early August when the region might be experiencing a heatwave with particularly high demand for air conditioning. For perspective, 1,000 aMW is about the average amount of power consumed by Seattle City Light. As shown in Section 3.7, MO3 causes an increase in power reliability concerns in the winter and the summer. MO4 increases power reliability concerns in the summer. Thus, the combination has the largest impact during the summer. The cost of zero-carbon replacement resources for MO3 and MO4 individually are up to $1 billion/year. Resource replacements and associated transmission interconnections for the combination of MO3 and MO4 would be higher, though not likely as high as the sum of the two MOs individually. Assuming that the replacement resources consist largely of wind, solar, and batteries, this would require well over 50 square miles of solar power (more than two and a half times the size of Crater Lake), large areas of new wind generation, and unprecedented amounts of batteries (more batteries in the Northwest alone than the total projection of batteries expected in the entire U.S. by 2023 per the Energy Information Administration). In addition, the reduced generation capability under MO3, particularly throughout the summer, in combination with the impacts of the measures in MO4 and the uncertainty about the characteristics of replacement resources, would result in less capability to provide voltage support and dynamic stability for transmission system reliability than under MO3 or MO4 individually. Thus, combining MO4 with breaching the four lower Snake River projects, would produce unreasonable power and transmission reliability impacts, and it is highly speculative that replacement resources could be sited, permitted and built to address these impacts. Thus, this is not a reasonable alternative that the co-lead agencies analyzed in detailed study. The co-lead agencies expect that the suite of operational, maintenance, and structural measures included in the Preferred Alternative would allow them to meet the Purpose and Need Statement and the EIS objectives, including those to benefit ESA-listed species.
5684	6	billwarthur@gmail.com	N/A	The DEIS Fails to Adequately Evaluate Energy Replacement for Dam Removal The DEIS is woefully inadequate in evaluating the socio-economic aspects of dam removal and reasonably exploring and analyzing how to mitigate potential impacts. Mostly the DEIS identifies impacts, often with unreasonably high costs associated with them, and then fails to perform a serious (or in some cases any) analysis of how to effectively mitigate the impacts.	The EIS analyzed two resource portfolios to replace the power output of the four lower Snake River dams, both of which maintain regional power system reliability. The EIS finds that replacing the hydropower generation of the four lower Snake River dams with renewable resources would increase power costs. See Draft Section 3.7.3.5 of the EIS, Potential Replacement Resources and Associated Costs.
5684	7	billwarthur@gmail.com	N/A	The DEIS also fails to evaluate the benefits of dam removal and a restored river and salmon runs to inland sport fishing communities and coastal fisheries. Thus it fails to provide a balanced approach to evaluating costs and benefits of dam breaching. A particularly glaring example of the failure to provide a reasonable analysis is the treatment of replacing the lost power if the lower Snake River dams are removed. The good news is that the federal agencies confirm that you can breach the dams and replace the power with clean energy and maintain electric system reliability. And, as previously stated, the DEIS also shows that dam removal provides the best opportunity for restoring our salmon and steelhead runs. However, the DEIS analysis of replacing the power from the dams is woefully inadequate, fails to meet industry standards, and results in costs that are hugely inflated and not realistic. The energy analysis does a huge disservice to the region and public in making reasoned decisions on the benefits of dam removal and the ability to replace the lost energy. Key elements contributing to this failure are: Decision to only look at solar and storage batteries as the replacement portfolio. There is no effort to look at the full range of clean energy options (energy efficiency, demand response, wind etc.) and identify a portfolio of least cost options. There is no effort to optimize the possible replacement resource portfolios. Selection of an arbitrary and unrealistic date of 2022 as the implementation date. Using a static, near-term, year rather than a multi-year analysis of the replacement portfolio needlessly drives up the costs. The NWPCC and utilities across the Northwest would perform an Integrated Resource Planning (IRP) approach and examine energy and capacity needs over a span of 20 years, explore demand requirements and assess resource options, then test and optimize combinations of possible replacement	The EIS recognizes the social and economic values associated with salmon although these values are not all expressed in monetary terms. Section 3.15 provides a discussion of the value of fisheries (commercial and subsistence) associated with salmon, as well as passive-use values that people hold for these fish. Section 3.11 describes recreational values associated with the fish. Given uncertainty associated with the specific effects of the alternatives on overall fish abundance, these values are described qualitatively. Additionally, Section 3.17 provides information on the cultural significance of the salmon to regional Tribes. The EIS used the most recent data from the Northwest Power and Conservation Council's (Council) Seventh Power plan and Mid-Term Update to analyze regional reliability, the need for replacement resources, and the potential for additional energy efficiency. The Councils Seventh Power Plan was issued in February 2016 and the Mid-Term Update was issued in February 2019. Draft EIS, Section 3.7.3.1, Step 3: Determine Need for Potential Replacement Resources and Associated Costs, at page 3-821; and Appendix H, Power and Transmission, Section 2.2. Contrary to statements in the comment, the EIS replacement power analysis did not solely look at solar and storage as the replacement portfolio. The EIS examined the full range of resources defined as primary by the Council. See Draft EIS, Section 3.7.3.1, Step 3: Determine Need for Potential Replacement Resources and Associated Costs, at page 3-821. This included solar, wind, natural gas, batteries, demand response and combinations of solar and wind. See Draft EIS, Section 3.7.3.5, Potential Replacement Resources And Associated Costs, at pages 3-904-905. For all portfolios, the most cost-effective was natural gas while the most cost-effective renewable option was solar. See Draft EIS, Section 3.7.3.5, Table 3-166. Wind was not selected because of its lower reliability benefit-to-cost ratio. However, wind was selected as an additional potential resource in the rate sensitivity analysis for replacing the capability of the four lower Snake River dams. See Draft EIS, Section 3.7.3.5, Potential Replacement Resources And Associated Costs, at pages 3-907-908. Based on responses to public comments, the Final EIS contains an expanded description of how the potential replacement resource portfolios were selected for the EIS. See Appendix H, Section 2.2 in the Final EIS.

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				resources. Costs chosen for clean energy resources are much higher than current prices as evidenced by recent responses to RFPs. This is further skewed by using the single year 2022 implementation date thus eliminating the ongoing decline in cost curves for renewable energy. The Northwest Energy Coalition (NWEC) in 2018 commissioned a study by Energy Strategies to determine the feasibility of replacing the power and services provided the by the lower Snake River dams with clean energy resources. The NWEC study using the same modeling tools as used by the regions power planners conducted a comparative analysis that the DEIS failed to do. Their analysis found that with a mix of efficiency, demand response, wind and solar power you could replace the energy from the dams without any loss in reliability and at less than one-third the cost suggested by the DEIS. The NWEC analysis did not optimize the resource portfolio but suggested that that such an evaluation be done. Performing such an optimization analysis along with the ongoing decline in the costs of renewable resources would undoubtedly result in even a lower cost replacement strategy. The failure of the DEIS to perform this kind of analysis and use a standard industry IRP approach is both puzzling and deeply disappointing. This should be rectified in order to provide the region and decision-makers valid information on the cost of power replacement.	The implementation date considered in the power analysis was selected for consistency with the implementation date used by the cost and implementation analysis (see Section 3.19 and Appendix Q). Actual replacement costs for the four lower Snake River dams would depend on the resource acquisition processes by Bonneville or other regional utilities to replace the lost capability. Those processes would review the same type of resources considered in the EIS, albeit in likely different combinations (e.g., natural gas paired with solar and battery). The EIS approach to resource selection was not designed to develop a single pinpoint, optimized resource portfolio. Instead, the EIS examined a broad range of resource options and established bookend options for replacing the power from the four lower Snake River dams. Those options included a least-cost resource portfolio (natural gas) and a zero-carbon option (solar with batteries). See Draft EIS, Section 3.7.3.5, Potential Replacement Resources And Associated Costs, at pages 3-904-905. As described in Appendix H, Power and Transmission, Section 2.4, and Section 3.7.3.5 of the Draft EIS, the EIS considered the Northwest Energy Coalition study cited by the commenter, but that study is not directly comparable with the EIS. This is due to a variety of reasons including that the EIS has a broader scope and relies on more recent regional load and resource availability and cost data. The commenter suggests or questions why a competitive resource review, also known as an integrated resource plan (IRP), was not performed as part of the EIS analysis. An IRP is a resource planning tool that utilities use to plan for future resource builds and acquisitions to fulfill the utility's specific needs over a certain planning horizon, typically 20 years. Some utilities are required to conduct an IRP by their local or state utility commissions. Bonneville is not required to perform an IRP, but does perform resource planning to inform its decisions, including for this EIS. There are many different methods and tools that are used by utilities when performing an IRP. Furthermore, the output of an IRP is often driven by state energy policies, such as carbon emission requirements. Even if an IRP optimizes resource portfolios, the real costs of that portfolio are not known until a competitive request-for-proposal solicitation can be completed and evaluated. As explained in Draft EIS Chapter 3, Section 3.7.3.1, Base Case Methodology and Cost Sensitivities Analysis, the EIS analysis evaluates the power impacts of the Multiple Objective alternatives (MOs) on regional power system reliability, as measured through loss-of-load probability (LOLP). The regional scope of the EIS is necessary because the impacts of the MOs on power system reliability and costs transcend individual utilities and states. Thus, for example, the EIS addresses the cost impacts of replacement resources for each MO regardless of whether Bonneville pays for the replacement resources. If Bonneville does not replace the lost capability caused by an MO, regional reliability would still be worse than the No Action Alternative and above the Councils 5% standard, leaving other regional utilities to acquire the necessary resources. The EIS addressed the regional nature of the costs and resources needed to maintain power system reliability under the MOs. The EIS analysis looked at all potential resources as identified by the Northwest Power and Conservation Council. Specifically, the EIS used data from the resources in the Councils Seventh Power Plan (2016) and Mid-Term Update (2019) to develop various resource portfolios. The cost of batteries came from more recent utility IRP data from 2018 and 2019 instead of 2013 data used in the Councils Seventh Power Plan. Seven trial resource portfolios, one carbon and six carbon-free were produced for each MO and then ranked based on their ability to cost-effectively reduce the LOLP. From these portfolios, the EIS identified the two least-cost portfolios that reduced LOLP to the No Action Alternative levels. These least-cost portfolios include a (1) conventional resource (natural gas), and (2) a least-cost portfolio using zero-carbon resources (primarily solar). These resource portfolios represent a range of least-cost resources that could be available to restore regional reliability to the No Action Alternative level. Based on responses to public comments, the Final EIS contains an expanded description of how the potential replacement resource portfolios were selected for the EIS. See Appendix H, Section 2.2 in the Final EIS. To further address concerns about potential reductions in resource costs, publicly released draft information, such as updated prices for solar and battery storage, from development of the 8th Power Plan is included as rate sensitivities in the Final EIS. The Final EIS will include the de-escalating cost curves prepared by the National Renewable Energy Laboratory (NREL) that will be used by the Council in the 8th Power Plan.
5684	8	billwarthur@gmail.com	N/A	DEIS Does Not Evaluate the Alternatives and the Impacts of Climate Change. The DEIS has discussion of climate change in general (Chapter 4) and includes additional discussion in several other places. However, the DEIS does not analyze climate change and how it would impact the effectiveness of any of the alternatives. This is a serious and significant failure of the DEIS and, once again, leave reviewers in the dark about what the implications are for fish recovery in a climate change world. For example, the federal agencies acknowledge that a warming climate could cause moderate to severe declines in salmon and steelhead populations (DEIS 4-33). The federal agencies further acknowledge that a changing climate will most likely increase the adverse effects and lower the benefits from the alternatives. But there is no attempt to analyze these effects. There is no attempt to discern how much climate change may modify the projected results for improving the conditions for smolts and adult salmon and steelhead. Most important there is no effort to evaluate which of the alternatives may have the best ability to address salmon needs in a climate change world. There is reason to believe that removing the dams and restoring the Snake River will reduce water temperatures. Nor does the DEIS evaluate how the cool water that is delivered from Dworshak dam may change or diminish in benefit if the dams are or arent removed? How would removing the dams benefit the reduction in invasive predator fish that thrive in warm water? How much more damage to juvenile salmon and steelhead may occur if warmer waters from climate change increase populations of these non-native predator fish. A serious and substantive evaluation of the impacts of climate change on water temperature and how it will impact the projected results of the different alternatives is urgently needed and missing in whole from the DEIS.	Through on-going regional climate change studies and work, the co-lead agencies evaluated potential shifts in precipitation and temperature patterns and resulting changes in unregulated Columbia Basin streamflow timing and volumes. The evaluation consisted of the full range of the latest climate change projections developed using multiple global climate models, emissions scenarios, downscaling techniques, and hydrologic models. Details of this evaluation are in chapter 4 of the EIS. This information was used to describe the potential effects (both beneficial and adverse) on the river systems and resources due to potential changes in climate for all alternatives. Quantitative data that describes how climate change hydrology will affect reservoir operations in the Columbia Basin in still under development and was not available for us in this study. The climate science community is still developing quantitative models that can address possible effects in water temperature from climate change, and unfortunately, have not been fully applied and validated for use with climate affected regulated flow projections of large reservoir systems. This data is critical to analyzing potential effects to fish quantitatively. In lieu of this information, the climate analysis used the output from resource models, like water quality and fish, under historical conditions, available climate change data, and scientific literature to qualitative assess potential effects to resources (described in Chapter 4). The RMJOC-II Part 2 study was still in review at the time of the draft publication and final EIS development. Though the quantitative data from the Part 2 study was not included in this study, the qualitative conclusions were verified with the draft conclusions of the RMJOC-II Part 2 study for the final EIS.
5684	9	billwarthur@gmail.com	N/A	DEIS Fails to Evaluate Impacts to Southern Resident Killer Whales. The leading scientists who work with Southern Resident Killer Whales (SRKW) are united in their opinion that removing the four lower Snake Rivers is essential to preventing the extinction of the orcas. Several letters were sent to Governor Inslee and Orca Recovery Task Force in 2018 making a strong case for removing the dams as an essential action to save starving orca. Extensive comment letters were also submitted to the federal agencies during the scoping process focused on the important connection between Columbia Basin salmon and SRKWs. Despite this extensive set of comments and record the federal agencies gave only a cursive look at orca and were quick to dismiss any potential benefit to orca from any of the alternatives without any valid citation. Indeed, without any citation, the DEIS claims that,[t]he food available to Southern Resident killer whales from the lower Snake River population is only a small percentage of their overall diet. Changes to food availability may change the whales foraging behavior patterns slightly but will not change their overall condition or population dynamics. This bold statement is not backed up with facts or evidence and is manifestly false and inaccurate. The DEIS falsely concludes that any increase in salmon, under any of the alternatives, would provide on a minor benefit to the orca. This is false for several reasons. First, the Snake River salmon are currently, and historically, important food forces for Southern Resident orca. Whale researchers, using both scat analysis and geo-tagging, have demonstrated that all three pods spend substantial time foraging for their primary prey (chinook salmon) off the west coast in late winter and spring. During this time they spend substantial time at the mouth of the Columbia River foraging for salmon as they return to spawn in the Columbia and Snake Rivers. Historically, the Snake River has produced just under 50% of all the chinook salmon from the Columbia Basin. In the pre-dam period when there were substantially more salmon these runs would have made up an even larger part of the orca diet. Two, the Snake River Chinook salmon are particularly important to Southern Residents because of their size and high nutritional (fat) content. These rich fatty fish are a high pay-off prey for the orca. The Snake River provides the single best opportunity to restore salmon abundance anywhere on the west coast. Restoring the Snake River salmon will provide more salmon to our starving orca than any other action we can take. Three, we must restore salmon to all parts of the Southern Resident orcas range to have successful recovery. The DEIS argues that salmon recovery should focus on the Salish Sea. The science clearly shows we must restore salmon throughout their range. Indeed, in the 2008 Recovery Plan for the Southern Resident Orcas, the National Marine Fisheries Service state that perhaps the singe greatest change in food availability for resident killer whales since the late 1800s has been the decline of salmon in the Columbia River basin. There is a serious disconnect between this statement and the attempt in the DEIS to dismiss the role and value of recovering Snake River chinook salmon for orca. The federal agencies must revise their analysis and evaluate the benefits of restored salmon, or failure to do so, for Southern Resident orcas.	SRKW analysis is described in the EIS including in the FEIS Chapter 3 (Vegetation, Wetlands, Wildlife, and Floodplains) which has been updated for SRKW (Section 3.6.2.6 and Table 3-102) and FEIS Chapter 7 (Preferred Alternative) with additional analysis information on SRKW and potential increase in forage fish, in particular, Chinook salmon in Section 7.7.8. The co-lead agencies utilized current high quality information and best available science in its analysis of the effects of the operation, maintenance, and configuration of the CRS projects. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not require the co-lead agencies to take affirmative actions to recover ESA listed species. The determination for SRKW in regards to MO3 was based on the following facts: The population dynamics of the SRKW are complicated and there are multiple factors that contribute to the overall success of this species. The quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differently from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for the whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall-run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall-run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). Details on the most crucial prey stocks for Southern Resident killer whales, as well as their population and range, is available from several fact sheets and videos available here: https://www.fisheries.noaa.gov/species/killer-whale#spotlight. For more information, visit this NMFS StoryMap on Southern Resident killer whales: https://noaa.maps.arcgis.com/apps/Cascade/index.html?appid=3405e6637bf74e998d4ebe992c54f613. According to NMFS and the EPA, the estimated SRKW population has fluctuated between 67 and 98 whales between 1960 and 2015. The Snake River dams were constructed between 1962 and 1975. The SRKW population increased from a record low in 1970 to its highest population numbers in 1995. Those years were not high years for Snake or Columbia River Chinook Salmon. Ocean conditions between 2011 and 2013 were good years for salmon. At the same time, 2010 and 2013 were good outmigration years. Particularly, 2011 and 2012 were above normal in water supply, which would mean more cooler water was available and there was better survival of salmon, and 2011 through 2014 were higher than normal spill years as well. The combination of outmigration and ocean conditions created improved adult salmon returns. The EIS has analyzed spill as a measure in the Preferred Alternative and determined the overall effect to SRKW to be negligible in large part because hatchery production is consistent between the No Action Alternative and the Preferred Alternative. Because the impact from the Preferred Alternative was determined to be negligible, the agencies determined that existing hatchery production would be sufficient to address any potential impacts to prey availability for SRKWs. The co-lead agencies note the contribution to the prey of SRKW through the continued existence of their respective independent Congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as the Lower Snake River Compensation Plan (other than under MO3), which is administered by USFWS. The Preferred Alternative and Proposed Action in the agencies' biological assessment carry forward certain mitigation measures described in Chapters 2 and 7 of the EIS, which include continued salmon and steelhead hatchery production. The Preferred Alternative has negligible effects to SRKWs as described in Section 7.7.8. The Biological Assessment (BA) describes the effect of the Proposed Action on the SRKW forage species (see BA Section 3.5.1.2, Southern Resident Killer Whale). The proposed changes in operation of the Columbia River System include increased spring spill during the downstream migration of juvenile spring and summer run Chinook salmon. The result of this action includes potential increases of juvenile fish passing through the spillways, reductions in juvenile fish direct and indirect mortality associated with downstream passage, and the Comparative Survival Study (CSS) model predicts increases in numbers of returning adults, which will benefit SRKWs foraging in and around the mouth of the Columbia River in winter and spring (See EIS Section 7.7.8). The CSS model results predicts Snake River Chinook salmon would have relative improvements in smolt-to-adult returns of 35 percent (see EIS Section 7.7.4). The smolt-to-adult return ratio (SAR) is the rate at which of a group of fish survive from their smolt life stage to a defined ending point where they return as adults. While recovery targets will require more than just the efforts of federal agencies, the CSS models indicate the potential for SARs of Snake River Chinook salmon and steelhead to increase to levels that could approach recovery targets set by the Northwest Power and Conservation Council. The BA, also consistent with the EIS, acknowledges past improvements to the configuration and operation of the Columbia River System, additional improvements to the environmental baseline as a result of completed estuary and tributary habitat actions, and the prospective non-operational conservation measures proposed in Chapter 2 of the Draft EIS, all contribute towards maintaining and improving Chinook abundance. Relevant conservation measures include, among other things, a commitment to continue funding the conservation and safety net hatchery programs listed in Chapter 2 of the Draft EIS. As discussed above, the agencies will fulfill congressionally authorized hatchery mitigation objectives through the funding of hatchery programs that are operated consistent with their independent hatchery program consultations during the term covered by this consultation. Based on those hatchery program consultations, the production levels associated with congressionally authorized hatchery mitigation objectives will continue, at minimum, to be consistent with levels previously analyzed by NOAA in the system consultations in 2008, 2014, and 2019. For the 2020 ESA consultations, therefore, the agencies expect that collectively, all of the actions described above (substantial modifications to migration conditions designed to benefit key prey species, combined with improvements to Chinook spawning and rearing habitat in the tributaries and Columbia River estuary, and continued hatchery production) ensure that remaining Chinook mortality from all sources in the mainstem migratory corridor will continue to be more than offset, resulting in a net gain in Chinook salmon abundance available as a prey source for SRKW. Finally, the 2019 NMFS Fisheries BiOp included increased spring spill operations that are similar to operations evaluated in CRSO EIS, and NOAA validated that the hatchery production of Chinook salmon mitigates for the impacts of operating the Columbia River System and total mortality through the mainstem migratory corridor from all sources.

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5684	10	billwarthur@gmail.com	N/A	The final EIS must include a new option that includes removing the four lower Snake River dams and higher spill to 125% at the lower Columbia River dams. It should fully and fairly analyze relevant impacts and benefits of removing the dams. It must look at the ability for the different alternatives to deliver the projected results in a climate changing world.	Improving ESA-listed juvenile and adult anadromous salmonid conditions were two of the eight objectives of the CRSO EIS. The co-lead agencies disagree, however, that an alternative that includes breaching the four lower Snake River dams and spring spill operations to 125% TDG at all four lower Columbia River dams is reasonable given the unacceptable risks to public safety from such an alternative. For power and transmission, MO3 and Multiple Objective alternative 4 (MO4) individually each caused large loss-of-load probability (LOLP) results (i.e., increased incidence of blackouts). Without major addition of new resources, MO3 would result in power shortages in about one in every seven years. MO4 would produce power shortages in about one in every four years. If MO4 were implemented, in addition to breaching the four lower Snake River projects as called for in MO3, then the LOLP would be even higher, with power shortages potentially occurring almost every year. Additionally, if these MOs were combined, in 5% of the years, the power shortages would average close to 1,000 MW in early August when the region might be experiencing a heatwave with particularly high demand for air conditioning. For perspective, 1,000 aMW is about the average amount of power consumed by Seattle City Light. As shown in Section 3.7, MO3 causes an increase in power reliability concerns in the winter and the summer. MO4 increases power reliability concerns in the summer. Thus, the combination has the largest impact during the summer. The cost of zero-carbon replacement resources for MO3 and MO4 individually are up to $1 billion/year. Resource replacements and associated transmission interconnections for the combination of MO3 and MO4 would be higher, though not likely as high as the sum of the two MOs individually. Assuming that the replacement resources consist largely of wind, solar, and batteries, this would require well over 50 square miles of solar power (more than two and a half times the size of Crater Lake), large areas of new wind generation, and unprecedented amounts of batteries (more batteries in the Northwest alone than the total projection of batteries expected in the entire US by 2023 per the Energy Information Administration). In addition, the reduced generation capability under MO3, particularly throughout the summer, in combination with the impacts of the measures in MO4, and the uncertainty about the characteristics of replacement resources, would result in less capability to provide voltage support and dynamic stability for transmission system reliability than under MO3 or MO4 individually. Thus, combining MO4 with breaching the four lower Snake River projects, would produce unreasonable power and transmission reliability impacts, and it is highly speculative that replacement resources could be sited, permitted and built to address these impacts. Thus, an alternative combining juvenile fish passage spill up to 125% and breaching the four lower Snake River dams is unreasonable, and thus was not proposed as an alternative.
5686	1	N/A	N/A	Ever since its origins in the 2016 lawsuit brought by the National Wildlife Federation, this new draft environmental impact statement has been about addressing the failures of the agencies managing the Columbia River System Operations in their obligation to protect fish listed under the Endangered Species Act. With the continuing decline of these fish species on the Columbia and Snake Rivers and their tributaries, it is clear that the action chosen by this draft environmental impact study must make restoring and maintaining these fish populations its top priority. Alternative 2 is the least effective of all the alternatives presented in the DEIS when it comes to the primary purpose of restoring and maintaining fish populations. This alternative prioritizes hydropower production, clearly giving fish a backseat, and was found to be less effective than all the other alternatives in meeting the objectives of improving juvenile salmon, improving adult salmon, and improving adult fish. The No Action Alternative entails continuing to manage the Columbia River System as it was managed under the EIS of September 2016. With fish populations continuing to decline between 2016 and the present day, this management plan clearly does not include measures to facilitate fish restoration, and therefore the No Action Alternative is also an unacceptable choice moving forward. The Preferred Alternative, while claiming to focus on improvements to salmon, also plans to maintain many management strategies carried over from the No Action Alternative, which has already been established as unacceptable for fish population restoration. The Preferred Alternatives focus on flexible spill is based on altering spill levels depending on hydropower generation needs. If hydropower generation is prioritized in this way, no spill measures will be significant enough to restore and maintain fish populations. Alternative 1 demonstrates significant improvements over all the other alternatives described above in terms of measures benefiting fish populations. Among these are the earlier start to juvenile fish barging, and the block spill plan because it includes periods of high spill. Alternative 1 falls short in a few key areas however: the target TDG in the tailrace during high spill is only 120 when research by the U.S. Fish and Wildlife Service and other agencies has found that only rates of 125 TDG will yield the target adult fish returns, and that fish can survive 125 TDG in the water. Additionally, the block spill plans fluctuation between these high spill blocks and periods of unspecified base operation leaves too much leeway for individual projects to prioritize hydropower generation over fish migration during the periods of base operation. Due to these shortcomings, Alternative 1 is insufficient for the restoration and maintenance of fish populations. Alternative 4 is the only alternative that does not include the breaching of the four lower Snake River dams that has the possibility to implement measures that would significantly contribute towards the restoration and maintenance of Columbia and Snake River fish populations. Primarily the inclusion of drawdown measures on the reservoirs of the lower Snake and Columbia Rivers and juvenile fish passage spill, up to 125 percent total dissolved gas levels 7 days a week, 24 hours a day from March 1 to August 31. These spill rates indicate a prioritization of fish populations over hydropower generation and make this an acceptable alternative, at least in the short term. Alternative 3 is the only alternative other than Alternative 4 that is acceptable for the purposes of restoration and maintenance of fish populations. This alternative includes the breaching of the four lower Snake River dams, thus it is by far the best alternative in terms of the benefits it provides to fish populations. However, the other operations that depend on the river (primarily hydropower generation and navigation) may not be immediately ready for the drastic change that will result from this alternative. If this is not the alternative chosen for this EIS, the agencies managing the Columbia River System must immediately begin to work on developing alternative sources of power generation and transportation to replace these functions of the four lower Snake River dams so that they can be breached in the near future.	The co-lead agencies understand your support for MO3 and MO4 with regard to benefits for salmonids on the lower Snake and Columbia rivers. However, the impacts to other affected resources under MO3 and MO4 were carefully evaluated by the co-lead agencies to develop the Preferred Alternative (PA). For example MO4 causes minor to major adverse effects on resident fish due to deep drafts of the upper basin storage projects. As you describe, MO3 and MO4 would not meet the objective to provide an adequate, efficient, economical and reliable power supply. For additional information on the impacts to the power system and reliability under MO3, see Section 3.7. Under MO4, for example, hydropower generation decreases by 1,300 aMW under average water conditions, and 870 aMW under low water conditions compared to the No Action Alternative, the largest impacts on hydropower generation of any of the alternatives. MO4 would also not meet the objective to minimize greenhouse gas emissions. The co-lead agencies expect that the PA would allow them to meet the EIS intent as expressed in the Purpose and Need Statement and most EIS objectives, including those to benefit ESA-listed species.
5693	1	N/A	N/A	This impact statement deserves a thorough hearing and to dismiss requests to extend the comment period is a grave disservice to all interested/impacted parties.	The co-lead agencies considered requests to extend the public comment period. This NEPA process included a wide array of cooperating agencies whose close involvement throughout the process allowed the co-lead agencies to incorporate feedback. Given the broad range of comments received and the extensive Federal and non-Federal participation in the overall process as well as the level of public engagement in the six virtual public meetings in the region, the co-lead agencies determined that an extension was not warranted and that the 45-day public comment period was adequate consistent with NEPA regulations. On April 9, the CRSO EIS website was updated to inform the public that they should plan to submit comments by the close of the comment period.
5695	1	annie4208m@gmail.com	N/A	The alternatives MO1, MO2 and MO4 are proposed to potentially improve adult salmon, juvenile salmon, and resident fish species. With the CRS being an important aspect for the lives of endangered species such as Chinook and steelhead, action should be taken to ensure the species increase in numbers rather than decrease. In each of the alternatives listed above, programs involving conservation hatcheries for ESA-listed fish and other hatcheries to mitigate for the construction and operation of the dams are used. However, peer reviewed science proves that hatcheries are more detrimental to wild fish populations than they are beneficial. Hatcheries dont work to recover the endangered and wild salmon and other fish species. Instead, the hatchery fish released negatively impact wild fish species by breeding with them, diluting the wild gene pool, competing for resources and so forth. Wild fish species are robust and resilient, but introducing hatchery fish to the wild species dilutes the genetic diversity and decreases their size advantage, making the offspring and the population as a whole more vulnerable.	The commenter is correct that hatchery programs are included in the No Action Alternative and would be expected to continue under alternatives Multiple Objectives alternative 1 (MO1), Multiple Objective alternative 2 (MO2), and Multiple Objective alternative 4 (MO4), and certain hatcheries would continue under MO3. No new hatchery programs are considered as mitigation under any alternatives, but MO3 does include increased hatchery production due to short-term impacts from breaching the four lower Snake River dams. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative (PA) would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. The PA proposes measures such as increased spill intended to improve survival of anadromous salmonids. Figure 3-111 in the Draft EIS illustrates that the CRS can and has supported large numbers of returning adult salmon and steelhead. As noted, this figure combines hatchery and wild fish. Over time, the PA is anticipated to benefit both wild and hatchery fish and the co-lead agencies continue to support information developed by the Hatchery Scientific Review Group and the Northwest Power and Conservation Council's Three-Step Review process.
5695	2	annie4208m@gmail.com	N/A	Not only are hatcheries harmful, but increasing spill over dams in order to aid juvenile migration downriver has yet to recover salmon runs. Few juvenile fish are able to make it through turbines in the dam during their migration, and spill operations are thought to be an effective way to allow juveniles over the dam. However, this system is also harmful to the juvenile fish. Impacts with spillway structures can result in physical injury, brain damage and death. The hydraulic forces associated with spill and the sudden depth changes are also potential hazards that are associated with this hydropower-related passage option.	The Draft EIS used currently available, high-quality data in the analysis, including peer-reviewed models. The commenter is correct that some juvenile fish are injured and killed as a result of passage through spillways and turbines. The Draft EIS analysis and modeling results included incorporation of empirical data on effects of dam passage, such as through spillways. Even with these effects, the CSS model predicts that Smolt-to-Adult return (SAR) rates would increase for both Snake River spring Chinook and steelhead and will average well above 2% (the lower end of the Council's recovery targets for the region) as a result of the Preferred Alternative.
5695	3	annie4208m@gmail.com	N/A	Barging, a procedure proposed in MO1, is also not beneficial for juvenile fish. This operation may seem effective, but it creates an unnatural environment and an unnatural migration pattern upon the return of fish inland. This decreases the survival rate of a fish as it begins to travel back upstream, since it doesnt have the system mapped out like it would if it migrated naturally downstream as a juvenile.	The juvenile salmon and steelhead transportation program has been an important mitigation tool to decrease travel times. The effectiveness has been monitored intensively, resulting in refined operations with confidence of benefiting the transported populations. Early migrating fish do not benefit from transporting, so they are not transported. However, for the most recent three years with complete returns (2015, 2016, and 2017), transporting bypassed wild Snake River spring Chinook from Lower Granite Dam averaged across these years a return of five times as many adults to Lower Granite Dam than the group returned to the river to out-migrate naturally. While fish that were transported as juveniles can experience higher straying and fallback behavior than fish that were not transported (Keefer et al. 2008), overall stray rates are relatively low for adult migrants (2.2% of spring/summer Chinook salmon, 4.2% of fall Chinook salmon, and 6.8% of steelhead strayed into non-natal tributaries overall; Keefer et al. 2005b). The magnitude of this adverse effect in most cases is far smaller than the increase in the Smolt-to-Adult return rate due to transportation.
5695	4	annie4208m@gmail.com	N/A	Sediment transfer is slightly discussed in the alternative MO3 and I believe it is worth being elaborated on. River sediment is full of rich nutrients that can be utilized for agricultural areas. In a river system, sediment is transported downstream and forms river banks and deltas. In the case of placement of dams, the blocked rivers result in a loss of riparian habitats along inundated reaches. In the case of the LSRD, there is also a loss of sediment transport to the Columbia delta. Without the flow of sediment, the delta cannot grow. The Columbia delta is important because it is a system that absorbs runoff from both floods and storms. It also acts to provide nurseries and spawning grounds for a large number of aquatic organisms. Sediment is no longer free-flowing down the CRS, rather its collecting in the upper reservoir of the dams. Pristine habitat for an abundance of aquatic and terrestrial species is impacted by this impeded flow.	Section 3.6 discussed sediment transfer in MO3 because it had an effect on vegetation establishment and some wildlife species. More detail regarding the sediment transfer system and potential effects are in Section 3.3 (River Mechanics) and Section 3.4 (Water quality). The EIS evaluated sediment transport in a dammed river for the No Action Alternative because that is the existing condition. The EIS compares the effect of the current Columbia River System as the No Action Alternative to each of the proposed alternatives.
5695	5	annie4208m@gmail.com	N/A	Another topic brought up in the MO3 alternative was the potential for an increase in the release of greenhouse gases. It was explained that with the loss of hydropower from the four lower dams, power would need to be replaced with natural gas. I understand that some cleaner options are less reliable, but solar and wind power combined with other clean alternatives is something that should be considered. Geothermal energy uses heat energy from the earth, and is capable of supplying renewable power around the clock that emits little to no greenhouse gases. It also requires a small environmental footprint to develop. Bioenergy is another power source that should be considered. This process utilizes biomass as an organic renewable energy source, including materials such as agriculture and forest residues, energy crops, and algae. The energy biomass produces can be converted into electricity, heat or biofuels.	As stated in the comment, the EIS considered a natural gas replacement portfolio as its conventional least-cost portfolio for replacing lost capability from the four lower Snake River dams under MO3. See Draft EIS, Section 3.7.3.5, at page 3-904. However, as suggested by the comment, the EIS also considered a zero-carbon replacement portfolio to replace lost generation from the four lower Snake River dams in MO3. See Draft EIS, Section 3.7.3.5, at pages 3-904-910. The zero carbon replacement portfolio included solar, wind, and storage technologies. See Draft EIS, Section 3.7.3.5, at pages 3-907-910. The commenter describes multiple technologies, both emerging and currently available, that may serve as potential replacement resources that would reduce the greenhouse gas emissions from new combustion turbines or offset hydropower. The energy sector is constantly undergoing transformation. With new technologies and practices being introduced all the time, the analysis in the EIS is unable to capture all potential permutations of resources. The EIS examined all potential resources identified in the Council's Seventh Power Plan and Mid-term Update, relying on these sources for resource information. The EIS acknowledges that technological improvements will likely bring other options. Appendix H provides additional details on resource selection.
5695	6	annie4208m@gmail.com	N/A	The report discusses species listed on the ESA such as salmon and steelhead, yet the requirements have yet to be met. The ESA requirements involve restoring listed species to all or a significant number of that range. The species listed on the ESA have yet to bounce back in numbers due to the lack of habitat, habitat they used to have access to, the negative impacts of hatcheries, the physical barriers of the dams, and so forth. With dwindling numbers	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not require the co-lead agencies to take affirmative actions to recover ESA listed species.

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				of fish species returning successfully, other species are greatly impacted, the Southern Resident Orcas in particular. Salmon constitute around 80% of the SR Orca diet, with an overwhelming majority of that fraction being Chinook. The CRS Operations is greatly reducing Chinook abundances, which contributes to Orca starvation and imperilment.	The population dynamics of the SRKW are complicated and there are multiple factors that contribute to the overall success of this species. The quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differently from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. 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Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). Details on the most crucial prey stocks for Southern Resident killer whales, as well as their population and range, is available from several fact sheets and videos available here: https://www.fisheries.noaa.gov/species/killer-whale#spotlight. For more information, visit this NMFS StoryMap on Southern Resident killer whales: https://noaa.maps.arcgis.com/apps/Cascade/index.html?appid=3405e6637bf74e998d4ebe992c54f613. According to NMFS and the EPA, the estimated SRKW population has fluctuated between 67 and 98 whales between 1960 and 2015. The Snake River dams were constructed between 1962 and 1975. The SRKW population increased from a record low in 1970 to its highest population numbers in 1995. Those years were not high years for Snake or Columbia River Chinook Salmon. 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FEIS Chapter 7 (Preferred Alternative), has been updated with additional analysis information on SRKW and potential increase in forage fish, in particular, Chinook salmon (Section 7.7.8). The Biological Assessment (BA) describes the effect of the Proposed Action on the SRKW forage species (see BA Section 3.5.1.2, Southern Resident Killer Whale). The proposed changes in operation of the Columbia River System include increased spring spill during the downstream migration of juvenile spring and summer run Chinook salmon. The result of this action includes potential increases of juvenile fish passing through the spillways, reductions in juvenile fish direct and indirect mortality associated with downstream passage, and the Comparative Survival Study (CSS) model predicts increases in numbers of returning adults, which will benefit SRKWs foraging in and around the mouth of the Columbia River in winter and spring (See EIS Section 7.7.8). The CSS model results predicts Snake River Chinook salmon would have relative improvements in smolt-to-adult returns of 35 percent (see EIS Section 7.7.4). The smolt-to-adult return ratio (SAR) is the rate at which of a group of fish survive from their smolt life stage to a defined ending point where they return as adults. While recovery targets will require more than just the efforts of federal agencies, the CSS models indicate the potential for SARs of Snake River Chinook salmon and steelhead to increase to levels that could approach recovery targets set by the Northwest Power and Conservation Council. The BA, also consistent with the EIS, acknowledges past improvements to the configuration and operation of the Columbia River System, additional improvements to the environmental baseline as a result of completed estuary and tributary habitat actions, and the prospective non-operational conservation measures proposed in Chapter 2 of the Draft EIS, all contribute towards maintaining and improving Chinook abundance. Relevant conservation measures include, among other things, a commitment to continue funding the conservation and safety net hatchery programs listed in Chapter 2 of the Draft EIS. As discussed above, the agencies will fulfill congressionally authorized hatchery mitigation objectives through the funding of hatchery programs that are operated consistent with their independent hatchery program consultations during the term covered by this consultation. Based on those hatchery program consultations, the production levels associated with congressionally authorized hatchery mitigation objectives will continue, at minimum, to be consistent with levels previously analyzed by NOAA in the system consultations in 2008, 2014, and 2019. For the 2020 ESA consultations, therefore, the agencies expect that collectively, all of the actions described above (substantial modifications to migration conditions designed to benefit key prey species, combined with improvements to Chinook spawning and rearing habitat in the tributaries and Columbia River estuary, and continued hatchery production) ensure that remaining Chinook mortality from all sources in the mainstem migratory corridor will continue to be more than offset, resulting in a net gain in Chinook salmon abundance available as a prey source for SRKW. Finally, the 2019 NMFS Fisheries BiOp included increased spring spill operations that are similar to operations evaluated in CRSO EIS, and NOAA validated that the hatchery production of Chinook salmon mitigates for the impacts of operating the Columbia River System and total mortality through the mainstem migratory corridor from all sources.
5704	1	clairecpodoll@gmail.com	N/A	A major proposed flaw of MO3 as described in the CRS-DEIS is its inability to minimize greenhouse gas emissions. However, the analysis leading to this conclusion is over presumptuous. Dams constructed for hydropower production cause the release of methane gas which is far more potent than carbon dioxide and contributes substantially to global warming. Methane has 72 times the global warming potential of carbon dioxide in the first year after emission and 21 times the global warming potential over the following 100 years according to Synapse Energy Economics. This form of energy production is not as green as it is made out to be.	Appendix G, Chapter 5, of the EIS details the assessment of reservoir methane emissions from the CRS projects. The findings are summarized in Section 3.8. This assessment finds that reservoir characteristics and management substantially influence methane emissions. A 2016 study developed by the Corps Walla Walla District concluded that for the relatively clean reservoirs of the Federal Columbia River Power System, which include the lower Snake River dams, conditions for low dissolved oxygen concentrations are not prevalent; thus methane gas is generally not an issue. Additionally, in 2017, the Northwest Power and Conservation Council found that data on these sites were insufficient to estimate the reservoir methane emissions specifically for the CRS but that methane emissions at high levels are not likely due to the lower organic and nutrient loads to the system, and higher dissolved oxygen content. The EIS describes that emerging technologies will allow for better measuring and understanding the effects of reservoir methane emissions from CRS projects, including the four lower Snake River dams.
5717	1	noelrk49@gmail.com	N/A	Hatchery Roles: Bonneville F&W program is presented throughout the DEIS as a funding source for a variety of hatchery programs. The DEIS does not address issues published in the comment period of the CRSO EIS planning phase. The discussions lack evaluations of past and current performance. Specific goals, objectives of the hatchery programs to enhance endangered species or other potentially affected species are not defined. Funding and oversight needs definition of the programs that implement and oversee the affected species. The DEIS should evaluate the performance of the specific hatcheries within the regions of the operations to denote what has and has not worked. With these determinations define the operations to be developed in existing and/or future hatcheries. Past hatchery operations have drawn criticism that they have negatively impacted wild runs of steel head and salmon. But recent literature regarding the river system Comments Columbia River System Operations DEIS indicates that well managed hatchery programs can make a significant difference to protect and and restore wild fish as well as improve returns and quality of fish released. The EIS needs to present current effects of well managed hatcheries within the overall rivers systems relative to the endangered species and apply those to specific goals, objectives and metrics for the future operations, i.e. Wild & Hatchery and broodstock programs.	Hatchery programs have long been a part of the approach for salmon recovery. Based on our analysis of fish resources in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Under this alternative, hatchery programs would continue as under the No Action Alternative, and a number of other mitigation measures would continue as well, but no new hatchery operations are proposed. Hatchery origin fish are very important to Tribal and sport harvest in within the Columbia River Basin, and many hatchery programs are important supplementation to rebuilding natural populations. Further, the three co-lead agencies have legal requirement to produce hatchery fish as mitigation for components of the CRS. The scope of this Draft EIS is the operation, maintenance, and configuration of CRS projects; a complete analysis of the maintenance and operations of all hatchery programs is beyond this scope. The effects of hatchery programs on ESA-listed fish are evaluated through individual consultations under the Endangered Species Act.
5717	2	noelrk49@gmail.com	N/A	Seal/Sea Lion Predation: Those of us in the Northwest and those that fish and recreate on the lower Columbia and tributaries have read of or seen first hand the impacts of these creatures. Many steelhead, salmon and sturgeon are lost to these predators especially at Bonneville. While the structural proposals to protect the ladders are protective measures, additional controls need to be evaluated and defined to enhance the returns. Experience within the system, i.e. Willamette returns, indicates that significant improvement in the number of returns can be had by eliminating this predation in areas immediately below. Because the co-lead agencies are responsible for Bonneville, they need to present the specific lead, e.g. the BPA F&W for funding and oversight. Evaluate the data learned in the Willamette and if applicable else where for potential applications to Bonneville. Develop and incorporate commitments into the preferred alternative with specific goals and metrics for application. The designated agency needs to be responsible to take the appropriate action to successfully implement and oversee this mitigation.	As described in the Preferred Alternative, the co-lead agencies propose several measures to reduce avian and marine mammal predation to mitigate adverse effects to listed species from CRS operations. The co-lead agencies utilized current high quality information regarding sea lion predation. Ongoing actions described in the No Action Alternative to reduce predation on migrating fish are included in the Preferred Alternative. In addition, water management actions (the Predator Disruption Operations measure) in the John Day reservoir is expected to further reduce avian predation on migrating juvenile fish. The No Action Alternative includes ongoing mitigation measures to haze and monitor pinniped predators. These actions would continue into the future under the Preferred Alternative. Sea lion management decisions at Bonneville Dam rely on input from the Sea Lion Management Working Group. This Working Group is a collaborative effort with NOAA, USFWS, various Tribes, and the co-lead agencies. The co-lead agencies works to minimize the effects of sea lions on salmon by implementing Best Management Practices specified in the NOAA Biological Opinion and by implementing recommendations developed by the Working Group. The co-lead agencies will continue to use this process to minimize the effects of sea lions on salmon within their authorities. The EIS discusses the Working Group and sea lion management in Section 3.5, 3.6 and Chapters 5 and 7. The co-lead agencies would continue to assist National Marine Fisheries Service (NMFS), states and Tribes in their pinniped removal efforts near Bonneville Dam.
5717	3	noelrk49@gmail.com	N/A	Comments Columbia River System Operations DEIS Other Operating Dams: The other operating dams within the defined regions and outside these regions, i.e., Canada and within the USA, that can have an impact on the subject CRSO or maybe impacted by the preferred alternative, i.e. Priest Rapids. The EIS should define the controls and agreements that need to be taken with the other operating dams to ensure the desired outcomes. Define existing agreements and controls that are in place supporting the actions of the preferred alternative. Define agreements and/or controls the need negotiation and implementation to ensure outcomes of the EIS are met. Define any obligations that are committed or may be required if damage or deficiencies are found at any of the other dams. Describe negative impacts the respective impacts to the desired outcomes of this EIS.	For the EIS, the "controls and agreements" that are in place were assumed to be those that existed in 2016 when the EIS was initiated and included in the No Action Alternative. The co-lead agencies are not aware of any major agreements, other than the 2019-2021 Spill Operations Agreement, that have been implemented since that time. Any future agreements are outside the scope of this EIS, but that may affect the implementation of the Preferred Alternative in the future, will need to be evaluated when those agreements are being discussed. As the comment notes, the Draft EIS captures the effects to the CRS of storage in Canada that is coordinated with the United States under the Columbia River Treaty using the best available information in 2016, which included information from 2022-based studies and forecasts. Regarding the Power Supply and Replacement Resources chapter of Appendix H, the Columbia River Treaty requires the development of certain power studies in advance, and 2022 information from those studies, as well as other information described in the analysis, represented the best available information at the time of the CRSO Draft EIS. As aspects of the Columbia River Treaty regarding Canadian operations in 2024 and beyond remain the subject of an ongoing negotiation between the governments' of the United States and Canada, the co-lead agencies--including Bonneville and the Corps as members of the U.S. Entity--continue to use the best available information that was applied in the draft EIS to capture the effects of the Columbia River Treaty operations on the CRS in the final EIS.
5717	4	noelrk49@gmail.com	N/A	During the planning period for the CRSO EIS there was some comments that appeared to denigrate the tribes. The EIS should provide at least an overview of the agreements, of on going work and cooperation from the tribes related to harvest of steelhead, salmon and sturgeon within the subject regions.	Tribal input, concerns, interests, and especially treaty rights were considered throughout the Draft EIS analyses and in the formulation of the Preferred Alternative. Treaty specific information is included in Section 3.17 as well as Chapter 7. The co-lead agencies recognize and respect the legal obligations imposed by treaties. The co-lead agencies accordingly included Protecting Native American treaty and reserved rights and fulfilling trust obligations for natural and cultural resources throughout the environment affected by the Columbia River System operations as a purpose in the Purpose and Need Statement in Chapter 1 to ensure treaty obligations were a key consideration of decision making. The co-lead agencies are engaging in government-to-government consultation with the tribes, and several tribes are cooperating agencies on the CRSO EIS. The EIS recognizes the economic and cultural importance of salmon to Tribes in a number of sections throughout the document. The cultural significance and impacts of salmon and steelhead fisheries are described in the Ceremonial and Subsistence Fisheries sub-section and the Social Importance of Commercial, Ceremonial and Subsistence Fisheries sub-section of Section 3.15.2.1. Fisheries tribal interests are provided in Section 3.15.4 and details regarding the economic significance of salmon and steelhead fisheries have been added to the recreation analysis (Section 3.11) including tribal interests (Section 3.11.3.7). Treaty rights are discussed in the Executive Summary, Section 3.16 Cultural Resources, and Section 3.17 Indian Trust Assets, Tribal Perspectives, and Tribal Interests. Appendix P includes copies of tribal perspectives that were submitted by tribes. Tribal consultation is described in Sections 1.5, 3.5, and 3.15; and Chapter 9. Most sub-sections within Chapter 3 include a Tribal Interests section at the end of the sub-section that attempts to summarize tribal issues by resource.

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5717	5	noelrk49@gmail.com	N/A	Describe actions taken by other agencies that have impacted the endangered species of the DEIS. Define their impacts relative to the desired outcomes of the DEIS, i.e. the abandonment of the Columbia river agreements for commercial netting in the lower Columbia river.	Both human-caused and natural factors that are outside the responsibility and control of the co-lead Federal agencies also contribute to the decline and recovery of ESA-listed species, and would continue to strongly influence fish and their habitat. Salmon and steelhead have been adversely affected in the Columbia River Basin over the last century by many activities including human population growth, urbanization, introduction of exotic species, overfishing, development of cities and other land uses in the floodplains, water diversions for all purposes, dams, mining, farming, ranching, logging, hatchery production, predation, ocean conditions, and loss of habitat. Management of commercial fisheries is outside the jurisdiction of the three co-lead agencies. Specific discussion pertaining to commercial fishing is discussed in Section 3.15, Fisheries and Passive Use. Actions taken by other agencies are described in Chapter 6, Cumulative Effects, and Section 7.9, Cumulative Effects of the Preferred Alternative. Alternatives to include changes to harvest are not within the scope of this EIS. A recent EIS addressing harvest was conducted by NMFS. We cited this study in Chapter 3.15 as we used it's results to determine abundance considerations. To see their conclusions and effects analyses please go to: https://www.fisheries.noaa.gov/resource/document/environmental-impact-statement-programmatic-review-harvest-actions-salmon-and Harvest certainly has an impact on salmon and steelhead populations. The three co-lead agencies do not manage fish stocks, and do not have the authority to do so. For harvest, fisheries in the Columbia River Basin and those that rely upon Columbia River fish stocks are managed by numerous entities, including Federal, state, and tribal governments. These entities are guided by a complex array of policies, laws, compacts, and agreements. The management of Pacific salmon fisheries in particular is complex, and involves numerous entities representing a variety of social, political, and conservation interests. Changes in allowable fishery harvest in the Columbia River Basin are a result of decisions made by state, Federal (i.e., NMFS), and tribal fishery managers based on a variety of environmental, biological, economic, and social factors.
5717	6	noelrk49@gmail.com	N/A	Lead Agency Uncertainties and Sensitivities: Analyses throughout the evaluations are based on data, modeling and assumptions. As a consequence the resulting conclusions and recommendations will have varying degrees of technical accuracy. Also implementation of selective actions are subject to line item and annual funding which may impact the implementation and thus effect the results. This would aid the effected/ interested members of the public and overseers the insights to influence and affect the desired results. Define the confidence level to the desired outcome of defined actions presented in the preferred alternative. Define the impacts to the defined actions for lack or loss of funding should that occur. Define the funded and unfunded actions of the preferred alternative as well as the lead agency responsible for the applicable sourcing. Co-lead Bonneville relies on non-capital funding for some significant operations in particular hatcheries. Define the potential impacts to the desired outcomes should funding shortcomings occur.	The EIS evaluated benefits and adverse effects across an array of resource areas including potential effects at the national, regional and local level; effects are monetized and quantified, where possible, and also described qualitatively. As the commenter notes, there are a variety of uncertainties in each resource analysis. The co-lead agencies have identified and described these uncertainties throughout the EIS. In addition, sections have been added to several of the technical appendices to further describe and clarify the uncertainties affecting analyses such as flood risk, navigation, recreation, and the cost analysis. Fish mitigation costs are assigned to each authorized project purpose based on each purposes overall share of project costs, as determined by the cost allocation, by recovering those costs through power rates. Bonneville is required to pay for its share of mitigation costs based on the existing cost allocation. Congress also granted Bonneville discretion to fund the power share directly to the Corps and Reclamation as part of the Energy Policy Act of 1992, in some situations, including the Columbia River Fish Mitigation program. (Energy Policy Act of 1992, Pub. L. No. 102-486, 2406, 106 Stat. 2776, 3009 (1992) (codified at 16 U.S.C. 839d-1 (2012)). Bonneville generally does not, however, directly pay for the capital costs of fish mitigation structures; instead, it reimburses the U.S. Treasury for the power share of appropriations used to construct the structure. Additionally, as described in Section 3.19 of the EIS and Appendix Q, funding to operate the system comes through multiple mechanisms, including Federal tax dollars appropriated to cover system costs as well as revenue generated from the marketing and sale of hydropower. For power-specific costs, Bonneville typically provides direct funds to both the Corps and Reclamation. For joint related costs, including funding for fish and wildlife mitigation actions, the Corps and Reclamation receive annual congressional appropriations to fund most, if not all, capital investments. Bonneville reimburses the U.S. Treasury for the power share of these appropriations. Once the investment is in place, Bonneville will typically direct fund the power share of the operations and maintenance costs associated with the facility. In addition to congressional appropriations for fish and wildlife and costs directly funded to Corps and Reclamation by Bonneville, the Bonneville Fish and Wildlife Program (which is separate and distinct from direct funding described above) funds hundreds of projects each year to mitigate the impacts of the Federal hydropower system on fish and wildlife. Bonneville began this program to fulfill mandates established by Congress in the Pacific Northwest Electric Power Planning and Conservation Act of 1980 to protect, mitigate, and enhance fish and wildlife affected by the development and operation of the Federal Columbia River Power System (FCRPS). Bonneville uses its authority under 16 U.S.C. 839b(h)(10)(A), to make expenditures to implement its Fish and Wildlife Program. These expenditures provide system-wide funding for actions that also mitigate for the non-power purposes of the CRS, so Bonneville recoups the non-power share of those expenditures from the U.S. Treasury as credit, as required under 16 U.S.C. 839b(h)(10)(C). Bonneville's Fish and Wildlife Program expenditures incurred mitigating the CRS operations identified in the Final EIS and adopted in Bonneville's Mitigation Action Plan would continue to be allocated and borne as provided by existing laws governing the FCRPS and the long-standing accounting procedures used to implement them.
5717	7	noelrk49@gmail.com	N/A	Other Agencies and Regulators: The DEIS addresses environmental characteristics, i.e. climate change, and current and potential power sources, i.e. solar and wind, that could impact the system. Other agencies have impact or potential impact on the subject endangered species that are presented in the DEIS. To understand the importance or significance of the agencies roles relative to the desired outcomes for the subject endangered species, these need to be presented in the EIS. Define the agencies with direct or indirect potential to impact the endangered species of the DEIS, i.e. agencies involved the with sport and commercial fishing.	Please see Chapter 6 for information about Reasonably Foreseeable Future Actions (RFFAs), and the agencies involved in each. These include RFFA 7 Fishery Management, RFFA 8 Bycatch and Incidental Take, RFFA 11 Resident Fisheries Management, and RFFA 13 Tribal, State and Local Fish and Wildlife improvement.
5754	1	aliciabuchter@gmail.com	N/A	The DEIS should consider an adaptation of MO3 that incorporates spill at the Columbia River dams to 125% TDG as MO4 suggests. Dam removal is crucial to improving fish populations, specifically smolt-to-adult returns, so removing the lower four Snake River Dams is the best option for ensuring that fish populations increase in size. However, fish populations can be improved more by increasing spill, and the most rigorous spill plan is outlined in MO4.	Improving ESA-listed juvenile and adult anadromous salmonid conditions was two of the eight objectives of the CRSO EIS. The co-lead agencies disagree, however, that an alternative that includes breaching the four lower Snake River dams and spring spill operations to 125% TDG at all four lower Columbia River dams is reasonable given the unacceptable risks to public safety from such an alternative. For Power and Transmission, MO3 and Multiple Objective alternative 4 (MO4) individually each caused large loss-of-load probability (LOLP) results (i.e., increased incidence of blackouts). Without major addition of new resources, MO3 would result in power shortages in about one in every seven years. MO4 would produce power shortages in about one in every four years. If MO4 were implemented, in addition to breaching the four lower Snake River projects as called for in MO3, then the LOLP would be even higher, with power shortages potentially occurring almost every year. Additionally, if these MOs were combined, in 5% of the years, the power shortages would average close to 1,000 MW in early August when the region might be experiencing a heatwave with particularly high demand for air conditioning. For perspective, 1,000 aMW is about the average amount of power consumed by Seattle City Light. As shown in Section 3.7, MO3 causes an increase in power reliability concerns in the winter and the summer. MO4 increases power reliability concerns in the summer. Thus, the combination has the largest impact during the summer. The cost of zero-carbon replacement resources for MO3 and MO4 individually are up to $1 billion/year. Resource replacements and associated transmission interconnections for the combination of MO3 and MO4 would be higher, though not likely as high as the sum of the two MOs individually. Assuming that the replacement resources consist largely of wind, solar, and batteries, this would require well over 50 square miles of solar power (more than two and a half times the size of Crater Lake), large areas of new wind generation, and unprecedented amounts of batteries (more batteries in the Northwest alone than the total projection of batteries expected in the entire U.S. by 2023, per the Energy Information Administration). In addition, the reduced generation capability under MO3, particularly throughout the summer, in combination with the impacts of the measures in MO4, and the uncertainty about the characteristics of replacement resources, would result in less capability to provide voltage support and dynamic stability for transmission system reliability than under MO3 or MO4 individually. Thus, combining MO4 with breaching the four lower Snake River projects, would produce unreasonable power and transmission reliability impacts, and it is highly speculative that replacement resources could be sited, permitted and built to address these impacts. Thus, an alternative combining juvenile fish passage spill up to 125% and breaching the four lower Snake River dams is unreasonable, and thus was not proposed as an alternative.
5754	2	aliciabuchter@gmail.com	N/A	Multiple Objective Alternative 3 is preferred among the alternatives but more rigorous implementation of methods aiding fish travel should be added. Though MO3 is clearly the best option regarding the preservation and increase of fish populations, it is concerning that it does not meet the objective to minimize greenhouse gas emissions. Taking action to reduce the use of fossil fuels is likely the most important thing that can be done to prevent humanity's biggest threat. Due to the current climate change crisis and the western United States legislative and policy trend that is briefly described in the CRSO Executive Summary, it will be prudent to invest in renewable energy sources to replace the power generated by the removed Snake River dams. The least-carbon replacement portfolio outlines a plan that, when adopted, will still result in a 2.7 percent increase in greenhouse gas emissions across the region due to back-ups for renewables as well as another 53 percent increase from changes in transportation methods. It is crucial to consider, however, that globally, societies will inevitably be moving towards relying on renewable energy sources instead of disappearing fossil fuel reserves.	The scenario evaluated in the power and greenhouse gas (GHG) emissions analysis that assumes renewable resources are developed or acquired to replace hydropower under MO3 do still find an increase in power sector GHG emissions, as described in the comment. This is based on high-quality information on capacity and costs of future renewable resources and costs. This scenario is considered in the analysis because, as described in the comment, given policy and legislative decisions in Oregon and Washington targeting large reductions in GHG emissions, a future focus on integrating renewables is likely. The EIS considered replacing the lost capability of the four lower Snake River dams with a zero-carbon resource portfolio. This portfolio is entirely made up of zero carbon resources (solar, wind, and storage technologies, e.g., batteries). However, even with new renewable resources, the EIS analysis finds that existing carbon-emitting resources would likely increase generation to integrate the large portfolio of renewable resources, resulting in a new increase in GHG emissions. This portfolio is described in Section 3.7.3.5 of the Draft EIS, Potential Replacement Resources and Associated Costs, and emissions implications in Section 3.8.3.5, Greenhouse Gas Emissions from Power Generation. As described in the Preferred Alternative, Section 7.6.3.13, the Early Start Transport measure allows the transport of juvenile salmon collected at Lower Granite, Little Goose, and Lower Monumental projects to begin as early as April 15, approximately two weeks earlier than current fish transport operations described in the No Action Alternative, if warranted based on transportation benefits or to facilitate transport research. Transport operations would end on September 30 at Lower Monumental and October 31 at Lower Granite and Little Goose. Collected juvenile fish would be transported to a location below Bonneville Dam via barge or truck on a daily or every-other-day schedule, depending on the numbers of fish collected at the collector projects.
5764	1	Sealiondefensebrigade@gmail.com	N/A	Dr. Gary Grossman Professor of Animal Ecology Warnell School of Forestry and Natural Resources University of Georgia Athens, Georgia said, I will speak about California central valley salmon, yet my comments apply to other habitats. Most predation occurs when young fish migrate downstream to their adult habitat the sea, Dr. Gary Grossman. According to fish experts Dr. Gary Grossman and fisheries expert, Mr. Doug Demko, predation on salmon occurs at its highest as baby salmon float down river towards their adult ocean habitat, so salmon smolt survival depends upon adequate FLOW of COLD water over the Dams which are controlled by the BPA. Moreover, current science shows that State, Federal and tribal agencies removing important native non- human animals from their ecosystems and the CRS erodes ancient and delicate ecological and biological relationships that promote ecological health, biodiversity and ecological productivity in the CRS and across the PNW bioregion. Unweaving a beautiful fabric of life for long term survival of the wild Chinook, steelhead, southern resident orcas and approximately, 120 other animals that rely on salmon for their very sustenance and survival not sport. Unfortunately the endangered salmon reside in a highly altered habitat difficult to establish a hierarchy on the cause effecting salmon mortality. Consequently assigning a value to potential increase in of salmon abundance that will be produced by predator control is problematical. When compared to increases potentially from other remediation of other negative influences such as degraded habitat, altered flow regime and contaminants. Dr. Gary Grossman Current peer reviewed science supports and Dr. Grossman conveys that BPA, State, federal and tribal agencies investing millions of dollars into predator removal programs no matter how expensive are not a worthy investment as a means to increase and protect populations of endangered salmon and steelhead because there will always be another predator species that will move in and fill the nitch of the targeted species. This is not a theory. It is well documented that although BPA funds expensive incentive programs such as the pike minnow removal program which has been successful in removing large numbers of pike minnow from the CRS. The pike minnow still outnumber wild salmon and steelhead populations in the CRS. At the same time BPA funding the removal of the pike minnow is assisting the ability of the small mouth bass and American shad populations to exponentially increase in the CRS. Bass and shad populations now dominate the CRS and outcompete with the wild native fish populations for food and habitat resources. As well, the small mouth bass, and other NIS species such as walleye, yellow perch, and channel catfish all predate heavily on Snake River- juvenile Chinook salmon	The co-lead agencies legal authorities relate to operating and maintaining the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy designated critical habitat. To comply with the ESA, the co-lead agencies have historically supported actions to mitigate adverse effects to ESA-listed species from CRS operations, through funding, direct implementation, and other means. Under the Preferred Alternative, those actions, including for the purpose of reducing pinniped, pike minnow, and avian predation on ESA-listed species, would generally continue to ensure compliance with the ESA. The Predator Disruption Operations measure in the John Day reservoir is expected to further reduce avian predation on migrating juvenile fish. Other entities in the region have authorities and obligations to mitigate the impacts from pinniped and avian predators and the co-lead agencies will continue to work closely with those entities to benefit ESA-listed salmonids. Sea lions are protected under the Marine Mammal Protection Act. With the exception of continuation of the pikeminnow program, the co-agencies are not proposing additional predator management actions in the Preferred Alternative.
5764	2	Sealiondefensebrigade@gmail.com	N/A	Marine mammals especially sea lions help to strengthen the genetics of the wild salmon preserving their DNA and the sea lions help to aid the states in wild salmon recovery by weeding out the weak and genetically inferior hatchery and NIS fish. Sea Lions and other wildlife predate on the old, sick, injured, and dying fish freeing up habitat resources needed by the wild fish. It is well documented through history that it is only the human animal that predates on the biggest and strongest fish in the CRS and does it using all sorts of technology that enhances the humans ability to find and catch fish with a very unfair advantage. And it has been human hubris, greed and an out of proportion human sense of entitlement that has propelled all species on	The co-lead agencies legal authorities relate to operating and maintaining the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. To comply with the ESA, the co-lead agencies have historically supported actions to mitigate adverse effects to listed species from CRS operations, through funding, direct implementation, and other means. Under the Preferred Alternative, those actions, including reducing pinniped and avian predation on listed species, would generally continue to ensure compliance with the ESA.

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				planet earth one step closer towards EXTINCTION which is forever. Humans must learn to share fish and habitat in the CRS because they can not continue to operate the CRS as if all the fish in the CRS belong to sport and commercial fishermen and that the CRS exists merely to generate profits for humans and to get their products to market if we are serious about protecting and increasing populations of endangered salmon, steelhead and southern resident orca for future generations to come. Altogether to protect and increase wild salmon, steelhead and southern resident orca populations the BPA and US ACOE, State, Federal and Tribal agencies need to stop scapegoating and killing our native wildlife for merely being in the CRS and for eating fish. Peer reviewed science reports sea lions are important to maintaining the health and productivity of the Pacific Northwest ecology. Sea Lions known as ecosystem engineers because their gut and fecal flora are corner stone in the food chain for all life in our rivers and oceans. In addition to regulating species abundance, distribution and diversity, top non human animal predators provide essential food sources for scavengers and remove the sick and weak individuals from prey populations. Maybe its more accurate to describe pinniped poop as the near shore fertilizer equivalent to a gardeners Miracle-Gro because it promotes the well-being and lushness of phytoplankton populations, from giant kelp beds to microscopic marine algae, The volume of plant plankton has declined across much of the world over the past century, probably as a result of rising global temperatures. But the decline appears to have been been steepest where whales and seals have been most heavily hunted the fishermen who have insisted that predators such as seals and sea lions should be killed might have been reducing, not enhancing, their catch. Current science that shows that marine mammals are very important to the health and productivity of the Pacific Northwest ecology and that these four dams are not. We must remember the biological cost before the economical ones. We are a biological system on planet Earth and the laws of the ecology are not built on smoke and a mirrors like Wall Street is. Changes in vertebrate density and composition can have local and even global impacts: the decline of Pleistocene megafauna may have impacted methane production and thus atmospheric temperature. Comparisons of areas with and without keystone, apex and indicator species native non human animal predators show that apex predators provide greater biodiversity and higher densities of individuals, while areas without apex predators experience species absences	
5781	1	gbedirian@hotmail.com	N/A	Taxpayers and electricity ratepayers have spent$17 billion dollars on failed methods for fish recovery, yet these species continue to decline, and doing more of the same will not make any difference in fish and wildlife existence and numbers.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA listed species. Similarly, the Northwest Power Act does not obligate the co-lead agencies to recover ESA listed species or to ensure restoration of other fish and wildlife. Instead, the co-lead agencies fish and wildlife mitigation responsibilities under Northwest Power Act are more limited primarily, managing and operating FCRPS projects, which includes the CRS, to protect, mitigate, and enhance (as opposed to recover) fish and wildlife affected by such projects in a manner that provides equitable treatment with the projects other authorized purposes and consistent with the purposes of the Act and applicable laws. In addition, Bonneville has a specific responsibility to fund protection, mitigation, and enhancement of fish and wildlife to the extent affected by development and operation of FCRPS projects consistent with the Northwest Power and Conservation Councils (Council) fish and wildlife program, the Councils power plan, and the purposes of the Act, which includes assurance of an adequate, efficient, economical, and reliable power supply. Therefore, contrary to the comments broad assertion, the Northwest Power Act does not make Bonneville responsible for funding the regional effort to recover wild salmon and steelhead. The commenters suggestion that approximately $17 billion in fish and wildlife mitigation investment has been ineffective to recover ESA-listed species is misplaced. Those investments delivered the intended results when considered in the appropriate statutory context of the Northwest Power Acts anadromous fish provisions which call for improved survival of such fish at Federal Columbia River Power System (FCRPS) projects and sufficient flows between the projects to improve production, migration, and survival. For example, as of 2014 this investment had facilitated juvenile dam passage survival of 96% and 93% for spring and summer migrants respectively, see Endangered Species Act Federal Columbia River Power System 2016 Comprehensive Evaluation, Section 1, at 17, t.2 (Jan. 2017), a marked improvement compared to when Congress passed the Northwest Power Act and the estimated average juvenile mortality at each mainstem dam and reservoir complex was 15-20% with losses recorded as high as 30%. See Nw. Res. Info. Ctr. v. Nw. Power Planning Council, 35 F.3d 1371, 1374 (9th Cir. 1994) (citing a Sept. 4, 1979 report by U.S. General Accounting Office describing the systems impacts on anadromous fish).
5781	2	gbedirian@hotmail.com	N/A	The draft environmental impact statement on the operation of the Columbia River Hydropower Systems and its effects on salmon and steelhead protected by the Endangered Species Act (ESA) notes that breaching the dams would cost about $955 million or about $35.4 million a year over 50 years but doesnt consider current operating losses, new construction costs and repairs of dams nor the taxpayer subsidies to the Port in Lewiston, barge companies and Portland Power and Electric. These last three are operating at a substantial loss. Breaching the dams would save the government nearly $79 million a year in dam maintenance costs and $32 million in capital costs and result in resurgent Salmon, Lamprey and Orca populations.	As noted in the comment, the cost analysis estimates the capital and O&M (expense) costs savings that would occur under MO3, see Table 4-1 and 5-1 in Appendix Q. The capital costs include additional construction and capital requirements that would be needed in the future for the lower Snake River dams. Regarding the profitability of power from the dams, the four lower Snake River dams are among the most valuable projects in Federal Columbia River Power System (FCRPS), as described in Section 3.7.3.5 of the EIS. These dams provide over 1,000 MW of carbon-free energy and up to 2,000 MW of peaking capacity at certain times of the year. The dams also have unparalleled ramping capability, the ability to quickly generate energy to match spikes in energy usage, with over 2,200 MW of capability in certain months of the year. The EIS in Section 3.10 discusses the potential effects of currently operating barge companies in a dam breach scenario. Impacts to the Port of Lewiston are addressed qualitatively. Moreover, the EIS analysis found only a minor effect to the Southern Resident killer whale would result from implementing MO3 (which includes the dam breach measure). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults form the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differentially from hatchery and wild fish. Hatchery fish today likely make up most fish consumed by SRKW (NOAA BiOp 2020). Moreover, as described in the fish analysis in Section 7.7.5, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species. For example, the CSS and COMPASS models predict that power house encounters will be cut in half relative to the No-Action Alternative for Snake River spring/summer Chinook salmon. The Preferred Alternative also includes measures to improve lamprey passage.
5781	3	gbedirian@hotmail.com	N/A	The transportation costs are important to consider along with the livelihood of agriculture and fishing tourism. However, the costs of new construction of rail infrastructure and new energy sources are listed WITHOUT listing the operation losses of the existing power company and its outdated infrastructure, all subsidized by taxpayers. the report by the US. Army Corp of Engineers is lacking in critical data and analysis.	While the four lower Snake River dams account for a small portion of the total power of the region, they represent a larger portion of the Federal Columbia River Power System (FCRPS) from which Bonneville markets power. As explained in Section 3.7.3.5 of the EIS, Potential Replacement Resources and Associated Costs, the four lower Snake River dams are among the most valuable projects in the FCRPS. Breaching the four lower Snake River dams would have a direct and substantial impact on the supply of Federal power and require replacement resources (either natural gas or renewables), placing upward pressure on power rates.
5791	1	memendes@hotmail.com	N/A	Of great importance is that once again, despite comments in the CSRO Preface to the Executive Summary noting the importance of salmon and the Snake River to the indigenous Tribes of the region, the co-lead agencies (the US Army Corp of Engineers, the Bureau of Reclamation, and the Bonneville Power Administration) continue to ignore the negative impact on the Tribes that it recognized on p. 3-1401: It is difficult to overstate the effect of each dams construction and operation has had to tribal cultures, lifeways, and traditions. They have shaken the very foundations of tribal identity and have either undermined or destroyed aspects of tribal culture central to the very concept of being an indigenous person in the Pacific Northwest. Appendix P, containing the comments of the Tribes, clearly indicates that most support breaching the lower four Snake River dams. It is beyond long overdue for the co-lead agencies to recognize that treaty rights, the U.S governments fiduciary obligations, and promises made to the Tribes supplant continuation of the status quo.	Tribal input, concerns, interests, and especially treaty rights were considered throughout the Draft EIS analyses and in the formulation of the Preferred Alternative. Treaty specific information is included in Section 3.17 as well as Chapter 7. The co-lead agencies recognize and respect the legal obligations treaties impose. The co-lead agencies accordingly included "Protecting Native American treaty and reserved rights and fulfilling trust obligations for natural and cultural resources throughout the environment affected by the Columbia River System operations" as a purpose in the Purpose and Need Statement in Chapter 1 to ensure treaty obligations were a key consideration of decision making. Moreover, tribal input was received during the development of the EIS and tribal concerns, rights and interests, including treaty rights, were considered and incorporated throughout the EIS. Please see treaty rights discussed in the Executive Summary, Section 3.16 Cultural Resources, and Section 3.17 Indian Trust Assets, Tribal Perspectives, and Tribal Interests. Tribal consultation is described in Sections 1.5, 3.5, and 3.15; and Chapter 9.
5791	2	memendes@hotmail.com	N/A	I was not surprised, but still disappointed, that the Preferred Alternative described in the CSRO was simply the status quo with some additional spill water over the four lower Snake River dams. With 8,000 pages, several hearings, and much expert testimony, certainly it was clear that this approach has not worked in the past, is not working in the present, and will remain ineffective in the future. In short, the Preferred Alternative does not meet the first three stated CSRO objectives regarding fish survival, much less provide for restoring fish abundance. With regard to providing an . . . adequate, efficient, economical, and reliable power supply . . . it was clear once again that maintaining the status quo in this area was far more important than ensuring the survival of fish, or of developing alternative, less environmentally negative solutions.	There are many factors that affect salmonid populations, many of which are outside the control of the co-lead agencies. Past actions by the co-lead agencies have resulted in a large percentage of fish being able to pass both upstream and downstream of the lower Snake River and lower Columbia River projects. See Section 3.5.2.3, Anadromous Fish. Many measures have been included in the Preferred Alternative that will benefit ESA-listed species in both the upper and lower Columbia River. In addition, a large number of structural changes are included to benefit salmonid species and Pacific lamprey. See Section 7.6.2, Preferred Alternative Structural Measures. The spill operation for juvenile fish passage is a significant departure from previous operations (see Section 7.6.3 Preferred Alternative Operational Measures for additional discussion), so much so that the Washington and Oregon state water quality standards had to be changed to implement the new spill regime. Based on the analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species. For example, the CSS and National Marine Fisheries Service COMPASS models predict that powerhouse encounters would be cut in half relative to the No Action Alternative for Snake River spring/summer Chinook salmon. The real uncertainty lies in the hypothesis that reduced powerhouse encounters would result in increased adult returns. To address this uncertainty, the Preferred Alternative includes an adaptive management plan. This plan involves working with regional sovereigns to develop a study to assess the effectiveness of the increased spill regime on adult returns as well as assessment and management of adverse unintended consequences, such as long delays of adult migrants, or Total Dissolved Gas-related mortality of juvenile migrants. Please see Appendix R, Part 2, Process for Adaptive Implementation of the Flexible Spill Operational Component. Based on the evaluation described in Chapter 7, the Preferred Alternative meets the Purpose and Need Statement, and the EIS objectives for ESA-listed juvenile and adult anadromous salmonids, resident fish, lamprey, hydropower generation, water management and water supply while minimizing adverse effects to communities and the economy.
5825	2	charlesmccamy@gmail.com	N/A	I support the Preferred Alternative (PA) contained in the DEIS as a balanced approach that benefits the BSA-listed species, meets the multiple purposes of the federal projects, and minimizes adverse economic, environmental, and social impacts, although the PA comes at a cost to me as I pay for power as a member of Fall River Rural Electric Cooperative.	Thank you for your comment. In developing the Preferred Alternative, one of the objectives was ensuring reliable and affordable power. The Preferred Alternative allows the co-lead agencies to continue to operate the facilities for their congressionally authorized multiple purposes, including fish and wildlife, water supply, navigation, flood risk management, and recreation.
5825	3	charlesmccamy@gmail.com	N/A	My main concern with the PA is increased spill of up to 125% total dissolved gas (TDG) levels, resulting in higher power costs and possibly adverse effects to ESA-listed species. I support higher spill levels and the resulting higher power costs only if scientific analyses clearly show a meaningful benefit to ESA-listed species.	The co-lead agencies used current high quality information in the analysis of the CRSO EIS. Specific to salmon and steelhead, the agencies used two primary modeling approaches which yielded a range of potential outcomes for the alternatives. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% as a result of the Preferred Alternative. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective flex spill can be at increasing salmon and steelhead returns to the Columbia Basin. Appendix R, Part 2 describes the principles for implementation of the flexible spill operations and guidance for adaptive management. One of the principles focuses on federal power system benefits, which will be as determined by Bonneville

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					Power Administration. The understanding is that Bonneville must, at a minimum, be no worse financially compared to the 2018 spring fish passage spill operations ordered by the Court. This principle is directly related to Objective 5 of the CRSO EIS: Provide an adequate, efficient, economical and reliable power supply that supports the integrated CR Power System. The co-lead agencies have determined that the Preferred Alternative meets this Objective. In addition, the Preferred Alternative places additional rate pressure for wholesale power rates of 2.7 percent relative to the No Action Alternative consistent with the statement in the comment regarding increased rates. These estimates compare the Preferred Alternative to the No Action Alternative, which is not the same as comparing the Preferred Alternative to current operations. Consequently, the estimates are not a comparison to the BP-20 wholesale power rates, which were set assuming the financial impact of the 2019-2021 Spill Operation Agreement and therefore already include a substantial portion of the cost pressures found in the Preferred Alternative. The remaining rate pressure associated with the Preferred Alternative falls within a level that Bonneville has historically been able to mitigate through the costs it has significant control.
5825	4	charlesmccamy@gmail.com	N/A	Additionally, I urge you to include in the final Record of Decision (ROD) strengthened and expanded measures to mitigate the predation of tens of millions of ESA-listed juvenile fish each year, particularly in the lower Columbia River, by various birds and predatory fish. I also hope the federal agencies will take full advantage of the provisions of the Endangered Salmon Predation Prevention Act to strengthen and expand protections for returning adult fish and I would like to see a strong commitment to do so reflected in the final ROD.	As described in the Preferred Alternative, the co-lead agencies propose several measures to reduce avian and marine mammal predation to mitigate adverse effects to listed species from CRS operations. Ongoing actions described in the No Action Alternative to reduce predation on migrating fish are included in the Preferred Alternative. The No Action Alternative includes ongoing mitigation measures to haze and monitor pinniped predators. These actions would continue into the future under the Preferred Alternative, and the co-lead agencies would continue to assist National Marine Fisheries Service (NMFS), states and Tribes in their pinniped removal efforts near Bonneville Dam. The Preferred Alternative also includes the Predator Disruption Operation to discourage nesting within the John Day reservoir. The projects monitoring and adaptive management plan (Appendix R, part 1) includes monitoring to determine the measure effectiveness on reducing the avian predators nesting habitat. As analyzed in Section 7.7.7, the Predator Disruption Operations measure could delay in nesting waterbirds, forego nesting, or relocate to other areas. As discussed in Section 3.6.3.2, Caspian terns are highly mobile during the breeding season and move between breeding colonies in a given year and between years, demonstrating a willingness to nest away from the Columbia River while still foraging on juvenile salmonids (Corps 2014, 2018, 2019).
5825	5	charlesmccamy@gmail.com	N/A	Im concerned about making sure Fall River has a reliable source of power to meet our communities present and future needs at an affordable cost. Many in our community, include seniors and those on fixed or low incomes, are dependent on the electric service provided by Fall River to heat their homes, power appliances, provide hot water and even pump water from their well. Im concerned about escalating power costs. While the preferred option and increased spill increases our costs, it is far better compared to other DEIS alternatives. Our electric Cooperative, Fall River Rural Electric Cooperative, is serious about their mission of delivering clean, affordable, reliable electricity to us, its members. The DEIS concluded that breaching the Snake River dams would have long-term, major, adverse effects on power costs and rates, and the rate pressure could be up to 50% on wholesale power rates. A 50% increase in wholesale power costs would be financially devastating to our household. It is important to keep these financial impacts in perspective for rural communities like ours where incomes are below regional and state averages. These increases in power costs are not a simple shift from disposable and discretionary income to pay for essential services like electricity. Rather, they mean that some neighbors and family will be forced to make difficult choices about which essentials like food, medicine, utilities, and such they have to sacrifice.	The wholesale power rate effects described in the comment are consistent with the findings of the EIS. The EIS recognizes concerns around the affordability of electricity, and the Environmental Justice analysis (Sections 3.18.3 and 7.7.20 of the EIS) provides further detail on this as well as the potential disproportionate effects to tribal, low-income and minority populations. The EIS also discusses that Bonneville customers, such as the cooperative mentioned in the comment, may have larger increases in rate pressures than other regional utilities that do not purchase power directly from Bonneville. See Draft EIS, Section 3.7.3.5, Residential Effects page 3-929. Chapter 5 and Exhibit 1 of Appendix H, Power and Transmission, provides additional details on potential rate increases by county as well as for urban and rural utility customers mentioned in the comment. The Preferred Alternative does meet the hydropower generation objective to provide an adequate, efficient, economical, and reliable power supply that supports the integrated Columbia River Power System.
5825	6	charlesmccamy@gmail.com	N/A	To conclude, I support the Preferred Alternative with certain caveats and concerns described previously. The PA provides a good blueprint for operating the Columbia River System and has been created and extensively reviewed by some of the best scientists and economists in the U.S. The Preferred Alternative proposes operating the Columbia River in a way which will benefit ESA-listed fish, meet the multiple purposes of the federal projects, and minimize adverse economic, environmental, and social impacts.	Thank you for your comment. In developing the Preferred Alternative, one of the objectives was ensuring reliable and affordable power. The Preferred Alternative allows the co-lead agencies to continue to operate the facilities for their congressionally authorized multiple purposes, including fish and wildlife, water supply, navigation, flood risk management, and recreation.
5855	1	N/A	N/A	We are also concerned that the climate change analysis in the DEIS looks at changes in air temperatures, streamflow, snowpack and precipitation, but not predicted changes in water temperature. The final EIS must have a more accurate assessment of how climate change will increase water temperatures in streams and reservoirs and how that will impact salmon survival, as well as how that would differ under the various management alternatives.	The climate science community is still developing models that can be used to analyze possible effects to water temperature from climate change. Unfortunately, there are not reliable models at this time due to the differences in needed resolution (river vs. global or regional scale). Therefore, it was not possible to reliably model water temperature changes under climate change for this EIS. In lieu of this information, the climate analysis used the output from the water quality models under historical conditions, climate change data, and scientific literature to qualitatively assess potential effects to water temperature and anadromous fish in Section 4.2.3.
5863	1	N/A	N/A	I support keeping our dams. For many many reasons including power generation, agricultural and recreational. I would also support the addition of another dam on the upper snake for aquifer recharge and then release the cold water during low, warm flows to add flow and cool water for migrating fish.	Thank you for your comment and recommendations. The addition of another dam in the Upper Snake River basin is outside the scope of this EIS, which focuses on the operating, maintaining and configuring the Columbia River System.
5866	1	Howard Garrett	Orca Network	1. The DEIS is invalid because Peaking, Ramping, Balancing, and Reserve hydropower benefits of the LSRDs are widely inaccurate. The DEIS claims over 2,000 MW, which is inconsistent with the 15 MW claimed in the still operative 2002 EIS. Power Replacement Costs & Loss of Load Probability are vastly overstated. Least-cost power resource acquisition strategies are not modeled. The DEIS ignores surplus power i.e., power that goes to the interchange market. Most up to date costs and forecasts of wind and solar are not used for cost replacement, if replacement of power is needed. The DEIS claims that annual replacement value for the power lost to the LSRDs is almost a billion dollars a year, which is fictional, given the probability that little or no replacement power will be needed.	As explained in the Draft EIS Chapter 3, Section 3.7.3.1, Base Case Methodology and Cost Sensitivities Analysis, the EIS analysis evaluates the power impacts of the Multiple Objective alternatives (MOs) on regional power system reliability, as measured through loss-of-load probability (LOLP). The regional scope of the EIS is necessary because the impacts of the MOs on power system reliability and costs transcend individual utilities and states. Thus, for example, the EIS addresses the cost impacts of replacement resources for each MO regardless of whether Bonneville pays for the replacement resources. If Bonneville does not replace the lost capability caused by an MO, regional reliability would still be worse than the No Action Alternative and above the Northwest Power and Conservation Councils (Council) 5% standard, leaving other regional utilities to acquire the necessary resources. The EIS addressed the regional nature of the costs and resources needed to maintain power system reliability under the MOs. The EIS analysis looked at all potential resources as identified by the Council. Specifically, the EIS used data from the resources in the Councils Seventh Power Plan (2016) and Mid-Term Update (2019) to develop various resource portfolios. The cost of batteries came from more recent utility Integrated Resource Program data from 2018 and 2019 instead of 2013 data used in the Councils Seventh Power Plan. Seven trial resource portfolios, one carbon and six carbon-free, were produced for each MO and then ranked based on their ability to cost-effectively reduce the LOLP. From these portfolios, the EIS identified the two least-cost portfolios that reduced LOLP to the No Action Alternative levels. These least-cost portfolios include a: (1) conventional resources (natural gas); and (2) a least-cost portfolio using zero-carbon resources (primarily solar). These resource portfolios represent a range of least-cost resources that could be available to restore regional reliability to the No Action Alternative level. Based on responses to public comments, Appendix H, Section 2.2 in the Final EIS contains an expanded description of how the potential replacement resource portfolios were selected for the EIS. Contrary to the information in the comment, the 2002 EIS identified the lower Snake River dams as 15%, rather than 15 MW, of the Federal Columbia River Power System (FCRPS) ramping capacity. The peaking capacity reported in the 2002 EIS is therefore slightly higher than reported in the CRSO EIS. Also contrary to statements in the comment, as explained in Section 3.7.3.5 of the EIS, Potential Replacement Resources and Associated Costs, breaching the four lower Snake River dams would have a direct and substantial impact on the supply of Federal power to meet regional load requirements. These impacts would impact both actual energy to meet regional load requirements and generating capacity (peaking capacity) to meet variability in loads. The four lower Snake River dams are among the most valuable projects in FCRPS. These dams provide over 1,000 MW of carbon-free energy and up to 2,000 MW of peaking capacity at certain times of the year. The dams also have unparalleled ramping capability, the ability to quickly generate energy to match spikes in energy usage, with over 2,200 MW of capability in certain months of the year. To maintain regional reliability at the No Action Alternative levels, replacement resources would be needed, and contrary to the statements in the comment, the EIS considers a least-cost natural gas replacement portfolio and a carbon-free renewables portfolio. The cost of replacing the capability of the four lower Snake River dams is described in detail in the EIS in Section 3.7.3.5, Potential Replacement Resources and Associated Costs. The EIS used the most recent data from the Council's Seventh Power plan and Mid-term Updates to analyze regional reliability, the need for replacement resources, and the potential for additional energy efficiency. The Councils Seventh Power Plan was issued in February 2016 and the Mid-Term Update was issued in February 2019.
5866	2	Howard Garrett	Orca Network	2. The DEIS is invalid because Snake River Chinook are considered insignificant prey source for Southern Resident Killer Whales (SRKW) ignoring NOAA's Northwest Fisheries Science Center data and other available science on SRKW historical and present day range and diet. The DEIS includes only three referenced sources on the Southern Residents, does not include the most recent population estimate from the Center for Whale Research and NMFS, and does not include any peer-reviewed studies from independent scientists or data from NMFS regarding the orcas presence in coastal habitat or the importance of Chinook salmon to the orcas survival. For some examples of NOAA providing faulty estimates while ignoring the best available science, and, see Southern Resident Killer Whales & Columbia/Snake River Chinook: A Review Of The Available Scientific Evidence (http://www.orcanetwork.org/Main/PDF/Salmon_Orca_Scientist_White_Paper_02-20-20.pdf). The data compiled by NMFS from dedicated surveys, satellite-tagging, and passive acoustic monitoring indicate that the timing of the Southern Residents presence near the mouth of the Columbia River coincides with peak spring Chinook salmon returns. NMFS itself has noted this area to be a high use foraging area, and approximately 50% of the time spent by the orcas in coastal waters is between Grays Harbor and the Columbia River. The Co-Lead Agencies fail to consider the seasonal role of Columbia Basin Chinook in providing the Southern Residents with a key source of food and nutrition during the late winter and early spring. By ignoring key findings and scientific reports, the DEIS improperly diminishes the importance of Columbia/Snake River salmon as a critical prey resource for Southern Resident orcas.	SRKW analysis is described in the EIS including in the FEIS Chapter 3 (Vegetation, Wetlands, Wildlife, and Floodplains) which has been updated for SRKW (Section 3.6.2.6 and Table 3-102) and FEIS Chapter 7 (Preferred Alternative) with additional analysis information on SRKW and potential increase in forage fish, in particular, Chinook salmon in Section 7.7.8. The co-lead agencies utilized current high quality information and best available science in its analysis of the effects of the operation, maintenance, and configuration of the CRS projects. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not require the co-lead agencies to take affirmative actions to recover ESA listed species. The population dynamics of the SRKW are complicated and there are multiple factors that contribute to the overall success of this species. The quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differently from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for the whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall-run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall-run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). Details on the most crucial prey stocks for Southern Resident killer whales, as well as their population and range, is available from several fact sheets and videos available here: https://www.fisheries.noaa.gov/species/killer-whale#spotlight. For more information, visit this NMFS StoryMap on Southern Resident killer whales: https://noaa.maps.arcgis.com/apps/Cascade/index.html?appid=3405e6637bf74e998d4ebe992c54f613. According to NMFS and the EPA, the estimated SRKW population has fluctuated between 67 and 98 whales between 1960 and 2015. The Snake River dams were constructed between 1962 and 1975. The SRKW population increased from a record low in 1970 to its highest population numbers in 1995. Those years were not high years for Snake or Columbia River Chinook Salmon. Ocean conditions between 2011 and 2013 were good years for salmon. At the same time, 2010 and 2013 were good outmigration years. Particularly, 2011 and 2012 were above normal in water supply, which would mean more cooler water was available and there was better survival of salmon, and 2011 through 2014 were higher than normal spill years as well. The combination of outmigration and ocean conditions created improved adult salmon returns. The EIS has analyzed spill as a measure in the Preferred Alternative and determined the overall effect to SRKW to be negligible in large part because hatchery production is consistent between the No Action Alternative and the Preferred Alternative. Because the impact from the Preferred Alternative was determined to be negligible, the agencies determined that existing hatchery production would be sufficient to address any potential impacts to prey availability for SRKWs. The co-lead agencies note the contribution to the prey of SRKW through the continued existence of their respective independent Congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as the Lower Snake River Compensation Plan (other than under MO3), which is administered by USFWS. The Preferred Alternative and Proposed Action in the agencies' biological assessment carry forward certain mitigation measures described in Chapters 2 and 7 of the EIS, which include continued salmon and steelhead hatchery production. The Preferred Alternative has negligible effects to SRKWs as described in Section 7.7.8.

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					The Biological Assessment (BA) describes the effect of the Proposed Action on the SRKW forage species (see BA Section 3.5.1.2, Southern Resident Killer Whale). The proposed changes in operation of the Columbia River System include increased spring spill during the downstream migration of juvenile spring and summer run Chinook salmon. The result of this action includes potential increases of juvenile fish passing through the spillways, reductions in juvenile fish direct and indirect mortality associated with downstream passage, and the Comparative Survival Study (CSS) model predicts increases in numbers of returning adults, which will benefit SRKWs foraging in and around the mouth of the Columbia River in winter and spring (See EIS Section 7.7.8). The CSS model results predicts Snake River Chinook salmon would have relative improvements in smolt-to-adult returns of 35 percent (see EIS Section 7.7.4). The smolt-to-adult return ratio (SAR) is the rate at which of a group of fish survive from their smolt life stage to a defined ending point where they return as adults. While recovery targets will require more than just the efforts of federal agencies, the CSS models indicate the potential for SARs of Snake River Chinook salmon and steelhead to increase to levels that could approach recovery targets set by the Northwest Power and Conservation Council. The BA, also consistent with the EIS, acknowledges past improvements to the configuration and operation of the Columbia River System, additional improvements to the environmental baseline as a result of completed estuary and tributary habitat actions, and the prospective non-operational conservation measures proposed in Chapter 2 of the Draft EIS, all contribute towards maintaining and improving Chinook abundance. Relevant conservation measures include, among other things, a commitment to continue funding the conservation and safety net hatchery programs listed in Chapter 2 of the Draft EIS. As discussed above, the agencies will fulfill congressionally authorized hatchery mitigation objectives through the funding of hatchery programs that are operated consistent with their independent hatchery program consultations during the term covered by this consultation. Based on those hatchery program consultations, the production levels associated with congressionally authorized hatchery mitigation objectives will continue, at minimum, to be consistent with levels previously analyzed by NOAA in the system consultations in 2008, 2014, and 2019. For the 2020 ESA consultations, therefore, the agencies expect that collectively, all of the actions described above (substantial modifications to migration conditions designed to benefit key prey species, combined with improvements to Chinook spawning and rearing habitat in the tributaries and Columbia River estuary, and continued hatchery production) ensure that remaining Chinook mortality from all sources in the mainstem migratory corridor will continue to be more than offset, resulting in a net gain in Chinook salmon abundance available as a prey source for SRKW. Finally, the 2019 NMFS Fisheries BiOp included increased spring spill operations that are similar to operations evaluated in CRSO EIS, and NOAA validated that the hatchery production of Chinook salmon mitigates for the impacts of operating the Columbia River System and total mortality through the mainstem migratory corridor from all sources.
5866	3	Howard Garrett	Orca Network	3. Transition from barge to rail assumes a rail rate increase of 25-50%. Use of rail line along lower Snake not mentioned.	The Great Northwest Railroad, owned by WATCO, is a short-line railroad that runs along the Snake River from Lewiston, ID, to Ayer Junction, WA. The co-lead agencies' research suggests that elevator to river port movements via short-line rail are not currently occurring because in order to ship grain to river terminals on the Columbia, one must operate on part of Union Pacific's rail line and WATCO's operating agreement with Union Pacific does not allow for these shipments. The effect of including this assumption and allowing movements on these short lines during a breach scenario would be to somewhat reduce the anticipated increases in shipping costs to shippers. Information has been added to Appendix L that describes the impacts of modifying this assumption on quantified costs to shippers.
5866	4	Howard Garrett	Orca Network	4. Breach cost (without mitigation) is uncorrected from 2002 EIS despite multiple studies showing far lower costs. Error of approx. $600 million.	Corps' engineers and cost estimators reached out to dam breaching experts at Reclamation and considered techniques used at other facilities. The method proposed for breaching the four lower Snake River Dams is based on the extensive analysis of breaching completed for the 2002 Feasibility Study, but refined to reflect information learned from updated hydraulic modeling. The 2016 breaching methodology also reflects lessons regarding methods, sediment movement, and river recovery learned from other dam breaching efforts undertaken in the United States. The methodology described in the Draft EIS is intended to minimize impacts on ESA-listed fish and other aquatic organisms, on the built environment, and to provide maximum protection to human health and safety. Regarding costs, for the purposes of this EIS, the 2002 cost estimates were adjusted to reflect the proposed plan (i.e., some features such as training walls and levees were removed as described in the updated methodology) and escalated to 2019 price levels to account for inflation. The co-lead agencies would continue to adhere to Federal standards for dam and levee safety and human life safety considerations. In the event that breaching of the lower Snake River dams is recommended for implementation, additional analysis would be conducted to refine methods and costs.
5866	5	Howard Garrett	Orca Network	5. Breach alternative MO3 is obfuscated by conflating with construction and mitigation costs on other dams. This is the poison pill that makes LSRD breaching more expensive than the Preferred Alternative.	MO3 would include breaching the four lower Snake River dams and drawdown of the dam infrastructure (Annex A of Appendix Q). In addition, costs would be incurred to mitigate the adverse effects of MO3 (see Table 6-1 in Appendix Q, Draft EIS). However, there are additional benefits and costs across an array of resource areas associated with the Preferred Alternative and MO3, including potential effects at the national, regional and local level. The EIS evaluates the performance of the CRSO EIS alternatives with respect to multiple objectives, for example, related to improving fish passage and survival, reliable power generation, and minimizing greenhouse gas emissions. Table 7-1 in Chapter 7 provides a summary of the beneficial and adverse effects of the alternatives, including the quantified social welfare costs and benefits for a subset of the resource areas (specifically, hydropower, navigation, and irrigation) as well as the implementation costs of the alternatives.
5866	6	Howard Garrett	Orca Network	6. Irrigation mitigation of MO3 is based on devaluing irrigated land, 47,840 acres. Pipe extension and pump installation mitigation overlooked, with actual cost estimated at $20 million from Sampson, Rob 2018 A brief review of the impacts to irrigated farmland from breaching the four dams on Lower Snake River (LSR).	The EIS discusses engineering solutions, including pipeline extensions, in Section 3.12.3. MO3, Region C discussion begins on page 3-1267, line 3244, in the Draft EIS and is also found in Appendix N. The EIS draws upon the 2002 Lower Snake River Juvenile Salmon Migration Feasibility Report and Environmental Impact Statement, which concluded that modifying the existing pump system was cost-prohibitive. As discussed in Section 3.12.3, for MO3, in Region C this analysis assumes that pumps are unable to deliver water to an estimated 47,926 acres.
5866	7	Howard Garrett	Orca Network	7. Salmon survival/mortality data are understated and insufficient. The DEIS does not assess latent mortality and reservoir mortality of smolts, which account for the vast majority of salmon mortalities, or the Smolt to Adult Ratio (SAR) values for recovery standards in each MO. The DEIS fails to acknowledge that out-migrating smolts not directly killed by the hydropower system may succumb to delayed mortality in the estuary and ocean due to accumulated, successive, hydropower system-related impacts.	The model results presented in Section 3.5 and Chapter 7 address latent mortality and reservoir mortality. Latent mortality is captured directly in the CSS model for Smolt-to-Adult return rates and abundances, and is overlaid with several assumed values (10%, 25% and 50% reductions in latent mortality) in the National Marine Fisheries Service Lifecycle model results. Reservoir mortality is captured in the juvenile survival metrics presented in Chapter 3. Delayed mortality in the ocean due to Columbia River System dam passage is discussed throughout the Draft EIS.
5866	8	Howard Garrett	Orca Network	8. MO3 Anadromous fish mitigation cost is estimated at $78.1 million for additional hatchery salmon based on assumption that many would die during breaching. That cost is unnecessary if breaching occurs during winter when almost no fish are in the river. The 2002 EIS does not include that expense in its breach alternative for the same reason.	The timing of breaching in the current EIS evaluation is the same as the timing proposed in the 2002 EIS. The CRSO EIS evaluated the potential for impacts to water quality and river mechanics, and subsequently to fish and aquatics in an interim period of two-seven years, that were not provided in the 2002 EIS. This water quality and sediment evaluation in the CRSO EIS was used to identify the need for additional mitigation.
5866	9	Howard Garrett	Orca Network	9. Methane production of LSRDs is ignored under all MOs. Contrary to the DEIS, MO3 reduces greenhouse gas emissions as supported by US Department of Energy 2013 Evaluating greenhouse gas emissions from hydropower complexes on large rivers in Eastern Washington.	Appendix G, Chapter 5, of the EIS details the assessment of reservoir methane emissions from the CRS projects. The findings are summarized in Section 3.8. These sections include references to and discussion of Arntzen et al. (2013), research supported by the U.S. Department of Energy. This assessment finds that reservoir characteristics and management substantially influence methane emissions. A 2016 study developed by the Corps' Walla Walla District concluded that for the relatively clean reservoirs of the Federal Columbia River Power System, which include the four lower Snake River dams, conditions for low dissolved oxygen concentrations are not prevalent; thus, methane gas is generally not an issue. Additionally, in 2017, the Council found that data on these sites were insufficient to estimate the reservoir methane emissions specifically for the CRS, but that methane emissions at high levels are not likely due to the lower organic and nutrient loads to the system, and higher dissolved oxygen content. The EIS describes that emerging technologies could allow for better measuring and understanding the effects of reservoir methane emissions from CRS projects, including the four lower Snake River dams.
5866	10	Howard Garrett	Orca Network	10. Under the ESA, recovery means improvement in the status of listed species to the point at which listing is no longer appropriate. The Preferred Alternative and all alternatives except MO3 fail to improve any of the 13 distinct runs of salmon and steelhead evolutionarily significant units (ESUs), the Federal Caucus Agencies are tasked by the ESA and five successive Federal Court decisions to restore.	Based on the EIS analysis, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Recovery is a broader regional goal and is above and beyond the co-lead agencies' obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the Columbia River System. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species, including actions of the other Federal Caucus agencies.
5866	11	Howard Garrett	Orca Network	11. The DEIS is invalid because the Federal Caucus Agencies have failed to respond to opposing scientific viewpoints objectively and in good faith, as required by NEPA, including those of the governments own experts like NOAA's Northwest Fisheries Science Center and the Fish Passage Center.	The co-lead agencies are responding to comments from the public and other agencies on the Draft EIS as represented by Appendix T. The co-lead agencies implemented a multi-disciplinary approach, with the coordination and consideration of our cooperating agencies and Tribes, to complete the alternative analysis by using high-quality and current information. Specific to salmon and steelhead, the agencies used two primary modeling approaches which yielded a range of potential outcomes for the alternatives. The Comparative Survival Study model was run by the Fish Passage Center; and the NMFS COMPASS and Lifecycle models were run by NOAA's Northwest Fisheries Science Center for the co-lead agencies. The co-lead agencies sought an Independent External Peer Review on the technical analyses for scientific rigor. The review by this external panel of experts validated the use of both models in the co-lead agencies decision-making process. The panel highlighted the inherent uncertainties and risk that is always present when using complex ecological models and provided suggestions for continued development and improvement. Many suggestions by the expert panel are already accounted for and will be implemented through the adaptive implementation process detailed in Appendix R.
5866	12	Howard Garrett	Orca Network	12. The DEIS fails to acknowledge that Columbia River Basin hydropower development and ongoing operations have significantly altered and destroyed salmon habitat. The LSR dams have drastically reduced or eliminated access to historically accessible habitat, reduced natural river flow important for out-migrating smolts, flooded and covered spawning beds with sediment, increased water temperatures, and facilitated increased predation on salmon smolts. Additionally, turbines, bypass systems, and sluiceways directly kill both adult and juvenile salmon.	It is well understood that CRS dams have an impact on natural riverine processes, as well as anadromous fish migration. This is discussed throughout the EIS document. For example, a system water quality model was developed to examine water temperature and Total Dissolved Gas effects throughout the Columbia and Snake River systems for this EIS. Breaching the four lower Snake River dams would result in long-term benefits, including improvements to fall water temperatures and the restoration of the river to more normative riverine processes; this is stated in Chapter 3, pages 3-271 through 3-272 and Appendix D, Section 6.2.3. As a NEPA document, the effects of the alternatives are compared to the effects of the No Action Alternative. Effects of hydropower in a historical context are included in the description of the Affected Environment, and ongoing effects of the CRS projects that would continue to affect salmon and steelhead into the future are fully described and analyzed under the Environmental Consequences of the No Action Alternative.
5866	13	Howard Garrett	Orca Network	13. Congressional authorization assumption for MO3 incorrect and has been misrepresented for over two decades to dissuade and delay the necessary breaching alternative, be it Alt 4 in the 2002 FR/DEIS for the Snake River or this CRSO DEIS. The Corps HQ down to the Division needs to apply some true leadership to rectify this false whose got the power and authority excuse derivation. The Corps has the power and authority to manage, thus decommission and deconstruct, its water projects, as demonstrated by the failed bill to create such Congressional authority put before Congress by southeast and central Washington representatives to the House.	The co-lead agencies require congressional authority and appropriations to build dams and to deauthorize or breach dams. The agencies do not have the Federal authority or budgetary discretion to take actions affecting Federal resources without both authorization and appropriations from Congress. More information is available in the Corps Engineering Regulation (ER) 1165-2-119 Water Resources Policies and Authorities, Modifications to Completed Projects (Sept. 20, 1982) or ER 1105-2-100, Appendix G, Section III Post Authorization Changes.
5866	14	Howard Garrett	Orca Network	14. The DEIS fails to acknowledge that breaching the dams is the only biologically feasible mitigation to prevent the extinction of listed endangered species, including Southern Resident orcas.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Moreover, the EIS analysis found a minor effect to the Southern Resident killer whale (SRKW) would result from implementing MO3, which includes breaching the four lower Snake River dams. This conclusion is based on the fact that The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). The co-lead agencies agree that the quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults form the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differentially from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020). Changes to this portion of the whales food availability of the magnitudes predicted for MO3 may change the whales foraging

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					behavior patterns slightly, but will not change their overall condition or population dynamics. The co-lead agencies note the contribution to the prey of SRKW through the continued existence of their respective independent congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as Lower Snake River Compensation Plan, which is administered by U.S. Fish and Wildlife Service. Additional details on the most crucial prey stocks for SRKW, as well as their population and range, is available from several fact sheets and videos available here: https://www.fisheries.noaa.gov/species/killer-whale#spotlight. For more information, visit this NMFS StoryMap on SRKW: https://noaa.maps.arcgis.com/apps/Cascade/index.html?appid=3405e6637bf74e998d4ebe992c54f613.
5866	15	Howard Garrett	Orca Network	15. According to Earth Economics, the LSRDs have a combined Benefit-to-Cost ratio of 0.15. Whereas, if they breach, the BCR would be 4 to 1 and could be as high as 20 to 1. Why is this not revealed in the DEIS, and why is BPA not acting on this information?	The EIS evaluated beneficial and adverse effects across an array of resource areas including potential effects at the national, regional and local level; effects are monetized and quantified, where possible, and also described qualitatively. As is common in NEPA analyses, the beneficial and adverse effects of the alternatives are expressed as a variety of qualitative and quantitative environmental and economic metrics throughout the EIS to inform decision-making, including the effects of the alternatives on fish as detailed in Section 3.5. That the effects of the alternatives on fish are not expressed as monetized economic values does not mean that they were not considered in the context of the analysis. The EIS does not employ a cost-benefit framework for decision-making, which is not a requirement of NEPA or the basis of alternative selection under NEPA (see 40 C.F.R. 1502.23). Instead, the EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads agencies numerous legal obligations. The Preferred Alternative (PA) is predicted to benefit ESA-listed juvenile and adult anadromous salmonids (two of the objectives), but not as much as Multiple Objective alternative 3, which includes breaching the four lower Snake River dams. However, the PA also meets most other EIS objectives including those for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. For hydropower, the average annual value of the four lower Snake River dams exceeds the average annual equivalent costs. The generation value at the four lower Snake River dams can be described by a range between the cost to replace the generation through new conventional resources or through a portfolio of zero-carbon resources. Although the costs of replacing the power with market purchases was analyzed, it is unlikely that short-term wholesale power markets could reliably replace the power for the long-term. This range would put the annual value of power between $240 million and $500 million for the four dams combined. These numbers represent about 90 percent of the lost benefits cited in Table 3-171 of the Draft EIS because the four dams represent about 1,000 aMW of the 1,100 aMW of lost generation estimated in MO3. The average annual cost to operate and maintain all authorized purposes at the four lower Snake River dams is $75 million (Appendix Q, Table 5-1) and the annual-equivalent capital costs are $32 million (Appendix Q, Table 4-1). Hydropower costs funded by Bonneville represent about $50 million of the total annual operations and maintenance costs and nearly all of the annual capital costs, approximately $31 million. This puts the annual-equivalent power-specific costs at approximately $81 million a year. As a result, the net benefits from hydropower for the four lower Snake River dams are between $159 million and $419 million and the benefit-cost ratios are between 3.0 and 6.2. If the $34 million per year for the Lower Snake River Compensation Plan is added to the capital and expense costs, benefits still exceed costs under each replacement power scenario. Considering these costs, the net benefits range from $125 million to $385 million and the benefit-cost ratios range from 2.1 to 4.3. In the less-likely scenario that generation could be reliably replaced with short-term wholesale market purchases and assuming that the four dams represent 90% of the $150 million in market purchases required to replace the lost generation cited in MO3 (see Table 3-170 in the Draft EIS), the lower bound for net benefits would fall to $54 million and the benefit-cost ratio would fall to 1.7. With the Lower Snake River Compensation Plan included, the lower bound for annual net benefits becomes $20 million and the benefit-cost ratio becomes 1.2. From a resource competitiveness perspective, the four lower Snake River dams are among the least costly generating resources in the Federal Columbia River Power System (FCRPS) and the planned investment strategy is expected to maintain that status. As shown in the Federal Hydropower presentation at the 2018 Integrated Program Review , the Headwater/Lower Snake Asset Class is forecast to have a 50-year levelized cost of generation of $11.41/MWh based on the direct funded capital and expense (O&M) programs outlined in that process. These costs remain competitive with volatile Mid-Columbia spot market energy prices which averaged $37/MWh in 2019 and have averaged $21/MWh in 2020. 1/ The Integrated Program Review (IPR) allows interested parties to see and comment on all relevant Federal Columbia River Power System (FCRPS) capital and expense (O&M) spending level estimates in the same forum. The IPR occurs every two years, or just prior to each rate case, and is the public review for the costs that will be recovered through rates the following two-year rate period. Long-term forecasts for the next 50 years and major upcoming projects are also shared in this forum. This information is available here: https://www.bpa.gov/Finance/FinancialPublicProcesses/IPR/2018IPR/IPR%202018%20Fed%20Hydro%20Workshop.pdf and is incorporated by reference into this EIS. 2/ In the 2018 Integrated Program Review, the Headwater/Lower Snake Asset Class consisted of the four lower Snake River dams, Hungry Horse, Libby, and Dworshak dams. These projects were grouped together because they have similar cost characteristics. The Levelized Cost of Generation for the four lower Snake projects alone is slightly lower than that for the whole class including the headwater projects shown in the table. 3/ Levelized Cost of Generation is defined as the forecasted direct costs and administrative overhead of producing power at a plant annualized over a 50-year period. This cost includes direct funded operations, maintenance, administrative and capital costs as well as Columbia River Fish Mitigation (CRFM) costs. Bonneville system-wide mitigation costs, such as its Fish and Wildlife program, are not included in this metric. Regarding the Earth Economics study cited by the comment, the EIS considered this study among others that considered various approaches to valuing benefits. This discussion can be found in the EIS, Section 3.15.2.2, Benefit Transfer Studies.
5866	16	Howard Garrett	Orca Network	16. Expenses incurred by breaching can be written off as a fish mitigation credit. BPA would get a double win by removing costly projects and providing endangered salmon with a greater potential to recover. BPA is aware of this and yet continues to remain defensive of keeping the dams - why?	Under the Northwest Power Act, the Administrator must use the Bonneville Fund to protect, mitigate, and enhance fish and wildlife affected by the operation and development of the Federal Columbia River Power System (FCRPS) in a manner consistent with the Councils Fish and Wildlife Program, the Councils Power Plan, and the purposes of the Act. Section 4(h)(10)(A) (16 U.S.C. 839(b)(h)(10)(A)). The extent of mitigation Bonneville should fund is limited: A principle of the Act restates the longstanding appropriations and accounting principle that electric power consumers should bear the cost of mitigation designed to address the adverse impacts caused by development of FCRPS electric power facilities and programs only. 16 U.S.C. 839(b)(h)(8)(B). Because the FCRPS dams are multi-purpose projects, mitigation Bonneville funds using its section 4(h)(10)(A) authorities offset the adverse impacts of the non-power purposes as well as power purpose of the dams. To ensure electric power consumers pay only the power share of mitigation costs, Bonneville takes a fish credit from the U.S. Treasury to recoup non-power share of the mitigation funded on behalf the FCRPS. 16 U.S.C. 839(b)(h)(10)(C). As a recoupment owed ratepayers for funding non-power mitigation, the credit is not a gain or win as the comment suggests; it simply makes ratepayers whole. Moreover, the section 4(h)(10)(C) crediting mechanism is not available unless Bonneville funds the mitigation using its section 4(h)(10)(A) authority. Bonneville cannot use its section 4(h)(10)(A) mitigation authority under the Northwest Power Act to fund dam breach. Currently, dam breaching is not part of the Councils Fish and Wildlife Program, the Seventh Power Plan, or evident within the purposes of the Act. Dam breaching is inconsistent with the statutory purpose of section 2(6) of the Act, which says in relevant part that anadromous fish are dependent on environmental conditions substantially obtainable from operations and management of the CRS and other hydropower facilities in the basin. Additionally, as demonstrated in Section 3.7 (Power Generation and Transmission) of the EIS, dam breaching is also inconsistent with another purpose of the Northwest Power Act, section 2(2), which provides for assuring the Pacific Northwest an adequate, efficient, economical, and reliable power supply. Because the Northwest Power Act does not authorize Bonneville to fund dam breaching, there would be no mitigation credit available. For hydropower, the average annual value of the four lower Snake River dams exceeds the average annual equivalent costs. The generation value at the four lower Snake River dams can be described by a range between the cost to replace the generation through new conventional resources or through a portfolio of zero-carbon resources. Although the costs of replacing the power with market purchases was analyzed, it is unlikely that short-term wholesale power markets could reliably replace the power for the long-term. This range would put the annual value of power between $240 million and $500 million for the four dams combined. These numbers represent about 90 percent of the lost benefits cited in Table 3-171 of the Draft EIS because the four dams represent about 1,000 aMW of the 1,100 aMW of lost generation estimated in MO3. The average annual cost to operate and maintain all authorized purposes at the four lower Snake River dams is $75 million (Appendix Q, Table 5-1) and the annual-equivalent capital costs are $32 million (Appendix Q, Table 4-1). Hydropower costs funded by Bonneville represent about $50 million of the total annual operations and maintenance costs and nearly all of the annual capital costs, approximately $31 million. This puts the annual-equivalent power-specific costs at approximately $81 million a year. As a result, the net benefits from hydropower for the four lower Snake River dams are between $159 million and $419 million and the benefit-cost ratios are between 3.0 and 6.2. If the $34 million per year for the Lower Snake River Compensation Plan is added to the capital and expense costs, benefits still exceed costs under each replacement power scenario. Considering these costs, the net benefits range from $125 million to $385 million and the benefit-cost ratios range from 2.1 to 4.3. In the less likely scenario that generation could be reliably replaced with short-term wholesale market purchases and assuming that the four dams represent 90% of the $150 million in market purchases required to replace the lost generation cited in MO3 (see Table 3-170, Draft EIS), the lower bound for net benefits would fall to $54 million and the benefit-cost ratio would fall to 1.7. With the Lower Snake River Compensation Plan included, the lower bound for annual net benefits becomes $20 million and the benefit-cost ratio becomes 1.2. From a resource competitiveness perspective, the four lower Snake River dams are among the least costly generating resources in the FCRPS and the planned investment strategy is expected to maintain that status. As shown in the Federal Hydropower presentation at the 2018 Integrated Program Review (see Footnote 1 below), the Headwater/Lower Snake Asset Class (see Footnote 2 below) is forecast to have a 50-year levelized cost of generation (see Footnote 3 below) of $11.41/MWh based on the direct funded capital and expense (O&M) programs outlined in that process. These costs remain competitive with volatile Mid-Columbia spot market energy prices which averaged $37/MWh in 2019 and have averaged $21/MWh in 2020. Footnotes: 1. The Integrated Program Review (IPR) allows interested parties to see and comment on all relevant FCRPS capital and expense (O&M) spending level estimates in the same forum. The IPR occurs every two years, or just prior to each rate case, and is the public review for the costs that will be recovered through rates the following two-year rate period. Long-term forecasts for the next 50 years and major upcoming projects are also shared in this forum. This information is available here: https://www.bpa.gov/Finance/FinancialPublicProcesses/IPR/2018IPR/IPR%202018%20Fed%20Hydro%20Workshop.pdf and is incorporated by reference into this EIS. 2. In the 2018 Integrated Program Review, the Headwater/Lower Snake Asset Class consisted of the four lower Snake River dams, Hungry Horse, Libby, and Dworshak dams. These projects were grouped together because they have similar cost characteristics. The Levelized Cost of Generation for the four lower Snake projects alone is slightly lower than that for the whole class including the headwater projects shown in the table. 3. Levelized Cost of Generation is defined as the forecasted direct costs and administrative overheads of producing power at a plant annualized over a 50-year period. This cost includes direct funded operations, maintenance, administrative and capital costs as well as Columbia River Fish Mitigation (CRFM) costs. Bonneville systemwide mitigation costs, such as its Fish and Wildlife program, are not included in this metric.
5866	17	Howard Garrett	Orca Network	17. According to Chris Penny, USACE, Walla Walla District Fishery Biologist (28 years 1991- 2018), Senior Subject Matter Expert on ESA-listed Salmon and Steelhead Passage through the Snake and Columbia river hydrosystems and lifecycle modeling for extinction risk and recovery determinations and management: The NOAA-constructed information for the best selection of a Preferred Alternative is there in the CRSO EIS and fully supports 4 LSR dam breaching in alternative MO3, but the information is well hidden in the complexity of the Appendices. By design of the co-leads this dissuades the reader from seeing the accurate information, to support their pre-determined and pre-selected status quo. The COMPASS-modeled reach survivals in the Appended Tables of Raw Data of Appendix E are very consistent with both NOAA NWFSC annual reporting of the PIT-tag detection modeling (50-70%s Snake River and 40-60% Columbia River reach survivals) and the PATH modeling statistical exercise for breach (Alt 4) in the 2002 FR/EIS for Snake River juvenile salmon migration (85-96% Snake River reach survivals, Columbia River variability stays near the same). These vital and critical reach survival statistics were not brought forth in any adequate way or manner by the co-lead authors, acting woefully and gravely to salmon and steelhead.	For the 2000 Biological Opinion (BiOp), National Marine Fisheries Service (NMFS) proposed estimating free-flowing Snake River survival rates by estimating survival rates of PIT-tagged smolts from both the Salmon River trap and the Snake River trap (at the head of Lower Granite Reservoir) to the Lower Granite bypass. The per-kilometer survival rate of the free-flowing portion of the Snake River could be inferred from the differences between these two trap-to-dam estimates. A 2004 NMFS memo updated the free-flowing survival estimate from the Salmon River trap using observations from 1993-2003. Expanding the mean 1993-2003 per-kilometer survival rate to an equivalent distance of the system from head of Lower Granite Reservoir to Bonneville tailrace (512 km) resulted in an imputed 78.6% (0.05 se) survival for yearling Chinook, and 82.0% (0.05se) for steelhead. For the CRSO Draft EIS, NMFS used a similar method of estimating free-flowing survival and travel times with the NMFS COMPASS model. PIT-based monitoring efforts have been added at a variety of additional hatchery and wild trap locations in the Snake and upper Columbia since the 2000 BiOp. The Salmon trap to Lower Granite reservoir free-flowing survival rate is used as a representative yearling Chinook population for the main text of the MO3 analysis. In the appendix, NMFS carries out a sensitivity analysis for the choice of upstream trap location by comparing free flowing survival rates estimates from the Grande Ronde, Salmon, and Imnaha traps to Lower Granite Dam to represent lower Snake River dam breach conditions under alternative MO3.
5866	18	Howard Garrett	Orca Network	A key question that is not addressed in the DEIS is the sum totals of federal funds or loan guarantees made available to BPA and the Federal Caucus annually. The answers are not easy to find except by deduction from publicized indications. One example that includes an ominous warning: April 23, 2019 - Congressman Mike Simpson (R - Idaho) at the 2019 Andrus Center conference: Energy, Salmon, Agriculture and Community: Can We Come Together? said: "Their ability to borrow money, 16 billion dollars in debt, I think it's 2023 or something like that, their ability to borrow runs out and	Regarding Bonneville's debt, Bonneville uses U.S. Treasury borrowing authority, non-Federal and other sources to fund Bonneville's ongoing capital program. Bonneville signaled in its strategic plan that, barring no changes, Bonneville would exhaust U.S. Treasury borrowing authority by 2023, so Bonneville's plan was to look at all available options to ensure U.S. Treasury borrowing would not be exhausted. One of the near-term actions Bonneville has taken was to pay an additional amount of U.S. Treasury debt in Transmission rates, doing so frees up U.S. Treasury borrowing authority, extending the timeline for when Bonneville expects it to be exhausted. Paying additional debt is one action, but Bonneville is continuing to explore other options to assure sufficient borrowing authority on an ongoing basis as well as ensuring the amount of debt Bonneville incurs is also prudent. To that end, Bonneville instituted a leverage policy, to ensure the amount of debt Bonneville incurs is

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				Congress has to reauthorize that and I'm telling you, I don't know that Congress will reauthorize that. I have seen over my period of time more and more pressure in Congress to do away with power marketing administrations...selling off BPA transmission." Media reports indicate that BPA has spent over $900M in 10 years while adding billions to its federal debt obligations. BPA is one of, if not the most highly leveraged utilities in the country despite raising rates 30% over the same period. BPA isnt recovering its costs, because the Snake River dams generate little or no revenue and never have. According to Rocky Mountain Econometrics (February 18, 2020), the cost to maintain the LSRD by the Corps of Engineers: $49 M per year. The Fish and Wildlife Mitigation cost associated with the LSRD: $300 Million+ per year. According to the Walla Walla Union-Bulletin (https://www.union-bulletin.com/local/lower-monumental-dam-celebrates-half-century-mark/article_33dd909a-9831-11e9-8a14-c3b489c6f05d.html): About 50 Walla Walla District employees work at the [Lower Monumental dam] as electricians, lock operators, mechanics, welders, riggers, painters, utility workers, heavy equipment operators, biologists, park rangers, environmental resource specialists, administrative support staff, maintenance workers and engineers. It would be informative to estimate the total payroll for all those employees, including benefits, admin, travel budgets, etc., multiplied by four to account for all four dams, adjusting for each dam's circumstances, to arrive at the total payroll costs to the ACOE that would be eliminated or reassigned if the dams were breached. Then multiply that by the multiplier effect of their spending in Tri-Cities to Lewiston areas to estimate the total economic effects of the federal money spent in the region to keep the dams in place. In Recovering a Lost River, author Steven Hawley writes that between 2001 and 2011, NOAAs Northwest Fisheries Science Center, which is responsible for both endangered salmon in the Columbia-Snake River Basin and the endangered Southern Resident killer whales, received more than three-quarters of its budget from the Bonneville Power Administration and the Army Corps of Engineers. The proportion of those expenditures dedicated to studies of Snake River salmon or habitat issues is unclear.	prudent relative to the value of its revenue producing assets that will repay that debt through future revenues. Bonneville's leverage ratio has declined over the past decade which is good (less debt relative to revenue-producing assets), and the leverage policy ensures this will continue into the future, resulting in less debt relative to the value of Bonneville's assets over time. Bonneville's Fish and Wildlife Program has funded and continues to fund a wide range of entities including Federal agencies, states, Tribes, universities, non-governmental organizations and others to conduct projects to meet various statutory commitments, including under the Northwest Power Act (16 U.S.C. 839b(h)(10)(A)) and the Endangered Species Act (16 U.S.C. 1531 et seq.). Given their regional expertise and scientific knowledge, NOAAs Northwest Fisheries Science Center (NWFSC) is an important resource for the general public and Bonneville. Over the past two decades, NOAAs NWFSC has conducted critical work to support Bonneville's Fish and Wildlife Program objectives, informing such areas as: research and effectiveness of supplemental and safety-net artificial programs; Ocean Plume investigations; the effectiveness of habitat restoration efforts and importance of supporting ecosystem function such as food webs; evaluation of PIT-tagging techniques and improved monitoring and detection of PIT-tagged ESA-listed species. This work has been conducted across the Columbia and Snake River basins and is used in the development of management guidance for all Columbia and Snake River species. Specific Bonneville-funded NWFSC efforts to support Snake River salmon and steelhead include: management of the Lower Granite Dam adult trap; Snake River fall Chinook Salmon life history investigations; improving Snake River species survival estimates through the hydro system; and providing support and expertise on the management of Snake River spring Chinook and sockeye safety-net hatchery programs. Results from these studies are also typically reviewed by the independent science bodies associated with the Council: the Independent Scientific Advisory Board and the Independent Scientific Review Panel post their reviews on the Councils website: https://www.nwcouncil.org/reports. For additional information on these projects, including budgeting information, please see cbfish.org. The operating costs associated with the four lower Snake River projects are included in the operations and maintenance costs, as described in Table 5-1 in Appendix Q; these costs include the salaries of Corps' employees for operating and maintaining these projects. The regional economic benefits associated with operating the four lower Snake River projects are described in Section 3.19.3 and in Annex C in Appendix Q. Under MO3, the elimination of most of the operating costs for the four lower Snake River projects would result in reductions in jobs and income in the region. However, these are just a few of the trade-offs considered in the decision-making to identify the Preferred Alternative. The EIS evaluated benefits and adverse effects across an array of resource areas, including potential effects at the national, regional and local level. The EIS does not employ a cost-benefit framework for decision-making. This is because, consistent with NEPA analysis framework, the beneficial and adverse effects are expressed as a variety of qualitative and quantitative environmental and economic metrics. Furthermore, the EIS evaluates the performance of the CRSO EIS alternatives with respect to multiple objectives, for example, related to improving fish passage and survival, providing reliable power generation, and minimizing greenhouse gas emissions. Table 7-1 in Chapter 7 provides a summary of the beneficial and adverse effects of the alternatives, including the quantified social welfare costs and benefits for a number of resource areas as well as the implementation costs of the alternatives. Section 7.3 and 7.4 provide additional discussion on the comparisons among the alternatives.
5878	1	mherke@mail.com	Yakima County Farm Bureau	First, it is a matter of necessity that our region and nation maintain a robust electrical generation capability. Western societies are becoming less dependent on fossil fuels due to the desire to reduce our carbon foot print and nuclear energy has been sidelined due to perceived safety concerns. This leaves hydropower, solar and wind generation as our exclusive electrical generating base in the near future. While there have been advancements in solar and wind generating technologies the YCFB believes that by the very nature of the natural resources they draw upon they are not trust worthy as a stand-alone energy source. In the case of solar, it can only generate power 50% of the time (at most) based on it needing sunlight. But the Sun is not available to its full extent due to cloud cover, thus it is available even less than half the time. Wind is available on its own schedule, not one when the power is needed the most. During the regions winters, a condition often occurs where long stretches of low temperature, stagnant air and solid cloud cover and/or fog which often lasts for weeks. The power needs are at their annual peaks due to heating and lighting needs during these periods. The net result is that when we have the most need for power, wind and solar is producing little or no electricity. Due to the variable and intermittent nature of wind and solar, to operate effectively, they require a large battery to help the grid through resource shortages (periods of no wind or sun). Manufactured battery technology such as Lithium Ion has been advancing but there are still considerable hurdles with respect to creating ones large enough for a wind or solar farm. These new batteries require a considerable investment to manufacture and are largely built overseas due to environmental regulations in the United States and are expensive enough that they are currently used only up to the size required to power compact automobiles for short distances. When these batteries expire they present both an environmental challenge and are expensive to safely dispose of. Replacement batteries would be required as the older ones fail, also at great expense. Traditional batteries containing lead which are less expensive would surely be a non-starter in the current legal environment. Hydropower dams are always able to generate power as they depend on (reliable) water and actually enhance both solar and wind production because of their ability to fill the gaps of production from these facilities. They work hand-in-hand with the power grid which ties all these production facilities together thus creating the perfect battery. Finally, the public does not have to build these facilities because they are already in operation.	The importance of renewable energy for reducing carbon emissions is consistent with the information and findings of the EIS, as described in Section 3.7, Power and Transmission, and Section 3.8, Air Quality and Greenhouse Gases. The variability of hydro, wind, and solar is modeled on an hourly basis in the reliability modeling. The EIS findings also indicated that more capacity for zero-carbon resources (e.g., solar) were needed to address lower capacity factors, consistent with the comment's concern regarding the variability of wind and solar resources. The EIS examined potential storage capabilities in resource replacement studies and found they were not selected due to the fact they had higher costs than other potential resources. However, they could provide various benefits, such as replacing lost capability and flexibility of the four lower Snake River projects when paired with solar power. As such, Multiple Objective Alternative 3 includes lithium ion batteries paired with solar power as described by cost estimates provided by the Northwest Power and Conservation Council. See draft EIS, Section 3.7.3.5, Potential Replacement Resources And Associated Costs, at pages 3-904-905. The safe disposal of these batteries was not addressed in the EIS because when their disposal would be needed is speculative. The statement regarding the importance of hydropower for integrating renewable power and the dispatchability of hydropower is consistent with the findings of the EIS.
5878	2	mherke@mail.com	Yakima County Farm Bureau	Beyond the intermittent nature of solar and wind power generation, the overall cost of wind and solar equipment and operation is much higher. Our region would suffer from an overwhelming power rate shock if we began breaching any dams due the increased cost of the replacement solar and wind compared to retaining the existing hydropower facilities. While the Preferred Alternative of retaining the Lower Snake River dams and spilling more water for fish carries an estimated rate hike of 2.5%, the breaching alternative cost rises to about a 50% hike. The YCFB is opposed to any rate hike, the cost of breaching would be disastrous to agriculture, particularly with respect to irrigation rates. According to Washington State University, 1.8 million acres are irrigated in the State with 80% being irrigated by sprinkler, 5% by drip and 15% by surface methods. Irrigation is a very power dependent activity. Ground water (even more power intensive) accounts for 25% of with drawl leaving 75% by surface water sources. We must assume that with few exceptions 85% (80% by sprinkler plus 5% by drip) of the irrigated land or 1.53 million acres require power. Virtually all of that power in this region is by electricity. Of the other 300,000 acres irrigated by surface methods, a significant portion of that also requires power to deliver it. The Columbia Basin Project being a prime example. The fact is that irrigation power bills amount to a substantial impact to farms and ranches in Washington State. The YCFB believes that a substantial increase in electric rates would negatively impact agriculture and a rate increase of up to 50% as suggested in the CRSO EIS due to breaching would CRIPPLE our industry as well as many other supporting businesses and activities that agriculture is sustained by. When the Lower Snake River Dams were constructed, tens of thousands of acres of additional land became irrigated losing that agricultural production caused by breaching would be unacceptable. The YCFB believes that the promises offered to make the farm families whole due to a loss of their irrigation are hollow. Even if their loss were to be fully compensated, simple money does not reimburse for the loss of ones way of life. Also, the true cost of compensation would be staggering.	The statement that replacing the hydropower generation of the four lower Snake River dams with renewable resources would increase power costs is consistent with the findings of the EIS. See Section 3.7.3.5 and Table 3-166 of the Draft EIS, Potential Replacement Resources and Associated Costs.
5878	3	mherke@mail.com	Yakima County Farm Bureau	Interestingly, there are environmental consequences related to wind and solar production, some are known and some are surfacing over time. An example is the issue of birds being killed by wind turbines. Some of these species are in fact endangered or listed. The first generation of wind turbines were scrapped after generating power for a number of years because of their lethal nature to Bald Eagles and other birds. Imagine the cost of that reversal, first to develop the technology, implement it and then scuttle it? The current generation of turbines are claimed to have improved blades but the controversy continues and birds continue to die. Another issue with wind and solar farms is over the view scape. These installations typically occupy considerable amounts of real estate that are valued by many individuals for their scenic value. There have been instances of serious opposition and road blocks in the form of local zoning regulations adopted with the intent of barring new wind or solar projects. As a matter of economics, wind turbines can only be sited where the wind is fairly constant and there is enough speed to pay back the investment. As a matter of fact, they have already been built on the best locations and only upon less desirable sites later as the economics may or may not work out. There is a point of no return, where it simply does not pay to build on subsequently less favorable sites. Another requirement is that a substantive power line must be close enough to afford to connect a potential wind farm to the grid. So the net result is that wind turbines (and solar farms in the case of no close grid or little sunshine) just will not work everywhere. Further, wind turbines have a short life span compared to hydropower installations and that adds to the cost of power generation with them. We do not know what the lifespan of solar farm components are yet but due to the materials used to construct the generating panels, it certainly could not rival the lifespans of dams which are measured in centuries.	The EIS did not find wind power to be a cost-effective resource in the base analysis for the Multiple Objective alternatives (MOs). In Multiple Objective alternative 2 (MO2), the EIS analysis found that with the additional generation produced by the Federal Columbia River Power System (FCRPS), wind construction in Montana could be avoided. In the rate case sensitivity analysis for MO3, wind was included in the zero-carbon resource portfolio designed to replace the four lower Snake River dams capability. See Draft EIS, Section 3.7.3.5. Solar, Wind, and Batteries, pages 3-907-909. The EIS did analyze the potential amount of land required for large-scale solar power as well as the potential costs of transmission interconnections for new replacement resources. The EIS identified that a large amount of land would be required for potential new solar, consistent with the concern in the comment. For example, for MO3, the EIS found that to replace the four lower Snake River dams with solar would require at least 14,000 acres of land, or almost 22 square miles. See Draft EIS, Section 3.7.3.5, Potential Replacement Resources and Associated Costs, page 3-904. If an alternative is selected that requires replacement resources, additional environmental review would be required. Appendix H, Section 2.2.4 in the Final EIS discusses the process for acquiring new resources.
5878	4	mherke@mail.com	Yakima County Farm Bureau	There is an argument that our region does not need more power or even as much generation capacity as it presently has. The YCFB strongly disagrees with that assertion. It is obvious that there will be continued long term economic growth in Washington and neighboring States which will demand more electricity. The recent leveling off in electrical demand has been created largely through conservation but one can only conserve to a point. Soon our regional load will increase due to economic growth however, the current total generating capability of wind and solar is far from substantial enough to satisfy our present needs. If Dams are allowed to be breached, emergency fossil or coal based power would have to bridge the gap and that would substantially add to carbon emissions. To reduce carbon emissions further, our electric demand will increase due to a continued move towards mobile electric transportation. While autos have led the way, both heavy and light rail transportation and city buses have a history of utilizing electricity and there are companies testing the feasibility of producing large and small electric freight and utility trucks. The move to electrify personal and freight transportation will certainly produce an increased load on power generation and ignoring the impact is foolish and dangerous.	The EIS findings regarding the regional power supply and the importance of hydropower for greenhouse gas emissions are consistent with the concern voiced in the comment. The EIS power analysis used the most recent load forecasts and power data from the Northwest Power and Conservation Council, but acknowledges that technical changes, including additional electric vehicles and economic growth, could affect the future power system and power demand as described by the comment. See Draft EIS, Section 3.7.3.1, Step 3: Determine Need for Potential Replacement Resources and Associated Costs, at page 3-821. While the decarbonization of transportation was beyond the scope of the EIS, the analysis examined recent policy trends in Section 3.8, Air Quality and Greenhouse Gases.
5878	5	mherke@mail.com	Yakima County Farm Bureau	Another issue that has surfaced recently is that of a declining population of the Southern Resident Orcas. Advocates for breaching the LRSD blame a reduced salmon population due to losses because of them. The facts and history are illustrative because the Orca population is the same as it was before large scale fish hatchery operations began. The Orca count was about 66 individuals in the area of concern. Millions of salmon were reared and released from hatcheries for many years and the Orcas numbers increased to over 100. The hatcheries were closed or scaled back considerably and the Orcas now number .. 78. The YCFB believes that the Orcas rise in numbers and then their subsequent decline is significantly correlated to the rise and fall of artificial releases of hatchery reared fish. As the releases of hatchery salmon have declined, the Orcas finding fewer reared fish had to turn to the wild	SRKW analysis is described in the EIS including in the FEIS Chapter 3 (Vegetation, Wetlands, Wildlife, and Floodplains) which has been updated for SRKW (Section 3.6.2.6 and Table 3-102) and FEIS Chapter 7 (Preferred Alternative) with additional analysis information on SRKW and potential increase in forage fish, in particular, Chinook salmon in Section 7.7.8. The co-lead agencies utilized current high quality information and best available science in its analysis of the effects of the operation, maintenance, and configuration of the CRS projects. According to NMFS and the EPA, the estimated SRKW population has fluctuated between 67 and 98 whales between 1960 and 2015. The Snake River dams were constructed between 1962 and 1975. The SRKW population increased from a record low in 1970 to its highest population numbers in 1995. Those years were not high years for Snake or Columbia River Chinook Salmon. Ocean conditions between 2011 and 2013 were good years for salmon. At the same time, 2010 and 2013 were good outmigration years. Particularly, 2011 and 2012 were above normal in water supply, which would mean more cooler water was available and there was better survival of salmon, and 2011 through 2014 were higher than normal spill

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				salmon which then also declined because of the added pressure from the Orcas. If we need more Orcas, then it is obvious that we need to resume rearing and releasing more hatchery fish to feed them.	years as well. The combination of outmigration and ocean conditions created improved adult salmon returns. The EIS has analyzed spill as a measure in the Preferred Alternative and determined the overall effect to SRKW to be negligible in large part because hatchery production is consistent between the No Action Alternative and the Preferred Alternative. Because the impact from the Preferred Alternative was determined to be negligible, the agencies determined that existing hatchery production would be sufficient to address any potential impacts to prey availability for SRKWs. The co-lead agencies note the contribution to the prey of SRKW through the continued existence of their respective independent Congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as the Lower Snake River Compensation Plan (other than under MO3), which is administered by USFWS. The Preferred Alternative and Proposed Action in the agencies' biological assessment carry forward certain mitigation measures described in Chapters 2 and 7 of the EIS, which include continued salmon and steelhead hatchery production. The Preferred Alternative has negligible effects to SRKWs as described in Section 7.7.8. The Biological Assessment, also consistent with the EIS, acknowledges past improvements to the configuration and operation of the Columbia River System, additional improvements to the environmental baseline as a result of completed estuary and tributary habitat actions, and the prospective non-operational conservation measures proposed in Chapter 2 of the Draft EIS, all contribute towards maintaining and improving Chinook abundance. Relevant conservation measures include, among other things, a commitment to continue funding the conservation and safety net hatchery programs listed in Chapter 2 of the Draft EIS. As discussed above, the agencies will fulfill congressionally authorized hatchery mitigation objectives through the funding of hatchery programs that are operated consistent with their independent hatchery program consultations during the term covered by this consultation. Based on those hatchery program consultations, the production levels associated with congressionally authorized hatchery mitigation objectives will continue, at minimum, to be consistent with levels previously analyzed by NOAA in the system consultations in 2008, 2014, and 2019. For the 2020 ESA consultations, therefore, the agencies expect that collectively, all of the actions described above (substantial modifications to migration conditions designed to benefit key prey species, combined with improvements to Chinook spawning and rearing habitat in the tributaries and Columbia River estuary, and continued hatchery production) ensure that remaining Chinook mortality from all sources in the mainstem migratory corridor will continue to be more than offset, resulting in a net gain in Chinook salmon abundance available as a prey source for SRKW. Finally, the 2019 NMFS Fisheries BiOp included increased spring spill operations that are similar to operations evaluated in CRSO EIS, and NOAA validated that the hatchery production of Chinook salmon mitigates for the impacts of operating the Columbia River System and total mortality through the mainstem migratory corridor from all sources.
5878	6	mherke@mail.com	Yakima County Farm Bureau	Though there is disagreement within the environmental community about the genetic quality of hatchery fish, the YCFB believes that they are genetically one in the same as wild salmon, the difference being how they are reared. One study, from the Hood River, claims that first cross fish from eggs and sperm from wild salmon are only 87% as genetically fit as the wild parents. No one else has such a finding. YCFB agrees with the principle Native Nations on this issue. They are big proponents of hatchery fish, and they operate a number of rearing operations in the region and are also at the forefront on research on how to better breed and rear them with great success.	Hatchery programs are included as part of the No Action Alternative, and the Draft EIS does not propose changes to hatchery programs under the Preferred Alternative (PA). Figure 3-111 in the Draft EIS was an illustration that the CRS can and has supported large numbers of returning adult salmon and steelhead. As noted, this figure combines hatchery and wild fish. Over time, the PA is anticipated to benefit both wild and hatchery fish. Hatchery origin fish are very important to Tribal and sport harvest within the Columbia River Basin, and many hatchery programs are important supplementation to rebuilding natural populations. Further, the co-lead agencies have legal requirements to produce hatchery fish as mitigation for components of the CRS.
5878	7	mherke@mail.com	Yakima County Farm Bureau	Understanding where the Southern Resident Orcas reside is also important since they range within the Puget Sound and the Salish Sea for more than half of the year. The EPA has been closely monitoring pollution levels in the Sound and adjoining Salish Sea for decades and they have been finding alarming levels of PCBs and PBDEs in the marine life there. The primary animals the agency is monitoring are the Pacific Herring and the Harbor Seal. Less often, the agency has retrieved samples from Orcas and one individual, a transient (mammal eating) Orca was found to have alarmingly high levels of these harmful pollutants. The resident (Salmon eating) Orcas tested are also showing heightened levels of a number of pollutants including PCBs and PBDEs. Shockingly, scientists in Canada are finding high estrogen levels in male salmon to an extent where some are producing eggs and female proteins. The estrogen is being dumped by humans into waste treatment systems. Scientists are finding similar trends in the Puget Sound. Cocaine is also among the numerous chemicals detected in salmon. The EPA banned PCBs in the 1980s and PBDEs by 2003. Continued monitoring has shown that PCB levels are declining and PBDE concentrations are leveling off. Unfortunately these pollutants are very persistent in the environment and have been shown to bio-accumulate with marine animals higher in the food chain such as with Orcas. It is to be noted that PCBs and PBDEs have been implicated with interfering with many critical life functions in animals. We also find it interesting that the highest levels of these onerous pollutants with in the Sound, on an order of magnitude (a few hundred units vs. nearly 4000) has been found right in the vicinity of Olympia. The YCFB believes that transposing a Puget Sound pollution issue into an advocacy to breach the Lower Snake River Dams is scapegoating, at best. Though a great amount of effort has been directed to fish passage around the Columbia River dams, the YCFB finds it very odd that relatively little has been accomplished with respect to passage around the many blockages of tributaries that empty into the Puget Sound. This is peculiar since this is the home space for the Orcas and if salmon, the prime food source for the resident Orcas, are not allowed to spawn in those tributaries, we ask the question: Is it any surprise that they (Orcas) are hungry? Further, Orcas while in the Sound are also threatened by humans conducting water travel by a multitude of surface and sub-surface ships and craft. These activities include commercial shipping, recreation and military. A point of fact is that even the commercial tour boats used to view the Orcas have been implicated in injuring them. The Orcas are said to be injured not only by the hull of the ships/boats but also by propeller strikes. A related controversy exists over the use of sonar by ships and other water craft. Orcas hunt, navigate and communicate with their own sonar and it is claimed that all these sonars working in a relatively confined space such as the Puget Sound is detrimental to the Orcas. One can count on Orca tour boats using a form of sonar when even the most basic outfitted fisherman in the Puget Sound is using the technology (fish finders). The sonar caused confusion could even add to the Orca/boat collisions. During the winter and spring, the South Resident Orcas range from Monterey Bay on the south to coastal South East Alaska on the north. NOAA has done some remarkable research utilizing satellite tracker tags on salmon and made several important discoveries. Interestingly, Columbia and Snake River salmon as a group do not all range in the same area when out in the ocean. They have found that salmon from the upper reaches of the Columbia River and the Snake River travel farther out into the Pacific Ocean before they begin traveling along the coast. This is incredibly significant because Orcas range more closely to the shore. Salmon from the lower Columbia tributaries such as those originating from rivers such as the Cowlitz and Deschutes among others travel closer to the shore precisely where the Orcas are during the winter and spring. The Snake River Salmon are farther from land than the Orcas looking for salmon. Breaching the LSRD expecting to get more salmon from the Snake River to feed the Orcas is foolish when in fact the Orcas rely upon salmon that arise from the lower tributaries of the Columbia and not those from the upper Columbia and Snake Rivers.	The population dynamics of the SRKW are complicated and there are multiple factors that contribute to the overall success of this species. The quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differently from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020). Regarding Puget Sound, the effects mentioned in the comment involve a variety of issues beyond the scope of the analysis in the CRSO EIS, which analyzes the effects of the operation, maintenance, and configuration of the CRS projects. However, water quality effects for the Columbia River Basin were considered in the EIS analysis and are described in Chapter 1, 2, and Section 7.8.3 of the EIS. Additionally, the U.S. Army Corps of Engineers is in partnership with other Federal, state and non-governmental organizations and have been implementing habitat projects for salmon, orcas, and wildlife all around the Puget Sound as part of the Puget Sound Nearshore Ecosystem Restoration Project.
5878	8	mherke@mail.com	Yakima County Farm Bureau	All of the Columbia and Snake River Salmon have relatively high return rates thanks to tremendous efforts and expense to improve habitat and passage in the entire basin. It is interesting that while these salmon have been increasingly successful it is found that runs in areas where NO dams exist are way down even in British Columbia and Alaska. Scientists studying this phenomenon are puzzled as to the reason but again there has been a great amount of land mark research and the likely problem stems from conditions in the Ocean. Predators are a suspected factor in reducing salmon populations. One researcher recently commented that they are having a difficult time finding other factors that could be impacting the salmon because his satellite tagged fish are getting eaten so quickly.	The majority of a salmon's life is spent in the ocean. Therefore, the habitat, food, and predator conditions in the ocean will have the largest influence on the proportion surviving to reproduce. When ocean conditions are good, the Columbia Basin enjoys large returns of salmon, such as in 2014, for example, when nearly every ESU had record returns. However, when conditions are poor, as has been the case for the past several years, the number of adult salmon are much smaller. In the context of the EIS, the ocean would not be affected by any of the alternatives, so it is treated as a constant among alternatives. Among the objectives are improving passage conditions and survival of both juvenile and adult, ESA-listed anadromous fish through the Columbia River System. The more healthy juvenile salmon that enter the ocean, whether the conditions there are good or poor, the greater the returns to the Columbia Basin can be. The greater the success adults have migrating up the Columbia and tributaries and spawning, the more juveniles can be produced for the next generation.
5878	9	mherke@mail.com	Yakima County Farm Bureau	The North Resident Orcas have been growing in numbers (about 200) to the extent that they are flourishing. One theory is that the South Resident Orcas are being out performed by their neighbors (the North Resident). Orcas are known to favor salmon greater than 25 inches long. The research points to a possible answer in that the increasing numbers of North Resident Orcas are harvesting the bigger fish before they can leave the Alaskan waters and travel south back to Washington State tributaries and thus denying the South Resident Orcas a chance to feed on them. The status of the South Resident Orcas and what needs to be accomplished to support a desired population of them is a complicated matter, the four Lower Snake River Dams are the least of their problems and focusing on the false hope that breaching affords will only allow their population to further decline since the real problems are being ignored.	The population dynamics of the SRKW are complicated and there are multiple factors that contribute to the overall success of this species. The quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differently from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for the whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall-run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall-run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). Details on the most crucial prey stocks for Southern Resident killer whales, as well as their population and range, is available from several fact sheets and videos available here: https://www.fisheries.noaa.gov/species/killer-whale#spotlight. For more information, visit this NMFS StoryMap on Southern Resident killer whales: https://noaa.maps.arcgis.com/apps/Cascade/index.html?appid=3405e6637bf74e998d4ebe992c54f613. According to NMFS and the EPA, the estimated SRKW population has fluctuated between 67 and 98 whales between 1960 and 2015. The Snake River dams were constructed between 1962 and 1975. The SRKW population increased from a record low in 1970 to its highest population numbers in 1995. Those years were not high years for Snake or Columbia River Chinook Salmon. Ocean conditions between 2011 and 2013 were good years for salmon. At the same time, 2010 and 2013 were good outmigration years. Particularly, 2011 and 2012 were above normal in water supply, which would mean more cooler water was available and there was better survival of salmon, and 2011 through 2014 were higher than normal spill years as well. The combination of outmigration and ocean conditions created improved adult salmon returns. The EIS has analyzed spill as a measure in the Preferred Alternative and determined the overall effect to SRKW to be negligible in large part because hatchery production is consistent between the No Action Alternative and the Preferred Alternative. Because the impact from the Preferred Alternative was determined to be negligible, the agencies determined that existing hatchery production would be sufficient to address any potential impacts to prey availability for SRKWs. The co-lead agencies note the contribution to the prey of SRKW through the continued existence of their respective independent Congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as the Lower Snake River Compensation Plan (other than under MO3), which is administered by USFWS. The Preferred Alternative and Proposed Action in the agencies' biological assessment carry forward certain mitigation measures described in Chapters 2 and 7 of the EIS, which include continued salmon and steelhead hatchery production. The Preferred Alternative has negligible effects to SRKWs as described in Section 7.7.8.

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5878	10	mherke@mail.com	Yakima County Farm Bureau	The dams of the Columbia and Snake Rivers also provide life and property saving flood mitigation. The floods of 1861 and 1894 occurred prior to the construction of any dams on the Columbia River and claimed many lives in 1861. The latter (1894) affected Portland Oregon and caused great damage. The water level reached 33.5 feet higher than low flow (a record) and many buildings had their ground floors entirely submerged across a 250 square block area. It was referred to as the dirty flood because raw sewage was routinely dumped into the river in that time and great numbers of flood killed livestock and then dead fish, further compounding the specter of serious water borne disease. The Van Port flood in 1948 also caused great loss and killed at least 15 people (but estimates ran as high as 50 lost). Only two major dams had been built by the time of the 1948 flood. Another serious flood also occurred in 1996 but the most unpredictable damages and danger to public safety was caused by flooding from the Willamette River. The Portland area has been fitted with other property and life-saving structures (levies etc.) in the intervening years but the role that the major dams on the Columbia River System serve in saving lives and property cannot be minimized. It should be noted that when the Columbia floods in the Portland area, those events are not historically short lived but have last from several days into weeks.	Maintaining or improving Flood Risk Management (FRM) operations of the CRS has informed both the alternatives development and evaluation process. As stated in the Purpose and Need Statement of the EIS in Section 1.2, one of the purposes of the EIS is to "Provide for a reliable level of FRM by operating the CRS to afford safeguards for public safety, infrastructure, and property." The FRM analysis evaluated flows and stages, both downstream of reservoirs and in reservoir pools, for each of the alternatives (No Action Alternative, Multiple Objective alternatives, and the Preferred Alternative). The FRM analysis and results are provided in Section 3.9, with additional details provided in Appendix K of the EIS. The four lower Snake River dams are not authorized for FRM.
5884	1	Kurt Reidinger	N/A	Chapter 3 briefly touches on portions of the aquatic ecosystem, such as noting which populations are listed under the ESA and the CRSO elements affecting those populations. But it leaves a good deal out. To give an example, in addition to the sockeye in the Snake River, there are two extant anadromous sockeye salmon populations in the mid-Columbia8 (Wenatchee and Okanogan), and a fledgling reintroduction in the upper Yakima system9. These too must cope with the CRS (and non-CRS) dams. These sockeye populations experience the effects of higher reservoir temperatures, passage delays, fallback, GBT, turbine mortality, predation by introduced fishes, and so on. These are real consequences of CRS operations and they are undoubtedly taking a toll10. There is little discussion, however, of CRSO effects on these populations other than to assume one can use Upper Columbia River spring-run Chinook as a surrogate species to account for some effects (Table 3-60 on p. 3-363). But these are very different animals, with different life histories, migration timing, and so on. The comparison is not credible. Similar comments apply to coho, not ESA-listed, in the mid-Columbia and the Snake River different races of Chinook salmon are used as surrogates. The same could also be said for summer and fall Chinook in the mid-Columbia which are not ESA-listed.	In the absence of a robust dataset that could support predictive population modeling, the Corps relied on "surrogates" in order to come to an informed, data driven framework for examining the likely effects on these populations. This process was also supported and informed by information supplied by experts from cooperating agencies working with the co-lead agencies on this EIS. An alternative to this approach would have relied on a qualitative analysis, which may not have been informative in the context of evaluating the effects of each alternative.
5884	2	Kurt Reidinger	N/A	The DEIS is also not forthcoming on the impacts to Pacific lamprey. Once highly abundant in the Columbia-Snake system, populations have taken a nosedive and many populations are at risk11. There is evidence that these anadromous animals use chemical cues different from salmonids in homing to natal rivers12: identification of lamprey spawning grounds is a function of actual lamprey presence (e.g., ammocoetes). So simply modifying CRSO passage structures is probably not enough to prevent further declines (e.g., Chapter 7, Preferred Alternative pp. 91-92).	The Affected Environment (Page 3-307 in Section 3.5.2.3) clearly describes the status of Pacific lamprey and discusses the factors that affect the species in a forthcoming manner. Ongoing effects from continued operation of the CRS projects into the future and ongoing existing mitigation programs that have been developed in response to those effects are detailed under the Effects of the No Action Alternative (Section 3.5.3.3, with Pacific lamprey beginning on page 3-400). As summarized, Key effects of the No Action Alternative on lamprey include continued effects to upstream migration of adults and downstream migration of juveniles in the form of passage delays, direct individual mortalities, and physical stress. The No Action Alternative also would continue effects on larval rearing via reservoir drawdowns and project maintenance dredging. The co-lead agencies plan to continue ongoing work in coordination with regional stakeholders through frameworks such as the Pacific Lamprey Conservation Initiative and the Tribal Pacific Lamprey Restoration Plan. The measures in the Draft EIS to meet the objective of improving conditions for Pacific lamprey were developed to address issues described in the Affected Environment and Effects of the No Action Alternative. These measures were designed to work in concert with the ongoing mitigation programs such as the habitat restoration, reintroduction and translocation, and other efforts and with recognition of the specific life history needs such as pheromone cues. The effects of implementing these measures as well as the effects of changes in other operations and configurations were analyzed for each alternative in the Environmental Consequences Sections in Chapter 3 for the multi-objective alternatives MO1, MO2, MO3, and MO4; and in Chapter 7 for the Preferred Alternative. The benefits and uncertainties regarding the effectiveness regarding structural modifications is recognized and discussed in these Sections.
5884	3	Kurt Reidinger	N/A	The DEIS largely focuses extant fish populations, but left unsaid are the CRSO impacts to populations that are now gone. The operation and configuration of the CRS have contributed to the decimation and reduction of what were once much larger and more robust fish populations. We bring this up not as a simple retrospective accounting of what was lost, but because it highlights a real CRSO impact. For example, chum salmon are struggling to survive in the Columbia River and contrary to the impression given by the BA, chum were undoubtedly much more abundant with runs extending above the site of Bonneville Dam and even upstream of Celilo. Hence the species has been affected by both federal CRS and local PUD projects14. The relevant point is that CRSO has confined chum to a relatively small portion of the historic range where the effects of climate change15 (and other factors) are likely render this restricted range less usable as time goes on. We see exclusion of these facts and ignoring the long-term threat as a deficiency in the current DEIS regarding this species and others.	The question of historical abundance and distribution is often confounded by negative conditions for fish that were ongoing at the time of a project's Congressional Authorization and construction. Though the CRS has undoubtedly changed the landscape of these species in some meaningful ways, the magnitude of that effect cannot be ascertained using historical information. One purpose of the analysis is to converge on solutions that do not preclude the possibility of recovery of ESA-listed fish populations. The historical status of salmon populations is important for context, but disentangling the historical project effect versus other effects (e.g., industrial, fishing) that were ongoing prior to the authorization of the project is outside the scope of the EIS. NEPA requires federal agencies to compare the effects of alternatives to a No Action Alternative. In this case, the No Action Alternative includes the baseline condition of 2016, when the EIS process began. An analysis of conditions prior to the construction of the dams is not required under NEPA.
5884	4	Kurt Reidinger	N/A	Flexible Spill Plan Because it is recognized the biological resources in the Snake River are at a crisis stage, one component of the Action Agencies proposal is essentially to continue operations as in the past with a modification termed Flexible Spill, an effort to improve juvenile survival (decrease turbine passage, increase bypass usage)16. But this would also increase Total Dissolved Gases (TDG), increase the probability of adult fallback, and likely degrade the tagging information system used to monitor survival17. Gosselin et. al. (2018, pp. 43-44) report studies showing higher TDG levels have adverse survival effects, particularly on run-of-river fish. We see this as evidence that the CRS is approaching limits in which to operate and still maintain threatened populations at survival levels, let alone contribute to their recovery. The proponents seem to acknowledge there doesnt appear to be a clear benefit to this operation18. As Gosselin et. al. (2018, p. 44) note: A non-linear relationship between percent spill and survival likely occurs, but determining the threshold at which spill changes from being a positive to a negative effect on survival has yet to be determined.. Even if researchers are able to carry out the tagging-spill experiments alluded to in the Gosselin et. al. (2018) paper and find operational optima, unpredictable real-world events (e.g., avian predation timing, snowpack, etc.) will likely limit the benefits of the operations.	The spill operation for juvenile fish passage in the Preferred Alternative is a significant departure from previous operations, so much so that the Washington and Oregon state water quality standards had to be changed to implement the new spill operations. The CSS model, which includes latent mortality effects, predicts that Smolt-to-Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% (within the Northwest Power and Conservation Council's recovery targets for the region) as a result of the Preferred Alternative. The commenter is correct that juvenile fish migrating in-river under the 125% TDG condition will be exposed to higher levels of dissolved gas than under the No Action Alternative. The Preferred Alternative includes working with regional sovereigns to develop a study that assess the effectiveness of increased spill regime on adult returns as well as assessment and management of negative unintended consequences, such as long delays of adult migrants, or TDG-related mortality of juvenile migrants.
5884	5	Kurt Reidinger	N/A	We see the intense focus on survival/conversion rate analyses as myopic. The larger, more pertinent question is: how are the populations as a whole coping with the CRS? It is not necessarily what survival is measured at a given dam, or dams. If one looks at the figures in Section 6 of Gosselin et. al. (2018), one can see annual fluctuation that reflects in-river environmental and operational changes, but a striking feature is that survivals are often constrained to a relatively narrow band over a span of nearly two decades. One doesnt see dramatic changes. SARs may fluctuate to a greater degree. These, however, include uncontrollable ocean effects. Improving passage survival is a worthwhile goal, but as more and more populations have become suppressed by CRSO, now more than ever, its important to look holistically at the populations.	The per-dam survival metric is both accurate and useful in measuring changes in near-field survival at the dams due to structural modifications (e.g., surface passage routes) or operation changes (changes to spill levels or spill patterns). The per-dam survival estimates are multiplicative in nature and the improvements in at-dam survival over the past 10 years has been shown to contribute to improvements in total in-river survival of smolts migrating through the CRS, especially for steelhead. These figures were used to provide context in the Affected Environment Section. The focus of the CRSO EIS and the analysis presented throughout this EIS in Section 3.5 and Chapter 7 utilized several metrics, including total in-river survival, travel time, powerhouse passage rates, and Smolt-to-Adult return rates.
5884	6	Kurt Reidinger	N/A	We think the Action Agencies need to analyze and consider whether alternative studies like the ECONorthwest study21 offers an appropriate economic perspective, not only with respect to the power market but the agriculture and transportation sectors as well.	The EIS evaluated beneficial and adverse effects across an array of resource areas including potential effects at the national, regional and local level; effects are monetized and quantified, where possible, and also described qualitatively. The EIS does not employ a cost-benefit framework for decision-making. Instead, the EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. This is consistent with NEPA guidance, which describes that the EIS should not be a cost-benefit analysis if there are important tradeoffs that are not quantified. The ECONorthwest analysis and the EIS employ different analytical frameworks and rely on different findings with respect to the outcomes of breaching the four lower Snake River dams. First, the ECONorthwest report applies a cost-benefit analysis framework, emphasizing monetization of all categories of impacts. Consistent with NEPA analysis frameworks, the EIS expresses beneficial and adverse effects across a variety of qualitative and quantitative environmental and economic metrics. That the effects of the alternatives on fish are not quantified as monetized economic values does not mean that they were not considered in the context of the analysis. Second, the findings of the ECONorthwest report that the benefits outweigh the costs of breaching the dams rely on the implicit assumption that breaching would result in restoration of salmon populations. The fish effects analysis in Section 3.5 of the EIS does not find that Multiple Objective alternative 3 would result in recovery of salmon or steelhead populations or in restoring the populations to historical levels. Thus, the values presented in the ECONorthwest report should not be considered as representative of the benefits of MO3.
5884	7	Kurt Reidinger	N/A	In this particular EIS, we think the Action Agencies need to consider a wider range of alternatives. The Preferred Alternative is largely business as usual with relatively minor changes to the CRSO from an ecosystem perspective. From an economic perspective, the Action Agencies need to consider how more creative manipulation of the power market (e.g., shifting to alternative power sources) could deal with eventual removal of the lower Snake River dams. There is more work to be done in this area20.	The co-lead agencies presented a range of alternatives to continued operation and management of the CRS and evaluated the alternatives to inform decision making and the public. As described in Chapter 2, many alternatives were considered and then eliminated from further consideration for the reasons described therein. The EIS evaluated beneficial and adverse effects across an array of resource areas including potential effects at the national, regional and local level; effects are monetized and quantified, where possible, and also described qualitatively. As is common in NEPA analyses, the beneficial and adverse effects of the alternatives are expressed as a variety of qualitative and quantitative environmental and economic metrics throughout the EIS to inform decision-making, including the effects of the alternatives on fish as detailed in Section 3.5. That the effects of the alternatives on fish are not expressed as monetized economic values does not mean that they were not considered in the context of the analysis. The EIS does not employ a cost-benefit framework for decision-making. Instead, the EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as the MO3 which includes the dam breaching measure. The Preferred Alternative also meets the EIS objectives for: resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. Regarding the Preferred Alternative, this alternative is not simply a minor change to operations and maintenance of the CRS. The spill operation for juvenile fish passage in the Preferred Alternative is a significant departure from previous operations, so much so that the Washington and Oregon state water quality standards had to be changed to implement the new spill regime. The CSS model, which includes latent mortality effects predicts that median Smolt-to-Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% (the lower end of Northwest Power and Conservation Council's recovery targets for the region) as a result of the Preferred Alternative, increasing SAR from 2.0% to 2.7% for Chinook, a 35% relative increase. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. To address uncertainty highlighted by the two models, the Preferred Alternative includes working with regional sovereigns to develop a study that assess the effectiveness of the increased spill regime on adult returns as well as assessment and management of adverse unintended consequences, such as long delays of adult migrants, or TDG-related mortality of juvenile migrants. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information. The four lower Snake River dams are cost effective. Hydropower benefits exceed costs by $209M to $513M annually. The average annual costs to operate and maintain the four lower Snake River projects is $75M (Appendix Q, Table 5-1) and the annual-equivalent capital costs are $32M (Appendix Q, Table 4-1). The annual hydropower (Table 3-171) and navigation (Table 3-244 & Table 3-246) benefits alone for these projects are estimated at $284M to $588M in the base case analysis for MO3. These hydropower values include the effect of other measures in MO3, but the majority of this value stems from generation at the four lower Snake River dams. This estimate is derived from what the hydropower analysis called the base case and does not account for the full characteristics of the lower Snake River projects generation such as sustained peaking capability and fast ramping ability to integrate variable renewable energy sources. Fully replacing the generation capabilities of the four lower Snake River dams could roughly double estimated replacement resource costs (see Section 3.7.3.5).

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					As explained in Section 3.7.3.5 of the EIS, Potential Replacement Resources and Associated Costs, breaching the four lower Snake River dams would have a direct and substantial impact on the supply of Federal power to meet regional load requirements. These impacts would impact both actual energy to meet regional load requirements and generating capacity (peaking capacity) to meet variability in loads. The four lower Snake River dams are among the most valuable projects in FCRPS. These dams provide over 1,000 MW of carbon-free energy and up to 2,000 MW of sustained peaking capacity at certain times of the year. The dams also have unparalleled ramping capability the ability to quickly generate energy to match spikes in energy usage with over 2,000 to 2,300 MW of capability in certain months of the year. See draft EIS, Table 3-160. While the increase in solar and wind generation is consistent with the EIS discussion in 3.7.2.1 Power Generation, the EIS still finds that the regional power system requires replacement power resources to maintain reliability under MO3. For hydropower, the average annual value of the four lower Snake River dams exceeds the average annual equivalent costs. The generation value at the four lower Snake River dams can be described by a range between the cost to replace the generation through new conventional resources or through a portfolio of zero-carbon resources. Although the costs of replacing the power with market purchases was analyzed, it is unlikely that short-term wholesale power markets could reliably replace the power for the long term. This range would put the annual value of power between $240 million and $500 million for the four dams combined. These numbers represent about 90 percent of the lost benefits cited in Table 3-171 of the Draft EIS because the four dams represent about 1,000 aMW of the 1,100 aMW of lost generation estimated in MO3. The average annual cost to operate and maintain all authorized purposes at the four lower Snake River dams is $75 million (Appendix Q, Table 5-1) and the annual-equivalent capital costs are $32 million (Appendix Q, Table 4-1). Hydropower costs funded by Bonneville represent about $50 million of the total annual operations and maintenance costs and nearly all of the annual capital costs, approximately $31 million. This puts the annual-equivalent power-specific costs at approximately $81 million a year. As a result, the net benefits from hydropower for the four lower Snake River dams are between $159 million and $419 million and the benefit-cost ratios are between 3.0 and 6.2. If the $34 million per year for the Lower Snake River Compensation Plan is added to the capital and expense costs, benefits still exceed costs under each replacement power scenario. Considering these costs, the net benefits range from $125 million to $385 million and the benefit-cost ratios range from 2.1 to 4.3. In the less-likely scenario that generation could be reliably replaced with short-term wholesale market purchases and assuming that the four dams represent 90% of the $150 million in market purchases required to replace the lost generation cited in MO3 (see Table 3-170), the lower bound for net benefits would fall to $54 million and the benefit-cost ratio would fall to 1.7. With the Lower Snake River Compensation Plan included, the lower bound for annual net benefits becomes $20 million and the benefit-cost ratio becomes 1.2. From a resource competitiveness perspective, the four lower Snake River dams are among the least costly generating resources in the Federal Columbia River Power System (FCRPS) and the planned investment strategy is expected to maintain that status. As shown in the Federal Hydropower presentation at the 2018 Integrated Program Review (see Footnote 1 below), the Headwater/Lower Snake Asset Class (see Footnote 2 below) is forecast to have a 50-year levelized cost of generation (see Footnote 3 below) of $11.41/MWh based on the direct funded capital and expense (O&M) programs outlined in that process. These costs remain competitive with volatile Mid-Columbia spot market energy prices which averaged $37/MWh in 2019 and have averaged $21/MWh in 2020. Footnotes: 1. The Integrated Program Review (IPR) allows interested parties to see and comment on all relevant Federal Columbia River Power System (FCRPS) capital and expense (O&M) spending level estimates in the same forum. The IPR occurs every two years, or just prior to each rate case, and is the public review for the costs that will be recovered through rates the following two-year rate period. Long-term forecasts for the next 50 years and major upcoming projects are also shared in this forum. This information is available here: https://www.bpa.gov/Finance/FinancialPublicProcesses/IPR/2018IPR/IPR%202018%20Fed%20Hydro%20Workshop.pdf and is incorporated by reference into this EIS. 2. In the 2018 Integrated Program Review, the Headwater/Lower Snake Asset Class consisted of the four lower Snake River dams, Hungry Horse, Libby, and Dworshak dams. These projects were grouped together because they have similar cost characteristics. The Levelized Cost of Generation for the four lower Snake projects alone is slightly lower than that for the whole class including the headwater projects shown in the table. 3. Levelized Cost of Generation is defined as the forecasted direct costs and administrative overheads of producing power at a plant annualized over a 50-year period. This cost includes direct funded operations, maintenance, administrative and capital costs as well as Columbia River Fish Mitigation (CRFM) costs. Bonneville system-wide mitigation costs, such as its Fish and Wildlife program, are not included in this metric.
5910	1	ross.holter@gmail.com	N/A	This leaves us with the Preferred Alternative which identified lamprey passage improvements plus adoption of a flexible spill program that would allow spill up to 125% TDG. We have very serious concerns about this operation which were identified directly in the Draft EIS. The Draft EIS acknowledges that this operation may actually reduce salmon survival by 7.5%! The loss of 160 aMW of generation on average while losing 300 aMW during low-water conditions does not represent an appropriate balancing of impacts for an operation that may end up killing more of the fish that it is intended to protect than the No-Action alternative. We have already seen a flexible spill operation in 2019 with spill up to 120% TDG that showed little benefit to fish with some evidence suggesting that survival was reduced.	The co-lead agencies used currently available, high-quality information in the analysis for the CRSO EIS. Specific to salmon and steelhead, the agencies used two primary modeling approaches which yielded a range of potential outcomes for the alternatives. With respect to the Preferred Alternative (PA), the CSS model predicts that average Smolt-to-Adult return (SAR) rates would increase for both Snake River spring Chinook and steelhead and would average well above 2% (the lower end of the Northwest Power and Conservation Councils recovery targets for the region) as a result of the PA increasing from 2.0% to 2.7% for Chinook, a 35% relative increase. The National Marine Fisheries Service COMPASS and Lifecycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The PA will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin.
5920	1	dkellersjd@gmail.com	N/A	Procedurally, the co-agencies have ignored the fundamental precepts of NEPA, which requires the opportunity for full and fair public participation. This nearly 8,000 page DEIS is complicated to navigate, and not written in a manner that allows easy public review and understanding of the different alternatives, and how they were analyzed. The complexity of the DEIS, and the global emergency from the Corona Virus across the Pacific Northwest and country, call for an extension of the short 45 day comment period to provide adequate opportunity for public input. In addition to a lack of adequate review and response time, the limited mechanism used to collect comments through phone calls faced significant challenges, limiting participation in the public comment process, I do not feel that the public has had adequate opportunity to make their concerns fully heard. However, having known the co-agencies modus operandi of consistently ignoring public and scientific input ever since the four Lower Snake River Dams (LSRDs) were congressionally authorized in 1945 until the present, I am not surprised by their insistence on this truncated timeline.	The co-lead agencies considered requests to extend the public comment period. This NEPA process included a wide array of cooperating agencies whose close involvement throughout the process allowed the co-lead agencies to incorporate feedback. Given the broad range of comments received and the extensive Federal and non-Federal participation in the overall process as well as the level of public engagement in the six virtual public meetings in the region, the co-lead agencies determined that an extension was not warranted and that the 45-day public comment period was adequate consistent with NEPA regulations. On April 9, the CRSO EIS website was updated to inform the public that they should plan to submit comments by the close of the comment period.
5920	2	dkellersjd@gmail.com	N/A	The agencies appear to be actively defying Judge Simons directive to drastically overhaul their approach to CRSO operations, which currently rely on failed, artificial manipulations like smolt transport, elaborate bypass structures and flexible spill. The cynical view would be that the agencies are intentionally preparing a defective DEIS, so that the judge will invalidate it as strike 6 in the pending litigation, and remand it for more review. That would give the co-leads yet more time, more studies and more public resources expended, while salmon, steelhead and lamprey runs dwindle towards extinction. While re-doing a defective EIS is the usual remedy where agencies have prepared an inadequate one such as this, these are extraordinary times requiring extraordinary measures. Accordingly, the appropriate remedy is not for the co-leads to re-work this failed DEIS in its entirety. But rather, the co-leads should review their better 2002 EIS titled Lower Snake River Juvenile Salmon Migration Feasibility Study, and update MO3, LSRD breaching with the latest best available science.	The co-lead agencies take all legal and NEPA responsibilities very seriously and disagree with the comment. The CRSO EIS considered the 2002 EIS Lower Snake River Juvenile Salmon Migration Feasibility Study, incorporating still valid information where appropriate, and used current high-quality information where needed. The EIS evaluated the potential for impacts to water quality that were not provided in the 2002 EIS. This water quality evaluation in the EIS was used to identify the need for additional mitigation. There are many effects to salmon and steelhead populations outside the operation of the dams. Research continues to evaluate the magnitude of these effects. For more information see the National Marine Fisheries Service (NMFS) website at: https://www.nwfsc.noaa.gov/research/index.cfm. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-lead agencies numerous legal obligations. The Preferred Alternative (PA) is predicted to benefit ESA-listed juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3, which includes breaching the four lower Snake River dams. The PA also meets most other EIS objectives including those for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS the co-lead agencies did not identify MO3 because the PA is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. The spill operation for juvenile fish passage is a significant departure from previous operations, so much so that the Washington and Oregon state water quality standards had to be changed to implement the new spill regime. Based on the EIS analysis in Section 7.7.4, the co-lead agencies anticipate that the PA would provide substantial benefits to ESA-listed species. For example, the CSS and NMFS COMPASS models predict that powerhouse encounters will be cut in half relative to the No Action Alternative for Snake River spring/summer Chinook salmon. The Preferred Alternative is expected to make a substantial contribution to recovery.
5920	3	dkellersjd@gmail.com	N/A	Legally, the ESA and treaty rights trump economic concerns. Yet, the co-leads have elevated economic considerations over fulfilling their overriding legal obligations to save listed species and honor treaty rights. The Preferred Alternative is not based on ecological criteria to save listed fish, but simply to continue the flex spill agreement operating at BPAs dictate when market conditions permit it. The DEIS violates ESA and tribal treaty rights by failing to select the alternative that offers the most beneficial impact on them, M03. (See DEIS, Sections 3.5 and 3.6).	Tribal input, concerns, interests, and especially treaty rights were considered throughout the Draft EIS analyses and in the formulation of the Preferred Alternative (PA). Treaty specific information can be found in Section 3.17. As stated in that section, the treaties bind all parties and are the supreme law of the land. The co-lead agencies recognize and respect that supremacy. In terms of honoring our treaty obligations, the co-lead agencies included "Protecting Native American treaty and reserved rights and trust obligations for natural and cultural resources throughout the environment affected by the Columbia River System operations" as a purpose in the Purpose and Need Statement in Chapter 1, to ensure treaty obligations were a key consideration of decision making. The co-lead agencies are engaging in government-to-government consultation with the Tribes, and several Tribes are cooperating agencies on this EIS. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy designated critical habitat. The PA complies with the ESA (see Chapter 8, Compliance with Environmental Laws, Regulations and Executive Orders, for more information). We disagree with the comment that we have elevated power generation over our legal obligations. The co-lead agencies used current, high-quality scientific information in the analysis for the EIS. Specific to salmon and steelhead, the agencies used two primary modeling approaches which yielded a range of potential outcomes for the alternatives. The CSS model predicts that average Smolt-to-Adult return rates (SAR) will increase for both Snake River spring Chinook and steelhead and will average well above 2% (the lower end of the Northwest Power and Conservation Council's recovery targets for the region) as a result of the PA (increasing from 2.0% to 2.7% for Chinook, a 35% relative increase). The National Marine Fisheries Service COMPASS and Lifecycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The PA will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. Based on our analysis, the co-lead agencies anticipate that the PA would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Recovery is a broader regional goal and is above and beyond the co-lead agencies' obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the CRS.
5920	4	dkellersjd@gmail.com	N/A	The DEIS also fails to fully address the significant impact that the dams along these river systems have on the critically endangered Southern Resident Orca population. The best available science indicates that restoring the lower Snake River would lead to stabilization of Chinook runs and provide critical food sources for the Southern Resident Orca.	SRKW analysis is described in the EIS including in the FEIS Chapter 3 (Vegetation, Wetlands, Wildlife, and Floodplains) which has been updated for SRKW (Section 3.6.2.6 and Table 3-102) and FEIS Chapter 7 (Preferred Alternative) with additional analysis information on SRKW and potential increase in forage fish, in particular, Chinook salmon in Section 7.7.8. The co-lead agencies utilized current high quality information and best available science in its analysis of the effects of the operation, maintenance, and configuration of the CRS projects. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. The EIS analysis found a minor effect to the Southern Resident killer whale (SRKW) would result from implementing MO3, which includes breaching the four lower Snake River dams. This conclusion is based on the fact that The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. The population dynamics of the SRKW are complicated and there are multiple factors that contribute to the overall success of this species. The quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differently from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020).

Letter No.	Comment No.	Commenter Name/Email	Affiliation	Comment	Response[1/]
					The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for the whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall-run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall-run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). Details on the most crucial prey stocks for Southern Resident killer whales, as well as their population and range, is available from several fact sheets and videos available here: https://www.fisheries.noaa.gov/species/killer-whale#spotlight. For more information, visit this NMFS StoryMap on Southern Resident killer whales: https://noaa.maps.arcgis.com/apps/Cascade/index.html?appid=3405e6637bf74e998d4ebe992c54f613. According to NMFS and the EPA, the estimated SRKW population has fluctuated between 67 and 98 whales between 1960 and 2015. The Snake River dams were constructed between 1962 and 1975. The SRKW population increased from a record low in 1970 to its highest population numbers in 1995. Those years were not high years for Snake or Columbia River Chinook Salmon. Ocean conditions between 2011 and 2013 were good years for salmon. At the same time, 2010 and 2013 were good outmigration years. Particularly, 2011 and 2012 were above normal in water supply, which would mean more cooler water was available and there was better survival of salmon, and 2011 through 2014 were higher than normal spill years as well. The combination of outmigration and ocean conditions created improved adult salmon returns. The EIS has analyzed spill as a measure in the Preferred Alternative and determined the overall effect to SRKW to be negligible in large part because hatchery production is consistent between the No Action Alternative and the Preferred Alternative. Because the impact from the Preferred Alternative was determined to be negligible, the agencies determined that existing hatchery production would be sufficient to address any potential impacts to prey availability for SRKWs. The co-lead agencies note the contribution to the prey of SRKW through the continued existence of their respective independent Congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as the Lower Snake River Compensation Plan (other than under MO3), which is administered by USFWS. The Preferred Alternative and Proposed Action in the agencies' biological assessment carry forward certain mitigation measures described in Chapters 2 and 7 of the EIS, which include continued salmon and steelhead hatchery production. The Preferred Alternative has negligible effects to SRKWs as described in Section 7.7.8. The Biological Assessment (BA) describes the effect of the Proposed Action on the SRKW forage species (see BA Section 3.5.1.2, Southern Resident Killer Whale). The proposed changes in operation of the Columbia River System include increased spring spill during the downstream migration of juvenile spring and summer run Chinook salmon. The result of this action includes potential increases of juvenile fish passing through the spillways, reductions in juvenile fish direct and indirect mortality associated with downstream passage, and the Comparative Survival Study (CSS) model predicts increases in numbers of returning adults, which will benefit SRKWs foraging in and around the mouth of the Columbia River in winter and spring (See EIS Section 7.7.8). The CSS model results predicts Snake River Chinook salmon would have relative improvements in smolt-to-adult returns of 35 percent (see EIS Section 7.7.4). The smolt-to-adult return ratio (SAR) is the rate at which of a group of fish survive from their smolt life stage to a defined ending point where they return as adults. While recovery targets will require more than just the efforts of federal agencies, the CSS models indicate the potential for SARs of Snake River Chinook salmon and steelhead to increase to levels that could approach recovery targets set by the Northwest Power and Conservation Council.
5920	5	dkellersjd@gmail.com	N/A	A) Alternative MO3 needs to include an accurate cost-benefit analysis of the four Lower Snake River dams impacts and the power they generate, such as the following items. Purchasing replacement power on the open market would cost $11 million/year. This is $38 million/year cheaper than estimated LSRD maintenance and operation expenses and does not include benefits from reduced fish and wildlife and turbine rehab costs. Turbine replacements and maintenance in the next decade at the four dams will cost tens of millions of dollars a year.	The EIS evaluated beneficial and adverse effects across an array of resource areas including potential effects at the national, regional and local level; effects are monetized and quantified, where possible, and also described qualitatively. As is common in NEPA analyses, the beneficial and adverse effects of the alternatives are expressed as a variety of qualitative and quantitative environmental and economic metrics throughout the EIS to inform decision-making, including the effects of the alternatives on fish as detailed in Section 3.5. That the effects of the alternatives on fish are not expressed as monetized economic values does not mean that they were not considered in the context of the analysis. The EIS does not employ a cost-benefit framework for decision-making. Instead, the EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-lead agencies numerous legal obligations. Table 7-1 in Chapter 7 provides a summary of the beneficial and adverse effects of the alternatives, including the quantified social welfare costs and benefits for a subset of the resource areas (specifically, hydropower, navigation, and irrigation) as well as the implementation costs of the alternatives. As described in Tables 3-170 and 3-171 in Section 3.7.3 in the Draft EIS, hydropower replacement costs would range from approximately $140 million to $540 million annually. The socioeconomic analysis for power used two different approaches to evaluate the social welfare effects. The lower number, $140 million, assumes that replacement power would be purchased on the short-term wholesale power market. However, the short-term wholesale power market does not reliably have enough power available, and thus replacement resources would need to be built. The higher cost range ($270 million to $540 million) reflects the more realistic cost of acquiring new resources. Turbine replacement and other capital requirements to maintain the four lower Snake River projects are included in the cost analysis, as described in Section 3.19 and Appendix Q (see Section 4.2). Estimated costs for capital and O&M are $107 million annually for the four lower Snake River projects. Under MO3, the Lower Snake River Compensation Plan would no longer be funded, with a cost savings of $34 million. Bonneville's Fish and Wildlife Program costs are systemwide costs. Breaching the lower Snake River dams may result in changes to Bonneville's Fish and Wildlife Program. However, funding decisions for the Fish and Wildlife Program are not being made through the CRSO EIS process. Future budget adjustments would be made in consultation with the region through Bonneville's budget-making processes and other appropriate forums and consistent with existing agreements.
5920	6	dkellersjd@gmail.com	N/A	Greenhouse Gas emissions such as methane from the reservoirs and as generated by the juvenile salmon transport system have been omitted from the analysis.	Appendix G, Chapter 5, of the EIS details the assessment of reservoir methane emissions from the Columbia River System projects. The findings are summarized in Section 3.8. The comment is correct that emissions from truck transport of fish would be reduced under Multiple Objective alternative 3; however, this reduction in emissions would be very minor compared with the changes in emissions from other sources, including from power resources and shifting from barge-based to road- and rail-based shipping.
5920	7	dkellersjd@gmail.com	N/A	B) The DEIS needs a more thorough economic analysis on the benefits of a restored Lower Snake River corridor. 140 river miles from Lewiston to Ice Harbor, about one-seventh of the entire Snake River, would be restored in the event of dam breaching. The jobs and economic benefits of a major restoration program removing riprap, planting native plants and restoring other damage from the 4 dam/reservoir system should be included as part of MO3. Likewise, the jobs and associated economic benefits from mitigation measures that will accompany breaching the 4 LSRDs, such as extending irrigation lines in the Ice Harbor vicinty, and improving railways along the lower Snake corridor should be included. The lower Snake restoration and improvement projects can employ many people to work in this job scarce portion of Eastern Washington. Small river towns like Kahlotus and Starbuck that are lacking in opportunities would significantly benefit, as well as regional population centers like Tri-Cities, Walla Walla and Lewiston-Clarkston. Opportunities for fishing, hunting, wildlife viewing, rafting, and general tourism would positively impact the local economy in this corridor. About 14,000 high value riparian acres would exist post-breaching, enabling opportunities for agriculture such as orchards, truck farms and viticulture, which were prevalent before the dams/reservoirs were constructed. Exercise of tribal rights, such as hunting, fishing, plant-gathering, and ceremonies at sacred sites would be restored in the 140 mile restored corridor. C) The DEIS MO3 analysis should include a comprehensive economic analysis upstream of the 4 LSRDs of the impact on Idahos salmon sportfishery and its potential in the event of restored abundant wild salmon and steelhead returns. In 2019 anglers spent $750 million dollars in Idaho. In the Clearwater region in 2003, during a decent return year, salmon and steelhead anglers spent $8.6 million a month. Salmon and steelhead fishing supports guides, outfitters, and businesses in river towns throughout the state. Chambers of commerce in towns such as Stanley, Riggins, Salmon and Kamiah support breaching the 4 LSRDs to save their local economies. Having experienced firsthand the importance of steelhead angling to these areas of Idaho in times other than the busy summer season, I understand that abundant fishing is literally a lifeline for these small communities.	The EIS provides an evaluation of the social welfare and regional economic effects of the No Action Alternative and the MOs, including the effects on recreation (Section 3.11) and commercial fisheries (Section 3.15). The EIS describes the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. NMFS estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which is described qualitatively. Under MO3, the EIS Section 3.5.3.6 describes the long-term effects to anadromous fish migration in Region C that would occur under a dam breach scenario as major and beneficial. The potential for increases in recreational fishing under MO3 in Region C is described in Section 3.11.3.5, which would support jobs, income, and social benefits in Tribal and rural river communities. For the effects on recreational fishing under MO3 (Section 3.11.3.5) along the lower Snake River below Lewiston, the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River) as an indicator for fishing visitation in this reach. The EIS describes that the visitation in the long-term in the lower Snake River, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting outfitting and tourism businesses in the region. The social welfare values and regional economic effects associated with recreational fishing under the MOs, as well as river recreation post dam breach under MO3, were not estimated because of the uncertainty and large range in visitation and consumer surplus values among users. The jobs and income supported by the Multiple Objective alternatives' implementation and system expenditures are described in Section 3.19.3 and in Annex C of Appendix Q, including those jobs and income that would occur under the dam breaching of MO3.
5920	8	dkellersjd@gmail.com	N/A	D) The DEIS Findings and Conclusion on Sensitive Species Effects of MO3 Biological Assessment for South [sic] Resident Killer Whales Are Flawed, as They Rely On Erroneous and Outdated Data and Speculative Mitigation Measures, and Fail to Use Current and Best Available Science. The Southern Resident Killer Whales are an extended family of orcas, noted for their intelligence, bonds and importance of matriarchs. NOAA states The endangered Southern Resident is an icon of the Pacific Northwest and inspires widespread public interest, curiosity, and awe around the globe. (https://www.fisheries.noaa.gov/species/killer-whale#spotlight). Unfortunately, the DEIS fails to recognize the worldwide interest and irreplaceable value of these unique sea mammals, nor does it use current scientific data that is crucial to preserving this small, unique population. The CRSO-DEISs findings and conclusion about the impact of MO-3 on the Southern Resident Killer Whale (SRKW) DPS are incorrect. Table 3-106, Sensitive Species Analysis for MO3 (p. 3-759) states: Prey Availability: Minor effect. The Snake River spring/summer Chinook salmon is a negligible portion of their overall diet. These findings ignore the important nutritional role of Snake River chinook salmon runs during critical winter and spring feeding times for SRKWs, as discussed in more detail below. Similarly, the conclusion that MO3 would have a Minor effect on SRKWs is wrong. The CRSO-DEIS states as support for this conclusion: The food available to Southern Resident killer whales from the lower Snake River population is only a small percentage of their overall diet. Changes to food availability may change the whales foraging behavior patterns slightly but will not change their overall condition or population dynamics. That statement is inaccurate according to the best available science discussed further below. It fails to take into account how a substantially increased supply of Snake River chinook salmon is literally a matter of life and death for these starving, critically-endangered orcas. After reviewing the status, habitat and foraging of Southern Resident Killer Whales [SRKWs], the Biological Assessment (BA), (found at Appendix V, section 3.5.1.2, pgs. 3-598-3-600) concludes: Any remaining Chinook mortality attributable to the Proposed Action is only a subset of the total mortality from all sources within the mainstem migratory corridor. Therefore, the Action Agencies have determined that management of the CRS may affect, but is not likely to adversely affect, the SRKW species or designated critical habitat. This determination ignores the critically-endangered state of the SRKWS, their reliance on dwindling Chinook salmon runs and need for increased supply in their diet, especially wild Chinook, and the crucial foraging that the SRKWs engage in around the Columbia in winter and spring, which are particularly key time for their health and reproductive success. NOAA lists the SRKWs as one of its 9 species in the spotlight, which it defines as among the most at risk of extinction in the near future. https://www.fisheries.noaa.gov/topic/endangered-species-conservation#species-in-the-spotlight . Furthermore, NOAA states that for species in the spotlight such as SRKWs their populations are declining, and they are considered a recovery priority #1. A recovery priority #1 species is one whose extinction is almost certain in the immediate future because of rapid population decline or habitat destruction. SRKWs are starving. This starvation causes them to metabolize stored fat, which releases toxins into their system, impacting their own health, and also causing high rates of reproductive	SRKW analysis is described in the EIS including in the FEIS Chapter 3 (Vegetation, Wetlands, Wildlife, and Floodplains) which has been updated for SRKW (Section 3.6.2.6 and Table 3-102) and FEIS Chapter 7 (Preferred Alternative) with additional analysis information on SRKW and potential increase in forage fish, in particular, Chinook salmon in Section 7.7.8. The co-lead agencies utilized current high quality information and best available science in its analysis of the effects of the operation, maintenance, and configuration of the CRS projects. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-lead agencies numerous legal obligations. The Preferred Alternative is predicted to benefit ESA-listed juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets most other objectives of the study for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets only a small subset of the EIS objectives. Thus, the co-lead agencies did not recommend MO3 which includes the measure to breach the four lower Snake River dams because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. The population dynamics of the SRKW are complicated and there are multiple factors that contribute to the overall success of this species. The quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differently from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for the whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall-run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall-run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). Details on the most crucial prey stocks for Southern Resident killer whales, as well as their population and range, is available from several fact sheets and videos available here: https://www.fisheries.noaa.gov/species/killer-whale#spotlight. For more information, visit this NMFS StoryMap on Southern Resident killer whales: https://noaa.maps.arcgis.com/apps/Cascade/index.html?appid=3405e6637bf74e998d4ebe992c54f613.

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				failures. Chinook salmon are over 80% of their diet, and they arent getting enough to eat. Transient killer whales that are found in the same range as the SRKWs are healthy, enjoying great reproductive success and increasing their numbers because they have plenty of preyseals and other marine mammals. See e.g., Shields, Monika W., and Scott Veirs. 2019. Status and trends for West Coast Transient (Biggs) killer whales in the Salish Sea. Encyclopedia of Puget Sound. The BA fails to accurately assess the Proposed Actions impacts on the critically endangered SRKWs requiring a recovery priority #1. The BA contains several notable factual errors. One erroneous statement is that the SRKWs population is estimated at 73. (pg. 3-598). The BAs citation is to the Center for Whale Research (CWR) population data as of Sept. 6, 2019. However, well prior to the issuance of the DEIS on February 28, 2010, CWR reported on January 24, 2020 that L-41 Mega was missing from a sighting of his other family members, and was presumed dead. https://www.whaleresearch.com/2020-2 . In this critically-endangered SRKW population, the death of even one more member, especially a mature breeding male, is potentially devastating to further recovery. This key fact should have been reflected accurately in the BA, as their diminishing population is a key fact and compelling concern. At the time of their 2005 ESA listing, the SRKWs numbered 88. Fundamentally, an endangered listing means that the responsible agencies should be managing the species for recovery. In the SRKWs case, the responsible federal agency, NOAA, established a recovery goal for downlisting of 2.3% increase annually, based on historic growth rates from 1984-1996 for the species. (NOAA 2008 Recovery Plan, pg. IV-9, document available at https://repository.library.noaa.gov/view/noaa/15975). This 2.3%, recovery rate yields a projected increase of SRKWs at about 20+ per decade. Accordingly, based on NOAAs projections for recovery, there should be around 120 SRKWs by 2020. But instead of a healthy increase, the SRKWs have tragically decreased to just 72 now, with their prospects for recovery poor unless immediate, meaningful action is taken to save them. NOAAs recent findings recognize that the main obstacle to orca SRKW recovery is a severe shortage of their preferred food, Chinook salmon. See 84 Fed. Reg. at 49,215; National Marine Fisheries Service, West Coast Region, Proposed Revision of the Critical Habitat Designation for Southern Resident Killer Whales, Draft Biological Report at 28 (Sept. 2019). The BA says that in the spring, summer, and fall, the SRKW are in the inland waters of Puget Sound, the Northwest Straights [sic] and southern Georgia Strait. [This area is commonly referred to as the Salish Sea]. But this broad assertion ignores both the historical evidence that SRKWs range over half the year away from the Salish Sea, and recent patterns where theyve been absent from the Salish Sea during summer months, likely due to not enough prey being available. Both of these topics are described in more detail below. Historically, as noted in a recent scientific report by a group of distinguished killer whale scientists, SOUTHERN RESIDENT KILLER WHALES & COLUMBIA/SNAKE RIVER CHINOOK: A REVIEW OF THE AVAILABLE SCIENTIFIC EVIDENCE FEBRUARY 2020, (Bain et al. Feb. 2020) (hereafter 2020 SKRW Scientists Report), the SRKWs geographic range is not confined to the Salish Sea for over half the year. See 2020 Scientists Report, pgs. 8-9 (citations omitted). Moreover, in the past few years, the SRKWs have not consistently been in their resident areas of the Salish Sea during the warmer months, but instead have been off the Pacific Coast. This pattern indicates that their foraging patterns are changing, likely due to the lack of chinook salmon in the Salish Sea. See Shields, Monika W., Jimmie Lindell, and Julie Woodruff. 2018. Declining spring usage of core habitat by endangered fish-eating killer whales reflects decreased availability of their primary prey. Pacific Conservation Biology https://doi.org/10.1071/PC17041 The BA also discounts the importance of chinook salmon runs from the Columbia/Snake Basins to the SRKWs, pointing instead to Puget Sound and Fraser River stocks. But to a starving creature, every meal is important, and the Columbia/Snake runs are particularly so. The 2020 Scientists Report provides a clear picture of the importance of Columbia/Snake River runs of chinook salmon to the SRKWs: The best available science indicates that the whales are likely to be especially reliant on the Columbia/Snake River watersheds early spring, nutrient-rich Chinook salmon runs. Indeed, the mouth of the Columbia Basin is one of the Southern Resident orcas favorite places to fish. Data compiled from tagged whales, dedicated surveys, and passive acoustic monitoring indicates the Southern Residents spend significant time in the winter and spring off the mouth of the Columbia and have been present there thirty-five times more often than would be expected by chance. Analysis of fish scale and Southern Resident fecal samples collected on the outer coast indicate that, as is the case in inland waters of the Salish Sea/Puget Sound, Chinook are the primary species consumed on the outer coast and that over half the Chinook consumed by the Southern Residents are from the Columbia River Basin. In partnership with the Washington Department of Fish and Wildlife (WDFW), NOAA created a preliminary priority list of West Coast Chinook salmon stocks important to the Southern Resident orcas recovery. Of the top fifteen priority stocks, seven are from the Columbia Basin, including both fall and spring Chinook. 2020 SKRW Scientists Report, pgs. 9-10, citations omitted. The link between the depleted Chinook salmon runs in the Columbia/Snake system and the depleted status of the SRKWs is clear: The current depleted level of adult Chinook returns to the Columbia is a critical component of the prey scarcity these whales face. This shortage is compounded by the fact that adult Chinook returns, especially hatchery stocks that comprise most of these returns, consist of an increasing number of younger and hence smaller fish than in the past. This fact means that these whales must expend far more energy today to obtain the same caloric value of prey with the net effect of less nourishment. The claim that maintaining the continued low adult salmon returns to the Columbia does not harm these critically endangered whales is not scientifically supported. 2020 SKRW Scientists Report, pg.11, citations omitted. The CROS-DEIS BA is relying on an outdated 2008 determination that found that the Columbia River system management was based on expected status improvements for prey originating from the Columbia as a result of three key factors: (1) previous modifications to system operations and configuration to benefit salmonids; (2) ongoing artificial production programs in the Columbia River Basis; and (3) implementation of the 2008 BiOps RPA actions, with further improvements to mainstem migration conditions, spawning and rearing habitat, predator management, and hatchery reforms. This determination was speculative in 2008, and with the benefit of hindsight, far too optimistic. The 2008 expected status improvements are not working for salmon or SKRWs, as shown by the alarming decrease in populations of these species. Moreover, as pointed out in the 2020 SRKW Scientists Report, hatchery fish are inferior to wild salmon to fulfill the SRKWs nutritional needs. Breaching the 4 Lower Snake River Dams, according to the CSS modeling, would result in an estimated 4 x the return of Chinook salmon with a few years. Consequently, independent SRKW scientists have concluded that breaching the 4 LSRDs is the best, and likely only, way to recover SRKWs. See e.g., 2020 SRKW Scientists Report at pg. 12: When all of this evidence is taken into account, we believe that, as a matter of scientific evidence, it is clear that lower Snake River restoration, including dam removal, is the single biggest and most effective step we can take to restore these two important species. The evidence of continued decline for both orcas and Snake River Chinook also highlights the great urgency to take this action as soon as possible. Accordingly, the co-leads should revise the BA to determine that the Proposed Action will adversely affect the SRKWs, and instead implement breaching the 4 LSRDs this year. Only breaching the 4 LSRDs, as described alternative MO3, offers an immediate, meaningful route to recover this critically-endangered species.	According to NMFS and the EPA, the estimated SRKW population has fluctuated between 67 and 98 whales between 1960 and 2015. The Snake River dams were constructed between 1962 and 1975. The SRKW population increased from a record low in 1970 to its highest population numbers in 1995. Those years were not high years for Snake or Columbia River Chinook Salmon. Ocean conditions between 2011 and 2013 were good years for salmon. At the same time, 2010 and 2013 were good outmigration years. Particularly, 2011 and 2012 were above normal in water supply, which would mean more cooler water was available and there was better survival of salmon, and 2011 through 2014 were higher than normal spill years as well. The combination of outmigration and ocean conditions created improved adult salmon returns. The EIS has analyzed spill as a measure in the Preferred Alternative and determined the overall effect to SRKW to be negligible in large part because hatchery production is consistent between the No Action Alternative and the Preferred Alternative. Because the impact from the Preferred Alternative was determined to be negligible, the agencies determined that existing hatchery production would be sufficient to address any potential impacts to prey availability for SRKWs. The co-lead agencies note the contribution to the prey of SRKW through the continued existence of their respective independent Congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as the Lower Snake River Compensation Plan (other than under MO3), which is administered by USFWS. The Preferred Alternative and Proposed Action in the agencies' biological assessment carry forward certain mitigation measures described in Chapters 2 and 7 of the EIS, which include continued salmon and steelhead hatchery production. The Preferred Alternative has negligible effects to SRKWs as described in Section 7.7.8. The Biological Assessment (BA) describes the effect of the Proposed Action on the SRKW forage species (see BA Section 3.5.1.2, Southern Resident Killer Whale). The proposed changes in operation of the Columbia River System include increased spring spill during the downstream migration of juvenile spring and summer run Chinook salmon. The result of this action includes potential increases of juvenile fish passing through the spillways, reductions in juvenile fish direct and indirect mortality associated with downstream passage, and the Comparative Survival Study (CSS) model predicts increases in numbers of returning adults, which will benefit SRKWs foraging in and around the mouth of the Columbia River in winter and spring (See EIS Section 7.7.8). The CSS model results predicts Snake River Chinook salmon would have relative improvements in smolt-to-adult returns of 35 percent (see EIS Section 7.7.4). The smolt-to-adult return ratio (SAR) is the rate at which of a group of fish survive from their smolt life stage to a defined ending point where they return as adults. While recovery targets will require more than just the efforts of federal agencies, the CSS models indicate the potential for SARs of Snake River Chinook salmon and steelhead to increase to levels that could approach recovery targets set by the Northwest Power and Conservation Council. The BA, also consistent with the EIS, acknowledges past improvements to the configuration and operation of the Columbia River System, additional improvements to the environmental baseline as a result of completed estuary and tributary habitat actions, and the prospective non-operational conservation measures proposed in Chapter 2 of the Draft EIS, all contribute towards maintaining and improving Chinook abundance. Relevant conservation measures include, among other things, a commitment to continue funding the conservation and safety net hatchery programs listed in Chapter 2 of the Draft EIS. As discussed above, the agencies will fulfill congressionally authorized hatchery mitigation objectives through the funding of hatchery programs that are operated consistent with their independent hatchery program consultations during the term covered by this consultation. Based on those hatchery program consultations, the production levels associated with congressionally authorized hatchery mitigation objectives will continue, at minimum, to be consistent with levels previously analyzed by NOAA in the system consultations in 2008, 2014, and 2019. For the 2020 ESA consultations, therefore, the agencies expect that collectively, all of the actions described above (substantial modifications to migration conditions designed to benefit key prey species, combined with improvements to Chinook spawning and rearing habitat in the tributaries and Columbia River estuary, and continued hatchery production) ensure that remaining Chinook mortality from all sources in the mainstem migratory corridor will continue to be more than offset, resulting in a net gain in Chinook salmon abundance available as a prey source for SRKW. Finally, the 2019 NMFS Fisheries BiOp included increased spring spill operations that are similar to operations evaluated in CRSO EIS, and NOAA validated that the hatchery production of Chinook salmon mitigates for the impacts of operating the Columbia River System and total mortality through the mainstem migratory corridor from all sources.
5920	9	dkellersjd@gmail.com	N/A	E) The DEISs Preferred Alternative Fails to Uphold Federal Treaty and Trust Obligations to the Tribes. I support the positions and comments of the Tribes who provided input, as set forth in CRSO-DEIS Appendix P, Tribal Perspectives. As the DEIS acknowledges on p, 3-1401, It is difficult to overstate the effect each dams construction and operation has had to tribal cultures, lifeways, and traditions. They have shaken the very foundations of tribal identity and have either undermined or destroyed aspects of tribal culture central to the very concept of being an indigenous person in the Pacific Northwest. MO3, which includes LSRD breaching, was specifically identified by several tribes as a preference relative to the range of alternatives analyzed in this EIS. Most tribes support breaching the four lower Snake River damsas it represents the only alternative that substantially attempts to restore the river to a more natural environment. (DEIS, p. 3-1414). Consequently, the co-agencies recognize the support for MO3 by a number of tribes. (DEIS, p. 1414). Despite this clear tribal support for breaching the 4 LSRDs as provided in MO3, the co-lead agencies have recommended their Preferred Alternative, which is essentially intended to extend the interim flex spill arrangement. The Preferred Alternative simply continues the failed status quo of artificial transport of smolts via barging and trucking, attempted technological fixes like adding bypass structures, and increasing spill at BPAs convenience for its economic returns, not based on ecological needs of the fish. The Nez Perce Tribe, one of the most adversely affected of all Tribes, has already provided a public statement that the underpinnings of the Preferred Alternative are not acceptable. See News Release, Nez Perce Tribe, February 28, 2020, published at https://indiancountrytoday.com/the-press-pool/nez-perce-tribe-calls-for-leadership-on-lower-snake-river-restoration-and-accurate-complete-and-transparent-information-on-impacts-of-four-lower-snake-river-dams-zkH0oasQHkKnAVxZ-jm5rw?fbclid=IwAR3EFCIg-Ep0JjO_G7DmcaxTMgSAg5IU77-t5TcMRIiRGMzaulcj8TLoQgc . Beyond supporting the stated positions of the various Tribes included in Appendix P and otherwise previously stated, I also support the rights of any other native peoples who may not have been expressly included in the DEIS, such as the rights of individual Native landowners, including Palouse Tribal members, who have been removed and displaced from their ancestral lands due to these dams. Their rights to fish, access cultural and sacred areas, and practice traditions would also best be honored by breaching the 4 LSRDs. Sadly, by recommending their economic-driven Preferred Alternative, the co-agencies have once again failed to honor treaty rights, the U.S. governments fiduciary obligation to native people, and related social and environmental justice imperatives. The Preferred Alternative will not recover salmon, steelhead, lamprey, native plants, or provide the Tribes access to their usual and accustomed fishing, hunting and gathering spots, cultural and sacred sites that existed for millennia along the free-flowing rivers pre-damming. Accordingly, breaching the 4 LSRDs as described in MO3 best protects the	Tribal input, concerns, interests, and especially treaty rights were considered throughout the Draft EIS analyses and in the formulation of the Preferred Alternative. Treaty rights are discussed in the Executive Summary, Section 3.16, Cultural Resources, and Section 3.17, Indian Trust Assets, Tribal Perspectives, and Tribal Interests. Tribal consultation is described in Sections 1.5, 3.5, and 3.15; and Chapter 9. Most sub-sections within Chapter 3 include a Tribal Interests section at the end of the sub-section that attempts to summarize Tribal issues by topic. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Based on the fish analysis in Section 7.7.5, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the Columbia River System. Recovery determinations are ultimately the role of NMFS and the USFWS. Recovery efforts will need to continue to involve more parties than just the co-lead agencies across the region that have an influence and impact on ESA-listed species. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-lead agencies numerous legal obligations. The Preferred Alternative (PA) is predicted to benefit ESA-listed juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the PA also meets most other EIS objectives including those for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams, because the PA is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system.

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				rights of the Columbia Basin tribes, best fulfills the Co-agencies federal treaty and trust responsibilities, and best preserves the lands and natural and cultural resources native peoples have relied on in the Columbia Basin region for over 10,000 years.	
5926	1	sarahrwaldo@gmail.com	N/A	The increase in GHG emissions from replacing "carbon neutral" hydropower with other power sources has been listed among the top reasons for rejecting this proposal. In Chapter 3, section 3.8.2.2, the EIS authors discuss CH4 emissions from reservoirs, but end (page 3-980) by stating that they don't include any GHG emissions from the impounded waters of the Snake River in their analysis, citing insufficient data. I am commenting to request a reanalysis of the GHG footprint of the impounded waters of the Snake River, in light of relevant research including Miller et al., 2017, Environmental Management (attached).	Limited research exists regarding the methane emissions from the reservoirs created by the four dams on the Lower Snake River. Appendix G, Chapter 5, as well as Section 3.8 of the EIS, include references to these studies, including Miller et al. (2017) referenced in the comment. These studies generally conclude that there is substantial variability in methane emissions depending on site and management characteristics; however, based on a review of current, high-quality information, the Northwest Power and Conservation Council found in 2017 that data on these sites were insufficient to estimate the reservoir methane emissions specifically for the CRS but that methane emissions at high levels are not likely due to the lower organic and nutrient loads to the system, and higher dissolved oxygen content. The EIS describes that emerging technologies will allow for better measuring and understanding the effects of reservoir methane emissions from CRS projects, including the four lower Snake River dams.
5932	1	N/A	N/A	The federal agencies can and need to approach a two-tiered process. Tier one is an emergency response action for the immediate drawdown and breach of Lower Granite and Little Goose dam, followed by the remaining two dams in subsequent years. Tier two is addressing system operations and further mitigation activities in the rest of the Columbia River Basin using the new EIS, assuming that the four lower Snake River dams.	The agencies would have to seek congressional authority for breaching the lower Snake River dams and could not immediately breach the dams. The Endangered Species Act (ESA) does not require the co-lead agencies to take affirmative actions to support recovery of ESA-listed species. Additionally, recovery of ESA-listed salmon is outside of the authority of the co-lead agencies, and was not an objective of the EIS. Recovery of ESA-listed species is the purview of the National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (USFWS). This EIS has been developed in consultation with NMFS and USFWS to find an acceptable balance that allows the co-lead agencies to meet the Purpose and Need Statement while minimizing impacts to affected ESA-listed species and their habitats. The Draft EIS evaluated under Multiple Objective alternative 3 which includes the measure to breach the four lower Snake River dams (referenced as tier one in the comment) including operations (referenced as tier two in the comment) of the other ten Federal dams in the Columbia River System and mitigation for effects to resources from implementing this alternative. The Draft EIS evaluated a measure to breach the four lower Snake River dams, in Multiple Objective alternative 3, (referenced as tier one in the comment) including operations (referenced as tier two in the comment) of the other ten Federal dams in the Columbia River System and mitigation for effects to resources from implementing this alternative.
5936	1	yougoathead@gmail.com	N/A	There appears to be a misleading statement right off in the Introduction of the Executive Summary, the statement that annually 60 million tons of freight moves out of Lewiston Idaho down the river. Lewiston cannot take credit for the total operation of all of the dams. From your own facts on the USACE site, 1.1 million tons passed Lower Granite in 2015. Even that seems high given that there has not been container traffic for nearly 20 years, and the grain barges are half-loaded limited to 14 draft, due to dredging limitations when fighting the constant siltation. Then, 1.1 million tons of Little Gooses 1.3 million tons of freight is simply pass-through. Rivers work that way. Using your own percentage of the freight that is wheat on that 1.1 million ton figure, that services less than 100 farmers, figuring field rotations and the modern average size farm.	The commenter correctly pointed out a misleading statement in the Executive Summary. The system, not the Snake River, carries 50 to 60 million tons of cargo each year. This error has been corrected in the Final EIS.
5936	2	yougoathead@gmail.com	N/A	Your report should give a baseline of total grain exports from the region, showing what already moves other than on the river. There is infrastructure already in place. It is misleading to state that the Port of Lewiston gives Idaho farmers a vital shipping route. It gives the Camas Prairie and the Genesee/Moscow part of the Palouse an option. There is an active rail line down the Lower Snake River. The big part of Idaho does not come through Lewiston. Mostly it finds its way onto barges in the Lower Columbia. The Big Iron trucks arent even coming over the dangerous highway from Montana and the Dakotas to Lewiston like they used to in the heyday of the 1980s, with the consolidation of grain terminals in those regions into unit loaders along the rail mainline that happened in the 1990s. Grain produced north of and west of The Palouse, and south and west of Pomeroy also does not go out through the Lower Snake; it goes to the Lower Columbia via rail and truck to be loaded on barges there. And that is a huge region.	The various scenarios presented in Section 3.10.3.5 are derived from historic and current grain movements. Therefore, the total volume of grain and the routes where it is transported are reflective of current information. This is the case for movement through the Port of Lewiston. Regarding the WATCO short-line railroad that runs along the lower Snake River, based on the information that the shippers provided (and WSDOT), grain movements on the WATCO line no longer occurred due to their current operating agreement with Union Pacific. The WATCO line would need to substantially update their rail infrastructure to come into compliance with practices on Class I rail lines. For this reason, the WATCO line was not considered a viable option for grain movement in the case of a breach scenario. The effect of including this assumption and allowing movements on these short lines during a breach scenario would be to somewhat reduce the anticipated increases in shipping costs to shippers. Information has been added to Appendix L that describes the impacts of modifying this assumption on quantified costs to shippers.
5936	3	yougoathead@gmail.com	N/A	The report does not mention what the Corps is collecting in Lock Fees for this commercial traffic. In my personal experience riding a small pleasure craft, the lock at Lower Granite was cycled for one 15 fishing boat, for free! If the traffic uses a multimillion dollar facility for free, no wonder water transportation is so economical. Part of the fee should be reparation to the public for commandeering the river.	There are no locking fees for these Federal projects, as they were constructed and are maintained by Federal tax dollars and generate national and regional economic benefits in excess of these costs to serve public good. The lower Columbia River and lower Snake River projects were authorized by Congress to serve navigation and other purposes and Congress annually appropriates funds for these operations.
5936	4	yougoathead@gmail.com	N/A	The report does not mention that the dams cannot now be removed because of the mess that has been made. The historical channel deep water is where the dredging spoils have been dumped for years. If let to free flow, this river would violate the Clean Water Act rules so badly for decades.	Section 3.3, River Mechanics, discusses the sediment movement under MO3. In Section 3.4, Water Quality, under MO3, the effects on water quality, including sediment quality, are analyzed. If MO3 were to be implemented, further studies and design would be required to breach the dams in a safe manner to minimize effects to resources. The co-lead agencies would coordinate and obtain any necessary permits to comply with applicable environmental laws. The co-lead agencies are unaware of any actions on their part that caused a release of hazardous substances into the reservoirs or river that has caused the potential contamination. The existence of the dam and the fact that sediments are retained by the dam does not create liability for those potential hazardous substances in the sediment. Therefore, even if an evaluation identifies potential contamination in the sediments, without confirmation that the potential contamination was caused by a release of a hazardous substance by the co-lead agencies, the agencies would not have the authority to expend Federal appropriations on a cleanup of contamination that was caused by others.
5936	5	yougoathead@gmail.com	N/A	The report fails to mention the replacement dams. When these dams were made they were publicized as 50 year infrastructure. They are proving to be 100 year structures. In reality they could well be 150 year structures. An Old Timer who worked concrete construction his whole life provided the local knowledge that concrete lasts about 150 years, then its life is over. All of this is nothing to geologic time, which the River runs on. If the dams are truly essential to Humanity for transportation of its food, where are the replacement dams? Where is that environmental Plan?	The cost analysis estimates the capital and operations and maintenance costs that would occur under the No Action Alternative (see Tables 4-1 and 5-1 in Appendix Q, in the Draft EIS). Capital cost estimates are based on information from the Strategic Asset Management Plan, including investment needs over the long-term based on the hydropower engineering requirements and needs over the life of the asset, including replacement costs when assets are at the end of their useful life.
5936	6	yougoathead@gmail.com	N/A	Commenting to the subject of the fish, the report should contain a documentary of all of the species that have already been expiated. That means made to come to an end, extinct. There should be information of how quickly the expiation occurred after completion of the subject dam.	The co-lead agencies prepared this Draft EIS in response to the need to review and update operations, maintenance, and configuration of the 14 Columbia River System dams. Analysis of construction of the dams and potential extinction is not in the scope of the EIS.
5938	1	dbhummon@msn.com	N/A	Removing the dams on the lower Snake is a good idea if..... A new rail line is built between Lewiston and the Tri Cities to move the grain at a reasonable cost to replace barges Water usage by Ag is provided for Subsidies for the tribes to make up for removing all nets from the snake and Columbia Allow the tribes to harvest the sea lions for profit as in Canada	The EIS evaluated the tradeoffs associated with the management of the system, which has multiple purposes. It was not an analysis that aimed to compare the benefits of navigation against the costs to salmon. The EIS estimates the costs to operate the Columbia River System dams, as well as the costs to the navigation and transportation industry, that would be occur if the four lower Snake River dams are breached under Multiple Objective alternative 3 as part of this broad analysis that seeks to balance the objectives of the agencies for the system.
5948	1	Dale Beasley	Columbia River Crab Fisherman's Assocation	CCF/CRCFA understands that the DEIS is limited in scope to just Columbia Basin operations. This however, is an incomplete analysis and does not offer enough help to restore salmon to the upper portions of the basin and without addressing a comprehensive SOLUTION BASED analysis will never solve the overall ESA listing of these precious salmon resources affected by ESA listings. Without addressing the total protection for over populated marine mammals in the MMPA along with impacts associated with MASSIVE avian predation which automatically put the dams under unjustified indictment and scrutiny for removal by a few vocal critics that always need a manufactured crisis to feed their own unguided ambitions at expense of benefits to all of society.	The scope of the EIS appropriately focuses on resources affected by CRS operations, maintenance and configuration. The co-lead agencies' legal authorities relate to operating and maintaining the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy designated critical habitat. To comply with the ESA, the co-lead agencies have historically supported actions to mitigate adverse effects to listed species from CRS operations, through funding, direct implementation, and other means. Under the Preferred Alternative, those actions, including for the purpose of reducing pinniped and avian predation on ESA-listed species, would generally continue to ensure compliance with the ESA. Other entities in the region have authorities and obligations to mitigate the impacts from pinniped and avian predators, and the co-lead agencies will continue to work closely with those entities to benefit ESA-listed salmonids.
5948	2	Dale Beasley	Columbia River Crab Fisherman's Assocation	Climate change Tug and Barge Transportation is cleaner and cheaper than truck or rail transportation by a large margin. losing the dam power would hurt the states goal of being carbon free by 2045, especially as the population grows and there is more demand for electrical cars that need to get their energy from our electrical grid that stretches into coal country.	Section 3.8 of the EIS evaluates how a shift in shipping modes under Multiple Objective alternative 3 from barge to road and rail would affect greenhouse gas emissions. Consistent with this comment, the analysis demonstrates that these changes in shipping would result in an increase in emissions of between 0.02 and 0.06 MMT CO_2.
5948	3	Dale Beasley	Columbia River Crab Fisherman's Assocation	In recent years NOAA fisheries has conducted offshore salmon smolt composition surveys and found that the majority of salmon smolts that survive to live in the ocean between Neah Bay WA and Newport OR are of 95% of hatchery origin these scientific study results shed light on the REALLY POOR SURVIVAL RATE of naturally spawned Wild salmon in our river systems overall; these surveys encompass all river systems, even those without dams from all over the NW. This is indicative of ALL Wild salmon found in the surveys from all coastal and inland rivers, many without any dams at all. This would lead any rational inquisitive scientist to conclude that there is an abundance of stressors on natural salmon populations other than just the Snake River Dams. Our nation MUST address this multitude or salmon stressors simultaneously if salmon are ever to get Dinner Plate Results.	The comment is correct, the effects of the four lower Snake River Dams, or even the entire CRS, are only a portion of the factors influencing the health and productivity of Columbia Basin salmon and steelhead. There are many effects on salmon and steelhead populations outside the operation of the dams. Research continues to evaluate the magnitude of these effects. For more information, see the National Marine Fisheries Service website at: https://www.nwfsc.noaa.gov/research/index.cfm. Among the objectives of this EIS are improving passage conditions and survival of both juvenile and adult anadromous fish through the CRS. The more healthy juvenile salmon that enter the ocean, whether the conditions there are good or poor, the greater the returns to the Columbia Basin can be. The greater the success of adults migrating up the Columbia and tributaries and spawning, the more juveniles can be produced for the next generation.
5948	4	Dale Beasley	Columbia River Crab Fisherman's Assocation	The dams support vulnerable communities with fragile economies. The 10 counties most affected by a dam breaching scenario are primarily rural areas in which one in five people are already at or below the federal poverty level, and average wages are 25% below the national average.	As described in Section 3.7.3.5 of the EIS, the implications on the cost of electricity to end-users (such as residents and businesses) is upward rate pressure ranging from 1.6 to 3.6 percent relative to the No Action Alternative. The Environmental Justice analysis of the EIS (Section 3.18.3) describes that energy burdens in Region C are already likely unaffordable for all households with incomes below the Federal poverty level, and thus any upward rate pressure could impact low-income households for whom energy costs are a larger percentage of their income. The Environmental Justice section (Section 3.18.3.4) describes other effects to minority populations, low-income populations, or Indian tribes from MO3, which includes the dam breach measure. Regions C and D would lose commercial navigation and cruise ships. This could have an adverse effect on the economy which may lead to a minor adverse disproportionate effect on environmental justice population. Overall in Region C, long-term beneficial (e.g., riverine-oriented recreation) and adverse (e.g., lake or flatwater-oriented recreation) effects are anticipated. Basin-wide visitation could decrease by up to 21 percent (approximately 2.7 million visits and $25 million in annual social welfare benefits) in the short-term. The long-term river visitation estimates (land- and water-based) suggest that recreation values could range from 50 percent lower to 30 percent higher than under the No Action Alternative (1.5 to 3.4 million visitor days). Increased catch rates and angler visitation could occur over time as anadromous fish populations increase in Regions B, C, and D. Water supply effects on irrigated farmland in Region C would be the loss of 47,840 acres and 4,822 jobs. This could have an adverse effect on the economy which may lead to a minor adverse disproportionate effect on environmental justice populations. For Region D, an increase sediment would lead to an increase in maintenance costs. An increase in operational costs could lead to less labor being hired or the inability to stay in business. Hispanics make up 73% of farm workers in Region D. As discussed in Section 3.7, Power Generation and Transmission, Indian tribes could also be affected by changes in the Bonneville's Fish and Wildlife Program funding under MO3, which would decrease by approximately $34 million at least. Given that the lower Snake River dams would no longer be in place to operate, Bonneville's funding for the effects of construction and operation of these dams to the USFWS through the Lower Snake River Compensation Plan facilities would cease.
5948	5	Dale Beasley	Columbia River Crab Fisherman's Assocation	Breaching the Lower Snake River dams would cause diesel fuel consumption to increase by nearly 5 million gallons per year as barges are replaced by less efficient truck-to-rail shipments. At least 201 additional unit trains and 23.8 million miles 10 in additional trucking activity would be required annually, resulting in increases in CO_2 and other harmful emissions by over 1.2 million tons per year. The combined loss of clean power and fuel efficiency from the river system would result in equivalent carbon emissions generated by a Boardman coal-fired power plant every five to six years.	Section 3.8 of the EIS evaluates potential effects of MO3 on emissions due to shifts from use of barge-based shipping through the four lower Snake River dams to road and rail transportation. The analysis does find an increase in truck and rail transportation, and associated CO_2 emissions, under MO3 relative to the No Action Alternative. However, the EIS finds a lesser effect on truck and rail activity, amounting to an increase of 0.06 MMT CO_2 per year, about half the level described in this comment. The EIS does identify an adverse effect of MO3 on greenhouse gas emissions due both to the reduction in hydropower generation and the shifts from barge-based to road- and rail-based freight transportation.
5948	6	Dale Beasley	Columbia River Crab Fisherman's Assocation	See PDF of CRCFA PowerPoint below that shows clearly that the Snake River Dams are NOT as strongly correlated to the Orca demise as the highly significant reduction in Washington salmon hatchery production. Assailants on the dams never get this basic information to the public, it does not fit their bogus narrative or raise money for their errant cause from an uneducated public. As the state increased production in the 1980s the Orca populations responded with increased population that led to the highest Puget Sound Orca population ever, then as the state decreased salmon smolt	The EIS analysis found a minor effect to the Southern Resident killer whale (SRKW) would result from implementing Multiple Objective 3 (MO3), which includes breaching the four lower Snake River dams. This conclusion is based on the fact that Chinook salmon available to SRKW from the lower Snake River comprises only a small percentage of their overall diet. Changes to this portion of the whales food availability of the magnitudes predicted for MO3 may change the whales foraging behavior patterns slightly, but will not change their overall condition or population dynamics.

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				production by 160 million smolts, the Orca population contracted accordingly Once the state stabilize the smolt production at a significantly reduced number the Orca population also stabilized at a significantly reduced number until very recently that is not graphed due to lack on additional updated information.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not require the co-lead agencies to take affirmative actions to recover ESA listed species. The population dynamics of the SRKW are complicated and there are multiple factors that contribute to the overall success of this species. The quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differently from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for the whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall-run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall-run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). Details on the most crucial prey stocks for Southern Resident killer whales, as well as their population and range, is available from several fact sheets and videos available here: https://www.fisheries.noaa.gov/species/killer-whale#spotlight. For more information, visit this NMFS StoryMap on Southern Resident killer whales: https://noaa.maps.arcgis.com/apps/Cascade/index.html?appid=3405e6637bf74e998d4ebe992c54f613. According to NMFS and the EPA, the estimated SRKW population has fluctuated between 67 and 98 whales between 1960 and 2015. The Snake River dams were constructed between 1962 and 1975. The SRKW population increased from a record low in 1970 to its highest population numbers in 1995. Those years were not high years for Snake or Columbia River Chinook Salmon. Ocean conditions between 2011 and 2013 were good years for salmon. At the same time, 2010 and 2013 were good outmigration years. Particularly, 2011 and 2012 were above normal in water supply, which would mean more cooler water was available and there was better survival of salmon, and 2011 through 2014 were higher than normal spill years as well. The combination of outmigration and ocean conditions created improved adult salmon returns. The EIS has analyzed spill as a measure in the Preferred Alternative and determined the overall effect to SRKW to be negligible in large part because hatchery production is consistent between the No Action Alternative and the Preferred Alternative. Because the impact from the Preferred Alternative was determined to be negligible, the agencies determined that existing hatchery production would be sufficient to address any potential impacts to prey availability for SRKWs. The co-lead agencies note the contribution to the prey of SRKW through the continued existence of their respective independent Congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as the Lower Snake River Compensation Plan (other than under MO3), which is administered by USFWS. The Preferred Alternative and Proposed Action in the agencies' biological assessment carry forward certain mitigation measures described in Chapters 2 and 7 of the EIS, which include continued salmon and steelhead hatchery production. The Preferred Alternative has negligible effects to SRKWs as described in Section 7.7.8. FEIS Chapter 3 (Vegetation, Wetlands, Wildlife, and Floodplains) has been updated for SRKW (Section 3..6.2.6 and Table 3-102). FEIS Chapter 7 (Preferred Alternative), has been updated with additional analysis information on SRKW and potential increase in forage fish, in particular, Chinook salmon (Section 7.7.8). The Biological Assessment (BA) describes the effect of the Proposed Action on the SRKW forage species (see BA Section 3.5.1.2, Southern Resident Killer Whale). The proposed changes in operation of the Columbia River System include increased spring spill during the downstream migration of juvenile spring and summer run Chinook salmon. The result of this action includes potential increases of juvenile fish passing through the spillways, reductions in juvenile fish direct and indirect mortality associated with downstream passage, and the Comparative Survival Study (CSS) model predicts increases in numbers of returning adults, which will benefit SRKWs foraging in and around the mouth of the Columbia River in winter and spring (See EIS Section 7.7.8). The CSS model results predicts Snake River Chinook salmon would have relative improvements in smolt-to-adult returns of 35 percent (see EIS Section 7.7.4). The smolt-to-adult return ratio (SAR) is the rate at which of a group of fish survive from their smolt life stage to a defined ending point where they return as adults. While recovery targets will require more than just the efforts of federal agencies, the CSS models indicate the potential for SARs of Snake River Chinook salmon and steelhead to increase to levels that could approach recovery targets set by the Northwest Power and Conservation Council. The BA, also consistent with the EIS, acknowledges past improvements to the configuration and operation of the Columbia River System, additional improvements to the environmental baseline as a result of completed estuary and tributary habitat actions, and the prospective non-operational conservation measures proposed in Chapter 2 of the Draft EIS, all contribute towards maintaining and improving Chinook abundance. Relevant conservation measures include, among other things, a commitment to continue funding the conservation and safety net hatchery programs listed in Chapter 2 of the Draft EIS. As discussed above, the agencies will fulfill congressionally authorized hatchery mitigation objectives through the funding of hatchery programs that are operated consistent with their independent hatchery program consultations during the term covered by this consultation. Based on those hatchery program consultations, the production levels associated with congressionally authorized hatchery mitigation objectives will continue, at minimum, to be consistent with levels previously analyzed by NOAA in the system consultations in 2008, 2014, and 2019. For the 2020 ESA consultations, therefore, the agencies expect that collectively, all of the actions described above (substantial modifications to migration conditions designed to benefit key prey species, combined with improvements to Chinook spawning and rearing habitat in the tributaries and Columbia River estuary, and continued hatchery production) ensure that remaining Chinook mortality from all sources in the mainstem migratory corridor will continue to be more than offset, resulting in a net gain in Chinook salmon abundance available as a prey source for SRKW. Finally, the 2019 NMFS Fisheries BiOp included increased spring spill operations that are similar to operations evaluated in CRSO EIS, and NOAA validated that the hatchery production of Chinook salmon mitigates for the impacts of operating the Columbia River System and total mortality through the mainstem migratory corridor from all sources.
5952	1	N/A	N/A	First, upstream passage. While this has been a topic of conversation for many years and there have been many structural changes made to dams in the Columbia river basin, these alternatives do not address this important portion of fish passage well enough. Even if there are higher rates of downstream passage through increased spillway openings or additional structural improvements for downstream passage, what if these changes affect upstream passage? While the document does discuss upstream passage in the details of each alternative, it does not put enough weigh on keeping this metric as high as possible. If all this work is being done for downstream passage and only minimal monitoring for upstream passage is kept up, what happens when upstream passage starts to decline? These alternatives do not seem to account for this possibility well enough.	The current configurations of the CRS dams that have fish ladders already have effective upstream adult passage. Many of the considerations for structural changes proposed in the EIS would be to address downstream juvenile passage and survival and improvements for lamprey passage. Because structural changes to improve salmon and steelhead (e.g., spillway weirs) are in place at this point, there are few additional mechanistic fixes proposed in the Preferred Alternative (PA). Other changes, such as turbine replacements are not expected to have impacts to salmon and steelhead survival that are of a magnitude that would outweigh the modeled effects associated with the higher spill levels in the proposed action. The PA will be implemented using a robust monitoring plan to help narrow the uncertainty between the biological models and will help determine how effective increased spill can be in increasing salmon and steelhead returns to the Columbia Basin. Monitoring will also be used to evaluate any potential impacts on adult upstream passage. The effectiveness of the spill program will be monitored and effects from other sources such as harvest, ocean mortality, and straying will also be accounted for to the extent possible.
5952	2	N/A	N/A	The second concern I have is over water temperature. There are many times throughout the document that water temperature is considered a large issue but not a driving factor in the decision-making. I feel that this is a short-sighted thought because water temperature controls so many other factors within a river system that it must be accounted for in the alternative determination. Climate change is real and is addressed in the EIS in depth in chapter four, but there does not seem to be enough insight into how to mitigate the effects of climate change on water temperature. It is noted that reservoir levels effect water temperature, but the final choices within each alternative do not seem to bear these effects in mind. Water temperature should be very closely monitored and regulated as much as possible, not only for fish, but also for water quality and safety.	Water temperature monitoring would continue under the Preferred Alternative, it is used for real-time decision-making regarding operation of the CRS dams. Through on-going regional climate change studies and work, the co-lead agencies evaluated potential shifts in precipitation and temperature patterns and resulting changes in unregulated Columbia Basin streamflow timing and volumes. The evaluation consisted of the full range of the latest climate change projections developed using multiple global climate models, emissions scenarios, downscaling techniques, and hydrologic models. Details of this evaluation are in Chapter 4 of the EIS, as the commenter points out. This information was used to describe the potential effects (both beneficial and adverse) on the river systems and resources due to potential changes in climate for all alternatives. Quantitative data that describes how climate change hydrology will affect reservoir operations in the Columbia Basin in still under development and was not available for us in this study. The climate science community is still developing models that can be used to analyze possible effects to water temperature from climate change, and unfortunately, have not been fully applied and validated for use with climate affected regulated flow projections of large reservoir systems. This data is critical to analyzing potential effects to fish quantitatively. In lieu of this information, the climate analysis used the output from resource models, like water quality and fish, under historical conditions, available climate change data, and scientific literature to qualitative assess potential effects to resources (described in Chapter 4).
5952	3	N/A	N/A	My final concern is of cultural sites and tribal input. Again, there seemed to be a lot of tribal input throughout the process and this is well documented in the EIS, but the preferred alternative does not seem to take very many of their requests into account. Every group and voice deserves to be heard in this decision making process in order to make this a document that everyone will buy into. I think that cultural sites deserve more recognition and should have more weight in the decision making process.	Cultural resources were addressed throughout the CRSO EIS NEPA process with input from many Tribes and cooperating agencies. The cultural resources impact analysis for Multiple Objective alternatives (MO), MO1 through MO4 in Sections 3.16.1-3.16.3.7, and for the Preferred Alternative (PA) in 7.7.18, provides the public and the co-lead agencies' decision-makers with a comparative analysis of impacts from all of the alternatives to cultural resource across the entire system. The co-lead agencies did not attempt to impose values on different resource types or effects for weighting purposes. Tribal input, concerns, interests, and especially treaty rights were considered throughout the Draft EIS analyses and in the formulation of the PA. The co-lead agencies are engaging in government-to-government consultation with the Tribes, and several Tribes are cooperating agencies on the CRSO EIS. Treaty rights are discussed in the Executive Summary, Section 3.16, Cultural Resources, and Section 3.17, Indian Trust Assets, Tribal Perspectives, and Tribal Interests and Chapter 7, Preferred Alternative. Tribal consultation is described in Sections 1.5, 3.5, and 3.15; and Chapter 9. Most sub-sections within Chapter 3 include a Tribal Interests section at the end of the sub-section that attempts to summarize tribal issues by topic.
5952	4	N/A	N/A	There are other ways to create renewable power without continuing to alter nature in such a significant way. Just a passing thought, although I know this is probably extremely cost prohibitive, could replacing these large dams with a series of lower head dams make a large enough impact on fish passage while still maintaining some flood regulation and energy production? This might allow there to be smaller reservoirs and less dangerous spillways throughout the Columbia River basin.	The EIS acknowledges that the energy sector is constantly undergoing transformation and that technological improvements will likely bring other options. Regarding the range of renewable technologies considered, the source of resource information used in the EIS is from the Northwest Power and Conservation Council's Seventh Power Plan and Mid-term Update. See Draft EIS, Section 3.7.3.1, Step 3: Determine Need for Potential Replacement Resources and Associated Costs, at page 3-821; see also Appendix H, Power and Transmission, at Section 2.2. To avoid speculation, the EIS analysis focuses on primary technologies identified by the Council in their Seventh Power Plan (7th Power Plan, page 13-5) that are deemed proven, commercially available, and deployable on a large enough scale in the Northwest. The construction of additional dams is outside the scope of this EIS.
5952	5	N/A	N/A	This document is going to be in circulation and lead management decisions for many years to come and I think it is preposterous to ask for such a crucial document to be rushed by a year. There is so much more data that could be collected, surveys that could be run, and public comment that could be incorporated to create a much more far reaching and collaborative document if the proper amount of time had been granted to complete it.	The co-lead agencies considered requests to extend the public comment period. This NEPA process included a wide array of cooperating agencies whose close involvement throughout the process allowed the co-lead agencies to incorporate feedback. Given the broad range of comments received and the extensive Federal and non-Federal participation in the overall process as well as the level of public engagement in the six virtual public meetings in the region, the co-lead agencies determined that an extension was not warranted and that the 45-day public comment period was adequate consistent with NEPA regulations. On April 9, the CRSO EIS website was updated to inform the public that they should plan to submit comments by the close of the comment period.
5962	1	savpothier@gmail.com	N/A	One of the criticisms mentioned about breaching the dams is that jobs will be taken away and individuals will not be able to make money. When constructing the dams, this perspective was not shared when viewing how this would affect the Indigenous people. We took away their main source of food, salmon. They were given no voice and offered them no reconciliation for the damage and suffering that was caused. In the 1850s, a treaty was signed in order to ensure the right of taking fish. That treaty was not truly upheld. Continuing actions in the DEIS preferred alternative will result in the extinction in salmon. Taking away their resources of salmon is taking their rights guaranteed by the Treaty. The Indigenous people of these lands are so important. From the executive summary, their voices are still not being heard.	Tribal input, concerns, interests, and especially treaty rights were considered throughout the Draft EIS analyses and in the formulation of the Preferred Alternative. Treaty-specific information is included in Section 3.17 as well as Chapter 7. The co-lead agencies recognize and respect the legal obligations treaties impose. In terms of honoring our treaty obligations, the co-lead agencies comply with environmental laws and regulations and all other applicable Federal statutory and regulatory requirements, included "Protecting Native American treaty and reserved rights and fulfilling trust obligations for natural and cultural resources throughout the environment affected by the Columbia River System operations" as a purpose in the Purpose and Need Statement in Chapter 1 to ensure treaty obligations were a key consideration of decision-making. The co-lead agencies are engaging in government-to-government consultation with the tribes, and several tribes are cooperating agencies on the CRSO EIS. Treaty rights are discussed in the Executive Summary, Section 3.16, Cultural Resources, and Section 3.17, Indian Trust Assets, Tribal Perspectives, and Tribal Interests and Chapter 7, Preferred Alternative. Tribal consultation is described in Sections 1.5, 3.5, and 3.15; and Chapter 9. Most sub-sections within Chapter 3 include a Tribal Interests section at the end of the sub-section that attempts to summarize tribal issues by topic. Under the ESA, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Recovery of ESA-listed salmon is outside of the authority of the co-lead agencies, and was not an objective of this EIS. Recovery of ESA-listed species is the purview of the National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (USFWS). This EIS has been developed in consultation with NMFS and USFWS to find an acceptable balance that allows the co-lead agencies to meet the Purpose and Need Statement while minimizing impacts to affected ESA-listed species and their habitats.

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					Analysis shows that the Preferred Alternative would meet the objectives for improving juvenile salmon, adult salmon, resident fish and lamprey. The analysis found ranges in potential effects due to different assumptions included in each of the fish models used in the study.Using the Comparative Survival Study (CSS), Snake River Chinook salmon and steelhead are expected to see relative improvements in smolt-to-adult returns of 35 percent and 28 percent, respectively. The Smolt-to-Adult return ratio (SAR) is the rate at which of a group of fish survive from their smolt life stage to a defined ending point where they return as adult. While achieving long-term recovery targets will require more than just the efforts of Federal agencies, the CSS models indicate the potential for SARs of Snake River Chinook salmon and steelhead to increase to levels that could approach recovery targets set by the Northwest Power and Conservation Council. If latent mortality effects are reduced by passing more juvenile fish through the spillway, the NMFS Lifecycle Model (LCM) also shows that levels of SARs would increase. However, if latent mortality effects are not reduced, or are different than modeled, the LCM predicts that SARs for Snake River spring Chinook salmon may be lower than the No Action Alternative (a range of -7.5 percent to +28 percent change relative to the No Action Alternative) due to reduced opportunities for fish transportation. Results for upper Columbia River stocks are beneficial based on LCM estimates. In-river survival and SARs are anticipated to increase. The CSS model does not currently model upper Columbia fish. The Preferred Alternative also has measures intended to increase upstream passage success and reduce injury and mortality for Pacific lamprey. These measures are proposed structural improvements that include converting extended-length submersible bar screen material to screen material that would not impinge or entangle juvenile lamprey, expanding the network of lamprey passage structures to bypass impediments in fish ladders, changing the design for turbine cooling water strainers, and replacing turbines for safer fish passage. The Preferred Alternative would also meet the objective to improve resident fish. Effects to resident fish vary by region and species, but are generally minor relative to the No Action Alternative.
5962	2	savpothier@gmail.com	N/A	Rivers provide habitat refuge through characteristics such as; sinuosity, large woody debris, and bank stabilization. These characteristics allow for salmon to have both a resting and spawning habitat. Reservoirs cannot offer that. They have no habitat complexity or sinuosity. Most of the trees have been clear-cut, and the area has been flooded from dam construction. Due to the lack of trees, leaf litter will also not be available for aquatic invertebrates which will then become food for salmon. The Preferred Alternative has not addressed these problems with solutions. There must be more effort in actually making the reservoir habitable if the goal is salmon survival. Within the written statement, mitigation for salmon cannot exist if these requirements for the survival of salmon are not actually addressed.	The Columbia River System projects, in most cases, do not affect spawning and rearing habitat for salmon and steelhead because they do not spawn in the mainstem Columbia and Snake Rivers; these are migratory corridors only. The exception is fall Chinook salmon. For all MOs, in the Columbia River, these habitats would be very similar to the No Action Alternative. The effects of Multiple Objective alternative 3, which includes breaching the four lower Snake River dams, in the Snake River on Snake River fall Chinook salmon includes qualitative discussion of habitat improvements. The Preferred Alternative, however, would also have similar habitat for fall Chinook salmon.
5962	3	savpothier@gmail.com	N/A	These dams are leading two species to extinction. Under the Endangered Species Act, it is required that any species endangered must be protected and recover those species and their habitats. Salmon cannot make it passed all four dams, and many of them just get killed in the turbines. The population is a fraction of what it once was, and the ESA must be complied with to prevent the complete biological extinction of salmon and as a result, the whales as well. The other law that must be considered is the Northwest Power Act. Fish have been given equal consideration as power acquisition. With the populations of salmon being reduced to less than 5%, they are not being considered equal.	Based on the EIS analysis, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Recovery is a broader regional goal and is above and beyond the co-lead agencies' obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the CRS. Recovery of ESA species is the purview of National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (USFWS). This EIS has been developed in consultation with NMFS and USFWS to find an acceptable balance that allows the co-lead agencies to meet the Purpose and Need Statement while minimizing impacts to affected ESA-listed species and their habitats. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. Because the effects of the Preferred Alternative would be negligible, the agencies determined that existing offsite mitigation efforts, including hatchery production, would be sufficient to address any potential impacts to prey availability (Chinook salmon) for Southern Resident Killer Whales (SRKW). The co-lead agencies note the contribution to the prey of SRKW through the continued existence of their respective independent congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as Lower Snake River Compensation Plan, which is administered by USFWS. Additional details on the most crucial prey stocks for SRKW, as well as their population and range, is available from several fact sheets and videos available here: https://www.fisheries.noaa.gov/species/killer-whale#spotlight. For more information, visit this NMFS StoryMap on SRKW: https://noaa.maps.arcgis.com/apps/Cascade/index.html?appid=3405e6637bf74e998d4ebe992c54f613. Regarding the Northwest Power Act, this comment appears to refer to the equitable treatment mandate of the Act. That provision requires [t]he Administrator and other Federal agencies responsible for managing, operating, or regulating Federal [] hydroelectric facilities located on the Columbia River or its tributaries to adequately protect, mitigate, and enhance fish and wildlife, including related spawning grounds and habitat, affected by such projects . . . in a manner that provides equitable treatment for such fish and wildlife with the other purposes for which such system and facilities are managed and operated. 16 U.S.C. 839b(h)(11)(A)(i). The Ninth Circuit Court of Appeals has found it lawful for agencies to provide equitable treatment on a system-wide basis. See, Northwest Environmental Defense Center v. Bonneville, 117 F.3d 1520, 1533-34 (9th Cir. 1977). For example, the agencies may make some decisions that place power above fish, so long as on the whole, they treat fish on par with power. The comment suggests that salmon are not being considered equal based on the assertion that populations have been reduced to less than 5%, presumably of historic levels at an unspecified point in the past. The co-lead agencies understand the comment as alluding to the equitable treatment provision of the Act, requiring that the agencies management and operation of the CRS provide equitable treatment for fish and wildlife with the other authorized purposes for which the system is managed, such as flood risk management, hydropower generation, irrigation, navigation, and recreation. See 16 U.S.C. 839b(h)(11)(A)(i). The co-lead agencies provide fish and wildlife with equitable treatment on a system-wide basis. See NW. Envtl. Def. Ctr. v. Bonneville Power Admin., 117 F.3d 1520, 1533-34 (9th Cir. 1997) (While each power marketing action that affects the system implicates the equitable treatment provisions, Bonneville may properly exercise its obligation by insuring equitable treatment for fish on a systemwide basis.); Confederated Tribes of the Umatilla Indian Reservation v. Bonneville Power Admin., 342 F.3d 924, 931 (9th Cir. 2003) (The equitable mandate of [the Northwest Power Act] does not require every Bonneville decision to treat fish and wildlife equitably. For example, Bonneville may make some decisions that place power above fish, so long as on the while, it treats fish on par with power.). Through this EIS process, the co-lead agencies have considered management and operation of the CRS for its multiple authorized purposes. And, as noted above, CSS analysis of the Preferred Alternative predicts an increase in smolt-to-adult return rates as compared to the no action alternative. The co-lead agencies incorporation of measures specifically designed for improved benefits to fish and wildlife, as balanced against other authorized purposes of the system, reflects equitable treatment of fish and wildlife consistent with the Northwest Power Act. Additionally, the entire CRSO EIS process is an exercise in providing equitable treatment on a system-wide basis by using alternatives and analysis that treat fish and wildlife issues on par with the issues related to power, navigation, flood risk management, and the other authorized purposes of the CRS. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. With MO3, for example, the EIS includes system configuration, management, and operations that would emphasize benefits to anadromous and resident fish. With the Preferred Alternative the agencies provide a reasonable balance of management and operation among all the authorized purposes. All of the alternatives include detailed analysis of impacts to fish and wildlife affected by the CRS as well as potential mitigation measures. In this way, the agencies are providing equitable treatment of fish and wildlife in this management planning process.
5962	4	savpothier@gmail.com	N/A	The true question is, will mitigation truly be enough to achieve the goal of ESA standards? The first option that is initially thought of is hatcheries. But are hatcheries really helpful to the wild salmon population? Studies prove they arent. Studies show that hatchery born salmon reduce the fitness of wild salmon, and cause a decrease in future abilities to adapt (Meyers, 2004). Salmon that are raised in a hatchery do not have the same ability to navigate and survive the wild. They breed with wild salmon, outcompete them, and spread disease. When wild salmon reproduce with hatchery fish, this causes a reduction in the fitness of the next generation of offspring. Hatchery salmon also outcompete wild salmon. Hatcheries actually cause more harm to wild salmon than actual benefits. A 25-year long study that was done on the Snake River. This study showed a negative correlation between the increase of hatchery fish being released and the survival of Chinook salmon (Levin & Zabel & Williams, 2001). This study suggested that hatchery fish being released into the waters actually impede the recovery process of salmon, and cause a negative impact.	Based on the analysis of fish in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative (PA) would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Under this alternative, hatchery programs would continue as under the No Action Alternative, and a number of other mitigation measures would continue as well. The PA proposes measures such as increased spill intended to improve survival of anadromous salmonids. Figure 3-111 in the Draft EIS was an illustration that the CRS can and has supported large numbers of returning adult salmon and steelhead. As noted, this figure combines hatchery and wild fish. Overtime, the PA is anticipated to benefit both wild and hatchery fish. Hatchery origin fish are very important to Tribal and sport harvest within the Columbia River Basin, and many hatchery programs are important supplementation to rebuilding natural populations. Further, the co-lead agencies have legal requirements to produce hatchery fish as mitigation for components of the CRS.
5962	6	savpothier@gmail.com	N/A	The mechanical system of hydropower is a clean method of converting energy, but the results of damming rivers into reservoirs causes an increase in both carbon dioxide and methane. The concentration of carbon dioxide within reservoirs tested have been found to have 2-3 times the amount of carbon dioxide in the atmosphere (Rudd & Hecky & Harry & Kelly, 1993). This increase is significant compared to normal lakes. The amount of greenhouse gases released by the process of hydroelectric are comparable to fossil fuels (Rosa & Schaeffer, 1994) Reservoirs in nature accumulate a large amount of sediment and nutrients. This causes algal blooms which causes a decrease in oxygen and an increase in carbon dioxide, also known as a dead zone.	This comment correctly identifies that hydropower reservoirs can act as a source of greenhouse gas (GHG) emissions. Appendix G, Chapter 5, of the EIS details the assessment of reservoir methane emissions from CRS projects. The findings are summarized in Section 3.8. This assessment finds that reservoir characteristics and management substantially influence methane emissions. A 2016 study developed by the Corps' Walla Walla District concluded that for the relatively clean reservoirs of the Federal Columbia River Power System, which include the lower Snake River dams, conditions for low dissolved oxygen concentrations are not prevalent; thus methane gas is generally not an issue. Additionally, in 2017, the Northwest Power and Conservation Council found that data on these sites were insufficient to estimate the reservoir methane emissions specifically for the CRS but that methane emissions at high levels are not likely due to the lower organic and nutrient loads to the system, and higher dissolved oxygen content. The EIS describes that emerging technologies will allow for better measuring and understanding the effects of reservoir methane emissions from CRS projects, including the four lower Snake River dams.
5965	1	N/A	N/A	Almost half of Peninsula Light Companys members are on fixed incomes and 10% live below the poverty line. Any alternative that includes dam breaching would greatly impact rates and be a significant burden to more than 50% of our membership. The increased greenhouse gas emissions would serve to add significant upward pressure to electricity costs as we would pay a penalty for not providing 100% carbon free power.	The comment that electricity costs would increase under MO3, which includes breaching of the four lower Snake River dams, is consistent with the findings of the EIS. See Section 3.7.3.5, Table 3-166 in the Draft EIS. The Environmental Justice analysis in Section 3.18.3 of the EIS provides further detail on potential disproportionate effects to Tribal, low-income and minority populations. The comment about increased greenhouse gas emissions is also consistent with the findings of the MO3 greenhouse gas emissions analysis in Section 3.8.3.5, as well as the carbon compliance sensitivity presented in Table 3-166 in Section 3.7.3.5, in the Draft EIS.
5966	1	vern2dkv@gmail.com	N/A	Here's some specifics on how the DEIS fails: It ignores avoided costs and future savings by restoring the lower Snake River: The cost of maintaining the dams, and replacing turbines is significant. The DEIS ignores the anticipated savings of more than $1 billion by eliminating the rising capital, operations and maintenance costs for the four Snake River dams. It pits salmon recovery against clean, affordable energy: The DEIS presents a false choice between maintaining affordable utility bills and restoring healthy salmon and steelhead. It overstates the cost of replacing power from the Snake River dams with clean energy, and suggests replacing their power with fossil fuels, a step we know is unnecessary.	The EIS evaluated a No Action Alternative and five Multiple Objective alternatives (MOs), including the Preferred Alternative (PA), for tradeoffs associated with the management of the system, but did not quantitatively compare the benefits of the power system against the costs to salmon. The EIS estimates the costs to operate the CRS dams, as well as the costs to the power system that would occur if the four lower Snake River dams are breached under MO3. Contrary to the comment, the EIS considered the avoided operations and maintenance (O&M) and capital costs associated with dam breaching in the cost analysis and included these cost savings in power rates analysis. See Section 3.7.3.5, Bonneville's Fish And Wildlife Program And Lower Snake River Compensation Plan Costs, at page 3-913, in the Draft EIS. See also Section 3.7.3.5, Table 3-166 in the Draft EIS. Regarding the costs of replacing power, the EIS describes the replacement resources that would be needed to maintain regional reliability at the No Action Alternative levels based on two potential portfolios: one based on renewable resources and another based on natural gas resources, which are generally the least-cost means to maintain reliability (see EIS at Section 3.7.3.5, Potential Replacement Resources and Associated Costs). The EIS uses high-quality resource cost information from the Northwest Power and Conservation Council to estimate the potential range in costs of these replacement resources. The EIS does not suggest fossil fuels should be used to replace the power. The EIS evaluates a range of options, including a natural gas-based portfolio as well as a zero-carbon resource portfolios. See EIS, Section 3.7.3.1, Step 3: Determine Need for Potential Replacement Resources and Associated Costs, at page 3-820; see also Section 3.7.3.5, Potential Replacement Resources and Associated Costs, at page 3-904, in the Draft EIS. The purpose of providing the range of replacement resource options is to estimate a reasonable range in potential costs. The basis for developing both of these portfolios may be found in Section 3.7.3.1, Methodology.
5966	2	vern2dkv@gmail.com	N/A	It ignores salmon and orca science: The DEIS dismisses the overwhelming scientific research that restoring the lower Snake River will provide salmon and steelhead with their best chance to recover. It ignores the benefits of increasing those runs for critically endangered orcas and struggling fishing communities. (Yes, we know orca sit at the mouth of the Columbia and eat Snake River fish because of their poop!)	SRKW analysis is described in the EIS including in the FEIS Chapter 3 (Vegetation, Wetlands, Wildlife, and Floodplains) which has been updated for SRKW (Section 3.6.2.6 and Table 3-102) and FEIS Chapter 7 (Preferred Alternative) with additional analysis information on SRKW and potential increase in forage fish, in particular, Chinook salmon in Section 7.7.8. The co-lead agencies utilized current high quality information and best available science in its analysis of the effects of the operation, maintenance, and configuration of the CRS projects. The EIS analysis found a minor effect to the Southern Resident killer whale (SRKW) would result from implementing Multiple Objective 3 (MO3), which includes breaching the four lower Snake River dams. This conclusion is based on the fact that Chinook salmon available to SRKW from the lower Snake River comprises only a small percentage of their overall diet. Changes to this portion of the whales food availability of the magnitudes predicted for MO3 may change the whales foraging behavior patterns slightly, but will not change their overall condition or population dynamics. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not require the co-lead agencies to take affirmative actions to recover ESA listed species. The population dynamics of the SRKW are complicated and there are multiple factors that contribute to the overall success of this species. The quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated

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					effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differently from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for the whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall-run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall-run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). Details on the most crucial prey stocks for Southern Resident killer whales, as well as their population and range, is available from several fact sheets and videos available here: https://www.fisheries.noaa.gov/species/killer-whale#spotlight. For more information, visit this NMFS StoryMap on Southern Resident killer whales: https://noaa.maps.arcgis.com/apps/Cascade/index.html?appid=3405e6637bf74e998d4ebe992c54f613. According to NMFS and the EPA, the estimated SRKW population has fluctuated between 67 and 98 whales between 1960 and 2015. The Snake River dams were constructed between 1962 and 1975. The SRKW population increased from a record low in 1970 to its highest population numbers in 1995. Those years were not high years for Snake or Columbia River Chinook Salmon. Ocean conditions between 2011 and 2013 were good years for salmon. At the same time, 2010 and 2013 were good outmigration years. Particularly, 2011 and 2012 were above normal in water supply, which would mean more cooler water was available and there was better survival of salmon, and 2011 through 2014 were higher than normal spill years as well. The combination of outmigration and ocean conditions created improved adult salmon returns. The EIS has analyzed spill as a measure in the Preferred Alternative and determined the overall effect to SRKW to be negligible in large part because hatchery production is consistent between the No Action Alternative and the Preferred Alternative. Because the impact from the Preferred Alternative was determined to be negligible, the agencies determined that existing hatchery production would be sufficient to address any potential impacts to prey availability for SRKWs. The co-lead agencies note the contribution to the prey of SRKW through the continued existence of their respective independent Congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as the Lower Snake River Compensation Plan (other than under MO3), which is administered by USFWS. The Preferred Alternative and Proposed Action in the agencies' biological assessment carry forward certain mitigation measures described in Chapters 2 and 7 of the EIS, which include continued salmon and steelhead hatchery production. The Preferred Alternative has negligible effects to SRKWs as described in Section 7.7.8. The Biological Assessment (BA) describes the effect of the Proposed Action on the SRKW forage species (see BA Section 3.5.1.2, Southern Resident Killer Whale). The proposed changes in operation of the Columbia River System include increased spring spill during the downstream migration of juvenile spring and summer run Chinook salmon. The result of this action includes potential increases of juvenile fish passing through the spillways, reductions in juvenile fish direct and indirect mortality associated with downstream passage, and the Comparative Survival Study (CSS) model predicts increases in numbers of returning adults, which will benefit SRKWs foraging in and around the mouth of the Columbia River in winter and spring (See EIS Section 7.7.8). The CSS model results predicts Snake River Chinook salmon would have relative improvements in smolt-to-adult returns of 35 percent (see EIS Section 7.7.4). The smolt-to-adult return ratio (SAR) is the rate at which of a group of fish survive from their smolt life stage to a defined ending point where they return as adults. While recovery targets will require more than just the efforts of federal agencies, the CSS models indicate the potential for SARs of Snake River Chinook salmon and steelhead to increase to levels that could approach recovery targets set by the Northwest Power and Conservation Council. The BA, also consistent with the EIS, acknowledges past improvements to the configuration and operation of the Columbia River System, additional improvements to the environmental baseline as a result of completed estuary and tributary habitat actions, and the prospective non-operational conservation measures proposed in Chapter 2 of the Draft EIS, all contribute towards maintaining and improving Chinook abundance. Relevant conservation measures include, among other things, a commitment to continue funding the conservation and safety net hatchery programs listed in Chapter 2 of the Draft EIS. As discussed above, the agencies will fulfill congressionally authorized hatchery mitigation objectives through the funding of hatchery programs that are operated consistent with their independent hatchery program consultations during the term covered by this consultation. Based on those hatchery program consultations, the production levels associated with congressionally authorized hatchery mitigation objectives will continue, at minimum, to be consistent with levels previously analyzed by NOAA in the system consultations in 2008, 2014, and 2019. For the 2020 ESA consultations, therefore, the agencies expect that collectively, all of the actions described above (substantial modifications to migration conditions designed to benefit key prey species, combined with improvements to Chinook spawning and rearing habitat in the tributaries and Columbia River estuary, and continued hatchery production) ensure that remaining Chinook mortality from all sources in the mainstem migratory corridor will continue to be more than offset, resulting in a net gain in Chinook salmon abundance available as a prey source for SRKW. Finally, the 2019 NMFS Fisheries BiOp included increased spring spill operations that are similar to operations evaluated in CRSO EIS, and NOAA validated that the hatchery production of Chinook salmon mitigates for the impacts of operating the Columbia River System and total mortality through the mainstem migratory corridor from all sources.
5966	3	vern2dkv@gmail.com	N/A	It fails to protect salmon: The DEIS fails to acknowledge that its recommendation for flexible spill at the federal dams will not deliver sufficient survival benefits for endangered salmon and steelhead, and ignores the fact that any potential benefits will be eroded by climate impactssomething river restoration can help mitigate.	The co-lead agencies used current, high-quality information in the analysis of the CRSO EIS. Specific to salmon and steelhead, the agencies used two primary modeling approaches which yielded a range of potential outcomes for the alternatives. The CSS model predicts that average Smolt-to-Adult return rates (SAR) will increase for both Snake River spring Chinook and steelhead and will average well above 2% (the lower end of the Northwest Power and Conservation Council's recovery targets for the region) as a result of the Preferred Alternative (increasing from 2.0% to 2.7% for Chinook, a 35% relative increase). The National Marine Fisheries Service COMPASS and Lifecycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The PA will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin.
5966	4	vern2dkv@gmail.com	N/A	It ignores the economic impact that has already been made on Native peoples: The DEIS focuses on the financial costs of salmon recovery and ignores the enormous sacrifices already made by Tribes and rural communities in terms of lost fishing opportunity, reduced jobs and incomes, impacts on Tribal cultures and diets, and other socio-economic effects.	Tribal input, concerns, interests, and especially treaty rights were considered throughout the Draft EIS analyses and in the formulation of the Preferred Alternative. The EIS recognizes the economic and cultural importance of salmon to Tribes in a number of sections throughout the document. The cultural significance and impacts of salmon and steelhead fisheries are described in the Ceremonial and Subsistence Fisheries sub-section and the Social Importance of Commercial, Ceremonial and Subsistence Fisheries sub-section of Section 3.15.2.1. Fisheries tribal interests are provided in Section 3.15.4. Additional details regarding the economic significance of salmon and steelhead fisheries have been added to the recreation analysis (Section 3.11) including Tribal interests (Section 3.11.3.7). The co-lead agencies are engaging in government-to-government consultation with the Tribes, and several Tribes are cooperating agencies on the CRSO EIS.
5966	5	vern2dkv@gmail.com	N/A	The DEIS ignores the economic and community benefits of salmon recovery and the investments and jobs that river restoration activities will generate. Many new jobs would be created with a free-flowing river. Fishing and recreation opportunities would improve, and about 4,000 acres of land currently flooded by the dams would become available for farming, recreation and would improve habitat.	The EIS provides an evaluation of the social welfare and regional economic effects of the No Action Alternative and the Multiple Objective alternatives (MOs), including the effects on recreation (Section 3.11) and commercial fisheries (Section 3.15). The EIS describes the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. NMFS estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which is described qualitatively. For the effects on recreational fishing under MO3 (Section 3.11.3.5) along the lower Snake River below Lewiston, the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River) as an indicator for fishing visitation in this reach. The EIS describes that the visitation in the long-term in the lower Snake River, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting outfitting and tourism businesses in the region. The social welfare values and regional economic effects associated with recreational fishing under the MOs, as well as river recreation post dam breach under MO3, were not estimated because of the uncertainty and large range in visitation and consumer surplus values among users. Under MO3, Section 3.5.3.6 describes the long-term effects to anadromous fish migration in Region C that would occur under a dam breach scenario as major and beneficial. The potential for increases in recreational fishing under MO3 in Regions C which would support jobs, income, and social benefits in Tribal and rural river communities, is described in Section 3.11.3.5. For MO1, MO2, MO4, and the Preferred Alternative, the recreational fishing evaluation describes the impacts by referencing the potential effects on relevant fish populations, as described in Section 3.5. Aquatic Habitat, Aquatic Invertebrates, and Fish, modeling results vary for some of the alternatives, for example for the Preferred Alternative and MO4 (i.e., models show either beneficial or adverse effects to anadromous fish), so it is assumed that the potential changes in recreational fishing and associated social welfare and regional economic effects would follow these changes in fish abundance.
5969	1	wkeefer516@gmail.com	N/A	What local agency would be willing to take responsibility for keeping a green space green when they cant access surface water to irrigate, like the Corps presently can? What happens when there is tremendously less surface water and everyone is fighting for their share, and the winners have to be those that supply surface water because ground water tables dropped when the reservoir disappeared? What this detailed series of questions is intended to convey is that under MO3, a solution is conceptualized, and because something/anything is proposed, suddenly in the mind of the authors, it is done. Simple. Easy. Like Harry Potter waived his magic wand. The reality is that each and every local government entity that mourns the loss of a valued recreational feature (and there are at least 26 in Lower Granite Pool alone that will be orphaned when the Corps no longer has responsibility) will need to undertake a feasibility process to determine whether or not they are willing to accept responsibility. Costs for capital investments, ongoing operations and maintenance costs, insurance for risks Look at Central Ferry in the next pool down from Lower Granite. No local entity would take over that recreational feature. So, its abandoned. Investments in restrooms and other facilities had to be torn down, or they would have been attractive nuisance. (Torn down at what cost to the public?) I think it's become a habitat unit because the Corps still remains responsibility for it presently under the M03 option. Consider: there will be no ownership of any recreational facilities by the Corps for a 140-mile stretch of the Snake river. Look at Lyons Ferry. Is the Port of Columbia going to be able to recover its features and make it useful after dam removal? Look at Granite Lake Park in Clarkston. I can tell you for 100% sure that the Port of Clarkston has no desire to own it because its built on a landfill, and the Port has no interest in taking on that liability. An important urban recreational venue will be permanently lost to the public. The recreational opportunities under MO3 will be decimated.	Section 3.11.3.5 describes the impacts to social welfare and regional economic effects in the short-term under MO3, when considerable reservoir recreational opportunities would no longer be available or accessible. Chapter 5 in the EIS describes the proposed mitigation measures under each of the Multiple Objective alternatives (MOs). Section 5.4.3.6 describes the potential for mitigation measures for recreation under MO3. Consistent with the comment, no Federal mitigation is anticipated under MO3 to maintain access to the river as the Federal agencies would no longer operate the project lands for recreation as the projects are de-authorized. Recreational sites could be modified in the future as project land is transferred through real estate actions to other agencies and entities. The lower Snake River projects currently support 2.6 million visitors and $24.5 million in social welfare value annually. Dam breach would have both beneficial and adverse effects on recreation. Dam breach would preclude reservoir recreation during and shortly after the breach, eliminating reservoir recreation; over time, and as recreation areas and access are redeveloped by others, long-term beneficial effects to river recreation, including angling, are anticipated. Sections 3.11 of the EIS describes that the visitation in the long-term in the lower Snake River would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting jobs, income, and tourism businesses.
5969	2	wkeefer516@gmail.com	N/A	But lets go back to the Central Ferry example. The hardscape had to be removed. It was interfering with the natural environment, the purpose of a habitat management area, and frankly, it was an attractive nuisance. Are the concrete structures of the remaining parts of the dams that are dangerous to wildlife and people going to have to be removed, like at Central Ferry? If thats the case, two important things need to happen with the description of MO3: It has to describe dam REMOVAL not BREACHING, and it has to include the real costs of removing the concrete structures. Plus, the new riverine opportunities for recreation will be closed to the public for a longer period of time than projected, making the supposed comeback of recreation further	Breaching the embankments accomplishes the purpose of opening the river for unencumbered fish migration without delays at fish ladders. However, full removal is a larger and more costly construction project, including additional siting and disposal of materials. Full dam removal would be at a greater cost both in adverse environmental effects and Federal appropriations without any significant additional benefits. The EIS describes that visitation in the long-term in the lower Snake River, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting outfitting and tourism businesses in the region. The social welfare values and regional economic effects associated with recreational fishing under the Multiple Objective alternatives as well as river recreation post dam-breach under Multiple Objective alternative 3 were not estimated because of the uncertainty and large range in visitation and consumer surplus values among users.

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				out on the horizon. (Remember, no parties have yet adopted the orphaned recreational amenities or decided theyre affluent enough to create access.) The recreational benefits of fishing are wildly (pun intended) overstated. MO3--now re-written to be dam removal instead of breaching based on discussion above because thats the publicly responsible thing to do--does not bring back recreational fishing. The models that calculate fish returns including hatchery fish are tragically misleading and serve nothing other than a political purpose.	
5969	3	wkeefer516@gmail.com	N/A	Lastly, I want to discuss the challenges to health from MO3. As mentioned above, Im nearly 63. As I get older, chest congestion is more common; many like me in Asotin County suffer from asthma at higher levels than neighboring counties. I wont be able to wait for fugitive dust to settle and things to revegetate. I will need to move because I wont physically be able to handle the dust, which MO3 improperly mitigates for. (Hello, soil supplementation and then irrigation of plantingswhich wont occur because taking surface water by any party other than the Corps is not allowedare essential to some kind of dust abatement.)	Consistent with this comment, Section 3.8 of the EIS finds the potential for higher risk of adverse health effects from fugitive dust under MO3. MO3 was not identified as the Preferred Alternative.
5969	4	wkeefer516@gmail.com	N/A	I recommend re-writing every single element in the recreational component of the draft EIS. This means the executive summary, Chapter 3, and Appendix M. The EIS should more accurate reflect the loss of valued recreation assets, recovery of which is not going to occur within my lifetime. Remove guarantees of recreational fishing for hatchery fish in SAR models. Take out recreational fishingits wishful thinking. Maybe in 30 years or 40 or 50, things will have leveled out. Maybe then, access for still-water kayaking will have been carved out. I dont, however, expect to be around then.	There is considerable uncertainty on the timing of MO3, both the implementation and the resulting condition of the resource. However, the impacts to recreation have been described as short-term effects (during the dam breach and shortly thereafter) and in the long-term (when river conditions have been established). Section 3.11.3.5 Recreation describes the impacts in the short-term under MO3, when considerable reservoir recreational opportunities would no longer be available or accessible. Chapter 5 in the EIS describes the proposed mitigation measures under each of the Multiple Objective alternatives. Section 5.4.3.6 describes the potential for mitigation measures for recreation under MO3. No Federal mitigation is anticipated under MO3 to maintain access to the river as the Federal agencies would no longer operate the project lands for recreation as the projects are de-authorized. Recreational sites could be modified in the future as project land is transferred through real estate actions to other agencies and entities. The potential for recreational fishing in the long-term is described in the EIS, Section 3.11.3.5. However, there is considerable uncertainty regarding the overall effects of MO3 on regional fish populations and the timing of those effects, and how such changes may affect the management of the fisheries, which limits the analysis of the specific impacts of each alternative on these recreational fishing values. Regarding the fish model, hatchery fish are one of many components that are aggregated into the forecasts from historically observed Smolt-to-Adult return rates. The models do not have inputs for the hatchery or harvest rates.
5972	2	dunnr@bentonpud.org	Benton PUD	Overall, Benton PUD supports the preferred alternative included in the DEIS; however, we have serious concerns regarding increased spill and the significant uncertainty as to whether any benefits or harm to salmon can be scientifically confirmed.	The framework for the adaptive management process is detailed in Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS. It is the intention of the co-lead agencies to engage regional state, Tribal, and Federal fish managers in the development of an appropriate adaptive management process utilizing their respective salmonid management expertise. The goal of that adaptive management process would be to consider additional opportunities to further the effectiveness of the operation while maintaining the goals of the flexible spill operation: additional improvements for salmon and steelhead, maintain opportunities to operate the CRS for hydropower generation in a flexible manner that provides value to the Northwest, is implementable by the dam operators, and provides opportunity to reduce uncertainty and improve the learning opportunities around how operations of the CRS can influence the magnitude of latent mortality effects. The co-lead agencies have not made any determinations on what the preferred approach would be for a regionally developed study plan, and intend to develop that study jointly with regional experts. Unforeseen outcomes or unintended consequences will be monitored and adjusted using current in-season management teams, such as the Technical Management Team.
5972	3	dunnr@bentonpud.org	Benton PUD	Like all utilities, Benton PUD is struggling to keep our rates low while being good stewards of the environment and keeping the lights on. Resource adequacy (RA) in the Pacific Northwest region has become increasingly concerning due to the thousands of megawatts of coal plant retirements planned over the next decade. The Northwest Power and Conservation Council (Council) updated its resource adequacy assessment in October 2019 and identified the urgent need for utilities to add capacity resources in the near term. The Council measures RA based on a loss of load probability (LOLP) with a threshold of 5% as the limit for what is considered an adequate level of power grid reliability. In their most recent RA assessment the Council indicated the regions LOLP could reach nearly 13% by 2024 and could rise to 26% by 2026. These are unacceptably high risks and regional utilities are scrambling to develop a path forward in an environment where legislative policies and public preferences for wind and solar power are chilling investments in proven and dispatchable power generation technologies. Removing the 3,033 MW of nameplate capacity provided by the Lower Snake River dams that account for nearly 25% of BPAs operating reserves and more than 2,000 MW of sustained winter peaking capabilities, would further increase the regions LOLP by 7.3% as indicated in the multiple objectives MO3 analysis. In contrast, the preferred alternative would have no additional impact to the LOLP. The DEIS analysis also showed that replacing the capacity value of the LSRDs would require 1,120 MW of natural gas or the combination of 2,550 MW of solar, 1,150 MW of battery storage, and 600 MW of demand response at a cost of $250 million and $420 million respectively. Benton PUD supports the preferred alternative as it does not further increase the LOLP and does not have additional replacement costs as compared to the no- action alternative.	The comments about the importance of the four lower Snake River dams for regional power reliability are consistent with the EIS findings. The EIS finds that, unless and until replacement resources are constructed, Multiple Objective Alternative3 would lead to a doubling of the risk of regional power shortages with the current fleet of other resources in the region. See draft EIS, Section 3.7.3.5, Table 3-166 and Appendix H, Table 2-1. With additional coal plants slated for retirement, the EIS finding is consistent with the comment and the Northwest Power and Conservation Councils findings of a high risk to regional resource adequacy. The resource capacities and costs are also consistent with the EIS. The replacement resource quantities and costs are updated in the final EIS, but the conclusions are fairly similar. The statement that the Preferred Alternative does not decrease regional reliability and thus, does not require replacement resources is consistent with the findings of the EIS. The replacement resource figures in the comment are also consistent with the findings of the EIS (see Section 3.7.3.5).
5972	4	dunnr@bentonpud.org	Benton PUD	Increased spill costs all consumers of BPA power and further erodes the flexibility of the regions most prolific carbon-free generation resources. The analysis of the preferred alternative shows a 300 aMW reduction of firm power, of which Benton PUDs share is about 8.5 aMW, or approximately 4% of our annual average load. This erosion of generating capability represents the impact on only 1 of 135 BPA customer utilities that will all see proportionate reductions in their baseload power supply resulting in additional costs for many utilities that must be passed on to retail customers.	The EIS recognizes the concern voiced in the comment regarding increasing power rates under the Preferred Alternative. The loss in hydropower generation quoted in the comment is consistent with the findings of the Draft EIS; in the Final EIS, an update in modeling resulted in a loss of 330 aMW. However, it is important to note these estimates compare the Preferred Alternative to the No Action Alternative, which is not the same as comparing the Preferred Alternative to current operations or rates. Consequently, the estimates are not a comparison to the BP-20 wholesale power rates, which were set assuming the financial impact of the 2019-2021 Spill Operation Agreement, and therefore already include a substantial portion of the cost pressures found in the Preferred Alternative. The remaining rate pressure associated with the Preferred Alternative falls within a level that Bonneville has historically been able to mitigate through the costs over which it has significant control. See Draft EIS, Section 3.7.3.1 page 3-817.
5972	5	dunnr@bentonpud.org	Benton PUD	In addition to the cost impacts, it has not been scientifically proven that spill levels up to 125% total dissolved gas (TDG) will improve salmon survival rates. Salmon survival depends on many factors including ocean conditions, predation, TDG levels, etc. Ocean conditions and predation can have significant impacts on the number of returning salmon and it will be difficult to conclude definitively that increased spill has a positive effect. Although it is not clear whether increased spill will have positive or negative impacts, Benton PUD appreciates the preferred alternative including the flex-spill operating protocol which allows a more balanced approach to accomplishing increased spill while still allowing for power generation during the highest demand and most valuable hours of the day.	The co-lead agencies used current high quality information in the analysis of the CRSO EIS. Specific to salmon and steelhead, the agencies used two primary modeling approaches which yielded a range of potential outcomes for the alternatives. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% as a result of the Preferred Alternative. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective flex spill can be at increasing salmon and steelhead returns to the Columbia Basin. Appendix R, Part 2 describes the principles for implementation of the flexible spill operations and guidance for adaptive management. One of the principles focuses on federal power system benefits, which will be as determined by Bonneville Power Administration. The understanding is that Bonneville must, at a minimum, be no worse financially compared to the 2018 spring fish passage spill operations ordered by the Court. This principle is directly related to Objective 5 of the CRSO EIS: Provide an adequate, efficient, economical and reliable power supply that supports the integrated CR Power System. The co-lead agencies have determined that the Preferred Alternative meets this Objective. In addition, the Preferred Alternative places additional rate pressure for wholesale power rates of 2.7 percent relative to the No Action Alternative consistent with the statement in the comment regarding increased rates. These estimates compare the Preferred Alternative to the No Action Alternative, which is not the same as comparing the Preferred Alternative to current operations. Consequently, the estimates are not a comparison to the BP-20 wholesale power rates, which were set assuming the financial impact of the 2019-2021 Spill Operation Agreement and therefore already include a substantial portion of the cost pressures found in the Preferred Alternative. The remaining rate pressure associated with the Preferred Alternative falls within a level that Bonneville has historically been able to mitigate through the costs it has significant control.
5972	6	dunnr@bentonpud.org	Benton PUD	Benton PUD also supports the preferred alternative because of the importance of the LSRDs to irrigation in the Tri-Cities. From a BPA wholesale rate impact perspective, the preferred alternative includes a modest increase of up to 2.7%; however, MO3 is estimated to result in a much larger increase of up to 10.7%. A larger increase like this would be significant not only to Benton PUDs low-income population, but also to our large agricultural irrigation customers which account for around 22% of our retail energy sales and 17% of our retail revenue. These irrigation customers conduct business in highly competitive, international markets and electricity for pumping water for crops is one of many inputs for which costs must be carefully controlled in order to maintain a competitive position.	The EIS recognizes the concern voiced in the comment regarding increasing power rates. The rate increases presented in the comment are consistent with the findings of the EIS for the Preferred Alternative and for the MO3 least-cost rate sensitivity. The EIS recognizes the concern stated in the comment and acknowledges the importance of electricity costs for regional businesses (see Draft EIS, footnote 15 page 3-812 and lines 28155 to 28158). The EIS also analyzed industrial retail rate effects, which included large agricultural businesses finding adverse effects under MO3 (see Draft EIS, Section 3.7.3.5). Chapter 5 and Exhibit 1 of Appendix H, Power and Transmission provides additional details on potential rate increases by county as well as for urban and rural utility customers and commercial and industrial rate effects. The Water Supply analysis (Section 3.12) also examined effects to agricultural irrigation identifying adverse socio-economic effects under MO3. The Preferred Alternative meets the hydropower generation objective to provide an adequate, efficient, economical, and reliable power supply that supports the integrated Columbia River Power System.
5972	7	dunnr@bentonpud.org	Benton PUD	In addition to cost impacts, the LSRDs are an integral part of the BPA transmission system that delivers electricity to the Tri-Cities area and supports wheeling of electricity from Montana. BPA already has concerns about power delivery into the Tri-Cities during peak summer months. In fact, under certain conditions Ice Harbor dam generation levels are critical to maintaining transmission system voltages and to providing essential power flow to mitigate operating contingencies that would require Tri-Cities area utilities to shed loads under certain scenarios in order to meet NERC reliability standards. Without the LSRDs, additional reliable and dispatchable generation would need to be constructed near the Tri-Cities in order to address these known contingencies.	The statements in the comment regarding the importance of the four lower Snake River dams, particularly Ice Harbor, for stability in the Tri-Cities area is consistent with the findings of the EIS (See Draft EIS, Section 3.7.3.5, Bonneville Transmission System Reliability and Operations). The loss of generation at Ice Harbor would require that a transmission reinforcement project be in place prior to breaching of the dams. If the dams were breached prior to completion of the reinforcements, the Tri-Cities area would be vulnerable to a potential loss of load event (i.e. power shortage or blackout).
5978	1	sixcases@msn.com	N/A	I do have concerns with the PAs option to increased spill and increase total dissolved gas (TDG) levels up to 125%. I hope testing on the net benefit of increased spill will be tracked to ensure the additional spill doesnt reduce the success rate of adult salmon returning to spawn and cause stress on juvenile salmon with increased TDG. Science should drive the decision on increasing spill and know it may take about three years to really know if increased spill help or harm salmon and steelhead. Scientific analyses must be done to clearly show a meaningful benefit to ESA-listed species and if not increased spill and TDG should be adjusted downward to appropriate levels.	Total dissolved gas (TDG) levels are regulated under the Federal Clean Water Act, and administered by the states. Both Oregon and Washington have reassessed the available data on effects of TDG levels up to 125% of saturation on fish and other aquatic organisms. Based on this reassessment, Oregon issued a five-year "standard modification" and Washington issued a permanent rule change, approved by the Environmental Protection Agency (EPA), to allow TDG saturation up to 125%. However, as noted by the commenter, there is considerable uncertainty in the effects; therefore, monitoring was required by the states and EPA to ensure any negative effects are detected and allow for adaptive management. Due to the disparity in the two fish models' forecasts for the Preferred Alternative (PA) and the uncertainty in the effects of TDG up to 125% on migrating salmon and steelhead, the PA will require a robust monitoring plan to help narrow the uncertainty between the two biological models and will help determine how effective increased spill can be in increasing salmon and steelhead returns to the Columbia Basin. The effectiveness of the spill program will be monitored and effects from other sources such as harvest, ocean mortality, and straying will also be accounted for to the extent possible.
5988	1	N/A	N/A	The more extreme alternatives, dam breaching in MO3 and the highest level of spill, flow augmentation and reservoir drawdowns in MO4, would cause great economic damage to rural communities in our service territory, as the DEIS concludes that breaching the Snake River dams would have long-term, major, adverse effects on power costs and rates, and the rate pressure could be up to 50% on wholesale power rates. The median household income in Washington County, in the Portland metro area, is about $78,000, compared to about $52,000 in our local Umatilla County (2018 census data). The poverty rate in our local counties is twice that of Washington County. Nearly half of our members struggle to pay their monthly utility bills, despite our retail rates being among the lowest in the nation. The alternatives MO3 and MO4 would negatively impact the technology, transportation, irrigation, food processing and energy development sectors that drive our economy in Northeast Oregon. Nearly 90% of our electrical sales go to these sectors. The working families in our communities, including sizable populations of Latino and Native American residents, depend on these industries for their livelihood. In turn, UEC depends on the financial viability of our members to successfully serve the core mission of a rural electric cooperative. The final EIS must fully examine the trade-offs inherent in managing the river system for multiple uses, from navigation to irrigation to power generation. I ask	The comment that increases in utility costs can adversely affect vulnerable groups is consistent with discussions in the EIS. The Environmental Justice analysis (Section 3.18.3 of the EIS) provides further detail on potential disproportionate effects including to Tribal, low-income and minority populations. The EIS also discusses the fact that Bonneville customers, such as cooperatives mentioned by the commenter, may be more directly affected by rate pressures than other regional utilities that do not purchase power directly from Bonneville (see Section 3.7.3.5, Summary of Effects). Environmental and human health impacts associated with increased emissions to shipping goods by rail and/or truck are evaluated and described in the Air Quality Section (3.8), and increase health and safety concerns due to increased truck traffic on roadways and potential for increased accidents are described in the Navigation and Transportation Section for other social effects (Section 3.10.3.5).

Letter No.	Comment No.	Commenter Name/Email	Affiliation	Comment	Response[1/]
				that the economic and social impacts of these alternatives in rural communities be explored in greater depth in the final EIS. Regarding additional spill, UEC has expressed concerns in previous comments to the co-lead agencies. In summary, we have supported increased spill up to 125% total dissolved gas levels only if scientific evidence shows clear benefit to endangered species. It is encouraging to see the principles of the 2018 Flexible Spill Agreement are incorporated in the Preferred Alternative. With increased spill across eight dams on the lower Columbia and Snake rivers estimated to increase BPA wholesale rates by about 3% in the Preferred Alternative, please note our previously stated concern about negative economic impacts.	
5992	5	courtney@beautifuldowntownlewiston.org	Beautiful Dawntown Lewiston	BDL recommends the USACE revise the draft CRSCO EIS to provide additional information pertinent to downtown Lewiston on two specific topics: 1. Mitigation of the impact of dam removal on our downtown economy; and, 2. Mitigation of the impact of dam removal on the physical spaces and infrastructure adjacent to and in downtown Lewiston .	Many of the infrastructure items listed in your comment are described within the relevant environmental consequences sections of the EIS. For example, changed infrastructure costs related to changing transportation modes are described in Infrastructure Costs subsection under Section 3.10.3.5. And additional information has been added regarding municipal and industrial waste water treatment facilities in the Water Quality Section (3.4). As described in Chapter 5 Mitigation, specific regulations guide the development of appropriate mitigation measures to address environmental impacts. If in a future analysis, breaching were to be selected as the Preferred Alternative, further, more detailed evaluations and NEPA would be needed along with congressional authorization and appropriations to assess the engineering requirements of the project and to potentially further refine and develop mitigation measures. However, it should be noted that as described in Section 5.1.1., Overview of Mitigation, mitigation measures developed as part of a NEPA process are not intended to indicate the co-lead agencies, or the Federal government as a whole, has the authority to perform all of the measures described. But rather provide a list of potential mitigation needs, some of which could be implemented by other agencies, officials and/or the public who would potentially benefit from the mitigation measures.
5992	6	courtney@beautifuldowntownlewiston.org	Beautiful Dawntown Lewiston	BDL also objects to the USACE proceeding with a 45-day comment period for this important study in light of a global pandemic. Our organization has prioritized public safety and avoided calling a large gathering to review this document with our constituents. While we feel we've adequately represented the concerns of downtown Lewiston, a longer review period during a time that the public ,can gather would result in more thorough public participation in this process. BDL urges the USACE to extend the comment period on this important document.	The co-lead agencies considered requests to extend the public comment period. This NEPA process included a wide array of cooperating agencies whose close involvement throughout the process allowed the co-lead agencies to incorporate feedback. Given the broad range of comments received and the extensive Federal and non-Federal participation in the overall process as well as the level of public engagement in the six virtual public meetings in the region, the co-lead agencies determined that an extension was not warranted and that the 45-day public comment period was adequate consistent with NEPA regulations. On April 9, the CRSO EIS website was updated to inform the public that they should plan to submit comments by the close of the comment period.
5992	7	courtney@beautifuldowntownlewiston.org	Beautiful Dawntown Lewiston	Flood insurance 1. The draft CRSO EIS is unclear on if the existing levees separating the urban grid of downtown Lewiston from the Snake and Clearwater Rivers will remain in place or be demolished. As such, it's impossible to know the impact of dam removal on flood insurance rates for downtown property and business owners. The EIS should be revised to specifically recommend retention or removal of the levees. The EIS should also identify the negative impacts on flood control and flood insurance if the levees remain in place or are removed and identify equitable mitigation strategies.	As described in Chapter 5 Mitigation, specific regulations guide the development of appropriate mitigation measures to address environmental effects. If in a future analysis breaching were to be selected as the Preferred Alternative, further, more detailed evaluations and NEPA would be needed along with congressional authorization and appropriations to assess the engineering requirements of the project, including levee design and/or removal. However, it should be noted that as described in Section 5.1.1., Overview of Mitigation, mitigation measures developed as part of a NEPA process are not intended to indicate the co-lead agencies, or the Federal government as a whole, has the authority to perform all of the measures described, but rather provide a list of potential mitigation needs, some of which could be implemented by other agencies, officials and/or the public who would potentially benefit from the mitigation measures. If breaching were to be selected as the Preferred Alternative, further, more detailed evaluations and NEPA would be needed along with congressional authorization and appropriations to assess the engineering requirements of the project, as well as determine appropriate management and use of currently inundated areas and levees.
5992	8	courtney@beautifuldowntownlewiston.org	Beautiful Dawntown Lewiston	River views 2. 3-747 22976 through 22978. "Approximately 3,000 acres of habitat management units that are currently irrigated under the No Action Alternative would no longer be irrigated, and these lands would transition to upland plant communities". Lewiston endured the loss of riverfront views and other amenities when slack water arrived. We were compensated by the installation of recreational amenities along the levee including irrigation. The recreational activities along the levee have become a significant amenity for community members living in downtown Lewiston. It also attracts visitors from throughout our region to walk, bike, and fish in the public recreation spaces. These visitors spill over into downtown businesses, creating a positive economic impact. The negative visual impact of the levee and waterfront along downtown Lewiston's recreational opportunities and sense of place must be evaluated and mitigated.	Chapter 5 in the EIS describes the proposed mitigation measures under each of the MOs. Section 5.4.3.6 describes the potential for mitigation measures for recreation under MO3. Mitigation by the co-lead agencies is not anticipated under MO3 to maintain access to the river as the co-lead agencies would no longer operate the project lands for recreation as the projects are deauthorized. Recreational sites could be modified in the future as project land is transferred through real estate actions to other agencies and entities. As described in Section 3.11.3.5, access to the river and its recreational opportunities will be paramount for the reestablishment of river visitation to the lower Snake River in the long-term. The EIS generally describes the recreation infrastructure needs (rec areas, parking lots, access roads, boat ramp extensions, etc.) post dam breach as well as some example costs to extend boat ramps and relocate recreation areas in the region. Post-dam breach, the Corps will not have a role in providing recreation facilities. However, other Federal, state, or local government agencies, or other entities could relocate existing recreation areas or extend boat ramps (from reservoir to river) so that water-based recreation for the river reach could occur in this region. If MO3 were selected as the Preferred Alternative, further studies and NEPA would be required to be understand and describe the land disposal/transfer process, real estate requirements, mitigation requirements, recreation effects, and other related topics.
5992	9	courtney@beautifuldowntownlewiston.org	Beautiful Dawntown Lewiston	3. 3-1286 3896 through 3898. "The loss of the wide reservoirs would permanently expose portions of shoreline or reservoir bottom leading to temporary dust effects, erosion susceptibility, and rendering previous shoreline recreation obsolete". This outcome would negatively impact property values associated with water views, as well as the quality of life, air quality, and general sense of place of downtown Lewiston. The final EIS must include mitigation, up to and including reconstruction of the riverbed. The final EIS should also include a process through which community members and adjacent property owners can participate in the design of the reconstructed riverbed and shoreline.	Chapter 5 in the EIS describes the proposed mitigation measures under each of the MOs. Section 5.4.3.6 describes the potential for mitigation measures for recreation under MO3. Mitigation by the co-lead agencies is not anticipated under MO3 to maintain access to the river as the co-lead agencies would no longer operate the project lands for recreation as the projects are deauthorized. Recreational sites could be modified in the future as project land is transferred through real estate actions to other agencies and entities. However, it should be noted that as described in Section 5.1.1., Overview of Mitigation, mitigation measures developed as part of a NEPA process are not intended to indicate the co-lead agencies, or the Federal government as a whole, has the authority to perform all of the measures described. But rather provide a list of potential mitigation needs, some of which could be implemented by other agencies, officials and/or the public who would potentially benefit from the mitigation measures. If MO3 were selected as the Preferred Alternative, further studies and NEPA would be required to be understand and describe the land disposal/transfer process, real estate requirements, mitigation requirements, recreation effects, and other related topics.
5992	10	courtney@beautifuldowntownlewiston.org	Beautiful Dawntown Lewiston	4. 6-87. Under visual impacts, please include mention that what was once beautiful water views will become a barren brown edge along the river for years to come. As identified in BDL item 3 above, the possibility of creating a barren brown edge along the river for years to come is unacceptable for BDL and the constituents we represent. This potential outcome is one of BDL's strongest points in favor of retaining the dams. Any discussion of the removal of the dams and lowering of the water must include rapid mitigation of this outcome.	The visual impact analysis of MO3 finds that there would be a major effect from breaching the four lower Snake River dams. See Draft EIS pages 3-1286 to 3-1287. Mitigation for the breaching of the four lower Snake River dams has been identified, as described in Chapter 5, page 5-35, lines 1096-1099 in the Draft EIS. With this mitigation, the major effect on visual quality would diminish over time as the shoreline revegetates and blends into the surrounding landscape. The co-lead agencies have added language to Section 3.13 (Visual) to better describe this analysis in the Final EIS. MO3 and specifically the measure to breach the four lower Snake River dams was not identified as the Preferred Alternative in the Draft EIS.
5992	11	courtney@beautifuldowntownlewiston.org	Beautiful Dawntown Lewiston	Loss of large passenger vessel traffic s. 3-1081 32115. Cruise ship passengers are listed as 18,000 in 2017. According to the Port of Clarkston's December 2018 Outlook, cruise ships generated an estimated 25,000 visits to the LC Valley. Please update the economic analysis with this new number. 6. 3-1214 1689 through 1691. "Lake or flat-water recreational activities, including water skiing, sailing, motor boating (in fiberglass boats), fishing for some warm-water species, and sightseeing in tour boats that cruise between Portland and Lewiston, would no longer be possible if breaching would occur". (Responding to 5 and 6) Large passenger vessel traffic represents an important and growing economic opportunity for small businesses in downtown Lewiston. These heritage tourists travel to our area for bespoke, sense-of-place experiences that can only be offered in a historic commercial core like downtown Lewiston. Loss of this passenger vessel traffic would negatively impact downtown Lewiston's businesses and cultural amenities, like the Lewis-Clark State College Center for Arts & History, the Nez Perce County Historical Society, and the First Territorial Capital. These businesses and nonprofits depend on the revenue generated from heritage tourists, and a negative economic impact ending large passenger vessel traffic must be mitigated. Loss of access from personal watercraft must be evaluated and mitigated. Watercraft recreation is an important part of Lewiston's economy, from boatbuilding to fueling boats to feeding people when they come off the river.	Cruise ship visitation is characterized in Section 3.10, and is characterized as growing over time, and providing important regional economic effects. Section 3.10.3.5 describes the contribution of cruise ships as providing demand for approximately 230 jobs in the region, $6.2 million in labor income, and $17.8 million in annual output (sales).
5992	12	courtney@beautifuldowntownlewiston.org	Beautiful Dawntown Lewiston	boating tourism and river recreation 7. 3-1463 9459 through 9466. Loss of visitors is described as costing the region $103 million, a decrease in 1,230 jobs and $39 million in labor income. This is a substantial loss for our community, and especially for downtown Lewiston, where businesses depend on discretionary spending by the locals to keep their businesses alive. BDL supports the City of Lewiston's request for direct financial payments until pre-project visitation, jobs and sales return. BDL recommends these funds be held in a community trust.	The Recreation Section 3.11.3.5 describes the social welfare, regional economic, and social effects associated with MO3, including a description of the major adverse effects that would occur to both water- and land-based recreation in the short-term in the region. The EIS described the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. NMFS estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which is described qualitatively. For the effects on recreational fishing under MO3 (Section 3.11.3.5) along the lower Snake River below Lewiston, the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River) as an indicator for fishing visitation in this reach. The EIS describes that the visitation in the long-term in the lower Snake River, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting outfitting and tourism businesses in the region. The social welfare values and regional economic effects associated with recreational fishing under the MOs, as well as river recreation post dam breach under MO3, were not estimated because of the uncertainty and large range in visitation and consumer surplus values among users. Since the lower Snake River projects would be deauthorized, the co-lead agencies would no longer operate the project lands for recreation. If breaching were to be selected as the Preferred Alternative, further evaluation, studies, and NEPA would be required to implement the alternative. However, it should be noted that as described in Section 5.1.1., Overview of Mitigation, mitigation measures developed as part of a NEPA process are not intended to indicate the co-lead agencies, or the Federal government as a whole, have the authority to perform all of the measures described. But rather provide a list of potential mitigation needs, some of which could be implemented by other agencies, officials and/or the public who would potentially benefit from the mitigation measures.
5992	13	courtney@beautifuldowntownlewiston.org	Beautiful Dawntown Lewiston	8. M-2-10 373 through 376. "Without the federal reservoir project, the Corps will not have a role in providing recreational facilities; therefore, in order to re-establish recreation opportunities and water access in the region, there would likely be a cost impact on a government agency to provide recreational infrastructure and access roads" . It is ludicrous and beyond absurd that the USACE would not bear the cost and responsibility of restoring the riverbed and recreation access. If the obligation of restoring the river bed and recreational access is to be passed from the USACE to state or local government agencies, the USACE must establish a permanent endowment to offset local construction and maintenance costs to removed and maintain amenities now managed by the USACE as mitigation of the impact.	Chapter 5 in the EIS describes the proposed mitigation measures under each of the MOs. Section 5.4.3.6 describes the potential for mitigation measures for recreation under MO3. Mitigation by the co-lead agencies is not anticipated under MO3 to maintain access to the river as the co-lead agencies would no longer operate the project lands for recreation as the projects are deauthorized. Recreational sites could be modified in the future as project land is transferred through real estate actions to other agencies and entities. As described in Section 3.11.3.5, access to the river and its recreational opportunities will be paramount for the reestablishment of river visitation to the lower Snake River in the long-term. The EIS generally describes the recreation infrastructure needs (rec areas, parking lots, access roads, boat ramp extensions, etc.) post dam breach as well as some example costs to extend boat ramps and relocate recreation areas in the region. Post-dam breach, the Corps will not have a role in providing recreation facilities. However, other Federal, state, or local government agencies, or other entities could relocate existing recreation areas or extend boat ramps (from reservoir to river) so that water-based recreation for the river reach could occur in this region. If MO3 were selected as the Preferred Alternative, further studies and NEPA would be required to be understand and describe the land disposal/transfer process, real estate requirements, mitigation requirements, recreation effects, and other related topics.
5992	14	courtney@beautifuldowntownlewiston.org	Beautiful Dawntown Lewiston	9. M-3-27 Table 3-10, M-3-28 Table 3-11. Provide no recreational counts for Snake River below Hell's Canyon dam. Most recreational usage of the Snake River from Lewis Clark Valley residents happens below Hells Canyon Dam. BDL reiterates the point made by the City of Lewiston that recreational usage	Section 3.11.2.2 describes gaps in the recreational visitation data. Data were not available for all sites, including along the Snake River below Hells Canyon Dam and above Lower Granite Lake. The 2016 report by Boise State entitled Economic Impact and Importance of Power Boating in Idaho was considered for the EIS, but not relied upon directly due to the limited types of visitation data in the report, so it does not appear in the references. In addition, this region was not anticipated to be affected by changes in water surface elevations. However, additional information has been added to better describe fishing visitation in this region, its economic contribution to the communities along the Snake River and its tributaries, and the

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				in this stretch of the river generates an estimated economic value of $22,810,512.1 This report was not included in the EIS reference section. Loss of this recreational access must be considered, evaluated, and mitigated.	potential impacts to fishing visitation under MO3 (Section 3.11). Estimates of power boating use from that study are broadly consistent with visitation data from Federal and state agencies used in the EIS where data is available. The expenditure data collected for that study cover power boating in Idaho, while the recreational expenditure data applied in the EIS covers the CRS basin and the broader range of activities reflected in the Federal and state visitation data. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. NMFS estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which is described qualitatively. The potential for changes in recreational fishing of anadromous fish under MO3 in the Region C is described in Section 3.11. Increases in recreational fishing could support jobs, income, and social benefits in Tribal and rural river communities.
5992	15	courtney@beautifuldowntownlewiston.org	Beautiful Dawntown Lewiston	10. M-6-4 line 1036 through 1039. "Pre-dam river stages under dam breaching would range from approximately 8 to 100 feet below current water surface elevations Existing water-based recreational facilities, such as boat ramps, swimming beaches, and moorage facilities, were designed to operate within very specific ranges of water elevations (generally within 5 feet of full pool). If dam breaching were to occur, none of these facilities could continue to be used without modification or relocation". The USACE must address this impact and recommend mitigation of that impact, including who will pay for the construction and maintenance of the mitigation solution, in the final CRSO EIS. 11. M-6-5 1052 through 1055. "Some (recreational) sites would simply cease to be used because the features that attracted people would be eliminated, while other sites would be abandoned because they would be so high above or far away from the river that access would be difficult and possibly dangerous". The impact of this outcome on nearby businesses build around these recreational sites is not addressed and mitigation is not recommended in the draft CRSO EIS. These issues must be resolved in the final draft. 12. M-6-71126 through 1127. "Visitation to the lower snake river would be limited by the availability of infrastructure to access river recreational opportunities". See comments under item 10 above. This impact is not mitigated.	Chapter 5 in the EIS describes the proposed mitigation measures under each of the MOs. Section 5.4.3.6 describes the potential for mitigation measures for recreation under MO3. No mitigation by the co-lead agencies is anticipated under MO3 to maintain access to the river. Since the lower Snake River projects would be deauthorized, the co-lead agencies would no longer operate the project lands for recreation. After project lands have been transferred to other agencies and/or entities, recreational sites and associated facilities could be modified as determined by others. If breaching were to be selected as the Preferred Alternative, further evaluation, studies, and NEPA would be needed along with congressional authorization and appropriations to assess the requirements of the project and to potentially compensate for the changes in river conditions. At this time, there is no mitigation proposed for adverse effects to recreation because the co-lead agencies would no longer operate the project lands after the projects are deauthorized.
5992	16	courtney@beautifuldowntownlewiston.org	Beautiful Dawntown Lewiston	13. M-6-11Table 6-5 note 1, 1234 through 1237. "Social welfare effects presented for Regions C and D represent short-term effects. The long-term impacts to visitation is uncertain. Some adaptation is likely over time. To the extent that increases in anadromous fish populations draws additional fishing to the region, increases in regional economic expenditures and effects would increase in the long term" . The USACE must provide data proving the long-term impacts of visitation, as well as identifying short-term strategies to mitigate the negative impact on regional expenditures in the final CRSO EIS.	Chapter 5 in the EIS describes the proposed mitigation measures under each of the MOs. Section 5.4.3.6 describes the potential for mitigation measures for recreation under MO3. No mitigation by the co-lead agencies is anticipated under MO3 to maintain access to the river. Since the lower Snake River projects would be deauthorized, the co-lead agencies would no longer operate the project lands for recreation. After project lands have been transferred to other agencies and/or entities, recreational sites and associated facilities could be modified as determined by others. If breaching were to be selected as the Preferred Alternative, further evaluation, studies, and NEPA would be needed along with congressional authorization and appropriations to implement that alternative. At this time, there is no mitigation proposed for adverse effects to recreation because the co-lead agencies would no longer operate the project lands after the projects are deauthorized. In addition, the EIS evaluated benefits and adverse effects across an array of resource areas including potential effects at the national, regional and local level. Consistent with NEPA analysis framework, the beneficial and adverse effects are expressed as a variety of qualitative and quantitative environmental and economic metrics. There is considerable uncertainty regarding the overall effects of the alternatives on regional fish populations, and how such changes may affect the management of the fisheries, which limits the analysis of the specific impacts of each alternative on these recreational fishing values. However, the EIS describes the visitation in the long-term in the lower Snake River under MO3 as a potential range based on previous studies and that it would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting tourism businesses. The potential for increases in recreational fishing in the lower Snake River and Snake River above Lewiston and in the tributaries is also described under MO3, which would support jobs, income, and social benefits in rural river communities.
5992	17	courtney@beautifuldowntownlewiston.org	Beautiful Dawntown Lewiston	14. M -6-14 13 15-1317 . "As the river returns to natural conditions, river-based recreation would increase over time, given recreational access and infrastructure is developed". Who bears the burden of developing this recreational access and infrastructure is not identified in the draft CRSO EIS. The final CRSO EIS must identify the agencies involved in reconstructing recreational access and infrastructure and identify mitigation strategies to assist non-federal agencies with this burden.	As discussed in previous responses to this commenter, Chapter 5 in the EIS describes the proposed mitigation measures under each of the MOs. Section 5.4.3.6 describes the potential for mitigation measures for recreation under MO3. No mitigation by the co-lead agencies is anticipated under MO3 to maintain access to the river. Since the lower Snake River projects would be deauthorized, the co-lead agencies would no longer operate the project lands for recreation. After project lands have been transferred to other agencies and/or entities, recreational sites and associated facilities could be modified as determined by others. If breaching were to be selected as the Preferred Alternative, further evaluation, studies, and NEPA would be needed along with congressional authorization and appropriations to implement that alternative. At this time, there is no mitigation proposed for adverse effects to recreation because the co-lead agencies would no longer operate the project lands after the projects are deauthorized.
5992	18	courtney@beautifuldowntownlewiston.org	Beautiful Dawntown Lewiston	15. M-6-15 1332 through 1338. Economic impacts and social welfare in the recreation category are estimated at $109 million, 1,420 jobs, $59 million in labor income and $189 million less in sales. The final CRSO EIS must identify mitigation strategies that offset these negative impacts, including direct financial support, investments in growth industries, and significant investments in local infrastructure. This negative economic impact must be mitigated until jobs, sales, and indicators recover to pre-project levels.	Chapter 5 in the EIS describes the proposed mitigation measures under each of the MOs. Section 5.4.3.6 describes the potential for mitigation measures for recreation under MO3. No Federal mitigation is anticipated under MO3 to maintain access to the river. Since the lower Snake River projects would be deauthorized, Federal agencies would no longer operate the project lands for recreation. After project lands have been transferred to other agencies and/or entities, recreational sites and associated facilities could be modified as determined by others If breaching were selected as the Preferred Alternative, further evaluation, studies, and NEPA analysis would be needed along with both congressional authorization and appropriations to assess the requirements of the project and to potentially compensate for the changes in river conditions. At this time, there is no mitigation proposed for adverse effects to recreation because the co-lead agencies would no longer operate the project lands if the projects were de-authorized. Additionally, the EIS describes that the visitation in the long-term in the lower Snake River, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting outfitting and tourism businesses in the region.
5992	19	courtney@beautifuldowntownlewiston.org	Beautiful Dawntown Lewiston	16. 3-936 28236 through 28238. "The increased cost of electricity could increase the cost of living and doing business in the Pacific Northwest, resulting in regional economic impacts of $740 million in lost outputs (sales) and 4,900 jobs". Businesses in downtown Lewiston depend on ancillary and discretionary spending. The loss of $740 million in lost outputs must be mitigated for businesses of all sizes.	The information provided in the comment regarding the power-related regional economic impacts of MO3 (which includes breaching the four lower Snake River dams) is consistent with the findings of the EIS. If MO3 were selected, the co-lead agencies would use this EIS as a basis for the Corps to seek congressional authority to breach the lower Snake River dams. After receiving both authority and appropriations from Congress, the Corps could initiate a detailed construction and design report for the breach measure, identification of disposal areas, real estate acquisition and disposal, permits, and mitigation requirements, including temporary fish hatchery production. Bonneville would also need to consider its options for replacing the power from the four lower Snake River dams and evaluate potential changes to its transmission system. Additional economic analysis would be completed at that time, and then any appropriate mitigation would be proposed to address impacts from implementing breaching the four lower Snake River dams, subject to the co-lead agencies' authorities.
5992	20	courtney@beautifuldowntownlewiston.org	Beautiful Dawntown Lewiston	17. 3-1147 Table 3-248. "Major adverse effects as the jobs and income provided by the four primary commercial navigation ports would be curtailed. Investment in infrastructure may be required, including upgrades to rail infrastructure, added shuttle rail capacity, and increased road maintenance costs. Adverse effects due to reductions in regional economic benefits to port cities where cruise line expenditures would have occurred". Why does the draft CRSO EIS fail to completely explore the efforts necessary to mitigate the loss of the commercial navigation through the four ports in the Lewiston area? These impacts must be evaluated and mitigated. Additionally, Idaho code prohibits the development of a Port district unless the port has access to international shipping. That's why the Port of Lewiston is "Idaho's only Seaport ." Loss of wat er-borne shipping status by the Port of Lewiston must be evaluated and mitigated, including physical and financial impacts, as well as state and federal policy development. Lewiston and the entire Lewis-Clark Valley has benefited from the Port of Lewiston's investment in critical "dark fiber" for high-speed internet services that connect our community to the increasingly global economy. If the Port of Lewiston is dissolved per state code as a result of the loss of water-borne shipping, how will the USACE mitigate the impact on the community's ability to invest in high-speed fiber?	Chapter 5 in the EIS describes the proposed mitigation measures considered under each of the MOs. Mitigation for port functions to include high speed internet was not evaluated in this EIS. If MO3 was selected and authorized by Congress, an implementation plan would be prepared that would include site specific information that details the construction, breaching, disposal, and mitigation actions required to implement MO3, as well as identifying all of the associated permitting for this action. The inclusion of mitigation measures that were considered in Chapter 5 is not intended to indicate that the co-lead agencies, or the Federal government as a whole, have the authority to perform all of the measures listed. If the measures are outside the jurisdiction of the co-lead agencies, those measures would not be included in the Record of Decision (ROD). Their inclusion in Chapter 5 serves to alert other agencies, officials, and the public who can implement the measures to the potential benefits of the measure.
5992	21	courtney@beautifuldowntownlewiston.org	Beautiful Dawntown Lewiston	18. 3-1462 9416 through 9418. "Under MO3, pumps and wells that supply municipal and industrial uses in the Lewiston area would no longer be operational once the dams were breached". This is a major impact on municipal and industrial users, especially Clearwater Paper, which employs 1,400 persons who in turn support 2,246 jobs, and have an economic value to the community of $152,699,602. (EMSI Q2 2019 Data Set). The cumulative effect of increasing transportation costs, modifying intakes, modifying discharges and the cost and lack of certainty in the ability to obtain a new discharge permit may be a fatal blow to the company. This impact has not been measured in the EIS nor mitigated. If necessary, mitigation should include USACE funding the design and construction of necessary retrofits.	This EIS discusses engineering solutions, including pipeline extensions, in Section 3.12.3. The MO3, Region C discussion begins on page 3-1267 line 3244 in the Draft EIS and is also found in Appendix N. The EIS draws upon the 2002 Lower Snake River Juvenile Salmon Migration Feasibility Report and Environmental Impact Statement which concluded that modifying the existing pump system was cost prohibitive. As discussed in Section 3.12.3, for MO3, in Region C this analysis assumes that pumps are unable to deliver water to an estimated 47,926 acres. Currently and in the No Action Alternative, water is available from the pools of these facilities and from groundwater that results from the pools. Removing the earthen embankment portion of the dams will reduce pool elevations by up to 100 feet, which would make surface pumps inoperable. Groundwater pumps in the wells may also be affected due to decreased groundwater elevations depending on the connectivity of the aquifer to the pools. Municipal and industrial water pumps in the Lewiston area would also likely be adversely effected. Private or public entities or businesses could take actions and/or build infrastructure to extend pumps or water supply access for water. See Chapter 3 analyzes the social and economic effects of implementing a dam breaching alternative (MO3). NEPA requires that all relevant, reasonable mitigation measures that could diminish the adverse impacts of the project be identified in the document, even if they are outside the jurisdiction of the lead agency or the cooperating agencies. See 40 C.F.R. 1502.16(h) and 1505.2(c); 46 Fed. Reg. 18026. The inclusion of mitigation measures in Chapter 5 is not intended to indicate that the co-lead agencies, or the Federal government as a whole, have the authority to perform all of the measures listed. If the measures are outside the jurisdiction of the co-lead agencies, those measures will not be included in the Preferred Alternative or Record of Decision (ROD). Their inclusion in Chapter 5 serves to alert other agencies, officials, and the public who can implement the measures to the potential benefits of the measure. The mitigation requested, while identified in the Draft EIS, is not within the co-lead agencies' current authorities. The co-lead agencies do not have the authority to provide mitigation for the effects to private infrastructure such as irrigation pumps, wells, or private docks. See Chapter 5 for additional information on proposed mitigation.
5992	22	courtney@beautifuldowntownlewiston.org	Beautiful Dawntown Lewiston	19. H-1-8 432 through 433. The increased cost of electricity may change household and business spending patterns on other regional goods and services, resulting in a reduction in annual regional economic output (sales) of $320 million to $740 million and cost 2,100 to 4,900 jobs. See comments under item 16. This impact must be mitigated. 20. N-4-19 1294 through 1297. "This decrease in household income ($5,849,112} has a negative effect on the regional economy". "These impacts were estimated as a loss of 55 jobs, $2,261,000 of labor income and $7,518,00 in output (sales) annually". These severe impacts need to be mitigated by USACE investments in infrastructure and facilities that make the Lewis-Clark Valley a competitive business environment on a national level. 21. Q-C-5. Table C-3 and Table C-4 go further to quantify the loss of jobs and their value as a low of $239.8 million to a high of $666.7 million. This significant adverse impact needs to be mitigated.	The comment that increases in utility costs can adversely affect vulnerable groups is consistent with discussions in the EIS. The EIS recognizes concerns around the affordability of electricity, and the Environmental Justice analysis (Section 3.18.3 of the EIS) provides further detail on this as well as the potential disproportionate effects to Tribal, low-income and minority populations. Chapter 5 of Appendix H, Power and Transmission, provides additional details on potential rate increases by county as well as for urban and rural utility customers mentioned in the comment. If MO3 were selected, the co-lead agencies would use this EIS as a basis for the Corps to see congressional authority to breach the lower Snake River dams. After receiving both authority and appropriations from Congress, the Corps could initiate a detailed construction and design report for the breach measure, identification of disposal areas, real estate acquisition and disposal, permits, and mitigation requirements, including temporary fish hatchery production. Bonneville would also need to consider its options for replacing the power from the four lower Snake River dams and evaluate potential changes to its transmission system. Additional economic analysis would be completed at that time, and then any appropriate mitigation would be proposed to address impacts from implementing breaching the four lower Snake River dams, subject to the co-lead agencies' authorities.
5992	23	courtney@beautifuldowntownlewiston.org	Beautiful Dawntown Lewiston	Levees 22. 3-732 22518 through 225225. It is not clear how raising the allowable reservoir elevation would impact the Lewiston levee system. Please explain so that BDL and our constituents may appropriately comment.	The lower Snake River dams are not authorized for flood risk management and this is clearly stated in the EIS in Chapter 1, Section 1.2. Section 3.9, Section 7.7.11, and Table 7-1 indicate that there is no elevated flood risk for any of the EIS alternatives. Unlike freely flowing channels, in Lower Granite Reservoir the forebay elevation at the dam controls the energy grade-line of the water surface. Under current operations or as modeled under the No Action Alternative, during high flows Lower Granite Reservoir is operated at a lower stage to increase conveyance and manage water surface elevations within the Lewiston vicinity. This practice of operating the Lower Granite Reservoir at a lower stage during high flows would continue thus ensuring the Lewiston levee system is not impacted.

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5992	24	courtney@beautifuldowntownlewiston.org	Beautiful Dawntown Lewiston	23. 5-31944 through 949. "The co-lead agencies do not have authorities for removing in-stream contaminated sediments, and have not identified a feasible way to avoid mobilization. To offset this impact and any associated impacts to bioaccumulation in fish and other aquatic species, other entities could remove or cap contaminated sediment "hot spots" in Lower Snake River prior to implementing the Breach Snake Embankment measures". It is unacceptable that the USACE would hand off responsibility for remediation of these hazardous materials to "other entities." The USACE dammed the rivers in the 1970s, causing the sediment and contaminants within the sediment to settle in the Lewis-Clark Valley. Failure to remove the contaminated sediment along the riverbed caused by the dams could result in the Lewis Clark Valley being identified as a Superfund site. Looking east towards Butte, Montana, we see how detrimental a Superfund designation is to a community' s future economic growth opportunities, not to mention existing property values. Leaving exposed, contaminated soils in the community, trash, and debris, may be a violation of Federal, state and local laws. This impact has been identified but no mitigation measures have been presented in the EIS.	If MO3 is identified as the selected alternative in the ROD, the co-lead agencies would study potential site-specific contamination issues in a NEPA process for the implementation of that alternative. However, the co-lead agencies are unaware of any actions on their part that caused a release of hazardous substances into the reservoirs or river that has caused the potential contamination that the commenter identified. The existence of the dam and the fact that sediments are retained by the dam does not create liability for those potential hazardous substances in the sediment. Therefore, even if an evaluation identifies potential contamination in the sediments, without confirmation that the potential contamination was caused by a release of a hazardous substance by the co-lead agencies, the agencies would not have the authority to expend Federal appropriations on a cleanup of contamination that was caused by others. If there are areas where the co-lead agencies are the liable party for the release of hazardous substances into the environment, the co-lead agencies will evaluate and take appropriate actions to address the contamination. This includes areas that the co-lead agencies have already committed to monitoring if MO3 is the selected alternative.
5992	25	courtney@beautifuldowntownlewiston.org	Beautiful Dawntown Lewiston	24. K-1-14 Table 1-16. Changes in flood risk annual exceedance probabilities under MO 3 in region C. Region C gage location, action stage flood stages show no change from the no action alternative. According to the Corps "Lower Snake River Navigation Maintenance EIS, June 2005" page 4-10 "A drawdown/sediment flushing event would likely result in adverse impacts to the Lewiston Levee System. The Hydraulic modeling accomplished utilizing the "before and after drawdown conditions" supports this statement, showing a rise in the SPF water surface profiles after the 1992 drawdown event". The draft CRSO EIS is unclear on the impacts of this alternative on the reliability of the existing levee system for flood control. If the dams are removed, who is responsible for the levees? Who is responsible for repairing slope failures, landscaping, and flood control?	The lower Snake River dams are not authorized for flood risk management as stated in the EIS in Chapter 1, Section 1.2. Section 3.9, Section 7.7.11, and Table 7-1 indicate that there is no elevated flood risk for any of the EIS alternatives. The Walla Walla District constructed eight miles of levees around Lewiston as mitigation to help protect lives and property from potentially destructive high-water conditions after the dams were built. The breaching of the lower Snake River projects under MO3 would trigger the scour of legacy sediment deposits, which would eventually lower the base level to historical river elevations, and reduce flood risk (assuming the Lewiston levees still remain in place). If breaching were to be selected as the Preferred Alternative, additional, more detailed evaluations and NEPA would be needed along with congressional authorization and appropriations to assess the engineering requirements of the project, as well as determine appropriate management and use of currently inundated areas. Under MO3, Dworshak has the same operational ruleset as in the No Action Alternative, and the breaching of the lower Snake River embankments under MO3 would generally reduce river stages from the draining of Lower Granite Reservoir, as noted in Appendix K.1.7.3. The three gages denoted in Table K-1-16 (Anatone, WA on the Snake, Spalding, ID on the Clearwater; and Orofino, ID on the Clearwater) are located outside of the Lewiston Levee extents and thus are not indicative of flood risk changes in the Lewiston confluence area. The breaching of the lower Snake River embankments under MO3 would trigger the scour of legacy sediment deposits, which would eventually lower the base level to historical river elevations, and reduce flood risk (assuming the Lewiston Levees still remain in place). This scenario is different than the 1992 drawdown event, and would not correlation with the SPF profiles noted by the commenter. Drawdown of Lower Granite Reservoir water surface elevations could have adverse effects on infrastructure adjacent to and crossing Lower Granite Reservoir as noted in the PSMP Section 4.5. Transportation infrastructure mitigation measures proposed for MO3 are described in Chapter 5.4.3.5.
5992	26	courtney@beautifuldowntownlewiston.org	Beautiful Dawntown Lewiston	25. 3-1213 1643 through 1645. "Although it is uncertain who would own and manage the lands in the lower Snake River, recreational facilities, infrastructure and/or recreational access would need to be developed to facilitate river recreation visitation to the region". See comments under item 14.	As discussed in previous responses to this commenter, Chapter 5 in the EIS describes the proposed mitigation measures under each of the MOs. Section 5.4.3.6 describes the potential for mitigation measures for recreation under MO3. No mitigation by the co-lead agencies is anticipated under MO3 to maintain access to the river. Since the lower Snake River projects would be deauthorized, the co-lead agencies would no longer operate the project lands for recreation. After project lands have been transferred to other agencies and/or entities, recreational sites and associated facilities could be modified as determined by others. If breaching were to be selected as the Preferred Alternative, further evaluation, studies, and NEPA would be needed along with congressional authorization and appropriations to implement that alternative. At this time, there is no mitigation proposed for adverse effects to recreation because the co-lead agencies would no longer operate the project lands after the projects are deauthorized.
5992	27	courtney@beautifuldowntownlewiston.org	Beautiful Dawntown Lewiston	26. Q-3-3. "Under the dam breaching measures of MO 3, it could be necessary to negotiate agreements with affected parties and property owners and enter into relocation contracts for the alteration or replacement of affected structures". BDL would like a specific listing of structures within one mile of city limits the agencies are expecting to need to relocate or replace so that we can ensure that private and public property owners are engaged in the process. Ownership and operation of the ponds at the west end of downtown Lewiston should be assigned to a public agency with the financial resources to manage them. If that means the USACE turns the ponds over to the City of Lewiston or Nez Perce County, the USACE should provide adequate financial support via a trust for the local government agency to complete the work.	If breaching were to be selected as the Preferred Alternative, further evaluation, studies, and NEPA would be required along with congressional authorization and appropriations to assess the engineering requirements of the project and to potentially further refine and develop mitigation measures. These further evaluations could include a more detailed evaluation of land transfer process, real estate requirements, recreation effects, and other related topics. Since the lower Snake River projects would be deauthorized, Federal agencies would no longer operate the projects or associated project lands. As described in Chapter 5, Mitigation, specific regulations guide the development of appropriate mitigation measures to address environmental impacts. Please refer to Chapter 5 for an overview of the type of mitgiation. As described in Section 5.1.1, Overview of Mitigation, mitigation measures developed as part of a NEPA process are not intended to indicate the co-lead agencies, or the Federal government as a whole, has the authority to perform all of the measures described. But rather provide a list of potential mitigation needs, some of which could be implemented by other agencies, officials and/or the public who would potentially benefit from the mitigation measures.
5992	28	courtney@beautifuldowntownlewiston.org	Beautiful Dawntown Lewiston	27. R-3-5 276 through 288. Areas of uncertainty in the analysis are acknowledged. Some of them: contamination of sediments, soil conditions in the surrounding landscape, planting success of mitigation actions, colonization by invasive species and contamination of groundwater are of great interest to Lewiston. Without answers to these questions, it's not possible for BDL to responsibly recommend the removal of the dams on the Snake River. All of these issues should be rigorously vetted and presented to the community to complete a comprehensive evaluation of the options.	If Multiple Objective alternative 3 is identified as the selected alternative in the ROD, the co-lead agencies would study potential site-specific contamination issues in a NEPA process for the implementation of that alternative. In addition, more detailed design and engineering would need to be implemented with this alternative, including development of planting and monitoring plans.
6006	1	brent.bischoff@cooscurryelectric.com	N/A	Use of the technical term Loss of Load Probability (LOLP) or the more generic power shortage within the report leaves readers without technical industry knowledge almost entirely unaware of the severity of what these terms describe. Loss of load or power shortage stated simply in lay terms means electrical blackout. The general public understands the term blackout and knows that large-scale blackouts are absolutely unacceptable being very costly in terms of public safety and economic loss. The DEIS does not describe in terms understandable to the lay person the extreme 2 societal impact caused by a significant increase in LOLP (ES, pg 25,30). The final EIS should include more detail and description of societal cost associated with significant increases in the probability of system-wide blackout. The probability of a large-scale blackout occurring one in seven years (ES, pg 25) or one in three years (ES, pg 30) is absolutely unacceptable by societal standards today. The final EIS should provide enough description and detail in lay terms so the reader is able to easily discern the severity of the increased risk stated.	The EIS defines the term loss of load and loss of load probability in both the Executive Summary and Chapter 3, as well as explaining the terminology in plain language. The EIS also includes a chart explaining, in summary form, the risk of blackouts for each Multiple Objective alternative (MO), without providing replacement resources. See Appendix H, Power and Transmission, Table 2-1, in the Draft EIS. Without being able to accurately forecast when a loss-of-load probability (LOLP) event would occur, it is too speculative to provide a detailed description of the societal costs, and would also be double-counting the effect, as replacement resources and their associated costs were calculated to bring each MO back to the reliability of the No Action Alternative. The comments about the importance of the four lower Snake River dams for regional power reliability are consistent with the EIS findings. The comment notes a concern for decreased power system reliability; the Preferred Alternative developed by the co-lead agencies has essentially the system reliability as the No Action Alternative, while Multiple Objective alternative 1, Multiple Objective alternative 3 and Multiple Objective alternative 4 did not meet the objective to maintain an adequate, efficient, economical and reliable power system.
6006	2	brent.bischoff@cooscurryelectric.com	N/A	MO3 and MO4: The loss of clean (carbon-free), renewable, low-cost, hydroelectric power proposed in MO3 (1100 aMW) and MO4 (1300 aMW) is unacceptable in the current societal environment focused on carbon-reduction and renewable energy sources to preserve the environment. Proposed replacement of lost hydro generation in MO3 and MO4 with natural gas turbines (ES, pg 25, 30), though potentially practical, is unlikely given the regional emphasis on carbon reduction. States in the region have passed, or are working toward legislation, to limit carbon emissions. For this reason, utilities are shutting down coal fired power plants in the region. The possibility to permit and construct new fossil fuel-fired generation is unlikely given present societal and political sentiment.	The comment that replacing hydropower lost under MO3 or Multiple Objective alternative 4 (MO4) would increase emissions is consistent with the EIS findings in Section 3.8, Air Quality and Greenhouse Gases. The EIS acknowledges that given recent changes to the energy policy landscape, the renewable replacement portfolio may better reflect future trends and that new fossil fuel-fired generation is not likely, as noted in the comment. See Section 3.7.3.1, Additional Power Rate Sensitivity Analysis And Other Regional Cost Pressure Analysis, at page 3-829 in the Draft EIS. The fossil fuel-based replacement portfolio provides a cost comparison and represents the lower end for the cost of replacement resources.
6006	3	brent.bischoff@cooscurryelectric.com	N/A	Proposed replacement of lost hydro generation in MO3 and MO4 with other renewable resources made up of solar and demand response may be long-term solutions (15 to 20 years or more) but are not practical in the short-term. The solar resource required to replace lost hydro (2550 MW for MO3 and 5000 MW for MO4) must be tremendously oversized to account for their variable nature. It is not clear in the DEIS if the cost to build transmission resources to service the new solar generation is included in the cost of construction. Transmission infrastructure is very costly and takes many years to permit and construct. Nor is the carbon emission to manufacture and construct these new solar resources mentioned in the study. Demand response pilot projects have been conducted in the region but development of demand response on the scale of 600 MW is theoretical in the region today; who knows how long it would take to develop this resource.	The findings in the EIS for the power replacement resources indicated that more capacity for zero-carbon resources (e.g., solar) were needed to address lower capacity factors, consistent with the commenter's concern that the amount of replacement resources would need to be much greater than the resources made unavailable in the Multiple Objective alternatives. The EIS evaluated and included the costs of transmission infrastructure needed to interconnect resources, including new solar generation, in the analysis under Bonneville Transmission System Interconnections, Reliability, and Operations in Sections 3.7.3.3 through 3.7.3.6. The developer of the resources would have to build additional transmission infrastructure to connect resources to the larger transmission network. The costs of the additional transmission infrastructure would vary depending on the geographical location of the resource with respect to the transmission network, size of the individual project, and other factors. In addition the EIS acknowledges the potential environmental concerns and permitting timelines from new solar and the associated transmission, such as the land required and potential effects on air quality and greenhouse gases from construction. Regarding demand response, the quantity evaluated in the EIS and noted in the comment is the Northwest Power and Conservation Council's target and given uncertainty that additional demand response capability could be added, no more than this target was included in the EIS analysis, consistent with the comment's concern.
6006	4	brent.bischoff@cooscurryelectric.com	N/A	The resulting rate increases, 50% for MO3 and 41% for MO4 (ES, pg 27, 30) and loss of reliability proposed by these alternatives are unbearable and unacceptable to the CCEC retail consumer. The marginal benefits and uncertain outcomes for fish provided by MO3 and MO4 nowhere near offset the loss of reliable and economical power supply suggested in these alternatives. For these reasons, MO3 and MO4 are not practical alternatives but extreme scenarios that realistically have only illustrative purpose in the context of the EIS. Additionally, if these were practical alternatives, it is unclear what entity/agency would be able to fund and construct the generation resources required to replace the lost hydro generation capability proposed by MO3 and MO4. Are any of the three colead agencies able to do so within their current Federal authority?	The information provided in the comment regarding the power rate impacts of Multiple Objective (MO) alternative 3, which includes breaching the four lower Snake River dams, and Multiple Objective alternative 4 is consistent with the findings of the EIS. Likewise, the reliability impacts of MO3 and MO4 unless and until replacement resources are acquired are consistent with the findings of the EIS. However, it should be noted that in contrast to the comment, these are not "extreme" scenarios but instead robust alternatives designed to enable an evaluation of the full scope of measures available for management of the CRS by the co-lead agencies. The EIS does not address what entities would take on the responsibility of building and financing the resources needed to return regional reliability from the MOs' levels to the No Action Alternative reliability level. Instead, the EIS presents two resource financing options: (1) Bonneville finances; and (2) region finances. These options are presented to describe the rate impacts of the identified resource portfolio on Bonneville rate customers and, if Bonneville is not involved in financing the construction, then to regional rate payers. Neither of these scenarios, however, is intended to determine whether Bonneville or regional utilities have the authority or ability to build the identified resource portfolio. As noted in the EIS, Bonneville has specific statutory requirements it must follow before acquiring a major resource. See EIS, Section 3.7.3.1, Step 3: Determine Need for Potential Replacement Resources and Associated Costs, at page 3-819-821.
6006	5	brent.bischoff@cooscurryelectric.com	N/A	Of concern, the Flexible Spill Agreement on which the Preferred Alternative is based calls for spill up to the 125% TDG level. Washington and Oregon have recently modified their TDG limits to allow spill up to 125% TDG. Absent current knowledge of how this higher level of dissolved gas will impact resident or migrating fish, CCEC urges a cautious and science-based approach to implementing this new higher TDG limit. Given that higher spill is intended to benefit juvenile fish migration downstream, this benefit must be demonstrated to offset the lost generation caused by the higher spill and without causing harm to resident and upstream migrating adult fish.	The co-lead agencies are aware of the concern regarding increasing the Total Dissolved Gas (TDG) cap to 125%, and plan to take a cautious approach, as the commenter suggests. There has been a long-standing program to monitor the effects of supersaturated TDG (dissolved gas levels >100%) on smolts migrating through the lower Snake and Columbia rivers. During high flow years, TDGs greater than 125% have occurred. The co-lead agencies do have monitoring data to suggest these conditions will be safe for fish. The co-lead agencies plan on continuing this monitoring program and adapting spill operations if in-season problems are seen. The Preferred Alternative includes an adaptive management plan. This plan involves working with regional sovereigns to develop a study to assess the effectiveness of the increased spill regime on adult returns as well as assessment and management of negative unintended consequences, such as long delays of adult migrants, or TDG-related mortality of juvenile migratory and resident fish. Please see Appendix R, Part 2, Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS, for additional information.
6007	1	patrick@3rivers-ashtanga.org	N/A	First, I urge additional time be given to receive comments regarding the DEIS. We note that public meetings have been cancelled due to COVID-19; this has limited the chance for groups and individuals to meet and prepare comments.	The co-lead agencies considered requests to extend the public comment period. This NEPA process included a wide array of cooperating agencies whose close involvement throughout the process allowed the co-lead agencies to incorporate feedback. Given the broad range of comments received and the extensive Federal and non-Federal participation in the overall process as well as the level of public engagement in the six virtual public meetings in the region, the co-lead agencies determined that an extension was not warranted and that the 45-day public comment period was adequate consistent with NEPA regulations. On April 9, the CRSO EIS website was updated to inform the public that they should plan to submit comments by the close of the comment period.
6007	2	patrick@3rivers-ashtanga.org	N/A	Flexible spill is the centerpiece of the governments Preferred Alternative. While the science shows that increased levels of spill can buy some additional time to put in place more effective actions for imperiled fish populations, it is not, by itself, a long-term survival strategy, let alone a recovery strategy. Indeed, the parties to the current, short-term Flexible Spill Agreement made this explicit; and respected regional scientists have confirmed that the flexible spill included in the Preferred Alternative will NOT deliver salmon the survival benefits through the hydrosystem they need. The changing climate will further erode any benefits of flexible spill as a long-term approach and only underscores the urgency for meaningful action. The draft plan includes little to address these intensifying impacts.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy designated critical habitat. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative (PA) would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the CRS. Recovery of ESA-listed species is the purview of National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (USFWS). This EIS has been developed in consultation with NMFS and USFWS to minimize impacts to affected ESA-listed species and their habitats. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. The co-lead agencies used current, high-quality information in the analysis of the CRSO EIS. Specific to salmon and steelhead, the agencies used two primary modeling approaches which yielded a range of potential outcomes for the alternatives. The CSS model predicts that average Smolt-to-Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% (the lower end of Northwest Power and Conservation Council's recovery targets for the

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					region) as a result of the PA (increasing from 2.0% to 2.7% for Chinook, a 35% relative increase). The NMFS COMPASS and Lifecycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The PA will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin.
6009	1	N/A	N/A	I am VERY disappointed with the underrepresentation of importance of Columbia River Salmon for endangered Southern Resident killer whales (SRKW)! In NOAA's recovery plan for SRKW it states quite plainly "Perhaps the single greatest change in food availability for resident killer whales since the late 1800's has been the decline of salmon in the Columbia River Basin." The EIS does not adequately recognize that SRKW need a quality, abundant food supply throughout their entire range and throughout the entire year. The CAN NOT rely on just a few river systems in Puget Sound to keep them going. There is plenty of scientific data to represent the fact that SRKW spend over half their year in coastal waters (and increasing all the time due to the lack of abundance of salmon in the Fraser River watershed as well as other watersheds in the Salish Sea). We know that when SRKW are on the outer coast, Columbia River salmon make up over half of their diet (of which Spring Chinook are very important). Please consider SRKW more fully in the final EIS and the facts that would help their population to not only survive, but thrive.	SRKW analysis is described in the EIS including in the FEIS Chapter 3 (Vegetation, Wetlands, Wildlife, and Floodplains) which has been updated for SRKW (Section 3.6.2.6 and Table 3-102) and FEIS Chapter 7 (Preferred Alternative) with additional analysis information on SRKW and potential increase in forage fish, in particular, Chinook salmon in Section 7.7.8. The co-lead agencies utilized current high quality information and best available science in its analysis of the effects of the operation, maintenance, and configuration of the CRS projects. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not require the co-lead agencies to take affirmative actions to recover ESA listed species. The population dynamics of the SRKW are complicated and there are multiple factors that contribute to the overall success of this species. The quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differently from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for the whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall-run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall-run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). Details on the most crucial prey stocks for Southern Resident killer whales, as well as their population and range, is available from several fact sheets and videos available here: https://www.fisheries.noaa.gov/species/killer-whale#spotlight. For more information, visit this NMFS StoryMap on Southern Resident killer whales: https://noaa.maps.arcgis.com/apps/Cascade/index.html?appid=3405e6637bf74e998d4ebe992c54f613. According to NMFS and the EPA, the estimated SRKW population has fluctuated between 67 and 98 whales between 1960 and 2015. The Snake River dams were constructed between 1962 and 1975. The SRKW population increased from a record low in 1970 to its highest population numbers in 1995. Those years were not high years for Snake or Columbia River Chinook Salmon. Ocean conditions between 2011 and 2013 were good years for salmon. At the same time, 2010 and 2013 were good outmigration years. Particularly, 2011 and 2012 were above normal in water supply, which would mean more cooler water was available and there was better survival of salmon, and 2011 through 2014 were higher than normal spill years as well. The combination of outmigration and ocean conditions created improved adult salmon returns. The EIS has analyzed spill as a measure in the Preferred Alternative and determined the overall effect to SRKW to be negligible in large part because hatchery production is consistent between the No Action Alternative and the Preferred Alternative. Because the impact from the Preferred Alternative was determined to be negligible, the agencies determined that existing hatchery production would be sufficient to address any potential impacts to prey availability for SRKWs. The co-lead agencies note the contribution to the prey of SRKW through the continued existence of their respective independent Congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as the Lower Snake River Compensation Plan (other than under MO3), which is administered by USFWS. The Preferred Alternative and Proposed Action in the agencies' biological assessment carry forward certain mitigation measures described in Chapters 2 and 7 of the EIS, which include continued salmon and steelhead hatchery production. The Preferred Alternative has negligible effects to SRKWs as described in Section 7.7.8. The Biological Assessment (BA) describes the effect of the Proposed Action on the SRKW forage species (see BA Section 3.5.1.2, Southern Resident Killer Whale). The proposed changes in operation of the Columbia River System include increased spring spill during the downstream migration of juvenile spring and summer run Chinook salmon. The result of this action includes potential increases of juvenile fish passing through the spillways, reductions in juvenile fish direct and indirect mortality associated with downstream passage, and the Comparative Survival Study (CSS) model predicts increases in numbers of returning adults, which will benefit SRKWs foraging in and around the mouth of the Columbia River in winter and spring (See EIS Section 7.7.8). The CSS model results predicts Snake River Chinook salmon would have relative improvements in smolt-to-adult returns of 35 percent (see EIS Section 7.7.4). The smolt-to-adult return ratio (SAR) is the rate at which of a group of fish survive from their smolt life stage to a defined ending point where they return as adults. While recovery targets will require more than just the efforts of federal agencies, the CSS models indicate the potential for SARs of Snake River Chinook salmon and steelhead to increase to levels that could approach recovery targets set by the Northwest Power and Conservation Council. The BA, also consistent with the EIS, acknowledges past improvements to the configuration and operation of the Columbia River System, additional improvements to the environmental baseline as a result of completed estuary and tributary habitat actions, and the prospective non-operational conservation measures proposed in Chapter 2 of the Draft EIS, all contribute towards maintaining and improving Chinook abundance. Relevant conservation measures include, among other things, a commitment to continue funding the conservation and safety net hatchery programs listed in Chapter 2 of the Draft EIS. As discussed above, the agencies will fulfill congressionally authorized hatchery mitigation objectives through the funding of hatchery programs that are operated consistent with their independent hatchery program consultations during the term covered by this consultation. Based on those hatchery program consultations, the production levels associated with congressionally authorized hatchery mitigation objectives will continue, at minimum, to be consistent with levels previously analyzed by NOAA in the system consultations in 2008, 2014, and 2019. For the 2020 ESA consultations, therefore, the agencies expect that collectively, all of the actions described above (substantial modifications to migration conditions designed to benefit key prey species, combined with improvements to Chinook spawning and rearing habitat in the tributaries and Columbia River estuary, and continued hatchery production) ensure that remaining Chinook mortality from all sources in the mainstem migratory corridor will continue to be more than offset, resulting in a net gain in Chinook salmon abundance available as a prey source for SRKW. Finally, the 2019 NMFS Fisheries BiOp included increased spring spill operations that are similar to operations evaluated in CRSO EIS, and NOAA validated that the hatchery production of Chinook salmon mitigates for the impacts of operating the Columbia River System and total mortality through the mainstem migratory corridor from all sources.
6011	1	kayhum@cableone.net	N/A	This draft EIS fails to fairly evaluate the minor amount of total electricity generated by the four lower Snake River dams, an amount that can be easily replaced from other sources, including the ever-growing contributions of conservation steps underway in the PNW region.	While the four lower Snake River dams account for a small portion of the total power of the region, they represent a larger portion of the Federal Columbia River Power System (FCRPS) from which Bonneville markets power. Bonneville sells power from the FCRPS to meet Bonneville's collective power obligation, most of which is sold to meet the loads of publicly owned utilities, such as municipalities, rural utilities, and public utility districts. See EIS Section 3.7.2.5, Bonneville Power and Transmission Customers. Under MO3, on average, the region has surplus generation leading to export sales during certain periods and water years. Nevertheless, to maintain regional reliability at the loss-of-load probability (LOLP) levels of the No Action Alternative, replacement resources would be needed. This is driven by the timing and magnitude of changes in hydropower generation analyzed in the EIS. As shown by the analysis of the LOLP, in some years and times of the year, particularly winter and later in the summer of drier years, without the four lower Snake River dams there would be insufficient power supply in the region leading to power emergencies and blackouts. Specifically, without replacing the power from the four lower Snake River dams, the LOLP of the region would more than double to 14 percent, which is equivalent to a year with one or more blackouts every seven years. See Draft EIS at page 3-903; and Appendix H-Power and Transmission, at Table 2-1 in the Draft EIS. To determine resource replacement amounts, the EIS uses the LOLP metric utilized by the Northwest Power and Conservation Council. See EIS Section 3.7.2.2; Appendix H, Power and Transmission, at Section 2.1; Appendix I, Hydroregulation, Section 2.4.4. The LOLP metric evaluates the adequacy of power supply in the region to meet firm power needs under various conditions. It is measured in terms of a percentage, and represents the likelihood of a blackout occurring in a year. See Appendix H, Power and Transmission at Section 2.1. The current LOLP under the No Action Alternative is 6.6 percent; this is equivalent to one blackout every 15 years. The EIS uses this LOLP level as the benchmark of comparison for the other MOs. All cost-effective conservation identified by the Councils Seventh Power Plan is included in the load forecast. Under Washington and Oregon law, all cost-effective conservation must be acquired regardless of the status of the FCRPS. Therefore, conservation was not considered a potential resource replacement; it would be double-counting to allocate this conservation for replacing hydropower.
6011	2	kayhum@cableone.net	N/A	The DEIS omits the dire fiscal impacts and sure collapse of many central Idaho communities economies dependent on revenue from healthy sport Salmon and Steelhead fisheries This omission must be corrected or NEPA requirements will not be met. And these towns will die, as illustrated by the dire financial suffering experienced by residents and businesses when steelhead was closed in central Idaho last autumn.	The geographic scope of the EIS is the Columbia River and its major tributaries where the 14 federal projects of the Columbia River System are located. The EIS provides an evaluation of the social welfare and regional economic effects of the No Action Alternative and the Multiple Objective alternatives (MOs), including the effects on recreation (Section 3.11) and commercial fisheries (Section 3.15). The EIS described the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. NMFS estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which is described qualitatively. Under MO3, EIS Section 3.5.3.6 describes the long-term effects to anadromous fish migration in Region C that would occur under a dam breach scenario as major and beneficial. The potential for increases in recreational fishing under MO3 in Regions C which would support jobs, income, and social benefits in Tribal and rural river communities, is described in Section 3.11.3.5. For the effects on recreational fishing under MO3 (Section 3.11.3.5) along the lower Snake River below Lewiston, the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River) as an indicator for fishing visitation in this reach. The EIS describes that the visitation in the long-term in the lower Snake River, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting outfitting and tourism businesses in the region. However, there is uncertainty around recreational fishing visitation in the long-term given the current measures to regulate, protect, and support ESA-listed fish populations and habitat in the region.
6015	1	N/A	N/A	Also that summer, there were road blocks everywhere in Lewiston and Clarkston because the roads had crumbled without the force of the water to hold them up. Without roads, we have no transportation for even semi-trucks to transport. During the mega-loads, a few years ago, there were groups picketing those transports because the mega-load runs were happening, clogging our highways, and damaging them. If we remove the dams that support the water flow for tug boats to ship goods to the surrounding areas, what will happen to the roads? If people picket a rare occurrence of a mega-load run, wont they picket the highways being crammed with more semi-trucks? And if these trucks become more abundant, wont the wear and tear on the roads become greater? In-turn, wont the cost to improve and repair them become more?	The EIS evaluates the level of anticipated increases in truck and rail traffic that would occur under MO3, which includes the measure to breach the four lower Snake River dams. The EIS finds that truck ton-miles may experience an increase of 19 to 84% under MO3 when compared to the No Action Alternative, depending on the rail rate increases that occur. The EIS found that truck trips would increase between 14,000 to 79,000 truck trips per year, which would increase air pollutants and greenhouse gas emissions in the region and add to traffic and congestion in the region. Rail ton-miles would increase by as much as 86% (when rail rates are not assumed to increase) or decrease by 2% (when rail rates increase by 50 percent). The EIS acknowledges that depending on how rail rates respond to dam breach, short-line rail capacity could be exceeded. The EIS also evaluates the additional transportation infrastructure investments and associated costs that would be required, as well as the increases in air emissions that would occur. Environmental and human health impacts associated with increased emissions to shipping goods by rail or truck (or both) are evaluated and described in the Air Quality Section (3.8), and an increase of health and safety concerns due to increased truck traffic on roadways and potential for increased accidents are described in the Navigation and Transportation Section for other social effects (Section 3.10.3.5).
6015	2	N/A	N/A	Along with being a resident, I am also in the real estate field and breaching dams would have a detrimental effect on the housing market, job market and livelihood of the entire valley with ripple effects wreaking havoc on the surrounding region for decades. Our area is growing right now, more	The potential economic impacts from breaching of the four lower Snake River dams are described throughout the EIS organized by resource area, including Power and Transmission in Section 3.7, Navigation and Transportation in Section 3.10, Water Supply in Section 3.12, and Recreation in Section 3.11.

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				industry is trying to make its way to our green valley but if we have no rivers, dams, or reservoirs, we have no way to make industry come to stay and bring more jobs. The existing industry could crumble leaving thousands out of work; Clearwater Paper for example. At this time, the water flow level helps the mill retain low levels of chemicals in their holding ponds. Without the river, the mill would shut down. Thousands of workers would be out of jobs which would lead to loan defaults or moving out of the area to find work. Without the major financial support of Clearwater Paper, many would relocate. Without rivers for recreation, boat companiessome who have been contracted by large investors throughout the world and even for James Bond movieswould close their doors. Riverboats are also an enormous source of revenue from tourism and some relocating after a fun trip down the Columbia to the Snake River.	The lower Snake River projects currently support 2.6 million visitors and $24.5 million in social welfare value annually. Dam breaching would have both beneficial and adverse effects on recreation. Dam breaching would preclude reservoir recreation during and shortly after the breach, eliminating reservoir recreation in the short-term; over time, and as recreation areas and access are redeveloped by others, long-term beneficial effects to river recreation, including angling, are anticipated. Section 3.11 of the EIS describes that visitation in the long-term in the lower Snake River would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting jobs, income, and tourism businesses. Effects to communities and livelihoods are captured to the extent possible in the regional economic effects and other social effects sections that are part of these assessments. As described in Section 3.7.3.5 of the EIS, the implications on the cost of electricity to end-users, such as residents and businesses, would be upward rate pressure ranging from 1.6% to 3.6% relative to the No Action Alternative. The Environmental Justice analysis of the EIS in Section 3.18.3 describes that energy burdens in Region C are already likely unaffordable for all households with incomes below the Federal poverty level, and that any upward rate pressure could impact low-income households for whom energy costs are a larger percentage of their income. The Navigation and Transportation Section 3.10.3.5 describes community concerns and potential impacts that would be anticipated in a dam breach scenario.
6018	1	N/A	N/A	POTENTIAL ALTERNATIVES - There are other consideration for improving salmon and steelhead populations that should be considered and implemented before removing dams these include - Addressing predatory Sea Lions in the lower Columbia river - Addressing predatory birds (terns, cormorants, pelicans, ...) - Returning funding to hatchery programs - Addressing fishing regulations (recreational, commercial, tribal) - Adjusting dam flow rates - New enhanced fish passage improvements at the dams - ... - These dams have operated for a significant number of years while maintaining salmon runs. During this time significant improvements and adjustments have been made to the dams and to their operating parameters that are continually improving fish passage. Meanwhile other impacting events, situations and circumstances have occurred which have had an adverse affect on salmon and steelhead populations. These include predatory animals, invasive species, reduction in hatchery production and changes in ocean temperatures and conditions, ... Time and efforts should be spent first on addressing these other variables before dismantling any of the snake river dams.	Salmon and steelhead have been adversely affected in the Columbia River Basin over the last century by many activities, including human population growth, urbanization, introduction of exotic species, overfishing, development of cities and other land uses in the floodplains, water diversions for all purposes, dams, mining, farming, ranching, logging, hatchery production, predation, ocean conditions, and loss of habitat. Operation, configuration and maintenance of the CRS requires mitigation for its effects, and the EIS is not intended or required to serve as an overall salmon recovery plan for the region. The co-lead agencies also recognize that there are many effects to salmon and steelhead populations outside the operation of the dams; including those mentioned in this comment. Research continues to evaluate the magnitude of these effects. For more information see the National Marine Fisheries Service (NMFS) website at: https://www.nwfsc.noaa.gov/research/index.cfm. The co-lead agencies legal authorities relate to operating and maintaining the CRS to meet multiple statutory purposes. They are required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy designated critical habitat. To comply with the ESA, the co-lead agencies have historically supported actions to mitigate adverse effects to ESA-listed species from CRS operations, through funding, direct implementation, and other means. Under the Preferred Alternative, those actions, including for the purpose of reducing pinniped and avian predation on ESA-listed species, would generally continue to ensure compliance with the ESA. Other entities in the region have authorities and obligations to mitigate the impacts from pinniped and avian predators, and the co-lead agencies will continue to work closely with those entities to benefit ESA-listed salmonids. Harvest certainly has an impact on salmon and steelhead populations. Alternatives to change harvest are not within the scope of this EIS. The assumptions regarding harvest are taken from the 2018 EIS from NOAA and reflect current harvest management guidelines. To see their conclusions and effects analyses please go to: https://www.fisheries.noaa.gov/resource/document/environmental-impact-statement-programmatic-review-harvest-actions-salmon-and.
6018	2	N/A	N/A	Would removal of the dams enhance the spread some invasive animal or plant species? (shad, lamprey eels, insects, ...) - Does the increasing water temperature in the ocean have such an overriding affect on the fish populations that whatever happens to the dams will be insignificant?	As discussed in Section 3.6 of the EIS, breaching the four lower Snake River dams has the potential of causing colonization of invasive species within unvegetated areas along the shoreline. Any exposed sediment could encourage invasive plants to colonize the shorelines and expose sediment. Lamprey are native to the CRS (they are non-native to the Great Lakes) and shad are non-native to the CRS, but are not considered invasive. The co-lead agencies recognize that ocean conditions are a major driver in juvenile survival and adult returns. As such two of the biological fish models used in these analyses, National Marine Fisheries Service COMPASS and CSS Lifecycle models, use metrics of ocean productivity to predict adult returns. A number of metrics that monitor ocean temperature and productivity are reported annually and are used to predict salmon returns. These metrics can be seen at: https://www.nwfsc.noaa.gov/research/divisions/fe/estuarine/oeip/g-forecast.cfm.
6023	1	flyfishbum@sampsonsunvalley.com	N/A	It needs to address the Economic Impact on Idaho. Without the fish many small river towns in Idaho will hurt badly. Businesses in places like Riggins, White Bird, Salmon, Challis, Clayton, Stanley, Lewiston, Lenore, Peck, Orofino, Greer, Kamiah, Kooskia and others need to be considered.	The co-lead agencies used high-quality information in the EIS analysis. Specific to salmon and steelhead, the agencies used two primary modeling approaches which yielded a range of potential outcomes for the alternatives. The CSS model predicts that average Smolt-to-Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% (the lower end of the Northwest Power and Conservation Council's recovery targets for the region) increasing from 2.0% to 2.7% for Chinook, a 35% relative increase. The NMFS COMPASS and Lifecycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. See Appendix R, Part 2, Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS, for additional information. The EIS provides an evaluation of the social welfare and regional economic effects of the No Action Alternative and the Multiple Objective alternatives (MOs), including the effects on recreation (Section 3.11) and commercial fisheries (Section 3.15). The EIS described the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. NMFS estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which is described qualitatively. Under MO3, EIS Section 3.5.3.6 describes the long-term effects to anadromous fish migration in Region C that would occur under a dam breach scenario as major and beneficial. The potential for increases in recreational fishing under MO3 in Regions C which would support jobs, income, and social benefits in Tribal and rural river communities, is described in Section 3.11.3.5. For the effects on recreational fishing under MO3 (Section 3.11.3.5) along the lower Snake River below Lewiston, the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River) as an indicator for fishing visitation in this reach. The EIS describes that visitation in the long-term in the lower Snake River, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting outfitting and tourism businesses in the region. However, there is uncertainty around recreational fishing visitation in the long-term given the current measures to regulate, protect, and support ESA-listed fish populations and habitat in the region. For MO1, MO2, MO4, and the Preferred Alternative, the recreational fishing evaluation describes the impacts by referencing the potential effects on relevant fish populations, as described in Section 3.5. Aquatic Habitat, Aquatic Invertebrates, and Fish, modeling results vary for some of the alternatives, for example for the Preferred Alternative and MO4 (i.e., models show either beneficial or adverse effects to anadromous fish), so it is assumed that the potential changes in recreational fishing and associated social welfare and regional economic effects would follow these changes in fish abundance.
6028	1	mayor@clarkston-wa.com	N/A	The first major point of confusion is this: Will fish recover or not if the LSRD are breached? Your report says in Chapter 3, p. 548, lines 16557-16558: Currently, hatchery fish account for 80-90 percent of all juvenile Snake River fish passing CRS projects. [The fish] models [projecting increased returns] do not account for this potential major reduction in juvenile fish production. Yet, the Executive Summary and write-up on recreation explain benefits in the form of improved recreational or tribal fishing. Most people are aware that you cannot take endangered or threatened species. But if you get rid of the hatchery fish, what are people fishing for? (NOTE: LSRD ratepayers pay for hatchery operations and habitat improvements to mitigate for the dams. When the dams are gone, according to Birgit Koehler, Policy Lead for Power on the CRSO DEIS at Bonneville Power Administration (on Jan. 7), there will be no line item in BPAs future budgets for hatcheries and habitat improvements.) And if there was, the impact rolls out to local residents such that their power bills do not increase by 45% but by some other, higher number. If there will be fewer fish with LRSD removal, MO3 shouldnt even be under consideration.	The scope of the Draft EIS is to evaluate the effects of operations, maintenance, and configuration of the CRS projects. The analyses presented compares each alternative to the No Action Alternative. Overall, the conclusion in the Draft EIS is that MO3 would be beneficial to anadromous fish for a number of reasons, even with certain hatchery programs no longer funded in the long term. The effects to populations as they transition from primarily hatchery production to an increased wild production of fish is qualitatively discussed in Section 3.5.3.6. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets most other EIS objectives including those for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS, the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams, because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system.
6028	2	mayor@clarkston-wa.com	N/A	There will be a concentration of impacts under MO3 in southeast Washington and north central Idaho. The impact will be even more significant in the turn-around point of the navigation channel, where more than 60,000 people live. Its the Lewis-Clark Valley consisting of these incorporated cities: Lewiston, ID, Clarkston, WA, and Asotin, WA plus the area immediately outside those boundaries in Nez Perce County, ID and Asotin County, WA. Farmers will choose to retire rather than operate at a loss (your analysis does not account for true increased costs of transportation). The land will not be productive. Neither farming land nor properties currently managed by the U.S. Army Corps of Engineers (hereinafter Corps) will be managed for dust control, erosion, noxious weeds, invasive species or upland habitat management. Cities (like the City of Asotin) will go bankrupt. Unfunded mandates, such as re-permitting and extending waste water treatment effluent lines from current locations to new locations will be expected from municipalities like the City of Clarkston at a time when property values will decrease because our reservoir disappears. Instead of the water being an asset, it will be a detriment with fugitive dust causing problems for asthmatics, loss of modulation of temperature during hot summer months and cold winter months from the reservoir, tremendous loss of water-based recreation (which is why people live here and not elsewhere), odor from decaying fish, loss of the cruise industry, loss of irrigation for key recreational facilities including access to the water and more. This area cannot afford and should not be forced to shoulder the impact of dam removal.	The EIS in Chapter 3 does include an evaluation of regional and social effects by regions for MO3 but does not address all the issues you have raised. If MO3 was selected and authorized by Congress, an implementation plan and associated National Environmental Policy Act (NEPA) analysis would be prepared that would include site specific information that details the construction, breaching, disposal, and mitigation actions required to implement MO3, as well as identifying all of the associated permitting for this action. In addition a table has been added to Section 7.4 provides a summary of the beneficial and adverse effects of the alternatives, including the quantified social welfare costs and benefits for a number of the resource areas as well as the implementation costs of the alternatives. The EIS evaluated beneficial and adverse effects across an array of resource areas including potential effects at the national, regional and local level; effects are monetized and quantified, where possible, and also described qualitatively. As is common in NEPA analyses, the beneficial and adverse effects of the alternatives are expressed as a variety of qualitative and quantitative environmental and economic metrics throughout the EIS to inform decision-making. The EIS does not employ a cost-benefit framework for decision-making. Instead, the EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as the dam breaching alternative. However, the Preferred Alternative also meets most of the other objectives of the study for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy.
6028	3	mayor@clarkston-wa.com	N/A	The City of Clarkston urges the action agencies to compile the impacts, stacking them one on top of another, to see what devastation MO3 will cause for our region. Then, we urge you to include mitigation so that our residents are not paying the steepest price.	The EIS evaluated beneficial and adverse effects across an array of resource areas including potential effects at the national, regional and local level; effects are monetized and quantified, where possible, and also described qualitatively. As is common in NEPA analyses, the beneficial and adverse effects of the alternatives are expressed as a variety of qualitative and quantitative environmental and economic metrics throughout the EIS to inform decision-making. The EIS does not employ a cost-benefit framework for decision-making. Instead, the EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as the dam breaching alternative. However, the Preferred Alternative also meets most of the other objectives of the study for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. A table added to Section 7.4 provides a summary of the beneficial and adverse effects of the alternatives, including the quantified social welfare costs and benefits for a number of the resource areas as well as the implementation costs of the alternatives. Chapter 5 in the EIS describes the proposed mitigation measures considered under each of the MOs. Mitigation for specific City of Clarkson impacts was not evaluated in this EIS. If MO3 was selected and authorized by Congress, an implementation plan would be prepared that would include site specific information that details the construction, breaching, disposal, and mitigation actions required to implement MO3, as well as identifying all of the associated permitting for this action. The inclusion of mitigation measures that were considered in Chapter 5 is not intended to indicate that the co-lead agencies, or the Federal government as a whole, have the authority to perform all of the measures listed. If the measures are outside the jurisdiction of the co-lead agencies, those measures would not be included in the Record of Decision (ROD). Their inclusion in Chapter 5 serves to alert other agencies, officials, and the public who can implement the measures to the potential benefits of the measure.
6031	1	jlukas@3rivers.net	N/A	The Draft EIS does not describe or identify the likely fish community impacts that would result from Dam Breaching. The entire fish assemblage of the Lower Snake River would be affected. This would mean that populations of native and non-native species that have adapted and used the reservoirs of	The analyses of effects of breaching the four lower Snake River dams to Snake River resident fish communities is analyzed under Region C of the Draft EIS beginning on page 3-585. Generally speaking, there would be short-term adverse effects to the entire fish community due to breaching construction activities, and in the long-term the community would revert to a more native-dominated community than it is currently, due to the change from reservoir to riverine habitats. The shift in fish communities in the Snake River would not be expected to be displaced to the lower Columbia River, but rather just shift over time after the initial short-term adverse effects.

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				the lower Snake River would likely be displaced into the lower Columbia River. Many of these species are aggressive smolt predators and there would be predation impacts modified and increased by this potential action. The Draft EIS should identify and consider these impacts.	
6031	2	jlukas@3rivers.net	N/A	The Draft EIS did identify impacts to long-standing mitigation programs as another impact of these alternatives and it should be high-lighted that hatchery production and funding would be impacted. With the breaching of Snake River Dams, there would no longer be the commitment to mitigate for those dams, so the hatchery programs funded by the Lower Snake River Compensation Plan would no longer produce smolts. These fish account for 80-90% of all juvenile Snake River fish passing CRS projects. This should be more directly identified as a negative consequence of dam-breaching.	The Draft EIS acknowledges that with breaching of the four lower Snake River dams under MO3, Bonneville would no longer be required to fund the U.S. Fish and Wildlife Service (USFWS) for operations and maintenance actions that are part of the Lower Snake River Compensation Plan, which accounts for much of the hatchery production in the basin, and other mitigation activities could be adjusted. The effects to populations as they transition from primarily hatchery production to an increased wild production of fish is qualitatively discussed in Section 3.5.3.6. The fish models are based upon data collected from past fish runs, and there is no data available to inform an quantitative analysis for wild fish in the absence of hatchery fish. Under the Preferred Alternative, hatchery programs would continue as under the No Action Alternative. Hatchery origin fish are very important to tribal and sport harvest within the Columbia River Basin, and many hatchery programs are important supplementation to rebuilding natural populations. Further, the co-lead agencies have legal requirements to produce hatchery fish as mitigation for components of the Columbia River System.
6031	3	jlukas@3rivers.net	N/A	The Draft EIS should also evaluate other impacts of lost power sales on the Direct Fish and Wildlife Program funded by BPA ratepayers. The lost sales of 1,100 aMW of energy and more than 2,000 MW of capacity from the lower Snake River Projects would be a massive shock to BPA Preference Customer Rights and result in many unintended consequences related to actions taken by preference customers to locate replacement power supply.	The statement in the comment that the loss of capacity and energy would adversely affect regional electricity costs and Bonneville customers is consistent with the findings of the EIS. As noted in the comment and stated in the EIS, the lost hydropower generation would require Bonneville or its customers to acquire replacement resources at considerable cost. See Draft EIS, Section 3.7.3.5, Table 3-166. Regarding the funding of Bonneville's Fish and Wildlife Program, funding decisions for the program are not being made as part of the CRSO EIS. A range of costs are included in Multiple Objective alternative 3 to inform the broader cost analysis, and any future budget adjustments would be made in consultation with the region through Bonneville's budget-making processes and other appropriate forums.
6031	4	jlukas@3rivers.net	N/A	This leaves us with the Preferred Alternative which identified lamprey passage improvements plus adoption of a flexible spill program that would allow spill up to 125% TDG. We have very serious concerns about this operation which were identified directly in the Draft EIS. The Draft EIS acknowledges that this operation may actually reduce salmon survival by 7.5%! The loss of 160 aMW of generation on average while losing 300 aMW during low-water conditions does not represent an appropriate balancing of impacts for an operation that may end up killing more of the fish that it is intended to protect than the No-Action alternative. We have already seen a flexible spill operation in 2019 with spill up to 120% TDG that showed little benefit to fish with some evidence suggesting that survival was reduced. Page 3 of 4 In our view the Juvenile Fish Passage Spill Operations (Section 7.6.3.10) of the Preferred Alternative fails to satisfy Objective 1 of the Draft EIS to: Improve ESA-listed anadromous salmonid juvenile fish rearing, passage and survival within the CRS project area through actions including but not limited to project configuration, flow management, spill operations and water quality management. The concerns below identify why this objective would not be satisfied. 1. The life-cycle modeling of the Draft EIS identifies a risk that the Preferred Alternative would reduce smolt to adult return rates. The DEIS analysis showed that: If latent mortality effects are not reduced the LCM predicts that SARs for Snake River spring Chinook would be lower than the No-Action Alternative (7.5% lower SARs) due to reduced transportation. Table 7-25 shows the potential for populations in the Middle Fork, South Fork and upper Salmon River to experience survival reductions of 9-25% under this operation of the Preferred Alternative! 2. In effect this element of the Preferred Alternative is a giant bet placed on the unverifiable CSS modeling assumptions related to latent mortality. In fact, one of the sole plausible mechanisms for latent mortality would be Gas Bubble Disease associated with spill up to 125% TDG. This shows what a risky proposition an alternative based on high levels of spill is as the Draft EIS itself predicts a sizable reduction in fish survival if the latent mortality assumptions are wrong. 3. This element of the Preferred Alternative is highly likely to have disproportionately negative impacts on steelhead which is one of the ESUs most in need of a different management regime given recent low returns and litigation over closure of fisheries. Steelhead travel in the upper portion of the water column exposing them to avian predation. Spill up to 125% is known to cause Gas Bubble Disease or Gas Bubble Trauma, one of the only defenses to this is depth compensation. This is why so many describe Gas Bubble Disease as similar to divers getting the bends. Fish like juvenile sockeye or Chinook that migrate deeper in the water column will be less susceptible to the impacts of High TDG levels. Steelhead that migrate closer to the surface will be more heavily and directly impacted. This will lead to higher levels of avian predation on fish compromised by Gas Bubble Disease. It is nearly certain that spill up to 125% TDG will negatively impact steelhead at a greater rate than other salmonid species. 4. It is also important to point out that the Draft EIS lacked comparative information for impacts of the Preferred Alternative on steelhead. Thus it appears that the Action Agencies relied only on the assumptions of the CSS (Table 7-27) for claims about steelhead survival noting that: There is no NMFS LCM model for Snake River Steelhead. 5. The Draft EIS claims that: The initial spring component of juvenile fish passage spill is a flexible spill operation over a 24-hour period to take advantage of peak and off-peak load hours for hydropower, while also providing high levels of spill intended to test the CRSO EIS modeled estimates of the benefits to downstream juvenile passage, while also ensuring operational feasibility for the Corps. The Draft EIS provides no information on this test other than a footnote claiming that: This measure will also allow the co-lead agencies to gather important scientific information on the relationship between the CRS and latent (delayed) mortality. With modeling within the Draft EIS showing a risk of a sizable reduction of survival related to this operation the Action Agencies should at least Page 4 of 4 identify what study will be conducted to confirm or refute their modeled estimates of reduced SARs under this risky and ill-advised operation. 6. Many of these concerns appear to be acknowledged yet ignored by the Draft EIS. We were only able to find one cryptic paragraph about this very important issue. Page 7-89 lists these concerns: Increase in gas bubble trauma can result in injury or even death of juvenile and adult salmonids if TDG exposure is of sufficient magnitude and duration. In addition, spill levels being proposed in the Preferred Alternative have been shown to delay adult migrants as they search for fishway entrances. Increased incidence of adult fish falling back over spillways would also be expected with the higher spill levels. Monitoring would be in place to help the co-lead agencies identify and remedy any of the potential adverse effects noted above. In the Final EIS the Action Agencies should provide much greater detail than a single sentence about monitoring and how this information about incidence and severity of Gas Bubble Disease (i.e. Gas Bubble Trauma) would be used to modify or reduce high levels of spill causing it.	The co-lead agencies used current, high-quality information in the analysis of the CRSO EIS. Specific to salmon and steelhead, the agencies used two primary modeling approaches which yielded a range of potential outcomes for the alternatives. The CSS model predicts that average Smolt-to-Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% as a result of the Preferred Alternative (increasing from 2.0% to 2.7% for Chinook, a 35% relative increase). The National Marine Fisheries Service (NMFS) COMPASS and Lifecycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. To address the uncertainty due to the different model results, the Preferred Alternative (PA) includes working with regional sovereigns to develop a study that assesses the effectiveness of increased spill regime on adult returns as well as assessment and management of adverse unintended consequences, such as long delays of adult migrants, and Total Dissolved Gas (TDG)-related mortality of juvenile migrants. The PA includes a combination of measures that meet the Purpose and Need Statement and most objectives of the EIS, while balancing the authorized purposes of the 14 Federal dam and reservoir projects that make up the CRS, including providing an adequate, efficient, economical and reliable power supply. Gas Bubble Trauma (GBT) disease is a combination of exposure level and duration during both the current condition as well as past exposure. Severity is also a function of overall health as well as availability of depth compensation. In general, for fish without the ability for depth compensation, TDG levels greater than 110% can lead to higher mortality and shorter response time at higher TDG levels. Past studies regarding TDG effects on survival have been of short duration, thus high TDG exposure effects on smolt-to-adult survival remain unknown. In general, GBT disease tends to reduce overall fitness and thus can lead to reduced survivability. Over the past two years, the Corps has examined TDG exposure levels in the fish transport barge holds and collection raceways. Findings indicated transport barge aeration systems were successful at reducing TDG levels to less than 110% when the intake river water was 120% TDG. The results also indicated the raceway water supply at Little Goose Dam may need modifications to provide degassing when the water supply TDG is greater than 120%. Current adult returns have been related to poor ocean conditions rather than passage conditions in the CRS. Adult return rates over the next few years will be considered through adaptive management to inform any necessary alterations of operations in order to better benefit to Snake River salmon and steelhead. The EIS recognizes the concern voiced in the comment regarding lost generation, which leads to increasing power rates under the Preferred Alternative. Under the Preferred Alternative the Bonneville wholesale power rate pressure is estimated to be 2.7 percent relative to the No Action Alternative. A portion of that rate pressure has already been incorporated into the BP-20 wholesale power rates; and, the remaining rate pressure likely falls within a level that Bonneville has historically been able to absorb through the costs over which it has significant control. See Draft EIS Section 3.7.3.1, at page 3-817. Finally, the comment is correct that the Preferred Alternative would cause a potential reduction of 160 aMW of generation on average while losing 300 aMW during low-water conditions. However, because of the shape of the remaining hydropower generation in the Preferred Alternative, the loss of load probability (LOLP) was essentially the same as that of the No Action Alternative and identification of replacement resources was not necessary. The Preferred Alternative does meet the EIS objectives for anadromous and resident fish, lamprey, hydropower, water management, and water supply, while minimizing adverse effects to communities and the economy.
6040	1	calla.hagle@burnspaiute-nsn.gov	Burns Paiute Tribe	The Burns Paiute Tribe appreciates the opportunity to offer formal comments to the Co-Lead Agencies regarding the DEIS for Columbia River System Operations. Please see the attached formal comment letter. For questions regarding this submission, please contact Calla Hagle (technical staff) at (541)573-8021 or email at calla.hagle@burnspaiute-nsn.gov	The co-lead agencies confirmed the Burns Paiute Tribe's comments were submitted by the Upper Snake River Tribes coded as Letter 6162. Please see responses to comments under Letter 6162.
6046	1	pmfinnegan@hotmail.com	N/A	The economic benefits provided by fishing to river communities in Idaho that depend on salmon and steelhead returns, such as Salmon, Challis, McCall, Riggins, White Bird, Grangeville, Orofino and Kamiah were not sufficiently evaluated in the draft EIS. While fishing is only one of many benefits of a free flowing Snake River, a 2005 study determined that salmon and steelhead fishing could bring Idaho over $544 million dollars annually.	The EIS provides an evaluation of the social welfare and regional economic effects of the No Action Alternative and the Multiple Objective alternatives (MOs), including the effects on recreation (Section 3.11) and commercial fisheries (Section 3.15). The EIS described the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. NMFS estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which is described qualitatively. Under MO3, EIS Section 3.5.3.6 describes the long-term effects to anadromous fish migration in Region C that would occur under a dam breach scenario as major and beneficial. The potential for increases in recreational fishing under MO3 in Regions C which would support jobs, income, and social benefits in Tribal and rural river communities, is described in Section 3.11.3.5. For the effects on recreational fishing under MO3 (Section 3.11.3.5) along the lower Snake River below Lewiston, the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River) as an indicator for fishing visitation in this reach. The EIS describes that visitation in the long-term in the lower Snake River, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting outfitting and tourism businesses in the region. However, there is uncertainty around recreational fishing visitation in the long-term given the current measures to regulate, protect, and support ESA-listed fish populations and habitat in the region. For MO1, MO2, MO4, and the Preferred Alternative, the recreational fishing evaluation describes the impacts by referencing the potential effects on relevant fish populations, as described in Section 3.5. Aquatic Habitat, Aquatic Invertebrates, and Fish, modeling results vary for some of the alternatives, for example for the Preferred Alternative and MO4 (i.e., models show either beneficial or adverse effects to anadromous fish), so it is assumed that the potential changes in recreational fishing and associated social welfare and regional economic effects would follow these changes in fish abundance.
6046	2	pmfinnegan@hotmail.com	N/A	The four LSR dams provide just 4-5% of the Northwests power supply. By 2013, wind energy in the Pacific Northwest produced 3.4 times as much electricity as all four LSR dams. Wind energy alone has thus already replaced the power generated by all four LSR dams more than three times over. The Pacific Northwest presently enjoys a 16% surplus of electricity. If the 4 LSR dams were removed today we would still enjoy an 11% electricity surplus. By relying on available hydropower from other dams in the Columbia River basin, grid stability at any point in time can readily be achieved. Analysis by the NW Energy Coalition and the RAND Corp. found that power from the LSR dams can be affordably replaced with proven carbon-free energy sources and efficiency upgrades. Like wind, hydropower output varies greatly. These two energy sources share similar efficiency ratings (production vs. nameplate capacity) on an annual basis. Further, hydropower produces its greatest volume of power during the spring, when the demand and price for that power are at their lowest levels. According to an analysis published by the NW Energy Coalition during 2015, power costs to Northwest ratepayers would increase by about $1 dollar per month if the LSR dams are breached.	To determine resource replacement amounts, the EIS uses a more robust measure of power system reliability and resilience than the average MWs approach suggested by the commenter. Specifically, the EIS uses the loss-of-load probability (LOLP) metric utilized by the Northwest Power and Conservation Council. See Draft EIS Section 3.7.2.2; Appendix H, Power and Transmission, at Section 2.1; Appendix I, Hydroregulation, Section 2.4.4. The LOLP metric evaluates the adequacy of power supply in the region to meet firm power needs under various conditions. It is measured in terms of a percentage, and represents the likelihood of a year having one or more blackouts. See Appendix H, Power and Transmission at Section 2.1. The current LOLP under the No Action Alternative is 6.6 percent; this is equivalent to a year with one or more blackouts every 15 years. The EIS uses this LOLP level as the benchmark for comparison to the other Multiple Objective alternatives (MOs). Under MO3, on average, the region has surplus generation leading to export sales during certain periods and water years. Nevertheless, to maintain regional reliability at the LOLP levels of the No Action Alternative, replacement resources would be needed. This is driven by the timing and magnitude of changes in hydropower generation analyzed in the EIS. As shown by the analysis of the LOLP, in some years and times of the year, particularly winter and later in the summer of drier years, without the four lower Snake River dams there would be insufficient power supply in the region leading to power emergencies and blackouts. Specifically, without replacing the power from the four lower Snake River dams, the LOLP of the region would more than double to 14 percent, which is equivalent to a year with one or more blackouts every seven years. See Draft EIS at page 3-903; see also Appendix H-Power and Transmission, at Table 2-1. In addition, comparisons of wind to hydropower generation in this comment do not consider important factors about flexibility and dispatchability. For example, as described in the EIS, the four lower Snake River dams provide important ramping capability, the ability to generate energy quickly to match spikes in energy usage, with over 2,200 MW of capability in certain months of the year. See Draft EIS, Section 3.7.3.5, Lower Snake River Full Replacement, pages 3-905-907, Table 3-160. In other words, it is not enough to consider the average amount of generation from these dams in assessing their importance, but also to consider the timing and flexibility of that generation. The comment correctly states that hydropower generation and surplus is more likely in the spring while deficits are more likely in the winter. Furthermore, the amount of surplus or deficit varies considerably by water year. In addition, contrary to the comment, breaching the four lower Snake River dams decreased regional grid stability without replacement resources and transmission reinforcements.

Letter No.	Comment No.	Commenter Name/Email	Affiliation	Comment	Response[1/]
					Regarding the Northwest Energy Coalition (NWEC) study, Appendix H, Power and Transmission, and Section 3.7.3.5 describes how the EIS considered the NWEC study cited by the comment. As explained in the EIS, the NWEC study is not directly comparable with the analysis performed for the EIS. Most importantly, the EIS has a broader scope and relies on more recent regional load and resource availability and costs data.
6046	3	pmfinnegan@hotmail.com	N/A	Of the 4 LSR dams, only the Ice Harbor dam provides irrigation for farms. The relatively small amount of irrigated farmland along the LSR could be maintained by extending intake pipes to the free flowing river. Removal or breaching of the 4 LSR dams may actually take pressure off irrigators who otherwise would have to leave more water in the river to mitigate the effects of the dams.	This EIS discusses engineering solutions, including pipeline extensions, in Section 3.12.3. MO3, Region C discussion begins on page 3-1267, line 3244, in the Draft EIS and is also found in Appendix N. The EIS draws upon the 2002 Lower Snake River Juvenile Salmon Migration Feasibility Report and Environmental Impact Statement which concluded that modifying the existing pump system was cost prohibitive. As discussed in Section 3.12.3, for MO3, in Region C this analysis assumes that pumps are unable to deliver water to an estimated 47,926 acres.
6046	4	pmfinnegan@hotmail.com	N/A	The LSR is no longer necessary or viable for commercial freight. During the past fifteen years freight transport on the LSR has declined 69%, from a peak of 9.14 million tons in 1998 to 2.83 million tons in 2014. Freight volume in 2015 trended downward and has averaged over the past seven years 2.6 million tons per year. Of the twenty-one largest employers in the quad-cities of Lewiston, Clarkston, Moscow and Pullman, only one ships anything by water. That company is located about two miles from the Port of Lewiston (POL), produced 50% more tonnage of product than all the grain shipped through the POL, and yet in 2014 transported 99.5% of its product by truck and rail. A 2015 study conducted by Anthony M. Jones of the Boise economic consulting firm Rocky Mountain Econometrics found that farmers who use the river instead of rail save about 2.4 cents per ton, or about $7.6 million annually. But he said the Army Corps of Engineers spends $17.8 million per year to maintain the river transportation system and hundreds of millions each year to mitigate the harm dams cause to fish. He calculated that the dams provide a benefit of 21 cents for every dollar the Corps spends. Container shipping on the LSR has ceased, and the waterway has been all but abandoned by the lumber industry, along with paper, pulp, and petroleum. The LSR waterway is categorized by the Corps of Engineers as a waterway of negligible use. Removal of the LSR dams will reduce the river barge corridor by only 140 miles. Freight transportation can be accommodated by rail and truck. Investments in a modern rail system and improved highways is not only affordable, it will provide more benefits to the regions farmers, businesses and communities than the LSR barge system does.	Access to barge transportation is the most cost-effective means of accessing export markets for many of the grain producers in the Northwest currently and removing that option would increase transportation costs for grain producers, as the EIS discusses in Section 3.10. It is true that barge movements on the Snake/Columbia rivers have declined somewhat over the past 20 years. The decline is mostly attributed to investments in shuttle rail terminals. The EIS finds that shifting traffic to road and rail would increase costs to shippers and would require infrastructure investments.
6046	5	pmfinnegan@hotmail.com	N/A	The LSR dams do not provide flood control. Instead, they create a flood risk. They are run-of-river dams, that dont store significant water volume. A growing flood threat exists to the cities of Clarkston and Lewiston because naturally occurring sediment accumulating at the confluence of the Clearwater and Snake Rivers is raising respective river levels. Proposed remedies, such as raising levees, dredging, and other measures will cost millions of dollars over the long term and pose threats to fish, wildlife and recreation opportunities. Lewiston community leaders are opposed to raising levees, which will cut the town off further from its rivers and disrupt popular biking and walking paths. The Corps admits that the volume of sediment is too vast for dredging to solve the problem.	The four lower Snake dams are not authorized for flood risk management and this is stated in the EIS in Chapter 1, Section 1.2. Chapter 7, Table 7-1, also indicates that there is no elevated risk to flooding in the Lower Snake River reach for any of the EIS alternatives. Unlike freely flowing channels, in Lower Granite Reservoir the forebay elevation at the dam controls the energy grade-line of the water surface; under current operations or as modeled under the No Action Alternative, during high flows Lower Granite Reservoir is operated at a lower stage to increase conveyance and manage water surface elevations within the Lewiston vicinity. In 1992 and prior, to maintain channel conveyance, the most recent dredging in the Lewiston area has been to maintain a 14-foot depth in the Federal navigation channel, as discussed in the 2014 Programmatic Sediment Management Plan (PSMP). Channel capacity has been lost since the project was constructed, as early dredging efforts were not able to maintain the original capacity. However, provisional analyses described in the PSMP (Chapters 10-12) indicate that some segments of the channel in the upper reach of Lower Granite Reservoir are tending towards a state of relative morphological equilibrium under the prevailing sediment loads and discharges. Under the current flood control operations of Lower Granite Dam, during large flood flows, fluvial sediment transport processes were predicted to form an equilibrium channel that maintains the conveyance capacity of the upper reach of Lower Granite Reservoir. During sufficiently large flood flows, the hydraulic conditions are great enough that sediment erosion balances sediment deposition such that there is no net change in the equilibrium depth of the channel segment. At even higher velocities, if sediment loading remains constant, the rate of sediment erosion will exceed deposition and channel segments can tend to erode to reestablish a new deeper equilibrium depth. Under these conditions, sediment eroded from the confluence area was predicted to transport into the deeper reservoir reach downstream of Silcott Island where it has less effect on the flood stage at the Lewiston levees. According to the PSMP, levee capacity is predicted to remain adequate into the future. But modeling and monitoring of sediment accumulation were recommended for determining if/when channel conveyance dredging is required to maintain capacity, rather than attempting to maintain the original capacity, as was done during the early years of the project.
6046	6	pmfinnegan@hotmail.com	N/A	The 2015 study by Rocky Mountain Econometrics determined that the cost of maintaining the LSR dams and mitigating their impacts has been soaring while benefits are in steep decline. The economic benefit of shipping by barge out of the LSR Basin has plummeted from about $19.4 million per year to about $7.6 million in 2014. Meanwhile, direct costs for LSR dam operation and maintenance are at about $227 million per year and increasing about 4.5% annually. In addition to direct costs, fish related mitigation significantly increases the expense of LSR dam and navigation system operation and maintenance. In 2014 the Bonneville Power Administration (BPA) reported $782 million in mitigation costs for Columbia River Salmon and Steelhead. After subtracting hatchery operation costs of $35 million, if even one-fourth of annual mitigation costs are spent on the LSR dams, mitigation expenditures related to the lower Snake River total $187 million per year. Despite spending more than $1 billion for fish passage improvements on the LSR dams, survival of threatened and endangered salmon and steelhead has not improved since the 2002 LSR EIS was implemented. The economic benefits of dam breaching have been illustrated. In developing the 2002 LSR EIS, the Corps hired noted recreational economist John Loomis. Loomis pegged the economic gain via dam breaching at over $300 million. Temporary job growth to facilitate dam breaching, infrastructure modifications and restoration ecology would be significant. Improved commercial fisheries and recreation opportunities would generate long term economic growth. Improved aesthetics and quality of life associated with the enjoyment of a free flowing LSR would attract business and industry to the region. In spite of over $1 billion spent on fish passage improvements on the LSR dams, survival rates of endangered salmon and steelhead have not improved since the 2002 EIS was implemented.	The EIS evaluated beneficial and adverse effects across an array of resource areas including potential effects at the national, regional and local level; effects are monetized and quantified, where possible, and also described qualitatively. As is common in NEPA analyses, the beneficial and adverse effects of the alternatives are expressed as a variety of qualitative and quantitative environmental and economic metrics throughout the EIS to inform decision-making, including the effects of the alternatives on fish as detailed in Section 3.5. That the effects of the alternatives on fish are not expressed as monetized economic values does not mean that they were not considered in the context of the analysis. The EIS does not employ a cost-benefit framework for decision-making. Instead, the EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-lead agencies numerous legal obligations. The Preferred Alternative is predicted to benefit ESA-listed juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3, which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets most other EIS objectives including those for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. Access to barge transportation continues to be the most cost-effective means of accessing export markets for the majority of grain producers in the Northwest currently and removing that option would increase transportation costs for grain producers, as the EIS shows. It is true that barge movements on the Snake/Columbia Rivers have declined somewhat over the past 20 years, but not by 70 percent. The EIS acknowledges that the decline is mostly attributed to investments in shuttle rail terminals. However, the EIS also acknowledges that shifting traffic to road and rail would increase costs to shippers and would require substantial infrastructure investments. While the four lower Snake River dams account for a small portion of the total power of the region, they represent a larger portion of the Federal Columbia River Power System (FCRPS) from which Bonneville markets power. As described in Section 3.7.3.5 of the EIS, Potential Replacement Resources and Associated Costs, the four lower Snake River dams produce upwards of 1,000 aMW of power, which is approximately 11 percent of the average power produced by the FCRPS. See Draft EIS, Section 3.7.3.5, Changes in Power Generation, Table 3-159. This is equivalent to the amount of power used to serve 730,000 homes in the Northwest. See Draft EIS, Section 3.7.3.5, Summary of Effect, at page 9-935, noting that the loss of generation from the four lower Snake River dams accounts for about 90% of the power loss in MO3. The commenters suggestion that the loss of the four lower Snake River dams has already been replaced by wind and solar power is inconsistent with the findings in the EIS. The EIS analyzed the effects on regional reliability if the four lower Snake River dams were breached in MO3. To maintain regional power reliability at the No Action Alternative levels, the EIS found that additional replacement resources would be necessary. The EIS considered two resource portfolios to replace the power output of the four lower Snake River dams: a least-cost conventional portfolio (natural gas) and a zero-carbon portfolio (primarily solar). See Draft EIS, Section 3.7.3.5, at pages 3-904-910. Under both of these replacement portfolios, however, regional power rate pressure increases considerably. The rate impacts of these replacement resources, which includes cost savings from breaching the four lower Snake River dams, is described in Section 3.7.3.5, Table 3-166, pages 3-920-924 in the Draft EIS. As described in the EIS, even with the cost savings associated with reductions in dam operations and fish and wildlife mitigation costs, the net impact on power rates is in the range of between 13-50 percent (for zero-carbon resources replacements) and 4-10 percent (for natural gas/least cost replacements). The commenter also suggests that Bonneville's power is already in less demand due to California moving toward wind and solar. Demand for Bonneville power, both within the Northwest and outside of it, remains strong. This is primarily due to the flexibility and low carbon content of the FCRPS. Additionally, demand for services to integrate the new influx of wind and solar, as noted by the commenter, are expected to grow. The four lower Snake River dams are a key source of capacity for balancing reserves, the service used by Bonneville to balance variable resources such as wind and solar. See Draft EIS, Section 3.7.2.2, Meeting System Uncertainty With Generation Balancing Reserves, Dispatchable Resources, And Ramping Capability, and Section 3.7.3.5, Value of Lower Snake River Dam Flexibility, at pages 3-906-910. Breaching the four lower Snake River dams under MO3 would result in the loss of this integration capability.
6051	1	katiewhite1515@gmail.com	N/A	Without reliable baseload, we increase our risk of blackouts caused by power shortages during peak times. In fact, the DEIS estimates that breaching the Lower Snake River Dams would double our risk of regional blackouts we simply cant afford to do that. Especially in Montana where a blackout equates to more than just an inconvenience or an economical challenge it can lead to deaths at 20 degrees below zero.	The comments about the impact of breaching the four lower Snake River dams on regional power reliability is consistent with the EIS findings. See Draft EIS, Section 3.7.3.5, Effects on Power System Reliability, at page 3-903; and Appendix H, Table 2-1. Should replacement resources not be built immediately to replace lost capacity, the concern voiced by the commenter towards health and safety effects is consistent with discussions in the EIS.
6065	1	N/A	N/A	The Columbia-Snake River system of dams and locks enables cost effective and fuel-efficient transportation of goodsconnecting the farthest inland port in the country to markets in the Northwest and abroad. One barge with tow can ship the equivalent goods of 1.4 100-unit freight trains, or 538 semi-trucks. These trains and trucks would congest our communities, increase greenhouse gas emissions, and decrease air quality if we lose the system of dams and locks that enable barge shipments.	Environmental and human health impacts associated with increased emissions to shipping goods by rail or truck (or both) are evaluated and described in the Section 3.8 Air Quality and Greenhouse Gas, and increased health and safety concerns due to increased truck traffic on roadways and potential for increased accidents are described in the Section 3.10.3. 5 Navigation and Transportation for other social effects.
6065	2	N/A	N/A	In 2018, it would have taken 38,966 rail cars or 149,870 semi-trucks to move the 3.9 million tons of cargo shipped on the Snake River alone. Grain suppliers and shippers that our economies depend on will likely see an increase in transportation and storage costs by 50 to 100% if barging is lost as a transportation option. In an industry where $5.00 per bushel is the current break-even cost, the loss of barging could increase transportation and storage costs from $0.40 per bushel to up to $0.80 per bushel.	The EIS finds that under MO3, which includes breaching the four lower Snake River dams, average transportation costs for wheat farmers would increase 10 to 33%, but that individual farmers could experience increases that are double. Section 3.10 of the Draft EIS provides an evaluation of the Columbia Snake River Navigation System, assessing its relative efficiency, low costs for shippers, safety considerations, low air emissions relative to other transportation modes, potential regional economic, and other social effects that could occur under MO3.
6065	3	N/A	N/A	Breaching the Lower Snake River dams would cause diesel fuel consumption to increase by nearly 5 million gallons per year as barges are replaced by less efficient truck-to-rail shipments. At least 201 additional unit trains and 23.8 million miles in additional trucking activity would be required annually, resulting in increases in CO2 and other harmful emissions by over 1.2 million tons per year.	Section 3.10 of the EIS evaluates potential effects of MO3 on emissions due to shifts from use of barge-based shipping through the four lower Snake River dams to road and rail transportation. The analysis does find an increase in truck and rail transportation, and associated CO2 emissions, under MO3 relative to the No Action Alternative. MO3 was not identified as the Preferred Alternative in the Draft EIS.
6072	1	heartofidaho@moscow.com	N/A	The DEIS ignores the benefits and opportunities of salmon recovery for communities: The DEIS focuses on the financial costs of salmon recovery and ignores the enormous sacrifices already made by Tribes and rural communities in terms of lost fishing opportunity, reduced jobs and incomes, impacts on Tribal cultures and diets, and other socio-economic effects.	The EIS provides an evaluation of the social welfare and regional economic effects of the No Action Alternative and the Multiple Objective alternatives (MOs), including the effects on recreation (Section 3.11) and commercial fisheries (Section 3.15). The EIS described the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. NMFS estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which is described qualitatively. For MO3, Section 3.5.3.6 describes the long-term effects to anadromous fish migration in Region C that would occur under a dam breach scenario as major and beneficial. The potential for increases in recreational fishing under MO3 in Regions C which would support jobs, income, and social benefits in Tribal and rural river communities, is described in Section 3.11.3.5. For the effects on recreational fishing under MO3 (Section 3.11.3.5) along the lower Snake River below Lewiston, the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River) as an indicator for fishing visitation in this reach. The EIS describes that visitation in the long-term in the lower Snake River, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting outfitting and tourism businesses in the region. However, there is uncertainty around recreational fishing visitation in the long-term given the current measures to regulate, protect, and support ESA-listed fish populations and habitat in the region. For MO1, MO2, MO4, and the Preferred Alternative, the recreational fishing evaluation describes the impacts by referencing the potential effects on relevant fish populations, as described in Section 3.5. Aquatic Habitat, Aquatic Invertebrates, and Fish, modeling results vary for some of the alternatives, for example for the Preferred Alternative and MO4 (i.e., models show either beneficial or adverse effects to anadromous fish), so it is assumed that the potential changes in recreational fishing and associated social welfare and regional economic effects would follow these changes in fish abundance.

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					Tribal input, concerns, interests, and especially treaty rights were considered throughout the Draft EIS analyses and in the formulation of the Preferred Alternative. The co-lead agencies are engaging in government-to-government consultation with the Tribes, and several Tribes are cooperating agencies on the CRSO EIS. Section 3.11.3.7 describes the potential economic impacts to Tribes. Discussion of Tribal community concerns and Tribal treaty rights were considered and are discussed in a number of sections throughout this EIS. The cultural significance and impacts of salmon and steelhead fisheries are described in the Ceremonial and Subsistence Fisheries sub-section and the Social Importance of Commercial, Ceremonial and Subsistence Fisheries sub-section of Section 3.15.2.1. Fisheries tribal interests are described in Section 3.15.4. Additional details regarding the economic significance of salmon and steelhead fisheries have been added to the recreation analysis in Section 3.11, including Tribal interests in Section 3.11.3.7. Many sections of Chapter 3 include a Tribal Interests sub-section at the end that attempts to summarize tribal issues by topic and Chapter 7 also includes additional information on the Preferred Alternative's impacts on these resources.
6077	1	bruce.a.connery@gmail.com	N/A	Ample information exists in numerous federal and stakeholder studies and previous documents (2002 EIS, USACE Walla Walla District, USACE Walla Walla District Snake River Production to Northwest Residential Use Negating Aug Sep 2015. , 1992 Reservoir Drawdown Test, etc.) to show that breaching (implementation plans, outreach, etc.) the four Lower Snake River Dams needs to start immediately.	The Corps does not have the authority to breach the four lower Snake River dams. If MO3 were selected, the Corps could use this EIS as a basis for seeking congressional authority to breach the lower Snake River dams. After receiving both authority and appropriations from Congress, the Corps could initiate a detailed construction and design report for the breach measure, identification of disposal areas, real estate acquisition and disposal, permits, and mitigation requirements, including temporary fish hatchery production. Each of these actions are required prior to breaching, and the Corps does not have the authority or appropriations necessary to immediately breach the project's embankments.
6079	1	scullyrjs@cableone.net	N/A	Recognizing that It would take several years for Congress to authorize decommissioning of the lower Snake River dams, planning and implementing programs to mitigate businesses affected by river restoration, and for dam removal to proceed, I recommend that the CRSO implement MO4 as an interim measure while the federal agencies prepare for MO3 implementation.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-lead agencies numerous legal obligations. The Preferred Alternative is predicted to benefit ESA-listed juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3, which includes breaching the four lower Snake River dams. The Preferred Alternative meets the EIS objectives for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse impacts to communities and the economy. The comment is correct that implementation of MO3 would take years. Both MO3 and Multiple Objective alternative 4 (MO4), by contrast, have significant regional economic impacts and community effects as compared to the Preferred Alternative, and meet only a subset of the EIS objectives. Thus, the co-lead agencies did not recommend MO3 or MO4, because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system.
6079	2	scullyrjs@cableone.net	N/A	The DEIS claims that the LSRDs are essential to ensure adequate power capacity in the Northwest. Between 2007 and 2018, BPA required LSRD power to meet preference customer demand on 2 hours. (Rocky Mtn Econometrics). That limited amount of power could have been purchased from the open market and saved hundreds of millions of dollars in M&O, channel dredging and fish and wildlife mitigation costs. When the LSRDs power is sold on the surplus market, it is almost always at less then the cost of production. Half the LSRDs power is produced during spring, when the Columbia system is awash in hydro-power and the price is lowest. The LSRDs are high cost/low value assets, are not needed and are killing salmon and steelhead! Solar and wind power production has increased significantly in the recent decade. California now has much less demand for BPA surplus power and the price for surplus power has decreased precipitously.	The commenters statements are inconsistent with the findings in the EIS. Specifically, the four lower Snake River dams produce roughly 1,000 aMW of power, which is approximately 11 percent of the average power produced by the Federal Columbia River Power System (FCRPS). See Draft EIS, Section 3.7.3.5, Changes in Power Generation, Table 3-159. This amount of lost power is equivalent to the amount of power used to serve 730,000 homes in the Pacific Northwest. See EIS, Section 3.7.3.5, Summary of Effect, at page 9-935. To maintain regional reliability at the No Action Alternative levels, the EIS found that additional resources would be needed. See EIS, Section 3.7.3.5, Potential Replacement Resources and Associated Costs, at pages 3-904-910, noting that generation from the four lower Snake River dams is approximately 90 percent of the power loss in MO3. The commenter's suggestion that the four lower Snake River dams were only used to serve preference customer load for two hours is inaccurate. The power produced by these projects is not individually sold to any preference customer, but is melded with all other power produced by the FCRPS. See EIS Section 3.7.2.5, Bonneville Power and Transmission Customers. The commenter is correct that the largest power output from the four lower Snake River dam is produced during the spring. However, these projects produce power year-round. Using average water conditions, and an 80-year water data, the four lower Snake River dams produce between 460 aMW to upwards of 1,400 aMW of power during the winter months of December February, which are typically the most energy intensive months for Bonneville. They provide approximately 2,000 MW of sustained peaking capacity at certain times of the year. See draft EIS, Section 3.7.3.5, Changes in Power Generation, Table 3-159. The dams also provide important ramping capability the ability to quickly generate energy to match spikes in energy usage with over 2,000 to 2,300 MW of capability in certain months of the year. See draft EIS, Section 3.7.3.5, Lower Snake River Full Replacement at pages 3-905-907 and Table 3-160. While the increase in solar and wind generation is consistent with the EIS discussion in 3.7.2.1 Power Generation, the EIS still finds that the regional power system requires replacement power resources to maintain reliability under MO3. See Draft EIS, Section 3.7.3.5, Effects on Power System Reliability, pages 3-903-910. For hydropower, the average annual value of the four lower Snake River dams exceeds the average annual equivalent costs. The generation value at the four lower Snake River dams can be described by a range between the cost to replace the generation through new conventional resources or through a portfolio of zero-carbon resources. Although the costs of replacing the power with market purchases was analyzed, it is unlikely that short-term wholesale power markets could reliably replace the power for the long-term. This range would put the annual value of power between $240 million and $500 million for the four dams combined. These numbers represent about 90% of the lost benefits cited in Table 3-171 of the Draft EIS because the four dams represent about 1,000 aMW of the 1,100 aMW of lost generation estimated in MO3. The average annual cost to operate and maintain all authorized purposes at the four lower Snake River dams is $75 million (Appendix Q, Table 5-1) and the annual-equivalent capital costs are $32 million (Appendix Q, Table 4-1). Hydropower costs funded by Bonneville represent about $50 million of the total annual operations and maintenance costs and nearly all of the annual capital costs, approximately $31 million. This puts the annual-equivalent power-specific costs at approximately $81 million a year. As a result, the net benefits from hydropower for the four lower Snake River dams are between $159 million and $419 million and the benefit-cost ratios are between 3.0 and 6.2. If the $34 million per year for the Lower Snake River Compensation Plan is added to the capital and expense costs, benefits still exceed costs under each replacement power scenario. Considering these costs, the net benefits range from $125 million to $385 million and the benefit-cost ratios range from 2.1 to 4.3. In the less-likely scenario that generation could be reliably replaced with short-term wholesale market purchases and assuming that the four dams represent 90% of the $150 million in market purchases required to replace the lost generation cited in MO3 (see Table 3-170 in the Draft EIS), the lower bound for net benefits would fall to $54 million and the benefit-cost ratio would fall to 1.7. With the Lower Snake River Compensation Plan included, the lower bound for annual net benefits becomes $20 million and the benefit-cost ratio becomes 1.2. From a resource competitiveness perspective, the four lower Snake River dams are among the least costly generating resources in the FCRPS and the planned investment strategy is expected to maintain that status. As shown in the Federal Hydropower presentation at the 2018 Integrated Program Review (see Footnote 1 below), the Headwater/Lower Snake Asset Class (see Footnote 2 below) is forecast to have a 50-year levelized cost of generation (see Footnote 3 below) of $11.41/MWh based on the direct-funded capital and expense (O&M) programs outlined in that process. These costs remain competitive with volatile Mid-Columbia spot market energy prices which averaged $37/MWh in 2019 and have averaged $21/MWh in 2020. Footnotes: 1. The Integrated Program Review (IPR) allows interested parties to see and comment on all relevant FCRPS capital and O&M spending level estimates in the same forum. The IPR occurs every two years, or just prior to each rate case, and is the public review for the costs that will be recovered through rates the following two-year rate period. Long-term forecasts for the next 50 years and major upcoming projects are also shared in this forum. This information is available here: https://www.bpa.gov/Finance/FinancialPublicProcesses/IPR/2018IPR/IPR%202018%20Fed%20Hydro%20Workshop.pdf and is incorporated by reference into this EIS. 2. In the 2018 Integrated Program Review, the Headwater/Lower Snake Asset Class consisted of the four lower Snake River dams, Hungry Horse, Libby, and Dworshak dams. These projects were grouped together because they have similar cost characteristics. The Levelized Cost of Generation for the four lower Snake projects alone is slightly lower than that for the whole class including the headwater projects shown in the table. 3. Levelized Cost of Generation is defined as the forecast direct costs and administrative overheads of producing power at a plant annualized over a 50-year period. This cost includes direct funded operations, maintenance, administrative and capital costs as well as Columbia River Fish Mitigation (CRFM) costs. Bonneville systemwide mitigation costs, such as its Fish and Wildlife Program, are not included in this metric.
6079	3	scullyrjs@cableone.net	N/A	The flex-spill experiment featured in the PA maximizes spill 16 hours per day to benefit smolt passage and maximizes flows through turbines 8 hours per day to maximize power production. BPA chooses the hours for spill reduction. If the most beneficial hours for smolt passage overlap with the most beneficial hours for power production, the benefit to smolt survival from flex-spill would be reduced. Fisheries experts should be allowed to select the hours for spill when most downstream movement of smolts is maximized. The flex-spill schedule should error toward the needs of the ESA listed species, not financial gain.	The co-lead agencies used high-quality information in the analysis of the CRSO EIS. Specific to salmon and steelhead, the agencies used two primary modeling approaches which yielded a range of potential outcomes for the alternatives. The CSS model predicts that average Smolt-to-Adult return rates would increase for both Snake River spring Chinook and steelhead and would average well above 2% (the lower end of the Northwest Power and Conservation Councils recovery targets for the region) as a result of the Preferred Alternative increasing from 2.0% to 2.7% for Chinook, a 35% relative increase. The National Marine Fisheries Service (NMFS) COMPASS and Lifecycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin.
6079	4	scullyrjs@cableone.net	N/A	The DEIS dwells on the impacts that taking necessary steps to restore imperiled Snake River salmon and steelhead would have on industries and economies that did not even exist prior to the mid-1960s. At the same time the DEIS all but ignores the ecological, social and economic losses that occurred because of the construction and operation of the lower Snake River dams and the benefits that would result from restoring abundant, fishable and well distributed SRS&S .	The CRSO EIS focuses on evaluating the environmental, social and economics impacts to resources affected by Multiple Objective alternatives (MOs) to operations, maintenance and configuration. The MOs are compared against the No Action Alternative, which reflects operating rules in 2016, when the Notice of Intent to prepare the EIS was issued. Past effects are included in the Affected Environment for each respective affected resource in Chapter 3. Specifically to fish, the EIS includes an analysis of effects in Sections 3.5 and Section 7.7.5. Table 7-1 in Chapter 7 provides a summary of the beneficial and adverse effects of the alternatives, including the quantified social welfare costs and benefits for a subset of the resource areas (specifically, hydropower, navigation, and irrigation) as well as the implementation costs of the alternatives.
6079	5	scullyrjs@cableone.net	N/A	Currently, there is a $7.6 million saving to grain shippers who use barge rather than rail because the federal government pays the cost of dam and lock operation and maintenance, channel dredging and fish and wildlife mitigation costs. In 2014, to move a ton of grain a mile on the lower Snake River, the farmer paid $0.039 and the U.S. Government paid $0.057, for a total of $0.096 per ton-mile. Compare that to the rail rate of $0.063 per ton-mile (Rocky Mtn econometrics). If the government was willing to subsidize the grain shippers to use rail as it is doing now with barge, the money could be used to build unit train depots and rail cars that could be managed cooperatively by the grain shippers.	The EIS analysis finds that transportation of freight that is currently barged on the Lower Snake River could be accomplished via other transportation modes. This change would not be without costs to farmers, would require public and private investment in infrastructure, and would result in some adverse regional economic effects, particularly in the short term. These effects are described in Section 3.10 and are considered in the context of the overall objectives of the EIS.
6083	1	marysteve@palouse.net	N/A	The draft document notes breaching the dams would cost about $955 million or about $35.4 million a year over 50 years but doesnt consider current operating losses, new construction costs and repairs of dams nor the taxpayer subsidies to the Port in Lewiston, barge companies and Portland Power and Electric. These last three are operating at a substantial loss. Breaching the dams would save the government nearly $79 million a year in dam maintenance costs and $32 million in capital costs and result in resurgent Salmon, Lamprey and Orca populations. As indicated by the Fish Passage Center, breaching the Lower Snake dams could lead to a fourfold increase in Snake River salmon and steelhead numbers. Comparing breaching with continuing the same failing strategy indicates that breaching operations and maintenance costs come to $477.5 million a year which is a DECREASE in expenditures of about $729,000 annually.	The EIS evaluated benefits and adverse effects across an array of resource areas including potential effects at the national, regional and local level. The EIS does not employ a cost-benefit framework for decision-making. This is because, consistent with NEPA analysis framework (see 40 C.F.R. 1502.23), the beneficial and adverse effects are expressed as a variety of qualitative and quantitative environmental and economic metrics. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-lead agencies numerous legal obligations. The Preferred Alternative is predicted to benefit ESA-listed juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3, which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets the EIS objectives for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS the co-lead agencies did not identify MO3 because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. The EIS concluded MO3, which includes breaching the four lower Snake River dams would have greater improvement to certain salmon species in the lower Snake River. It did not, however, conclude there was greater certainty of that result in MO3 over any other alternative. Because of delayed response time in MO3, and the potential severity of the short term effects, MO3 would likely have the most substantial uncertainty in terms of beneficial effects. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% (the lower end of Northwest Power and Conservation Council's recovery targets for the region) as a result of the Preferred Alternative, as a result of the Preferred Alternative increasing SAR from 2.0% to 2.7% for Chinook, a 35% relative increase. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. To address uncertainty highlighted by the two models, the Preferred Alternative includes working with regional sovereigns to develop a study that assess the effectiveness of the increased spill regime on adult returns as well as assessment and management of adverse unintended consequences, such as long delays of adult migrants, or TDG-related mortality of juvenile migrants. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information. Based on the analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the CRS. This EIS has been developed in consultation with National Marine Fisheries Service (NMFS) and U.S. Fish and Wildlife Service (USFWS) to find an acceptable balance that allows the co-lead agencies to meet the Purpose and Need Statement while minimizing impacts to affected ESA-listed species and their habitats. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species.

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					Moreover, the the EIS analysis found only a minor effect to the Southern Resident killer whale would result from implementing MO3 (which includes the dam breach measure). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults form the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differentially from hatchery and wild fish. Hatchery fish today likely make up most fish consumed by SRKW (NOAA BiOp 2020). The EIS has analyzed spill as a measure in the Preferred Alternative and determined the overall effect to SRKW to be negligible in large part because hatchery production is consistent between the No Action Alternative and the Preferred Alternative. Because the impact from the Preferred Alternative was determined to be negligible, the agencies determined that existing hatchery production would be sufficient to address any potential impacts to prey availability for SRKWs. The co-lead agencies note the contribution to the prey of SRKW through the continued existence of their respective independent congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as the Lower Snake River Compensation Plan, which is administered by U.S. Fish and Wildlife Service. The Preferred Alternative and Proposed Action in the agencies' biological assessment carry forward certain mitigation measures described in Chapters 2 and 7 of the EIS, which include continued salmon and steelhead hatchery production. The Preferred Alternative has negligible effects to SRKWs as described in Section 7.7.8. Regarding the comment related to barge shipments, navigation benefits are estimated to range from $14 to $48 million annually (see Table 3-244 & Table 3-246). These benefits are estimated as increased transportation costs (decreased social welfare benefits) under MO3, based on barge traffic going away on the four lower Snake River dams and shifting to truck or rail transportation. For hydropower, the average annual value of the four lower Snake River dams exceeds the average annual equivalent costs. The generation value at the four lower Snake River dams can be described by a range between the cost to replace the generation through new conventional resources or through a portfolio of zero-carbon resources. Although the costs of replacing the power with market purchases was analyzed, it is unlikely that short-term wholesale power markets could reliably replace the power for the long term. This range would put the annual value of power between $240 million and $500 million for the four dams combined. These numbers represent about 90 percent of the lost benefits cited in Table 3-171 of the Draft EIS because the four dams represent about 1,000 aMW of the 1,100 aMW of lost generation estimated in MO3. The average annual cost to operate and maintain all authorized purposes at the four lower Snake River dams is $75 million (Appendix Q, Table 5-1) and the annual-equivalent capital costs are $32 million (Appendix Q, Table 4-1). Hydropower costs funded by Bonneville represent about $50 million of the total annual operations and maintenance costs and nearly all of the annual capital costs, approximately $31 million. This puts the annual-equivalent power-specific costs at approximately $81 million a year. As a result, the net benefits from hydropower for the four lower Snake River dams are between $159 million and $419 million and the benefit-cost ratios are between 3.0 and 6.2. If the $34 million per year for the Lower Snake River Compensation Plan is added to the capital and expense costs, benefits still exceed costs under each replacement power scenario. Considering these costs, the net benefits range from $125 million to $385 million and the benefit-cost ratios range from 2.1 to 4.3. In the less-likely scenario that generation could be reliably replaced with short-term wholesale market purchases and assuming that the four dams represent 90% of the $150 million in market purchases required to replace the lost generation cited in MO3 (see Table 3-170), the lower bound for net benefits would fall to $54 million and the benefit-cost ratio would fall to 1.7. With the Lower Snake River Compensation Plan included, the lower bound for annual net benefits becomes $20 million and the benefit-cost ratio becomes 1.2. From a resource competitiveness perspective, the four lower Snake River dams are among the least costly generating resources in the Federal Columbia River Power System (FCRPS) and the planned investment strategy is expected to maintain that status. As shown in the Federal Hydropower presentation at the 2018 Integrated Program Review1/, the Headwater/Lower Snake Asset Class/2 is forecast to have a 50-year levelized cost of generation/3 of $11.41/MWh based on the direct funded capital and expense (O&M) programs outlined in that process. These costs remain competitive with volatile Mid-Columbia spot market energy prices, which averaged $37/MWh in 2019 and have averaged $21/MWh in 2020. 1/ The Integrated Program Review (IPR) allows interested parties to see and comment on all relevant Federal Columbia River Power System (FCRPS) capital and expense (O&M) spending level estimates in the same forum. The IPR occurs every two years, or just prior to each rate case, and is the public review for the costs that will be recovered through rates the following two-year rate period. Long-term forecasts for the next 50 years and major upcoming projects are also shared in this forum. This information is available here: https://www.bpa.gov/Finance/FinancialPublicProcesses/IPR/2018IPR/IPR%202018%20Fed%20Hydro%20Workshop.pdf and is incorporated by reference into this EIS. 2/ In the 2018 Integrated Program Review, the Headwater/Lower Snake Asset Class consisted of the four lower Snake River dams, Hungry Horse, Libby, and Dworshak dams. These projects were grouped together because they have similar cost characteristics. The Levelized Cost of Generation for the four lower Snake projects alone is slightly lower than that for the whole class including the headwater projects shown in the table. 3/ Levelized Cost of Generation is defined as the forecasted direct costs and administrative overheads of producing power at a plant annualized over a 50-year period. This cost includes direct funded operations, maintenance, administrative and capital costs as well as Columbia River Fish Mitigation (CRFM) costs. Bonneville system-wide mitigation costs, such as its Fish and Wildlife program, are not included in this metric.
6083	2	marysteve@palouse.net	N/A	The transportation costs are important to consider along with the livelihood of agriculture and fishing tourism. However, the costs of new construction of rail infrastructure and new energy sources are listed WITHOUT listing the operation losses of the existing power company and its outdated infrastructure, all subsidized by taxpayers. the report by the US. Army Corp of Engineers is lacking in critical data and analysis.	Estimated costs to maintain the CRS are presented in Section 3.19 and Appendix Q. Increased infrastructure costs associated with increased rail demand in a dam breach scenario are described in Section 3.10.3.5, Navigation. Costs of replacement power resources that would be required to replace lost hydropower production are described in Section 3.8. The EIS provides an evaluation of the social welfare and regional economic effects of the No Action Alternative and the Multiple Objective alternatives, including the effects on recreation (Section 3.11) and fisheries (Section 3.15).
6105	1	none provided none provided	Lewis Clark Valley MPO	The Lewis Clark Valley MPO has reviewed the CRSO Draft EIS and has submitted the attached document in response.	Unfortunately, an attachment was not received from the commenter. The co-lead agencies requested the commenter resubmit via e-mail on June 25, 2020; however, the co-lead agencies did not receive a response to this request.
6106	1	DOSTERMAN@KNRD.ORG	Kalispel Tribe of Indians	One glaring deficiency in the DEIS is the absence of an accurate description of losses and effective mitigation in the Upper Columbia Basin. Although the area at and above Chief Joseph Dam generates nearly 50% of the power and has suffered more than 40% of documented fish and wildlifelossesin the entire FCRPS. it has been chronically undei:served by the Bonneville Power Administration's Fish and Wildlife Program. Fish and wildlife managers in the Upper Columbia Basin have called on the NorthwestPower and Conservation Council and federal action agencies for years to develop a Slrategy to address this power/loss inequity. but there is still no comprehensive mitigation plan in place. The DEIS did not take a hard look at these documented losses or the longstanding failure to eftectively mitigate them. Given that existing federal mitigation programs have not worked, the FEIS must identify with specify federal mitigation commitments to address significant adverse effects in 1he Upper Columbia Basin. These commitments should focus on improving ESA-listed resident fish survival and spawning success at CRSO projects through actions including, bul not limited to, project configuration, flow management. improving connectivity, project operations: and water quality management The DEIS and Preferred Alternative did not identify or provide. anything sub!)1antive to improve conditions for ESA-listed residen1 fish. The most critical omission was the failure to include Albeni falls Dam upstream fish passage as a structural measure. The U.S. Army Corps of Engineers has determined that this fishway Project. Final Post-Authorization Decision Document and Environmental Assessment. 178 pgs.) The Albeni Falls Dam upstream fishway should therefore be included as structural measure subject to any applicable funding constraints. Kalispel submits that the most straightfordward way to identify most necessary mitigation commitments in the Upper Columbia Basin is to incorporate conservation measures from existing fish accords into the Upper Columbia Mitigation Plan. This Plan, which should be described in the FEIS. would ensure that those actions that need to be performed in perpetuity are recognized as such, those actions that wilt be complete upon performance arc recognized as such, and that both categories of actions can be used to tm11sform future fish accords into mitigation agreement where funding is commensurate with the mitigation need and not inflated to encourage legal forbearance.	The scope of the CRSO EIS is to evaluate alternative operations, maintenance and configuration measures for the Columbia River System projects. Passage at Albeni Falls Dam was evaluated in the Albeni Falls Dam Fish Passage Projcet Post Authorization Decision Document & Environmental Assessment (PADD/EA) in June 2018, and is evaluated in the CRSO EIS under the Cumulative Effects analysis in Chapters 6 and 7. The co-lead agencies conduct mitigation actions in the Upper Columbia River basin with many project sponsors. Principles for future long-term mitigation agreements are beyond the scope of the EIS, but we agree that these discussions should continue.
6106	2	DOSTERMAN@KNRD.ORG	Kalispel Tribe of Indians	Chapter J Pg.31 "Changes in reservoir elevation at Albeni Falls may result in reduced access to Bear Paw rock (sacred site), which may result in loss Tribal visitation. Comment A reduction in accessibility to 1his site by water navigation will occur under the McNary Flow Target. Such an impediment to the religious and cultural needs of the Kalispel Tribal membership is an ongoing impact that is further aggravated by our growing population and need to reconnection to places of cultural/spiritual importance.	As identified in the No Action Alternative, the co-lead agencies agree reservoir elevation changes result in some erosion impacts and accessibility to Bear Paw Rock; however, the landform surrounding Bear Paw Rock is dominated by bedrock and operation changes in reservoir elevation would not be likely to result in the loss of the landform through erosion effects. In addition, facilitation of short- or long-term access for Native American religious practitioners would not be problematic due to the exposed bedrock and erosion resistant location of the site. In Section 7.7.18 in the Draft EIS description of the Preferred Alternative, operational changes at Albeni Falls would be negligible as compared to the No Action Alternative and result in similar erosion and accessibility impacts.
6106	3	DOSTERMAN@KNRD.ORG	Kalispel Tribe of Indians	Chapter 1 Pg.34 "Consistent with sacred sites identified for Chapter 3. the preferred Alternative evaluates effects to two sacred sites. Operational changes at Grand Coulee and Albeni Falls as described for the preferred alternative would he negligible when compared to the No Action Alternative." Comment "Negligible" but not diminished. Any ongoing or increase in impact is to a non-renewable resource and should be analyzed in that context. Once lost to erosion, flooding, or other operational impacts, these sites and their data are gone forever. The Kalispel Tribe of Indians and its sister sovereigns' resources continue to bear the weight of these types of decisions. Tribes within this Basin are deserving of their share of the environmental justice and ability to make use of the public benefit afforded by the Columbia River System.	As identified in the No Action Alternative in Section 3.16.3.3 in the Draft EIS, the co-lead agencies agree ongoing erosion processes would continue and result in loss of sediments that cover the landforms at Kettle Falls. However, because many of the features at Kettle Falls rest on bedrock, typical Lake Roosevelt operations would not likely result in the total loss of the underlying landforms. During deeper than average drawdowns of Lake Roosevelt, landforms such as Hayes Island would re-emerge, facilitating short-term access for Native American religious practitioners. Also identified in the No Action Alternative, the co-lead agencies agree reservoir elevation changes result in some erosion impacts and accessibility to Bear Paw Rock; however, the landform surrounding Bear Paw Rock is dominated by bedrock and operation changes in reservoir elevation would not be likely to result in the loss of the landform through erosion effects. In addition, facilitation of short- or long-term access for Native American religious practitioners would not be problematic due to the exposed bedrock and erosion resistant location of the site. In Section 7.7.18 of the Preferred Alternative in the Draft EIS, operational changes at Albeni Falls would be negligible as compared to the No Action Alternative and result in similar erosion and accessibility impacts.
6106	4	DOSTERMAN@KNRD.ORG	Kalispel Tribe of Indians	Chapter 2 Pg. 2-68 "The McNary Flow Target" a minimum flow target for the Lower Columbia River, up to 2.0Mof of storage water from Hungry Horse, Libby, Albeni Falls, and Grand Coulee would be provided above that provided currently..." Comment The Upper Columbia River system continues to be called upon to subsidize the Lower Columbia River's benefits of river navigation, flood control, irrigation, and anodromous fish flows. It should be discussed that all anadromous fish were lost to the Upper Columbia River when Grand Coulee Dam was built. This public policy, as crafted in the DEIS, fails to examine the entirety of the system operations and how to maximize benefits throughout or at a minimum properly mitigate/compensate for the imbalance.	The McNary flow target referenced in this comment was analyzed as part of the alternative analysis, specifically MO4, but was not carried into the Preferred Alternative in part due to the impacts on upper basin resources. The co-lead agencies worked with sovereign parties from all parts of the Columbia Basin to seek balance and ensure that measures intended to benefit populations in one part of the basin did not have an adverse effect on populations in other parts of the basin.
6106	5	DOSTERMAN@KNRD.ORG	Kalispel Tribe of Indians	Chapter 2 Pg. 2-68 "Then, Hungry Horse, Libby, and Albeni Falls reservoirs would be drafted to support augmented flow targets..." Comment These flow targets will accelerate archeological site decay in all three reservoirs.	The co-lead agencies agree that flow targets and operations of the Columbia River System result in archaeological site impacts. The co-lead agencies discuss impacts to archaeological resources of Multiple Objective alternative 4 in Section 3.16.3.7 in the Draft EIS. Tables 3-291 and 3-292 in the Draft EIS provide a summary of effects to archaeological resources across all of the cultural resources study area from the different Multiple Objective alternatives.

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6106	6	DOSTERMAN@KNRD.ORG	Kalispel Tribe of Indians	Page 3-237 Lines 5006-5016 "Albeni Falls Dam is located in northern Idaho on the Pend Oreille River about 28 miles downstream of Lake Pend Oreille. Although Lake Pend Oreille is a natural lake, Albeni Falls Dam regulates the upper 11.5 feet of the lake. Albeni Falls Dam has little ability to manage water temperatures in the Pend Oreille River, and water temperature changes in Lake Pend Oreille and the Pend Oreille River are mainly influenced by atmospheric conditions and weather patterns. Lake Pend Oreille is the fifth deepest lake in the United States and exhibits strong thermal stratification regardless of the runoff year. However, a shallow low-water outlet channel acts as a barrier to the transport of much colder deep water from Lake Pend Oreille into the Pend Oreille River resulting in warmer lake surface waters entering the river. The Pend Oreille River TMDL (2011 revised) addresses elevated water temperatures in the summer. Winter water temperatures can be in the low 30sF (0C to 2C) range, with some surface icing during colder winters." Comment: Albeni Falls Dam does have the ability to manage water temperatures in the Pend Oreille River downstream of Albeni Falls Dam. From 2011 to 2014, the Kalispel Tribe had been working with the US Army Corps of Engineers to investigate whether operational changes from Albeni Falls Dam (AFD) can be used to manage Pend Oreille River water temperatures post Labor Day (first week of September). This study was to evaluate whether operational releases at AFD could decrease downstream water temperature in support of bull trout and other aquatic species during the late summer. The relationship between AFD operations and POR temperatures was evaluated by using the two dimensional hydrodynamic and water quality model CE-QUA l, Vi2, The POR was modeled from the confluence with Lake Pend Oreille co Box Canyon Dam. Integrations of daily average. daily maximum, and 7 day moving average of daily maximum water temperatures were calculated for 11 river reaches as a means for comparing results from the simulations. There were 4 hypothetical and 1 operational sets of modeling completed. The central focus of these simulations was to characterize the in0ucnoe of alternative flow regimes at Albeni Falls Dam on the water temperature response throughout the Pend Oreille River from Lake Pend Oreille to Box Canyon Dam in late summer and early fall. Draft triggers were identified for executing a Temperc1.rure Mam1gcment Operation. They are as follows: During prominent cold weather conditions, decrease river flows to increase exposure time in the POR During hot weather conditions. increase river flows to reduce exposure lime in the POR When surface water temps in LPO are cooler than POR at AFD, increase flows to introduce cooler water downstream. The series of hypothetical Pend Oreille River water temperature simulations were conducted to explore the influence of flow regimes on water temperature characteristics. These hypothetical simulations were intended 10 provide insight on heat exchange and transport processes in the Pend Oreille River to help inform subsequent mode) simulations evaluating realistic water regulation alternatives subject to natural meteorological conditions and reservoir operations. The results of the hypothetical simulations indicated that operational strategies are possible to manage water temperatures in the river downstream of Albeni Falls Dam. Failure to modify project operations to improve water temperature results in a significant adverse: effect on native fish and water quality downstream of Albeni Falls Dam. This adverse effect must be considered and mitigated in the FEIS. The best mitigation for adverse effects of water temperature downstream of Albeni Falls Dam is 10 provide connectivity with the cold water refugia or Lake Pend Oreille.	A joint study was conducted in 2013 to investigate the ability to manage water temperatures downstream of Albeni Falls Dam. Although hypothetical modeling scenarios identified three operational triggers that showed potential for cooling the river, modeling performed under realistic meteorological and operational constraints showed little ability for Albeni Falls Dam operations to consistently cool the river over time and space. The river downstream of Albeni Falls Dam showed the greatest temperature differentials likely due to the shallow river conditions being more responsive to atmospheric thermal inputs. The main findings of the September 2013 model simulations of river hydrodynamics and water temperature during cold weather and warm weather events were as follows: 1) Increasing river flows in the Pend Oreille River during a prominent hot weather event in September 2013 resulted in both increases and decreases in water temperatures when compared to baseline conditions. The greater the flow increase, the greater the positive and negative temperature change. These temperature changes were transient in nature and were not uniform across the entire river; 2) There were no water temperature benefits to the Pend Oreille River of decreased flows during a cold weather event in September 2013. Decreased flows resulted in little to no temperature change in the river when compared to baseline conditions.
6106	7	DOSTERMAN@KNRD.ORG	Kalispel Tribe of Indians	Page 3-334 & 335 Lines 8938-8985 Comment The Lake Pend Oreille subpopulation of bull trout is composed of migratory (fluvial and adfluvial) and also resident fish. It also states that it is "the largest known bull trout population in Idaho". The Salmon River drainage abundance estimates (387K) are much higher than the Clark Fork drainage (43K) (High et al. paper). It also states that "Redd monitoring In the 7 years following the 1999 listing suggests abundance has Increased and the population is stable or increasing", however in the previous section states that the population is "stable.	The co-lead agencies agree with these corrections. These changes would not change the outcome of the analysis of the multiple objective alternatives or of the Preferred Alternative.
6106	8	DOSTERMAN@KNRD.ORG	Kalispel Tribe of Indians	Page 3-337 Lines 9048-9070 "Preliminary important environmental relationships for resident fish in this region that could be affected by MOs are as follows: Albeni Falls Dam outflow can affect entrainment rates through the dam. Entrainment can reduce populations of native fish such as bull tout, westslope cullthroat trout, kokanee, etc., in the lake as well as hastens the spread of non-native fish from the lake into the river downstream. Upstream fish passage at Albem Falls Dam may be implemented during the timeframe of the CRSO analysis period. Predation and competition between non-native and native fish can be unfluenced by operations that change outflows, temperature and reservoir levels. Flexible winter power operations result in changing lake elevations in the winter. A greater range of elevations can increase erosion rates and affect spawning success of kokanee and mountain whitefish. Comment: In terms of the Flexible Winter Operations. there is a potential for increased entrainment of sub-adult bull troul out-migrating from the Priest River system.	The first bullet "Albeni Falls Dam outflow can affect entrainment rates..." is a general statement intended to include any changes to outflow, including during flexible winter power operations. The idea in establishing these relationships in the Affected Environment Section is not to analyze effects of the alternatives, but rather set the stage by stating what important variables would be considered in the Environmental Consequences Section. The additional detail provided by the comment is included in Technical Appendix E in the notes column of the evaluation matrix in the row discussing flexible winter power operations. Further elaboration was not included in the body of the Draft EIS because no change was proposed under any of the alternatives. In other words, the matrix acknowledges the relationship under the No Action Alternative, but all of the action alternatives, including the Preferred Alternative, would be the same as the No Action.
6106	9	DOSTERMAN@KNRD.ORG	Kalispel Tribe of Indians	Pages 3-406 Lines 11346-11354 "Bonneville's F&W Program also provides funding to the Kalispel Tribe to develop and implement a resident fish mitigation program for the impacts from Albeni Falls Dam. This work includes improving bull trout habitat within the basin. Additional priorities are to restore habitats for westslope cutthroat trout and maintain the suppression effort on non-native predator and competitive fish species within the Pend Oreille Basin. Finally, through the 2018 Northern Idaho Wildlife Agreement, Bonneville and the State of Idaho work to protect and enhance 1.378 acres to fully address operational impacts of Albeni Falls Dam on wildlife. Much of this work will focus on the Clark Fork Delta and restoration of riparian habitat and the reestablishment of wetland plant communities, which will also benefit resident fish species.: Comment: Bonneville's F&W Program provides funding to the Kalispel Tribe 10 develop and implement a resident fish mitigation program for the impacts from Albeni Falls Dam as well as an anadromous fish mitigation funding program due 10 the construction and operation of Grand Coulee and Chief Joseph dams.	Thank you for providing that clarification regarding the anadromous fish program.
6106	10	DOSTERMAN@KNRD.ORG	Kalispel Tribe of Indians	Page 3-418 Lines 11823-11830 "An unknown number of bull trout are entrained through Albeni Falls Dam each year and are lost to the system, as there currently is no trap-and-haul program at Albeni Falls Dam to return them to the lake. However, a permanent trap and haul fishway may be completed during the period of analysis for the EIS that would allow these fish to return upstream. Entrainment is most common from March to June when flows are high (Corps 2018). Most populations of bull trout within Lake Pend Oreille are large enough that there are not likely to e major effects from entrainment. Entrainment is likely to continue under the No Action Alternative, with trap and haul reducing the number of fish lost in the future." Comment: Approximately 50% of the bull trout that are entrained through Albeni Falls Dam originate from weak stocks, thus the effects of entrainme11t can be significant to those weak populations.	Thank you for this information. For the purposes of this EIS, the specific populations that are subject to entrainment were not considered individually, but rather the bull trout population in the lake as a whole. While individual actions may be taken by the co-lead agencies in coordination with regional partners in an effort to focus on weak stocks in the area, in this instance, more specific detail would not change the overall outcome of alternative analyses of the multiple object alternatives nor the Preferred Alternative.
6106	11	DOSTERMAN@KNRD.ORG	Kalispel Tribe of Indians	Page 3-420 Lines 11880 Downstream of Albeni Falls Dam, non-native Northern pike and walleye have expanded their populations and may consume bull trout there. Northern pike are the apex predator in this system and are experiencing exponential population growth (reference to be added prior to final). Suppression efforts started in 2012 in Box Canyon reservoir, the first reservoir downstream of Albeni Falls Dam, have resulted in a 90 percent reduction in northern pike (reference to be added prior to final). Suppression efforts have also started at Boundary Dam, which is downstream of Box Canyon Dam. However, suppression efforts would not eliminate northern pike from the river, and the remaining fish could prey on entrained bull trout. This predation would not affect bull trout populations as any entrained bull trout would not be able to return upstream of the dam to spawn and would not survive the high water temperatures in the summer. Walleye have also expanded their populations in both Box Canyon and Boundary Reservoirs, but their numbers are still relatively low. Predations by walleye would have the same effect on bull trout as for northern pike under the No Action Alternative." Comment: The statement that. .. "predation would not affect bull trout populations as any entrained bull trout would not be able to return upstream of the dam to spawn and would not survive the high water temperatures in the summer" is not a correct statement. Predation would have a negative effect on bull trout in several ways. As stated in this CRSO that upstream fish passage at Albeni Falls may be operational in this timeframe of the CRSO. The Kalispel Tribe will also be electrofishing to collect bull trout below Albeni Falls Dam for transport immediately upstream of the dam.	Concur. replaced "This predation would not affect bull trout populations as any entrained bull trout would not be able to return upstream of the dam to spawn and would not survive the high water temperatures in the summer." with "Under current conditions, some entrained bull trout would not be able to return upstream and would not survive the high water temperatures below Albeni Falls Dam in the summer. However, upstream fish passage facilities may be operational at Albeni Falls Dam during the timeframe of this EIS, and it is anticipated that the Kalispel Tribe will continue electrofishing and transporting bull trout upstream of the dam prior to completion of fish passage at the dam. Therefore this predation could reduce the survival of bull trout that would otherwise be passed upstream of Albeni Falls Dam."
6106	12	DOSTERMAN@KNRD.ORG	Kalispel Tribe of Indians	Pg. 3-1370 "Even though the No Action Alternative is considered the baseline by which the MOs are evaluated, it is important to note that selection of the No Action alternative would continue to result in substantial degradation of archaeological resources. This was the conclusion of the System Operation Review (SOR) FEIS. Continuation of 2016 operations would result in the ongoing loss of archaeological resource integrity. Ongoing degradation of archaeological resources has been documented in the annual reports produced by the FCRPS Cultural Resource Program." Comment: AH considered changes in the system operations shall result in the "degradatjon of archaeological resources". The Killispel Tribe of Indians recommends the selection of an alternative that results in the least/slowest rate of impact to the affected resources. If this cannot be done. then we expect a robust mitigation package to be discussed as part of the selected alternative. Currently, funding and efforts to mitigate impact lags far behind the rate necessary to stave off the permanent loss to these non-renewable resources.	The co-lead agencies agree that system operations result in impacts to archaeological resources. In the Draft EIS Section 7.7.18, the co-lead agencies provide an archaeological resources impact analysis of the Preferred Alternative. In particular, Tables 7-47 through 7-50, in the Draft EIS provide the comparison of all alternatives to archaeological resources across the system. The co-lead agencies concluded the Preferred Alternative is the least impactful of all alternatives to archaeological resources. In Sections 5.2.1.6 and 7.6.4.2, the co-lead agencies discuss the existing program that addresses system operational impacts to cultural resources.
6106	13	DOSTERMAN@KNRD.ORG	Kalispel Tribe of Indians	Page 3-1305 Lines 4508-4513 "In addition, the Kalispel Tribe of Indians, who fish for subsistence in the Box Canyon Reservoir, harvest fish placed there from the Kalispel Tribal Hatchery. The Tribe rears juvenile largemouth bass at the hatchery (Kalispel Tribe 2018d). Fishing access permits and hunting permits for fishing and hunting on the Reservation are sold by the Natural Resource Department to non-members (Kalispel Natural Resource Department 2018)." Comment: The Tribe rears triploid rainbow trout for out planting to a pond near Indian Creek.	The Draft EIS is consistent with the comment. At the time the Draft EIS was being developed, largemouth bass were being reared in the Kalispel Tribal Hatchery. In early 2018, the focal species shifted to triploid rainbow; this change is documented in cbfish.org as Budget Oversight Group (BOG) request #557 for Bonneville-funded project 1995-001-00. The Final EIS has removed the reference to the Kalispel Tribe of Indians raising largemouth bass.
6106	14	DOSTERMAN@KNRD.ORG	Kalispel Tribe of Indians	Page 5-3 Lines 91-100 "5.1.3 Conservation Recommendations per Fish and Wildlife Coordination Act of 1934. In developing mitigation for the effects of the alternatives, the co-lead agencies also considered the conservation recommendations included in the U.S. Fish and Wildlife Service's (USFWS) Fish and Wildlife Coordination Act Report (CAR). The Fish and Wildlife Coordination Act (FWCA) of 1934, as amended (16 U.S.C. 661-667e) provides authority for USFWS and NMFS involvement in evaluating impacts to fish and wildlife from proposed water resource development projects and requires them to	The USFWS Final Coordination Act Report (CAR) has been received and is in Appendix U, Part 1. The co-lead agencies' responses to the Final CAR's conservation recommendations including the one mentioned in this comment can be found in Appendix U, Part 2. With regard to this particular invasive species recommendation, the co-lead agencies provide information about management of invasive species.

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				provide conservation recommendations for the project. The draft CAR is included in Appendix U and provides analysis of effects of the alternatives, landscape findings, and conservation recommendations. The USFWS will be preparing a final CAR with emphasis on the Preferred Alternative for inclusion in the final EIS. Coordination between the co-lead agencies and the USFWS is ongoing for the final CAR. Comment: The Fish and Wildlife Coordination Report on the CRSO states the following: "'In the interest of controlling invasive species, reducing their spread, and preventing, future invasions, the Service offers the following recommendations Reduce the impacts of non-Native fish in the study area and support northern pike removal program effort:; Provide support and resources for additional boat cleaning stations to prevent invasion and establishment of non-native species (e.g., aquatic invertebrates and plants) Coordinate with,, and implement prioritized actions identified by, interagency invasive species teams. The Aquatic Invasive Species Network and the Western Regional Panel con provide direction In ,.regard to aquatic invasive species. Each state in the study area (i.e .. Idaho. Montana, Oregon, and Washington) has an invasive species council that can also provide direction on focused action to eradicate and reduce the spread of invasive species". The Tribe urges the Action Agencies to include these measures in the CRSO.	
6106	15	DOSTERMAN@KNRD.ORG	Kalispel Tribe of Indians	Page 5-5 Lines 164-177 "Under the No Action Alternative, mitigation currently being implemented would continue. With implementation of any of the proposed MOs there are nine mitigation programs that the co-lead agencies currently implement that would be incorporated, with certain modifications in the respective alternatives. These mitigation programs are the Bonneville Power Administration (Bonneville) Fish and Wildlife Program (F&W Program), the Lower Snake River Compensation Plan, the U.S. Army Corps of Engineers' (Corp) Columbia River Fish Mitigation Programs. U.S. Bureau of Reclamation's (Reclamation) Columbia River Tributary Habitat Program, the Federal Columbia River Power System Cultural Resources Program Predator Management, Invasive Species Management, Pest Management Programs, and Nutrient Supplementation Programs Outside of the specific mitigation measures that have been identified in the CRSO EIS changes to mitigation programs like the Bonneville F&W Program are not being made through this EIS process. Rather, for example, future program adjustments for the Bonneville F&W Programs would be made in consultation with the region through Bonneville's budget-making processes and other appropriate forums and consistent with existing agreements." Comment: BPA provides funding to Kalispel through a 2012 Memorandum of Agreement to develop and implement mitigation actions such as a resident fish mitigation program for the impacts from Albeni Falls Dam as well as an andromous fish mitigation program due to the construction and operation of Grand Coulee and Chief Joseph dams. As discussed in Kalispel's cover letter. these actions should be incorporated into an Upper Columbia Mitigation Program to ensure that they are fully performed in perpetuity and address the longstanding mitigation deficiency at and above Chief Joseph Dam. These mitigation measures include, but are not limited to, improving bull trout habitat within the basin. restoration of habitat for westlope cutthroal trout. and maintaining suppression of non-native predator and competitive fish species within the Pend Orille Basin. Although Kalispel's 2012 MOA contains similar forbearance language to other fish accords, we are the only non-litigant accord partner. We believe future fish accords should be more like ours where the financial consideration is commensurate with the work to be performed and not inflated to incentivize forbearance. Establishing an Upper Columbia .Mitigation Plan in the FEJS will encourage this transformation while addressing one of the causes of the Upper Basin's mitigation funding shortfall- namely, the enlargement of downstream fish accords not necessarily for mitigation work that is unnecessary but in amounts that exhaust BPA's ability to fund higher priority mitigation work in the Upper Basin.	The scope of the CRSO EIS is to evaluate alternative operations, maintenance and configuration measures for the Columbia River System projects. While the co-lead agencies do not have an Upper Columbia Mitigation Program mentioned by the commenter, the co-lead agencies conduct mitigation actions in the Upper Columbia River basin with many project sponsors, including under the 2012 Memorandum of Agreement with the Kalispel Tribe and also through Bonneville's Fish and Wildlife Program, which the comment observes is one of the mitigation programs incorporated into the Multiple Objective alternatives. Principles for future long-term mitigation agreements are beyond the scope of the EIS.
6106	16	DOSTERMAN@KNRD.ORG	Kalispel Tribe of Indians	Page 5-8 Lines 269-272 Comment: The AAs describe existing mitigation actions for construction and inundation impacts would "...serve lo address the effects of reservoir operations on wildlife habitat to the extent that such operational impacts occur below full pool level " This simply is not factual and does not consider that operational impacts that occur below full pool can affect habitats above full pool. Erosional processes, altered floodplain interactions and reservoir elevation changes all impede. harm, remove., or otherwise alter wild lire habitat. This statement should be amended to reflect these unmitigated impacts of below pool Operational impacts to wildlife habitat .	The text referenced in the comment refers to the existing mitigation for construction of the CRS and subsequent loss of habitat due to inundation. The CRSO EIS analyzes the effects of operation, maintenance, and configuration and the effects of construction and inundation are not within the scope of this EIS. Under the Preferred Alternative, the River Mechanics analysis described a negligible (~0.1 feet) change to shoreline exposure at Grand Coulee and the Cultural Resources analysis found no change to shoreline erosion at Grand Coulee, both relative to the No Action Alternative.
6106	17	DOSTERMAN@KNRD.ORG	Kalispel Tribe of Indians	Page 5-8 Lines 642-649 "Bonneville's F&W Program provides funding to the Kalispel Tribe to develop and implement a resident fish mitigation program for the impacts from Albeni Falls Dam. This work includes improving bull trout habitat within the basin. Additional priorities are to restore habitats for westslope cutthroat trout, and maintain the suppression effort on non-native predator and competitive fish species within the Pend Oreille Basin. Finally, through the 2018 Albeni Falls Dam Wildlife Mitigation Agreement, Bonneville and the State of Idaho to protect and enhance 1.378 acres to address operational impacts of Albeni Falls Dam on wildlife. Much of this work focuses on the Clark Fork Delta and restoration of riparian habitat and the reestablishment of wetland plant communities. which will also benefit resident fish species. Comment: Bonneville's F&W Program provides funding to the Kalispel Tribe to develop and implement a resident fish mitigation program for the impacts from Albeni Falls Dam as well as an anadromous fish mitigation funding due to the construction and operation of Grand Coulee and Chief Joseph dams.	The section of the Draft EIS cited in the comment was meant to provide examples of mitigation actions that Bonneville funds, but does not represent the complete list of projects or project purposes for mitigation funded through Bonneville's Fish and Wildlife Program or with the Kalispel Tribe in particular.
6106	18	DOSTERMAN@KNRD.ORG	Kalispel Tribe of Indians	Chapter 5 All Alternatives, section NEW MITTIGATION ACTIONS under Vegetation ,Wildlife, Wetlands, and Floodplains: Comment: The AAs fail to describe the need to complete assessments for operational impacts in Region A. There is no mention of assessments or settlements to describe these impacts and allowance for a program to mitigate those impacts. Simply referring to a partial settlement to one agency (IDFG), does not reflect what full mitigation would be for Albeni Falls Dam,	The commenter is correct in its assertion that the agreement between Bonneville and the State of Idaho for mitigation of wildlife impacts from Albeni Falls Dam does not mitigate all operational impacts in Region A or even for Albeni Falls Dam. With respect to Albeni Falls Dams operational impacts to wildlife, that agreement addressed only those impacts occurring upriver of the dam. In addition, consistent with mitigation guidance in the Northwest Power and Conservation Councils (Council) Fish and Wildlife Program, loss assessments and settlement agreements are both acceptable approaches for mitigating operational impacts. Therefore, while the comment suggests a need to complete operational impact assessments, that is only one of the available mitigation options; Bonneville may find it more appropriate to fulfill its Northwest Power Act mitigation responsibility to address remaining unmitigated wildlife impacts from Albeni Falls Dam or elsewhere through development of settlement agreements, consistent with Council Program guidance, in a manner similar to the approach taken in the Albeni Falls agreement between Bonneville and the State of Idaho. Edits have been made to the Final EIS to clarify that Bonneville continues to work with project sponsors to address any remaining, unmitigated operational impacts.
6106	19	DOSTERMAN@KNRD.ORG	Kalispel Tribe of Indians	Page 5-20 Lines 705-710 Comment: The AAs indicate that the IDFG settlement "..,fully address operational impacts of Albeni Falls Dam on wildlife," This along with_ additional funding to address upriver impacts from AFD only mitigate IDFG and its identified priorities and impacts. This settlement does not fully mitigate Tribal impacts associated with operations at AFD. This paragraph should be amended to reflect that Operational mitigation is not fully addressed for AFD. This correction should occur in all sections of the DEIS that refer to Operational losses at AFD being fully addressed via the settlement agreement with IDFG.	The commenter is correct that Bonneville's settlement agreement with the State of Idaho does not mitigate Tribal impacts associated with operations at Albeni Falls Dam; nor does it mitigate Idahos impacts. Instead, it mitigates impacts to wildlife, consistent with the Northwest Power Acts (Act) mandate to protect, mitigate, and enhance fish and wildlife affected by development and operation of Federal Columbia River Power System dams, which include Columbia River System projects. The Act does not, however, require mitigation of particular entities. The settlement agreement between Bonneville and the State of Idaho reflects those parties agreement as to the adequacy of mitigation to fully address the upriver operational impacts of Albeni Falls Dam. The commenter is correct in its suggestions that the agreement with Idaho does not fully mitigate all operational impacts of Albeni Falls Dam because the scope of the agreement with Idaho does not extend to any impacts occurring below the dam. Edits clarifying this point have been made in the Final EIS.
6106	20	DOSTERMAN@KNRD.ORG	Kalispel Tribe of Indians	Page 6-9 Lines 282-303 "RFFAIO - Ongoing and Future Habitat Improvement Actions for Bull Trout. A common goal among these actions is the improvement of aquatic habitat and water quality to benefit native salmonids, especially bull trout. Overlap varies but these actions are generally ongoing. A comprehensive list of activities that contribute to the recovery of bull trout in the Columbia River Recovery Unit and Lake Pend Oreille area is not available because of the multitude of federal state tribal and non-governmental organizations that conduct activities in the region. Some of the important Activities that are ongoing or have been recently completed within the region are as follows: Construction of upstream fish passage facility at Box Canyon Dam (construction began in 2016, facility expected to be operational in 2019: Pend Oreille Public Utility District) Loke trout removal In Lake Pend Oreille (Idaho Dept. of Fish and Game) t Tributary habitat restoration, enhancement, and passage Kalispel resident fish project (Kalispel Natural Resource Department) Non-native species suppression projects, such as the Kalispel Tribe Non-Native Fish Suppression Project in Pend Oreille River Road abandonment and bank stabilization (Kalispel Natural Resources Department) Bull trout research and monitoring Genetic Inventory of bull trout in the Pend Oreille River subbasin (Kalispel Natural Resources Department) Mainstream Pend Oreille River water quality Temperature total maximum daily load (TMDL) implementation for the Pend Oreille River (Washington Department of Ecology and stakeholders) t Water quality monitoring (Kalispel Natural Resources Department) Comment: Box Canyon Dam will be operational in 2021. Genetic inventory of bull trout in the Pend Oreille River subbasin was a project that was completed in 2007.	The final EIS has been updated based on your comments. The date Box Canyon fish passage facility is expected to be operational has been changed to 2021, and the bullet "Genetic inventory of bull trout in the Pend Oreille River subbasin..." has been removed from the list of cumulative scenarios because it was completed rather than ongoing or foreseeable in the future.
6106	21	DOSTERMAN@KNRD.ORG	Kalispel Tribe of Indians	Pages 7-41 & 7-42 Table 7-5 Measures included In the Preferred Alternative to Benefit Endangered Species Act-listed Fish that are Being Carried Forward from Previous Committments by the Co-Lead Agencies Habitat Tributary Habitat Improvements for both Chinook salmon and steelhead Implementation of specified construction projects, research, monitoring and .evaluation (RM&E) actions, and species status and trend data collection on habitat and survival improvement. Page Hatcheries FCRPS Mitigation Hatcheries- Programmatic Continued support of hatcheries and adopt programmatic criteria for funding decisions on mitigation programs for the FCRPS that incorporate best management practices Predation Northern Pikeminnow Management Program (NPMP) Ongoing base program and general increase in northern pikeminnow Sport-reward fishery reward structure. Comment: Under "Habitat", tributary improvements should also be completed for bull trout and westslope cutthroat trout, not just for salmon and steelhead. Under the section "Predation", it only discusses the Northern Pikeminnow Management Program. In fact, the Preferred Alternative recommends an ongoing base program and a "general increase in the northern pikeminnow sport-reward fishery." The Kalispel Tribe recognizes that the FCRPS has created conditions that favor northern pikeminnow, but they are a native species. There are other non-native invasive fish species within the Columbia Basin that pose a more serious threat to the recovery of salmon, steelhead and bull trout. Northern Pike pose a serious risk throughout the Columbia Basin. Within the State of Washington., Northern Pike are classified as a Prohibited level 1 species under Washington Administrative Code 220-640-030. There are also 3 Revised Code of Washington statutes that pertain to Northern Pike as a Prohibited 1 species. This section should include actions to suppress and eradicate Northern Pike.	Re: Habitat – As described in Chapters 2 and 5, Bonneville works with states, Tribes, and watershed groups to protect, mitigate, and enhance spawning and rearing habitat, targeting factors that limit fish survival throughout the Columbia River Basin. Bonneville has funded hundreds of projects across the basin to restore natural stream channels, reconnect estuarine tidal channels, enhance flow volume and timing, and expand cold water refuges and open access to habitat (www.cbfish.org). These habitat improvement actions provide both near-term and long-term benefits to anadromous and resident species, including bull trout and westslope cutthroat, including those that will help address the effects of climate change. Actions that improve connectivity and streamflow will provide a buffer against the effects of climate change. In addition to habitat improvement actions, Bonneville works with willing landowners to protect land by putting it under permanent conservation easement to further support habitat and fish conservation in the short and long term. The co-lead agencies recognize that habitat actions targeted at salmon and steelhead have incidental benefits to bull trout in the targeted areas where bull trout and salmonid species coexist. When developing tributary habitat projects for salmon in areas where bull trout are present, the co-lead agencies, consistent with the BA, would engage with USFWS to leverage benefits for bull trout where feasible. In addition the Preferred Alternative includes actions identified to improve bull trout passage at Kootenai River tributaries. Changes to the ongoing fish and wildlife program other than directly related to mitigating for effects of the alternative compared to the No Action Alternative will be considered through the ongoing Northwest Power and Conservation Council's Fish and Wildlife Program. The co-lead agencies recognize the ongoing threat of downstream invasion of northern pike under the No Action Alternative and there would be a minor decrease in boat suppression efforts under the Preferred Alternative. The analyses showed there would be a minor effect (up to one week of boat ramp access impeded) in wet years only, and the resulting overall effect to the invasion of northern pike would be minor. The co-lead agencies recognize and appreciate the importance of northern pike invasion as a regional issue, but, in this EIS process, the co-lead agencies developed mitigation for moderate to major effects of the multiple purpose alternatives as compared to the No Action Alternative. Because the impact to northern pike was minor, mitigation was not appropriate for this effect.

Letter No.	Comment No.	Commenter Name/Email	Affiliation	Comment	Response[1/]
6106	22	DOSTERMAN@KNRD.ORG	Kalispel Tribe of Indians	Page 7-128 Lines 3693-3698 "Hydrology modeling showed that Lake Pend Oreille elevations, inflows, and outflows would be similar to those found in the No Action Alternative. Biological relationships were dependent on these parameters, so the key effects of the Preferred Alternative for bull trout, fish habitat, and other fish species in the Pend Oreille basin would be the same as those described under the No Action Alternative. Comment: However, in Section 4.1.2.4, it states that "Albeni Falls Dam, reservoir outflow during the summer and fall could decrease due to potential reduced inflows." A decrease in outflow from Albeni Falls Dam during the summer and fall could have a negative impact on water temperature.	Changes to the Lake Pend Oreille inflows in the summer and fall are negligible from the Preferred Alternative as compared to the No Action Alternative. The statement from Section 4.1.2.4 implies that the changes would potentially be caused by climate change, and would be the same in both alternatives.
6108	1	dwayneparis@gmail.com	N/A	The city is close enough to bankruptcy that it is laughable the number of areas discussed in the CRSO DEIS MO3 alternative wherein the presumption that local entities will have resources to replace those that will disappear because the Corps will no longer have a project (i.e., Lower Granite Dam) and federal spending will cease. THESE UNFUNDED MANDATES WILL HAVE SEVERE CONSEQUENCES ON THE CITY OF ASOTIN. Mitigation dollars must be included in every line that is possibly going to the effect the City of Asotin, or policy makers will have an incomplete idea of what removal of the lower Snake River dams will actually cost. To do otherwise will put into jeopardy essential health, sanitation and safety, along with other public services, not just in Asotin but in the nine counties impacted in southeast Washington and north central Idaho.	Mitigation for each of the Multiple Objective alternatives (MOs) is described in Chapter 5, including MO3 which includes the measure to breach the four lower Snake River dams. Mitigation for the Preferred Alternative is described in Chapter 7. The Draft EIS does not identify MO3 as the Preferred Alternative. No Federal mitigation by the co-lead agencies is anticipated under MO3 to maintain access to the river. Since the lower Snake River projects would be deauthorized, the co-lead agencies would likely no longer operate the project lands for recreation. After project lands have been transferred to other agencies, or entities, or individuals, recreational sites and associated facilities could be modified as determined by others. The purpose of the EIS is to provide information regarding potential effects to the natural and human environment. As part of this analysis costs associated with certain effects may be identified (navigation, transportation, power, water supply, etc.), but there is no presumption regarding who would pay to reduce or avoid potential effects. Further details about mitigation activities and requirements can be found in Chapter 5.
6108	2	dwayneparis@gmail.com	N/A	Cumulative effects: In its evaluation MO3the dam breaching alternative--the CRSO DEIS fails to consider the City of Asotins plea per its letter dated November 25, 2019 (copy attached) that cumulative effects on the Lewiston, ID, Clarkston, WA and Asotin, WA area be evaluated. The nine counties (in which the City of Asotin is included) most impacted by dam breaching are primarily rural where 1 in 5 people are already at or below the federal poverty level and average wages are 25% below the national average. Specifically, on 11-25-19, the City of Asotin (in follow-up to its scoping comments submitted 12-30-2016) listed the following impacts as examples of some of the impacts on non-federal agencies that should be evaluated and discussed under the cumulative effect of MO3: 1. Municipalities coping with loss of income because local property values will have diminished due to loss of economic vitality, unfavorable environmental conditions such as fugitive dust from areas formerly covered by water, lack of recreational access to the water, and more; 2. Municipalities, businesses, and private individuals on well water that must extend piping into a ground water supply, likely beefed up pumps to extract the water, and perhaps even pre-treating drinking water for contaminants because there will be a higher concentration of undesired chemicals in the water, since dilution is reduced with a lower water table. 3. Municipalities and businesses that must extend/repair effluent outfall piping from our wastewater treatment facilities (WWTF). 4. Municipalities and businesses that must pre-treating wastewater before it can be discharged in order to meet Water Quality Standards. 5. Municipalities or state agencies that must shore up or replace WWTF plants, roadways, railways and bridges along the shoreline because hydraulic support in the form of water in the Snake River will no longer be there to hold them in place. 6. Entities that must solving for methane gas releases from landfills along the river because water levels formerly keeping them from the atmosphere are gone. 7. Municipalities, non-profits and/or community organizations which expend capital and operating resources to restore and/or operate recreation facilities formerly operated by USACE, many of which draw water from the river for irrigation or provide access to the river. To that non-comprehensive list of cumulative effects, the City adds the following: 1. Electrical costs are expected to increase perhaps as much as 45% per NW RiverPartners for those living and doing business the Pacific Northwest if dams are breached. This adds stress to already over-burdened, fixed income taxpayers. 2. Municipalities that must monitor water quality at beaches to assure that swimmers do not access water that has a build-up of e coli. (This is a serious problem with the volume of water in the reservoir; it will be much more serious if water levels diminish to pre-dam levels.) This also means that human interaction in the rivers will be prohibited when summer temperatures are extreme and seeking out water is a survival technique. The weather pattern is such that near the confluence of Asotin Creek and the Snake River, at least 10 days per summer have temperatures that exceed 100 degrees. Has this been factored in to social welfare evaluation? 3. According to CRSO DEIS Chapter 3, p 585 Lines 17784 17796 migrating fish could experience barriers at tributaries due to reservoir drawdown. Asotin Creek is such a migrating stream that is likely to have new barriers from drawdown affect fish such that they may not be able to enter and spawn. If the City is expected to make investments to solve this problem, that too, must be included in cumulative effect. There is also no way to fully realize the impact removal of the dams will have on current fish populations with an increased and unknown sediment flow downstream along with current and flow changes.	The EIS describes the impacts associated with many of the items noted in this comment in the appropriate Chapter 3 resource section. Chapter 5 describes the adverse effects under the alternatives, including MO3, which includes the measure to breach the four lower Snake River dams, and mitigation that would be needed to reduce or minimize the adverse effects. Some mitigation is anticipated to be funded by the co-lead agencies, while other mitigation could by implemented by other agencies or the public. Chapter 6, Cumulative Effects, describes the cumulative effects associated with MO3 on Lewiston, Clarkston, Asotin, and other adjacent communities, considering multiple resource effects and mitigation measures. Many of the infrastructure items listed in your comment are described within the relevant environmental consequences sections within Chapter 3 of the EIS. Changes in infrastructure costs related to changing transportation modes are described in the Infrastructure Costs sub-section under Section 3.10.3.5. Additional information has been added regarding municipal and industrial wastewater treatment facilities in the Section 3.4 Water Quality. As described in Section 5.1.1., Overview of Mitigation, mitigation measures developed as part of a NEPA process are not intended to indicate the co-lead agencies, or the Federal government as a whole, has the authority to perform all of the measures described, but rather provide a list of potential mitigation needs, some of which could be implemented by other agencies or the public, which would potentially benefit from the mitigation measures. Section 5.4.3.6 describes the potential for mitigation measures for recreation under MO3. No Federal mitigation is anticipated under MO3 to maintain access to the river. Since the lower Snake River projects would be deauthorized, Federal agencies would no longer operate the project lands for recreation. After project lands have been transferred to other agencies or entities, recreational sites and associated facilities could be modified as determined by others. Section 5.4.3.5 describes the mitigation measures associated with navigation, transportation, and transportation infrastructure, while Section 5.4.3.9 describes mitigation measures associated with public safety (modifying gas lines prior to breach). Some of these measures are anticipated to be Federally mitigated, such as armoring bridge piers and railroad and highway embankments as well as maintaining the remaining Federal navigation channel, while others, such as dredging local ports to access the Federal navigation channel after dam breach, would not be Corps-funded. If MO3 were selected as the Preferred Alternative, further evaluation and studies under NEPA would be required along with congressional authorization and appropriations to assess the engineering requirements of the project and to potentially further refine and develop mitigation measures. These further evaluations could include a more detailed evaluation of municipal infrastructure modifications, land-transfer process, real estate requirements, recreation effects, and other related topics. Since the lower Snake River projects would be deauthorized, it is likely that the co-lead agencies would no longer operate the projects or associated project lands. Regarding water quality, while the co-lead agencies appreciate the concern with water quality at recreation areas, the change from reservoir to free-flowing river in MO3 does have water quality impacts, including changes to water temperature; but changes to specific recreation areas in relation to E. coli are highly uncertain. It is equally likely that free-flowing river reaches would be less likely to have E. coli water quality issues. Regarding power and transmission, the comment that MO3 would lead to increases in electricity costs and can adversely affect vulnerable groups is consistent with discussions in the EIS. The wholesale power rate effects described in the comment are consistent with the findings of the EIS. The EIS recognizes concerns around the affordability of electricity, and the Environmental Justice analysis in Section 3.18.3 of the EIS provides further detail on this as well as the potential disproportionate effects to Tribal, low-income and minority populations. Appendix H, Power and Transmission, Table 6-1, in the Draft EIS, lists the retail rate impacts by county. Regarding air quality, consistent with this comment, Section 3.8.3.5 of the EIS evaluates the effects of MO3 on air quality from exposed riverbed that is no longer submerged under the reservoirs, describing the increased potential for erosion and suspension of dust by wind, generating particulate matter (PM) emissions. The EIS additionally describes that the risk of fugitive dust is likely short-term, declining over time as vegetation covers the exposed sediment and reduces the potentially erodible area. The potential air quality effects may be mitigated by planting of vegetation and restrictions on activities on exposed sediment. The potential of these types of short-term effects is dependent on weather (e.g., wind, precipitation levels) and mitigation efforts, thus the potential for property value impacts is uncertain.
6108	3	dwayneparis@gmail.com	N/A	Pumps and wells that supply municipal and industrial uses will not be operational under MO3. Of huge disappointment is that impacts to Lewiston, Clarkston, Asotin, Clearwater Paper, and more for modifying intakes, modifying discharges, and the cost and lack of certainty in the ability to obtain new discharge permits are described in the CRSO DEIS as minor. P. 3-1462 Lines 9416 9418 does discuss a loss of 55 jobs and $9.8 million in labor. Certainly, Clearwater Paper was deemed to continue to be viable given those very low estimates (See real impact of Clearwater Paper employment in Attachment 1).	This EIS discusses engineering solutions (pipeline extensions for example) in Chapter 3.12 section 3.12.3 Environmental Consequences - Specifically under Region C under the MO3 alternative and in Appendix N. As described in the 'Summary of Effects' subsection of 3.12.3.4 Multiple Objective Alternative 3 (MO3), measures implemented under MO3 could affect delivery of current water supply in Region C and a loss of 48,000 acres of farmland. Similarly, There are M&I pumps in the Lewiston area that would likely be impacted by this measure, along with other small M&I uses along the river. The co-lead agencies identified a total of 16 points of diversion from surface water with a water rights purpose listed as M&I, which may use up to 9,230 acre-feet per year (USGS 2018a). As described in Section 3.12 of the EIS, effects to water supply from MO3 are expected to result in minor adverse effects to social welfare and major adverse effects to regional economics. Modifications to M&I systems would be required under MO3 increasing costs for supplying water to local communities and related industries. NEPA requires that all relevant, reasonable mitigation measures that could diminish the adverse impacts of the project be identified in the document, even if they are outside the jurisdiction of the lead agency or the cooperating agencies. See 40 C.F.R. 1502.16(h) and 1505.2(c); 46 Fed. Reg. 18026. However, the co-lead agencies do not have authority to provide mitigation for the effects to infrastructure such as M&I systems.
6108	4	dwayneparis@gmail.com	N/A	There is a disconnect in municipal costs between 2002 analysis and the DEIS: At least, Improving Salmon Passage, Final Lower Snake River Juvenile Salmon Mitigation Feasibility Report/EIS February, 2002, Summary, p. 33, included recognition of the need to modify pumps owned by industrial and municipal parties and included cost estimates between $11 million and $55 millionin 2002. If these costs from 2002 are bumped up only by an inflation factor (which would fail to recognize new, more stringent environmental requirements), the new amount would bankrupt the three cities and put the viability of Clearwater Papers Lewiston operations into the realm of uncertainty. According to the 2002 Lower Snake River Juvenile Salmon Migration Feasibility Report and EIS, the city of Lewiston, [Clearwater Paper], Atlas Sand and Rock, Lewiston Country Club & Golf Course and the Clarkston Golf & Country Club all have water supply intakes on the Clearwater or Snake Rivers. So, too, does the Corps for keeping the greenbelt trail along the Clearwater Snake National Recreation Trail. The action agencies need to recognize mitigation to rebuild or relocate all intakes to function in riverine conditions.	This EIS discusses engineering solutions (pipeline extensions for example) in Chapter 3.12 section 3.12.3 Environmental Consequences - Specifically under Region C under the MO3 alternative and in Appendix N. As described in the 'Summary of Effects' subsection of 3.12.3.4 Multiple Objective Alternative 3 (MO3), measures implemented under MO3 could affect delivery of current water supply in Region C and a loss of 48,000 acres of farmland. Similarly, There are M&I pumps in the Lewiston area that would likely be impacted by this measure, along with other small M&I uses along the river. The co-lead agencies identified a total of 16 points of diversion from surface water with a water rights purpose listed as M&I, which may use up to 9,230 acre-feet per year (USGS 2018a). As described in Section 3.12 of the EIS, effects to water supply from MO3 are expected to result in minor adverse effects to social welfare and major adverse effects to regional economics. As described in Section 3.12.3.4 Multiple Objective Alternative 3, Municipal and Industrial water supply intakes in the Lewiston, ID area would likely be impacted by a dam breach scenario. Modifications to M&I systems would be required under MO3 increaing costs for supplying water to local communities and related industries like golf courses. NEPA requires that all relevant, reasonable mitigation measures that could diminish the adverse impacts of the project be identified in the document, even if they are outside the jurisdiction of the lead agency or the cooperating agencies. See 40 C.F.R. 1502.16(h) and 1505.2(c); 46 Fed. Reg. 18026. However, the co-lead agencies do not have authority to provide mitigation for the effects to infrastructure such as M&I systems.
6108	5	dwayneparis@gmail.com	N/A	Land conveyance from the Corps to local entities is a nightmare. Chapter 5, page 30 states Deauthorized project lands are transferred to new ownership. The City was successful in having included in the 2014 Water Resources & Reform Development Act (WRRDA) legislation authorizing conveyance of some of the land managed by the U.S. Army Corps of Engineers. The progress to date on land conveyance, however, has been a nightmare. As the city of Kennewick will testify, land conveyance from federal to other entities is not an easy process. Caught up in the bureaucracy, a municipality pays a lot of resources for the Corps to work through the red tape. Kennewick has been involved in the process of conveyance on a single authorization for a period exceeding 20 years. Lines 907-909 contain a vast understatement, deauthorized project lands[being] transferred to new ownership[involve] real estate transactions [which] would require their own review and are outside the scope of this EIS. Land conveyances currently are requiring a NEPA process and may or may not also require an EIS of their own. The expense for a single transaction involving ownership for the federal side alone can exceed $1 million per transaction; some may require EIS. The onerous, expensive, time-consuming process of transferring federal property to new ownership is not realistically conveyed in the CRSO DEIS. More analysis is required, so that proper expectations can be set.	Real estate costs were included in the costs analysis under MO3 and described in Appendix Q Section 3.1.2.2. Under the dam breaching measures of MO3, it could be necessary to negotiate agreements with affected parties and property owners and enter into relocation contracts for the alteration or replacement of affected structures. Real estate administrative costs were developed for renegotiating contracts, leases, agreements, rights-of entry, etc. Given the uncertainty in the design and specifics of MO3 at this point, the real estate evaluation used the approach from the Lower Snake River Juvenile Salmon Migration Final Feasibility Report and Environmental Impact Statement (2002) and updated the data and costs as needed (Corps Walla Walla District Real Estate Division, 2019). If MO3 were selected, the Corps could use this EIS as a basis for seeking congressional authority to breach the lower Snake River dams. After receiving both authority and appropriations from Congress, the Corps could initiate a detailed construction and design report for the breach measure, identification of disposal areas, real estate acquisition and disposal, permits, and mitigation requirements, including temporary fish hatchery production. Each of these actions are required prior to breaching, and the Corps does not have the authority or appropriations necessary to immediately breach the project's embankments.
6108	6	dwayneparis@gmail.com	N/A	MO3 will destroy strategies to jumpstart the economy within City limits: Obtaining title to the land was part of an overall strategy with an expectation that changes would result in economic growth. The City conceived a plan to restore its boat basin and had the potential to attract companies that provide guided jet boat tours up Hells Canyon National Recreation Area to locate within city limits. This would have brought people to town to shop, eat, get fuel and more before or after the Hells Canyon experience. Businesses could start-up or reopen. Sales tax would then grow and be used by the City for essential services. The company most interested currently has the contracts for all of the cruise line passengers electing the Hells Canyon option. As you are probably aware, the cruise boat industry is an important component of the local economy. Passenger counts on the Columbia and Snake Rivers now exceed that on the Mississippi (3-1081, Lines 32120 32122). If MO3 occurs, there will be no boat basin to restore. There will be no access to the river for Asotin residents and other visitors. The City may have to dissolve. We cannot stress enough what the negative ramifications to the City of Asotin would be if MO3 suddenly becomes the preferred alternative.	The statements and information presented in this comment regarding impacts to the cruise boat industry near Asotin from dam breaching in MO3 are consistent with the findings of the EIS. Cruise ship visitation is characterized in Section 3.10, and is characterized as providing important regional economic effects, particularly in the Lewis-Clark Valley where Asotin is located. Section 3.10.3.5 describes the contribution of cruise ships as providing demand for approximately 230 jobs in the region, $6.2 million in labor income, and $17.8 million in annual output (sales). The potential for loss of this growing industry, as well as the potential regional economic and other social effects associated with dam breach in that area is described in section 3.10.3.5. Other effects to recreation from MO3 are described in Section 3.11.3.5.The EIS evaluated beneficial and adverse effects across an array of resource areas including potential effects at the national, regional and local level; effects are monetized and quantified, where possible, and also described qualitatively. As is common in NEPA analyses, the beneficial and adverse effects of the alternatives are expressed as a variety of qualitative and quantitative environmental and economic metrics throughout the EIS to inform decision-making. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as the dam breaching alternative. However, the Preferred Alternative also meets most of the other objectives of the study for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy.
6108	7	dwayneparis@gmail.com	N/A	Mitigation for revegetation is insufficient and fails to recognize the need for soil supplementation and regular watering to assure that plantings take. Fugitive dust in blowing wind will make air quality in Asotin untenable. There was a promise of grass seed in the DEIS. The seed itself is insufficient. Soil conditions where water has been for decades, is not conducive to desirable plant growth. It will need supplementation. Seed wont take or seedlings wont survive in summer conditions in Asotin without regular irrigation. More must be done to mitigate impact from fugitive dust under MO3. Page 3-1013 discusses, Over time, the risk of fugitive dust likely declines as vegetation covers the exposed sediment, reducing the potentially erodible area. Re-vegetation can only occur under the right conditions. Further, the agencies should note that Asotin County (in which the City is located) has an occurrence of asthma higher than neighboring counties (Innovia Foundation. A Region-Wide Community Needs and Opportunity Assessment, January 2020, Appendix F).	If Multiple Objective alternative 3 is identified as the Preferred Alternative, the co-lead agencies would conduct further design and engineering to implement this alternative and would develop a more detailed mitigation plan including air quality and vegetation mitigation measures.

Letter No.	Comment No.	Commenter Name/Email	Affiliation	Comment	Response[1/]
6110	1	ttrue@earthjustice.org	Earthjustice	There is indisputable evidence that the current SARs for Snake River spring/summer Chinook are at or below 1%, barely half of the minimum 2% SAR level the Northwest Power and Conservation Council has identified as necessary for maintaining existing populations, and only one quarter or less of the 4% to 6% SAR level that must be achieved and sustained for this population to rebuild and recover (CSS 2016 Annual Report, Chapter 7, Petrosky et al. in press). This evidence is at odds with the DEISs claim of increased salmon abundance in recent years (DEIS Chapter 3 pages 299-300; Figure 3-111-Combined Annual Salmon and Steelhead Returns (all species) to Bonneville Dam from 1938-2019.). Moreover, this unacceptably low SAR has been consistent for many years, indicating that the extensive and expensive efforts so far to rebuild Snake River spring/summer Chinook populations have not been successful. NOAAs publications confirm this point -- that wild Snake River spring/summer Chinook returns to the uppermost Snake River dam have declined by at least 60% since the late 1960s when the lower Snake River dams were built (from an average of 47,615 fish to just 18,774). NOAA FAQs (2018) -graph at bottom of page 2). The DEISs claim that spring/summer Chinook abundance has increased relies entirely on the fact that over this same period, Snake River spring/summer Chinook hatchery returns to the uppermost dam have increased by at least 15-fold (from 4,933 fish to 73,487), an increase that actually reflects increased hatchery production to mitigate for losses of salmon due to the FCRPS, rather than improved survival from restoration measures. The point here is not to criticize the role of hatcheries, but to highlight the extent to which the DEISs claim of increased Chinook abundance relies on increased hatchery production, not increased survival rates and subsequent wild/natural returns. 6 It is also important to remember that wild Snake River spring/summer Chinook are protected by the ESA and ultimately must recover and rebuild to sustain the species health.	The most recent ESA status review reported that the Snake River spring/summer Chinook population trends in total spawner abundance were positive over the period 1999 to 2014 for 23 of the 26 population natural origin abundance series, but the relative rates of increase for each population were lower than estimates of trends for the prior review period (Table 15). Northwest Fisheries Science Center, 2015. Status review update for Pacific salmon and steelhead listed under the Endangered Species Act: Pacific Northwest. However, return rates have been low over the three years this EIS has been in process. In addition, the Snake River spring/summer Chinook ESU includes spring/summer Chinook salmon from 11 hatchery programs. The co-lead agencies used high quality information and best science in the analysis of the CRSO EIS. Specific to salmon and steelhead, the agencies used two primary modeling approaches which yielded a range of potential outcomes for the alternatives. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult return rates would increase for both Snake River spring Chinook and steelhead and will average above 2% (the lower end of the Northwest Power and Conservation Councils recovery targets for the region) as a result of the Preferred Alternative increasing SAR from 2.0% to 2.7% for Chinook, a 35% relative increase. A SAR rate of 2% can lead to significant population growth given adequate productivity and habitat quality. The COMPASS and NMFS Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin.
6110	2	ttrue@earthjustice.org	Earthjustice	1. Restoration of the Lower Snake River Through Dam Removal Would Provide More Certainty of Long-Term Survival and Recovery for Snake River Chinook than Any Other Measure. In its 2000 Biological Opinion for operation of hydroelectric dams on the Columbia and Snake Rivers, NOAA Fisheries concluded: breaching the four lower Snake River dams would provide more certainty of long-term survival and recovery than would other measures (BIOP 2000). That conclusion was supported by extensive evidence from a peer-reviewed, interagency process, the Plan for Analyzing and Testing Hypotheses (PATH), which summarized available empirical evidence, retrospectively analyzed patterns of survival in the various life stages and across the life cycle, and performed prospective analyses using a wide range of assumptions (Marmorek et al. 1998, Deriso et al. 2001, Marmorek and Peters 2001).PATH analyses showed that dam breaching options were the most likely to recover Snake River salmon and steelhead with the lowest risk under a wide range of assumptions. A weight of evidence accumulated since the PATH process has continued to consistently demonstrate major adverse impacts from the Snake and Columbia River dams (the FCRPS) on 7 salmon and steelhead (Schaller and Petrosky 2007, Petrosky and Schaller 2010, Buchannan et al. 2011, Marmorek et al. 2011, Haeseker et al. 2012, Schaller et al. 2014). This evidence, from multiple data sets and analytical approaches, has repeatedly demonstrated that survival of Snake River spring/summer Chinook in the smolt-to-adult stage, in the ocean, and across the life cycle is lower than that of similar downriver populations that experience fewer dams. There also is considerable evidence that Snake River stream-type Chinook experience substantial delayed mortality in the marine environment as a result of their outmigration experience through the FCRPS (Williams et al. 2005; Schaller and Petrosky 2007; Marmorek et al. 2011; Schaller et al. 2014). This outmigration experience results in an accumulation of injuries, multiple stress events, and alteration of estuary arrival timing: mechanisms that may explain levels of delayed mortality (Budy et al. 2002; Muir et al. 2006; Scheuerell et al. 2009; Rechisky et al. 2012). Decreased water velocity and increased number of powerhouse passages have been related to large increases in the time required for juveniles to migrate to sea and reductions in life cycle survival, smolt to adult returns, and marine survival rates for Snake River Chinook Salmon (Schaller et al. 2007, Petrosky and Schaller 2010, Haeseker et al. 2012, Schaller et al. 2014). This large body of scientific evidence and analyses identifies a significant level of hydrosystem delayed mortality (latent mortality) for Snake River Chinook populations. As explained further below, the recent paper by Faulkner et al. (2019) discussing smolt size does not weaken the weight of evidence for hydrosystem delayed mortality, because of the serious scientific flaws in that paper identified by the Fish Passage Center in their review of it (CSS 2019 Appendix G; 2019 FPC Memorandum 49-19 reviewing Faulkner et al. 2019). In sum, the best currently available scientific information continues to strongly support NOAAs conclusion regarding dam removal from the 2000 biological opinion. In its 2017 8 Annual Report on the Comparative Survival Study (CSS), the Fish Passage Center evaluated the effects of various levels of voluntary spring spill, as well as removal of the four lower Snake River dams, on smolt-to-adult return rates (SARs) (2017 CSS Annual Report, Chapter 2 & Appendix K) for Snake River spring/summer Chinook. Using more than twenty years of empirical data on dam passage survival and SARs, the CSS Report concluded that dam removal on the lower Snake, together with any reasonable level of voluntary spill at the lower Columbia River dams, would lead to significantly higher SARs. It also concluded that dam removal plus spill at 120% Total Dissolved Gas (TDG) or more would lead to SARs at or above the levels identified by the Northwest Power Planning and Conservation Council (NWPPC) as necessary to rebuild salmon populations to healthy levels (NPCC 2014). The CSS Report reached this conclusion taking into account other variables including ocean conditions (CSS 2017, Chapter 2 & Appendix K). In addition, the CSS Report compared SARs for salmon stocks that migrate past only three or four lower Columbia River dams to Snake River stocks and noted that SARs for these downstream stocks, which negotiate four or fewer reservoirs and dams, are now consistently more robust than SARs for Snake River stocks, further supporting the conclusion that lower Snake River restoration would be likely to substantially improve the conditions of Snake River fish (CSS 2017, Chapter 2 & Appendix K). Because breaching the four Snake River dams with higher spill (to 125% TDG) at the four lower river dams is the only option that can reduce the high levels of mortality for Snake River Chinook, the best currently available science affirms that dam breaching is the most probable option for achieving recovery and rebuilding goals for these populations. Given strong evidence of climate change effects (Lijing et al. 2019), these measures will need to be taken sooner, rather than later, to ensure persistence of these populations. 9 Two recent letters from a number of independent scientists rely on the CSS analysis as well as considerable other evidence to conclude that lower Snake River restoration is necessary to allow Snake River salmon and steelhead populations to not just avoid extinction, but also to begin rebuilding to a sustainable abundance (Letter to Gov. Inslee & Orca Task Force (Oct. 15, 2018); Letter to Northwest Policy Makers re River Temperatures (Oct. 22, 2019). The most recent of these letters focuses particularly on the role of the lower Snake River dams in increasing water temperatures and the survival benefits that will accrue from reducing these temperatures as a result of removing these dams. These scientists further emphasize the importance of these benefits to salmon survival and recovery as the climate warms in the years ahead (Letter re River Temperatures, Oct.22, 2019). Despite this compelling evidence, the DEIS downplays the benefits of dam removal by stating that Snake River Chinook abundance has increased in recent years, by focusing narrowly on juvenile survival through the lower Snake River only, and by dismissing as unknowable the precise extent of the delayed effects on salmon survival of hydrosystem passage (called delayed or latent mortality). The DEIS also relies on an analysis by its Fisheries Science Center that suggests smolt size has more to do with juvenile survival than the route a smolt takes past dams (Faulkner et al. 2019), to dismiss empirical evidence linked to SAR levels in the CSS modeling results (DEIS Chapter 3 pages 361-362 and DEIS Appendix V section 3 on Latent Mortality). This smolt size study is scientifically flawed and draws erroneous conclusions for informing management decisions as explained further below (CSS 2019, Appendix G). The DEIS also fails to rationally address the above scientific evidence, discuss its significance for the choice among the alternatives it presents, or explain why the DEIS discounts and disregards this evidence. Instead, as noted above, the DEIS focuses almost all of its analysis 10 on a comparison of alternatives to a no-action alternative that would continue to implement a plan rejected by the courts in 2016.	The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as Multiple Objective 3 (MO3) which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets most other EIS objectives including those for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams, because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. Different models predict different long-term survival benefits to ESA-listed species from dam breach, benefits that can contribute to recovery. Under the NMFS COMPASS model, juvenile Snake River spring/summer Chinook in-river survival would improve by 9.6% due to dam breach, which is a 19% relative increase over the No Action Alternative. The NMFS Lifecycle Model predicts an increase in adult returns of 13.6% for these same fish under MO3 (no latent mortality assumed) relative to the No Action Alternative (from 0.88% to 1%). Results for Snake River steelhead are similar (10% absolute improvement, or 23% relative juvenile survival increase – Smolt-to-Adult returns (SARs) for steelhead were not modeled). Under the CSS model, juvenile in-river survival for the Snake River spring/summer Chinook is predicted to improve by 10.4% due to breaching the four lower Snake River dams, which is an 18% relative increase over the No Action Alternative, while SARs would increase by 115% (from 2% to 4.2%). The CSS model predicts that Snake River steelhead would see juvenile survival increase by 25.8% which is a 46% relative increase over the No Action Alternative. The CSS model also predicts that SAR increase by 177% (from 1.8% to 5%). Though differing in predictions, both modeling groups predict dam breaching is the better CRSO EIS alternative for salmon and steelhead. One model predicts adult return increases an order of magnitude higher than the other. With respect to the Preferred Alternative, the CSS model predicts that average SAR rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% (the lower end of Northwest Power and Conservation Council's recovery targets for the region) as a result of the Preferred Alternative, increasing SAR from 2.0% to 2.7% for Chinook, a 35% relative increase. The NMFS COMPASS and Lifecycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. To address uncertainty highlighted by the two models, the Preferred Alternative includes working with regional sovereigns to develop a study that assesses the effectiveness of the increased spill regime on adult returns as well as assessment and management of adverse unintended consequences, such as long delays of adult migrants, or TDG-related mortality of juvenile migrants. See Appendix R, Part 2, Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information. Moreover, the agencies used current, high-quality modeling information consistent with the National Environmental Policy Act and did not rely on information contained in the Plan for Analyzing and Testing Hypotheses (PATH) Weight of Evidence Report (ESSA Technologies 1998), which is over 20-years-old and does not reflect current Columbia River System operations.
6110	3	ttrue@earthjustice.org	Earthjustice	2. The Benefits of Lower River Restoration and Dam Removal for Imperiled Snake River Salmon Would Be Substantial. The DEIS takes the position that juvenile salmon survival is already high through the lower Snake River and that restoring the river and removing its dams would not change this survival dramatically. The basis for this claim that juvenile survival through the four lower Snake River dams and their reservoirs is already 75% to 80% is unclear and suspect. What we do know is that the lower Snake River dams are only four of eight dams that Snake River juveniles must pass on their migration to the sea, and that the effects of dam passage compound as the number of dams and reservoirs increase. This compounding effect for Snake River Chinook is reflected in downstream juvenile survival rates past all eight dams, which CSS 2019 Appendix Table 1 estimates as only 54% on average from above the upper-most Snake River dam to below Bonneville dam over the period 1994-2019. Table A4 in this Appendix estimates juvenile survival as only 48% on average for Snake River steelhead over the same years. The CSS Study has also concluded that for each powerhouse encounter a juvenile salmon experiences, its risk of mortality increases by about 12% (CSS 2016 Annual Report, Chapter 7). Importantly, this CSS analysis underestimates hydrosystem-caused mortality, as it does not account for direct and delayed mortality through powerhouse passage or due to reservoirs, which slow fish migration and expose juvenile migrants to warmer water, disease, and increased predation pressure. This analysis is a relative measure that reflects the additional mortality that arises later from the delayed effects of passage through bypass systems compared to other routes (CSS 2016 Annual Report, Chapter 7). Ultimately, the DEIS concludes that there is some level of scientific uncertainty about exactly how much juvenile survival and SARs would improve 11 without the dams. But NOAA has also never disclaimed its long-standing conclusion that breaching the four lower Snake River dams would provide more certainty of long-term survival and recovery than would other measures and the DEIS reaches a similar conclusion regarding	The co-lead agencies do not agree with the characterizations made in this comment regarding current survival through the four lower Snake River dams. The 75% to 80% current survival rate referenced by the commenter does not appear to be tied or referenced to the Draft EIS and it is not tied to a specific species, river condition, or conveyance mode. The co-lead agencies agree that the analysis shows that Multiple Objective 3, which includes the measure to breach the four lower Snake River dams, would provide the most benefits to anadromous Snake River fish. The co-lead agencies have presented in the EIS analysis the highest quality, current information on juvenile fish passage survival. The in-river survival referenced in this comment was generated by the CSS (as well as by NMFS), but note that the CSS reports cited in this comment prior to 2019 do not reflect the measures considered in this EIS analysis. Estimates provided by the CSS Lifecycle models for the purposes of this EIS evaluate changes in metrics such as juvenile travel time, and powerhouse encounter rates. Smolt-to-Adult return rates predicted by the CSS models encompass any delayed or latent mortality associated with those factors.

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				alternative MO3, despite components of that alternative that might tend to degrade salmon survival through the hydrosystem. The best currently available scientific evidence continues to support this conclusion. Any remaining uncertainty about just how dramatic juvenile survival improvements would be without the lower Snake River dams must be viewed from this perspective.	
6110	4	ttrue@earthjustice.org	Earthjustice	3. The Benefits of Lower Snake River Restoration and Dam Removal Are Not Affected by the Difficulty of Precisely Quantifying Latent (or Delayed) Hydrosystem Mortality. Calculating the precise extent of latent or delayed mortality as a result of dam passage is not actually relevant to concluding that lower Snake River restoration and dam removal would improve Snake River Chinook returns by a very large amount, and more than any other available measure. Moreover, as noted above, there is a substantial weight of evidence, from multiple data sets, analytical approaches and scientific publications that consistently demonstrate high levels of latent (i.e., delayed hydrosystem) mortality due to the FCRPS over varying ocean conditions (Schaller and Petrosky 2007). The DEIS attempts to cloud these beneficial effects because the precise extent of latent or delayed mortality is difficult to determine (DEIS chapter 3 pages 361 362; DEIS Appendix V section 3 on Latent Mortality). First, whatever the precise nature and extent of these effects, they are captured and reflected in the current unsustainably low SARs 1% or less for Snake River spring/summer Chinook (CSS 2019 Annual Report, Chapter 4). These Chinook are simply not surviving at rates sufficient to avoid extinction, let alone at rates sufficient to allow them to rebuild and recover. CSS analyses indicate that these low return rates would be improved very substantially by lower 12 Snake River dam removal and continued adequate spill levels at the lower Columbia River dams (2017 CSS Annual Report, Chapter 2). And again, NOAA itself has said that dam removal will do more than any other available measure to support increased population growth for this species. The DEIS also concludes that dam removal should be discounted and set aside because it will require congressional action and take some years to improve salmon survival. This suggestion begs the central question: is there an alternative action with benefits of a similar magnitude for salmon survival that we could take more quickly? NOAAs longstanding answer is no: breaching the four lower Snake River dams would provide more certainty of long-term survival and recovery than would other measures. And extensive scientific evidence and analyses, much of it summarized above, continues to support this conclusion. The most effective near-term measure that could be taken (until breaching of the lower Snake River dams could be fully implemented) would be to operate all dams with spill to 125% TDG, similar to actions described in MO4. NOAAs Fisheries Science Center recently released a new analysis which questions the conclusion that the number of powerhouse (dam) encounters experienced by juvenile salmon has a significant negative impact on survival. This new paper asserts that it is smolt size, not the number of dam encounters, that is most significant in determining survival (Faulkner et al. 2019). The analysis in this new paper, however, does not support NOAAs claim. First, there is no dispute that, as compared to other passage routes (e.g. spill), fish that pass through powerhouses have lower SARs (CSS 2016 Annual Report, Chapter 7, Buchanan et al. 2011). One of the DEISs claims is that these lower SARs are driven by fish size, not powerhouse passage, because more smaller fish pass through powerhouses and smaller fish suffer higher 13 mortality in the ocean (Faulkner et al.2019) (DEIS Chapter 3 pages 361-362; DEIS Appendix V sections 3 on Latent Mortality). What the Faulkner analysis does not show is whether SARs for larger fish that pass through the powerhouses are nonetheless still lower than larger fish that pass via spill. Without this critical comparison, the Faulkner analysis cannot support its conclusion about the role of fish size in dam passage survival. A recent review of this paper by the Fish Passage Center found many shortcomings with it, including: 1) study fish all experienced at least two dam bypasses and additional handling; 2) the Faulkner analytical approach didnt incorporate spill and flow, which are major factors determining collection efficiency and bypass probability; 3) the analysis ignores the fact that smolts from the John Day River which are similar (or smaller than Snake smolts) and migrate at the same time as Snake River fish and which pass fewer dams, have much higher SARs (CSS 2019, Appendix G). In sum, the DEIS fails to fully or objectively describe the above relevant history and evidence or discuss its significance for the choice among the alternatives it presents, choosing instead to focus almost all of its analysis on a comparison of alternatives to a no-action alternative that the agencies apparently assume they could continue to implement even though it is largely a continuation of a plan rejected by the courts in 2016 as inadequate to even avoid jeopardy under the ESA. This comparison fails to provide the public or decisionmakers with relevant context that is crucial to understanding the choice among the alternatives presented in the DEIS or a rational basis for selecting and alternative and so fails to comply with the fundamental informational purposes of NEPA.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Based on our fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the CRS. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. The Preferred Alternative is nevertheless predicted to benefit salmon and steelhead. It also meets all the other objectives of the study for resident fish, hydropower, water management, and water supply, while minimizing adverse impacts to communities and the economy. The co-lead agencies disagree that latent mortality is irrelevant to identifying the extent to which the dam breach measure would improve anadromous fish returns. If the latent mortality hypothesis proves unfounded, for example, certain predicted benefits of breaching of the four lower Snake River dams would decrease. The co-lead agencies nevertheless agree, as the Draft EIS analysis shows, that Multiple Objective (MO3) provides the greatest benefits to Snake River anadromous fish. The co-lead agencies also disagree that the Draft EIS attempts "to cloud" effects. The analysis describes the high quality, current information on likely effects of different actions and related uncertainties. The co-lead agencies appreciate the commenters perspective on Faulkner et al. 2019. The analysis presents this and other available information to establish a range of possible effects. The EIS does not purport to resolve ongoing scientific disagreements. Consistent with the National Environmental Policy Act and its implementing regulations, the Draft EIS analysis identifies status quo Columbia River System operations as the No Action Alternative in evaluation of this ongoing action.
6110	5	ttrue@earthjustice.org	Earthjustice	III. THE STATEMENT OF PURPOSE AND NEED IN THE DEIS IS UNREASONABLY NARROW AND LACKS ANY ADEQUATE BASIS IN LAW OR FACT In describing the purpose and need for the CRSO EIS, the agencies acknowledge that conservation of wild salmon and steelhead is a goal of the CRSO. E.g. DEIS 1-3, 1-4. The ESA defines conservation as returning a species to a self-supporting and sustainable condition in its native ecosystem. 16 U.S.C. 1631(3) (to the point at which the measures provided pursuant to this Act are no longer necessary). But the agencies later set aside consideration of the extent to which the alternatives would achieve these purposes in favor of a narrow focus on a only a portion of their responsibilities under ESA section 7(a)(2). From DEIS 7-4: While federal agencies must ensure their actions do not reduce appreciably the likelihood of both the survival and recovery of a listed species [citing 50 C.F.R. 402.02], the co-lead agencies are not, however, obliged under Section 7(a)(2) to contribute affirmatively toward recovery achievement. Recovery is an important, but distinct, public policy objective that is furthered through a separate planning process governed by ESA Section 4(f) to guide societal actions by both federal and non-federal actors. Nothing in NEPA permits them to limit their analysis to the effects of the alternatives to this narrow scope under the ESA without some rational explanation. Nor do the agencies adequately explain why any other aspect of the ESA is not relevant to the scope of the CRSO EIS.1 Even if the agencies are correct that recovery can be addressed through a separate ESA provision, that does not make consideration of the effects of the alternatives on conservation or recovery irrelevant to the purpose and need for the CRSO EIS. Further, the agencies do not explain the relationship between their improve objective (whatever that means) for comparing the effects 1 The DEIS also cites in passing to the ESAs command to ensure that actions are not likely to destroy or adversely modify critical habitat. 16 U.S.C. 1632(a)(2). The statutes definition of critical habitat expressly includes conservation, defined by the statute to incorporate a goal of recovery. See, text, supra. 15 of the alternatives to the no action alternative even for the narrow aspect of the ESAs requirements they do recognize. In addition, other statutes require more of the agencies in terms of conservation and environmental protection than the ESA. Specifically, the Northwest Power Act requires conservation and rebuilding of salmon and steelhead populations. 16 USC 839b(h)(11)(A)(i) (adequately protect, mitigate, and enhance fish and wildlife, including related spawning grounds and habitat). And nothing prevents the agencies from considering broader public goals and obligations like the restoration of abundant salmon, meeting obligations to Native American Tribes to restore healthy, harvestable fish runs, or to meeting the population rebuilding and conservation goals of the Columbia Basin Partnership. The agencies never explain why these requirements are not relevant to the purpose and need for the CRSO EIS or examine how or the extent to which the alternatives they do consider would meet this requirements. While the agencies may have wide discretion to articulate the purpose and need for the CRSO EIS, they cannot arbitrarily and without explanation disregard relevant legal requirements and public needs in order to adopt an unreasonably narrow statement of purpose and need. See National Parks & Conservation Ass'n v. Bureau of Land Management, 606 F.3d 1058, 1072 (9th Cir. 2010) (finding that an unreasonably narrow purpose and need statement resulted in the agency necessarily consider[ing] an unreasonably narrow range of alternatives.). As the court overseeing this remand recognized, a comprehensive EIS that fully and fairly examines all reasonable alternatives is necessary if the agencies are to break through any logjam that simply maintains the precarious status quo. Natl Wildlife Fed., 184 F.Supp.3d at 876. Moreover, as soon as the agencies shift to describing the objectives of the alternatives they consider in light of their statement of purpose and need, they change their goal from even 16 narrow compliance with one aspect of the ESA to merely improving conditions for salmon to some unstated degree as compared to the no action alternative. DEIS 2-3. They do not define improvement in terms of any statutory requirement or explain how it relates to these requirements. An amorphous objective of improve[ment] is incompatible with the fixed legal standards the agencies are required to meet. Even were their legal obligations limited to the ESA requirement to avoid jeopardy, the agencies fail to describe how their objective of improve[ment] will meet this command. Their failure to rationally explain how their chosen metric meets relevant statutory requirements, even limited to the jeopardy standard under the ESA, has also been an aspect of past failed dam operation plans. As the Court in NWF v. NMFS most recently ruled, An increasing population . . . does not necessarily equate to a no jeopardy finding[.] Natl Wildlife Fed., 184 F.Supp.3d at 888 (rejecting NMFSs application of its trending towards recovery standard from the 2014 biological opinion). As the courts have noted, allowing a species to hover on the brink of extinction at low population numbers for long periods, even with minor improvements, increases the risk of extinction from chance events. Id. at 888 (observing that a population that remains dangerously low in abundance . . . [can] remain[] dangerously low despite the increase); see also Aluminum Co. of Am. v. Bonneville Power Admin, 175 F.3d 1156, 1162 n.6 (9th Cir. 1999) (noting that NMFS correctly viewed incremental improvements as insufficient to avoid jeopardy in light of the already vulnerable status of the listed species)in sum, the improvement metric the agencies actually use in the DEIS to evaluate the effects of their alternatives on salmon and steelhead is contrary to applicable legal requirements and the agencies fail to explain how it satisfies their legal responsibilities. In addition, the agencies statement of purpose and need with respect to salmon 17 and steelhead disregards relevant legal requirements and is arbitrarily narrow without explanation.	The co-lead agencies disagree that the Purpose and Need Statement is lacking. Among other things, the Purpose and Need Statement identified broad purposes related to the co-lead agencies varied legal obligations, including under the ESA and Northwest Power Act. The restoration of abundant salmon is not within the legal obligation or authority of the co-lead agencies. The comment is therefore mistaken to equate these broader public goals with requirements the agencies are obligated to explain. The comment also mistakenly redefines the anadromous fish conservation element of the Purpose and Need Statement to mean recovery of ESA-listed species, and misconstrues the description of the agencies' legal obligations under Section 7(a)(2) of the ESA as a description of the effects analysis. To determine whether the Preferred Alternative complies with Section 7(a)(2), the co-lead agencies consulted with the respective Services. The co-lead agencies used high quality information in the analysis of the CRSO EIS. Specific to salmon and steelhead, the agencies used two primary modeling approaches which yielded a range of potential outcomes for the alternatives. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult (SAR) return rates will increase for both Snake River spring Chinook and steelhead and will average above 2% (the lower end of Northwest Power and Conservation Council's (Council's) recovery targets for the region) as a result of the Preferred Alternative increasing SAR from 2.0% to 2.7% for Chinook, a 35% relative increase. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information. Based on the EIS analysis of the Preferred Alternative, it will make a substantial contribution towards recovery targets. Chapter 8 demonstrates the co-lead agencies' compliance with applicable laws, including the ESA and Northwest Power Act.

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6110	6	ttrue@earthjustice.org	Earthjustice	A. The DEIS does not actually rely on, or address rationally, recognized population performance metrics to reach or support its conclusions. Regional fish experts agree that smolt-to-adult returns (SARs) must be at least 2% for populations to stabilize, and at least 4% for populations to increase towards abundant, harvestable levels. The NPCC (2014) Fish and Wildlife Program objectives include supporting tribal and non-tribal harvest and achieving SARs averaging 4% and ranging from 2%-6% on a sustained basis for listed Snake and upper Columbia salmon and steelhead. Recognizing that SARs will vary from year-to-year for a variety of reasons, experts consider sustained SARs of 2%-6% necessary to rebuild salmon abundance. Recent CSS (2017 Chapter 5) analyses further support the rationale of the NPCC 2%-6% SAR objectives. SARs measured at Lower Granite Dam (LGR) are most relevant to escapement objectives and ESA population abundance criteria. Snake River population abundances are far below carrying capacity and ESA Minimum Abundance thresholds. Wild Snake River spring/summer Chinook SARs (measured at LGR) averaged only 0.8% from 1994-2017; wild steelhead SARs have averaged 1.4% (CSS 2019). SARs less than 1% have consistently resulted in population decline from one generation to the next for Snake River spring/summer Chinook and steelhead in recent years (CSS 2017). These populations began to show some increase from low abundance 18 in the few years within this time period when SARs were greater than 2% (CSS 2017). Low abundance and the perpetuation of low SARs (low productivity), due in large part to FCRPS operations, pose high genetic and demographic risks to salmon and steelhead populations (ICTRT 2007; Petrosky et al. in press), which result in high probabilities of population extirpation (and ultimately extinction). Pre-harvest SARs (measured at the Columbia River mouth) are most relevant to regional goals of healthy, harvestable salmon populations (CSS 2017). Petrosky et al. (in press) also compared historical life cycle productivity (Schaller et al. 2014) with pre-harvest SARs. Results indicate that pre-harvest SARs in the range of 4%-6% are associated with 1950s-1960s levels of productivity for Snake River spring/summer Chinook, when populations were healthy and harvestable. The DEIS does not use this or any other population-level performance metric in a rational way to assess the extent to which the alternatives will provide population growth that can achieve the established regional metrics or other appropriate goals although this information is readily available. Instead, the DEIS arbitrarily picks and chooses to report some limited aspects of the CSS results for SARs for the alternatives the DEIS considers but omit significant aspects of these results like the probabilities associated with the reported CSS results. They then rely on their conclusions regarding a vague and unexplained standard of improvement as discussed above. They also attempt to describe a dispute about methodology between two analyses, the CSS work and modeling using the Life Cycle or LCM model. For the reasons set out below, omission of the probabilities associated with the CSS analysis is not reasonable or rational and the dispute regarding the CSS results and the LCM model is based on a mischaracterization of the CSS model and is arbitrary in light of the available evidence.	The co-lead agencies used high-quality, current data and modeling in evaluating effects to resources from the alternatives. Specifically, the co-lead agencies used juvenile survival, fish travel time, and Smolt-to-Adult return (SAR) rates to evaluate the effects of alternatives to salmon and steelhead. These metrics are regionally accepted and regularly used to evaluate operational changes to the CRS. It should be noted that the 2-6% Smolt-to-Adult return (SAR) target referenced in this comment refers to the Northwest Power and Conservation Council (Council) target for broad-sense recovery and is separate and distinct from the obligations of any single entity or in this case a requirement to be met solely by the co-lead agencies. Just as the Councils fish and wildlife program encompasses both federal and non-federal stakeholders in the Columbia Basin, the Councils targets are shared by many parties. Based on the Preferred Alternative analysis, it will make a substantial contribution, but the Councils broad sense recovery goals are beyond the scope of this EIS, which focuses on the effects associated with the operation and maintenance of the 14 CRS projects. In addition, the co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the Columbia River System. Recovery of ESA-listed salmon is outside of the authority of the co-lead agencies, and was not an objective of this EIS. Recovery of ESA species is the purview of NMFS/National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (USFWS). This EIS has been developed in consultation with NMFS and USFWS to minimize impacts to affected ESA species and their habitats. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. Regarding the commenter's assertion that productivity in the 1950s and 1960s provides a reasonable target, the co-lead agencies note the highest returns of salmon and steelhead to Bonneville Dam occurred between 2010 and 2015 when the number of salmon and steelhead returning to the mouth of the Columbia River more than doubled the time period of reference. As noted by the ISAB in their review of the CSS model results generated for this EIS (ISAB 2020-1), changing climate conditions should be carefully assessed when considering potential impacts to salmon and steelhead, but the co-lead agencies note the concerns raised by the ISAB regarding the CSS's quartile range analysis and the likelihood or probabilities of SARs falling below 1 percent. The co-lead agencies will evaluate that analysis as it evolves but are not relying on the probability analysis at this time.
6110	7	ttrue@earthjustice.org	Earthjustice	There were several important findings from the CSS analyses of the alternatives in the DEIS. For both CSS models, among the federal alternatives, MO3 (the four dam breach alternative with spill to the 120% tailrace TDG at the lower Columbia River dams) resulted in the highest SARs and in-river survivals, followed by MO4 (the spill to the 125% tailrace TDG alternative). These two alternatives, among the federal alternatives, resulted in the highest likelihood of meeting the 4% average SAR regional goal. The vast majority of the predicted SAR range for MO3 was also above 1% for both Chinook (85%) and steelhead (88%) but, for MO4, only 64-61% of the predictions were above 1%, indicating a greater risk of further 21 population decline than occurred under MO3. The other federal alternatives (NAA, MO1, MO2, and the PA) did not meet the regional 4% SAR goal and a considerable percentage of predicted SARs under those alternatives were well below 1%, indicating a much greater risk of further population decline under each of these alternatives. For all fish survival metrics, the PA resulted in only slightly better performance than the NAA and MO1, and had much lower performance than both MO3 and MO4. Because the modeled datasets provided by the federal agencies used daily averages, the CSS results for the PA likely overestimate the SARs it will produce. The following graph (from the Chapter 2 CSS analyses and March 3, 2020 presentation of the CSS analyses to the Pacific Fishery Management Council Habitat Committee on the CRSO-EIS) summarizes and qualifies the risk associated with each operational alternative. The graph shows that the PA results in an SAR less than 1% 36 to39% of the time for yearling Chinook and steelhead, while the breach option (MO3) results in an SAR less than 1% only 12 to 19% of the time. SAR survivals less than 1% are considered to have a significant risk of continued population decline. Nearly 40% of the preferred alternative simulations produce survival estimates in this very low SAR range that will allow further decline of the endangered populations. Conversely, the MO3 option provides SARs greater than 2%. SARs of this level are expected to allow modest population increases and will do so nearly twice as often as the PA (57 to 68% vs. 35 to 37%). The DEIS also failed to analyze all available and reasonable alternatives. In the 2017 CSS Annual Report, the concept of breaching the lower Snake Dams, and spilling to 125% at the lower Columbia Projects was introduced and analyzed. The alternative of combining the breaching of the Lower Snake River Dams with spill to the 125% gas cap was also presented to the CRSO-EIS Fish Technical Team on September 21, 2017 by the CSS Committee. Questions 22 from that meeting were addressed in a subsequent memo from the Fish Passage Center dated October 5, 2017. Although initial CSS analyses indicated that the combination of breach and spill at the lower Columbia River projects to 125% produced the highest SARs, the federal agencies did not consider in the DEIS an alternative that incorporated this operation. Consequently, the range of alternatives considered in the DEIS does not examine a reasonable and available alternative for dam operations that would actually produce the highest survival rates for Snake River salmon and steelhead (and other species given the higher spill levels at the lower Columbia River dams). The CSS 2019 Annual Report (FPC Memo to Eric Merrill, February 28, 2020) built on the 2017 concept by incorporating elements included in DEIS alternatives MO3 and MO4 to develop an available dam operation termed MO34. The MO34 option included breach of the four Lower Snake River dams, which means there was no spill operation at these projects. Since MO34 involved breach of the Lower Snake projects, there is no transportation under this scenario either. The spring spill operation at all four lower Columbia River dams was spill to the 125% TDG levels. The MO34 option also includes the addition of fish friendly turbines at John Day Dam and the installation of Powerhouse Surface Passage routes (PSPs) at McNary and John Day dams. MO34 also carried over several measures from alternatives MO3 and MO4 that affect flows and water travel time (WTT) potentially decreasing survival estimates. These measures included: 1) changes in the drafting of high-head reservoir projects that could potentially lead to decreases in flows in the Mid-Columbia River increasing fish travel time, 2) operating John Day Dam within full reservoir operating range, which may lead to increases in WTT and subsequent increases in fish travel times, and 3) operating turbines within and above the 1% peak efficiency 23 during the spill season, which may result in higher powerhouse capacities forcing more fish to pass through turbine units. Even with these measures that may decrease fish survival, the above described MO34 alternative demonstrated the greatest expected improvements across all biological response metrics, compared to all of the federal CRSO-EIS alternatives. On average, the MO34 alternative exceeded the 4% average SAR regional goal. The predicted SARs for MO34 were above 1% for both Chinook (SAR>1% for 85% of simulations) and steelhead (SAR>1% for 92% of simulations) indicating that MO34 had the highest likelihood of avoiding further population declines and supporting population rebuilding. Quantifying risks and desired outcomes SARs < 1% associated with population declines SARs > 2% associated with population increases (also NPCC minimum SAR goal) PA: 36-39% of SARs < 1% MO34: 8-15% of SARs < 1% Fig. Probabilities of SARs less than 1% (top panel) and probabilities of SARs greater than 2% (bottom panel) for yearling spring/summer Chinook salmon (grey bars) and steelhead (blue bars) for each of the alternatives. The conclusions of the CSS Analysis showed that alternative MO2 consistently resulted in poor biological performance, worse than the NAA. The MO3 and MO4 alternatives 24 consistently demonstrated the greatest improvements in biological performance relative to the NAA. In addition, MO3 and MO4 were the only two alternatives that may be capable of achieving the NPCC average SAR goal of 4% (MO3 above, MO4 near, both ranges overlap 4%). It is also important to note that the PA results are more similar to those for the NAA and MO1 alternatives and indicate a much higher likelihood of dangerously low SARs and a much smaller likelihood of SARs that meet regional goals. In addition, the results for the PA may be overly optimistic because: 1) flex spill allows decreased spill during both daytime and nighttime hours and the analyses were conducted using daily average flow and spill values; 2) the alternative includes high capacity turbines survival estimates that are based on only a few studies and may not attain the projected increase in juvenile passage survivals; and, 3) the PA allows drafting reservoirs below flood control elevations during the winter months that, due to the probability of error associated with forecasting run-off volume early in the runoff period when drafts are occurring, may result in reservoirs being at lower elevations resulting in reduced river flows during the fish migration. The CSS alternative MO34 performed better than any of the alternatives analyzed in the DEIS and is built from actions considered in these alternatives and so would be reasonable to consider but, was not developed or considered by the federal agencies in the DEIS. The MO34 alternative had the lowest probability of producing SARs less than 1% and the greatest probability of SARs greater than 2%. Therefore, MO34 had the best probability of successful restoration of healthy salmon populations and recovery with the lowest risk to extinction of all the alternatives.	The co-lead agencies contracted with the Fish Passage Center (FPC) to produce the CSS modeling results presented in the Draft EIS. Any additional modeling that was not presented in the Draft EIS is not part of the CRSO EIS and was not developed by the co-lead and cooperating agencies. Improving juvenile and adult anadromous salmonids were two of the eight objectives of the CRSO EIS. The agencies disagree, however, that an alternative that includes breaching the four lower Snake River dams and spring spill operations to 125% TDG at all four lower Columbia River dams is reasonable given the unacceptable risks to public safety from such an alternative. For power and transmission, Multiple Objective 3 (MO3) and Multiple Objective (MO4), individually each caused large loss-of-load probability (LOLP) results (e.g., increased incidence of blackouts). Without major addition of new resources, MO3 would result in power shortages in about one in seven years. MO4 would produce power shortages in about one in every four years. If MO4 were implemented, in addition to breaching the four lower Snake River projects as called for in MO3, then the LOLP would be even higher, with power shortages potentially occurring almost every year. Additionally, if these MOs were combined, in 5% of the years, the power shortages would average close to 1,000 MW in early August when the region might be experiencing a heatwave with particularly high demand for air conditioning (1,000 aMW is about the average amount of power consumed by Seattle City Light). As shown in Section 3.7, MO3 causes an increase in power reliability concerns in the winter and the summer. MO4 increases power reliability concerns in the summer. Thus, the combination has the largest impact during the summer. The cost of zero-carbon replacement resources for MO3 and MO4 individually are up to $1 billion/year. Resource replacements and associated transmission interconnections for the combination of MO3 and MO4 would be higher, though not likely as high as the sum of the two MOs individually. Assuming that the replacement resources consist largely of wind, solar, and batteries, this would require well over 50 square miles of solar power (more than two and a half times the size of Crater Lake), large areas of new wind generation, and unprecedented amounts of batteries (more batteries in the Northwest alone than the total projection of batteries expected in the entire U..S by 2023 per the Energy Information Administration). In addition, the reduced generation capability under MO3, particularly throughout the summer, in combination with the impacts of the measures in MO4, and the uncertainty about the characteristics of replacement resources, would result in less capability to provide voltage support and dynamic stability for transmission system reliability than under MO3 or MO4 individually. Thus, combining MO4 with breaching the four lower Snake River projects, would produce unreasonable power and transmission reliability impacts, and it is highly speculative that replacement resources could be sited, permitted and built to address these impacts. This potential alternative has not been evaluated for direct, indirect and cumulative effects to other resources. Thus, an alternative combining juvenile fish passage spill up to 125% and breaching the four lower Snake River dams is unreasonable, and thus was not proposed as an alternative. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets most other EIS objectives including those for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams, because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system.
6110	8	ttrue@earthjustice.org	Earthjustice	C. The DEIS attempts to create a dispute about modeling results where there is none. The DEIS description that the differences between CSS and NOAAs LCM results are due to different assumptions about hydrosystem latent mortality is not accurate. The CSS and NOAA models use two different analytical approaches. The NOAA LCM (or COMPASS) 25 model approach used in the DEIS does not address delayed mortality directly. In the general analysis presented in the DEIS, the agencies sometimes make assumptions (that are not themselves derived from data or analysis) for three levels of reduced hydrosystem latent (i.e., delayed) mortality in their sensitivity analysis using the LCM model. The CSS approach does not make any assumptions	The co-lead agencies used current high quality information in the Draft EIS to analyze the effects of operations, maintenance, and configuration of the CRS projects. Specific to salmon and steelhead, the agencies used two primary modeling approaches which yielded a range of potential outcomes for the alternatives. The National Environmental Policy Act (NEPA) does not require the co-lead agencies to resolve uncertainties or disagreements in those models. Rather, consistent with NEPA, the co-lead agencies have made an objective good faith effort to identify high quality, current information and disclose their understanding and use of the informational tools. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult return rates would increase for both Snake River spring Chinook and steelhead and would average well above 2% as a result of the Preferred Alternative. The NMFS COMPASS and Life Cycle models predict higher levels

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				for the level of delayed hydrosystem mortality, because it employs an empirical statistical model analysis that incorporates actual hydrosystem delayed mortality, at whatever level it occurs, by using SARs as the primary metric. As explained in the December 16, 2019 Fish Passage Center memo Response to Questions on Latent Mortality for Lower Snake River Dams Engagement Report, the CSS models are empirical statistical models, which do not make assumptions about hydrosystem delayed mortality. Delayed or latent mortality is mortality that occurs to fish during their first year in the estuary and ocean, after juvenile salmon have survived downstream to Bonneville Dam. The metrics generated by CSS model analyses are juvenile fish survival, juvenile fish travel time, Transport-In-river ratio (TIR), smolt-to-adult return rate (SAR) and ocean survival. The CSS (empirical statistical) model analyses incorporate hydrosystem delayed mortality by utilizing SARs as a primary metric. An assumption about a specific measure of hydrosystem delayed mortality is not necessary in CSS model analyses. In contrast, the DEIS analysis using NOAAs LCM model (Table 7-25 footnote) does not factor latent mortality into either SARs or abundance outputs, but rather assumes different levels of reduction in survival (10%, 25% or 50%) from hydrosystem latent mortality and performs a sensitivity analysis for the different levels. NOAAs COMPASS model is a mechanistic modeling approach. The values of 10%, 25%, and 50% reduction in latent mortality appear to be simply best guesses for use with the LCM modeling analysis. This range of latent mortality 26 reductions does not appear to be directly bounded by any referenced analysis or data (in either the DEIS chapters 3 and 4 or any of the DEIS appendices). In the NMFS (2019) BIOP(page 496) they claim they considered three latent mortality reduction scenarios that were deemed to roughly represent the ranges of potential outcomes (increased productivity) indicated by the CSS (2017) for the up to 120 percent flexible spill operation compared to recent or biological opinion spill operations. However, there is no detailed explanation of how NMFS derived these levels from the CSS report and these latent mortality levels appear inconsistent with analyses or results in CSS (2017). The mechanistic COMPASS model, however, is data hungry and requires many assumptions (FPC December 16, 2019 memo). Many of these assumptions must be made even when data are not available. A mechanistic model structure requires enumeration of all underlying biological processes and as such cannot incorporate hydrosystem delayed mortality (FPC December 16, 2019 memo). The CSS (empirical statistical) model analyses incorporate hydrosystem delayed mortality by utilizing SARs as a primary metric. The CSS (empirical statistical) models do not require enumeration of (or assumptions about) all underlying processes, like the COMPASS (mechanistic) model requires. The inability of the LCM/COMPASS model to incorporate data about latent mortality, except through unverifiable, best-guess assumptions, does not create a dispute about modeling. Instead it presents a significant but unaddressed limitation on the appropriate and credible uses of the LCM/COMPASS results. There is a preponderance of scientific evidence indicating that FCRPS configuration and operation result in delayed mortality to salmon and steelhead. A weight of evidence accumulated since the PATH process has continued to consistently demonstrate major adverse impacts from the Snake and Columbia River dams (the FCRPS) on salmon and steelhead 27 (Schaller and Petrosky 2007; Petrosky and Schaller 2010; Haeseker et al 2012; Marmorek et al. 2011; Schaller et al. 2014). This evidence, from multiple data sets and analytical approaches, has repeatedly demonstrated that survival of Snake River spring/summer Chinook in the smolt to- adult stage, in the ocean, and across the life cycle is lower than that of similar downriver populations that experience fewer dams. There also is considerable evidence that Snake River stream-type Chinook experience substantial delayed mortality in the marine environment as a result of their outmigration experience through the FCRPS (Williams et al. 2005; Schaller and Petrosky 2007; Marmorek et al. 2011; Schaller et al. 2014; Buchanan et al. 2011). This outmigration experience results in an accumulation of injuries, multiple stress events, and alteration of estuary arrival timing: mechanisms that may explain levels of delayed mortality (Budy et al. 2002; Muir et al. 2006; Sheuerrell et al 2009; Rechisky et al. 2012). Decreased water velocity and increased number of powerhouse passages have been related to large increases in the time required for juveniles to migrate to sea and reductions in life cycle survival, smolt to adult returns, and marine survival rates for Snake River Chinook Salmon and steelhead (Schaller et al. 2007; Petrosky and Schaller 2010; Buchanan et al. 2011Haeseker et al. 2012; Schaller et al. 2014). This large body of scientific evidence and analyses identifies a significant level of hydrosystem delayed mortality (latent mortality) for Snake River Chinook and steelhead populations. In light of this scientific evidence, the reasonable conclusion is that delayed mortality should be reduced substantially for options that restore a free-flowing lower Snake River (options MO3 and MO34), and substantially reduce powerhouse passages (MO3, MO4 and MO34). The DEIS LCM results, based on their arbitrary assumptions about delayed mortality, do not set up a disagreement about assumptions with the CSS analysis. Instead, these 28 assumptions of no or negligible reductions in delayed mortality from hydrosystem passage, lack an empirical basis and cannot rationally be relied on to create a disagreement. In addition, the DEIS COMPASS model analysis of MO3 incorporates another important assumption with insufficient data support regarding predation in a restored free-flowing Lower Snake River. The COMPASS model assumes that predation rates would increase because predator satiation on hatchery fish would be reduced as hatchery mitigation fish is terminated under MO3, along with an increase in predator density as the volume of reservoirs decreases to a natural channel (Anderson et al. 2005). The data, analysis and logic behind this predation assumption are not explained in the DEIS and the assumption itself is neither logical nor consistent with available data. The main predatory fishes of juvenile salmonids are associated with the reservoirs as they are adapted to slow-moving waters and lakes. The change from slower to higher velocity habitat under drawdown will greatly decrease suitable habitat, predator densities, and salmonids in their diet, a conclusion supported by both experimental evidence, and comparisons between free-flowing and reservoir predator densities and diets (Brown and Moyle 1981, Buchanan et al. 1980, 1981, Mesa and Olson 1993, Poe et al. 1993, Shively et al. 1996, McMichael 2018). Moreover, the assumption that hatchery mitigation would end with dam removal is simply that, an assumption. It is not a necessary outcome. In fact, it is more likely that mitigation hatcheries would continue for a significant amount of time until the populations actually stabilize and abundance levels reach those required by various mitigation agreements and laws. The disparity of results between CSS and COMPASS/LCM for the PA, appears also to be related to the assumptions that NMFS makes for reductions in latent (delayed mortality). Again, LCM/COMPASS results are driven by sensitivities for their assumed, best-guess latent mortality 29 reduction levels. It is worth nothing that, even so, the LCM/COMPASS Snake River spring/summer Chinook results for the PA does not come close to achieving the minimum 2% SAR goal, and in fact are below 1% for all the assumptions except that for a 50% reduction in latent mortality (1.15% SAR). This translates into the LCM/COMPASS model predicting that a majority of SARs under the PA will be well below 1%, indicating very large risk of further population decline from present depressed levels. These PA SAR results are not consistent with avoiding jeopardy or recovery, let alone achieving broad scale recovery for Snake River spring/summer Chinook populations. The CSS model predicts a higher median SAR (2.7%) for the PA; however a considerable percentage of the CSS predicted SARs for the PA (about 40%) were also well below 1%, indicating a much greater risk of further population decline (McCann et al. 2019, Chapter2). The DEIS Chapter 3 presentation of model results further obscures the poor performance of the PA because it does not capture the probability of achieving various levels of SAR for the different alternatives. The CSS results submitted to the DEIS process for options MO1, MO2, MO3, MO4 and MO34 included the probabilities of SARs less than 1% and greater than 2% for SR spring/summer Chinook and steelhead. These important probability summaries (generated in the CSS analysis) were not captured in the Chapter 3 results, rendering the reported results of a single point estimate for SARs meaningless in assessing the risks posed by the various alternatives (this is particularly alarming considering the potential uncertainties associated with a highly parameterized COMPASS model and the uncertainty that would, consequently, be propagated through the LCM SAR predictions). A search of DEIS Appendix E and Appendix V for SAR probability distributions of modeling results from LCM/COMPASS yielded nothing. More importantly, the assessment does not include or consider the probability distribution of 30 SARs for the different alternatives in the Executive Summary or in the main body of the Chapter 3 of the DEIS. Omitting the relevant indicators of uncertainty for model projections renders the DEIS presentation materially incomplete and presents a flawed assessment of the risk for the alternatives. CSS analysis has found that Chinook SARs less than 1% consistently led to decreased abundance the following generation (CSS 2017). Low abundance and critically low SARs (low productivity) equals an extremely high-risk situation for these ESA listed populations (McElhany et al. 2000; ICTRT 2007). CSS analysis has found that SARs greater than 2% generally allowed at least some level of generational increase in abundance of Chinook populations. The DEIS in chapter 3 states that the essential differences in the models involves how they express the effect of freshwater passage experience on ocean mortality. Again, the DEIS attributes the differences between CSS and NOAAs LCM results to different assumptions about hydrosystem latent mortality and, for reasons stated above, this is not accurate. The DEIS (DEIS Chapter 3 pages 361-362; DEIS Appendix V sections 3 on Latent Mortality) at states that [B]oth modeling groups continue to develop their models to address the ISABs ongoing questions surrounding the magnitude and the causal mechanisms associated with latent mortality through the hydrosystem. The CSS continues to analyze and report each year on patterns in overall SARs. NMFS has recently focused on the ISABs questions on the condition of fish using the powerhouse (more specifically the bypass systems). Their most recent publication (Faulkner et al. 2019) demonstrated size selective tendencies at many of the bypass systems in the CRS which would potentially reduce the benefit of increased spillway passage shown by the CSS model. The claim that these lower SARs are driven by fish size, not powerhouse passage, because more smaller fish pass through powerhouses and smaller fish suffer higher mortality in the ocean (Faulkner et al. 2019) is not accurate and does not address available and credible criticism of the paper on which it is based. What the Faulkner analysis does not show is whether SARs for larger fish that pass through the powerhouses are nonetheless still lower than larger 31 fish that pass via spill. Without this critical data and comparison,	of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effectively increased spill can increase salmon and steelhead returns to the Columbia Basin. Moreover, the EIS includes analysis of the climate change impacts to anadromous fish in Chapters 4 and 7.

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				the Faulkner analysis cannot support its conclusion about the role of fish size in dam passage survival. As explained further in the introductory comments, the recent paper by Faulkner et al. (2019) does not weaken the weight of evidence for hydrosystem delayed mortality because of the serious scientific flaws in that paper identified by the Fish Passage Center in their review of it (CSS 2019 Appendix G; 2019 FPC Memorandum 49-19 reviewing Faulkner et al. 2019). In short, the DEIS presents a one-sided and incomplete assessment of the two models used in it. In the Executive Summary of the DEIS (DEIS Exec. Sum., pages12-13) there is detailed criticism, and a call for future evaluation to test the validity, of the CSS model (criticism that is erroneous - see explanation above). There is, however, no criticism, or call for future evaluation, of the NOAA COMPAS/LCM modeling system despite its recognized short comings. This one-sided approach demonstrates an unexplained disparity of standards applied in the DEIS environmental assessment by the Action Agencies. The DEIS appears to pick and choose different model analyses to support or reject different alternatives rather than apply the modeled results consistently across the alternatives. In the case of the PA the COMPASS/LCM SAR results woefully underperform and indicate the PA poses a high likelihood of continued decline for the Snake River spring/summer Chinook. However, the DEIS states According to the CCS model, Snake River Chinook and steelhead are expected to see relative improvements in SARs of 35 and 28 percent respectively. Also for the PA, the DEIS does not focus on the disparity of delayed mortality treatment between the models as an essential concern. By contrast the DEIS states that Model estimates for MO3 showed the highest predicted potential smolt-to-adult returns (SARs) for Snake River salmon and steelhead among the alternatives, but goes on to say that [q]uantitative model results from both the CSS 32 and LCM were available and indicated a range of potential long-term benefits largely due to how the models address latent mortality, the delayed death of salmon following passage through the CRS. (emphasis added) The DEIS thus discounts results from the CSS analysis for MO3 based on the agencies stated concern over how latent mortality is addressed and favors the lower results for MO3 from the LCM model analyses to conclude that the benefits of MO3 to salmon survival will be modest. Picking and choosing different model results to support or discount an alternative is inconsistent with standard risk assessment. In addition, future climate conditions are widely expected to be warmer and more variable, and there is strong evidence for similar change in ocean conditions (Lijing et al. 2019). Neither CSS nor LCM fully incorporate the effects of expected climate change as both use past observations and the historical 80-year water record. Even so, the low end of the CSS model projections (probability of SARs less than 1%) are likely to be the most realistic metric for comparing the effects of the alternatives on salmon and steelhead under future climate conditions. The LCM results do not address this important issue and the DEIS does not acknowledge, let alone apply a precautionary approach (or explain why it chose not to) to using the CSS model results, especially since it fails to present modeled probabilities at all (in DEIS Executive Summary or Chapter 3 model results).	
6110	9	ttrue@earthjustice.org	Earthjustice	V. THE AGENCIES FAIL TO ANALYZE WHETHER ANY ALTERNATIVE WILL BENEFIT SALMON IN A WARMING WORLD. The agencies analyze the impact of the four multiple objective alternatives in Chapter 3. Climate change forms no part of this base analysis. See DEIS 4-1 (noting that the effects analysis in Chapter 3 is based on observed climate in the region over the 80-year period of 1929 to 2008). The agencies then tack on a separate chapter (Chapter 4) that discusses climate change generally. But Chapter 4 fails to offer a meaningful analysis of the effects of the various 33 alternatives in a warming world. Chapter 7, the chapter that discusses the preferred alternative (PA), takes the same approach. First, the agencies describe some of the effects of the PA then include a separate section on climate change without incorporating the additional adverse effects from climate change into their assessment of the effects of the PA. For example, the agencies acknowledge that a warming climate could cause moderate to severe declines in salmon and steelhead populations. DEIS 4-33. And they acknowledge that for each of the multiple objective alternatives, climate change will likely reduce the benefits and increase adverse effects to salmonids from the alternatives. DEIS 4-37 to 38. But nowhere do they discuss the magnitude or specifics of any of these effects nor whether they still expect the alternatives to meet the objective of improving conditions for juvenile and adult salmonids or to what extent. For the preferred alternative, the agencies conclude that it will improve ESA-listed anadromous salmonid juvenile fish rearing, passage, and survival and improve ESA-listed anadromous salmonid adult fish migration. DEIS 7-17. The agencies characterize the improvements for juveniles as minor to moderate and for adults as minor to major. DEIS 7-17. These assessments are based on the effects of the PA without incorporating climate change. Nowhere do the agencies discuss whether it will still provide any benefit to salmon, or the extent of that benefit, once the impacts of climate are accounted for. Instead they offer a cursory nod to the effects of climate change in a single paragraph that neglects to even mention many of its likely effects. The entire analysis of how climate will change the effects of the preferred alternative to anadromous fish is a single paragraph. It provides: Because temperature is such a critical factor to anadromous fish habitat, increases in stream temperature due to increased air temperature and changes in hydrology, including declining snowpack, could further impact fish in all regions. Increased water temperatures could also increase suitable habitat for invasive species (e.g., 34 shad and small mouth bass) that could have adverse impacts to native anadromous fish. Positive effects for anadromous species in this Preferred Alternative could be offset by adverse effects from changes in flow and increased stream temperature due to climate change. DEIS 7-201. This leaves the public with no idea as to whether the preferred alternative or any other alternative is likely to improve conditions for fish, let alone the extent to which that may occur. Climate change is not a hypothetical add-onit is indisputably a part of the landscape now and in the future. The agencies conclusion that certain alternatives would improve conditions for anadromous fish in the absence of climate change is meaninglessthat is not the world we live in. The agencies must analyze how the alternatives will perform in light of reasonable and available information about climate impacts over different periods of time. For example, the agencies analysis could include a minimal, moderate, and high warming scenario over a 30, 50 and 100 year period. This discussion should include an explanation of the effects on anadromous fish and other resources that is sufficiently detailed to allow a meaningful evaluation of the results of the alternatives in a climate change world. The agencies also must analyze the likelihood that each alternative will lead to recovery in a broad sense in the real world, i.e., in a warming world. Currently the agencies have only considered whether the alternatives will improve conditions for salmon against the baseline of the no action alternative without consideration of climate change and without acknowledging that the no action alternative itself is illegal, and has failed to achieve significant population rebuilding or recovery for any species. Indeed, even with twenty years of effort pursuing the approach of the no action alternative, salmon and steelhead populations remain at dangerously low levels. 35 If the agencies had incorporated the effects of climate into their analysis of the alternatives, it would have shown that the no action alternative, MO1, MO2 and the preferred alternative will be even more likely to lead to the rapid extinction of many runs. A minor improvement that merely slows the rate of a baseline of decline towards extinction cannot meet the various statutory requirements the agencies must meet. The Fish Passage Center analysis of SARs under each alternative does not incorporate climate, because it is based on the CSS model that uses historical data. However, the model produces a range of likely SAR returns. Experts agree that it is reasonable to assume that SARs will be at the low end of the range predicted by the CSS model with the additional adverse effects of a warming world but because the DEIS does not present these probabilities at all or employ them in its analysis of effects their analysis lacks vital and relevant information.	The co-lead agencies have carefully and completely considered high-quality, current information concerning climate change, including the full range of the latest climate change projections developed using multiple global climate models, emissions scenarios, downscaling techniques, and hydrologic models. Details of this evaluation are in Chapter 4 of the EIS. The analysis in Chapters 4 and 7 include quantitative climate change hydrologic data that is compared qualitatively with the effects from the alternative analysis. This information was used to describe the potential effects (both beneficial and adverse) on the river systems and resources due to potential changes in climate for all alternatives. The climate science community is still developing quantitative models that can address possible effects in water temperature from climate change, and unfortunately, there are not existing, reliable models, at the appropriate resolution (river-scale vs. regional or global scale) at this time. In lieu of this information, the climate analysis used the output from resource models, like water quality and fish, under historical conditions, available climate change data, and scientific literature to qualitatively assess potential effects to resources (described in Chapter 4). Regarding the comment that agencies "must analyze the likelihood that each alternative will lead to recovery", the co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA listed species.
6110	10	ttrue@earthjustice.org	Earthjustice	A. The DEIS omitted substantial and relevant information that would have provided a rational basis for assessing how the alternatives will perform in a warming world and the extent to which the proposed mitigation measures in the PA will or will not – actually alleviate both climate and hydrosystem impacts on salmon and steelhead. In the DEIS-4.2.3.5, the impacts of climate change on anadromous fish are briefly described. However, any formal evaluations, in both the mainstem and the tributaries, on the ability of the alternatives to meet any of the objectives for listed salmon and steelhead under a warmer future that is almost assured, appears to be absent. This absence is particularly disconcerting considering Crozier et al. (2019) found that several listed distinct population segments in the CRB were considered to have a very high (Snake River spring/summer Chinook and sockeye) or high (Snake River steelhead and fall Chinook, Upper Columbia River spring Chinook, Mid-Columbia River spring Chinook and steelhead) vulnerability to climate change. Under the assumption that the No Action Alternative largely continues to implement the measures of the RPA from the 2014 BiOp, especially for habitat actions, some of the survival 36 improvements from habitat restoration required to mitigate for the impacts of the FCRPS would come from restoration in the tributaries to improve spawning and rearing habitat for salmonids. The ability of these offsite mitigation actions to achieve this goal, under current and future conditions, should have been explicitly addressed in the DEIS but that analysis appears to be missing. The entire analysis of how climate will change the effects of the preferred alternative to anadromous fish is a single paragraph in the main DEIS. It provides: Because temperature is such a critical factor to anadromous fish habitat, increases in stream temperature due to increased air temperature and changes in hydrology, including declining snowpack, could further impact fish in all regions. Increased water temperatures could also increase suitable habitat for invasive species (e.g., shad and smallmouth bass) that could have adverse impacts to native anadromous fish. Positive effects for anadromous species in this Preferred Alternative could be offset by adverse effects from changes in flow and increased stream temperature due to climate change. DEIS 7-201. While not cited anywhere in the DEIS, even in the table of contents, except on pg. 8-1 (only to state a biological assessment has been provided to NMFS and USFWS); the Biological Assessment in Appendix V provides a bit more information on the conclusion that tributary habitat actions will still provide benefits in a warmer future. The reasoning for most of this is referenced in Appendix D of Appendix V, which references NMFS (2019) and RMJOC-II (2018), the latter of which was mainly used for mainstem flows and temperatures, rather than tributary evaluations. An	The agencies have evaluated climate change using high quality, current information. The evaluation consisted of the full range of the latest climate change projections developed using multiple global climate models, emissions scenarios, downscaling techniques, and hydrologic models. Details of this evaluation are in Chapter 4 of the EIS. This information was used to describe the potential effects (both beneficial and adverse) on the river systems and resources due to potential changes in climate for all alternatives. The analysis in Chapter 4 includes quantitative climate change hydrologic data that is compared qualitatively with the effects from the alternative analysis. The RMJOC-II products available for the climate analysis included two 30-year epochs, the 2030s (2020-2049) and the 2070s (2060-2089). RMJOC-II Part 2 was not finalized at the time of this analysis. The co-lead agencies expect this study to be published in summer of 2020. The conclusions described in Section 4.2 of this study were evaluated with the preliminary outputs and draft conclusions of RMJOC-II Part 2 and were determined to be consistent, and thus not need updating. The climate science community is still developing quantitative models that can address possible effects on water temperature from climate change, and unfortunately, there are not reliable models at the appropriate resolution (river-scale vs. regional or global scale) at this time. This data is critical to analyzing potential effects to fish quantitatively. In lieu of this information, the climate analysis used the output from resource models, like water quality and fish, under historical conditions, available climate change data, and scientific literature to qualitatively assess potential effects to resources (described in Chapter 4). The co-lead agencies disagree that the absence of modeling of climate change effects on tributary stream temperatures across the Columbia River Basin is an unexplained and important omission in the Draft EIS. The climate change analysis in the Draft EIS provides an objectively reasonable assessment of likely climate change effects throughout the environment affected by operation of the Columbia River System. The co-lead agencies also disagree with the suggestion that they are obligated to mitigate the effects of climate change, but agree that climate change is an important consideration in the selection and design of habitat improvement projects.

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				unexplained and important omission in the DEIS is the effects of climate change on tributary stream temperatures and the effects this has on the effectiveness of hydrosystem offsite habitat mitigation to improve overall salmon survival under a warmer regime. Among the conditions that may affect the results of these mitigation measures is the loss of suitable natal 37 habitat in low-altitude watersheds (generally below 4000 ft mean sea level), while higher altitude natal habitats remain cool enough to support healthy anadromous fish. Here we demonstrate that much information and analysis exists that could be have been used in the DEIS but was not to evaluate how climate change will impact the spawning and rearing habitat of these species as well as the population responses across all actions. Several empirical temperature models are available to evaluate the effects of increase in air temperature on instream temperature and flows under future scenarios that can be used to inform the DEIS (Whited et al. 2012, Klos et al. 2014, Isaak et al. 2017). The NorWeST database, for example, was created to house temperature data from more than 22,000 sites across the west (Isaak et al. 2017). Spatial stream network autocorrelative relationships between multiple temperature logger data have been used to create continuous models of stream temperatures. These models have been used to evaluate changes to stream temperature under different global climate model future predictions for over 340,000 km of stream. Several mechanistic temperature models also exist (Boyd and Kasper 2003, Baker and Bonar 2019) with HeatSource perhaps one of the most comprehensive. It has been used to model longitudinal stream temperature profiles in several streams (Butcher et al. 2010, Bond et al. 2015, Justice et al. 2017). Because of the mechanistic nature of this model, the ability to extrapolate temperature effects across different alternative restoration and climate scenarios is more robust than empirical temperature models. The model is first calibrated, often to thermal infrared data, to provide a longitudinal temperature profile throughout the stream. Once validated, variables in the model can take on different values relevant to the scenarios to be modeled. For example, change in shading due to riparian vegetation, water withdrawals, channel morphology, decreased flows and increase air temperature can be adjusted to represent 38 alternative restoration actions and climate change scenarios (Justice et al. 2017, Wondzell et al. 2019). These temperature models can be used in the evaluation of expected changes due to restoration and under warming conditions on fish habitat, and ultimately on fish populations, as should be done in the DEIS to determine if off-site mitigation will help offset hydrosystem mortality under warming conditions. Isaak et. al. (2018) confirms that although water temperatures throughout the Snake/Columbia basin have increased in recent decades, particularly in late summer and early fall, the high tributaries of the Snake Basin remain cool, providing healthy, cool-water natal habitat for salmonids. Further, under continued warming trends of 1, 2, and 3 degrees C, the study shows that uppermost Snake Basin natal habitat, much of it in central Idaho, will remain cool - healthy spawning and nursery habitat for salmonids (e.g. Figure 1). In Appendix V, Beechie et al. (2013) is referenced as a means to prioritize restoration to prepare for more resilient habitat in a warming future, using similar maps for changes in temperature and flows. This is an important step if actually used, but the main point of Beechie et al. (2013) is for restoration to mitigate the impacts of climate change, not the hydrosystem plus climate change as the DEIS apparently assumes. [Remainder of page left intentionally blank.] 39 Figure 1: Mean August river temperatures for A) 19932011 baseline scenario thermal suitability for salmonids and B) +3.0 C scenario thermal suitability. Mean August river temperature scenarios classified by thermal suitability for brown trout and rainbow trout. From Isaak et al. (2018). Justice et al. (2017) provides an example of how HeatSource can be used with data on Chinook and their habitat to evaluate potential restoration benefits in the upper Grande Ronde A: B: +3.0 C 40 River and Catherine Creek, for spring/summer Chinook populations of the Grand Ronde/Imnaha MPG, and the Snake River ESU. The inputs to the HeatSource model included topography from LiDAR, local climate data, streamflow, and water temperature data from thermographs. The model was used to evaluate restored riparian vegetation (which included modeling plant growth after planting), channel morphology, and moderate climate change predictions on the longitudinal stream temperature relative to current conditions. They found a warmer future climate increased weekly maximum temperatures above lethal limits across most of the upper Grande Ronde by raising stream temperatures by 2.7 C (Figure 2). Restoring riparian vegetation to historic natural levels could decrease stream temperatures by 5.5 C, but under climate change this was reduced to an average decrease of 1.9 C, and for over half the stream length this change was equal or greater than current stream temperatures (Figure 1). Decreasing the stream width and restoring vegetation resulted in an average decrease of 3.5 C under the climate change scenario but again, over a third of the stream was similar or warmer than current conditions. As the authors acknowledged, the restoration scenario was unrealistically optimistic in assuming that the entire riparian zone was immediately replanted at pre-European densities and the plantings survived across the entire stream length. Similarly, decreases in stream width occurred immediately at very high levels due to restoration. Restrictions by private landowners, grazing by domestic and wild ungulates, and imperfect survival of plantings are likely to greatly reduce the success of these restoration efforts. Although assuming restoration will happen immediately is unrealistic and unlikely, the delayed impacts plus the required tree growth is on a similar time frame as the simulated climate scenarios (i.e. 2080 air temperatures). The planned restoration in the DEIS, even if successful, would do far less than restore conditions to pre 41 European levels and so is much less than that assessed in restoration scenarios, with 140 acres of riparian restoration expanding to 420 acres, stream complexity restoration is 8 miles and 24 by 2026 and 2036, respectively (Table D.2 and D.3, Appendix V, DEIS). In summary, the planned restoration efforts, while vital to maintain a habitable environment, may not even mitigate for climate change alone, especially at the levels planned for in the DEIS, leaving no additional benefits that might help mitigate for the impacts of the hydrosystem. Figure 2. Simulated maximum weekly maximum water temperature (MWMT) in the mainstem Grande Ronde River from the headwaters to the Catherine Creek confluence for four model scenarios including current conditions, 2080s climate conditions, 2080s climate conditions plus riparian vegetation restoration, and 2080s climate conditions plus riparian vegetation and channel-width restoration. From Justice et al. (2017). This exercise by Justice et al. (2017) in examining habitat restoration has been put into a population context in two life-cycle modeling efforts by Pess and Jordan (2019) and Weber et al. (2018). DEIS Appendix D of Appendix V references NMFS (2019), which references Pess and Jordan (2019), as to how to habitat actions can be incorporated into life-cycle models. Pess and Jordan (2019) coupled Zabel et al. (2006; which is the original basis for the COMPASS model) 42 to evaluate the multiple proposed actions outside the spawning and rearing habitat, with the results from Justice et al. (2017) and White et al. (2018) to incorporate tributary habitat restoration, on spring/summer Chinook populations in Catherine Creek and the upper Grande Ronde. Climate change scenarios were reportedly being developed but were not yet available. It is not clear why this work could not be completed or used in any way. The second life-cycle model effort by Weber et al. (2018), evaluates these habitat actions plus climate change impacts, but uses LGD-spawning ground SARs 1992-2011 rather than trying to model multiple hydrosystem configurations. Here we briefly describe, compare, and contrast those two efforts to demonstrate the impact climate change has on restoration efforts. Pess and Jordan (2019) modeled the expected habitat and mainstem actions, supplementation, and harvest schedules plus different assumptions of latent mortality differences between baseline and the preferred actions benefits to Chinook populations. For Catherine Creek, projected to 24 years under the proposed 2020 habitat actions and hydrosystem configuration (i.e. similar to the proposed action), the median quasi-extinction risk (QER; defined as <50 spawners in 4 consecutive years) was >5% (6-12%; assumed acceptable probability of extinction threshold is <5%) unless hydrosystem latent mortality 2 was reduced 50% or more from the baseline level (median QER of 2.8%) (Table 1). Most other combinations of assumptions in the modeled alternative had extinction probabilities <5%. Grande Ronde, however, had very high median extinction probabilities (often >90%) in all modeled scenarios 2 From NFMS (2019; 2.11 pg 496) : The NWFSC also considered three latent mortality reduction scenarios that were deemed to roughly represent the ranges of potential outcomes (increased productivity) indicated by the CSS (2017) for the up to 120 percent flexible spill operation compared to recent or biological opinion spill operations: 10 percent (1.10 multiplier), 25 percent (1.25 multiplier), and 50 percent (1.50 multiplier). Also see DEIS Appendix V 3-13 for more information on the definition of latent mortality. The lack of any rational basis for these assumptions regarding levels of latent mortality is addressed in the discussion of the LCM and CSS models elsewhere in these comments. 43 that encompass the DEIS PA (Table 2). Longer-term benefits (e.g. beyond those considered in the DEIS), suggested that if all actions were implemented, realized, and maintained (before the population went extinct), recovery was likely. But, significantly, Pess and Jordan (2019) did not model impacts due to climate change in these scenarios. Weber et al. (2018) modeled the basic scenarios presented in the Justice et al. (2017), but simply used actual SARs over the past 20 years, rather than evaluating alternative hydrosystem configurations for these two populations. This model was simplified to mainly demonstrate how different habitat restoration and climate change scenarios influenced model predictions. They also ran scenarios that assumed supplementation did not happen in perpetuity but ceased after 40 years. Because of the different timeframes and a few assumptions along with added stochasticity the two model produced slightly different numbers of spawners under current (baseline) conditions with median estimates of 48 and 265 in Weber et al. (2018; Table 3), and of 57 and 140 in Pess and Jordan (2019; Tables 1&2), for Grande Ronde and Catherine Creek, respectively. [Remainder of page left intentionally blank.] 44 Table 1. Projected 24-year natural abundance and quasi-extinction risks for alternative habitat restoration scenarios (5, 25, 50, 75, and 95 percentiles over 500 simulations) for the Catherine Creek population. 2018 Baseline scenario includes increased Lower Columbia predation rates, ongoing hatchery supplementation, and current mainstem harvest schedule. Habitat action scenarios are modeled under current (2018) proposed hydrosystem spill operations constrained by 120% gas cap. Habitat scenarios: 2020: 201820 actions at minimum annual rate; 2024: current Grande Ronde Model Watershed proposed 201924 actions; LT (long-term) Habitat Actions: 20-year implementation of high/moderate-priority reaches	

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				plus recovery plan actions; LT + DS (downstream survival) Habitat Actions: LT Habitat Actions plus improved valley outmigration survivals. From Pess and Jordan (2019). 45 Table 2. Projected 24-year natural abundance and quasi-extinction risks for alternative habitat restoration scenarios (5, 25, 50, 75, and 95 percentiles over 500 simulations) for the Upper Grande Ronde River population. 2018 Baseline scenario includes increased Lower Columbia predation rates, ongoing hatchery supplementation, and current mainstem harvest schedule. Habitat action scenarios are modeled under current (2018) proposed hydrosystem spill operations constrained by 120% gas cap. Habitat scenarios: 2020: 201820 actions at minimum annual rate; 2024: current Grande Ronde Model Watershed proposed 201924 actions; LT (long-term) Habitat Actions: 20-year implementation of high/moderate-priority reaches plus recovery plan actions; LT + DS (downstream survival) Habitat Actions: LT Habitat Actions plus improved valley outmigration survivals. From Pess and Jordan (2019). 46 Table 3. Median population size and quasi extinction risk (pQER) of natural origin spawning Chinook in the Upper Grande Ronde (UGR) and Catherine Creek (CC) for 500 model iterations of restoration scenarios over 50 yrs. Curr is the baseline model calibrated using 2010 temperature, climate, vegetation, and hydrologic conditions, Clim is air temperature and streamflow set to 2080s climate projections, ClimVeg adds vegetation set to potential cover and height at 75 years, and ClimVegWid adds channel width set to historic conditions. While Weber et al. (2018) demonstrated that continuation of the current hatchery supplementation may be crucial for the Grande Ronde population, a perhaps unsurprising outcome, the Catherine Creek population went extinct without aggressive habitat restoration. The differences between the current and climate-change-only scenario, suggests that increased temperatures resulted in 36-50% lower projections of returning spawners. Assuming climate scenarios would have a similar impact to Pess and Jordan (2019) predictions, these results highlight the need to actually incorporate climate change projections into the analysis in the DEIS in order to adequately and rationally evaluate the effects of the different alternatives. We use the Grande Ronde/Catherine Creek fish, considered data-rich populations in the Snake River ESU, as examples to demonstrate that a life-cycle modeling approach that includes evaluating feasible habitat restoration actions meant to mitigate for some of the hydrosystem mortality (assumed in several of the alternatives considered in DEIS) have been developed but are not presented in the DEIS. We also demonstrate methods exist to predict the impacts climate change has on stream temperature – a massively important variable describing habitat suitability Current Supplementation Cease Supplementation Pop Scenario Median natural spawners Median natural spawners pQER UGR Curr 48 16 0.972 Clim 24 5 1 ClimVeg 72 33 0.872 ClimVegWid 89 42 0.784 CC Curr 265 186 0.032 Clim 169 121 0.118 ClimVeg 316 223 0.004 ClimVegWid 346 261 0.01 47 for cold water species such as salmon and steelhead. But both the changes in stream temperature (from climate impacts) and subsequent population responses have not been included in the DEIS, even though spawning and rearing habitat restoration was recommended as a major hydrosystem mitigation tool over 20 years ago by NMFS (2000) and the courts have identified the need to account for climate impacts on these actions if they are to be considered rationally as mitigation for hydrosystem impacts. We provide evidence that these restoration activities are critical but that they will mainly mitigate for a changing climate leaving little scope for these actions to contribute to mitigation of the hydrosystem, a main strategy assumed in the DEIS preferred alternative. The results of Weber et al. (2018) are similar to Battin et al. (2007) that used a similar life-cycle model approach to evaluate moderate and full habitat restoration to recover Snohomish ocean-type (fall) Chinook. They found restoration could not even mitigate for a changing climate unless full restoration was implemented under a more optimistic climate projection. Although not modeled, they expect these conclusions would be even more dire for spring Chinook that rear in freshwater for a year. The approach considered here is far from conservative, and may not include additional factors identified in the DEIS Appendix D (3-31) of Appendix V that may affect the effectiveness of habitat restoration in a climate changed world, such as: projected warmer stream temperatures could increase pre-spawning mortality and cause a decrease in growth, development rates, and disease resistance; changes in flow regimes (projected larger winter floods and lower flows in the summer and fall) could reduce overwintering habitat for juveniles, reduce egg and juvenile survival, reduce spawning habitat access/availability, and alter spawning run timing, timing of smolt migration may change due to a modified timing of the spring freshet; changing ocean conditions and marine food webs could affect ocean survival and growth; 48 projected sea level rise could cause significant reductions in rearing habitat in some Pacific Northwest coastal areas. There is available and credible scientific information the agencies could have used to address some or all of these topics (Crozier 2016, Beechie et al. 2013,Isaak et al. 2018), but they did not do so, and did not explain their choice to disregard these issues. McCullough (1999), for example provides an in-depth synthesis of the effects of temperature on the prevalence of disease growth, survival and behavior across all life-stages of Chinook. Further review across the life-history for interior Columbia River Chinook and sockeye populations can be found in Crozier et al. (2008) with relevant references summarized in Table 1. References addressing the influence of climate and temperature on some of the specific topics include: prespawning mortality and adult upstream migration timing (Rand et al. 2006, Keefer et al. 2009, Crozier et al. 2011), egg survival and development (McCullough 1999), disease susceptibility (McCullough 1999), smolt migration timing and estuary nursery habitat (Munsch et al. 2019), juvenile habitat availability and survival (Crozier and Zabel 2006), ocean conditions and survival (Petrosky and Schaller 2010). These additional issues add doubt to the ability to meet DEIS objectives with the PA and are relevant factors that the DEIS does not consider when evaluating the alternatives. Additionally, given the increased importance of higher altitude natal habitats in upper tributaries (Battin et al. 2007, Isaak et al. 2018), the PA does not address or explain why it substantially underemphasizes the value of improved SARs for Snake River stocks. The DEIS has failed to address this factor rationally in the evaluation of the various alternatives, notably deficient in the PA. SARs below 2% reveal a population that is declining and cannot be sustained. The NPCC (2014) Fish and Wildlife Program objectives include achieving SARs averaging 4% and ranging from 2%-6% on a sustained basis for the rebuilding of listed Snake 49 and upper Columbia salmon and steelhead abundance. SARs measured at Lower Granite Dam (LGR) are most relevant to escapement objectives and ESA population abundance criteria. Wild Snake River spring/summer Chinook SARs (measured at LGR) averaged only 0.8% from 1994 2017; while wild steelhead SARs have averaged 1.4% (CSS 2019). SARs less than 1% have consistently resulted in population decline from one generation to the next for Snake River spring/summer Chinook and steelhead in recent years (CSS 2017, Petrosky et al. in press). SARs averaging 4% or greater would increase the number of returning adults to this best-remaining cold-water natal habitat, potentially protecting salmon basin-wide as climate change continues. The agencies have also failed to analyze the effects of dam breach (MO3) and other alternatives on species-level climate resilience. The agencies acknowledge that breaching the Lower Snake River dams will allow salmon populations from the Snake River Basin system to increase and achieve sustainable SAR levels far more often than other alternatives including the PA. But they fail to consider that dam breach also allows more fish to access the coldest-water habitat remaining in a warming world. Some areas where water is already too warm may not be able to support substantial populations in the future. Decreases in these runs could be offset by increases in runs that rely on the coldest-water habitat. Increasing Snake River runs now will provide salmon with a buffer against the adverse effects of the warming to come. The PA is unlikely to do that.	
6110	11	ttrue@earthjustice.org	Earthjustice	B. The agencies do not explain why they consider climate impacts over only 25 years but consider other impacts over 50 years, especially in light of the evidence available to consider climate impacts at least 50 years out. The agencies define the temporal scope of the EIS as 25 years, except socioeconomic impacts (such as power costs and navigation costs) which inexplicably are analyzed over a 50 year period. DEIS ES-8. For climate, the agencies use the 25-year scope. DEIS 4-1. 50 We know that our climate will continue to warm for decades into the future, even if global greenhouse gas emissions ceased tomorrow. In order to present a rational analysis of the effects of the alternatives, the agencies must consider climate impacts on a longer time horizon at least the 50-year time line used for economic impacts, if not longer to understand whether measures taken today will help recover salmonids over time. All alternatives incorporate a set of mitigation measures from the no action alternative. DEIS 5-5 to 5-13. These include habitat measures that will not begin to benefit salmon for many years. As discussed in more detail above, the agencies cannot rationally conclude that these measures will provide any benefit without incorporating the long-term impacts of climate into their assessment of effects. Habitat restoration in a tributary that will be too warm to support salmon by the time the restoration is complete provides no benefit at all. The underlying studies the agencies use to predict climate conditions 25 years out are studies that include detailed information on climate impacts in the Pacific Northwest over a longer time horizon. DEIS 4-1. For example, they include a graph showing the anticipated range of warming in the Pacific Northwest through the end of the century, DEIS 4-3, which shows a dramatic increase in average daily air temperatures in the Columbia River Basin. They also include estimates showing decreasing snowpack through the 2080s. DEIS 4-5. But the agencies fail to consider the consequences of climate change beyond the 2030s in their analysis of effects and they never connect these effects over a limited period of time to their assessment of the results for the alternatives they consider. The agencies have the information for a more complete assessment at their fingertips. There is no rational reason to ignore it. The inherent uncertainty in predicting climate effects 50 years out is no excuse to ignore those effects. The agencies can and should analyze effects under mild, moderate, and severe warming scenarios. The agencies chose to analyze economic impacts 50 years out, while 51 admitting that many impacts are very difficult to predict over that time horizon for example, the agencies acknowledge that rate impacts are difficult to predict beyond 20 years, but include them all the same. Uncertainly is no excuse to ignore the long-term effects of climate change, particularly when it is certain that the adverse effects of climate change will worsen over that time horizon.	The co-lead agencies explained in various resource sections in Chapters 3 and 4 their reasoning for the time horizons of the impact assessments. In particular, a 50-year horizon was necessary to capture the socioeconomic and other impacts of the major infrastructure measures, including breaching the four lower Snake River dams in Multiple Objective 3 (MO3). Regarding climate change, climate analyses typically rely on statistical composites of discrete periods to describe future conditions. The RMJOC-II products available for the climate analysis included two 30-year epochs, the 2030s (2020-2049) and the 2070s (2060-2089). The CRSO EIS climate analysis used the 2030s 30-year time horizon (2020-2049). The later epoch (2070s) was not used as it was outside the horizon typically considered in NEPA analyses. The co-lead agencies disagree with the claim that they cannot rationally conclude that [mitigation] measures will provide any benefit without incorporating the long-term impacts of climate into their assessment of effects. Mitigation measures are targeted to known limiting factors that will persist, and in many cases worsen, in a changing climate. Moreover, attempting to define the specific effects of climate change on a particular location at a particular point in time, let alone on the aquatic species reliant on that stream for habitat, and in turn the effectiveness of potential habitat improvement actions, would be too speculative to support reasoned decision-making.

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6110	12	ttrue@earthjustice.org	Earthjustice	C. The DEIS does not evaluate how the alternatives it considers will be affected by climate change. The preferred alternative includes virtually no new measures to mitigate for the enormous impacts it will have on salmonids. It includes no mitigation at all to compensate for the additional adverse effects of climate change. The mitigation measures for the preferred alternative include a list of previous commitments that are carried forward into the preferred alternative. DEIS 7-38 to 7-43. See also DEIS 5-5 to 5-13. These are all the same actions the agencies have been taking for years, without recovering a single run. In fact, they are a continuation of actions the courts have concluded are not even sufficient to avoid jeopardy under the ESA, partly because they do not take climate impacts into account. The agencies also propose several additional mitigation measures in conjunction with the preferred alternative. DEIS 7-44 to 7-45. Many of these have nothing to do with salmon. There simply are no additional mitigation measures to offset the additional adverse effects of climate. The agencies briefly mention that some of the measures they have been working on for years, such as habitat restoration and connectivity, will help address the effects of climate change. DEIS 5-7. But the agencies are already relying on these mitigation measures to compensate for the devastating effects of the hydrosystem on listed salmon. To provide a buffer against the adverse effects of climate change, the agencies will need to include mitigation above and beyond the mitigation necessary to offset the harm from the operation of the dams. The 52 agencies acknowledge that a warming climate could cause moderate to severe declines in salmon and steelhead populations. DEIS 4-33. The agencies must analyze and include substantial additional mitigation measures to offset these moderate to severe declines. The also agencies do not include any evaluation of the effects of the alternatives on salmon and steelhead habitat above the dams in their analysis of the effects of the CRSO. But even if the dams dont change areas above them directly, they have a major impact on how many fish make it to those tributaries. The agencies need to expand the action area to examine habitat above the dams, the effects of climate there and how these effects will affect salmon and steelhead in the future. In particular, the agencies must analyze the effects of dam breach (MO3) and other alternatives on species-level climate resilience. The agencies acknowledge that breaching the Lower Snake River dams will allow salmon populations from that river system to increase. But they fail to consider that dam breach allows more fish to access the coldest-water habitat in a warming world. Some areas where water is already too warm may not be able to support substantial populations in the future. Decreases in these runs could be offset by increases in runs that rely on the coldest-water habitat. Increasing Lower Snake River runs now will provide salmon with a buffer against the adverse effects of the warming to come.	The co-lead agencies have carefully considered high-quality, current information concerning climate change. The co-lead agencies disagree with the suggestions that they should mitigate the effects of climate change and are responsible for recovering salmon runs. The ESA does not require the co-lead agencies to take affirmative actions to recover ESA-listed species. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the CRS. Recovery is ultimately the role of NMFS and the USFWS. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. The agencies also disagree that the affected environment should be expanded to include habitat above the dams since the proper scope of the EIS is to evaluate the effects to resources affected by CRS operations, maintenance and configuration. To the extent that system operations affect salmonid abundance, those effects have been fully described in the No Action, Multiple Objective alternatives, and the Preferred Alternative.
6110	13	ttrue@earthjustice.org	Earthjustice	D. The DEIS fails to address the effects of the alternatives on water temperature, especially in the lower Snake River, rationally and objectively. As explained more completely in comments on the DEIS submitted by Columbia River Keeper, the DEIS fails to describe and disclose the effects of the alternatives, especially MO3, on water temperature in the lower Snake River and hence presents a misleading picture of the effects of MO3 on salmon and steelhead. Rather than repeat these comments here, we refer the agencies to them for a more complete description of the failures of the DEIS with respect to water temperature. Further, American Rivers has or will be submitting comments on the DEIS 53 that address the analysis of sediment impacts from MO3 which we also refer to here for a more complete description of this issue.	The EIS analysis for temperature was conducted using 1 and 2-dimensional water temperature models (CE-QUAL W2 and HEC-RAS) to predict impacts to water temperature from the EIS alternatives. These models went through extensive development and review, with guidance from many well-respected scientists in the region. The CE-QUAL-W2 model (Version 4.2) was used to simulate reservoir water temperature and Total Dissolved Gas (TDG) both by depth and distance longitudinally. The HEC-RAS model (Version 5.0.3) was used to simulate upstream and downstream river (non-reservoir) water temperatures in the Snake, Clearwater, and middle Columbia rivers. In the Snake River Basin, the system model (which refers to the portions of the study area that were analyzed with the CE-QUAL W2 and HEC-RAS models linked together) included the North Fork of the Clearwater River from Dworshak Reservoir, the mainstem Clearwater River downstream of Orofino, Idaho, and the Snake River from Anatone, Washington, to the mouth of the Snake River. The system model required reservoir and river operations data and meteorological data such as wind speed and direction, air temperature, and barometric pressure inputs to predict water quality conditions. The reservoir and river operations data used in the system model included total discharge, spillway and powerhouse operations, other discharge routes, and reservoir/tailwater elevation data. After running the system model, the simulated water temperature and TDG data were compared to state, Federal and Tribal temperature and TDG standards to quantify the effects associated with each alternative, including Multiple Objective 3 (MO3). As these models underwent extensive development and review from many scientists in the region, it is incorrect to suggest that the effects on water temperature were not evaluated rationally and objectively. As described in the Draft EIS, breaching the four lower Snake River dams under MO3 would produce a major change in the volume and the amount of heat stored (e.g., heat storage capacity) in the lower Snake River. Water temperatures would respond accordingly, shifting from a reservoir to river system, with rapid warming in the spring and cooling in the fall. The specific modeling results are presented in Section 3.4.3.6 and Appendix D. Both quantitative and qualitative assessment methods were used to assess relative potential changes to river mechanics (sediment transport and geomorphology) for each Multiple Objective alternative, including MO3. Seven quantitative metrics were developed to represent various physical characteristics and processes that could affect storage reservoirs, run-of-river reservoirs, and free-flowing reaches. These seven scalar metrics are derived as deterministic calculations based on the hydrologic and hydraulic numerical modeling (see Section 3.2.2.1) which established stochastic datasets that represent the system state of hydrology, hydroregulation, and riverine hydraulics. The quantitative metrics were interpreted within a subreach context to estimate qualitative trends for anticipated impacts at various locations within the study area. Additionally, for the Environmental Consequences assessment of the Breach Snake Embankments measure under MO3, a numerical mobile bed riverine hydraulic model was developed as described in Section 3.4 of Appendix C. Additional detail regarding the geomorphology and sediment transport metrics can be found in Appendix C. For each of the regions in the study area, sediment quality effects were evaluated qualitatively, using existing field data and information from past studies (white paper; i.e., CH9). There was no overall model describing sediment quality; however, sediment movement information from Section 3.3, River Mechanics, and the associated white paper; i.e., CH9 were used to inform the sediment quality analysis. For more information on these models and geomorphology and analysis, refer to Appendix D, Water and Sediment Quality Appendix, and Appendix C, River Mechanics Technical Appendix.
6110	14	ttrue@earthjustice.org	Earthjustice	They (and other groups, including Earthjustice) also reserve the right to submit additional comments on these and other issues after April 13, 2020, in light of the inadequate public comment period the agencies have provided for the CRSO DEIS.	The co-lead agencies considered requests to extend the public comment period. This NEPA process included a wide array of cooperating agencies whose close involvement throughout the process allowed the co-lead agencies to incorporate feedback. Given the broad range of comments received and the extensive Federal and non-Federal participation in the overall process as well as the level of public engagement in the six virtual public meetings in the region, the co-lead agencies determined that an extension was not warranted and that the 45-day public comment period was adequate consistent with NEPA regulations. On April 9, the CRSO EIS website was updated to inform the public that they should plan to submit comments by the close of the comment period.
6110	15	ttrue@earthjustice.org	Earthjustice	VI. THE DEIS FAILS TO ADDRESS RATIONALLY (OR AT ALL) THE EFFECTS OF OCEAN CONDITIONS ON THE PERFORMANCE OF THE ALTERNATIVES IT CONSIDERS The DEIS is woefully deficient in its consideration of the effects of climate change in the marine environment. In overturning the 2014 BiOp for making unexplained, and unjustifiable, optimistic assumptions about the impacts of climate change on salmon, the Court held that NOAA Fisheries had before it a significant amount of new scientific information on the effects of climate change but chose merely to recite some of the information . [and] failed properly to evaluate the degree to which climate change will cause added harm and and the efficacy of measures the federal agencies had hoped would mitigate the effects of the FCRPS. Natl. Wildlife Fedn. v. Natl. Marine Fisheries Serv., 184 F. Supp. 3d 861, 923 (D. Or. 2016). Rather than meaningfully incorporate climate change into its analyses, the DEIS continues and compounds the federal agencies past failures to account let alone mitigate for the profound effects of rapidly changing ocean conditions on salmon. As the action agencies and others are quick to highlight in other contexts, ocean conditions have a significant effect on salmon populations. But the DEIS contains almost no discussion of, and fails completely to analyze, the effects of rapidly warming oceans on salmon by themselves or in combination with other impacts. Indeed, the only discussion of this significant stressor is a single-page, general recitation of three changes that are likely to affect salmon from the impacts of climate change on the ocean ecosystem: reduced thermal habitat, ocean acidification, and changes in the estuary. 54 DEIS at 4-35 to 4-37 (noting that increased ocean temperatures will reduce salmon marine habitat, but dismissing effects as challenging to predict) (noting generally that ocean acidification will alter food webs and can interfere with salmons olfactory sense) (noting that changes in estuary habitat and salinity levels from sea-level rise and changes to the Columbia River plume could possibly influence survival). Generally recognizing these broad types of effects without analyzing how they affect salmon populations under each of the alternatives falls well short of satisfying NEPAs hard look requirement. Climate impacts are additive to the ongoing harm from FCRPS operations. The agencies must evaluate both the extent to which changing oceans conditions will further degrade the affected environment and associated salmon survival and whether and how its alternatives will ensure salmon survival in this worsening scenario. The DEIS does neither. This failure is not for lack of evidence. As with the freshwater impacts of climate change, there is a wealth of information forecasting the physical and biological impacts – including to salmon populations from the rapid warming of the California Current Ecosystem and the North Pacific Ocean. Ocean heat waves, like the warmwater blob that devastated the West Coast marine ecosystem from 2013-2015, are increasing in frequency, intensity, and duration. Oliver ECJ, Donat MG, Burrows MT, et al. Longer and more frequent marine heatwaves over the past century. Nat Commun. 2018;9(1):1324. Published 2018 Apr 10. doi:10.1038/s41467-018-03732-9; Di Lorenzo, E., and N. Mantua. 2016. Multi-year persistence of the 2014/15 North Pacific marine heatwave. Nature Clim. Change 6(11):1042-1047. Less acute long term temperature increases are shifting and shrinking the range of salmon populations and their prey, with more frequent disruptive transitions between El Nio and La Nia conditions (less time in neutral conditions 55 And ocean acidification is altering the assemblage and distribution of the organisms that form the base of the food web salmon rely upon. For example, while the DEIS briefly mentions that salmon ocean habitat is expected to contract, a 2011 study detailed a range of potential contractions of the ocean range for all species of salmon between now and 2080. Omar I. Abdul Aziz, Nathan J. Mantua, Katherine W. Myers, Potential climate change impacts on thermal habitats of Pacific salmon (Oncorhynchus spp.) in the North Pacific Ocean and adjacent seas, Canadian Journal of Fisheries and Aquatic Sciences, 2011, Vol. 68, No. 9 : pp. 1660-1680, https://doi.org/10.1139/f2011-079 (predicting contraction of Chinook ocean summer range up to 88% by 2080, contractions for other species of up to 50% beginning with contractions of 5-24% by the 2020s). See also Natl. Wildlife Fedn., 184 F. Supp. 3d at, 920-93 (discussing agencies failure to use this study in 2014 BiOp). A more recent study found that sea surface temperatures in the west coast California Current Ecosystem will rise 2C above the 1900-1975 baseline by 2025. Alexander, M. A et al. 2018. Projected sea surface temperatures over the 21st century: Changes in the mean, variability and extremes for large marine ecosystem regions of Northern Oceans. Elementa-Science of the Anthropocene 6 (available at https://www.elementascience.org/article/10.1525/elementa.191/). Even more recently, a climate change assessment of several populations of West Coast salmon, including several stocks for the Columbia River basin, summarized studies concerning marine climate change impacts and concluded that although we have highlighted risks in freshwater stages, these findings suggest that warmer oceans could be catastrophic for salmon populations throughout the California Current Ecosystem. Crozier LG, McClure MM, Beechie T, Bograd SJ, Boughton DA, Carr M, et al. (2019) Climate vulnerability assessment for Pacific salmon and steelhead in the California Current Large Marine Ecosystem. PLoS ONE 14(7): 56 e0217711.	The decline of salmon populations is complex and recovery of those species will take collaboration between various agencies including NMFS and the Tribes. The co-lead agencies acknowledge that the ocean environment is a contributor to the decline in salmon populations that is beyond the scope of the CRSO EIS. While none of the alternatives would affect ocean conditions, the co-lead agencies recognize that these conditions are a major driver for adult returns and that numerous studies have shown the importance of this environment in the return of adult salmon and steelhead (Peterson et al. 2019). As such, two of the models used in these analyses, NMFS Lifecycle and CSS models, use metrics of ocean productivity to predict adult returns. A number of metrics that monitor ocean temperature and productivity are reported annually and are used to predict salmon returns. These metrics can be seen at: https://www.nwfsc.noaa.gov/research/divisions/fe/estuarine/oeip/g-forecast.cfm.

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				https://doi.org/10.1371/journal.pone.0217711 (available at https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0217711). The agencies cannot rationally excuse their failure to consider this and other evidence described below because some of the projections in some of these analyses extend beyond the time frame of the DEIS. Even where this does occur, there is information in these studies that would allow the agencies to address ocean effects over shorter periods of time, including the 50 year time frame the DEIS uses for some issues and even the 25 year time frame it uses for others. See NWF v. NMFS, 184 F.Supp.2d at 918 (rejecting agencys attempt to consider post-2018 benefits of habitat actions in the basin, while ignoring post-2018 harm from climate change); id. at 919 (rejecting agencys disregard of the independent scientists critique because it looked too far in the future when agency had to consider future effects in making its jeopardy determination and some of the information concerned climate impacts in the 2020s). The DEIS does not even acknowledge these impacts from ocean warming and fails completely to consider these effects on salmon under any of the alternatives. The DEIS omits a significant body of scientific evidence detailing the effects of both the geophysical and biological effects of climate change in the ocean, including but not limited to: Impacts of Climate Change on Salmon of the Pacific Northwest A review of the scientific literature published in 2014 Lisa Crozier (Aug. 2015) (available at https://www.nwfsc.noaa.gov/assets/11/8473_07312017_171438_Crozier.2015-BiOpLit-Rev-Salmon-Climate-2014.pdf); Impacts of Climate Change on Salmon of the Pacific Northwest A review of the scientific literature published in 2015 Lisa Crozier (Oct. 2016) (available at https://www.nwfsc.noaa.gov/assets/4/9042_02102017_105951_Crozier.2016-BIOPLit-Rev-Salmon-Climate-Effects-2015.pdf); Impacts of Climate Change on Salmon of the Pacific Northwest A review of the scientific literature published in 2016 Lisa Crozier (July 2017) (available at https://www.nwfsc.noaa.gov/assets/11/8905_07312017_154234_Crozier.2017-BIOPLit-Rev-2016.pdf); 57 Impacts of Climate Change on Salmon of the Pacific Northwest A review of the scientific literature published in 2017 Lisa Crozier and Jared Siegel (July 2018) (available at https://www.nwfsc.noaa.gov/assets/11/9603_02272019_153600_Crozier.and.Siegel.2 018-Climate-Lit-Rev-2017.pdf); Beaugrand G, Conversi A, Chiba S, Edwards M, Fonda-Umani S, Greene C, et al. Synchronous marine pelagic regime shifts in the Northern Hemisphere. Philosophical Transactions of the Royal Society B-Biological Sciences. 2015;370(1659). WOS:000346147200010; Koenigstein S, Mark FC, Gossling-Reisemann S, Reuter H, Poertner HO. Modelling climate change impacts on marine fish populations: process-based integration of ocean warming, acidification and other environmental drivers. Fish and Fisheries. 2016;17(4):9721004. WOS:000386938900004; Vert-pre KA, Amoroso RO, Jensen OP, Hilborn R. Frequency and intensity of productivity regime shifts in marine fish stocks. Proc Natl Acad Sci. 2013;110(5):177984. pmid:23322735; Zabel RW, Scheuerell MD, McClure MM, Williams JG. The interplay between climate variability and density dependence in the population viability of Chinook salmon. Conserv Biol. 2006;20(1):190200. pmid:16909672; Daly EA, Brodeur RD, Auth TD. Anomalous ocean conditions in 2015: impacts on spring Chinook salmon and their prey field. Mar Ecol Prog Ser. 2017;566:16982. WOS:000396051300013; Thomas C. Wainwright and Laurie A. Weitkamp "Effects of Climate Change on Oregon Coast Coho Salmon: Habitat and Life-Cycle Interactions," Northwest Science 87(3), 219-242, (1 August 2013). https://doi.org/10.3955/046.087.0305; Timothy J. Cline, Jan Ohlberger, Daniel E. Schindler, Nature Ecology & Evolution, 2019. Effects of warming climate and competition in the ocean for life-histories of Pacific salmon. 3 (6), 935 942; Masahide Kaeriyama, Nippon Suisan Gakkaishi, 2019. Ecological research toward the sustainable conservation and use of Pacific salmon. 85 (3), 266 275; Erik R. Schoen, Mark S. Wipfli, E. Jamie Trammell, Daniel J. Rinella, Angelica L. Floyd, Jess Grunblatt, Molly D. McCarthy, Benjamin E. Meyer, John M. Morton, James E. Powell, Anupma Prakash, Matthew N. Reimer, Svetlana L. Stuefer, Horacio Toniolo, Brett M. Wells, Frank D. W. Witmer, Fisheries, 2017. 58 Future of Pacific Salmon in the Face of Environmental Change: Lessons from One of the World's Remaining Productive Salmon Regions. 42 (10), 538 553; Kyuji Watanabe, Fisheries Oceanography, 2017. Multi-timescale interactions between pink and chum salmon catch per unit effort in the Bering Sea. 26 (4), 498 506; Kathleen G. Maas-Hebner, Carl Schreck, Robert M. Hughes, J. Alan Yeakley, Nancy Molina, Fisheries, 2016. Scientifically Defensible Fish Conservation and Recovery Plans: Addressing Diffuse Threats and Developing Rigorous Adaptive Management Plans. 41 (6), 276 285; Jan Ohlberger, Mark D. Scheuerell, Daniel E. Schindler, Ecosphere, 2016. Population coherence and environmental impacts across spatial scales: a case study of Chinook salmon. 7 (4); Jonathan B. Armstrong, Eric J. Ward, Daniel E. Schindler, Peter J. Lisi, Conservation Physiology, 2016. Adaptive capacity at the northern front: sockeye salmon behaviourally thermoregulate during novel exposure to warm temperatures. 4 (1), cow039; Sean A. Hayes, John F. Kocik, Reviews in Fish Biology and Fisheries, 2014. Comparative estuarine and marine migration ecology of Atlantic salmon and steelhead: blue highways and open plains. 24 (3), 757 780; Thomas A. Okey, Hussein M. Alidina, Veronica Lo, Sabine Jessen, Reviews in Fish Biology and Fisheries, 2014. Effects of climate change on Canadas Pacific marine ecosystems: a summary of scientific knowledge. 24 (2), 519 559; Meredith V. Everett, James E. Seeb, Evolutionary Applications, 2014. Detection and mapping of QTL for temperature tolerance and body size in Chinook salmon (Oncorhynchus tshawytscha) using genotyping by sequencing. 7 (4), 480 492; A. M. Springer, G. B. van Vliet, Proceedings of the National Academy of Sciences, 2014. Climate change, pink salmon, and the nexus between bottom-up and top-down forcing in the subarctic Pacific Ocean and Bering Sea; Jason C. Leppi, Daniel J. Rinella, Ryan R. Wilson, Wendy M. Loya, Global Change Biology, 2014. Linking climate change projections for an Alaskan watershed to future coho salmon production; Masahide Kaeriyama, Hyunju Seo, Yu-xue Qin, Fisheries Science, 2014. Effect of global warming on the life history and population dynamics of Japanese chum salmon; 59 Kevin D. Friedland, Bruce R. Ward, David W. Welch, Sean A. Hayes, Marine and Coastal Fisheries, 2014. Postsmolt Growth and Thermal Regime Define the Marine Survival of Steelhead from the Keogh River, British Columbia. 6 (1), 1 11; Michelle M. Mcclure, Michael Alexander, Diane Borggaard, David Boughton, Lisa Crozier, Roger Griffis, Jeffrey C. Jorgensen, Steven T. Lindley, Janet Nye, Melanie J. Rowland, Erin E. Seney, Amy Snover, Christopher Toole, Kyle Van Houtan, Conservation Biology, 2013. Incorporating Climate Science in Applications of the U.S. Endangered Species Act for Aquatic Species. 27 (6), 1222 1233; Michael A. Litzow, Franz J. Mueter, Alistair J. Hobday, Global Change Biology, 2013. Reassessing regime shifts in the North Pacific: incremental climate change and commercial fishing are necessary for explaining decadal-scale biological variability; Colette C. A. Starheim, Dan J. Smith, Terry D. Prowse, Ecohydrology, 2013. Multicentury reconstructions of Pacific salmon abundance from climate-sensitive tree rings in west central British Columbia, Canada. 6 (2), 228 240; Eduardo G. Martins, Scott G. Hinch, Steven J. Cooke, David A. Patterson, Reviews in Fish Biology and Fisheries, 2012. Climate effects on growth, phenology, and survival of sockeye salmon (Oncorhynchus nerka): a synthesis of the current state of knowledge and future research directions. 22 (4), 887 914; and Margaret E. Atcheson, Katherine W. Myers, David A. Beauchamp, Nathan J. Mantua, Transactions of the American Fisheries Society, 2012. Bioenergetic Response by Steelhead to Variation in Diet, Thermal Habitat, and Climate in the North Pacific Ocean. 141 (4), 1081 1096. The agencies failure to use this and other up-to-date information and tools available to disclose and analyze the effects of the alternatives in the context of, and in combination with, warming oceans undermines the publics confidence in the EIS and renders it legally defective. Tribal Village of Akutan v. Hodel, 869 F.2d 1185, 1192 n.1 (9th Cir. 1989) (EIS which is incomplete due to the omission of ascertainable facts, or the inclusion of erroneous information, violates the disclosure requirement); Seattle Audubon Soc. v. Espy, 998 F.2d 699 (9th Cir. 1993) (agency cannot rely on stale science or ignore reputable scientific criticism); Coleman, 521 F.2d at 676 (rejecting agency position that uncertainty is grounds for not disclosing potential impacts). While perfect knowledge is not required, NEPA does require the agencies to address 60 currently available and credible information and actually use that information in its analysis of environmental impacts. The DEIS fails to either acknowledge or use available information on how reasonably foreseeable future ocean conditions with combine with other foreseeable effects to affect how the alternatives analyzed in the DEIS will perform.	
6110	16	ttrue@earthjustice.org	Earthjustice	VII. THE DEIS FAILS TO ADDRESS THE IMPACTS OF THE ALTERNATIVES ON SOUTHERN RESIDENT KILLER WHALES IN A COMPLETE OR RATIONAL WAY The Action Agencies (Agencies) scarcely mention the Southern Resident Killer Whales (SRKWs or Southern Residents) in the DEIS that purports to analyze the impacts of, and alternatives to, the Agencies Preferred Alternative for operation and maintenance of the Columbia River System (CRSO). With scant discussion, the Agencies dismiss impacts to this species from the CRSO as negligible or minor, and claim that the Preferred Alternative is not likely to adversely affect the southern resident killer whale population. DEIS 3-685; DEIS 7 153, Table 7-28. To the extent the Agencies offer support for their conclusions, they append the 2019 Columbia River System Biological Assessment (BA), which itself devotes roughly two and-a-half pages to assessing impacts on the SRKW. DEIS App. V; BA 3-598 to 3-600. The DEIS assessment of the CRSOs impacts is incomplete, inadequate, arbitrary and in some instances simply incorrect. Indeed, as the DEIS introduces the SRKWs in its description of the affected environment in Chapter 3, it provides an inaccurate and dated population count 78 individuals as of 2016 when the current census is decidedly more bleak: 73 whales as of December 31, 2019.3 DEIS 3-685. Whether the Agencies couldnt be bothered to provide the updated figure or sought to downplay the recent steep decline in the SRKW population it 3 Center for Whale Research, Population, updated as of Dec. 31, 2019 https://www.whaleresearch.com/orca-population (accessed April 3, 2020). 61 reflects, it is problematic that the DEIS assessment has at its foundation this incorrect and misleading statement.4 The DEIS fails to identify and consider the considerable body of available scientific evidence relevant to the CRSOs impacts on the SRKW. It also fails fully to evaluate interactions among the effects or to discuss meaningfully the cumulative impacts. As a consequence, its conclusion that the Preferred Alternative is not likely to adversely affect SRKW survival and recovery is not supported by the evidence and arbitrary. A. Background. The Southern Resident Killer Whales (Orcinus orca) is a population of the fish-eating ecotype of killer whales that is genetically distinct from and does not interbreed with other orca	For this EIS, the No Action Alternative describes the operation, maintenance, and configuration of the CRS, from September 30, 2016, the date the Notice of Intent to Prepare the CRSO EIS was published in the Federal Register. Therefore, the 2016 data was used for the reference conditions in the No Action Alternative. The Southern Resident killer whale (SRKW) population estimates of 73 individuals were updated in the Final EIS, from the 2019 census by Center for Whale Research (www.whaleresearch.com). The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not require the co-lead agencies to take affirmative actions to recover ESA listed species. The population dynamics of the SRKW are complicated and there are multiple factors that contribute to the overall success of this species. The quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differently from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for the whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall-run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall-run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early

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				populations.5 SRKWs are keenly social, living in highly stable groupings, or pods, led by matriarchal females, and exhibiting advanced vocal communication and other social behaviors.6 Among the purposes of these communications, according to researchers, is transmission of the ecological knowledge that contributes to group survival, and it is the experienced post 4 In fact, the DEIS figure does not accurately match its cited sources census data for any recent year, and the date in the text (2016) does not match the date given for this source in the DEIS citations, which is Nov. 12, 2018. DEIS 11-9. According to the Center for Whale Research, there were 83 whales in 2016, and then a steep drop to 77 whales in 2017, a continued decline to 75 whales in 2018, and another slide to 73 whales as of the more recent 2019 figures. Center for Whale Research, Population, updated as of Dec. 31, 2019 https://www.whaleresearch.com/orca-population (accessed April 3, 2020). 5 Proposed Revision of the Critical Habitat Designation for Southern Resident Killer Whales: Draft Biological Report. National Marine Fisheries Service 5 (Sept. 2019)[hereinafter NMFS CH Biological Report (2019)]; A. Rus Hoelzel, et al., Evolution of a Population Structure in a Highly Social Top Predator, the Killer Whale, 24 Molecular Biology and Evolution 1407 (2007); Andrew N. Foote, et al., Genome-Culture Evolution Promotes Rapid Divergence of Killer Whale Ecotypes, 7 Nat. Commun. 11693 (2016). 6 NMFS CH Biological Report (2019) at 5. 62 reproductive females that guide their group around the salmon foraging grounds and that they especially do this in times of low salmon.7 The three pods that comprise the SRKW, dubbed J, K, and L, divide their year between inland and coastal waters of the Northeast Pacific Ocean. SRKW travel broadly throughout these waters in pursuit of prey (particularly their preferred prey, Chinook salmon) and in the course of breeding, calving, socializing, and other activities. In the summer months, all three pods have typically been present in the inland waters of the Salish Sea (Georgia Strait, Strait of Juan de Fuca, and Puget Sound). In the winter months, the three pods move to coastal waters, albeit to varying degrees, with J pod tending to remain longer in inland waters and to move to the waters off the northwest coast of Washington, while K and L pods spend significant time off the coast of southwestern Washington, near the mouth of the Columbia River, and also range north into British Columbia and as far south as the coast off northern California. As noted above, the SRKW population numbered just 73 whales as of the most recent census in 2019.8 This figure reflects a steep decline since even a few years ago, when the SRKWs numbered 83 whales in 2016. A loss of 10 individual whales to such a small population is substantial and alarming. Indeed, the SRKW population is at its lowest number in more than 40 years despite the Southern Resident Killer Whale DPS having been listed as endangered under the Endangered Species Act (ESA) since 2005 (and under Canadas Species at Risk Act (SARA) since 2003).9 The current perilous status of the SRKWs prompted Washingtons 7 Center for Whale Research, Orca Survey, https://www.whaleresearch.com/orcasurvey; Lauren J.N. Brent, et al., Ecological Knowledge, Leadership, and the Evolution of Menopause in Killer Whales, 16 Current Biology 746 (2015). 8 Center for Whale Research, Population, updated as of Dec. 31, 2019 https://www.whaleresearch.com/orca-population (accessed April 3, 2020). 9 National Marine Fisheries Service, Endangered Status for Southern Resident Killer Whales. 70 FR 69903; DFO (Fisheries and Oceans Canada), Action Plan for the Northern and Southern Resident Killer 63 Governor Inslee to issue an Executive Order and constitute an Orca Task Force, citing the urgency of the need to act to halt the decline of this iconic species.10 Given SRKWs precarious state, there has been a concerted research effort to understand the environmental conditions necessary to SRKW survival and recovery. Among the anthropogenic threats identified by scientists are: reduced prey abundance; acoustic disturbance (SRKW rely on echolocation to target their prey and otherwise depend on acoustic communication) and other vessel impacts; toxic contaminant loads; and also oil spill risk, and climate change.11 Researchers have recognized that there are interactions among these threats, such that their cumulative effects must be considered. That said, according to scientists, a lack of their preferred prey, Chinook salmon, is widely recognized as the primary limiting factor to their immediate survival and future recovery.12 In recognition of recent data supporting SRKWs use of an expanded range as they follow the seasonal movements of their preferred prey and engage in various other behaviors, the National Marine Fisheries Service (NMFS) has currently proposed enlarging the SRKWs Critical Habitat.13 Despite the wealth of recent scientific data regarding SRKWs, the DEIS includes a bare handful of citations to relevant authority. Instead, the Agencies conclusion that the Preferred Alternative is not likely to adversely affect the SRKWs is built upon three unsupported contentions. First, the Agencies start from the premise that it is not clear that reduced prey Whale (Orcinus orca) in Canada. Species at Risk Act Action Plan Series. (Fisheries and Oceans Canada, Ottawa)(2017). 10 Governors Orca Task Force https://www.governor.wa.gov/issues/issues/energy-environment/southernresident-orca-recovery/task-force. 11 Robert C. Lacy, et al., Evaluating Anthropogenic Threats to Endangered Killer Whales to Inform Effective Recovery Plans, 7 Sci. Reports 14119 (2017). 12 Letter from Marine Mammal Scientists to Lynn Barre, National Marine Fisheries Service (Dec. 18, 2019)[hereinafter Marine Mammal Scientists Letter (2019)]. 13 National Marine Fisheries Service, Proposed Rulemaking to Revise Critical Habitat for Southern Resident Killer Whale Distinct Population Segment, 84 Fed. Reg. 49214 (2019). 64 availability is the primary threat to SRKW survival and recovery. Second, the Agencies argue that the Columbia/Snake River runs are relatively unimportant to the SRKWs individual condition or population dynamics, because they comprise only a small percentage of the SRKWs overall diet. Third, the Agencies maintain that hatchery Chinook production in the Columbia/Snake Basin more than offsets losses to SRKWs prey base due to CRSO-caused mortality. Each of these rests on an incomplete or flawed evaluation of the available evidence. Instead, the best currently available science overwhelmingly shows that reduced Chinook prey is a key limiting factor for SRKW; that the Columbia/Snake runs form a critical part of their diet; and that the current and continuing reduction in these runs significantly harms the already imperiled SRKW.	spring months near the mouth of the Columbia River (Ford 2016). Details on the most crucial prey stocks for Southern Resident killer whales, as well as their population and range, is available from several fact sheets and videos available here: https://www.fisheries.noaa.gov/species/killer-whale#spotlight. For more information, visit this NMFS StoryMap on Southern Resident killer whales: https://noaa.maps.arcgis.com/apps/Cascade/index.html?appid=3405e6637bf74e998d4ebe992c54f613. According to NMFS and the EPA, the estimated SRKW population has fluctuated between 67 and 98 whales between 1960 and 2015. The Snake River dams were constructed between 1962 and 1975. The SRKW population increased from a record low in 1970 to its highest population numbers in 1995. Those years were not high years for Snake or Columbia River Chinook Salmon. Ocean conditions between 2011 and 2013 were good years for salmon. At the same time, 2010 and 2013 were good outmigration years. Particularly, 2011 and 2012 were above normal in water supply, which would mean more cooler water was available and there was better survival of salmon, and 2011 through 2014 were higher than normal spill years as well. The combination of outmigration and ocean conditions created improved adult salmon returns. The EIS has analyzed spill as a measure in the Preferred Alternative and determined the overall effect to SRKW to be negligible in large part because hatchery production is consistent between the No Action Alternative and the Preferred Alternative. Because the impact from the Preferred Alternative was determined to be negligible, the agencies determined that existing hatchery production would be sufficient to address any potential impacts to prey availability for SRKWs. The co-lead agencies note the contribution to the prey of SRKW through the continued existence of their respective independent Congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as the Lower Snake River Compensation Plan (other than under MO3), which is administered by USFWS. The Preferred Alternative and Proposed Action in the agencies' biological assessment carry forward certain mitigation measures described in Chapters 2 and 7 of the EIS, which include continued salmon and steelhead hatchery production. The Preferred Alternative has negligible effects to SRKWs as described in Section 7.7.6. The Biological Assessment (BA) describes the effect of the Proposed Action on the SRKW forage species (see BA Section 3.5.1.2, Southern Resident Killer Whale). The proposed changes in operation of the Columbia River System include increased spring spill during the downstream migration of juvenile spring and summer run Chinook salmon. The result of this action includes potential increases of juvenile fish passing through the spillways, reductions in juvenile fish direct and indirect mortality associated with downstream passage, and the Comparative Survival Study (CSS) model predicts increases in numbers of returning adults, which will benefit SRKWs foraging in and around the mouth of the Columbia River in winter and spring (See EIS Section 7.7.8). The CSS model results predicts Snake River Chinook salmon would have relative improvements in smolt-to-adult returns of 35 percent (see EIS Section 7.7.4). The smolt-to-adult return ratio (SAR) is the rate at which of a group of fish survive from their smolt life stage to a defined ending point where they return as adults. While recovery targets will require more than just the efforts of federal agencies, the CSS models indicate the potential for SARs of Snake River Chinook salmon and steelhead to increase to levels that could approach recovery targets set by the Northwest Power and Conservation Council. The BA, also consistent with the EIS, acknowledges past improvements to the configuration and operation of the Columbia River System, additional improvements to the environmental baseline as a result of completed estuary and tributary habitat actions, and the prospective non-operational conservation measures proposed in Chapter 2 of the Draft EIS, all contribute towards maintaining and improving Chinook abundance. Relevant conservation measures include, among other things, a commitment to continue funding the conservation and safety net hatchery programs listed in Chapter 2 of the Draft EIS. As discussed above, the agencies will fulfill congressionally authorized hatchery mitigation objectives through the funding of hatchery programs that are operated consistent with their independent hatchery program consultations during the term covered by this consultation. Based on those hatchery program consultations, the production levels associated with congressionally authorized hatchery mitigation objectives will continue, at minimum, to be consistent with levels previously analyzed by NOAA in the system consultations in 2008, 2014, and 2019. For the 2020 ESA consultations, therefore, the agencies expect that collectively, all of the actions described above (substantial modifications to migration conditions designed to benefit key prey species, combined with improvements to Chinook spawning and rearing habitat in the tributaries and Columbia River estuary, and continued hatchery production) ensure that remaining Chinook mortality from all sources in the mainstem migratory corridor will continue to be more than offset, resulting in a net gain in Chinook salmon abundance available as a prey source for SRKW. Finally, the 2019 NMFS Fisheries BiOp included increased spring spill operations that are similar to operations evaluated in CRSO EIS, and NOAA validated that the hatchery production of Chinook salmon mitigates for the impacts of operating the Columbia River System and total mortality through the mainstem migratory corridor from all sources. FEIS Chapter 3 (Vegetation, Wetlands, Wildlife, and Floodplains) has been updated for SRKW (Section 3..6.2.6 and Table 3-102). FEIS Chapter 7 (Preferred Alternative), has been updated with additional analysis information on SRKW and potential increase in forage fish, in particular, Chinook salmon (Section 7.7.8).
6110	17	ttrue@earthjustice.org	Earthjustice	B. The DEIS fails to adequately acknowledge and evaluate the evidence that Chinook prey is important to SRKW survival and recovery. The DEIS conclusion presumes that Chinook prey is not an important factor in SRKW survival and recovery, yet skips over any discussion of this analytical foundation. For example, the DEIS fails to acknowledge major recent scientific advances in population viability analysis and their finding that chinook prey availability is key to SRKW population growth rates. In fact, the DEIS fails to acknowledge and indeed, appears to try to downplay evidence that Chinook prey availability is important to SRKW survival and recovery. The DEIS itself does not signal whether prey availability is of great or little import to SRKW individual and population health, skipping entirely any discussion of this issue. The BA tees up its discussion of the threats plaguing the SRKW by noting that NMFS Final Recovery Plan identified numerous external factors that may be limiting recovery of this species, but, oddly, re-orders the first three threats presented by NMFS, so that quantity and quality of prey 65 appears last, following after toxic contaminants that accumulate in top predators and disturbance from marine vessel traffic/noise.14 BA 3-598. The BA fails to acknowledge the availability of major recent scientific advances in population viability analysis that identify Chinook prey availability as key to SRKW population growth rates, the results of which are elaborated below. Instead, the BA cites only the 2019 CRS BiOp, which similarly portrays the lack of adequate Chinook prey as just one concern among many, the relative importance of which scientists have yet to have make progress in assessing. After listing the threats identified by NMFS and noting the likelihood that these threats act together to impact the whales, the 2019 CRS BiOp states [a]lthough it is not clear which threat or threats are most significant to the survival and recovery of the Southern Residents, all of the threats identified are potential limiting factors in their population dynamics.15 The Agencies depiction misrepresents the currently available science, which has amassed considerable evidence that a lack of SRKWs preferred prey, Chinook salmon, is a significant threat, if not the primary limiting factor to their immediate survival and future recovery.16 The 2019 CRS BiOp cites NMFS 2008 Final Recovery Plan for its undifferentiated enumeration of the threats to SRKW individual and population health. Yet analyses since, by both NMFS and independent scientists, have produced [a] growing body of 14 Compare the BA ordering with NMFS, Recovery Plan for SRKW (2008); see also NMFS CH Biological Report (2019) at iv, which recounts the threats to SRKW in the order originally set forth by NMFS in 2008. 15 National Marine Fisheries Service, Endangered Species Act 7(a)(2) Biological Opinion and MagnusonStevens Fishery Conservation and Management Act Essential Fish Habitat Consultation for the Continued Operation and Maintenance of the Columbia River System 908 (March 29, 2019)[hereinafter 2019 CRS BiOp]. 16 Marine Mammal Scientists Letter (2019)(unpaginated). 66 evidence [that] documents how the Southern Residents are affected by limitations of the primary prey, Chinook salmon, as NMFS itself recently observed.17 Although an independent science panel in 2012 had found reasonably strong evidence that vital rates of Southern Residents are to some degree ultimately affected by broad-scale changes in their primary prey, Chinook salmon, they suggested the need for further research, in particular into SRKWs diet in the winter months and SRKWs nutritional condition throughout the year.18 This and other data have since been gathered, among other things enabling scientists to conduct sophisticated population viability analyses (PVA) capable of assessing the relative importance of prey and other threats to SRKW population dynamics, most notably, Lacy (2017).19 This PVA concluded that prey availability is the most significant of the threats to SRKW survival and recovery and provided several key insights into the crucial function of prey to SRKW population dynamics, which are elaborated below. The Lacy (2017) PVA also found a negative population growth rate for SRKWs under a business-as-usual scenario, i.e., with no increase to Chinook prey availability and no improvements in the other two threats.20 As one of 17 NMFS CH Biological Report (2019) at 13. 18 R. Hilborn, et al., The Effects of Salmon Fisheries on Southern Resident Killer Whales: Final Report of the Independent Science Panel (2012). While recognizing the reasonably strong evidence of the relationship between SRKW population dynamics and Chinook prey abundance, the panel observed that the relationship is likely not linear at all levels of Chinook abundance, particularly beyond (above) the historical average abundance levels, and called for further research. Id. at xi. 19 Lacy (2017). 20 Lacy (2017) at 2. Under the baseline scenario employed by Lacy (2017), i.e., assuming then-current SRKW population numbers and then-current threat levels due to Chinook availability, acoustic disturbance	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not require the co-lead agencies to take affirmative actions to recover ESA listed species. The population dynamics of the SRKW are complicated and there are multiple factors that contribute to the overall success of this species. The quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differently from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020). 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The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). Details on the most crucial prey stocks for Southern Resident killer whales, as well as their population and range, is available from several fact sheets and videos available here: https://www.fisheries.noaa.gov/species/killer-whale#spotlight. For more information, visit this NMFS StoryMap on Southern Resident killer whales: https://noaa.maps.arcgis.com/apps/Cascade/index.html?appid=3405e6637bf74e998d4ebe992c54f613. According to NMFS and the EPA, the estimated SRKW population has fluctuated between 67 and 98 whales between 1960 and 2015. The Snake River dams were constructed between 1962 and 1975. The SRKW population increased from a record low in 1970 to its highest population numbers in 1995. Those years were not high years for Snake or Columbia River Chinook Salmon. Ocean conditions between 2011 and 2013 were good years for salmon. At the same time, 2010 and 2013 were good outmigration years. Particularly, 2011 and 2012 were above normal in water supply, which would mean more cooler water was available and there was better survival of salmon, and 2011 through 2014 were higher than normal spill years as well. The combination of outmigration and ocean conditions created improved adult salmon returns. The EIS has analyzed spill as a measure in the Preferred Alternative and determined the overall effect to SRKW to be negligible in large part because hatchery production is consistent between the No Action Alternative and the Preferred Alternative. Because the impact from the Preferred Alternative was determined to be negligible, the agencies determined that existing hatchery production would be sufficient to address any potential impacts to prey availability for SRKWs. The co-lead agencies note the contribution to the prey of SRKW through the continued existence of their respective independent Congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as the Lower Snake River Compensation Plan (other than under MO3), which is administered by USFWS. The Preferred Alternative and Proposed Action in the agencies' biological assessment carry forward certain mitigation measures described in Chapters 2 and 7 of the EIS, which include continued salmon and steelhead hatchery production. The Preferred Alternative has negligible effects to SRKWs as described in Section 7.7.6. The Biological Assessment (BA) describes the effect of the Proposed Action on the SRKW forage species (see BA Section 3.5.1.2, Southern Resident Killer Whale). The proposed changes in operation of the Columbia River System include increased spring spill during the downstream migration of juvenile spring and summer run Chinook salmon. The result of this action includes potential increases of juvenile fish passing through the spillways, reductions in juvenile fish direct and indirect mortality associated with downstream passage, and the Comparative Survival Study (CSS) model predicts increases in numbers of returning adults, which will benefit SRKWs foraging in and around the mouth of the Columbia River in winter and spring (See EIS Section 7.7.8). The CSS model results predicts Snake River Chinook salmon would have relative improvements in smolt-to-adult returns of 35 percent (see EIS Section 7.7.4). The smolt-to-adult return ratio (SAR) is the rate at which of a group of fish survive from their smolt life stage to a defined ending point where they return as adults. While recovery targets will require more than just the efforts of federal agencies, the CSS models indicate the potential for SARs of Snake River Chinook salmon and steelhead to increase to levels that could approach recovery targets set by the Northwest Power and Conservation Council. The BA, also consistent with the EIS, acknowledges past improvements to the configuration and operation of the Columbia River System, additional improvements to the environmental baseline as a result of completed estuary and tributary habitat actions, and the prospective non-operational conservation measures proposed in Chapter 2 of the Draft EIS, all contribute towards maintaining and improving Chinook abundance. Relevant conservation measures include, among other things, a commitment to continue funding the conservation and safety net hatchery programs listed in Chapter 2 of the Draft EIS. As discussed above, the agencies will fulfill congressionally authorized hatchery mitigation objectives through the funding of hatchery programs that are operated consistent with their independent hatchery program consultations during the term covered by this consultation. Based on those hatchery program consultations, the production levels associated with

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				(noise), and contaminants (PCBs), mean SRKW population growth was projected to be slightly negative (r= -0.002), projected over 100 years. The authors noted at the time that their baseline demographic rates might give an overly optimistic projection for the SRKW if rates deteriorate. As one of the co-authors noted in presenting this work to the Governors Orca Task Force, this has in fact turned out to be the case, as the population has declined steeply from the 80-whale baseline assumed by Lacy (2017)s models. Rob Williams, Presentation to Governors Orca Task Force, Relative Importance of the Different Threats to Southern Resident Orcas, (July 24, 2018) https://www.governor.wa.gov/issues/issues/energy-environment/southern-resident-orca-recovery/taskforce. 67 the co-authors of this study, Rob Williams, explained to the Governors Orca Task Force, the datasets informing their analysis are particularly robust as to the impact of prey.21 Neither the DEIS nor its appended BA acknowledge the results of the Lacy (2017) PVA, nor do they disclose the fact that in addition to the Lacy (2017) PVA, the NMFS own population viability analysis, cited in the 2019 CRS BiOp, confirms that the data now suggest a downward trend in [SRKW] population growth projected over the next 50 years.22 Notably, the 2019 CRS BiOp itself hides the ball when it states merely that this crucial conclusion is the outcome of the NWFSC having updated the work on population viability analyses conducted for the 2004 status review for Southern Resident killer whales and a science-panel review of the effects of salmon fisheries [citing, inter alia, Hilborn (2012)].23 The 2019 CRS BiOp fails to mention that this update in fact comes to the opposite conclusion from the 2004 status review respecting the projected SRKW population growth rate. The Hilborn (2012) panel had embraced a positive population growth rate for the SRKW population based on then-available data.24 By failing to highlight this crucial shift in scientists conclusion on this point, the DEIS fails fully to inform public understanding and debate and is significantly incomplete. Moreover, there is no explicit discussion of the implications of this change for the Agencies finding that the CRSO may affect, but is not likely to adversely affect the SRKW. DEIS at 7-153, Table 7-28. The BA states generally that [i]n 2014 and again in 2019, NOAA confirmed the continuing validity of the analyses and conclusion from the 2008 consultation, 21 Rob Williams, Presentation to Governors Orca Task Force, Relative Importance of the Different Threats to Southern Resident Orcas, (July 24, 2018) https://www.governor.wa.gov/issues/issues/energyenvironment/southern-resident-orca-recovery/task-force. 22 2019 CRS BiOp at 910. 23 2019 CRS BiOp at 910. 24 Hilborn (2012) at iii-v. 68 but does not mention this significant change in the underlying data, and the DEIS does not explain how it nonetheless can still support the claim that it is assumed that existing regulatory and best management practices [under the Preferred Alternative] would reduce the likelihood that [the SRKW] population[] would continue declining or become extinct. BA 3 599. DEIS 7-150. 1. The DEIS Fails to Adequately Evaluate Evidence that Chinook Prey is the Most Significant Factor in SRKW Survival and Recovery. The DEIS fails to adequately evaluate evidence that the availability of SRKWs preferred prey, Chinook salmon, is the most important factor to their survival and recovery. As noted above, Lacy (2017) conducted a major population viability analysis (PVA) that assessed the relative importance of three main threats Chinook prey availability, acoustic disturbance (noise), contaminants (PCBs) and, to a lesser extent, other anthropogenic threats such as ship strikes, oil spills, and climate change on SRKW population dynamics. The PVA produced several findings that underscore the crucial role that Chinook salmon prey availability plays in SRKW population health: a. Chinook Prey are the Most Important Among the Three Primary Threats (Prey, Noise, Contaminants). Lacy (2017) found that prey availability is the most important of the three threats in terms of impact on SRKW population growth rate and potential for recovery, or conversely, on the possibility of extinction: Across the ranges of threat levels that we examined, reduction of the prey base was the single factor projected to have the largest effect on depressing the population size and possibly leading to extinction.25 25 Lacy (2017) at 6. 69 b. Only by Addressing Prey Abundance Can Recovery Be Achieved Addressing the Other Two Threats, Even in Combination, is Insufficient. Importantly, Lacy (2017) considered how population growth would respond to reductions in current threat levels for each of the three threats, singly or in combination. They found that only by addressing prey abundance could the NMFS recovery goal of 2.3% growth for the SRKW population be achieved. Even if one were to completely eliminate acoustic disturbance (while holding the remaining threat levels constant), population growth would only reach 1.7%. Even if one were to completely remove PCBs from the habitat (while holding the remaining threat levels constant), population growth would only get to 0.3%. And if one were to address completely both acoustic disturbance and PCBs, one could attain a 1.9% population growth rate. In short, the authors concluded that [t]herefore, reaching the recovery target without increasing Chinook salmon numbers is likely impossible.26 c. So Crucial are Prey, that SRKW Recovery is Achievable by Significantly Increased Chinook Abundance Alone. Lacy (2017) also found that attaining the recovery goal of 2.3% growth for the SRKW population could be achieved by a significant increase in Chinook abundance alone. While the authors found that there are interactions among the three threats, their PVA model showed that the other two threats take on greater concern where the SRKW population is very prey-limited. Accordingly, they concluded, if doubling Chinook salmon numbers were possible, and returning them to levels seen in the 1920s, consideration of the other anthropogenic impacts on the whales foraging efficiency might not be necessary.27 26 Lacy (2017) at 4-5. 27 Lacy (2017) at 7. 70 The results of another PVA of both Southern and Northern Resident Killer Whales, conducted by Clarke Murray (2019) strongly support the significant role of prey availability in determining the population trajectory of these populations, and are consistent with previous work [citing, inter alia, Lacy (2017)], but find that a cumulative threat model has more explanatory power than a single threat model.28 Within Clarke Murrays cumulative threat model, it bears noting, prey availability appears to be a central node, with six linkage pathways to fecundity and mortality, including two interactions with other threats.29 Neither the DEIS nor the appended BA disclose the availability of the Clarke Murray (2019) PVA. d. When Additional Threats are Considered, Including the Predicted Decline in Chinook Due to Climate Change, the SRKW Population is Projected to Decline Dramatically, with a 25% Chance of Complete Extirpation. Lacy (2017) also considered how additional threats from proposed and approved shipping developments (such as catastrophic and chronic oil spills, ship strikes, and increased vessel noise) combine with the predicted decline of Chinook due to climate change and found that the [SRKW] population could decline by as much as 1.7% annually, have a 70% probability of declining to fewer than 30 animals, and have a 25% chance of complete extirpation within 100 years.30 The DEIS and its appended BAs failure to acknowledge or discuss the implications of Lacy (2017), a major relevant study directly responding to research gaps relevant to the Agencies assessment, is a glaring omission. Lacy (2017)s findings have become widely publicized and accepted. They are cited, together with other recent evidence, for the proposition 28 Cathryn Clarke Murray, et al., Cumulative Effects Assessment for Northern and Southern Resident Killer Whale Populations in the Northeast Pacific, DFO Can. Sci. Advis. Sec. Res. Doc. 2019/056 at 64 (2019). 29 Clarke Murray (2019) at 28. 30 Lacy (2017) at 6. 71 that prey availability is a key factor, if not the key factor to SRKW population recovery. Whether in journal articles, government reports, or other public documents, scientists, including NMFS scientists, have acknowledged the vital function that prey of adequate quality, quantity, and timing play in SRKW individual and population health. The available body of evidence has permitted scientists to state, e.g., that the principal impediment to orca recovery is a severe shortage of the whales preferred food, Chinook salmon;31 that [o]ne of the main threats to population persistence is availability and accessibility of prey;32 and that the availability of prey is essential to conservation of the SRKWs.33 As summarized in a recent letter to NMFS from scientists with expertise in marine mammal populations regarding SRKW requirements: A lack of their preferred prey, Chinook salmon, is widely recognized as the primary limiting factor to their immediate survival and future recovery.34 Neither the DEIS nor the appended BA provide an inkling regarding any of this evidence or the considerable light it sheds on the relative role played by the various threats to SRKW population viability, nor that this information underscores that prey availability is at least one of the most important limiting factors to SRKW population health. In addition, several impacts of reduced prey are not fully captured in Lacy (2017)s model, but are important to evaluating the necessity of adequate prey for SRKW survival and recovery. Recent research has contributed multiple lines of evidence lending support to earlier 31 David Bain, et al., Southern Resident Killer Whales & Columbia/Snake River Chinook: A Review of the Available Evidence 8 (Feb., 2020). 32 Jennifer B. Tennessen, et al., Hidden Markov Models Reveal Temporal Patterns and Sex Differences in Killer Whale Behavior, 9:14951 Scientific Reports 2 (2019)(citing, inter alia, Lacy (2017)). 33 NMFS CH Biological Report (2019) at 28. 34 Marine Mammal Scientists Letter (2019)(unpaginated). 72 findings that prey abundance and accessibility are central to SRKW survival and recovery,35 and providing insights into the interactions among reduced prey availability and other threats. Here again, the DEIS is silent. First, recent studies using aerial photogrammetry have provided evidence of declining body condition among SRKWs.36 Fearnbach (2018) set out to address the data gap whether the abundance of [SRKWs] preferred Chinook salmon prey is low enough to cause nutritional stress, citing Hilborn (2012)s recommendation that researchers use photogrammetry to assess the nutritive status of the SRKW population.37 Fearnbach found that 25% of whales monitored in 2008 and 2013 showed significant declines in body condition and, of these, two whales died shortly after being photographed, suggesting a link between body condition and mortality.38 Groskreutz (2019) found evidence of shorter body lengths in adult killer whales between the ages of 20 and 40, as compared to those >40 years old, and stated that their data suggest that these younger adults experienced relatively constrained growth during their maturing years (0-15 yr of age for females and 0-20 yr for males), which align with notable declines in Chinook salmon returns in the 1990s.39 Groskreutz observed that their findings highlight[] the significant long term effects of nutritional stress in salmon-eating killer whales, in addition to the acutely lethal impacts found by earlier researchers.40 Additionally, Fearnbach noted the particular 35 See, e.g., John K.B. Ford, et al., Linking Killer Whale Survival and Prey Abundance: Food Limitation in the Oceans Apex Predator?, 6 Biol. Lett. 139 (2010); Eric J. Ward, et al., Quantifying the Effects of Prey Abundance on Killer Whale Reproduction, 46 J. of Applied Ecol. 632 (2009). 36 Holly	congressionally authorized hatchery mitigation objectives will continue, at minimum, to be consistent with levels previously analyzed by NOAA in the system consultations in 2008, 2014, and 2019. For the 2020 ESA consultations, therefore, the agencies expect that collectively, all of the actions described above (substantial modifications to migration conditions designed to benefit key prey species, combined with improvements to Chinook spawning and rearing habitat in the tributaries and Columbia River estuary, and continued hatchery production) ensure that remaining Chinook mortality from all sources in the mainstem migratory corridor will continue to be more than offset, resulting in a net gain in Chinook salmon abundance available as a prey source for SRKW. Finally, the 2019 NMFS Fisheries BiOp included increased spring spill operations that are similar to operations evaluated in CRSO EIS, and NOAA validated that the hatchery production of Chinook salmon mitigates for the impacts of operating the Columbia River System and total mortality through the mainstem migratory corridor from all sources. FEIS Chapter 3 (Vegetation, Wetlands, Wildlife, and Floodplains) has been updated for SRKW (Section 3..6.2.6 and Table 3-102). FEIS Chapter 7 (Preferred Alternative), has been updated with additional analysis information on SRKW and potential increase in forage fish, in particular, Chinook salmon (Section 7.7.8).

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				Fearnbach, et al., Using Aerial Photogrammetry to Detect Changes in Body Condition of Endangered Southern Resident Killer Whales, 35 Endang. Species Res. 175, 179 (2018); Molly J. Groskreutz, et al., Decadal Changes in Adult Size of Salmon-Eating Killer Whales in the Eastern North Pacific, 40 Endang. Species Res. 183 (2019). 37 Fearnbach (2018) at 175-76. 38 Fearnbach, (2018) at 178. 39 Groskreutz (2019) at 187. 40 Groskreutz (2019) at 187. 73 adverse impact that a prey-limited context visits on female whales at different lifestages, given, among other things, their higher nutritional demands due to the prey-sharing obligations that attend their social position and relationships (e.g., as they continue to provision their offspring and kin into adulthood, apparently at a cost to their own body condition).41 The implications of this point for SRKWs reliance on Columbia/Snake River runs at vital lifestage windows is taken up further below, in Part B.1 Second, recent work regarding the impact of acoustic disturbance on SRKWs has allowed a quantitative estimate of foraging time lost due to vessel noise.42 This evidence has corroborated and built upon earlier studies conclusion that this reduction in whales ability to access, i.e., use echolocation to find and capture, their prey is the most significant adverse energetic effect from vessel traffic (as opposed, for example, to the energetic costs of fleeing or otherwise undertaking avoidance behaviors in response to vessels).43 Joy (2019) found that noise reductions achievable under various vessel speed scenarios in Haro Strait would result in decreased lost foraging time by from 21.5% to 44.1%.44 Again, in a prey-limited context, the quality of SRKWs acoustic environment becomes more of a concern, as noted by Lacy (2017) above. Speaking to the interactions among the various threats facing SRKWs, Joy observed that [i]f animals are already in poor body condition as a consequence of poor Chinook salmon availability, additional lost foraging opportunities could have both direct nutritional (energy) cost[s] as well as indirect [costs] through increased risk of parasite infection and disease, and/or reproductive performance.45 41 Fearnbach (2018) at 179. 42 Ruth Joy, et al., Potential Benefits of Vessel Slowdowns on Endangered Southern Resident Killer Whales, 6 Frontiers in Marine Science (June, 2019). 43 Joy (2019) at 2. 44 Joy (2019) at 13. 45 Joy (2019) at 17. 74 In a related vein, recent research has showed that current and future ocean acidification is projected to alter the acoustic environment that is important, among other things, to SRKWs ability to detect, communicate about, capture, and share prey. As highlighted by the Governors Orca Task Force Final Report: [O]cean acidification extends the spatial spread of underwater noise (for frequencies up to 10kHz), making it more difficult for orcas to communicate. Ocean acidification will continue to amplify underwater noise by reducing the natural absorption of sound at lower frequencies, allowing sounds to propagate further and making it harder for orcas to locate their prey.46 Third, recent research has underscored that a lack of prey interacts with toxic contaminants which have been taken up and stored by SRKWs in their fat tissue. As Mongillo (2016) found, SRKW experiencing nutritional stress due to reduced prey mobilize their fat reserves – along with the contaminants harbored there.47 In discussing the threat posed to SRKW from reduced prey availability, NMFS noted this interaction: Southern Residents need to maintain their energy balance all year long to support daily activities (foraging, traveling, resting, socializing) as well as gestation, lactation, and growth. Maintaining their energy balance and body condition is also important because when stored fat is metabolized, lipophilic contaminants may become more mobilized in the blood stream, with potentially harmful health effects. (Mongillo et al. 2016)48 Fourth, recent studies have provided a window into the multi-dimensional harms that flow from reduced prey abundance effects that adversely impact not only individual whales but the health of the population as a whole. As noted recently by NMFS in describing SRKWs biological requirements in support of its proposal to expand Critical Habitat for the SRKWs: 46 Southern Resident Orca Task Force, Final Report and Recommendations 46 (Nov., 2019) https://www.governor.wa.gov/issues/issues/energy-environment/southern-resident-orca-recovery/taskforce. 47 Teresa Mongillo, et al., Exposure to a Mixture of Toxic Chemicals: Implications for the Health of Endangered Southern Resident Killer Whales, NOAA Tech. Memo. (2016). 48 NMFS CH Biological Report at 27. 75 In addition to the physiological effects of reduced prey abundance that have been observed in Southern Residents, there is also evidence of a negative impact on social cohesion when salmon abundance is low (Foster et al. 2012). Social cohesion plays an important role in Southern Resident survival, growth, and reproduction. When prey abundance is low, whales must spread out to find food and dedicate more of their time to foraging rather than on social interactions such as reproduction and information transmission (Foster et al. 2012). Indeed, researchers have observed a correlation between reduced reproduction in Southern Residents and low salmon abundance (Ford et al. 2010).49 Data from these and other recent studies provide multiple lines of evidence in support of the crucial role played by abundant Chinook prey in SRKW survival and health. The DEIS fails to consider this currently available science, instead downplays the importance of prey availability to the SRKW.	
6110	18	ttrue@earthjustice.org	Earthjustice	C. The DEIS presents an incomplete and inaccurate assessment of the importance of Columbia/Snake River Chinook Runs to SRKW survival and recovery. The DEIS presents an incomplete assessment of the role that Columbia/Snake River Chinook runs play in SRKW individual and population health, leading it to an inaccurate and misleading conclusion about the importance of these runs to SRKW survival and recovery. The DEIS contends that the Columbia/Snake River Chinook runs are relatively unimportant to the SRKWs individual condition or population dynamics, because they comprise only a small percentage of their overall diet. The DEIS states that, under the Preferred Alternative, its various models predict a range of possible changes in Chinook salmon populations that would return to the Columbia and Snake Rivers, such that the prey base available to marine mammals foraging offshore could increase or decrease. DEIS 7-150 to 151. The DEIS notes that the southern resident whales may have a slight increase in available food around the mouth of the Columbia River, but claims that [h]owever, this increase in food availability would have a 49 NMFS CH Biological Report (2019) at 14; Emma A. Foster, et al., Social Network Correlates of Food Availability in an Endangered Population of Killer Whales Orcinus orca, 83 Animal Behaviour 731 (2012). 76 negligible effect on killer whales, given that the Snake River and Columbia Chinook populations constitute a small portion of their overall diet. DEIS 7-151. Thus, the DEIS concludes that [t]he Preferred Alternative is not likely to adversely affect the southern resident whale population. DEIS 7-173 at Table 7-28. Neither the DEIS nor the appended BA provide a complete evaluation of the importance of the Columbia/Snake River Chinook runs in supplying prey of adequate quality, quantity, and timing to meet SRKWs needs throughout the year and during various lifestages (e.g., pregnancy, lactation).	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not require the co-lead agencies to take affirmative actions to recover ESA listed species. The population dynamics of the SRKW are complicated and there are multiple factors that contribute to the overall success of this species. The quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differently from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for the whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall-run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall-run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). Details on the most crucial prey stocks for Southern Resident killer whales, as well as their population and range, is available from several fact sheets and videos available here: https://www.fisheries.noaa.gov/species/killer-whale#spotlight. For more information, visit this NMFS StoryMap on Southern Resident killer whales: https://noaa.maps.arcgis.com/apps/Cascade/index.html?appid=3405e6637bf74e998d4ebe992c54f613. According to NMFS and the EPA, the estimated SRKW population has fluctuated between 67 and 98 whales between 1960 and 2015. The Snake River dams were constructed between 1962 and 1975. The SRKW population increased from a record low in 1970 to its highest population numbers in 1995. Those years were not high years for Snake or Columbia River Chinook Salmon. Ocean conditions between 2011 and 2013 were good years for salmon. At the same time, 2010 and 2013 were good outmigration years. Particularly, 2011 and 2012 were above normal in water supply, which would mean more cooler water was available and there was better survival of salmon, and 2011 through 2014 were higher than normal spill years as well. The combination of outmigration and ocean conditions created improved adult salmon returns. The EIS has analyzed spill as a measure in the Preferred Alternative and determined the overall effect to SRKW to be negligible in large part because hatchery production is consistent between the No Action Alternative and the Preferred Alternative. Because the impact from the Preferred Alternative was determined to be negligible, the agencies determined that existing hatchery production would be sufficient to address any potential impacts to prey availability for SRKWs. The co-lead agencies note the contribution to the prey of SRKW through the continued existence of their respective independent Congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as the Lower Snake River Compensation Plan (other than under MO3), which is administered by USFWS. The Preferred Alternative and Proposed Action in the agencies' biological assessment carry forward certain mitigation measures described in Chapters 2 and 7 of the EIS, which include continued salmon and steelhead hatchery production. The Preferred Alternative has negligible effects to SRKWs as described in Section 7.7.6. The Biological Assessment (BA) describes the effect of the Proposed Action on the SRKW forage species (see BA Section 3.5.1.2, Southern Resident Killer Whale). The proposed changes in operation of the Columbia River System include increased spring spill during the downstream migration of juvenile spring and summer run Chinook salmon. The result of this action includes potential increases of juvenile fish passing through the spillways, reductions in juvenile fish direct and indirect mortality associated with downstream passage, and the Comparative Survival Study (CSS) model predicts increases in numbers of returning adults, which will benefit SRKWs foraging in and around the mouth of the Columbia River in winter and spring (See EIS Section 7.7.8). The CSS model results predicts Snake River Chinook salmon would have relative improvements in smolt-to-adult returns of 35 percent (see EIS Section 7.7.4). The smolt-to-adult return ratio (SAR) is the rate at which of a group of fish survive from their smolt life stage to a defined ending point where they return as adults. While recovery targets will require more than just the efforts of federal agencies, the CSS models indicate the potential for SARs of Snake River Chinook salmon and steelhead to increase to levels that could approach recovery targets set by the Northwest Power and Conservation Council. The BA, also consistent with the EIS, acknowledges past improvements to the configuration and operation of the Columbia River System, additional improvements to the environmental baseline as a result of completed estuary and tributary habitat actions, and the prospective non-operational conservation measures proposed in Chapter 2 of the Draft EIS, all contribute towards maintaining and improving Chinook abundance. Relevant conservation measures include, among other things, a commitment to continue funding the conservation and safety net hatchery programs listed in Chapter 2 of the Draft EIS. As discussed above, the agencies will fulfill congressionally authorized hatchery mitigation objectives through the funding of hatchery programs that are operated consistent with their independent hatchery program consultations during the term covered by this consultation. Based on those hatchery program consultations, the production levels associated with congressionally authorized hatchery mitigation objectives will continue, at minimum, to be consistent with levels previously analyzed by NOAA in the system consultations in 2008, 2014, and 2019. For the 2020 ESA consultations, therefore, the agencies expect that collectively, all of the actions described above (substantial modifications to migration conditions designed to benefit key prey species, combined with improvements to Chinook spawning and rearing habitat in the tributaries and Columbia River estuary, and continued hatchery production) ensure that remaining Chinook mortality from all sources in the mainstem migratory corridor will continue to be more than offset, resulting in a net gain in Chinook salmon abundance available as a prey source for SRKW. Finally, the 2019 NMFS Fisheries BiOp included increased spring spill operations that are similar to operations evaluated in CRSO EIS, and NOAA validated that the hatchery production of Chinook salmon mitigates for the impacts of operating the Columbia River System and total mortality through the mainstem migratory corridor from all sources. FEIS Chapter 3 (Vegetation, Wetlands, Wildlife, and Floodplains) has been updated for SRKW (Section 3..6.2.6 and Table 3-102). FEIS Chapter 7 (Preferred Alternative), has been updated with additional analysis information on SRKW and potential increase in forage fish, in particular, Chinook salmon (Section 7.7.8).

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6110	19	ttrue@earthjustice.org	Earthjustice	1. The DEIS Considers Only the Columbia/Snake River Runs Percent Contribution to SRKWs Annual Diet, Failing to Evaluate Key Aspects of the Prey Adequacy Issue, Including How the Various Runs Sync with SRKWs Seasonal Needs and Vital Lifestage Windows. The DEIS finding that the Columbia/Snake River Chinook runs are relatively unimportant to the SRKWs individual condition or population dynamics stems from the agencies narrow focus on these runs percent contribution to SRKWs annual diet. Finding that the Columbia/Snake River Chinook runs comprise only a small percentage of their overall diet the Agencies maintain that any changes caused by the CRSO will have a negligible effect on the SRKW. DEIS 7-151. However, the DEIS incompletely frames the relevant inquiry, thereby failing to evaluate key aspects of the issue: it is not only the total annual quantity of available prey that matters to SRKWs health, but the quality, quantity, and timing of the prey that must be considered, including how various available food sources sync with SRKWs seasonal needs and vital lifestage windows. A more rigorous and complete assessment would show that the Columbia/Snake River Chinook runs are in fact critical to SRKWs individual and population health. 77 As NMFS has recently observed, SRKW require abundant food all year long to meet their daily metabolic needs and to maintain body condition.50 Southern Residents need fuel to support them in their daily activities of foraging, traveling, socializing, and resting, and to meet the particular requirements of certain lifestages (e.g., growth, pregnancy, lactation).51 The most recent scientific information available has afforded a more complete understanding of SRKWs diet throughout the year. These data confirm that SRKWs preferentially consume Chinook salmon, both in their summer and winter diets.52 Recently available analytical methods, including analyses of fish scale and Southern Resident fecal samples, have allowed NMFS scientists to determine that SRKWs rely on both fall and spring Columbia/Snake River Runs at various times throughout the year.53 Notably, recent data show that Chinook are the primary species consumed by SRKWs when they are outside of inland waters, and that most of these originate in the Columbia/Snake River basin.54 The availability of ample prey in the winter is of particular seasonal concern, given that [n]utritional demands on SRKW are presumed to be greatest in winter when their salmonid prey are more widely dispersed, smaller in size, [] other non-salmonid species appear to be a larger fraction of their diet, [and] [t]hermoregulatory demands may also influence nutritional demands.55 The importance of ample year-round prey, particularly for reproductive-age females, is additionally supported by the most recent studies of SRKWs body condition using aerial photogrammetry, which found that 25% of the whales monitored in 2008 and 2013 showed 50 NMFS CH Biological Report (2019) at 27. 51 NMFS CH Biological Report (2019) at 27. 52 NMFS CH Biological Report (2019) at 10-11. 53 NMFS CH Biological Report (2019) at 11. 54 NMFS CH Biological Report (2019) at 11. 55 Samuel K. Wasser, et al., Population Growth is Limited by Nutritional Impacts on Pregnancy Success in Endangered Southern Resident Killer Whales (Orcinus orca), PLoS ONE 12(6): e0179824 3 (2017). 78 significant declines in body condition and that the high proportion of reproductive-age females among those with a decline in body condition likely reflects the increased energetic costs to adult females of lactation.56 In fact, the most recent science shows that SRKWs are likely to be especially reliant on the Columbia/Snake River watersheds early spring, nutrient-rich Chinook salmon runs.57 As NMFS summarized in late 2019, data compiled from satellite-linked tagged whales, dedicated surveys, and passive acoustic monitoring has provided a better understanding of SRKWs movements between December and mid-May, documenting the fact that SRKWs spend significant time in the winter and early spring off the mouth of the Columbia River.58 Indeed, SRKWs were found to be present here as much as 35% more often than would be expected by chance.59 That SRKWs congregate here to avail themselves of the relatively fatty Columbia/Snake River Chinook is corroborated by ONeill (2014), which found that Columbia River spring run Chinook had significantly higher lipid content than any other Chinook populations, at 14.8%.60 Despite the 2019 CRS BiOps recognition that recently available data documenting that [t]he occurrence of K and L pods off the Columbia River in March suggests the importance of the Columbia River spring-run stocks of Chinook salmon in their diet at that time of year, neither the DEIS nor its appended BA address in a complete or objective way the 56 Fearnbach (2018) at 179. 57 Bain (2020) at 9. 58 NMFS CH Biological Report (2019) at 11, 22 Fig. 7. 59 Bain (2020) at 9 and App. A; M.B. Hanson, et al., Modeling the occurrence of endangered killer whales near a U.S. Navy Training Range in Washington State using satellitetag locations to improve acoustic detection data. Prepared for: U.S. Navy, U.S. Pacific Fleet, Pearl Harbor, HI. Prepared by: National Oceanic and Atmospheric Administration, Northwest Fisheries Science Center under MIPR N0007017MP4C419 (2018). 60 Sandra M. ONeill, et al., Energy Content of Pacific Salmon as Prey of Northern and Southern Resident Killer Whales, 25 Endang Species Res 265, 271-72, & Table 3 (2014). The next highest population considered was the Skeena River Chinook (13.1%), followed by the Fraser River Chinook (12.4%); Puget Sound Chinook had the lowest lipid content among populations analyzed, at 6.3%. Id. 79 seasonal significance of the Columbia/Snake River runs nor explain why the DEIS limits its evaluation of the impacts on SRKWs prey requirements to a consideration on an annual basis.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not require the co-lead agencies to take affirmative actions to recover ESA listed species. The population dynamics of the SRKW are complicated and there are multiple factors that contribute to the overall success of this species. The quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differently from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for the whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall-run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall-run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). Details on the most crucial prey stocks for Southern Resident killer whales, as well as their population and range, is available from several fact sheets and videos available here: https://www.fisheries.noaa.gov/species/killer-whale#spotlight. For more information, visit this NMFS StoryMap on Southern Resident killer whales: https://noaa.maps.arcgis.com/apps/Cascade/index.html?appid=3405e6637bf74e998d4ebe992c54f613. According to NMFS and the EPA, the estimated SRKW population has fluctuated between 67 and 98 whales between 1960 and 2015. The Snake River dams were constructed between 1962 and 1975. The SRKW population increased from a record low in 1970 to its highest population numbers in 1995. Those years were not high years for Snake or Columbia River Chinook Salmon. Ocean conditions between 2011 and 2013 were good outmigration years. Particularly, 2011 and 2012 were above normal in water supply, which would mean more cooler water was available and there was better survival of salmon, and 2011 through 2014 were higher than normal spill years as well. The combination of outmigration and ocean conditions created improved adult salmon returns. The EIS has analyzed spill as a measure in the Preferred Alternative and determined the overall effect to SRKW to be negligible in large part because hatchery production is consistent between the No Action Alternative and the Preferred Alternative. Because the impact from the Preferred Alternative was determined to be negligible, the agencies determined that existing hatchery production would be sufficient to address any potential impacts to prey availability for SRKWs. The co-lead agencies note the contribution to the prey of SRKW through the continued existence of their respective independent Congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as the Lower Snake River Compensation Plan (other than under MO3), which is administered by USFWS. The Preferred Alternative and Proposed Action in the agencies' biological assessment carry forward certain mitigation measures described in Chapters 2 and 7 of the EIS, which include continued salmon and steelhead hatchery production. The Preferred Alternative has negligible effects to SRKWs as described in Section 7.7.6. The Biological Assessment (BA) describes the effect of the Proposed Action on the SRKW forage species (see BA Section 3.5.1.2, Southern Resident Killer Whale). The proposed changes in operation of the Columbia River System include increased spring spill during the downstream migration of juvenile spring and summer run Chinook salmon. The result of this action includes potential increases of juvenile fish passing through the spillways, reductions in juvenile fish direct and indirect mortality associated with downstream passage, and the Comparative Survival Study (CSS) model predicts increases in numbers of returning adults, which will benefit SRKWs foraging in and around the mouth of the Columbia River in winter and spring (See EIS Section 7.7.8). The CSS model results predicts Snake River Chinook salmon would have relative improvements in smolt-to-adult returns of 35 percent (see EIS Section 7.7.4). The smolt-to-adult return ratio (SAR) is the rate at which of a group of fish survive from their smolt life stage to a defined ending point where they return as adults. While recovery targets will require more than just the efforts of federal agencies, the CSS models indicate the potential for SARs of Snake River Chinook salmon and steelhead to increase to levels that could approach recovery targets set by the Northwest Power and Conservation Council. The BA, also consistent with the EIS, acknowledges past improvements to the configuration and operation of the Columbia River System, additional improvements to the environmental baseline as a result of completed estuary and tributary habitat actions, and the prospective non-operational conservation measures proposed in Chapter 2 of the Draft EIS, all contribute towards maintaining and improving Chinook abundance. Relevant conservation measures include, among other things, a commitment to continue funding the conservation and safety net hatchery programs listed in Chapter 2 of the Draft EIS. As discussed above, the agencies will fulfill congressionally authorized hatchery mitigation objectives through the funding of hatchery programs that are operated consistent with their independent hatchery program consultations during the term covered by this consultation. Based on those hatchery program consultations, the production levels associated with congressionally authorized hatchery mitigation objectives will continue, at minimum, to be consistent with levels previously analyzed by NOAA in the system consultations in 2008, 2014, and 2019. For the 2020 ESA consultations, therefore, the agencies expect that collectively, all of the actions described above (substantial modifications to migration conditions designed to benefit key prey species, combined with improvements to Chinook spawning and rearing habitat in the tributaries and Columbia River estuary, and continued hatchery production) ensure that remaining Chinook mortality from all sources in the mainstem migratory corridor will continue to be more than offset, resulting in a net gain in Chinook salmon abundance available as a prey source for SRKW. Finally, the 2019 NMFS Fisheries BiOp included increased spring spill operations that are similar to operations evaluated in CRSO EIS, and NOAA validated that the hatchery production of Chinook salmon mitigates for the impacts of operating the Columbia River System and total mortality through the mainstem migratory corridor from all sources. FEIS Chapter 3 (Vegetation, Wetlands, Wildlife, and Floodplains) has been updated for SRKW (Section 3..6.2.6 and Table 3-102). FEIS Chapter 7 (Preferred Alternative), has been updated with additional analysis information on SRKW and potential increase in forage fish, in particular, Chinook salmon (Section 7.7.8).
6110	20	ttrue@earthjustice.org	Earthjustice	2. Columbia/Snake River Spring Runs are Critical to SRKWs During Pregnancy, and Thus to SRKW Population Growth. The available scientific information also suggests that Columbia/Snake River Spring runs provide a nutrient-rich source of prey during a vital lifestage window, i.e., pregnancy. The scientific evidence led Wasser (2017) to conclude that the nutritional health of pregnant females depends in important part on the availability of the Columbia/Snake River Spring runs, and that nutritional stress due to low Chinook availability during this window is significantly associated with unsuccessful pregnancies in SRKWs.61 These unsuccessful pregnancies, in turn, are impairing the potential for population recovery through low recruitment as well as risk to the health and survival of the limited number of reproductive age females.62 Wasser (2017) used SRKW fecal samples to identify temporal patterns in hormone metabolites that measure stress and nutrition (glucocoritcoid (GC) and triiodothyronine (T3)), and reproductive status. Notably, [t]he SRKWs had a 69% pregnancy failure rate during [the Wasser (2017)] study.63 An unprecedented half of those [pregnancy failures] occurred at later stages of reproduction, when the energetic cost of failure and physiological risk to the mother was relatively high.64 Temporal patterns in the GC and T3 hormone profiles were found to indicate[] that successfully pregnant females arrived in the Salish Sea in significantly better nutritional condition, and remained so compared to [unsuccessfully pregnant] females that experienced loss some time after mid-pregnancy.65 Wasser found that the temporal patterns in 61 Wasser (2017) at 14. 62 Wasser (2017) at 14. 63 Wasser (2017) at 14. 64 Wasser (2017) at 14. 65 Wasser (2017) at 16. 80 hormone metabolites, together with radio-tagging data, supported a finding that the SRKWs depend on the fat-rich Columbia/Snake River Spring runs to replenish the killer whales after the long winter and sustain them until the temporally and quantitatively variable mid- to late-August peak in the Fraser River Chinook (FRC) occurs.66 NMFS most recent assessment of SRKWs biological needs throughout their coastal range concurred, citing these and other data for the point that [e]levated T3 values in the early spring when the whales first arrive in the [Salish Sea] indicate[] that the whales are foraging on prey with high nutritional value before they get there, suggesting the importance of the coastal early spring Columbia River Chinook run.67 Wasser (2017) concluded that their results strongly suggest that recovering Fraser River (FRC) and Columbia River Chinook (CRC) runs should be among the highest priorities for managers aiming to recover this endangered population of killer whales. SRKW are suffering significant reproductive loss due to lack of Chinook prey and associated effects (e.g., release of lipophilic toxins into circulation).68 The import of Wasser (2017)s findings at the SRKW population level become apparent when one considers that the Lacy (2017) PVA found that improvements to SRKW fecundity, rather than mortality provide a better opportunity for a large benefit to population growth69 and that [o]ver the ranges tested, the effects of Chinook prey abundance on fecundity and survival had a greater effect on population growth rate than did the other two factors [i.e., acoustic 66 Wasser (2017) at 3. Additionally, Wasser noted that [o]nly 4 detected pregnancies between 20112013 resulted in live births when Fraser River Chinook and early spring Columbia River Chinook runs were both exceedingly low. That trend reversed in 2014, with relatively high CRC returns and early onset of FRC returns in 2014 and 2015 that was followed by 8 new births between December of 2014 and October 2015. Id. at 16. 67 NMFS CH Biological Report (2019) at 14. 68 Wasser (2017) at 17-18. 69 Lacy (2017) at 5. 81 disturbance (noise) or toxic contaminants].70 Wasser (2017) echoed the observation that reduced fecundity appears to be a particularly important contributor to SRKWs failure to recover,71 noting that population growth is constrained by low offspring production for the number of reproductive females in the population as well as risk to the health and survival of the limited number of reproductive age females.72 Assuming a median peak fecundity rate of 0.21, the 31 potentially reproductive females in the SRKW population should have had 48 births between 2008-2015. Yet, only 28 births were recorded during that period.73 And note that SRKWs fecundity rate is significantly lower than [Northern Resident Killer Whales] (0.26) or [Southeast Alaskan Resident Killer Whales] (0.27), holding age structure and survivorship constant.74 In fact, whereas Wasser (2017) reported that SRKW typically give birth every 5.3 years, NMFS recently provided an updated and potentially more concerning figure: SRKWs birth interval is 6.1 years.75 Neither the DEIS nor the appended BA discuss in an objective or complete manner how the Columbia/Snake River Chinooks runs function to meet SRKWs seasonal needs and vital lifestage windows. At most, the BA provides only the vague explanation that in the Columbia River Basin, different stocks vary in overall importance for the diet of the SRKW. For example, [Snake River] spring-summer Chinook salmon are mainly available to SRKW when the fish gather off the mouth of the Columbia, whereas [Snake River] fall-run Chinook remain closer to the coast and would be available for a longer period before migrating upriver in the fall. BA 3 598 to 599. DEIS 3-685. This statement fails to inform the reader about the significance of 70 Lacy (2017) at 3. 71 Wasser (2017) at 2. 72 Wasser (2017) at 14. 73 Wasser (2017) at 2. 74 Wasser (2017)at 2. 75 NMFS CH Biological Report (2019) at 9. 82 these runs to SRKWs individual nutritional requirements, to the success or failure of SRKWs pregnancies, and to the	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not require the co-lead agencies to take affirmative actions to recover ESA listed species. The population dynamics of the SRKW are complicated and there are multiple factors that contribute to the overall success of this species. The quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differently from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for the whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall-run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall-run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). Details on the most crucial prey stocks for Southern Resident killer whales, as well as their population and range, is available from several fact sheets and videos available here: https://www.fisheries.noaa.gov/species/killer-whale#spotlight. For more information, visit this NMFS StoryMap on Southern Resident killer whales: https://noaa.maps.arcgis.com/apps/Cascade/index.html?appid=3405e6637bf74e998d4ebe992c54f613. According to NMFS and the EPA, the estimated SRKW population has fluctuated between 67 and 98 whales between 1960 and 2015. The Snake River dams were constructed between 1962 and 1975. The SRKW population increased from a record low in 1970 to its highest population numbers in 1995. Those years were not high years for Snake or Columbia River Chinook Salmon. Ocean conditions between 2011 and 2013 were good years for salmon. At the same time, 2010 and 2013 were good outmigration years. Particularly, 2011 and 2012 were above normal in water supply, which would mean more cooler water was available and there was better survival of salmon, and 2011 through 2014 were higher than normal spill years as well. The combination of outmigration and ocean conditions created improved adult salmon returns. The EIS has analyzed spill as a measure in the Preferred Alternative and determined the overall effect to SRKW to be negligible in large part because hatchery production is consistent between the No Action Alternative and the Preferred Alternative. Because the impact from the Preferred Alternative was determined to be negligible, the agencies determined that existing hatchery production would be sufficient to address any potential impacts to prey availability for SRKWs. The co-lead agencies note the contribution to the prey of SRKW through the continued existence of their respective independent Congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as the Lower Snake River Compensation Plan (other than under MO3), which is administered by USFWS. The Preferred Alternative and Proposed Action in the agencies' biological assessment carry forward certain mitigation measures described in Chapters 2 and 7 of the EIS, which include continued salmon and steelhead hatchery production. The Preferred Alternative has negligible effects to SRKWs as described in Section 7.7.6. The Biological Assessment (BA) describes the effect of the Proposed Action on the SRKW forage species (see BA Section 3.5.1.2, Southern Resident Killer Whale). The proposed changes in operation of the Columbia River System include increased spring spill during the downstream migration of juvenile spring and summer run Chinook salmon. The result of this action includes potential increases of juvenile fish passing through the spillways, reductions in juvenile fish direct and indirect mortality associated with downstream passage, and the Comparative Survival Study (CSS) model predicts increases in numbers of returning adults, which will benefit SRKWs foraging in and around the mouth of the Columbia River in winter and spring (See EIS Section 7.7.8). The CSS model results predicts Snake River Chinook salmon would have relative improvements in smolt-to-adult returns of 35 percent (see EIS Section 7.7.4). The smolt-to-adult return ratio (SAR) is the rate at which of a group of fish survive from their smolt life stage to a defined ending point where they return as adults. While recovery targets will require more than just the efforts of federal agencies, the CSS models indicate the potential for SARs of Snake River Chinook salmon and steelhead to increase to levels that could approach recovery targets set by the Northwest Power and Conservation Council. The BA, also consistent with the EIS, acknowledges past improvements to the configuration and operation of the Columbia River System, additional improvements to the environmental baseline as a result of completed estuary and tributary habitat actions, and the prospective non-operational conservation measures proposed in Chapter 2 of the Draft EIS, all contribute towards maintaining and improving Chinook abundance. Relevant conservation measures include, among other things, a commitment to continue funding the conservation and safety net hatchery programs listed in Chapter 2 of the Draft EIS. 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For the 2020 ESA consultations, therefore, the agencies expect that collectively, all of the actions described above (substantial modifications to migration conditions designed to benefit key prey species, combined with improvements to Chinook spawning and rearing habitat in the tributaries and Columbia River estuary, and continued hatchery production) ensure that remaining Chinook mortality from all sources in the mainstem migratory corridor will continue to be more than offset, resulting in a net gain in Chinook salmon abundance available as a prey source for SRKW.

Letter No.	Comment No.	Commenter Name/Email	Affiliation	Comment	Response[1/]
				implications for fecundity and, ultimately, SRKWs population health and recovery even though credible scientific information to address these issues is available.	Finally, the 2019 NMFS Fisheries BiOp included increased spring spill operations that are similar to operations evaluated in CRSO EIS, and NOAA validated that the hatchery production of Chinook salmon mitigates for the impacts of operating the Columbia River System and total mortality through the mainstem migratory corridor from all sources. FEIS Chapter 3 (Vegetation, Wetlands, Wildlife, and Floodplains) has been updated for SRKW (Section 3..6.2.6 and Table 3-102). FEIS Chapter 7 (Preferred Alternative), has been updated with additional analysis information on SRKW and potential increase in forage fish, in particular, Chinook salmon (Section 7.7.8).
6110	21	ttrue@earthjustice.org	Earthjustice	3. The DEIS Provides an Inaccurate Picture of the Chinook Stocks that are Important to SRKW Survival and Recovery by Failing to Acknowledge Relevant Limitations and Biases in the Data. In addition to the inadequacies discussed above, the DEIS provides an inaccurate picture of the Chinook stocks that are important to SRKW survival and recovery by failing to acknowledge relevant limitations and biases in the data on which its portrayal rests. The DEIS and the appended BA contain nearly identical language depicting the Chinook stocks returning to the Columbia and Snake Rivers as among the most crucial stocks to SRKW, according to a 2018 analysis by NMFS and WDFW, alongside those from the Fraser River and other rivers draining into the Puget Sound and the Salish Sea, and the Klamath and Sacramento Rivers. DEIS 3-685. BA 3-598. The BA then states that this analysis showed that Puget Sound Chinook salmon stocks are one of the most important salmon stocks for Southern Resident killer whales, since they surround the heart of the whales habitat, and the whales have access to them for a greater part of the year than fish from the Columbia, Snake, and Fraser rivers. BA 3-598. DEIS 3-685. Neither the DEIS nor appended BA disclose the numerous limitations and biases in the NMFS/WDFW Priority Stock Report, which NMFS and WDFW authors took pains to identify in their text as assumptions and boldface caveats.76 Even taking the NMFS/WDFW ranking at face value, the DEIS summary appears designed to diminish the relative importance of the Columbia/Snake River Chinook stocks in the 76 NOAA Fisheries West Coast Region & Washington Department of Fish and Wildlife, Southern Resident Killer Whale Priority Chinook Stocks Report 2, 3, 4 (June 22, 2018)[hereinafter NOAA & WDFW, Priority Stocks Report (2018)]. 83 agencies analysis. Whereas the DEIS lists the Columbia/Snake River stocks alongside runs returning to a handful of other rivers as the most crucial stocks to SRKW, the DEIS declines to convey that the Columbia/Snake River fall and spring runs constitute 7 of the top 15 priority stocks (out of a total of 31 ranked stocks) in the NMFS/WDFW analysis.77 Moreover, the DEIS portrays the handful of most crucial stocks as an undifferentiated group, yet the Klamath runs are ranked only 17th (Klamath fall) and 18th (Klamath spring), while some of the Columbia and Snake River stocks rank much higher according to NMFS/WDFW.78 More significantly, NMFS/WDFW offered their priority list as a preliminary effort that was intended to be adapted with further data and analysis, and conceded explicitly several limitations and biases in the data on which their prioritization was made.79 Among the limitations and biases flagged by NMFS/WDFW and echoed by other scientists are that the list reflects (a) a spatial/seasonal bias in fish sample collection in favor of inland locations, flagged by notations that the majority of samples have been collected in the summer months in inland waters of WA and British Columbia, and [c]aveat: [t]here is currently no spatial correction factor for sample collection (stocks originating from near the sample locations are more likely to be collected);80 (b) a sampling bias in fish sample collection in favor of currently abundant stocks over stocks that have already been depleted relative to historical abundance, indicated by the overall study design focusing on SRKWs current/recent diet and flagged by the notation [c]aveat: [t]here is no correction factor for abundance (more abundant stocks are more likely 77 NOAA & WDFW, Priority Stocks Report (2018) at 7-8. 78 NOAA & WDFW, Priority Stocks Report (2018) at 7-8. 79 Bain (2020) at 10, n. 48; NOAA & WDFW, Priority Stocks Report (2018) at 2, 3, and 4 (noting the agency authors understanding that every aspect of their analysis, i.e., the factors, scoring and priority list can be adapted as new scientific information becomes available). 80 NOAA & WDFW, Priority Stocks Report (2018) at 2 (boldface in original). 84 to be identified in the [SRKW] diet);81 (c) a seasonal gap in data on the ocean distribution of prey, flagged by the notation that detailed analyses of data from spring runs had not yet been completed, and [c]aveat: [i]n particular, ocean distributions of spring run stocks tend to be less well understood than fall stocks.82 Additionally, scientists have noted that the priority list does not take into account potential for recovery of stocks, a point taken up below.83 As a consequence of these limitations, scientists have observed that the priorities are based more on conditions at the time data were collected than on actual stock priority to SRKW survival and recovery.84 The DEIS, however, discloses nothing of the qualifications and biases to the NMFS/WDFW stock priority list they cite for their summary de-emphasizing the importance of the Columbia/Snake River Chinook stocks. Nor does the DEIS discuss the import of more recently available data speaking to some of the data gaps and weaknesses identified by NMFS/WDFW and other scientists as limitations on the resulting stock priority list. For example, the 2019 CRS BiOp recognized the more recent data underscoring the importance of Chinook to SRKWs throughout the year, and highlighting the importance of the Columbia/Snake River runs: it reported that Chinook comprise a high percentage of SRKW diet throughout the year, not only in the summer but also in the winter, in both inland and coastal waters; that salmon and steelhead comprise up to 98% of the whales summer diet, of which almost 80% were Chinook; that Chinook and chum are primarily [sic] contributors to the whales diet in inland waters from October through December; and that fecal samples and prey remains sampled during the winter and spring in coastal waters indicated that the majority of prey samples were Chinook (80 percent of prey remains and 67 percent of fecal 81 NOAA & WDFW, Priority Stocks Report (2018) generally and at 2 (boldface in original). 82 NOAA & WDFW, Priority Stocks Report (2018) at 3-4 (boldface in original). 83 Bain (2020) at 10, n. 48. 84 Bain (2020) at 10, n. 48. 85 samples were Chinook salmon); and that Chinook salmon genetic stock identification from samples collected in winter and spring in coastal waters included 12 U.S. west coast stocks, and over half the Chinook salmon consumed originated in the Columbia River.85 Similarly, in NMFS recent Biological Report in support of expanded Critical Habitat for SRKW, its discussion of SRKWs range, foraging and prey, and its depiction in Fig. 5 of the overlap of location and prey species samples for SRKW predation events appears to indicate that Columbia/Snake fall Chinook provide food for SRKWs not only near the mouth of the Columbia River and off the coast of Westport, WA (where Columbia/Snake spring Chinook are also a source of prey) but also further north, off the coast from LaPush to the western entrance of the Strait of Juan de Fuca (where J pod also occurs).86 Although it is admittedly not possible to parse further the figures and data in NMFS Biological Report, it should not be left to the reader of the DEIS to undertake independent research in order to fill in the details and reconcile NMFs data with the conclusions reached by the Agencies in the DEIS. The DEIS fails to explain how its conclusions are supported by the available scientific evidence. Finally, the DEIS does not disclose that the SRKWs in the summer of 2019 were largely absent from the Salish Sea, appearing on just two days in June and July.87 While the cause of this departure from SRKWs typical patterns is unclear, the Governors Orca Task Force remarked upon this unprecedented seasonal shift in use of their historic core and critical habitat and suggested that continued or worsening pressure from known threats such as lack of prey and vessel noise and disturbance likely led or contributed to their displacement. For 85 2019 CRS BiOp at 909. 86 NMFS CH Biological Report (2019) at 10-13, Fig. 5, 21-23, Fig. 7. 87 Southern Resident Orca Task Force, Final Report and Recommendations 17 (Nov., 2019) https://www.governor.wa.gov/issues/issues/energy-environment/southern-resident-orca-recovery/taskforce. 86 example, several Chinook stocks, such as from the Fraser River, saw extremely low numbers of returning Chinook.88 The DEIS failed to discuss the extent to which the SRKWs extended absence from the Salish Sea might raise questions about their assessment of the priority stocks for SRKW, given that it rests in part on, as the BA puts it, the fact that Puget Sound stocks surround the heart of the whales habitat, and the whales have access to them for a greater part of the year. BA 3-598. In fact, because of the weighting system used by NMFS/WDFW in identifying priority Chinook stocks, the typical overlap in time and space of SRKW presence and particular runs timing (e.g., Salish Sea in summer/fall) is counted three times as heavily as the other two factors considered.89	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not require the co-lead agencies to take affirmative actions to recover ESA listed species. The population dynamics of the SRKW are complicated and there are multiple factors that contribute to the overall success of this species. The quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differently from hatchery and wild fish. 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For more information, visit this NMFS StoryMap on Southern Resident killer whales: https://noaa.maps.arcgis.com/apps/Cascade/index.html?appid=3405e6637bf74e998d4ebe992c54f613. According to NMFS and the EPA, the estimated SRKW population has fluctuated between 67 and 98 whales between 1960 and 2015. The Snake River dams were constructed between 1962 and 1975. The SRKW population increased from a record low in 1970 to its highest population numbers in 1995. Those years were not high years for Snake or Columbia River Chinook Salmon. Ocean conditions between 2011 and 2013 were good years for salmon. At the same time, 2010 and 2013 were good outmigration years. Particularly, 2011 and 2012 were above normal in water supply, which would mean more cooler water was available and there was better survival of salmon, and 2011 through 2014 were higher than normal spill years as well. The combination of outmigration and ocean conditions created improved adult salmon returns. 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The result of this action includes potential increases of juvenile fish passing through the spillways, reductions in juvenile fish direct and indirect mortality associated with downstream passage, and the Comparative Survival Study (CSS) model predicts increases in numbers of returning adults, which will benefit SRKWs foraging in and around the mouth of the Columbia River in winter and spring (See EIS Section 7.7.8). The CSS model results predicts Snake River Chinook salmon would have relative improvements in smolt-to-adult returns of 35 percent (see EIS Section 7.7.4). The smolt-to-adult return ratio (SAR) is the rate at which of a group of fish survive from their smolt life stage to a defined ending point where they return as adults. 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FEIS Chapter 3 (Vegetation, Wetlands, Wildlife, and Floodplains) has been updated for SRKW (Section 3..6.2.6 and Table 3-102). FEIS Chapter 7 (Preferred Alternative), has been updated with additional analysis information on SRKW and potential increase in forage fish, in particular, Chinook salmon (Section 7.7.8).
6110	22	ttrue@earthjustice.org	Earthjustice	4. The DEIS Obscures the Important Contribution of Columbia/Snake River Chinook to SRKW Survival and Health by Focusing Narrowly on Current Chinook Abundance. The DEIS obscures the important contribution of Columbia/Snake River Chinook to SRKW survival and recovery by focusing narrowly on current Chinook abundance as the basis for its assessment of the CRSOs effects, its claim that the Snake River and Columbia Chinook populations constitute a small portion of [the SRKWs] overall diet, and its conclusion that the Preferred Alternative is not likely to adversely affect the southern resident killer whale population. DEIS at 7-151, 7-153 Table 7-28. The DEIS fails to provide any sense of the outsized role historically played by the magnificent Columbia/Snake River Chinook runs in providing for the SRKW. Deprived of this information, a reader might fail to grasp that the Southern Residents evolved in the context of the extraordinary and reliable abundance of its preferred prey, Chinook, supplied by the 88 Southern Resident Orca Task Force Final Report (2019) at 17. 89 NOAA & WDFW, Priority Stocks Report (2018) at 3-5 (whereas Factor 1 and 2 were accorded 1 point each, Factor 3, Degree of Spatial and Temporal Overlap [of SRKW and Chinook], was accorded 3 points, out of a total possible 5 points. 87 Columbia/Snake River Chinook in quantities of significance through much of the year, and, with timing that is particularly crucial during some seasons (i.e., late winter/early spring, as discussed above in Part B.2).90 As NMFS itself stated in its 2008 Recovery Plan for the SRKW, [p]erhaps the single greatest change in food availability for resident killer whales since the late 1800s has been the decline of salmon in the Columbia River basin.91 A widely adopted estimate by the Northwest Power Planning Council (now Northwest Power Conservation Council) puts average adult Columbia/Snake River salmon and steelhead runs at 10 million to 16 million fish,92 an order of magnitude higher than runs in some recent years. Recent graphic estimates by Mike Ford, of NOAAs Northwest Fisheries Science Center, highlight the stunning losses in Columbia Basin Chinook salmon abundance.93 According to Ford, whereas historical Columbia Basin Chinook run size exceeded 4,500,000 fish, present runs number less than 1,000,000 fish.94 The Columbia Basin figures dwarf those of those of the other regions considered (Puget Sound; Washington Coast; Oregon Coast; Klamath; Southern Oregon/California Coast; and Central Valley), both in terms of their historical contribution and their dramatic decline. The Central Valley runs place second on both scores,	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not require the co-lead agencies to take affirmative actions to recover ESA listed species. The population dynamics of the SRKW are complicated and there are multiple factors that contribute to the overall success of this species. The quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differently from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for the whales (NOAA and WDFW 2018). 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Ocean conditions between 2011 and 2013 were good years for salmon. At the same time, 2010 and 2013

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				with a historical run size at about 1,200,000 fish and a present run size of just under 250,000 fish.95 By comparison, Puget Sound Chinook run size has fallen from around 700,000 fish to around 90 Bain (2020) at 8-9, 11. 91 NMFS (2008) SRKW Recovery Plan at II-8. 92 Northwest Power Planning Council, 1987 Columbia River Basin Fish and Wildlife Program 36 (1987); an earlier BPA estimate put this figure at 35 million fish. Chinook, of course, comprise only a portion of the total salmon and steelhead runs. 93 Mike Ford, Salmon Recovery and Southern Resident Killer Whale Status, Presentation to MMC (May, 2018). 94 Mike Ford, Salmon Recovery and Southern Resident Killer Whale Status, Presentation to MMC (May, 2018). 95 Mike Ford, Salmon Recovery and Southern Resident Killer Whale Status, Presentation to MMC, Slide 14 (May, 2018)(historical reference point is undefined on slide; all numbers based on a visual inspection of graphs). 88 400,000 fish during this same period.96 Fords estimates also show the jarring change to the relative seasonal abundance of the various Columbia Basin runs, with the Interior Columbia River Basin Spring runs having declined from extraordinary runs of some 2,500,000 fish to less than 200,000 fish.97 While Columbia Basin fall runs have also suffered losses, these have been comparatively smaller.98 The seasonal hole in prey availability caused by the dramatic decline in the Columba Basin spring runs is of significant concern to SRKW, who evolved in sync with this late winter/early spring influx of nutrients and who continue to ply the waters near the mouth of the Columbia, as noted above, now as in the past. Yet, as discussed above, the DEIS leans heavily on the NMFS/WDFW Priority Stock Report, with its biases in favor of currently abundant stocks, stocks sampled in the summer in the inland waters of the Puget Sound, and stocks comprised of fall, rather than spring, runs. Fords figures shed light on how these limitations of the NMFS/WDFW analysis likely function to understate the importance of the Columbia/Snake River Chinook runs to SRKW survival and recovery, which are likely to be impacted by one or more of these biases in the data. Scientists have recently emphasized this criticism of the NMFS/WDFW priority list, specifically noting the consequent belittling of these biological agencies prioritization of the Columbia/Snake River stocks.99 Neither the DEIS nor its appended BA, however, present the relevant historical data nor otherwise explain its implications for their claim that the Columbia/Snake River Chinook are 96 Mike Ford, Salmon Recovery and Southern Resident Killer Whale Status, Presentation to MMC, Slide 14 (May, 2018)(historical reference point is undefined on slide; all numbers based on a visual inspection of graphs). 97 Mike Ford, Salmon Recovery and Southern Resident Killer Whale Status, Presentation to MMC, Slide 20 (May, 2018)(historical reference point is undefined on slide; all numbers based on a visual inspection of graphs). 98 Mike Ford, Salmon Recovery and Southern Resident Killer Whale Status, Presentation to MMC, Slide 20 (May, 2018)(historical reference point is undefined on slide; all numbers based on a visual inspection of graphs). 99 Bain (2020) at 10, n.48, and App. B. 89 unimportant to the SRKW because they (currently) comprise but a small portion of their overall diet. DEIS 7-151.	were good outmigration years. Particularly, 2011 and 2012 were above normal in water supply, which would mean more cooler water was available and there was better survival of salmon, and 2011 through 2014 were higher than normal spill years as well. The combination of outmigration and ocean conditions created improved adult salmon returns. The EIS has analyzed spill as a measure in the Preferred Alternative and determined the overall effect to SRKW to be negligible in large part because hatchery production is consistent between the No Action Alternative and the Preferred Alternative. Because the impact from the Preferred Alternative was determined to be negligible, the agencies determined that existing hatchery production would be sufficient to address any potential impacts to prey availability for SRKWs. The co-lead agencies note the contribution to the prey of SRKW through the continued existence of their respective independent Congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as the Lower Snake River Compensation Plan (other than under MO3), which is administered by USFWS. The Preferred Alternative and Proposed Action in the agencies' biological assessment carry forward certain mitigation measures described in Chapters 2 and 7 of the EIS, which include continued salmon and steelhead hatchery production. The Preferred Alternative has negligible effects to SRKWs as described in Section 7.7.6. The Biological Assessment (BA) describes the effect of the Proposed Action on the SRKW forage species (see BA Section 3.5.1.2, Southern Resident Killer Whale). The proposed changes in operation of the Columbia River System include increased spring spill during the downstream migration of juvenile spring and summer run Chinook salmon. The result of this action includes potential increases of juvenile fish passing through the spillways, reductions in juvenile fish direct and indirect mortality associated with downstream passage, and the Comparative Survival Study (CSS) model predicts increases in numbers of returning adults, which will benefit SRKWs foraging in and around the mouth of the Columbia River in winter and spring (See EIS Section 7.7.8). The CSS model results predicts Snake River Chinook salmon would have relative improvements in smolt-to-adult returns of 35 percent (see EIS Section 7.7.4). The smolt-to-adult return ratio (SAR) is the rate at which of a group of fish survive from their smolt life stage to a defined ending point where they return as adults. While recovery targets will require more than just the efforts of federal agencies, the CSS models indicate the potential for SARs of Snake River Chinook salmon and steelhead to increase to levels that could approach recovery targets set by the Northwest Power and Conservation Council. The BA, also consistent with the EIS, acknowledges past improvements to the configuration and operation of the Columbia River System, additional improvements to the environmental baseline as a result of completed estuary and tributary habitat actions, and the prospective non-operational conservation measures proposed in Chapter 2 of the Draft EIS, all contribute towards maintaining and improving Chinook abundance. Relevant conservation measures include, among other things, a commitment to continue funding the conservation and safety net hatchery programs listed in Chapter 2 of the Draft EIS. As discussed above, the agencies will fulfill congressionally authorized hatchery mitigation objectives through the funding of hatchery programs that are operated consistent with their independent hatchery program consultations during the term covered by this consultation. Based on those hatchery program consultations, the production levels associated with congressionally authorized hatchery mitigation objectives will continue, at minimum, to be consistent with levels previously analyzed by NOAA in the system consultations in 2008, 2014, and 2019. For the 2020 ESA consultations, therefore, the agencies expect that collectively, all of the actions described above (substantial modifications to migration conditions designed to benefit key prey species, combined with improvements to Chinook spawning and rearing habitat in the tributaries and Columbia River estuary, and continued hatchery production) ensure that remaining Chinook mortality from all sources in the mainstem migratory corridor will continue to be more than offset, resulting in a net gain in Chinook salmon abundance available as a prey source for SRKW. Finally, the 2019 NMFS Fisheries BiOp included increased spring spill operations that are similar to operations evaluated in CRSO EIS, and NOAA validated that the hatchery production of Chinook salmon mitigates for the impacts of operating the Columbia River System and total mortality through the mainstem migratory corridor from all sources. FEIS Chapter 3 (Vegetation, Wetlands, Wildlife, and Floodplains) has been updated for SRKW (Section 3..6.2.6 and Table 3-102). FEIS Chapter 7 (Preferred Alternative), has been updated with additional analysis information on SRKW and potential increase in forage fish, in particular, Chinook salmon (Section 7.7.8).
6110	23	ttrue@earthjustice.org	Earthjustice	5. The DEIS Fails to Consider the Columbia/Snake River Chinook Runs Potential for Recovery, Omitting a Key Consideration Relevant to the Importance of the Columbia/Snake River Runs to SRKW Survival and Recovery. The DEIS fails to consider the Columbia/Snake River Chinook runs potential for recovery, omitting a key consideration relevant to the importance of the Columbia/Snake River runs to SRKW survival and recovery. Scientists have underscored the need to increase, rather than merely maintain, SRKWs Chinook prey base if current negative population growth rates are to be addressed and NMFS stated recovery target of 2.3% SRKW population growth is to be achieved.100 According to Mike Ford, of NOAA Fisheries, Northwest Fisheries Science Center, increasing Chinook abundance for SRKW will likely need to include a variety of measures, including not only those that remedy the large declines in Chinook numbers dating to early in the 20th century, but those that ensure diversity and address losses of particular runs, e.g., the great loss in spring run populations.101 Scientists have identified significantly increasing the Columbia/Snake River runs, and particularly the Snake River spring runs, as offering perhaps the best potential for reversing these historic losses and addressing some of the particular requirements for SRKW recovery highlighted by Ford. Bain (2020) observed that the largest potential for increased Chinook abundance by orders of magnitude anywhere in the Southern 100 See, e.g., Lacy (2017). 101 Mike Ford, Salmon Recovery and Southern Resident Killer Whale Status, Presentation to MMC, Slide 32 (May, 2018); Richard G Gustafson, et al., Pacific Salmon Extinctions: Quantifying Lost and Remaining Diversity, 21 Conservation Biology 1009 (2007). 90 Residents range is Chinook from the Columbia-Snake River Basin.102 Bain explained: Wilderness acreage provides the highest quality in-stream spawning habitat for spring Chinook. Breaching the four lower Snake River dams would open the gateway to a vast, 5,500-mile expanse of largely intact spawning and rearing stream that run through millions of acres of wilderness.103 Moreover, according to Bain (2020), [t]hese are the highest elevation streams, and therefore, the most global warming resistant salmon streams in the entire lower 48 states.104 Bain (2020)s conclusions raise additional inadequacies in the DEIS. Whereas scientists have pointed to breaching the four lower Snake River dams as opening the gateway to the greatest increase in Chinook abundance anywhere in the SRKWs range, the DEIS alternatives analysis does not give adequate consideration to this point. The DEIS concludes that the Multiple Objective Alternative 3 (MO3), i.e. lower Snake River dam breaching alternative, would affect prey availability by resulting in a moderate to major increase in smolt-to adult returns and overall abundances of adult salmon and steelhead over the long term, and over the long term, this would lead to an increase in the prey base available to . . . killer whale[s]. DEIS 3-758. However, the Action Agencies conclude without citation or analysis that the effect for the prey limited SRKWs would be only minor. DEIS 3-758. This conclusion for MO3 presumably hinges once again on the flawed contention that t]he food available to Southern Resident killer whales from the lower Snake River population is only a small percentage of their overall diet, the infirmities of which are discussed above in Part B. DEIS 3-758, 3-759, Table 3-106. This point is quite apart from the flaws in the analysis of how MO3 would actually affect Chinook 102 Bain (2020) at 12 and App. C (citing and appending a slide from a presentation by Fish Passage Center to the Governors Orca Recovery Task Force (Oct. 2018), illustrating the order-of-magnitude increase in spring Chinook returns to the Columbia River mouth afforded by a breach + 125% spill management scenario as compared to various other scenarios). 103 Bain (2020) at 11. 104 Bain (2020) at 11. 91 abundance, including whether MO3 would actually introduce uncertainties into hatchery operations, discussed elsewhere in these comments. Additionally, Bain (2020)s conclusions underscore the DEIS failure to adequately discuss the implications of climate change on these runs future abundance and thus, their ability to provide an adequate prey base to SRKWs in the face of a warming climate.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not require the co-lead agencies to take affirmative actions to recover ESA listed species. The population dynamics of the SRKW are complicated and there are multiple factors that contribute to the overall success of this species. The quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differently from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for the whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall-run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall-run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). Details on the most crucial prey stocks for Southern Resident killer whales, as well as their population and range, is available from several fact sheets and videos available here: https://www.fisheries.noaa.gov/species/killer-whale#spotlight. For more information, visit this NMFS StoryMap on Southern Resident killer whales: https://noaa.maps.arcgis.com/apps/Cascade/index.html?appid=3405e6637bf74e998d4ebe992c54f613. According to NMFS and the EPA, the estimated SRKW population has fluctuated between 67 and 98 whales between 1960 and 2015. The Snake River dams were constructed between 1962 and 1975. The SRKW population increased from a record low in 1970 to its highest population numbers in 1995. Those years were not high years for Snake or Columbia River Chinook Salmon. Ocean conditions between 2011 and 2013 were good years for salmon. At the same time, 2010 and 2013 were good outmigration years. Particularly, 2011 and 2012 were above normal in water supply, which would mean more cooler water was available and there was better survival of salmon, and 2011 through 2014 were higher than normal spill years as well. The combination of outmigration and ocean conditions created improved adult salmon returns. 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6110	24	ttrue@earthjustice.org	Earthjustice	6. The DEIS Considers the Impacts of Losses to the Columbia/Snake River Chinook Run in a Vacuum, Failing to Evaluate the Impact of this Loss Together with Losses to Chinook Runs Coastwide on SRKW Survival and Recovery. The DEIS fails to evaluate the impact of the losses of Columbia/Snake River Chinook runs together with losses to Chinook runs coastwide, such that their cumulative impacts to SRKW survival and recovery can be adequately assessed. The DEIS states that, under the Preferred Alternative, the southern resident whales may have a slight increase in available food around the mouth of the Columbia River, but claims that [h]owever, this increase in food availability would have a negligible effect on killer whales, given that the Snake River and Columbia Chinook populations constitute a small portion of their overall diet. DEIS 7-151. Even if one takes at face value the claim that Chinook from the Columbia/Snake constitute only a small portion of SRKWs overall diet, the contention that the loss of this portion will not have much impact on SRKW survival and recovery is a claim that, were it made with respect to every run that provided a similar portion of the SRKWs overall diet, would permit the SRKW population to die the death of a thousand cuts. Under NEPA, the cumulative impacts resulting from individually minor but collectively significant actions must be considered.105 Rather than river by river, these collective losses to the SRKW must be considered in concert. Moreover, recall that, as NOAA Fisheries scientists have observed (see discussion in Part B.4) efforts to 105 40 C.F.R. 1508.7. 92 increase Chinook abundance for SRKW survival and recovery will likely need to include a variety of measures that address losses in Chinook run numbers and diversity throughout Chinooks historical and current range. The DEIS must also consider other past, present, and likely future effects that cumulatively affect the SRKW. These must include, for example, increases in vessel noise and disturbance due to planned and proposed terminal expansions in Washington and British Columbia, and changes to the SRKW ocean and Puget Sound habitat as the climate warms. The Agencies must consider these and other impacts in concert with the current reductions in food supply across the entire SRKW range, and the potential continuing downward trend in these runs	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat. 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Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). Details on the most crucial prey stocks for Southern Resident killer whales, as well as their population and range, is available from several fact sheets and videos available here: https://www.fisheries.noaa.gov/species/killer-whale#spotlight. For more information, visit this NMFS StoryMap on Southern Resident killer whales: https://noaa.maps.arcgis.com/apps/Cascade/index.html?appid=3405e6637bf74e998d4ebe992c54f613.

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				due to increased stressors such as climate change and increased development. Rather than consider the cumulative impacts of the many threats to SRKW, the DEIS only notes that restrictions on commercial fishing might benefit orca. DEIS 6-8. The benefit from fishery closures is fairly small. Including this very limited benefit while ignoring all of the other threats that have dramatically depleted these populations over time is irrational.	According to NMFS and the EPA, the estimated SRKW population has fluctuated between 67 and 98 whales between 1960 and 2015. The Snake River dams were constructed between 1962 and 1975. The SRKW population increased from a record low in 1970 to its highest population numbers in 1995. Those years were not high years for Snake or Columbia River Chinook Salmon. Ocean conditions between 2011 and 2013 were good years for salmon. At the same time, 2010 and 2013 were good outmigration years. Particularly, 2011 and 2012 were above normal in water supply, which would mean more cooler water was available and there was better survival of salmon, and 2011 through 2014 were higher than normal spill years as well. The combination of outmigration and ocean conditions created improved adult salmon returns. The EIS has analyzed spill as a measure in the Preferred Alternative and determined the overall effect to SRKW to be negligible in large part because hatchery production is consistent between the No Action Alternative and the Preferred Alternative. Because the impact from the Preferred Alternative was determined to be negligible, the agencies determined that existing hatchery production would be sufficient to address any potential impacts to prey availability for SRKWs. The co-lead agencies note the contribution to the prey of SRKW through the continued existence of their respective independent Congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as the Lower Snake River Compensation Plan (other than under MO3), which is administered by USFWS. The Preferred Alternative and Proposed Action in the agencies' biological assessment carry forward certain mitigation measures described in Chapters 2 and 7 of the EIS, which include continued salmon and steelhead hatchery production. The Preferred Alternative has negligible effects to SRKWs as described in Section 7.7.6. The Biological Assessment (BA) describes the effect of the Proposed Action on the SRKW forage species (see BA Section 3.5.1.2, Southern Resident Killer Whale). The proposed changes in operation of the Columbia River System include increased spring spill during the downstream migration of juvenile spring and summer run Chinook salmon. The result of this action includes potential increases of juvenile fish passing through the spillways, reductions in juvenile fish direct and indirect mortality associated with downstream passage, and the Comparative Survival Study (CSS) model predicts increases in numbers of returning adults, which will benefit SRKWs foraging in and around the mouth of the Columbia River in winter and spring (See EIS Section 7.7.8). The CSS model results predicts Snake River Chinook salmon would have relative improvements in smolt-to-adult returns of 35 percent (see EIS Section 7.7.4). The smolt-to-adult return ratio (SAR) is the rate at which of a group of fish survive from their smolt life stage to a defined ending point where they return as adults. While recovery targets will require more than just the efforts of federal agencies, the CSS models indicate the potential for SARs of Snake River Chinook salmon and steelhead to increase to levels that could approach recovery targets set by the Northwest Power and Conservation Council. The BA, also consistent with the EIS, acknowledges past improvements to the configuration and operation of the Columbia River System, additional improvements to the environmental baseline as a result of completed estuary and tributary habitat actions, and the prospective non-operational conservation measures proposed in Chapter 2 of the Draft EIS, all contribute towards maintaining and improving Chinook abundance. Relevant conservation measures include, among other things, a commitment to continue funding the conservation and safety net hatchery programs listed in Chapter 2 of the Draft EIS. As discussed above, the agencies will fulfill congressionally authorized hatchery mitigation objectives through the funding of hatchery programs that are operated consistent with their independent hatchery program consultations during the term covered by this consultation. Based on those hatchery program consultations, the production levels associated with congressionally authorized hatchery mitigation objectives will continue, at minimum, to be consistent with levels previously analyzed by NOAA in the system consultations in 2008, 2014, and 2019. For the 2020 ESA consultations, therefore, the agencies expect that collectively, all of the actions described above (substantial modifications to migration conditions designed to benefit key prey species, combined with improvements to Chinook spawning and rearing habitat in the tributaries and Columbia River estuary, and continued hatchery production) ensure that remaining Chinook mortality from all sources in the mainstem migratory corridor will continue to be more than offset, resulting in a net gain in Chinook salmon abundance available as a prey source for SRKW. Finally, the 2019 NMFS Fisheries BiOp included increased spring spill operations that are similar to operations evaluated in CRSO EIS, and NOAA validated that the hatchery production of Chinook salmon mitigates for the impacts of operating the Columbia River System and total mortality through the mainstem migratory corridor from all sources. FEIS Chapter 3 (Vegetation, Wetlands, Wildlife, and Floodplains) has been updated for SRKW (Section 3..6.2.6 and Table 3-102). FEIS Chapter 7 (Preferred Alternative), has been updated with additional analysis information on SRKW and potential increase in forage fish, in particular, Chinook salmon (Section 7.7.8).
6110	25	ttrue@earthjustice.org	Earthjustice	D. The DEIS rests on a dated and inaccurate accounting of SRKWs Chinook prey requirements and thus concludes incorrectly that hatchery production compensates for the losses occasioned by the CRSO. The DEIS rests on a dated and inaccurate accounting of SRKWs Chinook prey requirements, and thus concludes incorrectly that hatchery Chinook production in the Columbia Basin compensates for losses occasioned by the CRSO. The DEIS claims that [f]ish hatchery production would continue at similar rates to the No Action Alternative into the future and the change in Chinook salmon abundance by the Preferred Alternative would be negligible. DEIS 7-151. The DEIS states that, under the Preferred Alternative, its models indicate either a negligible adverse decrease or a moderate increase in Chinook salmon populations that would return to the Columbia and Snake Rivers, such that the prey base available to marine 93 mammals foraging offshore may be negligibly lower to moderately higher. DEIS 7-151. The DEIS continues to note than any changes, including slight increases, in food availability would have a negligible effect on killer whales. DEIS 7-151. The appended BA provides a somewhat conflicting assessment, but concludes that hatchery Chinook production more than offsets losses to the SRKWs Chinook prey base. BA 3-599. The BA states that in 2008 NOAA conservatively calculated total mortality for Chinook caused by the CRSO, and concluded that Chinook salmon produced by hatchery programs supported by the Action Agencies more than mitigates for total Chinook mortality, and that in 2014 and again in 2019, NOAA confirmed the continuing validity of its earlier analyses and conclusions, once again based in part (and conservatively) on the fact that Chinook salmon hatchery production by the Action Agencies more than offsets near-term losses to the SRKW prey base resulting from all sources of mortality caused by the CRSO. BA 3-599.	In the Draft EIS, the effects of each alternative are analyzed relative to the No Action Alternative. Chinook size was not used as a metric to evaluate effects of CRSO EIS alternatives because the co-lead agencies are not aware of any information suggesting that operations of the CRS affect adult salmon and steelhead length-at-age. Therefore, Chinook would likely be smaller than pre-1970s under any CRSO EIS alternative formulated. With respect to hatchery practices on Chinook salmon size, Ohlberger et al. (2019) noted that wild populations of Chinook salmon in western Alaska that were not exposed to hatchery introgression or potential competition with hatchery stocks, such as Chinook salmon in western Alaska, experienced similar declines in length-at-age for older fish. Thus, it is not likely that smaller length-at-age is an adverse effect of co-lead agency-funded hatchery production. In their analysis of the effects of CRS operations on salmon and steelhead, the co-lead agencies chose smolt-to-adult survival (SAR), abundance of returning adults, in-river juvenile fish survival, and other metrics which are well known to be affected by CRS operations. The Biological Assessment (BA) describes the effect of the Proposed Action on the SRKW forage species (see BA Section 3.5.1.2, Southern Resident Killer Whale). The proposed changes in operation of the CRS include increased spring spill during the downstream migration of juvenile spring and summer run Chinook salmon. The result of this action includes potential increases of juvenile fish passing through the spillways, reductions in juvenile fish direct and indirect mortality associated with downstream passage, and the Comparative Survival Study (CSS) model predicts increases in numbers of returning adults, which would benefit SRKW foraging in and around the mouth of the Columbia River in winter and spring (See EIS Section 7.7.8). The CSS model results predicts Snake River Chinook salmon would have relative improvements in smolt-to-adult returns of 35 percent (see EIS Section 7.7.4). The SAR is the rate at which a group of fish survive from their smolt life stage to a defined ending point where they return as adults. While recovery targets would require more than just the efforts of Federal agencies, the CSS models indicate the potential for SARs of Snake River Chinook salmon and steelhead to increase to levels that could approach recovery targets set by the Northwest Power and Conservation Council.
6110	26	ttrue@earthjustice.org	Earthjustice	1. The DEIS Calculus of the Level of Hatchery Production Needed to Meet SRKWs Prey Requirements Does Not Account Fully for the Declining Per-Fish Energetic Quality of SRKWs Preferred Chinook Prey. The Agencies calculus of the level of hatchery production needed to meet SRKWs prey requirements does not account fully or rationally for the declining per-fish energetic quality of SRKWs preferred Chinook prey. Specifically, recent quantitative evidence regarding shifting Chinook population demographics appears not to have been considered in the DEIS or its appended BA. First, as the recent NMFS Biological Report in support of expanding Critical Habitat explains, SRKW are widely recognized to preferentially target older (> 3 year-old, and especially 4- and 5-year-old, Chinook), larger Chinook age classes.106 Chinooks large size, high fat and energy content, and year-round occurrence in SRKWs 106 NMFS CH Biological Support (2019) at 10-11. 94 range contribute to this preference.107 Scientists assessments of the age profiles of Chinook consumed by SRKWs show that Chinook age-4 and older comprise upwards of 87% of Southern Residents diet: Ford (2010) reported this 87% figure generally; the NMFS CH Biological Report (2019) reported a figure of 89% for SRKWs winter diet.108 Second, using new technologies to directly track SRKWs subsurface behaviors, scientists have recently revealed the degree to which SRKW are highly specialized hunters, with methods honed to avail themselves of the higher per-fish energy payoff provided by Chinook particularly by older, larger Chinook. This more recent evidence adds to earlier studies finding that SRKWs use echolocation to identify and preferentially target Chinook.109 Wright (2017) employed multi-sensor archival Dtag technology to obtain high-resolution dive tracks for foraging and other dive behaviors, finding that resident killer whales dive depth selectivity overlaps with and reflects the vertical distribution of their preferred prey, Chinook salmon, suggest[ing] that resident killer whales are intentionally diving to depths where preferred prey is more likely to occur.110 Wright (2017) found, further, that resident killer whales foraging dives extended to the deeper depths (>200 m) that correspond to the deep 107 NMFS CH Biological Support (2019) at 10-11. 108 Ford (2010) reported SRKW Chinook diets to be comprised of 43.4% age-4 fish, 37.7% age-5 fish, 4.4% age-6 fish, and 1.3% age-7 fish. John K.B. Ford, et al., Chinook Salmon Predation by Killer Whales: Seasonal and Regional Selectivity, Stock Identity of Prey, and Consumption Rates, Department of Fisheries and Oceans Canada, Research Document 2009/101(2010). NMFS CH Biological Report (2019) reported SRKWs winter Chinook diets to be comprised of 60% age-4 fish and 26.7% age 5 fish. NMFS CH Biological Report (2019) at 11. Ohlberger (2018) corroborates these numbers, albeit for all Northeast Pacific Ocean resident killer whale populations combined (2300 individual whales), inasmuch as they find that about 90% of the Chinook consumed by resident whales are 4-6 years old. Ohlberger (2018) at 543. 109 See, e.g., Whitlow W.L. Au, et al., Echolocation Signals of Free-Ranging Killer Whales (Orcinus orca) and Modeling of Foraging for Chinook Salmon (Oncorhynchus tshawytscha), 115 J. Acoustical Society of America 901 (2004). 110 Brianna M. Wright, et al., Fine-Scale Foraging Movements by Fish-Eating Whales (Orcinus orca) Related to the Vertical Distributions and Escape Responses of Salmonid Prey (Oncorhynchus spp.), 5(3) Movement Ecology (2017). Note that chum also swim at depths used by Chinook, although perhaps not at the greater depths used by the oldest and largest Chinook. Id. at 14. 95 dives performed by Chinook salmon that are significantly larger than those performed by smaller Chinook, consistent with the depths used by 4- to 5-year-old Chinook, which are the age classes preferred by resident killer whales: Although the foraging dive depths of killer whales overlapped with the vertical distribution of Chinook salmon, whales also extended their foraging dives to much greater depths of up to 379 m. Ultrasonic tracking has also shown that Chinook salmon swim to depths of 300400 m, and that fish performing deep dives (>200 m) are significantly larger (x = 87.2 cm) than those remaining at shallower depths (x = 77.3 cm). These deep-diving individuals correspond in length to 45 y Chinook, which are the size classes most frequently consumed by resident killer whales. This suggests that whales may dive beyond the average swimming depth of most Chinook to increase their chance of locating the larger and more energetically profitable 45 y old fish.111 Notably, Wright (2017) recognized that there are implications for energetics of these observed diving behaviors by resident killer whales when abundance of larger Chinook is low: This means that when Chinook salmon abundance is low, killer whales may continue to dive to the deeper depths used by their preferred prey, but would experience low encounter rates and poor energetic returns.112 Tennessen (2019) similarly analyzed newly available foraging behavior data regarding SRKWs subsurface movements afforded by Dtag technology.113 The authors observed that Chinook salmon, the largest salmon species, provide a significant energetic return, but given that they occur deeper than other salmon species, up to several hundred meters, SRKW must invest significant energy in the forms of breath holding and locomotion costs associated with fluking and drag, in order to pursue these larger caloric payoffs.114 Tennessen (2019) built on the findings of Wright (2017) to reveal that killer whale subsurface activity budgets are 111 Wright (2017) at 14. 112 Wright (2017) at 14. 113 Tennessen (2019) at 1. 114 Tennessen (2019) at 1-2. 96 complex, involving at least five distinct behavioral states, that relate to differing aspects of foraging and other behaviors, among these states the deep dives associated with prey capture but also a state associated with prey searching.115 Third, two recent studies, by Ohlberger (2019)116 and Ohlberger (2018),117 have documented a decline in Chinook body size-	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not require the co-lead agencies to take affirmative actions to recover ESA listed species. Removing the dams alone will not recover the Chinook salmon to 1 million. The CFC did independent research that indicated that if dams were breached and the spill to 125% over the lower Columbia dams would "recover" the salmon populations. However, for the CRS that was not an alternative because it would not serve the obligations of the Lead agencies, including the Pacific Northwest Power grid. Combining breaching the four lower Snake River dams with spill up to 125% at the lower Columbia River projects is not a reasonable alternative under NEPA. For power and transmission, MO3 and Multiple Objective alternative 4 (MO4) individually each caused large loss-of-load probability (LOLP) results (i.e., increased incidence of blackouts). Without major additional new resources, MO3 would result in power shortages in about one in every seven years. MO4 would produce power shortages in about one in every four years. If MO4 were implemented, in addition to breaching the four lower Snake River projects as called for in MO3, then the LOLP would be even higher, with power shortages potentially occurring almost every year. Additionally, if these MOs were combined, in 5% of the years the power shortages would average close to 1,000 MW in early August when the region might be experiencing a heatwave with particularly high demand for air conditioning. For reference, 1,000 aMW is about the average amount of power consumed by Seattle City Light. As shown in Section 3.7, MO3 causes an increase in power reliability concerns in the winter and the summer. MO4 increases power reliability concerns in the summer. Thus, the combination has the largest impact during the summer. The condition of the chinook salmon is partially dependent on oceanic conditions, which have been poor for some years. This is beyond the scope of the EIS. In addition, the poor quality of chinook is found throughout the SRKW feeding range, not just within the Columbia and Snake River populations. Therefore, there is no guarantee that condition would improve with removal of the dams. The population dynamics of the SRKW are complicated and there are multiple factors that contribute to the overall success of this species. The quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differently from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for the whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall-run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall-run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). Details on the most crucial prey stocks for Southern Resident killer whales, as well as their population and range, is available from several fact sheets and videos available here: https://www.fisheries.noaa.gov/species/killer-whale#spotlight. For more information, visit this NMFS StoryMap on Southern Resident killer whales: https://noaa.maps.arcgis.com/apps/Cascade/index.html?appid=3405e6637bf74e998d4ebe992c54f613. According to NMFS and the EPA, the estimated SRKW population has fluctuated between 67 and 98 whales between 1960 and 2015. The Snake River dams were constructed between 1962 and 1975. The SRKW population increased from a record low in 1970 to its highest population numbers in 1995. Those years were not high years for Snake or Columbia River Chinook Salmon. Ocean conditions between 2011 and 2013 were good years for salmon. At the same time, 2010 and 2013 were good outmigration years. Particularly, 2011 and 2012 were above normal in water supply, which would mean more cooler water was available and there was better survival of salmon, and 2011 through 2014 were higher than normal spill years as well. The combination of outmigration and ocean conditions created improved adult salmon returns. The EIS has analyzed spill as a measure in the Preferred Alternative and determined the overall effect to SRKW to be negligible in large part because hatchery production is consistent between the No Action Alternative and the Preferred Alternative. Because the impact from the Preferred Alternative was determined to be minor, the agencies determined that existing hatchery production would be sufficient to address any potential impacts to prey availability for SRKWs. The co-lead agencies note the contribution to the prey of SRKW through the continued existence of their respective independent Congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as the Lower Snake River Compensation Plan (other than under MO3), which is administered by USFWS. The Preferred Alternative and Proposed Action in the agencies' biological assessment carry forward certain mitigation measures described in Chapters 2 and 7 of the EIS, which include continued salmon and steelhead hatchery production. The Preferred Alternative has negligible effects to SRKWs as described in Section 7.7.6. The Biological Assessment (BA) describes the effect of the Proposed Action on the SRKW forage species (see BA Section 3.5.1.2, Southern Resident Killer Whale). The proposed changes in operation of the Columbia River System include increased spring spill during the downstream migration of juvenile spring and summer run Chinook salmon. The result of this action includes potential increases of juvenile fish passing through the spillways, reductions in juvenile fish direct and indirect mortality associated with downstream passage, and the Comparative Survival Study (CSS) model predicts increases in numbers of returning adults, which will benefit SRKWs foraging in and around the mouth of the Columbia River in winter and spring (See EIS Section 7.7.8). The CSS model results predicts Snake River Chinook salmon would have relative improvements in smolt-to-adult returns of 35 percent (see EIS Section 7.7.4). The smolt-to-adult return ratio (SAR) is the rate at which of a group of fish survive from their smolt life stage to a defined ending point where they return as adults. While recovery targets will require more than just the efforts of federal agencies, the CSS models indicate the potential for SARs of Snake River Chinook salmon and steelhead to increase to levels that could approach recovery targets set by the Northwest Power and Conservation Council.

Letter No.	Comment No.	Commenter Name/Email	Affiliation	Comment	Response[1/]
				at-age and altered population structures. Ohlberger (2019) observed that: Chinook salmon have exhibited marked shifts in demographic structure throughout most of the North American range over the past 4 to 5 decades. In most populations, fish now mature at younger ages, and while the size of younger fish has been stable or increasing, older fish that return to spawn after several years in the ocean are increasingly smaller. In other words, size at age is declining for older fish but not for younger fish. As a result, the contributions of the largest and oldest fish to populations have declined since the 1970s, a trend that is remarkably consistent among populations along the west coast of North America.118 Specifically, Ohlberger (2018) documented that, in populations coastwide, there has been a decrease in size-at-age (measured by length (mm)) of ocean ages -3, -4, and -5 Chinook of about 5%, 7% and 9% respectively.119 Although this decline in size-at-age for these older classes of Chinook has occurred almost continuously over time, the size-at-age of ocean age-4 and age-5 has declined considerably, especially since about 2000.120 In addition, Ohlberger (2018) found that the proportion of Chinook populations comprised by 115 Tennessen (2019) at 8. 116 Jan Ohlberger, et al., Resurgence of an Apex Marine Predator and the Decline in Prey Body Size, PNAS 1910930116 (2019). 117 See, e.g., Jan Ohlberger, et al., Demographic Changes in Chinook Salmon Across the Northeast Pacific Ocean, 19 Fish & Fisheries 533 (2018). 118 Ohlberger (2019) at 1. As Ohlberger notes, their model considered the typical life history of North American Chinook salmon and did not account for differences among Chinook populations/stocks. 119 Ohlberger (2018) at 539. 120 Ohlberger (2018) at 539-540. 97 older fish has declined in most regions, albeit to a lesser degree in runs from Washington and Oregon than in runs from Alaska.121 Ohlberger (2019) considered these demographic trends in Chinook and noted the negative impacts to SRKWs in particular, given the significant reduction in the resulting per-fish caloric value 30% to 40% for an average Chinook: While increasing predation pressure is likely contributing to declining average sizes in Chinook salmon, some populations of fish-eating killer whales may in turn be negatively affected by reduced abundances and body sizes of their prey. A decline of 10% in mean length, as indicated by our data, implies a reduction in caloric value of an average-sized Chinook salmon of about 30 to 40%. Food limitation may be one of the factors responsible for the recent decline in the abundance of the southern resident killer whales (SRKW), the only population of fish-eating killer whales in the northeast Pacific Ocean that is not thriving.122 Ohlbergers findings, when taken together with previous studies (including Wright (2017) and Tennessen (2019)) insights into SRKWs foraging behaviors, including their significant energetic investment in pursuing and capturing Chinook salmon, one fish at a time, highlight the dire implications for SRKW when even successful captures result in only smaller caloric rewards. Importantly, these studies, which the DEIS does not address, call into question the calculations undergirding the Agencies claim that hatchery production at similar rates more than offsets wild Chinook mortality due to the CRSO. DEIS 7-151. BA 3-599. If the per-fish energy content of orcas preferred prey has declined significantly, then presumably SRKWs will require a greater number of fish to satisfy their daily and annual metabolic needs. Put differently, estimates of the number of fish needed to supply the SRKWs prey requirements are now likely too low. The agencies assurance that hatchery production is an ample substitute rests 121 Ohlberger (2018) at 537-38. 122 Ohlberger (2019) at 5. 98 on these dated figures about how many fish would need to be replaced and are incomplete and this omission is not addressed or explained. Consider, for example, Ohlberger (2018)s finding that there has been about a 9% decrease in the size attained by ocean age-5 Chinook coastwide between the late 1970s and the mid-2010s. If this decrease is applied to Ford (2009)s figures for the average length of an age-5 Chinook (939 mm), using ONeill (2014)s equation for calculating energy content in kcal/fish for Chinook of a given length, one can calculate that a 9% decline in size for an age-5 Chinook would mean a reduction from 939 mm to 854.5 mm and a consequent decrease from 20,992.0 kcal/fish to 15,638.0 kcal/fish.123 Thus, this decline in the quality of SRKWs preferred prey, i.e., the energy content that a Southern Resident whale can expect to obtain from an age-5 fish, makes each successful capture only 75% as valuable to that individual whale from an energetics perspective.124 Put differently, if the downward trend documented by Ohlberger (2018) holds, where three Chinook once sufficed, four Chinook will now be required. The BA cites the 2019 CRS BiOp for its contention that hatchery production will provide an adequate substitute for the prey base loss to SRKW. However, the 2019 CRS BiOp concedes 123 Comment authors calculations using Equation 15, ONeill (2014) at 275; these figures accord roughly with Ohlberger (2019) at 5 A decline of ~10% in mean length, as indicated by our data, implies a reduction in caloric value of an average-sized Chinook salmon of about 30 to 40%. (citing ONeill (2014). These figures are intended to provide a rough estimate; among other things, it should be noted that the decline in size-at-age documented by Ohlberger (2019) occurred continuously over a period beginning in the mid-1970s through 2015 (the last year for which they had data), although they noted a recent, steeper decline in age-4 and age-5 fish especially since about 2000. Ohlberger (2018) at 539-40. ONeill (2014)s study was based on Chinook sampled from 2000-2004. It is possible that some portion of the decline documented by Ohlberger (2018) and (2019) was already being reflected by the time of ONeills (2014) sampling. 124 And, all else being equal, a Southern Resident whale will need to undertake four energetically costly deep dives to pursue and capture a Chinook to net the same caloric payoff once afforded by three. See, generally, Tennessen at 51. Things are only somewhat better for the SRKW for age-4 Chinook. If Ohlbergers observed 7% decrease in the size attained by ocean age-4 Chinook is applied to Ford (2010)s Chinook length figures, using ONeill (2014)s equation for kcal/fish, an orca whale would have to consume five Chinook in order to obtain the same energy formerly provided by four. 99 that [s]ome of the assumptions used in its analysis [concluding that hatchery production will more than offset any CRSO-caused loss to the SRKWs prey base] have changed in the last decade, including killer whale biomass and prey energetics.125 But it doesnt cite Ohlbergers (2019) or (2018) work (or Tennessen (2019) or Wright (2017)), and doesnt address in a rational way the evidence that Chinook are trending younger and smaller.	The BA, also consistent with the EIS, acknowledges past improvements to the configuration and operation of the Columbia River System, additional improvements to the environmental baseline as a result of completed estuary and tributary habitat actions, and the prospective non-operational conservation measures proposed in Chapter 2 of the Draft EIS, all contribute towards maintaining and improving Chinook abundance. Relevant conservation measures include, among other things, a commitment to continue funding the conservation and safety net hatchery programs listed in Chapter 2 of the Draft EIS. As discussed above, the agencies will fulfill congressionally authorized hatchery mitigation objectives through the funding of hatchery programs that are operated consistent with their independent hatchery program consultations during the term covered by this consultation. Based on those hatchery program consultations, the production levels associated with congressionally authorized hatchery mitigation objectives will continue, at minimum, to be consistent with levels previously analyzed by NOAA in the system consultations in 2008, 2014, and 2019. For the 2020 ESA consultations, therefore, the agencies expect that collectively, all of the actions described above (substantial modifications to migration conditions designed to benefit key prey species, combined with improvements to Chinook spawning and rearing habitat in the tributaries and Columbia River estuary, and continued hatchery production) ensure that remaining Chinook mortality from all sources in the mainstem migratory corridor will continue to be more than offset, resulting in a net gain in Chinook salmon abundance available as a prey source for SRKW. Finally, the 2019 NMFS Fisheries BiOp included increased spring spill operations that are similar to operations evaluated in CRSO EIS, and NOAA validated that the hatchery production of Chinook salmon mitigates for the impacts of operating the Columbia River System and total mortality through the mainstem migratory corridor from all sources. FEIS Chapter 3 (Vegetation, Wetlands, Wildlife, and Floodplains) has been updated for SRKW (Section 3..6.2.6 and Table 3-102). FEIS Chapter 7 (Preferred Alternative), has been updated with additional analysis information on SRKW and potential increase in forage fish, in particular, Chinook salmon (Section 7.7.8).
6110	27	ttrue@earthjustice.org	Earthjustice	The DEIS Discussion of the Level of Hatchery Production Needed to Meet SRKWs Prey Requirements Also Fails to Consider the Marked Increase in Chinook Prey Required to Support an SRKW Population that is Not Teetering on the Brink of Extinction and, Ultimately, Necessary to Support SRKW Population Growth Necessary for Recovery. The Agencies discussion of the level of hatchery production needed to meet SRKWs prey requirements also fails to consider the marked increase in Chinook prey required to support an SRKW population that is not teetering on the brink of extinction and continuing to decline and, ultimately, the level of prey required to support SRKW population rebuilding and recovery. Scientists have emphasized the point that significantly more Chinook salmon would be needed to support a recovered SRKW population than are necessary to feed a depleted SRKW population. Writing in 2010, Ford (2010) projected that, as of 2018, assuming a recovering population of 113 southern residents and 332 northern residents, their annual requirement for Chinook salmon would need to be increased by 32% over that necessary to feed the reduced SRKW and NRKW populations as of 2008. Fords calculations assumed an optimal 2.6% annual population growth rate, which they reported as the rate observed in the population during the period of 125 2019 CRS BiOp at 912. 126 Rather, it follows its concession that some of the assumptions, including prey energetics, have changed with but a recent qualitative analysis (NMFS and WDFW 2018) affirmed our conclusion that hatchery Chinook salmon more than compensate for fish lost to the dams in terms of total numbers of Chinook salmon available to the killer whales. 2019 CRS BiOp 912. It is difficult to see how this 8-page document, which does not speak to changing prey energetics or how this change might affect a calculus of how many hatchery fish it would take to compensate for impacts to SRKW, could have provided the affirmation claimed. 100 positive growth between 1973 and 1995, and assumed appropriate changes in the age- and sexclass composition of the SRKW population from the then-current baseline.127 Williams (2011) similarly recognized that any accounting for SRKW prey requirements for a recovered population would need to include significantly more Chinook than necessary to support the then current, depleted SRKW population. Specifically, Williams found that the U.S. recovery goal of 2.3% annual population growth over 28 years implies roughly a 75% increase in prey energetic requirements (i.e., adequate to support a recovered population of 155 southern residents in 2029).128 Finally, recall that Lacy (2017)s PVA model also considered the U.S. recovery goal of 2.3% annual population growth and found that SRKW recovery cannot be achieved without reaching the highest levels of salmon abundance observed since 1979, which was 30% higher Chinook abundance than the long-term average between 1979 and 2008.129 While there is variation in these assumptions and in the bottom-line estimate of the level of increase in Chinook prey necessary to support a larger recovering or recovered SRKW population, it is clear nonetheless that the increase is considerable. Neither the DEIS nor its appended BA discuss the point that a significantly larger Chinook prey base is needed to support a larger, recovered SRKW population than to support the current depleted SRKW population. The DEIS appears to contemplate little change on any front, stating that [f]ish hatchery production [under the Preferred Alternative] would continue at similar rates to the No Action Alternative into the future and the change in Chinook salmon 127 Ford (2010) at 12. Note that for purposes of their projections, Ford (2010) assumed that Chinook generally comprise 70% of the resident killer whales diet. 128 Rob Williams, et al., Competing Conservation Objectives for Predators and Prey: Estimating Killer Whale Prey Requirements for Chinook Salmon PLoS ONE 6(11) e26738 5 (2011). 129 Lacy (2017) at 6. This assessment considered SRKW by addressing the most significant threat identified by the authors, i.e., prey availability. They also offered alternative multi-threat prescriptions, e.g., reducing acoustic disturbance while increasing Chinook prey by 1.15x. 101 abundance by the Preferred Alternative would be negligible; observing that, for all ESA-listed species, it is assumed that [they] will remain listed, and existing regulatory and best management practices would reduce the likelihood that populations would continue declining or become extinct; and stating that [c]hanges to food availability may change the [SRKWs] foraging behavior patterns slightly but will not change their overall condition or population dynamics. DEIS 7-151. DEIS 7-150. The Agencies simply fail to provide any evidence that they contemplate a larger, recovered SRKW population and have accounted for the significantly increased prey base that would be necessary to support this	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Moreover, the EIS analysis found only a minor effect to the Southern Resident killer whale would result from implementing MO3 (which includes the dam breach measure). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). The EIS analysis of the Preferred Alternative determined the overall effect to SRKW to be negligible in large part because hatchery production is consistent between the No Action Alternative and the Preferred Alternative. Because the impact from the Preferred Alternative was determined to be negligible, the agencies determined that existing hatchery production would be sufficient to address any potential impacts to prey availability for SRKWs. The co-lead agencies note the contribution to the prey of SRKW through the continued existence of their respective independent congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as the Lower Snake River Compensation Plan, which is administered by U.S. Fish and Wildlife Service. The Preferred Alternative and Proposed Action in the agencies' biological assessment carry forward certain mitigation measures described in Chapters 2 and 7 of the EIS, which include continued salmon and steelhead hatchery production. The Preferred Alternative has negligible effects to SRKWs as described in Section 7.7.8. The Biological Assessment (BA) describes the effect of the Proposed Action on the SRKW forage species (see BA Section 3.5.1.2, Southern Resident Killer Whale). The proposed changes in operation of the CRS include increased spring spill during the downstream migration of juvenile spring and summer run Chinook salmon. The result of this action includes potential increases of juvenile fish passing through the spillways, reductions in juvenile fish direct and indirect mortality associated with downstream passage, and the Comparative Survival Study (CSS) model predicts increases in numbers of returning adults, which will benefit SRKW foraging in and around the mouth of the Columbia River in winter and spring (See EIS Section 7.7.8). The CSS model results predicts Snake River Chinook salmon would have relative improvements in smolt-to-adult returns of 35 percent (see EIS Section 7.7.5). The smolt-to-adult return ratio (SAR) is the rate at which of a group of fish survive from their smolt life stage to a defined ending point where they return as adults. While recovery targets will require more than just the efforts of Federal agencies, the CSS models indicate the potential for SARs of Snake River Chinook salmon and steelhead to increase to levels that could approach recovery targets set by the Northwest Power and Conservation Council.

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				SRKW increase. As noted above, the BA contends that hatchery production will more than offset any Chinook mortality caused by the CRSO. These documents are not entirely in agreement as to whether hatchery production levels will remain the same or be increased. Even if hatchery production is at somewhat improved levels (BA 3-599), production would need to be significantly increased to supply the 30% - 70% greater Chinook quantities that scientists have found would be required to support a SRKW population assuming NMFS 2.3% population growth rates necessary for SRKW recovery. Note that here too, calculations of the quantity of Chinook that would be necessary to meet SRKWs needs must take into account the changes to the per-fish energetic quality of Chinook, given the declining Chinook population demographic trends discussed above, in Part C.1. Again, The discussions in the DEIS and BA fail to explain whether or how these considerations have been accounted for in the Agencies assertions that hatchery production will compensate for losses to SRKWs Chinook prey base.	
6110	28	ttrue@earthjustice.org	Earthjustice	The DEIS Conclusion that Hatchery Chinook Production Will Compensate for Losses to SRKWs Chinook Prey Base is Not Adequately Supported by the Evidence. The DEIS conclusion that hatchery Chinook production will compensate for losses to SRKWs Chinook prey base is not adequately supported by the evidence. As noted above, the DEIS appears to contemplate hatchery production at similar rates to current levels. DEIS 7 151. In the appended BA, the Agencies point generally to past improvements to the operation of the CRSO and the resulting improved survival of Chinook salmon through the hydrosystem. BA 3-599. Additionally, the BA cites improvements as a result of completed estuary and tributary habitat actions, and states that these past improvements will continue. BA 3-599. The BA contends that these past improvements, together with the prospective non-operational conservation measures proposed in Chapter 2, all contribute towards maintaining and improving Chinook abundance, and result in a net gain in Chinook abundance available as a prey source for SRKW. BA 3-599 and 3-600. To the extent the Agencies offer support for their claim, Appendix E to the BA contends that [a]nnual survival estimates indicate an upward trend in survival of juvenile steelhead and Chinook salmon migrating through the Snake and Columbia Rivers over the last two decades. In general, more adult fish and more wild adult fish are returning to the river; however there has been a downward trend in the last 5 years of returning adult salmon and steelhead. BA App. E E-10. The multiple flaws of this analysis are addressed in some detail in the sections of these comments that address the effects of the alternatives on salmon and steelhead populations. Further, the DEIS analysis fails to recognize that the appropriate baseline for assessing impacts to SRKW survival and recovery is the historical rate of Chinook salmon abundance in the Columbia/Snake River system, the evidence for which is discussed above, in Part B.3 Thus, even considering generous figures for current Chinook survival and returns, including wild and 103 hatchery Chinook, there is a significantly reduced quantity of Chinook salmon available to supply SRKWs daily and annual prey requirements when considered in light of this appropriate, historical baseline. And, here again, one would need to account for the declining trend in size-at age for older Chinook documented by Ohlberger (2018) and (2019), such that the per-fish energy value is lower, as discussed in Part C.1. Additionally, the Agencies point in the appended BA to (a) a general increase in adult Chinook salmon returning to the Snake and Columbia Rivers, including wild and hatchery-origin fish, (with the exception of the last 5 years), as well as (b) an upward trend in juvenile Chinook survival over the past two decades as the basis for their optimism that CRSO-caused losses to the available Chinook prey base will continue to be more than offset. However, the available scientific evidence calls into question both of these bases for the Agencies assessment as explained elsewhere in these comments. As to (a), the Agencies portrayal of the data as suggesting a general or consistent upward trend also fails to convey the degree to which adult returns, and particularly adult returns of Snake River spring/summer Chinook, have plummeted in recent years. The Agencies characterization may thus mislead as to the import of this significant recent downward trend of 5-years duration. According to Idaho Department of Fish & Game data on returns for the Snake River spring/summer Chinook runs, returns of wild Chinook adults numbered 15,939 in 2016, but fell markedly in the following years, to: 4,108 (2017), 6,863 (2018), and 4,723 (2019); and returns of hatchery Chinook adults numbered 58,187 in 2016, but fell markedly in the following years , to: 30,179 (2017), 31,820 (2018), and 18,893 (2019).130 Notably, these recent years of extremely low wild and hatchery returns for the Snake River spring/summer Chinook runs 130 Idaho Department of Fish & Game spreadsheet data. 104 coincide with the recent precipitous decline in the SRKW census: recall that whereas the SRKW population numbered 83 whales in 2016, their population declined to 77 whales in 2017, 75 whales in 2018, and just 73 whales in 2019.131 Yet the DEIS neither notes nor evaluates this correlation, despite Wasser (2017) and other scientists findings regarding the relationship among nutritional stress, reduced SRKW females body condition upon arrival in the Salish Sea in the spring due to low Columbia/Snake River spring runs, and unsuccessful pregnancies, discussed above in Part B.1. To the extent that the DEIS purports to offer the graph at DEIS 3-300 to suggest that runs in recent years are higher than theyve been in decades, with a record 2.5 million fish (wild and hatchery combined) returning to Bonneville in 2014, the DEIS is misleading for several reasons. First, the correct baseline is the historical level of fish from this river system, as discussed above. Second, even if the start date for comparison is 1930s Chinook returns, this graph neglects to account for historic harvest levels, which approximated 50% before the fish arrived at Bonneville (where DART data depicted in the graph is from). This means there were as much as twice as many fish in the ocean then for SRKWs to catch. Finally, these Chinook were all wild, not hatchery, fish and they were a lot bigger because the decline in size discussed above in Part C.1 had not set in. Thus, it is reasonable to assume that the Southern Residents had a much better opportunity to meet their nutritional needs under these circumstances and the much greater SRKW population size estimates from this earlier period tend to support this assumption. As to (b), the Agencies claim of improved survival of juvenile Chinook through the hydrosystem (and resulting increased abundance) has been challenged by scientists as not being 131 Center for Whale Research, Population, updated as of Dec. 31, 2019 https://www.whaleresearch.com/orca-population (accessed April 3, 2020). 105 supported by the best available data and analysis. With respect to SARs a key indicator of survival Bain (2020), summarizes: There is uncontroverted evidence that the current SARs for Snake River spring/summer Chinook at are or below 1%, barely half of the minimum 2% SAR level the Northwest Power and Conservation Council has identified as necessary for maintaining existing populations, and only one quarter or less of the 4% to 6% SAR level that must be achieved and sustained for this population to rebuild and recover. [citing the CSS 2016 Annual Report, Chapter 7] This evidence is at odds with NOAAs claim of increased abundance. Moreover, this unacceptably low SAR has been consistent for many years, indicating that the extensive and expensive efforts so far to rebuild the Snake River spring/summer Chinook populations have not been successful.132 This issue is also addressed in more detail elsewhere in these comments. Additionally, whereas the BA in Chapter 3 touts benefits for Chinook survival from past improvements to CRS operations, its own data in Appendix E, Columbia River System Operational and Structural Improvements Under the Endangered Species Act 2020 Progress Report, call into question this reliance. The Agencies presented the results of in-river reach juvenile Chinook and Steelhead survival monitoring initiated under the 2008 and 2019 BiOps to assess the effects of management actions. Without further textual discussion, the Agencies state that the results presented in Figure E-9 indicate the benefits from improved system operations, passage improvements, and predation deterrent actions implemented to date are generally accruing at least as well as expected in the 2008 BiOp analysis. BA App. E E-24. However, an inspection of the four bar and-whiskers graphs in Figure E-9 shows benefits generally accruing in the most recent three years reported (2013, 2014, and 2015) to two populations (wild and hatchery Upper Columbia River yearling Chinook, and wild and hatchery Upper Columbia River Steelhead) through the McNary to Bonneville reach, and to one population (wild Snake River Steelhead) through the 132 Bain (2020) at 5; Fish Passage Center, Comparative Survival Study of PIT-Tagged Spring/Summer/Fall Chinook, Summer Steelhead, and Sockeye, 2019 Annual Report (2019) http://www.fpc.org/documents/CSS/2019CSSAnnualReport.pdf. 106 Lower Granite to Bonneville reach, but not accruing in any of these three recent years to wild spring/summer Snake River yearling Chinook through the Lower Granite to Bonneville reach. BA App. E E-24. The Agencies textual generalization thus obscures the lower-than-predicted rates of in-river survival for wild Snake River juvenile Chinook through this reach, undermining the BAs claim of and confidence in the benefits of past improvements to operations of the CRS for increased Chinook abundance to meet SRKW Chinook prey needs. The Agencies do not elucidate why the prescribed operational measures appear not to be resulting in the projected increases to juvenile wild Snake River Chinook survival through this reach, and nowhere evaluate the implications of these disappointing survival rates for the spring/summer Snake River Chinook for the SRKWs particular dependence on this run, as discussed above in Part B.1. As discussed in greater detail elsewhere in these comments, SARs are the appropriate measure of abundance, not juvenile reach survival data. This is particularly true for SRKW, who consume the largest adult Chinook. More juvenile fish that make it past the dam do nothing for SRKW if they fail to mature and return as suitable-sized adult prey. Finally, the Agencies belief that they can maintain or increase hatchery populations at will is belied by their record. As noted in the comments submitted by the Nez Perce Tribe, adult spring and summer Chinook salmon returns have never met their mitigation targets and have often fallen far short. The agencies fail to explain why they will be able to increase hatchery returns now when they have consistently failed in the past. Nor do they explain how they will maintain populations or even achieve increases despite the additional stressors of climate change and increased development, among others, which will increase in future years. In sum, the Agencies contention that hatchery production will be able to more than offset any mortality losses to Chinook caused by the CRSO is not supported by the scientific 107 evidence, including the Agencies own data. Thus their conclusion that there will be a	The co-lead agencies evaluated alternatives to operating, configuring and maintaining the CRS projects, including an alternative that evaluated the effects of breaching the four lower Snake River dams. Consistent with existing caselaw on ongoing actions, the co-lead agencies used the year in which the Notice of Intent to Prepare the EIS was issued (2016) as the No Action Alternative as the basis for comparison against the action alternatives. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not require the co-lead agencies to take affirmative actions to recover ESA-listed species. The population dynamics of the SRKW are complicated and there are multiple factors that contribute to the overall success of this species. The quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differently from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for the whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall-run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall-run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). Details on the most crucial prey stocks for Southern Resident killer whales, as well as their population and range, is available from several fact sheets and videos available here: https://www.fisheries.noaa.gov/species/killer-whale#spotlight. For more information, visit this NMFS StoryMap on Southern Resident killer whales: https://noaa.maps.arcgis.com/apps/Cascade/index.html?appid=3405e6637bf74e998d4ebe992c54f613. According to NMFS and the EPA, the estimated SRKW population has fluctuated between 67 and 98 whales between 1960 and 2015. The Snake River dams were constructed between 1962 and 1975. The SRKW population increased from a record low in 1970 to its highest population numbers in 1995. Those years were not high years for Snake or Columbia River Chinook Salmon. Ocean conditions between 2011 and 2013 were good years for salmon. At the same time, 2010 and 2013 were good outmigration years. Particularly, 2011 and 2012 were above normal in water supply, which would mean more cooler water was available and there was better survival of salmon, and 2011 through 2014 were higher than normal spill years as well. The combination of outmigration and ocean conditions created improved adult salmon returns. The EIS has analyzed spill as a measure in the Preferred Alternative and determined the overall effect to SRKW to be negligible in large part because hatchery production is consistent between the No Action Alternative and the Preferred Alternative. Because the impact from the Preferred Alternative was determined to be negligible, the agencies determined that existing hatchery production would be sufficient to address any potential impacts to prey availability for SRKWs. The co-lead agencies note the contribution to the prey of SRKW through the continued existence of their respective independent Congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as the Lower Snake River Compensation Plan (other than under MO3), which is administered by USFWS. The Preferred Alternative and Proposed Action in the agencies' biological assessment carry forward certain mitigation measures described in Chapters 2 and 7 of the EIS, which include continued salmon and steelhead hatchery production. The Preferred Alternative has negligible effects to SRKWs as described in Section 7.7.6. Please also see responses to Comments 6110-16 and 6110-25; and, updated language of effects on Southern Resident killer whale in Sections 3.6 and 7.7.8.

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				resulting [] net gain in Chinook abundance available as a prey source for SRKW (BA 3-600) and that with continued hatchery production at similar rates such that the Preferred Alternative is not likely to adversely affect the SRKW (DEIS 7-153 Table 7-28) is unsubstantiated.	
6110	29	ttrue@earthjustice.org	Earthjustice	The DEIS Assumption that Hatchery Programs Will Cease Under MO3 is Unsubstantiated. The Agencies assume in the DEIS that under MO3, available prey for SRKW would actually decrease because the LSR hatcheries would cease to exist upon implementation of this alternative. This assumption is entirely unfounded, for several reasons. As the Agencies acknowledge, even after breach of the four LSR dams under MO3, it would take some time for the river to return to a natural state and still more time for wild salmonid runs to rebuild. This transition period is still an effect of the action of maintaining the LSR dams for decades, and continued hatchery production at least through the transition period until wild runs fully recover would be required under existing law. The Agencies might also have the option or the obligation to maintain LSR hatcheries even beyond a lengthy transition period. While the Agencies might need additional funding and/or authority to continue to operate the LSR hatcheries, that is no reason to assume they would cease to exist. Indeed, NEPA requires consideration of actions beyond an agencys existing authority. In short, there is no reason to assume that the LSR hatcheries would vanish under MO3, or that the SRKW would suffer further declines in available prey.	The Draft EIS does not state that all lower Snake River hatcheries would cease to exist. The Draft EIS acknowledges that upon the breaching of the four lower Snake River dams under MO3, Bonneville would no longer have an obligation to fund the operations and maintenance of the Lower Snake River Compensation facilities because Bonneville's funding authority is directly tied to the operation of the four lower Snake River projects. As stated in the CRSO EIS, funding decisions for Bonneville's Fish and Wildlife Program are not being made through the CRSO EIS process. Future Fish and Wildlife funding decisions would be made in consultation with the region, through Bonneville's budget-making processes and other appropriate forums and consistent with existing agreements. Finally, there are other hatcheries in the Snake River basin, which are not tied to operations of the four lower Snake River dams, that would continue to operate.
6110	30	ttrue@earthjustice.org	Earthjustice	The DEIS is Out of Step with Other Federal Documents in Failing to Acknowledge that Any Decrease in SRKW Food Supply is a Major Adverse Effect. The Agencies claim that the CRSO will not significantly impact the prey available to SRKW. For all of the reasons above, that conclusion is untenable and at odds with an 108 overwhelming body of scientific evidence. Because the CRSO does decrease the Chinook prey available to SRKW, it has a significant adverse effect on this imperiled population. Federal agencies have recognized in other planning documents that a reduction in Chinook prey adversely affects the SRKW. For example, in the 2014 Biological Opinion on the National Flood Insurance Program carried out in the Puget Sound area, NMFS recognized that a reduction of up to 132,724 Chinook would jeopardize the continued existence of the SRKW.133 NMFS considered the impact of this prey reduction on the amount of prey available to be consumed by SRKW, the additional energy it would require SRKW to expend locating and capturing prey, and the impact of the loss of Chinook diversity and local abundance. NMFS acknowledged that this reduction in prey would result in effects on SRKW including reduced fecundity and reproductive success, and acknowledged that insufficient prey works in concert with other threats to adversely affect SRKW, for example, by leading to mobilization of lipids with high levels of toxic contaminants. Finally, NMFS recognized that this loss in prey affects not only the current, depleted population of SRKW but would also impact the ability of a larger, recovered SRKW population to meet their prey needs. On the basis of these and other factors, NMFS concluded that the loss of 132,724 Chinook would jeopardize SRKW. These and other factors apply with even greater force to the loss of prey due to the CRSO, as discussed in detail above. Moreover, since 2014, the additional scientific studies discussed above reinforce the harmful impact of a reduction in Chinook prey. Indeed, at the time the 2014 Biological Opinion on the National Flood Insurance Program was written, experts believed that the SRKW population was increasing, whereas now it is declining from an already perilously low level. While the loss of 132,724 Chinook would be from the SRKW Puget Sound 133NMFS, National Flood Insurance Program 138-50, https://www.fema.gov/media-librarydata/20130726-1900-25045-9907/nfip_biological_opinion_puget_sound.pdf. 109 habitat, as discussed above in Part B, the best available science demonstrates that the Columbia/Snake Chinook runs form a critical part of the SRKW seasonal diet.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. The EIS analysis found that only a minor effect to the Southern Resident killer whale would result from implementing MO3 (which includes the dam breach measure). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differentially from hatchery and wild fish. Hatchery fish today likely make up most fish consumed by SRKW (NOAA BiOp 2020). The EIS analysis of the Preferred Alternative determined the overall effect to SRKW to be negligible in large part because hatchery production is consistent between the No Action Alternative and the Preferred Alternative. Because the impact from the Preferred Alternative was determined to be negligible, the agencies determined that existing hatchery production would be sufficient to address any potential impacts to prey availability for SRKWs. The co-lead agencies note the contribution to the prey of SRKW through the continued existence of their respective independent congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as the Lower Snake River Compensation Plan, which is administered by U.S. Fish and Wildlife Service. The Preferred Alternative and Proposed Action in the agencies' biological assessment carry forward certain mitigation measures described in Chapters 2 and 7 of the EIS, which include continued salmon and steelhead hatchery production. The Preferred Alternative has negligible effects to SRKWs as described in Section 7.7.8. Please also see responses to Comments 6110-16 and 6110-25; and, updated language of effects on SRKW in Sections 3.6 and 7.7.8.
6110	31	ttrue@earthjustice.org	Earthjustice	VIII. THE DEIS FAILS TO ADDRESS THE EFFECTS OF THE ALTERNATIVES ON ELECTRICITY PRODUCTION IN A COMPLETE OR RATIONAL WAY AND ITS ANALYSIS OF THRSE ISSUES IS ARBITRARY As explained more completely in comments on the DEIS submitted by the Clean Energy Advocates/NW Energy Coalition, the DEIS fails to describe and disclose the effects of the alternatives, especially MO3, on energy generation and system reliability, among other energy related issues, and hence presents an incomplete and misleading picture of the effects of MO3 on both energy generation and ratepayers. Rather than repeat these comments here, we refer the agencies to them for a more complete description of the failures of the DEIS with respect to energy issues.	Section 3.7.3.5 of the Draft EIS describes the impacts to power and transmission from Multiple Objective 3 (MO3), which includes breaching the four lower Snake River dams, including the impacts to hydropower generation and power system reliability. This section also includes the rates impacts analysis. The EIS power analysis relies on industry standard models, data from the Northwest Power and Conservation Councils Seventh Power Plan and Midterm Assessment as well as various Bonneville power models. Section 3.7.1 Methodology, and Appendices H, I and J describe the methods and data used in the power analysis. This Appendix T includes responses to the comments from Clean Energy Advocates/NW Energy Coalition, which this commenter may wish to review.
6110	32	ttrue@earthjustice.org	Earthjustice	IX. THE DEIS DISCUSSION OF THE SOCIOECONOMIC IMPACTS OF THE ALTERNATIVES IT CONSIDERS IS ARBITRARY, CAPRICIOUS AND CONTRATY TO LAW The socioeconomic assessment of the alternatives in the DEIS fail to address or employ widely accepted professional standards applicable to ensure a thorough, objective and transparent evaluation of the alternatives. These standards are expressed jointly in court interpretations of the National Environmental Policy Act (NEPA), the Corps guidance documents for socioeconomic analyses, the Principles, Requirements, and Guidelines for Federal Investments in Water Resources (PR&G) developed in response to the requirements of the Water Resources Development Act of 2007 (WRDA), the Department of Interiors Agency Specific Procedures for implementing the Principles, Requirements, and Guidelines, Executive Order 12866 Regulatory Planning and Review, and the Office of Management and Budgets Circular A-4. The deficiencies in the socioeconomic analysis in the DEIS result in deep, systemic gaps in the document and arbitrary and misleading conclusions regarding the socioeconomic effects of 110 the alternatives. These issues are addressed in more detail in the Comments On the Socioeconomic Elements of the Columbia River System Operations Draft Environmental Impact Statement prepared by Natural Resource Economics and dated April, 2020 (Doc. # EJ199) which we have submitted or are submitting as part of these comments and this document and those referenced in it should be included in the administrative record for the CRSO EIS and as part of these comments.	The EIS evaluated benefits and adverse effects across an array of resource areas including potential effects at the national, regional and local level; effects are monetized and quantified, where possible, and also described qualitatively. Consistent with the National Environmental Policy Act (NEPA) analysis framework, the beneficial and adverse effects are expressed as a variety of qualitative and quantitative environmental and economic metrics. The Preferred Alternative was chosen to meet the Purpose and Need Statement and EIS objectives, including anadromous and resident fish, hydropower, water management and water supply, while minimizing adverse effect to biological and socioeconomic resources. The process of developing the Preferred Alternative is described in Chapter 7. The methodologies employed to evaluate the socioeconomic resources throughout the EIS used co-lead agency and other water resources guidance. In addition, the socioeconomic models and approaches were reviewed by a panel of experts as part of the Independent External Peer Review. The primary goal of Independent External Peer Review is to establish that models, analyses, results, and conclusions are theoretically sound, computationally accurate, based on reasonable assumptions, well-documented, and in compliance with the requirements of the OMB Peer Review Bulletin (OMB 2004). As noted previously, the socioeconomic resources have been evaluated qualitatively in some cases. In these cases, the evaluations relied on the hydrology and hydraulics; river mechanics; aquatic habitat, aquatic invertebrates and fish; and vegetation, wetlands, wildlife, and floodplains evaluations to wildlife to infer the impacts to the socioeconomic resources. However, it should be noted that even though the effects of the alternatives on fish are not expressed as monetized economic values, does not mean they were not considered in the context of the analysis.
6110	33	ttrue@earthjustice.org	Earthjustice	X. THE DEIS FAILS TO RATIONALL ADDRESS TRANSPORTATION AND NAVIGATION ISSUES RATIONALLY, ESPECIALLY ITS DISCUSSION OF THE EFFECTS OF MO3 ON THESE RESOURCES The transportation analysis in the DEIS is inadequate and incomplete, particularly the scenarios used to assess transportation impacts and alternative transportation for freight shipments under MO3. A. The DEIS arbitrarily relies on stakeholder interviews without any supporting data or analysis. The DEIS reliance on stakeholder interviews with inland shippers, deep draft shippers and barge companies providing their undocumented opinions about what will occur to rail rates and other shipping costs under MO3 or a similar river restoration alternative is arbitrary and affects the objectivity and frame of assumptions put forth in the analysis. DEIS App. L at 2-5, 134-137. A specific example of this defect can be found at L 3.1 during the overview of the model used, Transportation Optimization Model (TOM), where there is confusion over what goods ship through lower Snake River locks vs. those that only ship through Columbia locks. Here and in other places in the DEIS upriver fuel shipments are indicated as part of the freight volume shipped through Snake River locks, when, in fact they are transported only as far as Port of Pasco on the McNary reservoir. Industry analyses often erroneously include fuel shipments in 111 Snake River shipping statistics, and it is reflected here in the characterization of goods moving on the lower Snake River vs. to Columbia ports, DEIS at 3.4.2.1; App. L-3-12). It is not until deep into the appendix where it is clarified that fuel does not travel through Snake River locks, Id. at 3.4.2.1, 626-634, and the agencies never address how this contradiction affected their analysis or the vague reports of shipper interviews. B. The transportation analysis is a snapshot and does not adequately look at transportation trends. The transportation analysis in the DEIS relies on numbersshipping volumes, state of the transportation system -- that are a snapshot of a moment in time (most data comes from 2016-2017) and has only limited projections of longer term major shifts occurring in transportation, including investments in rail, which have reduced barge shipping on the lower Snake River by more than 50 percent in the past 20 years. The DEIS does not explain why it did not use available information regarding past or future shipping trends for the lower Snake River waterway, including independent assessments (as opposed to vague interviews) for these issues. New rail infrastructure continues to be built and planned in the region, including new unit train facilities. While these recent investments are mentioned, there is no analysis of this continuing shift or what it means for the value of the barge corridor for transportation over the long-term, a value that will likely it will continue to decline. C. Dam repairs and barge infrastructure costs are inexplicably not addressed: While speculative impacts to potential rail rate increases under MO3 are described in some detail, as well as some of the costs of some rail investments, these costs are not compared to the current and future capital and maintenance costs of the lower Snake navigation system, including lock repairs, dredging and other costs needed over the next 20 to 40 years to maintain the aging waterway. Available analyses indicate that these costs may be very high and they 112 cannot properly be omitted. If the analysis is going to take into account additional costs for highway maintenance under MO3 (which under the worst scenario would be $10 million annually), at a minimum, it needs to weigh these costs against the full suite of direct and indirect costs of maintaining the waterway. D. The rate data in the DEIS for each shipping mode is inadequate and unreliable. The DEIS notes that getting accurate rate data is difficult, especially in regard to shuttle rail, as these rates are negotiated between the shipper and the rail carrier and not made public. The proposed rate increase scenarios (no rate increase, 25 percent 50 percent) are based on limited data, as well as the personal opinions of shippers who were interviewed, positing what they think rate increased could be (some suggesting 50 percent higher) rather than on any attempt to collect and describe actual rate data. E. The DEIS analysis inexplicably assumes grain shipping on the Snake will remain constant. The DEIS notes the historic trends of precipitous declines of grain shipping on the lower Snake River due to the opening of two additional shuttle rail facilities (McCoy and High Line Shuttle Terminals). Grain projections over the long-term should have been discussed or analyzed, rather than assuming grain shipments would continue into the future unchanged at 2.4 million tons per year. The region served by the lower Snake waterway has been experiencing steady declines of wheat shipments on the waterway for many years as more rail comes on line and there is no reason to expect this trend to change. The DEIS also failed to	A. and D. Rate information is generally not public; it is negotiated privately. Because it is competitive information (confidential business information), shippers are reluctant to share this information. The CRSO EIS analysis involved a rigorous effort to develop a survey of shippers that was approved by the Office of Management and Budget (OMB). Strict protocols for survey administration from OMB were adhered to when administering the survey. Nonetheless, responses to the survey were somewhat limited. Every attempt was made to acquire accurate and verified rate data from shippers. Although there may be inefficiencies with the rate data presented in the Draft EIS, it is the best possible estimate that is available to replicate a rate that is decided upon privately. The commenter is correct that there were some instances where the termination point of fuel shipments was not clear in the Draft EIS. These have been clarified in Section 3.10 and in Appendix L where relevant in the Final EIS. B. The demand for waterway transportation is influenced by many factors, both related to the river operations and competing transportation modes. In many cases, that demand is affected by private sector choices (investments by Class I railroads, construction of shuttle rail elevators by grain companies) that are largely difficult to predict into the future. The approach taken here is to utilize historical volumes as a barometer of what generally has been demanded and to provide impacts relative to that since it is known with certainty. Information has been added to the Navigation Appendix L that puts the EIS findings into context using recent historical highs and lows as a guide. C. Infrastructure costs, including dam maintenance costs, are described in Appendix Q, Costs Analysis. E. Additional information has been added in the Final EIS in Appendix L to better describe ongoing trends in the region from an expanded universe of commodities. F. One major issue when considering rail is that shippers are only using rail for a small subset of goods. To accommodate a larger range of commodities, rail in the region would need to make substantial capital investments in the construction of new terminals. Given that it is the Class I railroads that decide where they will invest in their infrastructure and when, there was no reasonable process for predicting how and where they choose to invest to maximize profits on a national rail network that moves far more products than wheat from the Northwest. The EIS acknowledges in Section 3.10.3.5 that employment affected estimates do not include increased demand for trucking employment that would accompany these shifts, and that, because trucking is more labor intensive than barge operations, increased trucking demand would likely increase employment demand for shipping handlers. However, the EIS also acknowledges that stakeholders have noted that, in the short-term, an already tight market for truck drivers would be made even tighter. G. Section 3.10.3.5 acknowledges that it is likely that the facilities with rail access would continue to be used to some extent for storage and transport via rail or truck; however, these facilities are assumed to be closed for purposes of this analysis. It further states that to the extent that some terminals on the lower Snake River could continue to be used, the effects to shippers would be lower than model results suggest. H. As stated, the analysis of rail and port storage capacity in a breach scenario is based on stakeholder surveys. The co-lead agencies verified interpretations of capacity from shippers, ports, and other stakeholders where possible. To investigate beyond these findings would require resources and time beyond the constraints of this EIS. I. It is impossible to know how or if the state will attempt to mitigate the effects of an increase in rail rates. Many rail lines in the region are privately owned. Attempting to predict how the state would interact with these rail roads and their rates during a breach scenario would create unjustified assumptions. J. The Great Northwest Railroad, owned by WATCO, is a short-line railroad that runs along the Snake River from Lewiston, ID, to Ayer Junction, WA. Research completed for the EIS, suggests that elevator to river port movements via short-line rail are not currently occurring because in order for them to ship grain to river terminals on the Columbia, they must operate on part of Union Pacific's rail line and WATCO's operating agreement with Union Pacific does not allow for these shipments. The effect of including this assumption and allowing movements on these short lines during a breach scenario would be to somewhat reduce the anticipated increases in shipping costs to shippers. Information has been added to Appendix L that describes the impacts of modifying this assumption on quantified costs to shippers. K. A caveat has been added in the discussion of shipment of oversized objects in Chapter 3 to acknowledge that there has been litigation and controversy surrounding these types of shipments in the past.

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				address in any way changing international markets/demand for grain shipped on the lower Snake River. The trend for demand for these products, which largely supply international markets, also is declining but this information is not presented or addressed. 113 F. The DEIS does not rationally examine benefits to rail and highway investments that would come with implementation of a rationally constructed dam removal alternative. While the costs to some shippers from a shift away from barge transportation under MO3 is described in some detail, there is no analysis of the socio-economic benefits to the Inland Northwest from shifting to rail over barge for products that move through the lower Snake waterway. Very few commodity types are shipped by barge on the lower Snake River, today primarily wheat, fertilizer, some timber products, all of which can be shipped by rail as well. Yet many key products that are produced in the region, or could be produced, cannot easily go by barge. Providing rail investments to communities in the Inland Northwest would likely promote new manufacturers and businesses moving to the area but these potential benefits are not explored even generally. G. The DEIS doesnt adequately acknowledge that Snake River ports would continue to exist and operate even with lower Snake River dam removal Today ports along the lower Snake River rely heavily on transportation modes other than river navigation to support their businesses, including Port of Lewiston (which ships little to nothing on the river currently and relies mostly on a trucking facility) and Port of Wilma which has rail capacity. While the DEIS recognizes that ports with rail access would continue be used for grain storage and shipment, the facilities are assumed to be closed for purposes of this analysis. DEIS at 3.4.2.1, 362-375; App. L at 3-13. This is an arbitrary and unexplained assumption that also is almost certainly false too. H. The DEIS provides an inadequate analysis of the rail and storage capacity that would be built after the lower Snake River dams are removed The DEIS notes that additional rail and other investments would be built if the dams were removed, but does not describe, analyze or adequately take these changes into account. Instead, it falls back on the stakeholder surveys, with Ports claiming that they wont have land available 114 to build more rail infrastructure, but with no actual investigation of or data to support these claims. These claims are at odds with how businesses actually behave when the economy changes. As explained elsewhere in these comments, businesses are adaptable and will change to meet changing circumstances. Often this new equilibrium involves gains or losses in some aspects of the existing economy but it rarely involves complete cessation of one kind of activity with no replacement. The DEIS arbitrarily makes no effort to examine future port operations in the context of a real world economy. I. The DEIS provides no information or analysis to potential mitigation for any rail rate increases that may occur with dam removal. The three rail rate increase scenarios described in the DEIS for MO3 are all based on assumptions about how rates for rail and other transportations alternatives will rise in cost, with the assumption that a rail monopoly and price-gouging by rail companies may raise rates upwards of 50 percent. The DEIS makes no effort to identify or describe any mitigation measures (regulatory, investments, or otherwise) that could be available and implemented to address possible future changes (which, as noted above, are not actually supported by any rational analysis in any event). DEIS at 3.4.2.1 376-385; App. L-3-13). J. The analysis assumes that all grain shipped out of Pasco would need to transported to that Port by truck. The DEIS suggests that without the lower Snake River dams in place, all grain now leaving from Pasco would be transported to the port by truck. The analysis does not look at rail infrastructure and other solutions that would enable grain to be economically and efficiently delivered by rail to the Port of Pasco. These mitigation measures exist but the DEIS fails to identify or consider them. DEIS at 3.4.2.1, 412-425; App. L-3-14, DEIS at 3.4.2.1, 461-464; App. L-15. 115 K. The DEIS includes Shipments of Oversized Objects as a value of the lower Snake dams. The shipment of so-called mega-loads from Port of Lewiston and then over the winding Wild & Scenic Highway 12 corridor is mentioned as a benefit of continuing the current lower Snake River navigation system. These kinds of shipments have been opposed by the Nez Perce Tribe, local residents along the Highway 12 corridor, and have been extremely controversial. Many of these shipment have been planned but never occurred. In the absence of any information or analysis, consideration of these shipments should not be included as a benefit of the existing navigation system in the DEIS analysis.	
6110	34	ttrue@earthjustice.org	Earthjustice	XI. THE DEIS ANALYSIS OF THE IMPACTS OF MO3 ON IRRIGATED AGRICULTURE IS INCOMPLETE, INCONSISTENT WITH PRIOR ANALYSES AND ARBITRARY The 2002 Lower Snake FEIS analyzed breaching the 4 lower Snake River dams and asked the question, can irrigation systems that irrigate farmland along Ice Harbor be modified so that farming can continue? The conclusion in 2002 was yes. That EIS analyzed an alternative, Option 3, that could technically work and that met the following criteria: operational prior to breaching of the Ice Harbor reservoir; function through a full range of river stages without interruption; and able to handle a potentially large quantity of suspended sediment. This was detailed in Appendix D, Natural River Drawdown Engineering and Technical Appendix D, Existing Systems and Major System Improvements Engineering. The report concluded that it was possible to modify the irrigation systems to continue farming the existing crops, orchards, vineyards, and tree plantations. However, the report also concluded in Appendix I, Economics, that modifying these systems would cost too much ($291,481,000) relative to the land value ($137,940,000). 116 The underlying assumption throughout this analysis is private entities (the landowners) would be required to pay for those modifications and they would choose not to modify their systems. This was not a necessary or even a reasonable assumption in 2002. Given the high public cost of maintaining the dams, it is reasonable to consider including at least some of the costs of irrigation modifications within the public costs of dam removal and river restoration but the DEIS fails to even consider, let alone evaluate this approach. We support maintaining these lands as productive agricultural lands, and we support including the costs of irrigation modifications in the cost of breaching the dams. The agencies never explained in 2002 why that would not be reasonable. And they have still not done so in the DEIS. Similarly the costs of modifying wells, including the sequencing of work in order to maintain a water supply during drawdown, was estimated to be $56,447,000 in 1998. These costs are not discussed or updated in the DEIS or considered as part of the public costs of implementing MO3. The DEIS discussion of irrigation dismisses even the possibility of modifying irrigation systems and simply assumes that all irrigated land it identifies will go out of production at a cost of more than $350 per acre per year and that these costs will continue annually for the next 50 year. This approach leads to an arbitrary and misleading presentation of the effects of MO3 on agriculture. From the 2020 DEIS: The current analysis also assumed that all irrigated acres (approximately 47,926 acres) receiving water from the current pumps would no longer be irrigated (with condition) and would convert to dryland pasture (without condition). This assumption was based on conversations with several extension agents in Washington and Oregon. 117 No actual source or detail information is given for this statement. Only a slightly more extensive statement on this topic appears in the 2002 FEIS in Section 5.11 under Farmland Value, where it stated, This analysis based the determination of economic effects to irrigators under Alternative 4 Dam Breaching on a change in farmland values that would occur with elimination of the current water supply. Typical land values for farm properties near Ice Harbor were used. This information was compiled through discussions with farm managers, cooperative extension agents, farmland appraisers, agricultural economics professors, and the use of published enterprise budget sheets for a number of crops. The above quote was a discussion of land values. The DEIS apparently treats this statement as a conclusion that all irrigated land would go out of production. As the 2002 FEIS makes clear, the pumps and wells can be modified. The question is: who pays for it? The agencies never explained in 2002 and do not explain now in the DEIS – their conclusion that none of these costs can or should be included in the costs of MO3. More importantly, neither the 2002 FEIS nor this DEIS make any effort to explore reasonable mitigation alternatives for irrigated agriculture lands that will be affected by river restoration (in the DEIS under MO3). As noted above, there is no analysis of irrigation alternatives under MO3 in the DEIS at all. To the extent the agency is relying on the analysis in the 2002 FEIS, that analysis sets criteria for replacing irrigation systems the most extreme possible and never considers any other criteria. Thus the 2002 FEIS only considered irrigation replacement approaches that meet the following requirements: operational prior to breaching of the Ice Harbor reservoir; function through a full range of river stages without interruption; and able to handle a potentially large quantity of suspended sediment. The 2002 FEIS never explains why these are the only criteria it would be reasonable to consider when it is apparent that there are other reasonable approaches to mitigating the impacts of river 118 restoration of current irrigation uses. Since the DEIS does not address this at all, it goes without saying that it fails to do any better. For example, rather than consider an approach that would need to be in place and operational from day one and able to handle both the initial, short-term high sediment loads of a restored river and a more normalized flow regime, the DEIS today (and the FEIS in 2002) could have examined an alternative that would pay irrigators that grow annual crops to fallow their land for two or three years following dam removal until the river and groundwater stabilize and much of the initial sediment load from upstream has moved past irrigation intakes. At that point, existing intakes could be modified and supplemented with booster pumps (a common practice) as necessary. There would be no need for a massive settlement pond or a single new intake. This approach and its costs have never been discussed or considered. Similarly, for non-annual crops that would require continuous irrigation, the DEIS (and the 2002 FEIS) never considered any alternative that would provide a temporary, one to three year, water supply for these acres (or identified how many such acres there are) or the feasibility or costs of such an approach. In short, for the irrigation impacts of MO3, the DEIS identifies the most extreme version of potential impacts, treats that as the only possible outcome, and then describes those impacts in one-sided and arbitrary economic terms. This approach is not rational and fails to meet the fundamental purposes of NEPA.	The co-lead agencies reviewed the 2002 study and came to similar conclusions as the study. First, the conclusions reached about the infeasibility to deepen wells or extend individual pumps were based on engineering and hydrogeologic facts that had not changed since 2002. Second, though building a new pump structure and modifying existing irrigation infrastructure was considered to be technically feasible, it was not economically feasible; this conclusion was based on high-quality information. Last, the determination that these lands would not convert to dryland farming was based on conversations with experts that had knowledge of rainfall, soil types, and farming practices in the region; there was no reason to doubt their judgment as to whether these lands would be dryland farmed. Therefore, assuming that these lands would no longer be irrigated was considered reasonable for the purposes of Multiple Objective 3 in the EIS.
6110	35	ttrue@earthjustice.org	Earthjustice	XII. THE CUMULATIVE IMPACTS ANALYSIS IN THE DEIS IS INADEQUATE Pursuant to NEPA, an environmental analysis for a single project must consider the cumulative impacts of that project together with past, present and reasonably foreseeable future actions. 40 C.F.R. 1508.7, 1508.25, 1508.27(b)(7); see also id. 1508.25(c)(3). Regulations define cumulative impact as the impact on the environment which results from the 119 incremental impact of the	The CRSO EIS includes an analysis of direct, indirect and cumulative effects consistent with 40 C.F.R. 1508.25(c). The direct and indirect effects analysis is included in Chapters 3 and 7 and the cumulative effects analysis is included in Chapters 6 and 7. The cumulative effects analysis in Chapter 6 sets the stage for the analysis in Chapter 7 by discussing how past and present actions are considered in the analysis, and then identifies over 20 reasonably foreseeable future actions that may

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				action when added to other past, present, or reasonably foreseeable future actions[.] 40 C.F.R. 1508.7. By this approach, NEPA seeks to prevent piecemeal degradation of the environment by individually minor but collectively significant actions taking place over a period of time. Id. A cumulative impact analysis must be more than perfunctory[.] Kern v. Bureau of Land Mgmt, 284 F.3d 1062, 1075 (9th Cir. 2002). It must provide sufficient detail to be useful to the decisionmaker in deciding whether, or how, to alter the program to lessen cumulative impacts. Muckleshoot Indian Tribe v. United States Forest Service, 177 F.3d 800, 810 (9th Cir. 1999) (quoting City of Carmel-By-The-Sea v. United States Dept of Transportation, 123 F.3d 1142, 1160 (9th Cir. 1997)). Importantly, [t]o consider cumulative effects, some quantified or detailed information is required. Neighbors of Cuddy Mountain, 137 F.3d 1372, 1379 (9th Cir. 1998). The agencies cumulative impacts analysis fails to offer a meaningful analysis of how the alternatives, and in particular MO3, differ with respect to the many cumulative threats that will adversely affect salmon over time. There is significant information available that shows that the cumulative impacts of many anthropogenic threats to salmonids will be damaging and sometimes synergistic. These threats are likely to grow far more quickly in areas of the Columbia River basin that have more anthropogenic alterations than in the wilderness and protected public lands surrounding the Lower Snake River in Idaho. These public lands include the Frank Church/River of No Return wilderness area, a vast wilderness of 2,366,757 acres the largest contiguous wilderness area in the lower 48 states along with multiple other wilderness areas and forest service lands. (See map of public lands in Idaho submitted as part of these comments.) MO3 will allow far more salmon to reach habitat that will be subject to far fewer 120 cumulative effects than other areas in the basin. The agencies utterly fail to consider this key point in their cumulative impacts analysis. Moreover, the agencies fail to analyze cumulative impacts to salmonids with any specificity, even where significant information is available. And the agencies fail to consider and discuss additional measures to benefit salmon in light of these cumulative impacts. For example, Landis et al. (2018) found that salmonid populations, including Chinook in the Yakima River are less likely to meet recovery goals when the effects of water temperature and dissolved oxygen (both driven by climate change) are combined with the effects of chlorpyrifos, a toxic organophosphate pesticide that functions as an acetylcholinesterase inhibitor for salmon, leading to direct mortality and a range of sublethal effects that lead to population-level harm. While chlorpyrifos use may be declining, other pesticides also function as acetylcholinesterase inhibitors and harm salmonids, as NMFS has recognized in multiple published biological opinions on the effects of various organophosphates and other pesticides on salmonids in the Pacific Northwest. See also Baldwin et al. (2009). There is specific available information on the magnitude of these cumulative and synergistic effects, including Landis (2018), that the agencies must use to assess the magnitude of these impacts. The agencies must also consider which salmonid populations will be most impacted. Because organophosphate pesticides are used more heavily in agricultural and urban areas than in the wilderness areas surrounding the LSR, the LSR runs will suffer less cumulative and synergistic harm from these toxins. Under MO3, more salmonids will be able to reach the habitat that is least affected by these threatsa major benefit that the agencies never acknowledge or discuss. Similarly, there is substantial research showing that stormwater is toxic to both adult and juvenile salmonids. See, e.g., Stormwater Quality in Puget Sound, Impacts and Solutions in 121 Reviewed Literature (2017). Research also shows that the adverse effects of stormwater are particularly associated with the presence of high-vehicle-intensity impervious roads. See Feist, Roads to Ruin (2017). As with toxic pesticides, stormwater runoff, and the high-vehicle intensity impervious roads that are a major factor in generating it, is not distributed evenly across the landscape. The wilderness and protected public lands surrounding the tributaries of the Lower Snake River in Idaho are not riddled with highways. Many other areas throughout the Columbia/Snake River basin currently do have many impervious roads, and as human development continues throughout the region, those areas will likely experience increased cumulative impacts from urbanization, including stormwater runoff. Under MO3, more salmonids will be able to reach the habitat in the LSR basin that will experience fewer cumulative impacts from stormwater runoff. Again, the agencies never acknowledge or discuss this benefit. Stormwater runoff associated with urbanization, and pesticide use associated with agriculture and urbanization, are just two of the cumulative threats to salmonids that will likely increase over time. A long list of additional anthropogenic threats cumulatively impact salmonids now, and these threats will grow over time. These include the absence of mature riparian forested buffers along salmon-bearing streams, water withdrawals for agriculture and development that deplete flows, and toxics such as PCBs and PBDEs that cause direct mortality and sublethal harm to salmonids, to name a few. The agencies acknowledge that many of these threats will cumulatively impact salmonids, but they fail to offer meaningful detail about the magnitude of these impacts and they utterly fail to recognize that these cumulative impacts will all be far less severe in the protected public lands surrounding the Lower Snake River. 122 Elsewhere in these comments we discuss the agencies failure to consider that MO3 will allow for species-level climate resilience by allowing more salmonids to reach the coldest-water habitat off the LSR. In its cumulative impacts analysis, the agencies must also consider that cumulative impacts compound this benefit of MO3 by allowing more salmonids to reach habitat surrounded by public lands that will be far less adversely affected by a suite of anthropogenic threats. Additionally, the presence of a suite of cumulative impacts, virtually all of which will likely increase adverse effects to salmonids, underscores the need for the agencies to evaluate and include a substantial buffer in the actions they claim will mitigate for the harm caused by the CRSO. The agencies proposed mitigation allegedly will offset harm from the CRSO (though it will not even do that, as discussed elsewhere in these comments), but the agencies do not even attempt to assert that they have included enough mitigation to offset the harm from the CRSO as well as the additional harm from climate and other cumulative impacts. Without an additional, substantial buffer of beneficial mitigation, these populations will continue to slide toward extinction. Finally, the agencies include a vague assertion that state, local, and tribal efforts to benefit salmon could partially alleviate[] the harm from the suite of anthropogenic threats that cumulatively impact salmon. DEIS 7-209. By the agencies own admission, at best these other efforts will only partially reduce the harm. Additional mitigation is necessary.	cumulatively affect resources affected by CRS operations, maintenance and configuration. This analysis includes the cumulative effects to fish, including salmon and steelhead from varied actions, including population growth, water withdrawals, additional renewable energy development and fishery management plans, among others. The agencies have clarified the language in Chapters 6 and 7 to acknowledge the cumulative effects analysis does include consideration of the climate change analysis in Chapters 4 and 7 as well as the mitigation information provided in Chapters 5 and 7.
6110	36	ttrue@earthjustice.org	Earthjustice	THE DEIS FAILS TO ADEQUATELY AND OBJECTIVELY EVALUATE ALTERNATIVES THAT ARE BEYOND THE AGENCIES CURRENT AUTHORITY TO IMPLEMENT. The agencies have failed to adequately and objectively evaluate alternatives that they believe are beyond their current authority to implement.134 One of the most important aspects of NEPA is its demand that agencies consider alternatives beyond their current authority to implement. Implicit in this authority is the ability to recommend implementation of those alternatives as their preferred alternative if appropriate. See, e.g., 40 C.F.R. 1502.14(c) (directing agencies to include in an EIS reasonable alternatives not within the jurisdiction of the lead agency). Without this kind of authority, NEPA becomes a straightjacket, limiting agency consideration of reasonable alternatives to a range circumscribed by existing authority that may be decades old, at odds with both available information and actions that would be reasonable now but were not in the past, and at odds with sound public policy and environmental protection today. See, e.g., Natural Res. Def. Council v. Morton, 458 F.2d 827, 837 (D.C. Cir. 1972) (noting that NEPA was intended to provide a basis for consideration and a choice by the decisionmakers in the legislative as well as the executive branch); Forty Most Asked Questions Concerning CEQs National Environmental Policy Act Regulations, Answer 2(b), 46 Fed. Reg. 18,026, 18,027 (1981) (noting that an EIS may serve as the basis for modifying the Congressional approval or funding). While the agencies do analyze and consider one alternative (MO3) that they believe is beyond their current authority to implement, one of the primary reasons they reject recommending this alternative and seeking additional authority or funding to implement it is 134 These comments assume but do not accept or agree with -- the agencies view of the scope of their existing legal authority and consequently reserve the right to raise these legal issues subsequently if necessary. 124 their view that it is beyond the scope of their existing authority. This circular reasoning we can consider alternatives beyond our current authority to implement but we cannot recommend them if they exceed our existing authority -- turns one of the most important aspects of NEPAs action forcing power to lead to improved environmental decision-making and protection into a hollow exercise. See Robertson v. Methow Valley Citizens Council, 490 U.S. 332, 350 (1989) (observing that NEPAs action-forcing procedures that require a hard look at environmental consequences ensure that the sweeping policy goals of the statute are realized). In fact, the agencies approach risks reducing NEPA to a meaningless, paper-pushing exercise where agencies must simply jump through the procedural hoop of considering an alternative beyond their authority to implement in order to reach a predetermined result. See 40 C.F.R. 1500.1(c) (stating that it is not better documents but better decisions that count); see also NWF v. NMFS, 235 F. Supp. 3d 1143, 1153-56 (W.D. Wa 2002) (explaining flaws in agency failure to fully consider an alternative beyond the scope of their authority without any reasoned explanation). The agencies circular approach to rejecting MO3 is in addition to the agencies failure to fully and objectively evaluate that alternative as explained further in these comments. Indeed, in light of the agencies unreasonably narrow statement of purpose and need, their view of their existing authorities, and the way they apply these as yardstick to assess the various alternatives, the DEIS actually presents only one reasonable alternative under their criteria, the preferred alternative, because it is the only alternative they conclude will meet their interpretation of their existing statutory authority and their interpretation of the purpose and need for the CRSO EIS. See Natl Parks & Conservation Assn v. Bureau of Land Mgmt, 606 F.3d 1058, 1070 (9th Cir. 2010) (finding that an agencys objectives cannot be so narrow that only one alternative would accomplish the goals, resulting in an EIS that is a foreordained 125 formality (citation and quotation marks omitted)). Each of the other alternatives fails to meet one or more of these purposes or some aspect of their existing authority and on that basis, the agencies conclude the alternative is not reasonable. In other words, instead of developing a range of reasonable alternatives to meet a properly drawn statement of purpose and need for the CRSO EIS, including reasonable alternatives that would require new or additional authority, the	The co-lead agencies note that although a Preferred Alternative was identified in the Draft EIS, the co-lead agencies have not determined which alternative will be selected, or whether any alternative ultimately selected will include modifications resulting from comments or input received on the Draft EIS. With respect to the Draft EISs treatment of Multiple Objective 3 (MO3), which includes breaching the four lower Snake River dams, the co-lead agencies disagree that one of the primary reasons that it was not identified in the Draft EIS as the Preferred Alternative is because they do not have existing authority to implement breaching the four lower Snake River dams. The co-lead agencies conducted extensive analysis of the direct, indirect and cumulative effects of the Multiple Objective Alternatives (including breaching the four lower Snake River dams under MO3 and the Preferred Alternative). Based on this effects analysis (see Chapters 3, 4, 5, 6 and 7), the co-lead agencies evaluated the tradeoffs to affected resources and CRS purposes. The agencies developed an alternative, which was identified as the Preferred Alternative in the Draft EIS that seeks to balance multiple purposes identified in the Purpose and Need Statement, the EIS objectives and the effects analysis. The Preferred Alternative strives to minimize adverse effects to resources affected by CRS operations, maintenance and configuration. However, the Preferred Alternative is not the only alternative that remains under consideration, all of the MOs are. This includes MO3. Indeed, consistent with the aims of NEPA, the agencies provided notice to the public in the Draft EIS of the Corps' existing authorities and the stepwise process that would be required if the co-lead agencies selected MO3 as the Preferred Alternative. If this occurred, the Preferred Alternative would serve as a recommendation to Congress, which Congress would need to authorize. Congress would also need to authorize additional studies, including NEPA analysis, and funding appropriations for implementation. The co-lead agencies also disagree that the Draft EIS indicates that only the Preferred Alternative is a reasonable alternative under their criteria. As explained in Chapters 2 and 7, the agencies did develop objective criteria to help gauge the degree to which each of the evaluated alternatives met the Purpose and Need Statement and EIS objectives. However, none of the evaluated alternatives meet all of the objectives, including the Preferred Alternative (which, for instance, as discussed in Chapter 7 does not meet the EIS objective for greenhouse gas emissions). The co-lead agencies developed a reasonable range of alternatives, analyzed these alternatives and then determined which alternatives met the Purpose and Need Statement and EIS objectives. The Draft EIS does not indicate that some alternatives are unreasonable and thus, not subject to further consideration just because they did not meet particular purposes or objectives. Finally, the co-lead agencies disagree that the Preferred Alternative, or any of the other alternatives, other than the No Action Alternative, do not make meaningful modifications to operational, structural and mitigation measures that are beneficial to ESA-listed species.

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				agencies have developed and analyzed a range of alternatives that they conclude are unreasonable because they fail to meet their statement of purpose and need or their understanding of their existing authority or both. Consequently, late in the process they developed the only alternative they conclude will satisfy their criteria, the preferred alternative, even though they did not actually conduct an analysis of it and its effects as they did for the other alternatives they concluded were unreasonable. This crabbed approach to understanding and applying a statement of purpose, and the role of their existing authority, in analyzing alternatives arbitrarily but effectively transforms the DEIS into a lengthy justification for the only alternatives the agencies conclude is reasonable, an alternative that looks remarkably like a continuation of status quo river operations. But see Natl Wildlife Fedn, 184 F.Supp.3d at 876 (noting that a comprehensive EIS can break through any logjam and allow, even encourage, new and innovative solutions to be developed, discussed, and considered). It also confirms that they have failed to explain why their approach to both a statement of purpose and need for this EIS and their approach to alternatives they believe they do not have the current authority to implement is either rational or complies with the requirements of NEPA or any other statutes intended to protect salmon, steelhead and orcas. See City of Carmel-by-the-Sea v. U.S. Dept of Transp. 123 F.3d 1142, 1155 (9th Cir. 1997) (finding that an agency cannot define its objectives in unreasonably narrow terms).	
6110	37	ttrue@earthjustice.org	Earthjustice	THE DEIS COMMENT OPPORTUNITY WAS INADEQUATE TO MEET THE PURPOSES AND REQUIREMENTS OF NEPA The federal agencies issued the DEIS on February 28, 2020, and provided the public with the bare minimum comment period of 45 days. The DEIS is nearly 8,000 pages long, poorly organized and presented in a way that makes comparison and consideration of the alternatives difficult if not impossible for the public even with the investment of an exceptional amount of time. In addition, the agencies previously had made clear in the NWF v. NMFS case their reasons for concluding and telling the Court that a considerably longer comment opportunity would be needed. Nonetheless, in response to a December, 2018 presidential memorandum, the agencies shortened the process for preparing an EIS that they had sought and the court had allowed by more than a year, including reducing the public comment period to the minimum of 45 days. The presidential memorandum failed to provide any rational basis for shortening the time allowed to prepare an EIS and complete the remand process.135 Numerous individuals, organizations and elected leaders requested and extension of the comment period beginning soon after the agencies announced their new schedule and continuing through and after release of the DEIS. The agencies never explained their basis for rejecting these requests or provided any rational account for their actions in light of their prior statements to the Court. This approach is arbitrary on its own. In addition, however, as the agencies released the DEIS, the public health emergency brought on by the coronavirus erupted and grew to unprecedented proportions. This pandemic led to the cancellation of public hearings on the DEIS and replacement of these with 135 If litigation over the CRSO EIS should ensue, the plaintiffs in the NWF v. NMFS case reserve the right to seek discovery to determine the basis for the agencies decision to shorten the remand process, including, but not limited to, the basis for the presidential memorandum to the extent the agencies seek to rely on it as a basis for shortening the process. 127 teleconferences that were poorly attended and difficult to participate in. The pandemic also created circumstances in which almost all public activity ceased including through the end of the public comment period. These circumstances led to yet another round of requests for suspension or extension of the comment period and again from individuals, organizations and elected leaders. Again, the agencies refused to extend the comment period even under these unprecedented circumstances without any explanation except to state their view that they were satisfied with how the public comment process was proceeding. The Ninth Circuit has explained that under NEPA, agencies must provide the public with sufficient environmental information, considered in the totality of circumstances, to permit members of the public to weigh in with their views and thus inform the agency decision-making process. See Bering Sea Citizens v. Corps of Engineers, 524 F.3d 938, 953 (9th Cir. 2008). While the Court issued this holding in the context of an environmental assessment, its logic also applies to the preparation of an EIS given the fundamental informational purposes of NEPA. The agencies arbitrary refusal to allow any more than a minimum 45-day comment period on the DEIS under the extraordinary circumstances that faced the public even without the coronavirus emergency, but certainly in light of that, make the agencies refusal arbitrary, capricious and contrary to law and a more than adequate basis for requiring the agencies to either re-open the comment period on the DEIS when the public health emergency has passed or risk having the DEIS remanded to them for failing to meet the procedural requirements of NEPA under the present circumstances.	The co-lead agencies considered requests to extend the public comment period. This NEPA process included a wide array of cooperating agencies whose close involvement throughout the process allowed the co-lead agencies to incorporate feedback. Given the broad range of comments received and the extensive Federal and non-Federal participation in the overall process as well as the level of public engagement in the six virtual public meetings in the region, the co-lead agencies determined that an extension was not warranted and that the 45-day public comment period was adequate consistent with NEPA regulations. On April 9, the CRSO EIS website was updated to inform the public that they should plan to submit comments by the close of the comment period.
6111	1	anna.kr.roberts@gmail.com	N/A	The preferred alternative claims to improve Chinook salmon and steelhead populations by 35 and 28%, respectively, as the best outcome. These values are relative, and misleading, in that they improve only the current populations by that much. The current populations are at an incredible low point of about 1% of their historic abundances, and a 35% improvement will not have the same impact as is implied by that number. Not only are these numbers skewed and represent an entire lack of effort at revival, but they are based upon a 25 year timeline, equal to only five generations of Chinook salmon, which is an inadequate amount of time to truly determine the effects on the fish and the possibility of their extinction. Beyond that, if populations remain at this low level, even with a small increase of 35%, the populations remain at extremely high extinction risks, as salmon would only reach a maximum of about 1.5% of their historic numbers. These improvement estimates, that clearly do not meet with CRSO objectives, do not even consider the other factors that impact salmon populations, such as hatcheries and climate change.	Relative comparisons of trends is appropriate when comparing outputs from different models or comparing trends in different metrics. Values of absolute change are also reported for all metrics, however the co-lead agencies echo the advise of the CRSO modeling teams that trend analysis is an appropriate framework to analyze complex model results with their inherent uncertainty. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide meaningful benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the Columbia River System. A 25 year analytical time frame is appropriate based on CRS model teams declining confidence in model output beyond that point. Hatchery programs have long been a part of the approach for salmon recovery. Based on our analysis of fish resources in Chapter 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Under this alternative, hatchery programs would continue as under the No Action Alternative, and a number of other mitigation measures would continue as well, but no new hatchery operations are proposed. Hatchery origin fish are very important to Tribal and sport harvest within the Columbia River Basin, and many hatchery programs are important supplementation to rebuilding natural populations. Further, the three co-lead agencies have legal requirement to produce hatchery fish as mitigation for components of the CRS. The effects of hatchery programs on ESA-listed fish are evaluated through individual consultations under the Endangered Species Act. Regarding climate change, the climate science community is still developing models that can be used to analyze possible effects to water temperature from climate change and, unfortunately, they have not been fully applied and validated for use with climate affected regulated flow projections of large reservoir systems. Therefore it was not possible to reliably model water temperature changes under climate change for this EIS. In lieu of this information, the climate analysis used the output from the water quality models under historical conditions, climate change data, and scientific literature to qualitatively assess potential effects to water temperature (Section 4.2.3). A full assessment of considerations of climate change and water temperatures are in section 3.4 Water Quality, Chapter 4 Climate, and Chapter 7 of the Preferred Alternative of the analysis.
6111	2	anna.kr.roberts@gmail.com	N/A	When addressing the minimization of greenhouse gases in these alternatives, the fact that dams themselves contribute to methane emission was never addressed. Instead of ignoring this, it must be considered in alternatives that retain these four dams, and in the reduction of methane emission from MOA 3 in order to report accurate findings. Anytime there is a build up of nutrients, like getting trapped along with sediment behind a dam, there is going to be eutrophication and algal blooms which lead to an increase in methane emissions. MOA 3 was said to increase greenhouse gases, but in this EIS it was never considered how removing the dams could actually decrease the methane they produce themselves.	This comment correctly identifies that hydropower reservoirs can act as a source of greenhouse gas (GHG) emissions. Appendix G, Chapter 5 of the EIS details the assessment of reservoir methane emissions from the CRS projects. The findings are summarized in Section 3.8. This assessment finds that reservoir characteristics and management substantially influence methane emissions. A 2016 study developed by the Corps' Walla Walla District concluded that for the relatively clean reservoirs of the Federal Columbia River Power System, which include the lower Snake River dams, conditions for low dissolved oxygen concentrations are not prevalent; thus methane gas is generally not an issue. Additionally, in 2017, the Northwest Power and Conservation Council found that data on these sites were insufficient to estimate the reservoir methane emissions specifically for the Columbia River System, but that methane emissions at high levels are not likely due to the lower organic and nutrient loads to the system, and higher dissolved oxygen content. The EIS describes that emerging technologies would allow for better measuring and understanding the effects of reservoir methane emissions from CRS projects, including the lower Snake River dams.
6111	3	anna.kr.roberts@gmail.com	N/A	Additionally, the preferred alternative states a predator control mitigation measure to increase salmon survival that entails disrupting the nesting habitat of the Caspian tern via the John Day reservoir. What happens to these species when they experience habitat loss?	The Predator Disruption Operation discourages nesting within the John Day reservoir and would result in terns searching for other suitable nesting locations other than the John Day reservoir. In coordination with USFWS, this project would comply with the Migratory Bird Treaty Act by obtaining permitting for new avian predation actions, if necessary. Ongoing avian predation actions would rely on existing permitting. As part of this projects monitoring and adaptive management plan (Appendix R, part 1), monitoring of the Predator Disruption Operations measure would occur to determine the measure effectiveness on reducing the avian predators nesting habitat.
6112	1	bre.l.anderson@gmail.com	N/A	The DEIS must include a comprehensive economic analysis of Idahos salmon sportfishery and its POTENTIAL in the event of restored abundant wild salmon and steelhead returns. Salmon and steelhead fishing supports guides, outfitters, and businesses in river towns throughout the state. This money supports the economy of Idaho in a HUGE way and can not be ignored. A more robust salmon and steelhead run will only increase this value. Facts provided by Idaho Rivers United: In 2019 anglers spent $750 million dollars in the state. In the Clearwater region in 2003, during a decent return year, salmon and steelhead anglers spent $8.6 million a month.	The EIS provides an evaluation of the social welfare and regional economic effects of the No Action Alternative and the Multiple Objective alternatives (MOs), including the effects on recreation (Section 3.11) and commercial fisheries (Section 3.15). The EIS described the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. NMFS estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which is described qualitatively. For MO3, Section 3.5.3.6 describes the long-term effects to anadromous fish migration in Region C that would occur under a dam breach scenario as major and beneficial. The potential for increases in recreational fishing under MO3 in Regions C which would support jobs, income, and social benefits in Tribal and rural river communities, is described in Section 3.11.3.5. For the effects on recreational fishing under MO3 (Section 3.11.3.5) along the lower Snake River below Lewiston, the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River) as an indicator for fishing visitation in this reach. The EIS describes that the visitation in the long-term in the lower Snake River, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting outfitting and tourism businesses in the region. The social welfare values and regional economic effects associated with recreational fishing under the MOs, as well as river recreation post dam breach under MO3, were not estimated because of the uncertainty and large range in visitation and consumer surplus values among users. For MO1, MO2, MO4, and the Preferred Alternative, the recreational fishing evaluation describes the impacts by referencing the potential effects on relevant fish populations, as described in Section 3.5. Aquatic Habitat, Aquatic Invertebrates, and Fish, modeling results vary for some of the alternatives, for example for the Preferred Alternative and MO4 (i.e., models show either beneficial or adverse effects to anadromous fish), so it is assumed that the potential changes in recreational fishing and associated social welfare and regional economic effects would follow these changes in fish abundance.
6112	2	bre.l.anderson@gmail.com	N/A	Alternative MO3 needs to include an accurate cost-benefit analysis of the four Lower Snake River dams and the power they generate Purchasing replacement power on the open market would cost $11 million/year. This is $38 million/year cheaper than estimated LSRD maintenance and operation expenses and does not include benefits from reduced fish and wildlife and turbine rehab costs. Turbine replacements and maintenance in the next decade at the four dams will cost tens of millions of dollars a year.	A benefit cost analysis is not a requirement of NEPA or the basis of alternative selection under NEPA (40 C.F.R. 1502.23). Instead the direct and indirect effects to the natural and human environment were evaluated, including some effects that were evaluated quantitatively and monetized, while others were evaluated qualitatively. For hydropower, the average annual value of the four lower Snake River dams exceeds the average annual equivalent costs. The generation value at the four lower Snake River dams can be described by a range between the cost to replace the generation through new conventional resources or through a portfolio of zero-carbon resources. Although the costs of replacing the power with market purchases was analyzed, it is unlikely that short-term wholesale power markets could reliably replace the power for the long term. This range would put the annual value of power between $240 million and $500 million for the four dams combined. These numbers represent about 90 percent of the lost benefits cited in Table 3-171 of the Draft EIS because the four dams represent about 1,000 aMW of the 1,100 aMW of lost generation estimated in MO3. The average annual cost to operate and maintain all authorized purposes at the four lower Snake River dams is $75 million

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					(Appendix Q, Table 5-1) and the annual-equivalent capital costs are $32 million (Appendix Q, Table 4-1). Hydropower costs funded by Bonneville represent about $50 million of the total annual operations and maintenance costs and nearly all of the annual capital costs, approximately $31 million. This puts the annual-equivalent power-specific costs at approximately $81 million a year. As a result, the net benefits from hydropower for the four lower Snake River dams are between $159 million and $419 million and the benefit-cost ratios are between 3.0 and 6.2. If the $34 million per year Lower Snake River Compensation Plan is added to the capital and expense costs, benefits still exceed costs under each replacement power scenario. Considering these costs, the net benefits range from $125 million to $385 million and the benefit-cost ratios range from 2.1 to 4.3. In the less-likely scenario that generation could be reliably replaced with short-term wholesale market purchases and assuming that the four dams represent 90% of the $150 million in market purchases required to replace the lost generation cited in MO3 (see Table 3-170 in the draft EIS), the lower bound for net benefits would fall to $54 million and the benefit-cost ratio would fall to 1.7. With the Lower Snake River Compensation Plan included, the lower bound for annual net benefits becomes $20 million and the benefit-cost ratio becomes 1.2. From a resource competitiveness perspective, the four lower Snake River dams are among the least costly generating resources in the Federal Columbia River Power System (FCRPS) and the planned investment strategy is expected to maintain that status. As shown in the Federal Hydropower presentation at the 2018 Integrated Program Review1/, the Headwater/Lower Snake Asset Class/2 is forecast to have a 50-year levelized cost of generation/3 of $11.41/MWh based on the direct funded capital and expense (O&M) programs outlined in that process. These costs remain competitive with volatile Mid-Columbia spot market energy prices, which averaged $37/MWh in 2019 and have averaged $21/MWh in 2020. 1/ The Integrated Program Review (IPR) allows interested parties to see and comment on all relevant Federal Columbia River Power System (FCRPS) capital and expense (O&M) spending level estimates in the same forum. The IPR occurs every two years, or just prior to each rate case, and is the public review for the costs that will be recovered through rates the following two-year rate period. Long-term forecasts for the next 50 years and major upcoming projects are also shared in this forum. This information is available here: https://www.bpa.gov/Finance/FinancialPublicProcesses/IPR/2018IPR/IPR%202018%20Fed%20Hydro%20Workshop.pdf and is incorporated by reference into this EIS. 2/ In the 2018 Integrated Program Review, the Headwater/Lower Snake Asset Class consisted of the four lower Snake River dams, Hungry Horse, Libby, and Dworshak dams. These projects were grouped together because they have similar cost characteristics. The Levelized Cost of Generation for the four lower Snake projects alone is slightly lower than that for the whole class including the headwater projects shown in the table. 3/ Levelized Cost of Generation is defined as the forecasted direct costs and administrative overheads of producing power at a plant annualized over a 50-year period. This cost includes direct funded operations, maintenance, administrative and capital costs as well as Columbia River Fish Mitigation (CRFM) costs. Bonneville system-wide mitigation costs, such as its Fish and Wildlife program, are not included in this metric.
6112	3	bre.l.anderson@gmail.com	N/A	Breaching the dams is the only option that meets life-cycle survival criteria, achieves meaningful recovery, and minimizes the jeopardy of extinction. According to the scientific models in the DEIS, only MO3 will lead to smolt-to-adult ratios (SARs) that meet regional goals. Averaging 4 adults returning for every 100 smolts migrating out (4% SAR), with a range of 2-6% SAR has been deemed necessary for recovery to sustained, harvestable abundance. MO3 is the only alternative that adequately minimizes the risk of extinction for Snake River stocks as a baseline; something legally required of this DEIS.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets most other EIS objectives including those for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS, the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams, because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. It should be noted that the 2-6% Smolt-to-Adult return (SAR) target referenced in this comment refers to the Northwest Power and Conservation Council (Council) target for broad-sense recovery and is separate and distinct from the obligations of any single entity or in this case a requirement to be met solely by the co-lead agencies. Just as the Councils fish and wildlife program encompasses both federal and non-federal stakeholders in the Columbia Basin, the Councils recovery goals are shared by many parties.
6112	4	bre.l.anderson@gmail.com	N/A	The DEIS needs a more thorough economic analysis on the benefits of a restored Lower Snake River corridor. With out the dams 140 river miles, one-seventh of the entire Snake River, would be restored in the event of dam breaching. This would increase opportunities for fishing, hunting, wildlife viewing, rafting, and general tourism would positively impact the local economy.	The EIS provides an evaluation of the social welfare and regional economic effects of the No Action Alternative and the Multiple Objective alternatives (MOs), including the effects on recreation (Section 3.11) and commercial fisheries (Section 3.15). The EIS describes the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. NMFS estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which is described qualitatively. For MO3, Section 3.5.3.6 describes the long-term effects to anadromous fish migration in Region C that would occur under a dam breach scenario as major and beneficial. The potential for increases in recreational fishing under MO3 in Regions C which would support jobs, income, and social benefits in Tribal and rural river communities, is described in Section 3.11.3.5. For the effects on recreational fishing under MO3 (Section 3.11.3.5) along the lower Snake River below Lewiston, the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River) as an indicator for fishing visitation in this reach. The EIS describes that the visitation in the long-term in the lower Snake River, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting outfitting and tourism businesses in the region. However, there is uncertainty around recreational fishing visitation in the long-term given the current measures to regulate, protect, and support ESA-listed fish populations and habitat in the region. For MO1, MO2, MO4, and the Preferred Alternative, the recreational fishing evaluation describes the impacts by referencing the potential effects on relevant fish populations, as described in Section 3.5. Aquatic Habitat, Aquatic Invertebrates, and Fish, modeling results vary for some of the alternatives, for example for the Preferred Alternative and MO4 (i.e., models show either beneficial or adverse effects to anadromous fish), so it is assumed that the potential changes in recreational fishing and associated social welfare and regional economic effects would follow these changes in fish abundance.
6125	1	fredcoriell@gmail.com	N/A	The EIS does not articulate any discussion other than a chart (Figure 3-61) about how both the CSS and COMPASS models converge on the actions outlined in MO3 as having the greatest potential for Snake River anadromous survival in the CRSO. Please include a more robust discussion, other than one couched in the agency's own biased policies, of how the removal of the four dams achieves the greatest likelihood of species survival.	This is presented in Chapter 3, section 5 and Chapter 7, section 3. The two models predict different long-term survival benefits to ESA listed species from dam breach, benefits that can contribute to recovery. Under the NOAA COMPASS model, juvenile Snake River Spring/Summer Chinook in-river survival would improve by 9.6% due to dam breach, which is a 19% relative increase over the No Action Alternative. The NOAA Life Cycle Model predicts an increase in adult returns of 13.6% for these same fish under MO3 (no latent mortality assumed) relative to the No Action Alternative (from 0.88% to 1%). Results for Snake River steelhead are similar (10% absolute improvement, or 23% relative juvenile survival increase - smolt-to-adult returns (SARs) for steelhead were not modeled). Under the CSS model, juvenile in-river survival for the Snake River Spring/Summer Chinook is predicted to improve by 10.4% due to dam breach, which is an 18% relative increase over the No Action Alternative, while SARs would increase by 115% (from 2% to 4.2% 0.02 to 0.042). The CSS model predicts that Snake River steelhead would see juvenile survival increase by 25.8% which is a 46% relative increase over the No Action Alternative. The CSS model also predicts that SAR increase by 177% (from 1.8% to 5%). Though differing in predictions, both modeling groups predict dam breaching is the best CRSO EIS alternative for salmon and steelhead. One simply predicts adult return increases an order of magnitude higher than the other. However, the EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets most other EIS objectives including those for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS, the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams, because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system.
6125	2	fredcoriell@gmail.com	N/A	Further, the EIS does little to discuss or make any attempt to quantify the economic costs and environmental impacts that the alteration of, and break in, the nutrient cycle of salmon has had on inland watersheds, especially in Idaho.	The EIS evaluated beneficial and adverse effects across an array of resource areas including potential effects at the national, regional and local level; effects are monetized and quantified, where possible, and also described qualitatively. As is common in NEPA analyses, the beneficial and adverse effects of the alternatives are expressed as a variety of qualitative and quantitative environmental and economic metrics throughout the EIS to inform decision-making, including the effects of the alternatives on fish as detailed in Section 3.5. That the effects of the alternatives on fish are not expressed as monetized economic values does not mean that they were not considered in the context of the analysis. The EIS does not employ a cost-benefit framework for decision-making. Instead, the EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives) and also meets most of the other objectives of the study for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. The CRSO EIS addresses abundance of anadromous fish among alternatives, which is the driving mechanism of marine nutrient cycling. The actual mechanisms, effects, magnitudes, and processes are nutrient cycle from salmon to terrestrial locations is very complex and uncertain. The analyses used in this Draft EIS were for the purposes of comparing the effects of operation, maintenance and configuration of the CRS projects to one another and to the No Action Alternative. For the purposes of comparing alternatives, a more detailed analyses of marine nutrient transfer throughout the spawning habitats was not completed or relevant to the proposed Federal actions. Section 3.5.2.3 recognizes that anadromous fish deliver resources that affect food web productivity and influence flora and fauna across the Columbia River Basin. The EIS provides an evaluation of recreation (Section 3.11) and commercial fisheries passive use values (Section 3.15). The EIS described the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. NMFS estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which is described qualitatively. Benefits that may occur to fish and fisheries are described in Sections 3.5 and 3.15, respectively.
6125	3	fredcoriell@gmail.com	N/A	The purpose and need statement is narrow. It does not recognize the purpose to protect and preserve cultural resources or provide for the conservation of fish and wildlife resources on equal footing as other purposes stated in the analysis (DEIS ES-16). As a result the alternatives in the EIS are biased towards the culturism and outdated policy initiatives of the co-lead agencies. The alternatives read very much like a corporate marketing presentation that touts the enduring benefits from services provided by and actions undertaken by the corporation without any meaningful discussion of the negative consequences these have on other interests outside the corporation and its network of reliant cohorts.	The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. These objectives were developed in coordination with cooperating agencies, tribes, and from comments received from the public during scoping. As stated in the Executive Summary and Chapter 1, the Purpose and Need Statement includes provisions for protecting Native American treaties and reserved rights and trust obligations for natural and cultural resources throughout the environment affected by CRS operations. The Purpose and Need Statement also includes, under the Legal and Institutional Purpose, the need to comply with environmental laws and regulations and all other applicable Federal statutory and regulatory requirements, including those specifically addressing the CRS such as requirements under the Northwest Power Act to adequately protect, mitigate, and enhance fish and wildlife, including related spawning grounds and habitat, affected by such projects or facilities in a manner that provides equitable treatment for such fish and wildlife with the other purposes for which such system and facilities are managed and operated. 16 U.S.C.A. 839b(11)(A).

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					Chapter 3, 4, 6, and 7 discuss the benefits and adverse affects to resources. Chapter 7 discuss the Preferred Alternative development and how it meets those criteria in the Purpose and Need Statement. Additionally, Chapter 7 includes a discussion and Table 7-1, which provides a summary of how well or if the alternatives meet the Purpose and Need Statement, objectives, and a summary of resources effects. The Preferred Alternative includes a combination of measures that meet the Purpose and Need Statement and objectives of the Columbia River System Operations (CRSO) EIS, while providing a balance to the authorized purposes of the 14 Federal dam and reservoir projects that make up the CRS.
6125	4	fredcoriell@gmail.com	N/A	The discussion of ghg emissions for MO3 is flawed in that it does not address the shift towards electrified transportation and the reduction this has on ghg emissions. Bonneville Power Administration (BPA) has a surplus to sell. Even with thermal generation retirements this surplus can be used at off peak times when cars are charging, and with a little creative thinking integrating this with the growing renewables market, should be a priority for investment in infrastructure.	The EIS does describe potential shifts towards cleaner transportation options (see EIS Section 3.8.3.2 pages 3-992 and 3-996 in the Draft EIS) and the power load forecasts developed by the Northwest Power and Conservation Council, which are the basis of the power analysis in Section 3.7, include considerations for increasing transportation electricity demands.
6125	5	fredcoriell@gmail.com	N/A	Please provide a true and accurate annual cost analysis of the lower four Snake River Dams. First, the DEIS admits its replacement analysis was constrained by the timeframe imposed on the co-lead agencies to produce the document: Developing a zero-carbon portfolio that would replace all attributes of the lower Snake River projects for the base case analysis was not possible given the time constraints with this analysis (DEIS 3-905). This is unacceptable because it is an admission that the co-lead agencies will not be taking a hard look at information truly significant to the action in question (40 C.F.R. 1500.1(b)). It also fails to guarantee relevant information is available to the public. N. Plains Res. Council, Inc v Surface Transp. Bd., 668 F.3d 1067, 1072 (9th Cir. 2011. Unfortunately other reasonable scenarios for replacement have not been discussed. The 2550MW necessary could also be satisfied by placing 6-8KW of solar capacity on roughly 350,000 homes, commercial buildings, and industrial facilities coupled with onsite battery storage (consider 350,000 distributed batteries that store an average of 16 kwh) that is primarily used to provide power during peak loads thus flattening the peak curve. There are many ways to approach this problem, which only a handful of BPA-centric ones have been discussed in the EIS analysis. The analysis seems to only look at utility scale options; a clear nod to the expected bias of an industry that views itself as generator first, distributor second. Further, the IMPLAN model has proven to be problematic when used to create an economic cost/benefit analysis (see Crompton, J. (2019), "Uses and abuses of IMPLAN in economic impact studies of tourism events and facilities in the United States: a perspective article", Tourism Review, Vol. 75 No. 1, pp. 187-190). It tends to 1 quantify one or the other quite well, but not both. Also please include the rationale for choosing the particular multipliers used in IMPLAN (3-932, 3-934). There is no attempt to quantify costs that these dams put on the state of Idaho recreation economy. It is tens of millions of dollars per year and will continue to be so as long as these dams further precipitate the decline of anadromous fish. This cost needs to be accounted for in the economic model.	High-quality information was used for the cost analysis of the Draft EIS (See Sections 3.7 and 3.19, Appendix H, and Appendix Q). For hydropower, the average annual value of the four lower Snake River dams exceeds the average annual equivalent costs. The generation value at the four lower Snake River dams can be described by a range between the cost to replace the generation through new conventional resources or through a portfolio of zero-carbon resources. Although the costs of replacing the power with market purchases was analyzed, it is unlikely that short-term wholesale power markets could reliably replace the power for the long term. This range would put the annual value of power between $240 million and $500 million for the four lower Snake River dams combined. These numbers represent about 90 percent of the lost benefits cited in Table 3-171 of the Draft EIS because the four lower Snake River dams represent about 1,000 aMW of the 1,100 aMW of lost generation estimated in MO3. The average annual cost to operate and maintain all authorized purposes at the four lower Snake River dams is $75 million (Appendix Q, Table 5-1) and the annual-equivalent capital costs are $32 million (Appendix Q, Table 4-1). Hydropower costs funded by Bonneville represent about $50 million of the total annual operations and maintenance costs and nearly all of the annual capital costs, approximately $31 million. This puts the annual-equivalent power-specific costs at approximately $81 million a year. As a result, the net benefits from hydropower for the four lower Snake River dams are between $159 million and $419 million and the benefit-cost ratios are between 3.0 and 6.2. If the $34 million per year for the Lower Snake River Compensation Plan is added to the capital and expense costs, benefits still exceed costs under each replacement power scenario. Considering these costs, the net benefits range from $125 million to $385 million and the benefit-cost ratios range from 2.1 to 4.3. In the less-likely scenario that generation could be reliably replaced with short-term wholesale market purchases and assuming that the four dams represent 90% of the $150 million in market purchases required to replace the lost generation cited in MO3 (see Table 3-170), the lower bound for net benefits would fall to $54 million and the benefit-cost ratio would fall to 1.7. With the Lower Snake River Compensation Plan included, the lower bound for annual net benefits becomes $20 million and the benefit-cost ratio becomes 1.2. From a resource competitiveness perspective, the four lower Snake River dams are among the least costly generating resources in the Federal Columbia River Power System (FCRPS) and the planned investment strategy is expected to maintain that status. As shown in the Federal Hydropower presentation at the 2018 Integrated Program Review1/, the Headwater/Lower Snake Asset Class/2 is forecast to have a 50-year levelized cost of generation/3 of $11.41/MWh based on the direct funded capital and expense (O&M) programs outlined in that process. These costs remain competitive with volatile Mid-Columbia spot market energy prices, which averaged $37/MWh in 2019 and have averaged $21/MWh in 2020. 1/ The Integrated Program Review (IPR) allows interested parties to see and comment on all relevant FCRP capital and expense spending level estimates in the same forum. The IPR occurs every two years, or just prior to each rate case, and is the public review for the costs that will be recovered through rates the following two-year rate period. Long-term forecasts for the next 50 years and major upcoming projects are also shared in this forum. This information is available here: https://www.bpa.gov/Finance/FinancialPublicProcesses/IPR/2018IPR/IPR%202018%20Fed%20Hydro%20Workshop.pdf and is incorporated by reference into this EIS. 2/ In the 2018 Integrated Program Review, the Headwater/Lower Snake Asset Class consisted of the four lower Snake River dams, Hungry Horse, Libby, and Dworshak dams. These projects were grouped together because they have similar cost characteristics. The Levelized Cost of Generation for the four lower Snake projects alone is slightly lower than that for the whole class including the headwater projects shown in the table. 3/ Levelized Cost of Generation is defined as the forecast direct costs and administrative overheads of producing power at a plant annualized over a 50-year period. This cost includes direct funded operations, maintenance, administrative and capital costs as well as Columbia River Fish Mitigation (CRFM) costs. Bonneville systemwide mitigation costs, such as its Fish and Wildlife program, are not included in this metric. The comment expresses concern that (a) time constraints prevented the co-lead agencies from giving the replacement resource analysis a hard look; (b) only a subset of potential replacement resource options were considered; and (c) the IMPLAN analysis has been proven to be problematic in similar contexts and does not consider impacts to Idaho's recreational economy. Contrary to the comments suggestion, the EIS does identify a potential replacement portfolio for the full capability of the four lower Snake River dams consistent with NEPAs requirement that the agencies rely on high-quality information in EISs (40 C.F.R. 1500.1(b)). The portfolios for MO3 were developed sequentially. At the outset of CRSO EIS power modeling in 2017, the process outlined in the Methodology Section 3.7.3.1, step 3 (pages 3-819-822 in the Draft EIS) produced the base case portfolio. However, as the analysis progressed, information about the coal-plant retirements became public and Bonneville assessed the loss-of-load probability in light of coal-plant retirements, it became clear that the base case portfolio relied heavily on other resources in region, meaning that the base case portfolio did not replace all of the capabilities of the four lower Snake River dams. Bonneville chose to design a Full Replacement Portfolio separately, without altering the base case methodology applied to all alternatives. See Section 3.7.3.1, Additional Power Rate Sensitivity Analysis and Other Regional Cost Pressure Analysis, at pages 3-829-830 in the Draft EIS. The co-lead agencies took a hard look at all the effects of MO3, which includes breaching of the four lower Snake River dams, regarding hydropower generation, the required replacement resources to maintain system reliability and the associated costs. See Section 3.7.3.5, at pages 3-918-924 in the Draft EIS; see also Table 3-166; See Section 3.7.3.5, Effects on Power System Reliability, at pages 3-903-905 in the Draft EIS; see also Appendix H, Table 2-1; Section 3.7.3.5, Potential Replacement Resources And Associated Costs, Table 3-160. About replacement options, the EIS acknowledges that the energy sector is constantly undergoing transformation and that technological improvements will likely bring other options. To avoid speculation, the EIS analysis focuses on primary technologies identified by the Council in their Seventh Power Plan (Seventh Power Plan page 13-5) that are deemed proven, commercially available, and deployable on a large enough scale in the Northwest. Section 3.7.3.1, Step 3: Determine Need for Potential Replacement Resources and Associated Costs, at page 3-821 in the Draft EIS; see also Appendix H, Power and Transmission, at Section 2.2. Given this, residential distributed solar was not specifically considered as a potential replacement resource. However, if Bonneville or its customers pursue resource acquisitions, these would occur through careful selection among all available options, potentially including roof-top solar. Although the use of storage technologies was considered a long-term resource of the 7th Power Plan and not a primary resource, it has become more commercially available since the release of the 7th Power Plan and was examined in the EIS. Storage will likely be considered a primary resource in the Councils 8th Power Plan. Regarding the IMPLAN analysis, that analysis is described in additional detail in Section 5.2.2 of Appendix H, including how the analysis identified the appropriate IMPLAN multipliers. IMPLAN is a widely-used, industry standard input-output (regional economic) model and relies on a variety of data sources such as the Census Bureau and Bureau of Economic Analysis. The regional economic effects analysis modeled household changes in electricity expenditures, and IMPLAN takes the household income change as an input, and calculates the corresponding Induced Effect of changes in household spending on goods and services. For the commercial and industrial sectors, the analysis modeled changes in electricity expenditures as changes in industry output. The specific multipliers were calculated based on the relative spending on electricity for each industry in the states examined. The relative spending was then weighted to calculate the appropriate multipliers associated with changes in industry outputs. Section 3.11.2.2 describes gaps in the recreational visitation data. Data were not available for all sites, including along the Snake River below Hells Canyon Dam and above Lower Granite Lake in Idaho. The 2016 report by Boise State entitled Economic Impact and Importance of Power Boating in Idaho was considered for the EIS, but not relied upon directly due to the limited types of visitation data in the report, so it does not appear in the references. In addition, this region was not anticipated to be affected by changes in water surface elevations. However, the EIS provides an evaluation of the social welfare and regional economic effects of the No Action Alternative and the multi-objectives alternatives, including the effects on recreation (Section 3.11) and commercial fisheries (Section 3.15). The EIS described the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. NMFS estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which is described qualitatively. For the effects on recreational fishing under MO3 (Section 3.11.3.5) along the lower Snake River below Lewiston, the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River) as an indicator for fishing visitation in this reach. The EIS describes that the visitation in the long-term in the lower Snake River, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting outfitting and tourism businesses in the region. The social welfare values and regional economic effects associated with recreational fishing under the action alternatives as well as river recreation post dam breach under MO3 were not estimated because of the uncertainty and large range in visitation and consumer surplus values among users.
6125	6	fredcoriell@gmail.com	N/A	The upward rate pressure predicted by removal of the four dams is inaccurately calculated (see number 4 above and DEIS 3-918). As any classic lord of yesterday the co-lead agencies cannot see outside their own fish counting window at Bonneville because they are too risk adverse to do otherwise. Investments in distributed solar and wind on residential, commercial, and industrial properties, power cooperatives with these same groups, investment in building infrastructure retrofits/upgrades, and 1 https://doi.org/10.1108/TR-05-2019-0159 investing in and planning for a distribution system that can integrate technologies (such as electric vehicle fleets) on a larger scale are examples of the potential that BPA has to change course and lead the future northwest energy landscape. It is no surprise that the only study considered inline with the costs identified in the EIS analysis was produced by a special interest group that aligns with the culturism of the co-lead agencies (DEIS 3-913). Not a single alternative looks at a new model for the CRSO that bucks the status quo and shows innovative thinking and leadership. In fact the EIS analysis appears to dismiss this as an unlikely scenario. If the average household reduced consumption, then the costs under MO3 would be reduced by between $16 and $38 per year (DEIS 3-932). A fresh line of thinking might do everyone some good at this point, especially thinking that provokes these potential scenarios forward.	The comment claims that rate pressures in Multiple Objective 3 (MO3), which includes breaching the four lower Snake River dams, are incorrectly calculated due to resource portfolio assumptions that are narrow and incorrect, and describes a variety of potential alternative energy technologies. Bonneville used resource costs and other data from the Northwest Power and Conservation Council (Council) as well as the Councils GENESYS model for calculating the Loss-of-Load Probability and the contributions of various replacement resource portfolios on regional reliability. See Section 3.7.3.1, Step 3: Determine Need for Potential Replacement Resources and Associated Costs, at page 3-821 in the Draft EIS; see also Appendix H, Power and Transmission, at Section 2.2. The need for additional resource replacements was driven by maintaining regional reliability at the No Action Alternative levels. See Section 3.7.3.5, Effects on Power System Reliability, at page 3-903 in the Draft EIS; see also Appendix H, Table 2-1, in the Draft EIS. The EIS acknowledges that the energy sector is constantly undergoing transformation and that technological improvements will likely bring other options. To avoid speculation, the EIS analysis focuses on primary technologies identified by the Council in their 7th Power Plan (7th Power Plan, page 13-5) that are deemed proven, commercially available, and deployable on a large enough scale in the Northwest. See Section 3.7.3.1, Step 3: Determine Need for Potential Replacement Resources and Associated Costs, at page 3-821 in the Draft EIS; see also Appendix H, Power and Transmission, Section 2.2. If Bonneville or its customers pursue resource acquisitions, these would occur through careful selection among all available options, potentially including distributed solar and wind. Although the use of storage technologies is considered a long-term resource of the 7th Power Plan and not a primary resource, it has become more commercially available since the release of the 7th Power Plan and was examined in the EIS. See Section 3.7.3.5, Lower Snake River Full Replacement, pages 3-905-907 in the Draft EIS. Storage will likely be considered a primary resource in the Councils 8th Power Plan. These Council sources and the Mid-term Update were the source of all resource costs. The EIS examines the similarities and differences of a variety of different studies produced by other interest groups. See Section 3.7.3.1, Step 3, at page 3-820 in the Draft EIS; Section 3.7.3.5, Related Study, at page 3-913 in the Draft EIS; Appendix H, Power and Transmission, Section 2.4. As described in the EIS, these studies are not comparable to the analysis in the EIS because of methodological, data, and scope differences. The Preferred Alternative includes operational, structural and mitigation measures that include innovative thinking from the co-lead and cooperating agencies (see Chapter 7 for additional details).

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					It is true that reductions in household energy consumption would likely lower the cost of electricity under MO3 or any of the alternatives. Although the cited range of potential household cost effects for MO3 is consistent with the findings of the EIS, this is the potential consumption response to increasing rate pressures under MO3, i.e. customers choosing to use less electricity as the price goes up, not a potential savings independent of the rate pressures. Households still spend more overall in MO3.
6125	7	fredcoriell@gmail.com	N/A	Lastly, please provide or cite evidence that backs up the claim that major short-term adverse effect[s] on water quality due to the mobilization of sediment during dam breaching (DEIS 3-7).	Several studies provide data to evaluate the sediment quality in the Lower Granite Reservoir. A study conducted in 1997 was comprehensive in both physical extent and analyses included (CH2M Hill 1997). Despite the age of the data, the comprehensive nature of this study makes it a worthwhile inclusion. This study was conducted as part of a general evaluation of conditions and data collection for the lower Snake River. A study conducted in 2003 included samples at discrete locations where sediment accumulation was known, as well as specific analyses of bio accumulative compounds such as dioxins (Corps 2004). This study was conducted in support of proposed dredging events along the Snake River, so the sample locations are not evenly distributed throughout the river segment, but rather represent discrete locations of interest. Only samples with fines greater than 20 percent were used for chemical analyses. The most recent sampling events were conducted in 2013 and 2014. The Lower Snake/Clearwater Sediment Sampling (Corps 2014b) study included sediment evaluation in support of navigational maintenance activities on the lower Snake and Clearwater Rivers, upstream of the Lower Granite Dam. Eleven dredge material management units and four separate areas of dockface/port facilities were assessed, representing 479,926 cubic yards of sediment. For the discussion here, the results from this sampling event are discussed in terms of the management units defined above (the Lewiston Management Unit and the Clarkston Management Unit).
6127	1	gocougs9798@yahoo.com	N/A	There are lengthy lists of action items that are currently being tried and need to be implemented that could and likely would provide a significant difference for salmon populations and many of these actions could be implemented sooner and at a lower cost than dam breaching. These items include cleaning up Puget Sound and the waterways that flow into it; funding and installing fish-friendly culverts; eliminating all non-native fish farms in the Pacific Northwest; looking into shellfish harvest practices and the impacts of that industry on salmon and orcas (see Toxic Pearl by M. Perle). Eliminating the predators of salmon at multiple points in their lifecycle around the dams, including birds, sea lions and non-native fish species need to be stepped up. These species are increasing in population as they teach others where to come for the salmon buffet and the process for eliminating these threats are too slow. Consider salmon fishing practices in the rivers and oceans. What impacts do gill nets have on the salmon? While treaty rights should be honored, all sides need to consider the current salmon population and be responsible in their harvest practices. Increase hatchery funding. The data shows that salmon numbers rose and subsequently fell with the funding.	The co-lead agencies also recognize that there are many effects to salmon and steelhead populations outside the operation of the dams; including those you mention here. Research continues to evaluate the magnitude of these effects. For more information see the NMFS website at: https://www.nwfsc.noaa.gov/research/index.cfm. Many of these effects are outside the scope of this EIS that analyzes operations and maintenance of the Columbia River System dams. The co-lead agencies legal authorities relate to operating and maintaining the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. To comply with the ESA, the co-lead agencies have historically supported actions to mitigate adverse effects to listed species from CRS operations, through funding, direct implementation, and other means. Under the Preferred Alternative, those actions, including for the purpose of reducing pinniped and avian predation on listed species, would generally continue to ensure compliance with the ESA. Other entities in the region have authorities and obligations to mitigate the impacts from pinniped and avian predators and the co-lead agencies will continue to work closely with those entities to benefit ESA-listed salmonids. Regarding the Puget Sound, the effects mentioned in the comment involve a variety of issues beyond the scope of the CRS project. However, water quality effects for the Columbia River Basin were considered in the EIS analysis and are described in Chapter 1, 2, and Section 7.8.3 of the EIS. Additionally, the U.S. Army Corps of Engineers is in partnership with other Federal, state and non-governmental organizations and have been implementing habitat projects for salmon, orcas, and wildlife all around the Puget Sound as part of the Puget Sound Nearshore Ecosystem Restoration Project. Harvest certainly has an impact on salmon and steelhead populations. The three co-lead agencies do not manage fish stocks, and do not have the authority to do so. For harvest, fisheries in the Columbia River Basin and those that rely upon Columbia River fish stocks are managed by numerous entities, including Federal, state, and tribal governments. These entities are guided by a complex array of policies, laws, compacts, and agreements. The management of Pacific salmon fisheries in particular is complex, and involves numerous entities representing a variety of social, political, and conservation interests. Changes in allowable fishery harvest in the Columbia River Basin are a result of decisions made by state, Federal (i.e., NMFS), and tribal fishery managers based on a variety of environmental, biological, economic, and social factors. Alternatives to include changes to harvest are not within the scope of this EIS. The assumptions regarding harvest are taken from the NOAA 2018 EIS and reflect current harvest management guidelines. To see their conclusions and effects analyses please go to: https://www.fisheries.noaa.gov/resource/document/environmental-impact-statement-programmatic-review-harvest-actions-salmon-and.
6137	1	annie4208m@gmail.com	N/A	The alternatives MO1, MO2 and MO4 are proposed to potentially improve adult salmon, juvenile salmon, and resident fish species. With the CRS being an important aspect for the lives of endangered species such as Chinook and steelhead, action should be taken to ensure the species increase in numbers rather than decrease. In each of the alternatives listed above, programs involving conservation hatcheries for ESA-listed fish and other hatcheries to mitigate for the construction and operation of the dams are used. However, peer reviewed science proves that hatcheries are more detrimental to wild fish populations than they are beneficial. Hatcheries dont work to recover the endangered and wild salmon and other fish species. Instead, the hatchery fish released negatively impact wild fish species by breeding with them, diluting the wild gene pool, competing for resources and so forth. Wild fish species are robust and resilient, but introducing hatchery fish to the wild species dilutes the genetic diversity and decreases their size advantage, making the offspring and the population as a whole more vulnerable.	Hatchery programs have long been a part of the approach for salmon recovery. Based on our analysis of fish resources in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Under this alternative, hatchery programs would continue as under the No Action Alternative, and a number of other mitigation measures would continue as well, but no new hatchery operations are proposed. Many ESUs/DPSs of ESA-listed fish include fish produced in hatcheries. Hatchery origin fish are very important to Tribal and sport harvest in within the Columbia River Basin, and many hatchery programs are important supplementation to rebuilding natural populations. Further, the three co-lead agencies have legal requirement to produce hatchery fish as mitigation for components of the CRS. The effects of hatchery programs on ESA-listed fish are evaluated through individual consultations under the Endangered Species Act.
6137	2	annie4208m@gmail.com	N/A	Not only are hatcheries harmful, but increasing spill over dams in order to aid juvenile migration downriver has yet to recover salmon runs. Few juvenile fish are able to make it through turbines in the dam during their migration, and spill operations are thought to be an effective way to allow juveniles over the dam. However, this system is also harmful to the juvenile fish. Impacts with spillway structures can result in physical injury, brain damage and death. The hydraulic forces associated with spill and the sudden depth changes are also potential hazards that are associated with this hydropower-related passage option.	The Draft EIS used high-quality data and best available science in its analysis. The commenter is correct that some juvenile fish are injured and killed as a result of passage through spillways and turbines. The Draft EIS analysis and modeling results included incorporation of empirical data on effects of dam passage, such as through spillways. Even with these effects the CSS model predicts that Smolt-to-Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% (the lower end of the Northwest Power and Conservation Council's recovery targets for the region) as a result of the Preferred Alternative.
6137	3	annie4208m@gmail.com	N/A	Sediment transfer is slightly discussed in the alternative MO3 and I believe it is worth being elaborated on. River sediment is full of rich nutrients that can be utilized for agricultural areas. In a river system, sediment is transported downstream and forms river banks and deltas. In the case of placement of dams, the blocked rivers result in a loss of riparian habitats along inundated reaches. In the case of the LSRD, there is also a loss of sediment transport to the Columbia delta. Without the flow of sediment, the delta cannot grow. The Columbia delta is important because it is a system that absorbs runoff from both floods and storms. It also acts to provide nurseries and spawning grounds for a large number of aquatic organisms. Sediment is no longer free-flowing down the CRS, rather its collecting in the upper reservoir of the dams. Pristine habitat for an abundance of aquatic and terrestrial species is impacted by this impeded flow.	The historical effects of dam construction are described under affected environment in Chapter 3. It is generally known that the dams within the Snake and Columbia River basins disrupt the movement of sediment, blocking most material from moving downstream to the Columbia delta except for small amounts of fine suspended material that are carried to the ocean. This condition is described under the Affected Environment Sediment Supply Section 3.3.2.2. It is also recognized that the operation of the dams has altered sedimentation processes in the lower Columbia River and estuary as further described under the Affected Environment Aquatic Habitat Section 3.5.2 and Vegetation, Wetlands, Wildlife, and Floodplains Section 3.6.2. It is important to note that the direct analysis of historical effects of dam construction such as sediment delivery to the Columbia delta are outside the scope of this study as the No Action Alternative is based on the conditions at the beginning of the study in 2016.
6137	4	annie4208m@gmail.com	N/A	Another topic brought up in the MO3 alternative was the potential for an increase in the release of greenhouse gases. It was explained that with the loss of hydropower from the four lower dams, power would need to be replaced with natural gas. I understand that some cleaner options are less reliable, but solar and wind power combined with other clean alternatives is something that should be considered. Geothermal energy uses heat energy from the earth, and is capable of supplying renewable power around the clock that emits little to no greenhouse gases. It also requires a small environmental footprint to develop. Bioenergy is another power source that should be considered. This process utilizes biomass as an organic renewable energy source, including materials such as agriculture and forest residues, energy crops, and algae. The energy biomass produces can be converted into electricity, heat or biofuels.	The EIS analyzed a zero-carbon resource portfolio to replace the hydropower generation of the four lower Snake River dams, identifying a cost-effective portfolio of solar power, demand response and battery storage. See draft EIS, Section 3.7.3.5 at pages 3-904-910. Regarding the range of renewable technologies considered, the EIS acknowledges that the energy sector is constantly undergoing transformation and that technological improvements will likely bring other options. The source of resource information used in the EIS is from the Northwest Power and Conservation Council's (Council) 7th Power Plan and Mid-Term update. See draft EIS, Section 3.7.3.1, Step 3: Determine Need for Potential Replacement Resources and Associated Costs at page 3-821 and Appendix H, Power and Transmission, Section 2.2. The EIS analysis focuses on primary technologies identified by the Council in their 7th Power Plan (7th Power Plan, page 13-5) that are deemed proven, commercially available, and deployable on a large enough scale in the Northwest. Geothermal and bioenergy technologies were not considered primary technologies and thus, were not included as a replacement resource. See draft EIS, Section 3.7.3.1, Methodology, and Chapter 2 of Appendix H for additional details. The conventional least-cost and the zero-carbon resource portfolios were intended to provide a range for the cost and emissions impacts of the Multiple Objective Alternatives assuming current technologies could be scaled to replace the four lower Snake River dams capabilities. The EIS acknowledges that with further technological advances and substantial increases in power storage capacity, other options may be available in the future. See draft EIS, Section 3.7.3.2, Potential Replacement Resources, page 3-848, for example.
6137	5	annie4208m@gmail.com	N/A	The report discusses species listed on the ESA such as salmon and steelhead, yet the requirements have yet to be met. The ESA requirements involve restoring listed species to all or a significant number of that range.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not require the co-lead agencies to take affirmative actions to recover ESA listed species. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Recovery is a broader regional goal and is above and beyond the co-lead agencies' obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the Columbia River System. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species.
6137	6	annie4208m@gmail.com	N/A	Another topic that I believe the DEIS failed to discuss is the issue of climate change, and how climate change will influence mitigation processes of each alternative. For there to be a cumulative analysis of all potential factors relating to the dam processes, climate change should be included, as it greatly changes the estimated number of salmon return. In regards to the no action alternative and the other various alternatives made to improve juvenile and adult salmon, estimates of salmon return are drastically lowered once climate change is acknowledged. If climate change forecasts were to be included in the alternative, the no action alternative would lead to extinction. The only alternative that will drastically result in salmon return will be the dam breaching alternative. With climate change, the numbers proposed for salmon return upon dam breaching will also be lower than expected, but the numbers will be much higher than those suggested in the other proposed alternatives, and the species will be well away from extinction.	Through on-going regional climate change studies and work, the co-lead agencies evaluated potential shifts in precipitation and temperature patterns and resulting changes in unregulated Columbia Basin streamflow timing and volumes. The evaluation consisted of the full range of the latest climate change projections developed using multiple global climate models, emissions scenarios, downscaling techniques, and hydrologic models. Details of this evaluation are in Chapter 4 of the EIS. This information was used to describe the potential effects (both beneficial and adverse) on the river systems and resources due to potential changes in climate for all alternatives. The climate science community is still developing quantitative models that can address possible effects in water temperature from climate change, and unfortunately, have not been fully applied and validated for use with climate affected regulated flow projections of large reservoir systems. This data is critical to analyzing potential effects to fish quantitatively. In lieu of this information, the climate analysis used the output from resource models, like water quality and fish, under historical conditions, available climate change data, and scientific literature to qualitative assess potential effects to resources (described in Chapter 4). The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets most other EIS objectives including those for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS, the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams, because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system.
6137	7	annie4208m@gmail.com	N/A	I think the DEIS overlooked some notable factors that make it more of a preferred alternative. I think with alternative renewable energy sources being available, the overall benefits drastically outweigh the costs of breaching the dams. Natural gas is not the only power source that could replace hydropower, should the dams be removed. A combination of solar, wind, geothermal, and bioenergy power sources would allow the MO3 alternative to meet the objective to minimize GHG emissions, along with meeting the objective to provide a reliable and economic power supply.	The EIS analyzed a zero-carbon resource portfolio to replace the hydropower generation of the four lower Snake River dams, identifying a cost-effective portfolio of solar power, demand response and battery storage. See draft EIS, Section 3.7.3.5 at pages 3-904-910. Regarding the range of renewable technologies considered, the EIS acknowledges that the energy sector is constantly undergoing transformation and that technological improvements will likely bring other options. The source of resource information used in the EIS is from the Northwest Power and Conservation Council's (Council) 7th Power Plan and Mid-Term update. The EIS analysis focuses on primary technologies identified by the Council in its 7th Power Plan (7th Power Plan, page 13-5) that are deemed proven, commercially available, and deployable on a large enough scale in the Northwest. See draft EIS, Section 3.7.3.1, Step 3: Determine Need for Potential Replacement Resources and Associated Costs at page 3-821 and Appendix H, Power and Transmission, Section 2.2. Geothermal and bioenergy technologies were not considered primary technologies, and thus, were not included as a replacement resource. See draft EIS, Section 3.7.3.1, Methodology, and Chapter 2 of Appendix H for additional detail. The conventional least-cost and the zero-carbon resource portfolios were intended to provide a range for the cost and emissions impacts of the Multiple Objective (MO) Alternatives assuming current technologies could be scaled to replace the four lower Snake River dams capabilities. However, it should be noted that the EIS finds that even with a renewable power portfolio, carbon emissions increase under MO3 as other existing fossil fuel generation increases (see draft EIS, Section 3.8.3.5, Greenhouse Gas Emissions from Power Generation).

Letter No.	Comment No.	Commenter Name/Email	Affiliation	Comment	Response[1/]
					The EIS acknowledges that with further technological advances and substantial increases in power storage capacity, other options may be available in the future. See for example Section 3.7.3.2, Potential Replacement Resources, page 3-848 in the draft EIS.
6140	1	maxbeach@hotmail.com	N/A	While everyone of us is concerned about the salmon in the rivers and want to make sure they remain here for our children and grandchildren, we must look beyond the rivers and dams and begin focusing more on the ocean. I have included a slide from BPA " the whole dam story" that shows most of the decline in salmon came after the dams were installed. The Nez Perce tribe also showed a similar decline in salmon from 1855 until the 1930's during the governor's workshop in Lewiston, ID last year, yet the dams get all of the blame. It should also be pointed out that rivers up and down the coast and even up to Alaska are seeing similar declines in Salmon and they don't have dams in the river. This points to a much larger issue than just the dams in our rivers.	The majority of a salmon's lifespan is spent in the ocean. Therefore, the habitat, food, and predator conditions in the ocean will have a large influence on the proportion of salmon surviving to reproduce. When ocean conditions are good, the Columbia Basin enjoys large returns of salmon such as in 2014 for example. Nearly every ESU had record returns. However, when conditions are poor as has been the case for the past several years, the number of adult salmon are much smaller. In the context of the EIS, while the ocean would not be affected by any of the Alternatives, the co-lead agencies recognize that these conditions are a major driver for adult returns and that numerous studies have shown the importance of ocean conditions in the return of adult salmon and steelhead (Peterson et al. 2019). The co-lead agencies analyzed the effects of the operation, maintenance, and configuration of the CRS projects on resources affected by the CRS, including the potential to improve conditions for ESA-listed species. The co-lead agencies also looked at the cumulative effects of other actions, including harvest in Chapters 6 and 7 of the EIS. Research continues to evaluate the magnitude of these effects. For more information see the NMFS website at: https://www.nwfsc.noaa.gov/research/index.cfm. Among the objectives are improving passage conditions and survival of both juvenile and adult anadromous fish through the CRS. The more healthy juvenile salmon that enter the ocean, whether the conditions there are good or poor, the greater the returns to the Columbia Basin can be. The greater the success adults migrating up the Columbia and tributaries and spawning, more juvenile can be produced for the next generation.
6162	1	scott.hauser@usrtf.org	Upper Snake River Tribes Foundation and its Four Member Tribes	Errors in Need of Correction in the DEIS The DEIS states that the BPT, FMPST, and the SPT of the Duck Valley Reservation are cooperating agencies in the CRSO process. That is not accurate. USRT was asked by BPT, FMPST, and SPT to represent their interests in the process and chose not to be cooperating agencies. The only member tribe of USRT that is a cooperating agency is the SBT.	Thank you for bringing this error to our attention. It has been corrected in the Final EIS, Section 1.4.3.
6162	2	scott.hauser@usrtf.org	Upper Snake River Tribes Foundation and its Four Member Tribes	Purpose and Need USRTs position has been consistent since 2017, that the Purpose and Need (P & N) should be tied directly to the ruling of Judge Michael Simon. The P & N sets the stage for the range of alternatives to be considered. The action agencies (AAs), in crafting a P & N that gives short shrift to Judge Simons order, assured the development of an inadequate CRSO DEIS. The quotes below from Judge Simon were instructive to the AAs. Had they been acknowledged and used as a guide during the DEIS process we would not be at the point we are currently with a DEIS that fails to ensure the protection, enhancement, and increased abundance of salmon and steelhead moving into the future.	The Purpose and Need Statement includes the co-lead agencies' requirement to respond to the U.S. District Court's order, as stated in the Executive Summary and Chapter 1. Specifically, the Purpose and Need Statement says "The on-going action that requires evaluation under NEPA is the long-term coordinated management of the System projects for the multiple purposes identified above. An underlying need to which the co-lead agencies are responding is reviewing and updating the management of the System, including evaluating measures to avoid, offset, or minimize impacts to resources affected by the management of the System in the context of new information and changed conditions in the Columbia River basin. In addition, the co-lead agencies are responding to the Opinion and Order issued by the U.S. District Court for the District of Oregon such that this EIS will evaluate how to insure that the prospective management of the System is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of designated critical habitat, including evaluating mitigation measures to address impacts to listed species." The EIS analysis demonstrates the co-lead agencies understood the U.S. District Court for the District of Oregon's Opinion and Order.
6162	3	scott.hauser@usrtf.org	Upper Snake River Tribes Foundation and its Four Member Tribes	USRT and its member tribes have a different perspective of the values that make the Columbia River Basin unique for those who call this place home. The Northwest Power Act requires the AAs to develop programs to protect, mitigate, and enhance fish and wildlife: 4(h)(11)(A)(i) exercise such responsibilities consistent with the purposes of this Act and other applicable laws, to adequately protect, mitigate, and enhance fish and wildlife, including related spawning grounds and habitat, affected by such projects or facilities in a manner that provides equitable treatment for such fish and wildlife with the other purposes for which such system and facilities are managed and operated The concept of Equitable Treatment is often used as a measure of inputs compared with received outputs, it does not necessarily mean that all scales are equally balance; but it does require a demonstration of fairness and equal consideration for different user groups. In the current evaluation one of the primary drivers for the in-depth evaluation of the entire system is that there are significant impacts to anadromous fish, to the point that the current system configuration contributes to species level decline and in some instances, impedes that species ability to recover. From a concept of equitable treatment, the fish and user groups who rely on them would be viewed as an input, while the resulting decision made in this DEIS would determine the projected output for that group of users and the actual resource itself. USRT and its member tribes primary concern is that the Preferred Alternative (PA) does not adequately balance the scale of equity by promoting a condition where listed salmonids in USRTs member tribes homelands will thrive and recover.	The co-lead agencies are aware of their legal responsibilities under the Northwest Power Act, including the equitable treatment mandate. The Act requires the agencies to adequately protect, mitigate, and enhance fish and wildlife, including related spawning grounds and habitat, affected by such projects … in a manner that provides equitable treatment for such fish and wildlife with the other purposes for which such system and facilities are managed and operated. 16 U.S.C. 839b(h)(11)(A)(i). On a systemwide basis, the co-lead agencies ongoing management of the CRS will continue to provide fish and wildlife equitable treatment with the other authorized purposes of the system. See NW. Envtl. Def. Ctr. v. Bonneville Power Admin., 117 F.3d 1520, 1533-34 (9th Cir. 1997) (While each power marketing action that affects the system implicates the equitable treatment provisions, Bonneville may properly exercise its obligation by insuring equitable treatment for fish on a systemwide basis.); Confederated Tribes of the Umatilla Indian Reservation v. Bonneville Power Admin., 342 F.3d 924, 931 (9th Cir. 2003) (The equitable mandate of [the Northwest Power Act] does not require every Bonneville decision to treat fish and wildlife equitably. For example, Bonneville may make some decisions that place power above fish, so long as on the while, it treats fish on par with power.). The agencies provide equitable treatment on a systemwide basis primarily by implementing hydrosystem management and operations identified in relevant NMFS and USFWS biological opinions, in the Columbia Basin Fish Accord agreements, and in measures included in the Northwest Power and Conservation Councils fish and wildlife program. In addition, we note that the express language of the statutory provision prescribes equitable treatment for fish and wildlife only not for states, Tribes, or other entities.
6162	4	scott.hauser@usrtf.org	Upper Snake River Tribes Foundation and its Four Member Tribes	Another stated purpose is to promote the protection of Indian treaty rights and interests for natural and cultural resources. It has been clear that federal agencies and most tribes do not view the obligations in the same manner. For example, the USRT member tribes would consider the perpetuation and presence of anadromous fish on their homelands, that they have a reserved treaty or inherent right to harvest, are a trust asset that the federal agencies must protect in a conservative manner; this is not a view shared by the AAs. For the right to have meaning, to promote the protection of the traditional harvest of anadromous fish throughout the Columbia River Basin, there must be fish to harvest to sustain tribal communities. Minor or negligible improvements in anadromous fish returns will not alleviate the nearterm risks of anadromous stocks currently at risk of extirpation, and they will not provide meaningful fisheries at the population level in the Snake River.	Tribal input, concerns, interests, and especially treaty rights were considered throughout the Draft EIS analyses and in the formulation of the Preferred Alternative. Treaty specific information is included in Section 3.17 as well as Chapter 7. The co-lead agencies recognize and respect the legal obligations imposed by treaties. The co-lead agencies accordingly included Protecting Native American treaty and reserved rights and fulfilling trust obligations for natural and cultural resources throughout the environment affected by the Columbia River System operations as a purpose in the Purpose and Need Statement in Chapter 1 to ensure treaty obligations were a key consideration of decision making. The co-lead agencies are engaging in government-to-government consultation with the tribes, and several tribes are cooperating agencies on the CRSO EIS. The EIS recognizes the economic and cultural importance of salmon to Tribes in a number of sections throughout the document. The cultural significance and impacts of salmon and steelhead fisheries are described in the Ceremonial and Subsistence Fisheries sub-section and the Social Importance of Commercial, Ceremonial and Subsistence Fisheries sub-section of Section 3.15.2.1. Fisheries tribal interests are provided in Section 3.15.4 additional details regarding the economic significance of salmon and steelhead fisheries have been added to the recreation analysis (Section 3.11) including tribal interests (Section 3.11.3.7). Treaty rights are discussed in the Executive Summary, Section 3.16 Cultural Resources, and Section 3.17 Indian Trust Assets, Tribal Perspectives, and Tribal Interests. Appendix P includes copies of tribal perspectives that were submitted by tribes. Tribal consultation is described in Sections 1.5, 3.5, and 3.15; and Chapter 9. Most sub-sections within Chapter 3 include a Tribal Interests section at the end of the sub-section that attempts to summarize tribal issues by topic. Analysis shows that the Preferred Alternative would meet the objectives for improving juvenile salmon, adult salmon, resident fish and lamprey. The analysis found ranges in potential effects due to different assumptions included in each of the fish models used in the study.Using the Comparative Survival Study (CSS), Snake River Chinook salmon and steelhead are expected to see relative improvements in smolt-to-adult returns of 35 percent and 28 percent, respectively. The Smolt-to-Adult return ratio (SAR) is the rate at which of a group of fish survive from their smolt life stage to a defined ending point where they return as adult. While achieving long-term recovery targets will require more than just the efforts of Federal agencies, the CSS models indicate the potential for SARs of Snake River Chinook salmon and steelhead to increase to levels that could approach recovery targets set by the Northwest Power and Conservation Council. If latent mortality effects are reduced by passing more juvenile fish through the spillway, the NMFS Lifecycle Model (LCM) also shows that levels of SARs would increase. However, if latent mortality effects are not reduced, or are different than modeled, the LCM predicts that SARs for Snake River spring Chinook salmon may be lower than the No Action Alternative (a range of -7.5 percent to +28 percent change relative to the No Action Alternative) due to reduced opportunities for fish transportation. Results for upper Columbia River stocks are beneficial based on LCM estimates. In-river survival and SARs are anticipated to increase. The CSS model does not currently model upper Columbia fish. The Preferred Alternative also has measures intended to increase upstream passage success and reduce injury and mortality for Pacific lamprey. These measures are proposed structural improvements that include converting extended-length submersible bar screen material to screen material that would not impinge or entangle juvenile lamprey, expanding the network of lamprey passage structures to bypass impediments in fish ladders, changing the design for turbine cooling water strainers, and replacing turbines for safer fish passage. The Preferred Alternative would also meet the objective to improve resident fish. Effects to resident fish vary by region and species, but are generally minor relative to the No Action Alternative.
6162	5	scott.hauser@usrtf.org	Upper Snake River Tribes Foundation and its Four Member Tribes	The underlying need the AAs are responding to is to evaluate the management of the system in the context of new information or changed circumstances in the Columbia River Basin. From the outset of petitions to list various anadromous stocks in the Snake River under the Endangered Species Act conditions have not experienced significant benefits, in some cases the returns in 2019 were close to conditions that led to their listing in the early 1990s. USRTs member tribes view the need of this evaluation as responding to several decades of litigation over the direction the management of the Snake and Columbia River basins are taking to recover listed stocks of salmonids; of course, there are other significant issues but the primary driver since the early 1990s has been how we will develop appropriate measures to recover fish in a meaningful manner and ameliorate the impacts listing has had on the Snake River Basin. The recovery of anadromous fish in the Columbia River Basin is the primary driver for most of the conflict, and it relates to the current abundance issues that we are collectively facing as managers. Having a hard line on promoting the recovery of anadromous fish in the face of the current crisis is no less significant for the Tribes than generating energy, navigating goods downriver, or delivering contracted water from reservoirs.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the EIS objectives) as well as the EIS objectives for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. The Preferred Alternative is also more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% (the lower end of Northwest Power and Conservation Council's recovery targets for the region) as a result of the Preferred Alternative, as a result of the Preferred Alternative increasing SAR from 2.0% to 2.7% for Chinook, a 35% relative increase. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. To address uncertainty highlighted by the two models, the Preferred Alternative includes working with regional sovereigns to develop a study that assess the effectiveness of the increased spill regime on adult returns as well as assessment and management of adverse unintended consequences, such as long delays of adult migrants, or TDG-related mortality of juvenile migrants. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information. The Preferred Alternative will make a substantial contribution towards recovery.
6162	6	scott.hauser@usrtf.org	Upper Snake River Tribes Foundation and its Four Member Tribes	Draft Alternatives Framework and Objectives On September 15, 2017, USRT submitted comments on the Draft Preliminary Alternative Framework and Objective developed by the AAs. In addition, USRT proposed the development of at least one additional alternative: Natural River and Lakes Focus. Further, we requested an analysis of Endangered Species Act (ESA)-listed Chinook salmon and steelhead production capability within blocked habitat in the Columbia River Basin either in the Adult Fish Survival and Juvenile Anadromous Fish Survival Focus alternatives or the development of a standalone alternative. It is important to note that although USRT is a cooperating agency, our comments dated September 15, 2017 received no attention and no meaningful response from the AAs. This unfortunately was not an isolated incident. Throughout the CRSO DEIS process USRT has believed our comments and concerns were not being fully considered and addressed.	The co-lead Agencies are required to evaluate a reasonable range of alternatives in the EIS. However, when there are potentially a very large number of alternatives, only a reasonable number of examples, covering the full spectrum of alternatives, must be analyzed and compared in the EIS. Alternatives for this EIS were developed from measures identified during public scoping, regional forums with scientists and technical experts from cooperating agencies (including USRT), and expert opinion from within the co-lead agencies and in the literature. These alternatives represent a reasonable range of alternatives for the maintenance and operation of the CRS. As described in Chapter 2, many alternatives were considered and then eliminated from further consideration for the reasons described therein. The co-lead agencies analyzed alternatives capable of meeting the EIS Purpose and Need Statement and objectives. As discussed with the USRT, a Natural River and Lakes focus alternative was not analyzed because it is not a reasonable alternative because of its unreasonable impacts to public health and safety (e.g. power and transmission reliability events and flood risk management issues) and would not meet the Purpose and Need Statement or many objectives.
6162	7	scott.hauser@usrtf.org	Upper Snake River Tribes Foundation and its Four Member Tribes	Draft Preliminary Alternative: Natural River and Lakes Focus Summary: The Natural River Focus Preliminary Alternative is intended to mimic as feasibly as possible the natural river hydrograph in all but high-water years to provide for increased spring and early summer freshets, keeping reservoirs more stable with less drafting, particularly in dry water years, while maintaining local flood risk management. This alternative seeks a balanced approach for system flood risk management through use of both existing reservoirs and an updated levee system. The outcome desired is for dramatically increased juvenile and adult salmon and steelhead survival by decreasing inriver juvenile transit time, providing for more natural river, estuary, and river plume conditions, and ultimately increasing smolt to adult survival (SARs). Keeping reservoirs more stable, with less frequent and deep drafting, will also improve conditions for resident fish and wildlife and will help to preserve precious tribal cultural resources. Context: During the Columbia River Treaty sovereign review process for developing a regional recommendation to the US Department of State, USRT member tribes, as active members of the 15- Columbia Basin Tribal Coalition, endorsed a natural river-focused alternative described as the Ecosystembased Function scenario. That scenario was designed to provide additional flows for spring and summer, reduce variability of reservoir elevations year-round, provide additional spring flows in	Thank you for providing your views on the consideration of a natural river focused alternative in the SRT process. The current operations of the Columbia River System, including current Treaty-related operations, are included in the EIS analysis. Section 2.5.10 of the Draft EIS explains why re-evaluating system flood risk management, including a "natural rivers focus", was screened out from further consideration in this EIS. Section 2.5.10 also explains that while the U.S. Entity Regional Recommendation stated support for the pursuit of Congressional authorization and appropriations for a region-wide public process to assess potential changes to the current level of flood risk protection, no such authorization or appropriation was provided. As such, a study for this purpose was determined to be outside of the scope of this EIS.

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				driest water years (dry year strategy), maintain a similar level of system flood risk in high water years, and maintain local flood control. Modeling and fish survival analyses of this alternative showed dramatic improvements to ocean entry conditions for juvenile salmon and steelhead, improvements in fish metrics such as decreased juvenile inriver travel time, increases in SARs, and improvements in reservoir conditions for resident fish. Results were unclear for adult fish fallback, as well as for any negative impacts from increased total dissolved gas production. However, time and funding constraints in the sovereign review process did not allow for fine tuning of this alternative to more fully capture and document additional benefits for fish and wildlife. More time would also have allowed for improved integration or blending of this alternative with hydropower and flood risk management alternatives to lessen the modeled impacts to these river uses, while providing for increased benefits to fish and wildlife.	
6162	8	scott.hauser@usrtf.org	Upper Snake River Tribes Foundation and its Four Member Tribes	Draft Preliminary Alternative: Adult Fish Survival and Juvenile Anadromous Fish Survival Focus USRT requests that blocked areas be analyzed for the purpose of "improving" fish survival. Specifically, under the Adult Fish Survival Focus and Juvenile Anadromous Fish Survival Focus draft alternatives, a blocked areas strategy should be analyzed to assess the benefits of additional available habitat for propagating fish production in natural, environmental conditions, which would increase the overall number of fish within the Columbia River Basin. This alternative would include both adult and juvenile passage into historically used habitat above all projects within the Columbia River Basin. Much of the blocked areas contain some of the best water quality within the Columbia River Basin and can provide important cold-water refugia and rearing habitat, which are currently limiting factors. By utilizing these habitats, it will allow the AAs to spread the risk of uncontrollable environmental factors such as extreme weather events and climate change. Continuing to exclusively allocate resources into the downstream reaches cannot produce the same results as providing more suitable habitat that currently exists in blocked areas. USRT understands that the AAs cannot decide whether the expanded populations are considered for protection under ESA, but USRT believes these critical issues can be addressed with collaboration between NOAA Fisheries, states, and tribes. In using this strategy, however, USRT will not consider the action to supersede Idaho Power Companys responsibility to pass fish above and below the Hells Canyon Complex, but will consider this action as complementary to both Idaho Power Company and the AAs trust responsibilities to the tribes to restore fish within the Columbia River Basin. USRT believes that utilizing a natural flow strategy, coupled with increasing available habitat by using a blocked areas habitat strategy, will address Judge Michael Simons need to minimize ESA threats to listed stocks. Reestablishment of juvenile and adult anadromous species within blocked areas of the Columbia Basin should be analyzed in the CRSO EIS.	Measures to reintroduce salmon above Chief Joseph Dam and Grand Coulee Dam were evaluated early in the process of developing alternatives but eliminated from further consideration. Reintroduction is an important and complex, large-scale concept. Its consideration, evaluation, and implementation should involve multiple Tribal, Federal, state, and other entities. A coordinated approach among water users, Tribes, states, multiple Federal agencies, and others would be necessary. To allow so many differing interests to coordinate on such a complex topic, which may include international considerations, a decision-making framework and a series of regional workshops would be necessary just to approach the first step of defining reintroduction objectives. Given the incompatibility of such a wildlife management decision-making framework with an analysis of the operation of the CRS, it is not feasible to proceed with a detailed consideration of reintroduction in this EIS. Moreover, to meaningfully analyze reintroduction as a measure, the details of the proposal would need to be understood well enough to include in hydrologic, water quality, and fish models. That information is not presently available, and development of those details was not possible in the timeframe of this NEPA process. Nevertheless, the agencies and interested regional sovereigns are developing a framework to address critical information gaps. The analysis described would have value moving toward recovery of anadromous fish populations. However, co-lead agencies prepared this Draft EIS in response to the need to review and update operations, maintenance, and configuration of the 14 CRS dam. In this process the co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species as that is a broader goal with shared responsibility.
6162	9	scott.hauser@usrtf.org	Upper Snake River Tribes Foundation and its Four Member Tribes	Draft Preliminary Alternative: Hydropower Generation Focus In reviewing this alternative, USRT has significant concerns with the proposal to analyze hydropower operations in the System under a pre-Northwest Power Act (NPA) scenario. The National Environmental Policy Act (NEPA) requires that alternatives must be reasonable and meet the P & N of the EIS. Rather than reasonable, we believe that this alternative is speculative and not technically feasible, as required by NEPA, given the contemporary existence and implementation of the NPA. We disagree that the alternative, as currently written, will be valuable in comparing the EIS alternatives to better understand the impacts of various resources and will be used in the analysis to help illuminate trade-offs. Instead, this alternative appears to be narrowly-focused to showcase how much hydropower generation has been lost due to protections afforded fish under the NPA, ESA, and other subsequent laws and agreements. Reasonable alternatives should meet the P & N of the EIS. This alternative does not meet the P & N in several respects. First, the alternative assumes analyzing the maximization or near maximization of hydropower generation in the System. Yet, the P & N calls for an adequate and reliable power supply within the System. As operated today, under NPA requirements, the power supply in the System is both adequate and reliable. Second, stripping away NPA protections will not meet the P & N of fish and wildlife conservation. Finally, as ordered by Judge Michael Simon, and included in the P & N, the EIS should evaluate how to ensure that the prospective management of the System is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of designated critical habitat. We opine that this pre-NPA alternative does the exact opposite and will both adversely affect critical habitat and facilitate the further decline and potential extirpation of certain fish species and populations. The AAs must significantly revise the Hydropower Generation Focus alternative so that it is both reasonable, not hypothetical and speculative, and also meets the P & N.	The Single Objective alternatives were eliminated from further consideration by the co-lead agencies because they were not considered complete alternatives. However, the analysis of the Single Objective alternatives did inform the development of the final range of alternatives, the Multiple Objective alternatives, and helped to demonstrate the trade-offs associated when one resource is elevated above another. The EIS focuses on the analysis of the multiple objective alternatives (MOs) throughout Chapter 3, 4, 5, 6 and the Preferred Alternative in Chapter 7.
6162	10	scott.hauser@usrtf.org	Upper Snake River Tribes Foundation and its Four Member Tribes	Draft Preliminary Alternative: Water Supply Focus While important for future municipal, industrial, agricultural, and some tribal needs, water supply appears to be an issue that could best be evaluated by a process outside the scope of the CRSO EIS. The construction of reservoirs and dams for hydropower and irrigation, as well as their operation, have also severely impacted wildlife throughout the Columbia River Basin. Additional water drawn from the Columbia River Basin for other than improving anadromous and resident fish survival, as well as for protecting wildlife and their habitat, seems contrary to the intended P&N for ESA and NEPA analysis of the impacts of river operations on these critical fish resources. While we are aware of the current numerous and diverse benefits and uses of the Columbia River, we believe that mechanisms to provide a more equitable sharing or distribution of those benefits towards improving the health of fish, wildlife, water quality, and cultural resources that have been severely degraded or lost irreparably over time, need to be evaluated in this CRSO EIS.	The CRS is a complex system with multiple, sometimes competing, congressionally authorized purposes. The Purpose and Need Statement and the objectives developed for this EIS reflect these multiple purposes, as do the alternatives developed to meet them. This EIS was developed to evaluate the operation and maintenance of the CRS over the next 20 years. Water supply is one of the authorized purposes, and like any other, the EIS was developed to plan for and evaluate the effects of continuing to operate to meet this purpose. The co-lead agencies consider effects to fish and wildlife in every action taken to meet congressionally authorized purposes, as required by law and described in Chapters 3, 4, 6 and 7 of this EIS.
6162	11	scott.hauser@usrtf.org	Upper Snake River Tribes Foundation and its Four Member Tribes	Draft Objectives Development All seven objectives are inherently conflicting with one another and cannot possibly be mutually met in the development of alternatives. Priorities need to be identified, tested, and agreed to before tradeoffs among these objectives can be made. If the focus of this CRSO EIS is improving river operational conditions for ESA-listed anadromous and resident fish, which USRT member tribes believe is the case, proposed tradeoffs may still be difficult, although these would be much easier and clearer to formulate and describe. Language is very important. This point was made abundantly clear during the CRSO EIS Executive meetings in Spokane and Portland in August 2017. Improve fish survival vs. Maximize operating flexibility, mean very different things to sovereigns, cooperating agencies, stakeholders, and interested parties across the region. USRT requests that this language be clarified and defined, particularly if the focus of the CRSO EIS is legitimately designed to develop a comprehensive approach to recovering ESAlisted fish. The Evaluation Criteria for the alternatives are not yet fully developed and cannot possibly be useful in analyzing their effectiveness. We propose that the AAs work together with the cooperating agencies to more fully develop criteria.	The Purpose and Need and the eight objectives developed for this EIS reflect the complex, sometimes competing multiple purposes of the CRS, as do the alternatives developed to meet them. Combined, the Purpose and Need and the objectives establish the framework for evaluating the ability of the alternatives to satisfy the co-leads' numerous legal obligations. This EIS was developed to evaluate the operation and maintenance of the CRS. The analysis of the multiple objective alternatives have allowed the co-lead agencies to understand the effects of emphasizing some purposes over others in order to find the most acceptable balance for future operations. Chapter 7, Table 1 describes how well each alternative can meet the multiple objectives and Purpose and Need Statement, and if an alternative can equally or fully meet these. Chapter 7 describes the process of developing the measures for the Preferred Alternative. Based on the effects analysis in Chapter 7, the Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the EIS objectives) as well as the EIS objectives for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. The Preferred Alternative is also most likely to satisfy multiple complex and at times conflicting legal requirements for a complex system.
6162	12	scott.hauser@usrtf.org	Upper Snake River Tribes Foundation and its Four Member Tribes	Climate Change USRT and its member tribes would like to see climate change addressed in greater detail throughout the DEIS and how potential changes in climate could drive significant impacts to member tribes resources located within the affected environment. USRT and its member tribes recommend including specific adaptation strategies to ameliorate the projected effects of climate change within the affected environment in an effort to increase ecosystem resiliency. The presented analysis should establish quantifiable recovery metrics based on the available data to promote climate regulating ecosystem services, as well as maintenance and enhancement of large landscapes that are dominated by native assemblages of species. USRT and its member tribes have completed or are in the final phases of completing four climate-related projects beginning in early 2016. USRTs first climate project was a climate change vulnerability assessment (CCVA) of the Upper Snake River Basin (Figure 1). The CCVA used two climate scenarios and two timeframes (2050 and 2080) to evaluate anticipated effects on animal/plant species and habitattypes. The two climate scenarios were representative concentration pathway (RCP) 4.5 (best case scenario) and RCP 8.5 (business as usual). Recent climate models suggest that we are now exceeding the RCP 8.5 business as usual scenario. Expected temperature increases under scenarios 4.5 and 8.5 in 2050 and 2080 are in the table below and Figure 2. Equally troubling is the seasonal variations in temperature increases (Figure 3). Of particular concern are winter temperature increases of 8 9.5 F, which will transform much of the Upper Snake River Basin from either snow-dominated or transitional to rain-dominated. Temperature Increase in the Upper Snake River Basin RCP 2050 2080 4.5 + 4.5 5.3 F + 5.7 6.5 F 8.5 + 6.0 6.5 F + 9.5 10.9 F Because of this anticipated temperature increase, USRTs climate assessment finds that species such as bull trout, Chinook salmon, redband trout, and steelhead are extremely vulnerable to the effects of climate change by the 2050s (Figure 4 and Chinook salmon and Steelhead Summary Sheets). Even under RCP 4.5, which assumes that global greenhouse gas emissions will peak by the 2040s and then begin to decline, those previously described four fish species are expected to be extremely vulnerable to climate change. Specific measures, even adaptive management triggers that are clearly described, should be included in the Final EIS and Record of Decision to demonstrate the AAs awareness of this issue and commitment to operate the system in a manner that prioritizes fish survival during low water conditions or extreme weather events. USRTs full suite of climate work can be found at: https://uppersnakerivertribes.org/projects/. Figure 1: The Upper Snake River Watershed project area for this assessment, an area of more than 97,000 square miles. Figure 2: Projections of average annual temperature change (left) and changes to an average annual Hamon moisture metric (right) across the full project domain. Figure 3: Seasonal temperature and precipitation projections for the 2050s (2040-2069) in the South subdomain of the Upper Snake River Watershed. Figure 4: Overall vulnerability rankings for the 16 quantitatively assessed species of Shared Concern for the 2050s. Chinook Salmon (Oncorhynchus tshawytscha) Existing Conditions & Observations by USRT Member Tribes223 Chinook salmon have been central to the culture and diet of the four USRT member tribes for thousands of years. They played an especially important part in the tribes seasonal migration and subsistence diet. Unfortunately, these connections have been greatly diminished over the last century as eight dams on the Upper Snake River have prohibited Chinook salmon from reaching the USRT member tribes traditional harvest areas. The Burns Paiute Tribe and Shoshone-Paiute Tribes have recently reinitiated ceremonial Chinook salmon	Through on-going regional climate change studies and work, the co-lead agencies evaluated potential shifts in precipitation and temperature patterns and resulting changes in unregulated Columbia Basin streamflow timing and volumes. The evaluation consisted of the full range of the latest climate change projections developed using multiple global climate models, emissions scenarios, downscaling techniques, and hydrologic models. Details of this evaluation are in chapter 4 of the EIS. This information was used to describe the potential effects (both beneficial and adverse) on the river systems and resources due to potential changes in climate for all alternatives. The climate science community is still developing quantitative models that can address possible effects in water temperature from climate change, and unfortunately, have not been fully applied and validated for use with climate affected regulated flow projections of large reservoir systems. This data is critical to analyzing potential effects to fish quantitatively. In lieu of this information, the climate analysis used the output from resource models, like water quality and fish, under historical conditions, available climate change data, and scientific literature to qualitative assess potential effects to resources (described in Chapter 4). It is not known what global policy changes will be put into place in the future to mitigate the effects of global greenhouse gas emissions. For this reason, the climate change community develops multiple scenarios of future emissions. Due to the uncertainty in future greenhouse emissions, the EIS evaluated two emissions scenarios, RCP4.5 and RCP8.5. Each emission scenario is evaluated separately so that the interpretations can be explicitly attributed to the emissions scenarios. The effects of the two emissions scenarios do not diverge greatly until later in the 21st century, a period largely outside the analysis of Chapter 4 (2020-2049).There are many effects to salmon and steelhead populations outside the operation and maintenance of the dams (see Chapters 6 and 7 for more information). Salmon and steelhead have been adversely affected in the Columbia River Basin over the last century by many activities including human population growth, urbanization, introduction of exotic species, overfishing, development of cities and other land uses in the floodplains, water diversions for all purposes, dams, mining, farming, ranching, logging, hatchery production, predation, ocean conditions, and loss of habitat. While none of the Multiple Objective alternatives would affect ocean conditions or directly impact tributary habitat conditions, the co-lead agencies recognize that these conditions are a major driver for adult returns and that numerous studies have shown the importance of these environments in the return of adult salmon and steelhead. Many of the types of habitat improvement actions implemented by the co-lead agencies in cooperation with regional stakeholders can provide improved conditions for many fish species. Habitat mitigation program descriptions are discussed briefly in the No Action Alternative in Section 3.5.3.3 to give the reader the general information on these programs. Chapter 7 describes programs that would continue as well as new mitigation under the Preferred Alternative.

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				fisheries on the upper Malheur River and East Fork Owyhee River by live-transporting Chinook salmon around the dams. Currently, the Fort McDermitt Paiute-Shoshone do not have access to Chinook salmon, while the ShoshoneBannock Tribes can exercise their treaty right to harvest Chinook salmon. Climate change poses additional complex stressors to this already significantly impacted fishery. Chinook Salmon Vulnerability Rankings 2050s 2080s Rankings above represent climate change vulnerability in the 2050s and 2080s for two different climate change scenarios. The higher climate change scenario (RCP 8.5) is labeled More Warming and the lower climate change scenario (RCP 4.5) is labeled Less Warming. The rankings reflect the assessment of local climate change projections and species-specific sensitivities and adaptive capacity from the CCVI analysis. Factors Affecting Vulnerability Physiological Thermal Niche greatly increases vulnerability. Chinook salmon inhabit deep, cold pools prior to spawning.224 Water temperatures exceeding 48-50F may reduce survival of Chinook salmon embryos and alevins.225 Additionally, migration delays and blockages can form when stream temperatures exceed 69.8F and can contribute to reproductive failure.226 As stream temperatures continue to rise, the frequency with which these thresholds are exceeded and total river miles affected may increase. Physiological Hydrological Niche greatly increases vulnerability. Large, deep, pools offer important holding habitat for Chinook salmon prior to spawning. While sufficient flows are required to ensure incubating embryos receive sufficient oxygenation, extreme low or high flows can destroy embryos and fry residing within the streambed.227,228 Shifting precipitation patterns under climate change could threaten these sensitive hydrological conditions. Figure 46: Chinook Salmon. Photo credit: Andy Kohler. Anthropogenic Barriers increases vulnerability. Many streams and rivers within the assessment area have dams that would prevent Chinook salmon access to more suitable, cooler habitat if the present habitat becomes too warm. There are eight dams on the mainstem Snake River from below Shoshone Falls to Hells Canyon include the Upper Salmon Falls Dam, Lower Salmon Falls Dam, Bliss Dam, C.J. Strike Dam, Swan Falls Dam, Brownlee Dam, Oxbow Dam, and Hells Canyon Dam.229 Sensitivity to Pathogens or Natural Enemies increases vulnerability. Warming stream temperatures may increase mortality caused by fish pathogens and diseases. Vibrio and Ceratomyxa shasta are two infections known to negatively affect salmonids, and their effects could be exacerbated with warming stream temperatures.230 Increasing water temperatures can stress salmonids, reducing their ability to mount an effective immune response to disease. Many important salmonid diseases become virulent when water temperatures reach or exceed 60-61F.231 Climate Change Mitigation somewhat increases vulnerability. Future dam building is possible in the region. Dams act as barriers to movement for Chinook salmon accessing stream reaches in the Upper Snake River and more dams could further limit their ability to move as habitat conditions change.232 Disturbance Regime somewhat increases vulnerability. The survival of salmonid (i.e., salmon, trout, and char) eggs and embryos is strongly influenced by sediment deposition, shifts in water quality, and streambed scour and fill.233 As air temperatures rise, watersheds are projected to become increasingly rain-dominant. This shift will increase the risk of winter flooding and sediment transport, which can negatively affect the survival of salmonid eggs. Sensitivity to Competition from Native or Non-Native Species somewhat increases vulnerability. Chinook salmon compete with resident brook trout, which feed on other fish species and are known to prey on young salmonids.234 Climate change may alter this competitive interaction. Measured Genetic Variation somewhat increases vulnerability. Populations of Chinook salmon in the Snake River have low genetic variability compared to Chinook salmon populations in the Columbia River Basin.235 Less genetic variability may somewhat restrict the ability of Chinook salmon to adapt to changing climate conditions. Diet has a neutral effect on vulnerability. In freshwater, juvenile Chinook salmon feed on terrestrial and aquatic insects. In salt water, Chinook salmon eat crustaceans and other bottom invertebrates. Adult Chinook salmon mostly prey on fish.236 Species that can readily switch among different food types are less likely to be negatively affected by climate change than dietary specialists. Dispersal/Movement has a neutral effect on vulnerability. Chinook salmon are excellent dispersers, as they are anadromous and migrate several hundred miles to the stream in which they were spawned.237 This dispersal ability may help facilitate successful response to changing climate conditions. Phenological Response has a neutral effect on vulnerability. No observed shift in Chinook salmon run timing has been recorded in the Snake River.238 Steelhead (Oncorhynchus mykiss) Existing Conditions & Observations by USRT Member Tribes293 Three of the four USRT member tribes no longer have access to Steelhead on their reservations. Over the last century, eight dams on the Upper Snake River have limited the ability of steelhead to reach the USRT member tribes traditional harvest areas. USRT tribes are actively working to help reintroduce steelhead into their historical habitat on reservations. Steelhead Vulnerability Rankings 2050s 2080s Rankings above represent climate change vulnerability in the 2050s and 2080s for two different climate change scenarios. The higher climate change scenario (RCP 8.5) is labeled More Warming and the lower climate change scenario (RCP 4.5) is labeled Less Warming. The rankings reflect the assessment of local climate change projections and species-specific sensitivities and adaptive capacity from the CCVI analysis. Factors Affecting Vulnerability Physiological Thermal Niche greatly increases vulnerability. Optimal water temperature for steelhead egg hatching is 50F. Optimal growth for juvenile steelhead occurs between 57.2F and 59F. Water temperatures of 69.8F lead to the formation of thermal migration barriers for steelhead in the Snake River. Daily maximum water temperatures above 66.2-68F present lethal conditions for steelhead.294 Warming water temperatures under climate change may increase the frequency with which these sensitive thermal limits are exceeded. Physiological Hydrological Niche greatly increases vulnerability. Steelhead inhabit cool, clear lakes and cold, fast-flowing streams. During winter, steelhead require deep pools in slowmoving streams.295 Warming water temperatures under climate change may impact some of these sensitive hydrological requirements. Disturbance Regime increases vulnerability. The survival of salmonid (i.e., salmon, trout, and char) eggs and embryos is strongly influenced by sediment deposition, water quality, and streambed scour and fill.296 As air temperatures rise, watersheds are projected to become increasingly rain-dominant. This shift will increase the risk of winter flooding and sediment transport, which can negatively affect the survival of salmonid eggs. Sensitivity to Pathogens or Natural Enemies increases vulnerability. Warming stream temperatures may increase salmonid mortality from fish pathogens. Vibrio and Ceratomyxa shasta are two infections known to negatively affect salmonids and these effects could be Figure 52: Steelhead. Photo credit: USFWS Mountain-Prairie. exacerbated with warming stream temperatures.297 Increasing water temperatures can stress salmonids, reducing their ability to mount an effective immune response to disease. Many important salmonid diseases become virulent when water temperatures reach 60-61F.298 Anthropogenic Barriers increases vulnerability. Many streams and rivers within the project area have dams that would prevent steelhead from accessing more suitable, cooler habitat if their current habitat becomes too warm. There are eight dams on the mainstem Snake River from below Shoshone Falls to Hells Canyon include the Upper Salmon Falls Dam, Lower Salmon Falls Dam, Bliss Dam, C.J. Strike Dam, Swan Falls Dam, Brownlee Dam, Oxbow Dam, and Hells Canyon Dam.299 These barriers to migration may hamper steelhead ability to respond effectively to changing climate conditions. Climate Change Mitigation somewhat increases vulnerability. Future dam building is possible in the region. Dams act as barriers to steelhead movement and may limit their ability to move in response to changing climate conditions.300 Sensitivity to Competition from Native or Non-Native Species somewhat increases vulnerability. Resident brook trout, which are known to eat young salmonids, compete with steelhead.301 Climate change may affect this competitive dynamic. Measured Genetic Variation has a neutral effect on vulnerability. Steelhead populations in the Upper Snake River exhibit relatively high genetic variation.302 Species with average to high levels of genetic variation are expected to be better able to adapt to changing climatic conditions.303 Diet has a neutral effect on vulnerability. Steelhead have a broad diet in both lakes and streams. In lakes, their diet mainly consists of bottom-dwelling invertebrates (e.g., aquatic insects, amphipods, worms, fish eggs) and plankton. In streams, steelhead consume drift organisms. In the ocean portion of their lifecycle, the steelhead diet includes fish and crustaceans.304 Species that can readily switch among different food types are less likely to be negatively affected by climate change than dietary specialists. Dispersal/Movement has a neutral effect on vulnerability. Steelhead have excellent dispersal abilities. Anadromous forms can migrate hundreds of miles between spawning streams and non-spawning marine waters.305 Steelheads dispersal ability increases the likelihood that it has the ability to adapt to shifting climatic conditions.	
6162	13	scott.hauser@usrtf.org	Upper Snake River Tribes Foundation and its Four Member Tribes	Preferred Alternative Regretfully, the AAs CRSO DEIS and the PA do not meet the EIS intent as expressed in the Purpose and Need or Objectives. The DEIS does NOT provide for the conservation of fish and wildlife resources, including threatened, endangered, and sensitive species. The DEIS does NOT protect and preserve cultural resources. The DEIS does NOT comply with environmental laws and regulations and all other applicable federal statutory and regulatory requirements, including those specifically addressing the System such as requirements under the Northwest Power Act to adequately protect, mitigate, and enhance fish and wildlife, including related spawning grounds and habitat, affected by such projects or facilities in a manner that provides equitable treatment for such fish and wildlife with other purposes for which such system and facilities are managed and operated. The DEIS does NOT protect Native American treaty and reserved rights and trust obligations for natural and cultural resources throughout the environment affected by System operations. Furthermore, the DEIS and associated PA do NOT meet the stated CRSO Objectives. The PA does NOT Improve ESA-listed anadromous salmonid juvenile fish rearing, passage, and survival. and does NOT Improve ESA-listed anadromous salmonid adult fish migration. Using the CRSO Definition of Effects, the best available science (CSS and COMPASS) suggests that, at best, the DEIS PA would have a Negligible or Minor effect on juvenile and anadromous adult survival relative to the No Action Alternative (NAA). For example, the DEIS states that the PA represents a 35% increase in survival relative to the NAA. Presently, many listed Snake River Basin stocks have an average SAR survival of 0.7% (or less). A 35% increase	The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3, which includes breaching the four lower Snake River dams. The Preferred Alternative also meets the EIS objectives including those for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the draft EIS, the co-lead agencies did not recommend MO3 because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws, including those pertaining to natural and cultural resources. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA listed species. The co-lead agencies used high quality information in the EIS analysis. Specific to salmon and steelhead, the agencies used two primary modeling approaches which yielded a range of potential outcomes for the alternatives. With respect to the Preferred Alternative, the CSS model predicts that average Smolt to Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% (the lower end of Council recovery targets for the region) increasing from 2.0% to 2.7% for Chinook, a 35% relative increase. The NMFS COMPASS and Lifecycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin.

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				from 0.7% would be a 0.95% SAR. Given current freshwater productivity levels, SARs less than 1% put listed stocks in a steep decline, below replacement, and at a high risk of near-term extirpation. In fact, the best-available science suggests that Snake River populations need to be at or above a 2% SAR just to be at replacement; population recovery will only occur in the SAR range of 2-6% (4% average) consistent with Northwest Power and Conservation goals. Therefore, the DEIS PA appears to knowingly put ESA listed Snake River stocks in jeopardy. This outcome is unacceptable to USRT and its member tribes.	See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information. Based on the EIS analysis of the Preferred Alternative, it will make a substantial contribution towards recovery targets. Chapter 8 demonstrates the co-lead agencies' compliance with Federal laws, including the Northwest Power Act and ESA. Finally, tribal input, concerns, interests, and especially treaty rights were considered throughout the Draft EIS analyses and in the formulation of the Preferred Alternative. Treaty specific information is included in Section 3.17 as well as Chapter 7. The treaties bind all parties and are the supreme law of the land. The co-lead agencies recognize and respect that supremacy. In terms of honoring our treaty obligations, the co-lead agencies included "Protecting Native American treaty and reserved rights and fulfilling trust obligations for natural and cultural resources throughout the environment affected by the Columbia River System operations" as a purpose in the Purpose and Need Statement in Chapter 1 to ensure treaty obligations were a key consideration of decision making.
6162	14	scott.hauser@usrtf.org	Upper Snake River Tribes Foundation and its Four Member Tribes	The PA Does Not Ensure ESA Recovery The measures in the PA are insufficient in magnitude and scope to recover and delist all populations under the ESA. To rationalize the selection of an alternative that does not meet the minimum standards of viability for all populations, over alternatives that are projected to far exceed these standards, the AAs emphasize their lack of obligation to contribute affirmatively toward recovery achievement (DEIS 7-4). USRT disagrees with this characterization of the AAs responsibility. By the DEIS analysis, the AAs have a tremendous ability to directly affect the recovery trajectory of anadromous species, and arguably a responsibility to operate one of the largest directly-controllable and system-wide influences in a manner that produces upward trends in anadromous populations. If the AAs prioritize anadromous populations through selection of an alternative that integrates that responsibility, changes in the CRSO have the potential to amplify the collective investments of federal and state agencies, tribal governments, and NGOs in producing meaningful recovery.	Based on our analysis, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Recovery is a broader regional goal and is above and beyond the co-lead agencies' obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the CRS. That call, however, is ultimately the role of NMFS and the USFWS. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. In compliance with ESA, the co-lead agencies submitted Biological Assessments to NMFS and USFWS (Appendix V). In this Final EIS, the Biological Opinions from NMFS and USFWS can be found in Appendix V, completing this projects ESA consultation.
6162	15	scott.hauser@usrtf.org	Upper Snake River Tribes Foundation and its Four Member Tribes	The PA Directly Impedes the Achievement of Goals Outlined by the Northwest Power and Conservation Council Columbia Basin Fish & Wildlife Program The Northwest Power and Conservation Council (NPCC), comprised of two governor-appointed representatives from each state, is tasked under the Northwest Power Act of 1980 with oversight of the Columbia Basin Fish and Wildlife Program (NPCC Program). Through several NPCC Program iterations, developed in collaboration with regional fish and wildlife managers, the NPCC has maintained a long-term commitment to achieving smolt-to-adult returns (SARs) of 2-6%. While realizing important milestones in habitat restoration, at an expenditure of over $250 million per year and nearly forty years in existence, the NPCC Program has not met that goal. This suggests that, if the region is truly committed to these goals, mitigation for the CRS, even at its current magnitude, must be accompanied by new and innovative system-wide approaches to hydropower operations. The DEIS outlines several measures that would comprise meaningful steps towards adopting and institutionalizing measures that would redirect the region towards realizing NPCC Program goals; however, the AAs have opted to discount such measures in the PA. Instead the AAs propose measures that may result in SARs of less than one percent for stocks such as Snake River spring/summer Chinook salmon and move the region further from its collaboratively developed mitigation goals.	It should be noted that the 2-6% Smolt-to-Adult return (SAR) target referenced throughout this comment refers to the Northwest Power and Conservation Councils (Council's) target for broad-sense recovery and is separate and distinct from the obligations of any single entity or in this case a requirement to be met solely by the co-lead agencies. Just as the Councils fish and wildlife program encompasses both Federal and non-Federal stakeholders in the Columbia Basin, the Councils recovery goals are shared by many parties. Based on our analysis of the Preferred Alternative, the co-lead agencies believe their actions will make a substantial contribution to recovery, but the Councils broad sense recovery goals are beyond the scope of this EIS, which contemplates the effects associated with the operation and maintenance of the 14 CRS projects. The co-lead agencies used current high quality information and best available science in the analysis of the CRSO EIS. Specific to salmon and steelhead, the agencies used two primary modeling approaches which yielded a range of potential outcomes for the alternatives. With respect to the Preferred Alternative, the CSS model predicts that average SAR return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% (within the Council's recovery targets for the region) as a result of implementation of the Preferred Alternative. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin.
6162	16	scott.hauser@usrtf.org	Upper Snake River Tribes Foundation and its Four Member Tribes	The PA Directly Impedes the Achievement of Goals Outlined by State, Federal, and Tribal Parties in the Columbia River Basin In an unprecedented scope and scale of collaboration, the National Marine Fisheries Service (NMFS) convened the Marine Anadromous Advisory Committee Columbia Basin Partnership Task Force (MAFAC CBP) in 2017 to develop long-term salmon and steelhead abundance targets, strategies to meet those targets, and consensus on a path forward. The formation of the MAFAC CBP is a direct response to the growing urgency of and public interest in reaching meaningful salmon and steelhead abundances. Toward this purpose, NMFS recognized the necessity of soliciting broad participation of state and tribal governments, industry representatives, and NGOs. In an effort to maintain a robust and empirically grounded approach to goal and strategy development, the MAFAC CBP informs its process with NMFS developed models; state, tribal and federal expert review and input; and social, cultural, economic and ecological considerations. To date, the MAFAC CBP has adopted ambitious quantitative targets for most of the Columbia Basin and that are several magnitudes greater than current run sizes. Several entities have already adopted or intend to adopt these goals into policy including states and the NPCC. The MAFAC CBP goals track with the same 25-year timeline of the DEIS but, in contrast to the DEIS, emerging strategies incorporate aggressive changes to hydropower operations as central to the feasibility of increasing salmon and steelhead abundances. Several measures outlined in the DEIS, such as dam breaching, would greatly advance the region towards the MAFAC CBP abundance targets. Implementation of the PA will directly impede that progress.	The NMFS Columbia Basin Partnership is focused on developing regional goals for recovery of ESA-listed species and a set of actions to achieve those goals. The actions developed are not the responsibility of any one regional entity, but rather are actions to be taken by a number of entities and sometimes by multiple entities in collaboration. Recovery is a broader regional goal and is above and beyond the co-lead agencies' obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the CRS. That call, however, is ultimately the role of NMFS and the USFWS. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. In compliance with ESA, the co-lead agencies submitted Biological Assessments to NMFS and USFWS (Appendix V). In the Final EIS, the Biological Opinions from NMFS and USFWS can be found in Appendix V, completing ESA consultation on the Preferred Alternative.
6162	17	scott.hauser@usrtf.org	Upper Snake River Tribes Foundation and its Four Member Tribes	Measures in the PA are Insufficient to Meet the Needs of USRT Member Tribes The SBT, a cooperating agency and a member tribe of USRT, have identified the magnitude of their fishery needs to the AAs throughout the development of the DEIS. In the context of minimum federal definitions of subsistence harvest, the SBT estimate an annual minimum of 95,812 salmon to ensure sufficient availability for each current member to consume little more than one fish per month. Considering the AAs emphasis on their lack of obligation towards meeting the ESA recovery threshold, and that the PA may result in a decrease in Snake River SARs, implementation of the PA will deprive the SBT of salmon and steelhead harvest. During the development of the DEIS, USRT remained hopeful that the AAs would propose a PA that would produce different outcomes. Other alternatives, such as MO3, would by contrast direct the AAs to implement critical first steps towards meeting the needs of the USRT member tribes. Three of the four USRT member tribes did not have the resources to commit to the intensive role as a cooperating agency. Yet their needs are equally as dire. The BPT, FMPST, SPT completely lack access to salmon and steelhead fisheries. Annually, they are only able to acquire a few hundred fish at best, due to a lack of availability of fish for release into blocked areas of the Basin. This continued inequity careens USRT member tribes towards complete extinction of the cultural practices unique to the pursuit of salmon and steelhead. The DEIS belabors this point explicitly, yet the PA hastens this cultural extinction by ensuring that low abundances continue to exclude USRT member tribes from the critical opportunity to fish. The AAs have a trust obligation to USRTs member tribes to ensure that cultural extinction does not occur and to meet the needs of each sovereign nation as defined by that sovereign nation. The AAs cannot carry out this obligation while implementing the PA because it fundamentally contradicts the needs the tribes have articulated to the AAs directly.	Tribal input, concerns, interests, and especially treaty rights were considered throughout the Draft EIS analyses and in the formulation of the Preferred Alternative. Treaty specific information is included in Section 3.17 as well as Chapter 7. The co-lead agencies recognize and respect the legal obligations imposed by treaties. The co-lead agencies accordingly included Protecting Native American treaty and reserved rights and fulfilling trust obligations for natural and cultural resources throughout the environment affected by the Columbia River System operations as a purpose in the Purpose and Need Statement in Chapter 1 to ensure treaty obligations were a key consideration of decision making. The co-lead agencies are engaging in government-to-government consultation with the tribes, and several tribes are cooperating agencies on the CRSO EIS. The EIS recognizes the economic and cultural importance of salmon to Tribes in a number of sections throughout the document. The cultural significance and impacts of salmon and steelhead fisheries are described in the Ceremonial and Subsistence Fisheries sub-section and the Social Importance of Commercial, Ceremonial and Subsistence Fisheries sub-section of Section 3.15.2.1. Fisheries tribal interests are provided in Section 3.15.4 and the recreation analysis (Section 3.11) including tribal interests (Section 3.11.3.7). Treaty rights are discussed in the Executive Summary, Section 3.16 Cultural Resources, and Section 3.17 Indian Trust Assets, Tribal Perspectives, and Tribal Interests. Appendix P includes copies of tribal perspectives that were submitted by tribes. Tribal consultation is described in Sections 1.5, 3.5, and 3.15; and Chapter 9. Most sub-sections within Chapter 3 include a Tribal Interests section at the end of the sub-section that attempts to summarize tribal issues by Resource.
6162	18	scott.hauser@usrtf.org	Upper Snake River Tribes Foundation and its Four Member Tribes	The PA Will Preclude USRT From Achieving Its Goals in Non-Federal Hydropower Mitigation The USRT and member tribes have developed and filed with the Federal Energy Regulatory Commission (FERC) a comprehensive plan for the restoration of salmon and steelhead to the Upper Snake River above the Hells Canyon Complex. The USRT Hells Canyon Complex Fisheries Resource Management Plan details incremental steps towards the restoration of salmon and steelhead to meet both cultural and ecological goals. USRT intends that this Plan be incorporated into the pending FERC license for the Hells Canyon Complex. Its member tribes have endeavored to cross-walk that effort with NPCC Program activities and multiple federal, state, and private pathways to produce the largest possible benefit to Snake River stocks. Implementation of the PA severely hinders USRTs efforts by committing to a suite of measures that may result in lower returns to the Snake River, entrenching the region on a path of persistence, versus recovery, and in currently accessible areas only.	The Hells Canyon complex are private dams and not in the scope of this EIS.
6162	19	scott.hauser@usrtf.org	Upper Snake River Tribes Foundation and its Four Member Tribes	Fulfilment of the Court Order Requires a Serious Analysis of Dam Breaching As a cooperating agency, throughout the development of the DEIS, USRT has emphasized the necessity of a meaningful analysis of dam breaching, per the 2016 District Court Opinion and Order, and serious consideration of the inclusion of dam breaching in the PA. USRT does not consider the District Court Opinion and Order to contain nominal, heuristic, or hypothetical directives to the AAs. However, in disregard of multiple years of intensive modelling and collaboration with cooperating agencies, the AAs have arrived at the perfunctory conclusion that dam breaching conflicts with Congressional intent. This conclusion signifies that, despite years of collaboration and rigorous analysis, the AAs did not intend to construct a meaningful solution to the crisis of salmon and steelhead decline. It also signifies that the AAs intended to satisfy the District Court Opinion and Order in semantics only. Assuming the AAs are generally aware of the limits of their Congressionally-delegated authority from the onset of a NEPA process, this approach to the NEPA process verges on, if not eclipses, the pre-decisional. The AAs had an obligation to engage cooperating agencies directly on this issue from the commencement of DEIS development, and explicitly acknowledge their interpretation of their jurisdictions in implementing actions such as dam breaching. Instead, cooperating agencies engaged in good faith that dam breaching, per the District Court Opinion and Order, was a contender in the final PA and as one of the few actions analyzed that would increase abundances.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA listed species as that is a broader goal with shared responsibility. Based on our analysis of the fish resources section of Chapter 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. The Preferred Alternative involves spilling to the 125% TDG limit at Snake and Columbia River dams. The effect of this operation will be to reduce the proportion of juvenile fish passing through powerhouses, which is project to increase smolt to adult return rates. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets most other EIS objectives including those for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS, the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams, because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system.
6162	20	scott.hauser@usrtf.org	Upper Snake River Tribes Foundation and its Four Member Tribes	Major Flaws in Analyzing the Effects to Anadromous and Resident Fish Populations Muddle Potential Tradeoffs in Each MO Support for the premature exclusion of dam breaching exists throughout the effects analysis. In its previous cooperating agency comments, USRT identified several analytical flaws. The effects analysis selectively handles empirical information, particularly in analyzing the effects of dam breaching on anadromous and resident populations. These flaws fall into several categories. 1) The effects analysis emphasizes short-term adverse impacts (e.g., DEIS 7-9) while downplaying possible long-term effects. This approach assigns a false equivalency between short and long-term effects to anadromous and resident populations. That equivalency is not empirically supported; nonetheless, it is handled in the DEIS as such. 2) The analyses exclude any empirical examples of dam breaching effects, for example, studies from the Elwha River in Washington, the Eklutna River in Alaska, or the Penobscot River in Maine. In recognition that dam breaching is a relatively new approach to river management, it remains unclear why the DEIS analyses would exclude empirical research and	In terms of anadromous populations, in particular the Snake River salmon and steelhead, the Draft EIS clearly presents MO3 (includes the measure to breach the lower Snake River dams) to show the largest improvement relative to the No Action Alternative. However, the EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets most other EIS objectives including those for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS, the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams, because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. Regarding the effects of dam breaching on anadromous fish populations not including other empirical examples of dam breaching: There have been many dam removals that have had significant fish and other benefits. However, these have limited relevance to the lower Snake River Dams. The Elwha dams, for example, had no passage, or provided economic benefits. Regarding extrapolation of effects: it would be helpful to have an example from the commenter here, but in terms of the

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				instead rely on the hypothetical to inform its analyses. 3) Putative effects to resources are extrapolated to a degree that is generally considered to be inappropriate in the sciences. When discussing potential ecological effects, or the chain of effects to multiple resources by one type of action, the DEIS assumes causation where causation cannot be empirically demonstrated. 4) The DEIS rejects potentially relevant work due to subjective reasoning and philosophical disagreement with conclusions. For example, the results of the 2019 ECONorthwest study Lower Snake River Dams: Economic Tradeoffs of Removal were largely excluded from the effects analysis because the AAs subjectively determined that ECONorthwest correlated dam breaching with recovery in its findings and despite the empirical support for that relationship, its wide acceptance by fisheries experts, and most notably the modelled projections of the DEIS. Effects analysis cannot exclude relevant reports and literature due to a disagreement with findings. These four analytical flaws undermine the conclusions drawn from the DEIS analysis of tradeoffs between each alternative, and ultimately, the selection of the PA.	anadromous fish the Draft EIS does extrapolate the effects of increased spill and dam breach (in the Preferred Alternative, MO4 and MO3) into areas that have no empirical demonstration of these effects. The two primary models used for the fish analysis output a range of possible outcomes. The Preferred Alternative will be implemented using adaptive management that includes a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective flex spill can be at increasing salmon and steelhead returns to the Columbia Basin. As described in the Passive Use Section (3.15.2.2), passive use values, also referred to as 'non-use values', are the values people hold for the continued existence of a resource beyond any current or future use. The existing literature on passive use was gathered and reviewed for the CRSO EIS, however as described in the subsection titled 'Relevance to the CRSO EIS' the analysis considered the applicability of the existing literature to the CRSO EIS given best practices for benefit transfer. The ECONorthwest Report, which bases its monetary estimate of non-use value on how survey respondents answered the following question: "Removing four dams on the Lower Snake River would restore wild salmon and improve water quality, but might lead to a slight increase in electricity costs. Would you be willing to pay an additional____on your electric bill in order to ensure that wild salmon would be protected?" It's implied in that question that removing the four LSR dams would "ensure" the protection of wild salmon. The fish analysis in Chapter 3 of the Draft EIS does indicate that dam breach would contribute the most toward protecting salmon and steelhead relative to the No Action Alternative, however the absolute value of the increase in survival due to dam breach is uncertain. For example, the NMFS Life Cycle Model predicts that Smolt-to-Adult survival (SAR) for Snake River spring/summer Chinook increases from 0.88% to 1% under the dam breach alternative, while the CSS model predicts SARs for these fish will increase from 1.8% to 5%. While the ECONorthwest literature identifies a positive WTP for improving salmon populations, it is also clear that the specific value of a given population-level effect is uncertain as is the level of protection dam breach will provide to salmon.
6162	21	scott.hauser@usrtf.org	Upper Snake River Tribes Foundation and its Four Member Tribes	The Cumulative Effects Analysis Does Not Consider Licensing of Non-Federal Projects in the Snake Basin The Council on Environmental Quality (CEQ), which regulates NEPA implementation, defines cumulative effects as the impact on the environment which results from incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-federal) or person undertakes such other actions (40 CFR 1508.7). However, the DEIS cumulative effects analysis excludes FERC re-licensing of the Hell Canyon Complex upstream of the CRS. FERC re-licensing of the Hells Canyon Complex is in active proceedings. Both states have recently issued Clean Water Act Section 401 certifications, and the FERC has solicited comments on a proposed settlement for select aspects of the license. Due to active proceedings, license issuance is a reasonably foreseeable future action and notably one that will affect fish populations synergistically with the PA. For example, given the modelled changes in returns of anadromous populations under the PA, a license issued without changes to current mitigation measures will continue to limit the recovery of Snake River stocks by continuing to block a large swath of the Columbia River Basin and through effects to downstream water quality. That potential is not analyzed in the DEIS effects analysis. Since the cumulative effects analysis for the PA does not consider this imminent action as directed by CEQ regulations, the cumulative effects analysis underestimates the effects of implementing the PA, particularly on Snake River stocks.	Chapters 6 and 7 evaluate effects from known issues related to the Hells Canyon complex including, RFFA21, Idaho Power Hells Canyon Complex Mercury Contamination Issues/Remediation and RFFA22, Idaho Power Hells Canyon Complex Temperature Issues. Other potential issues associated with these dams are speculative and thus, not included in the cumulative effects analysis.
6162	22	scott.hauser@usrtf.org	Upper Snake River Tribes Foundation and its Four Member Tribes	The PA Focuses More on Reducing Uncertainty Than Taking Action The AAs state explicitly that the PA is designed to reduce the uncertainty in the regions collective understanding of latent mortality, and therefore improve the accuracy of federal models. For stocks such as Snake River spring/summer Chinook salmon, even marginal improvements in SARs under the PA are predicated on up to a 50% reduction in latent mortality. If the AAs pursue uncertainty research at the expense of actions that could redirect population trajectories now, such as dam breaching, the region hedges bets on an unacceptable tradeoff. Delaying actions with reasonably anticipated outcomes, such as dam breaching, for the purpose of evaluating uncertainty in actions, with few assurances that latent mortality will be reduced, propels the region into yet another period of delayed recovery of salmon and steelhead. If the uncertainty around latent mortality is not resolved, or if the AAs are unable to reduce latent mortality, the effects analysis predicts that the PA will actually reduce Snake River spring/summer Chinook salmon SARs. At best, if the AAs resolve the uncertainty around latent mortality to the extent sufficient to take action, the analysis predicts only marginal improvements in SARs.	The model results presented in Section 3.5 and Section 7.7.4 address latent mortality and reservoir mortality. Latent mortality is captured directly in the CSS model for SARs and abundances, and is overlaid with several assumed values (10%, 25% and 50% reductions in latent mortality) in the NMFS Life Cycle model results. Reservoir mortality is captured in the juvenile survival metrics presented in Chapter 3. Delayed mortality in the ocean due to CRS dam passage is discussed throughout the Draft EIS. Addressing the uncertainty of the impacts of latent mortality is one of many benefits of the Preferred Alternative. The CSS model predicts that average Smolt-to-Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% (within the Northwest Power and Conservation Council recovery targets for the region) as a result of the Preferred Alternative. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. In order to narrow the uncertainty between the two models utilized for the analysis, the Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin.
6162	23	scott.hauser@usrtf.org	Upper Snake River Tribes Foundation and its Four Member Tribes	USRT Request for a Regional Coordination Accord for Fish Recovery Efforts Tribal leaders from USRTs member tribes authored the USRT Motherhood Document in 1998, which was followed by the USRT Charter in 2007. That year USRT established 501(c)(3) status, opened an office in Boise, Idaho, and hired an executive director. Soon after USRT began receiving annual Bonneville Power Administration (BPA) coordination funding. Currently, USRT has four full-time employees and one parttime employee. At its inception, tribal leaders envisioned that a primary function of USRT and its staff would be to focus on increasing the abundance and range of salmon and steelhead in the Upper Snake River Basin. This included and continues to include the currently accessible areas, as well as the blocked areas of the Basin that were historically accessible. We have established ourselves as important regional player and partner in salmon and steelhead forums and processes that include federal, state, local, and tribal governments, NGOs, and stakeholders. Our most recent BPA coordination contract includes the following seven work elements: Participate in Regional Fish & Wildlife Program Forums and Activities Participate in Processes and Forums directly affecting Program Implementation Facilitate Consensus-based Coordination in the Upper Snake Province Provide Technical Review of the Fish & Wildlife Program Support the Fish & Wildlife Program Data Management Framework Disseminate Information to Tribal Communities and to the Public Manage BPA Contracts and Subcontracts USRT greatly appreciates annual coordination funding received from BPA. However, year to year funding creates much uncertainty and inhibits USRT from more fully representing our four member tribes in regional fish and wildlife forums. The current level of funding that we receive also does not allow for hiring additional staff, which is sorely needed to fulfill the mission envisioned by USRTs tribal leaders. The Upper Snake River Basin is both incredibly important and woefully underrepresented and recognized in the Columbia River Basin and in fish and wildlife arenas. As such, we are requesting that BPA enter into negotiations with USRT in regard to a stable, long-term regional coordination Accord that will fund efforts to promote and improve salmon and steelhead abundance in not only the Upper Snake, but the Columbia River Basin as a whole. USRT is eager to discuss an Accord with BPA and looks forward to having an initial conversation in the near-term.	Bonneville appreciates its ongoing relationship with USRT. Accord discussions are outside the scope of the EIS.
6162	24	scott.hauser@usrtf.org	Upper Snake River Tribes Foundation and its Four Member Tribes	For more than two years the cooperating agency were led to believe that the AAs would choose either the No Action Alternative or MO 1, 2, 3, or 4. However, in Portland, Oregon on September 4, 2019 they announced that in fact, none of the preceding would be the PA. The cooperating agencies were told repeatedly month after month that we would get a preview of the PA. That timeline kept getting pushed back further and further. We never truly saw a full PA until the release of the DEIS. Once we did see it, we realized that we had been betrayed this whole time.	The cooperating agencies served a critical role in the development of the objectives and measures for the EIS evaluation, and working on technical teams to identify the impacts of the four Multiple Objective alternatives. The co-lead agencies utilized the measures and analysis that was developed with the cooperating agencies to select a combination of measures from the MOs to develop the Preferred Alternative (PA). The selection of measures to include in the PA is based on how well the measures met the Purpose and Need Statement and EIS objectives, with consideration of environmental, economic, and social effects. As the co-leads expedited the analysis of the PA, multiple meetings were held with cooperating agencies to discuss the proposed measures in the PA and solicit comments, until a draft of Chapter 7 Preferred Alternative was available for cooperating agency review. The draft of Chapter 7 was shared with the cooperating agencies in advance of the release of the Draft EIS.
6171	1	broznowski.sofie@gmail.com	N/A	Another issue that could be easily be solved is that of irrigation, omitting the solution of simply extending the pipes for the irrigation is biased and a large oversight. Thus, it is necessary that the final EIS include these solutions in its assessment.	This EIS discusses engineering solutions (pipeline extensions for example) in Section 3.12.3 Environmental Consequences, specifically under Region C under the MO3 alternative (see page 3-1267, line 3244 in the Draft EIS) and in Appendix N. The report from which this EIS draws, as discussed, concluded that modifying the existing pump system was cost prohibitive.
6171	2	broznowski.sofie@gmail.com	N/A	Endangered species mandates are required by law and must be met, the only option that meets these mandates fully is breaching the dams.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the Columbia River System. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. As described in Chapter 7 of the EIS, the Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the EIS objectives), but not as much as Multiple Objective Alternative 3 (MO3), which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets the EIS objectives for resident fish, lamprey, hydropower generation, water management, and water supply and greenhouse gas emissions, while minimizing adverse impacts to communities and the economy.
6194	4	N/A	N/A	MO4 provides that juvenile fish passage spill would be set to 125% total dissolved gas (TDG) levels during the spring and summer, which could run for seven days a week, 24 hours a day from March 1 to August 31. Such a high degree of spill does not meet the EIS objective of providing a reliable and economic power supply and thus does not work for electric cooperatives receiving BPA power. MO4 results in hydropower generation decreasing by an average of 1,300 MW under average water conditions, or the largest impacts to hydropower generation of any of the multiple objectives considered in the DEIS. Therefore, MO4 results in the highest probability of power shortages of any of the alternatives considered, and foresees blackouts or emergency conditions in roughly one in three years. That outcome is unacceptable for electric cooperatives and the communities they serve. The costs to avoid such drastic power reliability problems would be astronomical. The least-cost resource option for replacement resources would be $156 million per year and include 3,240 MW of simple cycle natural gas turbines, in conflict with regional clean energy targets. Replacement resources utilizing variable renewable generation would require $350 million per year. Bonnevilles wholesale power rates could increase by up to 25.3 41 percent. This would be compounded by the major adverse economic effects the DEIS found would occur under MO4. All these pressures would be added on top of the economic pressures that communities are now facing due to the coronavirus pandemic.	MO4 was not identified as the Preferred Alternative. The comment statements about MO4 and the impact of spill on hydropower operations are consistent with the findings of the EIS, specifically that MO4 has the largest impact to hydropower generation and would increase power costs due to resources needed to replace lost hydropower generation. See Section 3.7.3.6, Electricity Rate Pressure, at pages 3-945-950 in the Draft EIS, Table 3-182. Due to these effects, the EIS finds that MO4 does not meet the objective of providing a reliable and economic power supply, consistent with the concerns voiced by the comment. See Section 7.3.5, Multiple Objective Alternative 4, at pages 7-13-15 in the Draft EIS.
6194	5	N/A	N/A	We support the co-lead agencies modification of its analysis following the implementation of the flexible spill operations that were agreed to in the 2018 flexible spill agreement. Under the Preferred Alternative (based on the flexible spill agreement), spill operations would be adapted if conditions dictate that a temporary or permanent change to the plan is needed. Hydropower customers should be represented as a part of any stakeholder process to make such operational changes. We have concerns about the decrease in hydropower generation of an average 160 300 MW in the Preferred Alternative. However, this decrease would not result in the reliability concerns presented by the other alternatives. Importantly, no additional resources would be needed to maintain regional reliability. While hydropower revenues will decrease, avoiding the need to build additional resources and the	The measures from MO3 and MO4 creating the large rate pressure impacts, were not included in the Preferred Alternative identified in the EIS. The statements in the comment about hydropower generation and wholesale power rate effects under MO3, MO4, and the Preferred Alternative are consistent with the findings of the EIS. See Sections 3.7.3.5, 3.7.3.6 Electricity Rate Pressures, and 7.7.9 Power Generation and Transmission. The power estimates presented in the EIS are a comparison to the No Action Alternative, rather than the BP-20 wholesale power rates, which were set assuming the financial impact of the 2019-2021 Spill Operation Agreement. The remaining rate pressure associated with the Preferred Alternative falls within a level that Bonneville has historically been able to mitigate through the costs over which it has significant control.

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				associated annual costs as described under MO3 and MO4 would keep wholesale rate pressure on Bonneville to 2.7 percent. While this rate increase may seem modest compared to other outcomes under consideration, the co-lead agencies should be aware that any and all rate increases are burdensome for electric cooperatives and their consumer-members.	Consistent with the comment, the co-lead agencies developed a Preferred Alternative that strives to balance the multiple objectives. The effectiveness of the spill program will be monitored, as will the effects to generating resources around the basin. Bonneville plans to continue regular course of business meetings with power customers on all relevant fish and wildlife issues including juvenile fish passage spill operations. Power customers are encouraged to participate in the public portions of the Regional Forum, such as the Technical Management Team, where in-season management of fish passage spill operations would continue to occur.
6194	6	N/A	N/A	Finally, while we believe that the Preferred Alternative represents a balanced solution, we have significant concerns around its operationalization of unprecedented and untested levels of spill. Unfortunately, scientific uncertainty remains around the efficacy of spill at the 125% TDG level contemplated in the Preferred Alternative. We are concerned that the extensively different findings from the two bodies of science included in the DEIS (NOAAs Life Cycle Model and the Fish Passage Centers Comparative Survival Study model) will continue to be a flashpoint as the region searches for durable consensus around Columbia River System operations. Given this uncertainty in fisheries science, NRECA urges the co-lead agencies to closely monitor the higher levels of spill as part of the Preferred Alternative and rigorously apply adaptive management measures should those spill levels be shown to be harmful to ESA-listed fish. This should include consideration of dialing back spill should large-scale negative impacts on fish be found.	Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species. For example, the CSS and COMPASS models predict that power house encounters would be cut in half relative to the No-Action Alternative for Snake River spring/summer Chinook salmon. The uncertainty lies in the hypothesis that reduced powerhouse encounters will result in increased adult returns. To address this uncertainty, the Preferred Alternative includes an adaptive management plan, which will allow the co-lead agencies to respond to any future harmful impacts to ESA-listed species. This plan involves working with regional sovereigns to develop a study to assess the effectiveness of the increased spill regime on adult returns as well as assessment and management of adverse unintended consequences, such as long delays of adult migrants, or TDG-related mortality of juvenile migrants. Please see Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information.
6202	1	Suzanne.Grassell@chelanpud.org	Chelan County PUD	Effects on Emissions and Regional Reliability Hydropower is uniquely positioned to support the grid as it transitions toward deep decarbonization. It provides the essential reliability services needed to integrate wind and solar such as frequency response, voltage and ramp capability, black start, fuel assurance, flexibility and black start. At the same time, it is emission free. With western states setting ambitious carbon reduction goals, the region would be shortsighted to remove emission-free capacity resources. Notwithstanding the immediate reductions in demand the nation is seeing in light of the COVID-19 pandemic, utility planners expect to face a capacity deficit of thousands of megawatts by the mid-2020s. In October 2019, the Northwest Power Pool released a report1 that compiles the findings of several studies. It found that deep decarbonization will bring reliability challenges as coal plants retire, making the system more vulnerable to blackouts. The studies identified a capacity risk even with the Lower Snake River dams in place. In the DEIS, the federal action agencies found that breaching the four Lower Snake River dams would double the regions risk of a blackout by eliminating 2,000 megawatts of sustained peaking capabilities during the winter and a quarter of the federal power systems current reserves holding capability.2 It would also significantly increase carbon emissions. Chelan PUD agrees that this action must be rejected, and our Board of Commissioners passed a resolution to this effect last year.	The measure to breach the four lower Snake River dams that was evaluated in MO3, was not included in the Preferred Alternative (PA) identified in the Draft EIS. The effects of the PA on power are described in Section 7.7.9 of the Draft EIS. Overall, hydropower would decrease relative to the No Action Alternative under the PA. However, because of the shape of the remaining hydropower generation in the PA, the loss of load probability was essentially the same as that of the No Action Alternative and identification of replacement resources was not necessary. The statements regarding the importance of hydropower as a carbon-free power source, and the ability of hydropower to integrate variable renewables and adjust generation to meet load are consistent with the findings of the EIS. The comment that regional reliability would decrease substantially without replacing anticipated coal retirements is consistent with information presented in the EIS. See Section 3.7.3.2, No Action Alternative, pages 3-845-84, Table 3-123; Appendix H, Power and Transmission, Section 2.3. at H-2-8 15 in the Draft EIS.
6202	2	Suzanne.Grassell@chelanpud.org	Chelan County PUD	Predation Management Protecting salmon and steelhead from predation throughout their lifecycle is critical to ensuring that regional investments in hydropower improvements, hatcheries and habitat achieve the desired result of protecting and enhancing fish populations. Returning adult fish are particularly valuable for meeting recovery goals and the future of fisheries. Predation by native and non-native fish, pinnipeds and avian species is clearly having a negative impact on overall Columbia River Basin salmon and steelhead recovery goals. However, the DEIS only describes fish and avian predation measures as localized actions that appear to have little to no correspondence to basin wide predation control. In addition to outlining current ongoing actions, Chelan PUD recommends that the final EIS go further in describing comprehensive actions that address predation throughout the Columbia River system. Specifically, the federal action agencies should describe new actions that approach predation holistically. We respectfully suggest that the federal action agencies evaluate and implement the suggested mitigation measures outlined in the letter from the Northwest River Partners with regard to avian predation and Northern Pike control. The final EIS also should encourage state and federal agencies throughout the Columbia River Basin to exercise, to the extent possible, their management authorities to address the serious threat of predation on native fish species. We also support, and have advocated for, an increase in take permits for pinnipeds, in accordance with federal action agency data on predation levels within the entire basin. 1 Exploring a Resource Adequacy Program for the Pacific Northwest. October 2019 2 Columbia River System Operations Draft Environmental Impact Statement. Executive Summary, page 25. 3 In 2019, our Board of Commissioners approved a resolution opposing the removal of the Lower Snake River dams because they are significant, carbon-free capacity resources in the Northwest. 4 Columbia River System Operations Draft Environmental Impact Statement. Executive Summary, page 34.	The co-lead agencies' legal authorities relate to operating and maintaining the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. To comply with the ESA, the co-lead agencies have historically supported actions to mitigate adverse effects to listed species from CRS operations, through funding, direct implementation, and other means. Under the Preferred Alternative, those actions, including for the purpose of reducing pinniped and avian predation on listed species, would generally continue to ensure compliance with the ESA. Other entities in the region have authorities and obligations to mitigate the impacts from pinniped and avian predators and the co-lead agencies will continue to work closely with those entities to benefit ESA-listed salmonids.
6202	3	Suzanne.Grassell@chelanpud.org	Chelan County PUD	Spill and Total Dissolved Gas The Preferred Alternative describes spill operations of up to 125 percent total dissolved gas (TDG) at most projects with the intention of benefiting juvenile outmigration. 5 At the same time, it describes how planned hours of reduced spill each day provide a degree of protection against unexpected or unintended consequences that may occur due to spilling up to the 125 percent TDG cap during juvenile fish passage spring operations such as adult migration delay, gas bubble trauma, or damage to infrastructure. 6 Chelan PUD has an interest in monitoring risk factors in the basin that may impede the recovery of salmon and steelhead species listed under the ESA and covered by our HCPs. In apparent recognition of the uncertainties surrounding increased spill and its long-term effects on juvenile migrants and adults returning to spawn, the DEIS states that such operations would be adaptively managed through the Regional Forum processes to address unexpected challenges, such as potential delays to adult migration, effects to navigation, and other challenges or opportunities that may require either a temporary or permanent change. 7 We therefore agree that adaptive management in this respect will be necessary. As recommended by Northwest River Partners, we urge the federal action agencies to include clear language describing how spill reduction will occur should higher TDG levels be shown to have a significant negative impact on vulnerable fish populations.	The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the biological models and will help determine how effective increased spill can be in increasing salmon and steelhead returns to the Columbia Basin. The effectiveness of the spill program will be monitored, as will the effects to generating resources around the basin. Any unforeseen adverse consequences during implementation of 125% TDG spill levels will initially be addressed through the existing Technical Management Team, and any disputes will be elevated through the Regional Forum as necessary. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information.
6216	1	elenanataliaede@gmail.com	N/A	For the sake of us as humans, in the middle of this Global Pandemic, unable to go out and speak to you face to face. Stop. I wish to speak directly to someone within your buisness, and have a conversation on what responses youve taken, why this has been happening (whats to gain, whats to lose, cost), and to have a conversation on what we can do as the people watching you take away our livelihoods from a distance to stop it.	Unfortunately, in-person meetings that were scheduled during the public comment period were moved to virtual meetings in light of the COVID-19 pandemic.
6231	1	david.konz@tidewater.com	Pacific Northwest Waterways Association	In conclusion, Tidewater remains committed to supporting salmon recovery in the Columbia River Basin and urges the co-lead agencies to continue to generate an implementable DEIS that includes a salmon recovery plan in the Columbia River Basin that addresses the multifaceted factors that affect salmon populations, including avian and pinniped predation, ocean conditions, and climate change without adversely impacting the viability Washington, Oregon and Idaho's economies and the maritime industry that supports many family wage jobs.	Thank you for your comment. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets most other EIS objectives including those for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS, the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams, because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. Regarding salmon recovery: the co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA listed species. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the Columbia River System. That call however is ultimately the role of NMFS and the USFWS. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species.
6235	1	Shiva Rajbhandari	N/A	Greetings, I'm asking you now to extend the period for public comment for the DEIS on the CRSO. On the last telecomment opportunity, the line was packed. It ended up going an hour later than expected and still not everyone got to speak.	The co-lead agencies considered requests to extend the public comment period. This NEPA process included a wide array of cooperating agencies whose close involvement throughout the process allowed the co-lead agencies to incorporate feedback. Given the broad range of comments received and the extensive Federal and non-Federal participation in the overall process as well as the level of public engagement in the six virtual public meetings in the region, the co-lead agencies determined that an extension was not warranted and that the 45-day public comment period was adequate consistent with NEPA regulations. The CRSO EIS website notified the public on April 9, that they should plan to submit comments by the close of the comment period. Regarding the last virtual public meeting, it is true the public meeting time was extended to address any additional comments. We kept the lines open and executive leadership listening and extra 30 minutes without any additional comments, then closed out the meeting. Everyone on the meeting was able to provide comments.
6240	1	N/A	N/A	Usacehq is violating the Endangered Species Act and the National Environmental Policy Act by not breaching the four lower Snake River dams.	Chapter 8 discusses how the co-lead agencies, including the Corps complied with the ESA and NEPA. NEPA requires agencies to consider the significant environmental consequences of their proposed actions and inform the public about their decision making. NEPA also requires that the agencies look at a reasonable range of alternatives that can meet the purpose and need of the action. To meet this requirement of NEPA, after evaluating scoping comments from the public, the co-lead agencies collaborated with cooperating agencies in teams of technical experts through several iterations to create 12 alternatives that could meet the CRSO EIS Purpose and Need Statement: first, eight single objective alternatives, and then four MOs. The MOs were also determined to be more efficient and reasonable, as MOs were composed of combinations of measures from the single objective alternatives. The Draft EIS considered the environmental consequences of the range of alternatives and disclosed to the public those consequences. The Draft EIS meets the requirements of NEPA, as outlined in 42 U.S.C. 4331, et seq., 40 C.F.R. Parts 1500 1508 (CEQs regulations for implementing NEPA), and co-lead agency specific NEPA regulations. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the Columbia River System. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. Finally, the NMFS and USFWS Biological Opinions demonstrate that CRS operations, maintenance and configuration do not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat.
6242	1	orcaconservancy@gmail.com	N/A	Orca Conservancy strongly feels that the 45-day comment period is severely inadequate as the DEIS is 8,000 pages long, and by the agencies own admission, is the result of more than three years of regional collaboration between the lead federal agencies and more than 30 entities from across the region, consisting of tribes, federal agencies, and state and local governments, who contributed their technical expertise and input as cooperating	The co-lead agencies considered requests to extend the public comment period. This NEPA process included a wide array of cooperating agencies whose close involvement throughout the process allowed the co-lead agencies to incorporate feedback. Given the broad range of comments received and the extensive Federal and non-Federal participation in the overall process as well as the level of public engagement in the six virtual public meetings in the region, the co-lead agencies

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				agencies in this National Environmental Policy Act (NEPA) process. Additionally, restrictions on activities due to the COVID-19 Pandemic have been in place in the Pacific Northwest (PNW) throughout most of the comment period and has severely limited opportunities to meet with colleagues efficiently and access older and other written materials in libraries that are not readily available online. Even members of Congress and many other organizations have requested your agencies extend the public comment period back to its original 120-day timeline.1 Therefore, Orca Conservancy highly recommends that said agencies either extend the public comment period to at least 120 days, or provide a supplemental public comment period after the COVID-19 crisis has subsided.	determined that an extension was not warranted and that the 45-day public comment period was adequate consistent with NEPA regulations. The CRSO EIS website notified the public on April 9, that they should plan to submit comments by the close of the comment period.
6242	2	orcaconservancy@gmail.com	N/A	Due to our focus on advocating for recovery to allow delisting of SRKWs under the Endangered Species Act (ESA), the majority of our findings with the DEIS were failures in representing the SRKWs properly and it falls short of making recovery efforts fully discussed within the ESA.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. The EIS analysis found that only a minor effect to the Southern Resident killer whale would result from implementing MO3 (which includes the dam breach measure). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differentially from hatchery and wild fish. Hatchery fish today likely make up most fish consumed by SRKW (NOAA BiOp 2020). The co-lead agencies note the contribution to the prey of Southern Resident killer whales through the continued existence of their respective independent congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as Lower Snake River Compensation Plan (LSRCP), which is administered by USFWS.
6242	3	orcaconservancy@gmail.com	N/A	In November 2006, the Salish Sea was designated as Critical Habitat for the SRKW Distinct Population Segment (DPS) and is part of the migration route for Columbia River System (CRS) Chinook salmon. The SRKW population is the most intensively studied population of marine mammals in the world, and the best available science tells us that healthy wild Chinook salmon runs are critical to SRKW recovery. The SRKWs historic use of west coast waters qualifies this community as an important resource to the states of Washington, Oregon and California, and therefore SRKWs should be considered when evaluating the potential impact of continued operation of the Lower Snake River Dams (LSRD). As National Marine Fisheries Service (NMFS) recently acknowledged, new information confirms that [S]outhern [R]esidents spend substantial time in coastal areas of Washington, Oregon and California and utilize salmon returns to these areas.11 These coastal waters are recognized as an essential foraging area for 2 2020. Center for Whale Research 3 16 U.S.C. 1531(b). 4 Id. at 1531(c)(1). 5 Id. at 1532(3). 6 Id. at 1536(a)(1). 7 Id. at 1538(a)(1)(B). 8 Id. at 1532(19). 9 50 C.F.R. 222.102; see also Babbitt v. Sweet Home Chapter of Cmtys. for a Great Or., 515 U.S. 687 (1995) (upholding same regulatory definition of harm in 50 C.F.R. 17.3). 10 2018. Center for Biological Diversity and Wild Fish Conservancys 60-day notice of intent to sue the U.S. Department of Commerce, the Secretary of Commerce, the National Marine Fisheries Service (also known as NOAA Fisheries), and the Northwest Regional Administrator for the National Marine Fisheries Service (collectively NMFS) for violations of the Endangered Species Act (ESA), 16 U.S.C. 1531, et seq. 11 Michael J. Ford, Natl Marine Fisheries Serv., Status Review Update of Southern Resident Killer Whales 26 (2013). In fact, evidence indicates that Southern Residents spend the majority of time in coastal and offshore waters. Cf. M. Bradley Hanson, et al., Assessing the Coastal Occurrence of Endangered Killer Whales Using Autonomous Passive Acoustic Recorders, 134 J. OF THE ACOUSTICAL SOCY OF AMERICA 3486, 3486 (2013) [hereinafter Coastal Occurrence] (explaining that on average the whales occur in inland waters less than half of the days each year). Orca Conservancy PO Box 16628 Seattle, WA 98116 3 this critically endangered population in the winter and spring, and are currently under consideration to be designated as critical habitat for the SRKW12, which will include a much larger and densely populated portion of the CRS Chinook salmon range along the Pacific coast. The DEIS relies on an inaccurate description of the distribution of SRKWs. In fact, the majority of SRKWs spend the greater part of the year within the main range of CRS Chinook. Between 1976 and 2004 there had been only 11 documented sightings in United States (U.S.) coastal waters.13 Between 2006 and 2011, 131 acoustic detections were collected by deploying acoustic recorders in seven locations on the continental shelf of the U.S. west coast from Cape Flattery, WA to Pt. Reyes, CA to detect and record endangered SRKWs. Detection rates of SRKWs were greater in 2009 and 2011 than in 2006 - 2008, were most common in the month of March, and occurred with the greatest frequency off the Columbia River and Westport, which was likely related to the presence of their most commonly consumed prey, Chinook salmon.14 The use of passive acoustic recorders has greatly increased the knowledge of seasonal and annual occurrences of SRKW in the coastal waters of the United States. Satellite tracking of individual SRKWs also revealed the extent to which they used Pacific coastal waters, and their focus on the migratory routes of CRS Chinook for most of this time. Further, use of this portion of the range has increased as Fraser River Chinook runs have declined, indicating CRS runs are likely to be more important in the coming years than they were in the first 40 years of intensive study of SRKWs.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. The EIS analysis found that only a minor effect to the Southern Resident killer whale would result from implementing MO3 (which includes the dam breach measure). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differentially from hatchery and wild fish. Hatchery fish today likely make up most fish consumed by SRKW (NOAA BiOp 2020). The co-lead agencies note the contribution to the prey of Southern Resident killer whales through the continued existence of their respective independent congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as Lower Snake River Compensation Plan (LSRCP), which is administered by USFWS. SRKW analysis is described in the EIS including in the FEIS Chapter 3 (Vegetation, Wetlands, Wildlife, and Floodplains) which has been updated for SRKW (Section 3.6.2.6 and Table 3-102) and FEIS Chapter 7 (Preferred Alternative) with additional analysis information on SRKW and potential increase in forage fish, in particular, Chinook salmon in Section 7.7.8. The co-lead agencies utilized current high quality information and best available science in its analysis of the effects of the operation, maintenance, and configuration of the CRS projects.
6242	4	orcaconservancy@gmail.com	N/A	The DEIS relies on an incomplete report on the importance of different river systems in providing food for SRKWs. The authors noted many sources of bias they did not have time to address. These biases lead to an underestimation of the importance of CRS Chinook. One bias is weighting the importance of rivers based on recovery of scale samples confirming predation. While thousands of samples have been collected in the Salish Sea, little effort has been undertaken on the Washington Coast north of the Columbia River mouth, and negligible effort has been invested to look for CRS Chinook to the south of it. Since the geography of sampling does not reflect the seasonal distribution of the whales, this results in bias from different relative abundance of salmon from different runs where data were collected. I.e., if you sample in the Salish Sea, you will find fish migrating through the Salish Sea, and if you sample off the Columbia, you find fish bound for the Columbia, and if you sampled off the Klamath you would likely find fish migrating to the Klamath, as well as to the Columbia and Sacramento. The authors noted that correction for this bias had not yet been completed. The report also considered samples from a limited time frame. Presumably, if the work had been conducted at a time before CRS Chinook had been decimated, these fish would have been a much important part of the diet. Likewise, future studies conducted after a run is enhanced would likely show that run has become a more important part of the diet. That is, the recovery potential of a run is an important consideration that was omitted from the report. Klamath River spring Chinook have had returns below 1,000 individuals in recent years, so it would not be surprising if these are currently a negligible portion of the diet. However, when returns were a million individuals, or if the runs were restored to over 100,000 individuals, they would likely become a very significant part of the diet. No river system in the SRKW range has more restoration potential than the Columbia River System. Finally, the report did not consider body size. Wild run Chinook from the upper Columbia basin had among the largest individuals in the species because of the large energy reserves required for a long migration to high altitude 12 12-Month Finding on a Petition to Revise the Critical Habitat Designation for the Southern Resident Killer Whale Distinct Population Segment, 80 FR 9682, published 2/24/2015. 13 2004. Krahn, et al. 14 2013. M. Bradley Hanson,a, Candice K. Emmons, and Eric J. Ward. Assessing the coastal occurrence of endangered killer whales using autonomous passive acoustic recorders. Orca Conservancy PO Box 16628 Seattle, WA 98116 4 and defending a redd. Large fish require few successful prey captures relative to small fish, allowing the high net energy gain required for growth and successful nursing of calves.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. The EIS analysis found that only a minor effect to the Southern Resident killer whale would result from implementing MO3 (which includes the dam breach measure). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. 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However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differentially from hatchery and wild fish. Hatchery fish today likely make up most fish consumed by SRKW (NOAA BiOp 2020). The co-lead agencies note the contribution to the prey of Southern Resident killer whales through the continued existence of their respective independent congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as Lower Snake River Compensation Plan (LSRCP), which is administered by USFWS. SRKW analysis is described in the EIS including in the FEIS Chapter 3 (Vegetation, Wetlands, Wildlife, and Floodplains) which has been updated for SRKW (Section 3.6.2.6 and Table 3-102) and FEIS Chapter 7 (Preferred Alternative) with additional analysis information on SRKW and potential increase in forage fish, in particular, Chinook salmon in Section 7.7.8. The co-lead agencies utilized current high quality information and best available science in its analysis of the effects of the operation, maintenance, and configuration of the CRS projects.
6242	5	orcaconservancy@gmail.com	N/A	The DEIS fails to consider the effects of inbreeding on jeopardy to Distinct Population Segment (DPS) survival. Maintaining constant numbers will result in loss of genetic diversity and increased inbreeding, both of which reduces the likelihood of recovery. That is, a plan that does not contribute toward significantly increasing SRKW numbers results in jeopardy. In his ruling on the Maury Island gravel mine case, Judge Martinez noted that even small threats to an already endangered population were likely to result in jeopardy. Thus, the DEIS should have concluded that the preferred alternative is likely to adversely affect SRKWs and result in jeopardy to the DPS survival.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. The EIS analysis found that only a minor effect to the Southern Resident killer whale would result from implementing MO3 (which includes the dam breach measure). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differentially from hatchery and wild fish. Hatchery fish today likely make up most fish consumed by SRKW (NOAA BiOp 2020). The co-lead agencies note the contribution to the prey of Southern Resident killer

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					whales through the continued existence of their respective independent congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as Lower Snake River Compensation Plan (LSRCP), which is administered by USFWS. SRKW analysis has been done and described in the EIS, including in the FEIS Chapter 3 (Vegetation, Wetlands, Wildlife, and Floodplains) has been updated for SRKW (Section 3.6.2.6 and Table 3-102) and FEIS Chapter 7 (Preferred Alternative) with additional analysis information on SRKW and potential increase in forage fish, in particular, Chinook salmon in Section 7.7.8. The co-lead agencies utilized current high quality information and best available science in its analysis of the effects of the operation, maintenance, and configuration of the CRS projects. The Biological Assessment (BA) describes the effect of the Proposed Action on the SRKW forage species (see BA Section 3.5.1.2, Southern Resident Killer Whale). The proposed changes in operation of the Columbia River System include increased spring spill during the downstream migration of juvenile spring and summer run Chinook salmon. The result of this action includes potential increases of juvenile fish passing through the spillways, reductions in juvenile fish direct and indirect mortality associated with downstream passage, and the Comparative Survival Study (CSS) model predicts increases in numbers of returning adults, which will benefit SRKWs foraging in and around the mouth of the Columbia River in winter and spring (See EIS Section 7.7.8). The CSS model results predicts Snake River Chinook salmon would have relative improvements in smolt-to-adult returns of 35 percent (see EIS Section 7.7.4). The smolt-to-adult return ratio (SAR) is the rate at which of a group of fish survive from their smolt life stage to a defined ending point where they return as adults. While recovery targets will require more than just the efforts of federal agencies, the CSS models indicate the potential for SARs of Snake River Chinook salmon and steelhead to increase to levels that could approach recovery targets set by the Northwest Power and Conservation Council. The BA, also consistent with the EIS, acknowledges past improvements to the configuration and operation of the Columbia River System, additional improvements to the environmental baseline as a result of completed estuary and tributary habitat actions, and the prospective non-operational conservation measures proposed in Chapter 2 of the Draft EIS, all contribute towards maintaining and improving Chinook abundance. Relevant conservation measures include, among other things, a commitment to continue funding the conservation and safety net hatchery programs listed in Chapter 2 of the Draft EIS. As discussed above, the agencies will fulfill congressionally authorized hatchery mitigation objectives through the funding of hatchery programs that are operated consistent with their independent hatchery program consultations during the term covered by this consultation. Based on those hatchery program consultations, the production levels associated with congressionally authorized hatchery mitigation objectives will continue, at minimum, to be consistent with levels previously analyzed by NOAA in the system consultations in 2008, 2014, and 2019. For the 2020 ESA consultations, therefore, the agencies expect that collectively, all of the actions described above (substantial modifications to migration conditions designed to benefit key prey species, combined with improvements to Chinook spawning and rearing habitat in the tributaries and Columbia River estuary, and continued hatchery production) ensure that remaining Chinook mortality from all sources in the mainstem migratory corridor will continue to be more than offset, resulting in a net gain in Chinook salmon abundance available as a prey source for SRKW. Finally, the 2019 NMFS Fisheries BiOp included increased spring spill operations that are similar to operations evaluated in CRSO EIS, and NOAA validated that the hatchery production of Chinook salmon mitigates for the impacts of operating the Columbia River System and total mortality through the mainstem migratory corridor from all sources.
6242	6	orcaconservancy@gmail.com	N/A	Removal of LSRDs would support recovery of wild Chinook and SRKWs but was not seriously considered. It could be combined with spill up to 125% Total Dissolved Gas (TDG). High spill levels help lower river temperatures, and the increased flow helps juvenile salmon move downstream. However, if spill levels become too high, water becomes supersaturated with gas. If salmon at depth equilibrate with high gas levels, then move close to the surface, they can suffer gas bubble lesions, just as human scuba divers develop the bends. However, just as there are safe limits for no decompression dives, there are safe levels for TDG given actual conditions. Empirical evidence suggests 125% TDG falls within the safe limit for juvenile Chinook, so the benefits to migration outweigh the risk of injury. Further, the timing of the runs and electrical demand suggest there will be negligible impact on the ability of BPA to meet its power obligations by increasing spill to the 125% TDG limit during outmigration. The State of Washington has been updating its water quality rules to allow use of this mechanism to improve salmon survival.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA listed species as that is a broader goal with shared responsibility. Based on our analysis of the fish resources section of Chapter 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets most other EIS objectives including those for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS, the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams, because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. The Preferred Alternative involves spilling to the 125% TDG limit at Snake and Columbia River dams. The effect of this operation will be to reduce the proportion of juvenile fish passing through powerhouses, which is projected to increase smolt to adult return rates.
6242	7	orcaconservancy@gmail.com	N/A	While the DEIS considered replacement power generation, it did not consider conservation as a means to offset the loss of power generation, even though it is the most cost-effective approach. Clean energy replacement is a good deal. If future energy prices are in the medium range of projected levels, replacing power produced by the dams with clean, pollution-free alternatives would cost no more than replacing it with fossil fuel sources. If future prices are high, clean energy would be cheaper than market energy options. Market intervention would be needed to promote energy conservation and renewable energy resources. The Bonneville Power Administration (BPA) system will continue to provide benefits to Northwest customers if dams are removed to restore salmon. The cost of removing the dams and replacing their power with clean energy would increase residential electric bills by just $1 to $3 per month, assuming monthly electricity use of 1,000 kilowatt hours. BPA, which markets electricity produced by federal hydropower dams to Northwest utilities, would still have some of the lowest electricity rates in the nation, even after paying to remove the dams and replace their energy from clean sources.15 In fact, the Northwest Power and Conservation Council has concluded that the Northwest has an electrical generation surplus and can meet expected increases in demand through at least 2030 with energy efficiency and planned new renewable energy.	Contrary to the comment, the EIS included all cost-effective conservation identified by the Northwest Power and Conservation Council (Council) in its 7th Power Plan, which is the current power plan. See Appendix H, Power and Transmission, Section 2.2, H-2-3 in the draft EIS. The EIS analysis considered that all energy efficiency assumed in the Councils 7th Plan is appropriate and, likely, aggressive. The Councils recent State of the Columbia River System, Fiscal Year 2019 Annual Report, February 2020, p. 11 (https://www.nwcouncil.org/sites/default/files/2020-3.pdf), states While the region currently is on track to meet Seventh Plan goals, there are some areas to watch including forecasts of declining savings from efficiency programs. And whether the region will identify new savings opportunities to replace those of residential lighting. Utilities achievements in energy efficiency have been on an annual decline since 2016. Forecasts from utilities show that this trend is expected to continue, despite relatively stable funding levels. Given this trend, there is some uncertainty as to whether there will be enough savings from other mechanisms to reach the 1,400 average megawatt goal by the end of Fiscal Year 2021. This information indicates that it would be difficult to increase the energy efficiency goals beyond the Councils Plan. Based on this information, it is not likely that substantial amounts of additional energy efficiency would be available as prices increase, such as in Multiple Objective (MO) Alternative 3. Moreover, cost effective conservation in the region will be acquired pursuant to current law regardless of the status of the four lower Snake River dams. In addition, as explained in the EIS, substantial amounts of regional coal generation will be retiring over the next decade. See draft EIS, Section 3.7 at page 3-841. Without replacing these resources, regional reliability would decrease substantially. See draft EIS, Section 3.7.3.5, Effects on Power System Reliability, at page 3-903 and Appendix H, Table 2-1. Selecting conservation as a resource to replace the generation of the four lower Snake River dams would risk double-counting. The EIS finds that under MO3, reducing hydropower and replacing the generation with zero-carbon resources would increases costs by up to $130 per year for an average household or over $10/month, contrary to the statement in the comment. In October 2019, The Council issued their Resource Adequacy Assessment. In the Addendum, the Council forecasts a Loss-of-Load-Probability of 12.8 percent in 2024 and 26 percent in 2028 both of which are above the Councils 5 percent standard. https://www.nwcouncil.org/reports/pacific-northwest-power-supply-adequacy-assessment-2024.
6242	8	orcaconservancy@gmail.com	N/A	The DEIS failed to consider expanding rail capacity to replace barging. Eastern Washington has been experiencing an agricultural boom unlike anywhere in the United States. Washington State is set to overtake California in wine production by 2020. Ten million tons of commercial cargo and nearly 67 million bushels of wheat are transported on the Columbia/Snake River annually, an essential part of the regions economic competitiveness. Before the LSRDs were completed in 1975 commodities moved by rail and truck. Subsidized navigation undercut terrestrial shipping rates and essentially put rail out of business for moving goods along the river. Consider improved rail as 15 Going with the Flow - Replacing Energy from Four Snake River Dams. bluefish.org April 2000. http://www.bluefish.org/goingwth.htm 16 Seventh Power Plan. NW Council, Feb 25, 2016 https://www.nwcouncil.org/energy/powerplan/7/plan/ Orca Conservancy PO Box 16628 Seattle, WA 98116 5 an alternative to barging as there is potential in keeping the farm communities healthy and growing without destroying the remaining salmon. Electrified rail would minimize impact on climate and discharges of toxins into the environment.	The EIS acknowledges that depending on how rail rates respond to dam breach, shortline rail capacity could be exceeded. The EIS also evaluates the additional transportation infrastructure investments that would be required. Under low rail rate increase scenarios, additional shortline rail capacity would be required that could cost $25 to $50 million. Under a scenario where rail rates increase by 50 percent, more shipping demand would be transferred to trucks, reducing the demands on rail infrastructure, but increasing demands on roads. Under this scenario, up to $10 million in additional road maintenance costs may occur. The co-lead agencies lack the authority to invest in or mitigate for private infrastructure, such as rail lines.
6242	9	orcaconservancy@gmail.com	N/A	The DEIS failed to consider alternate means for cooling summer flows, providing irrigation water to farmers, and ensuring that farms could remain viable without irrigation. Irrigated agriculture has diverted water from the Columbia and its tributaries. Counting tributaries, there are almost 13.5 million acre-feet of storage capacity in the Snake River Basin.17 Irrigators probably remove 7-8 million-acre feet of water from the Snake River every year.18 But since the Hells Canyon Complex stopped the salmon from going upstream anyway, it is hard to assess the adverse impact of irrigation. It would appear that the biggest problem with irrigation is a problem of governance: since state and federal governments have been incapable of providing clear and reliable property rights in water, irrigators are unable to sell or lease excess water for experiments in fishery management.19 The salmon recovery option in the draft has failed due to not effectively considering mitigating impacts on people. Therefore, there needs to be a good faith effort to define an alternative that maximizes salmon production and effectively mitigates the impact on people who depend on the dams for power, water, transportation, and other uses.	The co-lead agencies have used the best information and resources available to model and evaluate impacts from operations described in each of the alternatives on water temperatures. Additionally, the EIS examines impacts to irrigation and explores alternate means to supply water. Changes to state water rights administration are not within the scope of this EIS.
6242	10	orcaconservancy@gmail.com	N/A	The DEIS failed to consider continued hatchery operation as a conservation measure rather than as a mitigation measure. Snake River spring/summer Chinook abundance has actually declined and adult return rates are well below levels necessary for species survival, let alone for rebuilding and recovery. There is uncontroverted evidence that the current smolt-adult ratio (SAR) for Snake River spring/summer Chinook are at or below 1%, barely half of the minimum 2% SAR level the Northwest Power and Conservation Council has identified as necessary for maintaining existing populations, and only one quarter or less of the 4% to 6% SAR level that must be achieved and sustained for this population to rebuild and recover.20 Moreover, this unacceptably low SAR has been consistent for many years, indicating that the extensive and expensive efforts so far to rebuild Snake River spring/summer Chinook populations have not been successful. National Oceanic and Atmospheric Administrations (NOAA) own publication confirms that wild Snake River spring/summer Chinook returns to the uppermost Snake River dam have declined by at least 60% since the late 1960s when the lower Snake River dams were built (from an average of 47,615 fish to just 18,774).21 NOAAs claim that spring/summer Chinook abundance has increased relies entirely on the fact that over this same period, Snake River spring/summer Chinook hatchery returns to the uppermost dam have increased by at least 15- fold (from 4,933 fish to 73,487),22 an increase that actually reflects increased hatchery production to mitigate for losses of salmon due to the FCRPS, rather than improved survival from restoration measures. The point here is not to criticize the role of hatcheries, but to highlight the extent to which NOAAs claim of increased Chinook abundance relies on increased hatchery production, not increased survival rates. NOAA has set a target of 96% survival for out migrating salmon at each dam and appears to have achieved this. While this appears impressive, by the time eight (8) dams have been crossed -- four (4) on the Lower Snake River that we recommend be removed, four (4) on the mainstem Columbia River whose removal we do not recommend -- cumulative survival is only 72%. As survival of the entire migration can be as high 65%, this suggests that 75-80% of all mortality still occurs at the dams, and mortality rates are hundreds of times higher per mile near dams than in the rest of the watershed. It is also important to remember that wild Snake River spring/summer Chinook are protected by law and ultimately must recover and rebuild to sustain the species health over the long-term.	The most recent ESA Status reveiew reported that the Snake River spring/summer Chinook population trends in total spawner abundance were positive over the period 1999 to 2014 for 23 of the 26 population natural origin abundance series, but the relative rates of increase for each population were lower than estimates of trends for the prior review period (Table 15). Northwest Fisheries Science Center. 2015. Status review update for Pacific salmon and steelhead listed under the Endangered Species Act: Pacific Northwest. However, return rates have been low over the three years this EIS has been in process.

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6242	11	orcaconservancy@gmail.com	N/A	Placing greater weight on the impact of this decision on Native Americans, whose treaty rights need to be protected, relative to other inhabitants in the region is needed. A broader consideration of actions to mitigate impact on people who would be negatively affected by dam removal should be included in the final DEIS to provide a roadmap for legislative action at the federal, state and local level. As we have seen in the response to COVID-19, much stronger actions than those considered in the DEIS are now considered viable means to protect economic interests. E.g., checks to homeowners to cover emergency increases in energy costs are now thinkable. Paying coal companies to shut down to free up rail capacity for agricultural products until improved rail service is available while maintain coal employee income levels is now the kind of emergency action that could be taken to recover SRKWs. These actions could mitigate concerns of proponents of maintaining the LSRD to the degree that dam removal and increasing flow up to 125% TDG would become the preferred alternative.	As described in Chapter 5 Mitigation, specific regulations guide the development of appropriate mitigation measures to address environmental impacts. If breaching the dams were to be selected as the Preferred Alternative, further, more detailed evaluations and NEPA would be needed along with congressional authorization and appropriations to assess the engineering requirements of the project and to potentially further refine and develop mitigation measures. However, it should be noted that as described in Section 5.1.1., Overview of Mitigation, mitigation measures developed as part of a NEPA process are not intended to indicate the co-lead agencies, or the Federal government as a whole, has the authority to perform all of the measures described. But rather provide a list of potential mitigation needs, some of which could be implemented by other agencies, officials and/or the public who would potentially benefit from the mitigation measures. Many of the mitigation measures that the commenter references are not currently within the authorities of the co-lead agencies.
6242	12	orcaconservancy@gmail.com	N/A	Additionally, climate change will need to be considered both from the perspective of how alternatives affect climate and how the alternatives affect resilience to climate change. As mentioned above, how power generation is managed will have impacts on climate. How flow and salmon passage are managed will affect resilience to climate change, as high elevation habitat currently inaccessible would provide cool refuges, and spawning over a wider area ensures that at least part of the watershed has suitable conditions for listed species. Elimination of reservoirs would increase the effectiveness of shade in keeping the water cool. Replacement of artificial flood control facilities with restoration of natural flood control processes will need to go hand-in-hand to address the expected increase in variability of rain and snow melt. Changes in vegetation could be promoted that increase carbon sequestration, such as reforestation. Most river basins around the world suffer from anthropogenic influences, and climate change is a universal phenomenon. To successfully manage a river basin, it is necessary to understand the recent geologic history and the human management trajectory of the system. Furthermore, management strategies based only on streamflow may prove sub-optimal. Thus, for example, the flood control and hydropower management strategies used in the Columbia have had unintended impacts on the sediment budget and juvenile salmonids. It is also important (and will become increasingly important in the future) to provide a clear separation between human and climate impacts on the streamflow and sediment transport.	The co-lead agencies agree that climate change may impact hydrology, water temperatures, flood risk management operations. That is why the agencies used the best available information, from on-going regional climate change studies and work, to investigate climate change impacts on CRS operations. The co-lead agencies evaluated potential shifts in precipitation and temperature patterns and resulting changes in unregulated Columbia Basin streamflow timing and volumes. The evaluation consisted of the full range of the latest climate change projections developed using multiple global climate models, emissions scenarios, downscaling techniques, and hydrologic models. Details of this evaluation are in Chapter 4 of the EIS. This information was used to describe the potential effects (both beneficial and adverse) on the river systems and resources due to potential changes in climate for all alternatives. The assumption that elimination of reservoirs would result in cooler water may not be true, because the hydrologic modeling demonstrates a shift to earlier runoff and lower flows during summer months. Water resource management, through storage and regulation may be increasingly important. The climate science community is still developing quantitative models that can address possible effects in water temperature from climate change, and unfortunately, have not been fully applied and validated for use with climate affected regulated flow projections of large reservoir systems. This data is critical to analyzing potential effects to fish quantitatively. In lieu of this information, the climate analysis used the output from resource models, like water quality and fish, under historical conditions, available climate change data, and scientific literature to qualitative assess potential effects to resources (described in Chapter 4).
6245	1	Steven Orzack	Fresh Pond Research Institute	There are important biological and economic consequences that must be considered in any decision about the removal of the four dams. These include the potential for a loss of power generated by the dams (which might engender greater use of fossil fuels that would contribute to climate change), the potential for economic damage to nearby agriculture that relies on the dams to supply irrigation water, and the carry-on economic and social effects of these disruptions. These are all consequences that can and must be addressed. The Preferred Alternative in the DEIS does so but in a way that does not aid the recovery and protection of the salmonids and the Killer Whales. They will continue to be endangered if the Preferred Alternative is adopted. However, there is no necessary tension between the imperative to generate clean power and to protect agriculture and the imperative to aid the recovery and protection of salmonids and the Killer Whales. Both imperatives can be satisfied by a plan that includes dam removal, includes the use of further development of renewable energy generation capacity in the region in order to replace the power generated by the dams, and includes measures that ensure that agricultural interests in the vicinity of the dams have adequate access to irrigation water. (A plan that addresses the replacement of power generated by the dams is contained in the Lower Snake River Dams Power Replacement Study that was released in 2018 by the Northwest Energy Coalition. See https://nwenergy.org/featured/lsrdstudy/). 3 The combined plan would be a win for the biology and ecology of the Pacific Northwest and the United States and a win for the culture and the economy of the Pacific Northwest and the United States. I strongly urge the U.S. Army Corps of Engineers, the Bureau of Reclamation and the Bonneville Power Administration to redraft the DEIS and to propose as the Preferred Alternative a combined plan that truly protects and serves the entirety of biological, cultural, economic, and ecological interests of the Pacific Northwest and of the United States. Such a plan must include dam removal in order to protect salmonids and Killer Whales.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA listed species as that is a broader goal with shared responsibility. Based on our analysis of the fish resources section of Chapter 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets most other EIS objectives including those for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS, the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams, because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. Regarding your comment on killer whales: The co-lead agencies conclude there could be a negligible to minor beneficial effects to SRKW from implementing MO3. CSS and NMFS Lifecycle models predict that lower Snake River Chinook salmon smolt-to-adult returns would have a moderate to major increase under MO3. Operation of Lower Snake River Compensation Plan fish hatcheries under MO3 is uncertain and therefore, production of Snake River hatchery fish is assumed to decline over the long term, while returning adult wild salmon are anticipated to increase. However, the co-leads do not anticipate a lack of hatchery fish in the short term based on the proposed fish hatchery mitigation described in Chapter 5. These additional hatchery fish should mitigate short-term construction effects to Snake River populations. Additionally, to address short-term effects to ESA-listed species, the co-lead agencies propose constructing a new trap and haul facility at McNary and conducting at least two years of trap and haul operations for Snake River fish (Chinook, sockeye, and steelhead). The co-lead agencies agree that the quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differently from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020).
6246	1	rhayden@portofpasco.org	Port of Pasco	Piscivorous Fish Predators Non-native piscivorous fish play a significant role in the mortality of juvenile salmonids. We recommend that Chapter 5 (Mitigation) and Chapter 7 (Preferred Alternative) of the DEIS expand mitigation options to include the following actions: Implement a Brook trout suppression effort in the tributaries of the Snake River above Lower Granite Dam, including the Salmon and Clearwater Rivers and their tributaries. Only 14% of spring and fall Chinook parr in these natal waters survive to ever reach their first dam. One likely reason is that the highly aggressive Brook trout stays in the salmons natal waters and the surrounding lakes and streams year round. Brook trout were imported to the waters of the PNW in the 1890s and have little or no mitigation to their predation on juvenile salmon. Increase Northern Pike suppression efforts in areas above Chief Joseph Dam Begin planning a suppression plan that could be impremented if Northern Pike are detected below Chief Joseph Dam. Bolster early detection measures for Northern Pike in areas below Grand Coulee Dam.	NEPA requires that all relevant, reasonable mitigation measures that could diminish the adverse impacts of the project be identified in the document, even if they are outside the jurisdiction of the lead agency or the cooperating agencies. See 40 C.F.R. 1502.16(h) and 1505.2(c); 46 Fed. Reg. 18026. The impacts from brook trout did raise to the level that the co-lead agencies determined would require additional mitigation in this EIS. The co-lead agencies welcome continued discussion on non-native fish suppression efforts including on brook trout. For example, Bonneville's Fish and Wildlife Program would continue to provide funding for suppression of non-native fish, including brook trout, northern pikeminnow, lake trout and northern pike.
6246	2	rhayden@portofpasco.org	Port of Pasco	Transporation The DEIS grossly underestimates the transportation impacts that would be caused by the dam breaching measures included in MO3. We question why the DEISs traffic impact analysis under M03 only considers downriver grain shipments, and not the other commodities moving on the river. Much of our Port district relies on the fuel, agricultural fertilizer, and wood chips Port of Pasco DEIS Comments April 13, 2020 Page 2 of 4 u:\agency\pnwa\comment-crso deis-2020-0413.docx that are transported on the river. We urge you to account for all current freight on barge to assess transportation impacts.	In 2018, 72 percent of overall freight volume on the Lower Snake system traveled downriver, the majority of which (87 percent) was wheat and barley. As discussed in Section 3.10.2.1 of the Draft EIS, 28 percent of overall freight traveled upriver. In 2018, 25 percent of overall freight on the lower Snake River was petroleum products that terminated below Ice Harbor Dam. These shipments do not utilize the Snake River locks and would not be directly affected by dam removal under MO3. Other commodities that utilized the Snake River system included pulp and paper products (4 percent) as well as chemicals and iron/steel commodities (8.5 percent), some of which also terminate below Ice Harbor Dam. To the extent that these shipments utilize the Snake River locks and dams, they would be affected under MO3 by increased transportation costs. These potential effects are discussed qualitatively in Section 3.10.3.5.
6246	3	rhayden@portofpasco.org	Port of Pasco	The transportation infrastructure costs calculated for MO3 were $86 million total. The infrastructure that would be needed to supplant the river barging capacity under M03 would be far, far more extensive and costly. An independent engineering study concluded that the new infrastructure needed to just move the 2.4 million metric tons of grain from farms to overseas ports by truck/rail instead of barge would cost more than 10 times the amount reflected in the DEIS or closer to $800 million. As a Port, we are constantly investing in road and rail upgrades and can attest to the high cost of replacing this type of heavy infrastructure. The DEIS estimate of only $86 million should be thoroughly reviewed to capture comprehensive and accurate costs and specify exactly who will be providing those funds. The DEIS does not account for costs that are typically used for long-term budgeting of transportation capital facilities, such as lifecycle costs, safety issues, fuel costs, and property value impacts. Using the United States Department of Transportations (USDOT) Benefit-Cost Analysis Guidance for Discretionary Grant Programs, the national cost impacts associated with MO3 may exceed $4 billion over 30 years, or a net present value of $1.9 billion. This figure far exceeds the roughly $100 million reflected in the DEIS. A longer term methodology should be used in the DEIS to account for these higher costs.	Section 3.10 of the Draft EIS provides an evaluation of the Columbia Snake River Navigation System, assessing its relative efficiency, low costs for shippers, safety considerations, and low air emissions relative to other transportation modes. As described in Section 3.10.3.5, Navigation and Transportation analysis for MO3, the EIS finds that under a dam breach scenario, average transportation costs for wheat farmers would increase 10 to 33 percent, but that individual farmers could experience increases that are double, depending on their specific location and other conditions. The evaluation completed for the EIS is an economic analysis of potential effects by evaluating social welfare or the total change in transportation costs, regional economic effects and community or other social effects. This economic analysis is different from the financial analysis used for long-term budgeting needs. The EIS acknowledges that depending on how rail rates respond to dam breach, shortline rail capacity could be exceeded. The EIS also evaluates the additional transportation infrastructure investments and associated costs that would be required, as well as the increases in air emissions that would occur. Under low rail rate increase scenarios, additional shortline rail capacity would be required that could cost $25 to $50 million. Under a scenario where rail rates increase by 50 percent, more shipping demand would be transferred to trucks, reducing the demands on rail infrastructure, but increasing demands on roads. Under this scenario, up to $10 million in additional road wear and tear costs may occur.
6246	4	rhayden@portofpasco.org	Port of Pasco	Power Costs and Industrial Jobs One of our primary goals as a Port is to support the development of family wage industrial jobs. We are therefore very concerned about questionable assumptions in the DEIS relating to the affordable, reliable power that is an essential element to the success of industrial businesses. The DEIS assumes the region will acquire adequate replacement resources for the reduction in hydropower generation contemplated by many of the alternatives. However, if replacement resources do not become available, reliability would suffer and outages would become frequent, both having severe effects on industry. Since our state of Washington has mandated the elimination of fossil fuel power generation, power capacity models should be performed without the benefit of coal and natural gas plants. Under this scenario, the upward pressure of power rates would be substantially higher than predicted by the DEIS.	The statement that without replacement resources regional power reliability could decrease is consistent with the findings of the EIS. Since the start of the CRSO EIS process in 2016, additional coal retirements have been announced as well as new energy policy. To address this concern, the EIS considered various sensitivity analyses as well as examining two potential coal retirement scenarios. See draft EIS, Section 3.7.3.1, Availability of Coal Resources, at pages 3-841-842 and Section 3.7.3.2, Table 3-123. The EIS acknowledges that assumptions regarding coal capacity have changed since the base case was developed in 2017, and the EIS presents base case analysis first before discussions of information resulting from additional sensitivities and potential cost pressures. Because of anticipated changes to the regional resource mix, for Multiple Objective (MO) Alternative 3 the full replacement portfolio discussed in Section 3.7.3.5, at pages 3-905-911, was developed to minimize reliance on the regional resource mix to replace lost hydropower generation.
6246	5	rhayden@portofpasco.org	Port of Pasco	The DEIS predicts the highest upward pressure for industrial customers, with an increase of up to 29 percent in some counties. The total increase in spending on electricity for industrial businesses would be between $100 million and $240 million per year. That increased cost pressure would result in the loss of up to $400 million in regional output and up to 2,700 jobs. It could also cause industry to leave the region all-together, which would cause secondary economic consequences to Port of Pasco DEIS Comments April 13, 2020 Page 3 of 4 u:\agency\pnwa\comment-crso deis-2020-0413.docx ripple through local economies. Those secondary effects, which would include harm to local businesses and loss of jobs that serve departing industries, are not fully accounted for in the DEIS.	The highest upward rate pressure, increase in spending and regional economic effects cited by the comment are consistent with the findings of the EIS under MO3. See Section 3.7.3.5, at 3-918-924 in the Draft EIS; see also Table 3-166 in the Draft EIS. The comment that increasing electricity rates will cause job losses and economic risk to communities is also consistent with the findings of the EIS. The EIS used the IMPLAN model to assess potential effects to regional businesses. IMPLAN aggregates all economic output and employment at the county level, so the EIS is unable to evaluate effects on specific businesses. Although the EIS examined economic effects at the county level, it acknowledges that localized effects of rate increases may be more pronounced as described in Section 3.7.3.5 Summary of Effects. Specifically, customers of utilities receiving power from Bonneville would experience greater upward rate pressure. See Section 3.7.3.5, Residential Effects, at 3-929, and Chapter 5 of Appendix H, Power and Transmission.
6246	6	rhayden@portofpasco.org	Port of Pasco	Overall, the DEIS predicts that the reduction in hydropower generation across the Pacific Northwest would result in an average annual economic cost of $150 million when valued at the market price for the foregone power generation. However, the estimated increase in the marginal cost of producing power to meet demand based on additional average annual fixed and variable costs is $270 million to $540 million. If these social welfare effects persist over a 50-year timeframe, the present value cost is up to $15 billion. We recommend that the DEIS revisit power capacity models to remove all fossilfuel based power sources when calculating the effects of foregone power from the Snake River dams. Power rates, system reliability, industrial sector output, and industrial jobs will be more impacted than currently reflected in the DEIS.	The EIS did include a rate sensitivity analysis for two coal-retirement scenarios and the additional effects on replacement resources needed to accommodate for changing fossil-fuel generation and state law. See Section 3.7.3.1, Additional Power Rate Sensitivity Analysis and Other Regional Cost Pressure Analysis, 3-829-830 in the Draft EIS; Appendix H, Power and Transmission, Section 2.3 at H-2-8-15 in the Draft EIS. The exact cost impacts are uncertain because they are dependent on what resources the non-federal utilities in the Northwest and neighboring regions select as replacement resources. Section 3.7.3.5 in the Draft EIS, Electricity Rate Pressure, and specifically the lower half of Table 3-166, give a range of some of the cost effects estimated due to the retirement of coal plants in the region. The EIS did not address the retirement of all existing fossil-fuel resources including natural gas generation, as regional utilities have so far focused on retiring coal-plants first; thus, the analysis retained natural gas generation.

Letter No.	Comment No.	Commenter Name/Email	Affiliation	Comment	Response[1/]
6246	7	rhayden@portofpasco.org	Port of Pasco	Fish Survival Models The two models used to assess fish survival in the DEIS produce vastly different conclusions. The Comparative Survival Study (CSS) predicts smolt-to-adult returns (SARs) would increase by 170% under MO3, while the Life Cycle Model (LCM) predicts a modest 14% increase. This gap in outcomes is too wide to support far-reaching policy decisions and challenges the credibility of the DEIS. We would like these models to undergo additional technical scrutiny to determine their validity. The CSS model relies heavily on the premise of delayed mortality to predict substantial increases in survival under MO3. Multiple studies refute the importance or existence of delayed mortality. In fact, the Action Agencies have acknowledged this challenge in the DEIS with the following statement, The degree to which latent mortality is affecting salmon and steelhead is one of the critical uncertainties in this EIS analysis. Peer reviewed studies examining latent mortality are already available and should be evaluated to determine whether CSS is valid before it is employed in the DEIS. Another discrepancy with the CSS model is how it predicts vast smolt-to-adult return (SAR) survival by breaching Snake River Dams even though undammed rivers are experiencing similar SAR declines without dams. SAR survival rates for Snake River Chinook salmon consistently have fallen short of objectives provided by the Northwest Power and Conservation Council, and they have hit a record low in recent years. But importantly, the same is true with respect to the smolt-to-adult survival rates for the John Day River basin, which have experienced a dramatic decline observed since 2013 and are also at a record low and which have no dams. Given this declining trend throughout much of the Columbia Basin, the CSS Port of Pasco DEIS Comments April 13, 2020 Page 4 of 4 u:\agency\pnwa\comment-crso deis-2020-0413.docx SARs prediction solely based on the removal of the Snake River dams is questionable. A more reasonable explanation are the many studies suggesting this trend is due to a diverse array of factors including warming ocean water temperatures, predation and pollution. We encourage the Action Agencies to consider these significant challenges to the CSS and latent mortality theory. If evidence mounts that the CSS model is producing spurious results, the Action Agencies must be willing to abandon its advice.	The NMFS COMPASS/Life Cycle models and the CSS models use different statistical approaches and input variables. Both are able to provide a good fit to recent survival, and travel time estimates, but the models do have substantially contrasting forecasts for these metrics under hypothetical scenarios of CRS operations with respect to flow and spill. The Fish Technical Teams for the CRSO EIS made the decision to present results from both sets of models for the final evaluation, along with descriptions of methods. The reason Life Cycle models were included in the EIS analyses was to partially address factors outside of the CRS which can influence wild adult spawner abundance, including abiotic and density effects in tributaries, upper reaches, the Columbia River estuary and ocean. The results of third-party review, both the Corps' Independent Expert Peer Review as well as a recently released ISAB review of the CSS results will be included in the Final EIS and will provide more technical review of these models. Initial review of the results of the peer review do not indicate fundamental flaws in either the CSS or NMFS approach and both models will continue to frame the potential outcomes associated with all MOs and the Preferred Alternative. The Preferred Alternative will require a robust monitoring plan for salmon and steelhead to help narrow the uncertainty between the biological models and will help determine how effective increased spill can be in increasing salmon and steelhead returns to the Columbia Basin. The Preferred Alternative provides the opportunity to reduce uncertainty and improve the learning opportunities around how operations of the CRS can influence the magnitude of latent mortality effects. This EIS analyzes the effects of operation, maintenance, and configuration of the CRS projects. Some of the effects mentioned in the comment involve a variety of issues beyond the scope of the analysis in the CRSO EIS. However, water quality effects for the Columbia River Basin were considered in the EIS analysis and are described in Chapter 1, 2, and Section 7.8.3 of the EIS. Salmon and steelhead have been adversely affected in the Columbia River Basin over the last century by many activities including human population growth, urbanization, introduction of exotic species, overfishing, development of cities and other land uses in the floodplains, water diversions for all purposes, dams, mining, farming, ranching, logging, hatchery production, predation, ocean conditions, and loss of habitat (see Chapters 6 and 7 for additional information). While none of the alternatives would affect ocean conditions, the co-lead agencies recognize that these conditions are a major driver for adult returns and that numerous studies have shown the importance of ocean conditions in the return of adult salmon and steelhead (Peterson et al. 2019). The Preferred Alternative includes a large suite of predation mitigation measures, some of which include maintaining avian wires in the tailrace of lower Columbia and Snake River dams, active hazing of gulls at the dams, and the pattern of operating the spillway gates all mitigate for predation at the dams by birds and fish. The Predator Disruption Operations will mitigate Caspian Tern predation on juvenile salmon and steelhead in the lower Columbia Rivers. Management efforts are ongoing to reduce salmonid consumption by terns in the lower Columbia River, and similar efforts are in progress to reduce the nesting population of Double-crested cormorants in the estuary. The co-lead agencies currently implement a Northern Pikeminnow Management Program which includes an ongoing base program and general increase in northern pikeminnow sport-reward fishery reward structure to reduce predation by these fish. This measure would continue under the Preferred Alternative. Management of gamefish such as walleye typically falls within the authority of state fish and wildlife agencies.
6264	1	rkrehbiel@defenders.org	Defenders of Wildlife	Please accept the attached documents as comments on the CRSO DEIS. These documents include: 1. A detailed letter from the Center for Biological Diversity, Defenders of Wildlife, the Audubon Society of Portland, Earth Ministry, the Idaho Conservation League, Orca Conservancy, Orca Network, the Save Our Wild Salmon Coalition, the Sierra Club, the Western Environmental Law Center, Whale Scout, Wild Earth Guardians, and Willamete Riverkeeper 2. Two documents submitted as attachments to compliment to detailed letter from our organizations (Attachment A and Attachment B) If you have any questions to problems accessing these documents, please reach out to Robb Krehbiel at rkrehbiel@defenders.org or at 206-883-7401. Thank you.	Commenter had trouble submitting comments, but was able to resubmit and noted prior unsuccessful submission attempt. These comments are coded as Letter 6588. Please see responses to comments under Letter 6588.
6272	1	Kurt Miller; kurt@nwriverpartners.org	Northwest River Partners	East Sand Island & Columbia River Estuary Northwest RiverPartners (RiverPartners) has heretofore focused its comments related to avian predation on the mid and upper Columbia River. In this appendix, RiverPartners wants to expand on the need for downstream predation managementespecially in the Columbia River estuary. We would like to thank the Columbia River Inter-Tribal Fish Commission (CRITFC) for providing the data points referenced below. Of particular concern, RiverPamters notes that the US Army Corps of Engineers (USACE) has publicly stated that it considers both the East Sand Island1 double-crested cormorants and the East Sand Island Caspian tern management actions complete, without further plans to reduce either population. RiverPartners notes that neither plan has achieved the agreed upon population reduction levels for either species. Without further reductions in nesting habitat on East Sand Island, the Caspian tern population will likely continue to hover in the 4,000 to 5,000 pair range. This is an unbalanced level of avian predators if the region desires sustainable Columbia Basin salmonid populations. It is believed that every thousand pairs of Caspian terns will consume on average about 740,00 smolts each spring. Likewise, the double-crested cormorants, based on the last three years of consumption data, averaged 1.4 million smolts per 1,000 pairs of cormorants. This relationship is for the birds on East Sand Island. Birds nesting on the Astoria-Megler Bridge often feed upstream, where the percentage of smolts in their diet can be up to three times greater. Last year there were approximately 3500 pairs of double-crested cormorants on the Astoria-Megler Bridge. We can conservatively estimate that they ate approximately five million smolts. For the Columbia River estuary, this issue is especially problematic, because the smolts that make it to the estuary have successfully navigated hundreds of miles of river, numerous hydro projects, a multitude of predators, but then are killed just as they reach saltwater. Said another way, the smolts that make it to the estuary represent of a minority of all of the smolts in the Basin, so the percentage killed in the estuary will have an outsized effect on the overall percentage of returning adult salmon. Given this context, we urge USACE to reconsider its previous decision to end monitoring efforts of double-crested cormorants in the Columbia River estuary in 2020.	The co-lead agencies recognize the importance of addressing avian predation throughout the project area and have historically supported actions to mitigate adverse effects to listed species from CRS operations, through funding, direct implementation, and other means. Under the Preferred Alternative, those actions, including implementation of actions for the purpose of reducing predation on ESA-listed species, would generally continue to ensure compliance with the ESA. This includes continued implementation of (1) dissuasion measures at the Corps' CRS facilities as described in the annual Fish Passage Plan and coordinated with the FPOM, (2) the Inland Avian Predation Management Plan (IAPMP), (3) CATE management plan for reduction in habitat at East Sand Island, and (4) the Double-crested cormorant (DCCO) management plan at East Sand Island. Other entities in the region also have authorities and obligations to mitigate the impacts from predators and the co-lead agencies will continue to work closely with those entities to benefit ESA-listed salmonids. However, the co-lead agencies are limited to implementing measures that are within the authorities of the agencies. Specifically, under the ESA, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Ultimately, recovery, including predation management actions, is a broader regional goal that is the role of NMFS and the USFWS and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the Columbia River System. Based on our analysis in the fish resources section of Chapter 7.7.4, the co-lead agencies anticipate that the Preferred Alternative, which includes measures to reduce predation, would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species.
6272	2	Kurt Miller; kurt@nwriverpartners.org	Northwest River Partners	Need for Lethal Removal Efforts Unfortunately, the millions of dollars spent on bird wires, land and boat-based hazing, and pyrotechnics did not prevent the losses described in the Evans et. al paper noted in the body of our comments.2 As soon as birds relocate to other areas of the river, these measures are no longer effective. It is clear that the numbers of predatory birds in the Columbia River must be reduced using lethal measures such as egg oiling and lethal take at the dams. Those measures should be included within this EIS process and could result in much improved effectiveness of mitigation efforts associated with the Preferred Alternative. In support of this point, we reference a letter from the Northwest Power Planning & Conservation Council Council) to Mr. Jerome Ford, US Fish & Wildlife Service, Assistant Director of Migratory Birds, dated February 28, 2020. In that letter, the Council notes that, From 2015 to 2017, the Fish and Wildlife Service authorized the lethal removal of double-crested Cormorants in the Columbia River estuary. More than 5,000 cormorants were removed and more than 6,000 nests were destroyed. We know that this action, combined with natural predation by other bird species, helped to significantly reduce cormorant predation on juvenile fish. But since that time, only non-lethal methods of harassment have been available, and they only have had the effect of moving cormorants from one place to another in the estuary. The predation continues and, in fact, is increasing.3 We encourage the Action Agencies to reintroduce these lethal removal measures. Without these measures, the region risks undoing all of the good it has worked so hard for in its mitigation efforts. To quote Blaine Parker, biologist for the Columbia River Inter-Tribal Fish Commission (CRITFC), If we do not more effectively address the serious threat of avian predation, we risk turning the regions $17 billion salmon recovery investment into guano.	The co-lead agencies' legal authorities relate to operating and maintaining the CRS to meet multiple statutory purposes. Under the Preferred Alternative, actions to reduce pinniped and avian predation would continue. Other entities in the region have authorities and obligations to mitigate the impacts from pinniped and avian predators and the co-lead agencies will continue to work closely with those entities to benefit ESA-listed salmonids. In coordination with USFWS, this project would comply with Migratory Bird Treaty Act by obtaining necessary permitting for new avian predation actions. Ongoing avian predation actions would rely on existing permitting. As part of this projects monitoring and adaptive management plan (Appendix R, part 1), monitoring of the Predator Disruption Operations measure would occur to determine the measure's effectiveness of reducing the avian predators nesting habitat and monitor if the migratory bird species (Caspian terns) would remain at healthy and sustainable levels. As analyzed in Section 7.7.7, the Predator Disruption Operations measure could cause waterfowl to delay nesting, forego nesting, or relocate to other areas. As discussed in Section 3.6.3.2, Caspian terns are highly mobile during the breeding season and move between breeding colonies in a given year and between years, demonstrating a willingness to nest away from the Columbia River while still foraging on juvenile salmonids (Corps 2014, 2018, 2019). If a depredation permit is needed, depredation permits are issued to alleviate some form of damage, not to achieve population control. As a result, depredation permits are issued only if the requested lethal take of birds is consistent with the conservation of the species (e.g., the species remains at a healthy and sustainable level). (From USFWS DCCO FAQ website: https://www.fws.gov/pacific/migratorybirds/pdf/DCCOQ_A_USFWS03212016.pdf).
6283	1	rkrehbiel@defenders.org	Defenders of Wildlife	I am very disappointed that the DEIS failed to fully or accurately consider southern resident orcas. The DEIS continuously states that Snake River salmon runs are not important to the orcas. This is patently false. The country's leading southern resident orca scientists have clearly stated that the four lower Snake River dams must be breached if we hope to prevent the extinction of these orcas. According to a study by NOAA and the Washington Department of Fish and Wildlife, two of the ten highest priority salmon runs for the southern residents are Snake River runs. Historical evidence suggests that prior to the Snake River dams being built, there were more Snake River salmon and these fish likely constituted a larger portion of the orcas' diet. It is also important that we protect and restore salmon runs throughout the orcas' seasonal range. Typically, the southern residents forage for salmon off the west coast of the U.S. in the winter and spring. According to GPS data from NOAA, they spend a considerable amount of time at the mouth of the Columbia River foraging for salmon returning to both the Columbia and Snake Rivers to spawn. Despite the scientific consensus that orcas rely on Snake River salmon and the hundreds of thousands of comments the agencies received about orcas, there were roughly two paragraphs about the orcas in the entire 7,584-page document. I strongly urge the agencies to update this section of the DEIS and reevaluate the impact of all the alternatives on southern resident orcas. Scientists from the Fish Passage Center have stated that breaching all four of these dams would result in roughly 1 million adult chinook salmon returning to the mouth of the Columbia River, providing a significant and important source of food for endangered southern resident orcas. These orcas primarily eat Chinook salmon and forage for these fish from central California into the Salish Sea. The Columbia basin supports salmon runs that the orcas have relied on for centuries. Historically, half of all the salmon returning to the Columbia Basin were bound for the Snake River.	SRKW analysis is described in the EIS including in the FEIS Chapter 3 (Vegetation, Wetlands, Wildlife, and Floodplains) which has been updated for SRKW (Section 3.6.2.6 and Table 3-102) and FEIS Chapter 7 (Preferred Alternative) with additional analysis information on SRKW and potential increase in forage fish, in particular, Chinook salmon in Section 7.7.8. The co-lead agencies utilized current high quality information and best available science in its analysis of the effects of the operation, maintenance, and configuration of the CRS projects. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. The EIS analysis found that only a minor effect to the Southern Resident killer whale would result from implementing MO3 (which includes the dam breach measure). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differentially from hatchery and wild fish. Hatchery fish today likely make up most fish consumed by SRKW (NOAA BiOp 2020). The co-lead agencies note the contribution to the prey of Southern Resident killer whales through the continued existence of their respective independent congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as Lower Snake River Compensation Plan (LSRCP), which is administered by USFWS. According to NMFS and the EPA, the estimated SRKW population has fluctuated between 67 and 98 whales between 1960 and 2015. The Snake River dams were constructed between 1962 and 1975. The SRKW population increased from a record low in 1970 to its highest population numbers in 1995. Those years were not high years for Snake or Columbia River Chinook Salmon. Ocean conditions between 2011 and 2013 were good years for salmon. At the same time, 2010 and 2013 were good outmigration years. Particularly, 2011 and 2012 were above normal in water supply, which would mean more cooler water was available and there was better survival of salmon, and 2011 through 2014 were higher than normal spill years as well. The combination of outmigration and ocean conditions created improved adult salmon returns. The EIS has analyzed spill as a measure in the Preferred Alternative and determined the overall effect to SRKW to be negligible in large part because hatchery production is consistent between the No Action Alternative and the Preferred Alternative. Because the impact from the Preferred Alternative was determined to be negligible, the agencies determined that existing hatchery production would be sufficient to address any potential impacts to prey availability for SRKWs. The co-lead agencies note the contribution to the prey of SRKW through the continued existence of their respective independent Congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as the Lower Snake River Compensation Plan (other than under MO3), which is administered by USFWS. The Preferred Alternative and Proposed Action in the agencies' biological assessment carry forward certain mitigation measures described in Chapters 2 and 7 of the EIS, which include continued salmon and steelhead hatchery production. The Preferred Alternative has negligible effects to SRKWs as described in Section 7.7.8.

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					The Biological Assessment (BA) describes the effect of the Proposed Action on the SRKW forage species (see BA Section 3.5.1.2, Southern Resident Killer Whale). The proposed changes in operation of the Columbia River System include increased spring spill during the downstream migration of juvenile spring and summer run Chinook salmon. The result of this action includes potential increases of juvenile fish passing through the spillways, reductions in juvenile fish direct and indirect mortality associated with downstream passage, and the Comparative Survival Study (CSS) model predicts increases in numbers of returning adults, which will benefit SRKWs foraging in and around the mouth of the Columbia River in winter and spring (See EIS Section 7.7.8). The CSS model results predicts Snake River Chinook salmon would have relative improvements in smolt-to-adult returns of 35 percent (see EIS Section 7.7.4). The smolt-to-adult return ratio (SAR) is the rate at which of a group of fish survive from their smolt life stage to a defined ending point where they return as adults. While recovery targets will require more than just the efforts of federal agencies, the CSS models indicate the potential for SARs of Snake River Chinook salmon and steelhead to increase to levels that could approach recovery targets set by the Northwest Power and Conservation Council. The BA, also consistent with the EIS, acknowledges past improvements to the configuration and operation of the Columbia River System, additional improvements to the environmental baseline as a result of completed estuary and tributary habitat actions, and the prospective non-operational conservation measures proposed in Chapter 2 of the Draft EIS, all contribute towards maintaining and improving Chinook abundance. Relevant conservation measures include, among other things, a commitment to continue funding the conservation and safety net hatchery programs listed in Chapter 2 of the Draft EIS. As discussed above, the agencies will fulfill congressionally authorized hatchery mitigation objectives through the funding of hatchery programs that are operated consistent with their independent hatchery program consultations during the term covered by this consultation. Based on those hatchery program consultations, the production levels associated with congressionally authorized hatchery mitigation objectives will continue, at minimum, to be consistent with levels previously analyzed by NOAA in the system consultations in 2008, 2014, and 2019. For the 2020 ESA consultations, therefore, the agencies expect that collectively, all of the actions described above (substantial modifications to migration conditions designed to benefit key prey species, combined with improvements to Chinook spawning and rearing habitat in the tributaries and Columbia River estuary, and continued hatchery production) ensure that remaining Chinook mortality from all sources in the mainstem migratory corridor will continue to be more than offset, resulting in a net gain in Chinook salmon abundance available as a prey source for SRKW. The 2019 NMFS Fisheries BiOp included increased spring spill operations that are similar to operations evaluated in CRSO EIS, and NOAA validated that the hatchery production of Chinook salmon mitigates for the impacts of operating the Columbia River System and total mortality through the mainstem migratory corridor from all sources.
6283	2	rkrehbiel@defenders.org	Defenders of Wildlife	With climate change, the number of days where temperatures will reach lethal levels in these reservoirs are expected to increase. Independent research has stated that removing these four dams would ameliorate this hot water problem. By removing these dams, we can increase salmon access to over 5,500 miles of free-flowing. climate-resilient, federally protected spawning habitat in Central Idaho.	It is well understood that the CRS dams have an impact on natural riverine processes as well as anadromous fish migration. This is discussed throughout the EIS document. A system water quality model was developed to look at water temperature and TDG effects throughout the Columbia and Snake River system for this EIS. Breaching the four lower Snake River dams would result in long-term benefits including improvements to fall water temperatures and the restoration of the river to more normative riverine processes; this is stated in Chapter 3, pages 3-271 through 3-272 and Appendix D, Section 6.2.3. Under a dam breach scenario, spring water temperatures will warm more quickly than No Action conditions. Similarly in the fall, under a dam breach scenario, fall water temperatures will cool more quickly than No Action conditions. These results make logical sense and are supported by results from CRSO numerical water quality modeling. What has surprised some stakeholders are the predicted summer water temperature effects under dam breaching. Many believe that removing the dams will result in colder water temperatures as compared to the No Action Alternative. While some cooler water temperatures may be observed in the summer under dam breaching, especially during cooler summer weather conditions and at night, water temperatures will remain warm and exceed the state water quality standard at times. This is because without the dams, the lower Snake River will be shallower and more susceptible to solar radiation and warming. Increases in water particle travel time are expected, but the lower Snake River has always been a warm system (USGS 1960, 1961, 1964; Corps 2002a) and breaching the dams will not change this fact. Regionally high air and water temperatures result in water quality standard exceedances and are beyond the ability of the CRS to cool; future climate change predictions will result in even more difficult challenges. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets most other EIS objectives including those for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS, the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams, because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system.
6283	3	rkrehbiel@defenders.org	Defenders of Wildlife	It is important that any dam breaching action be coupled with a package of infrastructure investments to support local communities and economies transition. This includes expanding rail lines, extending irrigation lines, installing renewable energy, and increasing energy efficiency. Through forums like Governor Inslee's Lower Snake River Stakeholder Process, people identified the types of investments needed to support local communities after the dams are breached. The DEIS ignores these important conversations.	Many of the infrastructure items listed in the comment are described within the relevant environmental consequences section of the EIS. For example, change infrastructure costs related to changing transportation modes are described in Infrastructure Costs subsection under Section 3.10.3.5. However, as described in Chapter 5, Mitigation, specific regulations guide the development of appropriate mitigation measures to address environmental impacts. If breaching the dams were to be selected as the Preferred Alternative, further, more detailed evaluations and NEPA would be needed along with congressional authorization and appropriations to assess the engineering requirements of the project and to potentially further refine and develop mitigation measures. However, it should be noted that as described in Section 5.1.1., Overview of Mitigation, mitigation measures developed as part of a NEPA process are not intended to indicate the co-lead agencies, or the Federal government as a whole, has the authority to perform all of the measures described. But rather provide a list of potential mitigation needs which could potentially include some infrastructure items, some of which could be implemented by other agencies, officials and/or the public who would potentially benefit from the mitigation measure. Many of the specific mitigation measures that the commenter lists are not within the co-lead agencies' current authorities. The specific process that the commenter mentions was published just before publication of the Draft EIS, and finalized after the Draft EIS, and was prepared to inform the Governor of the many stakeholders and their views on the lower Snake River dams.
6283	4	rkrehbiel@defenders.org	Defenders of Wildlife	The agencies also failed to fully analyze the economic benefits of dam breaching, particularly for tribal, commercial, or recreational fishing businesses. When discussing the costs of replacing the energy from these dams with other renewable energy sources, the agencies grossly over-estimated the costs. A report from the Northwest Energy Coalition shows that through strategic investments, the energy produced by these dams can be replaced at a miniscule cost to ratepayers while also improving the reliability of the electrical grid. The DEIS also did not accurately assess the projected costs associated with maintaining the four lower Snake River dams.	The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. NMFS estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which is described qualitatively. For the effects on recreational fishing under MO3 (Section 3.11.3.5) along the lower Snake River below Lewiston, the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River) as an indicator for fishing visitation in this reach. The EIS describes that the visitation in the long-term in the lower Snake River, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting outfitting and tourism businesses in the region. The social welfare values and regional economic effects associated with recreational fishing under the MOs, as well as river recreation post dam breach under MO3, were not estimated because of the uncertainty and large range in visitation and consumer surplus values among users. The contribution of Columbia River origin fish to ocean fisheries is described in Section 3.15.2.1. Because there is considerable uncertainty regarding the overall effects of the alternatives on regional fish populations, and how such changes may affect the management of the fisheries, the specific quantitative and monetized impacts associated with changes in commercial fisheries under the alternatives was limited. This analysis evaluates potential impacts on fisheries by referencing the potential effects on relevant fish populations, as described in Section 3.5.As described in Appendix H, Power and Transmission, and Section 3.7.3.5, the EIS considered the NWEC study cited by the commenter, but that study is not directly comparable with the EIS for several reasons, including that the EIS has a broader scope and relies on more recent regional load and resource availability and costs data. The cultural significance and impacts of salmon and steelhead fisheries are described in the Ceremonial and Subsistence Fisheries subsection and the Social Importance of Commercial, Ceremonial and Subsistence Fisheries subsection of Section 3.15.2.1. Fisheries Tribal interests are described in Section 3.15.4 additional details regarding the economic significance of salmon and steelhead fisheries have been added to the recreation analysis (Section 3.11) including Tribal interests (Section 3.11.3.7). Most sections of chapter 3 include a Tribal Interests Section at the end that attempts to summarize issues by topic. The method used to calculate the O&M costs of maintaining the four lower Snake River dams is detailed in Chapter 5 of Appendix Q.
6297	1	kimapperson@icloud.com	N/A	May I first state that the 45-day comment period on this draft is woefully inadequate, especially in light of the pandemic that is taking our world by storm. Many people, including myself, have been personally overwhelmed by this event. Citizens need more time to critically and constructively review this important document.	The co-lead agencies considered requests to extend the public comment period. This NEPA process included a wide array of cooperating agencies whose close involvement throughout the process allowed the co-lead agencies to incorporate feedback. Given the broad range of comments received and the extensive Federal and non-Federal participation in the overall process as well as the level of public engagement in the six virtual public meetings in the region, the co-lead agencies determined that an extension was not warranted and that the 45-day public comment period was adequate consistent with NEPA regulations. The CRSO EIS website notified the public on April 9, that they should plan to submit comments by the close of the comment period.
6297	2	kimapperson@icloud.com	N/A	The recovery of Snake River anadromous fishes will, in turn, enhance many resident species of animals that rely on ocean derived nutrients to thrive. The DEIS makes no effort to address such secondary benefits of restoring anadromous populations. Not to even mention making effort toward saving the imperiled Southern Resident Orca population.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. The CRSO EIS addresses abundance of anadromous fish among alternatives, which is the driving mechanism of marine nutrient cycling. The commenter is correct that there are broad ecological effects from marine nutrient cycling. However, the actual mechanisms, effects, magnitudes, and processes are very complex and uncertain. The analyses used in this Draft EIS were for the purposes of comparing the effects of operation, maintenance and configuration of the CRS projects to one another and to the No Action Alternative. For the purposes of comparing alternatives, a more detailed analyses of marine nutrient transfer throughout the spawning habitats was not completed. Section 3.5.2.3 recognizes that anadromous fish deliver resources that affect food web productivity and influence flora and fauna across the Columbia River Basin. The co-lead agencies agree that the quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differently from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for the whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall-run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall-run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Additionally, Section 7.7.8 states impacts to Southern Resident killer whales would be negligible. Thus, the co-lead agencies expect salmon and steelhead increases would come from operational measures and existing hatchery production carried forward into the Preferred Alternative. The co-lead agencies note the contribution to the prey of Southern Resident killer whales through the continued existence of their respective independent congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as Lower Snake River Compensation Plan, which is administered by USFWS.

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6297	3	kimapperson@icloud.com	N/A	The multitude of economic benefits from recovered anadromous fish populations throughout the Snake River Basin were not quantified, and barely even mentioned. Benefits from the removal of the four Lower Snake River dams would be far reaching and include increases in recreational fishing throughout the Snake, Salmon, Clearwater and other rivers, decreases in hatchery mitigation efforts, and eventual decreases in very intensive recovery monitoring efforts.	The EIS provides an evaluation of recreation (Section 3.11) and commercial fisheries (Section 3.15). The EIS described the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. NMFS estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which is described qualitatively. For the effects on recreational fishing under MO3 (Section 3.11.3.5) along the lower Snake River below Lewiston, the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River) as an indicator for fishing visitation in this reach. The EIS describes that the visitation in the long-term in the lower Snake River, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting outfitting and tourism businesses in the region. The social welfare values and regional economic effects associated with recreational fishing under the MOs, as well as river recreation post dam breach under MO3, were not estimated because of the uncertainty and large range in visitation and consumer surplus values among users. The contribution of Columbia River origin fish to ocean fisheries is described in Section 3.15.2.1. Because there is considerable uncertainty regarding the overall effects of the alternatives on regional fish populations, and how such changes may affect the management of the fisheries, the specific quantitative and monetized impacts associated with changes in commercial fisheries under the alternatives was limited. This analysis evaluates potential impacts on fisheries by referencing the potential effects on relevant fish populations, as described in Section 3.5. A decrease in hatchery operations is likely in the long-term under MO3. Regarding hatchery impacts associated with MO3, as described in Section 3.5, the co-lead agencies anticipate that changes in hatchery funding may occur as needs and obligations shift. As noted in Section 3.5, the co-lead agencies also recognize that there would be transitional needs that would be addressed in the additional mitigation measures for MO3 discussed in Chapter 5. Additionally, the Bonneville F&W Program funding for offsite mitigation projects in the Snake River Basin, implemented by local, state, Tribal, and Federal entities, would be reviewed, and potentially adjusted. Any changes of this nature would be implemented over time as the effectiveness of dam breaching is observed and would be done in consultation with fish and wildlife managers, regulatory agencies, and the Northwest Power and Conservation Council. Consistent with this, offsite mitigation projects for the other CRS dams would be reviewed and could be adjusted as operations change over time. Proposed project modifications would be coordinated with project sponsors and regional stakeholders to determine appropriate funding levels.
6297	4	kimapperson@icloud.com	N/A	I would like to have an opportunity to provide more and detailed constructive comments to this document. Please consider lengthening the comment period for this DEIS.	The co-lead agencies considered requests to extend the public comment period. This NEPA process included a wide array of cooperating agencies whose close involvement throughout the process allowed the co-lead agencies to incorporate feedback. Given the broad range of comments received and the extensive Federal and non-Federal participation in the overall process as well as the level of public engagement in the six virtual public meetings in the region, the co-lead agencies determined that an extension was not warranted and that the 45-day public comment period was adequate consistent with NEPA regulations. The CRSO EIS website notified the public on April 9, that they should plan to submit comments by the close of the comment period.
6299	1	brendan@yakamanation-olc.org	Confederated Tribes and Bands of the Yakama Nation	2.1. The Yakama Nations Treaty with the federal government serves as the cornerstone of the Lead Agencies responsibility to the Yakama Nation with respect to the CRSO EIS. The Yakama Nation is a sovereign, original Native Nation federally recognized under the Treaty of 1855. Article III of the Treaty of 1855 expressly guarantees the Yakama Nations right of taking fish at all usual and accustomed places. Article III also reserves the Yakama Nations right to hunt game and gather traditional foods on open and unclaimed land. The Yakama Nations elders present at the treaty negotiations knew that securing these rights was crucial to guaranteeing the survival of their culture and the livelihood of their people. For the Yakama Nations people, the exercise of the right to take fish in particular was not much less necessarythan the atmosphere they breathed."8 The Treaty of 1855 and the rights reserved therein are not, as the Lead Agencies imply, a legal formality.9 They are an expression of the Yakama Nations traditional way of life that creates an affirmative legal duty that the federal government must honor as the supreme law of the land.10 These Treaty rights must be understood as bearing the meaning that the Yakamas understood [them] to have in 1855.11 With respect to taking fish, the Yakamas understood that they would forever be able to continue the same off-reservationfishing practices as to time, place, method, species and extent as they had or were exercising.12 Rather than securing a mere equal opportunity to catch fish, then, the Treaty of 1855 guarantees to 6 Id. (quoting City of Sausalito v. ONeil, 386 F.3d 1186, 1206 (9th Cir. 2004)). 7 See Lands Council v. McNair, 537 F.3d 981, 994 (9th Cir. 2008) (applying the APAs arbitrary and capricious standard to the National Forest Management Act). The Lead Agencies have acted arbitrarily and capriciously where the record plainly demonstrates that [they] made a clear error in judgment in concluding that the CRSO EIS meets the requirements of NEPA. Id. 8 U.S. v. Winans, 198 U.S. 371, 381 (1905). 9 LEAD AGENCIES, COLUMBIA RIVER SYSTEM OPERATIONS DRAFT ENVIRONMENTAL IMPACT STATEMENT (2020) (DEIS) at 3-1415. 10 U.S. CONST. art. VI, cl. 2. 11 Wash. State Dept. of Licensing v. Cougar Den, Inc. 139 S. Ct. 1000, 1011 (2019). (citing Winans, 198 U.S., at 380-81; Seufert Brothers Co. v. United States, 249 U.S. 194, 196-98 (1919); Tulee v. Washington, 315 U.S. 681, 683-85; Washington v. Washington State Commercial Passenger Fishing Vessel Assn., 443 U.S. 658, 677-78 (1979)). 12 See United States v. Washington, 384 F. Supp. 312, 381 (W.D. Wash. 1974). Yakama Nation Comments on the Draft Columbia River System Operations Environment Impact Statement 8 the Yakama Nation a portion of the harvest.13 This guarantee is worthless without harvestable fish.14 Therefore, the destruction of salmon runs and habitats caused by manmade despoliation, such as the building and maintenance of barriers in a river, constitutes a violation of the Treaty of 1855.15 More precisely, an action may violate the Treaty of 1855 if it causes a greater than de minimis impact on access to fish, in which case it interferes with the exercise of the Yakama Nations Treaty rights.16 The Lead Agencies must evaluate any impacts to the Yakama Nations Treaty rights through the lens of the Yakama Nations understanding of those rights in 1855. The environmental conditions that provide for the full exercise of rights reserved under the Treaty of 1855 serve as the proper baseline for the Lead Agencies analyses of impacts from federal actions in the CRSO EIS.17 This would require the Lead Agencies to evaluate impacts against the conditions that existed on the Columbia River in 1855, since this is the context in which the Yakama Nation would have viewed its reserved rights. The Yakama Nation recognizes the difficulty of such an analysis. However, this approach is the only way to accurately assess the CRS EISs impacts to the Yakama Nation and its Treaty-reserved rights and is consistent with Supreme Court precedent concerning treaty interpretation. Under these standards, the Lead Agencies must provide an analysis in the final CRSO EIS (FEIS) that assures that the Lead Agencies will not violate the Treaty of 1855 through configuration and operation of the CRS. Specifically, the Lead Agencies must assure that the suite of actions ultimately selected in the ROD, at the very least, do not create greater than de minimis adverse impacts to fish populations or to time, place, method, species and extent of taking fish. Any alternative that would risk a total depletion of harvestable fish or otherwise destroy salmon runs and habitats would clearly violate the Treaty of 1855. The Yakama Nation urges the Lead Agencies to develop and adopt a Preferred Alternative in the FEIS that is clearly consistent with the Treaty of 1855 and promotes its objectives. Key elements of such a Preferred Alternative include measures that provide clear and measurable benefits to fish populations and will also be sufficiently protective of the Yakama Nations right to take those fish at usual and accustomed sites and to hunt and gather traditional foods on open and unclaimed land.	Analysis shows that the Preferred Alternative would meet the objectives for improving juvenile salmon, adult salmon, resident fish and lamprey. The analysis found ranges in potential effects due to different assumptions included in each of the fish models used in the study. Using the Comparative Survival Study (CSS), Snake River Chinook salmon and steelhead are expected to see relative improvements in smolt-to-adult returns of 35 percent and 28 percent, respectively. The smolt-to-adult return ratio (SAR) is the rate at which of a group of fish survive from their smolt life stage to a defined ending point where they return as adult. While achieving long-term recovery targets will require more than just the efforts of Federal agencies, the CSS models indicate the potential for SARs of Snake River Chinook salmon and steelhead to increase to levels that could approach recovery targets set by the Northwest Power and Conservation Council. If latent mortality effects are reduced by passing more juvenile fish through the spillway, the Lifecycle Model (LCM) also shows that levels of SARs would increase. However, if latent mortality effects are not reduced, or are different than modeled, the LCM predicts that SARs for Snake River spring Chinook salmon may be lower than the No Action Alternative (a range of -7.5 percent to +28 percent change relative to the No Action Alternative) due to reduced opportunities for fish transportation. Results for upper Columbia River stocks are beneficial based on LCM estimates. In-river survival and SARs are anticipated to increase. The CSS model does not currently model upper Columbia fish. The Preferred Alternative includes a modification of the John Day Reservoir operations for predator disruption. Reservoir levels would be increased before Caspian tern nesting season to dissuade terns from nesting on islands in the John Day Reservoir, where they are currently nesting and foraging on ESA-listed salmon and steelhead. In early June, after most of the spring juvenile salmon and steelhead have migrated through the reservoir, the John Day Reservoir will be reduced to the minimum irrigation pool range, which mimics the previous operation of the reservoir to benefit juvenile fish migration season. The Preferred Alternative has measures intended to increase upstream passage success and reduce injury and mortality for Pacific lamprey. These measures are proposed structural improvements that include converting extended-length submersible bar screen material to screen material that would not impinge or entangle juvenile lamprey, expanding the network of lamprey passage structures to bypass impediments in fish ladders, changing the design for turbine cooling water strainers, and replacing turbines for safer fish passage. The Preferred Alternative would also meet the objective to improve resident fish. Effects to resident fish vary by region and species, but are generally minor relative to the No Action Alternative.
6299	2	brendan@yakamanation-olc.org	Confederated Tribes and Bands of the Yakama Nation	2.2. The Lead Agencies development of the CRSO EIS is subject to the federal governments fiduciary obligation to protect the Yakama Nations resources. 13 Washington State Commercial Passenger Fishing Vessel, 443 U.S. at 681-82. 14 See United States v. Washington, 827 F.3d 836, 852 (9th Cir. 2016) (affd by an equally divided court, Washington v. United States, 138 S. Ct. 1832 (2018)). 15 See Id. at 865. 16 See Northwest Sea Farms v. United States Army Corps of Engnrs, 931 F. Supp. 1515, 1522 (W.D. Wash. 1996). The Corps itself has utilized this standard to evaluate the impact of a proposed coal terminal on Treatyreserved fishing rights. See Memorandum for Record from Michelle Walker, Chief, Regulatory Branch, Corps (May 9, 2016). 17 The Lead Agencies current environmental baseline for the DEIS is 2016. The Yakama Nations resources were already imperiled by this point. Therefore, the DEIS does not assess the true scope of impacts to the Yakama Nations resources. Yakama Nation Comments on the Draft Columbia River System Operations Environment Impact Statement 9 The federal government, including the Lead Agencies, has a fiduciary trust obligation to the Yakama Nation.18 This obligation is based on the Yakama Nations cession of certain rights to roughly ten million acres of land in reliance on federal promises to protect the Yakama Nations resources for future generations. The trust responsibility imposes fiduciary duties on the federal government with respect to any Federal government action which relates to the Yakama Nation.19 The U.S. Supreme Court has stated that the federal trust obligation to the Native Nations should be judged by the most exacting fiduciary standards.20 Where Tribal interests potentially conflict with other interests, the federal government must resolve the conflicting claims in a precise manner that would indicate the weight given each interest before [it].21 The federal government cannot resolve conflicts through a judgment call.22 The federal governments trust obligation is distinct from but related to its responsibilities stemming from the Treaty of 1855. Where a Native Nation has reserved treaty rights, the federal government has a duty to protect those rights.23 Therefore, in carrying out its fiduciary duty, it is the [federal governments]responsibility to ensure that Indian rights are given full effect.24 The Lead Agencies must honor the federal trust responsibility to the Yakama Nation. In the context of the CRSO EIS, this amounts to meaningfully engaging with the Yakama Nation on impacts to Treaty-protected resources and integrating avoidance of those impacts into the Preferred Alternative selection and the ROD. The Yakama Nation expects that the Lead Agencies will fulfill these duties in accordance with the most exacting fiduciary standards. The Lead Agencies cannot make a vague judgment call as to whether the Yakama Nations interests affected by the CRS operations will be subordinate to other interests; instead, the Lead Agencies must resolve any conflicts between competing interests with clear and thorough analyses. Where these conflicts implicate resources reserved under the Treaty of 1855, the law provides that the Yakama Nations Treaty rights prevail and the Lead Agencies must protect those resources and give full effect to the associated Treaty rights.	Tribal input, concerns, interests, and treaty rights were considered throughout the Draft EIS analyses and in the formulation of the Preferred Alternative. Treaty specific information is included in Section 3.17 as well as Chapter 7. The co-lead agencies recognize and respect the legal obligations imposed by treaties. The co-lead agencies accordingly included Protecting Native American treaty and reserved rights and fulfilling trust obligations for natural and cultural resources throughout the environment affected by the Columbia River System operations as a purpose in the Purpose and Need Statement in Chapter 1 to ensure treaty obligations were a key consideration of decision making. The co-lead agencies are engaging in government-to-government consultation with the tribes, and several tribes are cooperating agencies on the CRSO EIS. The EIS recognizes the economic and cultural importance of salmon to Tribes in a number of sections throughout the document. The cultural significance and impacts of salmon and steelhead fisheries are described in the Ceremonial and Subsistence Fisheries sub-section and the Social Importance of Commercial, Ceremonial and Subsistence Fisheries sub-section of Section 3.15.2.1. Fisheries tribal interests are provided in Section 3.15.4 and the economic significance of salmon and steelhead fisheries have been added to the recreation analysis (Section 3.11) including tribal interests (Section 3.11.3.7). Treaty rights are discussed in the Executive Summary, Section 3.16 Cultural Resources, and Section 3.17 Indian Trust Assets, Tribal Perspectives, and Tribal Interests. Appendix P includes copies of tribal perspectives that were submitted by tribes. Tribal consultation is described in Sections 1.5, 3.5, and 3.15; and Chapter 9. Most sub-sections within Chapter 3 include a Tribal Interests section at the end of the sub-section that attempts to summarize tribal issues by resource.

Letter No.	Comment No.	Commenter Name/Email	Affiliation	Comment	Response[1/]
6299	3	brendan@yakamanation-olc.org	Confederated Tribes and Bands of the Yakama Nation	2.3. The operation and management of the CRS has caused significant adverse impacts to the Yakama Nation. 18 See U.S. v. Mitchell, 463 U.S. 206, 225 (1983). 19 See Northwest Sea Farms, 931 F.Supp. at, 1519-20 (W.D. Wash. 1996) (citing Nance v. Environmental Protection Agency, 645 F.2d 701, 711 (9th Cir. 1981), cert. denied, 454 U.S. 1081 (1981)). 20 Seminole Nation v. U.S., 316 U.S. 286, 297 (1942). 21 Pyramid Lake Paiute Tribe v. Morton, 354 F. Supp. 252, 257 (D.D.C. 1973) (modified on other grounds, 360 F.Supp. 669 (D.D.C. 1973), revd in part on other grounds, 499 F.2d 1095 (D.C. Cir. 1974), cert. denied, 420 U.S. 962 (1975)). 22 Id. 23 Parravano v. Babbitt, 70 F.3d 539, 547 (9th Cir. 1995) ([T]he Tribes federally reserved fishing rights are accompanied by a corresponding duty on the part of the government to preserve those rights.) 24 Northwest Sea Farms, 931 F. Supp. at 1520 (citing Seminole Nation, 316 U.S. at 296-97. Yakama Nation Comments on the Draft Columbia River System Operations Environment Impact Statement 10 The CRS and its operation have contributed greatly to the decline of fish populations in the Columbia River. In 1987, the Northwest Power Planning Council, which became the Northwest Power and Conservation Council (Council), completed an exhaustive study of the historical size and then-current status of salmon and steelhead populations.25 The study concluded that these populations had declined by seven to fourteen million fish, with salmon runs at less than five percent of historical levels.26 According to the Council, dams were responsible for five to eleven million of these losses.27 This decline limits the ability of the Yakama Nation to exercise its fishing rights to the full extent reserved under the Treaty of 1855. The loss of Treaty-reserved fish also amounts to a loss of the Yakama Nations cultural resources. Again, the rights reserved under the Treaty of 1855 are expressions of the Yakamas traditional way of life. Fishing is a cultural practice that is inextricably tied to the Yakama Nations identify. In testifying before the Washington Supreme Court, George Meninock articulated this connection: God created this Indian country and it was like He spread out a big blanket. He put the Indians on itThen God created the fish in this river and put deer in these mountains and made laws through which has come the increase of fish gameWhen we were given our ground to live on, and from that time these were our rightsMy strength is from the fish; my blood is from the fish, from the roots and the berries. The fish and game are the essence of my life28 The Yakama Nations agreement with the Creator to act as a steward over the Columbia River predates the Treaty of 1855. As such, the decimation of salmon populations recounted in the Councils study directly impairs resources essential the Yakama Nations cultural values and traditional way of life. The CRS has also foreclosed access to certain archeological sites and traditional cultural properties through inundation. Finally, the CRS has intensified the economic hardship faced by the Yakama Nation and its members. Salmon provide a valuable commercial resource for Tribal fisherman and their families. The degradation of this resource can be linked to increased poverty and unemployment in the Yakama Nations communities.29 Furthermore, the loss of traditional foods such as salmon contributes to the poor health and reduced life expectancy that many Yakama members face.30 These indicators reveal the more practical effects of harm to Treaty-reserved rights and cultural practices.	Tribal input, concerns, interests, and especially treaty rights were considered throughout the Draft EIS analyses and in the formulation of the Preferred Alternative. Treaty specific information is included in Section 3.17 as well as Chapter 7. The co-lead agencies recognize and respect the legal obligations imposed by treaties. The co-lead agencies accordingly included Protecting Native American treaty and reserved rights and fulfilling trust obligations for natural and cultural resources throughout the environment affected by the Columbia River System operations as a purpose in the Purpose and Need Statement in Chapter 1 to ensure treaty obligations were a key consideration of decision making. The co-lead agencies are engaging in government-to-government consultation with the tribes, and several tribes are cooperating agencies on the CRSO EIS. The EIS recognizes the economic and cultural importance of salmon to Tribes in a number of sections throughout the document. The cultural significance and impacts of salmon and steelhead fisheries are described in the Ceremonial and Subsistence Fisheries sub-section and the Social Importance of Commercial, Ceremonial and Subsistence Fisheries sub-section of Section 3.15.2.1. Fisheries tribal interests are provided in Section 3.15.4 additional details regarding the economic significance of salmon and steelhead fisheries have been added to the recreation analysis (Section 3.11) including tribal interests (Section 3.11.3.7). Treaty rights are discussed in the Executive Summary, Section 3.16 Cultural Resources, and Section 3.17 Indian Trust Assets, Tribal Perspectives, and Tribal Interests. Appendix P includes copies of tribal perspectives that were submitted by tribes. Tribal consultation is described in Sections 1.5, 3.5, and 3.15; and Chapter 9. Most sub-sections within Chapter 3 include a Tribal Interests section at the end of the sub-section that attempts to summarize tribal issues by topic. Analysis shows that the Preferred Alternative would meet the objectives for improving juvenile salmon, adult salmon, resident fish and lamprey. The analysis found ranges in potential effects due to different assumptions included in each of the fish models used in the study. Using the Comparative Survival Study (CSS), Snake River Chinook salmon and steelhead are expected to see relative improvements in smolt-to-adult returns of 35 percent and 28 percent, respectively. The Smolt-to-Adult return ratio (SAR) is the rate at which of a group of fish survive from their smolt life stage to a defined ending point where they return as adult. While achieving long-term recovery targets will require more than just the efforts of Federal agencies, the CSS models indicate the potential for SARs of Snake River Chinook salmon and steelhead to increase to levels that could approach recovery targets set by the Northwest Power and Conservation Council. If latent mortality effects are reduced by passing more juvenile fish through the spillway, the NMFS Lifecycle Model (LCM) also shows that levels of SARs would increase. However, if latent mortality effects are not reduced, or are different than modeled, the LCM predicts that SARs for Snake River spring Chinook salmon may be lower than the No Action Alternative (a range of -7.5 percent to +28 percent change relative to the No Action Alternative) due to reduced opportunities for fish transportation. Results for upper Columbia River stocks are beneficial based on LCM estimates. In-river survival and SARs are anticipated to increase. The CSS model does not currently model upper Columbia fish. The Preferred Alternative also has measures intended to increase upstream passage success and reduce injury and mortality for Pacific lamprey. These measures are proposed structural improvements that include converting extended-length submersible bar screen material to screen material that would not impinge or entangle juvenile lamprey, expanding the network of lamprey passage structures to bypass impediments in fish ladders, changing the design for turbine cooling water strainers, and replacing turbines for safer fish passage. The Preferred Alternative would also meet the objective to improve resident fish. Effects to resident fish vary by region and species, but are generally minor relative to the No Action Alternative.
6299	4	brendan@yakamanation-olc.org	Confederated Tribes and Bands of the Yakama Nation	2.4. The disproportionate adverse impacts of the CRS on the Yakama Nation create significant environmental injustice issues that the Lead Agencies must address in the CRSO EIS and the ROD. 25 A summary of the 1987 study, prepared by Yakama Nation technical consultant Tom Iverson, is included as Appendix A to these comments. 26 COUNCIL, COLUMBIA RIVER BASIN FISH AND WILDLIFE PROGRAM (1987). 27 Id. 28 COLUMBIA RIVER INTER-TRIBAL FISH COMMISSION (CRITFC), THE YAKAIMA NATION, THE NEZ PERCE TRIBE, THE CONFEDERATED TRIBES OF THE UMATILLA INDIAN RESERVATION, AND THE CONFEDERATED TRIBES OF THE WARM SPRINGS RESERVATION OF OREGON (COLLECTIVELY, TREATY TRIBES), TRIBAL PERSPECTIVES REPORT (2019) at 5. 29 Id. at 7-10. 30 Id. Yakama Nation Comments on the Draft Columbia River System Operations Environment Impact Statement 11 Both previous and subsequent comments note the significant and unique adverse effects of the CRS on the Yakama Nation and its members. The present configuration of the dams and their continued operation perpetuates these adverse effects in the absence of affirmative actions to mitigate those adverse effects. Environmental justice is defined by the Department of Energy as: [T]he fair treatment and meaningful involvement of all people, regardless of race, color, national origin, or income, with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. Fair treatment means that no population bears a disproportionate share of negative environmental consequences resulting from industrial, municipal, and commercial operations or from the execution of federal, state, and local laws; regulations; and policies.31 Executive Order 12898 directs that federal agencies consider environmental justice by identifying and addressing disproportionately high and adverse human health or environmental effects of [federal] programs, policies, and activities on minority and lowincome populations.32 The accompanying Presidential Memorandum further states that, in the context of NEPA, federal agencies shall analyze the environmental effects, including human health, economic and social effects, of federal actions on minority and low-income communities.33 Any mitigation measures developed by federal agencies in an EIS should address significant and adverse environmental effects on these communities.34 The Council on Environmental Quality (CEQ) 1997 guidance on environmental justice affirms these directives as wholly consistent with NEPA.35 CEQ recommends that federal agencies should, among other actions, acknowledge that impacts to low-income, minority, and Tribal communities may differ from impacts to the general population.36 Once a federal agency identifies these distinct impacts, the agencies should clearly state in its EA or EIS whether a disproportionately high and adverse impact to the community is likely to result from its proposed alternatives.37 If so, the federal agency should consider distribution as well as magnitude of impacts in selecting a preferred alternative.38 Any mitigation measures that the federal agency adopts as part of its preferred alternative should reflect the needs and preferences of low-income, minority, and Tribal communities.39 More recently, the Federal Interagency Working Group on Environmental Justice, which includes the Department of the Interior and the Department of Energy, published a report 31 What is Environmental Justice?, DEPARTMENT OF ENERGY, https://www.energy.gov/lm/services/environmentaljustice/what-environmental-justice (last visited March 27, 2020). 32 59 Fed. Reg. 7629 (Feb. 16, 1994) 33 Executive Order on Federal Actions to Address Environmental Justice in Minority Populations and LowIncome Populations (Feb. 11, 1994). 34 Id. 35 CEQ, ENVIRONMENTAL JUSTICE: GUIDANCE UNDER THE NATIONAL ENVIRONMENTAL POLICY ACT (1999) at 7. 36 Id. at 14. CEQ also notes that [w]here environments of Indian tribes may be affected, agencies must consider pertinent treaty, statutory, or executive order rights and consult with Tribal governments in a manner consistent with the government-to-government relationship. 37 Id. at 15. 38 Id. 39 Id. at 16. Yakama Nation Comments on the Draft Columbia River System Operations Environment Impact Statement 12 with more specific guidance on for federal consideration of environmental justice. For example, in determining the affected environment for an EIS, federal agencies should, after properly identifying minority and low-income communities,40 consider a proposed actions: 1) exposure pathways (routes by which the minority or low-income population may come into contact with chemical, biological, physical, or radiological effects); 2) ecological, aesthetic, historic, cultural, economic, social, or health consequences to the communities; and 3) distribution of adverse and beneficial impacts.41 Likewise, federal agencies should consider distinctive conditions of potentially affected minority and low-income communities such as: 1) human health vulnerabilities (e.g., heightened disease susceptibility, health disparities); 2) socioeconomic vulnerabilities (e.g., reliance on a particular resource that may be affected by the proposed action, disruptions to community mobility and access as a result of infrastructure development); and 3) cultural vulnerabilities (e.g., traditional cultural properties and ceremonies, fish consumption practices).42 As to alternative development and selection, the report provides that federal agencies should consider whether proposed alternatives would avoid or mitigate impacts to minority or low-income communities.43 Federal agencies should clearly identify which alternatives would cause disproportionately high and adverse impacts to minority or low-income communities and consider alternatives that would minimize or mitigate such impacts when selecting a preferred alternative.44 Furthermore, federal agencies should be cognizant that minority and low-income communities in the affected environment may be uniquely affected by past, present, or reasonably foreseeable future impacts than the general population.45 These impacts may be intensified by factors such as non-chemical stressors, which include health conditions and standard of living, or climate change-related hazards.46 As such, a federal agencys evaluation of an impact to the general population may be inadequate if it does not consider unique and disparate effects to minority and low-income communities.47 40 FEDERAL INTERAGENCY WORKING GROUP ON ENVIRONMENTAL JUSTICE, PROMISING PRACTICES FOR EJ METHODOLOGIES IN NEPA REVIEWS (2016) at 12-13. 41 Id. at 15. 42 Id. at 17. 43 Id. at 20. 44 Id. 45 Id. at 30. 46 Id. at 31-32. 47 Id. at 33. Yakama Nation Comments on the Draft Columbia River System Operations Environment Impact Statement 13 With respect to mitigation, additional measures are necessary to avoid or reduce disproportionately high and adverse impacts to minority and low-income communities.48 Such measures may include: a. Avoiding an impact by not taking a certain action or parts of an action. b. Minimizing an impact by limiting the degree or magnitude of the action and its implementation. c. Rectifying an impact by repairing, rehabilitating, or restoring the affected environment. d. Reducing or eliminating an impacts frequency over time, such as through preservation and maintenance operations during the life of the action. e. Compensating for an impact by replacing or providing substitute resources or environments.49 Where federal agencies will not or cannot adopt mitigation measures to avoid or minimize environmental harm to minority and low-income communities, they should explain why.50 The Lead Agencies must abide by these guidelines with respect to the CRSO EIS. The guidelines will facilitate the Lead Agencies understanding of the Yakama Nations affected resources and vulnerabilities. The guidelines will also assist the Lead Agencies with determining how adverse impacts of the CRS disproportionately fall on the Yakama Nation while other non-Native communities see immense benefits. This information is crucial to a meaningful and objective analysis of the impacts of the CRS. This will in turn lead to development of a purpose and need statement,	The co-lead agencies understand the concern regarding the continued effects of the CRS on intangible cultural heritage, traditional knowledge, and other tribal interests. The co-lead agencies appreciate the unique connection between tribes and the Columbia River Basin ecosystems and recognize the difficulty in fully communicating these connections in the context of the EIS. The co-lead agencies appreciate the commenter providing this summary of guidance for use in evaluating potential environmental justice impacts resulting from the CRS. As described in Section 3.18.1 the environmental justice analysis was conducted in accordance with the documents cited in the comment (e.g., E.O. 12898 (1994), the CEQ Guidance (1997) and the more recent guidance from the NEPA Committee and Federal Interagency Working Group on Environmental Justice (2016). Tribal input, concerns, interests, and especially treaty rights were considered throughout the Draft EIS analyses and in the formulation of the Preferred Alternative. Treaty specific information is included in Section 3.17 as well as Chapter 7. The treaties bind all parties and are the supreme law of the land. The co-lead agencies recognize and respect that supremacy. In terms of honoring our treaty obligations, the co-lead agencies included "Protecting Native American treaty and reserved rights and fulfilling trust obligations for natural and cultural resources throughout the environment affected by the Columbia River System operations" as a purpose in the Purpose and Need Statement in Chapter 1 to ensure treaty obligations were a key consideration of decision making. In order to ensure potential impacts on tribal communities were represented as accurately as possible, Appendix P presents first-hand tribal perspectives that were provided by 11 regional tribes, including the Columbia River Treaty Tribes, on the operations and maintenance of the CRS, and the effects it has had on tribal life for consideration in the EIS. Section 3.17 summarizes these perspectives on the importance of the Columbia River Basin resources and landscapes to tribes, and the potential impacts of the CRSO alternatives. In addition, where applicable or pertinent, for specific EIS resources, the EIS described how tribal interests would be impacted by the different action alternatives in Chapters 3 and 7 so that this information would be provided to readers throughout the document. Based on public comments, the co-lead agencies also revised the Environmental Justice analysis (Section 3.18) to provide additional discussion of the potential effects to environmental justice populations.

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				affected environment evaluation, and range of potential alternatives that appropriately plans for operation and management of the CRS moving forward.	
6299	5	brendan@yakamanation-olc.org	Confederated Tribes and Bands of the Yakama Nation	2.5. For a Preferred Alternative to be adequate, it must fully account for the Yakama Nations interest and sufficiently safeguard the Yakama Nations resources. The Yakama Nation advises the Lead Agencies to adopt a Preferred Alternative that broadly conforms with the following requirements: Prioritizes total compliance with the Treaty of 1855 (and any applicable statutes, regulations, and court orders) over the maximization of economic gains; Clearly and specifically describes planned hydropower operations over the entire operations period within the scope of the DEIS, with subsequent adaptive management actions being based on accumulated performance data and information; 48 Id. at 49. 49 Id. These are the same types of mitigation measures prescribed in 40 C.F.R. 1508.20. However, the Federal Interagency Working Group on Environmental Justices applies them specifically to impacts to minority and low-income communities. 50 Id. Yakama Nation Comments on the Draft Columbia River System Operations Environment Impact Statement 14 Preferentially avoids rather than mitigates impacts to the Yakama Nations resources; Where avoidance of impacts to the Yakama Nations resources is infeasible, includes mitigation measures consistent with the recommendations in Promising Practices for EJ Methodologies in NEPA Reviews;51 and Plans for a transition away from dependence on hydropower and toward a restoration of the natural state of the Columbia River, with the goal of restoring the resources necessary for the Yakama Nations full exercise of its Treaty rights and associated cultural values. To meet these general parameters, the Yakama Nation recommends that the Lead Agencies include certain specific measures in the FEIS Preferred Alternative and associated BiOp: Set appropriate benchmarks for success by acknowledging the Tribal Wy-Kan-UshMi Wa-Kush-Wit Salmon Recovery Plan52 and the Councils Fish and Wildlife Program53 goals and objectives and measure the potential benefits of the Preferred Alternative and the BA towards achieving those goals and objectives; Memorialize the Lead Agencies obligation to help the region meet the established benchmarks; Provide for development of a phased plan for investigating and implementing mainstem Columbia River dam removal at the fastest possible pace, evaluating individual dams on a case-by-case basis, including action plans for implementation of dam evaluations and mitigating impacts to affected communities in the interim; Adopt a Flex Spill CRS operation with a fifteen-year plan and an adaptive management process that requires consensus from the Yakama Nation to deviate from that fixed operation; Restrict excursions on turbine efficiency (1% operation) so as not to detract from fish benefits from Flex Spill operation, particularly at McNary Dam; Restrict winter drafting of upriver reservoirs to ensure spring flow augmentation targets are met through the mid-Columbia reach; Establish and fund a Regional Predator Management Forum, with additional monitoring, that includes all funding and implementation partners to collaboratively and comprehensively evaluate and address predation (including piscivorous, avian, and pinniped predation) on salmon, steelhead, lamprey, and sturgeon from the river mouth to the spawning grounds; 51 See pg. 11-13, supra. 52 The Plan: Wy-Kan-Ush-Mi Wa-Kish-Wit, CRITFC, https://www.critfc.org/fish-and-watersheds/fish-andhabitat-restoration/the-plan-wy-kan-ush-mi-wa-kish-wit/ (last accessed April 12, 2020). 53 2014 Columbia River Basin Fish and Wildlife Program, COUNCIL, https://www.nwcouncil.org/reports/2014columbia-river-basin-fish-and-wildlife-program (last accessed April 12, 2020). Yakama Nation Comments on the Draft Columbia River System Operations Environment Impact Statement 15 Provide financial support for further lethal removal of predator fishes and dissuasion actions for birds from the river mouth to the spawning grounds based on priorities and recommendations from the proposed Regional Predator Management Forum; Fund and support actions to remove non-native fish species such as shad, walleye, smallmouth bass, and catfish from the mainstem Columbia and tributaries; Fund and support actions to remove non-native aquatic plant species from the mainstem Columbia and tributaries; Fund and support actions to minimize and remove invasive species from the mainstem Columbia and tributaries; Fund and support actions to reduce adverse impacts to fish populations caused by excessive sediment levels; Fund a Corps Columbia River Fish Management (CRFM) program at an adequate level to address new initiatives for the fifteen-year operating period addressed in the Biological Assessment (BA) (e.g., add notched gates for steelhead fallback during non-spill season); Fully fund Fish and Wildlife Program hatcheries to meet their hydro system mitigation goals according to the recent U.S. v. Oregon hatchery assessment;54 Support the sovereign role of the Yakama Nation and other Native Nations in identifying and setting tributary habitat priorities and project selection; Include the Yakama Nation in its sovereign capacity on the Tributary Habitat Oversight Committee; Fund robust reach survival studies for upper Columbia stocks and Snake River steelhead to better ascertain survival gaps and address Adaptive Management Implementation Plan (AMIP) triggers; Fund additional habitat actions where AMIP population triggers have been met to address survival gaps; Fund mainstem habitat actions at tributary river mouths to create transition zones and cold-water refuges for migrating fish; 54 The 2018 BPA Integrated Program Reviewed budgeted $238,000,000 in capital infrastructure at federal hydro system dams in 2020 alone. This amount was set to increase to $340,000,000 in 2029. Hatchery facilities authorized to mitigate for the hydro system, on the other hand, are rapidly aging with zero dollars identified for capital upgrades, repairs, and maintenance. Estimated costs for deferred maintenance of the Lower Snake River Compensation plan facilities is over $100,000,000. The DEIS fails to note the federal governments obligation to fund the John Day Mitigation, Grand Coulee Mitigation, Dworshak Mitigation, and Lower Snake River Compensation Plan programs. Yakama Nation Comments on the Draft Columbia River System Operations Environment Impact Statement 16 Identify lamprey funding beyond 2022 commensurate with the proposed term of the salmon and steelhead BA; Fund outreach and education opportunities across the Columbia River Basin to encourage incorporation of salmon recovery principles into local everyday land and water management decision making; and Ensure that the Yakama Nation retains access to usual and accustomed fishing sites and open and unclaimed lands for hunting, gathering, and other traditional practices.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA listed species. Moreover, recovery goals from other entities are outside the scope of this EIS. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-lead agencies numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3, which includes breaching the four lower Snake River dams. The Preferred Alternative also meets most other EIS objectives for: resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS the co-lead agencies did not identify MO3 because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. The co-lead agencies are committed to fulfilling their treaty and trust obligations and providing early, open, transparent and meaningful consultation. See Sections 2.3 and 9.3.2. The co-lead agencies look forward to continuing to consult on the EIS, which covers changes to the water management of the existing 14 projects on the Columbia and lower Snake Rivers. The co-lead agencies recognize these obligations while also acknowledging that construction of the Federally authorized CRS projects directly impacted many of the regions Tribal communities. Many of the actions requested by the Yakama Nation are included in the Preferred Alternative while others are outside the scope of this EIS. However, the co-lead agencies look forward to continue to work with the tribe on these issues.
6299	6	brendan@yakamanation-olc.org	Confederated Tribes and Bands of the Yakama Nation	3.1. The Lead Agencies rushed timeline and failure to incorporate comments during the cooperating agency process undercuts transparent and meaningful consideration of important aspects of the CRS alternatives and impacts and obscures the necessary rational connection between those factors and the choices made in developing the DEIS. The Lead Agencies invited the Yakama Nation to participate as a cooperating agency in the development of the DEIS. The invitation was based on the Yakama Nations comanagement authority over Treaty-reserved fish in the Columbia River and special expertise concerning resources affected by the CRS.55 In addition, the invitation was based on the existing partnership between the Lead Agencies and the Yakama Nation pursuant to the Memorandum of Agreement Among the Umatilla, Warm Springs, and Yakama Tribes, Bonneville Power (Fish Accord).56 55 Memorandum of Understanding Between U.S. Department of the Army, Corps of Engineers, Northwestern Division; U.S. Department of the Interior, Bureau of Reclamation, Pacific Northwest Region; and U.S. Department of Energy, Bonneville Power Administration, as Co-Lead Agencies; and the Confederated Tribes and Bands of the Yakama Nation, as a Cooperating Indian Tribe, in the Columbia River System Operations Environmental Impact Statement Process (2018) (Memorandum of Understanding) 1. Specifically, the Memorandum of Understanding noted that the Yakama Nation has special expertise concerning Cultural Resources assessment, protection and preservation; Intergovernmental relations and regional management frameworks governing fisheries and wildlife management, including requirements for Indian treaty rights and fulfillment of federal trust obligations to Indians and Indian tribes; Hydrosystem management and operations related to life cycles of anadromous salmonids, lamprey, and sturgeon; Ecosystem functions and habitat, and habitat restoration processes, required to support the life cycles of anadromous salmonids, lamprey and sturgeon; Artificial fish production mitigation requirements and methods applicable to mitigation of fish habitat loss and hydrosystem configuration and operations; Research, monitoring and evaluation expertise concerning fish and wildlife environmental baseline conditions, impacts from hydrosystem configuration and operations, and methods for mitigating impacts; [] Socioeconomic parameters of hydrosystem configuration and operations concerning the Yakama Nation and its tribal members, including environmental justice considerations; Flood risk management and modeling in the Columbia River Basin[;] In Lieu and Treaty Fishing Access sites developed pursuant to P.L. 79-14 and P.L. 100-581 in the Bonneville, The Dalles, and John Day project areas; Tribal members uses of the Columbia and Snake Rivers and their environs; [and] Management of invasive and nuisance species present in the Columbia and Snake Rivers. 56 Id. Yakama Nation Comments on the Draft Columbia River System Operations Environment Impact Statement 17 The Yakama Nation accepted the invitation in order to assist the Lead Agencies with analyses related to the Yakama Nations co-management authority and special expertise, ensure that the CRSO EIS process reflected the Yakama Nations perspective, and maintain the existing partnership with the Lead Agencies. The Yakama Nation expected that, in light of the considerable resources necessary to participate as a cooperating agency, the Lead Agencies would meaningfully consider and incorporate its input. This expectation was memorialized in the Yakama Nations Memorandum of Understanding with the Lead Agencies.57 The Yakama Nation submitted significant comments on the Lead Agencies draft technical products during the cooperating agency process.58 Yakama Nation staff developed these comments despite two significant challenges to the review process. First, the Lead Agencies often released products with incomplete data and analyses. Second, the Lead Agencies truncated timeline (discussed above.) demanded an extremely short turnaround window for each review and comment opportunity. It was not at all apparent that the Lead Agencies actually considered and incorporated the Yakama Nations comments. No specific provisions in the DEIS correspond substantially with the Yakama Nations comments. In one instance, the Lead Agencies outright refused to consider a fish impact analysis by the Yakama Nation and other cooperating agencies for being outside the limits of the CRSO EIS framework.59 This failure to consider, much less incorporate, the Yakama Nations	The co-lead agencies appreciate the valuable contributions of the Yakama Nation and other cooperating agencies. The cooperating agencies served a critical role in the development of the objectives and measures for the EIS evaluation, and working on technical teams to identify the impacts of the four Multiple Objective alternatives. The co-lead agencies utilized the measures and analysis that was developed with the cooperating agencies to select a combination of measures from the Multiple Objective alternatives to develop the Preferred Alternative (PA). The selection of measures to include in the PA is based on how well the measures met the Purpose and Need Statement and EIS objectives, with consideration of environmental, economic, and social effects.

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				input does not conform to Yakama Nations expectations with respect to the cooperating agency Memorandum of Understanding,60 the Fish Accord partnership, or the federal trust obligation. It also casts uncertainty as to the basis for the choices made in the production of the DEIS.	
6299	7	brendan@yakamanation-olc.org	Confederated Tribes and Bands of the Yakama Nation	3.2. The Lead Agencies arbitrarily adopted a condensed timeline that hindered meaningful analysis. The CRSO EIS process was originally set to conclude, at the earliest, in September 2021. This schedule was proposed by the Lead Agencies and adopted by the District Court for the District of Oregon as necessary to successfully complete a system-wide comprehensive [EIS]that includes a full evaluation of reasonable alternatives, addresses potential environmental effects of operating the multiple-use [CRS] projects, and provides for meaningful public participation[.]The Yakama Nation relied on this schedule as a means of 57 Id. at 3.D (stating that the Lead Agencies shall, [c]onsistent with their responsibilities as co-lead agencies, consider and incorporate the data, environmental analyses, technical analyses, and recommended alternatives and mitigation measures of the Yakama Nation to support the decision-making process as appropriate, giving particular weight to those topics on which the Yakama Nation is acknowledged to possess special expertise.). 58 As noted in n. 1, all previous comments provided by the Yakama Nation in its capacity as a cooperating agency are incorporated into these comments by reference. 59 As described on pg. 24-25, infra, the Lead Agencies formally rejected the Yakama Nation and other cooperating agencies offer of to perform a measure-by-measure analysis for impacts to fish. 60 The Yakama Nations participation as a cooperating agency did not appear to make an appreciable difference on the development of the DEIS. Accordingly, the Lead Agencies reference to the Yakama Nation in the cooperating agency section of the DEIS should not be read as indicating any degree of Yakama Nation authorship on the CRSO EIS. Yakama Nation Comments on the Draft Columbia River System Operations Environment Impact Statement 18 assuring an informed, well-considered, and publicly vetted long-term strategy for the [CRS] that complies with all federal laws, including [the ESA]. The Trump administrations 2018 executive memorandum, Executive Memorandum on Promoting the Reliable Supply and Delivery of Water in the West (Executive Memorandum) imposed a condensed schedule onto the development of the CRSO EIS. The stated policy of the Executive Memorandum directed the Secretary of the Interior to minimize unnecessary regulatory burdens and foster more efficient decision-making so that water projects are better able to meet the demands of their authorized purposes.61 To that end, the Executive Memorandum directed the Lead Agencies to complete the CRSO EIS process by September 2020.62 This revision eliminated one-fifth of the previously adopted minimum timeline for an exceedingly complicated scientific and legal undertaking. Neither the Executive Memorandum nor the Lead Agencies associated press release offer any justification as to why a September 2020 completion date was essential or appropriate to minimize unnecessary regulatory burdens or foster more efficient decision-making. Without justification, the Executive Memorandums deadline is simply an arbitrary date on a calendar. Moreover, neither of the documents explains how the Lead Agencies would adjust their approach in order to ensure effective decision-making and compliance with the Lead Agencies Treaty, trust, and statutory obligations. The Lead Agencies hurried through each step of the process in order to remain on the arbitrary schedule mandated in the Presidential Memorandum. The Lead Agencies frequently released draft sections of the DEIS to the cooperating agencies that were incomplete or rampant with errors. The cooperating agencies had around five days to review and comment on these documents before the Lead Agencies released another set of draft sections. Again, there was no evidence that the Lead Agencies meaningfully considered or incorporated any of the Yakama Nations comments during this process. The Lead Agencies hurried pace extended to the public comment period of only forty-five days, the shortest time allowable under NEPA.63 The Executive Memorandum resulted in a sprint through the NEPA process that is not indicative of thorough and meaningful evaluation (i.e., a hard look) of all available information to reach an informed decision. Likewise, this rushed process is inconsistent with the Lead Agencies trust obligation to engage with the Yakama Nation on impacts to Treaty-protected resources to ensure a Preferred Alternative that does not result in impacts to fish populations or to time, place, method, species and extent of taking fish. Instead, it appears that the Lead Agencies simply made a judgment call to prioritize water projects over the rights reserved under the Treaty of 1855. 3.3. The Lead Agencies refused to adjust the CRSO EIS timeline despite the national emergency caused by the COVID-19 pandemic. 61 Executive Memorandum (Oct. 19, 2018) at 1. 62 Id. at 6. The Yakama Nation submitted a letter to the Council on Environmental Quality (CEQ) on September 23, 2019, requesting that CEQ advise the Lead Agencies on, among other things, appropriate adjustment or suspension of the scheduling to ensure compliance with the Order and applicable Treaty, trust, and statutory requirements. 63 40 C.F.R. 1506.10(c). Yakama Nation Comments on the Draft Columbia River System Operations Environment Impact Statement 19 The forty-five-day public comment period for the DEIS began on February 28, 2020. The next day, officials in Washington state confirmed the first death in the United States attributable to COVID-19.64 On March 11, 2020, the World Health Organization declared the novel coronavirus outbreak a pandemic and Governor Jay Inslee banned gatherings of more than 250 people.65 Two days later, President Trump declared a national emergency.66 Public libraries on the Yakama Reservation and across the state closed around March 17, 2020. By March 20, 2020, the Yakama Nation had formally closed all non-essential facilities and offices. The beginning of the public comment coincided almost precisely with the explosion of the COVID-19 health crisis in this country. The Yakama Nation spent the majority of March focusing exclusively on its response to this crisis, prioritizing the protection of its members and employees health while also ensuring that essential government services continue to function. Consequently, the Yakama Nations elected officials have had little time for policy consideration of the DEIS, including its potential impacts to Treaty-reserved resources and implications for the Fish Accord partnership. The health crisis also affects the Lead Agencies ability to engage with the Yakama Nation regarding the DEIS. Federally and Tribally-mandated social distancing measures mean that Lead Agencies cannot feasibly engage in government-to-government consultation with the Yakama Nation if requested. This means that, under the current circumstances, the federal government is unable to meet its trust obligation to the Yakama Nation in the solicitation of comments on the DEIS. Most importantly, the overall disruption to societal function has frustrated the ability of Yakama members and the general public to provide input on the DEIS. Public participation is one of the core purposes of NEPA.67 This purpose is compromised where the public is too preoccupied with adapting to a radically different way of life to provide input on an environmental review document. NEPA requires federal agencies to provide public notice of NEPA-related hearings, public meetings, and the availability of environmental documents so as to inform affected parties, [h]old or sponsor public hearings or public meetings regarding the NEPA process, and solicit input from the public.68 The closure of public libraries means that individuals without home computers or internet access, which includes a significant number of the Yakama Nations members, are without notice of the public comment teleconferences and availability of the DEIS. These individuals are unable to review and provide comments on the DEIS because the Lead Agencies will only provide hardcopies of the Executive 64 Coronavirus in Washington state: A timeline of the outbreak through March 2020, KIRO 7, https://www.kiro7.com/news/local/coronavirus-washington-state-timelineoutbreak/IM65JK66N5BYTIAPZ3FUZSKMUE/ (last accessed April 12, 2020). 65 Id. 66 Id. 67 Price Rd. Neighborhood Assn v. United States DOT, 113 F.3d 1505, 1511 (9th Cir. 1997) (citing Robertson v. Methow Valley Citizens Council, 490 U.S. 332, 349 (1989). 68 40 C.F.R. 1506.6. Yakama Nation Comments on the Draft Columbia River System Operations Environment Impact Statement 20 Summary rather than the entire document.69 This is a far cry from the level of public involvement required under NEPA. Despite being fully informed by numerous governmental entities of the impediments to public comment on the DEIS and the adverse implications for NEPA compliance, the Lead Agencies declined to suspend the public comment schedule. Their failure to do so is inconsistent with the Lead Agencies trust obligation to the Yakama Nation (and its members) and responsibilities with respect to public participation under NEPA.	The co-lead agencies considered requests to extend the public comment period. This NEPA process included a wide array of cooperating agencies whose close involvement throughout the process allowed the co-lead agencies to incorporate feedback. Given the broad range of comments received and the extensive Federal and non-Federal participation in the overall process as well as the level of public engagement in the six virtual public meetings in the region, the co-lead agencies determined that an extension was not warranted and that the 45-day public comment period was adequate consistent with NEPA regulations. On April 9, the CRSO EIS website was updated to inform the public that they should plan to submit comments by the close of the comment period.
6299	8	brendan@yakamanation-olc.org	Confederated Tribes and Bands of the Yakama Nation	4.1. The Purpose and Need statement allows for a balancing of interests that is inconsistent with the Lead Agencies Treaty, trust, and statutory obligations. A purpose and need statement in the DEIS must briefly specify the underlying purpose and need to which the agency is proposing the alternatives including the proposed action.70 The statement may be found to be invalid if it unreasonably narrows the agencys consideration of alternatives so that the outcome is preordained.71 The Lead Agencies have appeared to frame the Purpose and Need in a manner that results in narrow consideration of purposes that at best preserves no more than the status quo fisheries benefits from the CRS operations and configuration. That result is inconsistent with the Lead Agencies obligations to the Yakama Nation, the Order, and the Northwest Power Act as described above. The Lead Agencies indicate that that need for the EIS is to review and update the management of the CRS, including measures to avoid, offset, or minimize impacts to resources affected by managing the CRS [in light of new information and changed conditions].72 The Lead Agencies also correctly note that they are developing the EIS in response to the Order and, therefore, the EIS will evaluate how to ensure that the prospective management of the CRS is not likely to jeopardize the continued existence of any endangered or threatened species, or result in the destruction or adverse modification of designated critical habitat.73 An implicit purpose of this effort must be the configuration and operation of the CRS in a manner that responds to Yakama Nation treaty reserved rights and cultural resources, consistent with the Lead Agencies legal obligations to the Yakama Nation. 69 See Columbia River System Operations EIS, CORPS, https://www.nwd.usace.army.mil/CRSO/#top (last accessed April 12, 2020). 70 40 C.F.R. 1502.13. 71 Alaska Survival v. Surface Transp. Bd., 705 F.3d 1073, 1084 (9th Cir. 2013) (citing Natl Parks & Conservation Assn v. Bureau of Land Mgmt., 606 F.3d 1058, 1070 (9th Cir. 2010)). 72 DEIS at 1-4. 73 Id. Yakama Nation Comments on the Draft Columbia River System Operations Environment Impact Statement 21 The list of Resource Purposes in this section includes flood risk management (FRM), power supply, irrigation, waterway transportation, fish and wildlife	We disagree that the Purpose and Need section of the Draft EIS must be restructured. The statement goes well beyond power generation capabilities. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA listed species. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-lead agencies numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two EIS objectives) as well as the EIS objectives for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. The Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. Tribal input, concerns, interests, and especially treaty rights were considered throughout the Draft EIS analyses and in the formulation of the Preferred Alternative. Treaty specific information is included in Section 3.17 as well as Chapter 7. The treaties bind all parties and are the supreme law of the land. The co-lead agencies recognize and respect that supremacy. In terms of honoring our treaty obligations, the co-lead agencies included "Protecting Native American treaty and reserved rights and fulfilling trust obligations for natural and cultural resources throughout the environment affected by the Columbia River System operations" as a purpose in the Purpose and Need Statement in Chapter 1 to ensure treaty obligations were a key consideration of decision making.

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				conservation, climate change planning, recreational opportunities, and cultural resources protection.74 There is a disconnect between this broad list of purposes and the stated need for the EIS, which focused on the impacts of the CRS to affected resources; particularly, endangered or threatened fish populations and critical habitat. This disconnect results in a dilution of obligations, wherein fish and wildlife interests are balanced alongside the other purposes.75 The balancing fostered the Lead Agencies development of alternatives (and associated measures) that will result in business as usual with respect to the CRS. This outcome is not consistent with the Courts order, which reiterated a prior federal courts statement the CRS cries out for a major overhaul in order to improve fish survival rates.76 The Lead Agencies have no authority to simply balance the resources reserved under Treaty of 1855 on par with other resource and use purposes. Under federal law Treatyreserved rights cannot lawfully be subordinated to other CRS project purposes a fact which perhaps explains the Lead Agencies failure to provide a legal basis in the DEIS for engaging in such an exercise. Only Congress, not federal agencies, can abrogate Treaty rights under current federal law;77 and the Yakama Nation submits that even Congresss source of authority in this respect is founded on an absurd colonialist principle and not reasonably based in modern principles of law The Doctrine of Discovery a colonial legal doctrine on which Congresss plenary legal authority to abrogate treaty rights was based provided that the discovery of land by a Christian Euro-American government gave rise to that governments legal control over that land.78 This concept is also the source of the federal governments assertion of authority over the Native Nations.79 Specifically, historic U.S. federal case law provided that the United States, as successor to the European nations, possessed absolute ultimate title as acquired by discovery over Native lands.80 The Supreme Court found excuse, if not 74 Id. 75 A review of the suite of measures proposed in the Preferred Alternative (DEIS at 7-23) demonstrates that the number and cost of operation and structural measures for power operations, flexibility, and water supply far exceed fish operations and structural improvement measures. Thus, it appears that the other resource purposes ultimately outweighed fish and wildlife conservation in the Lead Agencies balancing act. 76 Nat'l Wildlife Fedn, 184 F. Supp. at 876. 77 See United States v. State, 641 F.2d 1368, 1371 (9th Cir. 1981) (The Department of the Interior cannot under any circumstances abrogate an Indian treaty directly or indirectly. Only Congress can abrogate a treaty, and only by making absolutely clear its intention to do so.) (citing Menominee Tribe v. United States, 391 U.S. 404, 412-13 (1968)). 78 Indeed, the federal governments assertion of authority over the Columbia River is, at its roots, based on the Doctrine of Discovery. In 1792, the American merchant Robert Gray became the first Euro-American to sail into the Columbia River. Cf., SUSAN SLEEPER-SMITH ET AL., WHY YOU CAN'T TEACH UNITED STATES HISTORY WITHOUT AMERICAN INDIANS 96 (2015). Reportedly, Gray claimed the northern river bank on behalf of the United States by raising an American flag and burying American coins under the sand. In the early 1800s, Merriweather Lewis, William Clark, and other used discovery-style rituals to claim the Columbia River for the United States. Id. at 92-94. In 1838, Senator Lewis Linn spoke before the United States Senate concerning the United States claim to Oregon Country (through which the Columbia River ran). He cited Grays voyage up the Columbia River and Lewis and Clarks expedition as important circumstance[s] in [United States] titlethat was notice to the world of claim, and that Lewis and Clarks solemn act of possession was followed up by a settlement and occupation made byJohn Jacob Astor. Id. at 96-97. 79 See Johnson v. MIntosh, 21 U.S. 543 (1823). 80 Id. at 592. Yakama Nation Comments on the Draft Columbia River System Operations Environment Impact Statement 22 justification, for the Europeans assertion of authority based on its characterization of the Native Nations as fierce savages, whose occupation was war, and whose subsistence was draw from the forest.81 Federal courts later relied on the Doctrine of Discovery to create the plenary powers doctrine, which purports to give Congress the power to govern Native Nations and unilaterally abrogate Treaty rights.82 The federal government has relied on this doctrine, which has no basis in the Constitution, to unilaterally renege on Treaty guarantees for over two hundred years.83 The Doctrine of Discovery and the jurisprudence that stem from it are irrational, racist, and unjust. Nevertheless, the federal government has never formally renounced the Doctrine of Discovery. Fish and wildlife conservation is mandated under the Treaty of 1855. Under current federal law, only Congress has authority to subordinate this mandate to other interests (and, as described above, even Congresss authority here is dubious). The Lead Agencies plainly lack authority to diminish Treaty rights by balancing their fulfillment against satisfying other interests in the context of the CRSO EIS. Conserving Treaty-protected fish and wildlife resources can, in many instances, conflict with the other stated resource purposes. However, consistent with the federal trust obligation and federal Treaty obligations, the Lead Agencies must resolve these conflicting claims in a precise manner that would indicate the weight given each interest before [them]. Any resolution must ensure that the Yakama Nations Treaty rights are given full effect, including the protection of time, place, method, species and extent of fishing practices and avoidance of damage to fish runs and habitat. Furthermore, although the Purpose and Need section references the Northwest Power Acts directive to give fish and wildlife mitigation equitable treatment with other authorized purposes, it is silent as to other relevant language from that statute.84 Critically, the Lead Agencies must protect, mitigate, and enhance fish and wildlife to the extent affected by the development and operation of any hydroelectric project of the Columbia River and its tributaries in a manner consistent with the Councils Fish and Wildlife Program.85 The Councils Fish and Wildlife Program has a number of objectives, including doubling the salmon runs in the Columbia River. A Purpose and Need that balances the stated purposes despite significant adverse impacts to fish and wildlife fails to make progress to achieve this or any of the Councils other objectives. The determination to balance the stated purposes despite significant adverse impacts to fish and wildlife does not fulfill the purposes of the Northwest Power Act.86 81 Id. at 589-90. 82 See United States v. Kagama, 118 U.S. 375 (1886) 83 See, e.g., Lonewolf v. Hitchcock, 187 U.S. 553, 566 (1903). 84 DEIS at 1-5. 85 16 U.S.C. 339b4(h)(10)(A). These directives are consistent with the Lead Agencies obligations under the Treaty of 1855 and the federal trust responsibility. 86 While the DEIS references the Councils Power Plan and power system analyses over fifty times, there is only one reference the Councils Fish and Wildlife Program and three references to other Council fish and wildlife analyses or reports. There is no evidence that the Lead Agencies considered the Councils Fish and Wildlife Program in developing alternatives or measures. Yakama Nation Comments on the Draft Columbia River System Operations Environment Impact Statement 23 Finally, the Lead Agencies balancing act of co-equal purposes is contrary to their acknowledgment of the Orders directive. The Order did not charge the Lead Agencies to develop an EIS that balances (or deprioritizes) fish survival against the perceived benefits of FRM and power, but rather sought a system overhaul to ensure fish survival as demanded by the ESA and other applicable federal laws and Treaty obligations.87 The Purpose and Need section of the DEIS must be restructured to give appropriate priority to fish and wildlife conservation consistent with the Yakama Nations Treaty rights. In other words, the CRSO EIS must pursue project purposes in a manner that enhances Tribal fisheries and cultural resources rather than merely preserving power generation capabilities. The Lead Agencies may weigh the other resources purposes against one another once fish and wildlife conservation is ensured but not before. This approach would be more consistent with the stated need for the CRSO EIS and appropriately reflect the Lead Agencies obligations to the Yakama Nation under the Treaty of 1855, the federal trust responsibility, the Northwest Power Act, and the Order.	
6299	9	brendan@yakamanation-olc.org	Confederated Tribes and Bands of the Yakama Nation	4.2. The range and consideration of alternatives is incomplete. Federal agencies are required to evaluate all reasonable alternatives in an EIS.88 This includes those alternatives not within the jurisdiction of the lead agency.89 Whether an alternative is reasonable is bounded by some notion of feasibility.90 Alternatives must be reasonably related to the purposes of the project.91 More specifically, alternatives must derive from the Purpose and Need section of an EIS, as the stated goal of an EIS dictates the range of alternatives.92 A. The Lead Agencies failed to evaluate all reasonable alternatives. As described above, there is a disconnect between the need and the purposes in the Lead Agencies Purpose and Need section. If the Lead Agencies had framed the purpose more consistently with the need for the CRSO EIS, the Lead Agencies reasonable alternatives would include a range of measures aimed at protecting fish (rather than alternatives that maximize hydropower production and FRM at the expense of fish and wildlife). Various cooperating agencies offered several fish-focused alternatives that would have conformed to such an approach. The Lead Agencies either outright or effectively rejected these recommendations in the framing of the alternatives ultimately included in the DEIS. For example, the Nez Perce Tribe proposed a comprehensive alternative that set a benchmark for possible fish benefits. MO4 may have been intended to capture the Nez Perce recommendation but instead constitutes a drastic modification of the proposal. MO4 strips away the majority of fish benefits by inserting power flexibility and water 87 See n. 85, supra. 88 40 C.F.R. 1502.14(a). 89 Id. at (c). 90 Laguna Greenbelt v. United States Dept of Transp., 42 F.3d 517, 524 (9th Cir. 1994) (citing Vermont Yankee Nuclear Power Corp. v. Natural Resources Defense Council, 435 U.S. 519, 551 (1978)). 91 Laguna Greenbelt, 42 F.3d at 524 (9th Cir. 1994) (citing City of Angoon v. Hodel, 803 F.2d 1016, 1021-22 (9th Cir. 1986)). 92 City of Carmel-by-the-Sea v. United States DOT, 123 F.3d 1142, 1155 (9th Cir. 1997) (citing Citizens Against Burlington, Inc. v. Busey, 938 F.2d 190, 196 (D.C. Cir. 1991). Yakama Nation Comments on the Draft Columbia River System Operations Environment Impact Statement 24 management measures. MO4 also extends the spill season to periods of minimal fish benefit (including March and August).93 This extreme particular measure at McNary obscures the reasonableness and viability of other MO4 fish benefits measures. Although the McNary measure spill may support fish life, its effect in the analysis of MO4 is to operate as a poison pill to overall acceptability and political achievability of the MO4 option by creating significant negative impacts on all other water users. These changes make the Nez Perce proposal nearly unrecognizable: an alternative that provides minimal benefits to fish (except for the politically untenable McNary measure) while devastating power supply cost and unreliability. As a package of measures that could have been a fish-friendly candidate for a Preferred Alternative, MO4 is made unappealing to nearly all parties and, consequently, easily dismissed. The Lead Agencies missed an opportunity to	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA listed species. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the Columbia River System. That call however is ultimately the role of NMFS and the USFWS. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the EIS objectives) as well as the EIS objectives for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. The Preferred Alternative is also more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. The co-lead agencies are required to evaluate a reasonable range of alternatives in the EIS. However, when there are potentially a very large number of alternatives, only a reasonable number of examples, covering the full spectrum of alternatives, must be analyzed and compared in the EIS. Alternatives for this EIS were developed from measures identified during public scoping, regional forums with scientists and technical experts from cooperating agencies, and expert opinion from within the co-lead agencies and in the literature. These alternatives represent a reasonable range of alternatives for the maintenance and operation of the CRS. The development of MO3, which includes breaching the four lower Snake River dams, followed strict public health and safety standards, which are within the expertise of the co-lead agencies. Regarding MO4, the co-lead agencies disagree MO4 is constructed to neutralize or undermine the benefits for fish associated with maximizing spill at the CRS dams. The co-lead agencies proposed this alternative as bookend to determine potential benefits to anadromous from maximized spill and flow levels. MO4 resulted in potential substantial improvements to anadromous fish.

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				meaningfully evaluate a fish-focused alternative. Had the Lead Agencies evaluated the Nez Perce alternative as submitted, that analysis would likely have demonstrated significant fish benefits with marginal additional costs to the system. Cooperating agencies also recommended a more reasonable, graded approach to evaluating dam removal under MO3. However, the Lead Agencies applied strict assumptions that all four Snake River dams would have to be removed within two years (with removal of each dam not to exceed a single year) and outside of the fish migration window. While it is possible that the full breach assumption was the basis for maximally capturing potential impacts, the Lead Agencies have never explained why such assumptions were necessary for a dam removal alternative or why a more careful approach would not mitigate the potential maximal impacts. This approach artificially exaggerated the costs and arbitrarily restricted the Lead Agencies ultimate analysis of MO3. In addition, the Lead Agencies evaluated alternatives that largely consisted of similar measures (i.e., several power system and water management measures were included in three or four alternatives) and focused on system purposes other than fish benefits. An appropriate hard look requires evaluation of feasible alternatives reasonably related to the broad resource purpose list without an inappropriate balancing of tribal interests with other authorities for the CRS.	
6299	10	brendan@yakamanation-olc.org	Confederated Tribes and Bands of the Yakama Nation	B. The Lead Agencies utilized a framework for developing and evaluating alternatives that obscured the impacts and benefits of configuration and operations measures. The Lead Agencies unilaterally, without input from the Yakama Nation, created four multiobjective (MO) alternatives from a pool of approximately fifty individual measures. There was considerable overlap between measures included within the four alternatives making it difficult for the Yakama Nation to determine which measures were driving fish impacts and benefits. Likewise, the approach did not allow the Yakama Nation to identify, quantify, or evaluate individual impacts caused by particular measures because the Lead Agencies included a number of measures in several, but not all, multiple objective alternatives. This obscures rather than discloses the impacts of a Preferred Alternative that draws on the identified pool of measure. 93 Moreover, the DEIS exaggerates the costs and impacts of this spill season on power production. Yakama Nation Comments on the Draft Columbia River System Operations Environment Impact Statement 25 Even so, the Yakama Nation, in consultation with other cooperating agencies, developed a draft measure-by-measure analysis for impacts to fish based on cooperating agency expertise; but the Lead Agencies rejected this effort as outside the limits of the CRSO EIS framework.94 Such an analysis is plainly within the scope of the CRSO EIS and is relevant to the Lead Agencies development of alternatives that will inevitably impact fish populations. The Lead Agencies failure to even consider the information that the cooperating agencies presented underscores Yakama Nation concerns about whether the Lead Agencies impact assessment adequately evaluated all reasonable alternatives. Ultimately, this flawed framework taints the development and evaluation of the alternatives proposed in the DEIS and the reliability of impact assessment overall. The Lead Agencies assembled various measures from each alternative to produce the Preferred Alternative described in Chapter 7, but without disclosure of the reasoning for selection of these measures, how the measures were evaluated given the obscurity of impacts from individual measures, or what impact the measures included in the Preferred Alternative would cumulatively have on a particular resource.	The alternatives in this EIS were developed to meet the objectives identified by the co-lead agencies, cooperating agencies, and from public comments during scoping, as well as the stated Purpose and Need Statement, which describes all congressionally authorized purposes and legal requirements for the CRS. The development of alternatives was guided by objectives identified by the team early in the process. The Single Objective alternatives, developed and analyzed early in the process with input from co-lead and cooperating agency team members provided the foundation for the final array of alternatives. Team members from the cooperating agencies participated in the technical team meetings, in which alternative development, alternative analysis, and effects were discussed and presented for inclusion in the EIS. The co-lead agencies and cooperating agencies understood which measures the co-lead agencies would employ from the fish analysis, were part of the evaluation of the measures and alternatives, and were provided opportunities to comment on this analysis during development of the EIS. Development of alternatives outside of the co-lead agency process by select few team members does not meet the transparency required by NEPA. The co-lead agencies requested this work be conducted within the team, and not a separate effort.
6299	11	brendan@yakamanation-olc.org	Confederated Tribes and Bands of the Yakama Nation	C. The Lead Agencies cannot cite a lack of Congressional authorization to scrutinize MO3 differently than other alternatives. Consistent with 40 C.F.R. 1502.14(c), the Lead Agencies chose to include an alternative (MO3) that would require additional Congressional authorization. However, the Lead Agencies appear to conduct a more thorough analysis on the remaining alternatives, citing the lack of congressional authorizations for MO3 as a reason to not give that alternative a hard look. In addition, NEPA contemplates that EISs are prepared for legislative proposals as well. The fact that additional authority must be asked for does not in any obvious way warrant truncated evaluation of such measures. Given that the Lead Agencies appropriately included MO3 as a reasonable alternative with the awareness that additional legislative action would potentially be necessary, the Lead Agencies must evaluate it with the same level of scrutiny and consideration as the other alternatives.	MO 3 received the same modelling, analysis, and scrutiny that the other alternatives received, as described in Chapter 3 and the technical appendices. It was noted in the EIS that additional congressional authority would be required to deauthorize and breach the dams in order to be fully transparent and set expectations with readers about the process that would be required to implement the alternative and to correct misinformation disseminated by some members of the public. The lack of authority was not used as an evaluation or screening criteria for MO 3 or any of the other alternatives.
6299	12	brendan@yakamanation-olc.org	Confederated Tribes and Bands of the Yakama Nation	D. The Lead Agencies failed to adequately explain why the natural rivers alternative was unreasonable. The Lead Agencies describe a rejected alternative that would have created natural rivers to mimic pre-dam construction conditions by breaching all fourteen dams in the CRS. The Lead Agencies note that the creation of natural rivers was previously studied and found to be infeasible.95 The Lead Agencies do not provide any details on these studies or the conclusions therein. The Lead Agencies also fail to explain why they consider the studies reliable. Furthermore, 94 See Letter from Francis E. Coffey, Programs Director, Northwestern Division, Corps (July 11, 2019). A summary of the measure-by-measure analysis, prepared by Yakama Nation technical consultant Tom Iverson, is included as Appendix B to these comments. 95 DEIS at 2-79. Yakama Nation Comments on the Draft Columbia River System Operations Environment Impact Statement 26 the reference to previous studies is inconsistent with the Lead Agencies subsequent point that they have no existing data for breaching the remaining dams such that completion of necessary analysis would take years to gather data and develop a model.96 The Lead Agencies should include citations for the studies and describe why the studies are reliable. The Lead Agencies should clarify why the conclusions reached in the studies demonstrate that the alternative is not reasonable, and explain why the studies are reliable. Finally, the Lead Agencies should explain the discrepancy between the reference to the studies and the statement concerning a lack of data.	Adoption of an alternative to breach all 14 CRS dams would fail to meet the Purpose and Need, and would not allow the co-lead agencies to meet any of the purposes and authorities directed by the U.S. Congress. As discussed in the Council on Environmental Quality's NEPA regulations and its 40 Questions document, alternatives must be reasonable, which includes "practical or feasible from the technical and economic standpoint and using common sense." It is neither practical or feasible to breach all CRS dams given the unreasonable risks to public health and safety due to impacts to power and transmission reliability, flood risk management, among other reasons. This type of alternative is not a reasonable alternative under NEPA. Instead, as required by by NEPA, the co-lead agencies developed a reasonable range of alternatives intended to allow the co-lead agencies to evaluate trade-offs of operations intended to benefit one purpose over another, and make an informed recommendation about continued operations of the CRS.
6299	13	brendan@yakamanation-olc.org	Confederated Tribes and Bands of the Yakama Nation	5.1. The Lead Agencies cultural resources analyses does not address the full scope of impacts to the Yakama Nations cultural resources. This section describes flaws in the Lead Agencies cultural resources analyses. A. The Lead Agencies use an overly-narrow definition of cultural resources. The Lead Agencies define cultural resources as [t]he non-renewable evidence of human occupation or activity as seen in any district, site, building, structure, artifact, ruin, object, work of art, architecture, or natural feature that was part of human history at the national, state, or local level.98 This definition may be consistent with the National Historic Preservation Act (NHPA), but is too narrow in this context. NEPA requires consideration of impacts to the human environment.99 This includes the natural and physical environment and the relationship of people with that environment.100 Therefore, the Lead Agencies current definition is too narrow for an adequate NEPA analysis. First, the definition should not be narrowly framed to only include historical resources. Indeed, the NEPA regulations expressly distinguish between historic and cultural with respect to analysis of effects.101 Second, the definition should not reduce cultural resources to mere places and objects. This reduction causes the Lead Agencies to entirely fail to consider an important aspect of the problem with respect to cultural resources analyses: the CRSs impacts on Yakama members relationship with the natural and physical environment. For example, the Lead 96 Id. 97 As a general note, the FEIS must assure that assertions and conclusions are substantiated with facts or analysis. The time available for review of the DEIS has prevented the compilation of examples of unsubstantiated statements. 98 DEIS at xlvii. 99 42 U.S.C. 4332(C). 100 40 C.F.R. 1508.14. 101 40 C.F.R. 1508.8. Yakama Nation Comments on the Draft Columbia River System Operations Environment Impact Statement 27 Agencies Preferred Alternative primarily discusses impacts in terms of exposure and erosion of archeological resources.102 It does not address impacts to the Yakama Nations cultural and religious connection to the Columbia River Basin environment. The definition must allow for a more comprehensive analysis that should systematically addresses human, social, and cultural aspects of the environment.103 The Yakama Nation believes that a more defensible definition is: The non-renewable evidence of human occupation or activity as seen in any district, site, building, structure, artifact, ruin, object, work of art, architecture, or natural feature that was part of human history at the national, Tribal, state, or local level; culturally significant elements of the biophysical environment including, but not limited to, plants, wildlife, geological features, and waterways; the cultural use of or reliance on the biophysical environment; and social cohesion, social institutions, lifeways, religious practices, and other cultural institutions. The Lead Agencies acknowledge that various Native Nations made similar recommendations throughout the cooperating agency review process. The Lead Agencies characterize these recommendations as products of indigenous peoples learning systems, but do not provide a reason for rejecting them.104 This dismissal of information provided by Native Nations by branding it as some mysterious tradition that the federal government is incapable of understanding is arbitrary and willfully ignorant. The Yakama Nations definition is entirely consistent with NEPAs requirement that federal agencies consider impacts to the natural and physical environment and the relationship of people with that environment. The Lead Agencies improper use of an unreasonably narrow cultural resources definition in the DEIS compromises the related analysis, which must be corrected in the FEIS. If the Lead Agencies do not adopt the Yakama Nations recommendations, they should develop their own definition that is inclusive of natural cultural resources, cultural practices, and cultural institutions, and refine their cultural resource analyses accordingly.	In the Draft EIS, the co-lead agencies used a property-based definition of "cultural resources," as this is consistent with Federal laws and regulations, which focus on specific bounded properties. Tribal interests and holistic perspectives on the integration of Native American culture with the environment were addressed throughout the EIS and by inclusion of statements from the Tribes. The co-lead agencies note that many of the traditional cultural properties analyzed in the Draft EIS incorporate elements of the natural environment. Please see Section 3.16.2.6 for the traditional cultural resource types, many of which explicitly include hunting, fishing, and gathering areas, Section 3.17.2 for Tribal Perspectives Summaries and Section 3.17.3 for Tribal Interests. Additionally, the EIS evaluates the impacts of the social and economic effects as well as effects to the natural and physical environment consistent with 40 C.F.R. 1508.14 and 1508.8.
6299	14	brendan@yakamanation-olc.org	Confederated Tribes and Bands of the Yakama Nation	B. The Lead Agencies cultural resources analyses fail to consider the larger historical context of the CRSs impacts on the Yakama Nations cultural resources. In outlining resource concerns for the DEIS, the Lead Agencies note that: Native Americans, archaeologists, historians, members of the general public, and state and Federal agencieswould like to minimize damage to cultural resources from the effects of reservoir operations, which include but are not limited to water level fluctuations, wave and wind action, inundation, irrigation, transportation, and 102 DEIS at 7-1907-196. 103 A revision to the Lead Agencies current definition is particularly necessary given the fact that the Lead Agencies have decided to bifurcate the NHPA Section 106 process from the CRSO EIS. 104 DEIS at 3-1400. Yakama Nation Comments on the Draft Columbia River System Operations Environment Impact Statement 28 recreation, among others. In addition, there is a concern about losses caused by vandalism and looting.105 The Yakama Nation certainly wishes to avoid these adverse impacts to archeological sites and other cultural resources. The Lead Agencies have an obligation to protect any such sites that become exposed as a result of their actions from looting or vandalism. However, the Lead Agencies decision to frame cultural resources concerns in this fashion ignores the larger context of the CRSs impacts: entire lifeways, villages, economies, ancestral burials and customs were lost	The co-lead agencies respectfully disagree that there was a failure to consider the "significant disruption" of Native American lifeways that has taken place since the start of Euroamerican exploration and settlement of the Northwest. Please see Section 3.16.2.4 for a discussion of how U.S. government policies and settlement affected Tribes in the region. The scope of this EIS is limited to comparison of the No Action Alternative (which reflects operations as of September 30, 2016) to the Action Alternatives. As recognized in the comment, the co-lead agencies continue to consult under Section 106 of the National Historic Preservation Act under the Systemwide Programmatic Agreement for the Management of Historic Properties Affected by the Multipurpose Operations of the Fourteen Projects of the Federal Columbia River Power System (FCRPS) and through the FCRPS Cultural Resource Program. Additionally, the EIS acknowledges there may be the need for additional mitigation implemented through the Cultural Resource Program depending on which alternative is selected by the co-lead agencies.

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				through the federal manipulation of the Columbia River. Similarly, the Lead Agencies Affected Environment sections pertaining to cultural resources generally recount the history of Euro-American industrial development on the Columbia River (from the Euro-American perspective). However, these sections fail to describe the significant disruption to the Native culture that resulted from such development and demonstrate a general lack of knowledge regarding the historic context of Tribal and Euro-American population interactions. Without this context, the Lead Agencies cannot give an adequate hard look at the impacts of the CRS on the human environment. The failure to acknowledge the larger historical context of the CRSs impacts on the Yakama Nations cultural resources permeates into the Lead Agencies analyses throughout the DEIS. For example, the Lead Agencies Preferred Alternative largely considers adverse effects such as exposure, erosion, and loss of archeological sites;106 it does not, however, appear to consider whether any of the alternatives would result in beneficial effects to cultural practices. The Lead Agencies crabbed approach prevents proper analysis of cultural resource impacts. Rather than simply noting concerns associated with vandalism and looting (presumably resulting from increased exposure), the Lead Agencies must meaningfully consider these potential adverse effects on Yakama Nation cultural practices, such as gathering food and medicinal resources, consistent with agency Treaty and trust obligations against potential beneficial effects of measures which enable or facilitate cultural practices, such as gathering food and medicinal resources. The Lead Agencies may find these beneficial effects significant enough to warrant re-evaluation of the alternatives and component measures will enable identification of mitigation actions that enable or facilitate cultural practices.	
6299	15	brendan@yakamanation-olc.org	Confederated Tribes and Bands of the Yakama Nation	C. The Lead Agencies do not explain why the Preferred Alternative will not cause additional impacts to Traditional Cultural Properties (TCP). The Lead Agencies note that, based on available information, and with reference to the assumptions and constraints previously described for TCPs, the Preferred Alternative is unlikely to result in an appreciable increase in effects to TCPs. This type of conclusory statement is simply insufficient under NEPA. In the FEIS, the Lead Agencies must describe the chosen methodology used to reach their conclusion regarding effects to TCPs, along with the reasons [they] considered the underlying evidence to be reliable.	In Section 7.7.18 the co-lead agencies state that Traditional Cultural Properties would continue to experience major effects under the Preferred Alternative. The co-lead agencies discuss in detail the methodology employed to assess impacts to Traditional Cultural Properties in Section 3.16.3.1. The methods used to assess the impacts of the Preferred Alternative are the same as were used in the assessment of the other action alternatives.
6299	16	brendan@yakamanation-olc.org	Confederated Tribes and Bands of the Yakama Nation	D. The Lead Agencies rely on the Federal Columbia River Power System Cultural Resource Program for mitigation without describing specific measures. The Lead Agencies offer a broad overview of the Federal Columbia River Power System Cultural Resource Program (FCRPS Program) and describe it as a mechanism for compliance with Section 106 of the NHPA.107 For each alternative, the Lead Agencies would use FCRPS Program funding for: activities such as archeological site and traditional cultural property monitoring (pedestrian and drone use), reservoir and river bank stabilization, data recovery, public education awareness, protective signage, and other alternative mitigation to address impacts to [traditional cultural properties].108 These activities, in conjunction with the existing FCRPS Program, would work to continue minimizing any adverse effects to negligible.109 Likewise, the Preferred Alternative relies entirely on the FCRPS Program for mitigation measures.110 Without more, however, the Yakama Nation is unclear how, for purposes of NEPA, the Lead Agencies can effectively mitigate impacts to cultural resources under any of the alternatives. Mitigation must be discussed in sufficient detail to ensure that environmental consequences have been fairly evaluated.111 The Lead Agencies cannot simply list possible mitigation measures.112 Accordingly, the Lead Agencies must explain the mitigation measures proposed for each MO alternative with sufficient detail. The explanations should be clear, specific, and tailored to each alternative. Similarly, the Lead Agencies must describe how the FCRPS will mitigate impacts under the Preferred Alternative. It is also worth noting that the FCRPS Programs Systemwide Programmatic Agreement (SWPA) (which the Yakama Nation is not a signatory to) is inadequate to ensure mitigation.113 The SWPA, which was not intended to act as a mitigation tool, does not fully consider impacts to the loss of ancestral use (e.g. fishing and gathering) sites, legendary sites, village sites, monumental sites, ceremonial sites, petroglyph/pictograph sites and archaeological site, all which the Yakama Nation considers sacred. The SWPA lacks of accountability, specific funding obligations, and requirements concerning site treatment and identification. Federal agencies operating under the SWPA attempt to prioritize sites with known impacts and develop strategies to mitigate those impacts on a case-by-case impacts. The federal agencies have not actually implemented any mitigation measures at 107 DEIS at 5-1112 108 DEIS at 5.4. 109 DEIS at 5-21. 110 DEIS at 7-45 (For new effects to archaeological resources, traditional cultural properties, and the built environment at storage projects caused by implementation of the Preferred Alternative relative to the No Action Alternative, the co-lead agencies would use the existing FCRPS Cultural Resources Program and the SystemWide Programmatic Agreement to implement mitigation actions, as warranted and appropriate.). 111 City of Carmel-by-the-Sea 123 F.3d at 1154 (quoting Methow Valley, 490 U.S. at 351-52. 112 Neighbors of Cuddy Mt. v. United States Forest Serv., 137 F.3d 1372, 1380 (9th Cir 1998) (modified on other grounds, 1998 U.S. App. LEXIS 3923 (9th Cir. 1998) (citing Northwest Indian Cemetery Protective Assn v. Peterson, 795 F.2d 688, 697 (9th Cir. 1986), revd on other grounds, 485 U.S. 439 (1988). 113 The Yakama Nation has already objected to the Lead Agencies reliance on the FRCPS Programmatic Agreement with respect to NHPA compliance through letters dated May 22, 2019 and December 20, 2019. Yakama Nation Comments on the Draft Columbia River System Operations Environment Impact Statement 30 many of these sites. Moreover, there are a significant number of sites along the Columbia River that the federal agencies have yet to formally analyze. As such, the Yakama Nation cannot be confident that the Lead Agencies will sufficiently mitigate harm to cultural resources by relying on the FCRPS Program alone.	Given the broad, multi-faceted nature of the proposed action, which will occur across a wide geographic area and timescale, the co-lead agencies have proposed to address impacts to cultural resources programmatically; hence, the use of the Systemwide Programmatic Agreement. The advantage of this approach is it allows the agencies to implement a tailored approach to both cultural resource property identification and impact analysis, including the specific type of impact occurring at a specific property location in the future, across the system and at different points in time versus attempting to identify every potential impact that may, or may not, occur at either known cultural resource properties, or those that are currently unknown. The co-lead agencies agree the Systemwide Programmatic Agreement is the correct approach to ensure mitigation of impacts to cultural resources and due to the flexibility built into the document, also believe it is capable of considering impacts to all cultural resource property types, including archaeological sites, the historic built environment, and traditional cultural properties.
6299	17	brendan@yakamanation-olc.org	Confederated Tribes and Bands of the Yakama Nation	E. The Yakama Nation objects to the Lead Agencies refusal to consider all federal lands in the cultural resources study area as a sacred site. The Establishment Clause of the 1st Amendment to the U.S. Constitution, dictates that Federal agencies will not prohibit the free exercise of Native American religions. The American Indian Religious Freedom Act of 1978 (AIRFA) directs federal agencies to respect and protect Tribal religions and the practice thereof.114 AIRFA is not strictly place based but is also inclusive of the act of religion itself. Consistent with AIFRA, Executive Order 13007 deals directly with sacred sites, their definition and management. Sacred sites are defined as: any specific, discrete, narrowly delineated location on Federal land that is identified by an Indian tribe or Indian individual determined to be an appropriately authoritative representative of an Indian religion; provided that the tribe or appropriately authoritative representative of an Indian religion has informed the agency of the existence of a site. This definition is frequently misinterpreted to put a bulk of the responsibility of sacred site identification on the shoulders of Tribes. However, federal agencies must make a reasonable and good faith to identify sacred sites pursuant to the NHPA.115 A mere request for information by a federal agency to a Native Nation is not sufficient to constitute a reasonable effort.116 Where the federal agency has any indication from a Native Nation that a sacred site exists, it must conduct further investigation.117 The good faith requirement prohibits the federal agency from withholding information on sacred sites from pertinent parties, such as State Historic Preservation Officers that that federal agency seeks concurrence from under the NHPA.118 The problem with the Lead Agencies existing quantification of only two sacred sites within the Area of Potential Effect (APE) of the CRSO EIS is two-fold. First, there is a question about the qualifications of the individuals who made determinations regarding sacred sites for the DEIS. Appendix II of National Register Bulletin 38, Professional Qualifications: Ethnography, outlines in detail the qualifications of individuals who agencies should obtain 114 42 U.S.C. 1996. 115 See Pueblo of Sandia v. United States, 50 F.3d 856, 863 (10th Cir. 1995). In that case, the Pueblo of Sandia (Pueblo) notified the United States Forest Service (USFS) about TCPs that they asserted were eligible for inclusion in the National Register of Historic Places (NRHP) located in a proposed USFS project area in Las Huertas Canyon, New Mexico. The Pueblo was bound by custom to not divulge additional information to the USFS. Consequently, the USFS was unable to get any more information regarding the TCPs from the Pueblo and recommended that there were no NRHP-eligible TCPs in the proposed project area. 116 Id. at 860. 117 Id. at 860-62. 118 Id. at 862. Yakama Nation Comments on the Draft Columbia River System Operations Environment Impact Statement 31 to gather TCP data.119 These qualifications include an experts ability to speak Native languages, experience with ethnographic methodologies and oral history interviews, and possession of graduate and post-graduate training in ethnography.120 To the Yakama Nations knowledge, none of the archeologists representing the Lead Agencies or the project managers for the FCRPS cooperating groups meet these qualifications or are practitioners in any of the religions significant to the Yakama Nation. Neither the Lead Agencies or the project managers for the FCRPS cooperating groups have employed or contracted an ethnographer to gather necessary information to make a determination that the entirety of the Columbia River is not a sacred site. Therefore, the Lead Agencies must explain substance and reliability of the methodology and evidence that they used regarding sacred sites. Second, the Lead Agencies have not put forth a reasonable and good faith effort to identify sacred sites. Through the FCRPS Program Cooperating Group meetings, the Yakama Nation has repeatedly requested the Lead Agencies to cohesively investigate the entire Columbia River as a sacred site. Nevertheless, the Lead Agencies have made no effort to do so or to even manage cultural resources as a collective unit. This is not indicative of a reasonable effort. Moreover, the Lead Agencies decision to omit these requests from the DEIS (while only referencing information from one tribal representative regarding the entire Columbia River as a sacred site)121 could be construed as a lack of good faith effort. The Columbia River and all associated properties relevant to the protection, preservation and perpetuation of the Native way of life are sacred sites. The Yakama Nations cultural resources specialists define sacred sites areas to include ancestral use, monumental, burial, petroglyph/pictograph, archaeological, and ceremonial sites. Each of these site types are associated with life along the river as provided by the Creator and formed by Speelyi. Speelyi created the fishing sites, the riffles, whirlpools, eddies, swift currents, slow currents, landforms, and gave the people the resources necessary to make a life along the Nchi wana (the Columbia River) and its many tributaries. Each of these things have a name in the Yakama Nations Tribal language,	The co-lead agencies respectfully disagree with the comments regarding the efforts to consider the impacts of the various alternatives on sacred sites and traditional cultural properties (TCPs). The co-lead agencies use the definition of sacred sites provided in Executive Order (EO) 13007, which highlights that the sacred sites must be identified by an Indian tribe, or Indian individual determined to be an appropriately authoritative representative of an Indian religion and be specific, discrete, narrowly delineated. The two sacred sites the comment identifies–the Columbia River and all federal lands in the cultural resources study area are not specific, discrete, or narrowly delineated. As a result, they are not sacred sites within the meaning of EO 13007. Two Tribes identified sacred sites that followed the Executive Order (i.e., Kettle Falls and Bear Paw Rock), and thus those sacred sites were included in the EIS. Respectfully, the co-lead agencies disagree with this summary of their actions regarding compliance with Section 106 of the National Historic Preservation Act. The co-lead agencies have not asserted that consultation with the Yakama Nation is only necessary for impacts to trust lands. The Systemwide Programmatic Agreement provides a framework for consultation with the Yakama Nation and other concerned tribes about cultural resources in the Federal Columbia River Power System (FCRPS) Area of Potential Effects, whether the tribes are signatory to the agreement or not, and whether the cultural resources are on trust lands or not. The co-lead agencies consulted actively with the Yakama Nation during the process leading up to the finalization of the Systemwide Programmatic Agreement, which was sent to the Yakama Nation for their signature in April 2009. While the Yakama Nation has chosen not to sign the Systemwide Programmatic Agreement, the co-lead agencies have continued Section 106 consultation under the Systemwide Programmatic Agreement and actively engage and work with the Yakama Nation in both the Wana Pa Koot Koot (Corps Portland District) and Payos Kuus Cuukwe (Corps Walla Walla District) cooperating groups. Through both this consultation and these cooperating groups, the Yakama Nation have an active voice in the development of annual and long-term work priorities for the resolution of adverse effects to historic properties related from the operation and maintenance of the Columbia River System Projects. The co-lead agencies continue to rely on the Yakama Nations special expertise in cultural resources within the Area of Potential Effect established during consultation for both Portland and Walla Walla U.S. Army Corps of Engineers Districts. As described in Section 3.16.2.7, in the Draft EIS, the co-lead agencies sent a letter to the Yakama Nation and 18 other Tribes in the Northwest in June 2018 requesting them to identify sites that they considered sacred per the definition in EO 13007. There was no response from the Yakama Nation as to this query until now. The comments touch on TCPs, which are conflated with sacred sites. The co-lead agencies used the definition of TCPs as provided in National Register Bulletin No. 38, and the co-lead agencies have followed the guidance in this document regarding the role of Tribes in providing primary information. As described in the Draft EIS, in Section 3.16.3.1, page 3-1362, the co-lead agencies utilized existing geospatial data provided by the Yakama Nation and other Tribes regarding the location and character of TCPs throughout the study area to assess effects. This information was provided by the Tribes as a part of the ongoing Federal Columbia River Power System (FCRPS) Cultural Resources Program and its inclusion in the Draft EIS impact analysis recognizes the special expertise of the Tribes. The method of analysis used to assess effects to TCPs from the alternatives was developed during facilitated meetings of the CRSO EIS Cultural Resources Team. The Yakama Nation, along with other Tribes, state and Federal agencies, actively participated in these meetings as cooperating agencies. Input from the Yakama Nation staff was key in determining the classification scheme used to summarize the frequency of TCP types throughout the study area.

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				Ichi Skin Sinwit, known to anthropologists as Sahaptin. Those names speak to the historical events that took place and led up to their existence. The Yakama Nation has written down the history of this creation and shared it with the Lead Agencies through twenty years of cooperative work and contractual relationships. As such, the Lead Agencies have access to reports compiled by the Yakama Nation that are directly at odds with its assertion concerning sacred sites. The Lead Agencies cannot in good faith state that the Columbia River is not a sacred site, arbitrarily ignoring information that evinces otherwise. The Advisory Council of Historic Preservations guidance, Meeting the Reasonable and Good Faith Identification Standard in Section 106 Review, states that a good faith investigation by a federal agency requires certain elements: 119 DEPT. OF INTERIOR, GUIDELINES FOR EVALUATING AND DOCUMENTING TRADITIONAL CULTURAL PROPERTIES (1998). 120 Id. at 28. 121 DEIS at 1355. Yakama Nation Comments on the Draft Columbia River System Operations Environment Impact Statement 32 The investigation is carried out in consultation with, as appropriate, the SHPO, Tribal Historic Preservation Officer, and any Indian tribe or Native Hawaiian organization that might attach religious and cultural significance to historic properties within the APE;122 The investigation is initiated in a timely manner that allows for appropriate analysis and reporting, with adequate time for review by the consulting parties;123 The investigation is carried out by a qualified individual or individuals who meet the Secretary of the Interiors qualification standards and have a demonstrated familiarity with the range of potentially historic properties that may be encountered, and their characteristics;124 The investigation acknowledges the special expertise possessed by Indian tribes and Native Hawaiian organizations in assessing the eligibility of historic properties that may possess religious and cultural significance to them (regardless of whether or not such tribes and organizations meet the Secretarys qualification standards);125 The investigation is fully supported by adequate funding and other necessary resources;126 and The investigation is not compromised by lack of integrity or omission, such as manipulating or ignoring evidence.127 The Lead Agencies have not complied with these guidelines in analyzing sacred sites or TCPs. First, the Lead Agencies have excluded the Yakama Nation from consultation regarding cultural resources in the APE, asserting that the consultation with the Yakama Nation is only necessary for impacts to trust lands because the Yakama Nation is not a signatory to the SWPA. Second, the time provided for analysis and review (due to the condensed schedule) has been completely unacceptable and inadequate. Third, the Lead Agencies archeologists are not qualified to identify or evaluate TCPs. Fourth, by completing dismissing the Yakama Nations comments regarding sacred sites and TCPs, the Lead Agencies fail to acknowledge the Yakama Nations special expertise and knowledge. Fifth, the Lead Agencies budgetary restraints under the SWPA are inadequate to properly support analysis of sacred sites and TCPs. Lastly, the Yakama Nations experience has been that federal agencies have omitted, manipulated, and ignored available evidence since the inception of the FCRPS Program, including resource reports and monthly meeting minutes.	
6299	18	brendan@yakamanation-olc.org	Confederated Tribes and Bands of the Yakama Nation	F. The Lead Agencies environmental justice analyses of impacts to cultural resources fail to consider all available information.128 The DEIS states that the population of the Yakama Nation Reservation is over 30,000 people. It also states that there are only 9,000 Native Americans living in Yakima County. Even if those individuals all lived on reservation, which they do not, that leaves 21,000 nonTribal members living on the Yakama Reservation. According to a 2004 study about populations on-reservation and off-reservation trust lands, approximately 33.4% of the population is White, 36.7% is marked as Other, and 23.3% are Native Americans.129 Taking census data alone from the Yakama Reservation does not provide an adequate snapshot of Tribal people, but merely reflects non-native encroachment resulting from allotment acts.130 The DEIS notes that the median household income for low-income, minority, and Tribal communities in the study area is $39,000.131 This is a very high estimate. From 2012 to 2016, Yakama Nation members had an average income of $5,700, with a poverty rate of 42%.132 These statistics likely do not account for the fact that many Yakama households consist of extended family, where one persons income is spread across multiple generations. That income is often seasonal and dependent upon fish runs between the spring and fall months. The Columbia River Indians are a distinct and identifiable population is population where single-person and seasonal income is especially prevalent. Most of the Columbia River Indians are enrolled in one of the Treaty Tribes but maintain an identity as a River Indian. They make their living on the Columbia River and reside in one or more of the Treaty Fishing Access sites throughout the fishing months. The Lead Agencies do not even reference the Columbia River Indians, much less account for impacts that fall disproportionately on this population. The lack of critical data regarding the Yakama Reservation, Yakama members, and the Columbia River Indians means that the Lead Agencies have not adequately considered communities in the affected area. This compromises the Lead Agencies ability to conduct a proper analysis of disproportionate effects on the Yakama Nation. It is also unclear how the Lead Agencies gathered information on and from Tribal communities regarding impacts and then how these impacts were prioritized. The Lead Agencies data in the Appendices for the Cultural Resources, Environmental Justice and Socio-economic sections reveals very little about the impacts Tribal communities would experience as a result of any alternative. A simple statement that salmon are a significant resource to Tribal communities does not explain how Tribal people would be affected by the continued reduction of salmon populations and habitats; adverse impacts to water quality; loss of cultural resources, sacred sites, burial sites, and TCPs; or the mental and 128 See pg. 57-60, infra, concerning environmental justice considerations. 129 4.4% is marked as two or more races. 130 This also extends to income data: even on the Yakama Reservation, there is a disproportionate distribution of wealth and Tribal people are the population with the lowest income levels. 131 DEIS at 3-1430. 132 See pg. 58-59, infra. Yakama Nation Comments on the Draft Columbia River System Operations Environment Impact Statement 34 psychological impacts felt as a result of continued human burial loss, ancestral village loss, and vandalism to sacred sites.133 The Lead Agencies must address these effects in order to sufficiently evaluate each alternative and the associated disproportionate impacts on the Yakama Nation. One reason for the Lead Agencies failure to assess impacts may be the lack of oral histories and informant interviews with Tribal communities, which have culturally perpetuated through oral tradition for millennia. This is part of a larger failure by the Lead Agencies to collect and consider pertinent information. For example, the Lead Agencies note that sitespecific information is not available with respect to where plant and medicine gathering occurs.134 However, the Yakama Nation has shared this type of information with the Lead Agencies for two decades. Therefore, the Lead Agencies should possess the information in meeting minutes, TCP reports, Traditional Use Reports, Cultural Resource Management Plans, and Determinations of Eligibility forms. These are highly relevant forms of documentation important to determining and assessing significant impacts in the socioeconomic and environmental justice sections of the EIS. By choosing not to utilize them in the DEIS, the Lead Agencies have effectively ignored available evidence that is clearly relevant to their analyses.	The commenter is correct that the census information presented in Appendix O does not represent tribal population residing on the Yakama Nation Reservation. Further, the commenter is correct that a limitation of the median household income data is that it does not account for the likelihood that tribal households contain extended families, and one person's income may be supporting multiple generations. This factor, as well as discussion of other economic aspects specific to circumstances on tribal reservations, and cultural resources is included in the EIS, Section 3.18.2.3 Identification of Indian Tribes. Tribal input, concerns, interests, and especially treaty rights were considered throughout the Draft EIS analyses and in the formulation of the Preferred Alternative. Treaty specific information is included in Section 3.17 as well as Chapter 7. The treaties bind all parties and are the supreme law of the land. The co-lead agencies recognize and respect that supremacy. In terms of honoring our treaty obligations, the co-lead agencies included Protecting Native American treaty and reserved rights and fulfilling trust obligations for natural and cultural resources throughout the environment affected by the Columbia River System operations as a purpose in the Purpose and Need Statement in Chapter 1 to ensure treaty obligations were a key consideration of decision making. The co-lead agencies are engaging in government-to-government consultation with the tribes, and several tribes are cooperating agencies on the CRSO EIS. The purpose of the Environmental Justice analysis included in Section 3.18 of the Draft EIS is to determine "whether there may be disproportionately high and adverse human health or environmental effects on minority populations, low-income populations, or Indian tribes (CEQ 1997). The environmental justice analysis considers the extent to which the alternatives have the potential to affect the availability of fish for commercial, ceremonial and subsistence fishing for Indian tribes, relying on analysis presented in the Section 3.15.4 of the fisheries analysis as well, in making this determination. In addition, Section 3.17 of the Draft EIS discusses how the analysis evaluated impacts to tribal interests, including treaty rights. Where applicable or pertinent for specific EIS resources, the EIS described how tribal interests would be impacted by the different action alternatives in Chapters 3 and 7. Further, impacts to cultural resources are considered in Section 3.16, impacts to tribal health and economic needs are evaluated in Section 3.18 Environmental Justice, and impacts to fisheries are addressed in Section 3.15.
6299	19	brendan@yakamanation-olc.org	Confederated Tribes and Bands of the Yakama Nation	The Lead Agencies biological analyses contain structural problems that frustrate meaningful review. The Lead Agencies adopted an evaluation and reporting framework for the biological analysis that was redundant, overly complicated, and created a false sense of precision. The Lead Agencies developed a life stage specific analysis for each species of salmon and steelhead affected by the CRS. They repeat this analysis thoroughly in Chapter 3, 7, and the BA. However, after all this analysis, the Lead Agencies draw their conclusions based entirely on modelling results for chinook and steelhead. While they describe in detail each stage of the salmon life cycle for each species, they do not incorporate that analysis into development of mitigation measures or proposed actions (e.g., proposed habitat measures are not linked to expected biological benefits). This flawed approach did not result in an 133 The Lead Agencies note that mitigation for these impacts will be addressed through the SWPA (see pg. 28-30, supra). However, as described above, this document is insufficient to mitigate the entirety of the socio-economic and environmental justice impacts to the Yakama Nations cultural resources. 134 DEIS at 4-76. Yakama Nation Comments on the Draft Columbia River System Operations Environment Impact Statement 35 accurate depiction of the impacts associated with various measures contained in each alternative. Moreover, the analyses in Appendix E (Fish Technical Appendix), do not always match the results presented in Chapter 3, which in turn do not always match the results presented in the Preferred Alternative and the BA. For example, in Chapter 3, Table 3-68, Table 3-83, and Table 3-97 all illustrate predicted SARs following installation of new surface passage structures under the assumption that these structures would increase passage efficiency by 30%. However, in an April 29, 2019 memorandum, the Fish Passage Center (Center) considered 0%, 10%, 20% and 30% increases in passage efficiencies. The Center concluded that increasing surface passage structures would not have a significant effect on avoiding powerhouse passage. Subsequently, the Lead Agencies removed new passage structures measures in the alternatives. Thus, the Lead Agencies reported SARs in Chapter 7 that were based on an assumption that the Center concluded to be false and measures that the Lead Agencies themselves omitted. Indeed, the Preferred Alternative does not even include new surface passage structures.135 The Lead Agencies have not described the evidence relied on to reach predicted SARs conclusion is valid without the any surface passage structures or, alternatively, how surface passage structures will result in the predicted SARs. As a second example, the Lead Agencies present National Oceanic and Atmospheric Administration (NOAA) LCM results in the Preferred Alternative for Snake River spring and summer Chinook salmon.136 However, in the BA, the Lead Agencies only present the results for MO1 and MO4 relative to the No Action Alternative.137 The Lead Agencies do not provide a reference to the Preferred Alternative analysis, which is the basis of the BA. The Lead Agencies must correct this in the FEIS to facilitate meaningful review of the BA. In a final example, the Lead Agencies do not consistently include confidence intervals throughout the DEIS and appendices. Confidence intervals (standard deviation) are provided in Appendix E but not in Chapter 3, the Preferred Alternative, or the BA. This omission means that it is impossible to evaluate the statistical significance of the data and, by extension, and the benefit asserted by the Lead Agencies.	Mitigation program measures are described in the EIS in Chapter 5. Modeling of alternatives for the Draft EIS did not consider additional mitigation programs such as hatchery production or habitat restoration projects, but impacts were discussed qualitatively. It would not be feasible to rerun scenarios of MO3 using NMFS' COMPASS model and the CSS model with Snake River hatchery production not included or with expanded carrying capacity during the spawning or rearing stages, due to habitat restoration work. The COMPASS model relies on the record of hydrosystem survival data estimated with both hatchery and wild-tagged Chinook and steelhead. NMFS' Life Cycle model reports only wild spawner abundance. Likewise, the CSS Chinook lifecycle model in the Grande Ronde/Imnaha also only included wild spawners. For both models, plus the CSS cohort model, density related effects in downstream locations such as the mainstem, estuary and ocean could only be estimated with hatchery fish present. With regards to powerhouse surface passage efficiencies, the survival results produced by the CSS model at 0-30% efficiency showed that there was a very small predicted level of effect on SARs. Because of the small effect, the co-lead agencies determined that including this functioned as a sensitivity analysis for the surface passage measure. Given the significant cost and minimal biological benefit associated with those structures, removing the measure from the Preferred Alternative was logical. Given the minimal biological effect associated with these structures, we did not include an extended discussion of the powerhouse surface passage measure results beyond the initial description of the Multiple Object Alternative. Consistent with recommendations from the modeling teams as well as independent review (ISAB 2020-1), the co-lead agencies suggest that point estimates may be more informative when used to compare relative differences rather than evaluating statistical significance between metrics and models. That said, confidence intervals for in-river survival are included in the Appendix, although the comment is correct that confidence intervals were not published along with mean estimates in the main tables of the EIS. NMFS' Lifecycle model presents adult abundance with quantiles of 2.5, 25, 50, 75 and 97.5. In contrast with reporting measurements from a study, with a mean and standard error, in a model it can be challenging to define the source of variance that is creating the confidence interval in a life cycle model. Variance is created by the changing river conditions within each season, and additional variance is created by using the 80 year water record. Metrics spanning multiple life stages such as SAR and adult abundance reflect variance in the different stages, both from the 80-year water record and data uncertainty from historical fish survival estimates.

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6299	20	brendan@yakamanation-olc.org	Confederated Tribes and Bands of the Yakama Nation	The Lead Agencies biological analyses include conclusions that run counter to the evidence. The Lead Agencies provide data on upper Columbia steelhead survival for the No Action Alternative in Appendix E (Mean survival 0.6575 (MCN to BON), SD 0.03473).138 In Chapter 7, the COMPASS model results for the Preferred Alternative for mean survival is 0.657 (MCN to BON), showing a -0.1% change in juvenile survival from the NAA. Consistent with the analysis, in the BA the Lead Agencies state that [t]he COMPASS 135 The Preferred Alternative does not even include new surface passage structures. If the Preferred Alternative did include such structures, a 30% increase in spill passage efficiency is extremely optimistic based on available data. 136 DEIS at 7-102. 137 BA at 3-204. 138 App. E, Table 3-5. Yakama Nation Comments on the Draft Columbia River System Operations Environment Impact Statement 36 model estimates that survival could increase juvenile survival from McNary Dam to Bonneville Dam by less than one percent higher than the 2016 operation. However, Table 3-34 in the BA represents a positive change from current condition for Juvenile Steelhead Downstream Migration from natal stream through the CRS (Bonneville Dam). The Lead Agencies assertion that a positive change will result is counter to data included elsewhere in the DEIS. In other instances, the relative change may be positive but falls within the standard deviation of the model estimates, yet the Lead Agencies determine that there is a positive improvement juvenile survival (despite a lack of statistical significance).	The powerhouse surface passage measure was removed from the Preferred Alternative, after analysis of the MO alternatives showed that these would not significantly improve SAR or in-river survival. The commenter is correct that the NMFS COMPASS model produced a very similar in-river survival estimate under the No Action Alternative and the Preferred Alternative for upper Columbia steelhead. Results for upper Columbia River stocks are beneficial based on Life Cycle model estimates. In-river survival and SARs are anticipated to increase. The CSS model does not currently model upper Columbia fish. Modeling of alternatives for the Draft EIS did not consider effects of elements of the mitigation programs such as hatchery production or habitat restoration projects. Mitigation program measures are described in the EIS in Chapter 5. The Preferred Alternative includes a modification of the John Day Reservoir operations for predator disruption. Reservoir levels would be increased before Caspian tern nesting season to dissuade terns from nesting on islands in the John Day Reservoir, where they are currently nesting and foraging on ESA-listed salmon and steelhead. In early June, after most of the spring juvenile salmon and steelhead have migrated through the reservoir, the John Day Reservoir will be reduced to the minimum irrigation pool range, which is the previous operational level of the reservoir in order to benefit juvenile fish migration season.
6299	21	brendan@yakamanation-olc.org	Confederated Tribes and Bands of the Yakama Nation	The Preferred Alternative will not adequately protect upper Columbia salmon and steelhead populations. Under the No Action Alternative, projections for threatened upper Columbia steelhead and endangered spring Chinook salmon survival rates are grim. Both of these species have triggered the AMIP Early Warning Abundance/Trend Indicator.139 This indicator is triggered when the four-year average abundance of naturally produced adult fish falls into the lowest twentieth percentile of returns during the base period. The need for action to protect these fish is urgent. However, the Preferred Alternative does not significantly improve juvenile fish rearing, passage, or survival for Upper Columbia salmon and steel head relative to the No Action Alternative. The Preferred Alternative provides less habitat, predation, and spring flow augmentation than the No Action Alternative. There is no change for adult salmon migration from the No Action Alternative. All NOAA life cycle modeling for the Preferred Alternative in the upper Columbia is based on results for the Wenatchee population of spring Chinook salmon.140 The Wenatchee watershed is the only watershed where both the Chinook salmon and steelhead populations are not at a high risk.141 These results are then extrapolated to all upper Columbia species and stocks.142 The risk to these fisheries in every other upper Columbia watershed is high. Accordingly, the use of data specific to each watershed is more reliable, rather than arbitrarily applying the data from the Wenatchee population wholesale. Furthermore, the NOAA COMPASS model demonstrates no significant juvenile benefits under the Preferred Alternative.143 This is exacerbated by the fact that the NOAA COMPASS model is not sensitive to flow, so it would not detect the negative consequences of reduced spring flow augmentation in the Preferred Alternative.144 139 National Marine Fisheries Service (NMFS), AMIP ABUNDANCE AND TREND INDICATORS (Presentation to the Regional Implementation and Oversight Group (RIOG)) (Feb. 4, 2020). 140 DEIS at 7-94. 141 NOAA, 5-YEAR REVIEW: SUMMARY & EVALUATION OF UPPER COLUMBIA RIVER STEELHEAD UPPER COLUMBIA RIVER SPRING-RUN CHINOOK SALMON (2016). 142 DEIS at 7-95, 7-96, 7-98. 143 DEIS at 7-94. 144 There is a considerable list of winter storage reservoir operation measures that may impact spring flow augmentation (see DEIS at 7-24. Yakama Nation Comments on the Draft Columbia River System Operations Environment Impact Statement 37 The 2019 CSS Annual Report estimates juvenile survival rates for upper Columbia spring Chinook to be less than 50%.145 However, the DEIS and BA have artificially partitioned survival for upper Columbia stocks and limited their analysis to between McNary Dam and Bonneville Dam.146 This partition fails to recognize the impact of upriver storage project management as a factor in downstream migration. The Lead Agencies cite flow augmentation as a major action to improve juvenile survival, but several measures proposed in the Preferred Alternative would reduce flow during the spring migration.147 The Preferred Alternative relies on Flex Spill to provide any benefits for upper Columbia fish. In order to ensure that BPA financial requirements are met, the Lead Agencies would not implement the Preferred Alternative Flex Spill operation (125% gas cap spill) in the lower Columbia except at McNary dam. Spill would be limited to 120% or less and 40% performance levels at the John Day and Dalles dams respectively.148 Spill would be limited to 150 kcfs at the Bonneville Dam due to erosion concerns.149 Flex spill only benefits upper Columbia stocks at Bonneville dam, yet that measure is expected to provide the only improvements for those stocks. Consequently, benefits resulting from Flex Spill for upper Columbia stocks will be minimal. However, the Lead Agencies do not propose any additional mitigation measures to address declining abundance trends. Finally, as described above, the Preferred Alternative Flex Spill operation is only planned for one year.150 An undefined adaptive management process will direct spill operations for the remaining fourteen years of the BA.151 The FEIS will need to address how near and long term operations that involve Flex Spill will provide sufficient and stable assurance of continuing fish benefits and the appropriate role of adaptive management in that context.	Analysis specific to upper Columbia River salmon and steelhead used current high quality data and the best available scientific information. Data from the Wenatchee River populations of Chinook salmon and steelhead were used as that was the most robust data source available to the co-lead and cooperating agencies. The benefits associated with the Preferred Alternative, including spill levels, flow augmentation targets, and other actions were higher under the Preferred Alternative than under any of the multiple objective alternatives. As this comment indicates, the Preferred Alternative has dam specific spill objectives that were developed as part of the 2019-2021 Spill Operation Agreement. These spill levels, combined with a continuation of flow levels from upstream, resulted in higher in-river survival and SARs compared to either MO3 or MO4, which spilled to 120% and 125% TDG levels, respectively. The statement that the Preferred Alternative only mandates flex spill for one year is not an accurate interpretations of the Preferred Alternative. If no adaptive management needs are identified, the operation would continue through the duration of the consultation. The framework for the adaptive management process is detailed in Appendix R, Part 2, Process for Adaptive Implementation of the Flexible Spill Operational Component, of the CRSO EIS. The co-lead agencies intend to engage regional state, Tribal, and Federal biologists in the development of an appropriate adaptive management process utilizing their respective salmonid management expertise. The goal of that adaptive management process would be to consider additional opportunities to further the goals of the flexible spill operation: additional improvements for salmon and steelhead, additional opportunities to operate the CRS for hydropower generation in a flexible manner that provides value to the Northwest, is implementable by the dam operators, and provides opportunity to reduce uncertainty and improve the learning opportunities around how operations of the CRS can influence latent mortality effects.
6299	22	brendan@yakamanation-olc.org	Confederated Tribes and Bands of the Yakama Nation	The Preferred Alternative will not adequately protect Snake River salmon and steelhead populations. The situation for Snake River salmon and steelhead populations is comparably dire to those in the upper Columbia. Based on the 2016 status review, NMFS concluded that most of the threatened natural Snake River spring and summer Chinook populations remain at high overall risk of extinction.152 The current status of threatened wild Snake River steelhead is that the abundance trend has achieved the AMIP Significant Decline Trigger.153 This 145 McCann, J. et al., Comparative Survival Study of PIT-tagged Spring/Summer/Fall Chinook, Summer Steelhead, and Sockeye 2019 Annual Report (BPA Project #19960200) (2019), Figure 3.7 at 3-41. 146 DEIS at 7-94. 147 In the BA at 3-274, the Lead Agencies state that the actions that have benefitted UCR spring-run Chinook salmon include the following: Minimize winter drafts of the large upper basin storage reservoirs (for flood risk management and power generation) to save water for augmenting spring flows during the peak juvenile passage period (water quantity). However, several of the measures in the Preferred Alternative reverse this strategy (see DEIS, 7-30). 148 DEIS at 7-34. 149 Id. 150 DEIS at 7-33. 151 Id. 152 NMFS, AMIP ABUNDANCE AND TREND INDICATORS (Presentation to the Regional Implementation and Oversight Group (RIOG)) (Feb. 4, 2020). 153 Id. Yakama Nation Comments on the Draft Columbia River System Operations Environment Impact Statement 38 trigger is reached if the four-year average abundance of naturally produced adult fish falls into the lowest tenth percentile of returns during the Base Period.154 The draft Preferred Alternative does not significantly improve juvenile fish rearing, passage, and survival for Snake River salmon and steelhead.155 COMPASS modeling predicts that, under the Preferred Alternative, juvenile Chinook survival will increase from 50.4% to 51%; CSS predicts juvenile survival will increase from 57.6% to 58.3%.156 This is not a significant improvement.157 Likewise, COMPASS modeling alarmingly predicts a lower juvenile survival for Snake River steelhead for the Preferred Alternative than the No Action Alternative.158 Finally, the Lead Agencies assert in the BA that the Preferred Alternative is expected to maintain or slightly improve survival of endangered Snake River sockeye and threatened Snake River fall Chinook salmon migrating through the hydropower system (depending on the latent mortality hypothesis).159 NMFS lifecycle models from 2016 predicted a decrease in Chinook SARs and abundance if latent mortality remained the same as the 2016 operation.160 Therefore, according to NOAA modeling, all the Preferred Alternatives benefits are based on an assumption that fewer powerhouse encounters due to increased spill will reduce latent mortality. If the latent mortality hypothesis does not provide the benefit anticipated by the models, the Lead Agencies propose no other mitigation to protect these stocks. The Lead Agencies Preferred Alternative relies entirely on the potential improvements from decreased latent mortality. The Lead Agencies provide a discussion about latent mortality and conclude that [g]iven the overall weight of evidence, it is uncertain to what extent CRS operations, as opposed to baseline or cumulative conditions, cause delayed mortality.161 They also include a NOAA study that states that results suggest that after fish leave the hydropower system, bypass passage history has little effect on mortality.162 Accordingly, the Yakama Nation is very concerned that the Lead Agencies do not provide additional mitigation measures to insure against their own assumptions about latent mortality. E. The Preferred Alternative will not adequately protect middle Columbia salmon and steelhead populations. 154 Id. 155 If the later mortality hypothesis proves to be true, then the Preferred Alternative may improve SARs and increase adult returns. However, the Lead Agencies have put no protections in place if the benefits of spill operation arent as significant as expected. 156 DEIS at 7-100, Table 7-24. 157 It is important to note that COMPASS and CSS model results in the Preferred Alternative are exaggerated due to modeling limitations regarding flow and spill inputs. With respect to CSS model outputs, the Lead Agencies note that [t]his dataset for the Preferred Alternative scenario contains only daily average values for spill percent. The Preferred Alternative scenario contains a measure for sub-daily flex spill variations in spill percent; however, since those sub-daily spill operations are not contained in the dataset, the results of our modeling will not predict the potential effects of sub-daily variations in spill. CSS memorandum, (January 24, 2020) CRSO-78. 158 DEIS at 1-104, Table 7-26. 159 BA at 3-68, 3-95. However, the Lead Agencies note that [i]t is also possible that increased spill levels, and associated adverse effects, will be offset by an increase in adult returns due to less powerhouse encounters as hypothesized by the CSS. Id. at 3-67. 160 DEIS at 7-102. 161 BA at 3-13. 162 DEIS at 3-13. Yakama Nation Comments on the Draft Columbia River System Operations Environment Impact Statement 39 The Preferred Alternatives does not anticipate any changes for middle Columbia salmon and steelhead stocks relative to the No Action Alternative.163 The analyses rely entirely on upper Columbia spring Chinook results.164 In addition, the Lead Agencies have effectively ignored middle Columbia salmon and steelhead in their Tributary Habitat Program.	This comment accurately captures the potential changes to in-river survival associated with CRS model output, but does not account for the multiple other metrics such as Smolt-to-Adult return rates associated with the expected effects on fish based on analysis of the Multiple Objective alternatives and Preferred Alternative in the CRS . The different metrics are more or less sensitive to actions depending on whether the metric is focus on juvenile survival or subsequent adult returns. This is the reason the co-lead agencies did not focus on a single metric to inform their Preferred Alternative. If the lower end of predicted outcomes are observed and are not able to be moderated through adaptive management, the co-lead agencies will reevaluate and assess alternate actions that may be appropriate.
6299	23	brendan@yakamanation-olc.org	Confederated Tribes and Bands of the	The Preferred Alternative will not adequately protect middle Columbia salmon and steelhead populations. 154 Id. 155 If the later mortality hypothesis proves to be true, then the Preferred Alternative may improve SARs and increase adult returns. However, the Lead Agencies have put no protections in place if the benefits of spill operation arent as significant as expected. 156 DEIS at 7-100, Table 7-24. 157 It is important to note that COMPASS and CSS	As noted above, the co-lead agencies used current high quality data for each species analyzed. The co-lead agencies worked closely with cooperating agencies to assess and develop the data sources for each species. The co-lead agencies have included an adaptive management plan in Appendix R of the CRSO EIS that will engage regional state, tribal, and federal fish managers in the development of an appropriate adaptive management process utilizing their respective salmonid management expertise. The goal of that adaptive management process would be to consider additional opportunities to further the effectiveness of the operation while maintaining the goals of the flexible spill operation. However, if the lower end

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			Yakama Nation	model results in the Preferred Alternative are exaggerated due to modeling limitations regarding flow and spill inputs. With respect to CSS model outputs, the Lead Agencies note that [t]his dataset for the Preferred Alternative scenario contains only daily average values for spill percent. The Preferred Alternative scenario contains a measure for sub-daily flex spill variations in spill percent; however, since those sub-daily spill operations are not contained in the dataset, the results of our modeling will not predict the potential effects of sub-daily variations in spill. CSS memorandum, (January 24, 2020) CRSO-78. 158 DEIS at 1-104, Table 7-26. 159 BA at 3-68, 3-95. However, the Lead Agencies note that [i]t is also possible that increased spill levels, and associated adverse effects, will be offset by an increase in adult returns due to less powerhouse encounters as hypothesized by the CSS. Id. at 3-67. 160 DEIS at 7-102. 161 BA at 3-13. 162 DEIS at 3-13. Yakama Nation Comments on the Draft Columbia River System Operations Environment Impact Statement 39 The Preferred Alternatives does not anticipate any changes for middle Columbia salmon and steelhead stocks relative to the No Action Alternative.163 The analyses rely entirely on upper Columbia spring Chinook results.164 In addition, the Lead Agencies have effectively ignored middle Columbia salmon and steelhead in their Tributary Habitat Program.	of predicted outcomes are observed and are not able to be moderated through adaptive management, the co-lead agencies will reevaluate and assess alternate actions that may be appropriate. The co-lead agencies ongoing commitment to habitat restoration actions in the Columbia Basin are described in more detail in the agencies' Proposed Action (Appendix V), which the co-lead agencies' submitted to NMFS and the USFWS for consultation under the ESA. The resulting Biological Opinions can be found in Appendix V of the FEIS.
6299	24	brendan@yakamanation-olc.org	Confederated Tribes and Bands of the Yakama Nation	The Preferred Alternative will not adequately protect lower Columbia salmon and steelhead populations. The Lead Agencies Preferred Alternatives does not anticipate any changes for lower Columbia salmon and steelhead stocks relative to the No Action Alternative.166 As with middle Columbia populations, the Lead Agencies have effectively ignored lower Columbia salmon and steelhead in their Tributary Habitat Program.	See response to Comment 6299-23.
6299	25	brendan@yakamanation-olc.org	Confederated Tribes and Bands of the Yakama Nation	G. The Lead Agencies have not demonstrated that the Preferred Alternative will ensure improvement in the status of listed stocks relative to the No Action Alternative. The Preferred Alternative relies on unproven spill levels that may not provide benefits beyond the No Action Alternative, and spill levels that may not be achieved at three of the four dams in the lower river due to power considerations and implementation limitations. The NOAA COMPASS and LCM analyses do not demonstrate a benefit under the Preferred Action relative to the No Action Alternative unless the latent mortality hypothesis proves to be correct.168 The Lead Agencies do not propose any new or additional mitigation actions to address uncertainty associated with latent mortality. The mitigation package, in addition to the new spill regime, is based on existing programs that have funding levels that are currently below levels assumed in the No Action Alternative.	See response to Comment 6299-23.
6299	26	brendan@yakamanation-olc.org	Confederated Tribes and Bands of the Yakama Nation	H. The Lead Agencies failure to adequately protect fish populations under the Preferred Alternative is inconsistent with their Treaty, trust, and statutory obligations. The Treaty of 1855 requires the Lead Agencies to ensure that the operation and management of the CRS under the Preferred Alternative will not result in adverse impacts to fish populations. Specifically, the Preferred Alternative cannot impair the Yakama Nations time, place, method, species and extent of taking fish. The Treaty of 1855s guarantee to a portion of the harvest means that the Columbia River must contain viable fish stocks and sustainable habitat. Moreover, The Lead Agencies have a duty to protect and give full effect to the rights reserved under the Treaty of 1855 pursuant to the federal trust responsibility. 163 DEIS at 7-98, 7-99. 164 DEIS at 7-98, 7-99. 165 This means that the Lead Agencies have effectively ignored an important aspect of the problem. BA at D13, Table D.2. 166 DEIS at 7-108. 167 Again, this means that the Lead Agencies have effectively ignored an important aspect of the problem. BA at D-13, Table D.2. 168 DEIS at7-94, 7-95, 7-100, 7-102. Yakama Nation Comments on the Draft Columbia River System Operations Environment Impact Statement 40 The Northwest Power Act requires the Lead Agencies to provide fish and wildlife with equitable treatment relative to the other authorized purposes of the CRS.169 Furthermore, the Northwest Power Act demands that the Lead Agencies take into account at every stage of decision-making processes to the fullest extent practicable, the program adopted by the Council.170 The ESA likewise provides rigid and specific protections to many of the stocks discussed above.171 The Lead Agencies biological analyses indicate that the Preferred Alternative will result in negative, neutral, or negligibly positive effects on salmon and steelhead stocks in the Columbia and Snake Rivers. As described above, these species are already imperiled across the Columbia River Basin. Consequently, the Lead Agencies failure to provide for significant positive benefits may result in irreparable harm to these populations. The draft Preferred Alternative will not benefit (and could potentially harm) most ESA-listed salmon and steelhead populations relative to the No Action Alternative. The NOAA COMPASS modeling for the Preferred Alternative did not show significant improvement, which the Yakama Nation considers to be greater than 10%, for any population. The NOAA LCM modeling only detected a significant improvement in abundance and smolt-to-adult return ratio (SAR) for Snake River populations when an arbitrary adjustment is made for assumed improvements in latent mortality. The Lead Agencies intent seems to be that the proposed Flex Spill operation will provide significant improvements in latent mortality that will compensate for deficiencies in fish survival. However, the additional hydro system flexibility and water management measures included in the Preferred Alternative negate the potential benefits of the Flex spill operation and potentially result in conditions for fish that are worse than the status quo. In the BA, the Lead Agencies provide an extensive description of the latent mortality theory. That description concludes that [g]iven the overall weight of evidence, it is uncertain to what extent CRS operations, as opposed to baseline or cumulative conditions, cause delayed morality.172 The Lead Agencies therefore recognize that any significant improvements to salmon and steelhead populations under the Preferred Alternative are fraught with uncertainty. Nevertheless, the Lead Agencies do not propose any significant additional actions or mitigation measures in the Preferred Alternative or BA to compensate for the identified risk of the proposed Flex Spill operation. The Preferred Alternative lacks clear benefits to fish populations, cultural resources protections, or an accurate picture of the Yakama Nations perspective. Consequently, the Yakama Nation is not confident that such an alternative will eliminate or reduce any of the adverse impacts of the CRS described in Section 2.3 of these comments. 169 See 16 U.S.C. 839b(h)(11)(A)(i). Moreover, the array of measures proposed under the Preferred Alternative indicate that power operations, flexibility, and water supply measures far outweigh fish operations (see n. 84, supra). 170 See 16 U.S.C. 839b. 171 See 16 U.S.C. 1531, et seq. 172 BA at 3-16. Yakama Nation Comments on the Draft Columbia River System Operations Environment Impact Statement 41 This outcome would be unacceptable under the Treaty of 1855, the federal trust obligation, and applicable statutes. If any of salmon and steelhead populations are wiped out or reduced to numbers that inhibit sustainable fishing practices, then the Lead Agencies have impaired the Yakama Nations time, place, method, species and extent of taking fish and violated the Treaty of 1855s harvest guarantee. This would be wholly inconsistent with the Lead Agencies fiduciary obligation the Yakama Nation. Furthermore, the data described above does not represent equitable treatment of fish and wildlife under the Northwest Power Act. A further decline in fish populations is the antithesis of the Councils goals for five million fish and 2% to 6% SARs. The Yakama Nation is also concerned that, in light of the biological analyses results, the Lead Agencies will be unable to meet their ESA obligations. The Lead Agencies must correct these issues in the FEIS. Any alternative that does not lead to significant and measurable positive benefits for salmon and steelhead populations in the Columbia and Snake Rivers is inconsistent with the Lead Agencies obligations under the Treaty of 1855, the federal trust responsibility, the Northwest Power Act, and the ESA.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. It should be noted that the 4% average SAR target referenced refers to the Northwest Power and Conservation Councils target for broad-sense recovery and is separate and distinct from the obligations of any single entity or in this case a requirement to be met solely by the co-lead agencies. Just as the Councils fish and wildlife program encompasses both federal and non-federal stakeholders in the Columbia Basin, the Councils recovery goals are shared by many parties. Based on our analysis in the Fish resources section of Chapter 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide meaningful benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the CRS. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. The Preferred Alternative is predicted to benefit salmon and steelhead. It also meets the other objectives of the study for resident fish, hydropower, water management, and water supply, while minimizing adverse impacts to communities and the economy. The CSS model predicts that average Smolt-to-Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% (within the Northwest Power and Conservation Council recovery targets for the region) as a result of the Preferred Alternative. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. Tribal input, concerns, interests, and especially treaty rights were considered throughout the Draft EIS analyses and in the formulation of the Preferred Alternative. Treaty specific information is included in Section 3.17 as well as Chapter 7. The treaties bind all parties and are the supreme law of the land. The co-lead agencies recognize and respect the legal obligations imposed by treaties. The co-lead agencies accordingly included Protecting Native American treaty and reserved rights and fulfilling trust obligations for natural and cultural resources throughout the environment affected by the Columbia River System operations as a purpose in the Purpose and Need Statement in Chapter 1 to ensure treaty obligations were a key consideration of decision making. The co-lead agencies are engaging in government-to-government consultation with the tribes, and several tribes are cooperating agencies on the CRSO EIS. The EIS recognizes the economic and cultural importance of salmon to Tribes in a number of sections throughout the document. The cultural significance and impacts of salmon and steelhead fisheries are described in the Ceremonial and Subsistence Fisheries sub-section and the Social Importance of Commercial, Ceremonial and Subsistence Fisheries sub-section of Section 3.15.2.1. Fisheries tribal interests are provided in Section 3.15.4 additional details regarding the economic significance of salmon and steelhead fisheries have been added to the recreation analysis (Section 3.11) including tribal interests (Section 3.11.3.7). Treaty rights are discussed in the Executive Summary, Section 3.16 Cultural Resources, and Section 3.17 Indian Trust Assets, Tribal Perspectives, and Tribal Interests. Appendix P includes copies of tribal perspectives that were submitted by tribes. Tribal consultation is described in Sections 1.5, 3.5, and 3.15; and Chapter 9. Most sub-sections within Chapter 3 include a Tribal Interests section at the end of the sub-section that attempts to summarize tribal issues by topic.
6299	27	brendan@yakamanation-olc.org	Confederated Tribes and Bands of the Yakama Nation	A. The Lead Agencies process for developing the power analyses relies on incomplete information to the extent it did not involve all interested parties. In 1999, the Corps convened the Drawdown Regional Economic Workgroup (DREW) as part of its EIS evaluating of the potential impacts from removing the Snake River Dams. The DREW comprised representatives from multiple federal agencies (including the Fish and Wildlife Service, National Marne Fisheries Service, and Environmental Protection Agency), Native Nations, states, and conservation groups. This collective worked cooperatively and transparently to design and review the power studies that would go into the Corps evaluation. The process resulted in studies that reflected a multitude of interests, thereby allowing for a more effective and balanced evaluation of Snake River dam removal. A similarly collaborative model for identifying measures related to power analysis would have, in this instance, produced a more robust information base to inform alternative development and impact assessment. The cooperating agency process did not achieve results similar to the DREW process. The Yakama Nations staff and consultants were only able to participate in a handful of cooperative agency conference calls with regard to power issues. These calls were structured as presentations rather than collaborative discussions. As discussed above, the truncated timeline resulted in inadequate opportunity to provide the Lead Agencies with comments on power issues. As result, information relevant to power analysis was limited or foregone.	Because Bonneville routinely performs hydropower modeling, including for the Columbia River Treaty Review (2011-2014, with the Columbia River Inter-Tribal Fish Commission representing the Yakama Nation), Bonneville developed a proposal for how to structure the hydropower analysis, then discussed this plan with the CRSO EIS hydropower technical team including the cooperating agencies that had expressed an interest in hydropower. The phone call workshops asked for input from the participants; the majority of the responses were clarifying questions rather than suggestions for changing the approach. In addition, Bonneville's CRSO EIS lead for power met, by phone, with the Yakama Nations staff on Oct 18, 2018 and March 11, 2019. Power measures for the Single Objective alternatives, later combined into the Multiple Objective alternatives, were developed through workshops with cooperating agencies, input from co-lead agency staff, and public input during the scoping phase of the EIS (see Chapter 2 of the draft EIS for additional information).
6299	28	brendan@yakamanation-olc.org	Confederated Tribes and Bands of the Yakama Nation	B. The Lead Agencies fail to clarify that concerns of competitive pressures on BPA are unfounded. In Section 3.7 of the DEIS, the Lead Agencies describe the concerns of BPAs public utility customers that BPAs rates are above the spot market prices. The Lead Agencies note that: [t]he spot market price is not directly comparable to [BPAs] rates because [BPA] provides a high-quality power product that is backed by Federal Base System resources, which includes the federal dams and the Columbia Generating Station. [BPAs] firm power customers, thus, receive a power product that provides a reliable and stable supply of power at predictable prices set by Bonnevilles statutory process. Spot market purchases, in contrast, are volatile, with supply not assured and pricing subject to market spikes.173 This language seems to push back against perceived concerns from customers. However, the Lead Agencies analysis in Section 3.7.3.1, which focuses extensively on the rate impacts of the alternatives, appears to ignore the important distinctions between the value of BPA firm power and the spot market: [t]he MOs long-term cost impacts on [BPA]s wholesale power rates is an important qualitative consideration because of the competitive nature of the industry [BPA] operates in[r]etaining [BPAs] preference customer base will be critical	The commenter contends that the discussion in the EIS regarding the competitive pressures facing Bonneville and its wholesale power rates are unsubstantiated. The commenter outlines several broad areas which, in the commenters view, should be included in the EIS to demonstrate that customers of Bonneville are unlikely to find other suppliers as a result of additional rate pressure or that would warrant additional cuts to Bonneville's programs, such as its Fish and Wildlife Program. To support its view, commenter identifies five general areas that demonstrate that Bonneville's rates are, in the long-run, competitive. These include (1) the stability provided by Bonneville's rates and long-term contracts; (2) spot market prices are not comparable to the high-quality products provided by Bonneville; (3) relying on market products is unstable and unpredictable when compared to sales from Bonneville; (4) purchasing alternative new generation would likely exceed costs of Bonneville's power; and (5) Bonneville's sales to its customers have been increasing. The commenters description of the value of the products sold by Bonneville are in accord with the findings in the EIS. The EIS found that Bonneville products are more valuable and of a higher quality than the power products available on the short-term spot market. See Section 3.7.2.5, at pages 3-801-802 of the draft EIS. As the commenter notes, the products are inherently different in that the majority of Bonneville's power products follow load, which is not an attribute included in a standardized market purchase of power. In addition, the carbon content differences must also be considered, particularly as higher value is assigned to carbon-free generation over power with carbon emissions. Most market purchases, unless procured from a specific renewable resource, will be assessed a carbon-based attribute. Also, roughly $9/MWh of Bonneville's average wholesale rate includes benefits to the region that would have to be added to the cost of market power to

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				to assuring [BPA] is able to meet its public purposes and financial obligations for the long term.174 The DEIS does not contain any factual information to support the salience of customer concerns as justification for the selection of one alternative or measure over another. A 2018 analysis by Yakama Nation consultants compared BPA power costs to market power.175 The study concluded that: The day-ahead power market is volatile. It was more expensive than BPA power during parts of 2018 and long-term prices are uncertain. The day-ahead power market is relatively small, accounting for only about 10% of the regions energy needs. This will limit the number of utilities that could rely on this market and market prices would go up if there is more demand. BPA power contracts provide reliability and load-shaping services that are much more valuable than purchasing electricity in the day-ahead power market. BPA power is less expensive than constructing new power generating resources. For these reasons, it is likely that BPA will continue to be competitive and most utilities will renew their long-term contracts with BPA in 2028. 173 DEIS at 3-801. 174 DEIS at 3-842. 175 A copy of the analysis is included as Appendix C to these comments. Yakama Nation Comments on the Draft Columbia River System Operations Environment Impact Statement 43 The day-ahead market is volatile. For example, BPA power has generally been more expensive than day-ahead market power during the past few years. This changed dramatically, however, in July and August 2018. During those months, Mid-Columbia market prices spiked from $17 per megawatt hour to $70 per megawatt hour. These numbers were twice as high as BPAs prices. Day-ahead prices also exceeded BPA between 2012 and 2015 due to a 75% increase in market prices. Future prices for the day-ahead market are uncertain and could exceed BPA prices if natural gas prices go up or utilities increase demand on this market. Therefore, the day-ahead market price is not as stable as BPA power. BPA power, on the other hand, is more valuable and has less risk than day-ahead market power. Utilities can purchase electricity from BPA that is delivered to match a utilitys exact loads throughout each day; day-ahead market power must be combined with other services to precisely meet utility loads. BPA power is sold through long-term stable contracts, whereas market power is only available under short-term contracts subject to significant supply and cost risks. Consequently, the day-ahead market power is not as reliable and does not have the same quality as BPA power. The 2018 study analyzed the issue of BPAs competitiveness. The analysis describes how public utility customers must continue to purchase power from BPA through 2028 and considered the alternatives available to these utilities once their current BPA contracts expire. The study indicated that BPA power is of a higher quality and lower risk relative to market power. Furthermore, there is a significant range in the forecast for future market prices. Purchasing power from BPA is likely to cost half as much as purchasing power from new generating resources. A utility considering foregoing a long-term BPA contract would also need to weigh the risk that, if circumstances changed and the utility sought to return to BPA, it would only have access to BPAs Tier 2 power, which will be similar to market rates in the near term and the cost of new resources in the long term. It is also apparent that BPAs customers recognize that BPA will not lose utility loads through 2028. In its brief for a 2007 BPA rate case, the Washington Public Agencies Group (WPAG) stated fortunately for BPA, the current take-or-pay Regional Dialogue Contracts largely shelter it from price-induced reductions in load through FY 2028.176 These take-orpay contracts require utilities to pay for electricity from BPA whether or not they actually take power. In the brief, WPAG goes on to note that [u]nfortunately, for BPAs preference customers, it appears that due to [low natural gas prices, the rise of renewable energy, multiplying carbon-free initiatives, and reduced demand], including diminishing net secondary revenue and increasing fish and wildlife costs, this rate case will result in another substantial power rate increase, and yet another hit on BPAs perceived competitiveness. A key question here is what alternatives the utilities have opposed to purchasing power from BPA after 2028. The Yakama Nations study compared two potential alternatives for future utility purchases: day-ahead market power and purchasing a new generating resource. 176 BPA, ROD, 28. Yakama Nation Comments on the Draft Columbia River System Operations Environment Impact Statement 44 BPA Power versus Day-Ahead Market Power: Utilities could purchase electricity from the market rather than from BPA. This type of power generally consists of surplus energy from existing generating resources and non-firm hydroelectric power. Approximately 10% of the regions power (i.e., about 2,000 average megawatts in 2018) is sold in this market. The filings by the public utilities in the rate case referenced above assumed that purchasing priority firm power from BPA through long-term contracts is comparable to purchasing electricity from the day-ahead market. This is a fundamental flaw in the perceived competitiveness debate. Utilities have an obligation to meet their exact loads every millisecond of every day of every year. Electricity demand varies significant during the day, with typical peaks in the morning and late afternoon. Demand also varies by season and location. For example, demand to heat homes and other buildings is higher during the winter in cooler climates. Demand to cool homes and other buildings is higher during the summer in warmer climates. Utilities also must maintain the correct frequency (sixty cycles per second) to ensure that clocks and machinery run properly and power is available in emergency situations where a generating plant is disabled. Utilities can purchase all of these services from BPA. Utilities would pay additional costs for these load-shaping and reliability services (which are not reflected in the day-ahead market price) by purchasing from the day-ahead market. There are other important differences between purchasing power from BPA and the dayahead market. BPA offers twenty-year sales contracts that provide long-term supply certainty. BPA power comes from dependable resources because it serves its firm loads based on critical-water assumptions from reliable hydroelectric dams. BPA power is delivered through a region-wide transmission network. This reliability is valuable for the existing customers of public utilities and an important consideration for companies considering where to locate new operations. The day-ahead market, on the other hand, is short-term. The loss of a resource, other electricity supply disruptions, or an increase in economic growth which increases electricity demand can reduce how much electricity is available in the day-ahead market thereby increasing market costs. The cost of BPA priority firm power is generally stable during a two-year rate period.177 Utilities can evaluate the long-term risks of price increases from future maintenance of the federal dams, fish and wildlife costs, and other BPA programs with relative certainty. The chart included below as Figure 1 illustrates that BPA rates are projected to increase by about 3.5% per year between 2010 and 2020.178 177 There are some circumstances where limited rate adjustments occur to address higher costs. 178 See BPA, STRATEGIC PLAN 2018-2023 (2018) at 35. Yakama Nation Comments on the Draft Columbia River System Operations Environment Impact Statement 45 Figure 1 Utilities cannot expect the same level of stability from the day-ahead market. As noted above, the day-ahead market can be extremely volatile. Changes in the price of natural gas, output from the regions dams which vary by water year, the amount of surplus fossil-fired power (i.e., power available above what is necessary to meet long-term contracts), and economic growth can significantly affect supply and demand, impacting the day-ahead market price. If a large number of utilities chose to rely on the day-ahead market for future electricity supplies, it is likely that the increased demand would correspondingly increase market prices. As an indication of price volatility, the chart in Figure 1 shows that the day-ahead market has fluctuated between $20 and $35 per megawatt hour with a 75% increase between 2012 and 2015. This chart also illustrates that, during between 2010 and 2014, day-ahead market costs were higher than BPA priority firm power in 2010, 2013, and 2014. Not shown on this BPA chart are the average Mid-Columbia prices for 2008, which (according to a Council report) were 240% higher than prices in early 2018. 2018 provided a dramatic example of the of the volatility of Mid-Columbia prices. BPA reports that these prices were $16.65 per megawatt hour in June, $71.88 per megawatt hour in July, and $69.96 per megawatt hour in August.179 A utility that relied on the spot market in 2018 would have experienced an increase of more than 330% for those two months and paid twice the BPA rate. The 2018 price spike had a number of causes: a heat wave that affected the Pacific Cost, Nevada, and Arizona increased the demand for electricity to meet air conditioning loads; constraints in natural gas supplies for electricity generating plants in southern California 179 Information from the week ending September 29, 2018. Yakama Nation Comments on the Draft Columbia River System Operations Environment Impact Statement 46 increased prices; and wildfires reportedly threatened transmission lines. These types of events may increase in the coming years due to climate change, intensifying the risk of more price spikes. The Pacific Northwest also learned an expensive lesson in market price volatility in 2000. BPA had committed to serve additional electricity loads on the assumption that it could supply them with wholesale market power and that market prices would remain stable. When the wholesale market price of electricity on the West Coast jumped from approximately $30 to over $300 per megawatt hour, BPAs reliance on the wholesale market increased costs to utilities throughout the region by more than $1,000,000,000. Future market prices are also uncertain. In 2016, the Council prepared an analysis of future market prices which noted that the Councils Seventh Power Plan forecast for spot market prices range from an average of $25 per megawatt hour to an average of $68 per megawatt hour over the next twenty years.180 A chart from that analysis, included below as Figure 2, illustrates this projection.181 Figure 2 BPA Power versus New Resources: The other alternative available to utilities that do not want to renew contracts with BPA is to purchase new generating resources. The Councils Seventh Power Plan evaluated a range of potential new resources. A chart from that analysis, included below as Figure 3, shows that the levelized costs of energy from new primary resources in dollars per megawatt hour are significantly more expensive than purchasing from BPA.182 180 COUNCIL, SEVENTH POWER PLAN (2016) at 2-12. 181 Id. at Figure 8-1. 182 Id. at 13-3. 0 10 20 30 40 50 60 70 80 $/MWh (2012$) Year Historic Medium Low Fuel Price High Fuel Price Yakama Nation Comments on the Draft Columbia River System Operations Environment Impact Statement 47 Figure 3 This chart considers commercially proven technologies that have the potential to be developed within a twenty-year planning horizon and play a major role in the regional power system. It shows that electricity from BPA costs less than half as much as the lowestcost new generative alternative. Importantly, these generation alternative costs do not include all the services included in power from BPA. For example, a utility or consortium of utilities that purchased a generating resource would also need other services to meet peak	make it more comparable. Specifically, Bonneville's average wholesale rate includes the cost of providing benefits to utilities with higher average system costs (approximately $250 million annually), transmission costs associated with serving loads in other balancing authority areas (approximately $100 million annually), energy efficiency programs and incentives (approximately $125 million annually), support to utilities with low densities (approximately $40 million annually), and support to utilities with eligible irrigation loads (approximately $20 million annually). The commenter suggests that because Bonneville's power products are an inherently better product, with assured supply and stable pricing, that competitive concerns are misplaced or not substantiated in the EIS. The competitive concerns discussed in the draft EIS stem from several factors discussed in Section 3.7. First, is the divergence of market prices from Bonneville's wholesale power rate. This, as just discussed, is not an apt comparison, and does not in and of itself create competitive pressure on Bonneville's power rates. However, coupled with this divergence in price, is a sustained series of rate increases that, over a decade, have increased Bonneville's power rates by over 35 percent. See Section 3.7.3.1, at pages 3-842-843 in the draft EIS. Added to these pressures is consistent and vocal concern from Bonneville's preference customers with Bonneville's long-term competitiveness. These concerns are not merely anecdotal. In the BP-16, BP-18, and BP-20 rate proceedings, Bonneville has had to defend its cost competitiveness in its Records of Decision. The common theme presented by some power customers in these proceedings is this: unless Bonneville proactively manages its costs and arrests the trajectory of continued rate increases, Bonneville will no longer be positioned as the supplier of choice in 2028. The commenter suggests that given the uncertainties of market supply, price, and the risk of losing Bonneville's preferred power, few customers would or should leave Bonneville for competitive reasons. Herein, though, lies the crux of the competitiveness concerns addressed in the EIS. Bonneville's public customers will have a choice in 2028 as to their future power supplier. See draft EIS Section 3.7.2.5, at pages 3-801-802. While price alone should not be the primary driver, there can be little debate that if Bonneville's power rates are substantially above market alternatives, Bonneville would face the real risk of losing load. Commenter presents a compelling case why power customers should not leave Bonneville for less valuable products, but none of these reasons compel any customer to remain with Bonneville after 2028. The competitive pressure of higher rates results in real impacts on the retail consumers of these utilities. The discussion of Social and Economic Effects of Changes in Power and Transmission for each Alternative (in Sections 3.7.3.4 through 3.7.3.7 and in Section 7.7) describes the impact on jobs. Section 3.18.3 and Chapter 7 describe the Environmental Justice implications of the alternatives. And finally, many public comments from individuals and public power customers describe the impacts rate increases would have on public power customers (see this Appendix). Faced with this uncertainty and the stated concerns by power customers that continued rate increases would affect their decision to remain with Bonneville, the EIS appropriately discusses the competitive risks presented by the Multiple Objective Alternatives, particularly those that place upward rate pressure on Bonneville's power rates. See draft EIS, Section 3.7.2.5, pages 3-801-802 and Section 3.7.3.1, at pages 3-842-843. To be clear, the EIS presents this risk in the appropriate context as a qualitative risk. See draft EIS, Section 3.7.3.1, at pages 3-842-843. The EIS does not dispute that under many scenarios Bonneville would continue to be the provider of choice. With regard to large retail customers seeking other power suppliers, the commenter is correct that there can be substantial risks and barriers that may make the choice to change power suppliers an uneconomical choice. For these reasons, the co-lead agencies have not attempted to quantify what this risk would be or at what price point Bonneville's power customers would leave Bonneville for other suppliers. Nonetheless, the consequence of even a small fraction of Bonneville's firm load diversifying to other suppliers is consequential. As discussed in the EIS, Bonneville's preference customers make up over 80 percent of its revenue. See draft EIS, Section 3.7.2.5, at pages 3-801-802. These customers commit, through their contracts and power rates, to pay Bonneville's costs. A loss of even a small amount of sales to this core customer group would leave Bonneville in the position of having to sell additional power on the wholesale market, (often at fixed or formulaic prices) exposing Bonneville to the very volatility in prices that the commenter notes. See draft EIS, Section 3.7.3.1, at page 3-843. In a world where Bonneville must rely on a shrinking group of firm customers from which to recover its fixed costs, the EISs description of risk to long-term investments (such as fish and wildlife funding) is both apt and appropriate.

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				loads and load shaping requirements during each day (and variations each year, respond to emergencies, and provide other ancillary services. Therefore, generating resources do not appear to provide a competitive alternative to BPA power. Tier 1 Power Considerations: A utility considering leaving BPA would also need to consider the risk that, if circumstances change and it wanted to return to BPA, the utility will not likely have access to low cost BPA electricity from existing resources. This low-cost power is referred to as Tier 1 power. Ten years ago, BPA went through an extensive Regional Dialogue process. This resulted in BPA deciding to allocate existing federal low-cost power to existing public utility customers Yakama Nation Comments on the Draft Columbia River System Operations Environment Impact Statement 48 by establishing a high-water mark for each utility: the maximum amount of the low-cost Tier 1 power that each utility can purchase from BPA. Additional electricity purchased above the high-water mark is sold from Tier 2, which is power from new resources that BPA would purchase to serve utility load growth. If a utility gave up its contract with BPA in 2028, it is likely that the utility would also give up the right to its respective high-water mark allocation for Tier 1 power; BPA would allocate this power to other customers; and any future purchases by the utility from BPA would be subject to the Tier 2 rate. Loss of Large Load Customers by Utilities under BPA Contract: Public utilities have expressed concern that some of their large customers might seek electricity service from less expensive supplies. There is anecdotal information that some regional manufacturing plants have closed because of market conditions. However, the actual total loads for BPAs preference customers have increased. A utility has several options if large customers threaten to move to a different supplier. First, the utility can charge for stranded costs associated with power supply contractual obligations or infrastructure that was built specifically to serve the load. These stranded costs can be significant, thereby altering the economics of changing suppliers. Second, the utility can adopt policies to address any added costs to serve loads which leave and then return to the utility. Third, the utility can make clear to the customer that the customer faces the same cost uncertainties and risks described above. Changes in BPAs Total Load: BPA has raised concerns that it faces flat-to-declining firm power sales.183 Information from BPAs quarterly business review shows that its gross sales declined by $32,000,000 (or 1.3%) in fiscal year 2017 compared to fiscal year 2014.184 The table included as Figure 4 below illustrates this change. Figure 4 However, by using a range of 2015 to 2017, the same data shows that BPAs gross sales have actually increased by $140,000,000 (or 5.9%). The table included as Figure 5 below illustrates this change. 183 STRATEGIC PLAN 2018-2023, supra, at 34. 184 BPA, QUARTERLY BUSINESS REVIEW (2018) at 14. (98 percent of 2017 gross sales were for load following, block, slice, and Tier 2 sales). In an email dated June 14, 2018, Kevin Owen at BPA stated that the heavy majority of gross sales are firm power. FY14 FY15 FY16 FY17 Change Percent $ 2,572 $ 2 ,399 $ 2,402 $ 2,540 $ (32) -1.3% BPA Gross Sales (millions of dollars) Yakama Nation Comments on the Draft Columbia River System Operations Environment Impact Statement 49 Figure 5 The official Pacific Northwest Loads and Resources Study, referred to as the White Book, shows that total loads for BPAs preference customers have increased by 253 average megawatt hours (or 3%) over the past three years.185 The White Book lists loads for the upcoming operation year. Table 3-1 in each of the previous three White Books, which shows cooperatives, municipal utility, and public utility district loads. This table, included below as Figure 6, illustrates that total loads increased between 2015 and 2017.186 Figure 6 BPAs operating revenues also increased between 2015 and 2017.187 Revenue from the sale of electricity and transmission increased by $185,000,000 (or 6%). A table from BPAs 2017 Annual Report, included below as Figure 7, illustrates this increase.188 Figure 7 The 2017 Annual Report also shows a reduction in U.S. Treasury Credits of $24,000,000 over the same period. BPA receives these federal credits from its fish and wildlife program expenditures pursuant to the Northwest Power Act. The reduction in these credits appears to be the result of lower fish and wildlife spending. The Lead Agencies failed to adequately consider these competitiveness issues in the DEIS. The Yakama Nation contends that a complete analysis would have addressed the 185 BPA, 2018 PACIFIC NORTHWEST LOADS AND RESOURCES STUDY (2018). 186 The 2014 White Book did not include this data. 187 BPA, 2017 ANNUAL REPORT (2017) at 52. The 2017 Annual Report does not provide a breakdown of firm power revenues. 188 Id. FY15 FY16 FY17 Change Percent $ 2 ,399 $ 2,402 $ 2,540 140$ 5.9% BPA Gross Sales (millions of dollars) White Book 2015 2016 2017 Change Percent Cooperatives 1,968 1,974 2,057 89 5% Municipality 2,731 2,668 2,627 (104) -4% Public Utility Districts 4,546 4,768 4,814 268 6% Total 9,245 9,410 9,498 253 3% BPA Public Utility Average Megawatt Loads 2015 2016 2017 Change Percent Sales $ 3,256 $ 3,284 $ 3,441 $ 185 6% U.S. Treasury Credits $ 82 $ 77 $ 58 (24) $ -29% Misc. revenues $ 65 $ 72 $ 71 6 $ 9% Total $ 3,403 $ 3,433 $ 3,570 $ 167 5% BPA Operating Revenues (millions of dollars) Yakama Nation Comments on the Draft Columbia River System Operations Environment Impact Statement 50 misconceptions driving utility concerns with respect to competitiveness. In turn, this would remove any impetus for BPA to cut costs on items such as its fish and wildlife program. The Lead Agencies should revise the power analysis in the FEIS to include the aforementioned points, updating the information as needed.	
6299	29	brendan@yakamanation-olc.org	Confederated Tribes and Bands of the Yakama Nation	C. The Lead Agencies power analyses fail to adequately consider electric power generation issues. The Yakama Nation is unable to independently verify the Lead Agencies analysis with respect to changes in electricity generation in DEIS Section 3.7. The Lead Agencies should have employed a more collaborative and transparent process, compared to the DREW, that involved the Yakama Nation in developing the analysis. This would have better positioned the Yakama Nation to evaluate this section and allowed for the meaningful public comment required by NEPA. It appears that the Lead Agencies analysis relies on the resource portfolios from the Councils Pacific Northwest Electric Power and Conservation Plan. The Lead Agencies should update the analysis based on the most current information being used for the upcoming 2021 Power Plan. Once the Lead Agencies update the analysis using this information, the Lead Agencies should use this analysis as a high-cost case. For a low-cost case, the Lead Agencies should incorporate, with any necessary updates, the analyses and recommendations from Energy Vision for the Columbia River.189 This draft document identifies actions that can save regional ratepayers more than $1,300,000,000 per year, reduce adverse impacts to salmon and other fish and wildlife, reduce climate changecausing emissions, and make BPA more resilient to changes that could affect its financial health. It emphasizes a diverse and reliable energy resource mix that would lower energy costs while helping to recover salmon and resident fish populations. Section 3.2 of Energy Vision for the Columbia River describes recommendations to improve energy efficiency and identifies low-cost energy savings of 1,000 average megawatts per hour above the conservation targets in the Councils Pacific Northwest Electric Power and Conservation Plan. Section 3.3 describes recommendations to increase the development of renewable resources. These analyses and recommendations are essential to a cogent power analysis in the FEIS and to the appropriate set of measures in a Preferred Alternative.	The Draft EIS uses high quality, recent information available to fully assess the economic impacts under each Multiple Objective alternative in a consistent and defensible manner. The Draft EIS uses resource information from the Northwest Power and Conservation Councils (Council) Seventh Power Plan and Mid-Term update. Section 3.7.3.1, Step 3: Determine Need for Potential Replacement Resources and Associated Costs, at page 3-821; and Appendix H, Power and Transmission, at Section 2.2 in the Draft EIS. When information from the Council's Seventh Power Plan was clearly inconsistent with forward-looking expectations, Bonneville included additional sensitivity analysis to both qualitatively and quantitatively assess the impacts under each Multiple Objective alternative. For example, cost data for batteries under MO3 were sourced from metrics provided by the Council, which are complete and can be included in reference plant information contained in the forthcoming Eighth Power Plan. Additionally, the coal sensitivity analysis addresses additional planned or anticipated coal retirements which were not yet known when the Seventh Power Plan was created. Consistent with the comment, publicly released draft information, such as updated prices for solar and battery storage, from development of the Eighth Power Plan is included as rate sensitivities in the Final EIS. The comment suggests that additional energy efficiency should be assumed in the EIS, beyond what is achieved in the Councils Seventh Power Plan. All cost effective conservation identified by the Councils Seventh Power Plan is included in the load forecast. EIS, Appendix H, Power and Transmission, Section 2.2, H-2-3 in the Draft EIS. Under Washington and Oregon law, all cost effective conservation must be acquired regardless of the status of the Federal Columbia River Power System (FCRPS). Therefore, conservation was not considered a potential resource replacement. The EIS analysis considers that all energy efficiency assumed in the Councils Seventh Power Plan is appropriate and, likely aggressive. The Councils recent State of the Columbia River System, Fiscal Year 2019 Annual Report, February 2020, p. 11 (https://www.nwcouncil.org/sites/default/files/2020-3.pdf), states While the region currently is on track to meet Seventh Plan goals, there are some areas to watch including forecasts of declining savings from efficiency programs. And whether the region will identify new savings opportunities to replace those of residential lighting. Utilities achievements in energy efficiency have been on an annual decline since 2016. Forecasts from utilities show that this trend is expected to continue, despite relatively stable funding levels. Given this trend, there is some uncertainty as to whether there will be enough savings from other mechanisms to reach the 1,400 average megawatt goal by the end of Fiscal Year 2021. This information indicates that it would be difficult to increase the energy efficiency goals beyond the Councils Plan. Based on this information, it is not likely that substantial amounts of additional energy efficiency would be available as prices increase, such as in MO3. The CRITFC's draft Energy Vision document is discussed in more detail in other comments from the Yakama Nation (please see responses to comments under Letter 6299), and from CRITFC (please see responses to comments under Letter 31775). Many of the elements of this draft document are incorporated in the EIS.
6299	30	brendan@yakamanation-olc.org	Confederated Tribes and Bands of the Yakama Nation	D. The Lead Agencies power analyses fail to adequately consider the impact of electricity production on fish and wildlife resources. As described in the Energy Vision for the Columbia River the day-to-day and seasonal operations of the hydroelectric system to meet peak and seasonal electricity load requirements cause fluctuations in river levels. These fluctuations have the potential to destroy populations of salmon and other important fish species. Although changes in operation levels can lessen the frequency and severity of these occurrences, their effects are still significant. 189 TREATY TRIBES, ENERGY VISION FOR THE COLUMBIA RIVER (2013). Yakama Nation Comments on the Draft Columbia River System Operations Environment Impact Statement 51 Hydropower is used to serve peak loads because dams are capable of reacting to demand by quickly putting more or less water through the turbines that generate electricity. However, this practice kills millions of juvenile salmon each year. During certain times of the year, so much water may be drawn down to generate electricity that salmon redds (i.e., gravel nests where salmon lay eggs) are uncovered or dewatered. This destroys the salmon eggs. Daily fluctuations change river water levels and, where water levels are reduced, juvenile fish that feed and live near shore may become stranded and perish. Decreased nighttime flows caused by lower electricity demand interrupts fish migration. Fluctuations in reservoir levels injure resident fish by reducing nutrients and dewatering habitat and food supplies. The water held behind storage dams for power generation would, under natural conditions, be flowing in the river and therefore aid the swift and timely downstream migration of young salmon. The recommendations in Energy Vision for the Columbia River are meant to reduce these impacts while at the same time decreasing costs for ratepayers. The Northwest electricity system has historically relied on the CRS to serve peak loads; the underlying assumption has been that running more water through the generators was a low-cost means of meeting peak requirements. This assumption ignored the other costs of serving peak loads. Energy Vision for the Columbia River found that BPA charged between $0.028 and $0.037 per kilowatt hour for wholesale power during high-load hours. This analysis showed that the costs of delivering (i.e., transmitting and distributing) peak electricity are more than twenty-five times higher than the actual generation cost of such energy.190 As described in detail in Energy Vision for the Columbia River, the cost of delivering for the highest 15% of peak energy to consumers ranged from $0.79 to $1.19 per kilowatt hour in 2013.191 The average retail consumer paid about $0.08 per kilowatt hour for delivered electricity.192 Thus, these peak delivery costs were more than ten times the total-average electricity costs. The cost of serving the very highest peak load ranged from $80 to $120 per kilowatt hour: one thousand times higher than average consumer costs.193 All of these costs become melded together in ratemaking, meaning that consumers are not able to easily discern the costs from different patterns of use. CRITFC estimated that reducing peak energy use could save consumers approximately $800,000,00 per year in planned expansions of the delivery system.194 An update of the analyses in Energy	The effects of load following and flow changes were incorporated into the ecological models used to analyze the CRSO. The alternatives analyzed included variations in withdrawal rates, flow change rates, spill level changes among many other variations that affected both power and fish and wildlife resources. Those effects are included in the results for the No Action Alternative, the 4 Multi-objective alternatives, as well as the Preferred Alternative. In nearly every instance, with the exception of MO2 which had operations that were intentionally designed to increase power production, the limits and restrictions on draw down rates and flow changes that are currently in place to prevent stranding or desiccation of redds are modeled to continue under the NAA, the MOs and the Preferred Alternative. The effects of load following and flow changes were incorporated into the ecological models used to analyze the CRSO. The alternatives analyzed included variations in withdrawal rates, flow change rates, spill level changes among many other variations that affected both power and fish and wildlife resources. Those effects are included in the results for the No Action Alternative, the 4 Multi-objective alternatives, as well as the Preferred Alternative. In nearly every instance, with the exception of MO2 which had operations that were intentionally designed to increase power production, the limits and restrictions on draw down rates and flow changes that are currently in place to prevent stranding or desiccation of redds are modeled to continue under the NAA, the MOs and the Preferred Alternative. The comments in the draft Energy Vision for the Columbia River (2013) include suggestions to reduce the within-day fluctuations such as time-of-use pricing, increasing power storage, or fuel switching. Bonneville's wholesale power rates have peak-demand charges; however time-of-use metering for retail use is controlled by the individual utilities serving retail customers. Bonneville's Energy Efficiency group is actively working on energy efficiency programs to address both total energy and peak demand. The EIS acknowledges that technology including storage technology is evolving. While these suggestions in the draft Energy Vision for the Columbia River would serve to reduce fluctuations in energy demand, the suggestion in the report to develop more solar and wind power can increase the fluctuations in energy needs as these are variable generators. Future technological improvements or coupling these resources with storage may counteract the increase in power fluctuations. While the EIS acknowledges these potential developments, they are not currently available and were not included in the EIS modeling.

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				Vision for the Columbia River and implementation of its recommended actions is pertinent and important to the development of operations that reduce adverse impacts to fish populations consistent with obligations to the Native Nations while reducing costs for ratepayers.	
6299	31	brendan@yakamanation-olc.org	Confederated Tribes and Bands of the Yakama Nation	E. The Lead Agencies power analyses fail to address actions to increase energy efficiency and reduce costs. 190 Id. at 8. 191 Id. at 9. 192 Id. 193 Id. 194 Id. at Appendix A. Yakama Nation Comments on the Draft Columbia River System Operations Environment Impact Statement 52 Based on the analyses in Energy Vision for the Columbia River, the Council determined that efficiency programs cost utilities approximately $18 per megawatt hour.195 This is less than half of the cost of new generating resources. These programs would minimize the regions costs of meeting additional electric energy demands. According to the Council, the region had saved five thousand megawatts since 1978 through energy efficiency programs, codes, and standards.196 These actions amounted to $3,100,000,000 in savings for the regions consumers in 2011. The implementation of appropriate conservations measures as part of an appropriate Preferred Alternative would surpass the conservation targets in the Northwest Conservation and Electric Power Plan and lead to an overall reduction in operating costs, there is a considerable amount of business incentive and public interest in energy efficiency today that did not previously exist. Customers are requesting green certifications and businesses are routinely marketing products with zero carbon footprints. The reduction in costs and demand would shift the relationship between the costs of fish and wildlife conservation and overall power rates. The regional 2011 conservation savings amounted to 277 average megawatts, 57 megawatts ahead of the goal for that year and about equal to the 2014 target. Oregon and Washington were poised to upgrade energy efficiency codes. Conservation budgets were increasing at private utilities. Significant portions of American Recovery and Reinvestment Act funding was geared toward energy efficiency. BPA adopted tiered rates were new loads were served at market costs rather than a melded rate. Finally, BPA issued a request for proposal to develop industrial conservation potential. Energy Vision for the Columbia River cited other analyses indicating that past studies by the Council had significantly underestimated energy efficiency and conservation potential.197 The study reviewed two papers to address this issue. The first paper, Beyond Supply Curves by two Energy Trust of Oregon staff and two Council staff, suggested that new technologies can significantly increase the amount and reduce the cost of energy efficiency measures.198 For example, the high efficiency windows referenced in the Councils 2005 plan are 12% more efficient than what was assumed in the Councils 1983 plan. Also, costs for energy efficiency technology become more competitive as that technology is more commonly used: the costs of compact fluorescent lamps dropped from the $12 per bulb estimates in the Councils 1991 plan to $3 per build estimates in the Councils 2005 plan. The second paper, Extreme Efficiency: How Far Can We Go If We Really Need To?, by David Goldstein for the American Council for an Energy Efficient Economy, noted that many current methodologies are excessively conservative if the goal of policymakers is to meet aggressive climate change emission reduction goals.199 Goldstein documented systematic biases that result in low potentials for energy efficiency: 195 Id. at 15. 196 Id. 197 Id. 198 FRED GORDON ET AL., BEYOND SUPPLY CURVES (2008). 199 DAVID GOLDSTEIN, EXTREME EFFICIENCY: HOW FAR CAN WE GO IF WE REALLY NEED TO? at 10-44. Yakama Nation Comments on the Draft Columbia River System Operations Environment Impact Statement 53 1) subjecting efficiency measures to a criterion of proof beyond a serious doubt; 2) assuming arbitrary realization factors less than 100% due to questions regarding social acceptance of energy efficiency; 3) implicit assumptions that a lack of research on the cost or feasibility of a measure means that it should be excluded from a study; 4) failure to consider system integration; 5) assumptions that technological process ceases and further improvements are not possible once known efficiency measures are implemented; and 6) reliance on projected costs of efficiency without look at realized costs, which are ultimately are always lower where data has been available.200 These considerations signal that conservation estimates are frequently too conservative. Unfortunately, there are significant costs to these conservative estimates. Energy Vision for the Columbia River offered the following example, which focused on only one conservative assumption by the Council. In the Sixth Power Plan, the Council de-rated the available conservation by 15%, assuming that no more than 85% of the technically feasible and cost-effective savings can be achieved.201 De-rating the amount of achievable energy efficiency by 15% represents approximately 1,000 average megawatts of low-cost power that are not included in conservation targets. A simple calculation of the 2013 value (marginal resource costs minus cost of conservation multiplied by 1000 average megawatts202) shows that the value of this additional conservation is approximately $500,000,000 per year. If one assumes that these savings are phased in over the life of a twenty-year power plan, the additional savings could total $5,000,000,000 by 2030. Given the significant value of additional energy efficiency, the Lead Agencies should work with the Council to analyze these savings for the FEIS. Such an analysis would likely further reduce the costs of the alternatives included in the EIS and allow appropriate focus on fish and wildlife conservation and restoration.	The comment suggests that additional energy efficiency should be assumed in the EIS, beyond what is achieved in the Northwest Power and Conservation Councils (Council) 7th Power Plan. The EIS analysis considers that all energy efficiency assumed in the Councils 7th Plan is appropriate and, likely, aggressive. The Councils recent State of the Columbia River System, Fiscal Year 2019 Annual Report, February 2020, p. 11 (https://www.nwcouncil.org/sites/default/files/2020-3.pdf), states While the region currently is on track to meet Seventh Plan goals, there are some areas to watch including forecasts of declining savings form efficiency programs. And whether the region will identify new savings opportunities to replace those of residential lighting. Utilities achievements in energy efficiency have been on an annual decline since 2016. Forecasts from utilities show that this trend is expected to continue, despite relatively stable funding levels. Given this trend, there is some uncertainty as to whether there will be enough savings from other mechanisms to reach the 1,400 average megawatt goal by the end of Fiscal Year 2021. This information indicates that it would be difficult to increase the energy efficiency goals beyond the Councils Plan. Based on this information, it is not likely that substantial amounts of additional energy efficiency would be available as prices increase, such as in Multiple Objective (MO) Alternative 3. The Councils 7th Power Plan is the current power plan and included conservation targets over the 20 year period of the plan, and is the source of the data used in the EIS. See draft EIS, Section 3.7.3.1, Step 3: Determine Need for Potential Replacement Resources and Associated Costs, at page 3-821 and Appendix H, Power and Transmission, at Section 2.2. The analysis in the EIS includes all energy efficiency in the Councils plan through 2022. See Appendix H, Power and Transmission, Section 2.2, H-2-3 in the draft EIS. Northwest utilities are required by law to acquire all cost effective conservation regardless of the status of the four lower Snake River projects. Therefore, if the amount of cost-effective energy efficiency increases, utilities are required to achieve it regardless of the status of the Federal Columbia River Power System.
6299	32	brendan@yakamanation-olc.org	Confederated Tribes and Bands of the Yakama Nation	F. The Lead Agencies power analyses do not account for the role of low-income weatherization programs in the affected environment and benefits of increased energy efficiency in framing alternatives and assessing impacts. Tribal communities include many low-income families and individuals. For example, on the Yakama Reservation in 2013, the percentage of families living below the poverty level was 42% (four times higher than the average for non-Tribal families in the State of Washington); the winter unemployment rate was over 70%; and the per capita income was $5,700 per year (less than half the average for non-Tribal communities).203 As a result, much of the housing in these communities is substandard. Often, Tribal elders and other individuals who require safe homes are those who live in substandard housing. Weatherization programs can provide basic repairs needed for energy savings to be effective. 200 Id. at 10-4610-51. 201 COUNCIL, SIXTH POWER PLAN (2010) at 4-15 202 Id. at 10-4. 203 See pg. 59, infra. Yakama Nation Comments on the Draft Columbia River System Operations Environment Impact Statement 54 For completeness of the analysis, Lead Agencies need to account for the effects of lowincome weatherization programs on the cost analyses in the FEIS. Such programs would increase energy efficiency potential and further the Lead Agencies environmental justice responsibilities consistent with E.O. 12898 and related federal guidance.	The comment suggests that additional energy efficiency should be assumed in the EIS, beyond what is achieved in the Councils Plan. The EIS analysis considers that all energy efficiency assumed in the Councils 7th Plan is appropriate and, likely, aggressive. The Councils recent State of the Columbia River System, Fiscal Year 2019 Annual Report, February 2020, p. 11 (https://www.nwcouncil.org/sites/default/files/2020-3.pdf), states While the region currently is on track to meet Seventh Plan goals, there are some areas to watch including forecasts of declining savings form efficiency programs. And whether the region will identify new savings opportunities to replace those of residential lighting. Utilities achievements in energy efficiency have been on an annual decline since 2016. Forecasts from utilities show that this trend is expected to continue, despite relatively stable funding levels. Given this trend, there is some uncertainty as to whether there will be enough savings from other mechanisms to reach the 1,400 average megawatt goal by the end of Fiscal Year 2021. This information indicates that it would be difficult to increase the energy efficiency goals beyond the Councils Plan. Based on this information, it is not likely that substantial amounts of additional energy efficiency would be available as prices increase, such as in MO3.The EIS analysis considered that all energy efficiency assumed in the Councils 7th Plan is appropriate and, likely, aggressive. The EIS included all cost-effective conservation, including weatherization, commercial building retrofits, and other energy efficiency programs, identified by the Northwest Power and Conservation Council in the 7th Power Plan, which is the current power plan. See Appendix H, Power and Transmission, Section 2.2, H-2-3. Cost effective conservation in the region will be acquired pursuant to current law regardless of the operation of the CRS, i.e., regardless of which alternative is selected. Therefore, weatherization, commercial building retrofits, and other energy efficiency programs were not considered for additional energy efficiency for the action alternatives to avoid double-counting.
6299	33	brendan@yakamanation-olc.org	Confederated Tribes and Bands of the Yakama Nation	G. The Lead Agencies analyses do not account for the role of energy efficiency programs for commercial buildings in the affected environment and the comparability of impacts from reasonable alternatives. Energy efficient commercial buildings offer enormous potential savings. Lighting, appliances, and, most critically, heating, ventilation, and air-conditioning (HVAC) systems, appliances designed for energy efficiency can significantly reduce power costs. The complexity of HVAC systems means that they need continuing attention to remain efficient and tuned to the tasks for which theyre designed. All new buildings should require certification processes to assure that HVAC systems are operating properly and efficiently. Most commercial buildings rely on programmable but unmaintained thermostats. Many of these buildings HVAC systems are operated as if they were constantly occupied. Better scheduling can result in energy cost savings of 30% to 40%.204 Smart Grid technologies and strategies that enable a utility to essentially dispatch loads behind customers meters will more easily capture such savings. The Lead Agencies should adequately consider potential savings from energy efficient commercial buildings when considering energy costs in the FEIS. Furthermore, a regional concerted effort to facilitate these savings is potentially a mitigation action.	The EIS included all cost-effective conservation, including weatherization, commercial building retrofits, and other energy efficiency programs, identified by the Northwest Power and Conservation Council in the 7th Power Plan, which is the current power plan. Appendix H, Power and Transmission, Section 2.2, H-2-3. Cost effective conservation in the region will be acquired pursuant to current law regardless of the operation of the CRS, i.e., regardless of which alternative is selected. Therefore, weatherization, commercial building retrofits, and other energy efficiency programs were not considered for additional energy efficiency for the action alternatives to avoid double-counting. The EIS analysis considered that all energy efficiency assumed in the Councils 7th Plan is appropriate and, likely, aggressive. The Councils recent State of the Columbia River System, Fiscal Year 2019 Annual Report, February 2020, p. 11 (https://www.nwcouncil.org/sites/default/files/2020-3.pdf), states While the region currently is on track to meet Seventh Plan goals, there are some areas to watch including forecasts of declining savings from efficiency programs. And whether the region will identify new savings opportunities to replace those of residential lighting. Utilities achievements in energy efficiency have been on an annual decline since 2016. Forecasts from utilities show that this trend is expected to continue, despite relatively stable funding levels. Given this trend, there is some uncertainty as to whether there will be enough savings from other mechanisms to reach the 1,400 average megawatt goal by the end of Fiscal Year 2021. This information indicates that it would be difficult to increase the energy efficiency goals beyond the Councils Plan. Based on this information, it is not likely that substantial amounts of additional energy efficiency would be available as prices increase, such as in MO3.
6299	34	brendan@yakamanation-olc.org	Confederated Tribes and Bands of the Yakama Nation	H. The Lead Agencies power analyses fail to adequately consider loss of load probability issues. Energy Vision for the Columbia River identifies strategies to reduce peak loads and improve system reliability. This includes recommendations to site strategically located resources, address emergencies and dry year strategies, and decrease peak demands.205 In addition, the Council is evaluating demand response as part of its preparation of the 2021 Power Plan. A recent Council staff paper identifies 3,335 megawatt hours of potential demand response by 2041.206 The Lead Agencies should update the loss of load probability analysis in the FEIS based on information from Energy Vision for the Columbia River and the 2021 Power Plan.	The EIS conducts a comprehensive evaluation of Loss of Load Probability (LOLP) for the Multiple Objective alternatives. Appendix H, Chapter 2, Power Supply and Replacement Resources; and Appendix J, Chapter 4, System Reliability in the Draft EIS provide additional details on the power reliability analysis and LOLP modelling. The LOLP analysis is the result of 6,160 simulations. The EIS analysis considers that all energy efficiency assumed in the Northwest Power and Conservation Council's (Council) Seventh Power Plan is appropriate and, likely aggressive. The Councils recent State of the Columbia River System, Fiscal Year 2019 Annual Report, February 2020, p. 11 (https://www.nwcouncil.org/sites/default/files/2020-3.pdf), states While the region currently is on track to meet Seventh Plan goals, there are some areas to watch including forecasts of declining savings from efficiency programs. And whether the region will identify new savings opportunities to replace those of residential lighting. Utilities achievements in energy efficiency have been on an annual decline since 2016. Forecasts from utilities show that this trend is expected to continue, despite relatively stable funding levels. Given this trend, there is some uncertainty as to whether there will be enough savings from other mechanisms to reach the 1,400 average megawatt goal by the end of Fiscal Year 2021. This information indicates that it would be difficult to increase the energy efficiency goals beyond the Councils Seventh Power Plan. Based on this information, it is not likely that substantial amounts of additional energy efficiency would be available as prices increase, such as in MO3. All cost-effective conservation (energy efficiency) as identified by the Council is included in the No Action alternative and is expected to be implemented regardless of which alternative is selected. See Appendix H, Power and Transmission, Section 2.2, H-2-3 in the Draft EIS. Regarding demand response, 600 MW of demand response was included in each renewable replacement resources portfolio, consistent with the Council's goal in the Seventh Power Plan. Section 3.7.3.1, Demand Response Analysis for CRSO, at page 3-837 in the Draft EIS; Section 3.7.3.5, at page 3-904. This may include load dispatch, and smart appliances, two components mentioned in the Columbia River Inter-Tribal Fish Commissions 2013 draft Tribal Energy Vision.
6299	35	brendan@yakamanation-olc.org	Confederated Tribes and Bands of the Yakama Nation	I. The Lead Agencies power analyses fail to adequately consider cost issues. The Lead Agencies replacement scenario associated with the dam breaching analysis is almost exclusively reliant on a single renewable energy resource: solar power backed up by 204 ENERGY VISION FOR THE COLUMBIA RIVER, supra, at 19. 205 Id. at 3.4, 3.5, Appendix A. 206 COUNCIL, DRAFT DEMAND RESPONSE SUPPLY CURVES FOR 2021 Plan (2020). Yakama Nation Comments on the Draft Columbia River System Operations Environment Impact Statement 55 batter storage. This narrow-focused reliance means that the Lead Agencies failed to consider alternative replacement resources such as wind power and other low-cost alternatives addressed in these comments. A broader and more complete analysis in the FEIS is necessary to ensure a comprehensive evaluation of the alternatives and the impacts associated with those alternatives.	The EIS describes the replacement resources that would be needed to maintain regional reliability at the No Action Alternative level based on two potential replacement portfolios: one based on renewable resources and another based on natural gas resources, which are generally the least cost means to maintain reliability (see Section 3.7.3.5, Potential Replacement Resources and Associated Costs in the draft EIS). To avoid speculation, the EIS analysis focuses on primary technologies identified by the Northwest Power and Conservation Council in their 7th Power Plan (7th Power Plan, page 13-5) that are deemed proven, commercially available, and deployable on a large enough scale in the Northwest. See Section 3.7.3.1, Step 3: Determine Need for Potential Replacement Resources and Associated Costs, at page 3-821 and Appendix H, Power and Transmission, Section 2.2 in the draft EIS. Although the use of storage technologies is considered a long-term resource of the 7th Power Plan and not a primary resource, it has become more commercially available since the release of the 7th Power Plan and was examined in the EIS. See draft EIS, Section 3.7.3.5, Lower Snake River Full Replacement, pages 3-905-907. Storage will likely be considered a primary resource in the Councils 8th Power Plan. The comment is correct that solar power was found to be the most cost-effective renewable resource for each alternative that required replacement resources; however, the EIS did evaluate the cost-effectiveness of all primary technologies identified by the Council including wind. For all portfolios, the most cost-effective conventional resource was natural gas and the most cost-effective renewable option was solar. See draft EIS, Section 3.7.3.5, Table 3-166. Wind was not selected because of its lower reliability benefit-to-cost ratio in terms of its contribution to lowering the Loss-of-Load-Probability (LOLP) versus the cost of the resource. However, wind was selected as an additional potential resource in the rate sensitivity

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					analysis for replacing the full capability of the four lower Snake River dams. See draft EIS, Section 3.7.3.5, Potential Replacement Resources and Associated Costs, pages 3-907-908. These two options, the least-cost conventional portfolio and the zero-carbon portfolio, represent a reasonable range of costs for replacement resources. In response to this and other public comments, Appendix H, Section 2.2 in the final EIS includes a more detailed description of how replacement resources were selected.
6299	36	brendan@yakamanation-olc.org	Confederated Tribes and Bands of the Yakama Nation	J. The Lead Agencies power analyses fail to adequately contextualize rate issues. Reducing costs will reduce rate impacts. This will promote equitable treatment of fish and power interests. Once the Lead Agencies revise the power generation analysis, as described above, the rate impact analysis must be adjusted accordingly. The Lead Agencies should also add context to the rate impact analysis. The Lead Agencies state that current retail rates are 22% below the national average.207 The FEIS should analyze retail rates for each alternative, including the Preferred Alterative, relative to the national average. Moreover, an effective rate analysis will consider the effect of rate changes within the context of the dams role in the impairment of Tribal communities. For example, average retail rates will increase by 1.6% to 3.6% under MO3.208 With regard to MO4, the Lead Agencies describe the upward pressure on retail electricity rates and conclude that [t]hese expenditureswould, on average, account for 1.737 to 1.742 percent of household income. This represents a .018 to 0.31 increase in the percent of income spent on electricity relative to the No Action Alternative.209 The Lead Agencies need to evaluate these impacts relative to the economic effects on Tribal communities. These effects as discussed in depth in the Economics section of these comments. This evaluation would bolster the Tribal Interest discussion in DEIS Section 3.74, which ignores such effects.210	The EIS provides context regarding the relatively low power rates of the region compared to national averages in Section 3.7.2.5, Regional Retail Electricity Rates in the draft EIS. The EIS does not compare all rates under the alternatives to the national average instead compares them to the No Action Alternative to determine potential effects of each alternative, consistent with the Council on Environmental Quality's Implementing Regulations for the National Environmental Policy Act, and associated guidance as well as the NEPA implementing regulations from the Corps, Reclamation, and Bonneville. The Environmental Justice analysis, Section 3.18.3 and Chapter 7 provides further detail on potential disproportionate effects including those to Tribal, low-income, and minority populations. To present context regarding the role dams play in the impairment of Tribal communities and to ensure potential impacts on Tribal communities were represented as accurately as possible, Appendix P in the draft EIS presents first-hand Tribal perspectives that were provided by 11 regional Tribes, including the Lower River Tribes, on the operations and maintenance of the CRS. Section 3.17 summarizes these perspectives on the importance of the Columbia River basin resources and landscapes to Tribes, and the potential impacts of the CRSO EIS alternatives. The commenter is correct that the rate impacts are not addressed in the Draft EIS Section 3.7.4 Power Generation and Transmission Tribal Interests. However, rate impacts on Tribal communities are addressed in the Environmental Justice sections (Section 3.18 and Chapter 7). As discussed in Section 3.18.3, under the No Action Alternative and each of the MOs, energy burdens are already likely unaffordable for Tribal households with incomes below the Federal poverty level. Based on available research, the Environmental Justice analysis uses a threshold of 6 percent of a households annual gross income for affordability for energy (Fisher Sheehan & Colton 2015). Upward rate pressure resulting from the MOs could exacerbate these impacts on low-income Tribal households. Under the Preferred Alternative the Bonneville wholesale power rate pressure is estimated to be 2.7 percent relative to the No Action Alternative. A portion of that rate pressure has already been incorporated into the BP-20 wholesale power rates; and, the remaining rate pressure likely falls within a level that Bonneville has historically been able to absorb through the costs over which it has significant control.
6299	37	brendan@yakamanation-olc.org	Confederated Tribes and Bands of the Yakama Nation	K. The Lead Agencies power analyses fail to adequately consider transmission line issues. Energy Vision for the Columbia River identifies strategies to reduce transmission needs and save costs. The savings identified are larger than the added costs identified by the Lead Agencies in the DEIS. An adequate analysis will integrate cost reduction cost reduction measures with regard to transmission line issues into the alternative development, impact assessment and mitigation provisions of the FEIS.	Bonneville is aware of the Draft Energy Vision for the Columbia River cited by the commenter. This document was developed by external parties, and based on discussions with the Yakama Nation, it has not been finalized. Much of the discussion of transmission constraints and other issues in the Draft Energy Vision document address issues that are outside of the scope of the EIS. The EIS relied on multiple transmission models to assess potential transmission costs and congestion as described in Section 3.7.3.1, Methodology. These include evaluating transmission system congestion and the need for any system reinforcement and new transmission infrastructure. The EIS incorporates two key aspects of transmission congestion. First, by identifying a set of replacement resources that are projected to meet the key metric of maintaining the loss-of-load-probability of the existing power system, the EIS provides an initial perspective as to whether there are additional reliability impacts to the overall power and transmission systems. Second, by evaluating potential congestion from the shift of Columbia River System generation to the replacement resources, the draft EIS does begin to identify, or flag, critical paths on the system where there may be changes either increases, or decreases in potential congestion from an interconnection-wide least cost perspective. The only transmission reinforcement project proposed as a result of the CRSO EIS alternatives was under Multiple Objective (MO) Alternative 3 associated with the breaching of the four lower Snake River dams, namely Ice Harbor. As discussed in the draft EIS in the Bonneville Transmission System Reliability and Operations subsection in Section 3.7.3.5, and in Section 3.2.2 of Appendix H, prior to evaluating the impacts of potential breach of Ice Harbor Dam, Bonneville had identified the need for a transmission reinforcement project just beyond the 10-year planning horizon (2018-2028) to maintain reliable load service including to accommodate load growth, to the Tri-Cities area and to support transmission operations and maintenance. The base need for the project would arise independent of removal of the generation at Ice Harbor. However, the timing of the reinforcement is very dependent on when Ice Harbor generation might be breached and would be needed immediately. As such, the transmission analysis considered the speed up of the timing for the need for the reinforcement project as a result of dam breaching under MO3 by including the costs of the project starting at the time the generation from Ice Harbor would be removed from the system. This reinforcement would help ensure reliable service to the Tri-Cities load. The generation at Ice Harbor also allows Bonneville to take lines out of service for planned maintenance and other operational reasons without affecting reliable service to the Tri-Cities area in Washington. The inability to take lines out of service for maintenance and to respond to operational constraints, such as the loss of a transmission line, could increase risk to transmission system reliability and result in loss of load to the Tri-Cities area.
6299	38	brendan@yakamanation-olc.org	Confederated Tribes and Bands of the Yakama Nation	A. The Lead Agencies economic analyses fail to consider the best available information. The 1999 and 2019 ECONorthwest studies provided detailed and comprehensive analyses of the new costs, reduced costs, and economic benefits of Snake River dam removal, including consideration of increases and decreases in employment.211 These studies also identify measures to mitigate any adverse economic impacts. The 2019 study summarized other recent research that showed significant benefits from actions comparable to MO3. While the Lead Agencies reference some of these additional studies in the DEIS, the Lead Agencies dismiss, ignore, or omit them from further analysis without clear justification. The Lead Agencies did not appear to put forth the requisite effort to properly update their analyses in light of these studies or subject their analyses to peer review or a collaborative and transparent process. As noted in the 2019 ECONorthwest study, the federal General Accountability Office (GAO) reviewed a 2002 EIS from the Corps and found that the economic studies therein were fraught with errors, mistakes, and miscalculations, and used invalid assumptions and outdated data. GAO concluded that the errors caused several [Corps] studies to understate costs, overstate benefits, and not allow for a reasonable basis for decision making. As described in these comments, the Lead Agencies approach in the DEIS appears similarly flawed. To the extent that the DEIS understates costs and overstates benefits, it provided an uninformed analysis. Furthermore, the Lead Agencies fail to consider pertinent studies and data in their analyses. But for the truncated review schedule for the DEIS, the requisite professional economic analyses could have been assured through review by a wholly independent scientific body such as the Councils Independent Economic Analysis Board. The deficiencies can be corrected accordingly and will produce a more defensible FEIS.	The commenter mis-characterizes the GAO analysis that was done on the Corps' document. GAO reviewed the Draft EIS (1999) before it was revised and finalized in response to GAO and Independent External Peer Review. GAO did not review the final EIS. The key finding from that GAO report on that Draft EIS was that the "The Corps conducted a comprehensive EIS process that generally adhered to procedural requirements of the relevant federal laws and other guidelines for conducting an EIS" This EIS evaluated beneficial and adverse effects across an array of resource areas including potential effects at the national, regional and local level; effects are monetized and quantified, where possible, and also described qualitatively. The EIS does not employ a cost-benefit framework for decision-making. Instead, the EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as the dam breaching alternative. However, the Preferred Alternative also meets most of the other objectives of the study for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. A summary table in Section 7.4 has been added to provide a concise description of the beneficial and adverse effects of the alternatives, including the quantified social welfare costs and benefits for a number of resources. Regarding passive use values, Section 3.15.2.2 of the EIS describes the ECONorthwest study, highlighting the objective and approach to estimating willingness-to-pay for salmon restoration. Consistent with this comment, the EIS describes that the results of the study are designed to reflect the value people hold for restoring salmon populations and therefore have limited applicability to the benefits of the CRSO alternatives. The ECONorthwest analysis and the EIS employ different analytical frameworks and rely on different findings with respect to the outcomes of breaching the four lower Snake River dams. First, the ECONorthwest report applies a cost-benefit analysis framework, emphasizing monetization of all categories of impacts. Consistent with NEPA analysis frameworks, the EIS expresses beneficial and adverse effects across a variety of qualitative and quantitative environmental and economic metrics. That the effects of the alternatives on fish are not quantified as monetized economic values does not mean that they were not considered in the context of the analysis. Second, the findings of the ECONorthwest report that the benefits outweigh the costs of breaching the dams rely on the implicit assumption that breaching would result in restoration of salmon populations. The fish effects analysis in Section 3.5 of the EIS does not find that MO3 would result in recovery of salmon or steelhead populations or in restoring the populations to historical levels. Thus, the values presented in the ECONorthwest report should not be considered as representative of the benefits of MO3. However, the results from the ECONorthwest study contribute to the overarching conclusion of Section 3.15.2.2 that describes that the literature consistently demonstrates that people hold passive use values for salmon. Additionally, it is important to note that this EIS has undergone a third party neutral Independent Expert Peer Review on the tools used (including the economic models), as well as the assumptions and conclusions in the EIS.
6299	39	brendan@yakamanation-olc.org	Confederated Tribes and Bands of the Yakama Nation	B. The Lead Agencies process for developing the economic analyses failed to adequately involve all interested parties. The DREW, described above, also developed collaborative economic studies for the Corps evaluation of potential impacts from removing the Snake River Dams. These studies were more comprehensive than those included in the DEIS. For the same reasons discussed above, the Lead Agencies should have organized a workgroup comparable to the DREW to produce an economic analysis for the DEIS rather than relying on the flawed cooperating agency process. The remainder of this section describes flaws in the Lead Agencies economic analyses and provides recommendations for additional analyses in the FEIS. As above, the Yakama Nation recommends that the Lead Agencies convene a collaborative workgroup to address these flaws and develop the necessary economic analyses. 211 These studies are described in pg. 61 to 64, infra. Yakama Nation Comments on the Draft Columbia River System Operations Environment Impact Statement 57	It is important to note that the EIS has undergone a third party neutral Independent Expert Peer Review on the tools used (including the economic models), as well as the assumptions and conclusions in the EIS. The four lower Snake River dams are cost effective. Hydropower benefits exceed costs by $209M to $513M annually. The average annual costs to operate and maintain the four lower Snake River projects is $75M (Appendix Q, Table 5-1) and the annual-equivalent capital costs are $32M (Appendix Q, Table 4-1). The annual hydropower (Table 3-171) and navigation (Table 3-244 & Table 3-246) benefits alone for these projects are estimated at $284M to $588M in the base case analysis for MO3. These hydropower values include the effect of other measures in MO3, but the majority of this value stems from generation at the four lower Snake River dams. This estimate is derived from what the hydropower analysis called the base case and does not account for the full characteristics of the lower Snake River projects generation such as sustained peaking capability and fast ramping ability to integrate variable renewable energy sources. Fully replacing the generation capabilities of the four lower Snake River dams could roughly double estimated replacement resource costs (see Section 3.7.3.5). As explained in Section 3.7.3.5 of the EIS, Potential Replacement Resources and Associated Costs, breaching the four lower Snake River dams would have a direct and substantial impact on the supply of Federal power to meet regional load requirements. These impacts would impact both actual energy to meet regional load requirements and generating capacity (peaking capacity) to meet variability in loads. The four lower Snake River dams are among the most valuable projects in FCRPS. These dams provide over 1,000 MW of carbon-free energy and up to 2,000 MW of peaking capacity at certain times of the year. The dams also have unparalleled ramping capability the ability to quickly generate energy to match spikes in energy usage with over 2,200 MW of capability in certain months of the year. While the increase in solar and wind generation is consistent with the EIS discussion in 3.7.2.1 Power Generation, the EIS still finds that the regional power system requires replacement power resources to maintain reliability under MO3. For hydropower, the average annual value of the four lower Snake River dams exceeds the average annual equivalent costs. The generation value at the four lower Snake River dams can be described by a range between the cost to replace the generation through new conventional resources or through a portfolio of zero-carbon resources. Although the costs of replacing the power with market purchases was analyzed, it is unlikely that short-term wholesale power markets could reliably replace the power for the long term. This range would put the annual value of power between $240 million and $500 million for the four dams combined. These numbers represent about 90 percent of the lost benefits cited in Table 3-171 of the Draft EIS because the four dams represent about 1,000 aMW of the 1,100 aMW of lost generation estimated in MO3. The average annual cost to operate and maintain all authorized purposes at the four lower Snake River dams is $75 million (Appendix Q, Table 5-1) and the annual-equivalent capital costs are $32 million (Appendix Q, Table 4-1). Hydropower costs funded by Bonneville represent about $50 million of the total annual operations and maintenance costs and nearly all of the annual capital costs, approximately $31 million. This puts the annual-equivalent power-specific costs at approximately $81 million a year. As a result, the net benefits from hydropower for the four lower Snake River dams are between $159 million and $419 million and the benefit-cost ratios are between 3.0 and 6.2. If the $34 million per year for the Lower Snake River Compensation Plan is added to the capital and expense costs, benefits still exceed costs under each replacement power scenario. Considering these costs, the net benefits range from $125 million to $385 million and the benefit-cost ratios range from 2.1 to 4.3. In the less-likely scenario that generation could be reliably replaced with short-term wholesale market purchases and assuming that the four dams represent 90% of the $150 million in market purchases required to replace the lost generation cited in MO3 (see Table 3-170), the lower bound for net benefits would fall to $54 million and the benefit-cost ratio would fall to 1.7. With the Lower Snake River Compensation Plan included, the lower bound for annual net benefits becomes $20 million and the benefit-cost ratio becomes 1.2. From a resource competitiveness perspective, the four lower Snake River dams are among the least costly generating resources in the Federal Columbia River Power System (FCRPS) and the planned investment strategy is expected to maintain that status. As shown in the Federal Hydropower presentation at the 2018 Integrated Program Review (see Footnote 1 below), the Headwater/Lower Snake Asset Class (see Footnote 2 below) is forecast to have a 50-year levelized cost of generation (see Footnote 3 below) of $11.41/MWh based on the direct funded capital and expense (O&M) programs outlined in that process. These costs remain competitive with volatile Mid-Columbia spot market energy prices which averaged $37/MWh in 2019 and have averaged $21/MWh in 2020. Footnotes: 1. The Integrated Program Review (IPR) allows interested parties to see and comment on all relevant Federal Columbia River Power System (FCRPS) capital and expense (O&M) spending level estimates in the same forum. The IPR occurs every two years, or just prior to each rate case, and is the public review for the costs that will be recovered through rates the following two-year rate period. Long-term forecasts for the next 50 years and major upcoming projects are also shared in this forum. This information is available here: https://www.bpa.gov/Finance/FinancialPublicProcesses/IPR/2018IPR/IPR%202018%20Fed%20Hydro%20Workshop.pdf and is incorporated by reference into this EIS. 2. In the 2018 Integrated Program Review, the Headwater/Lower Snake Asset Class consisted of the four lower Snake River dams, Hungry Horse, Libby, and Dworshak dams. These projects were grouped together because they have similar cost characteristics. The Levelized Cost of Generation for the four lower Snake projects alone is slightly lower than that for the whole class including the headwater projects shown in the table.

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					3. Levelized Cost of Generation is defined as the forecasted direct costs and administrative overheads of producing power at a plant annualized over a 50-year period. This cost includes direct funded operations, maintenance, administrative and capital costs as well as Columbia River Fish Mitigation (CRFM) costs. Bonneville system-wide mitigation costs, such as its Fish and Wildlife program, are not included in this metric.
6299	40	brendan@yakamanation-olc.org	Confederated Tribes and Bands of the Yakama Nation	C. The Lead Agencies should have analyzed the unique economic impacts of the CRS on the Yakama Nation and its members. The CRS transformed major portions of the Columbia and Snake Rivers and severely damaged the ability to provide sustainable populations of fish and wildlife. The construction and operation of the dams took substantial Treaty-protected wealth away from the Yakama Nation and other Native Nations. As part of the DREW, CRITFC developed a detailed analysis, titled Tribal Circumstances and Impacts of the Lower Snake River Project on the Nez Perce, Yakama, Umatilla, Warm Springs and Shoshone Bannock Tribes (1999 Tribal Circumstances Report), on how the construction and operation of federal dams on the Snake River affected Native Nations.212 Per the CRITFC report, the construction and operation of the CRS has devasted salmon runs. Those salmon runs were essential to the economy, culture, and religion of the Yakama Nation. The 1999 Tribal Circumstances Report delivers a candid and data-driven perspective on the less than apparent economic and social impacts of the CRS on Tribal communities. It tied multiple expressions of Tribal values to an understanding of Tribal well-being measured by several different economic indicators. These economic indicators were framed in terms of a hierarchy of needs.213 The 1999 Tribal Circumstances Report also observed linkages between the availability of traditional foods, particularly salmon, and Tribal health as measured by mortality rates associated with a loss of nutritional foods. It described the importance of salmon to Tribal members cultural and traditional well-being, sense of belonging, and self-esteem.214 It also used Tribal poverty, Tribal unemployment, Tribal per capita income, Tribal health and Tribal assets as more traditional indicators of Tribal well-being, providing relevant data for each indicator. Ultimately, the 1999 Tribal Circumstances Report concluded that the effect of the Snake River dams on the productivity of the Snake River Basins salmon and steelhead had caused significant and adverse impacts to Tribal well-being, both economically and otherwise. The 1999 Tribal Circumstances Report provides a useful framework for considering Tribal concerns and perspectives with respect to unique economic impacts of the CRS. For that reason, the Yakama Nation called for the incorporation the 1999 Tribal Circumstances Report analysis into the DEIS economic and environmental justice analyses, updated as appropriate based on new information.215 The Lead Agencies failed to do so, or the manner in which the analysis has been incorporated or considered is not transparent. 212 This analysis is included as Appendix D to these comments. 213 These needs underlie human kinds goal for an increasing trend toward unity, integration, or synergy, within the person. For instance, someone who is absorbed totally in fulfilling ongoing hunger needs will attend less to safety needs; and, a person whose security is constantly threatened will be less able to develop intimacy with others. See CRITFC, TRIBAL CIRCUMSTANCES AND IMPACTS OF THE LOWER SNAKE RIVER PROJECT ON THE NEZ PERCE, YAKAMA, UMATILLA, WARM SPRINGS AND SHOSHONE BANNOCK TRIBES (1999) (1999 Tribal Circumstances Report) at 46. 214 Id. at 45. 215 The Yakama Nation made this request during the cooperating agency process. Yakama Nation Comments on the Draft Columbia River System Operations Environment Impact Statement 58 The Tribal Perspectives Report, prepared by the Treaty Tribes and included in Appendix P of the DEIS, draws heavily from the 1999 Tribal Circumstances Report while also supplementing it with new information and analyses. For example, the Tribal Perspectives Report compares the Tribal poverty levels and income information from the 1999 Tribal Circumstances Report with current data.216 The current data aligns with that of the 1999 Tribal Circumstances Report: poverty rates for members of the Treaty Tribes are still two to three times the national average, while their per capita income is less than half the national average. The tables included as Figures 8 and 9 below illustrates these statistics.217 Figure 8 216 TRIBAL PERSPECTIVES REPORT, supra, at 9. 217 Id. 0.00% 5.00% 10.00% 15.00% 20.00% 25.00% 30.00% 35.00% 40.00% 45.00% U.S. (All) YN (AIANa) CTUIR (AIANa) NPT (AIANa) CTWSRO (AIANa) Poverty Rate 1990-95 2012-16 Yakama Nation Comments on the Draft Columbia River System Operations Environment Impact Statement 59 Figure 9 The Treaty Tribes did not have the resources available to perform a contemporary analysis of its members unemployment and death rates for the Tribal Perspectives Report. However, the 1999 Tribal Circumstances Report found that unemployment for the Native Nations studied was between three and thirteen times higher than for the regions nonIndian populations.218 The rate of death for the Yakama Nation was twice the non-Tribal rate in Washington.219 The chart below, included as Figure 10, illustrates these numbers. Figure 10 If the Treaty Tribes had been able to conduct these studies today, it is likely that they would have reached similar conclusions. The reasons for the irregularly high levels of poverty, unemployment, and death rates and low levels of income are the same today as in 1999: the absence of salmon, steelhead, and other traditional foods. Tribal members often prefer fishing-related means of economic support that preserve and perpetuate cultural values. As the 1999 Tribal Circumstances Report and the Tribal Perspectives Report concluded, negative economic measurements in Tribal communities rise steeply where Tribal members are unable to harvest salmon and steelhead due to depleted runs and degraded habitats. 218 1999 Tribal Circumstances Report, supra, at 1. 219 Id. $0 $5,000 $10,000 $15,000 $20,000 $25,000 $30,000 $35,000 U.S. (All) YN (AIANa) CTUIR (AIANa) NPT (AIANa) CTWSRO (AIANa) Per Capita Income 1990-95 2012-2016 Tribal Circumstances for Columbia River Treaty Tribes (1999) Idaho Oregon Wash Families in Poverty 29% 43% 27% 32% 10% 12% 11% Unemployment 20% 23% 20% 19% 6% 6% 6% In winter 62% 73% 21% 45% Ratio of Tribal to non-tribal death rate 1.7 1.9 1.2 1.6 Indicators of Wellbeing Non-Tribal DataNez Perce Yakama Umatilla Warm Springs Yakama Nation Comments on the Draft Columbia River System Operations Environment Impact Statement 60 It is impossible to ascertain the true economic effect of the CRS or the Preferred Alternative without considering these impacts. Accordingly, the data and analysis included in both the 1999 Tribal Circumstances Report and the Tribal Perspectives Report (updated as necessary) are critical to an adequate economic analysis of the FEIS.	The EIS recognizes the importance of salmon to Tribes in a number of Sections throughout the document. The Fisheries Section 3.15 as well as Section 3.17, in particular, include discussion of reductions in anadromous species catch and associated adverse social effects that have occurred in Tribal communities. The cultural significance and impacts of salmon and steelhead fisheries are described in the Fisheries Section 3.15.2.1, which includes sections that describe ceremonial and subsistence fisheries as well as the social importance of commercial, ceremonial and subsistence fisheries. The co-lead agencies also considered the information in the Tribal Perspectives that were submitted by several tribes during the drafting and evaluation of the EIS. The EIS provides an evaluation of the social welfare and regional economic effects of the No Action Alternative and the Multiple Objective alternatives, including the effects on recreation (Section 3.11) and commercial fisheries (Section 3.15). The EIS described the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. NMFS estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which is described qualitatively. For the effects on recreational fishing under MO3 (Section 3.11.3.5) along the lower Snake River below Lewiston, the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River) as an indicator for fishing visitation in this reach. The EIS describes that the visitation in the long-term in the lower Snake River, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting outfitting and tourism businesses in the region. The social welfare values and regional economic effects associated with recreational fishing under the MOs, as well as river recreation post dam breach under MO3, were not estimated because of the uncertainty and large range in visitation and consumer surplus values among users.
6299	41	brendan@yakamanation-olc.org	Confederated Tribes and Bands of the Yakama Nation	D. The Lead Agencies economic analyses fail to consider the disparity in wealth benefits and drawbacks from the CRS. The CRS transformed the production functions of the impounded portions of the Columbia and Snake Rivers, taking substantial Treaty-protected wealth away from the Yakama Nation and other Native Nations. As described above, this has indirectly led to extreme poverty, low-income, unemployment, and death rates in Tribal communities. At the same time, the CRS substantially increased the wealth of non-Indians through enhanced production of electricity, agricultural products, transportation services, flood control, and other associated economic benefits. Yakama Nation members have not shared in this increased wealth on a commensurate basis. Therefore, the negative economic impacts of the CRS fell disproportionately on the Yakama Nation. Furthermore, the potential negative economic effects on non-Tribal electricity customers contemplated in the DEIS alternatives are insignificant compared to the effects on Tribal communities described in the 1999 Tribal Circumstances Report and the Tribal Perspectives Report. For example, average retail rates will increase by 1.6% to 3.6% under MO3.220 MO4 would create upward pressure on retail electricity rates that would on average, account for 1.737% to 1.742% of household income. However, [t]his represents only a 0.18% to 0.31% increase in the percent of income spent on electricity relative to the No Action Alternative.221 These slight increases in cost do not compare with the significant economic impact caused by the loss of fishing opportunity described in the previous section. The disparity in wealth benefits, coupled with the disproportionate negative impacts, delineates a significant environmental injustice which the Lead Agencies have not adequately addressed in the impact analyses. Consistent with Executive Order 12898 and related federal guidance, the Lead Agencies must clearly identify and address this disparity in the FEIS. Specifically, the Lead Agencies must identify which alternatives would perpetuate the wealth inequality by failing to adequately protect fish populations (or otherwise not diminishing the economic burden on Tribal communities). The Preferred Alternative does not provide any significant benefits to salmon runs (see above) and will therefore continue these disparities. In addition to other corrections, the FEIS must identify mitigation measures adequate to minimize or rectify the disparity.	he EIS provides an evaluation of the social welfare and regional economic effects of the No Action Alternative and the Multiple Objective alternatives, including the effects on recreation (Section 3.11) and commercial fisheries (Section 3.15). The EIS described the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. NMFS estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which is described qualitatively. For the effects on recreational fishing under MO3 (Section 3.11.3.5) along the lower Snake River below Lewiston, the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River) as an indicator for fishing visitation in this reach. The EIS describes that the visitation in the long-term in the lower Snake River, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting outfitting and tourism businesses in the region. The social welfare values and regional economic effects associated with recreational fishing under the MOs, as well as river recreation post dam breach under MO3, were not estimated because of the uncertainty and large range in visitation and consumer surplus values among users. The EIS recognizes the importance of salmon to Tribes in a number of Sections throughout the document. The Fisheries Section 3.15 as well as Section 3.17, in particular, include discussion of reductions in anadromous species catch and associated adverse social effects that have occurred in Tribal communities. The cultural significance and impacts of salmon and steelhead fisheries are described in the Fisheries Section 3.15.2.1, which includes sections that describe ceremonial and subsistence fisheries as well as the social importance of commercial, ceremonial and subsistence fisheries. The co-lead agencies also considered the information in the Tribal Perspectives that were submitted by several tribes during the drafting and evaluation of the EIS. Additional information has also been added to the Environmental Justice Section 3.18 to more clearly articulate the affects on Tribes.
6299	42	brendan@yakamanation-olc.org	Confederated Tribes and Bands of the Yakama Nation	E. The Lead Agencies regional economic analyses overstate the likely economic impacts of MO3 and MO4. These comments previously describe why the Lead Agencies analysis of MO3 and MO4 represents a high-end estimate of power costs and rate impacts. Likewise, the Lead Agencies exaggerate the overall economic impacts of MO3 and MO4 by failing to provide 220 DEIS at 3-927. 221 DEIS at 3-955. Yakama Nation Comments on the Draft Columbia River System Operations Environment Impact Statement 61 appropriate context for these impacts. This exaggeration undermines the reliability of the impact analysis that informs the selection of a Preferred Alternative. The Lead Agencies conclude that MO3 and MO4 will respectively result in the loss of 4,900 and 4,000 jobs. The 2018 total employment in Washington, Idaho, Montana, and Oregon was 6,314,600 jobs.222 Therefore, the project job losses reported for MO3 and MO4 respectively represent 0.08% and 0.06% of the total employment. The projected job loss for the Preferred Alternative represents 0.002% of the total employment. The Lead Agencies also fail to put the economic output effects in the context of the total regional economy. The 2018 regional output for Washington, Idaho, Montana, and Oregon totaled $932,992,000,000.223 The projected loss of economic output for MO3 and MO4 respectively constitute only 0.08% and 0.07% of the total regional output. The projected loss of economic output for the Preferred Alternative constitutes 0.0021% of the total regional output. The impacts on regional jobs and economic output noted by the Lead Agencies for MO3 and MO4 amount to less than eight one-hundredths of a percent. This is insignificant compared to the damages to Tribal economies resulting from the CRS, as discussed above. The Lead Agencies should include a more detailed analysis of the regional economy in the FEIS that considers the effects of each alternative in the broader regional context. Relatedly, the Lead Agencies calculate a net present value (NPV) impact for each alternative without any context of the total regional NPV. Without this context, the Lead Agencies calculations are meaningless in terms of the	The EIS evaluated benefits and adverse effects across an array of resource areas including potential effects at the national, regional and local level; effects are monetized and quantified, where possible, and also described qualitatively. As is common in NEPA analyses, the beneficial and adverse effects of the alternatives are expressed as a variety of qualitative and quantitative environmental and economic metrics throughout the EIS to inform decision-making, including the effects of the alternatives on fish as detailed in Section 3.5. That the effects of the alternatives on fish are not expressed as monetized economic values does not mean that they were not considered in the context of the analysis. Regarding the costs of replacing power, the EIS describes the replacement resources that would be needed to maintain regional reliability at the No Action Alternative (No Action Alternative) levels based on two potential portfolios: one based on renewable resources and another based on natural gas resources, which are generally the least cost means to maintain reliability (Section 3.7.3.5, Potential Replacement Resources and Associated Costs). The EIS uses the best available resource cost information from the Northwest Power and Conservation Council to estimate the potential range in costs of these replacement resources. In addition, the changes in commercial and industrial effects (jobs and income) were estimated based on the increased electricity costs to households and businesses under MO3. Under MO3, employment is anticipated to decrease between 2,100 and 3,500 jobs compared to the No Action Alternative. As the commenter indicates, this change in jobs is a very small portion of the total jobs in Washington and Oregon. However, reduced hydropower reduction under MO3 would result in an average annual economic cost of $150 million (replacement cost at market price of foregone power) and the estimated increase in the marginal cost of producing power to meet demand based on additional average annual fixed and variable costs is estimated to range from $270 million to $540 million. In Section 3.7, Power and Transmission, Bonneville conducted a financial analysis, including a net present value (NPV) calculation, that assesses alternatives financial value given the likely changes in power generation and anticipated future cash flows. This evaluation is not indicative of the social welfare or regional economic effects. In addition, MO3 would result in short-term beneficial effects to regional economic conditions (jobs and income) associated with construction of the structural measures, including dam breaching activities at the four lower Snake River projects (See Section 3.19.3 and Annex C of Appendix Q). Other resources would experience beneficial and adverse effects compared to the No Action Alternative under MO3, which are described in the applicable resource section. For example, adverse regional economic effects to recreation and visitor spending in the short-term under MO3 would occur with the elimination of reservoir recreation at the lower Snake River projects, while river recreation in the long-term is likely to be reestablished, at least partially offsetting the adverse effects in the short-term.

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				comparisons of impacts from various alternatives or measures included in them. The Lead Agencies should provide the total regional NPV in the FEIS to clarify the impact of each alternatives NPV.	
6299	43	brendan@yakamanation-olc.org	Confederated Tribes and Bands of the Yakama Nation	F. The Lead Agencies employment analyses fail to consider the jobs and economic benefits that each alternative would create. In the power analysis, the Lead Agencies describe in some detail the number of resources that would need to be constructed to replace the power reductions associated with MO3 and MO4.224 However, the Lead Agencies analysis of employment impacts does not appear to include the jobs that would be created by constructing these resources and mitigating effects. A 1999 study by ECONorthwest developed for the DREW found that removal of the Snake River dams would create 23,280 to 25,088 construction jobs.225 The table below, included as Figure 11, lists the specific types of potential jobs. 222 2018 State Occupational Employment and Wage Estimates BUREAU OF LABOR statistics, (www.bls.gov/oes/2018/may/oessrcst.htm) (last accessed April 13, 2020). 223 BUREAU OF ECONOMIC ANALYSIS (https://apps.bea.gov/itable/iTable.cfm?ReqID=70&step=1#reqid=70&step=1&isuri=1) (last accessed April 13, 2020). The 2018 information was readily accessible; the Action Agencies should be able to develop more recent data. 224 DEIS at 3-904, 3-940. 225 ECONORTHWEST, Presentation to CRITFC (1999). Yakama Nation Comments on the Draft Columbia River System Operations Environment Impact Statement 62 Figure 11 In the same study, ECONorthwest also concluded that Snake River dam removal would create 473 long-term jobs, primarily in recreation. The table below, included as Figure 12, lists the specific types of potential long-term jobs. Figure 12 An analysis of the potential jobs created by an alternative is essential to understanding the potential impact of jobs lost. Based on the 1999 ECONorthwest study, it is likely that the projected job loss numbers discussed above will be even more insignificant once considered alongside the potential number of jobs created. The Lead Agencies also failed to consider the overall economic benefits that each alternative would create. A 2019 ECONorthwest study analyzed the full range of benefits and costs associated with the removal of the Snake River dam and found, for example, that recreational values alone could generate between $557,000,000 and $1,600,000,000.226 The net economic increase was $505,000,000 in output, with $492,000,000 of value added in labor income and an increase of 317 average annual job years.227 Energy Vision for the Columbia River identifies actions that could help protect salmon populations while also saving electricity customers $1,300,000,000 per year. This benefit is approximately double the Lead Agencies estimations for the economic costs of MO3 and MO4. 226 ECONORTHWEST, LOWER SNAKE RIVER DAMS ECONOMIC TRADEOFFS OF REMOVAL (2019), at 130. 227 Id. at vii, 130. Construction Jobs Low High Modifying dams 11,768 11,768 Power Plant construction 7,250 7,250 Highway and railroad 2,554 4,362 Well Modifications 1,175 1,175 Water pump modifications 292 292 Transmission lines 241 241 Total 23,280 25,088 Long-term jobs New recreation 3,126 Power plan ops 1,100 grain transport 475 agriculture (part time) (2,256) dam ops (1,193) exist rec (779) Net 473 Yakama Nation Comments on the Draft Columbia River System Operations Environment Impact Statement 63 The FEIS must reconcile the Lead Agencies economic analysis with should the kind of analysis of the jobs and economic benefits that each alternate could create similar to those done by ECONorthwest. At a minimum, this analysis should include a range forecast of the net costs and economic impacts.	There are benefits and costs associated with operating the lower Snake River projects. The EIS evaluated beneficial and adverse effects across an array of resource areas including potential effects at the national, regional and local level; effects are monetized and quantified, where possible, and also described qualitatively. As is common in NEPA analyses, the beneficial and adverse effects of the alternatives are expressed as a variety of qualitative and quantitative environmental and economic metrics throughout the EIS to inform decision-making, including the effects of the alternatives on fish as detailed in Section 3.5. That the effects of the alternatives on fish are not expressed as monetized economic values does not mean that they were not considered in the context of the analysis. The EIS does not employ a cost-benefit framework for decision-making. This is consistent with NEPA guidance, which describes that the EIS should not be a cost-benefit analysis if there are important tradeoffs that are not quantified. Instead, the EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as the dam breaching alternative. However, the Preferred Alternative also meets most of the other objectives of the study for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. The ECONorthwest analysis and the EIS employ different analytical frameworks and rely on different findings with respect to the outcomes of breaching the four lower Snake River dams. The study used a very limited sample of 20 trips to the region. First, the ECONorthwest report applies a cost-benefit analysis framework, emphasizing monetization of all categories of impacts. Consistent with NEPA analysis frameworks, the EIS expresses beneficial and adverse effects across a variety of qualitative and quantitative environmental and economic metrics. That the effects of the alternatives on fish are not quantified as monetized economic values does not mean that they were not considered in the context of the analysis. Second, the findings of the ECONorthwest report that the benefits outweigh the costs of breaching the dams rely on the implicit assumption that breaching would result in restoration of salmon populations. The fish effects analysis in Section 3.5 of the EIS does not find that Multiple Objective alternative 3 would result in recovery of salmon or steelhead populations or in restoring the populations to historical levels. Thus, the values presented in the ECONorthwest report should not be considered as representative of the benefits of MO3. However, the results from the ECONorthwest study contribute to the overarching conclusion of Section 3.15.2.2 that describes that the literature consistently demonstrates that people hold passive use values for salmon.
6299	44	brendan@yakamanation-olc.org	Confederated Tribes and Bands of the Yakama Nation	G. The Lead Agencies NPV analyses fail to include federal discount rates. The Lead Agencies economic analysis calculated the NPV of each alternative using a 7.9% discount rate over a thirty-year time period. However, the 2018 federal water resources planning rate provides for a 2.75% discount rate. This rate, which should at least apply to the Bureau of Reclamation (if not all of the Lead Agencies), would significantly reduce the NPV impacts described in the DEIS. The Lead Agencies must explain why they did not use federal water resources planning rate in the DEIS. If this rate applies, then the Lead Agencies should adjust the NPV impacts calculations in the DEIS accordingly.	Monetized values throughout the EIS are presented in fiscal year 2019 dollars. In general, present values, or annual equivalent values are estimated utilizing the 2019 Federal water resource planning rate of 2.875. Bonneville completed a financial analysis of alternatives separately from the economic analysis, which does utilize the official agency risk-adjusted discount rate of 7.9%. However, as shown under the Social and Economic Effects of Changes in Power and Transmission Section (under Section 3.7.3), the net present value of social welfare effects of hydropower generation are calculated based upon the 2019 Federal water resource planning discount rate.
6299	45	brendan@yakamanation-olc.org	Confederated Tribes and Bands of the Yakama Nation	H. The Lead Agencies economic analyses do not incorporate non-use values. The total economic value that an individual derives from a natural resource, such as a resource basin, can be conceptually divided into use and non-use values. Use values represent tangible features of a commodity that satisfy an individuals want or need. Nonuse values, on the other hand, capture an individuals preferences for public goods or resources that are not derived directed from use. For example, non-use values might include the value of improvements to a river basin for an individual who never visits the river basin, consumes fish from the river basin, or otherwise uses resources from the river basin. Factors that may give rise to non-use values include a desire to preserve the functioning of specific ecosystems; a desire to preserve ecosystems to maintain the option for future use; and a feeling of environmental responsibility or altruism towards plants and wildlife. The 1999 Corps EIS evaluating the removal of the Snake River dams discussed throughout these comments included an extensive analysis on non-use values.228 That analysis concluded that the non-use values of Snake River dam removal ranged from $220,000,000 to $1,000,000,000.229 The table below, included as Figure 13, lists values for all the use and non-use values from the 1999 evaluation EIS and illustrates the potential significance of non-use values. 228 JOHN LOOMIS, RECREATION AND PASSIVE USE VALUES FROM REMOVING THE DAMS ON THE LOWER SNAKE RIVER TO INCREASE SALMON (March 1999). 229 Id. Yakama Nation Comments on the Draft Columbia River System Operations Environment Impact Statement 64 Figure 13 Factoring in non-use values, the net impacts of Snake River dam removal were a cost of $59,000,000 dollars in the low case to a benefit of $664,000,000 in the high case.230 A 2019 ECONorthwest study concluded that the NPV for Snake River dam removal totaled $10,970,000,000.231 By analyzing new costs, reduced costs, and public benefits that include non-use values, the study found an NPV benefit of $8,650,000,000.232 The Department of the Interior commissioned a study of non-use values for removing four dams on the Klamath River in 2012. That analysis used a conservative methodology for determining the non-use value associated with Klamath dam removal and restoration of Klamath Basin resources.233 Despite the conservative approach, the study identified $2,158,000,000 in potential non-use benefits for Oregon and California and $15,645,000,000 in potential non-use benefits nationwide.234 Clearly, non-use values have been recognized by economists as potentially amounting to serious economic benefits. Indeed, the non-use values described in the 2019 ECONorthwest study are greater than many of the costs that the Lead Agencies have identified for MO3 and MO4. Nevertheless, the Lead Agencies economic analysis does not contemplate new costs, reduced costs, and public benefits that include non-use values. This is inadequate. The Lead Agencies have authority to conduct non-use value studies for the CRSO EIS. 230 This calculation represents the numbers included in the Corps public EIS for the evaluation. The analysis conducted by the private consultant showed a range of benefits from $386,000,000 to $3,000,000,000. 231 LOWER SNAKE RIVER DAMS ECONOMIC TRADEOFFS OF REMOVAL, supra, at iv. 232 Id. The 2019 ECONorthwest report also details new costs and reduced costs for grid services, dam removal, irrigation, transportation, and recreation. Id. The Lead Agencies should include a similar analysis in the FEIS. 233 DEPT. OF INTERIOR, SECRETARIAL DETERMINATION FINDINGS OF TECHNICAL STUDIES (2017) at 156. 234 Id. Impacts of Snake River Dam Removal Annual Impacts (millions of dollars) Corps to Public Econ Appen. Ranges Sector Low High Low High Electricity supply $ (250) $ (300) $ (241) $ (291) Recreation-net 65 $ 70 $ 44 $ 364 $ Transportation $ (35) $ (40) $ (35) $ (40) Irrigation & water supply $ (14) $ (17) $ (2) $ (17) Commercial Fishing $ 1 $ 1 $ 1 $ 1 ImpImentation costs $ (46) $ (50) $ (21) 21 $ Total $ (279) $ (336) $ (254) 38 $ Passive values 220$ 1,000 $ 640$ $ 2,977 Net Impacts $ (59) 664 $ 386$ $ 3,015 Yakama Nation Comments on the Draft Columbia River System Operations Environment Impact Statement 65 Therefore, the Lead Agencies should include such a study in the FEIS. This will provide a more accurate picture of the economic impact of MO3 and MO4.	The EIS evaluated beneficial and adverse effects across an array of resource areas including potential effects at the national, regional and local level; effects are monetized and quantified, where possible, and also described qualitatively. The EIS does not employ a cost-benefit framework for decision-making. This is consistent with NEPA guidance, which describes that the EIS should not be a cost-benefit analysis if there are important tradeoffs that are not quantified. Instead, the EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as the dam breaching alternative. However, the Preferred Alternative also meets most of the other objectives of the study for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. A summary table in Section 7.4 has been added to provide a concise description of the beneficial and adverse effects of the alternatives, including the quantified social welfare costs and benefits for a number of resources. The Vulcan Report employs a cost-benefit framework. Consequently, a focus solely on the monetized economic costs and benefits would exclude important tradeoffs associated with the alternatives communicated in the EIS, including effects on fish. Regarding passive-use values, Section 3.15.2.2 of the EIS describes the recent ECONorthwest study, highlighting the objective and approach to estimating willingness-to-pay for salmon restoration. The ECONorthwest analysis and the EIS employ different analytical frameworks and rely on different findings with respect to the outcomes of breaching the four lower Snake River dams. First, the ECONorthwest report applies a cost-benefit analysis framework, emphasizing monetization of all categories of impacts. Consistent with NEPA analysis frameworks, the EIS expresses beneficial and adverse effects across a variety of qualitative and quantitative environmental and economic metrics. That the effects of the alternatives on fish are not quantified as monetized economic values does not mean that they were not considered in the context of the analysis. Second, the findings of the ECONorthwest report that the benefits outweigh the costs of breaching the dams rely on the implicit assumption that breaching would result in restoration of salmon populations. The fish effects analysis in Section 3.5 of the EIS does not find that Multiple Objective alternative 3 would result in recovery of salmon or steelhead populations or in restoring the populations to historical levels. Thus, the values presented in the ECONorthwest report should not be considered as representative of the benefits of MO3. However, the results from the ECONorthwest study contribute to the overarching conclusion of Section 3.15.2.2 that describes that the literature consistently demonstrates that people hold passive use values for salmon.
6299	46	brendan@yakamanation-olc.org	Confederated Tribes and Bands of the Yakama Nation	5.5. The Lead Agencies climate change analyses fail to consider important effects and driving factors of climate change. This section describes flaws in the Lead Agencies climate change analyses.235 As a general comment, the Yakama Nation reiterates its recommendation that the Lead Agencies incorporate Energy Vision for the Columbia River and the other power analysis studies described above. These studies include a number of proposals on energy and renewable resource actions that are pertinent to the Lead Agencies climate change analysis. A. The Lead Agencies climate change analyses fail to properly analyze the impacts of sediment changes. In Chapter 4.2.2 of the DEIS, the Lead Agencies discuss the influence of climate change on river mechanics, including sediment transportation and deposition.236 Section 4.2.2.4 describes sediment changes in Region D McNary, John Day, The Dalles, and Bonneville Dams under MO3.237 However, the Lead Agencies fail to evaluate what impact these changes would have on affected resources. Therefore, it is unclear whether the [i]ncreased sediment transport and localized suspended sediment concentrations that the Lead Agencies project would result from MO3 will result in beneficial or adverse impacts. Restoring key riverine ecological functions and processes, such as natural sediment flow, to natural levels can improve habitat for fish and wildlife is desirable for salmonid production.238 On the other hand, excessive sediment levels can have damaging impacts of all life stages of fish, particularly salmonids.239 The Lead Agencies must include an impact analysis here to properly evaluate the influence of climate change on river mechanics. Where impacts are found, the Lead Agencies must develop measures to mitigation impacts caused by excessive sediment levels. B. The Lead Agencies climate change analyses fail to properly analyze the longterm effects of changes in water quality and temperature. In the introduction of Section 4.2.3 of the DEIS, the Lead Agencies acknowledge the likelihood of long-term water temperature increases in the Columbia River Basin.240 235 The Lead Agencies appear to have mislabeled several subsections here (anadromous fish, FRM, navigation and transportation, recreation, visual, noise, etc.). For clarity, the Lead Agencies should correct these errors in the FEIS. 236 DEIS at 4-24. 237 DEIS at 4-27. 238 COUNCIL, RETURN TO THE RIVER (2000) at 34. 239 SALMON & TROUT CONSERVATION, THE IMPACT OF EXCESS FINE SEDIMENT ON INVERTEBRATES AND FISH IN RIVERINE SYSTEMS (2017) at 4. 240 DEIS at 4-27. Yakama Nation Comments on the Draft Columbia River System Operations Environment Impact Statement 66 However, in several analyses of each region and alternative, the Lead Agencies fail to even mention	Through on-going regional climate change studies and work, the co-lead agencies evaluated potential shifts in precipitation and temperature patterns and resulting changes in unregulated Columbia Basin streamflow timing and volumes. The evaluation consisted of the full range of the latest climate change projections developed using multiple global climate models, emissions scenarios, downscaling techniques, and hydrologic models. Details of this evaluation are in Chapter 4 of the EIS. This information was used to describe the potential effects (both beneficial and adverse) on the river systems and resources due to potential changes in climate for all alternatives. The climate science community is still developing quantitative models that can address possible effects in water temperature from climate change, and unfortunately, have not been fully applied and validated for use with climate affected regulated flow projections of large reservoir systems. This data is critical to analyzing potential effects to fish quantitatively. In lieu of this information, the climate analysis used the output from resource models, like water quality and fish, under historical conditions, available climate change data, and scientific literature to qualitative assess potential effects to resources (described in Chapter 4). Other resources were evaluated to the extent the data and available science would allow. Appendices I and J provide supporting information for the statements made regarding hydropower.

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				water temperature changes at all.241 Where the Lead Agencies do discuss water temperature, the analyses frequently focus more on the immediate temperature impacts of each alternative and do not include any long-term projections. For example, in considering MO3 for Region C, the Lead Agencies only discuss temperature changes caused by seasonal and daily variability.242 The Lead Agencies should comprehensively analyze the long-term projections for water temperature under MO3s return to more normative river conditions. This analysis must include an evaluation of impacts to resources caused by these temperature changes. C. The Lead Agencies climate change analyses fail to analyze the effects on anadromous fish. The Lead Agencies have not adequately described potential effects of climate change on anadromous fish, despite the availability of extensive studies on the impact of climate change driven temperature and water quality changes on these species. For example, meaningful analyses of climate change impacts require a presentation of the relationship between riverine and reservoir water temperatures over time and the thresholds for sublethal and lethal effects on anadromous fish. Water temperatures within the CRS already can reach levels lethal to anadromous fish during some summer months. More robust analyses on the effects of temperature changes is a critical component of identifying measures to be included in a Preferred Alternative. Throughout the climate change analysis of effects on anadromous fish, the Lead Agencies make vague and conclusory statements about what could or may occur with respect to climate change impacts, but do not offer any further information or data regarding the likelihood of these occurrences. For example, [i]ncreased transportation of juveniles may benefit some adult returns to Bonneville Dam, but could also increase the incidence of fallback and straying of adult salmonids;243 [a]dult migration under MO2 may be improved by lower spill, but the overall warming of the river water could offset this effect and result in poorer upstream migration and adult survival;244 [s]ummer foraging for green sturgeon could be decreased further with climate change;245 and [f]orage habitat for green sturgeon could be decreased or disrupted by lower summer flows and flow fluctuations in July and August, and this could be enhanced by climate change effects.246 The Lead Agencies should explain with more specificity the likelihood that these impacts and effects will occur. Furthermore, the Lead Agencies how, they reached the the conclusions [they] have drawn from [their] chosen methodology [with regard to climate change impacts on anadromous fish,] and the reasons [they] considered the underlying evidence to be reliable. 241 DEIS at 4-29 (analysis of MO4 effects on Region A); 4-30 (analysis of MO1 effects on Region B); 4-312 (analyses of MO2 and MO4 effects on Region C). 242 DEIS at 4-31. 243 DEIS at 4-37 (emphasis added). 244 Id. 245 DEIS at 4-38 (emphasis added). 246 DEIS at 4-39 (emphasis added). Yakama Nation Comments on the Draft Columbia River System Operations Environment Impact Statement 67 The Lead Agencies rightfully state that, with respect to MO3, Fall Chinook salmon habitat increases and increases in juvenile salmon and steelhead survival, decreases in travel time, and reductions in powerhouse encounters in MO3 could be reduced or offset by the effects of climate change.247 However, the Lead Agencies analysis for the No Action Alternative, MO1, and MO2 (along with the Preferred Alternative) do not clearly indicate that climate change will further exacerbate these alternatives adverse impacts to salmon because those alternatives do not increase survival rates and habitat or decrease travel times and powerhouse encounters. In light of climate change effects, these alternatives will result in even worse outcomes for anadromous fish. D. The Lead Agencies climate change analyses do not adequately consider impacts to power generation. The Lead Agencies assert that climate change is not likely to change the general conclusions from the power analysis of the relative effect of one MO versus another but do not substantiate this claim with any facts or analyses. Moreover, as noted above, the Lead Agencies power analysis contains a number of flaws. Without correcting these flaws, the Lead Agencies cannot properly conclude that climate change will not impact the power analysis. The Lead Agencies should correct the power analysis consistent with the recommendations discussed above and then disclose how climate change effects will change under each alternative. For example, these comments previously describe problems caused for the Northwest power system caused by climate change when a 2018 heat wave affected the Pacific Coast, Nevada, and Arizona. The heat wave increased the demand for electricity to meet air conditioning loads; constraints in natural gas supplies for electricity generating plants in southern California increased prices; wildfires reportedly threatened transmission lines. The results increased market prices from $16.65 per megawatt hour in June, to $71.88 per megawatt hour in July, and $69.96 per megawatt hour in August.248 These events are likely to increase in the coming years due to climate change, intensifying the risk of more price spikes. These issues should be addressed in the FEIS. E. The Lead Agencies climate change analyses fail to clarify the alternatives impacts to recreational fishing. The Lead Agencies analysis of climate change impacts on recreation does not make clear that the No Action Alternative, MO1, or MO2 would not increase recreational salmon fishing in any region. Likewise, it does not make clear that MO3 would increase recreational salmon fishing. The Lead Agencies must clarify these points and account for them in the analysis of climate change impacts on recreation. F. The Lead Agencies climate change analyses fail to provide an individualized assessment of the impacts to fisheries under each alternative. 247 DEIS at 4-38. 248 Information from the week ending September 29, 2018. Yakama Nation Comments on the Draft Columbia River System Operations Environment Impact Statement 68 The Lead Agencies do not provide an analysis for climate change impacts on fisheries specific to each alternative. Instead, the Lead Agencies arbitrarily lump all of the alternatives together and conclude that climate change will result in adverse impacts to fisheries under every alternative. An individualized assessment of the likely climate change impacts under each alternative is necessary for hard look purposes. Notably, this conclusion does not appear to affect the Lead Agencies the biological analysis, which shows no measurable benefits for upper Columbia or Mid-Columbia anadromous fish for any alternatives and no measurable benefits on Snake River anadromous fish for the No Action Alternative, MO1, MO2, or the Preferred Alternative.	
6299	47	brendan@yakamanation-olc.org	Confederated Tribes and Bands of the Yakama Nation	A. The Lead Agencies analyses of the Preferred Alternatives Flex Spill operation measure include biases and unproven assumptions. The Preferred Alternative Flex Spill operation relies on hourly changes in operations.249 However, all of the Lead Agencies analytical models reflect daily average operations. Therefore, the benefits of the fish analyses are biased toward showing benefits to fish populations, since a daily average of sixteen hours of high spill and eight hours of performance spill will tilt the analysis towards the higher spill. The Lead Agencies must update their analytical models in the FEIS to align with the planned Flex Spill measures so that the relevant analyses are accurate. Moreover, the Preferred Alternative Flex Spill operation relies on the theoretical assumption that reducing the number of powerhouse encounters for fish will reduce latent mortality experienced through ocean migration as has been noted earlier. The majority of fish benefits in the Preferred Alternative depend on this unproven theory. The Lead Agencies must explain why they consider the latent mortality theory to be reliable. The Preferred Alternative does not provide adequate mitigation if the Lead Agencies assumption regarding latent mortality turns out to be false. B. The Lead Agencies Preferred Alternatives Flex Spill operation measure does not offer a long-term plan for protection of fish populations. The Preferred Alternative Flex Spill operation is only planned for the first year.250 After that, the Lead Agencies will employ an undefined adaptive management process for determining flex spill operations.251 The rational basis for this approach has not been set out. A more protective and stable approach would be to adopt a Preferred Alternative Flex Spill operation with a fifteen-year plan (consistent with the BA). This plan should feature an adaptive management process that actively engages the Yakama Nation to assure consistency of changes with treaty rights and tribal cultural resources values before 249 Memorandum from Brandon Chockley and Jerry McCann to Michele DeHart (FPC), Subject: Preferred Alternative Modeling (January 13, 2020). 250 DEIS at 7-33; BA at 2-58. 251 Id. Yakama Nation Comments on the Draft Columbia River System Operations Environment Impact Statement 69 deviations from the fixed operation occur. This type of meaningful engagement would conform to the Lead Agencies trust responsibility to the Yakama Nation.	In its analysis of effects, the Draft EIS used current high quality information, including models and studies published in peer review science journals. Specific to salmon and steelhead, the agencies used two primary modeling approaches which yielded a range of potential outcomes for the alternatives. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% as a result of the Preferred Alternative. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. To address uncertainty highlighted by the two models, the Preferred Alternative includes working with regional sovereigns to develop a study that assess the effectiveness of the increased spill operations on adult returns as well as assessment and management of negative unintended consequences, such as long delays of adult migrants, or TDG-related impacts on juvenile migrants. The framework for the adaptive management process is detailed in Appendix R, Part 2, Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System EIS. It is the intention of the co-lead agencies to engage regional state, Tribal, and Federal fish managers in the development of an appropriate adaptive management process utilizing their respective salmonid management expertise. Regarding biases due to hourly vs.. daily averages: In practice, model estimates may not overestimate PITPH due to day vs. night passage differences because limitations on nighttime spill reductions are already in place through the adaptive management process and lessons learned from the 2019 flexible spill operation. These adjustments in the amount of night time spill were informed by state, Tribal, and Federal biologists with expertise in dam operations and their effects to fish passage. These examples of adaptive management will continue during post-ROD operations. The statement that the flex spill operation is only planned for one year is not an accurate interpretation of the Preferred Alternative. If no adaptive management needs are identified, the operation would continue until modified by the co-lead agencies.
6299	48	brendan@yakamanation-olc.org	Confederated Tribes and Bands of the Yakama Nation	5.7. The Lead Agencies analyses of proposed mitigation measures do not clearly explain the extent or benefits of the measures. This section describes flaws in the Lead Agencies approach to mitigation measures. A. The Lead Agencies fail to transparently describe the extent of existing mitigation programs. The Lead Agencies descriptions of mitigation programs in the Preferred Alternative do not acknowledge that many of the programs relied on for mitigation have been diminished or have not actually been carried forward since the initiation of the EIS development process. Similarly, the Lead Agencies do not state the anticipated level of funding for existing mitigation programs under the Preferred Alternative relative to the No Action Alternative. The BPA-funded fish and wildlife program has been reduced by $20,000,000 in 2018 relative to 2016.252 The Corps has operated its Columbia River Fish Mitigation program at very low levels for several years. To some extent, the Corps has asserted that no additional major actions are necessary. In addition, the Corps has also shifted its predator management programs to routine operation and maintenance funding. Therefore, the Preferred Alternative relies on mitigation programs that are currently reduced or funded at lower levels than described in the fully funded No Action Alternative. The Lead Agencies should be aware of changes to their own mitigation problems. If these changes are not accounted for in the mitigation analyses, then the analyses are not based on the evidence before the Lead Agencies and are effectively meaningless. The Preferred Alternative included in the FEIS must accurately account for the cost of mitigation program implementation and the means of assuring the necessary funding. Similarly, the Lead Agencies do not state the anticipated level of funding for existing mitigation programs under the draft Preferred Alternative relative to the No Action Alternative. Accordingly, it is impossible to evaluate the potential biological benefit of proposed mitigation programs. A reader must infer the size and scale of mitigation programs based on the measures presented in the BA and assume that current fiscal year 2020 funding levels will persist to support these measures. The necessity for such inference and assumption are contrary to NEPAs purpose of environmental impact identification and disclosure. B. The Lead Agencies fail to justify the benefits expected from significant proposed mitigation measures. The Yakama Nation is unclear how	Ongoing mitigation programs are summarized in Chapters 2, 5, and 7. Because these ongoing programs are part of the No Action Alternative and carried into the Multiple Objective alternative and the Preferred Alternative, these ongoing programs are analyzed for each resource for each alternative as part of that alternative. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the EIS objectives) as well as the EIS objectives for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. The Preferred Alternative is also more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% (the lower end of Northwest Power and Conservation Council's recovery targets for the region) as a result of the Preferred Alternative, as a result of the Preferred Alternative increasing SAR from 2.0% to 2.7% for Chinook, a 35% relative increase. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. To address uncertainty highlighted by the two models, the Preferred Alternative includes working with regional sovereigns to develop a study that assess the effectiveness of the increased spill regime on adult returns as well as assessment and management of adverse unintended consequences, such as long delays of adult migrants, or TDG-related mortality of juvenile migrants. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information. The Preferred Alternative will make a meaningful contribution towards recovery. Regarding Northwest Power Act compliance, the comment asserts inadequate analysis in the EIS as to the efficacy or benefits of mitigation funded through Bonneville's Fish and Wildlife Program. Bonneville's Fish and Wildlife Program is first described in section 2.4.2 as an existing program under the No Action Alternative that will continue. This section provides a high-level overview of Bonneville's Fish and Wildlife Program, many of its major subprograms and their benefits, including habitat actions, hatchery actions, predator management, lamprey research and mitigation, and wildlife mitigation. Section 2.4.2 also describes some of the many CRS improvements and the associated benefits for fish. In addition to this overview of Bonneville's Fish and Wildlife Program, the description of the affected environment throughout the relevant sections in Chapter 3 of the EIS, by definition, reflects the effects of past and ongoing mitigation efforts, even if they are not itemized or highlighted as being the results of a specific mitigation effort. NEPA does not require the agencies to distinguish the past and ongoing effects of all the mitigation projects Bonneville has funded over the 40-year history of the Northwest Power Act,

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				the Lead Agencies determined expected benefits from proposed mitigation measures, given the lack of specificity in the list of those measures. 252 COUNCIL, 2018 COLUMBIA RIVER BASIN FISH AND WILDLIFE PROGRAM COSTS REPORT (2018). Yakama Nation Comments on the Draft Columbia River System Operations Environment Impact Statement 70 Furthermore, it appears that the Lead Agencies exaggerated the benefits of the proposed measures. The Lead Agencies provide summary tables in the BA that compare proposed mitigation measures to current conditions for each species by life history stage.253 Factors are color coded to represent anticipated effects: green for positive effects, gray for no changes, and yellow for negative effects. The summary tables also include plus, minus, and equal signs to denote whether there are anticipated benefits at each life stage. These tables appear skewed to illustrate anticipated benefits where, in reality, benefits are immeasurable or unsubstantiated. The statements supporting positive ratings are all qualified as slightly, likely, and potential. This suggests that there is very little certainty that this suite of measures will add up to measurable change in the trajectory for Chinook and steelhead populations in the Columbia River. Furthermore, the Lead Agencies do not describe the analyses or standards used to determine why a positive, neutral, or negative effect is anticipated. The Lead Agencies could characterize a very small (less than 1%) change in a metric as a positive effect, despite not having performed a statistical analysis or even indicated a standard to justify that finding.254 As such, the summary tables are effectively a list of conclusory statements. The Lead Agencies must explain how they reached these conclusions and their rationale for characterizing minimal changes as positive effects. The Lead Agencies apparently assume that a dozen slight and minor improvements at various life stages for Chinook and steelhead will cumulatively constitute sufficient evidence of improvement to justify the suite of measures to be included in Preferred Alternative. The Lead Agencies do not provide a rational connection between the incremental improvements and measurable benefits to justify this assumption. The remainder of this section considers quotes from the summary tables that serve as specific examples of the Lead Agencies unsubstantiated claims with respect to positive effects. 253 List of summary tables from Appendix V BA: Table 3-6 SR Fall Chinook; Table 3-10 SR Sockeye; Table 3-18 SR Steelhead; Table 3-26 SR Spr/Sum Chinook; Table 3-34 UCR Steelhead; Table 3-41 UCR spring Chinook; Table 3-49 MCR Steelhead; Table 3-52 LCR Coho; Table 3-55 LCR Chinook; Table 3-58 LCR Steelhead; Table 3-62 LCR Chum (cut and pasted from chinook section); Table 3-65 UWR Chinook (cut and pasted from Columbia stocks); and Table 3-68 UWR Steelhead. 254 Confidence intervals (standard deviation) were provided to the Lead Agencies for the NOAA COMPASS model results for juvenile survival, but the Lead Agencies do not include that data in the BA summary of model results. Yakama Nation Comments on the Draft Columbia River System Operations Environment Impact Statement 71 Potential positive effect from continued tributary habitat restoration. The Lead Agencies identify a set of implementation metrics to be accomplished in the first five years and total fifteen years of the BA.255 The metrics are identified for Chinook and steelhead species separately; however, in many cases these species overlap. The Lead Agencies proposed habitat program metrics are identified in Tables D.2 and D.3 in Appendix D to the BA. However, there is no analysis in the summary tables or elsewhere to demonstrate the how the Lead Agencies intend to achieve these metrics or what positive biological effects are expected. It is not clear if the metrics will be captured specifically for each species or whether individual actions that benefit both species will be double counted. Also, there is no connection between the proposed habitat metrics and potential benefits to salmon and steelhead. No response metrics are provided to demonstrate expected biological benefits. For the upper Columbia/East Slope Cascades Major Population Group (MPG), the Lead Agencies provide no information on where the actions will take place to achieve the proposed metrics from Table D.2. The Yakama Nation is the primary implementor of BPA mitigation funding in this region. Nevertheless, the Yakama Nations staff struggled to understand how these metrics were set and where they would be achieved. The current level of funding does appear not suitable to achieve the metrics proposed. In addition, habitat funding in the upper Columbia region has been reduced by over 10% since 2016.256 Therefore, less habitat work will be implemented than could have been implemented under the No Action Alternative if 2016 levels of funding were maintained. Moreover, with regard to the metrics set forth for upper Columbia/East Slope Cascades MPG in Table D.2, a Yakama Nation consultant reviewed the metrics with the following responses: Flow Protected 29CFS: In the mainstem Lower Wenatchee, this action would have almost no measurable biological benefit. If it were conserved in smaller streams currently flow limited and used by spring Chinook, then it could definitely have an impact. Most streams that would benefit from more water and have spring chinook in them are not flow limited or dont have significant irrigation activity the main exceptions being the Twisp River, upper Methow, and upper Wenatchee. There may not be a lot of meaningful opportunities for this metric. In addition, water purchases have had a cost of $185,000 to $249,142 per cfs, which calculates to $5,300,000 to $7,200,000 for 29 cfs. Water acquisitions are almost always multiyear and are extremely detailed negotiations, which take time away from pursuing other restoration actions. From a cost point of view, buying 29 cfs would burn at least two years of Upper Columbia Habitat Restoration Project (UCHRP) construction budget. For those reasons, the current level of funding is not suitable for achieving that metric. Flow Enhanced 5,309 acre/feet: Late season water releases do not seem to work very well. Specifically, enforcement of the turn-off has been a big problem. Also, 255 DEIS at Appendix D, Tables D.2 and D.3. 256 The Columbia Basin Fish & Wildlife Program, BPA (www.cbfish.org) (last accessed April 13, 2020). Yakama Nation Comments on the Draft Columbia River System Operations Environment Impact Statement 72 most of the damage to fish gets done during the summer and keeping a small amount of water in the stream during the fall is mostly window dressing. There may be a water lease scenario that is beneficial for fish and is also enforceable, but those scenarios are difficult to find in the upper Columbia. Entrainment Screening 5 screens: Most irrigation intakes within anadromy are currently screened (with the exception of the Okanogan Subbasin) and therefore five screens seem like a reasonable number. Habitat Access 5 miles: The UCHRP is currently working to restore access to thirteen miles of good/excellent potential steelhead and spring chinook habitat. There is another ongoing project which will likely provide access to over ten miles of excellent steelhead habitat. Restoring five miles is shortchanging the potential benefit. Restoring habitat access is one of the easiest ways to alleviate the density dependence issues seen throughout the Columbia Basin; the BA shouldnt be setting the bar this low. As we move past the five-year mark, well need significantly more funding to start working on passage in small streams where there are multiple barriers per mile and the cost will be significantly higher. Stream Complexity 8 miles: The UCHRPs ten-year implementation plan identifies individual projects totaling sixty-five miles in the upper Columbia. From 2009 to 2019, the UCHRP restored twenty-one and a half miles of stream and side channel habitat and its difficult to say that work moved the needle very much. Spring chinook are currently at the AMIP trigger, as are steelhead. Under current conditions and priorities, the UCHRP could construct eight miles of habitat complexity in five years. Riparian Habitat Improved 68 acres: Riparian restoration is a long-term investment, which may not show benefit for ten years or more. Although the UCHRP does significant riparian restoration with every habitat complexity project, we only have one acre designated for specific riparian improvement in our ten-year implementation plan. Restoring sixty-eight acres seems like a reasonable amount of standalone riparian restoration. Riparian condition tops out at being the third highest ranking limiting factor in most of the upper Columbia, and in many AUs its much lower. Perhaps on small streams where the riparian can provide shade within five years. On larger streams (and most spring Chinook Critical Habitat are that) the benefit of riparian wont be seen for generations. Riparian restoration is relatively expensive and if the UCHRP were going to try to achieve sixty-eight acres in five years, wed need additional funding or would have to scale back passage and complexity work. For all the MPGs, the Lead Agencies have not coordinated with the primary implementers of mitigation to determine whether these metrics are needed to address the highest limiting factors and whether they are even feasible to achieve. In biological assessments associated with other federal actions, the Lead Agencies coordinated with the local implementers to ascertain what actions were needed and what biological benefits may be achieved through those proposed actions. Yakama Nation Comments on the Draft Columbia River System Operations Environment Impact Statement 73 In addition, habitat funding in the Snake River region has been reduced by over 10% since 2016,257 so less habitat work will be implemented than could have been implemented under the No Action Alternative. Accordingly, with regard to the Table D.2 metric, a Yakama Nation consultant reviewed the metric with the following response: Stream Complexity 8 miles: In the Grande Ronde, restoring eight miles of stream complexity in the next five years or twenty-four miles in the next fifteen years across the entire Grande Ronde/Imnaha basin will not be adequate to recover Snake River Chinook. The Lead Agencies must explain how, based on these metrics, they concluded that tributary habitat will result in positive effects. Existing and future habitat improvements will likely improve tributary water temperatures and turbidity levels. Tributary water temperatures and turbidity levels are not included as metrics evaluated in the Lead Agencys commitments in Tables D.2 and D.3. The Yakama Nation is therefore unclear as to why the Lead Agencies included these metrics in the summary tables and how the metrics are relevant to the conclusions therein. At any rate, Lead Agencies must explain how and to what degree improvements to tributary water temperatures and turbidity levels will result in a biological benefit to salmon and steelhead. In addition, the Lead Agencies fail to provide a rationale that connects the proposed habitat metrics in Tables D.2 and D.3 to the anticipated biological benefit for the species identified. It is unclear if proposed efforts will achieve the proposed metrics or whether achieving these metrics will benefit the target populations. The Lead Agencies must provide a biological explanation to demonstrate that the proposed metrics will address the primary limiting factors for the target species and how much response would be expected in life state survival. Flexible spill plan is expected to slightly increase non-turbine passage, and therefore survival. The COMPASS model estimates change in survival, but the Lead Agencies choose to infer benefits to survival based on powerhouse passage.258 The only metric that consistently shows significantly positive results from all COMPASS modeling for Flex Spill is powerhouse	particularly given that Bonneville now uses over 600 contracts annually to implement its Fish and Wildlife Program. In addition, the Agencies 2020 CRS Biological Assessment includes analysis of the implementation and effectiveness of both tributary habitat restoration actions and the CRS overhaul. Although the Northwest Power Act requires Bonneville to fund mitigation consistent with the Northwest Power and Conservation Councils (Council) Columbia River Basin Fish and Wildlife Program (Program) and the purposes of the Act, no statutory provision requires the co-lead agencies to undertake separate analyses regarding the efficacy of such mitigation. Rather, the structure and processes of the Act create a presumption that mitigation measures and projects recommended for implementation by the Council are indeed an effective means for addressing mitigation under the Act. First, the Council develops its Program based largely on the recommendations and expertise of fish and wildlife managers. The mitigation projects that the Council recommends to Bonneville for funding derive from their Program. Further, the Independent Scientific Review Panel periodically reviews the mitigation projects under to certain statutory criteria that, for example, include examining whether projects are based on sound scientific principles and benefit fish and wildlife. 16 U.S.C. 839b(h)(10((D)(iv). These statutory processes for vetting and reviewing implementation of mitigation projects provide a reasonable basis for the co-lead agencies to rely on these projects being effective. In addition, for fish and wildlife managers that implement Northwest Power Act mitigation through Fish Accord agreements with the co-lead agencies, the managers and co-lead agencies have agreed that such mitigation projects are consistent with the Councils Program, the underlying assumption being that the mitigation projects address appropriate obligations under the Council Program, and do so effectively. Further information about the policies and mandates of the Northwest Power Act and other statutes is in Chapter 5.1.2, and Chapter 8 discusses how the co-lead agencies complied with various law, including the ESA and Northwest Power Act. With regard to the concerns about funding levels noted in the comment, funding decisions are not being made as a part of the CRSO EIS process. However, a range of potential Bonneville Fish and Wildlife Program costs are included to inform the broader cost analysis for each alternative in the EIS. By analyzing a range of costs, Bonneville reflects the year-to-year fluctuations related to managing its program and also acknowledges the uncertainty around both the magnitude of biological benefits and the potential impacts on funding, including the timing of funding decisions. Future budget adjustments to the Fish and Wildlife Program would be made in consultation with the region through Bonneville's budget-making processes and other appropriate forums and consistent with existing agreements. Ultimately, the FEIS examines the status quo through the NAA in terms of the existing environmental conditions with ongoing mitigation. The anticipated effects of the other alternatives examined builds on the NAA analysis. Ultimately, as the FEIS says in section 5.2.1, Outside of the specific mitigation measures that have been identified in the CRSO EIS, changes to mitigation programs, like the Bonneville F&W Program, are not being made through this EIS process. As discussed in section 7.7.21.1, in 2016, Bonneville's F&W Program budget was $267,000,000, and the Lower Snake River Compensation Plan (LSRCP) budget was $32,303,000. When these budgets are adjusted to represent 2019 dollars, they become $281,536,000 and $34,062,000, respectively, which are the budgets used under the No Action Alternative. For the Preferred Alternative, Bonneville would continue funding the operations and maintenance of the LSRCP, consistent with the No Action Alternative. Bonneville's F&W Program costs under the Preferred Alternative are estimated to range from no change from the No Action Alternative to a decrease of approximately 17%, or approximately $47 million, annually. Bonneville's fiscal year 2020 decisions to adjust the F&W Program budget to $249 million and the LSRCP budget to $30.5 million (BP-18 Rate Case) are consistent with the range of costs analyzed for the Preferred Alternative. The estimated costs are further detailed in Appendix Q, which provides an estimate of the total cost for implementing, operating and maintaining the system under each of the CRSO alternatives. These costs include capital investments, routine and non-routine operations costs (including extraordinary maintenance (NREX), and mitigation costs including fish & wildlife mitigation costs. The comment also equates funding quantity with mitigation quality, a relationship the comment does not justify or otherwise support. Moreover, the so called budget reductions, can in part be seen as corrections designed to bring budgets in closer sync with actual spending capacity of the entities implementing mitigation, many of whom have historically had budgets that exceeded practical spending levels. In addition, the comment fails to account for the fact that the cited budget reductions to Bonneville's Fish and Wildlife Program in 2018 were, in part, to offset the cost of spill operations to benefit fish. Finally, the comment does not acknowledge ongoing efforts that could conclude with a greater amount of existing funding going to on-the-ground mitigation. For example, as part of the 2018 BA, and as proposed to continue in the 2020 BA, Bonneville is working with the Council, NMFS, and state and tribal fisheries managers to develop a strategy to strategically realign research, monitoring, and evaluation of tributary habitat mitigation projects. This new strategy will explore how to more cost-effectively obtain the studies and evaluations while securing additional work on-the-ground that benefits anadromous fish more directly. Regarding the flexible spill operation associated with the Preferred Alternative, as noted in comment response 6299-47, in its analysis of effects, the Draft EIS used current high quality information, including models and studies published in peer review science journals. Specific to salmon and steelhead, the agencies used two primary modeling approaches, which yielded a range of potential outcomes for the alternatives. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% as a result of the Preferred Alternative. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. To address uncertainty highlighted by the two models, the Preferred Alternative includes working with regional sovereigns to develop a study that assess the effectiveness of the increased spill operations on adult returns as well as assessment and management of negative unintended consequences, such as long delays of adult migrants, or TDG-related impacts on juvenile migrants. The framework for the adaptive management process is detailed in Appendix R, Part 2, Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System EIS. It is the intention of the co-lead agencies to engage regional state, Tribal, and Federal fish managers in the development of an appropriate adaptive management process utilizing their respective salmonid management expertise. This EIS analyzes the effects of operation, maintenance, and configuration of the CRS projects. The analyses used in this EIS were for the purposes of comparing the effects of the Multiple Objective alternatives for operation, maintenance, and configuration of the CRS projects to one another and to the No Action Alternative. Habitat mitigation program descriptions are discussed briefly in the No Action Alternative in Section 3.5.3.3 to give the reader the general information on these programs. For the purposes of comparing alternatives, however, a more detailed description is not needed. Chapter 7 describes programs that would continue as well as new mitigation under the Preferred Alternative. The scope of this Draft EIS is the operation and configuration of CRS projects; a complete analysis of all habitat programs and the development to the specificity suggested in this comment is beyond this scope.

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				passage.259 Otherwise, most of the COMPASS model outputs for all species do not demonstrate more than 1% to 3% improvements in juvenile survival.260 Survival rates for upper Columbia steelhead juveniles is negative.261 Therefore, it appears that the Lead 257 The Columbia Basin Fish & Wildlife Program, supra. 258 DEIS at 7-94, 7-95, 7-100, 7-102. 259 Id. 260 Id. 261 DEIS at 7-95. Yakama Nation Comments on the Draft Columbia River System Operations Environment Impact Statement 74 Agencies expectations regarding Flex Spills effect on survival runs counter to the evidence before them.262 The Lead Agencies must explain this discrepancy. Travel time will slightly decrease with the flexible spill plan. The majority of model outputs for all species demonstrate no more than a 1% to 3% improvement. This is not a statistically significant improvement (as implied by the Lead Agencies use of qualifying language). Nevertheless, the Lead Agencies mark these actions with green highlight and a plus sign. The Lead Agencies must provide a rationale for concluding that a minor improvement in travel time will result in positive effects for fish. Continuation of predator management programs should decrease predation, slightly increase survival, and slightly reduce predation rates. It is true that predation may not worsen under status quo funding levels. However, pinniped and avian predation will not likely improve relative to the status quo without further investment and action. The Lead Agencies must explain how they concluded that continuation of these programs will increase survival and reduce predation rates. With significant investment, predator management may provide one of the best opportunities to provide incremental survival benefits at key life states. The Lead Agencies should provide additional measures to ensure improvements, including the creation of a basin wide coordination forum to ensure that all predator management agencies are coordinating their efforts to maximize results and to prioritize additional actions. Monitoring adult migration may assist in development of actions to reduce overshoot. The Lead Agencies must provide funding in the CRFM budget for additional actions to respond to information gathered in the monitoring of adult migration, such as installation of modified spill gates. Overshoot is already well-known concern. Without funding, it seems that the Lead Agencies simply propose to further monitor a known problem. The Lead Agencies must explain how they concluded that monitoring will result in practical development of overshoot reduction actions. C. The Lead Agencies fail to consider the role of local watershed groups in prioritizing and implementing mitigation actions with respect to habitat. The Lead Agencies provide a detailed description of their proposed Tributary Habitat Improvement Program in Appendix D to the BA. This description fails to recognize the importance and reliance on local watershed groups to help prioritize and implement habitat actions. The Lead Agencies should properly recognize the Yakama Nation and other co 262 It is also worth noting that tables associated with this statement appear to be cut and pasted without verification. The benefits of Flex Spill are identified for lower Columbia Coho, steelhead, and chum even though these species dont pass through more than one dam and Flex Spill may be constrained at Bonneville Dam due to erosion concerns. Yakama Nation Comments on the Draft Columbia River System Operations Environment Impact Statement 75 managers as active participants on the Tributary Habitat Steering Committee in order to fully evaluate the effectiveness of habitat mitigation proposals.	
6318	2	cindy.wright@seattle.gov	Seattle City Light	City Light sees the proposed PA as an improvement over the status quo and we are generally supportive of its stated intent. The PA provides for multiple structural, operational and mitigation measures that should directly benefit species listed under the Endangered Species Act (ESA), with limited impacts on power production. We support the operational measures in the management of the Grand Coulee/Lake Roosevelt operations that should provide improved instream flows downstream to benefit fish, while providing some operational flexibility for power production in the fall. Other actions, such as the increased drafting of the John Day Reservoir to reduce smolt predation by nesting Caspian terns and lamprey passage improvements in the lower Snake and Columbia River dams, should result in beneficial operational and structural changes. Many of the mitigation elements under the PA are carried over from past commitments and City Light continues to support those actions as identified in Table 7-5 of the DEIS. Additional "preliminary" measures under negotiation with various responsible agencies to benefit ESA-listed species (e.g., off-season spill for adult steelhead and bull trout at McNary; improving access for bull trout to perched tributaries in the Kootenai basin) also appear to address otherwise heretofore unmitigated effects of the CRSO on ESA-listed species.	Thank you for your comment. In developing the Preferred Alternative, one of the objectives was ensuring reliable and affordable power. The Preferred Alternative allows the co-lead agencies to continue to operate the facilities for their congressionally authorized multiple purposes, including fish and wildlife, water supply, navigation, flood risk management, and recreation. Improvements for lamprey were also included to support this species which is culturally significant to regional tribes. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy designated critical habitat. To comply with the ESA, the co-lead agencies have historically supported actions to mitigate adverse effects to listed species from CRS operations, through funding, direct implementation, and other means. Under the Preferred Alternative, those actions, including for the purpose of reducing pinniped and avian predation on ESA-listed species, would generally continue to ensure compliance with the ESA. Other entities in the region have authorities and obligations to mitigate the impacts from pinniped and avian predators and the co-lead agencies will continue to work closely with those entities to benefit ESA-listed salmonids. Specifically for the comment on predation, on-going actions described in the No Action Alternative to reduce predation on migrating fish are included in the Preferred Alternative. In addition, water management actions ("Predator Disruption Operations" measure) in the John Day reservoir is expected to further reduce avian predation on migrating juvenile fish.
6318	3	cindy.wright@seattle.gov	Seattle City Light	Arguably the most significant operational change over the No Action Alternative in the PA is the continued implementation of the Flexible Spill Agreement initiated in 2019. We recognize that the increased spill under the PA is in t ended to improve smolt-to-adult return ratios (SAR) through the CRSO by reducing latent mortality. If projections in the PA based on a Comparative Survival Study (CSS) prove accurate (i.e., improved SAR for Snake River Chinook and steelhead by 35 and 28 percent, respectively) then our concerns will be largely mollified. The level of total dissolved gas (TDG) allowed under the PA (125 percent), however, is well above levels recognized in many studies to cause gas bubble trauma (GBT) in fish. As GBT can lead to direct and indirect adverse effects, including mortality, secondary disease, and increased predation, any reliance on the presumptions of the CSS model in particular the acceptance that 125 percent saturation can be generally regarded as safe-should be robustly verified. This level of super saturation is also notably well above water quality criteria for TDG applied to many other hydroelectric systems for the protection of aquatic animal health. Beyond these observations, the alternative Life Cycle Model(LCM) developed by the National Marine Fisheries Service (NMFS) projects potentially negative effects to Snake River Spring Chinook SAR from the PA in the event that latent mortality effects from fish passage are not improved by increased spill. As greater improvements in SAR are projected by both models in the Snake River dam removal alternative (i.e., M0-3) over the PA, the reliance on the output of the CSS model's projections in the PA in contrast to those of the LCM places great uncertainty on the potential outcomes and does not boost confidence.	TDG levels are regulated under the Federal Clean Water Act, and administered by the states. Both Oregon and Washington have reassessed the available data on effects of TDG levels up to 125% of saturation on fish and other aquatic organisms. Based on this reassessment Oregon issued a five-year "standard modification" and Washington issued a permanent rule change, supported by the Environmental Protection Agency (EPA), to allow TDG saturation up to 125%. However, as noted in the comment, there is considerable uncertainty in the effects; and therefore, monitoring was required by the states and EPA to ensure any negative effects are detected and allow for adaptive management. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. This will include additional monitoring for the effects of exposure to elevated TDG and will be developed with regional input to ensure adequate monitoring is in place for various lifestages of salmonids, as well as monitoring of non-salmonid species. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% as a result of the Preferred Alternative. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. Unforeseen outcomes or unintended consequences will be monitored and adjusted using current in-season management teams, such as the Technical Management Team.
6318	4	cindy.wright@seattle.gov	Seattle City Light	The DEIS and appended Biological Assessment identify, at a high level, the monitoring that will be conducted to track the incidence of GBT in fish under the PA. The monitoring program to be implemented largely appears to be a continuation of the past GBT monitoring program implemented by the Fish Passage Center, the author of the CSS. We remain concerned about several elements of this monitoring because it may erroneously conclude limited adverse effect from GBT as a result of insufficient sampling. For example: We understand that current sampling of smolts to determine whether they are affected with GBT is conducted in bypass systems at the dams. Entering most bypasses requires smolts to enter at elevations significantly below the surface, which varies by dam; however, smolts using these bypass systems are not descending volitionally to expressly avoid high TDG levels, but rather as a pathway to emigrate. This descent greatly lessens the susceptibility to GBT. As TOG criteria are to be applied to surface waters of the forebay and tailraces of the dams, the fish being evaluated for GBT in bypasses are not likely the same fish that would be exposed to the highest levels of TOG experienced in fish passed with increased spill occupying the tailraces. Out -migrating smolts from upper river locations could be exposed repeatedly, if not continuously, to excessive levels of TDG. This scenario represents a chronic or (at least) sub chronic exposure profile for which increased injury is not fully considered in the DEIS. As the TOG water quality criterion under the PA allows surface waters to support TOG levels as high as 125 percent saturation from the tailrace of one dam downstream to the forebay of the next, it is possible that fish of many different species and life stages will experience pro longed exposure to TDG levels that have been shown to elicit GBT. The CSS model that supports the PA is based on smelt data. While most young salmon in the mainstem Snake and Columbia Rivers are smelts derived from tributaries, this is not an absolute (e.g., Hanford Reach Chinook). Early life stages (fry/parr) of such salmonid populations in mainstem habitats, as well as other non-salmonid native fishes, could be disproportionately exposed to higher levels of TDG as they will preferentially use shallow water habitats for rearing where TDG levels will be highest. In brief, monitoring of TDG should include multiple life stages and species. To ensure program effectiveness, adaptive management is to be exercised under the PA if adverse outcomes are recognized from biological monitoring. Unfortunately, the DEIS and BA provide few discrete commitments on the adaptive management program, with much remaining to be negotiated as a component of the ongoing ESA consultation. For example, while adult delays in migration are to be monitored, how exactly this will be done, and how/if the adults would also be monitored for GBT as a potential causal mechanism of the delay is not clear. Beyond temporary reductions in spill at each dam-in the event of increased GBT-it is unclear what specific adaptive management actions will be engaged if SAR values do not improve, or potentially, worsen.	TDG levels are regulated under the Federal Clean Water Act, and administered by the states. Both Oregon and Washington have reassessed the available data on effects of TDG levels up to 125% of saturation on fish and other aquatic organisms. Based on this reassessment Oregon issued a five-year "standard modification" and Washington issued a permanent rule change, supported by the Environmental Protection Agency (EPA), to allow TDG saturation up to 125%. However, as noted by the commenter, there is considerable uncertainty in the effects of free swimming fish; and therefore, monitoring was required by the states and EPA to ensure any negative effects are detected and allow for adaptive management. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. This will include additional monitoring for the effects of exposure to elevated TDG and will be developed with regional input to ensure adequate monitoring is in place for various lifestages of salmonids, as well as monitoring of non-salmonid species. The framework for the adaptive management process is detailed in Appendix R, Part 2, Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS. It is the intention of the co-lead agencies to engage regional state, Tribal, and Federal biologists in the development of an appropriate adaptive management process utilizing their respective salmonid management expertise. The goal of that adaptive management process would be to consider additional opportunities to further the effectiveness of the operation while maintaining the goals of the flexible spill operation: additional improvements for salmon and steelhead, maintain opportunities to operate the CRS for hydropower generation in a flexible manner that provides value to the Northwest, is implementable by the dam operators, and provides opportunity to reduce uncertainty and improve the learning opportunities around how operations of the CRS can influence the magnitude of latent mortality effects. Unforeseen outcomes or unintended consequences will be monitored and adjusted using current in-season management teams, such as the Technical Management Team.
6318	5	cindy.wright@seattle.gov	Seattle City Light	We also reviewed the power analysis provided in the DEIS in consideration of how the PA and other alternatives could affect reliability, cost, and grid adaptability for accommodating changing demand and other renewable supply sources in the face of a changing climate. Through this review, we note that the DEIS relies on many inputs from 2017. Both resource prices and the regional supply and demand forecasts have changed since then. Topics for ongoing study by the Action Agencies should thus include the following: Resource prices and capabilities Need for, and availability of, integration resources Revising Load Carrying Capability estimates to look beyond supply co-incident with highest peak and to look at variable resources' ability to provide reliable service akin to resource participation in the Western Energy Imbalance Market Incorporating information about how utilities will replace retiring coal plants Incorporating utility plans to comply with state mandates BPA has made many strong efforts to model the complexities of the energy industry. Using Aurora, GENESYS, and GridView together is an excellent approach to consider how power supply and transmission interact to estimate price and revenue changes. City Light encourages BPA to continue this multi-faceted approach to studying changing load and resource conditions overtime. City Light asks that BPA commit to updating these models with current inputs on an ongoing basis, possibly aligned with the White Book publication or Regional Power Plan development.	The EIS uses the resource cost information from the Northwest Power and Conservation Council (Council) to estimate the potential range in costs of these replacement resources from the 7th Power Plan and the 7th Power Plan Mid-Term update in February 2019. For the 8th Power Plan, reference plant data was prepared by the Council between October 2019 to February 2020, which was not available in time for inclusion in the draft EIS. However, the final EIS incorporates updated costs for solar, wind, batteries, and gas resources as well the forward cost curves presented by the Council based on National Renewable Energy Laboratory (NREL) forecasts on March 3, 2020, to the Generating Resources Advisory Committee for the 8th Power Plan. The purpose of providing the range of replacement resource options is to present a reasonable range in potential costs. The EIS uses a load forecast prepared by the Council and published in July 2017 for the 2022 Resource Adequacy Assessment. This was the best available resource data at the time the base cases analysis was prepared for the draft EIS. The EIS acknowledges that there would be more demand for flexibility in the power grid as coal plants retire, and the value of this capability is likely to increase. As the region continues to add new renewable resources, Bonneville, and undoubtedly other entities studying resource adequacy in the region would be assessing the need for integration services for these new variable resources. In particular, any new resources connected to and sited within Bonneville's Balancing Authority Area would be evaluated in Bonneville's interconnection study process and be eligible for resource integration services in accordance with Bonneville's transmission tariff. The EIS analysis incorporated the current balancing reserves requirement into the base case analysis. Appendix I, Section 4.3 discusses the changes in hydrosystem flexibility for integrating new renewable resources. The Preferred Alternative includes some measures that increase flexibility such as increasing the operating range of the four lower Snake River dams and John Day by 0.5 feet compared to the No Action Alternative. Increases in system flexibility enable integration of more variable resources and support participation in the Western Energy Imbalance Market, which is one avenue for integrating variable renewable resources.

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					The EIS acknowledges that assumptions regarding coal capacity have changed since the base case was developed in 2017 and that the energy sector is undergoing transformation. To address this concern, the EIS considered various sensitivity analyses as well as examining two potential coal retirement scenarios. See draft EIS, Section 3.7.3.1, Availability of Coal Resources at pages 3-841-842 and Section 3.7.3.2, Table 3-123. The EIS presents the base case analysis first before discussions of information resulting from additional sensitivities and potential cost pressures. Specifically, the other regional cost pressures estimate the costs to the region of potential carbon policy compliance and coal retirements (for a description of all sensitivities, see Section 3.7.3.1 Additional Power Rate Sensitivity Analysis and Other Regional Cost Pressure Analysis). Regarding ongoing and future studies of reliability and adequacy in light of coal-plant retirements, Bonneville is participating in the regional Resource Adequacy efforts with the Council and the Northwest Power Pool. Additionally, Bonneville performs regular assessments of resource adequacy in its White Book and Resource Programs.
6318	6	cindy.wright@seattle.gov	Seattle City Light	While City Light sees the proposed PA as an improvement over current operations, our support is tempered by the numerous uncertainties and underlying assumptions inherent in the CSS model that supports the PA's expectations of improving SAR, and the scope of monitoring that will be conducted to gauge whether increased spill is helpful or harmful to the species it is intended to benefit. Success of the PA therefore requires an adaptive management program based on robust monitoring, with allowances and a commitment to change course as needed in a timely manner. At present, the adaptive management provisions are loosely identified in the DEIS and/or are reflected as still under negotiation. The Action Agencies should be prepared to adaptively manage the operations to remain flexible in the face of the changing climate's additive impacts that place fish, wildlife and energy resources at risk. This adaptability should include the consideration of further modifications of Snake River dam facilities or operations if the expected improvements in SAR are not reali zed in a reasonable timeframe to allow for a course correction. To this end, a 5-yeartime frame for reconsideration of the PA's monitoring results and outcomes would be consistent with the Army Corps' model for reissuance of Nationwide Permits that are also subject to Section 7 consultation requirements of the ESA, and allow for effects of the PA on SAR to be considered over multiple year classes of sal mon and steelhead. This time would also allow for regional stakeholders to advance the dialogue on reaching collaborative solutions to the energy and salmon restoration issues that confront us.	The framework for the adaptive management process is detailed in Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS. It is the intention of the co-lead agencies to engage regional state, Tribal, and Federal fish managers in the development of an appropriate adaptive management process utilizing their respective salmonid management expertise. The goal of that adaptive management process would be to consider additional opportunities to further the effectiveness of the operation while maintaining the goals of the flexible spill operation: additional improvements for salmon and steelhead, maintain opportunities to operate the CRS for hydropower generation in a flexible manner that provides value to the Northwest, is implementable by the dam operators, and provides opportunity to reduce uncertainty and improve the learning opportunities around how operations of the CRS can influence the magnitude of latent mortality effects. The co-lead agencies have not made any determinations on what the preferred approach would be for a regionally developed study plan, and intend to develop that study jointly with regional experts. While that includes the eventual duration of a study, the 5 year time frame suggested in the comment would be one of the possibilities discussed. Unforeseen outcomes or unintended consequences will be monitored and adjusted using current in-season management teams, such as the Technical Management Team.
6318	7	cindy.wright@seattle.gov	Seattle City Light	Finally, in order to sustain robust stakeholder involvement, City Light asks that the Action Agencies create a schedule for ongoing public review in the implementation and a timeline for supplementing or revaluating the EIS when conditions change.	Thank you for your comment. At this time, additional supplementation or re-evaluation has not been deemed necessary. However, the co-lead agencies plan on continuing stakeholder involvement through the various regional forums and public outreach
6344	1	Nicholas Nelson	Idaho Rivers United	In the attached documents, you will find detailed reasons why this DEIS is an extremely flawed and biased document, and arguments as to why this arbitrary 45 day comment period is inadequate and not in keeping with the law for review	The co-lead agencies considered requests to extend the public comment period. This NEPA process included a wide array of cooperating agencies whose close involvement throughout the process allowed the co-lead agencies to incorporate feedback. Given the broad range of comments received and the extensive Federal and non-Federal participation in the overall process as well as the level of public engagement in the six virtual public meetings in the region, the co-lead agencies determined that an extension was not warranted and that the 45-day public comment period was adequate consistent with NEPA regulations. The CRSO EIS website notified the public on April 9, that they should plan to submit comments by the close of the comment period.
6344	2	Nicholas Nelson	Idaho Rivers United	The Preferred Alternative (PA) proposed supports continuation of decades-long failed, incremental, status quo hydrosystem management and restoration measures that will not only not recover Snake Basin River anadromous fish runs in healthy and abundant numbers, but actually includes measures that most likely will expedite the extinction of anadramous fish to the Snake River Basin. While the agencies have made recommendation for the PA, the DEIS itself actually supports that the restoration of a free flowing, restored Snake River (which includes breach of the four Lower Snake River dams), as the only alternative that would lead to population increase sufficient enough to recover salmonids and steelhead to the required 4% average Smolt-to-adult (SAR) rate required to recover these species to sustainable adundance	Based on the analysis in the CRSO EIS, the Preferred Alternative will make a substantial contribution to improving Snake River anadromous fish runs, but broad-sense recovery goals are beyond the scope of this EIS, which focuses on the effects associated with the operation and maintenance of the 14 CRS projects. The co-lead agencies used high-quality information in the analysis of the CRSO EIS. Specific to salmon and steelhead, the agencies used two primary modeling approaches which yielded a range of potential outcomes for the alternatives. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult return (SAR) rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% (within the Northwest Power and Conservation Council (Council) recovery targets for the region) as a result of the Preferred Alternative. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets most other EIS objectives including those for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS, the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams, because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. It should be noted that the 4% average SAR target referenced refers to the Councils target for broad-sense recovery and is separate and distinct from the obligations of any single entity or in this case a requirement to be met solely by the co-lead agencies. Just as the Councils fish and wildlife program encompasses both Federal and non-Federal stakeholders in the Columbia Basin, the Councils recovery goals are shared by many parties.
6344	3	Nicholas Nelson	Idaho Rivers United	Further troubling is the documents clear bias and failure to objectively address issues like socioeconomics of a restored river economy, positive impacts to Southern Resident orca populations, water temperature, impacts on a changing climate, and a new Pacific Northwest energy portfolio; most likely because the only alternative that would have been acceptable would be MO3. Recommendation Regarding the CRSO-DEIS Alternatives The best available scientific evidence, when fully and objectively evaluated, shows that the CRSO-DEIS Alternative 3 (MO3) combined with 125% Total Dissolved Gas (TDG) spill at the lower Columbia River dams should be the preferred alternative to bring Snake River salmon and steelhead back to a sustainable, healthy population, and offers alternatives to address other Columbia River System functions. 3 The DEIS fails to provide the history necessary to understand the effects of the alternatives presented in the DEIS, the agencies biased analysis, a thorough analysis of the benefits of all alternatives, especially MO3, and was a rushed process, seeking to limit public participation and understanding.	The co-lead agencies recognize the desire to continue the conversation across the region about the future of salmon recovery, affordable and reliable clean electricity, tribal perspectives, and economic vitality for the many people who depend on the CRS for their way of life. The co-lead agencies will be active participants in regional discussions and solutions for mitigating the effects of the CRS and achieving broader recovery objectives. The Preferred Alternative for long-term system operations, maintenance and configuration of the CRS presented in the Draft EIS is based on todays conditions and environment. Its also important to note that technology is quickly changing, as is the regions dynamic environment and energy market, and the region needs to consider new information and adaptively manage resources. The co-lead agencies recognize that no matter which alternative in the CRSO Draft EIS is identified as the Preferred Alternative, the identification would likely draw criticism from some stakeholders or sovereigns. The region includes stakeholders, sovereigns, and other interested parties with diverse and varied opinions on these very important topics, and many are strong in the belief that their perspective is the best path forward. It is important to keep in mind that factors, both human-caused and natural, that are outside the responsibility and control of the co-lead Federal agencies also contribute to the decline and recovery of fish, and will continue to strongly influence fish and their habitat. Salmon and steelhead have been adversely affected in the Columbia River Basin over the last century by many activities including human population growth, urbanization, introduction of exotic species, overfishing, development of cities and other land uses in the floodplains, water diversions for all purposes, dams, mining, farming, ranching, logging, hatchery production, predation, ocean conditions, and loss of habitat. Operation, configuration and maintenance of the Columbia River System requires mitigation for its effects, and the EIS is not intended or required to serve as an overall salmon recovery plan for the region. All of the human-caused impacts that have contributed to the decline of fish, and how the region should properly and effectively address those impacts, should be part of the continued regional discussion. The co-lead agencies look forward to participating in that discussion. The EIS analysis found only a minor effect to the Southern Resident killer whale would result from implementing MO3 (which includes the dam breach measure). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differentially from hatchery and wild fish. Hatchery fish today likely make up most fish consumed by SRKW (NOAA BiOp 2020). With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% (the lower end of Northwest Power and Conservation Council's recovery targets for the region) as a result of the Preferred Alternative, as a result of the Preferred Alternative increasing SAR from 2.0% to 2.7% for Chinook, a 35% relative increase. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. To address uncertainty highlighted by the two models, the Preferred Alternative includes working with regional sovereigns to develop a study that assess the effectiveness of the increased spill regime on adult returns as well as assessment and management of adverse unintended consequences, such as long delays of adult migrants, or TDG-related mortality of juvenile migrants. The Preferred Alternative will require a robust monitoring plan for salmon and steelhead to help narrow the uncertainty between the biological models and will help determine how effective increased spill can be in increasing salmon and steelhead returns to the Columbia Basin. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information. The co-lead agencies disagree, however, that an alternative that includes breaching the four lower Snake River dams and spring spill operations to 125% TDG at all four lower Columbia River dams is reasonable given the unacceptable risks to public safety from such an alternative. For Power and Transmission, MO3 and MO4, individually each caused large loss-of-load probability (LOLP) results (e.g. increased incidence of blackouts). Without major addition of new resources, MO3 would result in power shortages in about one in seven years. MO4 would produce power shortages in about one in every four years. If MO4 were implemented, in addition to breaching the four lower Snake River projects as called for in MO3, then the LOLP would be even higher, with power shortages potentially occurring almost every year. Additionally, if these MOs were combined, in 5% of the years, the power shortages would average close to 1,000 MW in early August when the region might be experiencing a heatwave with particularly high demand for air conditioning. 1,000 aMW is about the average amount of power consumed by Seattle City Light. As shown in Section 3.7, MO3 causes an increase in power reliability concerns in the winter and the summer. MO4 increases power reliability concerns in the summer. Thus, the combination has the largest impact during the summer. The cost of zero-carbon replacement resources for MO3 and MO4 individually are up to $1 billion/year. Resource replacements and associated transmission interconnections for the combination of MO3 and MO4 would be higher, though not likely as high as the sum of the two MOs individually. Assuming that the replacement resources consist largely of wind, solar, and batteries, this would require well over 50 square miles of solar power (more than two and a half times the size of Crater Lake), large areas of new wind generation, and unprecedented amounts of batteries (more batteries in the Northwest alone than the total projection of batteries expected in the entire US by 2023 per the Energy Information Administration). In addition, the reduced generation capability under MO3, particularly throughout the summer, in combination with the impacts of the measures in MO4, and the uncertainty about the characteristics of replacement resources, would result in less capability to provide voltage support and dynamic stability for transmission system reliability than under MO3 or MO4 individually. Thus, combining MO4 with breaching the four lower Snake River projects, would produce unreasonable power and transmission reliability impacts, and it is highly speculative that replacement resources could be sited, permitted and built to address these impacts. This potential alternative has not been evaluated for direct, indirect and cumulative effects to other resources. Thus, an alternative combining juvenile fish passage spill up to 125% and breaching the four lower Snake River dams is unreasonable, and thus was not proposed as an alternative. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two

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					of the objectives), and also meets most of all the other objectives of the study for resident fish, lamprey, hydropower generation, water management, and water supply and greenhouse gas emissions. It minimizing adverse impacts to communities and the economy. The Preferred Alternative is likely to satisfy multiple complex and at times conflicting legal requirements for a complex system.
6344	4	Nicholas Nelson	Idaho Rivers United	The agencies repeated refusal to extend a comment period, first on the condition that 45 days is inadequate to evaluate a more than 5,000-page technical document, and additionally after evaluating the extraordinary circumstances of a national pandemic and the inability of the public to engage in this issue, a fundamental right in the NEPA process, prove the agencies refusal to be arbitrary and capricious.	See response to Comment 6344-1.
6344	5	Nicholas Nelson	Idaho Rivers United	Early History Once numbering in the tens of millions of fish, major changes have affected life cycle survival and recruitment of Columbia River Chinook Salmon, especially, Snake River strains, in the last 70 years. The Snake River Basin historically comprised almost half the Columbia River Basin Chinook salmon; returns consisting of 10 - 15 million adult fish annually. Large hydroelectric dams were built, starting with 4 on the Columbia River migration corridor, and by 1975, 4 more in the Lower Snake River. (Raymond 1988; ISG 1999; Budy et al. 2002). Declines in Snake River life cycle survival, productivity, and SARs coincident with each new dam are well documented (Raymond 1988; Petrosky et al. 2001; Wilson 2003; Schaller et al. 2014). Moreover, the agency did this despite advance notice that the dams would decimate the regions abundant salmon. The problem of passing migratory fish over dams on the lower Snake River was discussed with representatives of the U.S. Fish and Wildlife Service, State of Washington Department of Fisheries, Fish Commission of Oregon, Oregon State Game Commission, and the State of Idaho Department of Fish and Game, according to a 1947 Corps report on the dams. The consensus of opinion of these agencies was that any series of dams on the lower Snake River would be hazardous and might entirely eliminate the runs of migratory fish in that stream (Special Report on Selection of Sites, Lower Snake River: Oregon, Idaho and Washington, U.S. Army Corps of Engineers, March 1947)." 4 The primary purpose of these dams was the creation of a seaport at Lewiston, Idaho, but also included hydroelectric power and water for irrigation on adjacent lands. Unfortunately, the dams and accompanying reservoirs, particularly the cumulative effect from the 4 Lower Snake River dams have led to a collapse in anadromous salmon and steelhead, and many are near the brink of extinction (Nemeth, D.K. and R.B. Kiefer. 1999. Snake River spring and summer Chinook salmon-The choice for recovery. Fisheries 24(10):16-23). These fish were iconic to Idaho long before the dams were even a consideration.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species as that is a broader goal with shared responsibility. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species as that is a broader goal with shared responsibility. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the Columbia River System. That determination however is ultimately the role of NMFS and the USFWS. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets most other EIS objectives including those for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS, the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams, because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system.
6344	6	Nicholas Nelson	Idaho Rivers United	The native Lemhi-Shoshone Indians called themselves Agaidika, meaning salmon eaters. Redfish Lake in the Sawtooth Mountains of Idaho won its name from the glow 20,000 shimmering sockeye salmon created when they returned each fall to the waters of their birth. The serpentine Salmon River, with its famous whitewater rapids, was not named coincidentally. The Snake River once supported millions of salmon, a silvery horde ascending to their natal streams. Tribes living along the Snake and its tributaries partook of this abundance, and because of the bounty were among the wealthiest Native Americans in the region. For the Nez Perce Tribe salmon were a way of life. The tribe depended on salmon for sustenance, and its nomadic patterns followed the cycles of salmon returns. The Nez Perce creation story features salmon, which offered themselves to feed the people. Nez Perce Leroy Seth explains the importance of this keystone species to his people in the book, Salmon and His People: Fish & Fishing in Nez Perce Culture. The salmon are one of our best teachers, he said. We learn from them that we have to do certain things by the seasons. We watch the salmon as smolts going to the ocean and observe them returning home. We see the many obstacles that they have to overcome. We see them fulfill the circle of life, just as we must do. More than 150 years ago, in 1855, the Nez Perce Tribe signed a treaty with the United States. In it the Nez Perce retained total fishing rights on all streams and rivers within the boundaries of the original 13.4-million-acre reservation that extended outward to all usual and accustomed places, including the lower Snake and Columbia rivers. But as with other promises the United 5 States made to tribes throughout the country, the treaty stood in the way of progress, and salmon fishing opportunities in the usual and accustomed places have been all but eliminated. This story isnt only about the Nez Perce. The Columbia and Snake river fisheries supported all of the nearby tribes, many of which hold treaty rights that have not been upheld.	Thank you for your comment. The co-lead agencies appreciate your sharing the beautiful and symbiotic relationship many Tribal members have had with salmon and other fish. Analysis shows that the Preferred Alternative would meet the objectives for improving juvenile salmon, adult salmon, resident fish and lamprey. The analysis found ranges in potential effects due to different assumptions included in each of the fish models used in the study. Using the Comparative Survival Study (CSS), Snake River Chinook salmon and steelhead are expected to see relative improvements in smolt-to-adult returns of 35 percent and 28 percent, respectively. The Smolt-to-Adult return ratio (SAR) is the rate at which of a group of fish survive from their smolt life stage to a defined ending point where they return as adult. While achieving long-term recovery targets will require more than just the efforts of Federal agencies, the CSS models indicate the potential for SARs of Snake River Chinook salmon and steelhead to increase to levels that could approach recovery targets set by the Northwest Power and Conservation Council. If latent mortality effects are reduced by passing more juvenile fish through the spillway, the NMFS Lifecycle Model (LCM) also shows that levels of SARs would increase. However, if latent mortality effects are not reduced, or are different than modeled, the LCM predicts that SARs for Snake River spring Chinook salmon may be lower than the No Action Alternative (a range of -7.5 percent to +28 percent change relative to the No Action Alternative) due to reduced opportunities for fish transportation. Results for upper Columbia River stocks are beneficial based on LCM estimates. In-river survival and SARs are anticipated to increase. The CSS model does not currently model upper Columbia fish. The Preferred Alternative also has measures intended to increase upstream passage success and reduce injury and mortality for Pacific lamprey. These measures are proposed structural improvements that include converting extended-length submersible bar screen material to screen material that would not impinge or entangle juvenile lamprey, expanding the network of lamprey passage structures to bypass impediments in fish ladders, changing the design for turbine cooling water strainers, and replacing turbines for safer fish passage. The Preferred Alternative would also meet the objective to improve resident fish. Effects to resident fish vary by region and species, but are generally minor relative to the No Action Alternative.
6344	7	Nicholas Nelson	Idaho Rivers United	Contemporary History With steadily declining runs, Snake River salmon and steelhead runs were listed as threatened or endangered under the Endangered Species Act (ESA). For the past 30 years, numerous mitigation efforts have been tried including fish hatcheries, natal habitat enhancements, barging, predator control, and fish-passage improvements. This CRSO-DEIS proposes more of the same, despite evidence that these have never worked to even curb the decline. Continuing in this vein will undoubtedly cause us to witness the extinction of Idaho salmon and steelhead. The sequence of ESA listing for Snake River anadromous fish is as follows: Snake River Sockeye, November 1991; Snake River fall Chinook and combined spring/summer Chinook, April 1992; Snake River Basin steelhead, August 1997 Recently, in 2017 only 250 pairs of wild Middle Fork Salmon River Chinook returned to Idaho, habitat that is considered some of the best and least disturbed of anywhere in the world. The 2019 returns of adult fish were near record lows for steelhead, sockeye, and Chinook salmon. These iconic and ecologically important strains are at immediate risk of extinction. In response to the ESA listings, recovery plans have been created, agencies have issued and reissued biological opinions (each of which have been found inadequate in federal court), and despite all efforts to recover salmon, we havent even been able to curb their decline, and now survival rates for these species are approaching extinction levels. Population trends of returning wild fish estimates have been masked, especially recently, by the increasing number of returning hatchery produced fish. Hatchery fish were intended as a 6 temporary mitigation measure for producing harvestable fish due to anticipated losses from the construction of the dams and reservoirs. Hatchery fish have also been shown to be less productive, lack much of the empirical benefits of wild fish, and can actually have adverse impacts to the genomics of wild fish populations (Christie et al. 2011).	Based on our analysis, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Modeled predictions of the Preferred Alternative show potential to improve juvenile survival immediately with improved adult returns accruing as those juveniles return after several years in the ocean. These actions are expected to reduce the risk of extinction as estimated by NMFS in their modeling if latent mortality effects are reduced. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% (within the Northwest Power and Conservation Council's recovery targets for the region) as a result of the Preferred Alternative. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The comment incorrectly implies that hatchery fish are not relevant to the Draft EIS. However, hatchery origin fish are very important to Tribal and sport harvest within the Columbia River Basin, and many hatchery programs are important supplementation to rebuilding natural populations. Hatchery programs are included in the No Action Alternative and would be expected to continue under alternatives MO1, MO2, and MO4, and certain hatcheries would continue under MO3. No new hatchery programs are considered as mitigation under any alternatives, but MO3 does include increased hatchery production due to short-term impacts from breaching the four lower Snake River dams. Under this alternative, hatchery programs would continue as proposed under the No Action Alternative, and a number of other mitigation hatcheries that are legally required would continue as well, but no new hatchery programs are proposed.
6344	8	Nicholas Nelson	Idaho Rivers United	Comments on ESA Listed Wild Salmon and Steelhead It is scientifically well established that the Columbia-Snake River hydrosystem of dams and reservoirs has had significant negative effects on regional salmon and steelhead populations. The Plan for Analyzing and Testing Hypotheses (PATH) was a regional analytical group created by court-driven processes. It analyzed salmon stock declines in a retrospective analysis surrounding the 2000 Biological Opinion (BiOp). The group observed that the construction of the four upper dams on the Lower Snake River was most likely responsible for greater decline in upstream (Snake River) stocks compared to downstream stocks (ODFW 2000). While not the sole source of salmonid mortality, the completion of the current hydrosystem in the 1970s certainly has been the primary cause of the last half-decade of population declines. The profound mainstem riverine habitat degradation caused by the hydrosystem pushed stocks of salmon and steelhead, and Snake River populations in particular, to dangerously low levels of abundance. Populations throughout the basin decreased to near-extirpation levels and were listed under the Endangered Species Act (ESA) as a result.	In its analysis of effects, the Draft EIS used current high quality data and best science, including models and studies published in peer reviewed science journals. Specific to salmon and steelhead, the agencies used two primary modeling approaches which yielded a range of potential outcomes for the alternatives. With respect to the Preferred Alternative, the CSS model predicts that average Smolt to Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% as a result of the Preferred Alternative. The Draft EIS did not utilize the PATH model, which is nearly 20 years old and does not take into account current operations. It is, therefore, not current high quality data. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets most other EIS objectives including those for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS, the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams, because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system.
6344	9	Nicholas Nelson	Idaho Rivers United	In the 20-plus years since salmonid stocks were listed, the federal action agencies have created a series of management plans that are required to consider salmonid recovery as it relates to hydrosystem management. The management plans have repeatedly taken the same approach of recovering listed salmonids; described by Judge Michael Simon in his remand of the 2014 BiOp as, ...hydro-mitigation efforts that minimize the effect of hydropower generation operations with a predominant focus on habitat restoration. () (NWF v. NMFS 2016). And, repeatedly, this approach has failed and been ruled legally inadequate while costing billions of dollars in the process. The federal hydrosystem or Columbia River System (CRS) cries out for a major overhaul in the words of Judge Malcolm Marsh in the 1990s.() (NWF v. NMFS 2016). NOAA itself has in 7 the past come to the conclusion that aggressive actions like breaching the Lower Snake River dams are the most effective means of ensuring Snake River salmonid survival and population recovery. In his 2016 Opinion and Order on the 2014 BiOp, Judge Michael Simon expressed hope when he ordered a new EIS for the hydrosystem. He envisioned a comprehensive EIS process that could encourage innovative, inclusive solutions and break through status quo actions that have kept salmon and steelhead populations on the precipice of extinction. The Columbia River System Operations (CRSO) DEIS unfortunately does none of that and only continues a long-cycle of biologically and legally inadequate hydrostem mitigation measures that shirk responsibility for salmonid declines	The co-Lead agencies are required to evaluate a reasonable range of alternatives in the EIS. However, when there are potentially a very large number of alternatives, only a reasonable number of examples, covering the full spectrum of alternatives, must be analyzed and compared in the EIS. Alternatives for this EIS were developed from measures identified during public scoping, regional forums with scientists and technical experts from cooperating agencies, and expert opinion from within the co-lead agencies and in the literature. These alternatives represent a reasonable range of alternatives for the maintenance and operation of the CRS. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA listed species as that is a broader goal with shared responsibility. Based on our analysis of the fish resources section of Chapter 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets most other EIS objectives including those for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS, the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams, because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system.
6344	10	Nicholas Nelson	Idaho Rivers United	This section of the comments revolves around the biological inadequacy of the Preferred Alternative selected by the action agencies. Numerous biological response metrics were modeled in the DEIS by both the Fish Passage Centers Comparative Survival Study (CSS) model and National Oceanic and Atmospheric Administrations (NOAA) Life Cycle Model (LCM). These models demonstrate that the benefits of the actions described under the Preferred Alternative (PA) are only marginally better than current hydrosystem operations under the No Action Alternative (NAA). Across all biological response metrics, the dam breaching alternative MO3 shows significant benefits to salmonids relative to the NAA. The selected PA and the biological assessment (BA) repeat troubling conclusions concerning salmonid recovery found in prior federal reports. These past reports have consistently failed to meet the requirements of the ESA and were ruled illegal in court.	The co-lead agencies understand and acknowledge that model estimates for the alternative that includes dam breaching showed the greatest predicted potential Smolt-to-Adult returns (SARs) for Snake River salmon and steelhead among the alternatives, as well as other effects to species in both the upper and lower Columbia River. The purpose of the analysis in the EIS is not limited to evaluating effects of ESA-listed salmon and steelhead. The CRSO EIS analysis provides analysis of multiple objectives and resources of the CRS water supply, hydropower generation, fish and wildlife conservation (including a variety of other species than salmon and steelhead), navigation, cultural resources, recreation and other environmental and socioeconomic resources. In addition, the EIS seeks to identify a Preferred Alternative that achieves a reasonable balance of multiple river resource needs and co-lead agency mission requirements. To that end, the EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets most other EIS objectives including those for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS, the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams, because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system.
6344	11	Nicholas Nelson	Idaho Rivers United	Congress has provided substantive policy direction regarding how the federal action agencies manage the hydrosystem, particularly in relation to salmon and steelhead populations that have been inordinately burdened by habitat and life-cycle modifications from the system of dams and reservoirs. A description of these guiding laws in particular is useful because it illustrates how far the DEIS has strayed from them in its analysis of salmonid recovery measures. One such policy directive is the ESA. Section 7 of the Act requires that the federal action agencies consult with the National	Chapter 8 discusses how the co-lead agencies complied with various law, including the ESA and Northwest Power Act. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species.

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				Marine Fisheries Service (NMFS) and U.S. Fish and Wildlife Service (USFWS) to conserve species listed under the ESA. As described in the ESA itself, Section 7 requires the relevant agencies to, …insure that any action authorized, funded, or carried out by such agency…is not likely to jeopardize the continued existence of any endangered species or 8 threatened species or result in the destruction or adverse modification of habitat. () 16 U.S.C. 1536(a)(2). The biological assessment found in Appendix V of the DEIS has established the framework from which the consulted agencies will create a new BiOp in coordination with the EIS process. The BA creates a framework that will make ESA compliance under the ensuing BiOp difficult. A second policy directive comes from the Northwest Power and Conservation Council (NPCC) established under the Pacific Northwest Electric Power Planning and Conservation Act. The Act provides guidance for managing the hydrosystem in an equitable fashion for fish and wildlife. As the DEIS states, the action agencies also consider in their decision making the NPCCs Fish and Wildlife Program and Mainstem Amendments to the fullest extent possible. ().	Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the Columbia River System. That call, however, is ultimately the role of NMFS and the USFWS. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. Finally, the NMFS and USFWS Biological Opinions demonstrate that CRS operations, maintenance and configuration do not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat. With regard to the comments about the policies and mandates of the Northwest Power Act, the final EIS has been edited to provide more detailed discussion of those mandates and how the Agencies comply with them. See Chapter 5.1.2.
6344	12	Nicholas Nelson	Idaho Rivers United	Concerns The PA does not provide actions that will recover ESA-listed salmon and steelhead, or ensure that their existence is not jeopardized. The BA ignored the fact that the CRS hydrosystem continues to be the primary limiting factor for Snake River salmon and steelhead recovery. The PA instead focuses on ancillary effects like tributary habitat and predation as limiting factors for recovery. The BA also chose to focus on segmented life stage survival, rather than readily available SAR information. It also does not illustrate the current very low current abundance and SARs of Snake River salmonid populations, across all Evolutionarily Significant Units (ESU) and Distinct Population Segments (DPS). In the face of rapidly warming climate that has begun to negatively affect salmon life stages, the failure of the PA to recommend strong recovery actions will jeopardize the already weak stocks of Snake River salmonids. As the 2016 Court Opinion and Order pointed out, NOAA Fisheries own Consultation Handbook recognizes that the longer a species remains at low population levels, the greater the probability of extinction from chance events, inbreeding depression, or additional environmental disturbance. () (NOAA Fisheries).	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the CRS. That call, however, is ultimately the role of NMFS and the USFWS. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. The Preferred Alternative is nevertheless predicted to benefit salmon and steelhead. It also meets the other objectives of the study for resident fish, hydropower, water management, and water supply, while minimizing adverse impacts to communities and the economy.
6344	13	Nicholas Nelson	Idaho Rivers United	Recommendations 1) The NPCCs established goal of 2-6% SAR with a 4% average for Snake River and Upper Columbia River salmonid stocks should be adopted in this DEIS. 9 Snake River stocks of salmonids enjoy access to hundreds of miles of pristine wilderness streams for spawning and rearing. A large amount of this interior habitat found in Idaho is also projected to be resilient to riverine temperature increases due to climate change in the future and is often termed climate refugia. This habitat contributed to Snake River spring/summer Chinook stocks that once accounted for 40% of all Chinook returns throughout the entire Columbia Basin. Yet, these stocks are some of the most threatened in the entire basin. SARs less than 1% have been correlated to population declines in Snake River stocks, with population growth not occurring until SARs reach 2% across all Snake River ESUs and DPSs. () (Mamorek et al., 1998). Spring/summer Chinook SARs average below 1% and steelhead SARs are just above the 1% mark. These SAR trends are all the more concerning when current abundance levels of these stocks are taken into account. Snake River spring/summer Chinook have a recent ten-year average of just 17,600 fish over Lower Granite dam. Healthy and harvestable escapement goals established in the Columbia Basin Partnership (CBP) Task Forces Phase 1 Report call for 127,000 wild Chinook returning to spawning grounds. Similarly, Snake River steelhead average just 30,800 to Lower Granite dam, while the CBP healthy and harvestable goal is 105,000. Snake River sockeye have barely warded off extinction for decades and average only 100 wild fish to spawning grounds, while CBP goals call for 9,000 sockeye annually returning to the Stanley Basin lakes. () (CBP Task Force, 2019). Far from overly idealistic goals, the CBP modeled these benchmarks in many cases off of abundance levels from the 1950s and 1960s before the hydrosystems completion. In order to achieve healthy and harvestable numbers the NPCC SAR goals must be met and a 4% SAR average especially must be met. Including tangible SAR goals in the DEIS would help action agencies evaluate the effectiveness of each alternative and how each will realistically protect vulnerable salmonid stocks.	The EIS is being developed to update the operations, maintenance, and configuration of the 14 dam operated as the CRS. Each of these dams has multiple authorized purposes that much be met, including fish and wildlife. Several of the objectives were to improve conditions for fish. However, is it not a salmon recovery plan. Recovery is a broader regional goal and is above and beyond the co-lead agencies' obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the Columbia River System. That call, however, is ultimately the role of NMFS and the USFWS. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. It should be noted that the 4% average SAR target referenced refers to the Northwest Power and Conservation Councils target for broad-sense recovery and is separate and distinct from the obligations of any single entity or in this case a requirement to be met solely by the co-lead agencies. Just as the Councils fish and wildlife program encompasses both federal and non-federal stakeholders in the Columbia Basin, the Councils recovery goals are shared by many parties. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult return rates would increase for both Snake River spring Chinook and steelhead and will average above 2% (the lower end of the Northwest Power and Conservation Councils recovery targets for the region) as a result of the Preferred Alternative increasing SAR from 2.0% to 2.7% for Chinook, a 35% relative increase. The co-lead agencies disagree with the comment that notes a SAR of 2% will only maintain a population. A SAR rate of 2% can lead to significant population growth given adequate productivity and habitat quality. The COMPASS and NMFS Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. In compliance with ESA, the co-lead agencies submitted a biological assessment to NMFS and USFWS (Appendix V). In this Final EIS, the Biological Opinions from NMFS and USFWS can be found in Appendix V, completing this projects ESA consultation.
6344	14	Nicholas Nelson	Idaho Rivers United	1a) The action agencies should analyze the probability of SAR benchmarks being achieved through the selected PA and other alternatives. The 2019 CSS report included the probability of each CRS DEIS alternative meeting SAR benchmarks in the future. It concluded that only the dam breaching alternative MO3 consistently predicted spring/summer Chinook and steelhead would meet the 4% SAR goal and also had a 10 lower end of predicted SAR range that was above 1%. Meanwhile, the PA resulted in only marginally better SARs than the NAA. For both of the aforementioned species, the PA did not meet the 4% SAR target, nor did it successfully prevent the lower range of the species SARs from dipping below 1%. The action agencies should include this analysis in the DEIS in order to better illustrate the risk of further decline and extinction that the PA places on salmon and steelhead stocks. Finally, non-federal alternative MO34, that was only analyzed in the 2019 CSS, includes Lower Snake River dam breaching as well as 125% TDG spill at the lower Columbia dams. This alternative saw the greatest increases in SARs relative to the NAA and consistently met recovery targets as well as safeguarded Snake River salmonid stocks from further decline across all river conditions.	The co-lead agencies used current high quality information and the best available science in the analysis of the CRSO EIS. Specific to salmon and steelhead, the agencies used two primary modeling approaches which yielded a range of potential outcomes for the alternatives. With respect to the Preferred Alternative, the CSS model predicts that average Smolt to Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% (within the NPCC recovery targets for the region) as a result of the preferred alternative. The COMPASS and NMFS Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. It should be noted that the 2-6% SAR target referenced in this comment refers to the Northwest Power and Conservation Councils target for broad-sense recovery and is separate and distinct from the obligations of any single entity or in this case a requirement to be met solely by the co-lead agencies. Just as the Councils fish and wildlife program encompasses both federal and non-federal stakeholders in the Columbia Basin, the Councils recovery goals are shared by many parties. Based on our analysis of the preferred alternative, we feel our actions will make a substantial contribution, but the Councils broad sense recovery goals are beyond the scope of this EIS which only contemplates the effects associated with the operation and maintenance of the 14 CRS projects. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA listed species as that is a broader goal with shared responsibility. Based on our analysis of the fish resources section of Chapter 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the Columbia River System. That call however is ultimately the role of NMFS and the USFWS. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species.
6344	15	Nicholas Nelson	Idaho Rivers United	2) The action agencies should utilize SAR metrics that measure the full effects of the CRS on salmonid life-cycle survival into their analysis. SARs are reported from the modeled effects of each alternative as well as the preferred alternative. CSS modelling in the DEIS demonstrates a 170% increase in SAR from the NAA for Snake River spring/summer Chinook and 178% SAR increase for Snake River steelhead in the event of dam breaching under alternative MO3. However, there is no further discussion as to the benefits or meaning of these SAR increases in relation to salmonid population status. SARs under the PA are CSS-modeled to increase from the NAA 35% and 28% for Snake River spring/summer Chinook and steelhead, respectively. In both MO3 and the PA, SARs increase, yet the DEIS does not discuss the significance of the differences between each alternative. Further, the biological assessment portion of the report focuses on individual life stage survival and includes no mention of the relationship SARs have to these metrics. SARs, when measured from the uppermost dam, are important in their ability to parse out the large effects of the hydrosystem in particular on salmonid life-cycle survival both during mainstem migration and in subsequent life stages. In choosing not to thoroughly incorporate SAR metrics into their analysis, the nature of the action agencies analysis changes in several ways.	The co-lead agencies did utilize SAR metrics in the Draft EIS analysis. Both CSS and the NOAA Life Cycle models predicted SARs from Lower Granite Dam to Bonneville. Further, to provide additional interpretation on the meaning of SAR differences, the Draft EIS presents changes in abundance for select populations (see Chapters 3 and 7). Different models predict different long-term survival benefits to ESA-listed species from dam breach, benefits that can contribute to recovery. Under the NOAA COMPASS model, juvenile Snake River Spring/Summer Chinook in-river survival would improve by 9.6% due to dam breach, which is a 19% relative increase over the No Action Alternative. The NOAA Life Cycle Model predicts an increase in adult returns of 13.6% for these same fish under MO3 (no latent mortality assumed) relative to the No Action Alternative (from 0.88% to 1%). Results for Snake River steelhead are similar (10% absolute improvement, or 23% relative juvenile survival increase - smolt-to-adult returns (SARs) for steelhead were not modeled). Under the CSS model, juvenile in-river survival for the Snake River Spring/Summer Chinook is predicted to improve by 10.4% due to dam breach, which is an 18% relative increase over the No Action Alternative, while SARs would increase by 115% (from 2% to 4.2% 0.02 to 0.042). The CSS model predicts that Snake River steelhead would see juvenile survival increase by 25.8% which is a 46% relative increase over the No Action Alternative. The CSS model also predicts that SAR increase by 177% (from 1.8% to 5%). Though differing in predictions, both modeling groups predict dam breaching is the best CRSO EIS alternative for meeting salmon and steelhead objectives. One simply predicts adult return increases an order of magnitude higher than the other.
6344	16	Nicholas Nelson	Idaho Rivers United	2a) The action agencies should include in the DEIS both historical as well as lower river - upper river SAR comparisons for Snake River salmonid stocks, as observed in CSS annual reports. 11 Firstly, the impact the CRS hydrosystem has had on salmonid stocks is minimalized in the report. However, when comparing SARs historically and geographically across the CRS system, important differences are illuminated. SARs for Snake River salmonids in the 1960s, when four mainstem Columbia dams were in place, averaged 4.3% for spring/summer Chinook and 7.2% for steelhead. () (FPC, 2019). Currently, with 8 dams on the mainstem Columbia-Snake system Snake River, near term SAR averages are 0.8% for spring summer Chinook and 1.5% for steelhead.() (FPC, 2019). The relationship between the number of dams and SARs plays out not only temporally, but also spatially. Middle Columbbia stocks of salmon and steelhead from the John Day and Yakima rivers share the same lower river conditions, ocean conditions, and predation pressures as upriver Snake River stocks. SARs for these Middle Columbia stocks, which must migrate through 3-4 dams, are much higher than those for Snake River stocks. They are well within the 2-6% SAR range deemed necessary for recovery and hit the 4% SAR target for rebuilding healthy and harvestable populations often. () (FPC, 2019).	The co-lead agencies used current high quality information and the best available science in the analysis of the CRSO EIS. Specific to salmon and steelhead, the agencies used two primary modeling approaches which yielded a range of potential outcomes for the alternatives. With respect to the preferred alternative, the CSS model predicts that average Smolt to Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% (within the NPCC recovery targets for the region) as a result of the preferred alternative. SAR values reflect the methods used for estimation, and this should be taken into account when comparing estimates against the Council's regional SAR objectives for recovery. The Council did not prescribe a specific method of SAR calculation. SARs reported by hatcheries using coded wire tags often incorporate a harvest correction factor for ocean, recreational and tribal harvest. Due to the different approaches of the models, including the length of the historical survival time series, use of different hatchery and natural origin populations, and other factors, the two models estimated substantially different SARs under the No Action Alternative for Snake River spring Chinook: 0.88% from the Compass model, assuming no latent mortality, and 2.0% SAR from the CSS lifecycle model, which is at the low end of the Council targeted range for recovery. Regarding your suggestion to compare lower river to upper river SARs, the co-lead agencies have used caution when comparing SARs between different populations and ESUs and river basins as it is extremely challenging to find two populations that are suitable references for each other. The ISAB has noted those challenges in using that line of reference specifically related to comparisons of John Day populations to Snake River populations (ISAB 2020-1).
6344	17	Nicholas Nelson	Idaho Rivers United	2b) The action agencies should prioritize the reporting of SAR metrics over individual life stage survival. This will help reduce uncertainty concerning the outsized, latent mortality effects the hydrosystem has on salmonids throughout their riverine and marine life stages. Secondly, the DEIS compartmentalizes survival metrics into past the concrete measurements at individual dams from forebay to tailrace for juvenile salmon as well as reach survivals between dams. The report relays individual response metrics such as water transit time (WTT) and powerhouse passages (PITPH), but fails to associate these metrics with the cumulative experience of salmonid hydrosystem migration. These measurements, when compartmentalized, fail to capture the relationship that these factors as well as delayed arrival times at the Columbia estuary have on salmonid fitness as they transition into subsequent ocean life stages. The CSS annual report synthesizes research in which the WTT and PITPH variables were associated with reductions not only in in-river survival, but also ocean survival and SAR survival. In other words, these variables strongly associate delayed or latent mortality effects of the hydrosystem with reduced SAR survival during the entirety of salmonid smolt to adult life stages. In the empirical statistical model used by the CSS, SAR survival metrics also implicitly capture all sources of mortality across the measured life stages. 12 A more thorough examination of SAR metrics as modeled by the CSS should alleviate concerns the action agencies have with the effects of higher total dissolved gas (TDG) levels, upstream adult passage success, smolt transportation efficacy, and uncertainty in the relationship between latent hydrosystem mortality and marine life stage salmonid survival. The comprehensive nature of SAR metrics capture the benefits that increased river flow brings to salmonid in-river migration compared to transportation. In the case of delayed or latent mortality, SAR metrics strongly associate the effects of hydrosystem experience with reduced estuary and ocean survival in salmonids.	SAR is an important metric, and a key one used throughout the Draft EIS. The co-lead agencies agree that it captures population level effects. However, a SAR estimate will exhibit variability of several orders of magnitude as it is influenced by a vast number of factors, many of which are interrelated. This makes SAR a very problematic metric for evaluations with great risks of masked effects, spurious correlations, exaggerated response relationship. On the contrary an estimate of survival though a spillway is much more straight forward to determine which presents better conditions for fish. However, it tells you little about cumulative population level effects. The metrics at all scales are important tools which is why the EIS used many metrics including SARs. Both the CSS and NMFS lifecycle models incorporate the variables noted in this comment such as total system travel time, arrival time to the estuary, ocean conditions etc. These interactions are incorporated into the results produced by the models for this EIS analysis. The Preferred Alternative will require a robust monitoring plan for salmon and steelhead to help narrow the uncertainty between the biological models and will help determine how effective increased spill can be in increasing salmon and steelhead returns to the Columbia Basin. The effectiveness of the spill program will be monitored and effects from other sources such as harvest, ocean mortality, and straying will also be accounted for to the extent possible. There are additional scientific uncertainties regarding mechanisms and magnitude of delayed mortality or carryover effects resulting from experiences migrating through the hydrosystem. Several studies using acoustic or active tags have monitored the survival of smolts through the estuary and coastal ocean below Bonneville Dam after barging vs. migrating in river (Eder et al. 2009, Dietrich et al. 2016, Rechisky et al. 2012), and following passage through eight dams vs. 3-4 dams (Rechiskyet al. 2013). While there were indications of effects of barging, there was little evidence for delayed survival effects of multiple dam passage in the one to three weeks following passage at Bonneville. This remains an active area of research. Eder, K., Thompson, D., Buchanan, R., Hublein, J., Groff, J., Dietrich, J., ... & Loge, F. J. (2009). Survival and travel times of in-river and transported yearling Chinook salmon in the lower Columbia River and estuary with investigation into causes of differential mortality. Final Report submitted to the USACE, Walla Walla District, Walla Walla, Washington. Dietrich, J., Eder, K., Thompson, D., Buchanan, R., Skalski, J., McMichael, G., ... & Loge, F. (2016). Survival and transit of in-river and transported yearling Chinook salmon in the lower Columbia River and estuary. Fisheries Research, 183, 435-446. Rechisky, E. L., Welch, D. W., Porter, A. D., Jacobs-Scott, M. C., & Winchell, P. M. (2013). Influence of multiple dam passage on survival of juvenile Chinook salmon in the Columbia River estuary and coastal ocean. Proceedings of the National Academy of Sciences, 110(17), 6883-6888.

Letter No.	Comment No.	Commenter Name/Email	Affiliation	Comment	Response[1/]
6344	18	Nicholas Nelson	Idaho Rivers United	Final Recommendation The action agencies should select a modified alternative MO3 that includes breaching of the four Lower Snake River dams as well as increasing spill at the lower four CRS dams to 125% TDG. The currently selected PA does not adequately safeguard Snake River salmon and steelhead from further decline and extinction, especially when the deleterious effects of climate warming are considered. The DEIS obfuscates sound science that relies on comprehensive SAR survival metrics and induces uncertainty into what actions are best for salmonid recovery. The resulting PA is little more than a temporary measure that will include minor improvements to salmonid survival. It is a research and monitoring activity on factors such as delayed mortality and life cycle survival that have already been comprehensively modeled and studied over the past several decades. As evidenced in reports such as the FPCs CSS as well as the Southern Resident Killer Whales & Columbia/Snake River Chinook: A Review of the Available Scientific Evidence whitepaper by concerned scientists, restoration of the Lower Snake River via dam breaching would provide the most long-term certainty for recovery. () (Bain et al., 2020). The CSS model predicts up to 4-times higher SARs and return abundances from current conditions if a modified alternative MO3 is carried out. 13	The co-lead agencies used current high quality information in the analysis of the CRSO EIS. Specific to salmon and steelhead, the agencies used two primary modeling approaches which yielded a range of potential outcomes for the alternatives. With respect to the Preferred Alternative, the CSS model predicts that average Smolt to Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% (within the Northwest Power and Conservation Council recovery targets for the region) as a result of the Preferred Alternative. The COMPASS and NMFS Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. The proposed operation in this comment was not proposed by the co-lead agencies or the cooperating agencies and was not analyzed as a multi-objective alternative in this EIS. However, MO3 and MO4, individually each caused large loss-of-load probability (LOLP) results (i.e., increased incidence of blackouts). Without major additional of new resources, MO3 would result in power shortages in about one in seven years. MO4 would produce power shortages in about one in every four years. If MO4 were implemented, in addition to breaching the four lower Snake River projects as called for in MO3, then the LOLP would be even higher, with power shortages potentially occurring almost every year. Additionally, if these MOs were combined, in 5 percent of the years, the power shortages would average close to 1,000 MW in early August when the region might be experiencing a heatwave with particularly high demand for air conditioning. 1,000 aMW is about the average amount of power consumed by Seattle City Light. As shown in Section 3.7, MO3 causes an increase in power reliability concerns in the winter and the summer. MO4 increases power reliability concerns in the summer. Thus, the combination has the largest impact during the summer. The cost of zero-carbon replacement resources for MO3 and MO4 individually are up to $1 billion a year. Resource replacements and associated transmission interconnections for the combination of MO3 and MO4 would be higher, though not likely as high as the sum of the two MOs individually. Assuming that the replacement resources consist largely of wind, solar, and batteries, this would require well over 50 square miles of solar power (more than two and a half times the size of Crater Lake), large areas of new wind generation, and unprecedented amounts of batteries (more batteries in the Northwest alone than the total projection of batteries expected in the entire US by 2023 per the Energy Information Administration). In addition, the reduced generation capability under MO3, particularly throughout the summer, in combination with the impacts of the measures in MO4 and the uncertainty about the characteristics of replacement resources, would result in less capability to provide voltage support and dynamic stability for transmission system reliability than under MO3 or MO4 individually. Thus, combining MO4 with breaching the four lower Snake River projects, would produce unreasonable power and transmission reliability impacts, and it is highly speculative that replacement resources could be sited, permitted and built to address these impacts in the foreseeable future.
6344	19	Nicholas Nelson	Idaho Rivers United	Comments on Power Generation and Transmission General Comments In the Power Generation and Transmission section of the DEIS, Bonneville Power Administration (BPA) puts forth a number of arguments that appear to support anything other than the status quo, or status quo with minor modifications, will greatly increase Pacific Northwest power prices and lead to the possibility of rolling blackouts throughout the region. Nothing could be further from the truth. At one time, BPA provided valuable benefits to its customers. In part, those benefits were tied to the decimation of Idahos wild salmon and steelhead populations and led to the listing of these species under the Endangered Species Act. Subsequent legal actions led to significant annual mitigation costs imposed upon BPA. Court ordered mitigation has driven up power costs to BPAs preferred customers to a point well above the regional open market prices. Meanwhile, BPA spent down nearly one billion dollars of cash reserves in an attempt to keep its rates competitive while, at the same time, failing to recognize and respond to a rapidly changing energy picture in the northwest and across the country. This leaves BPAs customers, obligated by enforced contracts, paying excessive rates for power that others purchase from the open market at significant savings. Meanwhile, investor-owned renewable and carbon-free generation projects continue to be built across the northwest thus ensuring low-cost open market power that replaces obsolete coal generation that is being retired. Absent from this evolution is a debt-riddled Bonneville Power Administration. Finally, commenters are deeply disappointed that, during a NEPA comment period, BPA Senior Spokesperson Douglas Johnson sent the following email to several employees of the Seattle Times: From: Johnson,G Douglas (BPA) - DK-7 <gdjohnson@bpa.gov> Sent: Monday, March 30, 2020 3:08 PM 14 To: Rami Grunbaum <rgrunbaum@seattletimes.com>; Lynda Mapes <lmapes@seattletimes.com>; Hal Bernton <hbernton@seattletimes.com> Subject: BPA Finances and Snake Dam hydroelectric information Greetings, There are a number of facts and figures that are being misinterpreted during this important public comment period for the Columbia River Draft Environmental Impact Statement. Information correcting the record on those issues is included below. I hope you have had a chance to read the Executive Summary. You can find it at this link. 1) BPA sells power at a loss or BPA sells power for less than it costs to produce: BPA sells power to consumer-owned electric utilities PUDs, municipal utilities and utility cooperatives at a set wholesale price. If we have surplus electricity, we sell it on the spot market. Unfortunately, this market has been depressed for the past several years, which has negatively impacted BPAs secondary revenues. We rarely, get less money than it costs to produce. 2) The Snake River Dams account for 4% of the regions power. True but misleading. Not all of the utilities in the Northwest purchase power from those dams. The electricity generated by the Snake River Dams is consumed predominately by the consumerowned utilities listed above, many of which are in rural communities, and accounts for a little more than 10% of the electricity BPA sells to them. The cost of replacing the power from the dams would hit them in a disproportionate manner. Removing the Snake River Dams and replacing them with natural gas generation would increase the rates of PUDs, municipal electric utilities and electric cooperatives by 8.2 to 9.6%. If those dams were replaced by a combination of renewables, battery storage and other non-carbon measures, which may be more likely given current state renewable portfolio standards and other carbon legislative proposals, it is projected to increase those rates by 9.5 to 19.3%. See pages 25 and 26 of the CRSO draft EIS Executive Summary. 15 3) The Snake River Dams cannot produce 2,000 MW of Peaking Capacity: The lower Snake River projects provide more than 2,000 MW of sustained peaking capabilities during the winter, and a quarter of the federal power systems current reserves holding capability. The dams play an important role in maintaining reliability, and their flexibility and dispatchability are valuable components of the CRS see page 25 of the CRSO draft EIS Executive Summary. This is important because the Northwest is still a winter peaking region, meaning its highest consumption of electricity is during the winter not the summer. Between October 2009 and March 2018, there were 8,600 operational hours that the Lower Snake River Dams provided more than 2,000 MW of electricity. 4) BPA is becoming financially insolvent: By trimming $66 million of costs planned for the current two-year rate period, BPA held rates flat for the first time in more than a decade. Considering that between 2008 and 2018 BPA wholesale Power rates increased on average about 3.6% per year, this clearly demonstrates the financial discipline to bend the cost curve and provide low-cost, carbon-free hydropower to our public power utility customers across the Northwest. In addition, all three US credit ratings agencies consider BPA to have high, investment-grade credit. A major contributing factor to these ratings is our long-term contracts with our preference customers, the Public and Peoples Utility Districts, municipal electric utilities and electric cooperatives in the Pacific Northwest. 5) The Snake River Dams are expensive and near the end of their life: Major powertrain replacements for the Snake River Dam hydroelectric assets are not currently forecasted to occur within our 20-year system asset plan. Long-term planning analyses that calculate the optimal economic time to replace equipment based on current and expected equipment health, probability of failure and outage consequence, point to the late 2030s as the earliest replacement dates. In fact, most of the optimal replacement dates are spread between the 2040s and 2060s for the Lower Snake dams for turbine and generator replacements. The most recent work done at Ice Harbor includes an already installed improved fish passage turbine with another currently being installed and another on the way, which will further modernize and improve those hydroelectric components. 16 I hope you find this information helpful. If you have questions or need additional information, please contact me at 503-713-7658. Doug Johnson Senior Spokesperson, BPA	Bonneville provided clarifying information based on information included in the Draft CRSO EIS to correct inaccurate media reports. The clarifying information focused on how Bonneville collects revenue, the power characteristics of the four lower Snake river dams, and the impacts of breaching on Bonneville's customers. As discussed in Section 3.7.2.5, the spot market price is not directly comparable to Bonneville rates because Bonneville provides a high-quality power product that is backed by Federal Base System resources, which includes the Federal dams and the Columbia Generating Station. Bonneville firm power customers, thus, receive a power product that provides a reliable and stable supply of power at predictable prices set by Bonneville's statutory process. Spot market purchases, in contrast, are volatile, with supply not assured and pricing subject to market spikes. In regards to Bonneville's cash reserve declines, as discussed in the BP-18 rate proceeding, various factors have led to the decline in Bonneville's cash reserves. This includes declining loads, reduced market prices, an abundance of natural gas, and rising costs. Most of these factors are not unique to Bonneville, and are being felt by utilities both regionally and nationally. Bonneville has not ignored these pressures, but has taken a proactive action, such as developing both a strategic and finance plan. Those plans have guided Bonneville's recent competitive efforts, which include achieving a zero percent annual rate increase in BP-20 (before application of the Financial Reserve Surcharge). More recently, Bonneville's emphasis on financial management and controls also revealed an error in the method by which Bonneville accounted for its financial reserves between its business lines, resulting in the reallocation of over $180 million in financial reserves to the power business. With the continued focus on managing costs and building new opportunities for revenues, Bonneville expects to maintain its competitive position as the supplier of choice for its customers both in the near-term and long-term.
6344	20	Nicholas Nelson	Idaho Rivers United	The federal agencies, including BPA, spent four years and tens of millions of taxpayer dollars developing this DEIS. During the four years of development, BPA had every opportunity to address the above points during the drafting of the DEIS. Reaching out to the media in an effort to sway reporting while a comment period is open is inappropriate. While BPA will be able to respond to public comments during its review period, the public has no other opportunity in this process. In response to the email sent by Doug Johnson, Anthony Jones of Rocky Mountain Econometrics released a response to the five points outlined by Mr. Johnson. Mr. Joness are hereby included in the record and can be found in Attachment A.	Bonneville provided clarifying information based on information included in the draft CRSO EIS to correct inaccurate media reports. The clarifying information focused on how Bonneville collects revenue, the power characteristics of the four lower Snake river dams, and the impacts of breaching on Bonneville's customers.
6344	21	Nicholas Nelson	Idaho Rivers United	Specific Comments Page 3-790 Capacity and Generation the annual generation of the BPA hydrosystem is far less that the often-touted capacity of the system. The seasonal streamflows of the Snake and Columbia rivers are insufficient to allow generation anywhere near system capacity. According to Table 3-110 the generation capacity of the Dalles Dam is 2,052 megawatts (MW) yet the 80-year average (1929-2008) power generation is 823 average megawatts (aMW) or approximately 40% of capacity. For clarity, an average megawatt is the equivalent of generating one megawatt per hour, 24 hours per day times 365 days per year which comes out to 8,760 megawatt hours or 1 aMW. One troubling part of this analysis is the use of an 80-year data set. The same table states that, while the capacity of the four lower Snake dams is 3,483 MW, the combined generation is 1,100 aMW. Yet, the actual daily combined generation of these four dams from 20042019 (according to the ACOE Data Query site) was 963 aMW or, just 27.6% of capacity. The ACOE and BPA 17 consistently overstate the actual generation of the four lower Snake River dams in order to inflate their benefits. A month by month examination of the 16-year ACOE data set shows that, of the 963 aMW of generation at the four lower Snake River dams, 509 aMW was generated during the four months of springtime runoff when wholesale power values plummet due to a glut of energy. This leaves approximately 454 aMW to cover power demands over the remaining eight months of the year including the coldest and hottest months when the power is in highest demand. Examples include 34 aMW in August, 58 aMW in December, 74 aMW in January, and 81 aMW in February. Page 3-794 Generation Balancing Reserves, Dispatchable Resources, and Ramping Capability Industry special interests opposed to lower snake River dam breaching along with the ACOE and BPA claim that lower snake river dams uniquely provide valuable balancing reserves, spinning reserves, and ramping capability. This claim is overblown as all of the FCRPS dams have the capacity to provide those services. During the eight months outside of the spring runoff season, these dams have more inactive generators than active due to a lack of streamflow. Instead of operating a few generators at full load, more generators can be operated at partial load with the remaining capacity available to meet sudden changes in system operations. In 2018, a 129 MW modular Tesla battery	The comment is correct that hydroelectric projects typically generate less power on average than their nameplate capacity because the flow or water in the river varies. However, this operational characteristic is not unique to hydroelectric projects. Likewise, wind projects average generation is well below their nameplate capacity, mostly because the wind is not always strong enough for the turbine to generate at nameplate capacity. Solar projects, similarly, operate on average below their peak nameplate capacity. Even natural gas plants do not operate at full capacity year-round either; they typically reduce generation when demand is low such as at night, when there is a large supply of inexpensive power available on the spot market (often during spring runoff when hydropower has ample generation), and for maintenance. The use of a large data-set for hydropower planning studies is standard in the Northwest. The 80-year Modified Flows data set (https://www.bpa.gov/p/Power-Products/Historical-Streamflow-Data/streamflow/2010-Level-Modified-Streamflow.pdf) was developed by Bonneville, the Corps, and Reclamation with input from members of the Pacific Northwest Coordination Agreement (PNCA) and B.C. Hydro (other hydroelectric dam owners on the Columbia River System) as required by the PNCA and the Columbia River Treaty. Because river flows vary from year to year, a longer record provides a larger sampling of the range of flows that may be expected. Separately, the climate change analysis discussed in Appendices I and J and summarized in Chapter 4 Section 4.2.7, addresses the potential shift in the 80-year historical record with respect to how climate change may affect the conclusions of the EIS. The average generation modeled using an 80-year data set would differ from the generation in any given year or even the average of several years, as noted in the comment. The comment is correct that the four lower Snake River dams generation is typically highest in the spring, as is the case for most major hydroelectric projects in the region. The monthly shape of hydropower generation is included in hydropower modeling, such as the modeling used in the CRSO EIS. Please see Table 3-122 in Section 3.7.3.2 of the Draft EIS which shows the monthly shape for the No Action Alternative of the Columbia River System projects combined generation. Appendix J provides details of generation in the Exhibits. The four lower Snake River dams are not the only dams capable of supplying reserves and ramping capability. This responsibility must, in fact, be distributed over multiple dams to provide reliability through diversification and because any one project could rarely supply the total needed reserves. Indeed, as the comment suggests, turbines are generally operated not at full capacity but in-between their maximum and minimum limits so that generation may adjust to meet fluctuations in demand, to compensate for fluctuations in generation from variable resources, and to increase generation quickly in the event of a contingency. The EIS included battery storage as an option in the potential replacement resource portfolios and acknowledges that technology is evolving including batteries.

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				was installed in south Australia in order to provide firming capacity for large-scale wind generation and to provide grid stability. At that time, The Australian Prime Minister derided the project as being a Hollywood project. Within 100 days of the contract signing the project was installed and online. In its first year the project saved ratepayers over 40 million dollars. At the end of January 2020, the Australian Prime Minister was pleased to announce a 50% expansion of the project that was expected to be online by the end of March 2020. This is an example of a real-world solution that the preparers of this DEIS seem unable to grasp.	
6344	22	Nicholas Nelson	Idaho Rivers United	Page 3-801 Competitive Pressure on Bonnevilles Power Rates Drafters provide a fair narrative from lines 24545-24555 but quickly veer off the rails by claiming that the spot market price is not directly comparable to Bonnevilles rates because Bonneville provides a high-quality power product 18 At the end of the day, electricity is simply electrons flowing through wires. There is nothing special about BPA power in fact, BPA itself sells a portion of its generation on the spot market often at a loss. The real issue here is that BPA has priced its power out of the market and the only reason that BPA is not in a direr financial situation is the 136 firm power customers who are locked into long-term contracts that expire in 2028. BPA Administrator Elliott Mainzer has made it clear in the media that BPA will enforce these contracts in court should Tier-1 contract holders attempt to leave prior to 2028. These Tier-1 firm power customers are paying $35.62 per megawatt hour (MWh) while the MidColumbia open market is currently averaging in the $20.00 per MWh range. Drafters also assert that BPA power has more value because it is firmed by power from the Columbia Generating Station (at a cost of nearly $50.00 per MWh) the one lone nuclear power plant in the Pacific Northwest. Firm power is only important when demand approaches supply. The Pacific Northwest is awash in power as exhibited by the low rates on the open market. The assertion that BPAs firm power is a better product than open market power is unsupportable. At one time, BPA was selling in the neighborhood of 200 million dollars of surplus power every year to California utilities. With the rapid development of renewable generation in California, that market has dried-up and surplus energy from California now travels north to the Pacific Northwest. Captive ratepayers are not a good indicator of power values the open market is a much better indicator.	This comment is inconsistent with the findings of the Draft EIS. The evaluation framework fairly characterizes the challenges of meeting load and resource variability in an environment with increasing integration of renewable generation on the grid. While this comment is correct in noting declining market prices, it conflates the reason for declining prices (increasing renewable integration) with ample power supply, without acknowledging the ability of that power supply to meet instantaneous demands. The evaluation framework of this EIS, which starts with the loss of load probability (LOLP), assesses the need for replacement resources, even if there are times of the year the region has a surplus of power. The seasonality of the power supply is important. The region often has surplus power in the spring when the weather is mild and flows are high. The LOLP analysis of Multiple Objective 3 showed that the region would have an annual risk of power shortages of around 14 percent stemming from shortages in the winter and summer. See Appendix J, Hydropower, Section 4.1.2.4 in the Draft EIS. The commenter suggests that all power products are the same and that a firm power sale is equivalent to a spot market purchase. This view is contrary to the findings in the EIS analysis. Bonneville supplies firm power to its long-term power customers. Firm power sold under these contracts is continuously available at all times, excepting events of force majeure. See Section 3.7.2.5, Bonneville Power and Transmission Customers in the draft EIS. Bonneville's firm power sales meet a customers load. This is demand that the customer can place on Bonneville (consistent with its contract) regardless of market supply or price. Spot prices reflect the price of power at specific points for specific amounts of power (i.e., 100 MW sold at Mid-C). Typically, these prices do not reflect the price of matching a customers changing load. The price and supply of power on the spot market can change dramatically depending upon weather conditions, natural gas prices, transmission, and generation availability. Significant changes in any of these variables can lead to supply scarcity and price spikes. For example, in February and March 2019, a cold snap increased spot prices in some hours to over $100/MWh. That is over three times Bonneville's Priority Firm (PF) rate. (Day-ahead sales of Heavy-Load-Hour Energy, meaning daytime and evening hours, peaked at about $900.) Nonetheless, Bonneville's long-term power sales customers received Firm Power at the stable PF rate. The cost of Bonneville's power includes significant benefits that would not be included with a purchase of energy from the open market. Specifically, Bonneville's average wholesale rate includes the cost of providing Federal power benefits to utilities with higher average system costs (approximately $250 million annually), transmission costs associated with delivering Federal power to loads served in other balancing authority areas (approximately $100 million annually), energy efficiency programs and incentives (approximately $125 million annually), support to utilities with low densities (approximately $40 million annually), and support to utilities with eligible irrigation loads (approximately $20 million annually).
6344	23	Nicholas Nelson	Idaho Rivers United	Page 3-803, Table 3-111 This table shows that nearly 50% of the annual generation from the lower four Snake River dams is sold as surplus energy while only 20% of the annual generation of Grand Coulee is sold as surplus.	The comment incorrectly interprets Table 3-111 in the Draft EIS as indicating the amount of surplus power sold by the respective dams. Table 3-111, indicates each dams relative contribution to the supply of surplus when measured against average generation above the critical water year level of generation as defined by the Bonneville ratemaking process. See Appendix H, Section 4.1. The table does not represent the actual commitment of each dam to sales of surplus because Bonneville does not sell power from specific projects, but from the pooled system. Power from this pooled system would only be sold as surplus once all other firm obligations have been met. Some of the power represented as secondary under average water conditions may still be needed to serve firm load obligations within the year as Bonneville's load obligations often exceed critical water output in certain seasons, months, or hours. Any remaining generation may be sold to meet other regional load or through other contractual agreements to Bonneville customers, depending on who purchases the power on the wholesale power market. These sales are then treated as a credit to the revenue requirement reducing costs to Bonneville preference customers. See Section 4.1.3.1 of Appendix H in the Draft EIS for additional details on how Bonneville evaluates secondary sales and revenue.
6344	24	Nicholas Nelson	Idaho Rivers United	Page 3-805, Table 3-112 This table shows costs and generation amounts from fiscal year 2015 five-year-old data that gives commenters little confidence on its relevance in FY2020 and beyond. For example, the cost of the Lower Snake Compensation Plan should be charged to the dams that are actually killing Idahos fish.	The data in Table 3-112 in the Draft EIS was from a recent, close-to-average water year as reported in the 2016 White Book, BPAs annual assessment of loads and resources that was current at the time the EIS was initiated. In the final EIS, this table is updated with the average generation from 80 historical water years. The amount of generation produced varies year-to-year based on the water supply, therefore generation for studies like the EIS is modeled using a set of many water years. While the cost of the Lower Snake River Compensation Plan (LSRCP) indeed stems from the operations of the four lower Snake River dams, Bonneville sells power from the lower Snake River dams as part of the unified Federal system, and the LSRCP is repaid by the sale of power to all of Bonneville's preference customers under its long-term contracts (see also Section 3.19 and Appendix Q).
6344	25	Nicholas Nelson	Idaho Rivers United	Page 3-820 Potential Resource-Replacement Portfolios assuming that replacement generation will be needed in the future with the retirement of unaffordable coal generation, drafters of this 19 document go on ad nauseum about the impacts of building carbon emitting generation. All forms of carbon generation are becoming obsolete even relatively low-cost natural gas generation. Commenters argue that the evolution toward low-cost, carbon-free generation is already underway. In March of 2019, Idaho Power agreed to pay $21.75/MWh for 120 MW of solar power in a 20-year power purchase agreement with Jackpot Holdings. The solar facility will offset a soon-to-close coal plant in Nevada starting in 2022. In September of 2019 the Los Angeles Department of Water and Power signed a 25-year contract for 400MW of solar for just below $20.00 per MWh backed-up with 300 MW of battery storage that can deliver 1,200 MWh to the grid during nighttime hours for $13.00 per MWh. The combined price for this project is $33.00 per MWh $2.62 less that the current BPA Tier-1 price. Finally, in February 2020, Tesla and California utility Pacific Gas & Electric received approval to install a massive 1 GWh battery storage project at PG&Es Moss Landing facility on the central California coast. This project is expected to be up and running by the end of 2020. The examples above show that cost effective, carbon-free generation and storage projects are a reality and quick to bring online.	Consistent with the comment, the EIS examined a conventional least-cost portfolio (natural gas) as a potential replacement for lost power generation, but stated that the region is not likely to construct new fossil-fuel based generation. The conventional least-cost portfolio serves as a lower-bound to the expected cost of replacement resources. See Section 3.7.3.1, Base Methodology, pages 3-820-21 in the draft EIS. The EIS acknowledges that the energy sector is constantly undergoing transformation and that technological improvements will likely bring other options. Given recent policy trends toward de-carbonization, the EIS considers a "zero-carbon" renewable resources portfolio. To avoid speculation for this renewable portfolio, the EIS analysis focuses on primary technologies identified by the Northwest Power and Conservation Council in its 7th Power Plan (7th Power Plan page 13-5) that are deemed proven, commercially available, and deployable on a large enough scale in the Northwest. See draft EIS, Section 3.7.3.1, Step 3: Determine Need for Potential Replacement Resources and Associated Costs, page 3-821 and Appendix H, Power and Transmission at Section 2.2. Storage technologies are considered a long-term resource of the 7th Power Plan, but have become more commercially available since the release of the 7th Power Plan. Storage is considered in the EIS and will likely now be considered a primary resource in the Councils 8th Power Plan. The EIS used resource costs from the 7th Power Plan and Mid-term updates, with the exception of batteries. To further address concerns about potential reductions in resource costs, consistent with the comment, publicly released draft information, such as updated prices for solar and battery storage, from development of the 8th Power Plan is included as rate sensitivities in the final EIS.
6344	26	Nicholas Nelson	Idaho Rivers United	Page 3-845 Effects on Power System Reliability In the narrative for the No Action Alternative and the other Multiple Objective Alternatives much is written about the possible effects of coal generation being retired including the specter of rolling blackouts in the region in two out of every three years. The reality is, coal generation is no longer price competitive and, like other unaffordable forms of power generation, will fade from the market while being replaced with other more affordable forms of power generation. This DEIS failed to do a full and transparent evaluation of all possible solutions and instead pivoted to the construction of high-cost natural gas and/or nuclear generation as the only solution for the retirement of coal generation. This kind of backward thinking will only exacerbate the dismal financial situation that BPA finds itself in.	Consistent with the comment, the EIS acknowledges that economics and regional policy are rapidly changing the energy landscape and affecting the viability of coal power generation, as seen through anticipated coal power plant retirements. However, despite the decreasing cost-effectiveness of these power plants, they are baseload power plants and removing them from the regional power system reduces system reliability. The EIS examined a range of potential renewable power generation resources to replace future retired coal power plants. The EIS did not evaluate natural gas or nuclear generation as replacements for the coal plants, contrary to the comment. See Section 3.7.3.1, Base Methodology, at page 3-820-21; and Appendix H, Section 2.3 Sensitivity of LOLP to Assumptions about Coal Capacity in the Draft EIS.
6344	27	Nicholas Nelson	Idaho Rivers United	Conclusions Throughout the Power and Transmission section of the DEIS the claim is often repeated that the four lower Snake River dams generate an average of 1,100 aMW per year while the actual records from 2004 through 2019 show the annual average to be 963aMW. The difference of 137aMW has a value that ranges from just over 24 million dollars at $20.00 per MWh (open market average) to nearly 43 million dollars at the current preferred rate of $35.62 per MWh. Given that the DEIS states that nearly 50% of the power generated by the lower four snake river dams is sold at surplus, commenters are confident in stating that the DEIS improperly overstated the power generation benefits of the lower Snake river dams by approximately 33.5 million dollars annually. The DEIS fails to account for the full cost of generating hydropower especially at the four lower Snake River dams. This has been an ongoing issue with the ACOE and BPA for many years. Commenters believe that an independent financial audit of the hydropower income and expenses should be conducted for each of the 14 dams identified in this DEIS.	The comment suggests that variability in hydropower generation and recent lower generation than historical averages leads to overstating power generation, and thus, the benefits of this generation, specifically at the four lower Snake River dams. Given this variability of hydropower generation the EIS uses 80 historical years of data to determine the average output of the Columbia River System hydropower projects. This robust analysis represents the full range of historical water years and hydropower generation and represents the highest quality information, not exclusively the most recent available data suggested in the comment. The profile of hydropower generation is described further in Appendix J and Appendix I. The 1,100 MW figure cited in the Draft EIS for Multiple Objective 3 (MO3) includes not only the loss in generation from the four lower Snake River dams, but also reduced generation from other measures in MO3, notably additional water withdrawals for irrigation, and increased juvenile fish passage spill at the lower Columbia River dams. The average generation from the four lower Snake River projects is about 1,000 aMW. Finally, the average annual value of the four lower Snake River dams for hydropower exceeds the average annual equivalent costs. The generation value at the four lower Snake River dams can be described by a range between the cost to replace the generation through new conventional resources or through a portfolio of zero-carbon resources. Although the costs of replacing the power with market purchases was analyzed, it is unlikely that short-term wholesale power markets could reliably replace the power for the long term. This range would put the annual value of power between $240 million and $500 million for the four dams combined. These numbers represent about 90 percent of the lost benefits cited in Table 3-171 of the Draft EIS because the four dams represent about 1,000 aMW of the 1,100 aMW of lost generation estimated in MO3. The average annual cost to operate and maintain all authorized purposes at the four lower Snake River dams is $75 million (Appendix Q, Table 5-1) and the annual-equivalent capital costs are $32 million (Appendix Q, Table 4-1). Hydropower costs funded by Bonneville represent about $50 million of the total annual operations and maintenance costs and nearly all of the annual capital costs, approximately $31 million. This puts the annual-equivalent power-specific costs at approximately $81 million a year. As a result, the net benefits from hydropower for the four lower Snake River dams are between $159 million and $419 million and the benefit-cost ratios are between 3.0 and 6.2. If the $34 million per year for the Lower Snake River Compensation Plan is added to the capital and expense costs, benefits still exceed costs under each replacement power scenario. Considering these costs, the net benefits range from $125 million to $385 million and the benefit-cost ratios range from 2.1 to 4.3. In the less-likely scenario that generation could be reliably replaced with short-term wholesale market purchases and assuming that the four dams represent 90% of the $150 million in market purchases required to replace the lost generation cited in MO3 (see Table 3-170), the lower bound for net benefits would fall to $54 million and the benefit-cost ratio would fall to 1.7. With the Lower Snake River Compensation Plan included, the lower bound for annual net benefits becomes $20 million and the benefit-cost ratio becomes 1.2. From a resource competitiveness perspective, the four lower Snake River dams are among the least costly generating resources in the Federal Columbia River Power System (FCRPS) and the planned investment strategy is expected to maintain that status. As shown in the Federal Hydropower presentation at the 2018 Integrated Program Review1/, the Headwater/Lower Snake Asset Class/2 is forecast to have a 50-year levelized cost of generation/3 of $11.41/MWh based on the direct funded capital and expense (O&M) programs outlined in that process. These costs remain competitive with volatile Mid-Columbia spot market energy prices, which averaged $37/MWh in 2019 and have averaged $21/MWh in 2020. 1/ The Integrated Program Review (IPR) allows interested parties to see and comment on all relevant Federal Columbia River Power System (FCRPS) capital and expense (O&M) spending level estimates in the same forum. The IPR occurs every two years, or just prior to each rate case, and is the public review for the costs that will be recovered through rates the following two-year rate period. Long-term forecasts for the next 50 years and major upcoming projects are also shared in this forum. This information is available here: https://www.bpa.gov/Finance/FinancialPublicProcesses/IPR/2018IPR/IPR%202018%20Fed%20Hydro%20Workshop.pdf and is incorporated by reference into this EIS. 2/ In the 2018 Integrated Program Review, the Headwater/Lower Snake Asset Class consisted of the four lower Snake River dams, Hungry Horse, Libby, and Dworshak dams. These projects were grouped together because they have similar cost characteristics. The Levelized Cost of Generation for the four lower Snake projects alone is slightly lower than that for the whole class including the headwater projects shown in the table. 3/ Levelized Cost of Generation is defined as the forecasted direct costs and administrative overheads of producing power at a plant annualized over a 50-year period. This cost includes direct funded operations, maintenance, administrative and capital costs as well as Columbia River Fish Mitigation (CRFM) costs. Bonneville system-wide mitigation costs, such as its Fish and Wildlife program, are not included in this metric.
6344	28	Nicholas Nelson	Idaho Rivers United	Comments on Transportation General Comments According to ACOE lock data, freight volume on the lower Snake River has been in decline for the past 20 years, a decline of approximately 60% from its peak in 1998 (from 9 million ton miles to just under 3 million ton miles). Of the 14 ACOE administered U.S. Inland Waterways, the lower Snake ranks dead last in freight volume. By contrast, the Columbia River ranks eighth at 2.1 billion ton miles. Leading the list is the Mississippi River at nearly 160 billion ton miles. The primary factor in the drop of navigation on the lower Snake River is market driven. Farmers and co-ops have been moving from barge to rail transportation due to economic and logistical reasons. The construction of four railroad unit loader facilities on the Palouse provides the efficient loading of 110 car grain trains that then can ship to a variety of destinations instead of the single barge alternative that terminates in Portland OR.	Access to barge transportation is the most cost effective means of accessing export markets for many grain producers in the Northwest currently and removing that option will increase transportation costs for grain producers, as the EIS shows. It is true that barge movements on the Snake/Columbia river have declined somewhat over the past 20 years, but the decline has stabilized over the past 10 years. That decline is mostly attributed to investments in shuttle rail terminals. The EIS utilizes the most recent 10-year average as a basis for its forecast volume of freight that would transit on the lower Snake River. While it is true that the Snake River freight volume is certainly smaller than the volume of the Mississippi and Ohio River systems, it is nonetheless an important transportation option for a large volume of freight, particularly for farm products, with the Columbia-Snake River system serving as one of the largest exporters of farm products in the U.S., and the largest exporter of wheat. The co-lead agencies' analysis finds that transportation of freight that is currently barged on the lower Snake River could be accomplished via other transportation modes, but this change would not be without costs to farmers, would require public and private investment in infrastructure, and would result in some adverse regional economic effects, particularly in the short term.
6344	29	Nicholas Nelson	Idaho Rivers United	Specific comments i) Page 3-1059, Line 31728 - Commenters disagree with the blanket assertion that barges are the most fuel efficient means of transportation. While both rail and barge are much more efficient that trucks, not all waterways are the same. River flows and weather conditions affect the efficiency of barging whereas the small frontal cross section of rail makes it less susceptible to the high winds associated with the Columbia and	On a ton-mile basis, on the river, barges are consistently more efficient than other transportation modes. The FEIS states that truck transportation can emit nearly 10 times more CO2 per ton-mile than inland barges, citing Kruse, Warner, and Olson 2017 in section 3.10 and referring to Section 3.8, Air Quality and 32426 Greenhouse Gas Emissions for additional details. As such, reductions in navigation service that result in transportation of goods via land-based modes are assumed to generally

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				Snake rivers and rail doesnt have to contend with river currents. The DEIS cites no studies conducted on the differences between the efficiencies of rail and barging on the Columbia and Snake rivers.	result in increased air pollutant emissions. It is true that longer truck movement can be necessary to access the waterways than rail movements, hence movements by truck-barge can require more energy than rail-only movements in some cases. The analysis done for MO3 analyzed the cost difference of moving grain without the lower Snake River dams. The cost to move grain from their origin to the lower Columbia River ports for export was more expensive without the barging option.
6344	30	Nicholas Nelson	Idaho Rivers United	ii) Page 3-1060 - The narrative on the possible return of container shipping returning to the lower Snake river is speculation.	The paragraph cited by the commenter does not state that container shipping will return to the lower Snake River; it states that container shipping is returning to the Port of Portland and recognizes that this option is possible.
6344	31	Nicholas Nelson	Idaho Rivers United	iii) Page 3-1061, Line 31790 - The DEIS states that However,within the past four years, total downriver shipments have somewhat rebounded. and then goes on to cite an increase of .1 million ton miles between 2015 and 2018. This is simply cherry-picking data to put a positive spin on the 20-year decline of barge shipping.	Access to barge transportation is the most cost effective means of accessing export markets for the many grain producers in the Pacific Northwest currently and removing that option will increase transportation costs for grain producers, as the EIS shows. It is true however, that barge movements on the Snake/Columbia river have declined over the past 20 years, but it also appears that the decline has stabilized over the past 10 years. The text of the EIS has been updated to remove the "rebounded" characterization and to describe how downriver shipment volumes have stabilized in recent years.
6344	32	Nicholas Nelson	Idaho Rivers United	iv) Page 3-1061, Fuel and Other Petroleum Products - This section is confusing and makes conflicting statements. The take-home message is that the great majority of upstream fuel and petroleum shipments terminate near Pasco WA and there is infrequent transport upstream on the lower Snake River above Ice Harbor Dam.	The commenter is correct. This was unclear in some instances in the Draft EIS, and has been corrected and clarified in Section 3.10 and Appendix L in the Final EIS.
6344	33	Nicholas Nelson	Idaho Rivers United	iv) Page 3-1061, Oversized Objects - This entire section should be removed. In 2017 a permanent settlement was signed by the U.S. Forest Service, the Nez Perce Tribe, and Idaho Rivers United. This agreement blocks the transport of what are commonly called mega-loads across U.S. highway 12 within the Nez Perce - Clearwater National Forest.	A clarification has been added to the section that describes oversized loads in Section 3.10.3.5 to address this settlement.
6344	34	Nicholas Nelson	Idaho Rivers United	v) Page 3-1117, Line 33025 - This section is intentionally misleading. Virtually all upbound fuel and petroleum products terminate on the McNary pool a short distance above the confluence of the Columbia and Snake rivers. This location is below Ice Harbor Dam and breaching would have little to no effect on those deliveries. While the fuel depot is located on the Snake River a short distance upstream from the confluence with the Columbia River, it may be technically 22 correct to state that Fuel comprises 27 percent of the overall tonnage on the lower Snake River. It is dishonest to imply that the fuel then moves upstream through the lower Snake River dams.	The commenter is correct that this was unclear in some instances in the Draft EIS, but was not intentionally misleading. This has been corrected and clarified in Section 3.10 and Appendix L in the Final EIS.
6344	35	Nicholas Nelson	Idaho Rivers United	vi) Page 3-1117, Line 33037 - The transportation modeling is flawed as it assumes that lower Snake River dam breaching would preclude the use of existing shipping facilities and that cargo would be shifted to trucks. Again, this is a flimsy attempt to prop-up the continuation of the status quo. All of the grain loading operations located on the lower Snake River are adjacent to rail lines and could be converted to loading rail cars instead of barges. Indeed, the Port of Wilma added a rail spur for just that purpose. Equally flawed are the assumptions that, without barging, the railroads may raise rates from 20% to 50% - once again fear mongering on the part of the DEIS. There are plenty of avenues to deal with predatory pricing without the American taxpayer on the hook to maintain a navigation system to serve as a price control mechanism. If the barging and agricultural community believes that the navigation system is so valuable, they should assume the entire cost of operating and maintaining the system. Finally, missing from this analysis are the possible benefits of being able to move products to markets that are unavailable to barging customers.	It is difficult to know exactly what decisions would be made by public and private entities regarding transportation infrastructure investment under a dam-breach scenario. Research completed for the EIS, including input from local shipping operators, indicated that certain elevator-to-river port movements via short-line rail are not currently available. Shippers would need to operate on part of Union Pacific's rail line, and WATCO's operating agreement with Union Pacific does not allow for these movements. This assumption is maintained for the MO3 alternative; however, it is true that if under a dam breach scenario movements on short lines rails were allowed, it would somewhat reduce the anticipated shipping cost increases. A statement has been added to the EIS in section 3.10.3.5 to describe this effect, along with additional discussion in Appendix L on how the assumptions surrounding transportation infrastructure and movements effect shipping costs.
6344	36	Nicholas Nelson	Idaho Rivers United	vii) Page 3-1131, Commercial Cruise line Operations - The benefits of the cruise line operations to the local and regional communities are overstated. The operators are national or international companies and much of their revenue leaves the area. Additionally, cruise ship passengers sleep and dine aboard ship and their time in port is limited - as is the amount of money they spend locally. As Clarkston WA is the terminus of the operation, departing passengers are transported to the airport in Spokane WA and new passengers are then transported back to Clarkston to begin their cruise downstream to Portland OR. While commenters recognize that there are some local benefits from the cruise industry, we believe that those benefits are less than the DEIS assumes.	Cruise ship visitation is characterized in Section 3.10 Navigation. Section 3.10.3.5 describes the contribution of cruise ships as providing demand for approximately 230 jobs in the region, which would include employment in the industry itself as well as increased demand for services at ports of call. The EIS does not claim that business closures would result from changes in the navigation channel access under MO3. The commenter is correct that some of the costs of each trip taken by cruise ship passengers would accrue as revenues to national companies, but the calculated regional economic effects are associated with daily passenger expenditures on their expeditions rather than on ticket prices.
6344	37	Nicholas Nelson	Idaho Rivers United	Conclusion The DEIS narrative on transportation greatly exaggerates the benefits and downplays the negatives of maintaining the status quo on the lower Snake River from Lewiston ID to its 23 confluence with the Columbia River at Pasco WA. Meanwhile, the American taxpayers are subsidizing the expense of these dams and the navigation system at an ever increasing rate as the system continues to age.	The EIS evaluated beneficial and adverse effects across an array of resource areas including potential effects at the national, regional and local level; effects are monetized and quantified, where possible, and also described qualitatively. As is common in NEPA analyses, the beneficial and adverse effects of the alternatives are expressed as a variety of qualitative and quantitative environmental and economic metrics throughout the EIS to inform decision-making. The EIS does not employ a cost-benefit framework for decision-making. Instead, the EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations.
6344	38	Nicholas Nelson	Idaho Rivers United	Comments on Recreation Free-flowing rivers are not just lifelines for fish, wildlife and people. They are havens for a wide range of recreational pursuits: fishing, bird watching, hiking, hunting, rafting, camping and jet boating. Whats more, these activities translate directly into economic activity for riverside communities and businesses. In the years before the lower Snake River was stilled by dams, people congregated on its beaches, fished from riverbanks, and camped and hunted in the river bottom. They rafted more than 50 rapids that once surged at up to 180,000 cubic feet per second through the remote, arid canyon--rapids with names like Log Cabin, Little Pine Tree and Haunted House. When all four dams on the lower Snake River were completed in 1975, all the free-flowing, river-related recreational benefits were gone and replaced with big, silent reservoirs with sterile shorelines. What was once a canyon where people floated, hiked, camped and hunted was transformed into a deserted place where few ever bother to go. What was once a booming recreation economy in towns like Lewiston, Clarkston, Riggins, Salmon and Stanley was transformed into a taxpayer-subsidized system of dams and locks of littleand decreasing interest even to the farmers who use it. In the final draft of its 2002 study on breaching the four lower Snake River dams, the U.S. Army Corps of Engineers assigned to a dam breaching scenario a net recreation benefit of $71 million per year. This grossly understated estimate lower than the Corps own contractors determined was called into question even as the study was published. Still even this gross misrepresentation was minor when compared to the complete ignorance the agencies gave this economy in the current DEIS. As noted in a December 2000 Washington Post series examining corrupt benefit-cost analyses performed by the Corps, the very economists hired for the study had actually estimated 24 recreation benefits would range from $82 million to $509 million a year, with a midpoint of $196 million per year. In 2006, the Outdoor Industry Association published the first comprehensive valuation of outdoor recreation in the U.S. According to its estimate, this sector of the economy is worth $646 billion annually. Western States disproportional share of the total is $256 billion annually, generating $31 billion in taxes and directly employing 2.3 million people. Other regional and local analyses have followed. The National Park Service estimates nonmotorized boating in the Grand Canyon generates $83 million annually and nearly 600 jobs. In 2007 according to the Colorado guides and packers association, river rafting in that state was worth $153 million. In the same year, fishing, jet boating, kayaking and rafting on the remote, 34-mile wilderness segment of the Rogue River in Oregon was worth $30 million. None of these numbers cited above consider the enormous economic impact a restored salmon and steelhead fishery would have on the Snake River and communities upstream in Idaho and eastern Oregon. In 2001, the Idaho Department of Fish and Game calculated the direct spending benefit of its constituents who bought salmon and steelhead tags in a rare year of decent salmon returns to the state: $46 million, with $10 million of that in the rural riverside town of Riggins alone. Other studies place the figures higher still. An April 2003 study by Boise-based Ben Johnson Associates, Inc. places direct and indirect angler spending in Idaho during the 2001 fishing season at $89.9 million. The same economic think tank did a follow-up report11 in 2005 to estimate the potential economic impact of restored salmon and steelhead runs throughout Idaho and determined direct and indirect angler spending could generate $544 million annually. By contrast, the 1999 Corps report valued general recreation on a free-flowing Snake at a paltry $5.9 million to $31 million. Improved fishing, both in the Snake and its hundreds of miles of wilderness tributaries, was to be worth a maximum of $4.5 million. In 2015, Tacoma, Washington-based Earth Economics conducted a review12 of the 2002 Lower Snake River Juvenile Salmon Migration Feasibility Report / Environmental Impact Statement 25 (Section 13-49 through 13-81 of the Economic Appendix I - Recreational Benefits of Breaching the Four Lower Snake River Dams). The conclusion of the Earth Economics review was that a free-flowing lower Snake River would have an annual recreational value of $1.537 billion. The fact that this DEIS doesnt even provide an accounting for a recreation economy, even though they were able to provide accounting in previous DEIS and BiOps, is arbitrary and capricious, and further proves the inherent bias the agencies had in preparing their analysis and recommendations.	The EIS evaluated beneficial and adverse effects across an array of resource areas including potential effects at the national, regional and local level; effects are monetized and quantified, where possible, and also described qualitatively. As is common in NEPA analyses, the beneficial and adverse effects of the alternatives are expressed as a variety of qualitative and quantitative environmental and economic metrics throughout the EIS to inform decision-making, including the effects of the alternatives on fish as detailed in Section 3.5. That the effects of the alternatives on fish are not expressed as monetized economic values does not mean that they were not considered in the context of the analysis. The EIS does not employ a cost-benefit framework for decision-making. Instead, the EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as the dam breaching alternative. However, the Preferred Alternative also meets most of the other objectives of the study for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. The EIS provides an evaluation of the social welfare and regional economic effects of the No Action Alternative and the multi-objectives alternatives, including the effects on recreation (Section 3.11) and fisheries (Section 3.15). The EIS described the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. NMFS estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which is described qualitatively. The potential for changes in recreational fishing of anadromous fish under MO3 in the Region C is described in Section 3.11. Increases in recreational fishing could support jobs, income, and social benefits in Tribal and rural river communities. For the effects on recreational fishing under MO3 (Section 3.11.3.5) along the Lower Snake River below Lewiston, the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River) as an indicator for fishing visitation in this reach. The EIS describes that the visitation in the long-term in the lower Snake River, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting outfitting and tourism businesses in the region. However, there is uncertainty around recreational fishing visitation in the long-term given the current measures to regulate, protect, and support ESA-listed fish populations and habitat in the region. The contribution of Columbia River origin fish to ocean fisheries is described in Section 3.15.2.1. Because there is considerable uncertainty regarding the overall effects of the alternatives on regional fish populations, and how such changes may affect the management of the fisheries, the specific quantitative and monetized impacts associated with changes in commercial fisheries under the alternatives was limited. This analysis evaluates potential impacts on fisheries by referencing the potential effects on relevant fish populations, as described in Section 3.5. The types of activities and values assessed in the Earth Economics report are evaluated within the CRSO EIS. However, the framework and management scenarios described in the Earth Economics report are not directly comparable to the No Action and action Alternatives evaluated in the CRSO EIS.
6344	39	Nicholas Nelson	Idaho Rivers United	Comments on Climate Change It is indisputable that future climate conditions are expected to be warmer and more variable, and there is strong empirical evidence that ocean conditions will largely follow suit. However, the agencies failed to analyze whether any of the alternatives would benefit salmon in a changing, warming world. Again, this was not an egregious oversight or an area without enough data, but is purposefully omitted, because this would not support the Preferred Alternative. In fact, not only would it support MO3 (dam breaching) as the most effective alternative to create climate resilience, but would have also shown that the PA will be even more likely to lead to the extinction of anadromous fish in these scenarios. The agencies must analyze how the alternatives will perform in light of reasonable and available information about climate impacts over different periods of time. For example, the agencies analysis could include a minimal, moderate, and high warming scenario over a 30, 50, and 100 year period. This discussion should include an explanation of the effects on anadromous fish and other resources that is sufficiently detailed to allow a meaningful evaluation of the results of the alternatives in a climate change world. The agencies also must analyze the likelihood that each alternative will lead to recovery in a broad sense in the real world, i.e., in a warming world. Currently the agencies have only considered whether the alternatives will improve conditions for salmon against the baseline of the no action alternative without consideration of climate change and without acknowledging that the no	The technical and policy elements of this Draft EIS are in full compliance with binding USACE policy and guidance for qualitative assessment of climate threats and their plausible effects and impacts. The primary controlling policy and guidance are the USACE Climate Adaptation Policy Statement, signed by the Assistant Secretary of the Army for Civil Works in 2011, updated and signed again in 2013, and remains in force now; and USACE Engineering and Construction Bulletin 2018-14, "Guidance for Incorporating Climate Change Impacts to Inland Hydrology in Civil Works Studies, Designs, and Projects." The numerical-model simulated outputs were evaluated by multiple technical means (see record of the full USACE Agency Technical Review), and were tested using the set of analytical measures created by the USACE Climate Preparedness and Resilience program to ensure that sound science and engineering compliance with USACE climate change policy and guidance. Those analytical tests are described in ECB 2018-14 (listed just above) and in USACE Engineer Technical Letter 1100-2-3, "Guidance for Detection of Nonstationarities in Annual Maximum Discharges." The assessment of climate threats and impacts is qualitative only in the sense that the biological and other impacts models did not directly ingest the physical hydroclimatology outputs modeled for the assessment. Those hydroclimatology outputs are fully quantitative and so can be the basis for refined estimates of effects and impacts should those be required following this Draft EIS. The co-lead agencies agree that climate change may impact hydrology, water temperatures, flood risk management operations. That is why the agencies used the best available information, from on-going regional climate change studies and work, to investigate climate change impacts on CRS operations. The co-lead agencies evaluated potential shifts in precipitation and temperature patterns and resulting changes in unregulated Columbia Basin streamflow timing and volumes. The evaluation consisted of the full range of the latest climate change projections developed using multiple global climate models, emissions scenarios, downscaling techniques, and hydrologic models. Details of this evaluation are in Chapter 4 of the EIS. This information was used to describe the potential effects (both beneficial and adverse) on the river systems and resources due to potential changes in climate for all alternatives. Water resource management, through storage and regulation may be increasingly important. The climate science community is still developing quantitative models that can address possible effects in water temperature from climate change, and unfortunately, have not been fully applied and validated for use with

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				action alternative itself is illegal. and has failed to achieve significant population rebuilding or recovery for any species. Indeed, even with 26 twenty years of effort pursuing the approach of the no action alternative, salmon and steelhead populations remain at dangerously low levels.	climate affected regulated flow projections of large reservoir systems. This data is critical to analyzing potential effects to fish quantitatively. In lieu of this information, the climate analysis used the output from resource models, like water quality and fish, under historical conditions, available climate change data, and scientific literature to qualitative assess potential effects to resources (described in Chapter 4).
6344	40	Nicholas Nelson	Idaho Rivers United	If the agencies had incorporated the effects of climate into their analysis of the alternatives, it would have shown that the no action alternative, MO1, MO2 and the preferred alternative will be even more likely to lead to the rapid extinction of many runs. A minor improvement that merely slows the rate of a baseline of decline towards extinction cannot meet the various statutory requirements the agencies must meet. The Fish Passage Center analysis of SARs under each alternative does not incorporate climate, because it is based on the Comparative Survival Study (CSS) model that uses historical data. However, the model produces a range of likely SAR returns. Experts agree that it is reasonable to assume that SARs will be at the low end of the range predicted by the CSS model with the additional adverse effects of a warming world but because the DEIS does not present these probabilities at all or employ them in its analysis of effects their analysis lacks vital and relevant information.	The Draft EIS acknowledges and describes the temperature sensitivities of salmon and steelhead, as well as the many other factors that affect these fish. Water quality and hydrology modeling data were inputs into the fish survival models used to analyze the alternatives effects on salmon and steelhead, so temperature effects to survival have been incorporated into the overall analyses of each alternative. The climate science community is still developing models that can be used to analyze possible effects to water temperature from climate change, and unfortunately, there are not reliable models at the resolution (river-scale vs. global or regional) required at this time. Therefore it was not possible to reliably model water temperature changes under climate change for incorporation to either of the fish models. In lieu of this information, the climate analysis used the output from the water quality models under historical conditions, climate change data, and scientific literature to qualitatively assess potential effects to water temperature and anadromous fish in Section 4.2.3. As noted by the ISAB in their review of the CSS model results generated for this EIS (ISAB 2020-1), changing climate conditions should be carefully assessed when considering potential impacts to salmon and steelhead, but the co-lead agencies note the concerns raised by the ISAB regarding the CSS's quartile range analysis and the likelihood or probabilities of SARs falling below 1 percent.. The co-lead agencies will evaluate that analysis as it evolves but are not relying on the probability analysis at this time.
6344	41	Nicholas Nelson	Idaho Rivers United	If the agencies had incorporated the effects of climate into their analysis of the alternatives, it would have shown that the no action alternative, MO1, MO2 and the preferred alternative will be even more likely to lead to the rapid extinction of many runs. A minor improvement that merely slows the rate of a baseline of decline towards extinction cannot meet the various statutory requirements the agencies must meet. The Fish Passage Center analysis of SARs under each alternative does not incorporate climate, because it is based on the Comparative Survival Study (CSS) model that uses historical data. However, the model produces a range of likely SAR returns. Experts agree that it is reasonable to assume that SARs will be at the low end of the range predicted by the CSS model with the additional adverse effects of a warming world but because the DEIS does not present these probabilities at all or employ them in its analysis of effects their analysis lacks vital and relevant information.	The climate science community is still developing models that can be used to analyze possible effects to water temperature from climate change at the appropriate resolution (river-scale vs. regional- or global-scale) and, unfortunately, they have not been fully applied and validated for use with climate affected regulated flow projections of large reservoir systems. Therefore it was not possible to reliably model water temperature changes under climate change for incorporation to either of the fish models. In lieu of this information, the climate analysis used the output from the water quality models under historical conditions, climate change data, and scientific literature to qualitatively assess potential effects to water temperature and anadromous fish. These analyses are documented in Section 4.2.3 for the MO Alternatives and Section 7.8.4 for the Preferred Alternative. Overall, the Preferred Alternative is expected to result in benefits to anadromous salmon and steelhead. The analysis in Section 7.8.4 recognizes that some of the benefits to fish from the Preferred Alternative could be offset by the effects of climate change. As noted by the Independent Scientific Advisory Board (ISAB) in their review of the CSS model results generated for this EIS (ISAB 2020-1), changing climate conditions should be carefully assessed when considering potential impacts to salmon and steelhead, but the co-lead agencies note the concerns raised by the ISAB regarding the CSS's use of quartile range analysis and the likelihood or probabilities of SARs falling below 1 percent. The co-lead agencies would evaluate that analysis as it evolves, but are not relying on the probability analysis at this time.
6347	2	chrismurray92@gmail.com	N/A	In addition to the direct impact of the dams on the habitat of the salmon, we also need to look at the impact to the native tribes in the Pacific Northwest	The impact of the Columbia River System on Native American tribes and tribal culture is acknowledged in the Executive Summary and discussed at key points throughout the EIS, including Sections 3.16 and 3.17. For a full discussion on how tribal concerns and input were incorporated into the process, see Section 9.3, which describes this process in detail.
6355	1	y.demissie@wsu.edu	N/A	1) Continuing the study by involving both the proponent and opposing groups of the dams directly (or beyond providing suggestion at the early stage of the study and comments on the draft report) 2) Seeking for more independent scientific analysis and recommendations. The co-leading agencies have direct involvement in managing and operating the dams, making the current findings and the recommendations from the study questionable. The study layout an excellent foundation for more scientific inquiries and optimization of the system to meet the multiple objectives.	The co-lead agencies invited a number of entities (including Tribes, states, and agencies) from across the region to participate in the EIS process as cooperating agencies, and over 30 of those invited agreed to participate. Staff from the Cooperating Agencies joined the technical teams and provided their expertise and review of the development and analysis of the alternatives. Leaders from the co-lead agencies met with Tribal leaders for formal consultation, and with other organizations and stakeholders to have dialogue and receive feedback as the EIS progressed. However, only the co-lead agencies have authority to make decisions regarding future operation, maintenance and configuration of the dams in the CRS system. The co-lead agencies selected senior staff from across the country with expertise in their fields to serve on the EIS team. The co-lead agencies selected senior staff from across the country with expertise in their fields to serve on the EIS team. The draft EIS was subjected to two internal agency reviews by the Corps of Engineers experts not involved in the development of the document. Additionally, the entire document, analysis, and modeling were reviewed following an Independent External Peer Review (IEPR) process that meets OMB circular on peer review requirements under the "Information Quality Act" and the Final Information Quality Bulletin for Peer Review by the Office of Management and Budget (referred to as the "OMB Peer Review Bulletin). It also meets guidance for the implementation of both Sections 2034 and 2035 of the Water Resources Development Act (WRDA) of 2007 (Public Law (P.L.) 110-114) and standards of the National Academy of Sciences independent peer review. The final IEPR report will be publicly available. The co-lead agencies recognize the desire to continue the conversation across the region about the future of salmon recovery, affordable and reliable clean electricity, tribal perspectives, and economic vitality for the many people who depend on the CRS for their way of life. The co-lead agencies will be active participants in regional discussions on achieving broader recovery objectives. The Preferred Alternative for long-term system operations, maintenance and configuration of the CRS presented in the Draft EIS is based on todays conditions and environment. Its also important to note that technology is quickly changing, as is the regions dynamic environment and energy market, and the region needs to consider new information and adaptively manage resources.
6355	2	y.demissie@wsu.edu	N/A	3) Addressing the uncertainty and assumptions in the analysis. The report highlights the presence of various sources of uncertainties (e.g., model uncertainty, the future projection of climate, socioeconomic activities). Because of the uncertainty in simulating the latent mortality, the preferred alternative can be worse than the no-action alternative for the fishes. The uncertainty needs to be addressed and accounted for by using state-of-the-art stochastic modeling approaches so that the public will have better quantitative information on the various alternatives.	In terms of effects on salmon and steelhead, the CSS and NMFS COMPASS and Lifecycle models predict different outcomes, depending on assumptions used for decreased latent mortality. To address the uncertainty due to the different model results, the Preferred Alternative includes working with regional sovereigns to develop a study that assess the effectiveness of increased spill regime on adult returns as well as assessment and management of adverse unintended consequences, such as long delays of adult migrants, and TDG-related mortality of juvenile migrants. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information.
6364	1	ajvitale@cdatribe-nsn.gov	Coeur d'Alene Tribe	Prior to discussing the Tribe's concerns, the Tribe would like to express its disappointment in the government-to-government consultation conducted by your agencies in this matter. First, it was made clear to the Tribe that consultation would occur with the Tribe prior to release of the EIS despite the fact that the Tribe is not a cooperating agency. We were very clearly told that our status would not penalize us in the process. This was not the case.	Thank you for your comment. The co-lead agencies remain willing to discuss the EIS during government-to-government consultation prior to signing the Record of Decision.
6364	2	ajvitale@cdatribe-nsn.gov	Coeur d'Alene Tribe	Second, the Tribe requested an opportunity to meet with the agencies to discuss our proposal for a Supplement EIS (discussed below) in January 2019. A meeting to discuss this proposal did not occur until March 2020, more than a year after our initial request and after the release of the EIS. Both these actions send a powerful message about your agencies' intentions about consultation with the Tribe. Accordingly, the Tribe would like to request formal government-to-government consultation once your agencies have crafted changes to the EIS to discuss those changes, how your agencies have addressed the Tribe's concerns, and the process in finalizing the document.	Consultation with the Coeur d'Alene Tribe (CDA) concerning the CRSO EIS is important to the co-lead agencies. We apologize that the time schedule for release of the Preferred Alternative and the Administrative Draft EIS was negatively impacted due to the complexity of the document and the ongoing work with the co-lead agencies. We could not have the substantive consultation with the CDA until those documents were done. As such, we did accomplish a government-to-government consultation with CDA on March 10, 2020, as soon as those documents were finished. Additionally, the co-lead agencies have been engaging regularly with the nineteen impacted Tribes and will continue to do so. For a further description of Tribal engagement, please see the consultation and 3-tiered engagement process discussed in the Executive Summary and the Tribal Perspectives Section of 3.17 and discussion of Tribal consultation in Sections 1.5, 3.5, 3.15 and Chapter 9.
6364	3	ajvitale@cdatribe-nsn.gov	Coeur d'Alene Tribe	The Tribe also reiterates its earlier request that the comment period for the EIS be extended.	The co-lead agencies considered requests to extend the public comment period. This NEPA process included a wide array of cooperating agencies whose close involvement throughout the process allowed the co-lead agencies to incorporate feedback. Given the broad range of comments received and the extensive Federal and non-Federal participation in the overall process as well as the level of public engagement in the six virtual public meetings in the region, the co-lead agencies determined that an extension was not warranted and that the 45-day public comment period was adequate consistent with NEPA regulations. The CRSO EIS website notified the public on April 9, that they should plan to submit comments by the close of the comment period.
6364	4	ajvitale@cdatribe-nsn.gov	Coeur d'Alene Tribe	It should be noted that these comments and the previously submitted comments are submitted as part of the NEPA process and do not, in any way, replace or diminish the agencies' obligations to consult with the Tribe on a government-to-government basis or the agencies' trust obligations to protect tribal people and resources.	The co-lead agencies have stated vigorously throughout the CRSO process that impacted Tribes can request government to government consultation at any time. For a further description of Tribal engagement, please see the consultation and 3-tiered engagement process discussed in the Executive Summary and the Tribal Perspectives Section of 3.17 and discussion of Tribal consultation in Sections 1.5, 3.5, 3.15 and Chapter 9.
6364	5	ajvitale@cdatribe-nsn.gov	Coeur d'Alene Tribe	As discussed below, the Tribe is extremely disappointed that the agencies have failed to meet its NEPA and trust obligations to consider fish passage in the Upper Columbia (above Chief Joseph and Grand Coulee Dams) in the EIS. Over and over again, the Tribe and other tribes have requested that fish passage be considered. Despite this, the matter was brushed aside with nearly no mention in the EIS. As discussed below, NEPA requires a range of alternatives be developed to evaluate the myriad of impacts the CRSO have had on the environment. We appreciate that the agencies looked at alternatives that met multiple objectives. However, based on these alternatives, it is still apparent that the agencies' goal from the onset was to follow the letter of NEPA, but not the intent, to justify maintaining systems operations in as close to a "status quo" manner as possible.	Measures to reintroduce salmon above CHJ and GCL were evaluated early in the alternative development process but eliminated from further consideration. Details of the proposal would need to be understood well enough to include in hydrologic, water quality, and fish models. That information is not presently available, and development of those details was not possible in the timeframe of this NEPA process. It was not feasible to proceed with a detailed consideration of reintroduction in this EIS. Given the importance, complexity, and large-scale of reintroduction, a coordinated approach among water users, tribes, states, multiple federal agencies, and others would be necessary and is currently underway. Defining reintroduction objectives requires a decision-making framework and a series of regional workshops just to approach the first step. Nevertheless, the agencies and interested regional sovereigns are developing a framework to address critical information gaps. This effort was initiated on June 23, 2020, when the co-lead agencies participated in a discussion with regional sovereigns concerning fish management in blocked areas.
6364	6	ajvitale@cdatribe-nsn.gov	Coeur d'Alene Tribe	Moreover, as discussed in our earlier letter and below, the 45-day comment period to review thousands of pages of EIS during the midst of the COVID-19 crisis is unacceptable. We reiterate our request for an extension of the comment period.	See response to Comment 6364-3.
6364	7	ajvitale@cdatribe-nsn.gov	Coeur d'Alene Tribe	Based upon our review, the Tribe has the following comments on the EIS: 1. BACKGROUND In the Coeur d'Alene Tribe language, we are called Schitsu'umsh, meaning "those that were found here." This name was derived from the Tribe's world view that the creator had placed the people around the lakes and water ways of the region to live and prosper in harmony with the natural resources. The original homeland included some five million acres, stretching from Montana in the east to the Spokane River Valley, in what is now Washington State, from near the Canadian border to the confluence of the Snake and Clearwater Rivers in North Idaho. Tribal traditions include a deep respect and reverence for natural law, which today creates a powerful voice for responsible environmental stewardship. Since time immemorial, the Schitsu'umsh engaged in the annual cycles, shaped, in no small way, by the salmon that migrated within their homeland. Salmon runs were historically evident in the Spokane River and Hangman Creek watersheds. Tribal members shared harvest with other tribes along the Spokane River, Columbia River (Kettle Falls to Celilo Falls), and in the Clearwater River in the southern-most part of their homeland. Conservative estimates placed the historic harvest at approximately 1.3 million to 2.3 million pounds of salmon and steelhead annually with fish consumption as high as 1,000 pounds per year per person (which includes resident fish consumption). All drainages relied upon by the Tribe for anadromous fish harvest have been adversely impacted by dam construction and operation. Chief Joseph and Grand Coulee dams block access for anadromous salmon and steelhead to significant amounts of habitat, totaling 711 miles for spring Chinook and 1,610 miles for summer steelhead for spawning, rearing and migration. Much of these habitats fall within the Coeur d'Alene Tribe's usual and accustomed fishing areas. In addition, construction of Dworshak Dam eliminated 54 miles of riverine habitat and blocked access to a much greater, but unquantified amount of habitat on the North Fork of the Clearwater River, which accounted for sixty percent of the average amrnal count of steelhead which passed into Idaho via the Snake River. The loss of these habitats to anadromous fisheries has had a significant and continuing impact on Coeur d'Alene Tribal cultural, economic and social wellbeing. The construction of the federal hydropower system and subsequent system operations, extinguished all the stocks of salmon that supported the Tribe. It is a paradox that endangered species are both a tragic consequence of the CRSO, and a luxury that the Tribe is not afforded. The construction of Grand Coulee Dam and the later construction of Dworshak Dam prevent salmon from returning to our usual and accustomed fishing grounds and deprived the people of the opportunity to exercise their cultural, subsistence and ceremonial practices of their ancestors. This loss of anadromous fish has in turn created a heavier reliance on the harvest of resident fish and wildlife populations by the Coeur d'Alene Tribe and intensified food security issues related to traditional subsistence practices.	The information provided in this comment is substantially similar to the information that that Coeur d'Alene Tribe provided which is included in the Tribal Perspectives Section 3.17.

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6364	8	ajvitale@cdatribe-nsn.gov	Coeur d'Alene Tribe	3. ISSUES OF SIGNIFICANT CONCERN a. Inadequate Public Comment Period: A comment period of 45-days during the midst of the most serious pandemic in modern times is unacceptable. As a result, this process has failed this capture the Tribe's intent to be heard on critical issues that impact their culture. Given the enormity of the document by volume and the complexity by issue, as well as the current lockdown that affects normal operations, the Tribe requests an extension of the comments period by another 60 days in order to make well considered comments that may ultimately impact the Tribe in the future. The decision to not extend the comment period was made before the formal extension requests were made. The Coeur d'Alene Tribe was told this during a government-to-government consultation meeting in Spokane on March 10, 2020. The Tribe is disappointed that the co-Lead agencies continue to discard the Tribe's input on critical procedural and contextual topics.	See response to Comment 6364-3.
6364	9	ajvitale@cdatribe-nsn.gov	Coeur d'Alene Tribe	Failure to Consider Fish Passage: The Tribe once again reiterates its position that fish passage in the Upper Columbia River (above Chief Joseph and Grand Coulee Dams) must be addressed in this NEPA process. Unfortunately, the agencies have failed to honor its tribal trust obligations, its obligations under NEPA, and the calls of communities across the Northwest to analyze Upper Columbia fish passage options in this document. Over the last decade the Tribe has participated in two major forums dealing with the Columbia River (the Columbia River Treaty ("CRT") with Canada and over the last three years the CRSO EIS process). In both of these processes we believed that our voice would be heard and critical issues to the Tribe would be addressed in an atmosphere of professional respect. The Tribe has worked tirelessly within the CRT process to elevate fish passage as an issue that needed to be addressed. We were told by your agencies that this process would not provide the Tribes an equal seat in the negotiation process and that fish passage was also something outside the scope of the CRT. They said, "there are other processes to deal with fish passage."	Measures to reintroduce salmon above Chief Joseph and Grand Coulee dams were evaluated early in the alternative development process but eliminated from further consideration. Reintroduction is an important and complex, large-scale concept. Its consideration, evaluation, and implementation should involve multiple tribal, federal, state, and other entities. A coordinated approach among water users, tribes, states, multiple federal agencies, and others would be necessary. To allow so many differing interests to coordinate on such a complex topic, which may include international considerations, a decision-making framework and a series of regional workshops would be necessary just to approach the first step of defining reintroduction objectives. Given the incompatibility of such a wildlife management decision-making framework with an analysis of the operation of the CRS, it is not feasible to proceed with a detailed consideration of reintroduction in this EIS. Moreover, to meaningfully analyze reintroduction as a measure, the details of the proposal would need to be understood well enough to include in hydrologic, water quality, and fish models. That information is not presently available, and development of those details was not possible in the timeframe of this NEPA process. Nevertheless, the agencies and interested regional sovereigns are developing a framework to address critical information gaps. This effort was initiated on June 23, 2020 with the co-lead agencies participated in a discussion with regional sovereigns concerning fish management in blocked areas.
6364	10	ajvitale@cdatribe-nsn.gov	Coeur d'Alene Tribe	The Tribe then looked to the CRSO EIS process as a means to address fish passage. The Tribe heard all the excuses for not dealing with fish passage in the CRT and then had to witness these same agencies begin to distance themselves from any mention of conducting a detailed evaluation of dam removal or the impacts of the dams on fish passage for a new set of reasons (fish passage is too complex and would take too long, given the President's mandated accelerated timeline to complete the EIS). Although during the scoping phase of the process there were hundreds of comments requesting fish passage be fully vetted in the CRSO process, it immediately became evident that fish passage was not going to be addressed.	Measures to reintroduce salmon above Chief Joseph and Grand Coulee dams were evaluated early in the alternative development process but eliminated from further consideration. Reintroduction is an important and complex, large-scale concept. Its consideration, evaluation, and implementation should involve multiple Tribal, Federal, state, and other entities. A coordinated approach among water users, Tribes, states, multiple Federal agencies, and others would be necessary. To allow so many differing interests to coordinate on such a complex topic, which may include international considerations, a decision-making framework and a series of regional workshops would be necessary just to approach the first step of defining reintroduction objectives. Given the incompatibility of such a wildlife management decision-making framework with an analysis of the operation of the CRS, it is not feasible to proceed with a detailed consideration of reintroduction in this EIS. Moreover, to meaningfully analyze reintroduction as a measure, the details of the proposal would need to be understood well enough to include in hydrologic, water quality, and fish models. That information is not presently available, and development of those details was not possible in the timeframe of this NEPA process. Nevertheless, the agencies and interested regional sovereigns are developing a framework to address critical information gaps. This effort was initiated on June 23, 2020 when the co-lead agencies participated in a discussion with regional sovereigns concerning fish management in blocked areas.
6364	11	ajvitale@cdatribe-nsn.gov	Coeur d'Alene Tribe	In 2018, Dave Mabe of the Bureau of Reclamation ("BOR") could not have made it more clear to the tribes: "fish passage was not even on our radar." This was insulting, given the vast amounts of work the tribes have done to evaluate passage above the blocked area. See February 7, 2017 letter from Chairman Allan. As the Tribe's only access to salmon is by trucking surplus hatchery fish in the unblocked areas to the reservation, it is critical that the Tribe's voice be heard in the only process presented to them. In January 2019, at a meeting with tribes at Northern Quest Casino, the agencies indicated that looking at fish passage "would take too much time," was, "too complicated," and that they "did not have the information to analyze passage." These statements are all without merit. First, there is no exception in NEPA from analyzing alternatives because it would be "too hard" to do so. Second, ample information has existed for some time about fish passage options and much of this information has been provided to the agencies in this process and other processes, including most recently the Fish Passage and Reintroduction Phase I Report. 1 The Phase I Report confirms the reintroduction of salmon to the Upper Columbia River is likely to achieve identified tribal goals given the following: Current dam operations; Existing riverine and reservoir habitat conditions; Donor stock availability and risks to resident fish species; The likely effectiveness of state-of-the-art juvenile and adult passage; and technologies that could be built at both Chief Joseph Dam and Grand Coulee Dam. Results from these investigations have shown that reintroduction is viable for the species evaluated. Unfortunately, this information is not reflected in the EIS and the co-Lead agencies appear to have selectively ignored this extensive body of literature. Other information has been available to inform the analysis of fish passage and reintroduction as an alternative in this EIS. These studies include: 2018 Draft Technical Memo: Sockeye Salmon spawner abundance potential estimates in the Sanpoil River. Accessible at: ucut.org/wp-content/uploads/2019/05/Baldwin-2018-Assessment-of-Sockeye-Spawning-Habitat-in-Sanpoil.pdf. 2017 Technical Memo: Redd Capacity Above Chief Joseph. Accessible at: ucut.org/wp-content/uploads/2019/05/Baldwin-and-Bellgraph-2017-Above-Chief-Joseph-Redd-Capacity-Tech-Memo.pdf. 2018 Identification of Potential Habitats for Blocked Area Reintroduction. Accessible at: ucut.org/wp-content/uploads/2019/05/Giorgi-2018-Potential-Habitats-for-Reintroduction.pdf. 2004 An estimate of chinook salmon (Oncorhynchus tshawytscha) spawning habitat and redd capacity upstream of a migration barrier in the upper Columbia River. Accessible at: www.nrcresearchpress.com/doi/abs/10.1139/fD3-140?journalCode=cjfas#.Xo0AoUBFw3E. Hardiman, J.M., Breyta, R.B., Haskell, C.A., Ostberg, C.O., Hatten, J.R., and Connolly, P.J. 2017. Risk assessment for the reintroduction of anadromous salmonids upstream of Chief Joseph and Grand Coulee Dams, northeastern Washington: U.S. Geological Survey Open-File Report 2017-1113, 87 p., doi.org/10.3133/ofr20171113. Accessible at: pubs.usgs.gov/of/2017/1113/ofr20171113.pdf. 2017. Anadromous Reintroduction Potential for the Sanpoil River and Select Upper Columbia Tributaries on the Colville Reservation using the Ecosystem Diagnosis and Treatment model. September. ICF 00392.17 Seattle, WA. Prepared for Confederated Tribes of the Colville Reservation, Spokane, WA. Accessible at: ucut.org/wp-content/uploads/2019/05/ICF-2017-Reintroduction-Potential-for-Sanpoiland-Roosevelt-1.pdf. ICF. 2018. Anadromous Reintroduction Potential for the Spokane River and Select Lake Roosevelt Tributaries Using the Ecosystem Diagnosis and Treatment Model. Final version. April. ICF 00281.17 Seattle, WA. Prepared for Spokane Tribe of Indians, Wellpinit, WA. Accessible at: ucut.org/wpcontent/uploads/2019/05/ICF-2018-Reintroduction-Potential-for-Spokane-and-Roosevelt.pdf. Kock, T.J., Verretto, N.E., Ackerman, N.F., Perry, R.W., Beeman, J.W., Garello, M. C., and Fielding, S .D. 2019. Assessment of Operational and Structural Factors Influencing Performance of Fish Collectors in Forebays of High-Head Dams. Accessible at: doi.org/10.1002/tafs.10146. Northwest Power and Conservation Council, 2016, Staff Paper: Review of Fish Passage Technologies at High-Head Dams, document number 2016-14. Accessible at: nwcouncil.org/sites/default/files/2016-14_0.pdf. Northwest Power and Conservation Council, 2014, Columbia River Basin Fish and Wildlife Program, document number 2014-12. Accessible at: nwcouncil.org/reports/2014-columbia-river-basin-fish-and-wildliife-program. Northwest Power and Conservation Council, 2020, Addendum to the 2014 Columbia River Basin Fish and Wildlife Program, document number 2020-1. Accessible at: nwcouncil.org/repoiis/2020-1. Northwest Power and Conservation Council, 2020, Columbia River Basin Fish and Wildlife Program Findings on Recommendations and Responses to Comments for the 2020 Addendum to the 2014 Fish and Wildlife Program. Accessible at: nwcouncil.org/sites/default/files/2020%20Addendum%20Part%20II%20Findings%20Responses%20final%20March%202020.pdf. Northwest Power and Conservation Council, 2004, Intermountain Subbasin Plan. Accessible at: nwcouncil.org/subbasin-plans/intermountain-province-plan.	Measures to reintroduce salmon above Chief Joseph and Grand Coulee dams were evaluated early in the alternative development process but eliminated from further consideration. Reintroduction is an important and complex, large-scale concept. Its consideration, evaluation, and implementation should involve multiple tribal, federal, state, and other entities. A coordinated approach among water users, tribes, states, multiple federal agencies, and others would be necessary. To allow so many differing interests to coordinate on such a complex topic, which may include international considerations, a decision-making framework and a series of regional workshops would be necessary just to approach the first step of defining reintroduction objectives. Given the incompatibility of such a wildlife management decision-making framework with an analysis of the operation of the CRS, it is not feasible to proceed with a detailed consideration of reintroduction in this EIS. Moreover, to meaningfully analyze reintroduction as a measure, the details of the proposal would need to be understood well enough to include in hydrologic, water quality, and fish models. That information is not presently available, and development of those details was not possible in the timeframe of this NEPA process. Nevertheless, the agencies and interested regional sovereigns are developing a framework to address critical information gaps. This effort was initiated on June 23, 2020 with the co-lead agencies participated in a discussion with regional sovereigns concerning fish management in blocked areas.
6364	12	ajvitale@cdatribe-nsn.gov	Coeur d'Alene Tribe	The Tribe believes that the Agencies have an obligation under NEPA to consider all reasonable alternatives, including passage. This is well reflected in Judge Simon's May 4, 2016 opinion that states, "One of the benefits of a NEPA analysis, which required that all reasonable alternatives be analyzed, is that it allows innovative solutions to be considered and may finally be able to break through any bureaucratic logjam that maintains the status quo." The Tribe believes that the failure to consider an alternative with Upper Columbia fish passage violates NEPA by failing to consider reasonable alternatives. Not a single alternative considered in the EIS considered or analyzed this option. Failure to take a hard look at these alternatives is unlawful. An EIS must include a robust analysis of alternatives to the proposed action: this discussion is "the heart of the [EIS]" and must "provid[e] a clear basis for choice among options." 40 C.F.R. 1502.14.	The Co-Lead Agencies are required to evaluate a reasonable range of alternatives in the EIS. However, when there are potentially a very large number of alternatives, only a reasonable number of examples, covering the full spectrum of alternatives, must be analyzed and compared in the EIS. Alternatives for this EIS were developed from measures identified during public scoping, regional forums with scientists and technical experts from cooperating agencies, and expert opinion from within the co-lead agencies and in the literature. These alternatives represent a reasonable range of alternatives for the maintenance and operation of the CRS. Measures to reintroduce salmon above CHJ and GCL were evaluated early in the alternative development process but eliminated from further consideration. Details of the proposal would need to be understood well enough to include in hydrologic, water quality, and fish models. That information is not presently available, and development of those details was not possible in the timeframe of this NEPA process. It was not feasible to proceed with a detailed consideration of reintroduction in this EIS. Given the importance, complexity, and large-scale of reintroduction, a coordinated approach among water users, tribes, states, multiple federal agencies, and others would be necessary and is currently underway. Defining reintroduction objectives requires a decision-making framework and a series of regional workshops just to approach the first step. Nevertheless, the agencies and interested regional sovereigns are developing a framework to address critical information gaps. This effort was initiated on June 23, 2020, when the co-lead agencies participated in a discussion with regional sovereigns concerning fish management in blocked areas.
6364	13	ajvitale@cdatribe-nsn.gov	Coeur d'Alene Tribe	The Tribe understands the NEPA process and believes the letter of the law can be read as "Purpose and Need for Action" and understands the complexity in developing pragmatic and legally defensible alternatives. We appreciate that the agencies looked at alternatives that met multiple objectives, however based on these alternatives, we still believe that the agencies goal from the onset was to follow the letter of NEPA, but not the intent, to justify maintaining systems operations in as close to a "status quo" manner as possible. The failure of the EIS to consider fish passage also amounts to a significant violation of the agencies' trust responsibility to the Tribe. In essence, the agencies have failed to consider and address the impact of the CRSO on tribal health and welfare. This remains the culmination in spite of our many declarations of such. This failure, however, reaches beyond impacts just to the Coeur d'Alene Tribe. This pandemic continues to show us the frailty of our food and commodities streams, our economic markets and our lack of resources within the country to protect our national interests. The Columbia River ecosystem has been abused for over 170 years and now, as we contemplate the next fifty years of project operations, we have the ability to react to changing global environmental conditions and attitudes and embrace the bounty an intact Columbia River ecosystem can provide. From a regional and local food security perspective, no more evidence is needed to stop the current path the CRSO process is taking and re-evaluate the benefits of returning fish above the blocked area.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA listed species. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-lead agencies numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives) as well as meet the EIS objectives for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. The Preferred Alternative is most likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. Measures to reintroduce salmon above Chief Joseph and Grand Coulee dams were evaluated early in the alternative development process but eliminated from further consideration. Reintroduction is an important and complex, large-scale concept. Its consideration, evaluation, and implementation should involve multiple tribal, federal, state, and other entities. A coordinated approach among water users, tribes, states, multiple federal agencies, and others would be necessary. To allow so many differing interests to coordinate on such a complex topic, which may include international considerations, a decision-making framework and a series of regional workshops would be necessary just to approach the first step of defining reintroduction objectives. Given the incompatibility of such a wildlife management decision-making framework with an analysis of the operation of the CRS, it is not feasible to proceed with a detailed consideration of reintroduction in this EIS. Moreover, to meaningfully analyze reintroduction as a measure, the details of the proposal would need to be understood well enough to include in hydrologic, water quality, and fish models. That information is not presently available, and development of those details was not possible in the timeframe of this NEPA process. Nevertheless, the agencies and interested regional sovereigns are developing a framework to address critical information gaps. This effort was initiated on June 23, 2020 with the co-lead agencies participated in a discussion with regional sovereigns concerning fish management in blocked areas.

Letter No.	Comment No.	Commenter Name/Email	Affiliation	Comment	Response[1/]
6364	14	ajvitale@cdatribe-nsn.gov	Coeur d'Alene Tribe	c. Fish Management Initiative and Supplemental EIS: The agencies have determined it inappropriate to include fish passage above the Grand Coulee and Chief Joseph Dams into the EIS evaluation. Instead, they have proposed to create a new process in which to address this most critical issue related to the CRSO process. As outlined in various sections of this document this, "new" process greatly concerns the Tribe because there are no details defining what this process would be, how it would function, and how would it provide legally binding mandates that require fish passage. For example, Chapter 2-79 outlines a, "decision making framework" that would be necessary to just approach the first step of defining reintroduction objectives." Yet the Tribe has questions of concern that include, but are not limited to: 1) what entity that is currently not at the table is missing from this new group (i.e., why do we need a new group); 2) how will the outcomes and decisions made by this new initiative be legally binding; 3) what would be the timeline for the completion of this process; 4) who will fund this effort; and 5) how would the outcomes of this new initiative be incorporated into the decisions rendered in the CRSO process, or any other legally binding processes and agreements? It is one thing to discard our repeated requests to include fish passage into the current EIS, but to cast this issue into a nebulous forum without defining any specifics of how it will function, or influence future decision making, is unacceptable. The Coeur d'Alene Tribe requests that far more detail be written into the EIS that provides the answers to these questions. Without details of this new process, we remain skeptical and believe it will lead to the creation of a process that will be nothing more than a continuation of delays to address this issue.	Measures to reintroduce salmon above Chief Joseph and Grand Coulee dams were evaluated early in the alternative development process but eliminated from further consideration. Reintroduction is an important and complex, large-scale concept. Its consideration, evaluation, and implementation should involve multiple Tribal, Federal, state, and other entities. A coordinated approach among water users, Tribes, states, multiple Federal agencies, and others would be necessary. To allow so many differing interests to coordinate on such a complex topic, which may include international considerations, a decision-making framework and a series of regional workshops would be necessary just to approach the first step of defining reintroduction objectives. Given the incompatibility of such a wildlife management decision-making framework with an analysis of the operation of the CRS, it is not feasible to proceed with a detailed consideration of reintroduction in this EIS. Moreover, to meaningfully analyze reintroduction as a measure, the details of the proposal would need to be understood well enough to include in hydrologic, water quality, and fish models. That information is not presently available, and development of those details was not possible in the timeframe of this NEPA process. Nevertheless, the co-lead agencies and interested regional sovereigns are developing a framework to address critical information gaps. This effort was initiated on June 23, 2020 when the co-lead agencies participated in a discussion with regional sovereigns concerning fish management in blocked areas.
6364	15	ajvitale@cdatribe-nsn.gov	Coeur d'Alene Tribe	The Tribe believes that the final EIS should establish and identify the tasks of the FMI, including identifying a fish passage alternative for later analysis and gathering of relevant data to support such an analysis. The final EIS must identify members and funding for the FMI. Second, the EIS/ROD should establish a time frame for the development of a passage alternative by the FMI. Lastly, the final EIS should commit to the development of a SEIS that provides an analysis of the FMI fish passage alternative (or an alternative fish passage proposal if the FMI fails to develop proposal). As soon as the Tribe was told the draft alternatives would not address fish passage, the Tribe requested that the co-Lead agencies consider doing a supplemental EIS that only focuses on the issue of fish passage. We believed that this was a viable solution wherein the co-Lead agencies would meet their EIS completion deadline and the essential obligation under NEPA could also be fulfilled. The Tribe also believes that this approach is well-founded in the legal obligations of the Agencies. NEPA regulations, 40 C.F.R. 1502.9(c), provides that agencies must prepare a supplement to an EIS if there are significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts. The regulations also provide that an agency should prepare a supplemental EIS if it determines that doing so will further the purposes of NEPA. Since providing that feedback, the Tribe has heard that a supplemental EIS dealing specifically with fish passage was not being considered by the action agencies. The Tribe is against creating a new process without any legally binding requirements that the work of that group will actually occur, be funded, or be thoroughly analyzed in a NEPA process. Of all the comments we have provided, this should be considered a top priority.	Measures to reintroduce salmon above CHJ and GCL were evaluated early in the alternative development process but eliminated from further consideration. Details of the proposal would need to be understood well enough to include in hydrologic, water quality, and fish models. That information is not presently available, and development of those details was not possible in the timeframe of this NEPA process. It was not feasible to proceed with a detailed consideration of reintroduction in this EIS. Given the importance, complexity, and large-scale of reintroduction, a coordinated approach among water users, tribes, states, multiple federal agencies, and others would be necessary and is currently underway. Defining reintroduction objectives requires a decision-making framework and a series of regional workshops just to approach the first step. Nevertheless, the agencies and interested regional sovereigns are developing a framework to address critical information gaps. This effort was initiated on June 23, 2020, when the co-lead agencies participated in a discussion with regional sovereigns concerning fish management in blocked areas.
6364	16	ajvitale@cdatribe-nsn.gov	Coeur d'Alene Tribe	d. Failure to Analyze Impacts to Tribal Health and Economies: In previous NEPA processes, the agencies have hired experts agreed upon by impacted tribes to assess and document the impacts in a detailed manner. The report titled Tribal Circumstances & Impacts from the Lower Snake River Project on the Nez Perce, Yakama, Umatilla, Warm Springs, and Shoshone Bannock Tribes ("Tribal Circumstances Report") was prepared by Meyer Resources, Inc. on behalf of the Columbia River Inter-Tribal Fish Commission with funding from the Army Corps of Engineers ("Corps") for the NEPA process for the Lower Snake River dams.2 This report involved a significant amount of tribal coordination, was funded by the Corps, and was then utilized by the agencies as part of the NEPA process, including the environmental justice section. No similar approach was used in this EIS despite the fact that there is a significantly larger area scope in this NEPA process with a significantly larger number of impacted tribes. Instead, tribes were left to provide a vaguely defined set of information that may be incorporated in the NEPA process utilizing their own time and expenses. This is an unacceptable approach. We urge the agencies to reconsider this inadequate approach to assessing tribal impacts and to provide resources, which could include outside consultants selected in conceit with the tribes, to properly assess impacts of the CRSO to tribal communities.	The co-lead agencies analyzed effects to tribes throughout the Draft EIS. Human health is discussed in the following resources in Chapter 3: Water Quality, Power Generation and Transmission, Air Quality and Greenhouse Gasses, Navigation and Transportation, Recreation, Fisheries and Passive Use, Cultural Resources, Indian Trust Assets, Tribal Perspectives, and Tribal Interests, and Environmental Justice. Many of the Tribal Perspectives submissions discussed how important fisheries and the natural world are to tribal cultures, traditions, and lifeways. In terms of socioeconomics, effects to tribes were discussed throughout the Draft EIS. The co-lead agencies solicited tribal perspectives to incorporate into the EIS; there was no requirement for tribes to do so.
6364	17	ajvitale@cdatribe-nsn.gov	Coeur d'Alene Tribe	e. Failure to Consider Economic Analysis of Improved and Functioning Columbia River Ecosystem: The economic benefits of the CRSO have largely been realized by lower river basin interests. The Tribe had requested the EIS fully analyze alternative operations that may promote economic development in the upper Columbia River Basin, including fisheries and recreation. Nowhere in the document is the natural capital assets described and evaluated/compared to the value of hydropower and navigation. This omission needs to be remedied. Earth Economics worked with Upper Columbia United Tribes, Columbia River InterTribal Fish Commission, Pacific Rivers, Save Our Wild Salmon, and WaterWatch of Oregon to develop The Value of Natural Capital in the Columbia River Basin report that shows the immense economic value of the Columbia River Basin's natural assets.3 In addition, it provides clear evidence of the increased value that can be gained by addressing ecosystem-based function in the Columbia River Basin river management. Currently, nature's value in the Columbia River Basin amounts to $198.8 billion per year in ecosystem benefits. A 10% increase in Ecosystem-Based Functions in the Columbia River Basin could result in a $219 .4 billion per year value in ecosystem benefits. The information and considerations in this report were not considered.	The types of activities and values assessed in the Earth Economics report are also evaluated within the CRSO EIS. However, framework and management scenarios described in the Earth Economics report are not directly comparable to the No Action and Action Alternatives evaluated in the CRSO EIS. The EIS evaluated beneficial and adverse effects across an array of resource areas including potential effects at the national, regional and local level; effects are monetized and quantified, where possible, and also described qualitatively. As is common in NEPA analyses, the beneficial and adverse effects of the alternatives are expressed as a variety of qualitative and quantitative environmental and economic metrics throughout the EIS to inform decision-making. The EIS does not employ a cost-benefit framework for decision-making. Instead, the EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations.
6364	18	ajvitale@cdatribe-nsn.gov	Coeur d'Alene Tribe	Moreover, the economic impact information provided by the Tribe in May 2019 to the agencies in its Tribal Perspectives comments was ignored, particularly the impact of the loss of salmon to tribal health and poverty. The Tribal Circumstances Report describes the intersection of dam construction and poverty- "The cumulative effects of dam construction have transferred potential wealth produced in the river basin from the salmon on which the tribes depend to electricity production, irrigation of agriculture, water transport services and waste disposal, these latter primarily benefiting non-indians. These transfers have been a significant contributor to gross poverty, income and health disparities between the tribes and non-Indian neighbors." Tribal Circumstances Report at 21. As of April 2018, the Benewah County unemployment rate was 5.8%, while State of Idaho's unemployment rate was 2.9% (Idaho Department of Labor, July 2018). Based on data from the American Community Survey, the 2016 poverty rate for the Coeur d'Alene Reservation was 18. 7%, while the poverty rate for the American Indian population was a staggering 38% (Table 1).4 Furthermore, thirty-six percent of Native youth live in poverty, compared to 21 percent of their non-Native counterparts on the Reservation.5 Mental health issues are persistent. Since 2015, four Tribal members died as a result of suicide, all under the age of 30 and two under the age of 17.	The EIS recognizes the economic and cultural importance of salmon to Tribes in a number of Sections throughout the document. In particular, the cultural significance and impacts of salmon and steelhead fisheries are described in the Fisheries Section 3.15.2.1, which includes Sections that describe ceremonial and subsistence fisheries as well as the social importance of commercial, ceremonial and subsistence fisheries. Section 3.5.4, Tribal Interests, and 3.15, Fisheries and Passive Use, acknowledge the importance of salmon to public health to regional Tribes. Additional information has been added to the Environmental Justice section (Section 3.18) to explicitly recognize that "[t]he report goes on to describe principal causes of the present impoverishment of the study tribes include the loss of salmon and the loss of tribal lands (Meyer Resources 1999)."
6364	19	ajvitale@cdatribe-nsn.gov	Coeur d'Alene Tribe	f. Inadequate Fish and Wildlife Mitigation: 2013 2014 2015 2016 The Purpose and Need section of the EIS includes provisions for the conservation of fish and wildlife resources, including threatened, endangered, and sensitive species throughout the environment affected by System operations. Further, the agencies are to comply with environmental laws and regulations and all other applicable federal statutory and regulatory requirements, including those specifically addressing the System such as requirements under the Northwest Power Act "to adequately protect, mitigate, and enhance fish and wildlife, including related spawning grounds and habitat, affected by such projects or facilities in a manner that provides equitable treatment for such fish and wildlife with the other purposes for which such system and facilities are managed and operated." 16 U.S.C. 839b(I I)(A). This necessarily requires mitigation to be well aligned with the Northwest Power and Conservation Council's (NPCC) Fish and Wildlife Program. The EIS, however, fails to adequately address operational impacts to fish and wildlife resources and lacks mitigation measures to account for these impacts. One of the strategies for mitigation of lost fish resources in the NPCC 2014 Program is consideration of re-introduction of anadromous fish into the blocked area, which entails investigation and evaluation of passage facilities highlighted below (NPCC 2014-12). IV. Strategies for how the FW Program will achieve goals C.3. Anadromous fish mitigation in blocked areas Principles: Restoration of anadromous fish to blocked areas should be investigated as mitigation for the impacts of hydropower dams that blocked passage (p. 83). General measures: Bonneville shall provide funding to consider passage projects to benefit native species in blocked areas (p. 84). With regards to reintroduction of anadromous fish above Chief Joseph and Grand Coulee dams, implement a phased approach that investigates reintroduction efforts that includes juvenile and adult fish passage at the dams (p. 84-85). Phase 1 will evaluate information from passage studies at other blockages and from previous assessments of passage at Grand Coulee and Chief Joseph dams; and investigate habitat availability, suitability and salmon survival potential in habitats above Grand Coulee. Phase 2 would entail activities to "design and test. . .interim fish passage facilities at the Dams", and to "identify additional studies to advance the fish passage planning process." Phase 3, based on Phase 2 results, would entail a decisionmaking process to "implement and fund reintroduction measures, including construction and operation of passage facilities."	Measures to reintroduce salmon above Chief Joseph and Grand Coulee dams were evaluated early in the alternative development process but eliminated from further consideration. Reintroduction is an important and complex, large-scale concept. Its consideration, evaluation, and implementation should involve multiple tribal, federal, state, and other entities. A coordinated approach among water users, tribes, states, multiple federal agencies, and others would be necessary. To allow so many differing interests to coordinate on such a complex topic, which may include international considerations, a decision-making framework and a series of regional workshops would be necessary just to approach the first step of defining reintroduction objectives. Given the incompatibility of such a wildlife management decision-making framework with an analysis of the operation of the CRS, it is not feasible to proceed with a detailed consideration of reintroduction in this EIS. Moreover, to meaningfully analyze reintroduction as a measure, the details of the proposal would need to be understood well enough to include in hydrologic, water quality, and fish models. That information is not presently available, and development of those details was not possible in the timeframe of this NEPA process. Nevertheless, the agencies and interested regional sovereigns are developing a framework to address critical information gaps. Moreover, the co-lead agencies disagree with the assertion that they must consider anadromous fish passage and reintroduction into blocked areas above Chief Joseph and Grand Coulee dams to comply with the Northwest Power Act. The co-lead agencies note that the first phase of the Councils multi-step investigation of the feasibility of passage and reintroduction has not been deemed complete by the Council, as required by the 2014 Program before work on phase two takes effect.1/ In addition, the Council has noted that responsibility for the investigation and implementation of passage and reintroduction above Chief Joseph Dam is a broad regional and even national issue that does not fall entirely within the bounds of the Councils Program.2/ Therefore, the co-lead agencies do not need to include commitments in the EIS relating to the passage and reintroduction provisions in the Councils program to remain in compliance with their Northwest Power Act responsibilities. See response to Comment 6364-20. 1/Council, 2014 Program at 85. 2/See Council, 2014 PROGRAM, APPENDIX S, FINDINGS at 301 (the Council agrees that responsibility for the complete investigation and implementation of passage and reintroduction at these major blockages is ultimately a major policy decision for the region and nation and a shared responsibility that should not fall just on Bonneville and the ratepayers); Council, 2020 Addendum Findings at 87 (Mar. 2020) (making progress on this effort is not the sole province of the program.).
6364	20	ajvitale@cdatribe-nsn.gov	Coeur d'Alene Tribe	The EIS dismisses consideration of anadromous fish passage and re-introduction into blocked areas, and is therefore inconsistent with mitigation provisions that are well established within the region prior to the District Court order for the agencies to conduct an EIS on systems operations. The Tribe has repeatedly contended that mitigation of the impacts of the FCRPS must include provisions for anadromous fish passage and re-introduction into blocked areas. This contention is consistent with the Northwest Power Act, the NPCC's Fish and Wildlife Program and the Purpose and Need of this EIS. This necessarily requires analysis of changes to infrastructure and operations at Chief Joseph and Grand Coulee Dams. By not recognizing these changes as necessary for mitigation, the agencies can neither recommend nor fund changes to the structure and operation of these facilities. Accordingly, the agencies should take concrete steps to amend the authorities granted under existing statutes, and identify within the EIS where new statutory authority	Measures to reintroduce salmon above Chief Joseph and Grand Coulee dams were evaluated early in the alternative development process but eliminated from further consideration. Reintroduction is an important and complex, large-scale concept. Its consideration, evaluation, and implementation should involve multiple tribal, Federal, state, and other entities. A coordinated approach among water users, tribes, states, multiple Federal agencies, and others would be necessary. To allow so many differing interests to coordinate on such a complex topic, which may include international considerations, a decision-making framework and a series of regional workshops would be necessary just to approach the first step of defining reintroduction objectives. Given the incompatibility of such a wildlife management decision-making framework with an analysis of the operation of the CRS, it is not feasible to proceed with a detailed consideration of reintroduction in this EIS. Moreover, to meaningfully analyze reintroduction as a measure, the details of the proposal would need to be understood well enough to include in hydrologic, water quality, and fish models. That information is not presently available, and development of those details was not possible in the timeframe of this NEPA process. Nevertheless, the agencies and interested regional sovereigns are developing a framework to address critical information gaps.

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				may be needed to ensure that the Resource, Legal, and Institutional Purposes of the EIS are aligned with the contemporary realities of recovering endangered species as required by the ESA, and satisfying the requirements of the Northwest Power Act. The Upper Columbia United Tribes completed Phase 1 investigations concurrent with development of this draft EIS and a final report was reviewed by the Independent Scientific Advisory Board (ISAB) in 2019 (ISAB 2019-3). This report contains much of the information and technical analysis needed for a valid evaluation of environmental impacts and benefits, and can serve as a valid framework for mitigating the impacts to the blocked areas of the Upper Columbia River. Moreover, the development of the report was well coordinated with multiple tribal, federal, state, and other entities as warranted for such a complex, large-scale concept. This information was shared with the Action Agencies at multiple junctures during the early development of the DEIS. The regional managers will proceed to Phase 2 design and testing of passage facilities during implementation of the NPCCs 2020 Addendum to the Fish and Wildlife Program. As the region continues to pursue the phased approach to reintroduction, the Action Agencies by not addressing this in the EIS become increasingly disconnected from mitigation measures and the requirements prescribed by the Northwest Power Act.	Moreover, the co-lead agencies disagree with the assertion that they must consider anadromous fish passage and reintroduction into blocked areas above Chief Joseph and Grand Coulee dams to comply with the Northwest Power Act. The co-lead agencies note that the first phase of the Councils multi-step investigation of the feasibility of passage and reintroduction has not been deemed complete by the Council, as required by the 2014 Program before work on phase two takes effect.1/ In addition, the Council has noted that responsibility for the investigation and implementation of passage and reintroduction above Chief Joseph Dam is a broad regional and even national issue that does not fall entirely within the bounds of the Councils Program.2/ Therefore, the co-lead agencies do not need to include commitments in the EIS relating to the passage and reintroduction provisions in the Councils program to remain in compliance with their Northwest Power Act responsibilities. 1/Council, 2014 PROGRAM at 85. 2/See Council, 2014 PROGRAM, APPENDIX S, FINDINGS at 301 (the Council agrees that responsibility for the complete investigation and implementation of passage and reintroduction at these major blockages is ultimately a major policy decision for the region and nation and a shared responsibility that should not fall just on Bonneville and the ratepayers); Council, 2020 Addendum Findings at 87 (Mar. 2020) (making progress on this effort is not the sole province of the program.).
6364	21	ajvitale@cdatribe-nsn.gov	Coeur d'Alene Tribe	g. Inadequate Consideration of Climate Change Effects: The EIS mentions the need to consider new information related to the Columbia River system. As the Ninth Circuit has recognized, an EIS that fails to meaningfully inform the public and decisionmakers regarding the climate impacts of a particular project is inadequate. Ctr. for Biological Diversity v. Nat'l Highway Traffic Safety Admin., 538 F.3d 1172, 1201 (9th Cir. 2008). To date, this draft provides very little information as to the effects of climate change, particularly as it relates to the blocked areas of the Basin. NEPA provides an obligation to the agencies to use "high quality information," 40 C.F.R. 1500.1 (b) and provide "full and fair discussion of significant environmental impacts," 40 C.F.R. 1502.1, including climate change impacts. As has been already mentioned in our scoping comments, the upper Basin habitats are projected to be the only remaining snowpack dominated systems remaining late into this century. Preparing for climate change by improving fish passage will be effective for increasing the diversity and availability of spawning and rearing habitats. Once again, we call into question the adequacy of this EIS when it does not address such a critical topic.	The technical and policy elements of this Draft EIS are in full compliance with binding the Corps' policy and guidance for qualitative assessment of climate threats and their plausible effects and impacts. The primary controlling policy and guidance are the the Corps' Climate Adaptation Policy Statement, signed by the Assistant Secretary of the Army for Civil Works in 2011, updated and signed again in 2013, and remains in force now; and USACE Engineering and Construction Bulletin 2018-14, "Guidance for Incorporating Climate Change Impacts to Inland Hydrology in Civil Works Studies, Designs, and Projects." The numerical-model simulated outputs were evaluated by multiple technical means (see record of the full Corps Agency Technical Review), and were tested using the set of analytical measures created by the Corps Climate Preparedness and Resilience program to ensure that sound science and engineering compliance with the Corps' climate change policy and guidance. Those analytical tests are described in ECB 2018-14 (listed just above) and in the Corps' Engineer Technical Letter 1100-2-3, "Guidance for Detection of Nonstationarities in Annual Maximum Discharges." The assessment of climate threats and impacts is qualitative only in the sense that the biological and other impacts models did not directly ingest the physical hydroclimatology outputs modeled for the assessment. Those hydroclimatology outputs are fully quantitative and so can be the basis for refined estimates of effects and impacts should those be required following this Draft EIS. Regarding blocked areas, measures to reintroduce salmon above Chief Joseph and Grand Coulee dams were evaluated early in the alternative development process but eliminated from further consideration. Reintroduction is an important and complex, large-scale concept. Its consideration, evaluation, and implementation should involve multiple Tribal, Federal, state, and other entities. A coordinated approach among water users, Tribes, states, multiple Federal agencies, and others would be necessary. To allow so many differing interests to coordinate on such a complex topic, which may include international considerations, a decision-making framework and a series of regional workshops would be necessary just to approach the first step of defining reintroduction objectives. Given the incompatibility of such a wildlife management decision-making framework with an analysis of the operation of the CRS, it is not feasible to proceed with a detailed consideration of reintroduction in this EIS. Moreover, to meaningfully analyze reintroduction as a measure, the details of the proposal would need to be understood well enough to include in hydrologic, water quality, and fish models. That information is not presently available, and development of those details was not possible in the timeframe of this NEPA process. Nevertheless, the agencies and interested regional sovereigns are developing a framework to address critical information gaps.
6364	22	ajvitale@cdatribe-nsn.gov	Coeur d'Alene Tribe	h. EIS must Analyze Compliance with the Clean Water Act articulated in Columbia Riverkeeper v. Wheeler: In December 2019, the Ninth Circuit ordered EPA to create a TMDL to address water temperature violations associated with CRSO. Columbia Riverkeeper v. Wheeler, 944 F.3d 1204 (9th Cir. 2019). The agencies must include the analysis of an alternative in the final EIS that includes measures necessary to comply with state and tribal water quality standards.	The Preferred Alternative complies with state and tribal water quality standards. Over the past two years, EPA has updated the RMB10 1D temperature model to assess Columbia and Snake River water temperatures and evaluate the impacts from the Federal dams as part of the reinitiation of the TMDL project. In parallel, the co-lead agencies developed the CRSO EIS system water quality model which consists of the 2-dimensional CE-QUAL W2 models and the 1-dimensional HEC-RAS models. Both models have been reviewed extensively by the agencies, which have concluded that both temperature models provide useful and technically appropriate analyses of the Columbia and lower Snake River water temperatures. As stated in EPA's review letter (#16-0059), EPA agrees with the co-lead agencies that the CE-QUAL W2 and HEC RAS models are appropriate to use in developing the Draft EIS.
6364	23	ajvitale@cdatribe-nsn.gov	Coeur d'Alene Tribe	1. Failure to Consider Operational Impacts: Many of the impacts that the operation of the Albeni Falls and Dworshak dams have on wildlife species and their habitats remain unresolved. These operations include but are not limited to hydropower, flood control, and fish flow mitigation. The daily, seasonal, and/or annual changes in operations can alter physical and ecological functions and processes, wetland and riparian character, vegetation communities, shoreline and riparian erosion cycles, and habitat structure, which can negatively influence terrestrial vertebrate and invertebrate communities. Operational impacts occur within and around, as well as upstream and downstream of reservoirs as a result of fluctuating water levels, flow, velocity, and temperatures. These impacts are expressed over time and will continue for the life of the hydropower projects. Settlement agreements have been reached with many of the affected parties from Albeni Falls Dam (Idaho Fish and Game and Kalispel Tribe) and Dworshak Dam (Idaho Fish and Game andNez Perce Tribe), but the Coeur d'Alene Tribe has never been mitigated for the operational impacts from these two dams. Mitigation for operational impacts at Albeni Falls and Dworshak dams to the Coeur d'Alene Tribe needs to be addressed in this EIS.	The operational impacts from Albeni Falls Dam and Dworshak Dam are described in Chapters 3 and 7. The Northwest Power Acts mitigation mandate pertains to fish and wildlife and their habitats, not the tribes and communities affected by the development and operation of the CRS. This comment concerns adverse impacts to the Coeur DAlene Tribe from the operation of Albeni Falls and Dworshak dams. The responses to comments to (Kalispel Letter 6106, comments 18 and 19) generally address this concern. Following the mandate to mitigate fish and wildlife and their habitats, Bonneville's 1992 settlement agreement with the State of Idaho and the Nez Perce Tribe addresses the construction and inundation impacts from Dworshak on wildlife and wildlife habitat. Dworshak inundated 16,970 acres. 1/ The settlement fully addresses this habitat loss and has a term of 60 years. The Nez Perce Tribes 2018 annual report indicates it has purchased 7,576 acres and still has over $9.5 million remaining in its mitigation fund established under the agreement. 2/ The State of Idaho also has a $3 million fund provided by Bonneville to manage the 60,000 acre Peter T. Johnson Unit of the Craig Mountain Wildlife Management Area (formerly known as Craig Mountain), which Bonneville purchased and transferred to Idaho. 3/ The agreement does not compensate the state or the tribe for any real property, economic, or cultural losses. The settlement, however, does leave open the question of operation impacts and does not address them. In the 2018 Albeni Falls Dam Wildlife Mitigation Agreement, Bonneville and the State of Idaho established that 14,087 acres had been mitigated through the efforts of the state and three tribes to address wildlife impacts from the construction and inundation of the dam (6,617 acres were impacted as a result of the construction and inundation of Albeni Falls Dam). 4/ In addition, Bonneville agreed to fund the State of Idaho to protect and enhance 1,279 acres of wetland habitat at the Clark Fork Delta and an additional 99 acres at the Priest River Delta to address the upriver effects of Albeni Falls operations. This is in addition to the 624 acres of wetland protected and enhanced on the Clark Fork Delta by IDFG, which was funded by Bonneville through a letter agreement in 2012. This settlement does not address operational impacts below the Dam. 1/ Idaho Department of Fish and Game, Phase I: Wildlife Protection, Mitigation, and Enhancement Planning: Dworshak Reservoir, at 3 (1988). 2/ Nez Perce Tribe, Dworshak Wildlife Mitigation Annual Report (2018) (on file with Bonneville). 3/ Idaho Department of Fish And Game, Craig Mountain Wildlife Management Area 2014-2023 Wildlife Management Plan 9 (Dec. 2014), https://idfg.idaho.gov/sites/default/files/2014-2023-CraigMtnWMA-Plan-Final.pdf. 4/ Northern Idaho Memorandum of Agreement Between the State of Idaho and the Bonneville Power Administration for Wildlife Habitat Stewardship and Restoration section II.C, page 5 (2018) (on file with Bonneville).
6364	24	ajvitale@cdatribe-nsn.gov	Coeur d'Alene Tribe	J. Failure to Consider Secondary Impacts: One of the principles underlying impacts of hydropower construction and the subsequent inundation and operations are the secondary impacts that are in continuance with the life of the project. Power lines and construction pooling as well as river course and depth changes not only created habitat fragmentation but have forever changed the migration patterns and range use of wildlife species. These changes reduce the carrying capacity and continue to affect traditional Tribal resource use for generations. The loss of anadromous fish above Chief Joseph, Grand Coulee, and Dworshak dams has also had cascading effects throughout the ecosystem on the local wildlife populations. The lack of nutrients and available food that these fish would supply to the region has effects on species such as stream invertebrates, bald eagles, grizzly bears, and orca whales. The Coeur d'Alene Tribe has also experienced a tremendous shift from the past use of anadromous fish to other foods such as plants, wildlife and resident fish. The loss of salmon production in the blocked areas above Grand Coulee and Dworshak dams have directly led to the increased use of wildlife habitat and populations in this area. An assessment of the secondary impacts of hydro power construction should be initiated in order to fully realize the magnitude of impacts to native cultures with the loss of historical populations of wildlife that migrated through the system as well as any impacts found relevant to tribal culture.	Thank you for your comment. The scope of analysis is consistent with the baseline and proposed action for this EIS. Many of the cumulative effects and past actions referenced in this comment are included in the affected environment (Chapter 3) and Cumulative Effects (Chapter 6) sections of this EIS. Additionally, we explicitly acknowledge the magnitude of impacts to tribal culture, interests, and resources from development in the Columbia River basin. These acknowledgements and discussions are primarily contained in the Tribal Perspectives section (3.17) and associated appendices which were provided directly by the Tribes.
6364	25	ajvitale@cdatribe-nsn.gov	Coeur d'Alene Tribe	. k. EIS must Address Operational Impacts to Cultural Resources: The EIS and any mitigation measures must address the impacts of hydro power operations on cultural resources and historical sites. Operations of Albeni and Dworshak dams, including deeper and longer drawdowns, can lead to exposure of sensitive sites and resources. The Native American Grave Protection and Repatriation Act ("NAGPRA") requires your agencies to "[t]ake immediate steps, if necessary, to further secure and protect inadvertently discovered human remains, funerary objects, sacred objects, or objects of cultural patrimony, including, as appropriate, stabilization or covering" 43 CFR 10.4(d). This requires the agencies to develop a long-term plan to stop or significantly improve the current erosion problems associated with dam operations.	In Section 5.2.1.6 of the Draft EIS, the co-lead agencies discuss the existing program that addresses system operational impacts on cultural resources. In Section 7.7.18, the co-lead agencies provide an archaeological resources impact analysis of the Preferred Alternative. In particular, Tables 7-47 through 7-50 in the Draft EIS demonstrate the comparison of all alternatives to archaeological resources across the system. These tables demonstrate operations at Albeni and Dworshak under the Preferred Alternative would decrease impacts to archaeological resources as compared to the No Action Alternative. The co-lead agencies discuss compliance with NAGPRA and the existing Cultural Resources program in Section 8.4.4 in the Draft EIS. NAGPRA does not require Federal agencies to develop long-term plans for prevention of erosion and other impacts.
6364	26	ajvitale@cdatribe-nsn.gov	Coeur d'Alene Tribe	4. SECTION-BY-SECTION COMMENTS Executive Summary, Page 7, 2nd para: The court opinion was clear in its directive that the EIS should evaluate how to ensure that the prospective management of the CRS is not likely to jeopardize the continued existence of any endangered species. Nowhere in this document is fish passage above the blocked areas considered in this evaluation, therefore the evaluation is flawed and subject to legal challenge.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the EIS objectives) as well as the EIS objectives for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. The Preferred Alternative is also more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% (the lower end of Northwest Power and Conservation Council's recovery targets for the region) as a result of the Preferred Alternative, as a result of the Preferred Alternative increasing SAR from 2.0% to 2.7% for Chinook, a 35% relative increase. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. To address uncertainty highlighted by the two models, the Preferred Alternative includes working with regional sovereigns to develop a study that assess the effectiveness of the increased spill regime on adult returns as well as assessment and management of adverse unintended consequences, such as long delays of adult migrants, or TDG-related mortality of juvenile migrants. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information. The Preferred Alternative will make a meaningful contribution towards recovery. Measures to reintroduce salmon above Chief Joseph and Grand Coulee dams were evaluated early in the alternative development process but eliminated from further consideration. Reintroduction is an important and complex, large-scale concept. Its consideration, evaluation, and implementation should involve multiple Tribal, Federal, state, and other entities. A coordinated approach among water users, Tribes, states, multiple Federal agencies, and others would be necessary. To allow so many differing interests to coordinate on such a complex topic, which may include international considerations, a decision-making framework and a series of regional workshops would be necessary just to approach the first step of defining reintroduction objectives. Given the incompatibility of such a wildlife management decision-making framework with an analysis of the operation of the CRS, it is not feasible to proceed with a detailed consideration of reintroduction in this EIS. Moreover, to meaningfully analyze reintroduction as a measure, the details of the proposal would need to be understood well enough to include in hydrologic, water quality, and fish models. That information is not presently available, and development of those details was not possible in the timeframe of this NEPA process. Nevertheless, the agencies and interested regional sovereigns are developing a framework to address critical information gaps.
6364	27	ajvitale@cdatribe-nsn.gov	Coeur d'Alene Tribe	Executive Summary, page 10, para 2: This section outlines the agencies understanding of the Tribe's rights to manage natural resources and the trust responsibility of the United States to uphold historic trust obligations. The Tribe finds this section to be nothing but lip service; despite the status afforded tribes (as cooperating agencies), the number of meetings held, the number pages of comments developed, our words continue to be ignored or discarded.	The co-lead agencies remain willing to discuss the EIS during government-to-government consultation.

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6364	28	ajvitale@cdatribe-nsn.gov	Coeur d'Alene Tribe	Chapter 3 Affected Environment and Environmental Consequences: The loss of anadromous fish in the upper Columbia River Basin above Chief Joseph, Grand Coulee and Dworshak dams continues to have a broad array of impacts across the ecosystem. These fish would provide an addition of nutrients to the system when they return to spawn, and would also provide a food source to a wide range of wildlife species. These impacts should be discussed in Section 3.6.2.6 specific to grizzlies, eagles and orca whales. A discussion of these impacts should also be included in the sections that correspond with the No Action Alternative and Multiple Objective Alternatives 1-4 (Sections 3.6.3.2, 3.6.3.3, 3.6.3.4, 3.6.3.5, 6.6.3.6).	In the Draft EIS, the co-lead agencies developed and analyzed alternatives for future operations of the CRS, inclusive of the No Action Alternative. Effects to resources, including effects to vegetation and wildlife, were analyzed in Chapter 3. Effects were described relative to the No Action Alternative. As the co-leads are not proposing to reintroduce anadromous fish above Chief Joseph, Grand Coulee, or Dworshak, the impacts to the resources relative to loss of anadromous sources of nutrients would not change. Any loss of productivity due to lack of nutrients provided by salmon and steelhead carcasses does not change from the No Action Alternative under any of the alternatives.
6364	29	ajvitale@cdatribe-nsn.gov	Coeur d'Alene Tribe	Chapter 7-2, entire first para: The Tribe understands that the agencies spent significant time meeting with Tribes to elicit and understand Tribal perspectives (some of these perspectives are captured here). The problem is it is not enough to understand our concerns. Our concerns must be addressed. The economic, tribal interests, and environmental justice sections lack any consideration of the cultural, health, and economic impacts of the loss of salmon caused by dam operations to the Tribe. To date, our concerns did not translate into a viable alternative that addressed fish passage above the blocked areas.	The EIS recognizes the economic and cultural importance of salmon to Tribes in a number of sections throughout the document. The cultural significance and impacts of salmon and steelhead fisheries are described in the Ceremonial and Subsistence Fisheries sub-section and the Social Importance of Commercial, Ceremonial and Subsistence Fisheries sub-section of Section 3.15.2.1. Fisheries tribal interests are provided in Section 3.15.4 additional details regarding the economic significance of salmon and steelhead fisheries have been added to the recreation analysis (Section 3.11) including tribal interests (Section 3.11.3.7). The issue of fish passage above Chief Joseph and Grand Coulee Dams was determined to be outside the scope of the CRSO EIS. However, the co-lead agencies recognize the importance of this issue and have begun the process of convening a regional forum to discuss fish management in blocked areas.
6364	30	ajvitale@cdatribe-nsn.gov	Coeur d'Alene Tribe	Section 7.7.4.1: Please add the following sentence to the first paragraph: "The Preferred Alternative will continue to prevent anadromous fish runs in Region A, Region B upstream of Chief Joseph and Grand Coulee Dams, and Region C above Dworshak."	The co-lead agencies recognize there are no anadromous fish above Chief Joseph Dam and the analysis in the EIS focuses on anadromous fish downstream of Chief Joseph Dam. Measures to reintroduce salmon above Chief Joseph and Grand Coulee dams were evaluated early in the alternative development process but eliminated from further consideration. Reintroduction is an important and complex, large-scale concept. Its consideration, evaluation, and implementation should involve multiple Tribal, Federal, state, and other entities. A coordinated approach among water users, Tribes, states, multiple Federal agencies, and others would be necessary. To allow so many differing interests to coordinate on such a complex topic, which may include international considerations, a decision-making framework and a series of regional workshops would be necessary just to approach the first step of defining reintroduction objectives. Given the incompatibility of such a wildlife management decision-making framework with an analysis of the operation of the CRS, it is not feasible to proceed with a detailed consideration of reintroduction in this EIS.
6364	31	ajvitale@cdatribe-nsn.gov	Coeur d'Alene Tribe	Section 7.7.7 Vegetation, Wildlife, Wetlands, and Floodplains: The Preferred Alternative will continue to have secondary impacts on vegetation and wildlife in the blocked areas above Chief Joseph, Grand Coulee and Dworshak dams because of the absence of anadromous fish in the ecosystem. The food source and nutrients that these fish supply in the ecosystem have vast and cascading effects that are difficult to measure. A description of these impacts should be included in Sections 7.7.7.1, 7.7.7.2 and 7.7.7.3.	As stated in the Purpose and Need in Section 1.2, the ongoing action that requires evaluation under NEPA is the long-term coordinated operation and management of the CRS projects for the multiple purposes. As stated in the Forty Most Asked Questions Concerning CEQ's National Environmental Policy Act Regulations, in the case where there is an ongoing management program or plan, the No Action Alternative would be "no change" from current management program or plan. The No Action Alternative is required by the National Environmental Policy Act (NEPA), in accordance with the Council on Environmental Quality regulations (40 Code of Federal Regulations [CFR] 1502.14) and provides a benchmark for comparing environmental effects of the other alternatives. The No Action Alternative considers what would happen if the CRS continued to be operated, maintained, and configured with no change at the time that the EIS development process began. Therefore, where impacts existed under the No Action Alternative (i.e. absence of anadromous fish above Chief Joseph, Grand Coulee, and Dworshak), the Preferred Alternative does not need to reflect those ongoing conditions.
6364	32	ajvitale@cdatribe-nsn.gov	Coeur d'Alene Tribe	Section 7.7.8 Special Status Species: Implementation of the Preferred Alternative will impact species of special status in the basin due to the continued lack of a healthy anadromous fish population in the Columbia River basin above Chief Joseph and Grand Coulee dams. Anadromous fish would present a valuable food source for upper basin species such as grizzlies and eagles; while also increasing the amount of available food to imperiled species such as orca whales. A discussion of these im pacts should be included in the document.	In the Draft EIS, the co-lead agencies developed and analyzed alternatives for future operations of the CRS, inclusive of the No Action Alternative. Effects to resources, including effects to wildlife and special status species, were analyzed in Chapter 3. Effects were described relative to the No Action Alternative. As the co-leads are not proposing to reintroduce anadromous fish above Chief Joseph, Grand Coulee, or Dworshak, the impacts to the resources relative to loss of anadromous fish as food sources would not change. The availability of anadromous food sources for wildlife and special status species does not change from current conditions under any of the alternatives above Chief Joseph, Grand Coulee or Dworshak.
6364	33	ajvitale@cdatribe-nsn.gov	Coeur d'Alene Tribe	Section 7. 7 .19 Indian Trust Assets, Tribal Perspectives, and Tribal Interests: The EIS states that "Effects to tribal interests under the Preferred Alternative would be negligible for most resources." The Columbia River Basin and the resources that it holds such as salmon are an integral part of Tribal culture. The continued absence of anadromous fish in the blocked area above Chief Joseph and Grand Coulee Dams is a major impact to the Coeur d'Alene, its members, and all of the Tribes in this area. The agencies' statements really amount to a comparison between status quo operations and the slightly modified Preferred Alternative, which lacks Upper Columbia fish passage and provides no ecosystem benefits to the Tribe. The federal government's trust responsibility to the tribes requires that the federal agencies meaningfully consider the tribes' interests. To meaningfully consider those interests, the EIS must include salmon and steelhead reintroduction to the habitats upstream of Grand Coulee and Chief Joseph dams. Discussion in this section should be changed to reflect that.	The issue of fish passage above Chief Joseph and Grand Coulee Dams was analyzed but eliminated from further consideration. The co-lead agencies recognize the importance of this subject, however, and have accordingly begun the process of convening a regional forum to identify and evaluate issues concerning fish management in blocked areas.
6364	34	ajvitale@cdatribe-nsn.gov	Coeur d'Alene Tribe	Section 7.7.20 Environmental Justice: The Coeur d'Alene Tribe has long endured inequitable treatment by the federal agencies mandated to protect, preserve, and enhance fish and wildlife resources and sovereign Tribal Treaty and Executive Order rights. The Upper Columbia continues to be the most impacted by the Federal Columbia River Power System and least mitigated. The continued absence of anadromous fish in the blocked area above Chief Joseph and Grand Coulee Dams will continue to have an incalculable, adverse impact on tribal populations in the area. As discussed in the Tribe's May 2019 letter on Tribal Perspectives and the information above, the loss of salmon resulting from dams has had significant cultural, economic, and human health impacts to the Tribe and its members. These impacts are disproportionately high to tribal members who have an increased reliance on salmon for subsistence and cultural uses. The agencies cannot continue to avoid the Northwest Power Act's stated purpose: to protect, mitigate, and enhance the fish and wildlife, including related spawning grounds and habitat, of the Columbia River and its tributaries, particularly anadromous fish which are of significant importance to the social and economic well-being of the Pacific Northwest and the Nation and which are dependent on suitable environmental conditions substantially obtainable from the management and operation of the Federal Columbia River Power System and other power generative facilities on the Columbia River and its tributaries. 16 U.S.C. 839(6). Discussion in this section should be changed to reflect that.	The commenter believes that the loss of salmon resulting from dams is a disproportionately high impact to tribal members who have an increased reliance on salmon for subsistence and cultural uses. The environmental justice analysis in Section 7.7.20 considers the extent to which the Preferred Alternative has the potential to affect the availability of fish for commercial, ceremonial and subsistence fishing for Indian tribes, when compared to the No Action Alternative relying on analysis presented in Section 7.4 and 7.5, as well as Sections 3.5 and 3.15.4. This analysis found that under the Preferred Alternative, effects to environmental justice populations are not substantially different than the effects in the No Action Alternative. However, Section 3.15.2.1 acknowledges the loss of access to ceremonial and subsistence fishing in the Upper Columbia above the Grand Coulee and Chief Joseph Dams and these ongoing impacts. Under the Northwest Power Act, Bonneville provides funding to protect, mitigate, and enhance fish and wildlife affected by federal hydropower dams in the Columbia River basin, including the CRS, in a manner consistent with the Northwest Power and Conservation Council (Council) fish and wildlife program and the purposes of the Act. See 16 U.S.C. 839b(h)(10)(A). The Councils Program continues to include a mitigation funding allocation policy of anadromous fish (70 percent), resident fish (15 percent), and wildlife (15 percent). See 2014 Council Program, page 115. In addition, the Council has noted that, as a general policy, consistent with the intent of Section 2(6) of the Act, the Council has directed most of its habitat restoration funds for anadromous fish below blocked areas. See 2014 Council Program, at page 22. Through its Fish and Wildlife Program, Bonneville has funded a significant amount of mitigation in the Upper Columbia River Basin, consistent with guidance in the Councils Program. Recent examples of projects in the Upper Columbia River Basin, funded through Bonneville's Fish and Wildlife Program, include hatchery construction and improvement actions for Chinook, sturgeon, burbot, and trout; habitat restoration actions mitigating operational impacts; and new resident fish mitigation protecting thousands of acres in Montana, including extensive trout habitat that also provides significant wildlife benefits.
6364	35	ajvitale@cdatribe-nsn.gov	Coeur d'Alene Tribe	5. CONCLUSION In conclusion, the Tribe believes that the agencies have failed to comply with their NEPA and trust obligations to the Tribe in its failure to take a "hard look" at fish passage in the Upper Columbia. Ample information exists for the agencies to consider such an alternative in the NEPA process. Moreover, it is clear that passage would provide an economic benefit to Columbia Basin tribes and the Region, in general. If fish passage is not going to be considered in the current EIS, the agencies must commit to completing a supplemental EIS that examines the issue. There is no need to create an entirely new forum to begin to discuss fish passage.	Measures to reintroduce salmon above Chief Joseph and Grand Coulee dams were evaluated early in the alternative development process but eliminated from further consideration. Reintroduction is an important and complex, large-scale concept. Its consideration, evaluation, and implementation should involve multiple tribal, federal, state, and other entities. A coordinated approach among water users, tribes, states, multiple federal agencies, and others would be necessary. To allow so many differing interests to coordinate on such a complex topic, which may include international considerations, a decision-making framework and a series of regional workshops would be necessary just to approach the first step of defining reintroduction objectives. Given the incompatibility of such a wildlife management decision-making framework with an analysis of the operation of the CRS, it is not feasible to proceed with a detailed consideration of reintroduction in this EIS. Moreover, to meaningfully analyze reintroduction as a measure, the details of the proposal would need to be understood well enough to include in hydrologic, water quality, and fish models. That information is not presently available, and development of those details was not possible in the timeframe of this NEPA process. Nevertheless, the agencies and interested regional sovereigns are developing a framework to address critical information gaps. This effort was initiated on June 23, 2020 with the co-lead agencies participated in a discussion with regional sovereigns concerning fish management in blocked areas. Tribal input, concerns, interests, and especially treaty rights were considered throughout the Draft EIS analyses and in the formulation of the Preferred Alternative. Treaty specific information is included in Section 3.17 as well as Chapter 7. The treaties bind all parties and are the supreme law of the land. The co-lead agencies recognize and respect that supremacy. In terms of honoring our treaty obligations, the co-lead agencies included "Protecting Native American treaty and reserved rights and fulfilling trust obligations for natural and cultural resources throughout the environment affected by the Columbia River System operations" as a purpose in the Purpose and Need Statement in Chapter 1 to ensure treaty obligations were a key consideration of decision making.
6364	36	ajvitale@cdatribe-nsn.gov	Coeur d'Alene Tribe	The Tribe also requests that the public comment period be extended to provide additional opportunity to review the document or that the agencies afford the Tribe, through government-togovernment consultation, an opportunity to supplement these comments. We expect that the agencies will consider the Tribe's comments as it conducts its review fairly, openly, and in compliance with the law.	See response to Comment 6364-3.
6364	37	ajvitale@cdatribe-nsn.gov	Coeur d'Alene Tribe	We also expect the agencies to engage in government to government consultation with the Tribe prior to finalizing a final EIS and to meet its trust obligations to the Tribe.	Thank you for your request. The co-lead agencies have stated vigorously throughout the CRSO process that impacted Tribes can request government to government consultation at any time.
6367	1	maya.abels@gmail.com	N/A	In the last twenty years, tribal, federal state and independent research has repeatedly confirmed that removing or breaching the dams will return endangered wild salmon and steelhead back to a healthy and sustainable number.The orca scientists studying the Southern Resident Orcas and why they are perishing or seriously unhealthy, concludes that they are starving because their primary source of food: spring Chinook cannot be found for consumption. A new approach is urgently needed. The dams need a significant investment in deferred and regular maintenance for them to be viable. If these funds were diverted to breaching or removing the dams, the endangered Snake River fish population will return. There are numerous examples of how salmon return once a dam is breached or removed.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. The EIS analysis found that only a minor effect to the Southern Resident killer whale would result from implementing MO3 (which includes the dam breach measure). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differentially from hatchery and wild fish. Hatchery fish today likely make up most fish consumed by SRKW (NOAA BiOp 2020).
6382	1	ja-wil@hotmail.com	N/A	In this time of carbon consideration, the last thing we should be thinking about is diminishing the greatest carbon-free and renewable generation system in the world. Carbon emitting baseload generation is being removed all over the region and cant be replaced with intermittent generation such as wind and solar. Wind and solar power cannot be compared to hydro when you look at the intermittency of wind and solar and the consistency of hydro. Eliminating the large amount of baseload generation provided by the four lower snake river dams will exacerbate the problem we are headed to which is resource adequacy. We cannot ignore the fact that we NEED a dependable electric grid. Our members live in a region that can have below zero temperatures for days on end. In the I-5 corridor, a blackout would be a serious and bothersome nuisance, but in northwest Montana where the temperatures can be below zero for days, people can die. It is very important to recognize that the CRSO Draft EIS shows that losing the Lower Snake River Dams would double the risk of region-wide blackouts.	The measure to breach the four lower Snake River dams that was evaluated in MO3, was not included in the Preferred Alternative (PA) identified in the Draft EIS. The effects of the PA on power are described in Section 7.7.9 of the Draft EIS. Overall, hydropower would decrease relative to the No Action Alternative under the PA. However, because of the shape of the remaining hydropower generation in the PA, the loss of load probability was essentially the same as that of the No Action Alternative and identification of replacement resources was not necessary. The EIS analyzed two resource portfolios to replace the hydropower generation of the four lower Snake River dams, both of which maintain regional power system reliability. See Draft EIS, Section 3.7.3.5, at pages 3-904-910. Under these replacement portfolios, regional power rate pressure increases. Without replacement resources, however, the statement about the effects of breaching the four lower Snake River dams on regional resource adequacy and power reliability is consistent with the findings of the EIS. See Section 3.7.3.5, Effects on Power System Reliability, at page 3-903; and Appendix H, Table 2-1 in the Draft EIS. The statement in the comment that renewables cannot directly replace hydropower is also consistent with the findings of the EIS replacement resource analysis. See Section 3.7.3.2, Potential Replacement Resources and Associated Costs, page 3-849; and Section 3.7.3.5, Lower Snake River Full Replacement, pages 3-905-907 in the Draft EIS.

Letter No.	Comment No.	Commenter Name/Email	Affiliation	Comment	Response[1/]
6382	2	ja-wil@hotmail.com	N/A	I support a strong and viable salmon population in the northwest but salmon alone cannot be the sole decision criteria when considering the fate of the Lower Snake River Dams. Nor can these dams be the sole blame for changing salmon populations. More emphasis needs to be put on ocean conditions, predator control, and other factors impacting salmon numbers and a comprehensive, shared solution be developed that recognizes the important need for clean and reliable power service for this modern world.	The co-lead agencies also recognize that there are many effects to salmon and steelhead populations outside the operation of the dams; including those you mention here. Research continues to evaluate the magnitude of these effects. For more information see the NMFS website at: https://www.nwfsc.noaa.gov/research/index.cfm. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets most other EIS objectives including those for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS, the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams, because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system.
6387	1	Daniel Dauwalter	Western Division of the American Fisheries Society	First and foremost, WDAFS believes that the public comment period for the CSRO DEIS should be extended for at least another 60 days (to June 13, 2020) to allow for a full assessment of the DEIS. We were not able to review the entire document because of its length and disruptions to daily life due to the COVID-19 pandemic.	The co-lead agencies considered requests to extend the public comment period. This NEPA process included a wide array of cooperating agencies whose close involvement throughout the process allowed the co-lead agencies to incorporate feedback. Given the broad range of comments received and the extensive Federal and non-Federal participation in the overall process as well as the level of public engagement in the six virtual public meetings in the region, the co-lead agencies determined that an extension was not warranted and that the 45-day public comment period was adequate consistent with NEPA regulations. The CRSO EIS website reminded the public on April 9, that they should plan to submit comments by the close of the comment period.
6387	2	Daniel Dauwalter	Western Division of the American Fisheries Society	We were not able to review the entire document because of its length and disruptions to daily life due to the COVID-19 pandemic. Since an extension is not certain, the WDAFS provides these brief comments that focus on fisheries impacts due to the Preferred Alternative and select other alternatives evaluated in the DEIS. WDAFS understands that the CSRO DEIS addresses difficult policy trade-offs between electricity, transportation, flood control, irrigation water, recreation, fish, culture, and other values. WDAFS comments focus on the fisheries science contained in the DEIS, particularly as it relates to the Endangered Species Act (ESA), sustainability, and harvest opportunities. The DEIS states that the purpose of the public review is to seek input on the alternatives considered, effects of the alternatives, and associated mitigation. We have used these three topics as outlined in our review below. Alternatives considered: The DEIS should have included an alternative that included fish passage or reintroduction upstream of Grand Coulee and Chief Joseph dams. One of the largest impacts to CRSO Salmon and steelhead abundance was the construction of these dams that were built without fish passage and therefore eliminated access to a large and productive portion of the Columbia Basin. Although we understand the political challenges associated with fish passage into the blocked areas, we do not think it is appropriate to leave this very important action out of the alternatives considered. Reintroduction of anadromous fish into the blocked area is among the most likely alternatives that could be implemented to increase natural production of salmon and steelhead in the Columbia Basin. E	The co-lead agencies considered requests to extend the public comment period. This NEPA process included a wide array of cooperating agencies whose close involvement throughout the process allowed the co-lead agencies to incorporate feedback. Given the broad range of comments received to date and the extensive Federal and non-Federal participation in the overall process as well as the level of public engagement in the six virtual public hearings in the region, the co-lead agencies determined that an extension was not warranted and that the 45-day public comment period was adequate as per NEPA regulations. The Corps notified the public on April 9 that they should plan to submit comments by the close of the comment period. Measures to reintroduce salmon above Chief Joseph and Grand Coulee dams were evaluated early in the alternative development process but eliminated from further consideration. Reintroduction is an important and complex, large-scale concept. Its consideration, evaluation, and implementation should involve multiple Tribal, Federal, state, and other entities. A coordinated approach among water users, Tribes, states, multiple Federal agencies, and others would be necessary. To allow so many differing interests to coordinate on such a complex topic, which may include international considerations, a decision-making framework and a series of regional workshops would be necessary just to approach the first step of defining reintroduction objectives. Given the incompatibility of such a wildlife management decision-making framework with an analysis of the operation of the CRS, it is not feasible to proceed with a detailed consideration of reintroduction in this EIS. Moreover, to meaningfully analyze reintroduction as a measure, the details of the proposal would need to be understood well enough to include in hydrologic, water quality, and fish models. That information is not presently available, and development of those details was not possible in the timeframe of this NEPA process. Nevertheless, the agencies and interested regional sovereigns are developing a framework to address critical information gaps.
6387	3	Daniel Dauwalter	Western Division of the American Fisheries Society	Effects of the alternatives: Based on analyses presented in the DEIS and fisheries objectives set by councils and partnerships in the basin, the Preferred Alternative in the DEIS will not allow for self-sustaining, natural origin, and harvestable anadromous fish populations throughout the Columbia River basin, and only the MO3 Alternative that includes breaching the four Lower Snake River dams is the best alternative to achieving abundant natural-origin, fishable, and harvestable populations of spring/summer Chinook salmon and steelhead in the Snake River. The Northwest Power and Conservation Councils (NPCC) smolt-to-adult return ratio (SAR) objectives required to support recovery and tribal and non-tribal harvest goals for ESA-listed Snake River and upper Columbia River salmon and steelhead are stated to be 2%-6% (4% average, 2% minimum) (NPCC 2014). These SAR objectives were based on analyses demonstrating a median SAR of 4% was necessary to meeting National Marine Fisheries Service (NMFS) 48-year recovery standard for Snake River spring/summer Chinook salmon; meeting the interim NMFS 100-year survival standard required a median SAR of 2%. The Columbia Basin Partnership, a diverse group of 31 Columbia Basin stakeholders and sovereigns, including representatives of the four Columbia Basin states, tribes, ports, public power entities, irrigators, commercial and recreational fishers, and conservationists, have set even more ambitious but agreed-upon goals for recovering healthy and harvestable salmon and steelhead populations in the basin. The CRSO DEIS presents predictions of Snake River spring/summer Chinook salmon SARs under various scenarios, including the Preferred Alternative, using two models: NOAAs Life Cycle Model (LCM), and the Comparative Survival Study (CSS). When considering the NPCC and Partnership objectives stated above, the Preferred Alternative presented in the DEIS will not even result in recovery (minimum viable populations) of ESA-listed salmon and steelhead based on the LCM, whereas the CSS suggests that achieving recovery might be possible but achieving self-sustaining, natural origin, and fishable and harvestable populations is clearly not. In addition, other actions will be necessary to improve survival of other listed populations that will not benefit appreciably from breaching the Lower Snake River dams.	Harvest certainly has an impact on salmon and steelhead populations. NMFS recently completed at EIS evaluating harvest. To see their conclusions and effects analyses please go to: https://www.fisheries.noaa.gov/resource/document/environmental-impact-statement-programmatic-review-harvest-actions-salmon-and. The 2-6% SAR target referenced in this comment refers to the Northwest Power and Conservation Council (Council) target for broad-sense recovery and is separate and distinct from the obligations of any single entity or in this case a requirement to be met solely by the co-lead agencies. Just as the Councils fish and wildlife program encompasses both federal and non-federal stakeholders in the Columbia Basin, the Councils recovery goals would necessitate actions by many parties. Based on the analysis of the Preferred Alternative, it will make a contribution to recovery, but the Councils broad-sense recovery goals are beyond the scope of this EIS, which only contemplates the effects associated with the operation and maintenance of the 14 CRS projects. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species as that is a broader goal with shared responsibility. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species as that is a broader goal with shared responsibility. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the Columbia River System. That determination however is ultimately the role of NMFS and the USFWS. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets most other EIS objectives including those for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS, the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams, because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. Different models predict different long-term survival benefits to ESA-listed species from dam breach, benefits that can contribute to recovery. Under the NMFS COMPASS model, juvenile Snake River spring/summer Chinook in-river survival would improve by 9.6% due to dam breach, which is a 19% relative increase over the No Action Alternative. The NMFS Life Cycle model predicts an increase in adult returns of 13.6% for these same fish under MO3 (no latent mortality assumed) relative to the No Action Alternative (from 0.88% to 1%). Results for Snake River steelhead are similar (10% absolute improvement, or 23% relative juvenile survival increase - smolt-to-adult returns (SARs) for steelhead were not modeled). Under the CSS model, juvenile in-river survival for the Snake River spring/summer Chinook is predicted to improve by 10.4% due to dam breach, which is an 18% relative increase over the No Action Alternative, while SARs would increase by 115% (from 2% to 4.2% 0.02 to 0.042). The CSS model predicts that Snake River steelhead would see juvenile survival increase by 25.8% which is a 46% relative increase over the No Action Alternative. The CSS model also predicts that SAR increase by 177% (from 1.8% to 5%). Though differing in predictions, both modeling groups predict MO3, the alternative that includes the measure to breach the lower Snake River dams, is the best CRSO EIS alternative for salmon and steelhead. One simply predicts adult return increases an order of magnitude higher than the other. As acknowledged, harvest has an impact on salmon and steelhead populations. NMFS recently completed at EIS evaluating harvest. To see their conclusions and effects analyses please go to: https://www.fisheries.noaa.gov/resource/document/environmental-impact-statement-programmatic-review-harvest-actions-salmon-and.
6387	4	Daniel Dauwalter	Western Division of the American Fisheries Society	Tables 3-61 and 7-25 of the DEIS clearly show that the LCM predicts a maximum SAR of 1.0 under the MO3 Alternative, and the SAR under the Preferred Alternative ranges from 0.81 to 1.12% (high estimates assume no latent mortality). The CSS predicts the highest SAR for the MO3 alternative at 4.3%; the CSS SAR estimate for the Preferred Alternative is 2.7%. The CCS SAR estimates for Snake River steelhead are also highest under alternative MO3; the LCM does not have SAR estimates available for steelhead. More specifically, recent analyses for the CSS also show that major population declines of Snake River spring/summer Chinook salmon and steelhead are associated with SARs less than 1%, and increased lifecycle productivity has occurred in years that SARs exceeded 2% (DeHart et al. 2019). Pre-harvest SARs in the range of 4% to 6% are associated with historical (pre-FCRPS) productivity for Snake River spring/summer Chinook salmon. Historical levels of productivity for John Day River spring Chinook salmon are associated with pre-harvest SARs in the range of 4% to 7%. Major population declines were associated with SARs (LGR - GRA) less than 1%, and increased life-cycle productivity as SARs exceeded 2%. Again, these model predictions suggested the Preferred Alternative will not allow for self- sustaining, natural origin, and harvestable anadromous fish populations throughout the Columbia River basin.	The co-lead agencies used current high quality data and the best available science in the analysis of the CRSO EIS. Specific to salmon and steelhead, the agencies used both two primary modeling approaches which yielded a range of potential outcomes for the alternatives. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult (SAR) return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% (within the Northwest Power and Conservation Council recovery targets for the region) as a result of the Preferred Alternative. SAR values reflect the methods used for estimation, and this should be taken into account when comparing estimates against the Council's regional SAR objectives for recovery. The Council did not prescribe a specific method of SAR calculation. SARs reported by hatcheries using coded wire tags often incorporate a harvest correction factor for ocean, recreational and Tribal harvest. Due to the different approaches of the models, including the length of the historical survival time series, use of different hatchery and natural origin populations, and other factors, the two models estimated substantially different SAR under the No Action Alternative for Snake River spring Chinook: 0.88% from the COMPASS model, assuming no latent mortality, and 2.0% SAR from the CSS lifecycle model, which is at the low end of the Council's targeted range for recovery. Different models predict different long-term survival benefits to ESA-listed species from dam breach, benefits that can contribute to recovery. Under the NMFS COMPASS model, juvenile Snake River spring/summer Chinook in-river survival would improve by 9.6% due to dam breach, which is a 19% relative increase over the No Action Alternative. The NMFS Life Cycle Model predicts an increase in adult returns of 13.6% for these same fish under MO3 (no latent mortality assumed) relative to the No Action Alternative (from 0.88% to 1%). Results for Snake River steelhead are similar (10% absolute improvement, or 23% relative juvenile survival increase (SARs for steelhead were not modeled). Under the CSS model, juvenile in-river survival for the Snake River spring/summer Chinook is predicted to improve by 10.4% due to dam breach, which is an 18% relative increase over the No Action Alternative, while SARs would increase by 115% (from 2% to 4.2% 0.02 to 0.042). The CSS model predicts that Snake River steelhead would see juvenile survival increase by 25.8% which is a 46% relative increase over the No Action Alternative. The CSS model also predicts that SAR increase by 177% (from 1.8% to 5%). Though differing in predictions, both modeling groups predict dam breaching is the best CRSO EIS alternative for salmon and steelhead. One simply predicts adult return increases an order of magnitude higher than the other. The Preferred Alternative will require a robust monitoring plan for salmon and steelhead to help narrow the uncertainty between the biological models and will help determine how effective increased spill can be in increasing salmon and steelhead returns to the Columbia Basin. Please see Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information.
6387	5	Daniel Dauwalter	Western Division of the American Fisheries Society	Mitigation: WDAFS recommends quantifying the impacts to fish from CSRO and comparing those impacts to quantitative estimates of the improvement to fish caused by mitigation actions (e.g., hatcheries, habitat actions in tributaries and estuary). An objective mitigation standard might be to achieve no-net-loss. Although the DEIS states qualitative objectives of improving juvenile and adult survival, it is not clear how much improvement is needed to meet objectives for recovery of ESA-listed populations. Improvements relative to the No Action Alternative seems insufficient to evaluate whether improvements are enough to meet mitigation and achieve viability standards. This makes it difficult to evaluate how much mitigation is appropriate.	Quantitative evaluations were conducted to determine the effects of each of the alternatives when appropriate. In instances when quantitative evaluations were not appropriate or possible, qualitative discussions are included to describe the effects of each of the alternatives. The evaluations are clear, transparent, and repeatable based on the best available information. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery.
6387	6	Daniel Dauwalter	Western Division of the American Fisheries Society	Questions that need answers: It would be helpful if the DEIS contained answers to the following questions in order to help readers interpret the conclusions and recommendations provided in the DEIS. We acknowledge that some of the answers may be found in the DEIS, but we have not been able to read and comprehend fully the entire DEIS in light of the time constraints associated with COVID-19. If the answers to our questions are provided, then please direct us to those sections. Otherwise, we recommend including the answers to the questions and associated data or sources in the DEIS. 1) What are the SARs of CRSO relative to a) historic SARs, and b) contemporary SARs in dammed and undammed rivers along the Pacific Coast?	The co-lead agencies analyzed alternatives relative to the No Action Alternative. While both absolute and relative changes compared to the NAA for all metrics are presented in chapter 3.5 and chapter 7, in the case of Smolt-to-Adult return (SAR) rates, the CSS and NOAA modelers caution that their results are better suited for relative comparisons rather than as absolute values. Therefore comparison of modeled SARs to historic SARs or undammed rivers would not be instructive. Specific to presenting SARs from other rivers, the co-lead agencies follow the guidance from the Independent Science Advisory Board, and do not typically weigh performance of one population vs. another. It is difficult to isolate causative factors in those types of comparisons (ISAB 2020-1).
6387	7	Daniel Dauwalter	Western Division of the American Fisheries Society	2) How much of the SARs and adult-to-adult mortality can be attributed to CRSO relative to other factors such as natural, harvest, habitat, predation, hatcheries, and other relevant factors?	Thanks for your comment. The co-lead agencies also recognize that there are many effects to salmon and steelhead populations outside the operation of the dams and these effects are included in SARs. The CRSO Draft EIS did not attempt to separate out CRS effects on SARs from other factors, but rather used SARs to compare across the range of alternatives. The Draft EIS also presents other metrics that are more directly related to the CRS, including in-river system survival, travel time, and the proportion of fish that pass through different passage routes. However, given the hypothesis that the operation and maintenance of CRS dams can affect the survival of fish in their ocean phase, SARs became a key metric in analyzing the alternatives because this latent effect is not captured by the more direct metrics that can be measured within the CRS.

Letter No.	Comment No.	Commenter Name/Email	Affiliation	Comment	Response[1/]
6387	8	Daniel Dauwalter	Western Division of the American Fisheries Society	3) What portion of the total mortality should CRSO be responsible for avoiding, reducing, or mitigating for compared to other users?	The co-lead agencies also recognize that there are many effects to salmon and steelhead populations outside the operation of the dams. Research continues to evaluate the magnitude of these effects. For more information see the NMFS website at: https://www.nwfsc.noaa.gov/research/index.cfm. While meeting the regional SAR goals developed by the Northwestern Power and Conservation Council is a worthwhile endeavor, it is a recovery goal. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the Columbia River System. That call, however, is ultimately the role of NMFS and the USFWS. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species.
6387	9	Daniel Dauwalter	Western Division of the American Fisheries Society	4) Can a combination of natural and hatchery production achieve ESA delisting (i.e., meet goals and objectives in recovery plans) as well as desired harvest levels under the alternatives considered?	Hatchery programs are included in the No Action Alternative and would be expected to continue under alternatives MO1, MO2, and MO4, and certain hatcheries would continue under MO3. No new hatchery programs are considered as mitigation under any alternatives, but MO3 does include increased hatchery production due to short-term impacts from breaching the four lower Snake River dams. Diversity is an important factor in an ESU's ability to persist and adapt, and is one of the factors considered in assessing an ESU's long term viability, along with abundance, productivity, and spatial structure. There is an extensive body of literature developed from studying these factors and managing the conservation of salmon and steelhead, including hatcheries as one tool. Hatchery programs have long been a part of the approach for salmon recovery. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Under this alternative, hatchery programs would continue as proposed under the No Action Alternative, and a number of other mitigation measures would continue as well, but no new hatchery programs are proposed. Figure 3-111, which combines hatchery and wild fish, in the Draft EIS was an illustration that the CRS can and has supported large numbers of returning adult salmon and steelhead. Over time, the Preferred Alternative is anticipated to benefit both wild and hatchery fish. Hatchery origin fish are very important to tribal and sport harvest within the Columbia River Basin, and many hatchery programs are important supplementation to rebuilding natural populations. The three co-lead agencies have legal requirements to produce hatchery fish as mitigation for components of the CRS and continue to support information developed by the Hatchery Scientific Review Group and the Northwest Power and Conservation Council's Three-Step Review process. The co-lead agencies do not have authority over tribal, commercial or recreational fishing; however, through increased abundance anticipated under the Preferred Alternative, more fish may be available for catch.
6387	10	Daniel Dauwalter	Western Division of the American Fisheries Society	5) If breaching were to occur, would all hatchery production and associated monitoring and evaluation (M&E) cease? How would this influence harvest and science in the region?	The Draft EIS acknowledges that with the breaching of the four lower Snake River dams in MO3, there would no longer be an obligation to fund the Lower Snake River Compensation Plan, which accounts for much of the hatchery production in the basin and other mitigation activities could be adjusted. RM&E associated with the remaining hatchery production would be reevaluated at that time. The effects to populations as they transition from primarily hatchery production to an increased wild production of fish is qualitatively discussed in Section 3.5.3.6. The fish models are based upon data collected from past fish runs and there is no data available to inform a quantitative analysis for wild fish in the absence of hatchery fish. Over time, increased returns of wild fish would be expected as wild fish replace hatchery fish, and the Snake River resident fishery would improve as the reservoir habitats transition to riverine. The long term overall effect of MO3 would be beneficial for Snake River salmon and steelhead as well as resident fish, so no mitigation for this effect was identified. Additional hatchery production would be in place for limited years to offset the short term dam breaching and construction effects. Mitigation measures were proposed for both anadromous and resident fish for a transitional period for the breaching of the four lower Snake River dam embankments, as described in Sections 5.4.3.2 and 5.4.3.3. Proposed mitigation includes two years of hatchery production along with trap and haul operations for the anadromous fish during this period. These mitigation measures would reduce adverse effects to resident and anadromous fish in Region C. The three co-lead agencies do not manage fish stocks, and do not have the authority to do so. For harvest, fisheries in the Columbia River Basin and those that rely upon Columbia River fish stocks are managed by numerous entities, including Federal, state, and tribal governments. These entities are guided by a complex array of policies, laws, compacts, and agreements. The management of Pacific salmon fisheries in particular is complex, and involves numerous entities representing a variety of social, political, and conservation interests. Changes in allowable fishery harvest in the Columbia River Basin are a result of decisions made by state, Federal (i.e., NMFS), and tribal fishery managers based on a variety of environmental, biological, economic, and social factors. Alternatives to include changes to harvest are not within the scope of this EIS. The assumptions regarding harvest are taken from the NOAA 2018 EIS and reflect current harvest management guidelines. To see their conclusions and effects analyses please go to: https://www.fisheries.noaa.gov/resource/document/environmental-impact-statement-programmatic-review-harvest-actions-salmon-and.
6388	1	John Smith	Clearwater County Board of Commissioners	We also recognize that the CRSO process, within the framework of the National Environmental Policy Act, looks to identify broad-based environmental and socio-economic impacts associated with the proposed alternatives. However, our belief after an in-depth review of the CRSO DEIS is that it does not take into consideration community economic sustainability. We do not support the CRSO DEIS because both direct and indirect economic impacts of its proposed actions on regional economies are not considered, which are as follows: Clearwater County is home to Dworshak Reservoir, the Dworshak National Fish Hatchery and Clearwater Hatchery provide direct local economic value through a number of avenues: federal jobs (USACE, USFWS), state jobs (ID Fish & Game, ID Parks & Rec), commercial vendors (licensed outfitter-guides, campground operations); and indirectly from the hospitality industry (hotels, eating establishments and retail). According to ID Fish & Game angler surveys, steel head fishing contributes$ 31,677,943 (inflation adjusted) are spent annually in the Clearwater River; and, throughout the region$ 80,815,718. An additional $4,614,444 in angler spending is directly contributed from fishing on Dworshak Reservoir. The Idaho Department of Labor Regional Economist recently provided multipliers of both jobs and income tied to steel head fishing in Clearwater County: [table] Jobs Average Earnings Job Multiplier Income Multiplier Outfitters & Guides 24 $23,221 1.54 1.70 Accommodation 55 $18,448 1.49 1.73 Restaurants & Bars 131 $14,692 1.33 1.63 Sporting Goods Stores 37 $35,831 1.55 1.76	The EIS provides an evaluation of the social welfare and regional economic effects of the No Action Alternative and the Multiple Objective alternatives, including the effects on recreation (Section 3.11) and commercial fisheries (Section 3.15). The EIS described the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. NMFS estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which is described qualitatively. For the effects on recreational fishing under MO3 (Section 3.11.3.5) along the lower Snake River below Lewiston, the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River) as an indicator for fishing visitation in this reach. The EIS describes that the visitation in the long-term in the lower Snake River, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting outfitting and tourism businesses in the region. The social welfare values and regional economic effects associated with recreational fishing under the MOs, as well as river recreation post dam breach under MO3, were not estimated because of the uncertainty and large range in visitation and consumer surplus values among users. In addition, Appendix Q, Annex C, and Section 3.19.3 describes the jobs and income supported by the CRS implementation and system operations, which includes Federal and contractor jobs, as well as multiplier effects (indirect and induced jobs and income). A qualitative description of where these economic benefits would be supported is also described in this section.
6388	2	John Smith	Clearwater County Board of Commissioners	The importance of angler spending cannot be understated in rural economies. We do not understand why the CRSO DEIS suggests proactive coordination with Libby and Hungry Horse Reservoirs related to drawdowns and resident fish impacts but no such concern given to the Dworshak community. The Dworshak community has aggressively, over the past decade, marketed the bass and kokanee fishery in Dworshak while still maintaining the importance of the resident fish well-being. In fact, the first and second largest record small mouth bass in Idaho were caught in Dworshak. Since, as previously noted, angler spending is a valued component in Clearwater County's economy, why are resident fisheries not considered equally throughout the CRSO network?	The Recreation Section 3.11.2 and 3.11.3.2 (No Action Alternative) and Appendix M describe the estimated visitation, social welfare, and regional economic effects associated with visitation at Dworshak, including fishing visitation. Dworshak reservoir elevations could be lower in January through March during wet years in as a result of the Slightly Deeper Draft for Hydropower (Dworshak) measure. During typical water-level years, there would be no differences in water surface elevations compared to the No Action Alternative. During wet years, there would be only minor effects to visitation and social welfare compared to the No Action Alternative. As described in Section 7.7.5, there would be small adverse impacts to resident fish from entrainment from this measure at Dworshak.
6388	3	John Smith	Clearwater County Board of Commissioners	The CRSO DEIS makes mention of a 2019-2021 Spill Operations Agreement. We learned from Corps staff that the Spill Operations Agreement is a negotiated spill regime between co-lead agencies, (Nez Perce Tribe and States of Oregon and Washington) for implementation in the Lower Snake River and Lower Columbia River Dams. It has been suggested that smolts historically made the downstream migration from the upper reaches of the Clearwater River system to the ocean in days and that with the slack water pools the trip takes months. We support and applaud the following in the Spill Operations Agreement: The measures proposed in the CRSO DEIS to reduce predation on downstream anadromous smelts. We support these predator control measures and encourage an aggressive approach to reducing avian predation of anadromous smelts. We applaud efforts that will increase flow in the pools enabling swifter migration of smelts through the CRSO hydro system.	The co-lead agencies also recognize that there are many effects to salmon and steelhead populations outside the operation of the dams; including those you mention here. Research continues to evaluate the magnitude of these effects. For more information see the NMFS website at: https://www.nwfsc.noaa.gov/research/index.cfm. Regarding smolt travel time: the effect of the Preferred Alternative on travel time is presented in Chapter 3, section 5, and Chapter 7 in the Draft EIS. In general, Snake River spring migrants take about 16 days to migrate through the CRS under the No Action Alternative. Under the Preferred Alternative, travel time is reduced by approximately 1 day for Chinook.
6388	4	John Smith	Clearwater County Board of Commissioners	The CRSO DEIS mentions a Zero Generation Opportunity, which would allow flow through dams without electricity generation. The proposal would extend the Zero Generation Opportunity from mid Dec - Feb to Oct 15 - Feb 28, when power markets warrant and river conditions make it feasible. The CRSO DEIS also states that a slightly deeper Dworshak would increase water flow through turbines Jan - March with a focus on hydropower generation because the power demand markets are higher in winter across the CRSO. It seems the Dworshak water is being used for power generation to enable the Zero Generation Opportunity in the lower Snake-Columbia system. Dworshak has been tapped for years to augment flows for outmigrating anadromous fish. We do not support the elements in Zero Generation Opportunity for the following reasons: The Zero Generation Opportunity seasonal extension seems contradictory to the statement of the regional demand for power being greater in the winter. The additional winter season hydro power generation being considered for upper CRSO system storage facilities seems unsubstantiated (i.e. Libby is also a storage facility and has more generating capacity than Dworshak).	The commenter may be conflating two different issues. Drafting Dworshak slightly deeper has the power benefits described in the EIS. Dworshak often fills too quickly in the spring and then has forced spill to meet flood risk management operations. Spill at Dworshak leads to high TDG in water entering the lower Snake River which could adversely impact anadromous fish. Drafting slightly deeper commensurate with the water supply forecast above Dworshak would reduce the incidence of forced spill and provide power benefits described in the EIS. Due to the sensitivity around refill for summer cooling water, the developed process would use a higher probability of refill than what is used at other headwater projects (Grand Coulee and Hungry Horse). As shown in Section 7.7, Figure 7-12 and Table 7-14 in the Draft EIS, this operation does not measurably affect the elevation at the beginning of April or the flow in April except around the highest 1% of water conditions when flood risk management is an issue. The Zero Generation Operations measure, which is included in the Preferred Alternative, allows the lower Snake River projects to reduce generation during night-time hours when loads are lower. This reduction in generation decreases the outflow on the project which allows for water to be stored in the reservoirs for use later in the morning during high winter load peaks. Increasing water flows from Dworshak during January through March with the Zero Generation Operations measure would allow for more peaking capability on the lower Snake projects to meet high winter load peaks.
6388	5	John Smith	Clearwater County Board of Commissioners	In the slightly deeper Dworshak scenario the CRSO DEIS should consider the impact on resident fish. Bass spawning typically occurs when water temperatures hover around 60 degrees F, which in the Dworshak neighborhood is April - May. Given lower water levels in spring and the CRSO EIS lack of inclusion of any climate change assessment on water availability, a slightly deeper Dworshak could have negative impacts on resident smallmouth bass, a highly valued recreational fishery and growing economic engine in Clearwater County's economy. Additionally, the graphs in Figure 7-13 suggest the slightly deeper Dworshak would reach full pool the last week of June and the previously negotiate Dworshak drawdown for fish outmigration begins July I, resulting in a l week full pool recreational opportunity. We do not support the slightly deeper Dworshak scenario for the following reasons: There is no consideration to the impact on resident fish and strong potential for negative impacts on resident small mouth bass. There is no analysis of resident fishery impacts as a result of a slightly deeper Dworshak? The climate change has not been considered in the CRSO DEIS in regard to snowpack and water availability There are no funding resources allocated to Dworshak Reservoir to facilitate water access during the slightly deeper Dworshak levels (boat ramp extensions) for public safety. There are no additional funding resources committed to offset the known negative impacts summer time drawdown has on Dworshak recreation (dock improvements, on water destination facility expansion, campground improvements, OHV use area/camping improvements).	Figures 7-12 and 7-13 offer different ways to view the elevation hydrograph, but both figures indicate the elevations would be very similar to the No Action Alternative by the time smallmouth bass would begin spawning in April or May and remain similar to the No Action Alternative through the summer and fall. Figure 7-13 illustrates the hydrograph in dry, average, and wet years. In this figure the No Action and Preferred Alternative hydrographs are nearly identical in average and wet years during April through June, and in dry years the elevation would be higher than the No Action Alternative at times during these months. The deeper draft is seen in January, February, and partly into March, especially in the wet years, in which the elevation would be lower than the No Action Alternative for a particular date in those months; in other words the reservoir would draft faster and earlier than the No Action Alternative, but it would not result in drawdowns any lower than the No Action Alternative at the lowest point. Effects to smallmouth bass are expected to be negligible. Boat ramps access would be the same as the No Action Alternative during months when they would be in use, and the summer drawdown would also be the same as the No Action Alternative, so mitigation would not be required by NEPA. Through on-going regional climate change studies and work, the co-lead agencies evaluated potential shifts in precipitation and temperature patterns and resulting changes in unregulated Columbia Basin streamflow timing and volumes. The evaluation consisted of the full range of the latest climate change projections developed using multiple global climate models, emissions scenarios, downscaling techniques, and hydrologic models. Details of this evaluation are in Chapter 4 of the EIS. This information was used to describe the potential effects (both beneficial and adverse) on the river systems and resources due to potential changes in climate for all alternatives.
6389	1	jonesh34@wwu.edu	N/A	See attached document for comment	Unfortunately, an attachment was not received from the commenter. The co-lead agencies requested the commenter resubmit via e-mail on June 25, 2020; however, the co-lead agencies did not receive a response to this request.

Letter No.	Comment No.	Commenter Name/Email	Affiliation	Comment	Response[1/]
6411	1	paul@iwua.org	Idaho Water Users Association	IWUA members have long expressed interest in matters involving the Columbia River and salmon and steelhead recovery. During their 2020 Annual Convention, IWUA members adopted the following resolution: 2020-11: Federal Columbia River Power System WHEREAS, In May 2016, a federal judge struck down the 2014 biological opinion for the Federal Columbia River Power System (FCRPS) and ordered that the federal action agencies study the possible removal of one or more dams on the lower Snake and Columbia Rivers; and WHEREAS, The federal judge has ordered that the existing biological opinion remain in place until 2018 and that the National Environmental Review Process for the FCRPS be completed in 2021; and WHEREAS, A federal judge ordered that spill be increased at the lower Snake and Columbia River dams to the maximum level on a 24/7 basis; and WHEREAS, The court-ordered spill operations are experimental and may harm salmon by causing gas bubble disease in juvenile salmon and prevent returning adult salmon from ascending fish ladders to reach their spawning grounds; and WHEREAS, The Columbia-Snake system is the top wheat export gateway in the U.S., with barging on the Snake River handling nearly 10% of all U.S. wheat exports, and half of the wheat grown in Idaho; and WHEREAS, It would take over 43,000 rail cars or over 167,000 semitrucks to move the cargo that moves by barge on the lower Snake River; and WHEREAS, The lower Snake River dams provide enough clean energy to power 1.87 million homes; and WHEREAS, Removing the lower Snake River dams would have a significant negative impact on our economy and environment by eliminating more than 1,000 megawatts of carbon-free energy, increasing greenhouse gasses by 4.4 million tons per year and severely reducing navigation capacity, including the Port of Lewiston; and WHEREAS, The cost of removing the lower Snake River dams is estimated between $274 million and $372 million annually; and CRSO Draft EIS Comments April 13, 2020 Page 3 WHEREAS, Juvenile fish survival rates past each of the lower Snake and Columbia River dams are between 95% and 98%; and WHEREAS, Dam improvements have resulted in improved fish returns with a sustained increase in salmon populations. NOW, THEREFORE, BE IT RESOLVED, That the Idaho Water Users Association is opposed to removal of any of the lower Snake and Columbia River dams and is also opposed to the court-ordered spill increases at the dams. BE IT FURTHER RESOLVED, That the Idaho Water Users Association supports the existing 2014 FCRPS biological opinion remaining in place until a subsequent biological opinion is adopted and in effect.	Thank you for sharing the resolution passed by the Idaho Water Users Association.
6411	2	paul@iwua.org	Idaho Water Users Association	The Committee of Nine is the official advisory committee for Water District 01, the largest water district in the State of Idaho. Water District 01 is responsible for the distribution of water among appropriators within the water district from the natural flow of the Snake River and from Reclamation storage reservoirs on the Snake River above Milner Dam. The Committee of Nine is also a designated rental pool committee that has facilitated the rental of storage water to Reclamation for flow augmentation pursuant to biological opinions. The undersigned Counsel for the CO9 is a sitting member of the Idaho Governors Salmon Workgroup.	Thank you for your comment.
6411	3	paul@iwua.org	Idaho Water Users Association	IWUA members throughout southern Idaho depend on the Snake River and its tributaries for water storage, hydropower, recreation, flood prevention and other purposes. Development of the river has resulted in a thriving agricultural economy. Today, millions of acres are farmed throughout southern Idaho. In 2019, cash receipt from the sales of crops and livestock in Idaho were $8.3 billion.2 Net farm income was $2.7 billion.3 Irrigated Agriculture is responsible for over 112,000 Idaho Jobs 12% of the total workforce. 4 Reclamation estimates that development along the Snake River and its tributaries in Southern Idaho has contributed billions of dollars to Idahos economy: 5 Reclamation and Idaho water users have worked hard to balance the development and management of Idahos river systems including for fish and wildlife. In addition to irrigation, 2 The Financial Condition of Idaho Agriculture: 2019 (Eborn & Taylor) (2020) 3 Id. 4 Taylor, Garth, The Contribution of Irrigated Agriculture to the Idaho Economy (2017) 5 Bureau of Reclamation (2017) Boise Project Minidoka Project Owyhee Project Palisades Project Crops $624,575,000 $704,104,000 $155,250,000 $650,900,000 Livestock $645,000,000 $387,144,000 $93,150,000 $355,448,000 Power Generation $13,975,000 $6,339,200 $0 $31,413,000 Flood Prevention $183,287,500 $9,961,600 $755,550 $20,942,000 Recreation $33,002,500 $28,300,000 $4,830,000 $16,640,400 TOTAL $1,499,840,000 $1,135,848,800 $253,985,550 $1,075,343,400 CRSO Draft EIS Comments April 13, 2020 Page 4 flood control, hydropower generation and recreation, many of Idahos reservoirs incorporate operations for fish and wildlife benefits.	The statements and information presented in this comment are generally consistent with the findings of the EIS. Regarding the support for comments submitted by Lewiston and Clarkston, those comments are addressed in the responses to those comments.
6411	4	paul@iwua.org	Idaho Water Users Association	II. Comments IWUA and CO9 provide the following comments regarding the CRSO DEIS. A. The Scope of the CRSO DEIS is properly limited. IWUA and CO9 support the decision by the Agencies to exclude the Upper Snake River and its tributaries from the analysis of the CSRO DEIS. CRSO DEIS at 1-1 (Projects in the upper Snake, Willamette, and Rogue River Basins are excluded from the CRS because these are coordinated and operated separately) (emphasis added). In 2004, the State of Idaho, the Nez Perce Tribe and Idaho water users entered the Snake River Water Rights Agreement, which was ratified and adopted by Congress in the Snake River Water Rights Act of 2004 (the Nez Perce Agreement). 6 That agreement resolved disputed tribal water right claims for the Snake River and its tributaries. This settlement agreement included several provisions to resolve disputed tribal water right claims for the Snake River and its tributaries. It also quantified tribal water rights and established trust funds for water and fisheries resources. As it specifically relates to the Snake River and its tributaries above the Hells Canyon Complex, the Nez Perce Agreement established a Biological Opinion and flow augmentation program. Pursuant to the agreement, each year up to 487,000-acre feet of Idaho water is passed through the Upper Snake River system (including its tributaries) to assist with downriver migration of juvenile salmon and steelhead. This water, which comes from the federal government, state of Idaho and water users/spaceholders, could otherwise be used for agricultural or other uses, but is left in the river. In return for the flow augmentation program, the parties agreed to a 30-year biological opinion. The Nez Perce Agreement describes the biological opinion, and its relation to the FCRPS, as follows: Biological Opinions will be issued for the term of this agreement which will provide incidental take coverage, if necessary, for all federal actions and related private actions including: (1) all BOR actions in the upper Snake River basin, (2) all private depletionary effects in the Snake River basin above the Hells Canyon Complex to the extent they affect listed anadromous fish, and (3) all private depletionary effects above the Hells Canyon Complex to the extent that they are related to the federal action and affect listed resident species. 6 Information about the settlement agreement can be reviewed at https://idwr.idaho.gov/IWRB/waterplanning/minimum-stream-flows/nez-perce-agreement.html. CRSO Draft EIS Comments April 13, 2020 Page 5 These Biological Opinions shall be separate from any Federal Columbia River Power System (FCRPS) Biological Opinion. (emphasis added).7 Importantly, the biological opinion has a term of 30 years (through 2034), with an opportunity to extend for an additional 30 years upon mutual agreement. Limiting the scope of the CRSO DEIS to exclude the Snake River above the Hells Canyon Complex is consistent with the Nez Perce Agreement. These matters should remain separate and the Agencies should reject any efforts to include the Upper Snake River in their considerations of the FCRPS.	Thank you for your comment.
6411	5	paul@iwua.org	Idaho Water Users Association	B. Removal of the Lower Snake River Dams is Not Warranted. As required by the Opinion and Order issued by the U.S. District Court for the District of Oregon, 8 the CRSO DEIS considered the effects of breaching the four Lower Snake River dams (LSRD). The CRSO DEIS provides extensive analysis of the environmental, economic, social and cultural impacts of breaching the LSRD. Ultimately, however, the Agencies determined that, despite benefits to fish associated with breaching, the adverse impacts to region were too great. Instead, the Agencies chose an alternative that balances the multiple uses of the system, while providing for the recovery of salmon and steelhead. Despite the major benefits to fish expected from MO3, this alternative was not identified as the Preferred Alternative due to the adverse impacts to other resources such as transportation, power reliability and affordability, and greenhouse gas emissions. The co-lead agencies used the analysis in MO3 to inform and improve the development of the Preferred Alternative that seeks to balance managing the system for all purposes while providing additional benefits for fish and other study objectives. (CRSO DEIS Executive Summary at 29) IWUA and CO9 know that salmon and dams can coexist. The CRSO DEIS confirms this fact. Therefore, the Agencies properly rejected MO3 as the preferred alternative. The Agencies analysis shows that, with tailored spill programs and some modifications to the LSRD passage structures, salmon and steelhead can be recovered and the region can avoid the dramatic and devastating impacts of dam breaching.	Thank you for your comment and support of the Preferred Alternative.
6411	6	paul@iwua.org	Idaho Water Users Association	We urge the Agencies to ensure that the analysis in the CRSO DEIS particularly relating to MO3s breaching alternative adequately discusses the economic impacts of the various alternatives. This includes impacts to navigation and those wheat farmers and others who rely on river transportation, sportsmen and other recreational industries and irrigation interests 7 See page 18 of the settlement agreement. https://idwr.idaho.gov/files/iwrb/2004/20040420-Nez-Perce-AgreementMediators-Term-Sheet.pdf. 8 National Wildlife Federation, et al. v. National Marine Fisheries Service, et al., 184 F. Supp. 3d 861 (D. Or. 2016). CRSO Draft EIS Comments April 13, 2020 Page 6 along the Lower Snake River. IWUA and CO9 supports the comments of the Port of Lewiston and State of Idaho relating to economic impacts.	The EIS includes extensive analysis of the effects of MO3 to navigation and transportation (Section 3.10), recreation (Section 3.11), and water supply (Section 3.12).
6411	7	paul@iwua.org	Idaho Water Users Association	C. Increased Flow Augmentation Does Not Benefit Fish. Several alternatives and, in particular, MO4 incorporate increased flow augmentation in an effort to benefit both resident and anadromous fish. The weight of the science, however, suggests that flow augmentation will not provide a meaningful benefit to anadromous fish listed under the ESA. This was confirmed by the district court in its 2005 Opinion and Order: In its report issued on February 10, 2003, entitled Review of Flow Augmentation: Update and Clarification, ISAB noted as a preliminary matter that many questions remain regarding the relationship between river flows and salmon production. In summarizing the present science on the issue, ISAB noted that the benefits to salmon of ... incremental adjustments [to flow] has not been well quantified. Id. at p. 2. ISAB then stated: A different perspective emerged from this latest review. We realize that the prevailing rationale for flow augmentation is inadequate. It is neither complete nor comprehensive. There is room for alternative	We do not interpret the 2003 ISAB report to say that increased flow augmentation does not benefit fish. The ISAB's observation that the effect of incremental flow changes on salmon and steelhead survival through the CRS is difficult to quantify, and that there are other factors to consider probably has not changed since the 2003 report. However, the state of the science and data continues to support that the flow regime in a river is important to aquatic ecosystem function and native biodiversity. Resident and anadromous fish native to the Columbia River Basin are directly affected by flow quantity, timing, duration and variability. As a result of operating the CRS, the Columbia River annual flow volume, spring peak magnitude and duration, and flow variability are generally reduced relative to the natural hydrograph. While the relationship between river flow and travel time appears to have changed with the installation of surface passage devices combined with 24 hour spill, spring peak flow timing and magnitude has been demonstrated to influence smolt transit time, and there is a relationship between smolt travel time and survival. The flow augmentation measure in MO4, McNary Flow Target was developed and proposed by cooperating agencies and was intended to decrease smolt travel time through the CRS by providing additional flow augmentation. The analysis in Chapter 3 presents the smolt travel time modeled results.

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				explanations of data that have scientific justification and practical value for managing the hydrosystem for multiple uses including salmon recovery. The prevailing flow-augmentation paradigm, which asserts that in-river smolt survival will be proportionately enhanced by any amount of added water, is no longer supportable. It does not agree with information now available. (emphasis added)9 There is no information in the CRSO DEIS to suggest that the science relating to flow augmentation has changed. Furthermore, while IWUA and CO9 does not believe that mainstem flow augmentation benefits fish, any flow augmentation that does occur whether in the main stem or tributaries including headwater streams must comply with state water law.	
6430	2	trolfe@celp.org	Center for Environmental Law & Policy	The Preferred Alternative would not prevent continued ESA violations in operation of the FCSR Power System. The overarching problem with the EISs analysis is that endorses a Preferred Alternative that would ensure continuing violations of the Endangered Species Act. The Preferred Alternative is essentially a business as usual approach with slight modifications, and is not projected to significantly improve conditions for anadromous fish. If the Preferred Alternative were selected, fish populations will predictably continue to decline rather than recovering. This is inconsistent with the ESAs requirement that Federal actions not jeopardize the continued existence of listed species. The bar on jeopardizing the continued existence of a species includes both actions that reduce the likelihood of survival and those that reduce the likelihood of recovery. National Wildlife Federation v. National Marine Fisheries Service, 524 F. 3d 917, 931 (9th Cir. 2007) (NMFS I). Preservation of existing populations is not enough. Recovery of salmonid populations is a critical goal of ESA-listing and the consultation process. The most recent opinion in this long-running drama specifically disapproved NOAAs use of a trending toward recovery metric, in which any population increase at all was considered to meet the requirement for recovery. NMFS II, 184 F. Supp. 3d at 891-2. As the court correctly determined, this low level of progress leaves a substantial risk that a species will be driven into extinction by events such as a few years in which environmental conditions are unfavorable. The Preferred Alternative described here fails to even meet this deficient standard. The ranges of estimated effects on fish populations under the Preferred Alternative include no effect, or even negative effects (i.e., populations could remain steady or even decrease). As such, the Preferred Alternative provides no certainty that fish populations would be improved, or even that they would hold steady at the current levels. Simply maintaining the status quo where habitat is already degraded, and will be further degraded by a continuing action, does not meet the ESAs requirements. NMFS II, 184 F. Supp. 3d at 875. The predicted effects of climate change on streamflows and water temperatures make habitat degradation even more likely under the Preferred Alternative. The Ninth Circuit has cautioned that an agencys actions may not allow a species to have a slow slide into oblivion. NMFS I, 524 F. 3d. at 930. Given the depressed state of the Snake River stocks, failing to operate the Columbia/Snake hydropower system in a fashion that facilitates recovery is tantamount to observing that slow slide but failing to act.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the CRS. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. In compliance with ESA, the co-lead agencies submitted biological assessments to NMFS and USFWS (Appendix V). In this Final EIS, the Biological Opinions from NMFS and USFWS can be found in Appendix V, completing this projects ESA consultation. Based on the fish analysis Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. The CSS model predicts that average Smolt-to-Adult return rates would increase for both Snake River spring Chinook and steelhead and would average above 2% (the lower end of Northwest Power and Conservation Council recovery targets for the region) as a result of the Preferred Alternative increasing from 2.0% to 2.7% for Chinook, a 35% relative increase. The National Marine Fisheries Service (NMFS) COMPASS and Lifecycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. To address uncertainty highlighted by the two models, the Preferred Alternative includes working with regional sovereigns to develop a study that assesses the effectiveness of the increased spill regime on adult returns as well as assessment and management of adverse negative unintended consequences, such as long delays of adult migrants, or total dissolved gas (TDG)-related mortality of juvenile migrants. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information.
6430	3	trolfe@celp.org	Center for Environmental Law & Policy	The Preferred Alternative will not provide significant benefit to Snake River ESUs. For Snake River spring/summer Chinook, modelling predicts anywhere from a 7.5% decrease to a 35% increase in Lower Granite smolt to adult returns (SAR) under the Preferred Alternative, depending on whether the LCM or CSS model is used. ESA at 7-100; Table 7-25. The LCM model predicts that Spring/summer Chinook populations in the Salmon River would decrease unless latent mortality in the ocean survival phase is decreased by at least 10%, a speculative assumption. EIS at Table 7-25. As nothing in the EIS suggests that either the CSS or LCM models is more predictive than the other, the prudent approach would be to assume that effects on these fish would be slightly negative as predicted by LCM. This result would squarely conflict with the agencies obligation to avoid increasing extinction risk. Even if both models are considered equally, the result is a range of predicted results that includes no change. In other words, even by the Action Agencies calculation, the Preferred Alternative may not allow for increase in population. For Snake River Steelhead, the Preferred Alternative is projected to result in a 28% increase in Lower Granite SAR (from 1.8 to 2.3) using the CSS model. There is apparently no data available for this population using the more conservative LCM model. But the prediction of the CSS model should not be considered without remembering that the CSS prediction for Lower Granite Chinook SAR was even higher (a 35% increase), while the LCM model predicted decreased returns. ESA at 7-103 - 7-105. The Preferred Alternative discussion makes no numerical prediction for the critically endangered Snake River sockeye populations, but notes that juvenile survival is expected to be similar to the No-Action Alternative, and posits that adult passage success might be improved by an unspecified amount.2 EIS at 7-106. Snake River Fall Chinook juvenile and adult survival is expected to be similar to the No-Action Alternative. Id. at 7-107. Overall, the Preferred Alternative would have, at most, a modest positive effect on Snake River salmon and steelhead populations. There is nothing in the Final EIS that suggests these populations chances for recovery would be improved.	The co-lead agencies concur that the comment captures the expected range of effects to Snake River stocks as predicted by CRS biological models accurately. The range in predicted benefit between the two primary modeling approaches is reflective of the uncertainty associated with magnitude of CRS induced latent mortality. This uncertainty is expected to be reduced over time through a robust adaptive management process. The framework for the adaptive management process is detailed in Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS. It is the intention of the co-lead agencies to engage regional state, Tribal, and Federal fish managers in the development of an appropriate adaptive management process utilizing their respective salmonid management expertise. The goal of that adaptive management process would be to consider additional opportunities to further the effectiveness of the operation while maintaining the goals of the flexible spill operation: additional improvements for salmon and steelhead, maintain opportunities to operate the CRS for hydropower generation in a flexible manner that provides value to the Northwest, is implementable by the dam operators, and provides opportunity to reduce uncertainty and improve the learning opportunities around how operations of the CRS can influence the magnitude of latent mortality effects. The co-lead agencies have not made any determinations on what the preferred approach would be for a regionally developed study plan, and intend to develop that study jointly with regional experts. Unforeseen outcomes or unintended consequences will be monitored and adjusted using current in-season management teams, such as the Technical Management Team. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the CRS. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species.
6430	4	trolfe@celp.org	Center for Environmental Law & Policy	The Preferred Alternative will not provide significant benefit to Columbia River ESUs. Just as for the Snake River ESUs, the Preferred Alternative offers very little potential benefit over the No Action Alternative to Columbia River salmonid populations. The Preferred Alternative would not meaningfully improve the probability of recovery for Upper Columbia salmon and steelhead ESUs. This Alternative is projected to have little or no effect on down-migrating juvenile Upper Columbia Spring Chinook (a 1% increase in juvenile survival). EIS at 7-94; id. at Table 7-22. SAR for this population is predicted (by the more optimistic LCM model) to increase 7% in the absence of the hypothetical reduction in latent mortality (see Section III.C, infra). This translates to an increase in returning adults from 498 to 536 fish, still a dangerously low population size. Id. Effects on Upper Columbia Sockeye and Coho are predicted to be similar to those for Spring Chinook; that is, very little benefit to these ESUs would result. EIS at 7-94 7-96. Migration and survival of Upper Columbia Fall Chinook under the Preferred Alternative is projected to be similar to that under the No-Action Alternative. Id. at 7-97 7-98. Even less benefit to Upper Columbia Steelhead is predicted; in fact, modeling predicts a very small (.1%) decrease in juvenile survival. Modifications of the Bonneville Dam fish ladder and increased spill are postulated, without any data, to possibly increase adult survival. Effects on Middle Columbia Spring Chinook are predicted to be similar to those on the Upper Columbia ESU. 7-98. Very small (<1%) increases in juvenile survival, and unquantified possible adult survival increases are predicted. EIS at 7-99. Overall the EIS does not suggest that the Preferred Alternative would significantly improve the likelihood of recovery of these ESUs	While flow levels from upstream federal CRS dams affect upper Columbia species from the time they enter the mainstem Columbia River from their tributaries, those stocks only physically pass 4 projects which limits the CRS operational impacts to those stocks. The Preferred Alternative had the largest potential positive impact to upper Columbia River stocks compared to the No Action Alternative, or any of the Multi-Objective Alternatives. In addition to continued habitat restoration and hatchery mitigation, the operational changes in spill levels at McNary, John Day, and Bonneville Dams, combined with federal efforts to reduce predation, and decrease the effects of overwintering fallback of mid-Columbia steelhead are all expected to provide benefits compared to the No Action Alternative. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the CRS. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species.
6430	5	trolfe@celp.org	Center for Environmental Law & Policy	The Preferred Alternatives gains in fish population depend largely on the uncertain prospect of reducing latent mortality. Several sections of the EIS refer to improvements in SARs based on reductions in latent mortality. This appears to refer to mortality caused by operation of the dams, but that does not occur until juvenile fish have migrated to the ocean. The Preferred Alternative predicts real improvements in populations of several ESUs, including the Salmon River Upper Columbia Spring Chinook, only if reductions in this latent mortality are achieved. EIS at 7-88; Id. at Table 7-25. However, there is very little explanation of how this would be accomplished, and latent mortality itself is not well understood. The description of the Preferred Alternative notes that the science continues to evolve on the causal factors and magnitude of latent effects caused by passage through the EIS, and the Preferred Alternative is designed partly to provide information on this question. Id. at 7-88. Given that we do not understand the magnitude or mechanism by which latent mortality is generated, it would be imprudent to assume ANY benefit due to reduced latent mortality in predicting the effects of any given Alternative. Yet much of the improvement in salmon populations predicted under the Preferred Alternative make exactly this assumption (see, for example, Table 7-25).	The co-lead agencies used current high quality information in the analysis of the CRSO EIS. Specific to salmon and steelhead, the agencies used two primary modeling approaches which yielded a range of potential outcomes for the alternatives. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% as a result of the Preferred Alternative. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. The framework for the adaptive management process is detailed in Appendix R, Part 2, Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS. It is the intention of the co-lead agencies to engage regional state, Tribal, and Federal fish managers in the development of an appropriate adaptive management process utilizing their respective salmonid management expertise. The goal of that adaptive management process would be to consider additional opportunities to further the effectiveness of the operation while maintaining the goals of the flexible spill operation: additional improvements for salmon and steelhead, maintain opportunities to operate the CRS for hydropower generation in a flexible manner that provides value to the Northwest, is implementable by the dam operators, and provides opportunity to reduce uncertainty and improve the learning opportunities around how operations of the CRS can influence the magnitude of latent mortality effects. The co-lead agencies have not made any determinations on what the preferred approach would be for a regionally developed study plan, and intend to develop that study jointly with regional experts. Unforeseen outcomes or unintended consequences will be monitored and adjusted using current in-season management teams, such as the Technical Management Team.
6430	6	trolfe@celp.org	Center for Environmental Law & Policy	The high spill levels in the Preferred Alternative may affect latent mortality or adult migration. The Preferred Alternative would increase spill over the Snake River and Lower Columbia dams to 125% TDG for significant periods of time during the juvenile migration period. EIS at 7-33; Id. at Table 7-20. While this may assist smolts in their downstream migration, there are concerns about latent mortality associated with GBT. Indeed, this is discussed as a possible limiting factor in maintaining high spill rates in the same section that describes the higher spill regime. Final EIS at 7-33. The possibility that increased GBT from the higher spill rates may work against the hoped-for decreases in latent mortality should be addressed, because higher latent mortality rates result in a very different (and lower) prediction for SARs under the Preferred Alternative. The higher spill envisioned in the Preferred Alternative may increase fallback and mortality of migrating adults. EIS at 7-92. It is also noted that higher spill may delay adult passage at some dams by creating unfavorable tailrace hydraulic patterns such as eddies, that mask adult fish ladder attraction flow. Id. The Preferred Alternative description relies on unspecified adaptive management techniques to identify and remedy any excessive fallback and delay. Id. Not only are these adaptive management techniques unidentified, but it is unclear whether they would ultimately involve measures (such as reducing spill) that would negate the benefits of the higher spill. If so, it is inappropriate to rely on the increased spill in predicting overall SAR rates or effects on salmonid populations.3	TDG levels are regulated under the Federal Clean Water Act, and administered by the states. Both Oregon and Washington have reassessed the available data on effects of TDG levels up to 125% of saturation on fish and other aquatic organisms. Based on this reassessment Oregon issued a five-year "standard modification" and Washington issued a permanent rule change, supported by the Environmental Protection Agency (EPA), to allow TDG saturation up to 125%. However, as noted by the commenter, there is considerable uncertainty in the effects; and therefore, monitoring was required by the states and EPA to ensure any negative effects are detected and allow for adaptive management. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. This will include additional monitoring for the effects of exposure to elevated TDG and will be developed with regional input to ensure adequate monitoring is in place for various lifestages of salmonids, as well as monitoring of non-salmonid species. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% as a result of the Preferred Alternative. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. Unforeseen outcomes or unintended consequences will be monitored and adjusted using current in-season management teams, such as the Technical Management Team.
6430	7	trolfe@celp.org	Center for Environmental Law & Policy	The Preferred Alternatives business as usual approach fails to address temperature concerns for two reasons. First, it simply ignores the evidence that the dams currently lead to temperature increases that can be lethal to endangered salmon populations. For this reason alone, operating the Columbia/Snake system under the Preferred Alternative would violate the ESA. Second, it fails to address the reality of climate change, which is predicted to make existing temperature concerns even worse, further harming the Snake River salmon populations and unacceptably reducing their chances for recovery. Modelling studies conducted by EPA as part of a 2003 Draft TMDL process showed that each of the four lower Snake River dam increased temperature by as much as one degree C. U.S. Environmental Protection Agency, Columbia/Snake Rivers Temperature TMDL, Preliminary Draft (2003) (Draft TMD) at 20. EPA also found that the contribution of point sources to temperature were de minimus relative to the increases caused	The co-lead agencies agree with the commenter's concern relating to water temperatures in the Columbia and Snake rivers and that is why the agencies have used the best information and resources available to model and evaluate impacts from operations described in each of the alternatives on water temperatures. Through the EIS process, the co-lead agencies developed the CRSO EIS system water quality model which consists of the 2-dimensional CE-QUAL W2 models and the 1-dimensional HEC-RAS models. In parallel, EPA has updated the RMB10 1D temperature model to assess Columbia and Snake River water temperatures and evaluate the impacts from the federal dams as part of the reinitiation of the TMDL project. In addition, the USEPA and co-lead agencies worked together to compare the co-lead agencies' CE-QUAL W2/RAS model (used for EIS analysis) and the EPA's RBM-10 model (used for the draft TMDL assessment). Efforts included identifying and comparing similarities and differences in the two models and assessments, and concluded that both models provide useful and technically appropriate analyses of the Columbia and lower Snake River water temperatures. As such, the EPA agrees with the co-lead agencies that the CE-QUAL W2 and HEC RAS models are appropriate to use in developing the Draft EIS (see EPA review comment letter # 16-0059).

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				by the dams. Id. at 39. In other words, even if all point sources on the river met water quality standards for temperature, EPAs modeling shows that the water quality standards simply cannot be met with the dams in place. See Draft TMDL at 39. This confirms that under the Preferred Alternative, lower Snake River temperatures will continue to exceed the tolerance of salmonids even under present-day climatic conditions. This in turn will reduce the likelihood of species survival or recovery. The conditions predicted to result from climate change make this factor even more important. Warming is predicted to be even more severe in the Snake River Basin than in the other basins. EIS at 4-12. Under climate change, conditions similar to the high temperature, low flow year will become more common. These are the conditions under which the highest number of days with water temperature exceeding 68 degrees F currently occur. See EIS, App. D at 3-26; Id. at Figs. 3-12 and 3-13. More frequent low summer flows would be expected to increase summer water temperatures over those presently seen, which will result in even more difficult conditions for salmonids than are currently existing.	The co-lead agencies' results show that breaching the four lower Snake River dams would result in long-term benefits including improvements to fall water temperatures and the restoration of the river to more normative riverine processes; this is stated in Chapter 3, pages 3-271 through 3-272 and Appendix D, Section 6.2.3. Predicted water temperatures under MO3, indicates that nighttime summer water temperatures, as well as fall water temperatures, would be cooler than No Action conditions in the Snake River. However, even with the dams breached, maximum summer water temperatures would exceed state water quality standards (20C) at times, especially during hot weather events. In EPA's Draft Total Maximum Daily Load (TMDL) for Temperature in the Columbia and Lower Snake Rivers (2020), the TMDL accurately states that even if all the allocations in the TMDL are implemented and temperature reductions are fully realized, it is unlikely that the numeric criteria portion of the WQS will be met at all times and all places. In fact, EPA recommends that the States of Oregon and Washington make changes to their applicable designated uses, as part of a use attainability analysis. The existence of the dams, as operated for the congressionally authorized project purposes, contribute to a shift in the natural water temperature regime in the Columbia and Snake Rivers, creating cooler than natural conditions in the spring and early summer and slightly warmer conditions during the fall and winter months, but the co-lead agencies also recognize that historical water temperatures in the Lower Columbia River, before major development of dams, frequently exceeded the current numerical standard of 20C during the summer months. Factors, such as global warming, may also contribute to water temperature exceedances in the future. The climate science community is still developing models that can be used to analyze possible effects to water temperature from climate change, and unfortunately, have not been fully applied and validated for use with climate affected regulated flow projections of large reservoir systems. This data is critical to analyzing potential effects to fish quantitatively. In lieu of this information, the climate analysis used the output from resource models, like water quality and fish, under historical conditions, available climate change data, and scientific literature to qualitative assess potential effects to resources (described in Chapter 4).
6430	8	trolfe@celp.org	Center for Environmental Law & Policy	The only Alternative that significantly improves water temperature is dam breaching (MO3). Consistent with EPAs findings (see Draft TMDL), the only Alternative that significantly reduces Lower Snake River water temperatures is the dam breach scenario (MO3). See EIS, App. D at 6-25 - 6-38. Under this Alternative, the amount of time in which water temperatures would exceed the 68 Deg. Fahrenheit threshold at the lower three Snake river dams would decrease significantly. Id. at Table 6-1. Even for the extreme low flow/high temperature conditions experienced in 2015, a computer modeling study showed that had the four lower Snake River dams not been in place, water temperatures would have been below the threshold for all but very short periods of the summer if the four lower Snake River dams had not been present. Schultz at 4. In contrast, under the Preferred Alternative lower Snake River water temperatures would be similar to the No-Action Alternative. EIS at 7-84.	The co-lead agencies agree with the commenter's concern relating to water temperatures in the Columbia and Snake rivers and that is why the agencies have used the best information and resources available to model and evaluate impacts from operations described in each of the alternatives on water temperatures. Breaching the four lower Snake River dams would result in long-term benefits including improvements to fall water temperatures and the restoration of the river to more normative riverine processes; this is stated in Chapter 3, pages 3-271 through 3-272 and Appendix D, Section 6.2.3. Predicted water temperatures under MO3, indicates that nighttime summer water temperatures, as well as fall water temperatures, would be cooler than No Action conditions in the Snake River. However, even with the dams breached, maximum summer water temperatures would exceed state water quality standards (20C) at times, especially during hot weather events. Overall the conclusion in the Draft EIS is that MO3 would be beneficial to anadromous fish for a number of reasons, but other objectives must also be considered in the selection of a Preferred Alternative. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3. However, the Preferred Alternative also meets all the other objectives of the study for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse impacts to communities and the economy. The dam breaching alternative, by contrast, has significant regional economic impacts and community effects, and meet only a small subset of the EIS objectives. Thus, the co-lead agencies did not recommend MO3 because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system.
6430	9	trolfe@celp.org	Center for Environmental Law & Policy	Comparison of alternatives is prejudiced by including anti-predation measures to improve survival in the Preferred Alternative but not MO3. Regulating water level to reduce predation in John Day Reservoir (this measure is expected to improve success of down-migrating smolts) was omitted from the dam breaching Alternative but included in the Preferred Alternative. No reason is provided for this decision, which serves to improve survival in the Preferred Alternative but not in MO3. To facilitate a fair comparison, predation reduction should have been considered with the dam breaching alternative as well. As this measure (and its effects) are presumably independent of whether the Snake River dams remain in place, this consideration should be a straightforward exercise. Such selective inclusion of individual components serves to artificially increase the perceived likelihood of success for the Preferred Alternative relative to the dam breaching alternative, and frustrates the ability to evaluate the merits of dam removal in an apples-to-apples manner.	Ongoing avian predation measures would continue under MO3 similar to No Action Alternative to manipulate avian habitat on the Columbia and Snake Rivers. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets most other EIS objectives including those for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Therefore, adding the Predator Disruption Operation measure to MO3 would not alleviate the regional economic and community effects, nor would it cause MO3 to meet more EIS objectives than without the measure's inclusion. The co-lead agencies did not recommend MO3, because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system than MO3.
6430	10	trolfe@celp.org	Center for Environmental Law & Policy	Comparison of alternatives is prejudiced by including hatchery closures under MO3 but not the Preferred Alternative. The Snake River hatcheries would remain operational in all Multiple Objective Alternatives except MO3 (dam breaching). EIS at 2-37. The Preferred Alternative also does not appear to include closure of Snake River hatcheries. Hatchery fish make up a substantial fraction of those returning to the Lower Snake river, although it is unclear exactly what fraction of Snake River hatchery fish are produced by hatcheries that would be closed. Logically, loss of hatchery fish in MO3 would result in apparently lower numbers of returning fish, which would led to understatement of the improvement in populations achieved through dam breaching. This would tend to bias the predicted effect of dam breaching on fish populations downward (put another way, the numbers of Snake River returnees under MO3 would be expected to be even higher if the hatchery production were maintained). The overall effect of this would be to understate the improvement in fish populations achieved through dam breaching vs. the Preferred Alternative.	The Draft EIS acknowledges that with breaching of the Snake River dams in MO3, there would no longer be an obligation to fund the Lower Snake River Compensation Plan, which accounts for much of the hatchery production in the basin, other mitigation activities could be adjusted, and transportation of Snake River salmon and steelhead would no longer be possible. The rationale for this, as stated in the Draft EIS, is that Bonneville's funding is directly tied to the operation of the LSR dams. The effects to populations as they transition from primarily hatchery production to an increased wild production of fish is qualitatively discussed in Section 3.5.3.6. As stated on page 3-548, the co-lead agencies recognize there would be transitional needs that would be addressed through mitigation and adaptive management. The fish models are based upon data collected from past fish runs and there is no data available to inform an quantitative analysis for wild fish in the absence of hatchery fish. The co-lead agencies took a qualitative approach to inform the reader of other factors that could affect salmon but acknowledged the magnitude of those effects is not known. A summary of this qualitative discussion is provided for the reader for each Snake River species. The analyses used in this Draft EIS were for the purposes of comparing the effects of the action alternatives for operation, maintenance, and configuration of the CRS projects to one another and to the No Action Alternative. Hatchery programs are discussed briefly in the Affected Environment to give the reader the general information on hatchery programs that are a part of the ESU/DPS described.
6430	11	trolfe@celp.org	Center for Environmental Law & Policy	Dam Breaching is economically feasible. The ESAs argument against the dam breaching alternative (MO3) is largely economic, based on the projected costs of replacing the generating capacity from the four lower Snake River dams. However, the EIS shows that the total annualized cost of MO3 is actually lower than the No- Action Alternative, or any of the other Multiple Objective Alternatives. See EIS at Table 3-1. Nothing in the EIS suggests that, absent a court Order requiring a new EIS, anything other than business-as-usual (essentially, the No-Action Alternative) would have occurred. If operating the system under the No-Action Alternative is economically feasible, then it follows that the dam breaching strategy is also economically feasible.	This comment appears to be referencing the total annual equivalent cost estimates presented in Table 3-1 (final row of Table 3-1, at page 3-11 of draft EIS). While the comment is consistent with the EIS that these costs are lower under Multiple Objective (MO) Alternative 3 (which includes breaching the four lower Snake River dams) than the No Action Alternative, these costs solely reflect the costs of the structural and operational costs of the Columbia River System, including fish and wildlife spending analyzed in the Implementation and System Cost Analysis (Section 3.19). These costs do not represent the full set of economic costs and benefits analyzed in the EIS, such as effects on navigation, water supply, or power generation, and thus do not represent the economic feasibility of any alternative. In the context of power for example, the annual equivalent costs do not include the costs of resources needed to replace lost generating capacity from the four lower Snake River dams. These other effects for each alternative are described elsewhere in Table 3-1. A footnote for Table 3-1 in the final EIS clarifies that the last row only represents direct costs. In response to this and other comments, Chapter 7, Table 7-56 in the final EIS summarizes all of the socioeconomic effects of the alternatives.
6430	12	trolfe@celp.org	Center for Environmental Law & Policy	All evidence and experience points to the conclusion that the dams are the problem for Snake River salmonids. Indeed, the Preface to the EIS notes that even after tremendous effort and billions of dollars expended to improve fish habitat and passage, the dams have a major effect on the fish populations. Judge Simons 2016 Opinion discussed the possibility that a new EIS might lead to innovative new solutions, but the this EIS and its Preferred Alternative falls far short of that goal. This document is clearly designed to provide support for continuing the status quo and avoiding any real consideration of breaching the lower Snake River dams. The No-Action Alternative was rejected because it did not meet the objectives of improving salmonid populations. However, the information in the EIS demonstrates that the Preferred Alternative is not significantly better in this regard. The Preferred Alternative, too, should be rejected. Evidence presented in the EIS squarely shows that dam breaching is the only strategy that significantly improves chances of recovery for the Snake River salmonid ESUs. The ESU also demonstrates that dam breaching is feasible. From the standpoint of preventing further ESA violations, MO3 is the only acceptable alternative. Because of the tremendous amount of evidence showing that dam breaching is the only alternative that will result in recovery of the Snake River fish populations, and the absence of evidence demonstrating that the Preferred Alternative is reasonable, a decision adopting the Preferred Alternative would be arbitrary and capricious. Such a decision would fail to give the benefit of the doubt to the endangered species and would fail to comply with the ESA.	As required by NEPAs implementing regulations, the co-lead agencies used current high quality information in the analysis of the CRSO EIS. Specific to salmon and steelhead, the agencies used two primary modeling approaches which yielded a range of potential outcomes for the alternatives. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult return rates will increase for both Snake River spring Chinook and steelhead and will average above 2% as a result of the Preferred Alternative. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be in increasing salmon and steelhead returns to the Columbia Basin. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA listed species. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as the alternative that includes the measure to breach the lower Snake River dams. However, the Preferred Alternative also meets the other objectives of the study for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse impacts to communities and the economy. The alternative that includes the measure to breach the lower Snake River dams, by contrast, has significant regional economic impacts and community effects, and meets only a small subset of the EIS objectives. Thus, the co-lead agencies did not recommend that alternative (MO3) because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system.
6433	1	jeps3448@gmail.com	N/A	Maintaining the river system for barging is critical both to my farming operation and thousands of other farmers, their families, and employees, across the Pacific Northwest. Because of the locks and dams on the river I am able to ship efficiently and in a cost effective manner, my crop to ports of export. If this system were impaired I see several negative, far reaching impacts. Most directly it would cost at least double to deliver my wheat to market, which would have a major impact on a bottom line that already has a relatively thin profit margin. Moreover, the loss of barge traffic if dams were breached could require as many as 100,000 more semis to haul both grain and other goods up and down the highways. For five years I lived in Boardman, Oregon on the I-84 corridor. During this time I saw a noticeable uptick in truck traffic on the freeway. This was with the barges running as normal. If barge traffic were decreased or eliminated our rural freeway could soon look like I-5 running through Portland. Of course, there is already a shortage of trucking capacity in the region, so it's unclear how farmers such as myself would even find the logistic resources to ship our products to market. Other items such as fuel and fertilizer would also cost more to deliver to our region. I fear any breaching of dams could have ripple effects that would simply put a lot of people like myself out of business. Provided trucks and rail could be found, they would have a profoundly negative impact on our air quality. Barges are 270% more efficient than semi-trucks. All the additional trucks, along with trains, would generate an estimated 1.2 million tons of additional CO2 annually. This, combined with a loss of clean power generated by the dams, is absolutely counterproductive to our general goals of reducing greenhouse gas emissions.	The EIS recognizes that under a dam breach scenario, transportation costs for farmers would increase. The EIS finds that under a dam breach scenario, average transportation costs for wheat farmers would increase 10 to 33 percent, but that individual farmers could experience increases that are doubled. The cost increases to specific shippers would depend upon location and would vary throughout the region, depending on transportation options at each location. Generally, those grain shippers that are the furthest from alternate shipping locations (shuttle rail facilities or river ports on the Columbia River) would be the most negatively impacted. Cost scenarios for example farming operations are presented in the Regional Economic Effects section in section 3.10.3.5. The EIS recognizes that, faced with increasing transportation costs, profitability of farming in this region would be adversely affected. In general, wheat producers are price takers, so keeping production costs lower are critical for remaining competitive. The EIS also acknowledges that, depending on the scenario, truck ton-miles may experience an increase of 19 percent (under Scenario 1, when rail rates are not assumed to increase) to 84 percent (when rail rates increase by 50 percent) under MO3 when compared to the No Action Alternative. The EIS found that truck trips could increase from an additional 14,000 to 79,000 truck trips per year, which would increase air pollutant and greenhouse gas emissions in the region and add to traffic and congestion in the region.
6435	1	dlparks398@gmail.com	N/A	It has been suggested that the Snake River Dams have produced positive economic effects in the Snake River subregion of the dams. There is no convincing data to support that we cannot live without these salmon killing dams. There has been no apparent growth boom in either the farming sector or the economies as a whole in the six counties of SE Washington (Asotin, Columbia, Franklin, Garfield, Whitman, and Walla Walla) and in New Perce County in Idaho. In the 6 counties of SE WA, farm employment has shrunk in absolute terms since 1976. Farm proprietary income as a per cent of total farm earnings has decline since 1973, even though farm income has grown. While population growth in these counties has out paced the U.S. as a whole, per capita income and pay per job have have lagged national performance. Similar trends exist in New Perce County. The dams have done little or nothing for the general economic situation, while the harm to salmon is well documented. What ever the economic negatives may be from dam removal, this study needs to revised and identify these and then develop an alternative that both removes the dams and makes local populations and economies whole	Thank you for your comment. There are benefits and costs associated with operating the lower Snake River projects. The EIS evaluated beneficial and adverse effects across an array of resource areas including potential effects at the national, regional and local level; effects are monetized and quantified, where possible, and also described qualitatively. As is common in NEPA analyses, the beneficial and adverse effects of the alternatives are expressed as a variety of qualitative and quantitative environmental and economic metrics throughout the EIS to inform decision-making, including the effects of the alternatives on fish as detailed in Section 3.5. That the effects of the alternatives on fish are not expressed as monetized economic values does not mean that they were not considered in the context of the analysis. The EIS does not employ a cost-benefit framework for decision-making. Instead, the EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3, which includes the dam breaching measure. However, the Preferred Alternative also meets most of the other objectives of the study for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy.
6447	1	gary@mtco-ops.com	N/A	From our associations perspective, it makes no sense to remove this vital source of carbon-free generation. By one reliable estimate, breaching the Lower Snake River Dams would be the equivalent of putting 421,000 carbon-emitting vehicles on the highways of the Pacific Northwest. It is important a reasonable balance be struck and we believe the preferred alternative strikes the right balance. As stated in our oral testimony on March 25, we cannot ignore the serious challenges facing our region in terms of both salmon protection and maintaining a clean, affordable power system.	The comment that breaching the four lower Snake River dams would increase greenhouse gas emissions from power generation and transportation is consistent with the findings of the EIS. Even if the four lower Snake River dams were breached and replaced with new variable renewable resources, the EIS found that greenhouse gas emissions would increase because existing fossil-fuel fired power plants would run more often . Draft EIS, Section 3.8.3.5, 3-1009-1010.

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6447	2	gary@mtco-ops.com	N/A	We understand the need to help salmon because they do need our help. This is true up and down the Pacific Coast. Salmon and Steelhead in river systems both with dams and without dams are struggling. It is absolutely clear to us the salmon issue is much bigger than the future of the lower Snake River dams. Narrowly framing the challenge as a Hydropower problem ignores key issues associated with Harvest, Hatcheries, Habitat, Ocean Conditions and Predation.	There are many effects to salmon and steelhead populations outside the operation and maintenance of the dams (see Chapters 6 and 7 for more information). Salmon and steelhead have been adversely affected in the Columbia River Basin over the last century by many activities including human population growth, urbanization, introduction of exotic species, overfishing, development of cities and other land uses in the floodplains, water diversions for all purposes, dams, mining, farming, ranching, logging, hatchery production, predation, ocean conditions, and loss of habitat. While none of the Multiple Objective alternatives would affect ocean conditions or directly impact tributary habitat conditions, the co-lead agencies recognize that these conditions are a major driver for adult returns and that numerous studies have shown the importance of these environments in the return of adult salmon and steelhead. Many of the types of habitat improvement actions implemented by the co-lead agencies in cooperation with regional stakeholders can provide improved conditions for many fish species. Habitat mitigation program descriptions are discussed briefly in the No Action Alternative in Section 3.5.3.3 to give the reader the general information on these programs. Chapter 7 describes programs that would continue as well as new mitigation under the Preferred Alternative. Hatchery programs have long been a part of the approach for salmon recovery. Based on our analysis of fish resources in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Under this alternative, hatchery programs would continue as under the No Action Alternative, and a number of other mitigation measures would continue as well, but no new hatchery operations are proposed.
6447	3	gary@mtco-ops.com	N/A	We also cannot ignore the fact that we absolutely have to maintain a dependable Power System. Can you imagine our communities throughout Montana, the Northwest and the United States right now trying to address COVID-19, the biggest public health crisis of our lifetimes, without reliable electric power? This illustrates why dam-breaching must be rejected as an option to assist salmon recovery. More than doubling the risk of blackouts in the Northwest is absolutely unacceptable! The Draft EIS shows that the cost of replacing the clean energy benefits provided by the lower Snake River dams would add $1 billion annually to electricity costs. Doing this without impacting reliability would require replacing the dams with fossil fuel generation. For millions of people across the Northwest, this would result in a 25 percent increase to their monthly electric bills. Many vulnerable communities are struggling to make ends meet. We already have an affordable housing shortage and a homelessness crisis and extreme measures like dam breaching would make these problems much worse. At our co-ops across Montana, we expect that the local impact of the coronavirus crisis will become much worse in the days, weeks and months ahead. We cannot pretend that a 25 percent rate increase is something that our members will be able to afford. In closing, Montana Electric Cooperatives Association believes salmon do need our help but we also believe strongly that the lower Snake River dams are absolutely critical to our region.	The comments that breaching the four lower Snake River dams would (a) increase the frequency of power shortages unless and until replacement resources were built, and (b) would result in increased costs in the region, are both consistent with EIS findings. See EIS, section 3.7.3.5, Table 3-166; see also Appendix H, Table 2-1. The EIS also finds that Bonneville customers, such as cooperatives mentioned by the commenter, may be more directly affected by rate pressures than other regional utilities that do not purchase power directly from Bonneville. See EIS, section 3.7.3.5, Residential Effects, 3-929. The Environmental Justice analysis (Section 3.18.3 of the EIS) provides further detail on potential disproportionate effects including to tribal, low-income and minority populations. Chapter 5 of Appendix H, Power and Transmission provides additional details on potential rate increases by county as well as for urban and rural utility customers.
6463	1	none provided no provided	Riggins, Stanley, Salmon, White Bird, and Kamiah Chambers of Commerce	I. The draft EIS does not adequately evaluate economic impacts of the Northwest salmon and steelhead fishing industry. The draft EIS fails to consider the economic impacts of the Northwests salmon and steelhead fishing industry. When evaluating the economic impacts of each alternative, the analysis completely ignored the sportfishing economy and its estimated contribution of over $757 million in Idaho alone (over $2 billion region-wide). 2 Table 1: Summary of Regional and Other Social Effects. The agencies analysis of regional and other social effects is shown in Table 1 above. The draft EIS relied solely on a qualitative, rather than quantitative analysis to evaluate impacts despite the existence of several current studies on the economic contributions of outdoor recreation and sportfishing in states with anadromous fish. This contrasts with analyses of water supply, irrigation, navigation, and hydropower generation, which were all evaluated quantitatively. At the March 5, 2020 Idaho Governors Salmon Workgroup meeting, an Army Corps of Engineer economist stated economic impacts of sportfishing were outside the scope of the EIS, despite all other resources evaluated in the analysis including quantified effects. Our collective region is overwhelmingly rural and heavily dependent on natural resource and recreational based economies. In 2001, the Spring Chinook season brought $10 million to Riggins alone, where the total spending that year was $44 million1. In the same thread, during the four-month steelhead fishing closure on the Clearwater River in 2019, the Clearwater Region missed out on $8.6 million a month ($34.4 million total), with the majority of the loss in Clearwater County2. It is unacceptable that the draft EIS did not include publicly-available data sources to quantify both the economic potential of abundant fish returns as well as the devastating financial impacts of declining salmon and steelhead populations on rural communities in Idaho and throughout the Pacific Northwest. 1 Economic data sourced from Jim Fredericks, Idaho Department of Fish & Game, Governors Salmon Workgroup Meeting. June 28, 2019. Unpublished. 2 Economic data sourced from Kathryn Tacke, Idaho Department of Labor. Unpublished. 3	The EIS provides an evaluation of the social welfare and regional economic effects of the No Action Alternative and the Multiple Objective alternatives, including the effects on recreation (Section 3.11) and commercial fisheries (Section 3.15). The EIS Section 3.5.3.6 describes the long-term effects to anadromous fish migration in the Snake River and tributaries that would occur under a dam breach scenario as major and beneficial, although quantitative impacts from fish modeling results are limited. The EIS described the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. NMFS estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which is described qualitatively. For the effects on recreational fishing under MO3 (Section 3.11.3.5) along the lower Snake River below Lewiston, the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River) as an indicator for fishing visitation in this reach. The EIS describes that the visitation in the long-term in the lower Snake River, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting outfitting and tourism businesses in the region. The social welfare values and regional economic effects associated with recreational fishing under the MOs, as well as river recreation post dam breach under MO3, were not estimated because of the uncertainty and large range in visitation and consumer surplus values among users.
6463	2	none provided no provided	Riggins, Stanley, Salmon, White Bird, and Kamiah Chambers of Commerce	II. The Preferred Alternative does not result in future salmon and steelhead returns necessary for harvest or recovery. The Preferred Alternative in the draft EIS does not adequately provide for salmon and steelhead population recovery because it will not improve smolt to adult turn rates (SARs) to levels identified by scientists, the Northwest Power Council, and the Columbia Basin Partnership as necessary for harvest or recovery. Harvestable populations require consistent SARs of around 4%3. Under the Preferred Alternative shown in Table 2 below, SARs for Snake River Spring Chinook will reach 2.7% at best. The predicted SAR under the Preferred Alternative, shown in Table 3, is even lower for Snake River steelhead at 2.4%. At worst, the Life Cycle Model predicts an extinction trajectory under the Preferred Alternative with a SAR below 1%, with Snake River spring Chinook SARs predicted at a troubling 0.81%. The draft EIS and the range of alternatives analyzes SARs for natural and hatchery origin fish together, rather than as separate stocks. It is troubling that this analysis does not even strive to meet the natural origin stocks SAR that is required to meet and surpass delisting criteria under the ESA. We believe the alternative should benefit and strike a balance that all users throughout the system can support, but our Chambers, communities and members cannot support implementation of river system operations that may contribute to the extinction of salmon and steelhead that we heavily rely on. Table 2: Summary of predicted annual SARs for Snake River spring Chinook, evaluated by two models. 3 Northwest Power and Conservation Council. 2014. Columbia River Basin Fish and Wildlife Program. pp. 29. https://www.nwcouncil.org/sites/default/files/2014-12_1.pdf 4 Table 3: Summary of predicted annual SARs for Snake River steelhead, evaluated by two models	The Smolt-to-Adult return (SAR) target of 4% referenced in this comment refers to the Northwest Power and Conservation Council (Council) target for broad-sense recovery and is separate and distinct from the obligations of any single entity or in this case a requirement to be met solely by the co-lead agencies. Just as the Councils fish and wildlife program encompasses both Federal and non-Federal stakeholders in the Columbia Basin, the Councils recovery goals are shared by many parties. Based on our analysis of the Preferred Alternative, it will make a substantial contribution, but the Councils broad sense recovery goals are beyond the scope of this EIS, which focuses on the effects associated with the operation and maintenance of the 14 CRS projects. Based on analysis by the CSS, SARs associated with population declines (SARs of less than 1%) have the potential to be greatly reduced under the Preferred Alternative, and on average, SARs are expected to be well above 2.0% for Snake River spring Chinook salmon and steelhead which is within the Councils targeted range for recovery. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin.
6463	3	none provided no provided	Riggins, Stanley, Salmon, White Bird, and Kamiah Chambers of Commerce	III. The dEIS 45-day open comment period does not appropriately engage all affected parties with the threats of COVID-19 pandemic in our communities. Our rural towns are feeling the very real threat of the COVID-19 outbreak and are currently focused on the health of our community members. Many business owners in our membership have been forced to shut their doors to implement prevention measures during these trying times. For many of our members, the COVID-19 outbreak is one more devastating blow after two years of reduced fishing season. We believe a 45-day comment period and conference call meetings severely limited the engagement of all regional stakeholders on this critically important guiding framework.	The co-lead agencies considered requests to extend the public comment period. This NEPA process included a wide array of cooperating agencies whose close involvement throughout the process allowed the co-lead agencies to incorporate feedback. Given the broad range of comments received and the extensive Federal and non-Federal participation in the overall process as well as the level of public engagement in the six virtual public meetings in the region, the co-lead agencies determined that an extension was not warranted and that the 45-day public comment period was adequate consistent with NEPA regulations. The CRSO EIS website notified the public on April 9, that they should plan to submit comments by the close of the comment period.
6464	1	richardvinh@lclark.edu	Northwest Environmental Defense Center	This comment is submitted on the behalf of the Northwest Environmental Defense Center. Thank you for your consideration. Please see attached comment.	Unfortunately, an attachment was not received from the commenter. The co-lead agencies requested the commenter resubmit via e-mail on June 25, 2020; however, the co-lead agencies did not receive a response to this request.
6467	1	N/A	N/A	EWEB receives 70 percent of its electricity from the Bonneville Power Administration (BPA). Each year, EWEB supplies on average 4.5 million megawatt-hours of electricity to customers. Prior to 2028, EWEB will need to reassemble a power generation portfolio, renewing or replacing over three quarters of the resources currently utilized, including EWEBs contract with BPA, and the Carmen-Smith hydro facility relicensing project requiring an additional $115 million investment.	The comment refers to Bonneville contracts ending in 2028 as well as other utility specific concerns. The EIS did not evaluate specific utilities and their investment decisions; however, the EIS does acknowledge competitive pressure and changes in the regional power market in Sections 3.7.2.5, pages 3-801-802 and Section 3.7.3.1, at pages 3-842-843 of the Draft EIS.
6467	2	N/A	N/A	Several public comments have suggested that BPA sells power at a loss, or that BPA is close to becoming financially insolvent. Both are inaccurate. EWEB recognizes that structural changes in electricity markets over the last decade have resulted in persistent low wholesale power prices, impacting the secondary revenues BPA receives from the sale of surplus clean energy. However, EWEB believes that BPA has made significant changes to adapt to this new paradigm, and evidence suggests that BPA is in the process of bending its cost curve towards a future in which they will remain the supplier of choice. In EWEBs judgment, although wholesale market prices are depressed in recent times, BPA rarely sells its surplus electricity for less than it costs to generate. Furthermore, as the Western US continues to adopt policies to reduce GHG emissions, including carbon pricing, it is EWEBs view that hydropower will be recognized for its positive environmental attributes, and also for its inherent operational characteristics such as flexibility and reliability, thus improving BPAs secondary revenues over time. When these externalities are accounted for in our energy future, hydropowers economic value will be greater than it is today.	The comment notes many strategic changes Bonneville has made regarding competition in the power market. Consistent with the observations, the BP-20 rate case marked an important milestone in Bonneville's implementation of its Strategic Plan. The power rate increase was zero percent. BP-18s rate increase was below the rate of inflation. Over the last four years, Bonneville has fundamentally changed course due to principled cost management. The comment about the economic value of hydropower is consistent with information presented in the EIS. For additional discussion of Bonneville competitiveness, see Sections 3.7.2.5, pages 3-801-802 in the Draft EIS and Section 3.7.3.1, at pages 3-842-843 in the Draft EIS.
6467	3	N/A	N/A	It has also been suggested that role of the Snake River Dams in regional resource adequacy has been overestimated. That is also inaccurate. In the long term it is possible that the Dams may not be needed for resource adequacy because suitable replacement generation or additional inter-regional transmission and transfer capability can eventually be constructed to replace them. However, in the near- to mid- term, the flexibility and dispatchability of the Snake River Dams play a crucial role in regional reliability. It is a simple fact that the Pacific Northwest is still a winter peaking region; from October to March, the Snake River Dams often provide more than 2000 megawatts of clean electricity, as well as roughly one quarter of the entire federal systems reserves capability, precisely when it is needed most.	The statements that the four lower Snake River dams are important for regional power reliability and offer peaking capability are consistent with the findings and discussions of the EIS. See Section 3.7.3.5, Lower Snake River Full Replacement, pages 3-905-907 in the draft EIS.
6475	1	debi.wilson@laneelectric.com	N/A	Cautious support for the Preferred Alternative (PA) proposed by the co-lead agencies. We support the flexible spill concept adopted by the co-lead agencies in the PA. However, we are concerned about unprecedented and untested spill to 125% Total Dissolved Gas (TDG), and its impact on Endangered Species Act-listed salmon species. In the absence of clear science around the impacts of spill to these federally protected fish, we insist on	The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin.

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				robust safeguards (see next bullet). Support for fishery monitoring and adaptive management. We support the development of a robust approach to monitoring to determine how fish respond to new and significantly increased levels of spill. We also encourage the co-lead agencies to develop and improve upon an adaptive management framework to protect listed species from unintended consequences that may arise due to operations that utilize enhanced spill	The framework for the adaptive management process is detailed in Appendix R, Part 2, Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS. It is the intention of the co-lead agencies to engage regional state, Tribal, and Federal fish managers in the development of an appropriate adaptive management process utilizing their respective salmonid management expertise. The goal of that adaptive management process would be to consider additional opportunities to further the effectiveness of the operation while maintaining the goals of the flexible spill operation: additional improvements for salmon and steelhead, maintain opportunities to operate the CRS for hydropower generation in a flexible manner that provides value to the Northwest, is implementable by the dam operators, and provides opportunity to reduce uncertainty and improve the learning opportunities around how operations of the CRS can influence the magnitude of latent mortality effects. Unforeseen outcomes or unintended consequences will be monitored and adjusted using current in-season management teams, such as the Technical Management Team.
6475	2	debi.wilson@laneelectric.com	N/A	Support for further study regarding the socio-economic impacts of blackouts. We intuitively know that blackouts have a substantial ripple effect on communities, especially in terms of their impact on human health and welfare and economic prosperity. Almost 80% of Lane Electrics load serves rural residential members. When these members have no electricity, they also have no water because they depend on electric pumps for their wells. This is an area that could benefit from further analysis in the context of this EIS. We encourage the co-lead agencies to sharpen the analysis around the socio-economic impacts of blackouts prior to issuance of the Record of Decision.	The commenter is correct that there could be socioeconomic effects if blackouts occur. The EIS methodology includes the full incremental replacement resource cost necessary to return the region to a level where the likelihood of blackouts is equal among all the alternatives, such that comparisons can be made among the alternatives on an equal basis. The EIS assumes for each Multiple Objective alternative (MO) that sufficient resources are acquired to reduce the risk of blackouts to the level of risk that existed prior to implementation of the MO. Once replacement resources have been acquired, the risk of a blackout for each MO is effectively the same as the No Action Alternative. The EIS evaluates the costs of replacement resource portfolios that would be required to avoid increasing the risk of an outage. See Draft EIS, Section 3.7. The approach in the analysis is to first evaluate the increased risk of power outages related to an alternative, and then identify what resources are needed to avoid that increased risk of an outage. Thus instead of identifying the potential socio-economic costs of power shortage, the analysis identifies the costs of replacement resource portfolios that would be required in order to avoid increasing the risk of an outage. If the EIS had then also added to each MO the additional cost of a blackout, then the MOs would have double-counted the impact of blackout risk (i.e. the MOs would have included the cost of avoiding blackouts and the costs of blackouts). The analysis identifies that the expected outcomes of MO3 and Multiple Objective alternative 4 (MO4) would be an increase in the cost of power and not in the risk of an outage. See Draft EIS, Sections 3.7.3.5 (MO3) and 3.7.3.6 (MO4). Because of the shape of the remaining hydropower generation in the Preferred Alternative, the loss of load probability was essentially the same as that of the No Action Alternative and identification of replacement resources was not necessary.
6485	1	johns944@wwu.edu	N/A	This draft EIS fails to adequately address these values and concerns. The Endangered Species Act mandates that implicated agencies restore populations of an endangered species in all or a significant portion of the species range. Despite about $300 million spent annually on mitigation efforts to raise fish populations, wild salmon and steelhead populations in the Columbia system remain critically low. Most of the Snake River salmon and steelhead runs listed under the ESA are currently at around 1% of historic levels. Restoring anadromous salmonids to the whole Columbia system isnt feasible, or within the jurisdiction of the implicated agencies. However, significant improvements to populations of these fish are very possible in the Snake tributaries between Hells Canyon and Lower Granite. This region of the Snake contains hundreds of miles of pristine, undammed tributaries, including the Salmon, Clearwater, and others. Therefore, the co-lead agencies have a legal responsibility to restore populations to these tributaries. The Northwest Power Act is also of particular relevance to the actions of the co-lead agencies. This act directs the Administrator and other federal agencies responsible for managing, operating or regulating hydroelectric facilities on the Columbia River or its tributaries to provide equitable treatment for fish and wildlife in comparison with the other purposes of the facilities and take the [Northwest Power and Conservation Councils] program into account as much as possible at each stage of decision-making. The various stopgap mitigation programs that, again, cost about $300 million per year have not helped wild anadromous fish populations in any significant way. Salmon are not just a human food source. They feed over a hundred other species, and they are a critical link in Pacific Northwest ecology, transporting a massive amount of marine-derived nutrients upstream to feed our forests. Clearly, fish and wildlife are not getting a good deal out of current use of the Columbia River System.	Recovery efforts referenced in this comment and references to the Northwest Power and Conservation Council(Council) fish and wildlife program with associated target for broad-sense recovery are separate and distinct from the obligations of any single entity or in this case a requirement to be met solely by the co-lead agencies. Just as the Councils fish and wildlife program encompasses both Federal and non-Federal stakeholders in the Columbia Basin, the Councils recovery goals are shared by many parties. Based on the analysis of the Preferred Alternative, it will make a substantial contribution, but the Councils broad sense recovery goals are beyond the scope of this EIS, which focuses on the effects associated with the operation and maintenance of the 14 CRS projects. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species as that is a broader goal with shared responsibility. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the CRS. That call, however, is ultimately the role of NMFS and the USFWS. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. The co-lead agencies used current high quality information and the best available scientific information in the analysis of the CRSO EIS. Specific to salmon and steelhead, the agencies used two primary modeling approaches which yielded a range of potential outcomes for the alternatives. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult (SAR) return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% (within the Council recovery targets for the region) as a result of the Preferred Alternative. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. The agencies provide equitable treatment on a systemwide basis primarily by implementing hydrosystem management and operations identified in relevant NMFS and USFWS biological opinions, in the Columbia Basin Fish Accord agreements, and in measures included in the Northwest Power and Conservation Councils fish and wildlife program. On a systemwide basis, the co-lead agencies ongoing management of the CRS will continue to provide fish and wildlife equitable treatment with the other authorized purposes of the system.
6485	2	johns944@wwu.edu	N/A	On the other hand, the Columbia system is the most dammed river system in the world, and this EIS demonstrates the premium placed by the co-lead agencies on power generation, among other direct human services. Especially given the minimal role that the LSRDs play in our modern energy system, this treatment does not strike me as equitable. Before dams were put in place in the Columbia and Snake, juvenile salmon could travel from the headwaters of the Salmon River to the sea in about 10 days. Instead of swimming, they primarily rode the downstream flow, and their physiological transition for living in saltwater was timed for this short journey. With the dams in place, a large portion of juvenile salmon mortality occurs in the reservoirs, where slacker water forces them to expend energy, warmer water causes physiological problems, and predatory fish are more plentiful. Though predator control has been used, most of the mitigation efforts to reduce juvenile mortality are aimed simply at getting them past the dams themselves. The effect of reservoirs on salmon populations must be addressed explicitly in the alternatives considered in this EIS.	In its analysis of effects, the Draft EIS used current high quality data and best science, including models and studies published in peer review science journals. Specific to salmon and steelhead, the agencies used two primary modeling approaches which yielded a range of potential outcomes for the alternatives. With respect to the Preferred Alternative, the CSS model predicts that average Smolt to Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% as a result of the Preferred Alternative. This analysis includes the effects of migrating through the reservoirs. Under the Preferred Alternative, Snake River Chinook juveniles will migrate from Lower Granite to Bonneville Dam in about 16 days. Efforts to reduce predation from pinnipeds, avian, and fish will continue under the Preferred Alternative, with the additional benefits expected from the Predator Disruption Operations measure. Regarding the power system, the commenters statements are inconsistent with the findings in the EIS. Specifically, the four lower Snake River dams produce upwards of 1,100 aMW of power, which is approximately 13 percent of the average power produced by the FCRPS. See EIS, Section 3.7.3.5, Changes in Power Generation, Table 3-159. This amount of lost power is equivalent to the amount of power used to serve 900,000 homes in the Pacific Northwest. See EIS Section 3.7.3.5, Summary of Effect, at 9-935. To maintain regional reliability at the No Action Alternative levels, the EIS found that additional resources would be needed. See EIS Section 3.7.3.5, Potential Replacement Resources and Associated Costs, at 3-904-910.
6485	3	johns944@wwu.edu	N/A	The preferred alternative largely sticks to the status quo, continuing use of increased spill and similar measures. The same is true of all multiple objective alternatives listed, outside of MO3. The status quo clearly is not working. The preferred alternative claims to meet the improve juvenile salmon and improve adult salmon objectives. However, the best-case model output for Snake River Chinook and steelhead in the preferred alternative gives SAR increases of 35% and 28%, respectively. A 35% improvement on 1% of historic levels yields 1.35% of historic levels, which is not good enough. Under this model result, the co-lead agencies will not be fulfilling their legal duties under the ESA and the NPA. Breaching the LSRDs is the only alternative addressed that would lead to a major increase in salmon and steelhead populations. To assess the effectiveness of MO3, this draft EIS uses SARs from both the CSS model and NOAAs LCM model. However, the SARs from NOAAs LCM model only measure the percentage of fish that return from Lower Granite to Bonneville. This measure underestimates the increase in return percentage under dam breaching, since return of adults through the lower Snake is not considered; with the dams breached, lower adult mortality would be expected in this region. Furthermore, the LCM model suggests that juvenile latent mortality due to the dams could drop anywhere from 0% to 50% in the breaching scenario, with 0% as the default. While I assume that this model is factoring in a drop in mortality due to a shorter run-time (5.5 days shorter for Snake River Chinook according to table 3-85), setting a dam-related latent mortality drop of 0% from dam breaching is still unreasonable. If juveniles are passing through 4 fewer overheated reservoirs that require extra physical exertion, latent mortality from dams themselves should decrease. For these reasons, the LCM fish model under the breaching scenario underestimates the increase in Snake River salmon and steelhead population relative to other alternatives. This underestimate creates bias against MO3. The co-lead agencies must correct this bias.	The flexible spill operation in the Preferred Alternative was implemented for the first time in 2019, and active monitoring will be used to inform an adaptive management process as described in Appendix R. The commenter is correct that spill and many other measures considered in the MOs have been implemented in the last couple decades, which has provided data regarding effectiveness. In combination with hatchery supplementation and habitat restoration, adult abundances of most of the salmon ESUs in the Columbia Basin have been trending upwards in the last 20 years, although hatchery origin adults now make up a large component of many stocks. Certain wild ESUs such as Snake River fall Chinook have had a much more positive trend in recent years than other ESUs in the basin, despite their average SAR near the 1% range. High freshwater productivity rates in the early juvenile stages were necessary for this to occur. The NMFS and CSS Life Cycle models (which are both only able to model Snake River spring/summer Chinook) are able to incorporate spawner capacity and density effects in the juvenile stages, in addition to outmigration through the CRS and SAR. For the 2000 Biological Opinion, NOAA proposed estimating free-flowing Snake River survival rates by estimating survival rates of PIT-tagged smolts from both the Salmon River trap, and from the Snake River trap (at the head of Lower Granite Reservoir) to the Lower Granite bypass. The per-kilometer survival rate of the free-flowing portion of the Snake River could be inferred from these difference between these two trap-to-dam estimates (Ferguson et al (2004). For the CRSO EIS, NMFS used a similar method of estimating free-flowing survivals and travel times with their COMPASS model. PIT-based monitoring efforts have occurred at 20-plus additional hatchery and wild trap locations in the Snake and upper Columbia since the 2000 BiOp. In the appendix, NMFS carries out a sensitivity analysis for the choice of upstream trap location by comparing free-flowing survival rates estimates from the Grande Ronde, Salmon, and Imnaha traps to Lower Granite Dam to represent dam breach conditions under alternative MO3. There is a wide variance in per-kilometer travel times and survival rates to Lower Granite Dam among all of the possible hatchery release sites and screw trap locations upstream of Lower Granite Dam. The river conditions and migration behavior of fish in tributaries to the Snake River is much less representative of river conditions we expect in the Lower Snake river following dam breaching than are the river conditions in the free-flowing Snake River between the confluence of the Clearwater River and the confluence of the Salmon River. NMFS selected the three locations because each trap location was low in the tributary and are very close to the mainstem Snake River; we expect that reach of the free-flowing Snake to be very similar to what the breached lower Snake would look like in MO3. Ferguson J. (2004) Memorandum to FCRPS biological Opinion Remand Administrative Record RE: Updated estimates of free-flowing river survival. NW Fisheries Science Center.
6485	4	johns944@wwu.edu	N/A	Another downside brought up for the MO3 alternative is that reductions in hatchery fish could reduce numbers of juvenile Snake River Chinook salmon by as much as 85 percent. Hatcheries have long been used as a crutch to maintain salmon populations and mitigate the effects of dams. However, the ESA mandates that the agencies restore wild populations. While hatchery fish may reduce predation rate on wild fish by increasing sheer numbers, they also compete with wild fish. The science is quite clear that hatchery salmon are less fit than wild salmon and simply cause further harm to wild salmon populations. A resilient ecosystem requires genetically diverse salmon populations with high fitness levels. If the co-lead agencies are to follow the ESA, the goal should be to reduce reliance on hatcheries, even if total salmon passage is initially reduced.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. The effects to populations as they transition from primarily hatchery production to an increased wild production of fish is qualitatively discussed in Section 3.5.3.6. Hatchery programs have long been a part of the approach for salmon recovery. Based on our analysis of fish resources in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Under this alternative, hatchery programs would continue as under the No Action Alternative, and a number of other mitigation measures would continue as well, but no new hatchery operations are proposed. The listings of ESUs/DPSs often include fish produced in hatcheries. Hatchery origin fish are very important to Tribal and sport harvest in within the Columbia River Basin, and many hatchery programs are important supplementation to rebuilding natural populations. Further, the three co-lead agencies have legal requirement to produce hatchery fish as mitigation for components of the CRS. The effects of hatchery programs on ESA-listed fish are evaluated through individual consultations under the Endangered Species Act.
6485	5	johns944@wwu.edu	N/A	A final form of bias that this EIS demonstrates for all salmon and steelhead populations considered is that it does not factor in climate change. Regardless of regional greenhouse gas emissions, climate change is baked into our current world order; it is happening, and it will continue to happen. Salmonids, like most species, face adverse effects from climate change. Dr. Erika Eliasons work on how increased water temperature affects Fraser River sockeye physiology is a good example. Without factoring in climate change, all population estimates of these species are overestimates. The ESA does not give anyone a pass on considering the impacts of climate change. Therefore, climate change creates an even stronger imperative for the co-lead agencies to move beyond the status quo in salmon conservation.	Regarding climate change, the climate science community is still developing models that can be used to analyze possible effects to water temperature from climate change and, unfortunately, they have not been fully applied and validated for use with climate affected regulated flow projections for large reservoir systems. Therefore it was not possible to reliably model water temperature changes under climate change for this EIS. In lieu of this information, the climate analysis used the output from the water quality models under historical conditions, climate change data, and scientific literature to qualitatively assess potential effects to water temperature (Section 4.2.3). Additionally, in the cumulative effects chapter (Section 6.3.1), climate change is analyzed as one of the reasonably foreseeable future effects relevant to anadromous fish. This information is summarized in Table 6-19.
6485	6	johns944@wwu.edu	N/A	This EIS also fails to consider the southern resident orca as an affected endangered species. While it is clear that southern resident orcas do not physically reside in the Columbia River Basin, it is just as clear that the Columbia system plays a crucial role in their health. Southern resident orcas are starving to death. 80% of their diet is salmon, of which the vast majority are Chinook, and they preferentially feed on larger size classes. Todays southern residents are visibly emaciated. Lack of food leaves them particularly vulnerable to noise pollution (which makes scarce food even harder to hunt) and chemical pollution (fat soluble chemicals like PCBs are more likely to be transferred from mother to baby when the mother is starving). A small number of breeding adults also means that inbreeding depression is a growing concern. While southern resident orcas are struggling, transient orcas are thriving. These marine mammal-eaters feed even higher on the food chain and thus accumulate even higher levels of chemical pollutants. The difference is that they have a reliable food source. The Columbia system once provided more salmon than any other river system on in the region. Increased Chinook runs in other rivers would help, but without improved Chinook populations in the Columbia system, the southern residents may not survive. Given this situation, the co-lead agencies must consider impacts on southern resident orcas in their analysis of the alternatives. Breaching the LSRDs is the single biggest action that can be taken right now to help this endangered cultural icon of the Pacific Northwest.	SRKW analysis is described in the EIS including in the FEIS Chapter 3 (Vegetation, Wetlands, Wildlife, and Floodplains) which has been updated for SRKW (Section 3.6.2.6 and Table 3-102) and FEIS Chapter 7 (Preferred Alternative) with additional analysis information on SRKW and potential increase in forage fish, in particular, Chinook salmon in Section 7.7.8. The co-lead agencies utilized current high quality information and best available science in its analysis of the effects of the operation, maintenance, and configuration of the CRS projects. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species."The EIS analysis found a minor effect to the Southern Resident killer whale (SRKW) would result from implementing Multiple Objective 3 (MO3), which includes breaching the four lower Snake River dams. This conclusion is based on the fact that Chinook salmon available to SRKW from the lower Snake River comprises only a small percentage of their overall diet. Changes to this portion of the whales food availability of the magnitudes predicted for MO3 may change the whales foraging behavior patterns slightly, but will not change their overall condition or population dynamics. The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no

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					evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). The co-lead agencies agree that the quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults form the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differentially from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020).
6485	7	johns944@wwu.edu	N/A	Discussion of salmon and orcas would be incomplete without considering their critical importance to the local tribes. The executive summary of the EIS describes tribal loss well in the following paragraph: Many of the tribes have not only lost access to traditional places, but have lost access to the one thing that all these places on the river had in common, which bound them together - the salmon. The loss of these foundational aspects of tribal culture has manifested itself across tribal communities in very tangible ways. The tribes cope with levels of poverty, ill health, and unemployment at significantly higher proportional rates than any other ethnic group in the country, which in turn leads to significantly higher mortality rates in comparison to non-native communities. (pg 12) Unfortunately, this apparent understanding hardly makes its way into the discussion of MO3.	Tribal input, concerns, treaty rights, and interests were considered throughout the Draft EIS analyses and in the formulation of the Preferred Alternative. The co-lead agencies are engaging in government-to-government consultation with the tribes, and several tribes are cooperating agencies on the CRSO EIS. The EIS recognizes the economic and cultural importance of salmon and other natural resources to Tribes in a number of sections throughout the EIS. The cultural significance and impacts of salmon and steelhead fisheries are described in the Ceremonial and Subsistence Fisheries sub-section and the Social Importance of Commercial, Ceremonial and Subsistence Fisheries sub-section of Section 3.15.2.1. Fisheries tribal interests are provided in Section 3.15.4 additional details regarding the economic significance of salmon and steelhead fisheries have been added to the recreation analysis (Section 3.11) including tribal interests (Section 3.11.3.7). Additional information regarding tribes is discussed in the Executive Summary, Section 3.16 Cultural Resources, and Section 3.17 Indian Trust Assets, Tribal Perspectives, and Tribal Interests. Appendix P includes copies of tribal perspectives that were submitted by tribes. Tribal consultation is described in Sections 1.5, 3.5, and 3.15; and Chapter 9. Most sub-sections, including the Vegetation, Wildlife, Wetlands, and Floodplain section within Chapter 3 include a Tribal Interests section at the end of the sub-section that attempts to summarize tribal issues by resource. Multiple Objective alternative 3 is noted as being preferred by many tribes.
6485	8	johns944@wwu.edu	N/A	Instead, the EIS executive summary states that MO3 could result in additional major adverse effects to archaeological sites due to potential exposure of 14,000 acres that are currently inundated (pg 28). Framing loss of underwater cultural preservation as adverse effects suggests that the tribes are somehow a relic of the past, which is not at all accurate.	The co-lead agencies disagree that the impact analysis to submerged cultural resources suggests that Tribes are not living communities. Section 3.16.3.6 in the Draft EIS provides an impact analysis of Multiple Objective alternative 3 to all of the cultural resources identified within the study area, including archaeological sites, traditional cultural properties (TCPs), and the historic built environment. In pages 3-1390 through 3-1391 of the Draft EIS, the co-lead agencies noted the exposure of TCPs would allow a resumption of traditional uses that have not been possible since the dams were constructed and this is viewed as a beneficial effect. The co-lead agencies are aware of continuing traditional uses and engage in coordination with the tribes on a frequent, if not daily basis.
6485	9	johns944@wwu.edu	N/A	By far the most important cultural resources are the ones that are currently being withheld by the hydroelectric system on the lower Snake: healthy salmon populations, and a free-flowing river. In fact, the destruction of Kettle Falls, Celilo Falls, and salmon runs is in violation of treaty rights, which supersede congressional law. In his independent assessment almost 20 years ago, Army Corps engineer Jim Waddell came to the conclusion that breaching the 4 lower Snake River dams made the most economic sense among the alternatives available. As an engineer who was not from the region, Waddell was relatively unbiased and reached this conclusion simply from weighing the evidence provided in the mostly complete EIS. However, due to entrenched support for dam retention, his conclusion was rewritten to favor the opposite approach.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-lead agencies numerous legal obligations. The Preferred Alternative is predicted to benefit ESA-listed juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3, which includes the measure to breach the four lower Snake River dams. However, the Preferred Alternative meets other objectives for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and met only a subset of objectives. Thus, the co-lead agencies did not recommend the measure to breach the four lower Snake River dams, because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. The co-lead agencies invited a number of entities (including Tribes, states, and agencies) from across the region to participate in the EIS process as cooperating agencies, and over 30 of those invited agreed to participate. Staff from the cooperating agencies joined the technical teams and provided their expertise and review of the development and analysis of the alternatives. Leaders from the co-lead agencies met with Tribal leaders for formal consultation, and with other organizations and stakeholders to have dialogue and receive feedback as the EIS progressed. However, only the co-lead agencies have authority to make decisions regarding future operation and configuration of the dams in the CRS. The co-lead agencies selected senior staff from across the country with expertise in their fields to serve on the EIS team. The Draft EIS was subject to two internal agency reviews by Corps of Engineers reviewers not involved in the development of the document. Then the document, analysis, and modeling were reviewed following an Independent External Peer Review (IEPR) process. An independent panel of experts reviewed and provided feedback on the EIS and models used in the analysis. The final IEPR report will be publicly available.
6485	10	johns944@wwu.edu	N/A	In the last 20 years, the economic case for retaining the LSRDs has only gotten worse. With west coast states rapidly bringing on other renewables, the LSRDs make less sense than ever. An independent study by ECONorthwest, Lower Snake River Dams: Economic Tradeoffs of Removal, was completed in July 2019. They estimate a net benefit of 8.65 billion dollars for dam removal. I do acknowledge that there are costs to breaching the LSRDs. Though BPA is currently selling power at a much lower price than the cost of production, sometimes even paying California to take its excess power, there may be peak production situations where the extra power is needed. The increase in power shortages from once every 15 years to once every 7 years is something, though a shortage once every 7 years (with no replacement power source) is still quite infrequent, and again, non-hydroelectric renewables continue to increase in capacity in west coast states. Even assuming no new power sources are added to the region, roughly one extra power shortage every 15 years (over the no action alternative) seems like a small price to pay for giving salmon and southern resident orcas a real chance at recovery (see my comments on the NPA).	The EIS evaluated beneficial and adverse effects across an array of resource areas including potential effects at the national, regional and local level; effects are monetized and quantified, where possible, and also described qualitatively. The EIS does not employ a cost-benefit framework for decision-making. This is consistent with NEPA guidance, which describes that the EIS should not be a cost-benefit analysis if there are important tradeoffs that are not quantified. Instead, the EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as the dam breaching alternative. However, the Preferred Alternative also meets most of the other objectives of the study for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. A summary table in Section 7.4 has been added to provide a concise description of the beneficial and adverse effects of the alternatives, including the quantified social welfare costs and benefits for a number of resources. The Vulcan Report employs a cost-benefit framework. Consequently, a focus solely on the monetized economic costs and benefits would exclude important tradeoffs associated with the alternatives communicated in the EIS, including effects on fish. Regarding passive-use values, Section 3.15.2.2 of the EIS describes the recent ECONorthwest study, highlighting the objective and approach to estimating willingness-to-pay for salmon restoration. The ECONorthwest analysis and the EIS employ different analytical frameworks and rely on different findings with respect to the outcomes of breaching the four lower Snake River dams. First, the ECONorthwest report applies a cost-benefit analysis framework, emphasizing monetization of all categories of impacts. Consistent with NEPA analysis frameworks, the EIS expresses beneficial and adverse effects across a variety of qualitative and quantitative environmental and economic metrics. That the effects of the alternatives on fish are not quantified as monetized economic values does not mean that they were not considered in the context of the analysis. Second, the findings of the ECONorthwest report that the benefits outweigh the costs of breaching the dams rely on the implicit assumption that breaching would result in restoration of salmon populations. The fish effects analysis in Section 3.5 of the EIS does not find that Multiple Objective alternative 3 would result in recovery of salmon or steelhead populations or in restoring the populations to historical levels. Thus, the values presented in the ECONorthwest report should not be considered as representative of the benefits of MO3. However, the results from the ECONorthwest study contribute to the overarching conclusion of Section 3.15.2.2 that describes that the literature consistently demonstrates that people hold passive use values for salmon.
6485	11	johns944@wwu.edu	N/A	Additionally, the analysis suggesting increased greenhouse gas emissions under MO3 does not consider the methane emitted in dam reservoirs; this data must be included. As stated previously, multiple independent analyses suggest that breaching would be a net economic benefit. Certainly, there would be regional changes.	Appendix G, Chapter 5 of the EIS details the assessment of reservoir methane emissions from the CRS dam and reservoir projects. The findings are summarized in Section 3.8. While the assessment acknowledges uncertainty related to the level of methane emissions across the CRS project reservoirs, it relies on the highest quality information to evaluate the potential impacts of the alternatives. Specifically, a 2017 Northwest Power and Conservation Council evaluation of available information found that data on these sites were insufficient to estimate the reservoir methane emissions specifically for the CRS, but described that methane emissions at high levels are not likely due to the lower organic and nutrient loads to the system, and higher dissolved oxygen content. The EIS describes that emerging technologies would allow for better measuring and understanding the effects of reservoir methane emissions from CRS projects, including the four lower Snake River dams. Additionally, as the commenter requests, the Corps' Walla Walla District conducted a study in 2016, which concluded that for the relatively clean reservoirs of the Federal CRS, which include the lower Snake River dams, conditions for low dissolved oxygen concentrations are not prevalent; thus methane gas is generally not an issue.
6485	12	johns944@wwu.edu	N/A	Though transportation by barge is currently federally subsidized to make it competitive with rail, increasing rail transportation would be expected to increase rail costs. However, with savings from areas like fish passage programs and federal barging subsidies, efforts could (and probably should) be made to provide financial support for local agricultural transportation.	Access to barge transportation is the most cost effective means of accessing export markets for many grain producers in the Pacific Northwest currently and removing that option will increase transportation costs for grain producers, as the EIS described in Section 3.10.3.5. The EIS finds that transportation of freight that is currently barged on the Lower Snake River could be accomplished via other transportation modes, but this change would not be without costs to farmers, would require public and private investment in infrastructure, and would result in some adverse regional economic effects, particularly in the short term. Financial support for local agriculture transportation increased costs is not within the action agencies' current authorities. Chapter 5 in the EIS describes the framework and assumptions for mitigation measures under each of the MOs. Fish program costs and navigation O&M costs are included in the cost analysis in Section 3.19.
6485	13	johns944@wwu.edu	N/A	Similarly, irrigation is a solvable problem. The EIS executive summary states that assuming 47,926 acres were no longer irrigated, the present value of the lost social welfare benefit under the MO3 alternative is $458 million (pg 28). However, we do not have to assume that the 47,926 acres would no longer be irrigated. Simply extending the water withdrawal pipes, which can be done at reasonable cost, would solve the issue.	This EIS discusses engineering solutions (pipeline extensions for example) in Section 3.12.3 Environmental Consequences - Specifically under Region C under the MO3 alternative (see page 3-1267, line 3244, in the Draft EIS) and in Appendix N. The report which this EIS draws upon, as discussed, concluded that modifying the existing pump system was cost prohibitive. In Region C under the MO3 alternative this analysis assumes that pumps are unable to deliver water to estimated at 48,000 acres.
6485	14	johns944@wwu.edu	N/A	The co-lead agencies have a responsibility to reduce bias against MO3 by including in their analysis shifting federal subsidies toward rail and mitigating irrigation impacts by extending water pipes.	This EIS discusses engineering solutions (pipeline extensions for example) in Section 3.12.3 Environmental Consequences - Specifically under Region C under the MO3 alternative (see page 3-1267, line 3244 in the Draft EIS) and in Appendix N. The report which this EIS draws upon, as discussed, concluded that modifying the existing pump system was cost prohibitive. In Region C under the MO3 alternative this analysis assumes that pumps are unable to deliver water to an estimated 47,926 acres. This is discussed in Section 3.12.3 under Region C and the MO3 alternative. NEPA requires that all relevant, reasonable mitigation measures that could diminish the adverse impacts of the project be identified in the document, even if they are outside the jurisdiction of the lead agency or the cooperating agencies. See 40 C.F.R. 1502.16(h) and 1505.2(c); 46 Fed. Reg. 18026. The inclusion of mitigation measures in Chapter 5 is not intended to indicate that the co-lead agencies, or the Federal government as a whole, have the authority to perform all of the measures listed. If the measures are outside the jurisdiction of the co-lead agencies, those measures will not be included in the Preferred Alternative or Record of Decision (ROD). Their inclusion in Chapter 5 serves to alert other agencies, officials, and the public who can implement the measures to the potential benefits of the measure. The mitigation requested, while identified in the Draft EIS, is not within the co-lead agencies' current authorities. The co-lead agencies do not have the authority to provide mitigation for the effects to private infrastructure such as irrigation pumps, wells, or private docks.
6488	1	darlene.chirman@gmail.com	N/A	The Executive Summary includes eight Resource Purposes, including: Provide for the conservation of fish and wildlife resources, including threatened, endangered, and sensitive species throughout the environment affected by System operations. The Columbia River System Operations Objectives include improving survival of juvenile, adult salmon. Given the mandate for federal project to recover endangered and threatened species, this conservation purpose for the 13 runs of threatened and endangered salmon and steelhead is inadequate. The DEIS states the 4% Smolt-to-Adult returns ratio (SAR) regional goal for recovery; this goal should be incorporated in the resource purpose/goal. Even the conservation goal is not assured under the Preferred alternative. The CSS model predicts less than 1% SAR. This survival rate, combined with climate change impacts, may result in extinction of some of these T&E populations. The Preferred Alternative fails to provide for the long term survival and recovery of threatened and endangered (T&E) runs of salmon and steelhead. This alternative is a modest modification of the current Flexible Spill operational experiment. The timing of the spills appear to benefit power generation over fish survival. As stated above, this alternative does not ensure the survival of the T&E fish populations. Despite the expenditures of $15-17 billion on fish management measures over decades, not one of these populations have recovered and removed from the Endangered Species List. In the Snake River, these fish populations have continued to decline.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA listed species. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the Columbia River System. That call however is ultimately the role of NMFS and the USFWS. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. The EIS set forth eight objectives which, in tandem with the purpose and need statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes the dam breaching measure. The Preferred Alternative also meets the EIS objectives for resident fish, lamprey, hydropower generation, water management and water supply, while minimizing adverse impacts to communities and the economy. It should be noted that the 4% Smolt-to-Adult return (SAR) target referenced in this comment refers to the Northwest Power and Conservation Council (Council) target for broad-sense recovery and is separate and distinct from the obligations of any single entity or in this case a requirement to be met solely by the co-lead agencies. Just as the Councils fish and wildlife program encompasses both federal and non-federal stakeholders in the Columbia Basin, the Councils recovery goals are shared by many parties. Based on the Preferred Alternative analysis, it will make a substantial contribution, but the Councils broad sense recovery goals are beyond the scope of this EIS, which focuses on the effects associated with the operation and maintenance of the 14 CRS projects. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in

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					particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species as that is a broader goal with shared responsibility. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. The effects of delayed mortality are discussed throughout the EIS analysis for each alternative and current high quality data and the best available scientific information was used for this analysis. Based on analysis by the CSS, SARs associated with population declines (SARs of less than 1%) have the potential to be greatly reduced under the Preferred Alternative, and on average, SARs are expected to be well above 2.0% for Snake River spring Chinook salmon and steelhead. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information. The co-lead agencies conclude the expected outcomes for salmon and steelhead associated with MO3 are appropriately acknowledged and framed appropriately with impacts to other authorized purposes. The comments suggestion that approximately $17 billion in fish and wildlife mitigation investment has been ineffective to recover ESA listed species is misplaced. Those investments delivered the intended results when considered in the appropriate statutory context of the Northwest Power Acts anadromous fish provisions which call for improved survival of such fish at FCRPS projects and sufficient flows between the projects to improve production, migration, and survival. For example, as of 2014 this investment had facilitated juvenile dam passage survival of 96% and 93% for spring and summer migrants respectively, see Endangered Species Act Federal Columbia River Power System 2016 Comprehensive Evaluation Section 1, at 17, t.2 (Jan. 2017), a marked improvement compared to when Congress passed the Northwest Power Act and the estimated average juvenile mortality at each mainstem dam and reservoir complex was 15-20% with losses recorded as high as 30%. See Nw. Res. Info. Ctr. v. Nw. Power Planning Council, 35 F.3d 1371, 1374 (9th Cir. 1994) (citing a Sept. 4, 1979 report by U.S. General Accounting Office describing the systems impacts on anadromous fish).
6488	2	darlene.chirman@gmail.com	N/A	The DEIS describes the Multiple Objective Alternative 3 (MO3) as developed the evaluate the effects of breaching the four lower Snake River dams: Lower Granite, Little Goose, Lower Monumental ad Ice Harbor. MO3 would also include spring juvenile fish passage spill with a target 120% Total Dissolves Gases (TDG) in the tailrace of the four lower Columbia River projects Executive Summary p24). Both models show the highest benefit to juvenile and adult salmon attributed to this alternative. The highest predicted potential smolt-to-adult returns resulted in the MO3 alternative. Given this analysis, it appears the MO3 Alternative would be selected as the Environmentally Superior Alternative and would be the Preferred Alternative recommended for implementation. The DEIS failed to make this recommendation. The rationales for not recommending MO3 as the Preferred Alternative are unsupported, in my view. The fish depend on the river for survival. There are other options for other services provided by the 4 dams.	The EIS set forth eight objectives which, in tandem with the Purpose and Need statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. As described in Chapter 7 of the FEIS, the preferred alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as Multiple Objective Alternative 3 (MO3), which includes breaching the four lower Snake River dams. The preferred alternative also meets the EIS objectives for resident fish, lamprey, hydropower generation, water management, and water supply and greenhouse gas emissions, while minimizing adverse impacts to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. The EIS concluded MO3, which includes breaching the four lower Snake River dams would have greater improvement to certain salmon species in the lower Snake River. It did not, however, conclude there was greater certainty of that result in MO3 over any other alternative. Because of delayed response time in MO3, and the potential severity of the short term effects, MO3 would likely have the most substantial uncertainty in terms of beneficial effects. Section 3.5 provides a summary of the fish analysis for the No Action Alternative and four of the multiple objective alternatives. Chapter 7 provides a summary of the fish analysis for the Preferred Alternative. With respect to the Preferred Alternative, the CSS model predicts that average Smolt to Adult return rates would increase for both Snake River spring Chinook and steelhead and will average above 2% (the lower end of the Northwest Power and Conservation Councils recovery targets for the region) as a result of the Preferred Alternative, increasing from 2.0% to 2.7% for Chinook, a 35% relative increase. The NMFS COMPASS and Lifecycle Models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information. Based on the EIS analysis of the Preferred Alternative, it will make a substantial contribution towards recovery targets.
6488	3	darlene.chirman@gmail.com	N/A	The electricity generated in average water years is 1,100 aMW. This is a small portion of the overall power provided by the Columbia River System. The surplus power each year is more than provided by these 4 dams, and the income for sale of surplus power had decreased. This income is likely less than the cost of operating these dams, when the fish management costs are included (which are ineffective in maintaining T&E fish populations). Energy efficiencies in the region have decreased the power demand. It may be possible that no additional generating capacity would be needed to effect breaching the dams. The costs of other renewable energysolar and windhas come down dramatically, and planned projects in the region may meet any demand deficit. Greenhouse gas emissions need not rise, if any lost power generation is replaced by energy efficiency and other renewable energy generation.	While the four lower Snake River dams account for a small portion of the total power of the region, they represent a larger portion of the Federal Columbia River Power System (FCRPS) from which Bonneville markets power. As described in Section 3.7.3.5 of the EIS, Potential Replacement Resources and Associated Costs, the four lower Snake River dams are among the most valuable projects in the FCRPS. These dams provide approximately 1,000 aMW of carbon-free energy on average and 2,000 MW of sustained peaking capacity at certain times of the year. See draft EIS, Section 3.7.3.5, Changes in Power Generation, Table 3-159. The dams also provide important ramping capability the ability to quickly generate energy to match spikes in energy usage with over 2,000 to 2,300 MW of capability in certain months of the year. See draft EIS, Section 3.7.3.5, Lower Snake River Full Replacement at pages 3-905-907 and Table 3-160. In addition, the EIS finds that, even assuming renewable resources replace the reduction in capacity under MO3, there would be an increase in regional greenhouse gas emissions because existing fossil-fuel plants would increase generation. See Section 3.8.3.5,at pages 3-1009-1010 in the Draft EIS. Under MO3, on average, the region has surplus generation leading to export sales during certain periods and water years. Nevertheless, to maintain regional reliability at the loss-of-load probability (LOLP) levels of the No Action Alternative, replacement resources would be needed. This is driven by the timing and magnitude of changes in hydropower generation analyzed in the EIS. As shown by the analysis of the LOLP, in some years and times of the year, particularly winter and later in the summer of drier years, without the four lower Snake River dams there would be insufficient power supply in the region leading to power emergencies and blackouts. Specifically, without replacing the power from the four lower Snake River dams, the LOLP of the region would more than double to 14 percent, which is equivalent to one year with one or more blackouts every seven years. See page 3-903 in the Draft EIS; see also Appendix H, Power and Transmission, at Table 2-1. The EIS acknowledges that the energy sector is constantly undergoing transformation and that technological improvements will likely bring other options; however, to avoid speculation, the EIS analysis focuses on primary technologies identified by the Council in their 7th Power Plan (7th Power Plan page 13-5) that are deemed proven, commercially available, and deployable on a large enough scale in the Northwest. See Section 3.7.3.1, Step 3: Determine Need for Potential Replacement Resources and Associated Costs, at page 3-821 in the Draft EIS; see also Appendix H, Power and Transmission, at Section 2.2. Regarding the potential for additional efficiency, the EIS included all cost-effective conservation identified by the Northwest Power and Conservation Council in the 7th Power Plan. See Appendix H, Power and Transmission, Section 2.2, H-2-3. Cost effective conservation in the region would be acquired pursuant to current law regardless of the status of the four lower Snake River dams. For hydropower, the average annual value of the four lower Snake River dams exceeds the average annual equivalent costs. The generation value at the four lower Snake River dams can be described by a range between the cost to replace the generation through new conventional resources or through a portfolio of zero-carbon resources. Although the costs of replacing the power with market purchases was analyzed, it is unlikely that short-term wholesale power markets could reliably replace the power for the long term. This range would put the annual value of power between $240 million and $500 million for the four dams combined. These numbers represent about 90 percent of the lost benefits cited in Table 3-171 of the Draft EIS because the four lower Snake River dams represent about 1,000 aMW of the 1,100 aMW of lost generation estimated in MO3. The average annual cost to operate and maintain all authorized purposes at the four lower Snake River dams is $75 million (Appendix Q, Table 5-1) and the annual-equivalent capital costs are $32 million (Appendix Q, Table 4-1). Hydropower costs funded by Bonneville represent about $50 million of the total annual operations and maintenance costs and nearly all of the annual capital costs, approximately $31 million. This puts the annual-equivalent power-specific costs at approximately $81 million a year. As a result, the net benefits from hydropower for the four lower Snake River dams are between $159 million and $419 million and the benefit-cost ratios are between 3.0 and 6.2. If the $34 million per year for the Lower Snake River Compensation Plan is added to the capital and expense costs, benefits still exceed costs under each replacement power scenario. Considering these costs, the net benefits range from $125 million to $385 million and the benefit-cost ratios range from 2.1 to 4.3. In the less-likely scenario that generation could be reliably replaced with short-term wholesale market purchases and assuming that the four dams represent 90% of the $150 million in market purchases required to replace the lost generation cited in MO3 (see Table 3-170), the lower bound for net benefits would fall to $54 million and the benefit-cost ratio would fall to 1.7. With the Lower Snake River Compensation Plan included, the lower bound for annual net benefits becomes $20 million and the benefit-cost ratio becomes 1.2. From a resource competitiveness perspective, the four lower Snake River dams are among the least costly generating resources in the FCRPS and the planned investment strategy is expected to maintain that status. As shown in the Federal Hydropower presentation at the 2018 Integrated Program Review1/, the Headwater/Lower Snake Asset Class/2 is forecast to have a 50-year levelized cost of generation/3 of $11.41/MWh based on the direct funded capital and expense (O&M) programs outlined in that process. These costs remain competitive with volatile Mid-Columbia spot market energy prices which averaged $37/MWh in 2019 and have averaged $21/MWh in 2020. Footnotes: 1/ The Integrated Program Review (IPR) allows interested parties to see and comment on all relevant FCRPS capital and expense (O&M) spending level estimates in the same forum. The IPR occurs every two years, or just prior to each rate case, and is the public review for the costs that will be recovered through rates the following two-year rate period. Long-term forecasts for the next 50 years and major upcoming projects are also shared in this forum. This information is available here: https://www.bpa.gov/Finance/FinancialPublicProcesses/IPR/2018IPR/IPR%202018%20Fed%20Hydro%20Workshop.pdf and is incorporated by reference into this EIS. 2/ In the 2018 Integrated Program Review, the Headwater/Lower Snake Asset Class consisted of the four lower Snake River dams, Hungry Horse, Libby, and Dworshak dams. These projects were grouped together because they have similar cost characteristics. The Levelized Cost of Generation for the four lower Snake projects alone is slightly lower than that for the whole class including the headwater projects shown in the table. 3/ Levelized Cost of Generation is defined as the forecast direct costs and administrative overheads of producing power at a plant annualized over a 50-year period. This cost includes direct fund operations, maintenance, administrative and capital costs as well as Columbia River Fish Mitigation (CRFM) costs. Bonneville system-wide mitigation costs, such as its Fish and Wildlife program, are not included in this metric..
6488	4	darlene.chirman@gmail.com	N/A	Barge transport is another reason given in the DEIS to keep the 4 dams and their locks in operation. Other analyses show that barge transport has been declining dramatically over the past 20 years, a trajectory that is likely to continue even if the locks remain functional. Rail transport upgrades would aid the transition if the dams are breached. This appears to be inadequately analyzed in the DEIS.	Access to barge transportation is the most cost effective means of accessing export markets for many grain producers in the Pacific Northwest currently and removing that option will increase transportation costs for grain producers, as the EIS shows. It is true that barge movements on the Snake/Columbia river system have declined somewhat over the past 20 years, though the decline has stabilized over the past 10 years. The EIS discusses improvements in rail infrastructure that may be required in Section 3.10.3.5
6488	5	darlene.chirman@gmail.com	N/A	Benefits of MO3 dam breaching do not appear to be given sufficient weight in the calculus of rejecting this alternative as the Preferred Alternative. The DEIR acknowledges the major benefits for fish with this alternative. But it does not sufficiently value the increase in economic and cultural benefit of revival of the fishing communities and cultural heritage of salmonids to the Native American communities. Commercial and recreational fishing can regain their regional importance with the recovery of fish populations.	The EIS provides an evaluation of the social welfare and regional economic effects of the No Action Alternative and the Multiple Objective alternatives, including the effects on recreation (Section 3.11) and commercial fisheries (Section 3.15). The EIS Section 3.5.3.6 describes the long-term effects to anadromous fish migration in the Snake River and tributaries as major and beneficial although quantitative impacts from fish modeling results are limited. The EIS described the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. NMFS estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which is described qualitatively. For the effects on recreational fishing under MO3 (Section 3.11.3.5) along the lower Snake River below Lewiston, the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River) as an indicator for fishing visitation in this reach. The EIS describes that the visitation in the long-term in the lower Snake River, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting outfitting and tourism businesses in the region. The social welfare values and regional economic effects associated with recreational fishing under the MOs, as well as river recreation post dam breach under MO3, were not estimated because of the uncertainty and large range in visitation and consumer surplus values among users. The contribution of Columbia River origin fish to ocean fisheries is described in Section 3.15.2.1. Because there is considerable uncertainty regarding the overall effects of the alternatives on regional fish populations, and how such changes may affect the management of the fisheries, effects associated with changes in commercial and recreational fisheries under the alternatives were described qualitatively. This analysis evaluates potential effects on fisheries by referencing the potential effects on relevant fish populations, as described in Section 3.5.

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					The EIS recognizes the importance of salmon to Tribes in a number of Sections throughout the document. The Fisheries Section 3.15 as well as Section 3.17, in particular, include discussion of reductions in anadromous species catch and associated adverse social effects that have occurred in Tribal communities. The cultural significance and impacts of salmon and steelhead fisheries are described in the Fisheries Section 3.15.2.1, which includes sections that describe ceremonial and subsistence fisheries as well as the social importance of commercial, ceremonial and subsistence fisheries. The co-lead agencies also considered the information in the Tribal Perspectives that were submitted by several tribes during the drafting and evaluation of the EIS.
6488	6	darlene.chirman@gmail.com	N/A	The recovery of the riverine habitat on 140 river miles as the slackwater reservoirs drain, and the recovery of 15,000 acres currently inundated is mentioned but not given sufficient weight. Instead, the DEIS discusses the loss of reservoir recreation, and exposure of archeological sites. The recreational potential of the riverine habitat is not really addressed, and a mention is made of the cultural important of Native American sites that will no longer be inundated. While the river cruise ships will no longer be able to navigate this reach of the Snake River, local opportunities for river recreation while visitors stay in local accommodations has the potential to invigorate the local economies. These potential benefits are not sufficiently explored in the DEIS.	The EIS provides an evaluation of the social welfare and regional economic effects of the No Action Alternative and the multi-objectives alternatives, including the effects on recreation (Section 3.11) and fisheries (Section 3.15). The EIS described the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. NMFS estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which is described qualitatively. The potential for changes in recreational fishing of anadromous fish under MO3 in the Region C is described in Section 3.11. Increases in recreational fishing could support jobs, income, and social benefits in Tribal and rural river communities. For the effects on recreational fishing under MO3 (Section 3.11.3.5) along the Lower Snake River below Lewiston, the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River) as an indicator for fishing visitation in this reach. The EIS describes that the visitation in the long-term in the lower Snake River, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting outfitting and tourism businesses in the region. However, there is uncertainty around recreational fishing visitation in the long-term given the current measures to regulate, protect, and support ESA-listed fish populations and habitat in the region. Tribal input, concerns, interests, and especially treaty rights were considered throughout the Draft EIS analyses and in the formulation of the Preferred Alternative. The co-lead agencies are engaging in government-to-government consultation with the Tribes, and several Tribes are cooperating agencies on the CRSO EIS. Section 3.11.3.7 describes the potential economic impacts to Tribes. Discussion of Tribal community concerns and Tribal treaty rights were considered and are discussed in a number of sections throughout this EIS. The cultural significance and impacts of salmon and steelhead fisheries are described in the Ceremonial and Subsistence Fisheries sub-section and the Social Importance of Commercial, Ceremonial and Subsistence Fisheries sub-section of Section 3.15.2.1. Tribal interests in fisheries are described in Section 3.15.4. Additional details regarding the economic significance of salmon and steelhead fisheries have been added to the recreation analysis in Section 3.11, including Tribal interests in Section 3.11.3.7. Many sections of Chapter 3 include a Tribal Interests sub-section at the end that attempts to summarize tribal issues by topic and Chapter 7 also includes additional information on the Preferred Alternative's impacts on these resources.
6488	7	darlene.chirman@gmail.com	N/A	Southern Resident Orcas, or Southern Resident Killer Whales (SRKW) are listed as federally endangered. Snake River Chinook are a major food source. The DEIS erroneously states The Snake River spring/summer Chinook salmon is a negligible portion of their overall diet. The DEIS is also flawed in that it utilizes outdated population data for SRKW. Fisheries scientists recommend the breaching of the 4 lower Snake River dams as the best chance of survival of the orcas 1. The DEIS cites inaccurately that the SRKW are found in the spring, summer and fall in the inland waters of Puget Sound and nearby, commonly known as the Salish Sea. However scientists have found that: this genetically distinct population of killer whales has spent more than half their time swimming back and forth throughout their known range as far south as Monterey, CA and as far north as Southeast Alaska. Their visits to the coastal waters off Westport, Washington and the mouth of the Columbia River coincide with high concentrations of spring Chinook salmon. 2 Thus the DEIS is flawed in not acknowledging the importance of the Snake River Chinook salmon in the survival and recovery of the Southern Resident Killer Whales.	SRKW analysis is described in the EIS including in the FEIS Chapter 3 (Vegetation, Wetlands, Wildlife, and Floodplains) which has been updated for SRKW (Section 3.6.2.6 and Table 3-102) and FEIS Chapter 7 (Preferred Alternative) with additional analysis information on SRKW and potential increase in forage fish, in particular, Chinook salmon in Section 7.7.8. The co-lead agencies utilized current high quality information and best available science in its analysis of the effects of the operation, maintenance, and configuration of the CRS projects. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. The EIS analysis found that only a minor effect to the Southern Resident killer whale would result from implementing MO3 (which includes the dam breach measure). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differentially from hatchery and wild fish. Hatchery fish today likely make up most fish consumed by SRKW (NOAA BiOp 2020). The EIS analysis of the Preferred Alternative determined the overall effect to SRKW to be negligible in large part because hatchery production is consistent between the No Action Alternative and the Preferred Alternative. Because the impact from the Preferred Alternative was determined to be negligible, the agencies determined that existing hatchery production would be sufficient to address any potential impacts to prey availability for SRKWs. The co-lead agencies note the contribution to the prey of SRKW through the continued existence of their respective independent congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as the Lower Snake River Compensation Plan, which is administered by U.S. Fish and Wildlife Service. The Preferred Alternative and Proposed Action in the agencies' biological assessment carry forward certain mitigation measures described in Chapters 2 and 7 of the EIS, which include continued salmon and steelhead hatchery production. The Preferred Alternative has negligible effects to SRKWs as described in Section 7.7.8.
6488	8	darlene.chirman@gmail.com	N/A	Water Temperature. The DEIS does present data that the water temperature, especially in the slackwater reservoirs behind the dams, is at times in the summer above the safe temperature for salmonid survival. A press release from 55 fisheries and natural resource scientists to Northwest Policymakers3 describes the harm to survival of salmonids of temperatures over 68 degrees F, and presents data that this is now normal for extend periods in July, August, and September in the lower Snake River. This is expected to be exacerbated by the changing climate. The DEIS is deficient in that it neglects to include data from EPA modeling (2003) that the 4 lower Snake River dams collectively contribute up to 12 degrees of temperature elevation. The scientists state that breaching the 4 lower Snake River dams, MO3, would lower the temperature for the best habitat available for recovery of the salmonid populations. The recent 9th Circuit Court of Appeals requires the EPA to develop TMDLs for temperatures above 68o. The Final EIS needs to include recommendation of a plan that will address this critical issue.	The CRSO EIS acknowledges and describes the temperature sensitivities of salmon and steelhead, as well as the many other factors that affect these fish. Water quality and hydrology modeling data were inputs into the fish survival models used to analyze the alternatives effects on salmon and steelhead, so temperature effects to survival have been incorporated into the overall analyses of each alternative. Water temperatures under MO3, which includes breaching the four Snake River dams, indicates that nighttime summer water temperatures, as well as fall water temperatures, would be cooler than No Action conditions in the lower Snake River. However, even with the dams breached, maximum summer water temperatures would exceed state water quality standards (20C) at times, especially during high air temperature events. The models showed minor changes in the Columbia River under this alternative. This is because without the dams, the lower Snake River will be shallower and more susceptible to solar radiation and warming. Increases in water particle travel time are expected, but the lower Snake River has always been a warm system (USGS 1960, 1961, 1964; Corps 2002a) and breaching the dams will not change this fact. Regionally high air and water temperatures result in water quality standard exceedances and are beyond the ability of the CRS to cool; future climate change predictions will result in even more difficult challenges. The Comparative Survival Study (CSS) model indicates the Preferred Alternative would result in increased SARs of Snake River salmon and steelhead. Recovery of ESA-listed salmon is outside of the authority of the co-lead agencies, and was not an objective of this EIS. Recovery of ESA species is the purview of NMFS and the US Fish and Wildlife Service. With respect to the Preferred Alternative, the fish analysis in Section 7.7.4 shows that it will provide substantial benefits to ESA-listed salmon and steelhead, which can help contribute to broader recovery goals. Regarding climate change, the climate science community is still developing models that can be used to analyze possible effects to water temperature from climate change, and unfortunately, there are not reliable models at this time at the resolution required (river vs. region or global). Therefore, it was not possible to reliably model water temperature changes under climate change for this EIS. In lieu of this information, the climate analysis used the output from the water quality models under historical conditions, climate change data, and scientific literature to qualitatively assess potential effects to water temperature (Section 4.2.3). Regarding predicted water temperatures under MO3, as compared to the results documented by Schultz and Johnson (2017) and derived from past EPA analysis, there are a few key differences between EPA's RBM-10 model and the models used in the development of this EIS that should be made clear. First, the RBM-10 (TMDL) model predicts a daily average water temperature, while the CE-QUAL W2/RAS (EIS) model predicts a daily maximum value. The co-lead agencies chose the daily maximum water temperature metric since most water quality standards are based on this metric. Second, the RBM-10 model uses weather data from airport weather stations with the longest records, whereas the co-lead agencies used weather stations with the most spatial coverage and spatial representation (airport and AgriMet weather stations). Lastly, RBM-10 was utilized for a free-flowing scenario. The free-flowing scenario includes the absence of Grand Coulee, Chief Joseph, the five mid-Columbia PUD dams, the lower four Columbia River and the lower four Snake River dams. Dworshak Dam, however, was included in EPA's "free-flowing" scenario as a boundary condition and uses observed flows and temperatures. 2010 channel bathymetry is utilized throughout the system. The TMDL assessment focused on quantifying the thermal load of the dams by comparing existing conditions to a "free-flowing" scenario where Dworshak Dam is still in place. The co-lead agencies used HEC-RAS (1-dimensional model)for MO3 for the lower Snake River; CE-QUAL W2 (2-dimensional model) was used for the other mainstem CRS dams. MO3 includes breaching the four lower Snake River dams in which the earthen embankments of each dam are removed, leaving the concrete sections in place. All other CRS dams remain in place. Dworshak Dam uses modeled flows and temperature. 1934 (pre-dam) channel bathymetry is utilized throughout the lower Snake River; 2010 geomorphology used for elsewhere in the system. The CRSO EIS assessment focused on predicting water temperature and TDG conditions under MO3 . Given the differences between efforts, direct comparisons between the two assessments are not appropriate. The USEPA and co-lead agencies worked together to compare the co-lead agencies' CE-QUAL W2/RAS model (used for EIS analysis) and the EPA's RBM-10 model (used for the draft TMDL assessment). Efforts included identifying and comparing similarities and differences in the two models and assessments, and concluded that both models provide useful and technically appropriate analyses of the Columbia and lower Snake River water temperatures. As such, the EPA agrees with the co-lead agencies that the CE-QUAL W2 and HEC RAS models are appropriate to use in developing the Draft EIS (see EPA review comment letter # 16-0059). The water temperature analysis specific to MO3 utilized the Dworshak CE-QUAL W2 (2-dimensional model) and the lower Snake River HEC-RAS (1-dimensional models) to predict water temperatures under a dam breach scenario, while incorporating operations at Dworshak Dam for downstream water temperature management. Specifically, 2016 No Action Alternative Dworshak operations were used in the MO3 analysis. The co-lead agencies agree with your concern relating to water temperatures in the Columbia and Snake rivers and that is why the agencies have used current high quality information and best resources available to model and evaluate impacts from operations described in each of the alternatives on water temperatures. The study results indicate that the operations of the CRS do impact water temperature but the CRS has limited ability to reduce temperatures in the lower Snake and Columbia rivers outside of Dworshak operations. Regionally high air and water temperatures result in water quality standard exceedances and are beyond the ability of the CRS to cool.
6495	1	president@visitlcvalley.com	N/A	Visit LC Valley strongly recommends expansion of the analysis of impacts behind MO3 because, while this is not the preferred option, there is tremendous attention being paid to it and the final EIS will set a foundation for future analysis.	The co-lead agencies agree that the analysis included to describe the effects of MO3 provides important information that may be referenced in the future. A sufficient level of detail has been provided on direct, indirect, and cumulative effects to form a scientific and analytic basis to compare alternatives as required the Council on Environmental Quality's Regulations for Implementing the Procedural Provision of the National Environmental Policy Act (40 C.F.R. Section 1502.14).This analysis will be used by the co-lead agency decisionmakers to make an informed decision in the Record of Decision and may be used by other decisionmakers in the future.
6495	2	president@visitlcvalley.com	N/A	SPECIFIC COMMENTS Impact on cruise boat industry: On page 3-1214, the CRSO DEIS correctly identifies that the cruise boat industry will no longer be able to operate under MO3. What it does not recognize that there is a yacht industry involving affluent people who rent large passenger vessels and crew to bring them through the locks and into the LC Valley. (They, like cruise boats, typically moor at the Port of Clarkston docks because they are too largedraft and size-wiseto fit into regular marina moorage slots.) For the cruise industry on the Columbia & Snake Rivers, the 2002 Lower Snake River Juvenile Salmon Mitigation Feasibility Report and EIS came up with an annual impact. I couldnt find that in the CRSO DEIS. In 2018, for the first time, passenger counts on the Columbia and Snake Rivers exceeded that on the Mississippi and that continued into 2019. In the LC Valley, since 2014, we	Cruise line visitation is characterized in Section 3.10, including a description of its economic contribution to the region. Section 3.10.3.5 describes the contribution of cruise ships as supporting approximately 230 jobs in the region, $6.2 million in labor income, and $17.8 million in annual output (sales). Section 3.10.3.5 describes the adverse effects to cruise line operations under MO3. The EIS provides an evaluation of the social welfare and regional economic effects of the No Action Alternative and the multi-objectives alternatives, including the effects on recreation (Section 3.11) and fisheries (Section 3.15). The EIS described the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. NMFS estimated that an

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				have seen a 6.5% annual growth in visitation year after year. In 2019, the Valley was poised for much greater numbers, but Bonneville Dam had 5-weeks of closure to fix an infrastructure problem that curtailed visitation. America Cruises Lines, until COVID-19, has plans to add two additional boats on the Columbia and Snake, bringing the number of boats they had visiting the LC Valley up to 5 cycling through regularly. (NOTE: We saw a downturn in 2007 from a bad economy, but this industry recovered because the demand is there. This industry will recover from COVID-19, but we will not see that recovery if MO3 occurs and dams are removed.) The demand in the LC Valley has been exceeding the capacity, and 27 community partners combined resources to provide match on a study funded by EDA to help project growth and thus identify the future amenities that would be necessary to help meet the demand. AARP is giving us free press, as you can see from the attached February/March 2020 article attached. Impact on Hells Canyon National Recreation Area: Privately funded studies have pointed to growth of numbers of visits to Hells Canyon National Recreation Area, a boat-access only canyon which is North Americas deepest gorge. They incorrect point to recreation recovery because there is demonstrated interest in the form of increased numbers. What they dont realize is that 100% of the growth in number of visits to Hells Canyon is attributable to cruise boat passengers that take day cruises into the canyon by jet boat. Without the cruise industry partner, thousands of 70, 80, and 90-year-old mobility constraints citizens of the United States will not experience this end-of-life bucket list opportunity. Cruise lines solve huge access challenges for those individuals. Cruise lines also create critical mass such that a number of jet tour boat companies are in operation and market forces keep pricing down so that it is reasonable for all. If the cruise boat industry goes away, access to Hells Canyon National Recreation Area will be severely impacted, and one of the nations greatest treasures will be exceedingly hard to reach. Impact on sport fishing: It is difficult to comment on this issue because it is inconsistently handled throughout the report.	average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which is described qualitatively. The potential for changes in recreational fishing of anadromous fish under MO3 in the Region C is described in Section 3.11. Increases in recreational fishing could support jobs, income, and social benefits in Tribal and rural river communities. For the effects on recreational fishing under MO3 (Section 3.11.3.5) along the Lower Snake River below Lewiston, the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River) as an indicator for fishing visitation in this reach. The EIS describes that the visitation in the long-term in the lower Snake River, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting outfitting and tourism businesses in the region. However, there is uncertainty around recreational fishing visitation in the long-term given the current measures to regulate, protect, and support ESA-listed fish populations and habitat in the region.
6495	3	president@visitlcvalley.com	N/A	In Chapter 2, p. 36, it starts with Closure of the hatcheries funded by BPA will result in a loss of 19 million salmon, steelhead and resident rainbow trout being cultivated and released to the Snake River on an annual basis. The 2002 Lower Snake River Juvenile Salmon Mitigation Feasibility Report and EIS did not project increases in recreational fishing, likely because 80-90 percent of all juvenile Snake River fish passing CRS projects will be gone,	Hatchery contributions are considered in the analysis. As described in Section 3.5, the co-lead agencies anticipate that changes in hatchery funding may occur as needs and obligations shift. The co-lead agencies do not anticipate that hatchery operations would be shuttered. As noted in Section 3.5, the co-lead agencies also recognize that there would be transitional needs that would be addressed in the additional mitigation measures for MO3 discussed in Chapter 5. Additionally, the Bonneville F&W Program funding for offsite mitigation projects in the Snake River Basin, implemented by local, state, Tribal, and Federal entities, would be reviewed, and potentially adjusted. Any changes of this nature would be implemented over time as the effectiveness of dam breaching is observed and would be done in consultation with fish and wildlife managers, regulatory agencies, and the Northwest Power and Conservation Council. Consistent with this, offsite mitigation projects for the other CRS dams would be reviewed and could be adjusted as operations change over time. Proposed project modifications would be coordinated with project sponsors and regional stakeholders to determine appropriate funding levels." Although Bonneville's funding of the Lower Snake River Compensation Plan hatcheries would no longer be authorized, remaining fish hatcheries would continue to produce fish and other Federal or state entities may continue funding the hatcheries. The EIS provides an evaluation of the social welfare and regional economic effects of the No Action Alternative and the multiple objective alternatives (MOs), including the effects on recreation (Section 3.11) and commercial fisheries (Section 3.15). The EIS described the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. NMFS estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which is described qualitatively. For the effects on recreational fishing under MO3 (Section 3.11.3.5) along the lower Snake River below Lewiston, the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River) as an indicator for fishing visitation in this reach. The EIS describes that the visitation in the long-term in the lower Snake River, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting outfitting and tourism businesses in the region. The social welfare values and regional economic effects associated with recreational fishing under the MOs, as well as river recreation post dam breach under MO3, were not estimated because of the uncertainty and large range in visitation and consumer surplus values among users.
6495	4	president@visitlcvalley.com	N/A	Chapter 3, p. 548. COMPASS and CSS models to not account for this potential major reduction in juvenile fish production. So, both fish models project higher number of returns. Also projected, in the long term, under this CRSO DEIS is increased recreational fishing. VLCV would like to know how the loss of 80-90% of hatchery fish can still result in recreational fishing. Will fishers be able to take wild fish? The answer to this question will be key to VLCVs response, as promotion of recreational fishing is one of the important marketing activities in which we engage every year.	Regarding hatchery impacts associated with MO3, as described in Section 3.5, the co-lead agencies anticipate that changes in hatchery funding may occur as needs and obligations shift. The co-lead agencies do not anticipate that hatchery operations would be shuttered. As noted in Section 3.5, the co-lead agencies also recognize that there would be transitional needs that would be addressed in the additional mitigation measures for MO3 discussed in Chapter 5. Additionally, the Bonneville F&W Program funding for offsite mitigation projects in the Snake River Basin, implemented by local, state, Tribal, and Federal entities, would be reviewed, and potentially adjusted. Any changes of this nature would be implemented over time as the effectiveness of dam breaching is observed and would be done in consultation with fish and wildlife managers, regulatory agencies, and the Northwest Power and Conservation Council. Consistent with this, offsite mitigation projects for the other CRS dams would be reviewed and could be adjusted as operations change over time. Proposed project modifications would be coordinated with project sponsors and regional stakeholders to determine appropriate funding levels. Although Bonneville's funding of the Lower Snake River Comp Plan hatcheries would no longer be authorized under MO3, remaining fish hatcheries would continue to produce fish and other Federal or state entities may continue funding the hatcheries. The EIS provides an evaluation of the social welfare and regional economic effects of the No Action Alternative and the multi-objectives alternatives, including the effects on recreation (Section 3.11) and fisheries (Section 3.15). The EIS described the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. NMFS estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which is described qualitatively. The potential for changes in recreational fishing of anadromous fish under MO3 in the Region C is described in Section 3.11. Increases in recreational fishing could support jobs, income, and social benefits in Tribal and rural river communities. For the effects on recreational fishing under MO3 (Section 3.11.3.5) along the Lower Snake River below Lewiston, the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River) as an indicator for fishing visitation in this reach. The EIS describes that the visitation in the long-term in the lower Snake River, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting outfitting and tourism businesses in the region. However, there is uncertainty around recreational fishing visitation in the long-term given the current measures to regulate, protect, and support ESA-listed fish populations and habitat in the region. For MO1, MO2, MO4, and the Preferred Alternative (PA), the evaluation qualitatively describes the potential for effects associated with recreational fishing by referencing the potential effects on relevant fish populations, as described in Section 3.5. Fish modeling results vary for some of the alternatives, for example for the PA and MO4 (i.e., models show either beneficial or adverse effects on anadromous fish), so it is assumed that the potential changes in recreational fishing would follow these changes in fish abundance in the long-term.
6495	5	president@visitlcvalley.com	N/A	Impact on golf courses: In the Lewis Clark Valley, given mild winters, golfing is year-round. One of the most frequently used packages VLCV puts together is hotel rooms and golfing. People from Spokane, Montana, Canada and other locations come here in the late fall, winter and early spring to golf. The 2002 Lower Snake River Juvenile Salmon Mitigation Feasibility Report and EIS recognizes that both the Lewiston Country Club Golf Course and the Clarkston Golf and Country Club rely on the Snake River as a source of water to keep their amenities. There is no discussion in the CRSO DEIS about how those golf course will continue to access surface water. It is important that they be allowed to do so.	As described in Section 3.12.3.4 Multiple Objective Alternative 3, Municipal and Industrial (M&I) water supply intakes in the Lewiston, ID area would likely be impacted by a dam breach scenario. Modifications to M&I systems would be required under MO3 increaing costs for supplying water to local communities and related industries like golf courses. NEPA requires that all relevant, reasonable mitigation measures that could diminish the adverse impacts of the project be identified in the document, even if they are outside the jurisdiction of the lead agency or the cooperating agencies. See 40 C.F.R. 1502.16(h) and 1505.2(c); 46 Fed. Reg. 18026. However, the co-lead agencies do not have the authority to provide mitigation for the effects to private infrastructure such as M&I systems.
6495	6	president@visitlcvalley.com	N/A	Impact on recreational trails including Clearwater Snake National Recreation Trails, the trail system at Hells Gate State Park, and other recreational amenities which are part of the 26 recreational facilities for which the Corps has ownership and management responsibilities: High school, college and middle competitive school track meets take place on the Clearwater Snake National Recreation Trail, bring participants and spectators from outside the area. Dozens of fun runs and marathons bring visitors to the LC Valley. Sometimes, people from a distance come to shop and enjoy the recreational amenities we have in the form of the trail, parks and other features on which the Corps has ownership and management responsibilities.	The co-lead agencies have included a discussion of community concerns about the potential impacts of MO3 in the navigation Section in Section 3.10.3.5, in subsection under Regional Economic Effects called "City/Local Effects Associated with Changes in Commercial Navigation, Cruise Lines, and Ferry Operations" as well as under the Other Social Effects subsections. These sections describe potential regional economic as well as social and community impacts associated with dam breach. The EIS recognizes the short-term adverse effects to recreation visitation and values, including cruise and tour boats, and the associated impacts to the regional economy under MO3, which includes the dam breach measure, which are described in Sections 3.10.3.5 and 3.11.3.5.
6495	7	president@visitlcvalley.com	N/A	Chapter 3, page 1213, discusses the uncertainty of who would own and manage the lands, recreational facilities and more in the lower Snake River under MO3. VLCV supports Corps continued ownership and maintenance of recreational amenities along the Snake and Clearwater rivers, in part because the Corps can access surface water to irrigate these amenities, which is not an option for most municipalities.	Since the lower Snake River projects would be deauthorized, the co-lead agencies would no longer operate the project lands for recreation. After project lands have been transferred to other agencies and/or entities, recreational sites and associated facilities could be modified as determined by others. Chapter 5 in the EIS describes the proposed mitigation measures under each of the MOs. Section 5.4.3.6 describes the potential for mitigation measures for recreation under MO3 dam breaching. Mitigation by the co-lead agencies is not anticipated under MO3 to maintain access to the river. However, if breaching were to be selected as the Preferred Alternative, further evaluation, studies, and NEPA would be required along with congressional authorization and appropriations to implement the alternative. At this time, it is assumed that the co-lead agencies would no longer operate the project lands after the projects are deauthorized.
6495	8	president@visitlcvalley.com	N/A	SUMMARY As shown above, VLCV believes the negative impacts to the Lewis-Clark Valley in the CRSO DEIS are understated and requests modification by BPA, BLM and the Corps to better quantify and mitigate impacts.	If breaching were to be selected as the Preferred Alternative, further evaluation, studies, and NEPA would be required along with congressional authorization and appropriations to implement the alternative. At this time, it is assumed that the co-lead agencies would no longer operate the project lands after the projects are deauthorized.
6506	1	Columbia River Keepers	Columbia River Keepers	Riverkeepers comments1 on the DEIS will focus largely on water temperature, dams and dam removal, climate change, and the implications for fish survival and recovery.2 High summer and fall water temperatures already limit the survival of some salmon runs and significantly threaten the future of many Columbia and Snake river salmon fisheries. In 2015, for instance, more than 250,000 adult sockeye died in the Columbia and Snake rivers because warm water prevented them from successfully migrating upstream, trapping them in lethal conditions. In response to temperature-driven fish kills, the Environmental Protection Agency (EPA) noted that [t]he need to lower water temperatures becomes more critical as the Pacific Northwest Region continues to address and mitigate climate change.3 The Fish Passage Center similarly concluded that under a climate change scenario, the long-recognized and largely unaddressed problem of high water temperatures in the [Columbia and Snake rivers] becomes an ever-increasing threat to the survival of salmon . . . .4 Unfortunately, the DEIS overall narrative about water temperature, dams and dam removal, and climate change is incomplete,	The co-lead agencies have used the best information and resources available to model and evaluate impacts from operations described in each of the alternatives on water temperatures. As stated in the comment, predicted water temperatures under MO3, which includes breaching the four Snake River dams, indicates that nighttime summer water temperatures, as well as fall water temperatures, would be cooler than No Action Alternative conditions in the Snake River. While some cooler water temperatures may be observed in the summer under dam breaching, especially during cooler summer weather conditions and at night, water temperatures will remain warm and exceed the state water quality standard at times, especially during hot weather events. This is because without the dams, the lower Snake River will be shallower and more susceptible to solar radiation and warming. Increases in water particle travel time are expected, but the lower Snake River has always been a warm system (USGS 1960, 1961, 1964; Corps 2002a) and breaching the dams will not change this fact. Regionally high air and water temperatures result in water quality standard exceedances and are beyond the ability of the CRS to cool; future climate change predictions will result in even more difficult challenges. The climate science community is still developing models that can be used to analyze possible effects to water temperature from climate change, and unfortunately, have not been fully applied and validated for use with climate affected regulated flow projections of large reservoir systems. Therefore it was not possible to reliably model water temperature changes under climate change for this EIS. In lieu of this information, the climate analysis used the output from the water quality models under historical conditions, climate change data, and scientific literature to qualitatively assess potential effects to water temperature (Section 4.2.3 and Section 7.8.4).

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				occasionally misleading, andperhaps worst of alllargely divorced from the context of salmon migration, survival, and recovery. Despite its many defects, the DEIS does admit that dam removal would significantly improve the water temperature regime and migration conditions for salmon and steelhead in the Lower Snake River. For instance, the DEIS states that dam breaching would have moderate to major beneficial effects on water quality in [the Lower Snake River] through the restoration of natural, river, and water quality processes; a substantial cooling effect in the fall; greater nighttime cooling[;] and respite from warm water temperature conditions in the summer.5 As explained below, this and similar admissions are greatly overshadowed by the DEISs general narrative implying that Lower Snake dam removal would not significantly influence water temperatures.	
6506	2	Columbia River Keepers	Columbia River Keepers	I. Breaching the Four Lower Snake River Dams Should be Part of the Final Preferred Alternative in the DEIS. Riverkeeper joins the Nez Perce Tribe, Shoshone Bannock Tribe, the Upper Snake River Tribes (USRT), Oregons Governor Kate Brown, and hundreds of thousands of people and organizations from across the Pacific Northwest and the United States in calling for the restoration of the Lower Snake River. Snake River sockeye and steelhead are perilously close to extinction now, and it is widely acknowledged that Snake River Chinook are unlikely to survive coming decades without significant changes to the status quo.6 With these risks in mind, the small, incremental improvements7 touted by the action agencies are legally,8 ecologically, and morally untenable. After twenty years of failed incrementalism, the action agencies should do what they have long resisted: recommend the removal of the Lower Snake River dams. Even the DEIS shows that Lower Snake River dam removal is the best way to avoid extinction and recover Snake River salmon and steelheadalthough a combination of the DEIS alternatives 3 (dam removal) and 4 (increased spill) would be even more effective. The Fish Passage Centers modeling of Snake River steelhead and spring/summer Chinook survival shows that the action agencies preferred alternative would not meet the criteria for recoverybut dam removal will.9 NMFS own survival model also shows that dam removal would have the most significant benefit to Snake River salmon and steelhead.10, 11 Setting aside disagreements 6 See New York Times, How Long Before These Salmon Are Gone? Maybe 20 Years (September 16, 2019) (quoting U.S. Forest Service fisheries research scientist Russ Thurow as saying that wild Snake River Chinook may go extinct in four generations or 20 years); see also The Lewiston Tribune, Simpson offers critical remarks on river study (March 12, 2020) (quoting Idaho Congressman Mike Simpson as saying in the next 15 years, if something isnt done, [Snake River salmon] will be extinct. There is no doubt about that, they will be extinct.). 7 DEIS, p. 7-89. 8 Riverkeeper reiterates, and incorporates by reference, Earthjustices comment that mere improvement or benefit to salmon and steelhead is a legally insufficient purpose and need statement under the National Environmental Policy Act (NEPA). 9 See Fish Passage Center, Comparative Survival Study of PIT-tagged Spring/Summer/Fall Chinook, Summer Steelhead, and Sockeye: 2019 Annual Report, Chapter 2 (December 2019). 10 DEIS, Executive Summary, p. 25. 11 Importantly, neither survival model appears to account for the benefits of decreased exposure to warm water and increased adult survival that would likely result from Lower Snake River dam removal. Pers. Comm. with Margaret Filardo, ret. Fish Passage Center staff (March 26, 2019). Accordingly, these models are likely underestimating the improvements to SARs that could result from Lower Snake River dam removal. Columbia Riverkeepers FCRPS DEIS Comments - 4 between (and about) the models, the difference in survival between stocks that traverse the Lower Snake, and the mid-Columbia stocks that do not, strongly suggests that the Lower Snake River dams are preventing the recovery of Snake River salmon and steelhead. As the Columbia River Inter-tribal Fish Commission (CRITFC) pointed out, salmon and steelhead in the John Day, Deschutes, Yakima, and Umatilla rivers consistently survive the hydrosystem well enough to meet recovery goals. Snake River stocks consistently fail to meet these same goals. From a fishs perspective, the difference is four dams and 140 miles of warm, slack water in the Lower Snake. The DEIS does not seriously dispute this conclusion. The action agencies fundamental mistake is believingdespite nearly 100 years of evidence to the contrarythat engineered solutions can replace or improve upon the productivity of the Columbia basins natural conditions. This preference for engineered solutions over ecological systems is central to the culture and identity of the Army Corps and BOR. But this paradigm for managing our river has failed; it defies common sense, over a century of EuroAmerican experience, the Traditional Ecological Knowledge of cultures that sustainably managed these fisheries since time immemorial,12 and scientific findings prepared for the Northwest Power and Conservation Council.13 As Idaho Congressman Mike Simpson succinctly stated, Salmon need one thingthey need a river.14 The preferred alternative in the final EIS should depart from action agencies failed paradigm and recommend the measure most likely to restore healthy runs of salmon to the Snake River basin.	The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3, which includes breaching the four lower Snake River dams. The Preferred Alternative also meets the EIS objectives including those for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the draft EIS, the co-lead agencies did not recommend MO3 because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws, including those pertaining to natural and cultural resources. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA listed species. The co-lead agencies used high quality information in the EIS analysis. Specific to salmon and steelhead, the agencies used two primary modeling approaches which yielded a range of potential outcomes for the alternatives. With respect to the Preferred Alternative, the CSS model predicts that average Smolt to Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% (the lower end of Council recovery targets for the region) increasing from 2.0% to 2.7% for Chinook, a 35% relative increase. The NMFS COMPASS and Lifecycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information. Based on the EIS analysis of the Preferred Alternative, it will make a substantial contribution towards recovery targets. Moreover, the co-lead agencies disagree the Preferred Alternative is a continuation of the status quo. The spill operation for juvenile fish passage is a significant departure from previous operations, so much so that the Washington and Oregon state water quality standards had to be changed to implement the new spill regime. The Preferred Alternative also includes other operational, structural and mitigation measures to improve conditions for ESA-listed salmon and steelhead. Additionally, the EIS evaluates the impacts to water temperature from MO3 and acknowledges long-term major beneficial effects on water quality, including major reductions in TDG and nighttime and fall water temperatures. The EIS does recognize, however, temperatures would still exceed water temperature standards in the summer during hot weather events. The spill operation for juvenile fish passage is a significant departure from previous operations, so much so that the Washington and Oregon state water quality standards had to be changed to implement the new spill regime. The Preferred Alternative also includes other operational, structural and mitigation measures to improve conditions for ESA-listed salmon and steelhead.
6506	3	Columbia River Keepers	Columbia River Keepers	II. The Alternatives Analysis Violates NEPA. NEPA requires that every EIS analyze a reasonable range of alternatives and take a hard look at the environmental consequences of each alternative so that decision-makers and the public can readily understand the implications of the choices before the agency. For the following reasons, the DEIS does not meet these requirements. A. Maintaining the status quo means extinction for Snake River sockeye and steelhead. The DEIS fails to take a hard look at the consequences of the No Action Alternative (NAA) by failing to explain that maintaining the current status quo will likely lead to the extinction of Snake River sockeye and steelhead in the near term. The DEIS describes the measures included in the NAA and models their implications for fish survival. These models indicate that the smolt-to-adult return rates expected under the NAA will not lead to recovery.15 12 See, e.g., Shoshone-Bannock Tribes, CRSO Tribal Perspectives Document, p. 10 (DEIS, Appendix P). 13 See generally, The Independent Scientific Group, Return to the River: Restoration of Salmonid Fishes in the Columbia River Ecosystem, Chapter 2 (September 10, 1996). 14 The Lewiston Tribune, Simpson offers critical remarks on river study (March 12, 2020). 15 See DEIS, pp. 3-387, 3-384 (using Snake River spring/summer Chinook survival rates as a proxy for Snake River sockeye survival rates), 7-100, 7-102. Columbia Riverkeepers FCRPS DEIS Comments - 5 What the DEIS does not explain is that Snake River sockeye and steelhead stocks are in a state of collapse and that failure to substantially recover in the near term will very likely lead to extinction. This critical omission obscures the consequences of the NAA, especially when accounting for intensify climate change, and does not constitute the hard look that NEPA requires.	The Co-Lead Agencies are required to evaluate a reasonable range of alternatives in the EIS. However, when there are potentially a very large number of alternatives, only a reasonable number of examples, covering the full spectrum of alternatives, must be analyzed and compared in the EIS. Alternatives for this EIS were developed from measures identified during public scoping, regional forums with scientists and technical experts from cooperating agencies, and expert opinion from within the co-lead agencies and in the literature. These alternatives represent a reasonable range of alternatives for the maintenance and operation of the CRS. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws, such as the Endangered Species Act (ESA), to evaluate impacts to listed species such as sockeye and steelhead. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA listed species. Recovery of ESA-listed salmon is outside of the authority of the co-lead agencies, and was not an objective of this EIS. Recovery of ESA species is the purview of the National Marine Fisheries Service and the US Fish and Wildlife Service. This EIS has been developed in consultation with NMFS and USFWS to find an acceptable balance that allows the co-leads to meet congressionally-authorized purposes while minimizing impacts to affected ESA species and their habitats. Both human-caused and natural factors that are outside the responsibility and control of the co-lead federal agencies, also contribute to the decline and recovery of fish, and will continue to strongly influence fish and their habitat. Salmon and steelhead have been adversely affected in the Columbia River Basin over the last century by many activities including human population growth, urbanization, introduction of exotic species, overfishing, development of cities and other land uses in the floodplains, water diversions for all purposes, dams, mining, farming, ranching, logging, hatchery production, predation, ocean conditions, and loss of habitat. Operation, configuration and maintenance of the Columbia River System requires mitigation for its effects, and the EIS is not intended or required to serve as an overall salmon recovery plan for the region. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the EIS objectives) as well as the EIS objectives for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. The Preferred Alternative is also more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% (the lower end of Northwest Power and Conservation Council's recovery targets for the region) as a result of the Preferred Alternative, as a result of the Preferred Alternative increasing SAR from 2.0% to 2.7% for Chinook, a 35% relative increase. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. To address uncertainty highlighted by the two models, the Preferred Alternative includes working with regional sovereigns to develop a study that assess the effectiveness of the increased spill regime on adult returns as well as assessment and management of adverse unintended consequences, such as long delays of adult migrants, or TDG-related mortality of juvenile migrants. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information. The Preferred Alternative will make a substantial contribution towards recovery.
6506	4	Columbia River Keepers	Columbia River Keepers	B. The DEIS multiple objectives approach to fails to present a reasonable range of alternatives. The alternatives presented in the DEIS violate NEPA because they are not distinct enough to present decision-makers and the public with realistic and intelligible choices. The point of NEPAs alternatives requirement is to describe the range of options before the agency and the corresponding range of environmental consequences that could flow from the decision. Unfortunately, the action agencies use of so-called multiple objective alternatives makes this impossible. The DEIS should have presented a suite of true alternatives that reflect a reasonable range of potential FCRPS operations and the consequences. Instead, the DEIS proposed five multiple objective alternatives that are, with the exception of Lower Snake River dam removal, so similar as to prevent meaningful comparison. Further, the multiple objective alternatives contain competing or contradictory measures that often obscure the potential environmental benefit of measures disfavored by the action agencies, such as Lower Snake River dam removal or increased spill. To address this problem, the final EIS should abandon the multiple objectives approach and analyze alternatives focused on maximizing different benefits of hydrosystem operations, including fish survival. This approach will allow decision-makers and the public to understand the true range of outcomes that could be achieved.	The Co-Lead Agencies are required to evaluate a reasonable range of alternatives in the EIS. However, when there are potentially a very large number of alternatives, only a reasonable number of examples, covering the full spectrum of alternatives, must be analyzed and compared in the EIS. Alternatives for this EIS were developed from measures identified during public scoping, regional forums with scientists and technical experts from cooperating agencies, and expert opinion from within the co-lead agencies and in the literature. These alternatives represent a reasonable range of alternatives for the maintenance and operation of the CRS. The approach allows the co-lead agencies to understand the trade-offs of different measures to benefit the system operations. The co-lead agencies disagree the analysis in for the multiple objective alternatives is obscured. The effects analysis is clearly presented in Chapters 3, 4, 6, and 7 and relevant appendices.
6506	5	Columbia River Keepers	Columbia River Keepers	C. The EIS should consider profound changes to the status quo. The DEIS should have analyzed removing the lower four Columbia River dams. The Yakama and Lummi Nations, Columbia Riverkeeper, and many others have called for the removal of these dams to restore Columbia River fisheries and Southern Resident orcas, honor treaty commitments, and improve ecosystem function to mitigate for the negative impacts of climate change. Additionally, analyzing lower Columbia dam removal would give DEIS readers a better sense of the benefits of a more natural river system, which the action agencies illegal and myopic focus on dam operations obscures. Lower Columbia dam removal (like Snake River dam removal) is not beyond the action agencies existing authority and, even if it were, that would not preclude its consideration in a NEPA analysis. These dams were not built to last forever; one is approaching 90 years old. The four lower Columbia dams may be part of the action agencies cultures and identities but they have significantly disrupted the culture, identity, and economy of many others throughout the Northwest. In the mid-term, their electricity is not irreplaceable, or even particularly significant, given the energy revolution necessary to achieve deep decarbonization goals in the Pacific Northwest. This EIS process is a rare opportunity to Columbia Riverkeepers FCRPS DEIS Comments - 6 weigh real changes to the status quo. As we enter the 21st century, the action agencies should reconsider the value and trade-offs of their 19th century technology.	The co-lead Agencies are required to evaluate a reasonable range of alternatives in the EIS. However, when there are potentially a very large number of alternatives, only a reasonable number of examples, covering the full spectrum of alternatives, must be analyzed and compared in the EIS. Alternatives for this EIS were developed from measures identified during public scoping, regional forums with scientists and technical experts from cooperating agencies, and expert opinion from within the co-lead agencies and in the literature. These alternatives represent a reasonable range of alternatives for the maintenance and operation of the CRS. As described in Chapter 2, many alternatives were considered and then eliminated from further consideration for the reasons described therein. An alternative breaching the four lower Columbia River dams was not analyzed because it is not a reasonable alternative due to its unreasonable impacts to public health and safety (e.g. power and transmission reliability events and flood risk management issues) and would not meet the Purpose and Need Statement or many objectives. Recovery of ESA species is the purview of the National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service. This EIS has been developed in consultation with NMFS and USFWS to find an acceptable balance that allows the co-leads to meet congressionally authorized purposes while minimizing impacts to affected ESA species and their habitats. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. The Preferred Alternative also meets the EIS objectives for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS, the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams, because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system.

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					As required by NEPA, the co-lead agencies evaluated each alternative for its effects on a suite of resources. These effects are summarized in Section 3 of the Executive Summary, fully described by resource and alternative in Chapter 3, summarized by resource and alternative in Table 3-1, and once again presented for comparison in Tables 7-1 and 7-55. The EIS analysis found only a minor effect to the Southern Resident killer whale would result from implementing MO3 (which includes the dam breach measure). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults form the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differentially from hatchery and wild fish. Hatchery fish today likely make up most fish consumed by SRKW (NOAA BiOp 2020). Tribal input, concerns, interests, and especially treaty rights were considered throughout the Draft EIS analyses and in the formulation of the Preferred Alternative. Treaty specific information is included in Section 3.17 as well as Chapter 7. The treaties bind all parties and are the supreme law of the land. The co-lead agencies recognize and respect that supremacy. In terms of honoring our treaty obligations, the co-lead agencies included "Protecting Native American treaty and reserved rights and fulfilling trust obligations for natural and cultural resources throughout the environment affected by the Columbia River System operations" as a purpose in the Purpose and Need Statement in Chapter 1 to ensure treaty obligations were a key consideration of decision making. As for mitigating for climate change, while the Draft EIS contains analysis in regards to climate change (Chapter 4), the co-lead agencies are not charged with mitigating the effects of climate change within this Draft EIS – that is outside the co-lead agencies' authorities and outside the scope of this EIS.
6506	6	Columbia River Keepers	Columbia River Keepers	The DEIS should also have analyzed of the impacts of summertime reservoir draw-downs on temperature and salmonid survival in the Lower Snake River as well as at McNary and John Day dams. As explained below, these reservoirs significantly increase water temperatures and impair fish migration and survival. Drawing down these reservoirs to the spillway crest during certain times has the potential to decrease water temperature due to smaller reservoir surface area and decreased water residence times. While this level of draw-dawn could require modification to fishways and other dam structures, the cost of such modifications should be compared to other measures under contemplation to improve fish survivalincluding dam removal and the concurrent permanent loss of electric generating capacity. Given the ongoing search for regional solutions to the fish passage problems caused by these dams and reservoirs, the action agencies should have modeled the water temperature impacts of reservoir draw-downs and discussed the implications for salmon and steelhead migration survival and recovery.	The purpose of this EIS is to assess impacts from the continued operation and maintenance of the existing projects of the Columbia River System and not to assess pre-project conditions The alternatives analysis did contemplate changes to pool elevations in some projects, for example at John Day, and these results were integrated into the water quality results summarized in Section 3.4 and Appendix D.
6506	7	Columbia River Keepers	Columbia River Keepers	D. The DEIS discussion of dam removal in MOA3 is arbitrary and capricious. First and most importantly, Riverkeeper is appalledbut not surprisedby BPAs continued attempts to leverage fish mitigation in the Snake River basin against Lower Snake River dam removal. The DEIS implies that Snake River dam removal would necessarily result in the immediate termination of the LSRCP, soon followed by significant reductions in fisheries mitigation work throughout the Snake basin.16 Given ongoing legislative efforts to resolve the deep-seated problems with the FCRPS, and the action agencies own assertions that dam removal would require additional legislation, BPAs attempt to couch its threat as an unavoidable legal consequence of lower Snake dam removal does not hold water. After decimating the fisheries resources of the Snake River basin, BPA blithely proposes to bulldoze holes in the four Lower Snake dams and walk away from the mess it createdleaving states, tribes, and stakeholders to rebuild what the action agencies destroyed. Moreover, the DEIS overtly transactional tone is a wholly inappropriate when addressing the tribal and state sovereigns whose fisheries resources have been degraded or eliminated and who effectuate BPAs mitigation obligations on the ground. The Northwest Power Act and the Endangered Species Act obligate BPA to mitigate some of the damage caused by the FCRPS. The discretion afforded BPA in deciding how to carry out this mitigation should never be used as a carrot or wedge to influence regional policy choices.	Breaching the embankments accomplishes the purpose of opening the river for unencumbered fish migration. Full removal of dam components is a larger and more costly construction project, including additional siting and disposal of materials. It would result in a greater cost both in adverse environmental effects and Federal appropriations without any significant benefit to fish. The Draft EIS acknowledges that with the breaching of the four lower Snake River dams in MO3, there would no longer be an obligation to fund the Lower Snake River Compensation Plan, which accounts for much of the hatchery production in the basin and other mitigation activities could be adjusted. The effects to populations as they transition from primarily hatchery production to an increased wild production of fish is qualitatively discussed in Section 3.5.3.6. The fish models are based upon data collected from past fish runs and there is no data available to inform a quantitative analysis for wild fish in the absence of hatchery fish. Over time, increased returns of wild fish would be expected as wild fish replace hatchery fish, and the Snake River resident fishery would improve as the reservoir habitats transition to riverine. The long term overall effect of MO3 would be beneficial for Snake River salmon and steelhead as well as resident fish, so no mitigation for this effect was identified. Additional hatchery production would be in place for limited years to offset the short term dam breaching and construction effects. Mitigation measures were proposed for both anadromous and resident fish for a transitional period for the breaching of the four lower Snake River dam embankments, as described in Sections 5.4.3.2 and 5.4.3.3. Proposed mitigation includes two years of hatchery production along with trap and haul operations for the anadromous fish during this period. These mitigation measures would reduce adverse effects to resident and anadromous fish in Region C. Tribal input, concerns, interests, and especially treaty rights were considered throughout the Draft EIS analyses and in the formulation of the Preferred Alternative. Treaty specific information is included in Section 3.17 as well as Chapter 7. In terms of honoring our treaty obligations, the co-lead agencies included Protecting Native American treaty and reserved rights and fulfilling trust obligations for natural and cultural resources throughout the environment affected by the Columbia River System operations as a purpose in the Purpose and Need Statement in Chapter 1 to ensure treaty obligations were a key consideration of decision making. The co-lead agencies are engaging in government-to-government consultation with the tribes, and several tribes are cooperating agencies on the CRSO EIS. The EIS recognizes the economic and cultural importance of salmon to Tribes in a number of sections throughout the document. The cultural significance and impacts of salmon and steelhead fisheries are described in the Ceremonial and Subsistence Fisheries sub-section and the Social Importance of Commercial, Ceremonial and Subsistence Fisheries sub-section of Section 3.15.2.1. Fisheries tribal interests are provided in Section 3.15.4 additional details regarding the economic significance of salmon and steelhead fisheries have been added to the recreation analysis (Section 3.11) including tribal interests (Section 3.11.3.7). Treaty rights are discussed in the Executive Summary, Section 3.16 Cultural Resources, and Section 3.17 Indian Trust Assets, Tribal Perspectives, and Tribal Interests. Appendix P includes copies of tribal perspectives that were submitted by tribes. Tribal consultation is described in Sections 1.5, 3.5, and 3.15; and Chapter 9. Most sub-sections within Chapter 3 include a Tribal Interests section at the end of the sub-section that attempts to summarize tribal issues by topic.
6506	8	Columbia River Keepers	Columbia River Keepers	Similarly, it is duplicitous and unscientific for the action agencies to repeatedly reference pre-dam water temperature observation in the Lower Snake River when describing the consequences of Lower Snake River dam removal and Alternative 3. Even if those measurements were reliable or representative, once-daily surface temperature samples are not 16 DEIS, pp. 1-45, 3-250, 3-548. Columbia Riverkeepers FCRPS DEIS Comments - 7 particularly helpful for understanding how the Lower Snake Rivers water temperature regime influenced fish passage and survival17 (a mistake perpetuated by the DEIS singular focus on current daily maximum water temperatures). Furthermore, the DEIS steadfastly ignores other pre-dam conditionsespecially conditions that show the dams deleterious impact or undermine the action agencies long-held policy preferences. For instance, the DEIS does not present predam water temperature or flow data for the main-stem Columbia or the estuary. And the DEIS fails to mention that Snake River coho were historically abundant, went extinct after the construction of the Lower Snake River dams, and were only recently re-introduced by the Nez Perce Tribe. Presenting questionably relevant data on pre-dam conditions only where it appears to support a long-established policy preference is arbitrary and capricious and only serves to highlight the action agencies bias.	Historical water temperature measurements were collected from 1955 to 1958, which are reported in the EIS. This information helps to build historical context and provide an idea of what water temperatures would have looked like prior to the construction of the lower Snake River and Hells Canyon Complex dams, as breaching the lower Snake River dams was analyzed extensively in this EIS and pre-dam temperatures are relevant to the analysis. The lower Snake River dams include Lower Granite Dam (constructed in 1975), Little Goose Dam (constructed in 1970), Lower Monumental Dam (constructed in 1969) and Ice Harbor Dam (constructed in 1961), while the Hills Canyon reach dams include Brownlee (constructed in 1959), Oxbow Dam (constructed in 1961) and Hells Canyon Dam constructed in (1967). No Corps dams existed on the Snake River prior to 1961. The fish benefits of breaching the Snake River dams is discussed in the analyses of Snake River salmon and steelhead in the EIS. Faster travel times, among other parameters such as temperature differences, under a breach scenario was incorporated into both models that were used to estimate juvenile survival and, as reported in the EIS, both indicated higher juvenile survival than the No Action Alternative. For Snake River spring/summer Chinook Salmon, decreased travel time of 4.5 days and 5.5 days, respectively, were indicated by CSS and NMFS COMPASS models, compared to the No Action Alternative. The water temperature model used to analyze all EIS alternatives underwent significant review by experts outside of the co-lead agencies, including scientists from the USEPA, USGS, and Portland State University. In addition, the USEPA and co-lead agencies worked together to compare the co-lead agencies' CE-QUAL W2/RAS model (used for EIS analysis) and the EPA's RBM-10 model (used for the draft TMDL assessment). Efforts included identifying and comparing similarities and differences in the two models and assessments, and concluded that both models provide useful and technically appropriate analyses of the Columbia and lower Snake River water temperatures. As such, the EPA agrees with the co-lead agencies that the CE-QUAL W2 and HEC RAS models are appropriate to use in developing the EIS (see EPA review comment letter # 16-0059).
6506	9	Columbia River Keepers	Columbia River Keepers	Finally, the DEIS discussion of Alternative 3 should explain that Lower Snake River dam removal could enhance the benefit of cold-water releases from Dworshak Reservoir.18 The DEIS concedes that, with the Lower Snake dams in place, the cooling effect of Dworshaks water diminishes significantly downstream of Lower Granite dam. However, the DEIS does a poor job of explaining that, without the four dams, the cold water from Dworshak could meaningfully and quickly decrease water temperatures throughout entire the Lower Snake River. Both HEC-RAS and RBM-10 models predict that daily average temperatures in a freeflowing Lower Snake River at Ice Harbor Dam would have significantly declined following a major increase in Dworshak water releases in late June 2015and significantly increased just after Dworshak releases were curtailed at the beginning of August 2015. The two figures below describe the daily average temperatures in the Lower Snake at Ice Harbor in 2015, both as observed temperatures and temperatures predicted without the dams. Both figures predict that the 17 See Exhibit 4. Margaret Filardo et al., Letter to Gene Spangrude re: historic Snake River water temperature observations (November 13, 2019). 18 See Exhibit 5, EPA, Draft Assessment of Impacts to Columbia and Snake River Temperatures using the RBM10 Model, pp. 3940 (December 19, 2018) (predicting lower monthly average temperatures in July, August, and September in the Lower Snake River if the dams were breached and Dworshak releases continued.) Columbia Riverkeepers FCRPS DEIS Comments - 8 average temperature of the free-flowing Snake River at Ice Harbor would have declined sharply in early July and risen sharply again in early August of 2015. What could explain these significant changes in temperature? The next figure shows water releases from Dworshak Dam over the same period. The hydrograph above shows that cold water releases from Dworshak more than doubled in late June of 2015just before the Corps and Riverkeepers modeling both predicted a significant decline in the free-flowing rivers temperature at Ice Harbor. Similarly, the hydrograph shows that Dworshak water releases decreased sharply at the beginning of August 2015and the models predicted significant temperature increases at Ice Harbor shortly thereafter. In contrast, the temperatures observed in the dammed river at Ice Harbor in 2015 showed no noticeable reaction to Dworshak operations. This anecdotal evidence supports the commons-sense conclusion that breaching the Lower Snake River dams would allow Dworshak releases to significantly and quickly influence water temperaturesand improve fish migrationthroughout the entire Lower Snake River. Instead of ignoring and obscuring19 this important point, the DEIS should have investigated how to optimize Dworshak releases to regulate water temperature and improve fish survival in a free-flowing Lower Snake. For instance, Alternative 1 proposes releasing more Dworshak water in June/July, less in August, and more again in September/October. This schedule would release cold water during the peak of the sockeye and spring/summer Chinook migrations in June/July and again during the peak of fall Chinook and 19 As explained in Section IV and V, below, focusing exclusively on daily maximum temperatures obscures important information about how dam removal would affect water temperatures and fish survival. Columbia Riverkeepers FCRPS DEIS Comments - 9 steelhead migrations in September/October. Because Alternative 1 does not include Lower Snake dam removal, temperature modeling of this alternative showed (unsurprisingly) that an early summer/early fall Dworshak release schedule would have little to no impact on water temperatures or fish survival in the	The water temperature analysis specific to MO3 (which contains the dam breaching measure) utilized the Dworshak CE-QUAL W2 (2-dimensional model) and the lower Snake River HEC-RAS (1-demesional models) to predict water temperatures under a dam breach scenario, while incorporating operations at Dworshak Dam for downstream water temperature management. Specifically, from the 2016 No Action Alternative were used in the MO3 analysis. Results were provided to the fish team for incorporation into COMPASS and CSS modeling and other analysis to evaluate the impacts to anadromous fish. Future dam breaching analysis may provide an opportunity to investigate Dworshak Dam operations further, but this would need to occur outside of the EIS process and under a more appropriate study framework.

Letter No.	Comment No.	Commenter Name/Email	Affiliation	Comment	Response[1/]
				Lower Snake River. A much more interesting and revealing question would be: how would the Alternative 1 (or other) Dworshak release schedule influence temperature and fish migration in a free-flowing Snake River? The DEIS should have investigated how the combination of Snake River dam removal and different Dworshak dam release patterns could provide the most benefit for fish survival.	
6506	10	Columbia River Keepers	Columbia River Keepers	The DEIS conceals the hydrosystems significant impact on water temperature in the lower Columbia River. Recent modeling by EPA (below) shows that the summer water temperatures at John Day dam are significantly warmer because of the John Day pool and upstream reservoirs.20 EPA modeling also shows that John Day and McNary dams together raise the temperature of the Columbia an average of 0.5 and 0.6 degrees C in August and September, respectively.21 While these results show significant temperature increases due to the dams, Riverkeeper notes that EPAs modeling only examines river temperature with and without dams under current flow conditions. Modeling temperature under a natural (i.e. pre-FCRPS and Columbia River Treaty) hydrograph where the freshet was more pronounced and lasted longer into the summer would 20 Exhibit 6, EPA, Columbia River Temperature TMDL: State and Tribal Meetings PowerPoint Presentation, Slide 33 (January 2020). 21 See Exhibit 5, pp. 2829. 10 12 14 16 18 20 22 24 90 140 190 240 290 deg C Julian Day John Day Tailrace RBM10 2007-2016 Dams No Dams AUG July SEPT Columbia Riverkeepers FCRPS DEIS Comments - 10 show the true extent of the FCRPS temperature impacts. The action agencies refusal to discuss pre-dam conditions or consider alternatives that meaningfully depart from the status quo results in a DEIS that conceals the hydrosystems significant impact on water temperature in the lower Columbia River and its implications for salmon survival.	As stated in the Purpose and Need Statement in Section 1.2, the ongoing action that requires evaluation under NEPA is the long-term coordinated operation and management of the CRS projects for the multiple purposes. As mentioned in the Forty Most Asked Questions Concerning CEQ's National Environmental Policy Act Regulations, in the case where there is an ongoing management program or plan, the No Action Alternative would be "no change" from current management program or plan. The No Action Alternative is required by the National Environmental Policy Act (NEPA), in accordance with the Council on Environmental Quality regulations (40 C.F.R. 1502.14) and provides a benchmark for comparing environmental effects of the other alternatives. The No Action Alternative considers what would happen if the CRS continued to be operated, maintained, and configured with no change. Both CE-QUAL W2 and HEC-RAS have been calibrated and peer-reviewed by respected scientists from Portland State University, EPA and the USGS, as well as many cooperating agencies. In addition, the USEPA and co-lead agencies worked together to compare the co-lead agencies' CE-QUAL W2/RAS model (used for EIS analysis) and the EPA's RBM-10 model (used for the draft TMDL assessment). Efforts included identifying and comparing similarities and differences in the two models and assessments, and concluded that both models provide useful and technically appropriate analyses of the Columbia and lower Snake River water temperatures. As such, the EPA agrees with the co-lead agencies that the CE-QUAL W2 and HEC RAS models are appropriate to use in developing the Draft EIS (see EPA review comment letter # 16-0059). Please note that model calibration reports were developed for all water quality models and are available by request.
6506	11	Columbia River Keepers	Columbia River Keepers	Furthermore, the DEISs reliance on EPAs unpublished temperature refuges study and temperature TMDL is misplaced, cynical, and incorrectly implies that the action agencies can foist the main-stem Columbia water temperature problems onto EPA. First, temperature refuges will not address many of the temperature-related fish passage problems in the lower Columbia because temperature refuges do not: address the cause of, or solutions to, high water temperatures; address temperature barriers at fishways; benefit adult sockeye or spring/summer Chinook; benefit out-migrating juvenile salmonids experiencing high water temperatures, or; exist in the mainstem Columbia or Snake rivers upstream of John Day dam.22 Second, the action agencies and federal government should not pretend to rely on a currently non-existent temperature TMDL that they have actively, and successfully, resisted for the last 20 years. A temperature TMDL could provide a meaningful plan to reduce water temperature in the Columbia and the Lower Snake. Unfortunately, the action agencies have worked to prevent and undermine the development of such a plan for the past two decades. When EPA put forth a draft temperature TMDL in 2002, the action agencies convinced the Bush administration to shelve that plan. When it appeared the TMDL might go forward anyway, the action agencies pressured EPA to ignore the impacts of the dams on temperature and pressured Oregon and Washington to exempt the dams from the Clean Water Act using a process called a Use Attainability Analysis. After the Ninth Circuit recently ordered EPA to produce the TMDL, the federal government took the extraordinary measure of asking that court to re-consider its opinion en bancbut not a single Ninth Circuit judge thought the case worthy of rehearing. It is cynical in the extreme for the federal government to imply that a currently non-existent temperature TMDL will help address water temperature problems. Regardless of the status of EPAs TMDL and thermal refuges work, the DEIS should realistically and clearly analyze whether the hydrosystem is causing or contributing to compliance with the water quality standards.23	The co-lead agencies have used the best information and resources available to model and evaluate impacts from operations described in each of the alternatives on water temperatures. The study results indicate that the alternatives considered in the EIS have limited ability to reduce temperatures in the lower Snake and Columbia rivers compared to the No Action Alternative. Regionally high air and water temperatures result in water quality standard exceedances and are beyond the ability of the CRS to cool. Temperature in the Snake River upstream of the confluence with the Clearwater River often exceeds state water quality standards. Drier and warmer years such as 2015, as summarized in NOAAs 2015 Adult Sockeye Salmon Passage Report (September 2016, National Marine Fisheries Service document) point out that tributary temperatures in the Okanogan and Salmon rivers were above 25C. The EPA is the lead agency on developing the temperature TMDL, and in doing so will evaluate the impact of all anthropogenic and natural sources of heat in the Columbia and Snake rivers. In contrast, the Draft EIS evaluated the impact of several actions the co-lead agencies could take and their impact on river temperatures as they relate to current and historic river temperatures. In addition to investigating the operational impacts on water temperature, the co-lead agencies have taken other actions to address water temperature impacts on fish passage. Cooling water pumps have been installed at Lower Granite and Little Goose adult passage ladders to reduce temperature differentials between ladder and river and to reduce thermal stress during upstream passage. In addition, the co-lead agencies are actively working on implementing the recommendations identified in NMFS' 2015 Adult Sockeye Salmon Passage Report (September 2016, National Marine Fisheries Service document) to improve management decision making and reduce, to the extent practicable, the negative impacts of high summer temperatures on migrating salmon, including adult sockeye salmon.
6506	12	Columbia River Keepers	Columbia River Keepers	IV. The DEIS Overall Narrative About Temperature in a Free-flowing Snake River is Misleading and Incorrect. Overall, the DEIS gives the incorrect impression that dam removal would cause the Lower Snake River to warm earlier in the spring, have no effect on temperature in the summer, and cool earlier in the falland that the spring and fall effects are equivalent in magnitude and 22 See, generally, Exhibit 7, Northwest Environmental Advocates, Comments on Draft Columbia River Cold Water Refuges Plan (November 19, 2019). 23 See Exhibit 1, pp. 23. Columbia Riverkeepers FCRPS DEIS Comments - 11 counterbalance each other in terms of benefits to fish. For instance, the DEIS says that dam breaching: . . . is expected to result in warmer water temperature in the spring, similar water temperatures in the summer, and cooler water temperatures in the fall . . .24 This oft-repeated narrative leaves readers with the impression that Lower Snake River dam removal would not substantially improve water temperatures or fish migration conditions. This is untrue. A. The free-flowing Lower Snake would not be meaningfully warmer in the spring. Contrary to the DEIS general narrative, the DEIS data show that the free-flowing Lower Snake would not be meaningfully warmer in the spring (e.g. March, April, and May) than the dammed river. When ranges of uncertainty were incorporated into the models results, springtime temperatures in the free-flowing river almost never exceed the dammed river.25 In March and April, the DEIS modeling does predicts that the monthly average temperature at Ice Harbor could be one or two degrees F warmer in the free-flowing river.26 But in March and April, the free-flowing Lower Snake River would almost never be warmer that 56 degrees F27 and therefore would remain well below the temperature thresholds known to impair salmon and steelhead migration.28 The small temperature difference resulting from Lower Snake dam removal in March and April is, therefore, not relevant to the fisheries resource. And in May, the DEIS actually predicts that snowmelt runoff would cause the free-flowing Lower Snake to be colder than the dammed river.29 Accordingly, the federal agencies long-time narrative that the free-flowing Lower Snake would be warmer in the spring is not scientifically viable; irrelevant and misleading (with respect to March and April); and untrue (with respect to May).	The EIS documents that the spring warming is less than extreme than the fall cooling when comparing MO3 (dam breach) to the No Action Alternative. Regarding water temperatures in the lower Snake River, it is well known that reservoirs create a lag in the thermal response to environmental conditions, leading to colder conditions in the spring and warmer conditions in the fall as compared to unregulated systems. Breaching the dams would reverse these effects. Under a dam breach scenario, spring water temperatures will warm more quickly than No Action conditions. Similarly in the fall, under a dam breach scenario, fall water temperatures will cool more quickly than No Action conditions. These results make logical sense and are supported by results from CRSO EIS numerical water quality modeling. The EIS has undergone a third party neutral Independent Expert Peer Review on the tools used, as well as the assumptions and conclusions in the EIS.
6506	13	Columbia River Keepers	Columbia River Keepers	B. The summer water temperature regime in the free-flowing Lower Snake River would not be similar to that of reservoirs. The DEIS oft-repeated claim that water temperatures in June, July, and August would be similar30 with or without the dams is misleading and incorrect, even assuming that the Corps modeling of temperature in the free-flowing Lower Snake river is reliable. This claim appears to 24 DEIS, p. 4-32; see also id. at 1-45, 3-551, 6-42, 7-19, D-6-25, D-6-71. 25 DEIS Appendix D, Annex A, p. A-2-5. 26 DEIS Appendix D, p. D-6-31; see also id. at D-A-1-28 (showing even smaller differences when comparing monthly averages of daily average water temperatures). 27 DEIS Appendix D, p. D-6-36. 28 See, generally, Exhibit 8, EPA, Issue Paper 1: Salmonid Behavior and Water Temperature (2001). 29 DEIS Appendix D, p. D-6-25 (Explaining that During [May], total river flows are highest due to snowmelt (i.e. spring freshet), resulting in overall cooler water temperatures throughout the [free-flowing] lower Snake River as compared to the No Action Alternative.); see also id. at D-6-31. 30 DEIS, p. 4-32; see also id. at 1-45, 3-551, 6-42, 7-19, D-6-25, D-6-71. Columbia Riverkeepers FCRPS DEIS Comments - 12 be based exclusively on the Corps projections of daily maximum temperatures in the dammed and free-flowing Lower Snake River. Daily maximum temperature is just one of several water temperature parameters that influence how well adult salmon and steelhead migrate and survive. As detailed in Section V, below, other temperature parameters and metricsincluding average temperature, diel cooling, and inter-day variabilitywould all be different, and more favorable to salmon and steelhead, in the free-flowing river. Accordingly, dam removal would meaningfully improve the temperature profile of the Lower Snake in the summertime in ways that benefit salmon and steelhead. The DEIS blanket assertion that summer temperatures in the Lower Snake would be similar after dam removal is therefore misleading and incorrect.	The water temperature regime in the lower Snake River under a dam breach scenario would differ from the No Action Alternative. To evaluate the effects of water temperatures for each of the alternatives, the co-lead agencies used the daily maximum water temperature metric in the analysis because most state water quality standards are based on this metric. The water temperature analysis specific to MO3 (the dam breaching scenario) utilized the Dworshak CE-QUAL W2 (2-dimensional model) and the lower Snake River HEC-RAS (1-dimensional models) to predict water temperatures under a dam breach scenario, while incorporating operations at Dworshak Dam for downstream water temperature management. Specifically, Dworshak operations in 2016 (No Action) were used in the MO3 analysis. Results were utilized in the NMFS COMPASS and CSS modeling and other analysis to evaluate the impacts to anadromous fish. They were also used to qualitatively examine effects to fish species based upon known relationships between water temperatures and fish responses specifically for stocks such as sockeye salmon and fall Chinook salmon where quantitative models were not available. In this way, the co-lead agencies discussed the effects on time and locality scales that may not be detected by the models. Breaching the four lower Snake River dams would result in long-term benefits including improvements to fall water temperatures and the restoration of the river to more normative riverine processes; this is stated in Chapter 3, pages 3-271 through 3-272 and Appendix D, Section 6.2.3 of the Draft EIS. While some cooler water temperatures may be observed in the summer under dam breaching, especially during cooler summer weather conditions and at night, water temperatures will remain warm and exceed the state water quality standard at times. This is because without the dams, the lower Snake River will be shallower and more susceptible to solar radiation and warming. The lower Snake River dams increase water particle travel times, but the lower Snake River has always been a warm system (USGS 1960, 1961, 1964; Corps 2002a) and breaching the dams will not change this fact. The operation of Dworshak Dam may help to ameliorate some of the warm water temperatures in the lower Snake River. Regarding the assertion that the co-lead agencies ignore the fact that breaching the dams would improve fish migration is puzzling. Both models showed faster travel time and higher survival for outmigrating juveniles, while adult return abundance varied by model. Also, major increase in fall Chinook spawning habitat, and improved upstream migration conditions for all adults would be realized under a dam breaching scenario.
6506	14	Columbia River Keepers	Columbia River Keepers	Furthermore, the temperature model used to assess dam breaching appears to overestimate summer temperatures in the Lower Snake River.31 Problems and uncertainty with the Corps modeling further undercut the DEIS central narrative [e.g. that summer water temperatures would be the same with and without the Lower Snake dams] because the DEIS appears to over-estimate how hot the Lower Snake would be without the dams. The HEC-RAS model habitually over-predicts summer temperatures in the Lower Snake.32 But the Corps nevertheless asserts, without any real justification, that it expects HEC-RAS to accurately predict water temperatures without the dams.33 This makes no logical sense, and some important sources of modeling uncertainty contradict the Corps hope that HEC-RAS will somehow begin accurately predicting summer water temperatures under a dam-breach scenario. For instance, wind- and temperate-driven evaporative cooling is an important source of heat loss from the river, but the HEC-RAS model has no way to adjust the wind-sheltering coefficients or change evaporation rates seasonally.34 These limitations on the HEC-RAS model would likely still cause this model overpredict summer water temperatures in the free-flowing Lower Snake.35 Another indication that the Corps may be over-estimating summer temperatures in the free-flowing Lower Snake is that the Corps HEC-RAS model over-predicts summer water temperatures in the Lower Snake when compared to EPAs RBM-10 model.36 Accordingly, summer daily maximum temperatures in the free-flowing Lower Snake may actually be lower than the DEIS predicts. //// 31 See Exhibit 1, pp. 12. 32 DEIS Appendix D, Annex A, p. A-1-16 (the HEC-RAS representation of the current [i.e. dammed] system overpredicts mid-summer temperatures); id. at p. A-1-18 (explaining that HEC-RAS underpredicts [reservoir] water temperature consistently throughout the year except during the summer, at which time the temperature is overpredicted). 33 DEIS Appendix D, Annex A, p. A-1-18. (The WQ team believes these results corroborate the 360 HEC-RAS heat balance routines and the parameter set for a one-dimensional representation of 361 dam breach of the lower Snake River.); id. at p. A-1-16. 34 Exhibit 1, p. 1. 35 Id. 36 DEIS Appendix D, Annex A, p. A-1-28 (comparing results of HEC-RAS and RBM-10 modeling on free-flowing Lower Snake water temperatures). Columbia Riverkeepers FCRPS DEIS Comments - 13 C.	The commenter has not provided sufficient justification to support the assertion that "the temperature model used to assess dam breaching appears to overestimate summer temperatures in the Lower Snake River" or "the HEC-RAS model habitually over-predicts summer temperatures in the Lower Snake" and assertions in the paragraph are incorrect. Both CE-QUAL W2 and HEC-RAS have been calibrated and peer-reviewed by respected scientists from Portland State University, EPA and the USGS, as well as many cooperating agencies. In addition, the USEPA and co-lead agencies worked together to compare the co-lead agencies' CE-QUAL W2/RAS model (used for EIS analysis) and the EPA's RBM-10 model (used for the draft TMDL assessment). Efforts included identifying and comparing similarities and differences in the two models and assessments, and concluded that both models provide useful and technically appropriate analyses of the Columbia and lower Snake River water temperatures. As such, the EPA agrees with the co-lead agencies that the CE-QUAL W2 and HEC RAS models are appropriate to use in developing the Draft EIS (see EPA review comment letter # 16-0059). Please note that model calibration reports were developed for all water quality models and are available by request. In regards to HEC-RAS, this model does have a way to adjust the wind-sheltering coefficients but uses different terminology: wind coefficients a, b, and c. HEC-RAS does change evaporation rates seasonally because evaporation rates depend on temperature and wind speed, similar to the approach used in CE-QUAL-W2. As stated above, the co-lead agencies and USEPA worked collaboratively to compare RBM-10 and the CRSO EIS water temperature models and concluded that the temperature predictions by both models are within a reasonable estimate of the uncertainty bounds. Differences between model estimates should be viewed as a reflection of the uncertainty in the predictive accuracy of the available tools.
6506	15	Columbia River Keepers	Columbia River Keepers	C. Fall cooling in the free-flowing Snake River would be far more significant than spring warming, both in terms of absolute temperature differences and benefits to fish survival. The DEIS narrative incorrectly implies that predicted fall cooling in the free-flowing Snake River would roughly mirror, and offset, spring warming. This is misleading. The magnitude, duration, and ecological impact of predicted cooling in September, October, and November is far greater than the impact of any warming that might occur in March or April. In contrast to the spring months, when ranges of uncertainty are incorporated into the models results, fall temperatures in the free-flowing river are almost always lower than the dammed river.37 Furthermore, in	The EIS documents that the spring warming is less than extreme than the fall cooling when comparing MO3 (dam breach) to the No Action Alternative. Regarding water temperatures in the lower Snake River, it is well known that reservoirs create a lag in the thermal response to environmental conditions, leading to colder conditions in the spring and warmer conditions in the fall as compared to unregulated systems. Breaching the dams would reverse these effects. Under a dam breach scenario, spring water temperatures will warm more quickly than No Action conditions. Similarly in the fall, under a dam breach scenario, fall water temperatures will cool more quickly than No Action conditions. These results make logical sense and are supported by results from CRSO EIS numerical water quality modeling. The EIS has undergone a third party neutral Independent Expert Peer Review on the tools used, as well as the assumptions and conclusions in the EIS.

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				contrast to the minor differences between the dammed and free-flowing Lower Snake predicted for March and April, the significant differences in water temperature predicted in September and October would occur when the dammed river would be warm enough to cause migrating salmon and steelhead thermal stress. Steelhead and fall Chinook attempt to migrate through the Lower Snake mostly in September and October. According to EPA, migration temperatures for adult steelhead and fall Chinook are 1013 C and 10.619.4 C, respectively.38 Temperatures in the dammed Lower Snake are often above, or at the high end, of these ranges in September and October. Therefore, significant temperature reductions in September and October provided by dam removal would meaningfully improve migration conditions for steelhead and fall Chinook. Dam removal would also improve spawning temperatures, and success, for fall Chinook in the Lower Snake, especially in October and early November when the dammed river is often significantly warmer than the 10 C optimum spawning temperature or even the 15 C level considered stressful for spawning.39 In sum, the fall cooling predicted in a free-flowing Lower Snake River significantly exceeds the magnitude, and benefit to salmonids, of any spring warming that might occur due to dam removal; the EIS and, more broadly, the action agencies and NMFSshould stop implying that these two effects are equivalent and counterbalancing.	
6506	16	Columbia River Keepers	Columbia River Keepers	V. The DEIS Does Not Take a Hard Look at the Impacts of Lower Snake River Dam Removal on Water Temperature, Fish Migration, and Salmon Recovery. The DEIS blanket assertion that Adult upstream passage through the CRS projects on the lower Columbia and lower Snake Rivers is generally safe and effective40 is incorrect and deeply irresponsible. Columbia and Snake river dams routinely and significantly impair the upstream migration of adult salmon and steelhead, in large part due to the dams impacts on water temperatures in fishways and reservoirs. 37 DEIS Appendix D, Annex A, p. A-2-5. 38 Exhibit 9, EPA, Summary of Temperature Preference Ranges and Effects for Life Stages of Seven Species of Salmon and Trout, pp. A-3, A-4 (1998). 39 Exhibit 8, p. 17. 40 DEIS, p. 3-301 (note that the pagination of the DEIS erroneously jumps from 3-304 to 3-285 and then repeats upward, meaning that duplicate page numbers exist in that range). Columbia Riverkeepers FCRPS DEIS Comments - 14 The eight dams on the lower Columbia and Snake rivers have caused significant mortality of returning adult endangered Snake River sockeye41 in four of the past five years. The catastrophic and well-known fish kill in 2015 destroyed an estimated 96% of the endangered Snake River sockeye before they passed Lower Granite Dam, and EPA admitted that the death of these fish was attributable primarily to warm water.42 Unfortunately, subsequent years have shown that adult Snake River sockeye frequently die in significant numbers in the hydrosystem. In 2017, NMFS estimated that passage through the hydrosystem killed 43% of returning adult endangered Snake River sockeye.43 In 2018, NMFS estimated that 15% of adult Snake River sockeye died between the Bonneville and McNary dams;44 and ladder counts suggested that 28% of the remaining fish died in the Lower Snake.45 In 2019, ladder counts suggested 75% mortality for sockeye in the Lower Snake: 320 sockeye were observed at Ice Harbor Dam ladder, but only 81 were observed in the ladder at Lower Granite Dam.46 Unhelpfully, the DEIS only presents information on adult Snake River sockeye survival from 2012 through 201647 even though the current BiOp requires the action agencies to collect and report such reach mortality data every year.48 The overwhelming evidence suggests that the hydrosystem has caused very significant mortality on endangered Snake River sockeye in recent years particularly in the Lower Snake River. Adult Snake River steelhead and Chinook also suffer significant mortality from the hydrosystem. The DEIS suggests that (when eliminating other sources of mortality) only 85% of these fish survive their journey past the 8 dams.49 The DEIS does not explain why the action agencies believe that killing 15% of all pre-spawn adult fish from populations that are not meeting recovery objectives is safe and effective, or whether this level of mortality is acceptable, sustainable, or likely to lead to extinction. As explained below, these estimates of out-right fish mortality in hydrosystem do not capture the effects of chronic or cumulative thermal stress that may contribute to additional mortality or reproductive failure upstream of Lower Granite dam. The DEIS explicit dismissal of the impacts of the dams, and water temperatures, on adult salmon and steelhead survival and recovery constitutes a failure to take a hard look at an important problem. The following subsections provide a more thorough review of why the DEIS discussion of water temperature and salmonid migration is inadequate. 41 The DEIS uses the modeled SAR for Snake River spring/summer Chinook as a proxy for Snake River sockeye survival. This is inappropriate given the differences in return timing, temperature sensitivity, and conversion rates between adults of these two species. 42 Columbia Riverkeeper v. Pruitt, Case No. 2:17-cv-00289-RSM, Defendants Answer, 3 (May 15, 2017). 43 Exhibit 10, NMFS, 2019 adult survival estimates for distribution spreadsheet; SR Sockeye tab (2019) (excerpted from original). 44 Id. 45 Fish Passage Center, Adult Returns for Columbia & Snake River Dams Webpage (queried April 5, 2020). 46 Id. 47 DEIS, Table 3-113 on p. 3-302 (this table is mis-labeled). 48 NMFS, 2019 CRS Biological Opinion, p. 877 (March 29, 2019). 49 DEIS, p. 3-302. Columbia Riverkeepers FCRPS DEIS Comments - 15	The four lower Snake River and four lower Columbia River dams are equipped with adult fish ladders which are safe and effective for passing adult fish upstream, and adult salmon and steelhead passage is generally considered good through the lower Snake and Columbia rivers. For example, adult survival rates (adjusted to account for reported harvest and typical straying rates) for Snake River spring/summer Chinook salmon are relatively high, averaging about 89 percent between Bonneville and McNary Dams and 83 percent between Bonneville and Lower Granite Dams. These survival rates include "natural" mortality as well as any mortality associated with injuries incurred from predators because mortality cannot currently be assigned to a source. The co-lead agencies worked with cooperating agencies when developing strategies to utilize surrogate species when sufficient data was not available for life cycle modeling. Chapter 3 section 5 and Appendix E have more detail on the use of surrogate species. The co-lead agencies agree with your concern relating to water temperatures in the Columbia and Snake rivers and that is why the agencies have used current high quality information and resources available to model and evaluate impacts from operations described in each of the alternatives on water temperatures. It is well understood that the CRS dams have an impact on natural riverine processes as well as anadromous fish migration. This is discussed throughout the EIS document. A system water quality model was developed to analyze water temperature and TDG effects throughout the Columbia River System for this EIS. Breaching the four lower Snake River dams would result in long-term benefits including improvements to fall water temperatures and the restoration of the river to more normative riverine processes; this is stated in Chapter 3, pages 3-271 through 3-272 and Appendix D, Section 6.2.3. Under a dam breach scenario, spring water temperatures will warm more quickly than No Action conditions. Similarly in the fall, under a dam breach scenario, fall water temperatures will cool more quickly than No Action conditions. These results make logical sense and are supported by results from CRSO numerical water quality modeling. What has surprised some stakeholders are the predicted summer water temperature effects under dam breaching. Many believe that removing the dams will result in colder water temperatures as compared to the No Action Alternative. While some cooler water temperatures may be observed in the summer under dam breaching, especially during cooler summer weather conditions and at night, water temperatures will remain warm and exceed the state water quality standard at times. This is because without the dams, the lower Snake River will be shallower and more susceptible to solar radiation and warming. Increases in water particle travel time are expected, but the lower Snake River has always been a warm system (USGS 1960, 1961, 1964; Corps 2002a) and breaching the dams will not change this fact. The models showed minor changes in the Columbia River under this alternative, indicating that the operations of the CRS dams have a limited ability to reduce temperatures in the lower Columbia River. Regionally high air and water temperatures result in water quality standard exceedances and are beyond the ability of the CRS to cool; future climate change predictions will result in even more difficult challenges. Recovery of ESA-listed salmon is outside of the authority of the co-lead agencies, and was not an objective of this EIS. Recovery of ESA species is the purview of NMFS and the US Fish and Wildlife Service. With respect to the Preferred Alternative, the fish analysis in Section 7.7.4 shows that it will provide substantial benefits to ESA-listed salmon and steelhead, which can help contribute to broader recovery goals.
6506	17	Columbia River Keepers	Columbia River Keepers	A. The DEIS singular focus on daily maximum temperature, and 68 F, ignores many important, and complex, relationships between salmonids and water temperature. Although the DEIS focus on daily maximum water temperature, and particularly on the 68 F (20 C) mark, is appropriate for evaluating the water quality standards, it oversimplifies a multifaceted relationship between fish migration, fish health, and water temperature. Because the DEIS water quality modeling only predicted daily maximum temperatures, the DEISs analysis and discussion of those modeling results overlooks many of the differences in the temperature regimes that would occur in a dammed and free-flowing Lower Snake River. While instantaneous daily maximum temperature is relevant to salmonid survival (and can be controlling if, temperatures are extreme), the daily maximum is just one of several important temperature metrics that influence how well salmonids can migrate through the Lower Snake River.50 Furthermore, focusing on days above and below 68 F oversimplifies the state water quality criteria that the DEIS is purporting to address.51 The DEIS focus on daily maximum temperature obscures important consequences of Lower Snake River dam removal and does not constitute the hard look that NEPA requires. The DEIS singular focus on 68 F daily maximum temperatures is inappropriate because many negative impacts to salmonids occur at temperatures well below 68 F. These chronic temperature impacts can, and often do, lead to migration failure and premature mortality. As EPA explained with regard to sockeye, migration blockages, susceptibility to disease, impaired maturation, increases to stress parameters, reduced efficiency of energy use, and reduced swimming performance are all more common as daily mean temperatures exceed 62.6 F (17C).52 Similarly, NMFS noted that, At water temperatures above 64.4 F, [Snake River] sockeye salmon display increases in fallback and straying, and decreases in survival.53 In laboratory tests, all sockeye held at 68 F died after 12 days; but even sockeye held at 61 F showed significant thermal stress (weight loss, absence of fat reserves, enlarged liver, and reduced egg size) when compared to fish held at lower temperatures.54 Temperature impacts below 68 F are not limited to sockeye. Adult Chinook survive better when water temperatures remain below 57.2 F,55 and EPA found 66.9 F to be the upper feasible limit for fall Chinook 50 See Exhibit 11, EPA, Issue Paper 5: Summary of Technical Literature Examining the Physiological Effects of Temperature on Salmonids, p. 74 (2001) (Even if a free-flowing river experienced a maximum daily temperature that impeded upstream migration, it would not have continuous temperatures beyond the migration threshold, nor would they be present for many consecutive days.) 51 See Exhibit 1, pp. 23 (explaining how the DEIS approach to addressing state water quality criteria for temperature ignores the states natural conditions criteria, which limit additional thermal loads from anthropogenic sources, including dams, when waterways exceed the numeric temperature criteria). 52 See Exhibit 11, p. 74. 53 NMFS, 2019 CRS Biological Opinion, p. 600 (March 29, 2019). 54 See Exhibit 11, p. 78; see also Crossin, et al., Exposure to high temperature influences the behaviour, physiology, and survival of sockeye salmon during spawning migration, Canadian J. of Zoology, 86:12740 (2008) (explaining that wild adult sockeye collected and held for 24 days at 18 C were roughly twice as likely to die both during holding and during their subsequent spawning migration as sockeye held at 10 C). 55 See Exhibit 11, p. 76. Columbia Riverkeepers FCRPS DEIS Comments - 16 migration.56 Accordingly, the DEIS singular focus on 68 F as a proxy for adult salmonid migration success ignores the well-documented negative impacts of water temperature below this threshold and therefore does not constitute a hard look at an important problem. The DEIS singular focus on 68 F daily maximum temperature is also inappropriate because it does not address the negative impacts to reproductive success from warm water that occur well below 68 F. Even for salmon and steelhead that survive their migration through the hydrosystem, the extended exposure to elevated temperatures can compromise their ability to reproduce successfully for a wide variety of reasons, from pre-spawning mortality to poor fry condition in the next generation. As EPA explained regarding sockeye, [e]levated but sublethal temperatures are known to negatively affect secretion of the hormones controlling sexual maturation . . . [and t]he likely physiological consequences of these reduced hormone levels are poor spawning success, poor egg quality and viability, and senescent death prior to spawning.57 Hatchery observations of O. mykiss and Chinook also showed a variety of negative impacts on reproductive success (e.g. increased pre-spawn mortality; decreased sperm volume and viability; decreased egg size, fertility, and survival; and decreased embryo and juvenile survival) that generally intensified as pre-spawning water temperatures increased from 50 to 68 F.58 Observations of wild coho salmon also showed decreased egg viability and hatching rates for fish that encountered water above 59 F during their spawning migration.59 By focusing almost exclusively on the 68 F mark, the DEIS fails to explain, much less attempt to quantify, how the combination of sustained warmer water and increased migration time in the Lower Snake River reservoirs likely harms the reproductive success of all stocks of Snake River salmon and steelhead. The DEIS singular focus on 68 F daily maximum temperature also obscures the importanceto adult salmonid migration and, ultimately, reproductionof the increased daily temperature fluctuations that would occur in a free-flowing lower Snake River. The DEIS does admit that summertime daily temperature fluctuations would be roughly two to six times greater in a free-flowing	The co-lead agencies chose to use the daily maximum water temperature metric in the analysis because most state water quality standards for water temperature are based on this metric. The water temperature analysis used CE-QUAL W2 (2-dimensional model) and HEC-RAS (1-demesional models) to predict water temperatures under all alternatives. Results were provided to the fish team for incorporation into NMFS COMPASS and CSS modeling and other analysis to evaluate the impacts to anadromous fish. The fish team also used water quality outputs to qualitatively examine effects to fish species based upon known relationships between water temperatures and fish responses where quantitative models were not available. In this way the team was able to discuss effects on time and locality scales that may not be detected by the models. Both CE-QUAL W2 and HEC-RAS have been calibrated and peer-reviewed by respected scientists from Portland State University, EPA and the USGS, as well as many cooperating agencies. In addition, the USEPA and co-lead agencies worked together to compare the co-lead agencies' CE-QUAL W2/RAS model (used for EIS analysis) and the EPA's RBM-10 model (used for the draft TMDL assessment). Efforts included identifying and comparing similarities and differences in the two models and assessments, and concluded that both models provide useful and technically appropriate analyses of the Columbia and lower Snake River water temperatures. As such, the EPA agrees with the co-lead agencies that the CE-QUAL W2 and HEC RAS models are appropriate to use in developing the Draft EIS (see EPA review comment letter # 16-0059). The co-lead agencies and USEPA concluded that the temperature predictions by both models (CE-QUAL W2/RAS and RBM-10) are within a reasonable estimate of the uncertainty bounds. Differences between model estimates should be viewed as a reflection of the uncertainty in the predictive accuracy of the available tools.

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				Lower Snake River: modeling predicts that daily low temperatures in the freeflowing Lower Snake would be 2.5 to 3.5 F less than daily maxima, whereas daily cooling in the reservoirs would be just 0.5 to 1.0 F.60 However, the DEIS does not really describe the implications of this admissionnamely that, assuming similar daily maxima, the free-flowing Lower Snake would, throughout much of each summer day, be significantly cooler than dammed river. This severely undercuts the DEIS central narrative that summer water temperatures in the Lower Snake would be similar61 with or without the four dams. At most, the daily maximum summer temperatures in the Lower Snake with and without dams might be 56 See id. 57 Id. 58 See, generally, id. at pp. 7677. 59 See id. at p. 77 (May 2001). 60 DEIS, p. 3-270; see also id. at D-6-37 (Figure 6-29, showing modeled daily temperature fluctuations that would occur without the four Lower Snake Reservoirs). 61 DEIS, p. 4-32; see also id. at 1-45, 3-551, 6-42, 7-19, D-6-25, D-6-71. Columbia Riverkeepers FCRPS DEIS Comments - 17 similar. But the temperature regime that fish experience throughout each day in the dammed versus free-flowing Lower Snake would be quite different, and more favorable to migration, because the undammed river would often cool 2 to 3 F throughout each 24-hour period.62 As EPA noted, even if the free-flowing [Lower Snake] river experienced a maximum daily temperature that impeded upstream migration, it would not have continuous temperatures beyond the migration threshold, nor would they be present for many consecutive days.63 By overemphasizing daily maximum temperatures and largely ignoring the much greater daily cooling that would occur in the free-flowing Lower Snake, the DEIS incorrectly concludes that summer temperatures, and salmon migration conditions, would be similar in the dammed and freeflowing rivers. The DEIS singular focus on daily maximum temperature also obscures the significant differences between average summer water temperatures in the dammed and free-flowing Lower Snake. Contrary to the DEIS repeated assertion that summer temperatures in the Lower Snake would be similar64 with or without the four dams, modeling by Columbia Riverkeeper using the EPAs RBM-10 temperature model (below) shows that daily average temperatures in the Lower Snake River during the summer of 2015 would have actually been significantly lower than daily average temperatures in the dammed river.65 The Corps HEC-RAS model produced similar results for summer 2015.66 The Corps could and should have used HEC-RAS, which uses an hourly timestep, to comprehensively to model the daily minimum and daily average temperatures that would result from dam removalalongside the daily maxima. The results of such a modeling effort would have given readers of the DEIS a much more robust and 62 DEIS, pp. 3-270, D-6-37. 63 See Exhibit 11, p. 74. 64 DEIS, p. 4-32; see also id. at 1-45, 3-551, 6-42, 7-19, D-6-25, D-6-71. 65 Exhibit 12, Columbia Riverkeeper, White Paper: Computer modeling shows that Lower Snake River dams caused dangerously hot water for salmon in 2015, p. 4 (2017). 66 DEIS, Appendix D, Annex A, p. A-1-28. Columbia Riverkeepers FCRPS DEIS Comments - 18 meaningful picture of how dam removal would impact temperature and salmonid migration. Instead, the Corps focused its modeling effort exclusively on daily maximum temperatures, an oversight that led directly to the DEIS misleading narrative that summer water temperatures would be similar in the dammed and free-flowing Lower Snake. Compounding this error, the DEIS provides almost no explanation of how the lower average and minimum daily temperatures that would occur in the free-flowing Lower Snake would benefit survival and reproductive success of summer-migrating adult salmonids. Altogether, the Corps singular focus on modeling daily maximum temperatures results in a DEIS that gives the incorrect impression that Lower Snake Dam removal would not improve summer water temperatures or migrating conditions for adult salmonids.	
6506	18	Columbia River Keepers	Columbia River Keepers	B. Lower Snake River dam removal could decrease cumulative thermal stress on adult salmon and steelhead by shortening migration times. The DEIS should have examined how removing impediments to migration in the Lower Snake River could decrease cumulative thermal stress and improve adult salmon migration, survival, and reproduction. Even if the DEIS narrative that summer water temperatures would be similar with and without the Snake River dams was true (and it is not), salmon and steelhead migrating through the dammed and undammed rivers would likely experience significantly different amounts of thermal stress. This is because migrating adult salmon and steelhead experience thermal stress cumulatively,67 and the dams, fishways, and reservoirs create migration blockages that likely cause adult fish to spend more days lingering in warm water.68 Fish forced to hold in warm water expend significantly more metabolic energy just to survive, and, because migrating adult salmon do not feed and have a finite amount of stored body energy,69 increasing the duration of exposure to warm water can drain energy stores and lead to negative outcomes for survival and reproduction.70 Accordingly, the DEIS should have compared adult fish passage times through the dammed Lower Snake River to projected passage times through the free-flowing river and discussed the implications for migration, latent mortality, and reproductive success. The discussion of temperature is incomplete without an acknowledgement 67 See Exhibit 13, Lisa Crozier, Impacts of Climate Change on Salmon of the Pacific Northwest, p. 18 (2015) (explaining that cumulative thermal stress is the primary predictor of migration survival in endangered Snake River sockeye adults). 68 See Exhibit 11, p. 78 (Explaining that [f]orced delays in spawning, such as are frequently caused by difficulties in passing dams, can cause decreases in reproductive success.); see also NMFS, 2019 CRS Biological Opinion, p. 601 (noting high rates of sockeye fall back and consequent migration delays at Lower Granite, The Dalles, and Bonneville dams); see also Exhibit 14, David Cannamela et al., Letter to Northwest Policymakers re: Science-based solutions are needed to address increasingly lethal water temperatures in the lower Snake River (October 22, 2019). 69 See, Exhibit 11, p. 75. 70 Exhibit 15, Keefer, et al., Thermal exposure of adult Chinook salmon and steelhead: Diverse behavioral strategies in a large and warming river system, PLoS ONE 13(9), pp. 1617 (2018) (Warm conditions more rapidly exhaust finite energetic reserves, which salmon and steelhead are simultaneously re-allocating to sexual maturation and depleting during migration, holding, and spawning. At the same time, stress hormone production surges, organs atrophy, and immune function is substantially reduced. These co-occurring processes allow the proliferation of parasites and pathogens, many of which become more virulent as temperatures rise, significantly increasing the likelihood of premature mortality.). Columbia Riverkeepers FCRPS DEIS Comments - 19 that the dams and fishways create migration delays that likely subject migrating adults to more cumulative thermal stress than they would experience in a free-flowing river. This is another example of how the DEIS singular focus on daily maximum water temperature obscures and minimizes the benefits of Lower Snake River dam removal for water temperature and salmon recovery.	It is well known that reservoirs create a lag in the thermal response to environmental conditions, leading to colder conditions in the spring and warmer conditions in the fall as compared to unregulated systems. Breaching the dams would reverse these effects. Under a dam breach scenario, spring water temperatures will warm more quickly than No Action conditions. Similarly in the fall, under a dam breach scenario, fall water temperatures will cool more quickly than No Action conditions. The co-lead agencies agree that reductions in fall water temperatures under MO3 would be beneficial and more significant than any early spring warming that would occur. Water temperature reductions in September and October would meaningfully improve migration conditions for steelhead and fall Chinook in the lower Snake River. These considerations are reflected in the modeling results for steelhead and are discussed qualitatively for Snake River Fall Chinook salmon. The Draft EIS (Page 3-567) concludes that the temperature differences under MO3 would reduce straying and migration delays and disease susceptibility that would improve survival and spawning success of Fall Chinook and coho salmon. Likewise, the analysis for sockeye salmon (Page 3-565) discusses the trade-offs between increased stress potential with warmer spring/summer daytime temperatures and the potential benefits from reduced delays, decreased thermal exposure, reduced straying and fallback due to not being transported as adults, and reduced fallback due to fish ladder temperature differentials. This information was incorporated into the cumulative effects analysis for MO3, which includes the breaching the four lower Snake River dams. See Section 6.3.1.3 for Water Quality impacts under MO3 and 6.3.1.4 for Anadromous Fish impacts under MO3.
6506	19	Columbia River Keepers	Columbia River Keepers	VI. The DEIS does not take a hard look at the implications of climate change for water temperatures and salmonid survival. The DEIS does not take a hard look at how impending climate change will impact river temperatures.71 Climate change has led to increased water temperatures throughout the hydrosystem;72 various studies show that the monthly average August temperature of the Columbia at Bonneville Dam is increasing at .2 to .4 C per decade73 and could warm by a cumulative 1.7 to 2 C by the end of the century.74 Despite this significant threat to water quality and fisheries, the DEIS does not take the logical step of modeling how climate change will impact river temperatures at various points throughout the hydrosystem in coming decades. Indeed, the RMJOC model that the DEIS uses to discuss climate change could have produced the necessary inputs (i.e. predicted air temperate, precipitation, streamflow, etc.) to run the water temperature models under predicted climate conditions for the coming decades.75 The failure to model potential future water temperatures throughout the hydrosystem not only prevents the DEIS from taking a hard look at a looming problem, it cuts short any discussion of what measures might be necessary to ensure that salmon and steelhead can still endure their migration through the warming rivers in coming decades.	Through on-going regional climate change studies and work, the co-lead agencies evaluated potential shifts in precipitation and temperature patterns and resulting changes in unregulated Columbia Basin streamflow timing and volumes. The evaluation consisted of the full range of the latest climate change projections developed using multiple global climate models, emissions scenarios, downscaling techniques, and hydrologic models. Details of this evaluation are in Chapter 4 of the EIS. This information was used to describe the potential effects (both beneficial and adverse) on the river systems and resources due to potential changes in climate for all alternatives. The climate science community is still developing quantitative models that can address possible effects in water temperature from climate change, and unfortunately, have not been fully applied and validated for use with climate affected regulated flow projections of large reservoir systems. This data is critical to analyzing potential effects to fish quantitatively. In lieu of this information, the climate analysis used the output from resource models, like water quality and fish, under historical conditions, available climate change data, and scientific literature to qualitative assess potential effects to resources (described in Chapter 4).
6506	20	Columbia River Keepers	Columbia River Keepers	The DEIS should have considered new strategies to mitigate the effects of climate change on river temperatures. Not only is new temperature mitigation necessary to ensure that salmon and steelhead can safely migrate through the hydrosystem as climate change intensifies, it is appropriate because the reservoirs actually intensify the water temperature increases caused by changing climate.76 In other words, the impacts of climate change on water temperature (and, by extension, fish survival77) in the current hydrosystem are worse than they would be in a freeflowing river. Nevertheless, the DEIS does not explore or recommend strategies to deal with increasing water temperatures under climate change. An appropriate exploration of temperature mitigation actions would have included, at least, studying: increased summer flow from Canadian storage reservoirs; increased and/or variable-depth releases from Grand Coulee dam; 71 See, e.g., DEIS, p. 4-31; see also Exhibit 1, pp. 34. 72 See generally Exhibit 16, EPA, Draft Assessment of Climate Change Impacts on Temperatures of the Columbia and Snake Rivers (2018). 73 Exhibit 17. EPA, Columbia & Snake River Temperature TMDL: Preliminary Technical Information PowerPoint Presentation, Slide 28 (August 29, 2018). 74 Exhibit 6, Slide 53. 75 See Exhibit 1, pp. 34. 76 Exhibit 17, Slide 31 (showing that average August temperatures at John Day dam are increasing faster in the dammed river than they would without the dams). 77 See, generally, Exhibit 13. Columbia Riverkeepers FCRPS DEIS Comments - 20 summer-time drawdown of McNary and John Day pools or the removal of these dams; and the draw-down or removal of Snake River dams coupled with optimizing Dworshak cold water releases to enhance fish migration. The failure to contemplate, much less recommend, any mitigation for the intensifying water temperature problems caused by the dams and climate change (especially in the main-stem Columbia River) is inexcusable and short-sighted.	The Draft EIS acknowledges and describes the temperature sensitivities of salmon and steelhead, as well as the many other factors that affect these fish. Water quality and hydrology modeling data were inputs into the fish survival models used to analyze the alternatives' effects on Snake River stocks, so temperature effects to survival have been incorporated into the overall analyses of each alternative. Regarding climate change, the climate science community is still developing models that can be used to analyze possible effects to water temperature from climate change, and unfortunately, there are not reliable models at the resolution required at this time. Therefore it was not possible to reliably model water temperature changes under climate change for this EIS (river vs. regional or global scale). In lieu of this information, the climate analysis used the output from the water quality models under historical conditions, climate change data, and scientific literature to qualitatively assess potential effects to water temperature (Section 4.2.3). Regarding water temperatures under dam breach scenarios, the analysis of MO3, which includes breaching the four lower Snake River dams, indicates that nighttime summer water temperatures, as well as fall water temperatures, would be cooler than No Action Alternative conditions in the Snake River. However, even with the dams breached, maximum summer water temperatures would exceed state water quality standards (20C) at times, especially during hot weather events. The models showed minor changes in the Columbia River under this alternative. The fish benefits of breaching the Snake River dams is discussed in the analyses of Snake River salmon and steelhead in the Draft EIS. Faster travel times, among other parameters such as temperature differences, under a breach scenario were incorporated into both models that were used to estimate juvenile survival and, as reported in the Draft EIS, both indicated higher juvenile survival than the No Action Alternative. For Snake River Spring/Summer Run Chinook Salmon, decreased travel time of 4.5 days and 5.5 days, respectively, were indicated by CSS and COMPASS models, compared to the No Action Alternative. The Preferred Alternative includes a combination of measures that meet the Purpose and Need and objectives of the Columbia River System Operations (CRSO) EIS, while balancing the authorized purposes of the 14 Federal dam and reservoir projects that make up the CRS. The temporal scope of the EIS is assumed to be 25 years from the signing of the Record of Decision (ROD) in order to have a similar period of analysis for comparison of effects across resources for all multiple objective alternatives. While the Preferred Alternative was developed largely focused on the analysis based on historical and synthetic hydrology, climate change data was also considered. Through on-going regional climate change studies and work, the co-lead agencies evaluated potential shifts in precipitation and temperature patterns and resulting changes in unregulated Columbia Basin streamflow timing and volumes. The evaluation consisted of the full range of the latest climate change projections developed using multiple global climate models, emissions scenarios, downscaling techniques, and hydrologic models. Details of this evaluation are in Chapter 4 of the EIS. This information was used to describe the potential effects (both beneficial and adverse) on the river systems and resources due to potential changes in climate for the Preferred Alternative. With the uncertainty associated with climate change, it is important that we establish methods for adapting and increasing flexibility on the system. There are measures in the Preferred Alternative that are adaptive to emerging changes in climate and ensure there is flexibility to respond to future changes. One example of this is the habitat restoration program that counters increased stream temperature with deeper pools and more shaded areas.
6506	21	Columbia River Keepers	Columbia River Keepers	Scientific basis of modeling 1. CE-QUAL-W2 (W2) is an appropriate and robust model for modeling reservoirs. Unfortunately, there are significant gaps in information regarding how the model was developed for the DEIS. a. I have been unable to find any information or citations to the calibration of the	Both CE-QUAL W2 and HEC-RAS have been calibrated and peer-reviewed by respected scientists from Portland State University, EPA and the USGS, as well as many cooperating agencies. In addition, the USEPA and co-lead agencies worked together to compare the co-lead agencies' CE-QUAL W2/RAS model (used for EIS analysis) and the EPA's RBM-10 model (used for the draft TMDL assessment). Efforts included identifying and comparing similarities and differences in the two

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				model or other model quality assessment analyses. The DEIS provides one calibration statistic, but the method of calculation is not provided. Typically, model quality assessment is demonstrated with a detailed analysis of calibration metrics and other methods such as validation, uncertainty analysis, and sensitivity analysis. b. It is unclear how model output was structured, or how results were averaged or analyzed in other ways. c. CE-QUAL-W2 can be used for free-flowing rivers. It is unclear how much effort went into testing W2 for this application before it was abandoned in favor of HEC-RAS. 2. The modeling of the Snake River with HEC-RAS for the MOS3 free-flowing scenario is described in Annex A of Appendix D. This model appears to have significant flaws for modeling the Snake River. I have several concerns about the information provided and appropriateness of the analysis. a. The DEIS provides inadequate information about the framework or calibration of the HEC-RAS model. Again the DEIS should provide more detailed information about parameter selection and model quality metrics. b. The report points out several problems with the use of HEC-RAS for the Snake River. They admit that the model calibrates poorly and point to several causes. First, unlike W2, HEC-RAS has no wind sheltering coefficient. Wind-driven evaporation can be a major factor in accurately describing temperature regimes in reservoirs and wide rivers. HECRAS has several other wind coefficients, and the sensitivity analysis they provide indicates that this is a critical parameter. Yet it is unclear how the coefficients are used in calibration and the difference between these coefficients and a wind-sheltering coefficient. DRAFT - CRSO DEIS Comments Page 2 of 4 Paul Pickett, 8 April 2020 Second, HEC-RAS has no method to adjust evaporation seasonally. As a result, water temperatures in the model results are too high in summer and too low in winter. The report states that the HEC-RAS model is believed to corroborate the HEC-RAS heat balance routines and the parameter set for a one-dimensional representation of a dam breach bathymetry. However, the problems they identify earlier in the discussion contradicts this statement. If the problems with evaporation and wind sheltering are seen with the reservoirs, they will likely affect the free-flowing too. The free-flowing river is still wide, and will still have seasonal variation. They are hopeful that uncertainty swings their way, but the evidence they supply does not support their statement. c. To summarize the problems with model uncertainty: 1) The HEC-RAS undammed river model calibrates poorly, so the results are uncertain. The evidence provided suggests that it might be overpredicting water temperatares in summer. 2) The W2 model also has inherent uncertainty, and how results are averaged for comparison to the HEC-RAS model adds to uncertainty. 3) The uncertainty of both models is compounded when they are compared to each other. If HEC-RAS is overpredicting temperature, then the impacts of the impoundments on water temperature may be worse than the DEIS estimates. For the protection of the environment, this uncertainty should be evaluated, a range of impacts estimated, and conclusions drawn from the more severe estimates of impacts.	models and assessments, and concluded that both models provide useful and technically appropriate analyses of the Columbia and lower Snake River water temperatures. As such, the EPA agrees with the co-lead agencies that the CE-QUAL W2 and HEC RAS models are appropriate to use in developing the Draft EIS (see EPA review comment letter # 16-0059). Please note that model calibration reports were developed for all water quality models and are available by request. In regards to HEC-RAS, this model does have a way to adjust the wind-sheltering coefficients but uses different terminology: wind coefficients a, b, and c. HEC-RAS does change evaporation rates seasonally because evaporation rates depend on temperature and wind speed, similar to the approach used in CE-QUAL-W2.
6506	22	Columbia River Keepers	Columbia River Keepers	Use of the model to assess Water Quality Standards (WQS) 3. The DEIS is inconsistent in identifying where Section 303d impairments exist and where draft TMDLs have or will be developed. These facts are noted in some sections but not in others. This creates confusion and seems to misstate the relationship of the DEIS to the Clean Water Act and State water quality programs. 4. The DEIS misstates and misuses the Water Quality Standards (WAC 173-201A in Washington). a. Some of this confusion is indicated by the misuse of the term standards when actually referring to the criteria in the standards. The Water Quality Standards are the entire regulation, with a variety of elements such as criteria, designated uses, anti-degradation, natural conditions. b. Compliance with the criteria is only on part of compliance with the WQS. For rivers like the Columbia and Snake, the natural conditions provisions often apply. Natural conditions is defined in the standards as absent human-caused pollution, and in the case of this DEIS is represented by the free-flowing river modeling scenario. For temperature, either the criteria should be met, or if natural conditions are within 0.3 degrees C of the criterion or higher, thermal load cannot be added to the river that increases temperatures by more than 0.3 degrees C. 5. The effects of the dams are only illustrated at the dams themselves. The DEIS should show an analysis that evaluates all parts of the river and identifies the locations that have the greatest temperature impairment. 6. Just as the DEIS should identify actions that need to be taken to restore endangered species, actions should also be identified to comply with water quality standards. The analysis of water quality that compares the No Action Alternative (NAA) to other alternatives is not a valid assessment of DRAFT - CRSO DEIS Comments Page 3 of 4 Paul Pickett, 8 April 2020 compliance with the standards. At best this approach only shows if alternatives allow greater or lesser impairment, not the level of compliance with the standards. 7. This shortcoming is particularly evident in the Impact Framework and Decision Criteria. The narrative and illustrations provide little explanation of how criteria were developed, and overall appear to be arbitrarily chosen. They do not align with water quality standards, and no information is provided to demonstrate that they are significant from the perspective of salmon biology.	The EIS focused on the numeric water temperature criteria (20c) as a method to determine how alternatives would impact river temperature as compared to the No Action Alternative in accordance with NEPA regulations. The effects of the dams are specifically discussed in the affected environment sections of the EIS and are part of the existing condition. The temperature TMDL is being developed by the USEPA, as per their authority under the CWA, will include a full analysis of the impact of all anthropogenic and natural impacts on river temperatures, with the CRS dams being a part of that analysis. The TMDL will determine what temperature reductions are needed to meet state water quality standards across the basin. For more information on the newly issued TMDL for temperature for the Columbia and lower Snake rivers can be found at https://www.epa.gov/columbiariver/tmdl-temperature-columbia-and-lower-snake-rivers. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species' survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species.
6506	23	Columbia River Keepers	Columbia River Keepers	8. Comparing temperature and DO levels in a free-running river to those in a reservoir is challenging. Robust methods have been developed to compare conditions in the two water bodies using cumulative frequency distributions. Examples can be found in Willamette River TMDLs and the draft Pend Oreille River TMDL. These methods avoid errors in comparing scenarios with different travel times, while also pooling data in a way that is relevant to salmon habitat.	The co-lead agencies chose to use a process-based model to predict impacts to dissolved oxygen rather than empirical models that may have little relevance to the system. When applied correctly, process or physically based models better capture impacts from changing conditions than empirical models that are developed based on existing conditions.
6506	24	Columbia River Keepers	Columbia River Keepers	9. The comparison of the W2 modeling in the NAA to the HEC-RAS model in MO3 may introduce biases that downplay the differences. Annex A notes that HEC-RAS tends to over predict temperature. At the same time, its unclear how W2 analyzes temperature for comparison. If the W2 analysis provides water temperature results that vary in accuracy, and these are then compared to HEC-RAS results that overpredict temperatures, the result would be an inaccurately low difference between the two scenarios. a. Running the HEC-RAS for the reservoirs and comparing results with W2 for the reservoirs should suggest ways to account quantitatively for these differences. Also, statistical tools like cumulative distributions might be useful.	The reference to the HEC-RAS overprediction of water temperatures (in Annex A) was part of an evaluation of the use of a one-dimensional model under current conditions and is not related to the accuracy of the MO3 water temperature predictions. There is no evidence that HEC-RAS overpredicts water temperatures for the MO3 Alternative. Additionally, both CE-QUAL W2 and HEC-RAS have been calibrated and peer-reviewed by respected scientists from Portland State University, EPA and the USGS, as well as many cooperating agencies. In addition, the USEPA and co-lead agencies worked together to compare the co-lead agencies' CE-QUAL W2/RAS model (used for EIS analysis) and the EPA's RBM-10 model (used for the draft TMDL assessment). Efforts included identifying and comparing similarities and differences in the two models and assessments, and concluded that both models provide useful and technically appropriate analyses of the Columbia and lower Snake River water temperatures. As such, the EPA agrees with the co-lead agencies that the CE-QUAL W2 and HEC RAS models are appropriate to use in developing the Draft EIS (see EPA review comment letter # 16-0059).
6506	25	Columbia River Keepers	Columbia River Keepers	Characterization of the rivers with model results 10. The DEIS makes broad statements about water quality in the study area, but rarely do they provide quantitative evidence or citations to back the statements. This falls short of the level of scientific communication that one would expect from a document of this significance and technical detail. 11. Evidence or citations should be provided to show that data and modeling information used in the DEIS met data quality standards. Quality assurance and quality control (QAQC) plans are typically required of federal studies (they certainly are for State studies). The absence of QAQC information is at best poor science communication, and may also represent a violation of federal laws for data quality.	The level of detail provided in the EIS is sufficient to adequately describe the effects of the alternatives on water quality in comparison to the No Action Alternative, as required in the NEPA regulations. In addition to the information contained in Section 3.4 and Section 7.7.3 pertaining to water quality, additional information can be found in Appendix D. Model calibration reports were developed for all water quality models and are available by request. Both CE-QUAL W2 and HEC-RAS have been calibrated and peer-reviewed by respected scientists from Portland State University, EPA and the USGS, as well as many cooperating agencies. In addition, the USEPA and co-lead agencies worked together to compare the co-lead agencies' CE-QUAL W2/RAS model (used for EIS analysis) and the EPA's RBM-10 model (used for the draft TMDL assessment). Efforts included identifying and comparing similarities and differences in the two models and assessments, and concluded that both models provide useful and technically appropriate analyses of the Columbia and lower Snake River water temperatures. As such, the EPA agrees with the co-lead agencies that the CE-QUAL W2 and HEC RAS models are appropriate to use in developing the Draft EIS (see EPA review comment letter # 16-0059). The co-lead agencies developed a Quality Assurance Project Plan related to the models used in the EIS. The EIS has also undergone third party neutral Independent External Peer Review.
6506	26	Columbia River Keepers	Columbia River Keepers	Evaluation of Climate Change 12. Its good to see the discussion of the RMJOC-II Part 1 findings. However, the footnote on page 4-2 is disturbing (The co-lead agencies expect this study [Part 2] to be published in spring 2020 after release of the draft EIS and will review the study to determine if any information presented in the draft EIS needs to be updated.) The Part 2 study provides projections for flows in the current system for future climate change scenarios. If the Part 2 study is close to being published, preliminary results should be available. With the huge investment in RMJOC-II, and the quality and significance of the results, its essential that the Part 2 results be included in the DEIS. It is of vital importance to evaluate the relative impacts of climate change on the existing system of Snake River dams versus the MO3 option of dam breaching using the best available science. Both the RMJOC-II DRAFT - CRSO DEIS Comments Page 4 of 4 Paul Pickett, 8 April 2020 Part 1 and Part 2 results must be applied to the water quality modeling to evaluate future water temperatures for all Alternatives. 13. Results presented in the DEIS from the RMJOC-II Part 1 report are not consistent with the information found in the Part 1 report. Either the DEIS is in error, or different results have been selected for the DEIS than were published in the Part 1 report. Without explanation, this opens the DEIS to the appearance of cherry-picking data to support a preferred message. 14. The discussion in Section 4.2.3.3 regarding climate impacts on the MO3 alternative (Snake River dam breach) is inadequate and misleading. Little evidence is provided to support their assertion about climate impacts on the free-flowing river, and the discussion points to the effect of climate change on the free-flowing river while saying little about the relative impact of climate change on MO3 versus the other alternatives. This is all the more reason that the RMJOC-II results from both Part 1 and 2 need to be applied to water quality models to quantify impacts of all alternatives in a warming future.	Through on-going regional climate change studies and work, the co-lead agencies evaluated potential shifts in precipitation and temperature patterns and resulting changes in unregulated Columbia Basin streamflow timing and volumes. The evaluation consisted of the full range of the latest climate change projections developed using multiple global climate models, emissions scenarios, downscaling techniques, and hydrologic models. Details of this evaluation are in chapter 4 of the EIS. This information was used to describe the potential effects (both beneficial and adverse) on the river systems and resources due to potential changes in climate for all alternatives. The climate science community is still developing quantitative models that can address possible effects in water temperature from climate change, and unfortunately, have not been fully applied and validated for use with climate affected regulated flow projections of large reservoir systems. This data is critical to analyzing potential effects to fish quantitatively. In lieu of this information, the climate analysis used the output from resource models, like water quality and fish, under historical conditions, available climate change data, and scientific literature to qualitative assess potential effects to resources (described in Chapter 4). The RMJOC-II Part 2 study was still in review at the time of the draft publication and final EIS development. Though the quantitative data from the Part 2 study was not included in this study, the qualitative conclusions were verified with the draft conclusions of the RMJOC-II Part 2 study for the final EIS.
6506	27	Columbia River Keepers	Columbia River Keepers	Comparison of HEC-RAS to RBM10 free-flowing model 15. The comparison of these two models in Annex A suggests some differences that affect the temperature results: a. The channel geometries and flow characteristics are different. HEC-RAS directly models flow, and they altered the geometry to 1934 conditions. RBM10 used 2010 geometry and they note that they did not alter geometry to the likely change to free-flowing conditions. This could affect temperatures from differences in water depth and width. b. RBM10 uses regional meteorology data from major airports. HECRAS uses local met data. This may be a significant source of error. The airport met stations are far from the river, and data from these locations may be different from local temperatures and wind velocities along the Snake River. This would be especially significant for wind, since that drives evaporation and is a major factor on large rivers and reservoirs.	Both CE-QUAL W2 and HEC-RAS have been calibrated and peer-reviewed by respected scientists from Portland State University, EPA and the USGS, as well as many cooperating agencies. In addition, the USEPA and co-lead agencies worked together to compare the co-lead agencies' CE-QUAL W2/RAS model (used for EIS analysis) and the EPA's RBM-10 model (used for the draft TMDL assessment). Efforts included identifying and comparing similarities and differences in the two models and assessments, and concluded that both models provide useful and technically appropriate analyses of the Columbia and lower Snake River water temperatures. As such, the EPA agrees with the co-lead agencies that the CE-QUAL W2 and HEC RAS models are appropriate to use in developing the Draft EIS (see EPA review comment letter # 16-0059). Please note that model calibration reports were developed for all water quality models and are available by request. In regards to HEC-RAS, this model does have a way to adjust the wind-sheltering coefficients but uses different terminology: wind coefficients a, b, and c. HEC-RAS does change evaporation rates seasonally because evaporation rates depend on temperature and wind speed, similar to the approach used in CE-QUAL-W2. As stated above, the co-lead agencies and USEPA worked collaboratively to compare RBM-10 and the CRSO EIS water temperature models and concluded that the temperature predictions by both models are within a reasonable estimate of the uncertainty bounds. Differences between model estimates should be viewed as a reflection of the uncertainty in the predictive accuracy of the available tools.
6506	28	Columbia River Keepers	Columbia River Keepers	Global 1) Throughout the EIS and appendices, the term standards is misused. The standards are the entire state regulation. Often the text refers to the criterion, but calls it the standard. Please revise the document to make sure that standard only applies to references to the entire rule, while criterion refers to the specific numeric target.	The co-lead agencies used the numeric criteria as short-hand to refer to the standard criteria that applies to the specific geography, time period, etc. specified in the water quality standard. This short-hand does not include antidegradation or natural condition. The co-lead agencies chose to use the daily maximum water temperature metric in our analysis because most state water quality standards for water temperature are based on this metric. The document was revised for clarity.

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6506	29	Columbia River Keepers	Columbia River Keepers	Appendix D - Body 1) Lines 1085-1086: Numerical modeling is needed to quantify temperature impacts from the dams addressed in this DEIS. According to a footnote in Chapter 4, a Part 2 study is close to being published. If so, preliminary results should be available. With the huge investment in RMJOC-II, and the quality and significance of the results, its essential that the Part 2 results be used to develop water temperature models of the Alternatives. The RMJOC-II Part 1 results are already available and could be applied to the modeling described in Annex A. However, for comparison, all of the Alternatives should be modeled for future impacts under climate change scenarios. It is of vital importance to evaluate the relative impacts of climate change on the existing system of Snake River dams versus the MO3 option of dam breaching using the best available science. Both the RMJOC-II Part 1 and Part 2 results must be applied to the DEIS analysis to provide an analysis that is comprehensive and up-to-date.	Through on-going regional climate change studies and work, the co-lead agencies evaluated potential shifts in precipitation and temperature patterns and resulting changes in unregulated Columbia Basin streamflow timing and volumes. The evaluation consisted of the full range of the latest climate change projections developed using multiple global climate models, emissions scenarios, downscaling techniques, and hydrologic models. Details of this evaluation are in chapter 4 of the EIS. This information was used to describe the potential effects (both beneficial and adverse) on the river systems and resources due to potential changes in climate for all alternatives. The climate science community is still developing quantitative models that can address possible effects in water temperature from climate change, and unfortunately, have not been fully applied and validated for use with climate affected regulated flow projections of large reservoir systems. This data is critical to analyzing potential effects to fish quantitatively. In lieu of this information, the climate analysis used the output from resource models, like water quality and fish, under historical conditions, available climate change data, and scientific literature to qualitative assess potential effects to resources (described in Chapter 4). The RMJOC-II Part 2 study was still in review at the time of the draft publication and final EIS development. Though the quantitative data from the Part 2 study was not included in this study, the qualitative conclusions were verified with the draft conclusions of the RMJOC-II Part 2 study for the final EIS.
6506	30	Columbia River Keepers	Columbia River Keepers	2) Lines 1136: list the Tribes with water quality standards in the Study Area (Spokane, Colville, Nez Perce)	Tribal Water Quality Standards are noted throughout the EIS where applicable.
6506	31	Columbia River Keepers	Columbia River Keepers	3) Lines 1138-1194: although the models used for this analysis (CE-QUAL-W2 and HEC-RAS) are described in a general way, no information or references are provided to describe the model development. This is a serious flaw information on the parameterization of the model and model quality assessment (calibration, validation, uncertainty or sensitivity analysis) is inadequate. As a result, there is no way to assess the quality and credibility of the modeling. This is both inconsistent with scientific modeling principles and likely also not in compliance with state and federal laws for the use of credible data in environmental decision-making.	Both CE-QUAL W2 and HEC-RAS have been calibrated and peer-reviewed by respected scientists from Portland State University, EPA and the USGS, as well as many cooperating agencies. In addition, the USEPA and co-lead agencies worked together to compare the co-lead agencies' CE-QUAL W2/RAS model (used for EIS analysis) and the EPA's RBM-10 model (used for the draft TMDL assessment). Efforts included identifying and comparing similarities and differences in the two models and assessments, and concluded that both models provide useful and technically appropriate analyses of the Columbia and lower Snake River water temperatures. As such, the EPA agrees with the co-lead agencies that the CE-QUAL W2 and HEC RAS models are appropriate to use in developing the Draft EIS (see EPA review comment letter # 16-0059). The co-lead agencies and USEPA concluded that the temperature predictions by both models are within a reasonable estimate of the uncertainty bounds. Differences between model estimates should be viewed as a reflection of the uncertainty in the predictive accuracy of the available tools. Please note that model calibration reports were developed for all water quality models and are available by request.
6506	32	Columbia River Keepers	Columbia River Keepers	4) Lines 1170, 1174, 1182: temperature metrics air or water temperature? Please clarify.	As described in the sentence preceding these lines, a five-year period (20112015) that represent a wide range of environmental response to hydrology (wet, dry, average) and weather conditions (hot, cold, average) were selected to model each EIS alternative against. Temperature metrics in this section refer to the weather conditions (hot, cold, average air temperatures). This has been added to the text for additional clarification.
6506	33	Columbia River Keepers	Columbia River Keepers	5) Lines 1177, 1180: water temperature response was near average unclear, response to what? How analyzed model or statistical?	Water temperature response was near average as compared to the period of record data that was used to select the five-year data set to run through the water quality model. The water temperature analysis used CE-QUAL W2 (2-dimensional model) and HEC-RAS (1-dimensional models) to predict water temperatures under all alternatives. Additional information can be found in the model calibration report, which is available upon request.
6506	34	Columbia River Keepers	Columbia River Keepers	6) Lines 1199-1201: Using CE-QUAL-W2 for free-flowing rivers is possible but difficult. But it would be better to use the same model for comparison of undammed to dammed.	The co-lead agencies evaluated the possibility of using CE-QUAL W2 for MO3, but concluded that HEC-RAS was an appropriate approach for water temperature modeling under a dam breach scenario and free-flowing river system. W2 captured the thermal dynamics of the reservoirs quite well under most CRSO alternatives but became quite unstable when applied to the lower Snake River as a riverine reach; and, due to the fact that well-mixed thermal conditions would be expected under a dam breach scenario, using a 2-dimensional model like W2 was not as necessary.
6506	35	Columbia River Keepers	Columbia River Keepers	7) Lines 1213 (Table 2-1): a) Hourly time step and daily maximum is more appropriate for assessing compliance with the WQS. b) Was channel geometry changed between free-flowing and dam scenarios? This introduces an additional source of uncertainty that should be checked. Differences in depth and velocity could affect temperature predictions.	The co-lead agencies used hourly timesteps to evaluate daily maximum water temperature for comparison to water quality standards. For MO3, the co-lead agencies used pre-dam channel bathymetry to predict water temperatures under a dam breach scenarios. The quantification of uncertainty due to bathymetry is beyond the scope of this EIS.
6506	36	Columbia River Keepers	Columbia River Keepers	8) Lines 1287: Why were these temperature change values chosen?	The co-lead agencies offer one way of organizing the EIS water temperature and TDG results, but other techniques could be used. The methodology the co-lead agencies chose was used to designate results into negligible, minor, moderate or major categories based on the absolute change in water temperature, number of days that water temperatures exceeded state water quality standard, and seasonality of change (based on whether anadromous fish are present or not). This methodology was reviewed by NMFS. In general, metrics were chosen based on: (1) absolute change in water temperature that the team considered to be measurable; (2) change in the days that water temperature standards were exceeded that was determined to be more related to the EIS Alternatives than seasonal/climatic variability. Hourly water temperature results for each five-year simulation are also provided in Appendix D.
6506	37	Columbia River Keepers	Columbia River Keepers	9) Lines 1288-1290: changes in days of non-compliance, pooled by month or season, is a reasonable metric. However the seasons chosen are not described.	Season are defined as: winter = December - February; spring = March - May; summer = June - August; and fall = September - November. This information has been added to Appendix D for clarity.
6506	38	Columbia River Keepers	Columbia River Keepers	10) Lines 1306 (Figure 2-3): a) The Impact Framework and Decision Criteria seem arbitrary. b) The criteria for negligible, minor or moderate is unclear and seems arbitrary. c) The key metric for the assessing the temperatures should be applying by the State water quality standards: the number of days and magnitude of increases over the criterion when natural (free-flowing) is below the criterion, or greater than 0.3 over natural when natural is above or within 0.3 of the criterion.	As is typical in NEPA documents, the co-lead agencies described effects as negligible, minor, moderate or major categories. These descriptions were based on the absolute change in water temperature, number of days that water temperatures exceeded state water quality standard and seasonality of change (based on whether anadromous fish are present or not). In general, metrics were chosen based on: (1) absolute change in water temperature that the team considered to be a measureable; (2) change in the days that water temperature standards were exceeded that was determined to be more related to the EIS alternative than seasonal/climatic variability. Hourly water temperature results for each five-year simulation are also provided in Appendix D.
6506	39	Columbia River Keepers	Columbia River Keepers	11) Lines 1293-1301: TDG decision criteria seem arbitrary and inappropriate. TDG hurts fish on a short time scale, not as a five year average. Change in the number of days with values over 115, 120, and 125 would be more appropriate.	Change in the number of days that TDG results exceed specific thresholds (110%, 115%, 120%, etc.) can be found in Appendix D for each EIS alternative. Our summary metrics are documented as well to provide a single impact level summary for the system. As is typical in NEPA documents, the co-lead agencies described effects as negligible, minor, moderate, or major. This was based on the absolute change in TDG per season and per year and then averaged for all five years. Hourly TDG results for each five-year simulation are also provided in Appendix D.
6506	40	Columbia River Keepers	Columbia River Keepers	12) Lines 1307-1331: Discussion of uncertainty is fairly general, but descriptions of issues seem appropriate.	Thank you for your comment.
6506	41	Columbia River Keepers	Columbia River Keepers	13) Lines 1335-1338: DO and pH can have a significant effect on metals in sediment. Whether this is minor is debatable, and depends on the ranges of those values occurring in the reservoirs.	Yes, this is true; such processes can be very complex and difficult to predict.
6506	42	Columbia River Keepers	Columbia River Keepers	14) Lines 1418-1421: There is also a draft TMDL for temperature in the Pend Oreille River, which is affected by Albeni Falls Dam operations.	This list included in the text is not intended to be a full, complete list of all TMDLs. The co-lead agencies mention the Albeni Falls water temperature TMDL in Appendix D, Section 3.1.1.2.
6506	43	Columbia River Keepers	Columbia River Keepers	15) Lines 1440-1444: there are court decisions related contributing or increasing a contribution to 303d impairments. This paragraph is not an accurate description of the situation (problems would continue until the sources of impairment are addressed.) The dams have been identified as sources of impairment, and the EIS should address whether the alternatives increase or decrease impairment.	The No Action Alternative is required by the National Environmental Policy Act (NEPA), in accordance with the Council on Environmental Quality regulations (40 C.F.R. 1502.14) and is used for comparing the environmental effects of the other alternatives. The No Action Alternative considers what would happen if the CRS continued to be operated, maintained, and configured with no change from 2016, which was the start of the EIS. The EIS focused on the numeric water temperature criteria (20c) as a method to determine how the alternatives would impact river temperature when compared to the No Action Alternative. The effects of the dams are specifically described in the Affected Environment sections of the EIS as required by NEPA. The temperature TMDL that was recently issued by the USEPA, as per their authority under the CWA, will include a full analysis of the impact of all anthropogenic and natural impacts on river temperatures, with the CRS dams being a part of that analysis. The TMDL will determine what temperature reductions are needed to meet state water quality standards across the basin. For more information on the TMDL for temperature for the Columbia and lower Snake rivers can be found at https://www.epa.gov/columbiariver/tmdl-temperature-columbia-and-lower-snake-rivers.
6506	44	Columbia River Keepers	Columbia River Keepers	16) Lines 1586-1598: The discussion of stratification (and other discussions that follow) should provide citations and quantitative metrics to back the descriptions provided.	The co-lead agencies added citation to the document to address this comment.
6506	45	Columbia River Keepers	Columbia River Keepers	17) Lines 1599-1603: The changes in temperature from tailwater to tailwater are not a useful or valid assessment of temperature impacts. Temperatures should be compared to a free-flowing river model to quantify the impacts of the NAA.	As stated in the Purpose and Need Statement in Section 1.2, the ongoing action that requires evaluation under NEPA is the long-term coordinated operation and management of the CRS projects for the multiple purposes. As mentioned in the Forty Most Asked Questions Concerning CEQ's National Environmental Policy Act Regulation, in the case where there is an ongoing management program or plan, the No Action Alternative would be "no change" from current management program or plan. The No Action Alternative is required by the National Environmental Policy Act (NEPA), in accordance with the Council on Environmental Quality regulations (40 C.F.R. 1502.14) and provides a benchmark for comparing environmental effects of the other alternatives. The No Action Alternative considers what would happen if the CRS continued to be operated, maintained, and configured with no change from operations in 2016 at the start of the EIS. The co-lead agencies used the standard points of compliance (fixed monitoring stations) that are located in the forebay and tailwater of each dam for the analysis, as these are the monitors used to guide real-time operations and ensure compliance with water quality standards.
6506	46	Columbia River Keepers	Columbia River Keepers	18) Lines 1599-1625: a) The entire river should be assessed, including the reservoirs, not just the dam locations. b) Data could be pooled by reservoir reaches and by month to compare with cumulative distributions.	The co-lead agencies agree and did evaluate the reservoirs. The co-lead agencies used the up-to-date, high quality information and resources available to model and evaluate impacts from operations described in each of the alternatives on water temperatures. Water quality analysis completed for this EIS used a combination of numerical models (CE-QUAL W2 and HEC-RAS), past studies and expert knowledge to predict the impacts of the EIS alternatives on water quality. The co-lead agencies used standard points of compliance (fixed monitoring stations) that are located in the forebay and tailwater of each dam. These are the monitors we use to guide realtime operations and ensure compliance with water quality standards.
6506	47	Columbia River Keepers	Columbia River Keepers	19) Lines 1602-1603: Its good that the 303d listing for temperature is mentioned. However, a more detailed analysis of temperatures in Lake Roosevelt is needed.	Each alternative was evaluated to determine the change of temperature compared to No Action Alternative due to Lake Roosevelt at Grand Coulee's tailwater. This is the appropriate level of detail for an EIS. It is not clear what additional analysis the commenter is requesting for Lake Roosevelt, or the reason why additional analysis may be needed.
6506	48	Columbia River Keepers	Columbia River Keepers	20) Lines 2043-2048: As noted for other sections, compliance with the standard should be assessed by comparison to the free-flowing river scenario. Exceedance of criteria indicate impairment, which is important to describe, but comparison to natural conditions (absent the dams) is necessary to fully evaluate compliance with standards.	As stated in the Purpose and Need Statement in Section 1.2, the ongoing action that requires evaluation under NEPA is the long-term coordinated operation and management of the CRS projects for the multiple purposes. As mentioned in the Forty Most Asked Questions Concerning CEQ's National Environmental Policy Act Regulation, in the case where there is an ongoing management program or plan, the No Action Alternative would be "no change" from current management program or plan. The No Action Alternative is required by the National Environmental Policy Act (NEPA), in accordance with the Council on Environmental Quality regulations (40 C.F.R. 1502.14) and provides a benchmark for comparing environmental effects of the other alternatives. The No Action Alternative considers what would happen if the CRS continued to be operated, maintained, and configured with no change from 2016, which was the start of the EIS.
6506	49	Columbia River Keepers	Columbia River Keepers	21) Lines 2055-2061, Figures 3-12 and 3-13: a) The entire river should be assessed, not just the dam locations. Data could be pooled by reservoir reaches and by month to compare with cumulative distributions. b) Cumulative distributions are a powerful tool to assess temperature differences between dams and reservoirs. The percent of time and space that temperatures are at different levels has more relevance to salmon habitat.	The regional geographic scope of this EIS is broken down by reach, per resource for which effects are disclosed throughout the EIS and is much broader than just the dam locations. Please see Section 3.4.2 for the Water Quality Study Area Map for all of the river reaches studied. Water temperature, total dissolved gas and other physical, chemical and biological conditions comprise the parameters for water quality in the EIS.
6506	50	Columbia River Keepers	Columbia River Keepers	22) Lines 2205-2232: The lower Snake River is also listed on the 303d list for dissolved oxygen, pH and total phosphorus. The EIS should discuss these parameters in more detail. The effect of the dams on these parameters should be quantitatively evaluated. The lack of information is curious, given the information in Appendix C.	The EIS references the 303(d) list for the lower Snake River. However, there is no requirement for an EIS to quantitatively evaluate all parameters on the 303(d) list. The effects of the alternatives for water quality parameters other than temperature and total dissolved gas are describe qualitatively in Section 3.4 Water Quality under the headings titled Other Physical, Chemical, and Biological Processes.
6506	51	Columbia River Keepers	Columbia River Keepers	25) Lines 2268-2273: a) The entire river should be assessed, not just the dam locations. Data could be pooled by reservoir reaches and by month to compare with cumulative distributions. b) Cumulative distributions are a powerful tool to assess temperature differences between dams and reservoirs. The percent of time and space that temperatures are at different levels has more relevance to salmon habitat.	See response to Comment 6506-49.
6506	52	Columbia River Keepers	Columbia River Keepers	26) Lines 2698-2701: assertions are made about temperatures in Lake Roosevelt, but no citation or data are provided to support this narrative.	The document has been revised to add citations to address the comment.

Letter No.	Comment No.	Commenter Name/Email	Affiliation	Comment	Response[1/]
6506	53	Columbia River Keepers	Columbia River Keepers	III. Appendix D Annex A 1) Lines 305-339, 1.3.4 Heat Flux and Model Parameterization Discussion: a) Although a table of parameters are provided, no reference is provided for the model framework. This makes it very difficult to interpret the discussion of the model development. b) The information provided suggests that the development of the 1-D free-flowing Snake River model was reasonable. However, the lack of a wind-sheltering coefficient appears to be significant. When comparing W2 results to HEC-RAS results to evaluate free-flowing conditions (MO3), this could introduce a bias into results. c) The discussion identifies the lack of a seasonal evaporation coefficient for the HEC-RAS model as a potential weakness of the model. The seasonal bias introduced by this short-coming is likely to occur both for the impounded model and the free-flowing model. d) If the 1-D model for the impounded system overpredicts temperature, its likely that the 1-D free-flowing model also overpredicts temperature. If so, when used as the basis for assessing impacts the 1-D model would tend to reduce the relative impact of the impounded system. e) The analysis should implement some methodology to address this potential bias. One approach would be to use sensitivity results to develop a range of values, and base the assessment probabilistically, such as through a Monte Carlo analysis or uncertainty analysis. Using this analysis, the potential for impacts on water quality should be viewed from a lens of conservative assumptions, such as a 95th percentile impact.	Model calibration reports were developed for all water quality models and are available by request. In addition, the commenter has not provided sufficient justification to support the assertion that the HEC-RAS model over-predicts summer temperatures in the Lower Snake and assertions in the paragraph are incorrect. The HEC-RAS model does have a way to adjust the wind-sheltering coefficients but uses different terminology: wind coefficients a, b, and c. HEC-RAS does change evaporation rates seasonally because evaporation rates depend on temperature and wind speed, similar to the approach used in CE-QUAL-W2. The co-lead agencies and EPA worked collaboratively to compare RBM-10 and the CRSO EIS water temperature models and concluded that the temperature predictions by both models are within a reasonable estimate of the uncertainty bounds. Differences between model estimates should be viewed as a reflection of the uncertainty in the predictive accuracy of the available tools. It should also be noted that both CE-QUAL W2 and HEC-RAS have been calibrated and peer-reviewed by respected scientists from Portland State University, EPA and the USGS, as well as many cooperating agencies. Additionally, as noted above, the USEPA and co-lead agencies worked together to compare the co-lead agencies' CE-QUAL W2/RAS model (used for EIS analysis) and the EPA's RBM-10 model (used for the draft TMDL assessment). Efforts included identifying and comparing similarities and differences in the two models and assessments, and concluded that both models provide useful and technically appropriate analyses of the Columbia and lower Snake River water temperatures. As such, the EPA agrees with the co-lead agencies that the CE-QUAL W2 and HEC RAS models are appropriate to use in developing the Draft EIS (see EPA review comment letter # 16-0059).
6506	54	Columbia River Keepers	Columbia River Keepers	2) Lines 408-409, Tables 1-7 and1-8: the results of the sensitivity to wind coefficients suggests that the limitations of HEC-RAS in modeling wind effects may have a strong influence on its accuracy.	The co-lead agencies disagree with this comment. Sensitivity is not a direct indication of model accuracy.
6506	55	Columbia River Keepers	Columbia River Keepers	3) Lines 467-482, Table 1-11, Figure 1-22: A comparison of the two models suggests some differences that affect the temperature results: a) The channel geometries and flow characteristics are different. HEC-RAS directly models flow, and they altered the geometry to 1934 conditions. RBM10 used 2010 geometry and they note that they did not alter geometry to the likely change to free-flowing conditions. This could affect temperatures from differences in water depth and width. b) RBM10 uses regional meteorology data from major airports. HECRAS uses local met data. This may be a significant source of error. The airport met stations are far from the river, and data from these locations may be different from local temperatures and wind velocities along the Snake River. This would be especially significant for wind, since that drives evaporation and is a major factor on large rivers and reservoirs.	Both CE-QUAL W2 and HEC-RAS have been calibrated and peer-reviewed by respected scientists from Portland State University, EPA and the USGS, as well as many cooperating agencies. In addition, the USEPA and co-lead agencies worked together to compare the co-lead agencies' CE-QUAL W2/RAS model (used for EIS analysis) and the EPA's RBM-10 model (used for the draft TMDL assessment). Efforts included identifying and comparing similarities and differences in the two models and assessments, and concluded that both models provide useful and technically appropriate analyses of the Columbia and lower Snake River water temperatures. As such, the EPA agrees with the co-lead agencies that the CE-QUAL W2 and HEC RAS models are appropriate to use in developing the Draft EIS (see EPA review comment letter # 16-0059). Please note that model calibration reports were developed for all water quality models and are available by request. In regards to HEC-RAS, this model does have a way to adjust the wind-sheltering coefficients but uses different terminology: wind coefficients a, b, and c. HEC-RAS does change evaporation rates seasonally because evaporation rates depend on temperature and wind speed, similar to the approach used in CE-QUAL-W2. As stated above, the co-lead agencies and USEPA worked collaboratively to compare RBM-10 and the CRSO EIS water temperature models and concluded that the temperature predictions by both models are within a reasonable estimate of the uncertainty bounds. Differences between model estimates should be viewed as a reflection of the uncertainty in the predictive accuracy of the available tools.
6506	56	Columbia River Keepers	Columbia River Keepers	4) Lines 536-567, 1.3.10.2 Temperature Comparison to No Action Alternative: These results are key to the analysis, but the presentation is confusing. a) Its not clear how NAA results were analyzed for comparison. Were these depth averaged, tailwater values, or some other value? b) Table 1-14 is not a useful way to present results. Data has been lumped into a single average and the two extremes are shown, along with pooled statistics. This reports very little information about temperatures in the two scenarios.	The No Action Alternative results are the CE-QUAL W2 water temperature output that represents fully mixed conditions at the dam locations, in the tailwater location of each CRS project. These results were compared to the cross section of the HEC-RAS MO3 model that is representative of the same tailwater locations (HEC-RAS results are always depth averaged). The data shown in Table 1-14 represents annual information and is not broken down into year type analysis. This is a sufficient way to compare the two models. The statistics shown are calculated using the same methodology that were used to analyze each EIS alternative.
6506	57	Columbia River Keepers	Columbia River Keepers	c) One of the challenges of comparing a reservoir to a free-flowing river is that the travel time changes and time lags can create difficulty comparisons. The analysis should evaluate whether changes in travel time are affecting results. d) Travel time can also affect fish exposure to temperatures, and this should be assessed and reported as well.	The co-lead agencies agree with the information contained in this comment. The impact of travel time cannot be evaluated independently from other hydraulic factors like depth. Changes in hydrology and flow have been captured in CSS and NMFS COMPASS fish modeling and analysis.
6506	58	Columbia River Keepers	Columbia River Keepers	e) The water quality standards are based on daily maximum values. If comparisons are made at a specific location (each dam) then the daily maximums should be compared.	The EIS analysis compares the daily maximum temperatures at each location, as the comment suggests.
6506	59	Columbia River Keepers	Columbia River Keepers	f) The entire river should be assessed, not just the dam locations. Data could be pooled by reservoir reaches and by month to compare with cumulative distributions. g) Cumulative distributions are a powerful tool to assess temperature differences between dams and reservoirs. The percent of time and space that temperatures are at different levels has more relevance to salmon habitat.	See response to Comment 6506-49.
6506	60	Columbia River Keepers	Columbia River Keepers	IV. DEIS Chapter 4 1) Lines 52-62: Its good to see the discussion of the RMJOC-II Part 1 findings. However, the footnote on page 4-2 is disturbing (The co-lead agencies expect this study [Part 2] to be published in spring 2020 after release of the draft EIS and will review the study to determine if any information presented in the draft EIS needs to be updated.) If the Part 2 study is close to being published, preliminary results should be available. With the huge investment in RMJOCII, and the quality and significance of the results, its essential that the Part 2 results be presented and included in the analysis. It is of vital importance to evaluate the relative impacts of climate change on the existing system of Snake River dams versus the MO3 option of dam breaching using the best available science, and both the RMJOC-II Part 1 and Part 2 results must be applied to the DEIS analysis to provide an analysis that is comprehensive and up-todate.	Through on-going regional climate change studies and work, the co-lead agencies evaluated potential shifts in precipitation and temperature patterns and resulting changes in unregulated Columbia Basin streamflow timing and volumes. The evaluation consisted of the full range of the latest climate change projections developed using multiple global climate models, emissions scenarios, downscaling techniques, and hydrologic models. Details of this evaluation are in Chapter 4 of the EIS. This information was used to describe the potential effects (both beneficial and adverse) on the river systems and resources due to potential changes in climate for all alternatives. The climate science community is still developing quantitative models that can address possible effects in water temperature from climate change, and unfortunately, have not been fully applied and validated for use with climate affected regulated flow projections of large reservoir systems. This data is critical to analyzing potential effects to fish quantitatively. In lieu of this information, the climate analysis used the output from resource models, like water quality and fish, under historical conditions, available climate change data, and scientific literature to qualitative assess potential effects to resources (described in Chapter 4). The RMJOC-II Part 2 study was still in review at the time of the draft publication and final EIS development. Though the quantitative data from the Part 2 study was not included in this study, the qualitative conclusions were verified with the draft conclusions of the RMJOC-II Part 2 study for the final EIS.
6506	61	Columbia River Keepers	Columbia River Keepers	2) Lines 97-149, Sections 4.1.2.3 and 4.1.2.4: Loss of snowpack at all but the highest elevations in Canada, and the decline in summer and falls streamflow have enormous implications. More information on the RMJOC-II results in these areas should be provided. What are the magnitude of the changes expected? How does it affect the Alternatives? Does it suggest other alternatives, such as summer and fall drawdown, or partial breach with low level gates for split-season operation?	Through on-going regional climate change studies and work, the co-lead agencies evaluated potential shifts in precipitation and temperature patterns and resulting changes in unregulated Columbia Basin streamflow timing and volumes. The evaluation consisted of the full range of the latest climate change projections developed using multiple global climate models, emissions scenarios, downscaling techniques, and hydrologic models. Details of this evaluation are in Chapter 4 of the EIS. This information was used to describe the potential effects (both beneficial and adverse) on the river systems and resources due to potential changes in climate for all alternatives. The climate science community is still developing quantitative models that can address possible effects in water temperature from climate change, and unfortunately, have not been fully applied and validated for use with climate affected regulated flow projections of large reservoir systems. This data is critical to analyzing potential effects to fish quantitatively. In lieu of this information, the climate analysis used the output from resource models, like water quality and fish, under historical conditions, available climate change data, and scientific literature to qualitative assess potential effects to resources (described in Chapter 4). Streamflow changes at Grand Coulee that are quantitatively described in Section 4.1 are indicative of changes in Canada.
6506	62	Columbia River Keepers	Columbia River Keepers	3) Lines 214-246: The pattern shown of increased flows for future scenarios for the 5th percentile at Ice Harbor Dam should be explored further, especially when flows at Dworschak Dam decrease across the board. The graphs for this information found in RMJOC-II Part 1 report (pp 89-91) show different information from the graphs in the DEIS. The RMJOC-II Part 1 report shows flows shifting earlier and lower, while the DEIS shows flows about the same and with little temporal shift. The differences in this information should be evaluated and either corrected or explained.	The drainage area above Dworshak Dam is a small fraction of the drainage area above Ice Harbor. The hydroclimatology of flows at these two locations are likely to be different. The presentation of streamflow projections in the Draft EIS is different than in RMJOC-II Part 1, however, the underlying data are the same. The Draft EIS presented the range of two emissions scenarios and describes the range statistically. RMJOC-II Part 1 only showed the range of projections from the RCP 8.5 scenario. Additionally, the Draft EIS used more extreme flow percentiles, 5th and 95th, as opposed to 10th and 90th as used in RMJOC-II Part 1. The analysis referenced in RMJOC-II Part 1 presented daily data. The Draft EIS presents data at a monthly time interval. These differences in analyses contribute to some visual differences between the presentation of projections in the two reports, however, the overall patterns and magnitude of projected changes are consistent.
6506	63	Columbia River Keepers	Columbia River Keepers	4) Lines 351-355: Although the question posed is important, since it points to methods for adapting to climate change impacts, it is not the only question that should be evaluated. Another key question is: How will future climate change increase or decrease the projected impacts for each scenario? This would be consistent with the purpose of an Environmental Impacts Statement.	The approach for Section 4.2 was to1) identify potential impacts of climate change to the No Action Alternative and 2) evaluate how each alternative could influence those effects. Where possible, this includes describing how climate change could increase or decrease effects of the measures to resources.
6506	64	Columbia River Keepers	Columbia River Keepers	5) Lines 492-493: The statement that the effect of climate change on the MO3 flows will be similar to the NAA is unsupported and contrary to the significant change in river conditions absent the impoundments in the lower Snake River. The impact on the hydrology and hydraulics of other Alternatives will be fundamentally different from the impacts on a free-flowing Snake River in MO3. For the lower Snake Reservoirs flow changes affect reservoir elevations, power generation, navigation and fish flows. For MO3 the impacts would be felt on summer and fall flow volumes, velocities, and time of travel. The effect on the free flowing river will be different, and may be much smaller than the effect on an impounded river. The implications of climate change on flows in the lower Snake in MO3 should be discussed explicitly and in detail, especially focused on summer and fall flow volumes, velocities, and time of travel.	The changes to hydrology and hydraulics described in this section are limited to the effects of climate change and the resolution of the future projections. Section 4.1 reports changes in monthly flow volumes and timing. MO3 is not expected to alter flow volume and timing at this scale. More detailed analyses of the effects of a free-flowing river and hydraulics are provided in Chapter 3.
6506	65	Columbia River Keepers	Columbia River Keepers	6) Lines 539-541, Table 4-8: include a row for forest fire impacts, which would have significant impacts on erosion.	Wildfire and its effects on erosion is included in the "vegetation" row.
6506	66	Columbia River Keepers	Columbia River Keepers	7) Lines 607-610: This discussion should also make the point the free-flowing river would produce a cleansing of sediments in this reach that would be an environmental benefit to salmon habitat in this reach.	This effect is described in the context of spawning habitat in the anadromous and resident fish sections of Chapter 3. The Aquatic Invertebrate section of Chapter 3 describes the effect of a transition from silt and sand to more gravel and cobble.
6506	67	Columbia River Keepers	Columbia River Keepers	8) Lines 677-733: no discussion is provided of the impacts of climate change on Albeni Fall dam and the Pend Oreille River.	Climate change impacts can be found throughout Chapter 4. Climate change effects on Albeni Falls water quality are described in the first paragraph under Section 4.2.3.1.
6506	68	Columbia River Keepers	Columbia River Keepers	9) Lines 776-778: why only surface water temperature? Given the weak stratification and passage through multiple dams, it is likely to increase temperatures throughout the water column. This statement should be corrected.	In this context, surface water temperature refers to the distinction between surface and groundwater, not the lake surface as distinct from other points in a column of surface water.
6506	69	Columbia River Keepers	Columbia River Keepers	10) Lines 805-818: a) The discussion in this section is inadequate and misleading. The results from RMJOC-II Part 2 are needed here for a quantitative assessment that links those results to water quality modeling. b) This section provides no evidence to support the assumption that spring temperatures will be higher, including a quantitative assessment is provide to calculate the effects. A shallower, swifter river will have more cooling from surface radiation and bed conduction at night. Time of travel will also allow spring flows from snowmelt to move more quickly through the system with less time to warm. So the effect of climate change on spring temperatures may be less for MO3 than for the NAA c) This section provides no evidence of similar water temperatures in the summer. The pattern of temperatures are likely to be quite different. For the same reasons as noted for the spring, the overall effect of climate change on summer temperature may be less for MO3 than for the other alternatives. Wider daily swings in temperature are likely, but the heat mass of a reservoir may tend to promote a steady increase in temperature rather than relatively quick dissipation of temperatures at night for a free-flowing river. At mid-day temperatures may be higher, but at night they may be cooler. Since modeling of average temperatures shows a significant increase in reservoirs versus the free-flowing river, its quite possible that the change in average temperatures under climate change will be less in MO3 than in the other scenarios. d) Although this section provides no evidence of cooler water temperatures in the fall, this is the most likely outcome that available evidence suggests. The free-flowing river will respond more quickly to longer night and shorter days in the fall, as compared to the months required to dissipate the thermal mass of the reservoirs.	Through on-going regional climate change studies and work, the co-lead agencies evaluated potential shifts in precipitation and temperature patterns and resulting changes in unregulated Columbia Basin streamflow timing and volumes. The evaluation consisted of the full range of the latest climate change projections developed using multiple global climate models, emissions scenarios, downscaling techniques, and hydrologic models. Details of this evaluation are in Chapter 4 of the EIS. This information was used to describe the potential effects (both beneficial and adverse) on the river systems and resources due to potential changes in climate for all alternatives. The climate science community is still developing quantitative models that can address possible effects in water temperature from climate change, and unfortunately, have not been fully applied and validated for use with climate affected regulated flow projections of large reservoir systems. This data is critical to analyzing potential effects to fish quantitatively. In lieu of this information, the climate analysis used the output from resource models, like water quality and fish, under historical conditions, available climate change data, and scientific literature to qualitative assess potential effects to resources (described in Chapter 4). The RMJOC-II Part 2 study was still in review at the time of the draft publication and final EIS development. Though the quantitative data from the Part 2 study was not included in this study, the qualitative conclusions were verified with the draft conclusions of the RMJOC-II Part 2 study for the final EIS. The climate analysis used the output from resource models, like water quality and fish, under historical conditions, available climate change data, and scientific literature to qualitative assess potential effects to resources (described in Chapter 4). These analyses are documented in Section 4.2.3 for the MO Alternatives and Section 7.8.4 for the Preferred Alternative. Overall, the Preferred Alternative is expected to result in benefits to anadromous salmon and steelhead. The analysis in Section 7.8.4 recognizes that some of the benefits to fish from the Preferred Alternative could be offset by the effects of climate change. Under a dam breach scenario, spring water temperatures will warm more quickly than No Action conditions. Similarly in the fall, under a dam breach scenario, fall water temperatures will cool more quickly than No Action conditions. These results make logical sense and are supported by results from CRSO numerical water quality modeling. What has surprised some stakeholders are the predicted summer water temperature effects under dam breaching. Many believe that removing the dams will result in colder water temperatures as compared to the No Action Alternative. While some cooler water temperatures may be observed in the summer under dam breaching, especially during cooler summer weather conditions and at night, water temperatures will remain warm and exceed the state water quality standard at

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					times. This is because without the dams, the lower Snake River will be shallower and more susceptible to solar radiation and warming. Increases in water particle travel time are expected, but the lower Snake River has always been a warm system (USGS 1960, 1961, 1964; Corps 2002a) and breaching the dams will not change this fact. Regionally high air and water temperatures result in water quality standard exceedances and are beyond the ability of the CRS to cool; future climate change predictions will result in even more difficult challenges.
6506	70	Columbia River Keepers	Columbia River Keepers	11) Lines 1033-1034, Potential increased water temperature from MO3 in the spring could be further amplified by warming from climate change: Again, this statement is not supported by any evidence, and qualitative arguments suggest that spring temperature may be less affected by climate change under a free-flowing situation. A quantitative analysis with RMJOC-II Part 2 results is needed.	Through on-going regional climate change studies and work, the co-lead agencies evaluated potential shifts in precipitation and temperature patterns and resulting changes in unregulated Columbia Basin streamflow timing and volumes. The evaluation consisted of the full range of the latest climate change projections developed using multiple global climate models, emissions scenarios, downscaling techniques, and hydrologic models. Details of this evaluation are in chapter 4 of the EIS. This information was used to describe the potential effects (both beneficial and adverse) on the river systems and resources due to potential changes in climate for all alternatives. Quantitative data that describes how climate change hydrology will affect reservoir operations in the Columbia Basin in still under development and was not available for us in this study. The climate science community is still developing quantitative models that can address possible effects in water temperature from climate change, and unfortunately, have not been fully applied and validated for use with climate affected regulated flow projections of large reservoir systems. This data is critical to analyzing potential effects to fish quantitatively. In lieu of this information, the climate analysis used the output from resource models, like water quality and fish, under historical conditions, available climate change data, and scientific literature to qualitative assess potential effects to resources (described in Chapter 4). The RMJOC-II Part 2 study was still in review at the time of the draft publication and final EIS development. Though the quantitative data from the Part 2 study was not included in this study, the qualitative conclusions were verified with the draft conclusions of the RMJOC-II Part 2 study for the final EIS. The climate analysis used the output from resource models, like water quality and fish, under historical conditions, available climate change data, and scientific literature to qualitative assess potential effects to resources (described in Chapter 4). These analyses are documented in Section 4.2.3 for the MO Alternatives and Section 7.8.4 for the Preferred Alternative. Under a dam breach scenario, spring water temperatures will warm more quickly than No Action conditions. Similarly in the fall, under a dam breach scenario, fall water temperatures will cool more quickly than No Action conditions. These results make logical sense and are supported by results from CRSO numerical water quality modeling. What has surprised some stakeholders are the predicted summer water temperature effects under dam breaching. Many believe that removing the dams will result in colder water temperatures as compared to the No Action Alternative. While some cooler water temperatures may be observed in the summer under dam breaching, especially during cooler summer weather conditions and at night, water temperatures will remain warm and exceed the state water quality standard at times. This is because without the dams, the lower Snake River will be shallower and more susceptible to solar radiation and warming. Increases in water particle travel time are expected, but the lower Snake River has always been a warm system (USGS 1960, 1961, 1964; Corps 2002a) and breaching the dams will not change this fact. Regionally high air and water temperatures result in water quality standard exceedances and are beyond the ability of the CRS to cool; future climate change predictions will result in even more difficult challenges.
6506	71	Columbia River Keepers	Columbia River Keepers	12) Lines 1035-1038: this sentence is misleading. Although climate change may make habitat conditions worse in a freeflowing scenario, they are likely to be far worse in the impounded Alternatives, and the overall effect of climate change will be less on a free-flowing river than in an impounded river.	Through on-going regional climate change studies and work, the co-lead agencies evaluated potential shifts in precipitation and temperature patterns and resulting changes in unregulated Columbia Basin streamflow timing and volumes. The evaluation consisted of the full range of the latest climate change projections developed using multiple global climate models, emissions scenarios, downscaling techniques, and hydrologic models. Details of this evaluation are in chapter 4 of the EIS. This information was used to describe the potential effects (both beneficial and adverse) on the river systems and resources due to potential changes in climate for all alternatives. The climate science community is still developing quantitative models that can address possible effects in water temperature from climate change, and unfortunately, have not been fully applied and validated for use with climate affected regulated flow projections of large reservoir systems. This data is critical to analyzing potential effects to fish quantitatively. In lieu of this information, the climate analysis used the output from resource models, like water quality and fish, under historical conditions, available climate change data, and scientific literature to qualitative assess potential effects to resources (described in Chapter 4). Breaching the four lower Snake River dams would result in long-term benefits including improvements to fall water temperatures and the restoration of the river to more normative riverine processes; this is stated in Chapter 3, pages 3-271 through 3-272 and Appendix D, Section 6.2.3. Under a dam breach scenario, spring water temperatures will warm more quickly than No Action conditions. Similarly in the fall, under a dam breach scenario, fall water temperatures will cool more quickly than No Action conditions. These results make logical sense and are supported by results from CRSO numerical water quality modeling. What has surprised some stakeholders are the predicted summer water temperature effects under dam breaching. Many believe that removing the dams will result in colder water temperatures as compared to the No Action Alternative. While some cooler water temperatures may be observed in the summer under dam breaching, especially during cooler summer weather conditions and at night, water temperatures will remain warm and exceed the state water quality standard at times. This is because without the dams, the lower Snake River will be shallower and more susceptible to solar radiation and warming. Increases in water particle travel time are expected, but the lower Snake River has always been a warm system (USGS 1960, 1961, 1964; Corps 2002a) and breaching the dams will not change this fact. Regionally high air and water temperatures result in water quality standard exceedances and are beyond the ability of the CRS to cool; future climate change predictions will result in even more difficult challenges.
6506	72	Columbia River Keepers	Columbia River Keepers	13) Lines 1972-1980: This section ignores the likely shift in recreational activities that could occur. Rafting of the Snake River above the Clearwater River is very popular, and there would likely be an economic boost from an expanded rafting industry. This section should explore the possibilities of this alternative recreation industry.	The Recreation Section 3.11.3.5 describes the potential social welfare and regional economic benefits to river-recreation, including recreational activities, such as drift boating, rafting, and kayaking, in the long-term under MO3.
6506	73	Columbia River Keepers	Columbia River Keepers	V. DEIS Chapter 5 1) A global comment for this section is the absence of discussion of the unique requirements of Section 303d of the Clean Water Act. A section should be added similar to Section 5.3 to discuss the compliance requirements for the CWA. In general this chapter need a more detailed an accurate of CWA requirements. The CWA does not allow mitigation standards must be met. Therefore, a discussion should be provided regarding how CRSO will meet the standards.	Sections 3.4 Water Quality and 7.7.3 Water Quality present the water quality analysis for all the alternatives. In addition, Chapter 8 describes compliance with all applicable laws, including the Clean Water Act. However, NEPA does not require an EIS to quantitatively evaluate all parameters on the 303d list.
6506	74	Columbia River Keepers	Columbia River Keepers	VI. DEIS Chapter 7 1) Lines 585-589, Table 7-1, Part 3: Environmental: use of Standards misused a) Water quality standards compliance discussed briefly under MO4, very briefly under a few, but not under others. All misstate or provide incomplete assessments of compliance with WQS (e.g. mitigate standards).	The co-lead agencies used the numeric criteria as short-hand to refer to the standard criteria that applies to the specific geography, time period, etc. specified in the water quality standard. This short-hand does not include antidegradation or natural condition. The co-lead agencies chose to use the daily maximum water temperature metric in the analysis because most state water quality standards for water temperature are based on this metric. The document was revised for clarity.
6506	75	Columbia River Keepers	Columbia River Keepers	2) Lines 1998-2015, p 7-80, Section 7.7.3.1: no mention of temperature impairment in Pend Oreille River. No change from NAA does not constitute compliance with clean water act.	The No Action Alternative is required by the National Environmental Policy Act (NEPA), in accordance with the Council on Environmental Quality regulations (40 C.F.R. 1502.14), to provide a benchmark for comparing environmental effects of the other alternatives. The No Action Alternative considers what would happen if the Columbia River System continued to be operated, maintained, and configured with no change from 2016 at the start of the EIS. The EIS focused on the numeric water temperature criteria (20c) as a method to determine how a proposed action would effect river temperature as compared to the No Action Alternative. The effects of the dams are specifically analyzed in the EIS as required by the NEPA process. The temperature TMDL includes a full analysis of the impact of all anthropogenic and natural impacts on river temperatures, with the CRS dams being a part of that analysis.
6506	76	Columbia River Keepers	Columbia River Keepers	3) Lines 2072-2091, p 7-82, Section 7.7.3.2: misstatement and misinterpretation of standards for upper Columbia River	The co-lead agencies used the numeric criteria as short-hand to refer to the standard criteria that applies to the specific geography, time period, etc. specified in the water quality standard. This short-hand does not include antidegradation or natural condition. The co-lead agencies chose to use the daily maximum water temperature metric in the analysis because most state water quality standards for water temperature are based on this metric. The document was revised for clarity.
6506	77	Columbia River Keepers	Columbia River Keepers	4) Lines 2134-2158, p 7-84, Section 7.7.3.3: misstatement and misinterpretation of standards for the lower Snake River	The co-lead agencies used the numeric criteria as short-hand to refer to the standard criteria that applies to the specific geography, time period, etc. specified in the water quality standard. This short-hand does not include antidegradation or natural condition. The co-lead agencies chose to use the daily maximum water temperature metric in the analysis because most state water quality standards for water temperature are based on this metric. The document was revised for clarity.
6506	78	Columbia River Keepers	Columbia River Keepers	5) Lines 2195-2215, p 7-85 & 86, Section 7.7.3.4: misstatement and misinterpretation of standards for lower Columbia River.	The co-lead agencies used the numeric criteria as short-hand to refer to the standard criteria that applies to the specific geography, time period, etc. specified in the water quality standard. This short-hand does not include antidegradation or natural condition. The co-lead agencies chose to use the daily maximum water temperature metric in the analysis because most state water quality standards for water temperature are based on this metric. The document was revised for clarity.
6506	79	Columbia River Keepers	Columbia River Keepers	6) Lines 1997-2268, Section 7.7.3, general: The Columbia and Snake Rivers are listed as impaired under C=CWA 303d. This is not mentioned. Saying it is no worse under PA than under NAA, is saying that the PA does nothing to improve temperature impairments.	The No Action Alternative is required by the National Environmental Policy Act (NEPA), in accordance with the Council on Environmental Quality NEPA regulations (40 C.F.R. 1502.14), and provides a benchmark for comparing environmental effects of the other alternatives. The No Action Alternative considers what would happen if the CRS continued to be operated, maintained, and configured with no change from 2016, which was the start of the EIS. The EIS focused on the numeric water temperature criteria (20c) as a method to determine how a proposed action would impact river temperature as compared to the No Action Alternative. The effects of the dams are specifically analyzed in the EIS as required by the NEPA process. The temperature TMDL being developed by the USEPA, as per their authority under the CWA, will include a full analysis of the impact of all anthropogenic and natural impacts on river temperatures, with the CRS dams being a part of that analysis. The TMDL will determine what temperature reductions are needed to meet state water quality standards across the basin. The 303(d) listings of the Columbia and Snake rivers is mentioned in Section 3.4, Affected Environment, which is relied upon for the analysis of the Preferred Alternative in Chapter 7. The 303(d) listing are also discussed in Appendix D.
6506	80	Columbia River Keepers	Columbia River Keepers	7) Lines 2269-3158, Section 7.7.4, general: There is very little discussion about temperature effects. The DEIS makes little mention of current research on temperature impacts on migration and the use of cold water refuges, even though it is mentioned in Appendix D.	Studies related to water temperature and its effects on fish are referenced throughout Chapter 7 (which builds on the analysis through the previous chapters) and Technical Appendices D and E. As mentioned in the comment, EPA's Cold Water Refugia report is referenced in the EIS document, along with a list of other water quality actions.
6514	1	fraxinus@reachone.com	N/A	Scientific basis of modeling 1. CE-QUAL-W2 (W2) is an appropriate and robust model for modeling reservoirs. Unfortunately, there are significant gaps in information regarding how the model was developed for the DEIS. a. I have been unable to find any information or citations to the calibration of the model or other model quality assessment analyses. The DEIS provides one calibration statistic, but the method of calculation is not provided. Typically, model quality assessment is demonstrated with a detailed analysis of calibration metrics and other methods such as validation, uncertainty analysis, and sensitivity analysis. b. It is unclear how model output was structured, or how results were averaged or analyzed in other ways. c. CE-QUAL-W2 can be used for free-flowing rivers. It is unclear how much effort went into testing W2 for this application before it was abandoned in favor of HEC-RAS.	Both CE-QUAL W2 and HEC-RAS have been calibrated and peer-reviewed by respected scientists from Portland State University, EPA and the USGS, as well as many cooperating agencies. In addition, the USEPA and co-lead agencies worked together to compare the co-lead agencies' CE-QUAL W2/RAS model (used for EIS analysis) and the EPA's RBM-10 model (used for the draft TMDL assessment). Efforts included identifying and comparing similarities and differences in the two models and assessments, and concluded that both models provide useful and technically appropriate analyses of the Columbia and lower Snake River water temperatures. As such, the EPA agrees with the co-lead agencies that the CE-QUAL W2 and HEC RAS models are appropriate to use in developing the Draft EIS (see EPA review comment letter # 16-0059). Please note that model calibration reports were developed for all water quality models and are available by request. In regards to HEC-RAS, this model does have a way to adjust the wind-sheltering coefficients but uses different terminology: wind coefficients a, b, and c. HEC-RAS does change evaporation rates seasonally because evaporation rates depend on temperature and wind speed, similar to the approach used in CE-QUAL-W2.
6514	2	fraxinus@reachone.com	N/A	2. The modeling of the Snake River with HEC-RAS for the MOS3 free-flowing scenario is described in Annex A of Appendix D. This model appears to have significant flaws for modeling the Snake River. I have several concerns about the information provided and appropriateness of the analysis. a. The DEIS provides inadequate information about the framework or calibration of the HEC-RAS model. Again the DEIS should provide more detailed information about parameter selection and model quality metrics.	Model calibration reports were developed for all water quality models and are available by request. Both CE-QUAL W2 and HEC-RAS have been calibrated and peer-reviewed by respected scientists from Portland State University, EPA and the USGS, as well as many cooperating agencies. In addition, the USEPA and co-lead agencies worked together to compare the co-lead agencies' CE-QUAL W2/RAS model (used for EIS analysis) and the EPA's RBM-10 model (used for the draft TMDL assessment). Efforts included identifying and comparing similarities and differences in the two models and assessments, and concluded that both models provide useful and technically appropriate analyses of the Columbia and lower Snake River water temperatures. As such, the EPA agrees with the co-lead agencies that the CE-QUAL W2 and HEC RAS models are appropriate to use in developing the Draft EIS (see EPA review comment letter # 16-0059). The co-lead agencies and USEPA concluded that the temperature predictions by both models are within a reasonable estimate of the uncertainty bounds. Differences between model estimates should be viewed as a reflection of the uncertainty in the predictive accuracy of the available tools. In addition, the EIS and the supporting models underwent a third party, neutral Independent External Peer Review by well respected scientists who concluded that the analysis was appropriate.
6514	3	fraxinus@reachone.com	N/A	b. The report points out several problems with the use of HEC-RAS for the Snake River. They admit that the model calibrates poorly and point to several causes. First, unlike W2, HEC-RAS has no wind sheltering coefficient. Wind-driven evaporation can be a major factor in accurately describing temperature regimes in reservoirs and wide rivers. HEC-RAS has several other wind coefficients, and the sensitivity analysis they provide indicates that this is a critical parameter. Yet it is unclear how the coefficients are used in calibration and the difference between these coefficients and a wind-sheltering coefficient. Second, HEC-RAS has no method to adjust evaporation seasonally. As a result, water temperatures in the model results are too high in summer and too low in winter. The report states that the HEC-RAS model is believed to corroborate the HEC-RAS heat balance routines and the parameter set for a one-dimensional representation of a dam breach bathymetry. However, the problems they identify earlier in the discussion	Both CE-QUAL W2 and HEC-RAS have been calibrated and peer-reviewed by respected scientists from Portland State University, EPA and the USGS, as well as many cooperating agencies. In addition, the USEPA and co-lead agencies worked together to compare the co-lead agencies' CE-QUAL W2/RAS model (used for EIS analysis) and the EPA's RBM-10 model (used for the draft TMDL assessment). Efforts included identifying and comparing similarities and differences in the two models and assessments, and concluded that both models provide useful and technically appropriate analyses of the Columbia and lower Snake River water temperatures. As such, the EPA agrees with the co-lead agencies that the CE-QUAL W2 and HEC RAS models are appropriate to use in developing the Draft EIS (see EPA review comment letter # 16-0059). Please note that model calibration reports were developed for all water quality models and are available by request. In regards to HEC-RAS, this model does have a way to adjust the wind-sheltering coefficients but uses different terminology: wind coefficients a, b, and c. HEC-RAS does change evaporation rates seasonally because evaporation rates depend on temperature and wind speed, similar to the approach used in CE-QUAL-W2.

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				contradicts this statement. If the problems with evaporation and wind sheltering are seen with the reservoirs, they will likely affect the free-flowing too. The free-flowing river is still wide, and will still have seasonal variation. They are hopeful that uncertainty swings their way, but the evidence they supply does not support their statement.	
6514	4	fraxinus@reachone.com	N/A	c. To summarize the problems with model uncertainty: 1) The HEC-RAS undammed river model calibrates poorly, so the results are uncertain. The evidence provided suggests that it might be overpredicting water temperatares in summer. 2) The W2 model also has inherent uncertainty, and how results are averaged for comparison to the HEC-RAS model adds to uncertainty. 3) The uncertainty of both models is compounded when they are compared to each other. If HEC-RAS is overpredicting temperature, then the impacts of the impoundments on water temperature may be worse than the DEIS estimates. For the protection of the environment, this uncertainty should be evaluated, a range of impacts estimated, and conclusions drawn from the more severe estimates of impacts.	The reference to the HEC-RAS overprediction of water temperatures (in Annex A) was part of an evaluation of the use of a one-dimensional model under current conditions and is not related to the accuracy of the MO3 water temperature predictions. There is no evidence that HEC-RAS overpredicts water temperatures for the MO3 Alternative. Additionally, both CE-QUAL W2 and HEC-RAS have been calibrated and peer-reviewed by respected scientists from Portland State University, EPA and the USGS, as well as many cooperating agencies. In addition, the USEPA and co-lead agencies worked together to compare the co-lead agencies' CE-QUAL W2/RAS model (used for EIS analysis) and the EPA's RBM-10 model (used for the draft TMDL assessment). Efforts included identifying and comparing similarities and differences in the two models and assessments, and concluded that both models provide useful and technically appropriate analyses of the Columbia and lower Snake River water temperatures. As such, the EPA agrees with the co-lead agencies that the CE-QUAL W2 and HEC RAS models are appropriate to use in developing the Draft EIS (see EPA review comment letter # 16-0059).
6514	5	fraxinus@reachone.com	N/A	Use of the model to assess Water Quality Standards (WQS) 3. The DEIS is inconsistent in identifying where Section 303d impairments exist and where draft TMDLs have or will be developed. These facts are noted in some sections but not in others. This creates confusion and seems to misstate the relationship of the DEIS to the Clean Water Act and State water quality programs.	The EIS does not include an exhaustive list of all 303d or draft TMDLs that exist in the basin, but rather discusses those impairments applicable to the water quality discussion. The importance of the Clean Water Act and comparison to State water quality standards is discussed throughout the document and is by no means ignored.
6514	6	fraxinus@reachone.com	N/A	4. The DEIS misstates and misuses the Water Quality Standards (WAC 173-201A in Washington). a. Some of this confusion is indicated by the misuse of the term standards when actually referring to the criteria in the standards. The Water Quality Standards are the entire regulation, with a variety of elements such as criteria, designated uses, anti-degradation, natural conditions.	The co-lead agencies used the numeric criteria as short-hand to refer to the standard criteria that applies to the specific geography, time period, etc. specified in the water quality standard. This short-hand does not include antidegradation or natural condition. The co-lead agencies chose to use the daily maximum water temperature metric in the analysis because most state water quality standards for water temperature are based on this metric. The document was revised for clarity.
6514	7	fraxinus@reachone.com	N/A	b. Compliance with the criteria is only on part of compliance with the WQS. For rivers like the Columbia and Snake, the natural conditions provisions often apply. Natural conditions is defined in the standards as absent human-caused pollution, and in the case of this DEIS is represented by the free-flowing river modeling scenario. For temperature, either the criteria should be met, or if natural conditions are within 0.3 degrees C of the criterion or higher, thermal load cannot be added to the river that increases temperatures by more than 0.3 degrees C. 5. The effects of the dams are only illustrated at the dams themselves. The DEIS should show an analysis that evaluates all parts of the river and identifies the locations that have the greatest temperature impairment.	The scope of the EIS is described in Section 1.3 of the EIS. The effects of the dams are described in the EIS as part of the Affected Environment sections in accordance with NEPA regulations. The No Action Alternative is required by the National Environmental Policy Act (NEPA), in accordance with the Council on Environmental Quality regulations (40 C.F.R. 1502.14) and is used for comparing the environmental effects of the other alternatives. The No Action Alternative considers what would happen if the CRS continued to be operated, maintained, and configured with no change from 2016, which was the start of the EIS. A comprehensive analysis of the river temperature will be completed by USEPA's temperature TMDL analysis. The temperature TMDL being developed by the USEPA, as per their authority under the CWA, will be conducting a full analysis of the impact of both anthropogenic and natural impacts on river temperatures, which will include the CRS dams. The TMDL will determine what temperature reductions are needed to meet state water quality standards by all sources of heat in the river. For more information on the TMDL for temperature for the Columbia and lower Snake rivers can be found at https://www.epa.gov/columbiariver/tmdl-temperature-columbia-and-lower-snake-rivers
6514	8	fraxinus@reachone.com	N/A	6. Just as the DEIS should identify actions that need to be taken to restore endangered species, actions should also be identified to comply with water quality standards. The analysis of water quality that compares the No Action Alternative (NAA) to other alternatives is not a valid assessment of compliance with the standards. At best this approach only shows if alternatives allow greater or lesser impairment, not the level of compliance with the standards. 7. This shortcoming is particularly evident in the Impact Framework and Decision Criteria. The narrative and illustrations provide little explanation of how criteria were developed, and overall appear to be arbitrarily chosen. They do not align with water quality standards, and no information is provided to demonstrate that they are significant from the perspective of salmon biology.	The No Action Alternative is required by the National Environmental Policy Act (NEPA), in accordance with the Council on Environmental Quality regulations (40 C.F.R. 1502.14) and is used for comparing the environmental effects of the other alternatives. The No Action Alternative considers what would happen if the CRS continued to be operated, maintained, and configured with no change from 2016, which was the start of the EIS. For water temperature analysis, the co-lead agencies chose to use the daily maximum water temperature metric because most state water quality standards for water temperature are based on this metric. In addition, this information was used to summarize results into a negligible, minor, moderate or major category, based on the number of days that results are above or within the water quality standard, as compared to the No Action Alternative. This is described in the Impact Framework and Decision Criteria in Section 3.4.3.2 and Appendix D, Section 2.6.
6514	9	fraxinus@reachone.com	N/A	8. Comparing temperature and DO levels in a free-running river to those in a reservoir is challenging. Robust methods have been developed to compare conditions in the two water bodies using cumulative frequency distributions. Examples can be found in Willamette River TMDLs and the draft Pend Oreille River TMDL. These methods avoid errors in comparing scenarios with different travel times, while also pooling data in a way that is relevant to salmon habitat.	The co-lead agencies chose to use a process-based model to predict impacts to dissolved oxygen rather than empirical models that may have little relevance to the system. When applied correctly, process or physically based models better capture impacts from changing conditions than empirical models that are developed based on existing conditions.
6514	10	fraxinus@reachone.com	N/A	9. The comparison of the W2 modeling in the NAA to the HEC-RAS model in MO3 may introduce biases that downplay the differences. Annex A notes that HEC-RAS tends to over predict temperature. At the same time, its unclear how W2 analyzes temperature for comparison. If the W2 analysis provides water temperature results that vary in accuracy, and these are then compared to HEC-RAS results that overpredict temperatures, the result would be an inaccurately low difference between the two scenarios. a. Running the HEC-RAS for the reservoirs and comparing results with W2 for the reservoirs should suggest ways to account quantitatively for these differences. Also, statistical tools like cumulative distributions might be useful. Characterization of the rivers with model results	The reference to the HEC-RAS overprediction of water temperatures (in Annex A) was part of an evaluation of the use of a one-dimensional model under current conditions and is not related to the accuracy of the MO3 water temperature predictions. There is no evidence that HEC-RAS overpredicts water temperatures for the MO3 Alternative. Additionally, both CE-QUAL W2 and HEC-RAS have been calibrated and peer-reviewed by respected scientists from Portland State University, EPA and the USGS, as well as many cooperating agencies. In addition, the USEPA and co-lead agencies worked together to compare the co-lead agencies' CE-QUAL W2/RAS model (used for EIS analysis) and the EPA's RBM-10 model (used for the draft TMDL assessment). Efforts included identifying and comparing similarities and differences in the two models and assessments, and concluded that both models provide useful and technically appropriate analyses of the Columbia and lower Snake River water temperatures. As such, the EPA agrees with the co-lead agencies that the CE-QUAL W2 and HEC RAS models are appropriate to use in developing the Draft EIS (see EPA review comment letter # 16-0059).
6514	11	fraxinus@reachone.com	N/A	10. The DEIS makes broad statements about water quality in the study area, but rarely do they provide quantitative evidence or citations to back the statements. This falls short of the level of scientific communication that one would expect from a document of this significance and technical detail.	The level of detail provided in the EIS is sufficient to adequately describe the effects of the alternatives on water quality in comparison to the No Action Alternative, as required in the NEPA regulations. In addition to the information contained in Section 3.4 and Section 7.7.3 pertaining to water quality, additional information can be found in Appendix D.
6514	12	fraxinus@reachone.com	N/A	11. Evidence or citations should be provided to show that data and modeling information used in the DEIS met data quality standards. Quality assurance and quality control (QAQC) plans are typically required of federal studies (they certainly are for State studies). The absence of QAQC information is at best poor science communication, and may also represent a violation of federal laws for data quality. Evaluation of Climate Change	Model calibration reports were developed for all water quality models and are available by request. Both CE-QUAL W2 and HEC-RAS have been calibrated and peer-reviewed by respected scientists from Portland State University, EPA and the USGS, as well as many cooperating agencies. In addition, the USEPA and co-lead agencies worked together to compare the co-lead agencies' CE-QUAL W2/RAS model (used for EIS analysis) and the EPA's RBM-10 model (used for the draft TMDL assessment). Efforts included identifying and comparing similarities and differences in the two models and assessments, and concluded that both models provide useful and technically appropriate analyses of the Columbia and lower Snake River water temperatures. As such, the EPA agrees with the co-lead agencies that the CE-QUAL W2 and HEC RAS models are appropriate to use in developing the Draft EIS (see EPA review comment letter # 16-0059). The co-lead agencies and USEPA concluded that the temperature predictions by both models are within a reasonable estimate of the uncertainty bounds. Differences between model estimates should be viewed as a reflection of the uncertainty in the predictive accuracy of the available tools. Typically, QAQC plans are related to data collection. The co-lead agencies, however, did develop a QAPP (Quality Assurance Project Plan) that is related to the models used in the EIS. In addition, the EIS underwent a third party, neutral Independent External Peer Review.
6514	13	fraxinus@reachone.com	N/A	12. Its good to see the discussion of the RMJOC-II Part 1 findings. However, the footnote on page 4-2 is disturbing (The co-lead agencies expect this study [Part 2] to be published in spring 2020 after release of the draft EIS and will review the study to determine if any information presented in the draft EIS needs to be updated.) The Part 2 study provides projections for flows in the current system for future climate change scenarios. If the Part 2 study is close to being published, preliminary results should be available. With the huge investment in RMJOC-II, and the quality and significance of the results, its essential that the Part 2 results be included in the DEIS. It is of vital importance to evaluate the relative impacts of climate change on the existing system of Snake River dams versus the MO3 option of dam breaching using the best available science. Both the RMJOC-II Part 1 and Part 2 results must be applied to the water quality modeling to evaluate future water temperatures for all Alternatives.	Through on-going regional climate change studies and work, the co-lead agencies evaluated potential shifts in precipitation and temperature patterns and resulting changes in unregulated Columbia Basin streamflow timing and volumes. The evaluation consisted of the full range of the latest climate change projections developed using multiple global climate models, emissions scenarios, downscaling techniques, and hydrologic models. Details of this evaluation are in chapter 4 of the EIS. This information was used to describe the potential effects (both beneficial and adverse) on the river systems and resources due to potential changes in climate for all alternatives. The climate science community is still developing quantitative models that can address possible effects in water temperature from climate change, and unfortunately, have not been fully applied and validated for use with climate affected regulated flow projections of large reservoir systems. This data is critical to analyzing potential effects to fish quantitatively. In lieu of this information, the climate analysis used the output from resource models, like water quality and fish, under historical conditions, available climate change data, and scientific literature to qualitative assess potential effects to resources (described in Chapter 4). The RMJOC-II Part 2 study was still in review at the time of the draft publication and final EIS development. Though the quantitative data from the Part 2 study was not included in this study, the qualitative conclusions were verified with the draft conclusions of the RMJOC-II Part 2 study for the final EIS.
6514	14	fraxinus@reachone.com	N/A	13. Results presented in the DEIS from the RMJOC-II Part 1 report are not consistent with the information found in the Part 1 report. Either the DEIS is in error, or different results have been selected for the DEIS than were published in the Part 1 report. Without explanation, this opens the DEIS to the appearance of cherry-picking data to support a preferred message.	Through on-going regional climate change studies and work, the co-lead agencies evaluated potential shifts in precipitation and temperature patterns and resulting changes in unregulated Columbia Basin streamflow timing and volumes. The evaluation consisted of the full range of the latest climate change projections developed using multiple global climate models, emissions scenarios, downscaling techniques, and hydrologic models. Details of this evaluation are in Chapter 4 of the EIS. This information was used to describe the potential effects (both beneficial and adverse) on the river systems and resources due to potential changes in climate for all alternatives. The climate science community is still developing quantitative models that can address possible effects in water temperature from climate change, and unfortunately, have not been fully applied and validated for use with climate affected regulated flow projections of large reservoir systems. This data is critical to analyzing potential effects to fish quantitatively. In lieu of this information, the climate analysis used the output from resource models, like water quality and fish, under historical conditions, available climate change data, and scientific literature to qualitative assess potential effects to resources (described in Chapter 4). The RMJOC-II Part 2 study was still in review at the time of the draft publication and final EIS development. Though the quantitative data from the Part 2 study was not included in this study, the qualitative conclusions were verified with the draft conclusions of the RMJOC-II Part 2 study for the final EIS.
6514	15	fraxinus@reachone.com	N/A	14. The discussion in Section 4.2.3.3 regarding climate impacts on the MO3 alternative (Snake River dam breach) is inadequate and misleading. Little evidence is provided to support their assertion about climate impacts on the free-flowing river, and the discussion points to the effect of climate change on the free-flowing river while saying little about the relative impact of climate change on MO3 versus the other alternatives. This is all the more reason that the RMJOC-II results from both Part 1 and 2 need to be applied to water quality models to quantify impacts of all alternatives in a warming future. Comparison of HEC-RAS to RBM10 free-flowing model	Through on-going regional climate change studies and work, the co-lead agencies evaluated potential shifts in precipitation and temperature patterns and resulting changes in unregulated Columbia Basin streamflow timing and volumes. The evaluation consisted of the full range of the latest climate change projections developed using multiple global climate models, emissions scenarios, downscaling techniques, and hydrologic models. Details of this evaluation are in Chapter 4 of the EIS. This information was used to describe the potential effects (both beneficial and adverse) on the river systems and resources due to potential changes in climate for all alternatives. The climate science community is still developing quantitative models that can address possible effects in water temperature from climate change, and unfortunately, have not been fully applied and validated for use with climate affected regulated flow projections of large reservoir systems. This data is critical to analyzing potential effects to fish quantitatively. In lieu of this information, the climate analysis used the output from resource models, like water quality and fish, under historical conditions, available climate change data, and scientific literature to qualitative assess potential effects to resources (described in Chapter 4). The RMJOC-II Part 2 study was still in review at the time of the draft publication and final EIS development. Though the quantitative data from the Part 2 study was not included in this study, the qualitative conclusions were verified with the draft conclusions of the RMJOC-II Part 2 study for the final EIS.
6514	16	fraxinus@reachone.com	N/A	15. The comparison of these two models in Annex A suggests some differences that affect the temperature results: a. The channel geometries and flow characteristics are different. HEC-RAS directly models flow, and they altered the geometry to 1934 conditions. RBM10 used 2010 geometry and they note that they did not alter geometry to the likely change to free-flowing conditions. This could affect temperatures from differences in water depth and width. b. RBM10 uses regional meteorology data from major airports. HECRAS uses local met data. This may be a significant source of error. The airport met stations are far from the river, and data from these locations may be different from local temperatures and wind velocities along the Snake River. This would be especially significant for wind, since that drives evaporation and is a major factor on large rivers and reservoirs.	Thank you for your comment.
6514	17	fraxinus@reachone.com	N/A	I. Global 1) Throughout the EIS and appendices, the term standards is misused. The standards are the entire state regulation. Often the text refers to the criterion, but calls it the standard. Please revise the document to make sure that standard only applies to references to the entire rule, while criterion refers to the specific numeric target.	The co-lead agencies used the numeric criteria as short-hand to refer to the standard criteria that applies to the specific geography, time period, etc. specified in the water quality standard. This short-hand does not include antidegradation or natural condition. The co-lead agencies chose to use the daily maximum water temperature metric in the analysis because most state water quality standards for water temperature are based on this metric. The document was revised for clarity.
6514	18	fraxinus@reachone.com	N/A	II. Appendix D - Body 1) Lines 1085-1086: Numerical modeling is needed to quantify temperature impacts from the dams addressed in this DEIS. According to a footnote in Chapter 4, a Part 2 study is close to being published. If so, preliminary results should be available. With the huge investment in RMJOC-II, and the quality and significance of the results, its essential that the Part 2 results be used to develop water temperature models of the Alternatives. The RMJOC-II Part 1 results are already available and could be applied to the modeling described in Annex A. However, for comparison, all	Through on-going regional climate change studies and work, the co-lead agencies evaluated potential shifts in precipitation and temperature patterns and resulting changes in unregulated Columbia Basin streamflow timing and volumes. The evaluation consisted of the full range of the latest climate change projections developed using multiple global climate models, emissions scenarios, downscaling techniques, and hydrologic models. Details of this evaluation are in Chapter 4 of the EIS. This information was used to describe the potential effects (both beneficial and adverse) on the river systems and resources due to potential changes in climate for all alternatives. Quantitative data that describes how climate change hydrology will affect reservoir operations in the Columbia Basin in still under development and was not available for this EIS. The climate science community is still developing models that can be used to analyze possible effects to water temperature from climate

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				of the Alternatives should be modeled for future impacts under climate change scenarios. It is of vital importance to evaluate the relative impacts of climate change on the existing system of Snake River dams versus the MO3 option of dam breaching using the best available science. Both the RMJOC-II Part 1 and Part 2 results must be applied to the DEIS analysis to provide an analysis that is comprehensive and up-to-date.	change, and unfortunately, have not been fully applied and validated for use with climate affected regulated flow projections of large reservoir systems. This data is critical to analyzing potential effects to fish quantitatively. In lieu of this information, the climate analysis used the output from resource models, like water quality and fish, under historical conditions, available climate change data, and scientific literature to qualitative assess potential effects to resources (described in Chapter 4). The RMJOC-II Part 2 study was still in review at the time of the draft publication and final EIS development. Though the quantitative data from the Part 2 study was not included in this study, the qualitative conclusions were verified with the draft conclusions of the RMJOC-II Part 2 study for the final EIS.
6514	19	fraxinus@reachone.com	N/A	2) Lines 1136: list the Tribes with water quality standards in the Study Area (Spokane, Colville, Nez Perce	Tribal Water Quality Standards are noted throughout the EIS where applicable.
6514	20	fraxinus@reachone.com	N/A	3) Lines 1138-1194: although the models used for this analysis (CE-QUAL-W2 and HEC-RAS) are described in a general way, no information or references are provided to describe the model development. This is a serious flaw information on the parameterization of the model and model quality assessment (calibration, validation, uncertainty or sensitivity analysis) is inadequate. As a result, there is no way to assess the quality and credibility of the modeling. This is both inconsistent with scientific modeling principles and likely also not in compliance with state and federal laws for the use of credible data in environmental decision-making.	Model calibration reports were developed for all water quality models and are available by request. Both CE-QUAL W2 and HEC-RAS have been calibrated and peer-reviewed by respected scientists from Portland State University, EPA and the USGS, as well as many cooperating agencies. In addition, the USEPA and co-lead agencies worked together to compare the co-lead agencies' CE-QUAL W2/RAS model (used for EIS analysis) and the EPA's RBM-10 model (used for the draft TMDL assessment). Efforts included identifying and comparing similarities and differences in the two models and assessments, and concluded that both models provide useful and technically appropriate analyses of the Columbia and lower Snake River water temperatures. As such, the EPA agrees with the co-lead agencies that the CE-QUAL W2 and HEC RAS models are appropriate to use in developing the Draft EIS (see EPA review comment letter # 16-0059). The co-lead agencies and USEPA concluded that the temperature predictions by both models are within a reasonable estimate of the uncertainty bounds. Differences between model estimates should be viewed as a reflection of the uncertainty in the predictive accuracy of the available tools. Typically, QAQC plans are related to data collection. The co-lead agencies, however, did develop a QAPP (Quality Assurance Project Plan) that is related to the models used in the EIS. In addition, the EIS underwent a third party, neutral Independent External Peer Review.
6514	21	fraxinus@reachone.com	N/A	4) Lines 1170, 1174, 1182: temperature metrics air or water temperature? Please clarify.	As described in the sentence preceding these lines, a five-year period (20112015) that represent a wide range of environmental response to hydrology (wet, dry, average) and weather conditions (hot, cold, average) were selected to model each EIS alternative against. Temperature metrics in this Section refer to the weather conditions (hot, cold, average air temperatures). This has been added to the text for clarity.
6514	22	fraxinus@reachone.com	N/A	5) Lines 1177, 1180: water temperature response was near average unclear, response to what? How analyzed model or statistical?	Water temperature response was near average as compared to the period of record data that was used to select the five-year data set to run through the water quality model. The response referred to was to the combination of air temperature and flow conditions. Additional information can be found in the model calibration report, which is available upon request.
6514	23	fraxinus@reachone.com	N/A	6) Lines 1199-1201: Using CE-QUAL-W2 for free-flowing rivers is possible but difficult. But it would be better to use the same model for comparison of undammed to dammed.	The co-lead agencies evaluated the possibility of using CE-QUAL W2 for MO3, but concluded that HEC-RAS was an appropriate approach for water temperature modeling under a dam breach scenario and free-flowing river system. W2 captured the thermal dynamics of the reservoirs quite well under most CRSO alternatives but became quite unstable when applied to the lower Snake River as a riverine reach; and, since well-mixed thermal conditions would be expected under a dam breach scenario, using a 2-dimensional model like W2 was not as necessary.
6514	24	fraxinus@reachone.com	N/A	7) Lines 1213 (Table 2-1): a) Hourly time step and daily maximum is more appropriate for assessing compliance with the WQS. b) Was channel geometry changed between free-flowing and dam scenarios? This introduces an additional source of uncertainty that should be checked. Differences in depth and velocity could affect temperature predictions.	The co-lead agencies used hourly timesteps to evaluate daily maximum water temperature for comparison to water quality standards. For MO3, the co-lead agencies used pre-dam channel bathymetry to predict water temperatures under a dam breach scenarios. The quantification of uncertainty due to bathymetry is beyond the scope of this EIS.
6514	25	fraxinus@reachone.com	N/A	8) Lines 1287: Why were these temperature change values chosen?	The co-lead agencies offer one way of organizing the EIS water temperature and TDG results, but other techniques could be used. The methodology the co-lead agencies chose was used to assign results into negligible, minor, moderate or major categories based on the absolute change in water temperature, number of days that water temperatures exceeded state water quality standard and seasonality of change (based on whether anadromous fish are present or not). This methodology was reviewed by the EIS Fish Team and NMFS. In general, metrics were chosen based on: (1) absolute change in water temperature that the team considered to be measurable; (2) change in the days that water temperature standards were exceeded that was determined to be more related to the EIS Alternative than seasonal/climatic variability. Hourly water temperature results for each 5-year simulation are also provided in Appendix D.
6514	26	fraxinus@reachone.com	N/A	9) Lines 1288-1290: changes in days of non-compliance, pooled by month or season, is a reasonable metric. However the seasons chosen are not described.	The seasons are defined as winter = December - February; spring = March - May; summer = June - August; and fall = September - November. This information has been added to Appendix D.
6514	27	fraxinus@reachone.com	N/A	10) Lines 1306 (Figure 2-3): a) The Impact Framework and Decision Criteria seem arbitrary. b) The criteria for negligible, minor or moderate is unclear and seems arbitrary. c) The key metric for the assessing the temperatures should be applying by the State water quality standards: the number of days and magnitude of increases over the criterion when natural (free-flowing) is below the criterion, or greater than 0.3 over natural when natural is above or within 0.3 of the criterion.	The methodology used described water quality effects as negligible, minor, moderate or major categories as is typical in NEPA documents. These determinations were made based on the absolute change in water temperature, number of days that water temperatures exceeded state water quality standard and seasonality of change (based on whether anadromous fish are present or not). In general, metrics were chosen based on: (1) absolute change in water temperature that the team considered to be measurable; (2) change in the days that water temperature standards were exceeded that was determined to be more related to the EIS alternative than seasonal/climatic variability. Hourly water temperature results for each five-year simulation are also provided in Appendix D.
6514	28	fraxinus@reachone.com	N/A	11) Lines 1293-1301: TDG decision criteria seem arbitrary and inappropriate. TDG hurts fish on a short time scale, not as a five year average. Change in the number of days with values over 115, 120, and 125 would be more appropriate.	Change in the number of days that TDG results exceed specific thresholds (110%, 115%, 120%, etc.) can be found in Appendix D for each alternative. The co-lead agencies' summary metrics are documented to provide a single impact level summary for the system. The methodology selected by the co-lead agencies was used to allow the results to be described as negligible, minor, moderate or major categories based on the absolute change in TDG per season and per year and then averaged for all five years. Hourly TDG results for each five-year simulation are also provided in Appendix D.
6514	29	fraxinus@reachone.com	N/A	12) Lines 1307-1331: Discussion of uncertainty is fairly general, but descriptions of issues seem appropriate.	Thank you for your comment.
6514	30	fraxinus@reachone.com	N/A	13) Lines 1335-1338: DO and pH can have a significant effect on metals in sediment. Whether this is minor is debatable, and depends on the ranges of those values occurring in the reservoirs.	Yes, pH and DO can effect metals in sediment; such processes can be very complex and difficult to predict.
6514	31	fraxinus@reachone.com	N/A	14) Lines 1418-1421: There is also a draft TMDL for temperature in the Pend Oreille River, which is affected by Albeni Falls Dam operations.	This list included in the text is not intended to be a full, complete list of all TMDLs. The co-lead agencies mention the Albeni Falls water temperature TMDL in Appendix D, Section 3.1.1.2.
6514	32	fraxinus@reachone.com	N/A	15) Lines 1440-1444: there are court decisions related contributing or increasing a contribution to 303d impairments. This paragraph is not an accurate description of the situation (problems would continue until the sources of impairment are addressed.) The dams have been identified as sources of impairment, and the EIS should address whether the alternatives increase or decrease impairment.	The No Action Alternative is required by the National Environmental Policy Act (NEPA), in accordance with the Council on Environmental Quality regulations (40 C.F.R. 1502.14) and is used for comparing the environmental effects of the other alternatives. The No Action Alternative considers what would happen if the CRS continued to be operated, maintained, and configured with no change from 2016, which was the start of the EIS. The EIS focused on the numeric water temperature criteria (20c) as a method to determine how the alternatives would impact river temperature when compared to the No Action Alternative. The effects of the dams are specifically described in the Affected Environment sections of the EIS as required by NEPA. The temperature TMDL that was recently issued by the USEPA, as per their authority under the CWA, will include a full analysis of the impact of all anthropogenic and natural impacts on river temperatures, with the CRS dams being a part of that analysis. The TMDL will determine what temperature reductions are needed to meet state water quality standards across the basin. For more information on the TMDL for temperature for the Columbia and lower Snake rivers can be found at https://www.epa.gov/columbiariver/tmdl-temperature-columbia-and-lower-snake-rivers.
6514	33	fraxinus@reachone.com	N/A	16) Lines 1586-1598: The discussion of stratification (and other discussions that follow) should provide citations and quantitative metrics to back the descriptions provided.	The document has been revised add citations to address the comment.
6514	34	fraxinus@reachone.com	N/A	17) Lines 1599-1603: The changes in temperature from tailwater to tailwater are not a useful or valid assessment of temperature impacts. Temperatures should be compared to a free-flowing river model to quantify the impacts of the NAA.	As stated in the Purpose and Need Statement in Section 1.2, the ongoing action that requires evaluation under NEPA is the long-term coordinated operation and management of the CRS projects for the multiple purposes. As mentioned in the Forty Most Asked Questions Concerning CEQ's National Environmental Policy Act Regulation, in the case where there is an ongoing management program or plan, the No Action Alternative would be "no change" from current management program or plan. The No Action Alternative is required by the National Environmental Policy Act (NEPA), in accordance with the Council on Environmental Quality regulations (40 C.F.R. 1502.14) and provides a benchmark for comparing environmental effects of the other alternatives. The No Action Alternative considers what would happen if the CRS continued to be operated, maintained, and configured with no change from 2016, which was the start of the EIS. The co-lead agencies used the standard points of compliance (fixed monitoring stations) that are located in the forebay and tailwater of each dam for the analysis, as these are the monitors used to guide real-time operations and ensure compliance with water quality standards.
6514	35	fraxinus@reachone.com	N/A	18) Lines 1599-1625: a) The entire river should be assessed, including the reservoirs, not just the dam locations. b) Data could be pooled by reservoir reaches and by month to compare with cumulative distributions.	The scope of this EIS focused on the operation of the 14 Federal dams in the CRS as described in Section 1.3 Scope of the Project of the EIS. That said, the system water quality model's extent includes the entire mainstem river, from the international boundary above Grand Coulee Dam to just downstream of Bonneville Dam at Warrendale, Oregon. The co-lead agencies chose to pull model output from the fixed monitoring stations, located upstream and downstream of each dam, since these are the typical locations where data is utilized when making real-time water management decisions and ensuring compliance with water quality standard.
6514	36	fraxinus@reachone.com	N/A	19) Lines 1602-1603: Its good that the 303d listing for temperature is mentioned. However, a more detailed analysis of temperatures in Lake Roosevelt is needed.	Each MO evaluated the change of temperature from No Action Alternative due to Lake Roosevelt at Grand Coulee's tailwater. This is the appropriate level of detail for an EIS. It is not clear what additional analysis the commenter is requesting for Lake Roosevelt, or the reason why additional analysis may be needed.
6514	37	fraxinus@reachone.com	N/A	20) Lines 2043-2048: As noted for other sections, compliance with the standard should be assessed by comparison to the free-flowing river scenario. Exceedance of criteria indicate impairment, which is important to describe, but comparison to natural conditions (absent the dams) is necessary to fully evaluate compliance with standards.	As stated in the Purpose and Need in Section 1.2, the ongoing action that requires evaluation under NEPA is the long-term coordinated operation and management of the CRS projects for the multiple purposes. As mentioned in the Forty Most Asked Questions Concerning CEQ's National Environmental Policy Act Regulation, in the case where there is an ongoing management program or plan, the No Action Alternative would be "no change" from current management program or plan. The No Action Alternative is required by the National Environmental Policy Act (NEPA), in accordance with the Council on Environmental Quality regulations (40 C.F.R. 1502.14) and provides a benchmark for comparing environmental effects of the other alternatives. The No Action Alternative considers what would happen if the CRS continued to be operated, maintained, and configured with no change from 2016, which was the start of the EIS.
6514	38	fraxinus@reachone.com	N/A	21) Lines 2055-2061, Figures 3-12 and 3-13: a) The entire river should be assessed, not just the dam locations. Data could be pooled by reservoir reaches and by month to compare with cumulative distributions. b) Cumulative distributions are a powerful tool to assess temperature differences between dams and reservoirs. The percent of time and space that temperatures are at different levels has more relevance to salmon habitat.	The scope of this EIS focused on the operation of the 14 Federal dams in the CRS as described in Section 1.3 Scope of the Project of the EIS. That said, the system water quality model's extent includes the entire mainstem river, from the international boundary above Grand Coulee Dam to just downstream of Bonneville Dam at Warrendale, Oregon. The co-lead agencies chose to pull model output from the fixed monitoring stations, located upstream and downstream of each dam, since these are the typical locations where data is utilized when making real-time water management decisions and ensuring compliance with water quality standards.
6514	39	fraxinus@reachone.com	N/A	22) Lines 2205-2232: The lower Snake River is also listed on the 303d list for dissolved oxygen, pH and total phosphorus. The EIS should discuss these parameters in more detail. The effect of the dams on these parameters should be quantitatively evaluated. The lack of information is curious, given the information in Appendix C.	The EIS references the 303(d) list for the lower Snake River. However, there is no requirement for an EIS to quantitatively evaluate all parameters on the 303(d) list. The effects of the alternatives for water quality parameters other than temperature and total dissolved gas are describe qualitatively in Section 3.4 Water Quality under the headings titled Other Physical, Chemical, and Biological Processes.
6514	40	fraxinus@reachone.com	N/A	23) Lines 2243-2245: Good to see the 303d listing mentioned	Thank you for your comment.
6514	41	fraxinus@reachone.com	N/A	24) Lines 2245-2258: good to see cold water refuges discussed.	Thank you for your comment.
6514	42	fraxinus@reachone.com	N/A	25) Lines 2268-2273: a) The entire river should be assessed, not just the dam locations. Data could be pooled by reservoir reaches and by month to compare with cumulative distributions. b) Cumulative distributions are a powerful tool to assess temperature differences between dams and reservoirs. The percent of time and space that temperatures are at different levels has more relevance to salmon habitat.	The scope of this EIS focused on the operation of the 14 Federal dams in the CRS as described in Section 1.3 Scope of the Project of the EIS. That said, the system water quality model's extent includes the entire mainstem river, from the international boundary above Grand Coulee Dam to just downstream of Bonneville Dam at Warrendale, Oregon. The co-lead agencies chose to pull model output from the fixed monitoring stations, located upstream and downstream of each dam, since these are the typical locations where data is utilized when making real-time water management decisions and ensuring compliance with water quality standard.
6514	43	fraxinus@reachone.com	N/A	26) Lines 2698-2701: assertions are made about temperatures in Lake Roosevelt, but no citation or data are provided to support this narrative.	The document was revised to add citations to address the comment.
6514	44	fraxinus@reachone.com	N/A	III. Appendix D Annex A 1) Lines 305-339, 1.3.4 Heat Flux and Model Parameterization Discussion: a) Although a table of parameters are provided, no reference is provided for the model framework. This makes it very difficult to interpret the discussion of the model development. b) The information provided suggests that the development of the 1-D free-flowing Snake River model was reasonable. However, the lack of a wind-sheltering coefficient appears to be significant. When comparing W2 results to HEC-RAS results to evaluate free-flowing conditions (MO3), this could introduce a bias into results. c) The discussion identifies the lack of a seasonal evaporation coefficient for the HEC-RAS model as a potential weakness of the model. The seasonal bias intrwatoduced by this short-coming is likely to occur both for the impounded model and the free-flowing model. d) If the 1-D model for	Model calibration reports were developed for all water quality models and are available by request. In addition, the commenter has not provided sufficient justification to support the assertion that the HEC-RAS model over-predicts summer temperatures in the Lower Snake and assertions in the paragraph are incorrect. HEC-RAS model does have a way to adjust the wind-sheltering coefficients but uses different terminology: wind coefficients a, b, and c. HEC-RAS does change evaporation rates seasonally because evaporation rates depend on temperature and wind speed, similar to the approach used in CE-QUAL-W2. The co-lead agencies and EPA worked collaboratively to compare RBM-10 and the CRSO EIS water temperature models and concluded that the temperature predictions by both models are within a reasonable estimate of the uncertainty bounds. Differences between model estimates should be viewed as a reflection of the uncertainty in the predictive accuracy of the available tools.

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				the impounded system overpredicts temperature, its likely that the 1-D free-flowing model also overpredicts temperature. If so, when used as the basis for assessing impacts the 1-D model would tend to reduce the relative impact of the impounded system. e) The analysis should implement some methodology to address this potential bias. One approach would be to use sensitivity results to develop a range of values, and base the assessment probabilistically, such as through a Monte Carlo analysis or uncertainty analysis. Using this analysis, the potential for impacts on water quality should be viewed from a lens of conservative assumptions, such as a 95th percentile impact.	It should also be noted that both CE-QUAL W2 and HEC-RAS have been calibrated and peer-reviewed by respected scientists from Portland State University, EPA and the USGS, as well as many cooperating agencies. In addition, as noted above, the USEPA and co-lead agencies worked together to compare the co-lead agencies' CE-QUAL W2/RAS model (used for EIS analysis) and the EPA's RBM-10 model (used for the draft TMDL assessment). Efforts included identifying and comparing similarities and differences in the two models and assessments, and concluded that both models provide useful and technically appropriate analyses of the Columbia and lower Snake River water temperatures. As such, the EPA agrees with the co-lead agencies that the CE-QUAL W2 and HEC RAS models are appropriate to use in developing the Draft EIS (see EPA review comment letter # 16-0059).
6514	45	fraxinus@reachone.com	N/A	2) Lines 408-409, Tables 1-7 and1-8: the results of the sensitivity to wind coefficients suggests that the limitations of HEC-RAS in modeling wind effects may have a strong influence on its accuracy.	The co-lead agencies disagree with this comment. Sensitivity is not a direct indication of model accuracy.
6514	46	fraxinus@reachone.com	N/A	3) Lines 467-482, Table 1-11, Figure 1-22: A comparison of the two models suggests some differences that affect the temperature results: a) The channel geometries and flow characteristics are different. HEC-RAS directly models flow, and they altered the geometry to 1934 conditions. RBM10 used 2010 geometry and they note that they did not alter geometry to the likely change to free-flowing conditions. This could affect temperatures from differences in water depth and width. b) RBM10 uses regional meteorology data from major airports. HECRAS uses local met data. This may be a significant source of error. The airport met stations are far from the river, and data from these locations may be different from local temperatures and wind velocities along the Snake River. This would be especially significant for wind, since that drives evaporation and is a major factor on large rivers and reservoirs.	Both CE-QUAL W2 and HEC-RAS have been calibrated and peer-reviewed by respected scientists from Portland State University, EPA and the USGS, as well as many cooperating agencies. In addition, the USEPA and co-lead agencies worked together to compare the co-lead agencies' CE-QUAL W2/RAS model (used for EIS analysis) and the EPA's RBM-10 model (used for the draft TMDL assessment). Efforts included identifying and comparing similarities and differences in the two models and assessments, and concluded that both models provide useful and technically appropriate analyses of the Columbia and lower Snake River water temperatures. As such, the EPA agrees with the co-lead agencies that the CE-QUAL W2 and HEC RAS models are appropriate to use in developing the Draft EIS (see EPA review comment letter # 16-0059). Please note that model calibration reports were developed for all water quality models and are available by request. In regards to HEC-RAS, this model does have a way to adjust the wind-sheltering coefficients but uses different terminology: wind coefficients a, b, and c. HEC-RAS does change evaporation rates seasonally because evaporation rates depend on temperature and wind speed, similar to the approach used in CE-QUAL-W2. As stated above, the co-lead agencies and USEPA worked collaboratively to compare RBM-10 and the CRSO EIS water temperature models and concluded that the temperature predictions by both models are within a reasonable estimate of the uncertainty bounds. Differences between model estimates should be viewed as a reflection of the uncertainty in the predictive accuracy of the available tools.
6514	47	fraxinus@reachone.com	N/A	4) Lines 536-567, 1.3.10.2 Temperature Comparison to No Action Alternative: These results are key to the analysis, but the presentation is confusing. a) Its not clear how NAA results were analyzed for comparison. Were these depth averaged, tailwater values, or some other value? b) Table 1-14 is not a useful way to present results. Data has been lumped into a single average and the two extremes are shown, along with pooled statistics. This reports very little information about temperatures in the two scenarios. c) One of the challenges of comparing a reservoir to a free-flowing river is that the travel time changes and time lags can create difficulty comparisons. The analysis should evaluate whether changes in travel time are affecting results. d) Travel time can also affect fish exposure to temperatures, and this should be assessed and reported as well. e) The water quality standards are based on daily maximum values. If comparisons are made at a specific location (each dam) then the daily maximums should be compared. f) The entire river should be assessed, not just the dam locations. Data could be pooled by reservoir reaches and by month to compare with cumulative distributions. g) Cumulative distributions are a powerful tool to assess temperature differences between dams and reservoirs. The percent of time and space that temperatures are at different levels has more relevance to salmon habitat.	The No Action Alternative results are the CE-QUAL W2 water temperature output that represents fully mixed conditions at the dam locations, in the tailwater location of each CRS project. These results were compared to the cross section of the RAS MO3 model that is representative of the same tailwater locations (RAS results are always depth averaged). The data shown in Table 1-14 represents annual information and is not broken down into year type analysis. The co-lead agencies feel that this is a sufficient way to compare the two models. The statistics shown are calculated using the same methodology that we used to analyzed each EIS alternative. Regarding water particle travel time, the analysis showed that travel time did change between the No Action (reservoir) versus MO3 (dam breach) scenarios. The water quality models utilize this information when predicting warming and cooling from solar radiation and other coefficients (wind-sheltering, evaporation rates seasonally because evaporation rates, etc.). The system water quality model's extent includes the entire mainstem river, from the international boundary above Grand Coulee Dam to just downstream of Bonneville Dam at Warrendale, Oregon. The co-lead agencies chose to pull model output from the fixed monitoring stations, located upstream and downstream of each dam, since these are the typical locations where data is utilized when making real-time water management decisions and ensuring compliance with water quality standards.
6514	48	fraxinus@reachone.com	N/A	IV. DEIS Chapter 4 1) Lines 52-62: Its good to see the discussion of the RMJOC-II Part 1 findings. However, the footnote on page 4-2 is disturbing (The co-lead agencies expect this study [Part 2] to be published in spring 2020 after release of the draft EIS and will review the study to determine if any information presented in the draft EIS needs to be updated.) If the Part 2 study is close to being published, preliminary results should be available. With the huge investment in RMJOCII, and the quality and significance of the results, its essential that the Part 2 results be presented and included in the analysis. It is of vital importance to evaluate the relative impacts of climate change on the existing system of Snake River dams versus the MO3 option of dam breaching using the best available science, and both the RMJOC-II Part 1 and Part 2 results must be applied to the DEIS analysis to provide an analysis that is comprehensive and up-todate.	Through on-going regional climate change studies and work, the co-lead agencies evaluated potential shifts in precipitation and temperature patterns and resulting changes in unregulated Columbia Basin streamflow timing and volumes. The evaluation consisted of the full range of the latest climate change projections developed using multiple global climate models, emissions scenarios, downscaling techniques, and hydrologic models. Details of this evaluation are in Chapter 4 of the EIS. This information was used to describe the potential effects (both beneficial and adverse) on the river systems and resources due to potential changes in climate for all alternatives. The climate science community is still developing quantitative models that can address possible effects in water temperature from climate change, and unfortunately, have not been fully applied and validated for use with climate affected regulated flow projections of large reservoir systems. This data is critical to analyzing potential effects to fish quantitatively. In lieu of this information, the climate analysis used the output from resource models, like water quality and fish, under historical conditions, available climate change data, and scientific literature to qualitative assess potential effects to resources (described in Chapter 4). The RMJOC-II Part 2 study was still in review at the time of the draft publication and final EIS development. Though the quantitative data from the Part 2 study was not included in this study, the qualitative conclusions were verified with the draft conclusions of the RMJOC-II Part 2 study for the final EIS.
6514	49	fraxinus@reachone.com	N/A	2) Lines 97-149, Sections 4.1.2.3 and 4.1.2.4: Loss of snowpack at all but the highest elevations in Canada, and the decline in summer and falls streamflow have enormous implications. More information on the RMJOC-II results in these areas should be provided. What are the magnitude of the changes expected? How does it affect the Alternatives? Does it suggest other alternatives, such as summer and fall drawdown, or partial breach with low level gates for split-season operation?	Through on-going regional climate change studies and work, the co-lead agencies evaluated potential shifts in precipitation and temperature patterns and resulting changes in unregulated Columbia Basin streamflow timing and volumes. The evaluation consisted of the full range of the latest climate change projections developed using multiple global climate models, emissions scenarios, downscaling techniques, and hydrologic models. Details of this evaluation are in Chapter 4 of the EIS. This information was used to describe the potential effects (both beneficial and adverse) on the river systems and resources due to potential changes in climate for all alternatives. The climate science community is still developing quantitative models that can address possible effects in water temperature from climate change, and unfortunately, have not been fully applied and validated for use with climate affected regulated flow projections of large reservoir systems. This data is critical to analyzing potential effects to fish quantitatively. In lieu of this information, the climate analysis used the output from resource models, like water quality and fish, under historical conditions, available climate change data, and scientific literature to qualitative assess potential effects to resources (described in Section 4.1 are indicative of changes in Canada.
6514	50	fraxinus@reachone.com	N/A	3) Lines 214-246: The pattern shown of increased flows for future scenarios for the 5th percentile at Ice Harbor Dam should be explored further, especially when flows at Dworschak Dam decrease across the board. The graphs for this information found in RMJOC-II Part 1 report (pp 89-91) show different information from the graphs in the DEIS. The RMJOC-II Part 1 report shows flows shifting earlier and lower, while the DEIS shows flows about the same and with little temporal shift. The differences in this information should be evaluated and either corrected or explained.	The drainage area above Dworshak Dam is a small fraction of the drainage area above Ice Harbor. The hydroclimatology of flows at these two locations are likely to be different. The presentation of streamflow projections in the Draft EIS is different than in RMJOC-II Part 1, however, the underlying data are the same. The Draft EIS presented the range of two emissions scenarios and describes the range statistically. RMJOC-II Part 1 only showed the range of projections from the RCP 8.5 scenario. Additionally, the Draft EIS used more extreme flow percentiles, 5th and 95th, as opposed to 10th and 90th as used in RMJOC-II Part 1. The analysis referenced in RMJOC-II Part 1 presented daily data. The Draft EIS presents data at a monthly time interval. These differences in analyses contribute to some visual differences between the presentation of projections in the two reports, however, the overall patterns and magnitude of projected changes are consistent.
6514	51	fraxinus@reachone.com	N/A	4) Lines 351-355: Although the question posed is important, since it points to methods for adapting to climate change impacts, it is not the only question that should be evaluated. Another key question is: How will future climate change increase or decrease the projected impacts for each scenario? This would be consistent with the purpose of an Environmental Impacts Statement.	The approach for Section 4.2 was to 1) identify potential impacts of climate change to the No Action Alternative and 2) evaluate how each alternative could influence those effects. Where possible, this includes describing how climate change could increase or decrease effects of the measures to resources.
6514	52	fraxinus@reachone.com	N/A	5) Lines 492-493: The statement that the effect of climate change on the MO3 flows will be similar to the NAA is unsupported and contrary to the significant change in river conditions absent the impoundments in the lower Snake River. The impact on the hydrology and hydraulics of other Alternatives will be fundamentally different from the impacts on a free-flowing Snake River in MO3. For the lower Snake Reservoirs flow changes affect reservoir elevations, power generation, navigation and fish flows. For MO3 the impacts would be felt on summer and fall flow volumes, velocities, and time of travel. The effect on the free flowing river will be different, and may be much smaller than the effect on an impounded river. The implications of climate change on flows in the lower Snake in MO3 should be discussed explicitly and in detail, especially focused on summer and fall flow volumes, velocities, and time of travel.	The changes to hydrology and hydraulics described in this Section are limited the effects of climate change and the resolution of the future projections. Section 4.1 reports changes in monthly flow volumes and timing. MO3 is not expected to alter flow volume and timing at this scale. More detailed analyses of the effects of a free-flowing river and hydraulics are provided in Chapter 3.
6514	53	fraxinus@reachone.com	N/A	6) Lines 539-541, Table 4-8: include a row for forest fire impacts, which would have significant impacts on erosion.	Wildfire and its effects of erosion is included in the "vegetation" row.
6514	54	fraxinus@reachone.com	N/A	7) Lines 607-610: This discussion should also make the point the free-flowing river would produce a cleansing of sediments in this reach that would be an environmental benefit to salmon habitat in this reach.	This effect is described in the context of spawning habitat in the anadromous and resident fish Sections of Chapter 3. The Aquatic Invertebrate Section of chapter 3 describes the effect of a transition from silt and sand to more gravel and cobble.
6514	55	fraxinus@reachone.com	N/A	8) Lines 677-733: no discussion is provided of the impacts of climate change on Albeni Fall dam and the Pend Oreille River.	Climate change impacts can be found throughout Chapter 4. Climate change effects on Albeni Falls water quality are described in the first paragraph under Section 4.2.3.1.
6514	56	fraxinus@reachone.com	N/A	9) Lines 776-778: why only surface water temperature? Given the weak stratification and passage through multiple dams, it is likely to increase temperatures throughout the water column. This statement should be corrected.	In this context, surface water temperature refers to the distinction between surface and groundwater, not the lake surface as distinct from other points in a column of surface water.
6514	57	fraxinus@reachone.com	N/A	10) Lines 805-818: a) The discussion in this section is inadequate and misleading. The results from RMJOC-II Part 2 are needed here for a quantitative assessment that links those results to water quality modeling. b) This section provides no evidence to support the assumption that spring temperatures will be higher, including a quantitative assessment is provide to calculate the effects. A shallower, swifter river will have more cooling from surface radiation and bed conduction at night. Time of travel will also allow spring flows from snowmelt to move more quickly through the system with less time to warm. So the effect of climate change on spring temperatures may be less for MO3 than for the NAA c) This section provides no evidence of similar water temperatures in the summer. The pattern of temperatures are likely to be quite different. For the same reasons as noted for the spring, the overall effect of climate change on summer temperature may be less for MO3 than for the other alternatives. Wider daily swings in temperature are likely, but the heat mass of a reservoir may tend to promote a steady increase in temperature rather than relatively quick dissipation of temperatures at night for a free-flowing river. At mid-day temperatures may be higher, but at night they may be cooler. Since modeling of average temperatures shows a significant increase in reservoirs versus the free-flowing river, its quite possible that the change in average temperatures under climate change will be less in MO3 than in the other scenarios. d) Although this section provides no evidence of cooler water temperatures in the fall, this is the most likely outcome that available evidence suggests. The free-flowing river will respond more quickly to longer night and shorter days in the fall, as compared to the months required to dissipate the thermal mass of the reservoirs.	Through on-going regional climate change studies and work, the co-lead agencies evaluated potential shifts in precipitation and temperature patterns and resulting changes in unregulated Columbia Basin streamflow timing and volumes. The evaluation consisted of the full range of the latest climate change projections developed using multiple global climate models, emissions scenarios, downscaling techniques, and hydrologic models. Details of this evaluation are in Chapter 4 of the EIS. This information was used to describe the potential effects (both beneficial and adverse) on the river systems and resources due to potential changes in climate for all alternatives. The climate science community is still developing quantitative models that can address possible effects in water temperature from climate change, and unfortunately, have not been fully applied and validated for use with climate affected regulated flow projections of large reservoir systems. This data is critical to analyzing potential effects to fish quantitatively. In lieu of this information, the climate analysis used the output from resource models, like water quality and fish, under historical conditions, available climate change data, and scientific literature to qualitative assess potential effects to resources (described in Chapter 4). The RMJOC-II Part 2 study was still in review at the time of the draft publication and final EIS development. Though the quantitative data from the Part 2 study was not included in this study, the qualitative conclusions were verified with the draft conclusions of the RMJOC-II Part 2 study for the final EIS. The climate analysis used the output from resource models, like water quality and fish, under historical conditions, available climate change data, and scientific literature to qualitative assess potential effects to resources (described in Chapter 4). These analyses are documented in Section 4.2.3 for the MO Alternatives and Section 7.8.4 for the Preferred Alternative. Overall, the Preferred Alternative is expected to result in benefits to anadromous salmon and steelhead. The analysis in Section 7.8.4 recognizes that some of the benefits to fish from the Preferred Alternative could be offset by the effects of climate change. Under a dam breach scenario, spring water temperatures will warm more quickly than No Action conditions. Similarly in the fall, under a dam breach scenario, fall water temperatures will cool more quickly than No Action conditions. These results make logical sense and are supported by results from CRSO numerical water quality modeling. What has surprised some stakeholders are the predicted summer water temperature effects under dam breaching. Many believe that removing the dams will result in colder water temperatures as compared to the No Action Alternative. While some cooler water temperatures may be observed in the summer under dam breaching, especially during cooler summer weather conditions and at night, water temperatures will remain warm and exceed the state water quality standard at times. This is because without the dams, the lower Snake River will be shallower and more susceptible to solar radiation and warming. Increases in water particle travel time are expected, but the lower Snake River has always been a warm system (USGS 1960, 1961, 1964; Corps 2002a) and breaching the dams will not change this fact. Regionally high air and water temperatures result in water quality standard exceedances and are beyond the ability of the CRS to cool; future climate change predictions will result in even more difficult challenges.
6514	58	fraxinus@reachone.com	N/A	11) Lines 1033-1034, Potential increased water temperature from MO3 in the spring could be further amplified by warming from climate change: Again, this statement is not supported by any evidence, and qualitative arguments suggest that spring temperature may be less affected by climate change under a free-flowing situation. A quantitative analysis with RMJOC-II Part 2 results is needed.	Through on-going regional climate change studies and work, the co-lead agencies evaluated potential shifts in precipitation and temperature patterns and resulting changes in unregulated Columbia Basin streamflow timing and volumes. The evaluation consisted of the full range of the latest climate change projections developed using multiple global climate models, emissions scenarios, downscaling techniques, and hydrologic models. Details of this evaluation are in chapter 4 of the EIS. This information was used to describe the potential effects (both beneficial and adverse) on the river systems and resources due to potential changes in climate for all alternatives. Quantitative data that describes how climate change hydrology will affect reservoir operations in the Columbia Basin in still under development and was not available for us in this study. The climate science community is still developing quantitative models that can address possible effects in water temperature from climate change, and unfortunately, have not been fully applied and validated for use with climate affected regulated flow projections of large reservoir systems. This data is critical to analyzing potential effects to fish quantitatively. In lieu of this information, the climate analysis used the output from resource models, like water quality and fish, under historical conditions, available climate change data, and scientific literature to qualitative assess potential effects to resources (described in

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					Chapter 4). The RMJOC-II Part 2 study was still in review at the time of the draft publication and final EIS development. Though the quantitative data from the Part 2 study was not included in this study, the qualitative conclusions were verified with the draft conclusions of the RMJOC-II Part 2 study for the final EIS. The climate analysis used the output from resource models, like water quality and fish, under historical conditions, available climate change data, and scientific literature to qualitative assess potential effects to resources (described in Chapter 4). These analyses are documented in Section 4.2.3 for the MO Alternatives and Section 7.8.4 for the Preferred Alternative. Under a dam breach scenario, spring water temperatures will warm more quickly than No Action conditions. Similarly in the fall, under a dam breach scenario, fall water temperatures will cool more quickly than No Action conditions. These results make logical sense and are supported by results from CRSO numerical water quality modeling. What has surprised some stakeholders are the predicted summer water temperature effects under dam breaching. Many believe that removing the dams will result in colder water temperatures as compared to the No Action Alternative. While some cooler water temperatures may be observed in the summer under dam breaching, especially during cooler summer weather conditions and at night, water temperatures will remain warm and exceed the state water quality standard at times. This is because without the dams, the lower Snake River will be shallower and more susceptible to solar radiation and warming. Increases in water particle travel time are expected, but the lower Snake River has always been a warm system (USGS 1960, 1961, 1964; Corps 2002a) and breaching the dams will not change this fact. Regionally high air and water temperatures result in water quality standard exceedances and are beyond the ability of the CRS to cool; future climate change predictions will result in even more difficult challenges.
6514	59	fraxinus@reachone.com	N/A	12) Lines 1035-1038: this sentence is misleading. Although climate change may make habitat conditions worse in a freeflowing scenario, they are likely to be far worse in the impounded Alternatives, and the overall effect of climate change will be less on a free-flowing river than in an impounded river.	Through on-going regional climate change studies and work, the co-lead agencies evaluated potential shifts in precipitation and temperature patterns and resulting changes in unregulated Columbia Basin streamflow timing and volumes. The evaluation consisted of the full range of the latest climate change projections developed using multiple global climate models, emissions scenarios, downscaling techniques, and hydrologic models. Details of this evaluation are in Chapter 4 of the EIS. This information was used to describe the potential effects (both beneficial and adverse) on the river systems and resources due to potential changes in climate for all alternatives. The climate science community is still developing quantitative models that can address possible effects in water temperature from climate change, and unfortunately, have not been fully applied and validated for use with climate affected regulated flow projections of large reservoir systems. This data is critical to analyzing potential effects to fish quantitatively. In lieu of this information, the climate analysis used the output from resource models, like water quality and fish, under historical conditions, available climate change data, and scientific literature to qualitative assess potential effects to resources (described in Chapter 4). Breaching the four lower Snake River dams would result in long-term benefits including improvements to fall water temperatures and the restoration of the river to more normative riverine processes; this is stated in Chapter 3, pages 3-271 through 3-272 and Appendix D, Section 6.2.3. Under a dam breach scenario, spring water temperatures will warm more quickly than No Action conditions. Similarly in the fall, under a dam breach scenario, fall water temperatures will cool more quickly than No Action conditions. These results make logical sense and are supported by results from CRSO numerical water quality modeling. What has surprised some stakeholders are the predicted summer water temperature effects under dam breaching. Many believe that removing the dams will result in colder water temperatures as compared to the No Action Alternative. While some cooler water temperatures may be observed in the summer under dam breaching, especially during cooler summer weather conditions and at night, water temperatures will remain warm and exceed the state water quality standard at times. This is because without the dams, the lower Snake River will be shallower and more susceptible to solar radiation and warming. Increases in water particle travel time are expected, but the lower Snake River has always been a warm system (USGS 1960, 1961, 1964; Corps 2002a) and breaching the dams will not change this fact. Regionally high air and water temperatures result in water quality standard exceedances and are beyond the ability of the CRS to cool; future climate change predictions will result in even more difficult challenges.
6514	60	fraxinus@reachone.com	N/A	13) Lines 1972-1980: This section ignores the likely shift in recreational activities that could occur. Rafting of the Snake River above the Clearwater River is very popular, and there would likely be an economic boost from an expanded rafting industry. This section should explore the possibilities of this alternative recreation industry.	The Recreation Section 3.11.3.5 describes the potential social welfare and regional economic benefits to river recreation, including to recreational activities, such as drift boating, rafting, and kayaking, in the long-term under MO3.
6514	61	fraxinus@reachone.com	N/A	V. DEIS Chapter 5 1) A global comment for this section is the absence of discussion of the unique requirements of Section 303d of the Clean Water Act. A section should be added similar to Section 5.3 to discuss the compliance requirements for the CWA. In general this chapter need a more detailed an accurate of CWA requirements. The CWA does not allow mitigation standards must be met. Therefore, a discussion should be provided regarding how CRSO will meet the standards.	Sections 3.4 Water Quality and 7.7.3 Water Quality present the water quality analysis for all the alternatives. In addition, Chapter 8 describes compliance with all applicable laws, including the Clean Water Act. However, NEPA does not require an EIS to quantitatively evaluate all parameters on the 303d list.
6514	62	fraxinus@reachone.com	N/A	VI. DEIS Chapter 7 1) Lines 585-589, Table 7-1, Part 3: Environmental: use of Standards misused a) Water quality standards compliance discussed briefly under MO4, very briefly under a few, but not under others. All misstate or provide incomplete assessments of compliance with WQS (e.g. mitigate standards).	Table 7-1 Part 3 describes major effects to environmental, economic, and social resources for purposes of comparing alternatives. Detailed descriptions of water quality effects for each of the alternatives are described in Section 3.4 and Section 7.7.3. Following the release of the draft EIS, state water quality standards for TDG in Oregon and Washington have been updated.
6514	63	fraxinus@reachone.com	N/A	2) Lines 1998-2015, p 7-80, Section 7.7.3.1: no mention of temperature impairment in Pend Oreille River. No change from NAA does not constitute compliance with clean water act.	Discussion of the existing conditions at Pend Oreille River are described in Section 3.4.2.1, Water Quality. As described in Section 3.4.2.1, a TMDL was established for the Pend Oreille River in 2011. As described in Section 2.4.2, No Action Alternative, the conditions at the time the EIS was initiated in 2016 are used as the baseline condition for comparing environmental effects of the alternatives. This complies with 40 CFR Section 1502.14 and the Council on Environmental Quality's 40 Questions (Federal Register Vol. 46. No 55 page 18026) with regard to the No Action Alternative, which states "the No Action alternative may be thought of in terms of continuing with the present course of action until that action is changes." Chapter 8 of the EIS discusses the co-lead agencies' compliance with applicable laws, including the Clean Water Act.
6514	64	fraxinus@reachone.com	N/A	3) Lines 2072-2091, p 7-82, Section 7.7.3.2: misstatement and misinterpretation of standards for upper Columbia River	The text references in the comment do not pertain to compliance with water quality standards in the upper Columbia River. The referenced text describes effects to water quality that are anticipated from implementation of the Preferred Alternative. Discussion of compliance with water quality standards is included in Section 8.5 of the EIS.
6514	65	fraxinus@reachone.com	N/A	4) Lines 2134-2158, p 7-84, Section 7.7.3.3: misstatement and misinterpretation of standards for the lower Snake River	The text references in the comment do not pertain to compliance with water quality standards in the lower Snake River. The referenced text describes effects to water quality that are anticipated from implementation of the Preferred Alternative. Discussion of compliance with water quality standards is included in Section 8.5 of the EIS.
6514	66	fraxinus@reachone.com	N/A	5) Lines 2195-2215, p 7-85 & 86, Section 7.7.3.4: misstatement and misinterpretation of standards for lower Columbia River.	The text references in the comment do not pertain to compliance with water quality standards in the lower Columbia River. The referenced text describes effects to water quality that are anticipated from implementation of the Preferred Alternative. Discussion of compliance with water quality standards is included in Section 8.5 of the EIS.
6514	67	fraxinus@reachone.com	N/A	6) Lines 1997-2268, Section 7.7.3, general: The Columbia and Snake Rivers are listed as impaired under C=CWA 303d. This is not mentioned. Saying it is no worse under PA than under NAA, is saying that the PA does nothing to improve temperature impairments.	Discussion of the existing water quality conditions, including those listed on a 303(d) list, is described in Section 3.4, Water Quality, and Appendix D. As described in Section 2.4.2, No Action Alternative, the conditions at the time the EIS was initiated in 2016 is used as the baseline for comparing environmental effects of the alternatives. This complies with 40 CFR Section 1502.14 and the Council on Environmental Quality's 40 Questions (Federal Register Vol. 46. No 55 page 18026) with regard to No Action Alternative which states "the No Action alternative may be thought of in terms of continuing with the present course of action until that action is changes." Section 8.5 of the EIS discusses the co-lead agencies compliance with the Clean Water Act.
6514	68	fraxinus@reachone.com	N/A	7) Lines 2269-3158, Section 7.7.4, general: There is very little discussion about temperature effects. The DEIS makes little mention of current research on temperature impacts on migration and the use of cold water refuges, even though it is mentioned in Appendix D.	Section 7.7.4 includes a general description of the temperature impacts on fish migration. A more detailed discussion of temperature effects are described in Appendix D.
6524	1	Dave Ward	Grays Harbor Public Utility District	To that end, we feel that the final decision concerning the operations of the CRSO must be one that takes all areas of rivers impact into account and will not have a negative impact on the reliable power supply which utilities throughout the region rely upon to keep the lights on for residential, commercial and industrial customers. In addition to concerns in the area of energy production, the Grays Harbor PUD believes the existing hydroelectric facilities, specifically the Lower Snake River Dams have far reaching, positive impacts on the surrounding communities. The economies of these areas depend on the dams in the form of millions of dollars in recreation through rafting, kayaking, canoeing and boating on the Columbia and Lower Snake River and lakes and reservoirs formed by the dams. In terms of navigable waters, commercial barge traffic on the Snake and Columbia River moves 8-million tons of commercial cargo between Portland and Lewiston. Without this relatively clean method of transportation facilitated by the Lower Snake River Dams, thousands of carbon emitting vehicle trips would be needed to move those products, to say nothing of the impacts additional vehicle traffic would have on the Washington state transportation infrastructure. Removal of the dams would also have a serious impact on the irrigation systems used by thousands of farmers throughout the Columbia and Snake River Basins, which use the river runoff to water 7.8 million acres of Northwest farmland. In short, the dams on the Columbia and Snake River's impact millions of lives, jobs and households and any actions taken towards their removal would negatively impact Washington and the Pacific Northwest.	The EIS evaluated benefits and adverse effects across an array of resource areas including potential effects at the national, regional and local level. The EIS includes extensive analysis of the effects of MO3 to power (Section 3.8), irrigation (Section 3.12), navigation and transportation (Section 3.10), and recreation (Section 3.11).
6524	2	Dave Ward	Grays Harbor Public Utility District	In terms of power generation, the Grays Harbor PUD believes in an integrated power generation system in which existing technologies are combined with emerging methods. This calls for the preservation of existing hydroelectric facilities on the Columbia and Snake Rivers. At the same time, the utility recognizes the need for environmental concerns to be addressed, such as the preservation of salmon runs on the two rivers. To that end, we realize that steps must be taken to give those runs a chance at recovery. We feel the preferred alternative suggested in the draft EIS of increased spill and additional mitigation efforts designed to help fry reach open waters is an acceptable method, but needs to be monitored closely to verify fry survival improvement and not create more harm. Analysis by trade groups has found that the increased spill over federal dams will have an impact on power costs, perhaps as high as twopercent; on top of the increases the Bonneville Power Administration calculates every two years as part of their power contracts. While the increased cost is certainly regrettable, we believe it is an inevitable and acceptable compromise which will allow the Grays Harbor PUD and others like it throughout the region to maintain the mission of reliable utility services at the lowest practical cost.	Consistent with the comment, the co-lead agencies developed a Preferred Alternative that considered the need for an adequate, efficient, economical and reliable power supply, combined with the need to meet other authorized CRS purposes. The agencies additionally committed to mitigating for impacts to fish and wildlife impacted by CRS operations. The Preferred Alternative shows a rate impact relative to the No Action Alternative of 2.7%, which is among the smallest impacts to rates considered in the EIS. See EIS, 7.7.9.1, Rate Sensitivity Analysis, Table 7-32 of the Draft EIS. The power estimates presented in the EIS are a comparison to the No Action Alternative, rather than the BP-20 wholesale power rates, which were set assuming the financial impact of the 2019-2021 Spill Operation Agreement. The remaining rate pressure associated with the Preferred Alternative falls within a level that Bonneville has historically been able to absorb through the costs over which it has significant control. See EIS Section 3.7.3.1, at 3-817 in the Draft EIS. Regarding the stated concern about potential harms of increased spill, the Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the biological models and will help to determine how effective increased spill can be in increasing salmon and steelhead returns to the Columbia Basin. The effectiveness of the spill program will be monitored, as will the effects to generating resources around the basin. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information.
6524	3	Dave Ward	Grays Harbor Public Utility District	We applaud the DEIS findings that recognize in no uncertain terms the negative impact the removal of the Lower Snake River Dams would have on the reliable power supply which utilities rely on throughout the region. The reliability of the power supply flowing from the dams of the Federal Columbia River Power System (FCRPS) is a tremendous benefit to the residents of Washington state. The water behind the dams serves as a "load following" system which can be ramped up or down by increased or decreased water flow, depending on the varying electrical load of the region. The four dams on the Lower Snake River are a critical component of that system. With production of over 1000 average megawatts of clean and reliable energy (enough energy to power roughly 800,000 homes), the dams have been identified by the Bonneville Power Administration as a key component of the FCRPS's mission of supporting peak power generation. It is important to remember that while power usage in the region is growing, other base load resources are being removed.	The statement about the peaking capability and characteristics of hydropower and their value in serving load for the Northwest is consistent with the findings of the EIS. See Section 3.7.3.5, Lower Snake River Full Replacement, pages 3-905-907; Section 3.7.3.5, Summary of Effect, page 9-935, in the Draft EIS.

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6524	4	Dave Ward	Grays Harbor Public Utility District	The retirement of coal generation facilities in Washington, Oregon and Montana is estimated to reduce the power supply by over 3000 megawatts. Without reliable resources to replace that energy, a growing population and increased energy use in the residential, commercial and transportations sectors, the region faces the possibility of a capacity shortfall, similar to the one that struck the West Coast in 2000-2001. Given that fact, we firmly believe that now is not the time to remove base load resources from the FCRPS. While additional spill over the dams may mean an increase in energy and transmission rates from the Bonneville Power Administration, it is a far cry from the billions of dollars that would be needed to replace the base load resources provided by the FCRPS. Each community that relies on the affordability of hydropower would see a crippling increase in rates, an increase that will be passed on to utility customers. In Grays Harbor, many PUD customers are already struggling to get by with existing costs from the current infrastructure. To increase the burden by asking them to help foot the bill for new technologies that lack the affordability and reliability that have made hydropower the dominant power resource in the region for nearly a century is an expense many, quite literally, cannot afford	The concerns voiced in the comment regarding potential rate increases and the reliability of hydropower are consistent with the findings of the EIS. See draft EIS, Section 3.7.3.5, at 3-918-924 and Table 3-166. Consistent with the comment, the EIS findings indicate that the region would likely experience a significant regional deficit of power given upcoming coal retirements, which would require adding additional power resources to maintain power system reliability at the No Action Alternative levels. See Sections 3.7.3.3 through 3.7.3.6 in the draft EIS. The comment that increases in utility costs can adversely affect vulnerable groups is also consistent with discussions in the EIS. The Environmental Justice analysis (Section 3.18.3 and Chapter 7 of the EIS) provides further detail on the potential disproportionate effects to Tribal, low-income and minority populations.
6524	5	Dave Ward	Grays Harbor Public Utility District	In addition to reliability, the Lower Snake River Dams and the FCRPS have made Washington's power supply one of the cleanest in the nation. That fact helped the state pass the Clean Energy Transformation Act in 2019, the most meaningful energy legislation of the last decade. With a goal of 100% clean energy by 2045, the loss of the clean, emission free energy produced by the dams would deal that goal a severe blow and perhaps force the state to seek energy on the market from emitting resources, thereby working against legislation brought about by cooperation and compromise. Our support of federal hydro power is not to be mistaken for opposition to new energy resources in general. Advances in wind, solar and other renewable resources, coupled with progress in energy storage may well be the future of our industry. However at this time, those resources fall short both from a reliability and affordability standpoint. In time, they may overcome those shortcomings. With the clean and reliable energy resources provided by the FCRPS, the energy exists to allow innovation and invention to run its course and for new resources to be perfected and take their place in an integrated regional power system that will allow Washington to continue its role as a leader in clean and renewable energy.	This comment makes various statements about hydropower and the Federal Columbia River Power System that are consistent with information presented in the EIS in Sections 3.7 and 3.8. The EIS also acknowledges that the energy sector is constantly undergoing transformation and that technological improvements will likely bring other options.
6533	1	kate@crsoa.net	N/A	A functioning upriver system provides the link to the Pacific Northwest export economy critical to so many workers. If navigation is obstructed, grain suppliers and shippers will experience increases in transportation and storage costs of 50 to 100%. The highways, rail, and grain elevator networks along the Columbia River would need over $1 billion in capital investments to adapt. This includes hundreds of miles of shortline rail track that have been abandoned; new rail; major highway improvements; and retrofits for grain elevators that do not have rail-loading capabilities. Therefore, CRSOA concurs with the decision to reject Multiple Objective 3 Alternative (MO3), which obstructs navigation, increases emissions, has an adverse impact on poor and rural communities, and will increase sedimentation in the Columbia River.	The EIS finds that under a dam breach scenario, average transportation costs for wheat farmers would increase 10 to 33 percent, but that individual farmers could experience increases that are doubled. The cost increases to specific shippers would depend upon location and would vary throughout the region, depending on transportation options at each location. Generally, those grain shippers that are the furthest from alternate shipping locations (shuttle rail facilities or river ports on the Columbia River) would be the most negatively impacted. Section 3.10 of the Draft EIS provides an evaluation of the Columbia-Snake River Navigation System, assessing its relative efficiency, low costs for shippers, safety considerations, low air emissions relative to other transportation modes, potential regional economic effects, and other social effects that could occur under MO3. The EIS acknowledges that depending on how rail rates respond to dam breach, shortline rail capacity could be exceeded. The EIS also evaluates the additional transportation infrastructure investments and associated costs that would be required, as well as the increases in air emissions that would occur. Under low rail rate increase scenarios, additional shortline rail capacity would be required that could cost $25 to $50 million. Under a scenario where rail rates increase by 50 percent, more shipping demand would be transferred to trucks, reducing the demands on rail infrastructure, but increasing demands on roads. Under this scenario, up to $10 million in additional road wear and tear costs could occur. The EIS evaluates potential effects on farmers associated with increased transportation costs under MO3 in Section 3.10.3.5.
6533	2	kate@crsoa.net	N/A	I. The Preferred Alternative Appropriately Balances the Objectives of the Co-Lead Agencies, Enhances Environmental Objectives, and Maintains Navigation. U.S. Senator Patty Murray recently said that Washington is the most trade dependent state in the nation. With about 1500 vessels calling the Columbia River each year, maritime commerce accounts for approximately 50 million tons of foreign trade and $21 billion in cargo value annually. Various studies estimate that over 40,000 jobs are dependent on maritime trade related to the Columbia and Snake River system. Numerous federal laws have established the run-of-river and storage projects on the Columbia and Snake rivers that, along with maintenance of the navigation channel, ensure a reliable maritime industry that safely, inexpensively, and reliably move goods. The Flood Control Act of 1962, for example, requires that the navigation channel of the Columbia-Snake River system not fall below fourteen feet. See Flood Control Act of 1962 (1962 Act), Pub. L. No. 87-874, Title II (1962) (providing that the depth and width of the authorized channel in the Columbia-Snake River barge navigation project shall be established as fourteen feet and two hundred and fifty feet, respectively, at minimum regulated flow). The system needs to be operated to meet the minimum requirements of the 1962 Act and the requirements of other applicable federal laws. CRSOA appreciates that the Preferred Alternative takes an approach to comply with the federal laws that established the Columbia River hydroelectric and navigation system while also meeting other objectives of the CRSO EIS and requirements of the maintenance and operation of the Columbia River System (CRS). As reflected in the Preferred Alternative, barging is an efficient and environmentally preferable method of transportation. More wheat is transported along the Columbia-Snake River System than anywhere else in the U.S. By maintaining a reliable marine navigation system the agricultural products get to the terminals on the lower river and are available for export. One barge with tow can ship the equivalent goods of 1.4 100-unit freight trains, or 538 semi-trucks. Barging is nearly 40% more fuel-efficient than freight trains, and 270% more fuel-efficient than semi-trucks. In 2018, it would have taken 38,966 rail cars or 149,870 semi-trucks to move the 3.9 million tons of cargo shipped on the Snake River alone. If we lose the system of dams and locks that enable barge shipments, the change to trains and trucks would congest our communities, increase greenhouse gas emissions, and decrease air quality. This efficient and low-cost mode of transportation protects the farmers and economically stressed communities of eastern Washington and Oregon. Navigation along the Columbia and Snake Rivers is critical to the movement of crops and goods. This mode of transportation is relied upon by farmers and communities for low-cost, efficient transport. Federal laws require the ongoing maintenance of the Columbia and Snake River navigation channel. The Preferred Alternative maintains this life-blood of the Pacific Northwest economy.	Thank you for your comment. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. The comment is consistent with the findings in the EIS, in that access to barge transportation is the most cost effective means of accessing export markets for many grain producers in the Northwest currently, and removing that option would increase transportation costs for grain producers, among other effects.
6533	3	kate@crsoa.net	N/A	II. Co-Lead Agencies Appropriately Rejected the Multiple Objective 3 Alternative and Cannot Adopt an Alternative that Includes Dam Breaching. As acknowledged by the co-lead agencies, MO3 does not allow for the operation of the CRSO in furtherance of the Congressionally authorized purposes of operating and maintaining the lower Snake River dams for navigation, hydropower, irrigation, and recreational benefits. The economic and social harm caused by MO3 would far outweigh the speculative fish survival benefits suggested in the EIS. CRSOA agrees with and supports co-lead agencies decision to not adopt the MO3 alternative, and submits comments on the negative impacts on air quality, climate, disadvantaged communities and sedimentation. a. The Co-lead Agencies Cannot Adopt an Alternative that Obstructs Navigation. As noted throughout the EIS, the co-lead agencies do not have authority to implement a dam breaching solution. At Section 2.4 of the EIS, the co-lead agencies confirm that [n]ew congressional authority and associated funding would be required to implement the dam breaching measures evaluated in the EIS. Multiple acts of Congress authorized and funded the dams and hydropower systems on the Columbia Snake River system and additional congressional action would be necessary to alter that framework. Acts of Congress have also established the rights of navigation on the Columbia and Snake Rivers. Laws such as the Rivers and Harbors Acts, Water Resources Development Act, Flood Control Act, and the Energy and Water Development Act are all relied upon by the co-lead agencies to develop the waterway navigation system and require that the co-lead agencies, primarily the Corps of Engineers, maintain those projects. The Flood Control Act of 1962, in particular, establishes that a minimum depth be maintained for navigation on the Columbia-Snake River. [T]he depth and width of the authorized channel in the Columbia-Snake River barge navigation project shall be established as fourteen feet and two hundred and fifty feet, respectively, at minimum regulated flow. See Flood Control Act of 1962 (1962 Act), Pub. L. No. 87-874, Title II (1962). No law grants the Corps discretion to regulate the navigation channel outside of these parameters, including the National Environmental Policy Act or Endangered Species Act. See In re: Operation of the Missouri River System No. 04-2737, 2005 U.S. App. LEXIS 17224 at *26-*27 (8th Cir. Aug. 16, 2005) (Case law supports the contention that environmental- and wildlife-protection statutes do not apply where they would render an agency unable to fulfill a non-discretionary statutory purpose or require it to exceed its statutory authority.). Under NEPA, the lead agency is not required to analyze the environmental impacts from actions where it has no discretion to prevent the action that causes those environmental impacts. Department of Transportation v. Public Citizen, 541 U.S. 752. 772 (2004) (where agency does not have control or discretion over the decision or outcome and thus any incidental environmental effects resulting from the decision, no analysis of those effects are required under NEPA). Because the co-lead agencies lack authority and discretion to remove dams or obstruct navigation, they had no obligation to assess dam breaching in the EIS. CRSOA, nevertheless, appreciates the co-lead agencies efforts in this regard in that those efforts allowed the agencies to analyze issues raised by the judicial branch and in public comments, providing technical review that demonstrates the adverse outcomes from dam removal when analyzed objectively. The conclusions demonstrate that when dam removal is assessed in the context of the various categories of impacts, it cannot meet the project objectives.	The EIS evaluated beneficial and adverse effects across an array of resource areas including potential effects at the national, regional and local level; effects are monetized and quantified, where possible, and also described qualitatively. As is common in NEPA analyses, the beneficial and adverse effects of the alternatives are expressed as a variety of qualitative and quantitative environmental and economic metrics throughout the EIS to inform decision-making, including the effects of the alternatives on fish as detailed in Section 3.5. That the effects of the alternatives on fish are not expressed as monetized economic values does not mean that they were not considered in the context of the analysis. The EIS does not employ a cost-benefit framework for decision-making. Instead, the EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as the dam breaching alternative. However, the Preferred Alternative also meets most of the other objectives of the study for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. Table 7-1 in Chapter 7 provides a summary of the beneficial and adverse effects of the alternatives, including the quantified social welfare costs and benefits for a subset of the resource areas (specifically, hydropower, navigation, and irrigation) as well as the implementation costs of the alternatives.
6533	4	kate@crsoa.net	N/A	b. Obstructing Upriver Shipping by Removing Snake River Dams Will Increase Emissions and Harm Air Quality. Any alternative that involves dam removal, such as MO3, will result in shipping activities shifting from barge to road and rail transport. Barge transportation is an efficient mode of transportation with relatively low carbon emissions per ton-mile of freight compared with truck or train transportation. Transportation-related emissions, including diesel particulate and carbon emissions would significantly increase. In A Modal Comparison of Domestic Freight Transportation Effects on the General Public: 20012014 (January 2017), the researchers found that barges can move a ton of cargo 647 miles with a single gallon of fuel. In contrast, trains can move the same ton of cargo 477 miles per gallon, and trucks can move the same ton of cargo 145 miles per gallon. Similarly, the Corps of Engineers has compared one barge tow on the Snake River to nearly 530 truckloads carrying the same commodity. When roundtrips are calculated, the additional emissions caused by the switch are significant. Moreover, the CRSO EIS fails to fully account for the congestion due to increased traffic along the Columbia River and I-5 corridors, further increasing emissions. When Terminal 6 at Port of Portland was forced to shut down,	The findings of the emissions analysis for Multiple Objective alternative 3 in Section 3.8 in the Draft EIS are consistent with this comment. In addition, the EIS analyzed the modal comparison report cited by the comment and relies on the emissions factors from this report to estimate the emissions effects. The EIS acknowledges potential effects on air quality from increased truck traffic by region (see Draft EIS Section 3.8.3.5) and also assessed potential effects of increased highway usage and highway congestion (see Draft EIS Section 3.10.3.5). This congestion does not affect the number of farm trucks leaving farms, and thus, does not affect the EIS greenhouse gas emissions analysis as the EIS relies on emissions per ton-mile estimates as opposed to per gallon of fuel used, which could be affected by idling and congestion as mentioned by the comment.

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				for example, container shipments were forced on roadways and rail resulting in congestion, idling, and an increase in localized and general emissions (greenhouse gases and particulate matter). Similar emissions, but on a larger scale, will occur if navigation is stopped because of dam breaching.	
6533	5	kate@crsoa.net	N/A	c. Dam Removal Will Increase Fossil Fuel Usage by the Power Sector. Dam removal would further increase the need for additional power resources to replace the reduced hydropower generation. That is because fossil fuel generation would be necessary to augment the replacement resource in order to meet peak demand, seasonally or even daily, in light of the reduction in hydropower generation caused by dam breaching. And even if a zero-carbon replacement alternative is possible, those resources would not be built by 2022, which means that fossil-fuel power plants would continue to be necessary to meet demand. While the type and location of additional power resources is uncertain, increased generation from existing fossil fuel plants, particularly natural gas capacity, would further degrade air quality and increase greenhouse gas emissions compared to the hydropower being replaced.	The findings of the emissions analysis for Multiple Objective Alternative 3 (MO3) is consistent with this comment. Even assuming all renewable replacement resources are built or acquired to maintain regional power reliability under MO3, the analysis finds some increase in fossil fuel generation, resulting in a 2.7 percent increase in regional CO2 emissions relative to the No Action Alternative.
6533	6	kate@crsoa.net	N/A	d. Dam Removal and Obstructing Marine Commerce Will Disproportionately Impact Low Income and Underserved Populations. As noted in the CRSO EIS, environmental justice communities will experience significant adverse effects resulting from broader impacts to power generation and transmission, navigation and transportation, water supply, recreation, and cultural resources. The regions dryland farmers will be significantly impacted by the loss of marine commerce. There are over 1,100 dryland farmers operating in the affected upriver areas, with average pretax income of only $40,211 per establishment. (USDA 2017 Census). The added costs of shipping crop by truck or rail would put many farmers at risk of bankruptcy or foreclosure. The removal of renewable baseload hydropower will disrupt a power system already at risk of losing the baseload supply needed for grid reliability. As noted in the news story Will there be enough electricity after coal plants shut down? (KGW, December 18, 2019), the Pacific Northwest is removing baseload power at a fast pace while increasing the demands on the grid. The result could be rolling blackouts and utility rate increases. The impacts from the lack of grid reliability and resilience are felt disproportionately by the disadvantaged and small business.	The EIS analyzed two resource portfolios to replace the hydropower generation of the lower Snake River dams, both of which maintain regional power system reliability. See EIS, Section 3.7.3.5, at 3-904-910. Thus, a decrease in the reliability of the power system and increased risk of blackouts would be unlikely to occur and there would not be additional safety concerns if the replacement resources were put online. The EIS does acknowledge potential safety concerns if resources were not built before breaching (see EIS, Section 3.7.3.5 at 3-935). The statement that without resource replacement, regional power reliability would decline under MO3 is consistent with the findings of the EIS. The EIS also finds, consistent with this comment, that increasing retirement of coal power plants would adversely affect regional power reliability (see Section 2.3 of Appendix H, Sensitivity of LOLP to Assumptions about Coal Capacity).
6533	7	kate@crsoa.net	N/A	e. Dam Removal Would Have Significant Sedimentation Impacts on Lower River Navigation and Other Water Users. The co-lead agencies note that dam breaching will result in downriver sedimentation. The effects from dam breaching would be major and would be the largest influence on sediment process effects. (CRSO EIS at 6-30). Such sedimentation will increase downriver navigation channel maintenance costs, adversely impact private and port riparian properties, and could result in disruption of downriver marine transportation. For the reasons set forth in the CRSO EIS and here, breaching the dams would not allow the co-lead agencies to operate and maintain the dams for their congressionally authorized purposes of navigation, hydropower, envisioned recreational benefits, and water supply for irrigation purposes.	The co-lead agencies included the Breach Snake Embankments measure in Multiple Objective Alternative 3 (MO3) to be responsive to the Opinion and Order from the District Court of Oregon and to the many comments submitted during the scoping period, despite the potential for that measure to conflict with the four lower Snake River dams' congressionally authorized purposes. Direct and indirect effects of MO3, as compared to the No Action Alternative, include downriver sedimentation as described in cumulative effects Table 6-11 (Section 6.3.1.2.4). Near-term sedimentation effects following the MO3 Breach Snake Embankments measure are predicted to last up to ten years (depending on the hydrologic regime) as legacy sediment deposits within the former reservoirs are incrementally eroded and re-deposited throughout the lower Snake Reach. Near-term sedimentation effects are expected to be particularly large in the upstream end of Lake Wallula on the Columbia River. The impacts of sediment deposition at left bank recreation and boat-launch sites below the Snake confluence would likely be permanent. Long-term sedimentation effects would include continued deposition in quiescent areas prone to shoaling as a result of annual sediment delivery that had previously been trapped by the lower Snake River dams, but not directly interfere with Columbia River navigation. Mitigation actions for these potential impacts to navigation are detailed in Section 5.4.3.5 and propose dredging to maintain this reach of the Federal navigation channel. Likewise, public and private port facilities both near the confluence of the lower Snake River and on the left bank of Lake Wallula would need to conduct sequential dredging in order to avoid interruptions in service and maintain access to the navigation channel. Dredging mitigation for maintaining the Federal navigation channel would be a Corps' expense, while dredging to maintain port facilities and access to the Federal navigation channel would not be a Corps' expense. Dredging operations are expected to remain similar to No Action Alternative in the remaining reach of the Columbia River navigation channel.
6540	1	smcclintock@ugcpnw.com	N/A	The DEISs preferred alternative focuses on benefitting fish recovery using water management measures while balancing our regions critical needs for water, power, navigation and trade. More wheat moves on this system than anywhere in the country because its the most cost effective and environmentally sound way to transport commodities. A single barge ships the equivalent goods of 134 semi-trucks and is more fuel efficient. For additional context into this staggering figure, United Grain utilizes 320 barges annually to move wheat along the river system. If barging were eliminated as a mode of commodity transit, United Grain would need to utilize over 42,800 trucks or 11,430 jumbo hopper rail cars a year to replace barging.	Thank you for your comment. The EIS includes extensive analysis of the effects to navigation and transportation in Section 3.10 from MO3.
6540	2	smcclintock@ugcpnw.com	N/A	Our economies are not prepared to function with the loss of barging on the Columbia and Snake Rivers. Our highway, rail and grain elevator network would need over $1.1 billion in capital investments just to adapt. The loss of barging as a transportation option will result in a 50% to 100% increase in transportation and storage cost for grain shippers like United Grain. For an industry that competes on the world stage, these increased costs could have severe consequences on the U.S. ability to compete in the global marketplace.	The EIS evaluates potential effects on farmers associated with increased transportation costs under MO3 in Section 3.10.3.5. Evaluating the impact of removing the lower Snake River locks and barge navigation above Pasco, Washington, is completed using a transportation optimization model that does not allow shipments on river terminals along the lower Snake River. The EIS finds that under a dam breach scenario, average transportation costs for wheat farmers would increase 10 to 33 percent, but that individual farmers could experience increases that are doubled. The cost increases to specific shippers would depend upon location and would vary throughout the region, depending on transportation options at each location. Generally, those grain shippers that are the furthest from alternate shipping locations (shuttle rail facilities or river ports on the Columbia River) would be the most negatively impacted. Note, cost scenarios for specific farmers are presented in the Regional Economic Effects Section in Section 3.10.3.5.
6540	3	smcclintock@ugcpnw.com	N/A	Over time, improvements to the dam system have made it possible for over 95% of fish to pass through them on their journeys up and down the river and fish populations on the Snake River have trended upward for the past 25 years. There is, however, no doubt salmon recovery will require more work. The most current science from the National Oceanic and Atmospheric Administration finds conditions in ocean waters need to improve for fish numbers to increase. These findings are a clear indication that we must consider the entire ecosystem that salmon depend on and not limit our focus to the dams on the Columbia-Snake River System, where so much investment and improvements have created world-class fish passage infrastructure. The DEIS rightfully recognize this and calls for action outside of the Columbia-Snake River System to accelerate recovery efforts.	The co-lead agencies also recognize that there are many effects to salmon and steelhead populations outside the operation of the dams; including those you mention here. Research continues to evaluate the magnitude of these effects. For more information see the NMFS website at: https://www.nwfsc.noaa.gov/research/index.cfm. This EIS analyzes the effects of operation, maintenance, and configuration of the CRS projects. Both human-caused and natural factors that are outside the responsibility and control of the co-lead Federal agencies, also contribute to the decline and recovery of ESA-listed species, and would continue to strongly influence fish and their habitat. Salmon and steelhead have been adversely affected in the Columbia River Basin over the last century by many activities including human population growth, urbanization, introduction of exotic species, overfishing, development of cities and other land uses in the floodplains, water diversions for all purposes, dams, mining, farming, ranching, logging, hatchery production, predation, ocean conditions, and loss of habitat. Operation, configuration and maintenance of the CRS requires mitigation for its effects, and the EIS is not intended or required to serve as an overall salmon recovery plan for the region. With respect to the Preferred Alternative, the fish analysis in Section 7.7.4 shows that it will provide substantial benefits to ESA-listed salmon and steelhead, which can help contribute to broader recovery goals.
6543	1	N/A	N/A	The Draft EIS also fails to fully address the significant impact that the dams along these river systems have on the critically endangered Southern Resident orca population. Accepted science indicates that restoring the lower Snake River would lead to stabilization of Chinook runs and provide critical food sources for the Southern Resident orca.	SRKW analysis is described in the EIS including in the FEIS Chapter 3 (Vegetation, Wetlands, Wildlife, and Floodplains) which has been updated for SRKW (Section 3.6.2.6 and Table 3-102) and FEIS Chapter 7 (Preferred Alternative) with additional analysis information on SRKW and potential increase in forage fish, in particular, Chinook salmon in Section 7.7.8. The co-lead agencies utilized current high quality information and best available science in its analysis of the effects of the operation, maintenance, and configuration of the CRS projects. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. The EIS analysis found that only a minor effect to the Southern Resident killer whale would result from implementing MO3 (which includes the dam breach measure). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differentially from hatchery and wild fish. Hatchery fish today likely make up most fish consumed by SRKW (NOAA BiOp 2020). The EIS analysis of the Preferred Alternative determined the overall effect to SRKW to be negligible in large part because hatchery production is consistent between the No Action Alternative and the Preferred Alternative. Because the impact from the Preferred Alternative was determined to be negligible, the agencies determined that existing hatchery production would be sufficient to address any potential impacts to prey availability for SRKWs. The co-lead agencies note the contribution to the prey of SRKW through the continued existence of their respective independent congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as the Lower Snake River Compensation Plan, which is administered by U.S. Fish and Wildlife Service. The Preferred Alternative and Proposed Action in the agencies' biological assessment carry forward certain mitigation measures described in Chapters 2 and 7 of the EIS, which include continued salmon and steelhead hatchery production. The Preferred Alternative has negligible effects to SRKWs as described in Section 7.7.8.
6544	1	srkiefer@cableone.net	N/A	There needs to be a paragraph outlining the legal, cultural, economic, and ecological costs if the listed fish (especially from the Snake River) are allowed to go extinct.	An analysis of the legal, cultural, economic, and ecological costs would be appropriate if a selected alternative were likely to lead to an extinction. While some alternatives that were modeled are projected to decrease productivity for some ESUs/DPSs, abundance was not projected to reach extinction. While there is uncertainty based on the potential reduction in latent mortality associated with CRS operations, the Preferred Alternative has the potential to provide improvements to the abundance of salmon and steelhead stocks returning to the Snake River.
6544	2	srkiefer@cableone.net	N/A	An alternative that must be included in the final EIS is missing from this draft, namely springtime spillway crest drawdown. Springtime spillway crest drawdown would substantially increase SARs with the dramatically improved migration conditions through the reservoirs and at the dams during the smolt migration, while still allowing for hydropower production during the periods we need it (summer and fall), and the barges would be able to operate for of the year. This alternative should substantially improve SARs while still allow for most of the current industrial benefits.	The co-lead agencies evaluated a measure that varies slightly from the suggested action. In order to increase travel time under MO4, the agencies considered "Reservoir drawdown to Minimum Operating Pool." This measure would draw down the lower Snake River and lower Columbia River projects to lower elevations to reduce travel times for juvenile fish out-migration during the spring and summer. For more information, please see Chapter 2, Section 2.4.6.1. The co-lead agencies are required to evaluate a reasonable range of alternatives in the EIS. However, when there are potentially a very large number of alternatives, only a reasonable number of examples, covering the full spectrum of alternatives, must be analyzed and compared in the EIS. Alternatives for this EIS were developed from measures identified during public scoping, regional forums with scientists and technical experts from cooperating agencies, and expert opinion from within the co-lead agencies and in relevant literature. These alternatives represent a reasonable range of alternatives for the maintenance, configuration, and operation of the CRS.
6544	3	srkiefer@cableone.net	N/A	I. Delayed mortality: Delayed mortality is much more important than any other factor in determining whether and how best to recover wild stream type Chinook, sockeye, and steelhead from the Snake River. I am very disappointed that some 20 years after the PATH results were unfairly shoved aside, and the resulting 2000 EIS and BiOp identified delayed mortality as the critical uncertainty even though the PATH models had indicated it was substantial, this draft EIS does not adequately address the growing body of empirical data demonstrating the magnitude of delayed mortality for Snake River fish. The draft EIS does acknowledge that the magnitude of delayed mortality is critical in determining what measures are most likely to be effective, and how much so. One element, delayed mortality, stands out as particularly important in explaining the models different predictions. These results highlight the importance of how latent mortality is considered in the analysis and the strong effect it has on the predicted results.	The agencies used current, high-quality modeling information consistent with NEPA and did not rely on information contained in the Plan for Analyzing and Testing Hypotheses (PATH) Weight of Evidence Report (ESSA Technologies 1998), which is over 20 years old and does not reflect current CRS operations. Latent mortality effects were considered and factor prominently in the decision on the Preferred Alternative. Further, the model results presented in Section 3.5 and Chapter 7 address latent mortality. Latent mortality is captured directly in the CSS model for SARs and abundances, and is overlaid with several assumed values (10%, 25% and 50% reductions in latent mortality) in the NMFS Lifecycle model results. Delayed mortality in the ocean due to CRS dam passage is discussed throughout the CRSO EIS.
6544	4	srkiefer@cableone.net	N/A	The glaring biological inadequacy of this draft EIS is the lack of coverage of productivity and survival differences between wild Snake River stream type Chinook and steelhead, and similar populations from other mid-Columbia tributaries. There is no mention that over 20 years ago approximately 25 of	The agencies used current, high-quality modeling information consistent with NEPA and did not rely on information contained in the Plan for Analyzing and Testing Hypotheses (PATH) Weight of Evidence Report (ESSA Technologies 1998), which is over 20 years old and does not reflect current CRS operations. The comment acknowledges that PATH is out of date. A variety of published and unpublished studies have addressed patterns of Smolt-to-Adult return (SAR) among populations of

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				the Regions top Fisheries Scientist spent 5 years on this topic (PATH), and concluded that delayed mortality was likely substantial and held the key to recovery. The spawner/recruit data from the John Day and Snake Rivers wild stream type Chinook populations used by PATH has continued to be collected, this now over 60 year data set continues to support and strengthen the PATH conclusion that latent mortality for Snake River fish is substantial and holds the key to recovery. Since PATHs conclusion of substantial delayed mortality for wild Snake River fish based upon this spawner/recruit data, PIT tag SAR data from more mid-Columbia tributary wild/natural stream type Chinook and steelhead populations has become available. This data clearly indicates that similar wild/natural stream type Chinook and steelhead from other mid-Columbia tributaries (Yakima, Umatilla, John Day, and Deschutes) follow the same pattern of response to ocean conditions, yet consistently have much higher SARs than smolts from the Snake River. Smolts from all these populations migrate during a similar time frame, encounter the same bird and fish predators, enter the same ocean, and the returning adults encounter similar conditions. The only biologically logical reason that all these other mid-Columbia tributaries wild/natural stream type Chinook and steelhead populations consistently have much higher SARs is that there is substantial delayed mortality caused by the four lower Snake River Dams. These two independent empirical data sets clearly indicate substantial delayed mortality for wild Snake River stream type Chinook and steelhead and must be used to help clear up the critical biological uncertainty in this draft EIS. The degree to which latent mortality is affecting salmon and steelhead is one of the critical uncertainties in this EIS analysis. These results and their implications for recovery must be thoroughly covered and discussed in the final EIS.	salmonids occurring in more interior and coastal locations. The co-lead agencies do not generally support comparisons of SARs between populations as evidence of latent mortality. The Independent Science Advisory Board has repeatedly questioned that line of evidence and has recommended that the CSS not conduct upstream/downstream comparative studies. For example, see ISAB/ISRP 2007-6 and ISAB 2020-1. NMFS carried out a seven-year study addressing the impacts of multiple dam passage on smolts tagged at Lower Granite dam that passed eight dams in-river, versus those barged and released at McNary Dam (Marsh et al. 2015). No clear evidence was observed for delayed mortality due to multiple dam passage, although they observed an effect of time of release. Latent mortality effects were considered and factor prominently in the decision on the Preferred Alternative. Further, the model results presented in Section 3.5 and Chapter 7 address latent mortality. Latent mortality is captured directly in the CSS model for SARs and abundances, and is overlaid with several assumed values (10%, 25% and 50% reductions in latent mortality) in the NMFS Life Cycle model results. Delayed mortality in the ocean due to CRS dam passage is discussed throughout the CRSO EIS.
6544	5	srkiefer@cableone.net	N/A	I have concerns about both of the models described. The LCM assumption of little delayed mortality for Snake River fish is contradictory to the above described pattern in wild/natural stream type Chinook and steelhead SARs for mid-Columbia tributary populations. Without substantial delayed mortality for Snake River wild/natural stream type Chinook and steelhead (as assumed by the LCM model), there would be little hope for recovery of these populations. My concern with the CSS model is that it appears to overweigh the affect of powerhouse passage on delayed mortality.	The co-lead agencies do not support comparisons of SARs between populations as evidence of latent mortality. The Independent Science Advisory Board has repeatedly questioned that line of evidence and has recommended that the CSS not conduct upstream/downstream comparative studies. For example, see ISAB/ISRP 2007-6 and ISAB 2020-1. There is substantial variation in mean SAR among both wild and hatchery populations within lower Columbia, mid/upper Columbia and Snake ESUs of Chinook and steelhead, with potentially many confounding factors besides distance to the ocean.
6544	6	srkiefer@cableone.net	N/A	Until recently, increased spill mostly occurred when flows were above powerhouse capacity. These higher flows and spill levels resulted in not only reduced powerhouse passage rates but also increased water velocities, cooler water temperatures, and increased turbidities in the entire lower Snake River. Increasing voluntary spill does not improve migration conditions through the reservoirs, only at the dams, and the likely small improvement for in-river w/n smolt SARs with the preferred alternative will likely be undetectable. Recent low SARs of Snake River uncollected w/n Chinook and steelhead smolts, during a period of increasing voluntary spill, as compared to their transported cohorts and other mid-Columbia tributaries reported in recent CSS annual reports supports this concern.	The commenter is correct in that increased spill will not improve reservoir migration conditions, but will further reduce the proportion of fish that pass through powerhouses (PITPH). The CSS model predicts that Smolt-to-Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% (within the Northwest Power and Conservation Council's recovery targets for the region) as a result of the Preferred Alternative.
6544	7	srkiefer@cableone.net	N/A	Additionally, Im concerned that the lack of detectable improvements in SARs from implementing the preferred alternative will be used raise doubt about the likelihood that springtime spillway crest drawdown or dam breach would substantially improve SARs.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide meaningful benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the CRS. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. The Preferred Alternative is predicted to benefit salmon and steelhead. It also meets the other objectives for resident fish, hydropower, water management, and water supply, while minimizing adverse impacts to communities and the economy. The CSS model predicts that average Smolt-to-Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% (within the Northwest Power and Conservation Council recovery targets for the region) as a result of the Preferred Alternative. The NMFS COMPASS and Lifecycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin.
6544	8	srkiefer@cableone.net	N/A	II. Biases in favor of commercial status quo and the preferred alternative: Combining all listed Chinook and steelhead from the Columbia Rivers in one EIS, detracts and dilutes the focus from the unique issues and options for recovery between the Snake and upper Columbia populations.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA listed species. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-lead agencies numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the EIS objectives) as well as the EIS objectives for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. The Preferred Alternative is also more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% (the lower end of Northwest Power and Conservation Council's recovery targets for the region) as a result of the Preferred Alternative, as a result of the Preferred Alternative increasing SAR from 2.0% to 2.7% for Chinook, a 35% relative increase. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. To address uncertainty highlighted by the two models, the Preferred Alternative includes working with regional sovereigns to develop a study that assess the effectiveness of the increased spill regime on adult returns as well as assessment and management of adverse unintended consequences, such as long delays of adult migrants, or TDG-related mortality of juvenile migrants. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information. The Preferred Alternative will make a meaningful contribution towards recovery.
6544	9	srkiefer@cableone.net	N/A	Discussing historic floods in the Introduction is unnecessary; and without highlighting that none of the alternatives considered substantially affect CRS flood control reinforces the misconception by some that the four lower Snake dams provide substantial flood control. I recommend that the two sentences about large historic floods be removed. The last sentence of the paragraph must be changed to something like. Today, the CRS provides flood risk management for communities along the river, and none of the alternatives considered, including breaching the four lower Snake Dams, would substantially affect this critical role of the CRS.	Maintaining FRM operations of the Columbia River System has informed both the alternative development and evaluation process. As stated in the Purpose and Need Statement of the EIS (Section 1.2), one of the purposes of the EIS is to 'Provide for a reliable level of FRM by operating the CRS to afford safeguards for public safety, infrastructure, and property'. As stated in Chapter 1, Section 1.2 of the EIS, the lower Snake dams are not authorized for flood risk management, and as reported in Section 3.9, Section 7.7.11, and Table 7-1, there is no elevated flood risk for any of the EIS Alternatives.
6544	10	srkiefer@cableone.net	N/A	The transportation paragraph reads like it was written by industry lobbyist to make the perceived importance of the four lower Snake Dams to farmers much greater than reality, without being technically incorrect. The second sentence needs to be changed to something like. Barges transport between 50 and 60 million tons of cargo each year on the CRS, with the lower Snake River beginning near Lewiston, Idaho, and Clarkston, Washington accounting for between X and Y million tons of this total. The third sentence should be deleted. Farmers would still be allowed to export crops to overseas markets no matter what alternative is selected.	The commenter correctly pointed out a unintentionally misleading statement in the Executive Summary. The Columbia-Snake River system, not solely the Snake River, carries 50 to 60 million tons of cargo each year. This has been corrected in the FEIS.
6544	11	srkiefer@cableone.net	N/A	It appears the October 19, 2018 Presidential Memorandum to shorten the timeline to prepare the EIS from 3 to 2 years was made for partisan political reasons to favor current industrial uses of the CRS. The decision to primarily compress the schedule between the draft EIS and the signing of the record of decision will result in the public and entities outside of the co-lead agencies having much less ability to affect the final EIS and help you produce one that is regionally accepted and actually balances the costs/benefits to the region, including recovering the fish.	This NEPA process included a wide array of cooperating agencies whose close involvement throughout the process allowed the co-lead agencies to incorporate feedback. Given the broad range of comments received to date and the extensive Federal and non-Federal participation in the overall process as well as the level of public engagement in the six virtual public meetings in the region, the co-lead agencies determined that an extension was not warranted and that the 45-day public comment period was adequate consistent with NEPA regulations. The CRSO EIS website notified the public on April 9, that they should plan to submit comments by the close of the comment period. In terms of recovery of salmon and steelhead, the co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the EIS objectives) as well as the EIS objectives for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. The Preferred Alternative is also more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% (the lower end of Northwest Power and Conservation Council's recovery targets for the region) as a result of the Preferred Alternative, as a result of the Preferred Alternative increasing SAR from 2.0% to 2.7% for Chinook, a 35% relative increase. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. To address uncertainty highlighted by the two models, the Preferred Alternative includes working with regional sovereigns to develop a study that assess the effectiveness of the increased spill regime on adult returns as well as assessment and management of adverse unintended consequences, such as long delays of adult migrants, or TDG-related mortality of juvenile migrants. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information. The Preferred Alternative will make a meaningful contribution towards recovery. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the Columbia River System. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species.
6544	12	srkiefer@cableone.net	N/A	There are several concerns with the discussion of water temperatures. It should be highlighted that increasing summertime water temperatures already dramatically increased migration mortality for Snake River sockeye in 2015, and these conditions are predicted to be more common and get worse. It should be highlighted that the summertime cold water releases from Dworshak would be much more effective with the breach alternative. The following statement is disappointing. There is also regional controversy over the role the federal projects may play in contributing to higher water temperatures. Once again by combining the temperature effects of the upstream storage projects and the mainstem run-of-river hydro projects, this draft EIS deflects and distracts from the fact that the mainstem run-of-river hydro projects results in more heating of water entering them by slowing the flow and creating more surface area than would occur with breach.	Regarding water temperatures under dam breach scenarios, our analysis of MO3, which includes breaching the four Snake River dams, shows that some cooler water temperatures may be observed in the summer under dam breaching, especially during cooler summer weather conditions and at night, water temperatures will remain warm and exceed the state water quality standard at times. This is because without the dams, the lower Snake River will be shallower and more susceptible to solar radiation and warming. Increases in water particle travel time are expected, but the lower Snake River has always been a warm system (USGS 1960, 1961, 1964; Corps 2002a) and breaching the dams will not change this fact. Regionally high air and water temperatures result in water quality standard exceedances and are beyond the ability of the CRS to cool; future climate change predictions will result in even more difficult challenges. The water temperature model used to analyze all EIS alternatives underwent review by experts outside of the co-lead agencies, including scientists from the US EPA, USGS, and Portland State University. In addition, the US EPA and co-lead agencies worked together to compare the co-lead agencies' CE-QUAL W2/RAS model (used for EIS analysis) and the EPA's RBM-10 model (used for the draft TMDL assessment). Efforts included identifying and comparing similarities and differences in the two models and assessments, and concluded that both models provide useful and technically appropriate analyses of the lower Columbia River and lower Snake River water temperatures. As such, the EPA agrees with the co-lead agencies that the CE-QUAL W2 and HEC RAS models are appropriate to use in developing the Draft EIS (see EPA review comment letter # 16-0059).

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6544	13	srkiefer@cableone.net	N/A	Including the following section in the MO4 section without including it in the dam breach alternative section suggests bias and must be corrected. This analysis is based largely on existing technology and the regions existing resource portfolio. Future technology developmentssuch as advances in utility-scale storage, demand management, adding voltage support capabilities to wind or solar, other emerging renewable options like tidal or wave power, small modular nuclear reactors, pumped storage, and technologies not yet in the public eyemay reduce the need to rely on fossil-fuel power for integrating variable renewable resources.	The comment is implying that there is bias in the Executive Summary description of MO3 and MO4 because the MO4 section describes a list of renewable technologies. However, contrary to the comment, the statement that technological advances and other potential low-carbon power options may become available in the future is consistent with the description of MO3 emissions effects in the Executive Summary. In the Draft EIS, see page 27 of the Executive Summary. The EIS acknowledges that the energy sector is constantly undergoing transformation and that technological improvements will likely bring other options. To avoid speculation, the EIS analysis focuses on primary technologies identified by the Northwest Power and Conservation Council (Council) in their Seventh Power Plan (page 13-5) that are deemed proven, commercially available, and deployable on a large enough scale in the Northwest. In the Draft EIS, see Section 3.7.3.1, Step 3: Determine Need for Potential Replacement Resources and Associated Costs, page 3-821; and Appendix H, Power and Transmission, at Section 2.2. While the EIS specifically identified two portfolios, it evaluated all primary technologies from the Seventh Power Plan to identify the most cost-effective resources at improving regional reliability. After identifying the most cost-effective resources, the EIS analyzed two resource portfolios to replace the hydropower generation of the lower Snake River dams, both of which maintain regional power system reliability. One portfolio contains natural gas power and the other was a renewable portfolio of solar, storage and demand response. See Section 3.7.3.5, pages 3-904-910 of the Draft EIS.
6544	14	srkiefer@cableone.net	N/A	Many of the dire statements on the impacts to industrial users from breaching the four lower Snake Dams are clearly overstated, and some are just false. Some examples are as follows: 1) MO3 would not meet the objective to Provide a Reliable and Economic Power Supply. This statement is false. One option described is to replace the power from these dams with natural gas. If natural gas was selected, this would provide a more reliable power supply at similar costs to consumers. Private industry has added many times the average output from the lower Snake Dams in the past 20 years. If dam breach was selected, it would take several years to implement. If the co-lead agencies did nothing to replace this power, private industry would see the coming demand, and replace it at similar costs to consumers.	The commenter is correct that the EIS evaluated a natural gas replacement resource portfolio. The EIS also considered two financing scenarios, one in which Bonneville would finance the resources and another where financing would come from regional utilities. Under both of these scenarios, replacing the lost hydropower would increase costs compared to the No Action Alternative. See Section 3.7.3.5, at 3-918-924 of the Draft EIS; see also Table 3-166 of the Draft EIS. While the commenter is correct that private industry could build new power resources, many Bonneville customers acquire all or almost all of their power from Bonneville and the FCRPS as opposed to private industry and the open market.
6544	15	srkiefer@cableone.net	N/A	2) MO3 would more than double the regions risk of power shortages compared to the No Action Alternative. This statement is also false for the same two reasons as above. The co-lead agencies could develop a breach alternative with objectives to maintain or improve reliability at similar costs to consumers. Ideas could include combinations of the following; increased efforts to conserve power, short term storage of hydropower in batteries at night for use during daytime, long term storage as hydrogen produced by splitting water when excess hydropower or other renewable are available. Subsidize the development of regional powerplants that use methane produced in manure digesters at large CAFOs (dairies and feed lots). None of these ideas would increase green house gas emissions, and the manure digesters would actually reduce overall green house gas emissions.	The statement that MO3 would more than double the regions risk of power shortages compared to the No Action Alternative is consistent with the findings of the EIS before replacement resources are constructed. See Section 3.7.3.5, Effects on Power System Reliability, page 3-903; and Appendix H, Table 2-1 in the Draft EIS. The EIS analyzes potential replacement resources as described in Section 3.7.3.1. The comment suggests a variety of potential power resources that could support reliability and reduce emissions. The EIS acknowledges that the energy sector is constantly undergoing transformation and that technological improvements will likely bring other options. To avoid speculation, the EIS analysis focuses on primary technologies identified by the Northwest Power and Conservation Council (Council) in their Seventh Power Plan (page 13-5) that are deemed proven, commercially available, and deployable on a large enough scale in the Northwest. See Section 3.7.3.1, Step 3: Determine Need for Potential Replacement Resources and Associated Costs, page 3-821; and Appendix H, Power and Transmission, at Section 2.2 in the Draft EIS. Biogas technologies, such as the digesters mentioned in the comment, are not one of the primary resources identified by the Council, and were thus excluded. See Section 3.7.3.5, Potential Replacement Resources and Associated Costs, for additional details on the replacement resource portfolio identified for MO3.
6544	16	srkiefer@cableone.net	N/A	3) This statement appears to be overstated. the conventional, least-cost resource replacement would include 1,120 megawatts (MW) of combined cycle natural gas turbines at an overall cost of about $200 million a year. Private industry has developed more than 1,120 megawatts of natural gas turbines in the region over the past decade at similar costs to the consumers. Are you saying that since consumers would be paying similar amounts, but more to private industry instead of BPA, that it is a cost?	As described in Section 3.7.3.5 of the draft EIS, Potential Replacement Resources and Associated Costs, replacement resource costs would directly affect regional end-user power rates, regardless of whether Bonneville or public utilities themselves acquire replacement resources. See draft EIS, Section 3.7.3.5, at 3-918-924 and Table 3-166. The source of resource information used in the EIS, such as the cost of combined cycle natural gas power plants, is the Northwest Power and Conservation Council's 7th Power Plan and Mid-term update. See draft EIS, Section 3.7.3.1, Step 3: Determine Need for Potential Replacement Resources and Associated Costs at page 3-821 and Appendix H, Power and Transmission at Section 2.2. Additional information on resource selection can be found in Appendix H and the specific costs of natural gas power plants can be found in Table 2-3 of Appendix H in the draft EIS.
6544	17	srkiefer@cableone.net	N/A	4) This statement is false: MO3 would also not meet the objective to Minimize GHG Emissions. While I believe this draft greatly overstates the costs, the preceding paragraphs describe how MO3 could be accomplished while meeting this objective. Considering how options would affect global warming is very important. However, this draft EIS is missing one important component in this consideration. That is, the impacts to carbon sequestration from alternatives that would result in wild salmon and steelhead recovery, maintaining wild populations as museum pieces, or causing them to go extinct.	Sections 3.7.3 and 3.8.3 of the Draft EIS consider two alternative replacement resource portfolios to replace lost power generation due to breaching the four lower Snake River dams under Multiple Objective Alternative 3 (MO3). One of these portfolios relies solely on building or acquiring renewable resources for replacement, finding that this scenario still results in some increase in greenhouse gas (GHG) emissions, for example due to the need to maintain reliability during periods when the renewable resources could not ramp up to meet power demand. With respect to the influence of salmon on carbon sequestration, Section 3.5 identifies that fish migration through the lower Snake River corridor would improve under MO3. Section 3.5.2.3 in the Draft EIS recognizes that anadromous fish deliver resources that affect food web productivity and influence flora and fauna across the Columbia River Basin. This indicates that, in some areas, MO3 would likely improve landscape carbon sequestration. However, in other areas, MO3 may reduce landscape carbon sequestration. As described in Section 3.6.3.5 in the Draft EIS, lower water levels in the spring and early summer in some areas under MO3 would reduce productivity in some existing emergent herbaceous and forested and scrub-shrub wetlands. The overall effect of MO3 on landscape level carbon sequestration across the Basin is uncertain.
6544	18	srkiefer@cableone.net	N/A	5) Of these two back-to-back statements; the first is overstated, and the second is false. there would be adverse impacts to irrigation in the lower Snake River borne by other public and private entities due to dam breaching. Assuming 47,926 acres were no longer irrigated. There are 14 agri-businesses that pump water from Ice Harbor pool. All that needs to be done is to extend their pipes and buy them larger pumps. This land will still be irrigated.	This EIS discusses engineering solutions (pipeline extensions for example) in Chapter 3.12 section 3.12.3 Environmental Consequences - Specifically under Region C under the MO3 alternative (see line page 3-1267 line 3244 in the Draft EIS) and in Appendix N. The report which this EIS draws upon, as discussed, concluded that modifying the existing pump system was cost prohibited. NEPA requires that all relevant, reasonable mitigation measures that could diminish the adverse impacts of the project be identified in the document, even if they are outside the jurisdiction of the lead agency or the cooperating agencies. See 40 C.F.R. 1502.16(h) and 1505.2(c); 46 Fed. Reg. 18026. However, the co-lead agencies do not have authority to provide mitigation for the effects to private infrastructure such as irrigation pump systems.
6544	19	srkiefer@cableone.net	N/A	6) The first sentence in the MO3 transportation section and many of the statements clearly overstate the effects. Major adverse effects would be anticipated under MO3. It appears that the draft EIS assumes that most of the commodities (primarily grain) that are transported in barges on the lower Snake River would still be transported through the Lewiston area. Grain grown in the interior US that is now transported in trucks on HW 12 to take advantage of the heavily subsidized barge system, would likely either use interstate 90 to Seattle, or travel shorter distances and be barged on the Mississippi system. Much of the grain grown regionally would be trucked shorter distances by the farmer to closer rail terminals instead of being trucked further to take advantage of the cheaper more subsidized barge system. Estimating increased highway maintenance costs without including increased gas tax revenue is biased.	The transportation optimization model utilized in the EIS evaluates how trade flows would be expected to change with loss of barge transportation. The uniqueness of the wheat in eastern Washington and its Asian markets, means that little shifting to midwest barge transportation and markets will occur. Increases in truck trips as well as increases in road infrastructure costs are included in Section 3.10.3.5. The marginal increase in gas tax receipts that may accompany this increase has been added to this Section.
6544	20	srkiefer@cableone.net	N/A	7) This statement is overstated and likely false. Adverse regional economic effects would occur If you compare the economic growth of the Lewiston/Clarkston area over the past 70 years to similar sized communities 70 years ago, it appears that the four lower Snake Dams have actually depressed the economy of the area. Future economic growth will occur by people who can build and work were they want to live, and more people will want to live in the area with a free flowing Snake River and abundant salmon and steelhead, than with barge ports and at best occasional limited fisheries for hatchery fish.	It is not clear what statement the commenter is referring to in particular. However, The EIS provides an evaluation of the social welfare and regional economic effects of the No Action Alternative and the Multiple Objective alternatives, including the effects on recreation (Section 3.11) and fisheries (Section 3.15). The EIS described the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. NMFS estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which is described qualitatively. For the effects on recreational fishing under MO3 (Section 3.11.3.5) along the lower Snake River below Lewiston, the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River) as an indicator for fishing visitation in this reach. The EIS describes that the visitation in the long-term in the lower Snake River, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting outfitting and tourism businesses in the region. The social welfare values and regional economic effects associated with recreational fishing under the MOs, as well as river recreation post dam breach under MO3, were not estimated because of the uncertainty and large range in visitation and consumer surplus values among users.
6544	21	srkiefer@cableone.net	N/A	8) The following statement is false. For water quality, water temperatures would be warmer in the summer. The cold water releases from Dworshak will be more effective at cooling the Snake River all the way down to the Columbia with a natural river as compared to current conditions where it is warmed up more as it spread out and slowed down as it moves through the reservoirs. With Dworshak operated the same as in the preferred alternative, how much longer would it take the cool water at the confluence of the Snake and Clearwater rivers to reach the Columbia, how much more would it heat up by the time it gets there? I disagree that the preferred alternative protects valuable fish and wildlife resources. As I have stated earlier, I believe the CSS model estimates of 35 to 28 percent increases in SARs from only modest decreases in average powerhouse passage rates are likely too high. Even with these estimated increases in SARs I believe are too high, given the likely range and variability of ocean productivity, wild Snake River stream type Chinook, sockeye, and steelhead would still be in jeopardy of extinction.	The water temperature analysis specific to MO3 (the dam breaching scenario) utilized the Dworshak CE-QUAL W2 (2-dimensional model) and the lower Snake River HEC-RAS (1-demesional models) to predict water temperatures under a dam breach scenario, while incorporating operations at Dworshak Dam for downstream water temperature management. No Action Dworshak operations were used in the MO3 analysis. Results were provided to the fish team for incorporation into COMPASS and CSS modeling and other analysis to evaluate the impacts to anadromous fish. Future dam breaching analysis may provide an opportunity to investigate Dworshak Dam operations further, but this would need to occur outside of the EIS process and under a more appropriate study framework. However, even with the dams breached, maximum summer water temperatures would exceed state water quality standards (20C) at times, especially during hot weather events. Regarding the CSS model statement, the co-lead agencies used current high quality information and the best available science in the analysis of the CRSO EIS. Specific to salmon and steelhead, the agencies used two primary modeling approaches which yielded a range of potential outcomes for the alternatives. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% (within the Northwest Power and Conservation Council's recovery targets for the region) as a result of the Preferred Alternative. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. The average outcome for salmon and steelhead is expected to be positive based on CSS analysis.
6547	1	clopresti@owt.com	N/A	It's better to clean up Puget Sound first, in my opinion, before breaching the Lower Snake River Dams.	Thank you for your comment. Cleaning up Puget Sound is outside the scope of this EIS, which focuses on CRS operations, maintenance and configuration. However, water quality effects for the Columbia River Basin were considered in the EIS analysis and are described in Chapter 1, 2, and Section 7.8.3 of the EIS. Additionally, the U.S. Army Corps of Engineers is in partnership with other Federal, state and non-governmental organizations and have been implementing habitat projects for salmon, orcas, and wildlife all around the Puget Sound as part of the Puget Sound Nearshore Ecosystem Restoration Project.
6550	1	N/A	N/A	The DEIS does not acknowledge the importance of the Columbia basin salmon to the Southern Resident Killer whales, whose very survival depend on the healthy Chinook salmon runs and fails to mention the SRKW in their executive summary. These whales need to be able to access salmon from different river systems at different times in order to survive and they rely heavily on the Columbia River during their time on the outer coast which is up to 6 months of the year, Columbia Spring Chinook being of particular importance.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. The EIS analysis found that only a minor effect to the Southern Resident killer whale would result from implementing MO3 (which includes the dam breach measure). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differentially from hatchery and wild fish. Hatchery fish today likely make up most fish consumed by SRKW (NOAA BiOp 2020).

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					The EIS analysis of the Preferred Alternative determined the overall effect to SRKW to be negligible in large part because hatchery production is consistent between the No Action Alternative and the Preferred Alternative. Because the impact from the Preferred Alternative was determined to be negligible, the agencies determined that existing hatchery production would be sufficient to address any potential impacts to prey availability for SRKWs. The co-lead agencies note the contribution to the prey of SRKW through the continued existence of their respective independent congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as the Lower Snake River Compensation Plan, which is administered by U.S. Fish and Wildlife Service. The Preferred Alternative and Proposed Action in the agencies' biological assessment carry forward certain mitigation measures described in Chapters 2 and 7 of the EIS, which include continued salmon and steelhead hatchery production. The Preferred Alternative has negligible effects to SRKWs as described in Section 7.7.8.
6554	2	mdeen@ppcpdx.org; Scott Simms	Public Power Council; Public Power Council PPC	While the co-lead federal agencies present a well-defined preferred alternative, PPC remains concerned about the additional costs and biological uncertainty that this preferred alternative may engender. Going forward, close monitoring and adaptive management will be required. We will need certainty and clarity about co-lead agency mileposts and transparency regarding actual performance of the preferred alternative against co-lead agency stated objectives. Solutions will have to be found to ensure that preference customers do not solely bear incremental costs that provide broader social and environmental benefits.	The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the biological models and will help to determine how effective increased spill can be in increasing salmon and steelhead returns to the Columbia Basin. The effectiveness of the spill program will be monitored, as will the effects to generating resources around the basin. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information. In developing a Preferred Alternative, the co-lead agencies considered the need for an adequate, efficient, economical and reliable power supply, combined with the need to meet other authorized CRS purposes. The agencies additionally committed to mitigating for impacts to fish and wildlife impacted by CRS operations, maintenance and configuration. The financial responsibility for the costs of the measures included in the Preferred Alternative is not solely allocated to Bonneville's power ratepayers. Fish mitigation costs are assigned to each authorized project purpose based on each purposes overall share of project costs, as determined by an established cost allocation, and this allocation is recovered through power rates. Bonneville is required to pay for its share of mitigation costs based on the existing cost allocation. Congress also granted Bonneville discretion to fund the power share directly to the Corps and Reclamation as part of the Energy Policy Act of 1992, in some situations, including the Columbia River Fish Mitigation program. (Energy Policy Act of 1992, Pub. L. No. 102-486, 2406, 106 Stat. 2776, 3009 (1992) (codified at 16 U.S.C. 839d-1 (2012)). Additionally, as described in Section 3.19 of the EIS and Appendix Q, funding to operate the system comes through multiple mechanisms, including Federal tax dollars appropriated to cover system costs as well as revenue generated from the marketing and sale of hydropower. For power-specific costs, Bonneville typically provides direct funds to both the Corps and Reclamation. For joint related costs, including funding for fish and wildlife mitigation actions, the Corps and Reclamation receive annual congressional appropriations to fund most, if not all, capital investments. Bonneville reimburses the U.S. Treasury for the power share of these appropriations. Once the investment is in place, Bonneville will typically direct fund the power share of the operations and maintenance costs associated with the facility. In addition to congressional appropriations for fish and wildlife and costs directly funded to Corps and Reclamation by Bonneville, the Bonneville Fish and Wildlife Program (which is separate and distinct from direct funding described above) funds hundreds of projects each year to mitigate the impacts of the Federal hydropower system on fish and wildlife. Bonneville began this program to fulfill mandates established by Congress in the Pacific Northwest Electric Power Planning and Conservation Act of 1980 to protect, mitigate, and enhance fish and wildlife affected by the development and operation of the Federal Columbia River Power System (FCRPS). Bonneville uses its authority under 16 U.S.C. 839b(h)(10)(A), to make expenditures to implement its Fish and Wildlife Program. These expenditures provide system-wide funding for actions that also mitigate for the non-power purposes of the CRS, so Bonneville recoups the non-power share of those expenditures from the U.S. Treasury as credit, as required under 16 U.S.C. 839b(h)(10)(C). Bonneville's Fish and Wildlife Program expenditures incurred mitigating the CRS operations identified in the Final EIS and adopted in Bonneville's Mitigation Action Plan would continue to be allocated and borne as provided by existing laws governing the FCRPS and the long-standing accounting procedures used to implement them.
6554	3	mdeen@ppcpdx.org; Scott Simms	Public Power Council; Public Power Council PPC	With the completion of the Final EIS, a follow-on public process should be established by BPA or the co-lead agencies, as appropriate, to periodically share specific performance outcomes of the preferred alternative. If necessary, from that process, BPA or the co-lead agencies should create engagement opportunities for any significant adaptive management steps that are needed to better align system performance to the preferred alternative objectives.	Thank you for your comment. The co-lead agencies plan on continuing stakeholder involvement through the various regional forums and public outreach. As mentioned in the Appendix R, Part 1, there is robust, ongoing monitoring and adaptive management for eh Preferred Alternative. In Part 2, Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS,co-lead agencies would publish annual report of implementation activities, stakeholder participation, and management review findings.
6554	4	mdeen@ppcpdx.org; Scott Simms	Public Power Council; Public Power Council PPC	The primary focus of Northwest public power is assuring that any new costs resulting from the governments process are equitably allocated and not borne exclusively by BPAs public power customers. To the extent the preferred alternative results in additional costs allocated entirely to public power, it is time to find ways to build on existing federal law to more broadly share these regional costs. Not only is it appropriate to equitably align cost responsibility with public benefits but doing so also recognizes the regions shared stake in both fish recovery and the financial health of BPA.	The financial responsibility for the costs of all of the measures included in the Preferred Alternative is not solely allocated to Bonneville's power ratepayers. Fish mitigation costs are assigned to each authorized project purpose based on each purposes overall share of project costs, as determined by an established cost allocation, and this allocation is recovered through power rates. Bonneville is required to pay for its share of mitigation costs based on the existing cost allocation. Congress also granted Bonneville discretion to fund the power share directly to the Corps and Reclamation as part of the Energy Policy Act of 1992, in some situations, including the Columbia River Fish Mitigation program. (Energy Policy Act of 1992, Pub. L. No. 102-486, 2406, 106 Stat. 2776, 3009 (1992) (codified at 16 U.S.C. 839d-1 (2012)). Additionally, as described in Section 3.19 of the EIS and Appendix Q, funding to operate the system comes through multiple mechanisms, including Federal tax dollars appropriated to cover system costs as well as revenue generated from the marketing and sale of hydropower. For power-specific costs, Bonneville typically provides direct funds to both the Corps and Reclamation. For joint related costs, including funding for fish and wildlife mitigation actions, the Corps and Reclamation receive annual congressional appropriations to fund most, if not all, capital investments. Bonneville reimburses the U.S. Treasury for the power share of these appropriations. Once the investment is in place, Bonneville will typically direct fund the power share of the operations and maintenance costs associated with the facility. In addition to congressional appropriations for fish and wildlife and costs directly funded to Corps and Reclamation by Bonneville, the Bonneville Fish and Wildlife Program (which is separate and distinct from direct funding described above) funds hundreds of projects each year to mitigate the impacts of the Federal hydropower system on fish and wildlife. Bonneville began this program to fulfill mandates established by Congress in the Pacific Northwest Electric Power Planning and Conservation Act of 1980 to protect, mitigate, and enhance fish and wildlife affected by the development and operation of the Federal Columbia River Power System (FCRPS). Bonneville uses its authority under 16 U.S.C. 839b(h)(10)(A), to make expenditures to implement its Fish and Wildlife Program. These expenditures provide system-wide funding for actions that also mitigate for the non-power purposes of the CRS, so Bonneville recoups the non-power share of those expenditures from the U.S. Treasury as credit, as required under 16 U.S.C. 839b(h)(10)(C). Bonneville's Fish and Wildlife Program expenditures incurred mitigating the CRS operations identified in the Final EIS and adopted in Bonneville's Mitigation Action Plan would continue to be allocated and borne as provided by existing laws governing the FCRPS and the long-standing accounting procedures used to implement them.
6554	5	mdeen@ppcpdx.org; Scott Simms	Public Power Council; Public Power Council PPC	The economic, environmental, and operational benefits of the Federal Columbia River Power System (FCRPS) as it exists today should be properly considered and accounted for. Hydropower is a 24/7 clean renewable source that is vital to meeting the regions carbon goals, which continue to strengthen as societys concerns about carbon intensify. A recent study published in the Proceedings of the National Academy of Sciences (PNAS) concluded that among the countrys 20 largest electric regions, the BPA hydropower-based system resulted in the Pacific Northwest region producing and using the cleanest energy in the nation. FCRPS hydropower is also a flexible resource that enables the region to meet future sustainability goals by integrating intermittent renewable resources like wind and solar onto the grid. The flexible capacity that the FCRPS provides will only increase in demand and value as state legislation, policies and economic or other factors drive the retirement of fossil-fueled base load resources and replace them with intermittent renewable generation. The FCRPS projects are a key part of reliable and affordable grid operations and cannot be replaced at low cost by intermittent renewable resources. The value of capacity and reliability of the power produced by these projects has to be properly accounted for.	The comment makes multiple statements regarding the benefits of regional hydropower for clean energy goals and power system reliability. The statements are largely consistent with the findings and discussions in the EIS such as the role of hydropower in greenhouse gas emissions, integrating renewables, and the flexibility of hydropower. The statement that the regional power sector is relatively clean compared to other regions of the country is also consistent with the EIS. See draft EIS, Table 3-199 at page 3-977. While the EIS uses the resource cost information from the Northwest Power and Conservation Council to estimate the potential range in costs of replacement resources, this does not cover all of the characteristics of the four lower Snake River dams. As described in Section 3.7.3.5 of the EIS, for the Lower Snake River Full Replacement, Bonneville used BP-20 to assess the value of flexibility. The EIS acknowledges that there would be more demand for generation flexibility and the ability to carry reserves in the power system as coal plants retire and flexible resources are needed to integrate new variable renewable resources. As a consequence of the increase in demand for flexibility to provide reserves, the value of this capability is likely to increase. The EIS partially reflects the costs of acquiring this additional flexibility in the rate sensitivity analysis. For additional information, see the Integration Services sensitivity (reflecting the cost of additional balancing reserves needed to integrate replacement renewable resources) and the Ramping and Flexibility sensitivity (reflecting the cost of additional ramping and sustained peaking capacity needed in Multiple Objective Alternative 3) in Section 3.7.3.1 of the EIS.
6554	6	mdeen@ppcpdx.org; Scott Simms	Public Power Council; Public Power Council PPC	As community-owned, non-profit entities, public power utilities are particularly mindful of their public service mission and obligations to all people they serve. Public power utilities serve many individuals and communities that are struggling. In both urban and rural locations, public power utilities fund substantial low-income assistance programs. In our modern economy, electricity has become an essential public service. We need to be mindful that policy changes that adversely impact the hydro system will result in higher costs for the regions ratepayers, which puts some urban and rural ratepayers at a higher risk that they wont have access to this essential public service.	The comment that increases in utility costs can adversely affect vulnerable groups is consistent with discussions in the EIS. The wholesale power rate effects described in the comment are consistent with the findings of the EIS. The EIS recognizes concerns around the affordability of electricity. The Environmental Justice analysis (Section 3.18.3 and Section 7 of the EIS) provides further detail on this as well as the potential disproportionate effects to tribal, low-income and minority populations. The EIS also discusses that Bonneville customers, such as the public utilities mentioned in the comment, may have larger increases in rate pressures than other regional utilities that do not purchase power directly from Bonneville. See draft EIS, Section 3.7.3.5, Residential Effects at page 3-929. Chapter 5 and Exhibit 1 of Appendix H, Power and Transmission, provides additional details on potential rate increases by county as well as for urban and rural utility customers.
6554	7	mdeen@ppcpdx.org; Scott Simms	Public Power Council; Public Power Council PPC	The energy landscape and outlook in the West has evolved rapidly since 2017. Recent work by the Northwest Power Pool (NWPP) and NWPCC has highlighted growing resource adequacy issues in the region due in large part to the accelerated retirement of numerous coal resources. By the metrics of the NWPCCs most recent Power Supply Adequacy Assessment, the regions power supply may start to become inadequate by 2021. Without action, the chances of reliability events or blackouts increases alarmingly over the following five years. This concern about future resource adequacy is a consensus among regional utilities and experts. Utilities of all types have begun serious efforts through the NWPP to invest in new analytical capabilities and to find tangible and reliable solutions. Given these factors, the financial and rate impacts from the Base Case scenarios in the D-EIS are extremely conservative. Specifically, based on known regional resource retirements, any significant lost hydro capability from alternative FCRPS operations would need to be replaced in its entirety with new resources. At the same time, Oregon and Washington are advancing environmental policies that may make construction of new thermal generating resources difficult or impossible. These operational and policy realities need to be carefully considered, as they impact overall regional electric grid reliability and resource adequacy beyond that served by the FCRPS. As such, for the final EIS it is essential that cost impacts including expected coal retirements and replacement of lost hydro capability with new carbon free resources are the primary basis for comparison of the alternatives. The analysis in the D-EIS shows conclusively that degradation of the hydro system as contemplated in MO3 and MO4 would realistically cost the region up to $1 billion per year or result in substantial increases in GHG emissions. Highlighting this information in the final EIS is crucial for policymakers and the public in adequately understanding the substantial tradeoffs. PPC strongly supports carrying forward the analytical framework from the D-EIS to the final with further emphasis on the costs of fully replacing lost hydro capability. In addition, PPC would support additional information or analysis that can be provided to address erroneous and unsupported statements by certain stakeholders that the output of the Lower Snake River projects is surplus to BPA or regional needs, or is somehow being sold at a loss.	The EIS acknowledges that the energy sector is constantly undergoing transformation. The commenters statement that planned additional coal power retirements would decrease power reliability in the region is consistent with the findings in the EIS. Existing coal projects were presumed to be online when developing the No Action Alternative. See draft EIS, Section 3.7.3.1, Base Case Methodology and Cost Sensitivity Analysis at page 3-816 and at 3-823. Since development of the base case analysis of the Draft EIS, additional coal retirements have been announced. To address this concern, the EIS considered various sensitivity analyses as well as examined two potential coal retirement scenarios. See draft EIS, Section 3.7.3.1, Availability of Coal Resources at pages 3-841-842 and, Section 3.7.3.2, Table 3-123. The statement that replacement resource costs could be up to $1 billion per year is consistent with the findings of the EIS, and the rate sensitivities estimate the potential regional cost pressures from carbon compliance and coal retirements under Multiple Objective (MO) Alternative 3 and MO4. See draft EIS, Table 3-166 and Table 3-182. Consistent with the recommendations in the comment, the EIS also acknowledges that, given recent energy policy, carbon-free resources are the more likely replacement resource portfolio. See draft EIS at line 29666 at page 3-988.
6554	8	mdeen@ppcpdx.org; Scott Simms	Public Power Council; Public Power Council PPC	PPC also requests that the final EIS include more information on the availability of incremental energy efficiency. We have observed that certain stakeholders mistakenly assert that the lost hydropower generation could easily or inexpensively be replaced with energy efficiency when, in fact, BPA and regional utilities are already pursuing all cost- effective measures. PPC requests that the final EIS include additional output from GENESYS describing expected unserved energy from modeled reliability impacts. Finally, any additional information or analysis regarding the secondary environmental impacts of the renewable portfolios would be helpful. This could include factors such as land use, avian impacts, service life of equipment, and required input resources such as minerals or metal.	Based on responses to public comments, the final EIS contains an expanded description of how the potential replacement resource portfolios were selected for the EIS. (See Section 3.7.3.1 and Chapter 2 of Appendix H). The EIS power analysis included all cost-effective conservation identified by the Northwest Power and Conservation Council (Council) in the load forecasts analyzed in the power analysis (Section 3.7). All cost effective conservation in the region is assumed to be acquired consistent with existing law and mandates regardless of the status of the four lower Snake River dams. The Councils estimated available efficiency gain projection is not a potential replacement resource for the lost capability from the four lower Snake River dams. The EIS also includes a short description of why additional conservation is not assumed as a potential replacement resource even in the alternative where power prices are likely to increase. To maintain regional reliability at the No Action Alternative levels, other types of replacement resources are needed. Appendix H, Section 2.2 of the Final EIS provides additional details regarding energy efficiency and the selection of replacement resources. The EIS analyzed Conditional Value at Risk (CVaR), which evaluates the amount of monthly average energy not served in the worst 5 percent of Loss of Load Probability (LOLP) simulations. Chapter 4 of Appendix J summarizes the CVaR results. The EIS did not analyze expected unserved energy (EUSE), which is similar to CVaR. EUSE is the average energy not served averaged over all of the LOLP simulations. Thus CVaR focuses on the years with the largest impacts. Regarding other impacts from replacement resource portfolios, the EIS discusses the potential land use of solar replacement resources and the potential for impacts on natural and cultural resources (e.g., Multiple Objective Alternative 3 discussion at line 27296 at page 3-904 of the draft EIS). The EIS also acknowledges that any acquisition of resources would require additional site-specific environmental compliance, including NEPA analyses, permitting, and a potential statutory process to allow

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					Bonneville to acquire resources. In response to this and other public comments, Chapter 2, Section 2.2.4 in Appendix H of the Final EIS includes a more detailed description of the process and timeline for acquiring new resources. This section includes a discussion of the environmental review process associated with new resources and acknowledges potential environmental impacts associated with new renewable generation as mentioned in the comment.
6554	9	mdeen@ppcpdx.org; Scott Simms	Public Power Council; Public Power Council PPC	Opportunity for Comment and Public Engagement The co-lead agencies have invested substantial resources to produce a comprehensive analysis in combination with understandable narrative at different levels of expertise and subject matter knowledge. This includes an accessible Executive Summary providing an overview as well as much more in depth analytical chapters and appendices. The initial scoping process was robust and resulted in a reasonable range of alternatives. This includes a comprehensive analysis of dam breaching, higher spill levels, and operations that increase hydropower generation. It would be infeasible to examine the infinite possible changes to CRS operations and structures, and the D-EIS provides sufficient analysis for decision-makers to understand the relative trade-offs of different alternatives and to make informed decisions. It is important to balance the need to make the D-EIS broadly available to the public and take public comment with the need to keep the NEPA process moving and prepare a final EIS that considers public comment. It is also crucial that the system operates pursuant to legally valid NEPA and Endangered Species Act (ESA) coverage. In balancing these obligations, the 45-day comment period that was noticed well in advance is adequate to provide meaningful feedback on the D-EIS analysis, especially when combined with other methods of participation. The plan for six public comment meetings was robust and provided opportunity for broad public participation. The move to teleconference in response to the COVID-19 crisis was prudent and actually increased accessibility. This was evidenced by the hundreds of verbal comments received from a wide range of organizations, demographics and interests. Additionally, there was adequate time available during the teleconferences for participants to provide multiple comments if desired.	Thank you for your comment.
6554	10	mdeen@ppcpdx.org; Scott Simms	Public Power Council; Public Power Council PPC	Power Generation and Transmission Analysis Accurate and comprehensive analysis of the power generation and transmission impacts of the alternatives is essential for public power customers and the region as a whole. The FCRPS is the backbone of the regional power system and provides its largest source of carbon free energy, capacity and flexibility. A reliable, affordable, and clean power supply is fundamental to the Northwest economy as well as to the health and safety of its residents. Meaningful analysis of operational alternatives requires understanding the differences in the energy, capacity, and flexibility that the FCRPS can provide. Reductions in capability must either be met with the redispatch of existing resources in the region or addressed through imports outside the region. The analytical choice of studying both thermal and new renewable resource portfolios provides meaningful information on the range of choices and costs of replacement resources. Further, the renewable resource portfolios based on the optimization of the Northwest Power Planning and Conservation Councils (NWPCC) 7th Power Plan represents a reasonable approach, including a diversified mix of wind, solar, and battery storage. There is no compelling reason to believe that a different mix or re-optimization would have a meaningful impact on outputs. The framework for Power Generation and Transmission analysis is robust and utilizes broadly accepted tools and inputs that have been thoroughly vetted in the region. Key tools include Hydsim for hydro generation, GENESYS for reliability, AURORAxmp for regional production costs, Gridview for transmission reliability, and the BPA Rates Analysis Model for wholesale power rate impacts. Inputs for demand and resource costs are reasonable. PPC also supports the range of metrics used to evaluate the economic and financial impacts of alternative operations. These outputs provide meaningful information on electricity rate impacts and a variety of views on the social, financial, and economic effects of changes to power and transmission resulting from alternative operations.	The comments about the importance of the Federal Columbia River Power System for regional power reliability and carbon emissions are consistent with the EIS findings. The statement that the EIS analyzed two resource portfolios to replace the hydropower generation, both of which maintain regional power system reliability, is also consistent with the methodology of the EIS. The discussion of the power analysis framework and the comment that the power analysis used a variety of industry standard models and considered a range of metrics is also consistent with the methodology of the power analysis. See EIS, Section 3.7.3.1, Methodology.
6554	11	mdeen@ppcpdx.org; Scott Simms	Public Power Council; Public Power Council PPC	Preferred Alternative Spill Levels are Untested and Need to be Monitored Despite the lack of evidence showing benefits to fish from increased spill, the Preferred Alternative continues to incorporate higher spill levels to improve SARs. Increasing spill to 125% of the Total Dissolved Gas (TDG) standard, as the Preferred Alternative suggests doing, may in fact harm the species it is meant to help. This level of TDG represents uncharted territory in the CRS, and it exceeds the recommendations set by the EPA. In trying to help juvenile salmon, spill may result in compromising resident fish, other river organisms, and salmon through Gas Bubble Trauma (GBT). In addition to GBT, spill operations can delay adult migration back upstream, harming the very fish the operations are most intended to assist. This outcome must be prevented. For these reasons, the D-EIS includes provisions to monitor for unintended consequences of the preferred alternative and adapt operations as needed. The D-EIS Monitoring and Adaptive Management Plan (MAMP) outlines an approach to accomplish this. PPC is supportive of the MAMP and believes that it is a central pillar to the EIS and future operations. The MAMPs inclusion of specific metrics, as well as a commitment by the federal agencies to a transparent and scientifically robust management process that incorporates new information as it becomes available will help to avoid the worst unintended consequences of spill. These metrics, as with other aspects of the MAMP, should continue to be updated as the action agencies gain more information about the effects of spill and other changes to system operations that are selected as part of the preferred alternative. It is essential that monitoring for GBT include adequate sample sizes that accurately represent the typical TDG exposure of juvenile fish populations. The commitment expressed by the federal agencies in the quote below, excerpted from the MAMP, is critical. From the D-EIS, Appendix R-6-1 lines 336-341: In coordination with sovereign parties with interests in CRS spill operations, the FSWG will design a long-term study plan to assess the impacts of high spill on latent mortality on Columbia and Snake River salmon and steelhead. The study will need to address the following criteria: Statistically meaningful results Within a reasonable timeframe While providing safe fish passage These principles can result in robust management and analysis that benefit salmon and other species. However, there is some ambiguity to them by design, as each criterion is open to discussion and interpretation as part of the adaptive management plan. Reasonable timeframe, statistically meaningful, and safe fish passage are not commonly agreed upon metrics, as stakeholders with different perspectives have different goals for these elements. PPC expects that discussions and decisions around these matters will be transparent, and that there will be clear logic behind the choices that are made and opportunities for stakeholder input through a structured process. For these reasons, while the MAMP and principles above are a good starting point, they will only be useful if they can be successfully executed. This requires that the co-lead agencies have the flexibility under the final EIS to adaptively implement the management plan and to regularly and broadly share progress against stated objectives. Governance processes must also include clear records of the benefits or outcomes that are prioritized and explanations of why.	TDG levels are regulated under the Federal Clean Water Act, and administered by the states. Both Oregon and Washington have reassessed the available data on effects of TDG levels up to 125% of saturation on fish and other aquatic organisms. Based on this reassessment Oregon issued a five-year "standard modification" and Washington issued a permanent rule change, supported by the Environmental Protection Agency (EPA), to allow TDG saturation up to 125%. However, as noted in the comment, there is considerable uncertainty in the effects; and therefore, monitoring was required by the states and EPA to ensure any negative effects are detected and allow for adaptive management. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. This will include additional monitoring for the effects of exposure to elevated TDG and will be developed with regional input to ensure adequate monitoring is in place for various lifestages of salmonids, as well as monitoring of non-salmonid species. As described in Appendix R, the co-lead agencies will implement the adaptive management framework utilizing the expertise of regional stakeholders within the context of the existing Regional Forum framework (e.g. RIOG, TMT, FPOM, etc). Results from implementation and biological studies will be discussed in public forums such as TMT and will also be posted on federal websites such as salmonrecovery.gov or similar sites. Existing governance processes will be maintained as federal agencies cannot delegate decision making authority for their authorized purposes.
6554	12	mdeen@ppcpdx.org; Scott Simms	Public Power Council; Public Power Council PPC	CSS and LCM Models Must be Calibrated and Validated PPC has significant concerns not only with the unintended consequences of increased spill, but also with the scientific and analytical approach used to arrive at those spill recommendations. The D-EIS Preferred Alternative and flex spill operations are primarily supported on the outcome of the Fish Passage Centers (FPS) Comparative Survival Study (CSS) model. While the D-EIS includes both the CSS model and NOAAs Life Cycle Assessment (LCM) model, the operations it proposes reflect benefits to anadromous fish predicted by the CSS model and not by the LCM model. Despite showing relatively similar results for in-river survival, powerhouse encounters, and other juvenile metrics for Snake River Spring Chinook, the two models diverge on expected smolt to adult returns (SARs). For MO4 and the Preferred Alternative, the CSS model predicts higher SARs than the No-Action Alternative, whereas the LCM model predicts lower returns than the No-Action Alternative. This is not just a matter of degree, but a directional contradiction. The models also do not agree on a starting point. They predict different returns from each other for the No-Action Alternative, which is the baseline against which all other results are compared. The models need to reflect reality before they can be trusted to estimate future conditions. The CSS and LCM models should be validated and calibrated to historical data to show that they can be relied upon to serve as inputs for the Final EIS. If the models cannot be shown to reflect historical SARs given historical conditions and hydro operations, they may not be useful in predicting future outcomes. This validation process should be inclusive of the co-lead agencies and provide for rigorous peer review and public distribution of results.	All models used for decision making in this EIS process have been peer-reviewed using the Corps of Engineers' Independent External Peer Review Process (IEPR). In addition to the IEPR process, the CSS models are reviewed annually by the Northwest Power and Conservation Council's Independent Science Advisory Board (ISAB). The COMPASS and LCM models were also recently reviewed by the ISAB. The co-lead agencies acknowldge the uncertainty reflected in the different predictions from the biological models and intend to reduce that uncertainty through a robust adaptive management plan. The co-lead agencies made the decision to present results from both sets of models for the final evaluation, along with descriptions of methods. All models must make assumptions which led to the use of both modeling approaches. The NOAA Compass/LCM models and the CSS models use different statistical approaches and input variables. Both are able to provide a good fit to recent survival, and travel time estimates, but the models do have substantially contrasting forecasts for these metrics under hypothetical scenarios of hydrosystem operation with respect to flow and spill.
6554	13	mdeen@ppcpdx.org; Scott Simms	Public Power Council; Public Power Council PPC	CSS Model Hypothesis May be Flawed In addition to calibrating the models, PPC believes that the CSS model may be based upon a flawed premise (the damage hypothesis), and that its results must be interpreted with caution. The CSS model is based on the observation that fish which pass through bypass systems have historically had lower adult return rates than fish which pass over dam spillways. The CSS model then hypothesizes that this is due to some unexplained harm to juvenile fish by dam turbines or bypass systems that results in latent mortality. It then concludes that in order to increase adults returns, fish must be passed over spillways, rather than through alternate routes, to increase SARs rates. The damage hypothesis ignores other potential explanations for the difference in SARs for fish that pass over the spillway versus through bypass systems. In fact, recent studies by National Marine Fisheries Services scientists have shown that the differences in SARs for different dam passage routes are better explained by how fish select those passage routes, rather than on any harm the routes cause. Faulkner, Bellerud, Widener and Zabel (2019)14 demonstrated that larger fish tend to follow spillways and smaller fish tend to pass through turbines or bypass systems. This result points to a new hypothesis for differential rates of juvenile fish survival and SARs. In comparing the potential hypotheses, the study found that fish size, rather than dam passage route, resulted in a better prediction of adult returns. Larger fish, regardless of passage, tended to have higher SARs than smaller fish. Adding fish size to the model resulted in improvements to several key indicators of statistical significance and model performance, whereas including passage routes did not provide the same improvements to the model. By including juvenile salmonid passage routes in its modeling and not fish size, the CSS model mistakes correlation with causation and provides information that is misleading and results in suboptimal operations for both fish and power. The Northwest Power and	All models used for decision making in this EIS process including the CSS model have been peer-reviewed using the Corps of Engineers' Independent External Peer Review Process (IEPR). In addition to the IEPR process, the CSS models are reviewed annually by the Northwest Power and Conservation Council's Independent Science Advisory Board (ISAB). As the comment notes, fish size may be an important variable in predicting eventual adult returns. The co-lead agencies referenced the Faulkner et al. paper as did the ISAB in their most recent review. Fish size will be a variable that the co-lead agencies will continue to monitor and follow as the science around latent mortality continues to evolve during the implementation of the Preferred Alternative.

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				Conservation Council has recommended annually since 2007 that the FPS add fish size to the CSS model. Until fish size is incorporated into the CSS, the model should be interpreted with extreme caution and recognized as not reflective of the best available science.	
6554	14	mdeen@ppcpdx.org; Scott Simms	Public Power Council; Public Power Council PPC	CSS and LCM Model Analysis As discussed above, the D-EIS MAMP includes metrics and processes to determine whether spill and other operational changes are having unintended consequences. However, the MAMP does not thoroughly outline how to address the disparities between the two competing salmonid life cycle models. Due to their prominence in determining CRS operations and structural changes, the CSS and LCM models both need to be included for assessment as part of the MAMP. This model-vetting process should include best available science, any new information or data, and be subject to peer review and open to public disclosure. Examples of criteria that could be included in this vetting are: 1) Does the model incorporate any variables or inputs that are not proven to be statistically significant? 2) Does the model exclude any variables or inputs that are shown to be statistically significant? 3) Does the model accurately reflect and predict (within an agreed-upon range) SARs given historical data? As the action agencies carry out the Preferred Alternative and MAMP, they will need to continually assess whether the operations and structural changes that have been enacted are having the desired effect. Further, assessment is required to determine if the models and other decision-informing documents support and lead to actions that improve outcomes for fish. Without a clear methodology to critically assess the CSS and LCM models, changes in juvenile and adult survival rates may be conflated with incorrect assumptions and result in the use of a model that does not accurately reflect impacts of changes in the CRS. This could lead to poor decisions regarding CRS operations well into the future. If the CSS or LCM models are shown to contain assumptions or inputs that do not hold up to scientific or statistical review, or if new information comes to light that calls into question their validity, the operational or structural changes made due to that models results should be brought before the Regional Implementation Oversight Group for review. PPC expects that this information would be made publicly available, and that the federal action agencies would make corrections to their operations, such as halting practices that were recommended by a model that has been found to have material flaws.	The framework for the adaptive management process is detailed in Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS. It is the intention of the co-lead agencies to engage regional state, Tribal, and Federal fish managers in the development of an appropriate adaptive management process utilizing their respective salmonid management expertise. The goal of that adaptive management process would be to consider additional opportunities to further the effectiveness of the operation while maintaining the goals of the flexible spill operation: additional improvements for salmon and steelhead, maintain opportunities to operate the CRS for hydropower generation in a flexible manner that provides value to the Northwest, is implementable by the dam operators, and provides opportunity to reduce uncertainty and improve the learning opportunities around how operations of the CRS can influence the magnitude of latent mortality effects. The co-lead agencies have not made any determinations on what the preferred approach would be for a regionally developed study plan, and intend to develop that study jointly with regional experts. Unforeseen outcomes or unintended consequences will be monitored and adjusted using current in-season management teams, such as the Technical Management Team and disputes will be elevated to the Regional Implementation Oversight Group (RIOG) as warranted. The co-lead agencies intend to continue with current practices of posting material on publicly available forums such as agency websites, salmonrecovery.gov, and/or in open public meetings such as TMT.
6554	15	mdeen@ppcpdx.org; Scott Simms	Public Power Council; Public Power Council PPC	Predation Management Avian, piscine and pinniped predation are among the largest individual contributors to salmon and steelhead mortality in the CRS. However, there is substantial public misperception of this, with many citizens attributing the majority of juvenile salmonid mortality directly to the FCRPS. PPC requests that the federal agencies quantify major sources of juvenile production and major sources of mortality as an important underpinning to the regional discussion and in recognition that the D-EIS has invested substantial time to discussing juvenile salmon impacts. This information will help to inform the regional dialogue on the impacts of the federal hydro system and potentially direct resources to priority areas of impact, such as predation management. Measures to reduce predation have had positive impacts on juvenile and adult fish survival in the past and will in the future, as well. These measures often represent some of the more cost-effective steps that the federal agencies can take. In the case of pinnipeds, reducing predation of adult salmonids produces a significant benefit, as these returning fish represent a small fraction of the outgoing juvenile population. For juvenile predation, the proposed John Day reservoir level modifications represent an action that has limited risk or downside and can significantly reduce Caspian tern nesting habitat. This is a good example of a measure that could provide cost-effective, measurable and a positive overall impact to fish populations. PPC supports further investigation of potential predation management techniques, and views these as an essential piece of any successful salmonid mitigation program.	Thank you for your comment. The co-lead agencies do currently investigate and quantify major sources of juvenile production and major sources of mortality. The co-lead agencies appreciate your support for further investigation of potential predation management techniques.
6554	16	mdeen@ppcpdx.org; Scott Simms	Public Power Council; Public Power Council PPC	Other Socioeconomic Impacts Although PPC is organizationally focused on impacts to hydropower, fish and wildlife, we clearly recognize there are other socioeconomic impacts of potential changes to the configuration and operation of the CRS. The D-EIS has appropriately included analysis of a range of impacts to air quality, flood risk, navigation and transportation, recreation, and water supply. These impacts are essential to consider for multi-purpose projects. PPC encourages the federal agencies to carefully consider the comments of our PPC member public power utilities, as well as those provided by the Pacific Northwest Waterways Association and Northwest RiverPartners, for ways in which these areas of analysis can be enhanced in the final EIS.	Thank you for your comment. The EIS evaluated beneficial and adverse effects across an array of resource areas including potential effects at the national, regional and local level; effects are monetized and quantified, where possible, and also described qualitatively. As is common in NEPA analyses, the beneficial and adverse effects of the alternatives are expressed as a variety of qualitative and quantitative environmental and economic metrics throughout the EIS to inform decision-making. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The co-lead agencies have worked diligently to address all comments received and update the EIS as appropriate based upon high quality available information. Please refer to Appendix T for the comments received and subsequent responses.
6558	1	markleed02@gmail.com	N/A	The elevation of spawning habitat in the Snake Basin ensures that cold water will be maintained in the face of climate change. The preferred alternative doesn't provide reasonable assurance that it can avoid fish extinction or that it will meet requirements of the endangered species act. Hatchery production is not a viable strategy for the long term. Fish ladders that exist at the dams are fragile and prone to disruption; they cannot be relied upon to reasonable support fish passage.	Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the Columbia River System. That call, however, is ultimately the role of NMFS and the USFWS. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. The Preferred Alternative is nevertheless predicted to benefit salmon and steelhead. It also meets the other objectives of the study for resident fish, hydropower, water management, and water supply, while minimizing adverse impacts to communities and the economy. Hatchery programs have long been a part of the approach for salmon recovery. Under this alternative, hatchery programs would continue as under the No Action Alternative, and a number of other mitigation measures would continue as well, but no new hatchery operations are proposed. The listings of ESUs/DPSs often include fish produced in hatcheries. Hatchery origin fish are very important to Tribal and sport harvest in within the Columbia River Basin, and many hatchery programs are important supplementation to rebuilding natural populations. Further, the three co-lead agencies have legal requirement to produce hatchery fish as mitigation for components of the CRS. The effects of hatchery programs on ESA-listed fish are evaluated through individual consultations under the Endangered Species Act. Regarding fish passage, the four lower Snake River and four lower Columbia River dams are equipped with adult fish ladders which are safe and effective and reliable for passing adult fish upstream, and adult salmon and steelhead passage is generally considered good through the lower Snake and Columbia rivers. For example, adult survival rates (adjusted to account for reported harvest and typical straying rates) for SR spring/summer Chinook salmon are relatively high, averaging about 89 percent between Bonneville and McNary Dams and 83 percent between Bonneville and Lower Granite Dams). These survival rates include "natural" mortality as well as any mortality associated with injuries incurred from predators.
6559	1	parrishantonia@gmail.com	N/A	Below, I have explained the logic behind dam removal and the shortcomings of the EIS. 1. The negative impact of the Lower Snake River Dams (LSRDs) on Salmon (specifically Coho and Chinook) and Steelhead abundance is listed, but instead of illuminating breaching as a feasible solution, the EIS details forms of mitigation such as improved infrastructure and hatcheries. While fish ladders and spillways do aid Salmon to a small extent, this is an unnatural environment for the fish and the dam stands as an almost impenetrable barrier for spawning fish returning from the sea. Hatcheries are an insufficient form of mitigation as they replace wild Salmon with inbred, poorly adapted Salmon that increase the population of non-wild fishes through natural selection. Salmon and other wild fishes also require moving water in order to reach the ocean or spawning basin and the reservoirs created by dams slow and confuse them. Reservoirs also cause increased water temperature which is harmful to fish. Retaining these LSRDs risks extinction of the very species that the Endangered Species Act seeks to restore. Additionally, in order to maintain trust with native tribes, the fish must be restored to this ecosystem.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets most other EIS objectives including those for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS, the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams, because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. Hatchery origin fish are very important to Tribal and sport harvest in within the Columbia River Basin, and many hatchery programs are important supplementation to rebuilding natural populations. The listings of ESUs/DPSs often include fish produced in hatcheries. Further, the three co-lead agencies have a legal requirement to produce hatchery fish as mitigation for components of the CRS. The effects of hatchery programs on ESA-listed fish are evaluated through individual consultations under the Endangered Species Act.
6559	2	parrishantonia@gmail.com	N/A	2. The EIS reports that these dams are a tremendous source of clean and renewable energy for the communities in the Columbia River Basin. One objective of the CRSO is to minimize greenhouse gas (GHG) emissions. Unfortunately, it is difficult to characterize dams as clean when they release large amounts of methane which is one of the most potent greenhouse gasses. The creation of reservoirs causes build-up of sediments and accumulation of nitrate in stagnant waters and this excess of nutrients leads to algal blooms which release methane when they decompose. This means that there is a negative tradeoff for retaining dams in regard to energy. The production and emission of methane should be considered in the EIS GHG analysis.	The EIS evaluates the research pertaining to methane emissions from hydropower reservoirs. Appendix G, Chapter 5 of the EIS details the assessment of reservoir methane emissions from the CRS projects. The findings are summarized in Section 3.8. This assessment finds that reservoir characteristics and management substantially influence methane emissions. A 2016 study developed by the Corps' Walla Walla District concluded that for the relatively clean reservoirs of the Federal Columbia River Power System, which include the lower Snake River dams, conditions for low dissolved oxygen concentrations are not prevalent; thus methane gas is generally not an issue. Additionally, in 2017, the Northwest Power and Conservation Council found that data on these sites were insufficient to estimate the reservoir methane emissions specifically for the Columbia River System, but that methane emissions at high levels are not likely due to the lower organic and nutrient loads to the system, and higher dissolved oxygen content. The EIS describes that emerging technologies would allow for better measuring and understanding the effects of reservoir methane emissions from CRS projects, including the four lower Snake River dams.
6559	3	parrishantonia@gmail.com	N/A	3. According to the EIS, a dam is necessary for controlling floods to maintain communities on riverbanks. This is not an issue that should be controlled. Rather, communities should not build on floodplains as those areas are subject to constant environmental changes. Although dam removal will undercut the ability to regulate water movement and distribution, the riparian zones will return to more natural states and stimulate the growth of native species.	Thank you for your comment and statement regarding communities not being built in the floodplain. However as described in Section 1.9 Introduction to Columbia River System Operations, the 14 Federal projects that are referred to as the Columbia River System include both storage projects and run of river projects. The lower Snake River projects are all run of river projects with limited storage capacity, and therefore limited ability to 'control' flows to prevent flooding. As reported in Section 3.9, Section 7.7.11, and Table 7-1, there is no elevated flood risk for any of the EIS alternatives.
6561	1	dskreid@gmail.com	N/A	I'd rather see deep, cool pool water being released to drop the temperature of the water downstream of the dams in order to maintain appropriate temperatures for returning fish.	The co-lead agencies agree with your concern relating to water temperatures in the Columbia and Snake rivers and that is why the agencies have used the current high quality information and resources available to model and evaluate impacts from operations described in each of the alternatives on water temperatures. The study results indicate that the operations of the CRS do impact water temperature but the CRS has limited ability to reduce temperatures in the lower Snake and Columbia rivers outside of Dworshak dam operations. Regionally high air and water temperatures result in water quality standard exceedances and are beyond the ability of the CRS to cool. Drier and warmer years such as 2015, as summarized in NOAAs 2015 Adult Sockeye Salmon Passage Report (September 2016, National Marine Fisheries Service document) point out that tributary temperatures in the Okanogan and Salmon rivers were above 25C. To take advantage of Dworshak Dam cool water releases in the summer, cooling water pumps have been installed at Lower Granite and Little Goose adult passage ladders to reduce temperature differentials between ladder and river and to reduce thermal stress during upstream passage. Additional considerations at other locations are included in the Draft EIS.
6565	1	wjclodf@fastmail.fm	N/A	I have been meaning to get this comment in to the CRS EIS. I think it is worthwhile to consider since society is having such a hangup on green house gases. I just scanned the EIS summary and didn't come up with any benefits as a result of irrigated crops in Washington, Oregon, and Idaho. I'm a chemical engineer which training involves all aspects of systems designs identifying inputs and outputs, energy or chemicals, solids or gases as are occurring. Growing crops emit oxygen. A lot of it. The gross affect of NW irrigated agriculture is millions/billions of tons of free oxygen when the plant takes in carbon and affixes it in the agricultural product and releases the oxygen. My quick scan didn't note any discussion of the crops taking the carbon dioxide living it up so to speak and releasing the oxygen. It wouldn't be hard to calculate with the basis being tons of agricultural product per acre. i.e. 7-8	As described in Section 3.12.3 in the Draft EIS, under all Multiple Objective alternatives (MOs) except MO3, crop production is expected to be similar to the No Action Alternative. Therefore, impacts to crop-related carbon sequestration and oxygen production are not expected under these alternatives. Removing 48,000 acres of crops under MO3 could slightly reduce the amount of CO2 uptake, although this effect is minor relative to other effects of MO3 on CO2 emissions, in particular from power generation as described in Section 3.8.3.5 in the Draft EIS.

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				tons per acres of alfalfa, bushels of grain, tons of fruit, etc. It is a big plus for irrigated crops which I don't think they have been credited. Taking the dams out of the lower Snake would severely hamper irrigation capability, no reservoirs.	
6572	1	osagehick@outlook.com	N/A	The lower Snake River dams have the ability to quickly increase power production when demand is higher. Northwest demand for electricity is higher in the winter when winds are at their lowest levels and the sun sets much earlier in the day. Wind and solar facilities do not have this quick response capability. Without hydro power to fill in the numerous gaps every year, the power grid will falter with the fluctuations caused by wind and solar power inconsistencies. The economy and population of the Northwest is growing and hydro power is THE most dependable asset for this growth. We cannot afford sporadic fluctuations in electric power.	The measure to breach the four lower Snake River dams that was evaluated in MO3 was not included in the Preferred Alternative (PA) identified in the Draft EIS. The effects of the PA on power are described in Section 7.7.9 of the Draft EIS. Overall, hydropower would decrease relative to the No Action Alternative under the PA. However, because of the shape of the remaining hydropower generation in the PA, the loss of load probability was essentially the same as that of the No Action Alternative and identification of replacement resources was not necessary. The statements in the comment regarding the ability of hydropower to follow load and increase production when needed is consistent with the findings of the EIS. The variability of wind and solar described in the comment is also consistent with discussions in the EIS. See Section 3.7.3.5, Lower Snake River Full Replacement, pages 3-905-907 in the Draft EIS.
6572	2	osagehick@outlook.com	N/A	During all of the 12 years I worked in Walla Walla I collaborated with other biologists on fine-tuning spill levels at the Snake River dams for juvenile and adult salmon passage. I am deeply troubled by the consideration of increased spill at the dams. I am strongly against higher spill without coordinated biological studies and supporting data. The studies and data must involve total participation and pier review from all Tribal, state , local and federal biologists in order to fully justify any increase!! As an example, during an adult Chinook return study I administered at Little Goose dam in the early 2000's, an increase in spill from about 30,000 kcfs to 34,000 kcfs (give or take 1000 kcfs, I don't have a copy of the study to refer to) resulted in over 4000 adults holding up in the forebay because a strong upstream eddy made it impossible for the fish to find the entrance of the ladder. During the study daily adult passage went from less than 10 fish per day to between 300 - 4000 Chinook!	In its analysis of effects, the Draft EIS used current high quality information, including models and studies published in peer review science journals. The co-lead agencies agree with you on developing coordinated studies to assess the effectiveness of the flexible spill operation measure. The Preferred Alternative includes working with regional sovereigns to develop a study that will assess the effectiveness of the increased spill regime on adult returns as well as assessment and management of negative unintended consequences, such as long delays of adult migrants, or TDG-related impacts on juvenile migrants. Where there are known delay issues (e.g. at Little Goose Dam), measures are built into the flexible spill operation to address these issues.
6572	3	osagehick@outlook.com	N/A	Increased spill without biological data to support it could also cause increases up to 50% in power rates. A rise in the cost of electricity could affect industry, small businesses, employment, the homeless crisis and even lower income people who are already struggling to take care of their family.	The EIS recognizes the concern voiced in the comment regarding increasing power rates. It is unclear which alternative the comment refers to, however under the Preferred Alternative, which includes juvenile fish passage spill operations contemplated under the 2019-2021 Spill Operation Agreement, the rate pressure is 2.7 percent relative to the No Action Alternative. This rate pressure is not comparable to the up to 50 percent increases under MO3 (which includes breaching of the four lower Snake River dams) or MO4 (spill up to 125 percent TDG during spring and summer) mentioned in the comment. The comment that increases in utility costs can adversely affect vulnerable groups is consistent with discussions in the EIS. The Environmental Justice analysis in Section 3.18.3 and Chapter 7, provides further detail on the potential disproportionate effects to Tribal, low-income and minority populations. Regarding the biological data to support spill, the Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the biological models and will help determine how effective increased spill can be in increasing salmon and steelhead returns to the Columbia Basin. The effectiveness of the spill program will be monitored, as will the effects to generating resources around the basin. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information.
6572	4	osagehick@outlook.com	N/A	A final argument against higher spill is that the Snake River dams will do more to meet lower carbon emissions in the Northwest than solar or wind power could ever hope to accomplish. Lower Snake River dams directly and indirectly create thousands of jobs in the region. A short list includes employment in agricultural irrigation and crop shipping, farm jobs in planting, harvest and fertilizing. Recreation related employment that the dams provide includes sporting equipment, pleasure boating, guides and outfitters, camping and day uses. Hotel and restaurant jobs round out the economic benefits.	The comment about increased greenhouse gas emissions is consistent with the findings of the MO3 greenhouse gas emissions analysis (see Section 3.8.3.5) as well as the carbon compliance sensitivity presented in Table 3-166 in Section 3.7.3.5. The EIS describes the regional economic effects of navigation (Section 3.10), power supply (Section 3.7), irrigation (Section 3.12), and recreation (Section 3.11) under the No Action Alternative.
6576	1	lakescommission@gmail.com	Lakes Commission	In reviewing the Preferred Alternative (PA) with our narrow regional focus and in talking with your technical team, it appears there will be negligible changes or impacts to Lake Pend Oreille under this proposal. Our concerns have been related to MO4, which proposed to lower Lake Pend Oreille up to three feet during the summer months, eliminating the stable summer pool that is required under the Congressional authorization for Albeni Falls Dam. Without the opportunity to query your team following the official release of the draft PA, due to the pandemic, we are not completely confident we understand the complexity of the PA (i.e. flex spill), but it does seem clear that the potential operational change that we were concerned about under MO4 has been removed.	The McNary Flow Augmentation measure in MO4 that drafted Lake Pend Oreille in the summer was not selected for the Preferred Alternative. Lake Pend Oreille's elevation and Albeni Falls Dam's outflow are the same in the Preferred Alternative as they were in the No Action Alternative. Flexible spill does not apply to Albeni Falls Dam.
6584	1	Danny DeFranco	Washington Cattlemen's Association	1. Introduction This EIS was drafted in response to the need to review and update operations, maintenance, and configuration of the 14 multiple purpose dams and facilities, which significantly impact our membership. The topography of the Snake River region differs greatly from some of the areas of the Columbia River System (CRS). The geographic scope and climate vary greatly throughout this entire system and it should be noted that there cannot be a one-size fits all analysis.	Analysis in Chapters 3, 4, 6, and 7 analyzed effects of the alternatives at each project by different geographic region (A through D). For example, Region A includes three projects geographically located in the upper basin - Hungry Horse and Libby in Montana and Albeni Falls in Idaho. Effects of operation, maintenance and configuration to each one of those projects are analyzed separately. Similarly, the analysis for the remaining 11 projects is broken out by region and focuses on each respective geographic scope.
6584	2	Danny DeFranco	Washington Cattlemen's Association	2.4 Areas of Controversy Dam Breaching Breaching of the four lower Snake River Dams has been a controversy for decades. The EIS correctly identifies that for any breach to occur, new congressional authority would be needed along with funding. It also correctly notes that dam breaching is a complex and polarized issue that does not have a simple solution. The WCA and our members have previously submitted comments and participated in public listening sessions opposing breaching of the four lower Snake River Dams.	Thank you for your comment.
6584	3	Danny DeFranco	Washington Cattlemen's Association	Fish Modeling The EIS correctly used two different approaches to estimate how changes to the CRS operations would change the rates of adult salmon and steelhead returns to the Columbia and Snake Rivers. It is commendable that both of these approaches were used as it shows transparency as well as a wellrounded analysis.	The NMFS COMPASS/Life Cycle models and the CSS models use different statistical approaches and input variables. Both are able to provide a good fit to recent survival, and travel time estimates, but the models do have substantially contrasting forecasts for these metrics under hypothetical scenarios of CRS operations with respect to flow and spill. The Fish Technical Teams for the EIS made the decision to present results from both sets of models for the final evaluation, along with descriptions of methods. The Preferred Alternative will require a robust monitoring plan for salmon and steelhead to help narrow the uncertainty between the biological models and will help determine how effective increased spill can be in increasing salmon and steelhead returns to the Columbia Basin. Please see Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information.
6584	4	Danny DeFranco	Washington Cattlemen's Association	Reintroduction The concept of reintroduction, is again, one that is complex in nature as well as one that requires indepth analysis and sound, peer reviewed science to help make determinations. The EIS correctly identifies that a coordinated approach is needed and that there are gaps in information. Steps to develop a framework and fill the informational gaps are taking place.	Measures to reintroduce salmon above Chief Joseph and Grand Coulee dams were evaluated early in the alternative development process but eliminated from further consideration. Reintroduction is an important and complex, large-scale concept. Its consideration, evaluation, and implementation should involve multiple tribal, federal, state, and other entities. A coordinated approach among water users, tribes, states, multiple federal agencies, and others would be necessary. To allow so many differing interests to coordinate on such a complex topic, which may include international considerations, a decision-making framework and a series of regional workshops would be necessary just to approach the first step of defining reintroduction objectives. Given the incompatibility of such a wildlife management decision-making framework with an analysis of the operation of the CRS, it is not feasible to proceed with a detailed consideration of reintroduction in this EIS. Moreover, to meaningfully analyze reintroduction as a measure, the details of the proposal would need to be understood well enough to include in hydrologic, water quality, and fish models. That information is not presently available, and development of those details was not possible in the timeframe of this NEPA process. Nevertheless, the agencies and interested regional sovereigns are developing a framework to address critical information gaps. This effort was initiated on June 23, 2020, the co-lead agencies participated in a discussion with regional sovereigns concerning fish management in blocked areas.
6584	5	Danny DeFranco	Washington Cattlemen's Association	Water Quality This is a very concerning section as it states that there are elevated water temperatures in the Columbia River Basin due to regular climatic events and climate variability, along with regional controversy regarding the role that the federal agencies may play in higher water temperatures. This management section must undergo serious scrutiny. Any conclusion regarding causation for water temperatures must be based upon peer reviewed, sound science, not blanket statements of fault.	Consistent with the requirements of NEPA, the co-lead agencies are using up-to-date, high quality, and relevant information and models in the alternative analysis. Both CE-QUAL W2 and HEC-RAS have been calibrated and peer-reviewed by respected scientists from Portland State University, EPA and the USGS, as well as many cooperating agencies. In addition, the USEPA and co-lead agencies worked together to compare the co-lead agencies' CE-QUAL W2/RAS model (used for EIS analysis) and the EPA's RBM-10 model (used for the draft TMDL assessment). Efforts included identifying and comparing similarities and differences in the two models and assessments, and concluded that both models provide useful and technically appropriate analyses of the Columbia and lower Snake River water temperatures. As such, the EPA agrees with the co-lead agencies that the CE-QUAL W2 and HEC RAS models are appropriate to use in developing the Draft EIS (see EPA review comment letter # 16-0059). Additionally, the EIS has undergone a third party, neutral Independent Expert Peer Review on the tools used, as well as the assumptions and conclusions in the EIS.
6584	6	Danny DeFranco	Washington Cattlemen's Association	5. Multiple Objectives 1 through 4 The WCA concurs with the EIS that the multiple objectives 1 through 4 are not ideal to meeting EIS objectives as set forth. The No Action Alternative would be the best alternative for the agriculture industry, which would still somewhat meet the objectives as set forth.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. The Preferred Alternative was designed to meet the multiple statutes, authorizations, and objectives described in the EIS, and was determined to result in more beneficial effects across these objectives than the No Action Alternative. See 7.3.1 for additional information.
6584	7	Danny DeFranco	Washington Cattlemen's Association	10. Preferred Alternative The WCA supports the EIS and co-lead agencies work on identifying a way to best meet purposes and objectives which are distinct and of great importance to all parties. The preferred alternative is a collaboration from each of the models along with the no action alternative, that allowed for refinement and targeting of the benefits of each alternative. WCA fully supports that no dams are being breached in this preferred alternative and that impacts are being mitigated while adding flexibility to meet water needs inclusive of flood risk, irrigation, and hydropower, all of which are concerns to our membership. This preferred alternative also has ongoing test and evaluations regarding effectiveness of these operations as they relate to fish mortality. Decisions should be made on sound, peer-reviewed science, and continuing to monitor these species as they are of concern, is of utmost importance.	Thank you for the comment.
6588	1	rkrehbiel@defenders.org	Defenders of Wildlife	We strongly recommend that you conduct a more thorough and complete analysis and provide additional opportunities for public comments and engagement, particularly considering that the current public health crisis has led to the cancelation of in-person public hearings	To ensure adequate opportunity for the public to provide comments on the Draft EIS, the agencies hosted an online comment platform, providing mailing addresses for written comments, and hosted a series of public comment meetings by telephone.The co-lead agencies considered requests to extend the public comment period. This NEPA process included a wide array of cooperating agencies whose close involvement throughout the process allowed the co-lead agencies to incorporate feedback. Given the broad range of comments received and the extensive Federal and non-Federal participation in the overall process as well as the level of public engagement in the six virtual public meetings in the region, the co-lead agencies determined that an extension was not warranted and that the 45-day public comment period was adequate consistent with NEPA regulations. The CRSO EIS website reminded the public on April 9, that they should plan to submit comments by the close of the comment period.
6588	2	rkrehbiel@defenders.org	Defenders of Wildlife	I. The DEIS Does Not Deliver the Holistic Solution Needed to Recover Wildlife and Support Rural Economies. Our organizations share the belief that the lower Snake River can be restored in a way that benefits everyone. To ensure the sustainable recovery of salmon and other endangered wildlife, the four lower Snake River dams must be breached. The services the dams provide, though, can and should be replaced. Through strategic planning and investments, state and federal governments can build the infrastructure needed to replace the services provided by these dams, including energy production7, transportation of agricultural goods, and irrigation.8 Making these investments now will decrease local communities reliance on these dams, allowing our region to more quickly and easily transition to operating without them. Breaching the lower Snake River dams is critical to recovering wild salmon and steelhead in the Snake River basin. Rebuilding Snake River salmon runs will greatly benefit endangered Southern Resident orcas, support coastal and inland fishing businesses, and sustain the many tribes who, under various treaties, have reserved their right to harvest healthy and abundant salmon runs as they have since time immemorial. The Action Agencies evaluated breaching these four dams under Multiple Objective	The co-lead agencies have used high-quality information and the best available science in the analysis of the alternatives included in the EIS. The EIS set forth eight objectives which, in tandem with the Purpose and Need statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. As described in Chapter 7 of the FEIS, the preferred alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as Multiple Objective Alternative 3 (MO3), which includes breaching the four lower Snake River dams. The preferred alternative also meets the EIS objectives for resident fish, lamprey, hydropower generation, water management, and water supply and greenhouse gas emissions, while minimizing adverse impacts to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. The EIS concluded MO3, which includes breaching the four lower Snake River dams would have greater improvement to certain salmon species in the lower Snake River. It did not, however, conclude there was greater certainty of that result in MO3 over any other alternative. Because of delayed response time in MO3, and the potential severity of the short term effects, MO3 would likely have the most substantial uncertainty in terms of beneficial effects. Section 3.5 provides a summary of the fish analysis for the No Action Alternative and four of the multiple objective alternatives. Chapter 7 provides a summary of the fish analysis for the Preferred Alternative. With respect to the Preferred Alternative, the CSS model predicts that average Smolt to Adult return rates would increase for both Snake River spring Chinook and steelhead and will average above 2% (the lower end of the Northwest Power and Conservation Councils recovery

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				Alternative 3 in the DEIS. However, while the Action Agencies looked at some of the transition investments needed to accompany dam breaching, their assessment was narrowly focused, overestimated transition costs, and ignored key findings in energy sector expert reports.9 The Action Agencies Preferred Alternative does not provide the holistic plan that the region needs. Essentially, the Preferred Alternative is a continuation of the flexible spill agreement already agreed to for 2020 and 2021 by the states of Washington and Oregon, the Nez Perce Tribe, and BPA. At best, the business-as-usual approach of the Preferred Alternative will result in half as many salmon returning to the mouth of the Columbia as there would be under a dam breaching scenario, and this issue will likely compound each year.10 While increasing spill is an important short-term action for salmon, the only viable long-term solution is breaching the dams and restoring the lower Snake River. The Action Agencies have chosen a timid step when our region needs a bold, long-term, sustainable plan in which federal, state, and tribal agencies work together to solve these interlocking and complex issues. 7 Energy Strategies. 2018. Lower Snake River Dams Power Replacement Study: Assessing the technical feasibility and costs of clean energy replacement portfolios. March 2018. Independent study commissioned by the Northwest Energy Coalition. Available at: https://nwenergy.org/featured/lsrdstudy/ 8 EcoNorthwest. 2019. Lower Snake River Dams Economic Tradeoffs of Removal. July 29, 2019. Independent study commissioned by Vulcan Inc. Available at: https://econw.com/projects-collection/2019/7/29/lowersnake-river-dams-economic-tradeoffs-of-removal 9 DEIS at 3-913, lines 27519 27550 and at 3-1481, tables 3-308, 3-309 10 Estimated salmon returns under each scenario were based on CSS smolt-to-adult-ratios and quantified by Dr. Michelle Dehart of the Fish Passage Center during a webinar to the Southern Resident Orca Recovery Task Force on September 27th, 2018. Webinar is available at: https://pspwa.app.box.com/s/l0je55acwx7hjcxqfrc9uys72c4eg1dz/file/322691991990 4 Many such solutions can be found through emerging conversations among stakeholders in the Pacific Northwest, including Governor Inslees Lower Snake River Stakeholder Process. Through these collaborative dialogues, stakeholders identified the types of investments needed to support local communities after the dams are breached.11 Restoring salmon runs by breaching the four lower Snake River dams is necessary to put Southern Resident orcas on the path towards survival, but to do this, we all need to work together. The Pacific Northwest does not have to choose between orcas and clean energy or between fishing and farming communities. The DEIS ignores these important realities and reinforces existing divisions within our region.	targets for the region) as a result of the Preferred Alternative, increasing from 2.0% to 2.7% for Chinook, a 35% relative increase. The NMFS COMPASS and Lifecycle Models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information. Based on the EIS analysis of the Preferred Alternative, it will make a substantial contribution towards recovery targets. Regarding Southern Resident Killer Whales (SRKW), the population dynamics of the SRKW are complicated, and there is no one factor that contributes to the overall success of this species; however, the co-lead agencies agree that the quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Additionally, Section 7.7.8 states impacts to Southern Resident killer whales would be negligible. Thus, the co-lead agencies expect salmon and steelhead increases would come from operational measures and existing hatchery production carried forward into the Preferred Alternative. These hatcheries include conservation and safety net hatcheries, as well as through the continued existence of certain independent Congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as the Lower Snake River Compensation Plan, which is administered by USFWS. Moreover, NMFS concluded in its 2020 CRS BiOp that operations, maintenance and configuration of the CRS is not likely to adversely affect SRKW. The co-lead agencies are committed to ongoing coordination with stakeholders through a variety of forums. In areas where we have appropriate authority, we will continue to be strong regional partners.
6588	3	rkrehbiel@defenders.org	Defenders of Wildlife	II. The DEIS Fails to Satisfy National Environmental Policy Act requirements. A. The National Environmental Policy Act. The National Environmental Policy Act (NEPA) requires that to the fullest extent possible all federal agencies must complete a comprehensive environmental impact statement in connection with actions that significantly affect the environment.12 In enacting NEPA, Congress recognized the profound impact of human activities, including resource exploitation, on the environment and declared a national policy to create and maintain conditions under which man and nature can exist in productive harmony.13 NEPA has two fundamental two goals: (1) to ensure that the agency will have detailed information on significant environmental impacts when it makes decisions; and (2) to guarantee that this information will be available to a larger audience.14 (i) NEPA requires the Action Agencies to take a hard look at environmental consequences of their actions. To advance its clear policy objectives, NEPA establishes action-forcing procedures that require agencies to take a hard look at environmental consequences.15 A hard look requires a meaningful comparison of the environmental consequences of all alternatives, including the proposed alternative.16 A hard look does not allow the agency to take a soft touch or brush-off of negative effects.17, 18 To have taken the required hard look, the Action Agencies must utilize 11 Lower Snake River Dams Stakeholder Engagement Report. March 6th, 2020. Prepared by Kramer Consulting, Ross Strategic, and White Bluffs Consulting. Available at: https://www.governor.wa.gov/sites/default/files/Final%20Draft%20LSRD%20Report.pdf 12 42 U.S.C 4332. 13 42 U.S.C. 4331(a). 14 Envtl. Prot. Info. Ctr. v. Blackwell, 389 F. Supp. 2d 1174, 1184 (N.D. Cal. 2004) (quoting Neighbors of Cuddy Mt. v. Alexander, 303 F.3d 1059, 1063 (9th Cir. 2002)); see also Earth Island v. U.S. Forest Serv., 351 F.3d 1291, 1300 (9th Cir. 2003) (NEPA requires that a federal agency consider every significant aspect of the environmental impact of a proposed action . . . [and] inform the public that it has indeed considered environmental concerns in its decision-making process.). 15 Metcalf v. Daley, 214 F.3d 1135, 1141 (9th Cir. 2000) (quoting Robertson v. Methow Valley Citizens Council, 490 U.S. 332, 348 (1989)). 16 Ctr. for Biological Diversity v. U.S. Dept of Interior, 623 F.3d 633, 646 (9th Cir. 2010). 17 Native Ecosystems Council v. U.S. Forest Serv., 428 F.3d 1233, 1241 (9th Cir. 2005). 18 Native Ecosystems Council v. U.S. Forest Serv., 428 F.3d 1233, 1241 (9th Cir. 2005). 5 public comment and the best available scientific information.19 By focusing agency attention in this way, NEPA ensures that the agency will not act on incomplete information, only to regret its decision after it is too late to correct.20 (ii) NEPA requires the Action Agencies to assess all reasonable alternatives. The heart of NEPA analysis requires the Action Agencies to [r]igorously explore and objectively evaluate all reasonable alternatives to the proposed action and provide reasons for declining to comprehensively analyze any alternative which was eliminated from the analysis.21 While NEPA imposes no requirement to choose the least environmentally detrimental alternative for action, it does mandate that for each alternative, the agency must consider relative scientific findings on the likely environmental impacts.22 (iii) NEPA requires the Action Agencies to consider direct, indirect, and cumulative impacts of their actions. In analyzing the Preferred Alternative, no action alternative, and all other reasonable alternatives, the Action Agencies failed to properly consider the three types of impacts: direct, indirect, and cumulative.23 Direct effects are caused by the action and occur at the same time and place, while indirect effects are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable ... [and] may include growth inducing effects.24 Cumulative impacts include impacts on the environment resulting from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions, by any person or agency, and impacts resulting from individually minor but collectively significant actions taking place over a period of time.25 (iv) The Action Agencies must respond to contrary opposing views and expert comments. The Action Agencies must satisfy NEPAs requirements to explain opposing viewpoints and their rationale for choosing one viewpoint over the other.26 When an informed objection to an agencys alternative(s) is presented, the Action Agencies have a duty to give a viable proposed alternative due consideration.27 A NEPA analysis is inadequate if it fails to disclose responsible scientific opposition to agency actions.28 Courts have set aside NEPA analyses where the Action Agencies failed to respond to scientific analysis that calls into question the agencys assumptions or conclusions.29 As an example, the Action Agencies must respond to opposing scientific viewpoints 19 Biodiversity Cons. Alliance v. Jiron, 762 F.3d 1036, 1086 (10th Cir. 2014) (internal citation omitted). 20 Marsh v. Or. Natural Res. Council, 490 U.S. 360, 371 (1989) (citation omitted). 21 42 U.S.C 4332(C)(iii); 40 C.F.R. 1502.14(a). 22 See, e.g., Robertson v. Methow Valley Citizens Council, 490 U.S. 332, 350-51 (1989). 23 40 C.F.R. 1508.25(c); Colo. Envtl. Coal., 185 F.3d at 1176. 24 40 C.F.R. 1508.8; see also Utahns for Better Transp., 305 F.3d at 1174. 25 40 C.F.R. 1508.7. 26 40 C.F.R. 1502.9(b). 27 See NRDC v. Evans, 168 F. Supp.2d 1149 (N.D. Cal. 2001). 28 Navajo Nation v. U.S. Forest Serv., 479 F.3d 1024, 1056 (9th Cir. 2007). 29 Cal. v. Block, 690 F.2d at 770-71 (stating that NEPAs requirement that responsible opposing viewpoints are included in the final impact statement reflects the paramount Congressional desire to internalize opposing viewpoints into the decision-making process to ensure that an agency is cognizant of all the 6 objectively and in good faith, including those of the governments own experts like the Fish Passage Center.30	The CRSO EIS includes an analysis of direct, indirect and cumulative effects consistent with 40 C.F.R. 1508.25(c). The direct and indirect effects analysis is included in Chapters 3 and 7 and the cumulative effects analysis is included in Chapters 6 and 7. The cumulative effects analysis in Chapter 6 sets the stage for the analysis in Chapter 7 by discussing how past and present actions are considered in the analysis, and then identifies over 20 reasonably foreseeable future actions that may cumulatively affect resources affected by CRS operations, maintenance and configuration. This analysis includes the cumulative effects to fish, including salmon and steelhead from varied actions, including population growth, water withdrawals, additional renewable energy development and fishery management plans, among others. The co-lead agencies have clarified the language in Chapters 6 and 7 to acknowledge the cumulative effects analysis does include consideration of the climate change analysis in Chapters 4 and 7 as well as the mitigation information provided in Chapters 5 and 7. The co-lead agencies invited a number of entities (including Tribes, states, and agencies) from across the region to participate in the EIS process as cooperating agencies, and over 30 of those invited agreed to participate. Staff from the Cooperating Agencies joined the technical teams and provided their expertise and review of the development and analysis of the alternatives. Leaders from the co-lead agencies met with Tribal leaders for formal consultation, and with other organizations and stakeholders to have dialogue and receive feedback as the EIS progressed. However, only the co-lead agencies have authority to make decisions regarding future operation, maintenance and configuration of the dams in the CRS. The co-lead agencies selected senior staff from across the country with expertise in their fields to serve on the EIS team. The draft EIS was subjected to two internal agency reviews by Corps of Engineers reviewers not involved in the development of the document. Additionally, the entire document, analysis, and modeling were reviewed following an Independent External Peer Review (IEPR) process that meets OMB circular on peer review requirements under the "Information Quality Act" and the Final Information Quality Bulletin for Peer Review by the Office of Management and Budget (referred to as the "OMB Peer Review Bulletin). It also meets guidance for the implementation of both Sections 2034 and 2035 of the Water Resources Development Act (WRDA) of 2007 (Public Law (P.L.) 110-114) and standards of the National Academy of Sciences independent peer review. The final IEPR report will be publicly available. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA listed species. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-lead agencies numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as Multiple Objective Alternative 3 (MO3), which includes breaching the four lower Snake River dams. The Preferred Alternative also meets most other EIS objectives for: resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS the co-lead agencies did not identify MO3 because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. The EIS concluded MO3, which includes breaching the four lower Snake River dams would have greater improvement to certain salmon species in the lower Snake River. It did not, however, conclude there was greater certainty of that result in MO3 over any other alternative. Because of delayed response time in MO3, and the potential severity of the short term effects, MO3 would likely have the most substantial uncertainty in terms of beneficial effects. Section 3.5 provides a summary of the fish analysis for the No Action Alternative and four of the multiple objective alternatives. Chapter 7 provides a summary of the fish analysis for the Preferred Alternative. With respect to the Preferred Alternative, the CSS model predicts that average Smolt to Adult return rates would increase for both Snake River spring Chinook and steelhead and will average above 2% (the lower end of the Northwest Power and Conservation Councils recovery targets for the region) as a result of the Preferred Alternative, increasing from 2.0% to 2.7% for Chinook, a 35% relative increase. The NMFS COMPASS and Life Cycle Models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information. Based on the EIS analysis of the Preferred Alternative, it will make a substantial contribution towards recovery targets. Finally, the co-lead agencies evaluated many different flow and spill levels and as well as seasonal patterns for when flows are enhanced or reduced. The Preferred Alternative represents an operation that provides a balanced approach between spring and summer flow and spill levels to benefit salmon and steelhead, while also providing benefits to resident fish in the upper portion of the Columbia Basin.
6588	4	rkrehbiel@defenders.org	Defenders of Wildlife	B. The Action Agencies Failed to Take a Hard Look at the Direct Impacts on Columbia Basin Salmonids and Failed to Adequately Assess the Alternative of Breaching the Four Lower Snake River Dams. The CRSO has substantially affected the natural ecological structure and functionality of the Columbia River watershed.31 The Columbia River system is one of the largest in North America, with a drainage area of over a quarter million square miles.32 What was once an ecologically functional river system providing ecological goods and services for fish, wildlife, and humans has been transformed into a carefully regulated environment.33 Dam operations and alterations have resulted in the loss of once important spawning grounds and rearing habitat, and has significantly degraded migration corridors for salmon and steelhead populations.34 Many of our organizations provided the Action Agencies with citations to relevant peer-reviewed studies regarding Columbia and Snake River salmon restoration, and we provide those here again. (Appendix A). After decades of protection and management, most federally protected salmonid populations in the Columbia and Snake rivers remain in poor condition and at high risk of extinction.35 Despite great efforts to restore these stocks, several evolutionary significant units (ESUs) still remain at high risk of extinction.36 Approximately 65% of the extant interior Columbia Basin ESUs are considered at high risk of extinction, ~29% are at a maintained risk of extinction (the second-highest risk category), only 4% are considered viable, and just 2.5% are considered highly viable.37 Although returns of some Chinook salmon populations have recently increased depending on good ocean conditions, these are mostly dominated by hatchery fish instead of wild fish.38 Extensive scientific papers and federal reports demonstrate that the CRSO has caused substantial harm and decreased the likelihood of survival and recovery of these threatened and endangered salmon and steelhead populations throughout the Columbia Basin.39 The National Marine Fisheries environmental trade-offs that are implicit in a decision) (citing Andrus v. Sierra Club, 442 U.S. 347, 350 (1979); Appalachian Mountain Club v. Brinegar, 394 F. Supp. 105, 121 (D.N.H. 1975)). 30 W. Watersheds Project, 632 F.3d at 492-93 (agency violated NEPA by giving short shrift to a deluge of concerns from its own experts and other federal and state agencies). 31 Sheer and Steel 2006, Caudill et al. 2007, White 2011, Moore et al. 2012, Naiman et al. 2012, Rechisky et al. 2013, Harnish et al. 2014, Rollet et al. 2014. 32 Kammerer 1990. 33 Trefethen 2013; White 2011. 34 BiOp 2014. 35 BiOp 2014, NWFSC 2015; West Coast Salmon and Steelhead Listings http://www.westcoast.fisheries.noaa.gov/protected_species/salmon_steelhead/salmon_and_steelhead_listin	The purpose of the CRSO EIS was to provide a strategy for operations and configurations of the 14 dams in the CRS over the next 25 years. Operation of the CRS requires balancing competing interests and managing trade-offs to allow the co-lead agencies to meet their multiple congressionally authorized purposes. The EIS team, with cooperating agency staff as team members, developed a range of alternatives that would allow the co-lead agencies to analyze future actions, identify effects to multiple resources, and identify future operations that would allow the balancing of multiple priorities. As stated in the EIS, the baseline for this analysis and comparison is 2016, the date the Notice of Intent was issued to develop the EIS. At no time was the EIS expected nor intended by the co-lead agencies to be an examination or comparison of the existing system against historic conditions, nor would it be appropriate to do so. The co-lead agencies did, however, analyze the direct, indirect and cumulative effects to resources affected by the CRS, and these results are included in Chapters 3, 4, 6, and 7. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws, such as the Endangered Species Act (ESA), to evaluate impacts to listed species such as sockeye and steelhead. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA listed species. Recovery of ESA-listed salmon is outside of the authority of the co-lead agencies, and was not an objective of this EIS. Recovery of ESA species is the purview of NMFS and the US Fish and Wildlife Service. This EIS has been developed in consultation with NMFS and USFWS to find an acceptable balance that allows the co-leads to meet congressionally-authorized purposes while minimizing impacts to affected ESA species and their habitats. Both human-caused and natural factors that are outside the responsibility and control of the co-lead federal agencies, also contribute to the decline and recovery of fish, and will continue to strongly influence fish and their habitat. Salmon and steelhead have been adversely affected in the Columbia River Basin over the last century by many activities including human population growth, urbanization, introduction of exotic species, overfishing, development of cities and other land uses in the floodplains, water diversions for all purposes, dams, mining, farming, ranching, logging, hatchery production, predation, ocean conditions, and loss of habitat. Operation, configuration and maintenance of the Columbia River System requires mitigation for its effects, and the EIS is not intended or required to serve as an overall salmon recovery plan for the region. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the EIS objectives) as well as the EIS objectives for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. The Preferred Alternative is also more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% (the lower end of Northwest Power and Conservation Council's recovery targets for the region) as a result of the Preferred Alternative, as a result of the Preferred Alternative increasing SAR from 2.0% to 2.7% for Chinook, a 35% relative increase. The NMFS COMPASS and Life Cycle models

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				gs/salmon_and_steelhead_listings.html. 36 2016 Status Reviews of Listed Salmon & Steelhead http://www.westcoast.fisheries.noaa.gov/publications/status_reviews/salmon_steelhead/2016_status_revie w.html. 37 BiOp 2014 38 BiOp 2014. 39 Raymond 1979, Kareiva et al. 2000, Dauble et al. 2003, Reischel and Bjornn 2003, Boggs et al. 2004, Williams et al. 2005, Caudill et al. 2007, Waples et al. 2008, Keefer et al. 2008, Caudill et al. 2013, Rechisky et al. 2013, BiOp 2014, Harnish et al. 2014, Keefer and Caudill 2015, ISAB 2016, Perry et al. 2016, Bond et al. 2017. 7 Service (NMFS) recognizes that dam presence and operations in the Basin directly and indirectly contribute to most of the mortality of juvenile and adult salmonids migrating through the system.40 Within the Columbia Basin, the annual abundance, population growth rate, and returns-perspawner (e.g., smolt-to-adult returns) for most wild salmonid populations (i.e., not hatchery origin) are less than 1.0.41 This indicates that wild salmonid population abundance is declining, populations are not growing, and returns are decreasing generation after generation, even though hatcheryorigin salmon production may be increasing. In fact, in the Columbia Basin, most salmonid population abundance is below the minimum viable abundance numbers estimated by the Interior Columbia Technical Recover Team.42 The longer a population remains at low abundance, the greater the likelihood of extinction from stochastic events, inbreeding, and environmental disturbance.43 At moderate and high risk of extinction, salmon and steelhead populations throughout the interior Columbia Basin can remain at relatively low numbers for decades without reaching recovery goals.44 Dam structures and operations substantially delay the recovery of salmonid species because they lead to several factors that reduce the likelihood of survival. Impacts from dam operations in the Snake and Columbia rivers that directly limit the survival and recovery of salmon and steelhead populations include, but are not limited to: juvenile mortality at mainstem hydro projects, physical passage barriers, reduced water flows that delay passage and lead to mortality, altered channel morphology, fallbacks, straying of adults and juveniles, drastic temperature fluctuations in both reservoirs and fish ladders.45 Indirect adverse impacts from dam operations include, but are not limited to: increase of infectious diseases due to lacerations during dam passage, increased predation by birds within reservoirs, increased predation by birds and marine mammals in estuarine areas, changes in water flows and temperature, decreased oxygen levels within reservoirs, delayed or latent mortality, and amplified climate change effects.46 For example, changes in stream flow and velocity associated with reservoirs affect salmon migration patterns in the Columbia Basin.47 Dam operations affect downstream habitat quality by increasing water temperatures, increasing metabolic demand of fishes, and inducing straying.48 Disease outbreaks are also associated with higher water temperatures.49 The Action Agencies have failed to adequately evaluate all reasonable alternatives to both reduce and offset these impacts associated with continued CRSO operations to avoid jeopardy on ESA 40 BiOp 2014. 41 BiOp 2014, NWFSC 2015. 42 BiOp 2014, NWFSC 2015. 43 Purvis et al. 2000, Hutchings and Reynolds 2004 44 McElhany et al. 2000. 45 Kareiva et al. 2000, Dauble et al. 2003, Reischel and Bjornn 2003, Boggs et al. 2004, Bottom et al. 2005, Williams et al. 2005, Caudill et al. 2007, Keefer et al. 2008, Caudill et al. 2013, Rechisky et al. 2013, BiOp 2014, Harnish et al. 2014, Keefer and Caudill 2015, ISAB 2016, Perry et al. 2016, Bond et al. 2017. 46 Elliott et al. 1997, Beeman and Maule 2006, Good et al. 2007, Bryant 2009, Mantua et al. 2010, Abdul-Aziz et al. 2011, Dietrich et al. 2011, Evans et al. 2012, Keefer et al. 2012, Caudill et al. 2013, Dittmer 2013, Sebring et al. 2013, Crozier 2015, Erhardt 2015, Justice et al. 2017. 47 Tiffan et al. 2009. 48 Olden and Naiman 2010. 49 Miller et al. 2014. 8 protected salmonids and maintain or restore essential habitat features that prevent adverse modification of critical habitat. The Action Agencies have failed in the DEIS to take the necessary hard look to evaluate all reasonable alternatives to both reduce and offset the impacts associated with continued dam operations to avoid jeopardy on ESA-protected species and maintain or restore essential habitat features that prevent adverse modification of critical habitat. More effective actions such as dam removal or modification of dam operations are necessary to eliminate the adverse modification of critical habitat for salmonids and to change the status quo. Indeed, scientific evidence shows that dam removal would provide the much-needed boost to salmon and eel populations, help the long-term restoration of riverine ecosystems, increase marine nutrients input from the ocean to freshwater habitat, and improve physical conditions within tributaries and mainstem habitat.50 The Action Agencies failed to fully assess the environmental benefits of dam removal in the EIS. Dam removal is becoming increasingly common as a management strategy for environmental restoration.51 In the Pacific Northwest, over a dozen dams have been already removed.52 Currently, four large dams on the Klamath River in California are scheduled for removal in 2022, showing that large dam removal projects are feasible.53 The EIS should analyze the potential ecosystem services of dam breaching, not only on salmonid recovery but also critical habitat of protected species. Restoring natural river flows and hydrodynamics, by removing dams and passage barriers, would likely benefit the ecological functioning of the entire river basin by increasing salmon survival, potentially increasing spawning areas, increasing salmon run numbers, and ultimately increasing nutrient supply to the interior basin.54 For example, Chinook salmon in the Rogue River spawned in newly deposited gravel just a few months after dam removal. A major benefit to removing impediments to water flow would be increased survival of smolts as well as increased passage for adult salmonids to historical spawning grounds.55 Dam removal would also increase flow volumes which decreases travel time of smolts and thus increases salmonid juvenile survivorship.56 In addition, flow restoration stabilizes water temperatures preventing drastic changes in water temperatures (increasing or declining) that are known to affect fish survival.57 Dam removal would also prevent fish concentration in certain areas that are easily predated by birds and marine mammals.58 Finally, dam removal may restore ecological important nutrient flows and sediment dynamics that are essential for ecosystem health and productivity.59 50 Bednarek 2001, Pejchar and Warner 2001, Hart and Poff 2002, Stanley and Doyle 2003, Duda et al. 2008, Brenkman et al. 2008, Hitt et al. 2012, Null et al. 2014, Pess et al. 2014, Hatten et al. 2015, Tonra et al. 2015, Quiones et al. 2015, Hamilton et al. 2016, Magilligan et al. 2016b, 2016a, Cubley and Brown 2016. 51 Loomis 1996, Pohl 2002, Winter and Crain 2008, OConnor et al. 2015, Borisova et al. 2017. 52 Ryan Bellmore et al. 2016. 53 Jacobs, J.P. April 9, 2020. California greenlights massive Klamath River dam removal. E&E News. Available at: https://www.eenews.net/stories/1062829919. 54 Roni et al. 2002. 55 Bednarek 2001. 56 Brenkman et al. 2008. 57 Pess et al. 2014. 58 Evans et al. 2012. 59 Tonra et al. 2015. 9 Scientific evidence has shown that dam removal provides several ecological and socioeconomic benefits as soon as one to three years.60 Beyond the direct positive effects that dam removals have on fish, aquatic organisms, and the species that depend on them for food, the entire watershed will benefit from increased vegetation, water flow, and biodiversity, and improved water quality.61 Cleaner water is valuable for agriculture, livestock, and human consumption. In addition, removal costs could be lower than the funds needed to maintain old infrastructure and the mitigation and restoration projects associated with the impacts of dam systems.62 The DEIS vastly underestimates both the CRSO impacts on salmonids and the value that removing the four lower Snake River dams would have on the species. What is clear is that the Preferred Alternative will not bring the Columbia Rivers treasured salmonids any closer to recovery. We expect the Action Agencies to fully and accurately assess the impacts of their status quo approach to managing the Columbia River System on salmon, including the scientific information cited to in this letter and included in Appendix A, and revisit the alternative of removing the four lower Snake River dams as the best first step towards sustainable salmon recovery.	predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. To address uncertainty highlighted by the two models, the Preferred Alternative includes working with regional sovereigns to develop a study that assess the effectiveness of the increased spill regime on adult returns as well as assessment and management of adverse unintended consequences, such as long delays of adult migrants, or TDG-related mortality of juvenile migrants. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information. The Preferred Alternative will make a substantial contribution towards recovery. The co-lead agencies conclude the expected outcomes for salmon and steelhead associated with MO3 are appropriately acknowledged and framed appropriately with impacts to other authorized purposes.
6588	5	rkrehbiel@defenders.org	Defenders of Wildlife	C. The Action Agencies Failed to Fully Consider Indirect Impacts to Southern Resident Orcas, Failed to Include the Best Available Scientific Information, and Failed to Address Contrary Viewpoints. The nations leading Southern Resident orca scientists and experts have unequivocally stated that if we do not breach the four lower Snake River dams, it may be impossible to prevent the extinction of the Southern Resident orcas.63 Extensive comment letters to the Action Agencies during the February 2017 NEPA scoping period focused on the connection between Columbia Basin salmon and Southern Resident orcas.64 Many of our organizations provided the Action Agencies with a detailed bibliography of peer-reviewed studies that highlight the importance of restoring Snake River salmon to recover Southern Resident orcas, and we provide one here again in Appendix B. Despite the extensive scientific information provided to the Action Agencies, the DEIS has only two paragraphs dedicated to Southern Resident orcas.65 Without any citations, the DEIS boldly claims that, [t]he food available to Southern Resident killer whales from the lower Snake River population is only a small percentage of their overall diet. Changes to food availability may change the whales foraging behavior patterns slightly but will not change their overall condition or population dynamics.66 Under this assumption, the DEIS falsely concludes that any increase in salmon (under any alternative) would provide only a negligible or minor benefit to the Southern Residents.67 This statement is flatly inaccurate for several reasons. 60 Bednarek 2001, Hart and Poff 2002, Stanley and Doyle 2003, Hogg et al. 2013, Auerbach et al. 2014, Null et al. 2014, Gillette et al. 2016, Magilligan et al. 2016b, 2016a, Bohrerova et al. 2017. 61 Winter and Crain 2008, Marks et al. 2010, Tonra et al. 2015, Magilligan et al. 2016b, Cubley and Brown 2016, Bohrerova et al. 2017. 62 Loomis 1996, Gosnell and Kelly 2010. 63 Giles, D.A., S.K. Wasser, D. Bain, K. Ayres, V. Veirs, and S. Veirs. 2018. Letter to Governor Jay Inslee and Southern Resident Orca Recovery Task Force Members. October 15, 2018. Available at: https://www.documentcloud.org/documents/5002547-Orca-Scientists-Letter-10-15-18-Final.html. 64 DEIS at 1-14, line 377. 65 DEIS at 3-685, lines 20,959 20,982. 66 DEIS at 3-759, table 3-106. 67 Id. 10 First, Snake River salmon, both currently and historically, are important food sources for Southern Resident orcas. Like many predators, Southern Resident orcas travel long distances in search of their prey. Data from satellite-tagged orcas show that all three pods spend time foraging for salmon off the west coast in the spring and winter.68 During this time, the Southern Residents spend a considerable amount of time at the mouth of the Columbia River foraging for salmon as they return to spawn in the Columbia Basin, including the Snake River and its tributaries.69 Using this information, NMFS and the Washington Department of Fish and Wildlife assessed the relative importance of various salmon runs to the Southern Residents. That analysis identified Snake River	SRKW analysis is described in the EIS including in the FEIS Chapter 3 (Vegetation, Wetlands, Wildlife, and Floodplains) which has been updated for SRKW (Section 3.6.2.6 and Table 3-102) and FEIS Chapter 7 (Preferred Alternative) with additional analysis information on SRKW and potential increase in forage fish, in particular, Chinook salmon in Section 7.7.8. The co-lead agencies utilized current high quality information and best available science in its analysis of the effects of the operation, maintenance, and configuration of the CRS projects. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. The EIS analysis found that only a minor effect to the Southern Resident killer whale would result from implementing MO3 (which includes the dam breach measure). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differentially from hatchery and wild fish. Hatchery fish today likely make up most fish consumed by SRKW (NOAA BiOp 2020). The EIS analysis of the Preferred Alternative determined the overall effect to SRKW to be negligible in large part because hatchery production is consistent between the No Action Alternative and the Preferred Alternative. Because the impact from the Preferred Alternative was determined to be negligible, the agencies determined that existing hatchery production would be sufficient to address any potential impacts to prey availability for SRKWs. The co-lead agencies note the contribution to the prey of SRKW through the continued existence of their respective independent congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as the Lower Snake River Compensation Plan, which is administered by U.S. Fish and Wildlife Service. The Preferred Alternative and Proposed Action in the agencies' biological assessment carry forward certain mitigation measures described in Chapters 2 and 7 of the EIS, which include continued salmon and steelhead hatchery production. The Preferred Alternative has negligible effects to SRKWs as described in Section 7.7.8.

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				Chinook salmon runs as two of the top ten most important salmon stocks to the orcas in their current diet.70 Historically, the importance of these stocks was likely much higher given that there were significantly more Snake River salmon prior to dam construction.71 Before the lower Snake River dams were built, half of all salmon returning to the Columbia Basin were bound for spawning grounds in the Snake River and its tributaries.72 At that time, the Washington Department of Fisheries warned in its 1949 annual report that the dams could have lasting impacts on salmon and the local economy: Another serious threat to the Columbia river fishery is the proposed construction by the U.S. Army Engineers of Ice Harbor and three other dams on the lower Snake river between Pasco, Wash. and Lewiston, Idaho to provide slackwater navigation and a relatively minor block of power. The development would remove part of the cost of waterborne shipping from the shipper and place it on the taxpayer, jeopardizing more than one-half of the Columbia River salmon production in exchange for 148 miles of subsidized barge route. The transportation saving to the shipper would amount to $2,000,000 annually, while salmon runs having a wholesale value of about $9,000,000 would be threatened with destruction.73	
6588	6	rkrehbiel@defenders.org	Defenders of Wildlife	Second, wild Snake River Chinook salmon are particularly important to orcas due to their size and fat content. While salmon spend their adult years in the Pacific Ocean, they build up enough fat and 68 J. Acoust. Soc. Am., Vol. 134, No. 5, November 2013, Hanson et al.: Killer Whale Acoustic Recorder Occurrence, 3486. Available at: http://oceanwidescience.org/cms/wp-content/uploads/2014/12/Hansonet-al-2013.pdf. Southern Resident Killer Whale Satellite Tagging. Available at: http://www.nwfsc.noaa.gov/research/divisions/cb/ecosystem/marinemammal/satellite_tagging/blog.cfm. 69 Hanson, M.B., E.J. Ward, C.K. Emmons, and M.M. Holt. 2018. Modeling the occurrence of endangered killer whales near a U.S. Navy Training Range in Washington State using satellite-tag locations to improve acoustic detection data. Prepared for: U.S. Navy, U.S. Pacific Fleet, Pearl Harbor, HI. Prepared by: National Oceanic and Atmospheric Administration, Northwest Fisheries Science Center under MIPR N00070-17-MP-4C419. 8 January 2018. p. 33. 70 NMFS West Coast Region and Washington Department of Fish and Wildlife. 2018. Southern Resident Killer Whale Priority Chinook Stocks Report. June 22, 2018. Available at: https://archive.fisheries.noaa.gov/wcr/publications/protected_species/marine_mammals/killer_whales/recovery/srkw_priority_chinook_stocks_conceptual_model_report___list_22june2018.pdf. 71 NMFS, West Coast Region. November 2017. ESA Recovery Plan for Snake River Spring/Summer Chinook Salmon (Oncorhynchus tshawytscha) and Snake River Basin Steelhead (Oncorhynchus mykiss). Available at: https://www.fisheries.noaa.gov/resource/document/recovery-plan-snake-river-spring-summer-chinooksalmon-and-snake-river-basin. 72 Id. 73 State of Washington Department of Fisheries, Annual Report for 1949. Director of Fisheries, Alvin Anderson. Delivered to Governor Arthur B. Langlie. Page 3. 11 energy to propel them from the ocean to their inland spawning grounds.74 Once adult salmon enter the river and begin the journey to their native spawning grounds, they do not eat.75 Snake River salmon have one of the longest spawning migrations in the Pacific Northwest, traveling from the ocean to rivers and streams in central Idaho and northeast Oregon.76 Because of this, Snake River salmon tend to require more nutrients stored in their fat than other salmon, making them especially important to orcas.77	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. The EIS analysis found that only a minor effect to the Southern Resident killer whale would result from implementing MO3 (which includes the dam breach measure). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differentially from hatchery and wild fish. Hatchery fish today likely make up most fish consumed by SRKW (NOAA BiOp 2020). The EIS analysis of the Preferred Alternative determined the overall effect to SRKW to be negligible in large part because hatchery production is consistent between the No Action Alternative and the Preferred Alternative. Because the impact from the Preferred Alternative was determined to be negligible, the agencies determined that existing hatchery production would be sufficient to address any potential impacts to prey availability for SRKWs. The co-lead agencies note the contribution to the prey of SRKW through the continued existence of their respective independent congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as the Lower Snake River Compensation Plan, which is administered by U.S. Fish and Wildlife Service. The Preferred Alternative and Proposed Action in the agencies' biological assessment carry forward certain mitigation measures described in Chapters 2 and 7 of the EIS, which include continued salmon and steelhead hatchery production. The Preferred Alternative has negligible effects to SRKWs as described in Section 7.7.8.
6588	7	rkrehbiel@defenders.org	Defenders of Wildlife	Third, Southern Resident orca recovery will require state, federal, and tribal governments to protect and rebuild salmon runs throughout the Southern Resident orcas range, which includes the mouth of the Columbia River where orcas forage during late winter and early spring.78 The DEIS myopically argues that salmon recovery efforts should be focused in the Salish Sea.79 The consequences of neglecting other foraging areas would divert resources to just half of the orcas annual range. The Southern Residents typically spend summer and fall in the Salish Sea (which includes Puget Sound) foraging for salmon returning to local rivers from June through November. In the winter, the orcas typically head out into the Pacific Ocean, foraging for salmon as far south as Monterey Bay, California.80 During this time, images from aerial photogrammetry typically document a decline in the orcas body condition.81 Reproductive-age females showed some of the greatest signs of nutritional stress during this time, and as a result, over two-thirds of Southern Resident orca pregnancies are terminated prematurely (including many dangerous late-term miscarriages) because of nutritional stress.82 If salmon recovery efforts were solely focused in the Salish Sea, as the Action Agencies suggest, orcas would not have sufficient food during the time of year they need it most.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. 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6588	8	rkrehbiel@defenders.org	Defenders of Wildlife	Fourth, restoring the lower Snake River will provide more salmon to Southern Resident orcas than almost any other salmon recovery project being considered. In the 2008 Recovery Plan for the Southern Resident Orcas, NMFS stated that [p]erhaps the single greatest change in food availability for resident killer whales since the late 1800s has been the decline of salmon in the Columbia River basin. In that same plan, NMFS went on to state that the Columbia-Snake River Basin, by orders of magnitude, has the largest potential for increasing Chinook salmon abundance throughout the 74 Groot, C. and L. Margolis (ed.). 1991. Pacific salmon life histories. University of British Columbia Press. Vancouver British Columbia. 75 Id. 76 NMFS, West Coast Region. November 2017. ESA Recovery Plan for Snake River Spring/Summer Chinook Salmon (Oncorhynchus tshawytscha) and Snake River Basin Steelhead (Oncorhynchus mykiss). Available at: https://www.fisheries.noaa.gov/resource/document/recovery-plan-snake-river-spring-summer-chinooksalmon-and-snake-river-basin. 77 Wasser, S.K. et al., Population growth is limited by nutritional impacts on pregnancy success in endangered Southern Resident killer whales (Orcinus orca), PLoS ONE 12:e0179824 (2017). 78 Zamon, J. E., T. J. Guy, K. Balcomb, D. Ellifrit. 2007. Winter observations of southern resident killer whales (Orcinus orca) near the Columbia River plume during the 2005 spring Chinook salmon (Oncorhynchus tshawytscha) spawning migration. Northwestern Naturalist, 88:193-198. 79 DEIS at 3-685, lines 20,969 20,975. 80 Proposed Revision of the Critical Habitat Designation for Southern Resident Killer Whales: Draft Biological Report. National Marine Fisheries Service, September 2019. Available: https://www.fisheries.noaa.gov/action/critical-habitat-southern-resident-killer-whale. 81 Fearnbach, H. et al, Using aerial photogrammetry to detect changes in body condition of endangered southern resident killer whales, Endang Species Res 35:175-180. Available at: https://doi.org/10.3354/esr00883. 82 Wasser, S.K. et al., Population growth is limited by nutritional impacts on pregnancy success in endangered Southern Resident killer whales (Orcinus orca), PLoS ONE 12: e0179824 (2017). 12 Southern Residents range.83 Additionally, because Snake River salmon spawn in high alpine, federally protected Wilderness areas, these runs are more insulated from the impacts of climate change and development, providing orcas with both a large and more reliable source of food into the future.84 According to the Fish Passage Center, breaching all four lower Snake River dams and increasing spill on the lower Columbia dams would result in roughly 1 million adult Chinook salmon returning to the mouth of the Columbia River annually.85 By removing these dams, we can also increase salmon access to roughly 5,500 miles of free-flowing spawning habitat in Central Idaho and northeast Oregon, much of which is both climate-resilient and federally protected.86 For all of these reasons, the future of Snake River salmon is of the utmost importance to the future of the Southern Resident orcas. Many of these points and studies have already been provided to the Action Agencies, and yet the DEIS did not mention any of them. We expect the Action Agencies to fully and accurately consider the impacts of the status quo approach to managing the Columbia River System on Southern Resident orcas, including the scientific information cited in this comment letter, those listed below in Appendix B, and in the two documents submitted with this letter as attachments: Attachment A Salmon and Orca Scientist White Paper and Attachment B Chapter 2 of the Fish Passage Centers 2019 Comparative Survival Study (CSS) Report.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat. 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6588	9	rkrehbiel@defenders.org	Defenders of Wildlife	D. The Action Agencies Failed to Fully Assess the Cumulative Impacts of Climate Change on Salmon and Failed to Include the Best Scientific Information on Climate Change Impacts. In the DEIS, the Action Agencies failed to fully assess the impacts of climate change on reservoir temperatures and what that would mean for salmon survival. Anthropogenic climate change is one of the greatest threats to wildlife both globally and locally. On the lower Snake River, water temperatures in the large, slackwater reservoirs created by the four dams increase every year, posing increasing risks to salmon.87 These lethal temperatures kill both adult and juvenile salmon and at the same time benefit invasive, salmon-eating fish found throughout these reservoirs.88 83 NMFS (2008) Recovery Plan for Southern Resident Killer Whales (Orcinus orca), p. II-82. Available at: http://www.nwr.noaa.gov/Marine-Mammals/Whales-Dolphins-Porpoise/Killer-Whales/ESA-Status/OrcaRecovery-Plan.cfm. 84 Bain, D., D.A. Giles, M.J. Filardo, H. Schaller, and R. Williams. 2020. Southern Resident killer whales and Columbia/Snake River Chinook: A review of the available scientific evidence. February 2020. 85 Estimated salmon returns under each scenario were based on CSS smolt-to-adult-ratios and quantified by Dr. Michelle Dehart of the Fish Passage Center during a webinar to the Southern Resident Orca Recovery Task Force on September 27th, 2018. Webinar is available at: https://pspwa.app.box.com/s/l0je55acwx7hjcxqfrc9uys72c4eg1dz/file/322691991990 86 Bain, D., D.A. Giles, M.J. Filardo, H. Schaller, and R.	The co-lead agencies analyzed the effects of the operation, maintenance, and configuration of the CRS projects on resources affected by the CRS, including the potential to improve conditions for ESA-listed species. The co-lead agencies also looked at the cumulative effects of other actions in Chapters 6 and 7 of the EIS. Regarding climate change analysis, the climate science community is still developing models that can be used to analyze possible effects to water temperature from climate change and, unfortunately, they have not been fully applied and validated for use with climate affected regulated flow projections of large reservoir systems. Therefore it was not possible to reliably model water temperature changes under climate change for incorporation to either of the fish models. In lieu of this information, the climate analysis used the output from the water quality models under historical conditions, climate change data, and scientific literature to qualitatively assess potential effects to water temperature and anadromous fish. These analyses are documented in Section 4.2.3 for the MO Alternatives and Section 7.8.4 for the Preferred Alternative. Historically, water temperatures in the lower Snake River were warm (USGS 1960, 1961, 1964; Corps 2002a). Observed historic water temperatures in show that average monthly water temperatures during July and August, in the 1950s, averaged 7 to 8 degrees Fahrenheit higher than today's conditions, while maximum daily differences were 10 to 12 degrees Fahrenheit higher. The differences observed in the lower Snake River today, as compared to historical conditions, are a result of the middle and upper Snake River reservoirs combined with the influence that Dworshak Dam operations. The effects of these operations are discussed under the No Action Alternative. The co-lead agencies analysis shows that under a dam breaching scenario, nighttime summer water temperatures, as well as fall water temperatures, would be cooler than No Action conditions in the Snake River. While some cooler water temperatures may be observed in the summer under dam breaching, especially during cooler summer weather conditions and at night, water temperatures will remain warm and exceed the state water quality standard at times. This is because without the dams, the lower Snake River will be shallower and more

Letter No.	Comment No.	Commenter Name/Email	Affiliation	Comment	Response[1/]
				Williams. 2020. Southern Resident killer whales and Columbia/Snake River Chinook: A review of the available scientific evidence. February 2020. 87 Save Our Wild Salmon Coalition, 2019. Hot Water Report 2019. Issue 9, August 30th, 2019. Available at: https://www.wildsalmon.org/news-and-media/sos-blog/hot-water-report-2019-august-23rd-2.html. 88 NMFS, West Coast Region. November 2017. ESA Recovery Plan for Snake River Spring/Summer Chinook Salmon (Oncorhynchus tshawytscha) and Snake River Basin Steelhead (Oncorhynchus mykiss). Available at: https://www.fisheries.noaa.gov/resource/document/recovery-plan-snake-river-spring-summer-chinooksalmon-and-snake-river-basin. 13 First, the DEIS does not provide any information about the efficacy of current efforts to mitigate the effects of lethal water temperatures on salmon. While the DEIS mentions the currently utilized option of releasing cool water from the Dworshak Dam into the Snake River, it does not discuss how effective that strategy has been or how effective it is likely to be given ever increasing temperatures.89 Over the last several years, Columbia and Snake River temperatures have exceeded 20 degrees Celsius (68 degrees Fahrenheit).90 At this temperature, salmon have difficulty migrating upstream, and mortality from stress and disease increases.91 The Fish Passage Center has stated that, under a climate change scenario, the long-recognized and largely unaddressed problem of high water temperatures in the [Columbia and Snake Rivers] becomes an ever-increasing threat to the survival of salmon.92 It is critical for the Action Agencies to assess the efficacy of current water temperature cooling measures, particularly into the future, in order to evaluate mitigation strategies under all alternatives in the DEIS.	susceptible to solar radiation and warming. Increases in water particle travel time are expected, but the lower Snake River has always been a warm system (USGS 1960, 1961, 1964; Corps 2002a) and breaching the dams will not change this fact. The models showed minor changes in the Columbia River under this alternative, indicating that the operations of the CRS dams have a limited ability to reduce temperatures in the lower Columbia River. Regionally high air and water temperatures result in water quality standard exceedances and are beyond the ability of the CRS to cool; future climate change predictions will result in even more difficult challenges. The co-lead agencies contracted with the Fish Passage Center (FPC) to produce the CSS modeling results presented in the Draft EIS. Any additional modeling that was not presented in the Draft EIS is not part of the CRSO EIS and was not developed by the co-lead and cooperating agencies.
6588	10	rkrehbiel@defenders.org	Defenders of Wildlife	Second, the DEIS does not rely on appropriate models to predict climate change impacts on water temperatures and salmon. The model used as part of the water quality assessment provided in Appendix D of the DEIS looked at water temperatures over a 5-year period from 2011 to 2015. This model does not predict how climate change will further impact temperatures in either an impounded or free-flowing river.93 The DEIS also used a model developed by the River Management Joint Operating Committee (RMJOC), but, as the DEIS notes, the full RMJOC assessment of climate change is not complete: A second part of the RMJOC-II study, which is not yet available, will provide an assessment of how these projected unregulated streamflows perform in a regulated Columbia River system.94 The DEIS also states that this climate model does not include predicted water temperatures.95 These two models fail to accurately assess of how climate change will increase water temperatures in reservoirs and, thus, how that will impact salmon survival.	The climate science community is still developing models that can be used to analyze possible effects to water temperature from climate change, and unfortunately, have not been fully applied and validated for use with climate affected regulated flow projections of large reservoir systems. Therefore, it was not possible to reliably model water temperature changes under climate change for this EIS. In lieu of this information, the climate analysis used the output from the water quality models under historical conditions, climate change data, and scientific literature to qualitatively assess potential effects to water temperature (Section 4.2.3).
6588	11	rkrehbiel@defenders.org	Defenders of Wildlife	This is particularly timely given that water temperature in these reservoirs are the subject of yet another lawsuit against the federal government for mismanagement of the river and its wildlife. In December 2019, the Ninth Circuit Court of Appeals ruled that under the Clean Water Act, 33 U.S.C. 1313(d)(2), the Environmental Protection Agency has an immediate duty to set a Total Maximum Daily Limits (TMDLs) for water temperature in the Columbia and Snake Rivers because the states of Washington and Oregon have conclusively refused to do so.96 Recently, the court denied the agencys request for an en banc and panel rehearing of this issue, so the ruling stands.97	Thank you for your comment. For information regarding the recently issued TMDL for temperature in the Columbia and lower Snake rivers, please see https://www.epa.gov/columbiariver/tmdl-temperature-columbia-and-lower-snake-rivers.
6588	12	rkrehbiel@defenders.org	Defenders of Wildlife	Independent research and computer modeling suggest that even with elevated air temperatures, a free-flowing Snake River will be more resilient to climate change and water temperatures will be significantly lower than they would be in a dammed river.98 Additional modeling by the 89 DEIS at 2-16. 90 Fish Passage Center, Requested data summaries and actions regarding sockeye adult fish passage and water temperature issues in the Columbia and Snake rivers (Oct. 28, 2015). 91 National Marine Fisheries Service, 2015 Adult Sockeye Salmon Passage Report, pp. 2022 (2016). 92 Fish Passage Center, Review of April 2016 Draft of NMFS report 2015 Sockeye Salmon Passage Report, p. 1 (May 4, 2016). 93 DEIS at D-2-1, line 1085. 94 DEIS at 4-2, lines 60-62. 95 DEIS at 4-2, line 69. 96 Columbia Riverkeeper v. Wheeler, 944 F.3d 1204, 1211 (9th Cir. 2019). 97 Riverkeeper v. Wheeler, No. 18-35982, 2020 U.S. App. LEXIS 9897, at *1 (9th Cir. Mar. 30, 2020). 98 Shultz, M. and M. Johnson. 2017. Columbia Riverkeeper White Paper: Computer modeling shows that Lower Snake River dams caused dangerously hot water for salmon in 2015. Available at: 14 Environmental Protection Agency demonstrates that the presence of multiple dams on the Columbia and Snake Rivers has warmed the rivers to unsafe levels for salmon.99 Despite this, the DEIS claims that climate change impacts will be the same on the lower Snake River regardless of if dams are breached or not.100 This may be because the models cited in the DEIS did not examine water temperatures when considering the long-term climate change impacts. We strongly urge the Action Agencies to rectify this glaring error and update its analyses by including these other models.	The analysis of MO3, which includes breaching the four lower Snake River dams, indicates that nighttime summer water temperatures, as well as fall water temperatures, would be cooler than No Action conditions in the Snake River. However, at night, water temperatures will remain warm and exceed the state water quality standard at times. This is because without the dams, the lower Snake River will be shallower and more susceptible to solar radiation and warming. Increases in water particle travel time are expected, but the lower Snake River has always been a warm system (USGS 1960, 1961, 1964; Corps 2002a) and breaching the dams will not change this fact. Regionally high air and water temperatures result in water quality standard exceedances and are beyond the ability of the CRS to cool; future climate change predictions will result in even more difficult challenges. The water temperature model used to analyze all EIS alternatives underwent review by experts outside of the co-lead agencies, including scientists from the USEPA, USGS, and Portland State University. In addition, the USEPA and co-lead agencies worked together to compare the co-lead agencies' CE-QUAL W2/HEC-RAS model (used for EIS analysis) and the EPA's RBM-10 model (used for the draft TMDL assessment). Efforts included identifying and comparing similarities and differences in the two models and assessments, and concluded that both models provide useful and technically appropriate analyses of the Columbia and lower Snake River water temperatures. As such, the EPA agrees with the co-lead agencies that the CE-QUAL W2 and HEC-RAS models are appropriate to use in developing the Draft EIS (see EPA review comment letter # 16-0059). The climate science community is still developing models that can be used to analyze possible effects to water temperature from climate change, and unfortunately, there are not reliable models at the resolution required (river vs. regional or global scale) at this time. Therefore, it was not possible to reliably model water temperature changes under climate change for incorporation into either of the fish models. In lieu of this information, the climate analysis used the output from the water quality models under historical conditions, climate change data, and scientific literature to qualitatively assess potential effects to water temperature and anadromous fish in Section 4.2.3.
6588	13	rkrehbiel@defenders.org	Defenders of Wildlife	The Action Agencies must also assess the impacts that increasing reservoir water temperatures will have on predation of juvenile salmon by invasive, non-native fish. Several studies have indicated that predation from these invasive species is a major and potentially limiting factor for salmon recovery in the Columbia Basin.101 The DEIS notes that dams have altered habitat in a way that generally favors non-native and invasive species at the expense of native species.102 Further, the DEIS states that most of the invasive species are warm water fish while native species are cold water adapted.103 It goes on to state that warmer water temperatures increase the predation rate of invasive fish on salmonids.104 However, this analysis stops too short.	The qualitative analyses mentioned in this comment concluded that scenarios with increasing temperatures would likely increase predation on juvenile salmon. Water temperature under each alternative was modeled and provided to the quantitative fish models which include a component to consider the relationship between water temperature and predation risk into the results for runs where numerical models were available. Further analyses included qualitative consideration of increased predation risk in scenarios where water temperature would be expected to change. In the case of climate change, there is not sufficient information to numerically model temperature changes because the resolution of climate models is at a regional or global scale instead of specific to water bodies, so these effects were also described qualitatively.
6588	14	rkrehbiel@defenders.org	Defenders of Wildlife	Later in the DEIS, the Action Agencies claim that a free-flowing Snake River may increase the presence of many invasive salmon predators, contradicting their earlier point. 105 As stated above, dam breaching is expected to significantly reduce overall in-stream water temperatures, which will make the habitat less suitable to invasive, warm-water adapted species. Many of these invasive species are also adapted to slackwater environments like lakes and ponds, which are typically warmer than free-flowing rivers. In the 2017 Recovery Plan for Snake River Spring/Summer Chinook Salmon and Steelhead, NMFS stated, when discussing dam breaching, that, It is likely that the return to a more riverine system in this portion of the Snake River could reduce salmon predation losses to native and non-native invasive fishes that have taken advantage of the reservoir habitat, such as northern pikeminnow and walleye. Migrating smolts would be less exposed due to decreased travel times through the lower Snake River.106 The EIS must integrate these findings. https://www.columbiariverkeeper.org/sites/default/files/2017/08/Computer-modeling-shows-that-LowerSnake-River-dams-caused-dangerously-hot-water-for-salmon-in-2015-final.pdf. 99 EPA Region 10. RBM-10 Columbia River Temperature TMDL-Preliminary Technical Information. Presentation to Columbia River Tribes. August 14, 2018. Spokane, WA; River Management Joint Operating Committee (RMJOC II). 2018. Climate and hydrology datasets for RMJOC Long-term Planning Studies. Second Edition. Part I: Hydroclimate Projections and Analyses. Bonneville Power Administration, U.S. Army Corps of Engineers and U.S. Bureau of Reclamation. Portland, Oregon; Fish Passage Center, Review of April 2016 Draft of NMFS Report, p. 1 (May 4, 2016). 100 DEIS at 4-22, lines 492-93. 101 John M. Erhardt and Kenneth F. Tiffan, Post-release predation mortality of age-0 hatchery-reared Chinook salmon from non-native smallmouth bass in the Snake River, Fisheries Management and Ecology, 25, 6, (474487), (2018). 102 DEIS at 3-289, lines 6854 6857. 103 DEIS at 3-294, lines 6997 7002. 104 DEIS at 3-295, lines 7039 7042. 105 DEIS at 4-36, lines 1037 and 1038. 106 NMFS, West Coast Region. November 2017. ESA Recovery Plan for Snake River Spring/Summer Chinook Salmon (Oncorhynchus tshawytscha) and Snake River Basin Steelhead (Oncorhynchus mykiss). Available at: https://www.fisheries.noaa.gov/resource/document/recovery-plan-snake-river-spring-summer-chinooksalmon-and-snake-river-basin. 15 Breaching the four lower Snake River dams would not only decrease salmon migration time, it would also decrease lethal water temperatures and invasive predators. The Action Agencies should recognize these added benefits to salmon survival when assessing the alternative of dam breaching in the EIS.	The fish analyses for MO3, which includes the dam breach measure, indicated that a free-flowing river would, indeed result in fewer non-native, predatory fish. The CRSO EIS also recognizes, however, that a more natural riverine environment could result in more habitat available for avian predators to nest and could increase predation on salmon in the Snake River corridor by these birds. While some cooler water temperatures may be observed in the summer under MO3, especially during cooler summer weather conditions and at night, water temperatures will remain warm and exceed the state water quality standard at times. This is because without the dams, the lower Snake River will be shallower and more susceptible to solar radiation and warming. Increases in water particle travel time are expected, but the lower Snake River has always been a warm system (USGS 1960, 1961, 1964; Corps 2002a) and breaching the dams will not change this fact. Regionally high air and water temperatures result in water quality standard exceedances and are beyond the ability of the CRS to cool; future climate change predictions will result in even more difficult challenges. Overall, the conclusion in the Draft EIS is that MO3 would be beneficial to anadromous fish for a number of reasons, but other considerations must also be considered in the selection of a Preferred Alternative. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets certain objectives of the study for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets only a small subset of the EIS objectives. Thus, the co-lead agencies did not recommend MO3 because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system.
6588	15	rkrehbiel@defenders.org	Defenders of Wildlife	E. The DEIS Mischaracterizes the Impacts of Dam Breaching on Other Wildlife. The Action Agencies did not sufficiently analyze all alternatives because they did not present a complete or accurate characterization of the various actions and potential direct, indirect, or cumulative impacts they may have, such as impacts on other wildlife. As written, the DEIS conveys much more optimism for maintaining the status quo than any of the alternatives, particularly dam breaching. The Action Agencies must provide additional information, context, and analysis to help guide decision making. While the DEIS lists actions the Action Agencies have taken to support ESA-listed fish, it does not provide any information about the effectiveness of these projects or programs.107 While the amount of money committed to fund these projects is impressive, it is unclear how successful these actions have been, particularly given that none of the ESA-listed salmon in the Columbia Basin have been recovered.108 Given the limited time and resources available, it is important for the Action Agencies to assess their current efforts to demonstrate that these investments are making timely and meaningful strides towards recovery. In particular, the Action Agencies should provide information about the degree to which habitat restoration and predator removal efforts have contributed to salmon recovery and returns. Additionally, the Action Agencies must report their success in a way that puts it in the context of Basin-wide salmon recovery. One of the most important data points for salmon recovery is the smolt-to-adult ratio (SAR): the number of adults that return to spawn for every smolt that hatches.109 SARs are used by managers to assess the progress of salmon runs towards recovery goals.110 Current SARs for spring/summer Chinook salmon are estimated to be around 1%.111 The Northwest Power and Conservation Council has stated that 2% SARs are needed to maintain current populations, while 4-6% is needed for recovery.112 Rather than relying on this metric, the Action Agencies instead use misleading data points without putting them in the appropriate context. For example, when discussing juvenile passage over the dams, the DEIS reports juvenile survival rates and migration times.113 While these numbers are indeed important to consider, viewing them in isolation paints a more optimistic narrative for salmon than the reality. These numbers only provide the percentage of fish that survive going from the forebay of a dam to its tailrace. While these survival rates seem high, these percentages do not account for deaths that occur between dams in reservoirs either from latent mortality or from predation. Models from the 107 DEIS at 2-30, table 2-3. 108 See: NMFS, West Coast Salmon & Steelhead Listings.	Regarding wildlife impacts, this information is provided in Section 3.6. Impacts specific to implementation of MO3 are provided in Section 3.6.3.5. It should be noted that the 2-6% Smolt-to-Adult return (SAR) target referenced in this comment refers to the Northwest Power and Conservation Councils (Council's) target for broad-sense recovery and is separate and distinct from the obligations of any single entity or in this case a requirement to be met solely by the co-lead agencies. Just as the Councils fish and wildlife program encompasses both Federal and non-Federal stakeholders in the Columbia Basin, the Councils recovery goals are shared by many parties. Based on the analysis of the Preferred Alternative, the co-lead agencies believe their actions will make a substantial contribution, but the Councils broad sense recovery goals are beyond the scope of this EIS which contemplates the effects associated with the operation and maintenance of the 14 CRS projects. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species as that is a broader goal with shared responsibility. The per-dam survival metric is both accurate and useful in measuring changes in near field survival at the dams due to structural modifications (e.g., surface passage routes) or operation changes (changes to spill levels or spill patterns). The per-dam survival estimates are multiplicative in nature and the improvements in at-dam survival over the past 10 years has been shown to contribute to improvements in total in-river survival of smolts migrating through the CRS especially for steelhead. These figures were used to provide context in the affected environment Section. The co-lead agencies do not agree with this comment that states that this information was misleading in nature or presented in isolation. The focus of this EIS analysis presented throughout this review draft in Section 3.5 and Chapter 7 utilized multiple metrics, including total in-river survival, travel time, powerhouse passage rates, and Smolt-to-Adult return rates. Additional charts detailing recent in-river survival estimates will be added to the FEIS. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the CRS. That call, however, is ultimately the role of NMFS and the USFWS. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. Regarding hatchery impacts associated with MO3, as described in Section 3.5, the co-lead agencies anticipate that changes in hatchery funding may occur as needs and obligations shift. The co-lead agencies do not claim that hatchery operations would be shuttered. As noted in Section 3.5, the co-lead agencies also recognize that there would be transitional needs that would be addressed in the additional mitigation measures for MO3 discussed in Chapter 5. Additionally, the Bonneville F&W Program funding for offsite mitigation projects in the Snake River Basin, implemented by local, state, Tribal, and Federal entities, would be reviewed, and potentially adjusted. Any changes of this nature would be implemented over time as the

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				http://www.westcoast.fisheries.noaa.gov/protected_species/salmon_steelhead/salmon_and_steelhead_listin gs/salmon_and_steelhead_listings.html. 109 Fish Passage Center. Survival data smolt to adult queries. http://www.fpc.org/survival/smolttoadult_queries.html. 110 Id. 111 CSS 2016 Annual Report, Chapter 7. Available at: http://www.fpc.org/documents/CSS/2016%20CSS%20Annual%20Report.pdf. 112 Id. 113 DEIS at 3-302, figure 3-112. 16 Fish Passage Center suggest that only 54% of juvenile salmon spawning from above Lower Granite Dam survive the journey over Bonneville Dam.114 The Action Agencies frequently state that hatchery operations, which currently produce 85% of Chinook salmon smolts in the region, would be shuttered if the lower Snake River dams were breached.115 Should this happen, the Action Agencies claim that any potential gains from river restoration would be lost or greatly reduced.116 However, while the Action Agencies would no longer be required to mitigate the impact of these dams, hatchery production would not necessarily need to halt immediately.117	effectiveness of dam breaching is observed and would be done in consultation with fish and wildlife managers, regulatory agencies, and the Council. Consistent with this, offsite mitigation projects for the other CRS dams would be reviewed and could be adjusted as operations change over time. Proposed project modifications would be coordinated with project sponsors and regional stakeholders to determine appropriate funding levels.
6588	16	rkrehbiel@defenders.org	Defenders of Wildlife	The Action Agencies are presenting the public with a false choice. The Action Agencies analysis of the environmental impacts of dam breaching largely assumes that the only necessary management activity to occur would be the removal of the four earthen berms, and that the environment would be left to respond on its own. For example, the DEIS focuses on increased sedimentation and invasive plant colonization that would follow dam breaching.118 Dam breaching, though, presents an opportunity for active riparian and in-river habitat restoration, such as dredging contaminated soils behind the dams, planting trees and native shrubs in newly exposed areas, removing invasive species, and excavating areas for wetlands. The Action Agencies propose actions like these to mitigate potential impacts at the confluence of the Columbia and Snake Rivers, yet they fail to propose similar steps for newly exposed habitat along the Snake River due to dam breaching.119	MO3 in Section 3.6 describes the short-term and long-term effects of dam breaching on the terrestrial and wetland environment. The specific details of the mitigation plan for MO3 have not been developed, but are generally included in Chapter 5. If MO3 was selected and authorized by Congress, an implementation plan and associated National Environmental Policy Act (NEPA) analysis would be prepared that would include site specific information that details the construction, breaching, disposal, and mitigation actions required to implement MO3, as well as identifying all of the associated permitting for this action. As discussed in Chapter 5, mitigation proposed includes "Develop and implement a planting plan to restore arid, native plant communities on approximately 13,000 acres of lands along the lower Snake River."
6588	17	rkrehbiel@defenders.org	Defenders of Wildlife	The DEIS also emphasizes the negative impacts of dam breaching on local wildlife populations in the short term, only briefly mentioning the long-term benefits to species.120 Dam breaching will significantly alter the landscape by restoring the Snake River to its original state. Through active restoration, riparian forests and wetlands can recover relatively quickly. Riparian corridors are also one of the most important habitat types for many wildlife species, and while many species will be disturbed in the short-term by dam breaching activities, it is most likely that native wildlife throughout the region will greatly benefit from a restored, free-flowing Snake River. For instance, following dam removal on the Elwha River in Olympic National Parks, biologists found 1,741 spawning adult Chinook on the river, 75% of which were spawning above the recently removed lower dam.121 Following extensive dam removal on the Rouge River (which began in 2008), fall Chinook populations doubled every year from 2015 2018, despite severe droughts, El Nino, and other environmental factors that usually decrease salmon returns.122 We encourage the Action Agencies to provide a more robust and appropriately balanced assessment of the long-term benefits a free-flowing river would provide to local wildlife. 114 CSS 2019 Annual Report, Appendix, Table 1, available at: http://www.fpc.org/documents/CSS/2019CSSAnnualReport.pdf 115 DEIS at 3-548, lines 16,542 16,543 116 DEIS at 3-550, lines 16,628-16,629 and at 3-558, lines 16,876 16,881 117 For example, funding to support removal of dams on the Elwha River was coupled with the construction and management of a new hatchery to aid in the recovery of salmon on that river. 118 DEIS at 3-749, lines 23,044 23,054. 119 DEIS at 3-756, line 23,324. 120 DEIS from 3-746 through 3-755. 121 Seattle Times. 2013. Elwha River sees largest run of Chinook in decades. Seattle Times. http://www.seattletimes.com/seattle-news/elwha-river-sees-largest-run-of-chinook-in-decades/ 122 Weiser, Matt. 2018. Salmon Are Booming in Oregons Rogue River. Dam Removal May Be Why. June 26,2018 Water Deeply. Available at: https://www.newsdeeply.com/water/articles/2018/06/26/salmon-are-booming-inoregons-rogue-river-dam-removal-may-be-why 17	Long-term effects to wildlife are included for MO3, the alternative that includes the measure to breach the lower Snake River dams, in Section 3.6.3. This section contains a description of short-term and long-term effects and describes impacts to wildlife from dam breaching. As stated in Section 3.6.3, site-specific NEPA would be necessary to analyze dam breaching, if it were selected. This site specific NEPA would also include more extensive analysis of impacts of dam breaching on vegetation and wildlife resources.
6588	18	rkrehbiel@defenders.org	Defenders of Wildlife	III. The Action Agencies Must Also Consult with NMFS to Ensure that Their Actions Do Not Jeopardize Listed Species or Adversely Modify Critical Habitat. Under the Endangered Species Act, 16 U.S.C. 1531 et seq.(ESA), federal agencies may not take an action if it is likely to result in harm to listed species or affect critical habitat. The ESA aims to conserve species of fish, wildlife, and plants facing extinction as well as the ecosystems upon which endangered and threatened species depend.123 The ESA defines critical habitat as the physical and biological features that are essential to the conservation of listed species.124 For example, in the Columbia Basin, migratory corridors are considered critical habitat defined by several primary constituent elements such as water temperature, water quantity, water quality, and safe passage.125 The ESA also requires each agency to use the best scientific and commercial data available.126 The Action Agencies must consult with NMFS on any actions that may directly or indirectly affect ESA-listed species and their critical habitat, which includes actions related to the CRSO.127 Specifically, section 7 requires that the Action Agencies insure that any action authorized, funded, or carried out by such agency . . . is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of designed critical habitat.128 To jeopardize the continued existence of a species means to engage in an action that reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species.129 NEPAs implementing regulations require that, to the fullest extent possible, agencies must prepare draft environmental impact statements concurrently with and integrated with environmental impact analyses and related surveys and studies that the ESA requires.130 Along with the other alternatives analyzed in the DEIS, the Preferred Alternative certainly may affect several ESA-listed species, including salmon and orcas, as well as the critical habitat for these species, triggering the ESAs requirements. The Action Agencies operation and maintenance of the CRSO directly impacts about 13 runs of salmon ESUs and steelhead distinct population segments (DPSs) listed under the ESA within the Columbia-Snake watershed. ESA-protected salmon and steelhead species that the Preferred Alternative will affect include: 1) Snake River fall Chinook salmon; 2) Snake River spring/summer Chinook salmon; 3) Snake River steelhead (Oncorhynchus mykiss); 4) Upper Columbia River spring Chinook salmon; 5) Upper Columbia River steelhead; 6) Middle Columbia River steelhead; 7) Snake River sockeye salmon (Oncorhynchus nerka); 8) Columbia River chum salmon (Oncorhynchus keta); 9) Lower Columbia River Chinook salmon; 10) Lower Columbia River coho salmon (Oncorhynchus kisutch); 11) Lower Columbia River steelhead; 123 16 U.S.C. 1531(a)(4); 16 U.S.C. 1531(b). 124 16 U.S.C 1532(5)(A). 125 Critical Habitat for 15 Distinct Population Segments (DPSs) of salmon and steelhead (Oncorhynchus spp.) in Washington, Oregon and Idaho, 50 C.F.R. 226.212. 126 16 U.S.C. 1536(a)(2). 127 16 U.S.C. 1536(a)(2). 128 Id. 129 50 C.F.R. 402.02. 130 40 C.F.R. 1502.25. 18 12) Upper Willamette River Chinook salmon; and 13) Upper Willamette River steelhead.131 NMFS has designated critical habitat for 12 of these 13 salmonid species.132 In addition, the CRSO indirectly impacts the endangered Southern Resident orca DPS that depend on the Basins salmon populations as a vital prey source.133 Along with the other alternatives analyzed in the DEIS, the Preferred Alternative may affect several ESA-listed species both directly and indirectly, including salmon, steelhead, and Southern Resident orcas, triggering the requirements of the ESA. Because the CRSO may affect ESA-listed species and their critical habitat, the Action Agencies must consult with NMFS on the Preferred Alternative. After consultation, investigation, and analysis, NMFS must prepare a new biological opinion to evaluate the effects of the proposed actions on the survival and recovery of listed species and designated critical habitat. Under the ESA, recovery means improvement in the status of listed species to the point at which listing is no longer appropriate.134 NMFSs biological opinion should include a summary of the science-based information upon which the opinion is based, an analysis of the effects of the agency actions on listed species and critical habitat, and whether the actions are likely to jeopardize the continued existence of a listed species or result in the destruction or adverse modification of critical habitat135 If NMFS determines that the Preferred Alternative may jeopardize the survival of ESA-listed species or adversely modify a species critical habitat, the action must be modified or eliminated. Therefore, NMFSs biological opinion must specify all reasonable and prudent alternatives that avoid jeopardy and make recommendations that promote the conservation of the listed species or species critical habitat.136	The co-lead agencies are actively engaged with NMFS and USFWS in the ESA Section 7 process. The Biological Assessment that the co-lead agencies submitted to NMFS and USFWS was included as Appendix V to the Draft EIS. Final biological opinions on the effects of our proposed actions to ESA-listed species under their jurisdiction, will be appended to the FEIS. The co-lead agencies will implement the Terms and Conditions identified in the respective BiOps to minimize adverse effects to ESA-listed species.
6588	19	rkrehbiel@defenders.org	Defenders of Wildlife	IV. Other Comments Generally, the DEIS is poorly written and organized. Finding information is difficult, and it is not communicated clearly. It also contains several contradictions and grammatical errors. We expect the Action Agencies to thoroughly edit this document and organize it in a more sensible and accessible way before publishing the Final EIS.	The co-lead agencies analyzed the integrated operation, maintenance, and configuration of the 14 projects that comprise the CRS. Because the CRS has a broad geographic reach, is subject to numerous legal mandates, and implicates numerous complicated and contested subjects, the analysis is necessarily lengthy. The Final EIS will expand the table of contents that was in the draft EIS to assist readers in finding specific topics. The EIS also includes an index, so the public knows where to look for detailed analysis in either the main body of the EIS or the appendices.
6588	20	rkrehbiel@defenders.org	Defenders of Wildlife	Additionally, the DEIS contains several inaccurate statements regarding grizzly bears (Ursus arctos horribilis).137 We are providing corrections to those statements and the relevant supporting science here: 1. The current Bitterroot population is not an experimental population. A 10J rule was approved for the Bitterroot Ecosystem, but it was never implemented. Only bears that are physically moved by wildlife managers into the ecosystem would be considered part of this 131 Washington Dept of Fish and Wildlife, ESA Listed Washington Salmonids, available at: http://wdfw.wa.gov/conservation/endangered/esa/wa_esa_listed_map.pdf. 132 See: NMFS, West Coast Salmon & Steelhead Listings. http://www.westcoast.fisheries.noaa.gov/protected_species/salmon_steelhead/salmon_and_steelhead_listin gs/salmon_and_steelhead_listings.html. 133 NMFS. Killer whale (Orcinus orca), available at: http://www.nmfs.noaa.gov/pr/species/mammals/whales/killer-whale.html. 134 50 C.F.R. 402.02. 135 50 C.F.R. 402.14(h)(3). 136 16 U.S.C. 1536(b)(3)(A). 137 DEIS at 3-682. 19 experimental population. To date, no bears have been physically moved by wildlife managers into the ecosystem.	Thank you for the correction. The final EIS will reflect the correct listing status for grizzly bear in the Bitterroot recovery area.

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				The bears living in the Bitterroot Ecosystem today immigrated there on their own. These bears are fully protected as a threatened species under the ESA.138	
6588	21	rkrehbiel@defenders.org	Defenders of Wildlife	2. The size of the current grizzly bear population in the North Cascades Ecosystem is largely unknown but is typically estimated to be lower than 20 bears.139	The Draft EIS states in Section 3.6.2.6 that the "grizzly bear population in Washington is estimated to be fewer than 20 animals." This agrees with the comment.
6588	22	rkrehbiel@defenders.org	Defenders of Wildlife	3. The DEIS left out the Selkirk population of grizzly bears in northeast Washington, directly west of the Cabinet-Yaak Ecosystem. The Selkirk Ecosystem is estimated to have around 80 grizzly bears. This ecosystem is well within the boundaries of the CRSO analysis.140	The Selkirk Mountains Ecosystem (SE) is located in northern Idaho, northeastern Washington, and southeast British Columbia and has an estimated 80 grizzly bears. It is located between the Kootenai River on the east and the Pend Oreille River to the west. While the boundaries of the SE come very close to the study area that would have been subject to the analysis in Vegetation, Wetlands, Wildlife, and Floodplains, but the two do not overlap. Therefore, it was not described or analyzed in the Draft EIS. However, effects to grizzly bear by CRS regions were described in Section 3.6.3, regardless of whether effects overlapped with an ecosystem recovery zone.
6588	23	rkrehbiel@defenders.org	Defenders of Wildlife	Finally, section 3.16, Cultural Resources, is not written in a culturally sensitive way. For example, a single paragraph describes all Native American cultures and history in the CRSO area from 2000 B.C. to 1720 A.D.141 This vastly oversimplifies the diversity of tribes and First Nations who have lived in the region since time immemorial. When discussing Christian missionaries, the Action Agencies only acknowledge the role missionaries played in spreading diseases that decimated many Native American communities, but the agencies should also recognize that many missionaries instituted racist systems of violence and oppression (like Indian Schools) that stole children from their families and stripped them of their cultures and languages.142 Throughout this section, the Action Agencies emphasize potential risks to cultural resources and minimize the benefits.143 We recommend that the Action Agencies consult with local tribal governments and officials in order to rewrite this section to more accurately describe the history of Native Americans in the region and the impacts dam breaching would have on their cultural resources and reserved treaty rights.	In Section 3.16, the co-lead agencies have adequately identified the historic context for which to conduct the comparative impact analysis from all of the action alternatives on cultural resources. Additional details about historical events in the Northwest would not have assisted in the comparative analysis between the No Action Alternative and the action alternatives. Content was provided to the co-lead agencies by several Tribes and is incorporated in both Section 3.17 and in other specific locations throughout the document. Some of these locations include 3.17.2 (Tribal perspective summaries), 3.17.2.2 (general overview, including documenting impacts to Tribal culture), and Appendix P (Tribal Perspectives). The co-lead agencies are engaging in government-to-government consultation with the tribes, and several tribes are cooperating agencies on the CRSO EIS.
6588	24	rkrehbiel@defenders.org	Defenders of Wildlife	V. Public Engagement Was Severely Curtailed and Has Not Been Meaningful. The Action Agencies failed to provide adequate or meaningful opportunities for the public to comment on the DEIS. It is extremely disingenuous that the public was given only 45 days, the regulatory bare minimum, to provide comments on a document that is almost 8,000 pages long and covers an array of complex issues throughout the region. The Action Agencies provided no justification for shortening the timeline, which was originally scheduled for 120 days.144 Members of Congress and many of our organizations have requested that the Action Agencies extend the public comment period back to its original 120-day timeline.145 138 Federal Register 65 FR 69644, page 69644-69649. U.S. Fish and Wildlife Service. November 17th, 2000. Record of Decision Concerning Grizzly Bear Recovery in the Bitterroot Ecosystem. Available at: https://www.federalregister.gov/documents/2000/11/17/00-29531/record-of-decision-concerninggrizzly-bear-recovery-in-the-bitterroot-ecosystem. 139 Interagency Grizzly Bear Committee. http://igbconline.org/. 140 Id. 141 DEIS at 3-1341, lines 5,609 5,626. 142 DEIS at 3-1343, lines 5,700 5,707. 143 DEIS at 3-1355, lines 6,121 6,133. 144 EIS Scheduled Update. US Army Corps of Engineers, Northwestern Division. April 18, 2019. Available at: https://www.nwd.usace.army.mil/Media/News-Stories/Article/1818002/eis-schedule-update/. 145 News release: Washington state, Oregon lawmakers press Trump Administration to extend Columbia River system environmental impact statement comment period as nation works to address coronavirus pandemic. March 31, 2020. Available at: https://www.murray.senate.gov/public/index.cfm/mobile/newsreleases?ID=D3188FED-5034-4177-971AA96F9A966955. 20 Moreover, many individuals across the region have also been responding to the global public health crisis caused by the spread of COVID-19, leaving the public with even less time to fully or fairly review the DEIS. We strongly recommend that the Action Agencies either extend the public comment period to at least 120 days or provide a supplemental public comment period after the COVID-19 crisis has subsided. A supplemental public comment period was recently provided to solicit additional comments on the North Cascades Grizzly Bear Environmental Impact Statement. Recently, the state Department of Ecology cited the COVID-19 pandemic to justify extending the public comment period for the state environmental review of a proposed dam on the Chehalis River from April 27 to May 27.146 Both of these projects have a much narrower scope and impacts a smaller geography than the CRSO DEIS. It is not unreasonable, especially in light of the current public health crisis, that the Action Agencies would provide additional opportunities for public comment and engagement.	The co-lead agencies considered requests to extend the public comment period. This NEPA process included a wide array of cooperating agencies whose close involvement throughout the process allowed the co-lead agencies to incorporate feedback. Given the broad range of comments received and the extensive Federal and non-Federal participation in the overall process as well as the level of public engagement in the six virtual public meetings in the region, the co-lead agencies determined that an extension was not warranted and that the 45-day public comment period was adequate consistent with NEPA regulations. The CRSO EIS website notified the public on April 9, that they should plan to submit comments by the close of the comment period.
6588	25	rkrehbiel@defenders.org	Defenders of Wildlife	Appendix A - Scientific studies highlighting the impacts of hydroelectric system on Columbia Basin salmonids. Abdul-Aziz, O. I., N. J. Mantua, and K. W. Myers. 2011. Potential climate change impacts on thermal habitats of Pacific salmon (Oncorhynchus spp.) in the North Pacific Ocean and adjacent seas. Canadian Journal of Fisheries and Aquatic Sciences 68:16601680. Auerbach, D. A., D. B. Deisenroth, R. R. McShane, K. E. McCluney, and N. L. Poff. 2014. Beyond the concrete: Accounting for ecosystem services from free-flowing rivers. Ecosystem Services 10:15. Bednarek, A. T. 2001. Undamming rivers: a review of the ecological impacts of dam removal. Environmental management 27:803814. Beeman, J. W., and A. G. Maule. 2006. Migration depths of juvenile Chinook salmon and steelhead relative to total dissolved gas supersaturation in a Columbia River reservoir. Transactions of the American Fisheries Society 135:584594. Ryan Bellmore, J., J. J. Duda, L. S. Craig, S. L. Greene, C. E. Torgersen, M. J. Collins, and K. Vittum. 2016. Status and trends of dam removal research in the United States. Wiley Interdisciplinary Reviews: Water:N/A-N/A. BiOp. 2014. Endangered Species Act Section 7(a)(2) Suppleental Biological Opinion. Consultation on Remand for Operation of the Federal Columbia River power System. Boggs, C. T., M. L. Keefer, C. A. Peery, T. C. Bjornn, and L. C. Stuehrenberg. 2004. Fallback, Reascension, and Adjusted Fishway Escapement Estimates for Adult Chinook Salmon and Steelhead at Columbia and Snake River Dams. Transactions of the American Fisheries Society 133:932949. Bohrerova, Z., E. Park, K. Halloran, and J. Lee. 2017. Water Quality Changes Shortly After Low-Head Dam Removal Examined With Cultural and Microbial Source Tracking Methods. River Research and Applications 33:113122. Bond, M. H., P. A. Westley, A. H. Dittman, D. Holecek, T. Marsh, and T. P. Quinn. 2017. Combined Effects of Barge Transportation, River Environment, and Rearing Location on Straying and Migration of Adult Snake River Fall-Run Chinook Salmon. Transactions of the American Fisheries Society 146:6073. Borisova, T., X. Bi, A. Hodges, and S. Holland. 2017. Is the tide is changing? Assessing costs and benefits of dam removal and river restoration: a case study in Florida. Bottom, D. L., C. A. Simenstad, J. Burke, A. M. Baptista, D. A. Jay, K. K. Jone, E. Casillas, and M. H. Schiewe. 2005. Salmon at rivers end: the role of the estuary in the decline and recovery of Columbia River salmon. US Department of Commerce, NMFS, NWFSC. Brenkman, S. J., G. R. Pess, C. E. Torgersen, K. K. Kloehn, J. J. Duda, and S. C. Corbett. 2008. Predicting Recolonization Patterns and Interactions Between Potamodromous and Anadromous Salmonids in Response to Dam Removal in the Elwha River, Washington State, USA. Northwest Science 82:91106. 23 Bryant, M. D. 2009. Global climate change and potential effects on Pacific salmonids in freshwater ecosystems of southeast Alaska. Climatic Change 95:169193. 20 Caudill, C. C., W. R. Daigle, M. L. Keefer, C. T. Boggs, M. A. Jepson, B. J. Burke, R. W. Zabel, T. C. Bjornn, and C. A. Peery. 2007. Slow dam passage in adult Columbia River salmonids associated with unsuccessful migration: delayed negative effects of passage obstacles or conditiondependent mortality? Canadian Journal of Fisheries and Aquatic Sciences 64:979995. Caudill, C. C., M. L. Keefer, T. S. Clabough, G. P. Naughton, B. J. Burke, and C. A. Peery. 2013. Indirect effects of impoundment on migrating fish: Temperature gradients in fish ladders slow dam passage by adult chinook salmon and steelhead. PloS one 8:e85586. Crozier, L. 2015. Impacts of Climate Change on Salmon of the Pacific Northwest. Cubley, E. S., and R. L. Brown. 2016. Restoration of Hydrochory Following Dam Removal on the Elwha River, Washington. River Research and Applications 32:15661575. Dauble, D. D., T. P. Hanrahan, D. R. Geist, and M. J. Parsley. 2003. Impacts of the Columbia River Hydroelectric System on Main-Stem Habitats of Fall Chinook Salmon. North American Journal of Fisheries Management 23:641659. Dietrich, J. P., D. A. Boylen, D. E. Thompson, E. J. Loboschefsky, C. F. Bravo, D. K. Spangenberg, G. M. Ylitalo, T. K. Collier, D. S. Fryer, M. R. Arkoosh, and others. 2011. An evaluation of the influence of stock origin and out-migration history on the disease susceptibility and survival of juvenile Chinook Salmon. Journal of aquatic animal health 23:3547. Dittmer, K. 2013. Changing streamflow on Columbia basin tribal landsclimate change and salmon. Climatic Change 120:627641. Duda, J. J., J. E. Freilich, and E. G. Schreiner. 2008. Baseline studies in the Elwha River ecosystem prior to dam removal: introduction to the special issue. Elliott, D. G., R. J. Pascho, L. M. Jackson, G. M. Matthews, and J. R. Harmon. 1997. Renibaeterium salmoninarum in SpringSummer Chinook Salmon Smolts at Dams on the Columbia and Snake Rivers. Journal of Aquatic Animal Health 9:114126. Erhardt, J. 2015. Smallmouth Bass Predation on Juvenile Salmonids in Lower Granite Reservoir on the Snake River. Page 145th Annual Meeting of the American Fisheries Society. Afs. Evans, A. F., N. J. Hostetter, D. D. Roby, K. Collis, D. E. Lyons, B. P. Sandford, R. D. Ledgerwood, and S. Sebring. 2012. Systemwide evaluation of avian predation on juvenile salmonids from the Columbia River based on recoveries of passive integrated transponder tags. Transactions of the American Fisheries Society 141:975989. Gillette, D. P., K. Daniel, and C. Redd. 2016. Fish and Benthic Macroinvertebrate Assemblage Response to Removal of a Partially Breached Lowhead Dam. River Research and Applications 32:17761789. 24 Good, T. P., M. M. McClure, B. P. Sandford, K. A. Barnas, D. M. Marsh, B. A. Ryan, and E. Casillas. 2007. Quantifying the effect of Caspian tern predation on threatened and endangered Pacific salmon in the Columbia River estuary. Endangered Species Research 3:1121. Gosnell, H., and E. C. Kelly. 2010. Peace on the river? Social-ecological restoration and large dam removal in the Klamath basin, USA. Water Alternatives 3:362. Hamilton, J. B., D. W. Rondorf, W. R. Tinniswood, R. J. Leary, T. Mayer, C. Gavette, and L. A. Casal. 2016. The Persistence and Characteristics of Chinook Salmon Migrations to the Upper Klamath River Prior to Exclusion by Dams. Oregon Historical Quarterly 117:326377. Harnish, R. A., R. Sharma, G. A. McMichael, R. B. Langshaw, T. N. Pearsons, and R. Hilborn. 2014. Effect of hydroelectric dam operations on the freshwater productivity of a Columbia River fall Chinook salmon population. Canadian Journal of Fisheries and Aquatic Sciences 71:602 615. Hart, D. D., and N. L. Poff. 2002. A special section on dam removal and river restoration. BioScience 52:653655. Hatten, J. R., T. R. Batt, J. J. Skalicky, R. Engle, G. J. Barton, R. L. Fosness, and J.	Thank you for providing this list of references. The co-lead agencies have used current high quality information to analyze the effects of operations, maintenance, and configuration of the CRS projects, including for MO3, the alternative that includes the measure to breach the lower Snake River dams. Chapter 11 of the EIS as well as the respective sections of the EIS include the references the co-lead agencies relied on as part of the CRSO EIS analysis. Without specific comments relating these references to the analysis in the EIS, the co-lead agencies would continue to rely on the current high quality information in the CRSO EIS.

Letter No.	Comment No.	Commenter Name/Email	Affiliation	Comment	Response[1/]
				Warren. 2015. Effects of dam removal on Tule fall Chinook salmon spawning habitat in the White Salmon River, Washington. River Research and Applications. Hitt, N. P., S. Eyler, and J. E. Wofford. 2012. Dam removal increases American eel abundance in distant headwater streams. Transactions of the American Fisheries Society 141:11711179. Hogg, R., S. M. Coghlan Jr, and J. Zydlewski. 2013. Anadromous sea lampreys recolonize a Maine coastal river tributary after dam removal. Transactions of the American Fisheries Society 142:13811394. Hutchings, J. A., and J. D. Reynolds. 2004. Marine fish population collapses: consequences for recovery and extinction risk. BioScience 54:297309. Justice, C., S. M. White, D. A. McCullough, D. S. Graves, and M. R. Blanchard. 2017. Can stream and riparian restoration offset climate change impacts to salmon populations? Journal of Environmental Management 188:212227. Kammerer, J. C. 1990. Largest Rivers in the United States. USGS, Department of Interior. Kareiva, P., M. Marvier, and M. McClure. 2000. Recovery and Management Options for Spring/Summer Chinook Salmon in the Columbia River Basin. Science 290:977979. Keefer, M. L., and C. C. Caudill. 2015. Estimating thermal exposure of adult summer steelhead and fall Chinook salmon migrating in a warm impounded river. Ecology of Freshwater Fish:N/AN/A. Keefer, M. L., C. C. Caudill, C. A. Peery, and S. R. Lee. 2008. Transporting Juvenile Salmonids Around Dams Impairs Adult Migration. Ecological Applications 18:18881900. 25 Keefer, M. L., R. J. Stansell, S. C. Tackley, W. T. Nagy, K. M. Gibbons, C. A. Peery, and C. C. Caudill. 2012. Use of Radiotelemetry and Direct Observations to Evaluate Sea Lion Predation on Adult Pacific Salmonids at Bonneville Dam. Transactions of the American Fisheries Society 141:12361251. 23 Loomis, J. B. 1996. Measuring the economic benefits of removing dams and restoring the Elwha River: results of a contingent valuation survey. Water Resources Research 32:441447. Maeck, A., H. Hofmann, and A. Lorke. 2014. Pumping methane out of aquatic sedimentsebullition forcing mechanisms in an impounded river. Biogeosciences 11:29252938. Magilligan, F. J., K. H. Nislow, B. E. Kynard, and A. M. Hackman. 2016b. Immediate changes in stream channel geomorphology, aquatic habitat, and fish assemblages following dam removal in a small upland catchment. Geomorphology 252:158170. Mantua, N., I. Tohver, and A. Hamlet. 2010. Climate change impacts on streamflow extremes and summertime stream temperature and their possible consequences for freshwater salmon habitat in Washington State. Climatic Change 102:187223. Marks, J. C., G. A. Haden, M. ONeill, and C. Pace. 2010. Effects of flow restoration and exotic species removal on recovery of native fish: lessons from a dam decommissioning. Restoration Ecology 18:934943. McElhany, P., M. H. Ruckelshaus, M. J. Ford, T. C. Wainwright, and E. P. Bjorkstedt. 2000. Viable salmonid populations and the recovery of evolutionarily significant units. US Dept. Commer. NOAA Tech. Memo. NMFS-NWFSC 42:156. Miller, K. M., A. Teffer, S. Tucker, S. Li, A. D. Schulze, M. Trudel, F. Juanes, A. Tabata, K. H. Kaukinen, N. G. Ginther, and others. 2014. Infectious disease, shifting climates, and opportunistic predators: cumulative factors potentially impacting wild salmon declines. Evolutionary applications 7:812855. Moore, J. N., A. S. Arrigoni, and A. C. Wilcox. 2012. Impacts of Dams on Flow Regimes in Three Headwater Subbasins of the Columbia River Basin, United States1. Wiley Online Library. Naiman, R. J., J. R. Alldredge, D. A. Beauchamp, P. A. Bisson, J. Congleton, C. J. Henny, N. Huntly, R. Lamberson, C. Levings, E. N. Merrill, W. G. Pearcy, B. E. Rieman, G. T. Ruggerone, D. Scarnecchia, P. E. Smouse, and C. C. Wood. 2012. Developing a broader scientific foundation for river restoration: Columbia River food webs. Proceedings of the National Academy of Sciences 109:2120121207. Null, S. E., J. Medelln-Azuara, A. Escriva-Bou, M. Lent, and J. R. Lund. 2014. Optimizing the dammed: Water supply losses and fish habitat gains from dam removal in California. Journal of Environmental Management 136:121131. NWFSC. 2015. Status review update for Pacific salmon and steelhead listed under the Endangered Species Act: Pacific Northwest. Page 356. Northwest Fisheries Science Center. OConnor, J. E., J. J. Duda, and G. E. Grant. 2015. 1000 dams down and counting. Science 348:496 497. 26 Olden, J. D., and R. J. Naiman. 2010. Incorporating thermal regimes into environmental flows assessments: modifying dam operations to restore freshwater ecosystem integrity. Freshwater Biology 55:86107. Pejchar, L., and K. Warner. 2001. A river might run through it again: criteria for consideration of dam removal and interim lessons from California. Environmental Management 28:561575. Perry, R. W., T. J. Kock, I. I. Courter, T. M. Garrison, J. D. Hubble, and D. B. Child. 2016. Dam Operations Affect Route-specific Passage and Survival of Juvenile Chinook Salmon at a Mainstem Diversion dam. River Research and Applications 32:20092019. Pess, G. R., T. P. Quinn, S. R. Gephard, and R. Saunders. 2014. Re-colonization of Atlantic and Pacific rivers by anadromous fishes: linkages between life history and the benefits of barrier removal. Reviews in Fish Biology and Fisheries 24:881900. Pohl, M. M. 2002. Bringing down Our Dams: Trends in American Dam Removal Rationales1. JAWRA Journal of the American Water Resources Association 38:15111519. Purvis, A., J. L. Gittleman, G. Cowlishaw, and G. M. Mace. 2000. Predicting extinction risk in declining species. Proceedings of the Royal Society of London B: Biological Sciences 267:19471952. Quiones, R. M., T. E. Grantham, B. N. Harvey, J. D. Kiernan, M. Klasson, A. P. Wintzer, and P. B. Moyle. 2015. Dam removal and anadromous salmonid (Oncorhynchus spp.) conservation in California. Reviews in Fish Biology and Fisheries 25:195215. Raymond, H. L. 1979. Effects of dams and impoundments on migrations of juvenile chinook salmon and steelhead from the Snake River, 1966 to 1975. Transactions of the American Fisheries Society 108:505529. Rechisky, E. L., D. W. Welch, A. D. Porter, M. C. Jacobs-Scott, and P. M. Winchell. 2013. Influence of multiple dam passage on survival of juvenile Chinook salmon in the Columbia River estuary and coastal ocean. Proceedings of the National Academy of Sciences 110:68836888. Reischel, T. S., and T. C. Bjornn. 2003. Influence of Fishway Placement on Fallback of Adult Salmon at the Bonneville Dam on the Columbia River. North American Journal of Fisheries Management 23:12151224. Rollet, A. J., H. Pigay, S. Dufour, G. Bornette, and H. Persat. 2014. Assessment of consequences of sediment deficit on a gravel riverbed downstream of dams in restoration perspectives: application of a multicriteria, hierarchical and spatially explicit diagnosis. River Research and Applications 30:939953. Roni, P., T. J. Beechie, R. E. Bilby, F. E. Leonetti, M. M. Pollock, and G. R. Pess. 2002. A review of stream restoration techniques and a hierarchical strategy for prioritizing restoration in Pacific Northwest watersheds. North American Journal of Fisheries Management 22:120. Sebring, S. H., M. C. Carper, R. D. Ledgerwood, B. P. Sandford, G. M. Matthews, and A. F. Evans. 2013. Relative vulnerability of PIT-tagged subyearling fall Chinook Salmon to predation by 27 Caspian terns and double-crested cormorants in the Columbia River estuary. Transactions of the American Fisheries Society 142:13211334. Sheer, M. B., and E. A. Steel. 2006. Lost watersheds: barriers, aquatic habitat connectivity, and salmon persistence in the Willamette and Lower Columbia River basins. Transactions of the American Fisheries Society 135:16541669. Stanley, E. H., and M. W. Doyle. 2003. Trading off: the ecological effects of dam removal. Frontiers in Ecology and the Environment 1:1522. Tiffan, K. F., T. J. Kock, C. A. Haskell, W. P. Connor, and R. K. Steinhorst. 2009. Water velocity, turbulence, and migration rate of subyearling fall Chinook salmon in the free-flowing and impounded Snake River. Transactions of the American Fisheries Society 138:373384. Tonra, C. M., K. Sager-Fradkin, S. A. Morley, J. J. Duda, and P. P. Marra. 2015. The rapid return of marine-derived nutrients to a freshwater food web following dam removal. Biological Conservation 192:130134. Trefethen, P. 2013. The Columbia River, discovered in 1792, is one of the most highly developed rivers in the United States. In early colonial history American Indians and white settlers depended on the river for transportation and for food and trading material, on the huge runs of salmon that ascended the river each year. Page 77 River Ecology and Man: Proceedings of an International Symposium on River Ecology and the Impact of Man, Held at the University of Massachusetts, Amherst, Massachusetts, June 20-23, 1971. Elsevier. Waples, R. S., R. W. Zabel, M. D. Scheuerell, and B. L. Sanderson. 2008. Evolutionary responses by native species to major anthropogenic changes to their ecosystems: Pacific salmon in the Columbia River hydropower system. Molecular Ecology 17:8496. White, R. 2011. The organic machine: The remaking of the Columbia River. Macmillan. 27 Williams, J. G., S. G. Smith, R. W. Zabel, W. D. Muir, M. D. Scheuerell, B. P. Sandford, D. M. Marsh, R. McNatt, and S. Achord. 2005. Effects of the federal Columbia River power system on salmon populations. NOAA Technical Memorandum, NMFS-NWFSC 63. Winter, B. D., and P. Crain. 2008. Making the case for ecosystem restoration by dam removal in the Elwha River, Washington. Northwest Science 82:1328. 28 Appendix B - Scientific studies highlighting the connection between Southern Resident orcas and Columbia Basin salmon runs. Ayres, K.L. et al., Distinguishing the impacts of inadequate prey and vessel traffic on an endangered killer whale (Orcinus orca) population, PLoS ONE 7(6):e36842 (2012). Budy, P., G.P. Thiede, N. Bouwes, C.E. Petrosky, and H. Schaller. 2002. Evidence linking delayed mortality of Snake River salmon to their earlier hydrosystem experience. North American Journal of Fisheries Management 22:35-51. Deriso, R., D. Marmorek and I. Parnell. 2001. Retrospective patterns of differential mortality and common year effects experienced by spring and summer Chinook salmon (Oncorhynchus tshawytscha) of the Columbia River. Canadian Journal of Fisheries and Aquatic Sciences 58:2419-2430. Durban, J. et al., Size and body condition of Southern Resident killer whales, Report to the Northwest Regional Office, National Marine Fisheries Service, Contract AB133F08SE4742 (2009). Faulkner, J.R., B.L. Bellerud, D.L. Widener and T.W. Zabel. 2019. Associations of fish length, dam passage history, and survival to adulthood in two at-risk species of pacific salmon. Transactions of the American Fisheries Society 148:1069-1088. Fearnbach, H. et al., Size and long-term growth trends of endangered fish-eating killer whales, 13 Endangered Species Research 173 (2011). Ford, J.K.B. et al., Linking prey and population dynamics: Did food limitation cause recent declines of resident killer whales (Orcinus orca) in British Columbia? Canadian Science Advisory Secretariat Research Document 2005/042 (2005). Ford, J.K.B. et al., Linking killer whale survival and prey abundance: food limitation in the oceans apex predator? 6 Biological Letters 139 (2010). Haeseker, S.L., J.A. McCann, J. Tuomikoski and B. Chockley. 2012. Assessing freshwater and marine environmental influences on life-stage-specific survival rates of Snake River springsummer Chinook salmon and steelhead. Transactions of the American Fisheries Society 141: 121138. doi:10.1080/00028487.2011.652009. Marmorek, D.R., C.N. Peters, and I. Parnell. (Editors). 1998. PATH final report for fiscal year 1998. Compiled and edited by ESSA Technologies, Ltd., Vancouver, BC. Bonneville Power Administration, Portland, Oregon. 263 pp. Available from http://www.essa.com/documents/1998_Final_Report.pdf Marmorek, D., M. Porter and A. Hall. 2011. Comparative Survival Study (CSS) Workshop	

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				Report. Prepared by ESSA Technologies, Ltd., Vancouver, B.C. for the Fish Passage Center (Portland OR) and U.S. Fish and Wildlife Service (Vancouver WA). 147 pp. http://www.fpc.org/ McCann, J., B. Chockley, B. Hsu,G. Sheerer, S. Haeseker, R. Lessard, T. Copeland, E. Tinus, A. Storch and D. Rawding. 2019. Comparative Survival Study (CSS) of PIT-tagged 29 Spring/Summer/Fall Chinook, Summer Steelhead and Sockeye. 2019 annual report. BPA Contract # 19960200. Prepared by Comparative Survival Study Oversight Committee and Fish Passage Center. 222 pp. plus appendices. http://www.fpc.org/ McCann, J., B. Chockley, E. Cooper, B. Hsu, H. Schaller, S. Haeseker, R. Lessard, C. Petrosky, T. Copeland, E. Tinus, E. Van Dyke, A. Storch and D. Rawding. 2017. Comparative Survival Study (CSS) of PIT-tagged Spring/Summer/Fall Chinook, Summer Steelhead and Sockeye. 2017 annual report. BPA Contract # 19960200. Prepared by Comparative Survival Study Oversight Committee and Fish Passage Center. 230 pp. plus appendices. http://www.fpc.org/ McCann, J., B. Chockley, E. Cooper, T. Garrison, H. Schaller, S. Haeseker, R. Lessard, C. Petrosky, T. Copeland, E. Tinus, E. Van Dyke and R. Ehlke. 2016. Comparative Survival Study (CSS) of PIT-tagged Spring/Summer/Fall Chinook, Summer Steelhead and Sockeye. 2016 annual report. BPA Contract # 19960200. Prepared by Comparative Survival Study Oversight Committee and Fish Passage Center. 187 pp. plus appendices. (http://fpc.org/) Muir, W.D., D.M. Marsh, B.P. Sandford, S.G. Smith, and J.G. Williams. 2006. Post-hydropower system delayed mortality of transported Snake River stream-type Chinook salmon: unraveling the mystery. Transactions of the American Fisheries Society 135: 15231534. doi:10.1577/T06- 049.1. National Marine Fisheries Service, National Oceanic and Atmospheric Administration, Endangered and Threatened Wildlife and Plants: Endangered Status for Southern Resident Killer Whales, 70 Fed. Reg. 69,903 (Nov. 18, 2005). National Marine Fisheries Service, National Oceanic and Atmospheric Administration, Endangered and Threatened Species; Designation of Critical Habitat for Southern Resident Killer Whale, 71 Fed. Reg. 69,504 (Nov. 29, 2006). National Marine Fisheries Service, National Oceanic and Atmospheric Administration, Listing Endangered or Threatened Species: 90-Day Finding on a Petition to Revise the Critical Habitat Designation for the Southern Resident Killer Whale, 79 Fed. Reg. 22,933 (Apr. 25, 2014). National Marine Fisheries Service, National Oceanic and Atmospheric Administration, Listing Endangered or Threatened Species; 12-Month Finding on a Petition to Revise the Critical Habitat Designation for the Southern Resident Killer Whale Distinct Population Segment, 80 Fed. Reg. 9682 (Feb. 24, 2015). National Marine Fisheries Service, National Oceanic and Atmospheric Administration, Endangered and Threatened Wildlife and Plants; Proposed Rulemaking to Revise Critical Habitat for the Southern Resident Killer Whale Distinct Population Segment, 84 Fed. Reg. 49,214 (Sept. 19, 2019). National Marine Fisheries Service, West Coast Region, Proposed Revision of the Critical Habitat Designation for Southern Resident Killer Whales, Draft Biological Report (to accompany the Proposed Rule) (Sept. 2019) [Biological Report]. 30 NMFS West Coast Region & Washington Department of Fish and Wildlife, Southern Resident Killer Whale Priority Chinook Stocks Report (June 22, 2018) [NMFS & WDFW 2018]. Petrosky, C.E., and H.A. Schaller. 2010. Influence of river conditions during seaward migration and ocean conditions on survival rates of Snake River Chinook salmon and steelhead. Ecology of Freshwater Fish 19:520-536. Rechisky, E.L., D.W. Welch, A.D. Porter, M.C. Jacobs-Scott, P.M. Winchell and J.L. McKern. 2012. Estuarine and early-marine survival of transported and in-river migrant Snake River spring Chinook salmon smolts. Scientific Reports 2, Article Number 448. doi:10.1038/srep0044 . Schaller, H.A., and C.E. Petrosky. 2007. Assessing hydrosystem influence on delayed mortality of Snake River stream-type Chinook salmon. North American Journal of Fisheries Management 27:810-824. Schaller, H., Wilson, P., Haeseker, S., Petrosky, C., Tinus, E., Dalton, T., Woodin, R., Weber, E., Bouwes, N., Berggren, T., McCann, J., Rassk, S., Franzoni, H., and McHugh, P. 2007. Comparative Survival Study (CSS) of PIT-tagged spring/summer chinook and steelhead in the Columbia River Basin: ten-year retrospective summary report. Prepared by Comparative Survival Study Oversight Committee and Fish Passage Center, project leader Michele DeHart. 675 pp. Project #1996-020-00. BPA Contract #s 25634, 25264, 20620. Project #1994-033-00. BPA Contract #25247. (http://fpc.org/) Schaller, H.A., C.E. Petrosky and E.S. Tinus. 2014. Evaluating river management during seaward migration to recover Columbia River stream-type Chinook salmon considering the variation in marine conditions. Canadian Journal of Fisheries and Aquatic Sciences. 71:259-271. Scheuerell, M.D., R.W. Zabel, and B.P. Sandford. 2009. Relating juvenile migration timing and survival to adulthood in two species of threatened Pacific salmon (Oncorhynchus spp.). Journal of Applied Ecology 46: 983990. doi:10.1111/j.1365-2664.2009.01693.x. Ward, E.J. et al., Quantifying the effects of prey abundance on killer whale reproduction, 46 J. Applied Ecology 632 (2009). Ward, E.J. et al., Estimating the impacts of Chinook salmon abundance and prey removal by ocean fishing on Southern Resident killer whale, NOAA Technical Memorandum NMFS-NWFSC123 (2013). Wasser, S.K. et al., Population growth is limited by nutritional impacts on pregnancy success in endangered Southern Resident killer whales (Orcinus orca), PLoS ONE 12:e0179824 (2017). Williams, J.G., S.G. Smith, R.W. Zabel, W.D. Muir, M.D. Scheuerell, B.P. Sandford, D.M. Marsh, R.A. McNatt, and S. Achord. 2005. Effects of the federal Columbia River power system on salmonid populations. U.S. Dept. Commerce, NOAA Tech. Memo. NMFS-NWFSC-63. 150 pp.	
6591	1	derekdelongcc@gmail.com	N/A	I found the report provided extensive information on many common topics regarding the CRSO but I was not able to find any information in the executive summary review in regards to the greater unseen environmental impacts of sediment retention of dams. While ALTERNATIVE 3 (MO3) does briefly mention the positive and negative impacts of dam breaching on fish, riparian and wetland habitats in the Snake River and confluence of the Columbia River it does not mentions sediment retention beyond the time it would take for sediments to be transported away from the reservoir. The role of river sediments in the biogeochemical processes of the ocean and associated estuaries is crucial to the primary producers that form the basis of the food chain of which we all depend on.	The Executive Summary provides a high-level overview of the alternatives and effects, but information specifically regarding sediment transport and quality can be found in Section 3.3 (River Mechanics), Section 3.4 (Water Quality), Sections 7.7.2 and 7.7.3, and Appendices C and D. It is known that the dams within the Snake and Columbia River basins disrupt the movement of sediment, blocking most material from moving downstream to the Columbia delta except for small amounts of fine suspended material that are carried to the ocean. This is further described under the Affected Environment Sediment Supply Section 3.3.2.2. It is also recognized that the operation of the dams has altered sedimentation processes in the lower Columbia River and estuary as described under the Affected Environment Aquatic Habitat Section 3.5.2.2. However the effects of dam construction are not directly analyzed in this EIS. Analysis of other downstream conditions, such as sediment delivery to the delta are outside the scope of this study.
6591	2	derekdelongcc@gmail.com	N/A	To that end I believe the agencies involved with the CRSO should revise their documents so that the roles dams play in preventing crucial sediment transport are taken into consideration: 1. A free flowing river provides both nutrients and mineral transport to the oceans which supports the phytoplankton communities of which are the primary producers of the ocean food web. Studies have found that these communities have begun diminishing due to increased ocean acidity and biogeochemical changes of estuaries and as such the Columbia River System Operations should address these phenomena.	It is known that the dams within the Snake and Columbia River basins disrupt the movement of sediment, blocking most material from moving downstream to the Columbia River delta except for small amounts of fine suspended material that are carried to the ocean. This is further described under the Affected Environment Sediment Supply Section 3.3.2.2. It is also recognized that the operation of the dams has altered sedimentation processes in the lower Columbia River and estuary as described under the Affected Environment Aquatic Habitat Section 3.5.2.2. However, the analysis of the effects on ocean conditions is outside the scope of this study.
6591	3	derekdelongcc@gmail.com	N/A	a. Acidity; Ocean acidity has been increasing globally and the decreasing pH levels in the ocean are expected to have profound impacts on the physiology and metabolism of marine organisms through a disruption of intercellular transport mechanisms. The sediments naturally transported in free flowing rivers act as a buffer in estuaries and as such mitigate the increasing acidity. The damming of rivers prevents these sediments from reaching estuaries and are therefore contributing to increasing ocean acidity that could be mitigated by dam removal.	It is known that the dams within the Snake and Columbia River basins disrupt the movement of sediment, blocking most material from moving downstream to the Columbia River delta except for small amounts of fine suspended material that are carried to the ocean. This is further described under the Affected Environment Sediment Supply Section 3.3.2.2. It is also recognized that the operation of the dams has altered sedimentation processes in the lower Columbia River and estuary as described under the Affected Environment Aquatic Habitat Section 3.5.2.2. However, the analysis of the effects on ocean conditions is outside the scope of this study.
6591	4	derekdelongcc@gmail.com	N/A	b. Biogeochemical changes; Dissolved silica drives the growth of diatoms that form a large part of the phytoplankton biomass and are important contributors to primary production of the ocean. The global contribution of BSi carried by rivers was estimated as 1.05 0.20 Tmol Si year 1 . Combined with the global mean riverine DSi concentration of 150 mol liter 1 , 16% of the gross riverine Si load is delivered to the world ocean as BSi. Sediment retention by dams has a clear negative impact on the biogeochemical processes of the ocean by reducing the amount of minerals and nutrients such as silica available to our primary producers.	It is known that the dams within the Snake and Columbia River basins disrupt the movement of sediment, blocking most material from moving downstream to the Columbia River delta except for small amounts of fine suspended material that are carried to the ocean. This is further described under the Affected Environment Sediment Supply Section 3.3.2.2. It is also recognized that the operation of the dams has altered sedimentation processes in the lower Columbia River and estuary as described under the Affected Environment Aquatic Habitat Section 3.5.2.2. However, the analysis of ocean processes is outside the scope of this study.
6591	5	derekdelongcc@gmail.com	N/A	It goes without saying that ecological processes and services are intrinsically intertwined with economic activity. Therefore any negative and unnecessary costs that can be avoided should be pursued and weighed against any supporting benefits provided, such as the power generation of dams versus the possible trophic cascades caused by lost primary producers. The issues I have brought forth should be considered and taken into advisement by the CRSO for review. Peer reviewed scientific literature that supports any arguments for or against dam removal in regards to sediment transportation role on ocean acidity and biogeochemical ocean changes should also be provided in any revisement.	The EIS evaluated beneficial and adverse effects across an array of resource areas including potential effects at the national, regional and local level; effects are monetized and quantified, where possible, and also described qualitatively. As is common in NEPA analyses, the beneficial and adverse effects of the alternatives are expressed as a variety of qualitative and quantitative environmental and economic metrics throughout the EIS to inform decision-making. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations.
6592	1	N/A	N/A	The preferred alternative offers unsatisfactory energy production levels and unsatisfactory environmental conditions, especially in regard to population levels of endangered fish species in comparison to all other MOs and the No Action consideration. Under the other alternatives section of the EIS, there are no provisions for some other available options that could offset energy production decreases as well as create long-term benefits for the environments and economies surrounding the current dams and hydroelectric locations the EIS is considering, namely geothermal energy production, distributed energy storage grids, and increasing hydroelectric production in lower impact areas not associated with the EIS. The National Renewable Energy Laboratory has a map available (attached) that determines all of the areas considered in the EIS are of moderate to high viability for geothermal power, which, in its largest implementation offers MWh comparable to current energy production provided by the Snake River hydroelectric plants. Breaching the dams and construction of closed-loop geothermal plants that utilize excess water from the increased flow of the rivers as well as non-potable water from wastewater treatment plants and available geothermal fluids would provide minimal environmental impact while providing greater protections for endangered fish species, and the water used in this system is capable of being recycled. Energy surpluses provided by other hydroelectric plants not in the EIS scope could be contained in various distributed energy storage options, mirroring German and Icelandic programs. Various Icelandic sources provide the information that greater than 99% of its energy is based on renewable sources, predominately hydroelectric and geothermal, and they produce a surplus of energy in a land area that is far less than half the size than the regional area described in the EIS; thus the argument of greater viability of geothermal energy in Iceland is minimized by the size of the US regional area outlined in the EIS that is viable for geothermal energy production. This alternative would provide long-term economic incentives in the energy sector and private sectors in both energy production	The comment describes a variety of possible replacement power options with a focus on geothermal energy. The EIS acknowledges that the energy sector is constantly undergoing transformation and that technological improvements will likely bring other options. To avoid speculation, the EIS analysis focuses on primary technologies identified by the Northwest Power and Conservation Council (Council) in its 7th Power Plan (7th Power Plan page 13-5) that are deemed proven, commercially available, and deployable on a large enough scale in the Northwest. See draft EIS, Section 3.7.3.1, Step 3: Determine Need for Potential Replacement Resources and Associated Costs at page 3-821 and Appendix H, Power and Transmission, Section 2.2. Conventional geothermal energy was deemed a secondary resource and enhanced geothermal energy was a tertiary resource in the 7th Power Plan, and thus, were not included in the EIS. The EIS also has examined the use of storage technologies, mentioned in the comment, which were considered a long-term resource of the 7th Power Plan, but have become more commercially available since the release of the 7th Power Plan, and will likely now be considered a primary resource in the Councils 8th Power Plan. See draft EIS, Section 3.7.3.5, Potential Replacement Resources and Associated Costs, for additional details on the replacement resource portfolio identified for Multiple Objective Alternative 3. Hydropower generation at non-Federal dams not included in the Federal Columbia River Power System, which includes the CRS projects, are typically already committed for serving load of other utilities. When these projects produce surplus power, this power is generally traded on the wholesale market, and the EIS analysis incorporated the wholesale market in evaluating the power from the CRS projects. Furthermore, EIS modeling included modeling changes in generation at the major non-Federal hydropower projects that are located downstream of CRS projects to incorporate changes in generation at these projects resulting from changes in outflow of the CRS projects. (See Appendix I.)

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				technology and battery technology, which we are currently seeing a rise in due to the increased public awareness of renewable energy options and electric-powered transport systems, as well as the long-term environmental incentives, indigenous cultural preservation/restoration, and other benefits outlined in MO3. This alternative provides an option for increased research and development into technologies, both new and old for energy production and storage, a foothold for companies and stakeholders outside of the region that might be willing to invest in such a program (thus bringing in new investment opportunities), decreases environmental impacts on water/riparian resources, and in the current era of economic uncertainty, provides the possibility of long-term employment opportunities in both the private and public sectors that are potentially greater than those currently offered in the scope of the region outlined in the EIS.	
6594	1	N/A	N/A	Your own study in Chapter 3, pages 548 and 559 discuss that 80-90 % of all juvenile Snake River fish passing CRS projects are hatchery fish. It says the two models projecting fish returns fail to address the loss of hatchery fish and further restoration of habitat (p. 3-548, lines 16557 16558). So positive returns are discussed elsewhere in the report. This is absolutely the wrong approach. The correct approach is to better address what is likely to happen. My request is simple: Put the loss of hatchery fish into both the CSS and COMPASS models so that the real outcomes are conveyed.	Modeling of alternatives for the CRSO EIS did not consider additional mitigation programs such as hatchery production or habitat restoration projects. Mitigation program measures are described in the EIS in Chapter 5. However, it would not be feasible to rerun scenarios of MO3 using NMFS COMPASS and CSS with Snake River hatchery production not included. The COMPASS model relies on the record of hydrosystem survival data estimated with both hatchery and wild-tagged Chinook and steelhead. The NMFS Life Cycle model already reports only wild spawner abundance. Likewise, the CSS Chinook Life Cycle model in the Grande Ronde/Imnaha also only included wild spawners. For both models, density related effects in downstream locations such as the mainstem, estuary, and ocean could only be estimated with hatchery fish present.
6595	1	CommissionersWebPageE-mail@co.yakima.wa.us	Yakima County Commissioners	On behalf the residents of Yakima County, we are writing to express our strenuous opposition to breaching of the Columbia River or Snake River dams. The economic cost to breaching these dams would be disastrous to our residents and local economies. Yakima County agriculture and industry are dependent upon the clean and reliable hydropower provided by these dams. As we prepare for the economic challenges that will result from the COVID-19 emergency, our residents and businesses must be protected from any potential increases in cost for basic utilities. A large jump in the cost of electricity could also have far reaching impact on the price of food: On the production side as irrigation and processing are power-dependent activities. On the supply end for grocers and restaurants who could see an increase in their operational expenses. On a national level as cold storage facilities would experience an unmitigated surge to their fixed costs. These economic impacts would be passed on to consumers and would drive up food prices. While we are supportive of efforts to diversify our electrical sources and protect fish, at this time there is insufficient supply to ensure the dams could be breached without significant and far reaching economic damage.	The EIS evaluated beneficial and adverse effects across an array of resource areas including potential effects at the national, regional and local level; effects are monetized and quantified, where possible, and also described qualitatively. As is common in NEPA analyses, the beneficial and adverse effects of the alternatives are expressed as a variety of qualitative and quantitative environmental and economic metrics throughout the EIS to inform decision-making, including the effects of the alternatives on fish as detailed in Section 3.5. That the effects of the alternatives on fish are not expressed as monetized economic values does not mean that they were not considered in the context of the analysis. The EIS does not employ a cost-benefit framework for decision-making. Instead, the EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as the dam breaching alternative. However, the Preferred Alternative also meets most of the other objectives of the study for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy.
6605	1	Charles Tracy	Pacific Fishery Management Council	Council Concerns In accordance with the Councils authorities, the Council has considered the DEIS and the preferred alternative in the context of sustainable fisheries and salmon EFH. The DEIS analysis and preferred alternative are of particular relevance and concern, as the allowable ocean harvest rate of Council-managed fisheries must meet MSA- and ESA- required conservation objectives for multiple stocks, including wild Snake River fall Chinook. Mortalities of ESA-listed populations can impose limitations on Council-area fisheries, even when catch rates of particular ESA-listed fish (fall and spring Chinook salmon) are not substantial. For example, in past years, fisheries have been constrained by the allowable exploitation rate on Snake River wild fall Chinook. The Council is undergoing review of its fisheries with respect to the southern resident killer whale (SRKW) to ensure that conduct of Council salmon fisheries does not adversely affect SRKW via reduction of their primary prey, Chinook salmon. This issue is relevant to the DEIS, as many Columbia River basin Chinook Page 3 salmon stocks are considered among the priority Chinook salmon stocks for increasing abundance to help SRKW recovery.	The co-lead agencies agree that the quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differently from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020). The population dynamics of the SRKW are complicated, and there is no one factor that contributes to overall success of this species; however, the co-lead agencies agree that the quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Additionally, Section 7.7.8 states impacts to Southern Resident killer whales would be minor. Thus, the co-lead agencies expect salmon and steelhead increases would come from operational measures and existing hatchery production carried forward into the Preferred Alternative. These hatcheries include conservation and safety net hatcheries, as well as through the continued existence of certain independent Congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as the Lower Snake River Compensation Plan, which is administered by USFWS. Moreover, NMFS concluded in its 2020 CRS BiOp that operations, maintenance and configuration of the CRS is not likely to adversely affect SRKW. Also, see updated language of effects on SRKWs in Chapter 3.6 and Chapter 7 of the FEIS.
6605	2	Charles Tracy	Pacific Fishery Management Council	Based on the Councils review, we find a number of deficiencies with the DEIS analysis and the selection of the preferred alternative. These are noted here and further discussed below by section. 1. The DEIS does not incorporate the Councils scoping recommendations	The scoping process and comments were used to solicit concerns from the public and establish objectives to focus the evaluation and measures that may address them as part of the CRSO EIS. In addition, all recommendations are evaluated against their ability to meet the Purpose and Need Statement. The co-lead agencies used the scoping process to develop measures to build alternatives to the operations, maintenance and configuration of the CRS. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA listed species. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-lead agencies numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), The Preferred Alternative also meets most other EIS objectives including those for: resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. The Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. Additionally, the co-lead agencies evaluated many different flow and spill levels in the EIS and as well as seasonal patterns for when flows are enhanced or reduced. The Preferred Alternative represents an operation that provides a balanced approach between spring and summer flow and spill levels to benefit salmon and steelhead, while also providing benefits to resident fish in the Columbia Basin.
6605	3	Charles Tracy	Pacific Fishery Management Council	2. The DEIS does not include an anadromous fish-focused alternative in the range of alternatives	The co-lead agencies disagree with the commenter that the Draft EIS does not contain an anadromous fish-focused alternative. All alternatives developed have anadromous fish as two of the objectives. The EIS set forth eight objectives which, in tandem with the purpose and need statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA listed species. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the Columbia River System. That call however is ultimately the role of NMFS and the USFWS. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the EIS objectives) as well as the EIS objectives for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. The Preferred Alternative is also more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. The co-lead Agencies are required to evaluate a reasonable range of alternatives in the EIS. However, when there are potentially a very large number of alternatives, only a reasonable number of examples, covering the full spectrum of alternatives, must be analyzed and compared in the EIS. Alternatives for this EIS were developed from measures identified during public scoping, regional forums with scientists and technical experts from cooperating agencies, and expert opinion from within the co-lead agencies and in the literature. These alternatives represent a reasonable range of alternatives for the maintenance and operation of the CRS. For additional information on the alternatives development, see Chapter 2 and Appendix A, which explains why single-objective alternatives were not carried forward for detailed study in the EIS.
6605	4	Charles Tracy	Pacific Fishery Management Council	3. The DEIS analysis does not sufficiently account for the impacts of climate change or avoid and mitigate increased water temperatures	Historically, water temperatures in the lower Snake River were warm (USGS 1960, 1961, 1964; Corps 2002a). Observed historic water temperatures show that average monthly water temperatures during July and August, in the 1950s, averaged 7 to 8 degrees Fahrenheit higher than today's conditions, while maximum daily differences were 10 to 12 degrees Fahrenheit higher. The differences observed in the lower Snake River today, as compared to historical conditions, are a result of the middle and upper Snake River reservoirs combined with the influence that Dworshak Dam operations. The EIS analysis shows that when breaching the four lower Snake River dams, nighttime summer water temperatures, as well as fall water temperatures, would be cooler than No Action conditions in the Snake River. However, even with the dams breached, maximum summer water temperatures would exceed state water quality standards (20C) at times, especially during hot weather events. This is because without the dams, the lower Snake River will be shallower and more susceptible to solar radiation and warming. Increases in water particle travel time are expected, but the lower Snake River has always been a warm system (USGS 1960, 1961, 1964; Corps 2002a) and breaching the dams will not change this fact. Regionally high air and water temperatures result in water quality standard exceedances and are beyond the ability of the CRS to cool; future climate change predictions will result in even more difficult challenges. The models showed minor changes in the Columbia River under MO3, indicating that the operations of the CRS dams have a limited ability to reduce temperatures in the lower Columbia River. Summer water temperatures exiting the Snake River are typically 1 to 3 degrees Fahrenheit warmer than the receiving Columbia River temperatures. Even though the cold water released from Dworshak during the summer is less than 50 degree Fahrenheit, the volume of water released is less than one tenth of the flow in the Columbia River. Since the distance between the confluence of the Snake and Columbia Rivers is about 180 miles downstream from Dworshak, the impact on water temperatures is negligible. Regionally high air and water temperatures result in water quality standard exceedances that are beyond the ability of the CRS to cool. Overall the conclusion in the Draft EIS is that MO3 would be beneficial to anadromous fish for a number of reasons, but other objectives must also be considered in the selection of a Preferred Alternative. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets most other EIS objectives including those for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS, the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams, because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. The climate science community is still developing models that can be used to analyze possible effects to water temperature from climate change and, unfortunately, they have not been fully applied and validated for use with climate affected regulated flow projections of large reservoir systems. Therefore it was not possible to reliably model water temperature changes under climate change for incorporation to either of the fish models. In lieu of this information, the climate analysis used the output from the water quality models under historical conditions, climate change data, and scientific literature to qualitatively assess potential effects to water temperature and anadromous fish. These analyses are documented in Section 4.2.3 for the multiple objective alternatives and Section 7.8.4 for the Preferred Alternative. Overall, the Preferred Alternative is expected to result in benefits to anadromous salmon and steelhead. The analysis in Section 7.8.4 recognizes that some of the benefits to fish from the Preferred Alternative could be offset by the effects of climate change.
6605	5	Charles Tracy	Pacific Fishery Management Council	4. The DEIS does not include an equitable economic analysis of recreational, commercial, and tribal fisheries	The EIS provides an evaluation of the social welfare and regional economic effects of the No Action Alternative and the Multiple Objective alternatives, including the effects on recreation (Section 3.11) and commercial fisheries (Section 3.15). The EIS Section 3.5.3.6 describes the long-term effects to anadromous fish migration in the Snake River and tributaries that would occur under a dam breach scenario as major and beneficial, although quantitative impacts from fish modeling results are limited. The impacts to anadromous fish in other locations would have negligible to minor changes from the No Action Alternative. The impacts to anadromous fish in other locations would have negligible to minor changes from the No Action Alternative. The EIS described the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors.

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					NMFS estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which is described qualitatively. For the effects on recreational fishing under MO3 (Section 3.11.3.5) along the lower Snake River below Lewiston, the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River) as an indicator for fishing visitation in this reach. The EIS describes that the visitation in the long-term in the lower Snake River, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting outfitting and tourism businesses in the region. The social welfare values and regional economic effects associated with recreational fishing under the MOs, as well as river recreation post dam breach under MO3, were not estimated because of the uncertainty and large range in visitation and consumer surplus values among users. The contribution of Columbia River origin fish to ocean fisheries is described in Section 3.15.2.1. Because there is considerable uncertainty regarding the overall effects of the alternatives on regional fish populations, and how such changes may affect the management of the fisheries, the specific quantitative and monetized impacts associated with changes in commercial fisheries under the alternatives was limited. This analysis evaluates potential impacts on fisheries by referencing the potential effects on relevant fish populations, as described in Section 3.5. The cultural significance and impacts of salmon and steelhead fisheries are described in the Ceremonial and Subsistence Fisheries subsection and the Social Importance of Commercial, Ceremonial and Subsistence Fisheries subsection of Section 3.15.2.1. Fisheries Tribal interests are described in Section 3.15.4 additional details regarding the economic significance of salmon and steelhead fisheries have been added to the recreation analysis (Section 3.11) including Tribal interests (Section 3.11.3.7). Most sections of Chapter 3 include a Tribal Interests Section at the end that attempts to summarize issues by topic.
6605	6	Charles Tracy	Pacific Fishery Management Council	5. The DEIS alternatives analysis is insufficient in assessing the benefits of configurations and operations that restore or improve EFH for salmonids	Section 8.3.5 of the Draft EIS describes EFH and the basic requirements of the Magnuson-Stevens Fishery Conservation and Management Act to consult on a proposed action, and indicates the co-lead agencies are in consultation with the NMFS and USFWS under Section 7 of the ESA. The Assessment of Effects on Essential Fish Habitat Designated Pursuant to the Magnuson-Stevens Fishery Conservation and Management Act for the Preferred Alternative is presented in Chapter 5 of the Biological Assessment of Effects of the Operations and Maintenance of the Federal Columbia River System on ESA-Listed Species.
6605	7	Charles Tracy	Pacific Fishery Management Council	6. The DEIS preferred alternative is not a sufficient improvement over the No Action Alternative and, therefore, fails to meet a number of regional requirements, goals, and objectives for salmon (e.g., Endangered Species Act, Northwest Power Act, Northwest Power and Conservation Council Fish and Wildlife Program Recovery and Harvest Goals, Columbia Basin Partnership Task Force Goals, and state water quality standards).	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple legal responsibilities, including compliance with Section 7 of the Endangered Species Act. Under Section 7(a)(2) of the ESA, the co-lead agencies must insure that any action authorized, funded, or carried out is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of habitat of such species. Section 7(a)(2) does not require the co-lead agencies to recover ESA-listed species. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide meaningful benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the CRS. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. The Preferred Alternative is predicted to benefit salmon and steelhead. It also meets the other objectives for resident fish, hydropower, water management, and water supply, while minimizing adverse impacts to communities and the economy. The CSS model predicts that average Smolt-to-Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% (within the Northwest Power and Conservation Council recovery targets for the region) as a result of the Preferred Alternative. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. Chapter 8 of the EIS demonstrates the agencies compliance with applicable laws, including the ESA, MSA and Northwest Power Act. The co-lead agencies look forward to continue cooperation with region on actions to benefit ESA-listed species, such as those described by NMFS in its Columbia Basin Partnership Task Force. Finally, alternatives to include changes to harvest are not within the scope of this EIS. The assumptions regarding harvest are taken from the 2018 EIS from NOAA and reflect current harvest management guidelines. To see their conclusions and effects analyses please go to: https://www.fisheries.noaa.gov/resource/document/environmental-impact-statement-programmatic-review-harvest-actions-salmon-and. For harvest, fisheries in the Columbia River Basin and those that rely upon Columbia River fish stocks are managed by numerous entities, including Federal, state, and tribal governments. These entities are guided by a complex array of policies, laws, compacts, and agreements. The management of Pacific salmon fisheries in particular is complex, and involves numerous entities representing a variety of social, political, and conservation interests. Changes in allowable fishery harvest in the Columbia River Basin are a result of decisions made by state, Federal (i.e., NMFS), and tribal fishery managers based on a variety of environmental, biological, economic, and social factors. The three co-lead agencies (Corps, Reclamation, and Bonneville) do not manage fish stocks, and do not have the authority to do so.
6605	8	Charles Tracy	Pacific Fishery Management Council	1. The DEIS does not incorporate the Councils scoping recommendations. Despite the Council having made extensive recommendations on DEIS scoping (enclosed, PFMC 2016), many of our comments are not incorporated in the DEIS. Among these, the Council called for an equitable analysis of actions that could lead to the recovery of ESA-listed stocks and restore Columbia River salmon populations to sustainable, harvestable levels. The Council also called for emergency response water temperature strategies and measures to improve passage and migration. These are further described below.	NEPA requires agencies to consider the significant environmental consequences of their proposed actions and inform the public about decisions being made. NEPA also requires that the agencies look at a reasonable range of alternatives that can meet the purpose and need of the action. To meet this requirement, after evaluating scoping comments from the public, the co-lead agencies collaborated with Cooperating Agencies in teams of technical experts through several iterations to create 12 alternatives that could meet the CRSO EIS Purpose and Need Statement: first, eight single objective alternatives, and then four multiple objective (MO) alternatives. The MOs were determined to be more efficient and reasonable, as the MOs were composed of combinations of measures from the single objective alternatives. The Draft EIS considered the environmental consequences of the range of alternatives and disclosed to the public those consequences. The Draft EIS meets the requirements of NEPA, as outlined in 42 U.S.C. 4331, et seq., 40 C.F.R. Parts 1500 1508 (CEQs regulations for implementing NEPA), and co-lead agency specific NEPA regulations. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA listed species. The co-lead agencies do not have authority to regulate harvest, which is the purview of tribal, state and other federal (i.e. NMFS) agencies, and an analysis of sustainable, harvestable levels is outside the scope of this EIS. Chapters 2 and 8 of the EIS describe the actions the agencies are taking to address water temperature, and Sections 3.4 and 7.3 discuss the effects of the CRSO EIS alternatives on water temperature.
6605	9	Charles Tracy	Pacific Fishery Management Council	2. The DEIS lacks an anadromous fish-focused alternative in its range of alternatives. The CRSO DEIS did not include a set of configurations and operational measures across the spectrum, as recommended by the Council during DEIS scoping, and as ordered by the 2016 U.S. Court decision, to ensure equitable treatment of anadromous fish-focused priorities, alongside other DEIS priorities. An anadromous fish-focused alternative would demonstrate the full potential for recovery and increased productivity possible with CRSO modifications that would likely include restoring spawning and rearing habitats in the Snake River and improved fish passage at all Federal Columbia River Power System (FCRPS) dams, but without additional measures to benefit power generation, water supply, and water management that adversely affect salmon and EFH. Such an alternative could include measures that reconnect and restore hundreds of miles of fish habitat throughout the CRS to improve spawning, rearing, passage, and natural migration. This would Page 4 likely include a combination of breaching the lower Snake River dams and high spill to 125 percent total dissolved gas (TDG) at the eight FCRPS dams. No such alternative was presented in the DEIS. In fact, the proposed alternatives are biased toward power generation and include measures that simultaneously improve and reduce fish survival.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA listed species. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the Columbia River System. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the EIS objectives) as well as the EIS objectives for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. The Preferred Alternative is also more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. The co-lead agencies are required to evaluate a reasonable range of alternatives in the EIS. However, when there are potentially a very large number of alternatives, only a reasonable number of examples, covering the full spectrum of alternatives, must be analyzed and compared in the EIS. Alternatives for this EIS were developed from measures identified during public scoping, regional forums with scientists and technical experts from cooperating agencies, and expert opinion from within the co-lead agencies and in the literature. These alternatives represent a reasonable range of alternatives for the maintenance and operation of the CRS. For additional information on the alternatives development, see Chapter 2 and Appendix A, which explains why single-objective alternatives were not carried forward for detailed study in the EIS. The agencies disagree, however, that an alternative that includes breaching the four lower Snake River dams and spring spill operations to 125% TDG at all four lower Columbia River dams is reasonable given the unacceptable risks to public safety from such an alternative. For Power and Transmission, MO3 and MO4, individually each caused large loss-of-load probability (LOLP) results (e.g. increased incidence of blackouts). Without major addition of new resources, MO3 would result in power shortages in about one in seven years. MO4 would produce power shortages in about one in every four years. If MO4 were implemented, in addition to breaching the four lower Snake River projects as called for in MO3, then the LOLP would be even higher, with power shortages potentially occurring almost every year. Additionally, if these MOs were combined, in 5% of the years, the power shortages would average close to 1,000 MW in early August when the region might be experiencing a heatwave with particularly high demand for air conditioning. 1,000 aMW is about the average amount of power consumed by Seattle City Light. As shown in Section 3.7, MO3 causes an increase in power reliability concerns in the winter and the summer. MO4 increases power reliability concerns in the summer. Thus, the combination has the largest impact during the summer. The cost of zero-carbon replacement resources for MO3 and MO4 individually are up to $1 billion/year. Resource replacements and associated transmission interconnections for the combination of MO3 and MO4 would be higher, though not likely as high as the sum of the two MOs individually. Assuming that the replacement resources consist largely of wind, solar, and batteries, this would require well over 50 square miles of solar power (more than two and a half times the size of Crater Lake), large areas of new wind generation, and unprecedented amounts of batteries (more batteries in the Northwest alone than the total projection of batteries expected in the entire US by 2023 per the Energy Information Administration). In addition, the reduced generation capability under MO3, particularly throughout the summer, in combination with the impacts of the measures in MO4, and the uncertainty about the characteristics of replacement resources, would result in less capability to provide voltage support and dynamic stability for transmission system reliability than under MO3 or MO4 individually. Thus, combining MO4 with breaching the four lower Snake River projects, would produce unreasonable power and transmission reliability impacts, and it is highly speculative that replacement resources could be sited, permitted and built to address these impacts. This potential alternative has not been evaluated for direct, indirect and cumulative effects to other resources. Thus, an alternative combining juvenile fish passage spill up to 125% and breaching the four lower Snake River dams is unreasonable, and thus was not proposed as an alternative.
6605	10	Charles Tracy	Pacific Fishery Management Council	3. The DEIS analysis does not sufficiently account for the impacts of climate change or avoid and mitigate increased water temperatures. The DEIS states, Air temperature is projected to be warmer throughout Region C (Section 4.1.2.1). Warmer air temperature combined with projected reduced summer and fall flow volume (Section 4.1.2.4) will likely lead to increased riverine and reservoir surface water temperature. Periods of higher temperature are projected to occur earlier in the year and last for longer durations than historically. Under the CRSO operations of the no action alternative, there are 257 temperature exceedance events annually. Under climate change predictions, reduced snowpack, and increased water temperatures and lower summer discharges, the frequency of cumulative daily temperature exceedance events will likely increase. The DEIS states the preferred alternative will result in additional exceedances of state water quality standards for temperature (68F). Temperature exceedances are expected to occur between 57 to 71 days, at each of the four Columbia River dams, for a total of 265 exceedance events. The DEIS also states that water temperature violations would occur more frequently during years when river flows are lower than normal and summer ambient temperatures are higher. The DEIS states, Historical water temperatures have already approached lethal limits for adult steelhead in the upper Snake and middle Columbia Rivers (Wade et. al 2013). Thus, even minor increases in thermal exposure put some of these populations above lethal limits. This is likely to occur with regularity as the effects of climate change persist in the Columbia Basin. The cumulative effect of increased water temperature is not adequately described in the DEIS, and can be anticipated to result in sub-lethal effects (compromised fitness) or direct lethal mortality. The preferred alternative did not analyze the effects of increased water temperature on fish populations, particularly the effects caused by climate change.	The analysis of MO3, which includes breaching the four lower Snake River dams, indicates that nighttime summer water temperatures, as well as fall water temperatures, would be cooler than No Action conditions in the Snake River. However, even with the dams breached, maximum summer water temperatures would exceed state water quality standards (20C) at times, especially during hot weather events. This is because without the dams, the lower Snake River will be shallower and more susceptible to solar radiation and warming. Increases in water particle travel time are expected, but the lower Snake River has always been a warm system (USGS 1960, 1961, 1964; Corps 2002a) and breaching the dams will not change this fact. Regionally high air and water temperatures result in water quality standard exceedances and are beyond the ability of the CRS to cool; future climate change predictions will result in even more difficult challenges. The climate science community is still developing models that can be used to analyze possible effects to water temperature from climate change, and unfortunately, there are not reliable models at the resolution required (river vs. global or regional scale) at this time. Therefore, it was not possible to reliably model water temperature changes under climate change for incorporation to either of the fish models. In lieu of this information, the climate analysis used the output from the water quality models under historical conditions, climate change data, and scientific literature to qualitatively assess potential effects to water temperature and anadromous fish. These analyses are documented in Section 4.2.3 for the MO Alternatives and Section 7.8.4 for the Preferred Alternative. A thorough discussion of cumulative impacts from climate change is provided in Chapter 4 for the MO Alternatives and Chapter 7 for the Preferred Alternative. Overall, the Preferred Alternative is expected to result in benefits to anadromous salmon and steelhead. The analysis in Section 7.8.4 recognizes that some of the benefits to fish from the Preferred Alternative could be offset by the effects of climate change.

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6605	11	Charles Tracy	Pacific Fishery Management Council	Furthermore, the DEIS does not include a thermal emergency contingency plan. The DEIS must anticipate thermal emergencies and provide a plan to mitigate such events. The Councils DEIS Scoping comments recommended the DEIS contain a thermal emergency contingency plan and offered sufficient detail for such a plan (see enclosed DEIS scoping letter).	The EIS analyzes the effects of operations, maintenance, and configuration of the CRS projects. The EIS evaluates multiple alternative ways of meeting the Purpose and Need Statement and a set of objectives for this federal action. The alternatives and analysis metrics, such as temperatures in different water year types, were developed for this purpose. Scenarios such as a "thermal emergency" in a specific year would be addressed through adaptive management as discussed in Appendix R. The co-lead agencies would utilize the Regional Forum, including the Technical Management Team, to address any emergency situations that arise that impact fish.
6605	12	Charles Tracy	Pacific Fishery Management Council	4. The DEIS does not include an equitable economic analysis of recreational, commercial, and tribal fisheries. The socioeconomic elements of the DEIS fail to address or employ widely accepted professional standards to ensure a thorough, objective and transparent evaluation of the DEIS alternatives. These standards are defined in court interpretations of the National Environmental Policy Act, the Corps guidance documents for socioeconomic analyses, and other standards. Consequently, there are severe, systemic gaps in the socioeconomic analyses of the DEIS. The DEIS fails to: Page 5 Make use of all the available socioeconomic information that is relevant, accurate, and reliable. Make a substantial, objective effort at studying, analyzing, and evaluating all the socioeconomic issues relevant to the actions considered. Account fully for the socioeconomic importance of ecosystems and ecological risks. Consider equally both effects that are monetized and effects that are not monetized. Examine the multiple socioeconomic consequences of the preferred alternative and other alternatives. Fully disclose all relevant information, and provide full transparency to the decisionmaking process, to enable the public and decision makers to understand the rationale for selecting the preferred alternative.	Chapter 7, Preferred Alternative, describes the process to select the Preferred Alternative. Socioeconomic effects from all of the alternatives are discussed throughout Chapters 3 and 7. The EIS evaluated beneficial and adverse effects across an array of resource areas including potential effects at the national, regional and local level; effects are monetized and quantified, where possible, and also described qualitatively. As is common in NEPA analyses, the beneficial and adverse effects of the alternatives are expressed as a variety of qualitative and quantitative environmental and economic metrics throughout the EIS to inform decision-making. That the effects of the alternatives on certain resources are not expressed as monetized economic values does not mean that they were not considered in the context of the analysis. The EIS does not employ a cost-benefit framework for decision-making. Instead, the EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as the dam breaching alternative. However, the Preferred Alternative also meets most of the other objectives of the study for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. The EIS provides an evaluation of the social welfare and regional economic effects of the No Action Alternative and the Multiple Objective alternatives, including the effects on recreation (Section 3.11) and commercial fisheries (Section 3.15). The EIS Section 3.5.3.6 describes the long-term effects to anadromous fish migration in the Snake River and tributaries that would occur under a dam breach scenario as major and beneficial, although quantitative impacts from fish modeling results are limited. The impacts to anadromous fish in other locations would have negligible to minor changes from the No Action Alternative. The EIS described the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. NMFS estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which is described qualitatively. For the effects on recreational fishing under MO3 (Section 3.11.3.5) along the lower Snake River below Lewiston, the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River) as an indicator for fishing visitation in this reach. The EIS describes that the visitation in the long-term in the lower Snake River, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting outfitting and tourism businesses in the region. The social welfare values and regional economic effects associated with recreational fishing under the MOs, as well as river recreation post dam breach under MO3, were not estimated because of the uncertainty and large range in visitation and consumer surplus values among users. Because there is considerable uncertainty regarding the overall effects of the alternatives on regional fish populations, and how such changes may affect the management of the fisheries, the specific quantitative and monetized impacts associated with changes in commercial fisheries under the alternatives was limited. The analysis evaluates potential impacts on fisheries by referencing the potential effects on relevant fish populations, as described in Section 3.5. The EIS recognizes the economic and cultural importance of salmon to Tribes in a number of Sections throughout the document. The Fisheries Section 3.15 as well as Section 3.17, in particular, include discussion of reductions in anadromous species catch and associated adverse social effects that have occurred in Tribal communities. The cultural significance and impacts of salmon and steelhead fisheries are described in the Fisheries Section 3.15.2.1, which includes Sections that describe ceremonial and subsistence fisheries as well as the social importance of commercial, ceremonial and subsistence fisheries. It is important to note that the EIS has undergone a third party neutral Independent Expert Peer Review on the tools used (including the economic models), as well as the assumptions and conclusions in the EIS.
6605	13	Charles Tracy	Pacific Fishery Management Council	The DEIS reports current gross domestic product (GDP) and full-time equivalent (FTE) fishery values for Oregon and Washington. Those numbers reflect the current state and value of salmon fisheries in Oregon and Washington, which are operating under a constraining set of rules that severely limits harvest. Given that other sections of the CRSO DEIS evaluate alternative futures, it is equally warranted to scale fishery economic values to that of a future with healthy salmon populations and what that would mean to the fisheries GDP and FTEs of the states. The Council anticipates that the increased employment and economic value would be substantial.	The contribution of Columbia River origin fish to ocean fisheries is described in Section 3.15.2.1. Because there is considerable uncertainty regarding the overall effects of the alternatives on regional fish populations, and how such changes may affect the management of the fisheries (which the co-lead agencies have no role in), the specific quantitative and monetized impacts associated with changes in commercial fisheries under the alternatives was limited. This analysis evaluates potential impacts on fisheries by referencing the potential effects on relevant fish populations, as described in Section 3.5.
6605	14	Charles Tracy	Pacific Fishery Management Council	Furthermore, the DEIS does not provide an equitable economic analysis of fisheries as a commodity. Hatchery contributions in the region are significant, but are not considered in the analysis. Both ocean and in-river fisheries that depend on the health of Columbia River salmon stocks provide millions of dollars in economic activity annually. From 2012-2015, Gislason et al. (2017) estimated that commercial and recreational salmon fishing accounted for an annual average of $1,996 million in GDP and supported 26,700 FTE jobs in the U.S. economy	Hatchery contributions are considered in the analysis. As described in Section 3.5, the co-lead agencies anticipate that changes in hatchery funding may occur as needs and obligations shift. The co-lead agencies do not anticipate that hatchery operations would be shuttered. As noted in Section 3.5, the co-lead agencies also recognize that there would be transitional needs that would be addressed in the additional mitigation measures for MO3 discussed in Chapter 5. Additionally, the Bonneville F&W Program funding for offsite mitigation projects in the Snake River Basin, implemented by local, state, Tribal, and Federal entities, would be reviewed, and potentially adjusted. Any changes of this nature would be implemented over time as the effectiveness of dam breaching is observed and would be done in consultation with fish and wildlife managers, regulatory agencies, and the Northwest Power and Conservation Council. Consistent with this, offsite mitigation projects for the other CRS dams would be reviewed and could be adjusted as operations change over time. Proposed project modifications would be coordinated with project sponsors and regional stakeholders to determine appropriate funding levels." Although Bonneville's funding of the Lower Snake River Compensation Plan hatcheries would no longer be authorized, remaining fish hatcheries would continue to produce fish and other Federal or state entities may continue funding the hatcheries. The EIS provides an evaluation of recreation (Section 3.11) and commercial fisheries and passive use values (Section 3.15). The EIS Section 3.5.3.6 describes the long-term effects to anadromous fish migration in the Snake River and tributaries that would occur under a dam breach scenario as major and beneficial, although quantitative impacts from fish modeling results are limited. The impacts to anadromous fish in other areas would have negligible to minor changes from the No Action Alternative. The EIS described the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. NMFS estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which is described qualitatively. For the effects on recreational fishing under MO3 (Section 3.11.3.5) along the lower Snake River below Lewiston, the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River) as an indicator for fishing visitation in this reach. The EIS describes that the visitation in the long-term in the lower Snake River, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting outfitting and tourism businesses in the region. The social welfare values and regional economic effects associated with recreational fishing under the MOs, as well as river recreation post dam breach under MO3, were not estimated because of the uncertainty and large range in visitation and consumer surplus values among users. For MO1, MO2, MO4, and the Preferred Alternative, the evaluation qualitatively describes the potential for effects associated with recreational fishing by referencing the potential effects on relevant fish populations, as described in Section 3.5. Fish modeling results vary for some of the alternatives, for example for the Preferred Alternative and MO4 (i.e., models show either beneficial or adverse effects to anadromous fish), so it is assumed that the potential changes in recreational fishing would follow these changes in fish abundance in the long-term. The contribution of Columbia River origin fish to ocean fisheries is described in Section 3.15.2.1. Because there is considerable uncertainty regarding the overall effects of the alternatives on regional fish populations, and how such changes may affect the management of the fisheries, the specific quantitative and monetized impacts associated with changes in commercial fisheries under the alternatives was limited. This analysis evaluates potential impacts on fisheries by referencing the potential effects on relevant fish populations, as described in Section 3.5.
6605	15	Charles Tracy	Pacific Fishery Management Council	Furthermore, recreational fishing is combined with other recreational activities into a single metric in the DEIS socioeconomic analysis of recreational use, and thus provides no measure of the economic impacts of different alternatives on recreational fishing. For the states with fisheries most impacted by CRSO operations, recreational angling for salmon accounted for an annual average $238 million in GDP and 3,160 FTE (Washington) and $173 million in GDP and 2,850 FTE (Oregon) (Gislason et al. 2017).	The EIS evaluated beneficial and adverse effects across an array of resource areas including potential effects at the national, regional and local level; effects are monetized and quantified, where possible, and also described qualitatively. As is common in NEPA analyses, the beneficial and adverse effects of the alternatives are expressed as a variety of qualitative and quantitative environmental and economic metrics throughout the EIS to inform decision-making. That the effects of the alternatives on certain resources are not expressed as monetized economic values does not mean that they were not considered in the context of the analysis. The EIS does not employ a cost-benefit framework for decision-making. Instead, the EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The EIS provides an evaluation of the social welfare and regional economic effects of the No Action Alternative and the multi-objectives alternatives, including the effects on recreation (Section 3.11) and fisheries (Section 3.15). The EIS described the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. NMFS estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which is described qualitatively. The potential for changes in recreational fishing of anadromous fish under MO3 in the Region C is described in Section 3.11. Increases in recreational fishing could support jobs, income, and social benefits in Tribal and rural river communities. For the effects on recreational fishing under MO3 (Section 3.11.3.5) along the Lower Snake River below Lewiston, the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River) as an indicator for fishing visitation in this reach. The EIS describes that the visitation in the long-term in the lower Snake River, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting outfitting and tourism businesses in the region. However, there is uncertainty around recreational fishing visitation in the long-term given the current measures to regulate, protect, and support ESA-listed fish populations and habitat in the region. For MO1, MO2, MO4, and the Preferred Alternative (PA), the evaluation qualitatively describes the potential for effects associated with recreational fishing by referencing the potential effects on relevant fish populations, as described in Section 3.5. Fish modeling results vary for some of the alternatives, for example for the PA and MO4 (i.e., models show either beneficial or adverse effects on anadromous fish), so it is assumed that the potential changes in recreational fishing would follow these changes in fish abundance in the long-term.

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6605	16	Charles Tracy	Pacific Fishery Management Council	Likewise, the DEIS lacks an economic analysis of river and ocean commercial fisheries and tribal fisheries. Commercial salmon harvest accounted for an annual average $241 million in GDP and 3,090 FTE (Washington) and $55 million in GDP and 910 FTE (Oregon) (Gislason et al. 2017).	The EIS provides an evaluation of the social welfare and regional economic effects of the No Action Alternative and the Multiple Objective alternatives, including the effects on recreation (Section 3.11) and commercial fisheries (Section 3.15). The EIS Section 3.5.3.6 describes the long-term effects to anadromous fish migration in the Snake River and tributaries that would occur under a dam breach scenario as major and beneficial, although quantitative impacts from fish modeling results are limited. The impacts to anadromous fish in other locations would have negligible to minor changes from the No Action Alternative. The contribution of Columbia River origin fish to ocean fisheries is described in Section 3.15.2.1. Because there is considerable uncertainty regarding the overall effects of the alternatives on regional fish populations, and how such changes may affect the management of the fisheries, the specific quantitative and monetized impacts associated with changes in commercial fisheries under the alternatives was limited. This analysis evaluates potential impacts on fisheries by referencing the potential effects on relevant fish populations, as described in Section 3.5. The EIS recognizes the economic and cultural importance of salmon to Tribes in a number of Sections throughout the document. The Fisheries Section 3.15 as well as Section 3.17, in particular, include discussion of reductions in anadromous species catch and associated adverse social effects that have occurred in Tribal communities. The cultural significance and impacts of salmon and steelhead fisheries are described in the Fisheries Section 3.15.2.1, which includes Sections that describe ceremonial and subsistence fisheries as well as the social importance of commercial, ceremonial and subsistence fisheries.
6605	17	Charles Tracy	Pacific Fishery Management Council	Beyond economic activity, salmon are profoundly important for the native peoples of the Northwest. As co-managers of the salmon resource, tribal interests must be an integral part of this discussion.	Tribal input, concerns, and interests were considered throughout the Draft EIS analyses and in the formulation of the Preferred Alternative. The co-lead agencies are engaging in government-to-government consultation with the tribes, and several tribes are cooperating agencies on the CRSO EIS. The EIS recognizes the economic and cultural importance of salmon to Tribes in a number of sections throughout the document. The cultural significance and impacts of salmon and steelhead fisheries are described in the Ceremonial and Subsistence Fisheries sub-section and the Social Importance of Commercial, Ceremonial and Subsistence Fisheries sub-section of Section 3.15.2.1. Fisheries tribal interests are provided in Section 3.15.4 additional details regarding the economic significance of salmon and steelhead fisheries have been added to the recreation analysis (Section 3.11) including tribal interests (Section 3.11.3.7).
6605	18	Charles Tracy	Pacific Fishery Management Council	As stated previously, Council fisheries can be further constrained by listed species, depending on the actions proposed in the alternatives. Given the significant contributions of commercial, Page 6 recreational and tribal fisheries to regional economies, a fishery-specific economic analysis should be given equal weight with other commodity-specific analyses in the DEIS.	Chapter 7, Preferred Alternative, describes the process to select the Preferred Alternative. The EIS evaluated beneficial and adverse effects across an array of resource areas including potential effects at the national, regional and local level; effects are monetized and quantified, where possible, and also described qualitatively. As is common in NEPA analyses, the beneficial and adverse effects of the alternatives are expressed as a variety of qualitative and quantitative environmental and economic metrics throughout the EIS to inform decision-making, including the effects of the alternatives on fish as detailed in Section 3.5. That the effects of the alternatives on fish are not expressed as monetized economic values does not mean that they were not considered in the context of the analysis. The EIS does not employ a cost-benefit framework for decision-making. Instead, the EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The EIS provides an evaluation of the social welfare and regional economic effects of the No Action Alternative and the Multiple Objective alternatives, including the effects on recreation (Section 3.11) and commercial fisheries (Section 3.15). The EIS Section 3.5.3.6 describes the long-term effects to anadromous fish migration in the Snake River and tributaries that would occur under a dam breach scenario as major and beneficial, although quantitative impacts from fish modeling results are limited. The impacts to anadromous fish in other locations would have negligible to minor changes from the No Action Alternative. The EIS described the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. NMFS estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which is described qualitatively. For the effects on recreational fishing under MO3 (Section 3.11.3.5) along the lower Snake River below Lewiston, the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River) as an indicator for fishing visitation in this reach. The EIS describes that the visitation in the long-term in the lower Snake River, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting outfitting and tourism businesses in the region. The social welfare values and regional economic effects associated with recreational fishing under the MOs, as well as river recreation post dam breach under MO3, were not estimated because of the uncertainty and large range in visitation and consumer surplus values among users. The contribution of Columbia River origin fish to ocean fisheries is described in Section 3.15.2.1. Because there is considerable uncertainty regarding the overall effects of the alternatives on regional fish populations, and how such changes may affect the management of the fisheries, the specific quantitative and monetized impacts associated with changes in commercial fisheries under the alternatives was limited. This analysis evaluates potential impacts on fisheries by referencing the potential effects on relevant fish populations, as described in Section 3.5. The EIS recognizes the economic and cultural importance of salmon to Tribes in a number of Sections throughout the document. The Fisheries Section 3.15 as well as Section 3.17, in particular, include discussion of reductions in anadromous species catch and associated adverse social effects that have occurred in Tribal communities. The cultural significance and impacts of salmon and steelhead fisheries are described in the Fisheries Section 3.15.2.1, which includes Sections that describe ceremonial and subsistence fisheries as well as the social importance of commercial, ceremonial and subsistence fisheries.
6605	19	Charles Tracy	Pacific Fishery Management Council	5. The DEIS alternatives analysis is insufficient in assessing the benefits of configurations and operations that restore or improve EFH for salmonids. The Council has long supported the Northwest Power and Conservation Councils (NPCC) Fish and Wildlife Program goals and objectives for listed and unlisted populations. The NPCC recovery goal for ESA-listed Snake River and upper Columbia River salmonids is a smolt-toadult return (SAR) rate of 2-6 percent, with an average of 4 percent. Below two percent, the population is at risk of decline. The NPCC objectives for unlisted populations or ESA-listed populations downstream of the Snake River and Upper Columbia River basins are to significantly improve the smolt-to-adult return rates (SARs) for Columbia River Basin salmon and steelhead, resulting in productivity well into the range of positive population replacement.	It should be noted that the 2-6% Smolt-to-Adult return (SAR) target referenced in this comment refers to the Northwest Power and Conservation Council (Council) target for broad-sense recovery and is separate and distinct from the obligations of any single entity or in this case a requirement to be met solely by the co-lead agencies. Just as the Councils fish and wildlife program encompasses both federal and non-federal stakeholders in the Columbia Basin, the Councils recovery goals are shared by many parties. Based on the analysis of the Preferred Alternative, the co-lead agencies believe their actions will make a substantial contribution, but the Councils broad sense recovery goals are beyond the scope of this EIS, which contemplates the effects associated with the operation and maintenance of the 14 CRS projects. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. To clarify, a point made in this comment, it is SARs below 1.0% rather than 2.0% that depending on the combination of SARs and freshwater productivity can lead to declines in populations. SARS above 2.0% like those predicted by the CSS model to result from the Preferred Alternative meet the lower end of the Council's SAR goals for rebuilding stocks. These improvements will apply to all stocks in the Columbia Basin, whether they are listed under the ESA or not.
6605	20	Charles Tracy	Pacific Fishery Management Council	The DEIS used two analytical models (the Northwest Fisheries Science Center [NWFSC] life cycle model [LCM] and Comparative Survival Study [CSS] model) for estimating fish survival under the alternatives (Figure 1). However, only four evolutionarily significant units were analyzed quantitatively; the following comments focused on the Snake River spring/summer Chinook evolutionarily significant unit for illustrative purposes. The CSS models accounts for the effects of powerhouse encounter rates, spill, water transit time, migration timing, and ocean conditions on juvenile survival (latent mortality), while the LCM model assumes there is little effect of the outmigration experience (other than estuary arrival time) on ocean survival and primarily attributes survival to ocean conditions. The disparity between the models underscores the shortcomings of the DEIS analysis. Nevertheless, the models generally agree that MO3 is best for fish, and that the preferred alternative is similar (LCM) or slightly better (CSS) than the No Action Alternative; however, there is there is so little variation in the LCM results (without assuming decreases in latent mortality) that they could be described as functionally the same. These results informed the Councils review of the alternatives, which is focused on the preferred alternative and on alternatives that provide substantial benefits to salmon (MO3 and MO4). Page 7 Figure 1. LCM1 and CSS model results2 of predicted SAR for Snake River juvenile Chinook for DEIS alternatives. The LCM results displayed assume 0% decrease in latent mortality	The co-lead agencies understand and acknowledge that model estimates for MO3, the alternative that includes the dam breaching measure, showed the greatest predicted potential Smolt-to-Adult returns (SARs) for Snake River salmon and steelhead among the alternatives, as well as other effects to species in both the upper and lower Columbia River. The purpose of the analysis in the EIS is not limited to which alternative benefits salmon the most. The EIS analysis provides analysis of multiple objectives and resources of the Columbia River System including flood risk management, water supply, hydropower generation, fish and wildlife conservation (including a variety of other species than salmon and steelhead), navigation, cultural resources, recreation and other environmental and socioeconomic resources. In addition, the EIS seeks to identify a Preferred Alternative that achieves a reasonable balance of multiple river resource needs and co-lead agency mission requirements. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets most other EIS objectives including those for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS, the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams, because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system.
6605	21	Charles Tracy	Pacific Fishery Management Council	MO3 (breach of the lower Snake River dams) The DEIS concludes that MO3 will have long-term beneficial effects for juveniles of all anadromous fish stocks, and major increases in Snake River fall Chinook spawning habitat. The DEIS also concludes long-term benefits from MO3 for anadromous adults in the Lower Snake and Columbia Rivers. MO3 is an aggressive reconfiguration of long-standing structure and operations that would improve conditions for migration and full life-cycle survival of anadromous species in the Columbia River. It is the only alternative that both models predict as an improvement over the no action alternative. MO3 consistently achieves SAR levels that lead to recovery; however, neither model accounts for the multitude of EFH benefits of a naturallyfunctioning river on salmon populations such as Snake River fall Chinook and coho salmon, or potential reductions in predation from non-native warm water fish species. 1 The footnote from Table 7-25 states in full: 1 / NMFS LCM does not factor latent mortality due to the System into the SARs or abundance outputs. For discussion purposes, potential decreases in latent mortality of 10 percent, 25 percent, and 50 percent are shown. The value for 0 percent is the actual model output, the 10 percent, 25 percent, and 50 percent values represent scenarios of what SARs or abundance hypothetically could be under the increased ocean survival scenario if changes in the alternative were to decrease latent mortality by that much. 2 The data for the PA- Preferred Alternative and the NAA- No Action Alternative are in Chapter 7, table 7-27 page 7- 102. The data for the other Multi-Objective Alternatives are in Appendix E, Table 3-22 page E-3-21. Page 8 Key habitat benefits that were not quantitatively analyzed in the DEIS are: Restoring approximately 140 river miles of spawning and rearing habitat currently inundated by the four lower Snake river reservoirs, with potential increase of up to 70 percent in spawning habitat for fall Chinook salmon (USACE 2002a) Decreased summer and early fall average daily water temperatures through the lower Snake river and possibly into the lower Columbia river and downstream of McNary Dam Restoration of natural riverine habitat from its current reservoir habitat, which would reduce non-native predatory fish such as smallmouth bass and walleye, and favor native species that co-evolved (i.e., salmon, steelhead, white sturgeon, Pacific lamprey, native trout) Major long-term benefits for ecosystem recovery, including wetlands, floodplains, vegetation, and wildlife that collectively benefit fish These habitat benefits can lead to improved survival of endangered fish stocks, which could have additional downstream effects, including potential delisting.	It is correct that neither the NMFS or CSS Life Cycle model included expanded spawner capacity in their modeling. There is considerable uncertainty around expectations for expanded spawning areas under MO3, the alternative that includes the measure to breach the lower Snake River dams. In the pre-impoundment era before the construction of Ice Harbor dam, most Snake River fall Chinook spawning occurred in the tributaries and middle/upper Snake upstream of Lower Granite (Groves and Chandler 1999). Scour from ice in the winter and relatively high water temperatures during fall (compared to the upper Columbia) were believed to be limiting factors. It is not known if ice formation would be a contemporary issue below Hells Canyon, and there is some doubt whether adequate gravels would be available in the lower Snake River. However, temperatures would be expected to cool earlier in fall. Groves, P. A., & Chandler, J. A. (1999). Spawning habitat used by fall Chinook salmon in the Snake River. North American Journal of Fisheries Management, 19(4), 912-922. For the 2000 Biological Opinion, NOAA proposed estimating free-flowing Snake River survival rates by estimating survival rates of PIT-tagged smolts from both the Salmon River trap to the Lower Granite bypass and from the Snake River trap (at the head of Lower Granite Reservoir) to the Lower Granite bypass. The per-kilometer survival rate of the free-flowing portion of the Snake River could be inferred from the difference between these two trap-to-dam estimates (Ferguson et al (2004). For the CRSO EIS, NMFS used a similar method of estimating free-flowing survivals and travel times with their COMPASS model. PIT-based monitoring efforts have occurred at 20-plus additional hatchery and wild-trap locations in the Snake and upper Columbia since the 2000 BiOp. In the appendix, NMFS carries out a sensitivity analysis for the choice of upstream trap location by comparing free-flowing survival rates estimates from the Grande Ronde, Salmon, and Imnaha traps to Lower Granite Dam to represent dam breach conditions under a dam breaching scenario. There is a wide variance in per-kilometer travel times and survival rates to Lower Granite Dam among all of the possible hatchery release sites and screw trap locations upstream of Lower Granite Dam. The river conditions and migration behavior of fish in tributaries to the Snake River is much less representative of river conditions we expect in the lower Snake River following dam breaching than are the river conditions in the free-flowing Snake River between the confluence of the Clearwater River and the confluence of the Salmon River. NMFS selected the three locations because each trap location was low in the tributary and are very close to the mainstem Snake River; we expect that reach of the free-flowing Snake to be very similar to what the breached lower Snake would look like in MO3. Traps further up in the tributaries are likely to tag more parr while these three traps tend to intercept mostly smolt-aged fish which arrive at Lower Granite without further rearing behavior. Yet it does appear that some fish in the Grande Ronde (GRN) and Imnaha (IMN) data exhibit parr-like behavior, especially in early April. This is a major contributor to why the GRN-IMN model predicts slower migration and lower survival in MO3 than the other calibrations, and the reason for why it was placed into the appendix. The Salmon River trap-to-Lower Granite reservoir free-flowing survival rate is used as a representative yearling Chinook population for the main text of the MO3 analysis. In response to the comment "outside the range of the data so the model is useless," this criticism can only apply to the Snake (SNK) calibration. Yes, MO3 is outside the range of the calibration data for the SNK calibration, as is noted in the Draft EIS text. The calibration between the Snake River Trap and Lower Granite Dam was just a "throwaway" calibration used to get at the GRN-IMN and Salmon (SAL) calibrations, and was not used in any prospective model runs for the CRSO EIS. However, the SAL and GRN-IMN calibrations are not outside the range of the calibration data when used for MO3. Flow, water velocity and temperature are all comparable between the free-flowing reaches of the Snake River used for calibration and the breached lower Snake dams in MO3.
6605	22	Charles Tracy	Pacific Fishery Management Council	MO4 (spring-summer spill to 125 percent TDG at all eight FCRPS projects) MO4 provides for spring-summer spill to 125 percent TDG at all eight FCRPS projects and would improve EFH conditions and salmon survival (including juvenile survival, ocean survival and smolt-to-adult survival) for most fish in the Columbia River system. In addition, it is expected to reduce juvenile passage delays and result in increased productivity of harvestable stocks.	The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO4. However, the Preferred Alternative also meets certain objectives of the study for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse impacts to communities and the economy. MO4, by contrast, has significant regional economic and environmental impacts, and meets only a subset of the EIS objectives. Thus, the co-lead agencies did not recommend MO4 because the Preferred Alternative is more likely to satisfy multiple and, at times, conflicting legal requirements for a complex system.

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6605	23	Charles Tracy	Pacific Fishery Management Council	6. The DEIS preferred alternative is not sufficiently improved over the no action alternative and, therefore, fails to meet a number of regional requirements, goals and objectives for salmon. The DEIS fails to recognize that both models predict that the preferred alternative will not achieve the NPCC recovery goal for Snake River Chinook. In fact, relative to the no action alternative, the preferred alternative will not sufficiently improve survival enough to recover listed stocks or increase healthy and harvestable populations. The actual survival benefit of the Flex Spill Agreement, which is fundamental to the preferred alternative, may overestimate survival benefits due to higher nighttime powerhouse encounter rates that are not accounted for in DEIS modeling. The CSS analysis further indicates a high (63 percent) probability that the preferred alternative will fall below the minimum SAR (2 percent), the rate at which the population is at risk for decline (McCann et al 2019). This is particularly problematic during low water years, which are expected to occur with greater frequency as climate change continues to manifest in the region in the form of reduced snowpack, earlier spring discharge peaks, and warmer temperatures nearly annually.	Regarding meeting regional requirements, the co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other applicable laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the Columbia River System. That call, however, is ultimately the role of NMFS and the USFWS. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. The CSS model predicts that Smolt-to-Adult return rates will increase for both Snake River spring Chinook and steelhead and with a median well above 2% (within the Northwest Power and Conservation Council's recovery targets for the region) as a result of the Preferred Alternative. Regarding the overestimation of benefits due to higher nighttime powerhouse passage: in practice, model estimates may not be an overestimate due to day vs. night passage differences because limitations on nighttime spill reductions are already in place through the adaptive management process and lessons learned from the 2019 flexible spill operation. These adjustments in the amount of night time spill were informed by state, Tribal, and Federal biologists with expertise in dam operations and their effects to fish passage. These examples of adaptive management will continue during post-ROD operations.
6605	24	Charles Tracy	Pacific Fishery Management Council	The preferred alternative includes several structural measures that further threaten salmon survival: High capacity turbines: The preferred alternative (and other alternatives) includes installation of new high-capacity turbines (termed fish-friendly in the DEIS) at several FCRPS dams which will increase powerhouse flow. These new turbines require higher water volume than existing turbines, and will divert a greater proportion of flow, and therefore fish, away from the spillways and toward the powerhouses. Powerhouse passage is associated with stress, injury, direct mortality and delayed mortality. The cumulative effect of high-capacity turbines installed at multiple dams will likely further reduce SARs. Given that the benefits to a fish passing via a high capacity turbine are yet unproven, it is impossible to determine if that benefit can compensate for the proven detriments of increased powerhouse encounters. Therefore, it is premature to install highcapacity turbines until scientifically vetted.	The co-lead agencies disagree the Improved Fish Passage turbines would adversely affect SARS. See Section 3.5 and Section 7.7.4 for additional information. The new John Day and Ice Harbor turbines will be designed to operate within the existing turbine operating range. McNary turbines will be designed with an increased range. Once installed, the new turbines will be tested and validated for fish survival. Although only the McNary turbines will be designed for an increased operating range, the overall level of spill at any given project is determined not by the individual turbine unit capacity but by overall project operations management decisions. These decisions will occur through the Regional Forum and guided by the Adaptive Management Plan. Adaptive management strategies will be used to assure no detrimental impact.
6605	25	Charles Tracy	Pacific Fishery Management Council	Structural measures: All but four of the twenty-two structural measures in the preferred alternative are either measures retained from the no action alternative or new measures developed to increase power production, increase water supply for municipal or irrigation, or to benefit lamprey. The only structural measures included in the preferred alternative to mitigate for reductions in salmonid survival are the Lower Granite Trap Modifications and the Bonneville Ladder Serpentine Weir Modifications. Both of these modifications have been reduced in scope to only include trap gate modifications, which will greatly reduce anticipated benefits. Taken as whole, the structural measures in the preferred alternative will have an overall adverse impact on salmonid survival as compared to those in the no action alternative.	Based on the information provided in the comment, it is not clear how the structural measures would have an adverse effect to salmonid survival. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide meaningful benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the CRS. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. The Preferred Alternative is predicted to benefit salmon and steelhead. It also meets the other objectives for resident fish, hydropower, water management, and water supply, while minimizing adverse impacts to communities and the economy. The CSS model predicts that average Smolt-to-Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% (within the Northwest Power and Conservation Council recovery targets for the region) as a result of the Preferred Alternative. The NMFS COMPASS and Lifecycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin.
6605	26	Charles Tracy	Pacific Fishery Management Council	Removal of fish screens: Fish screens have played an active role in diverting smolts away from turbines. The preferred alternative proposes to remove fish screens at several dams, which could increase turbine passage and result in increased injury and mortality.	As described in the Section 7.6.2.22 titled Fewer Fish Screens, the fish screens would not be removed when the increased efficiency hydropower turbines would be installed at Ice Harbor, McNary, and John Day dams until the co-lead agencies collaborated with NMFS and USFWS to develop a Turbine Intake Bypass Screen Management and Future Strategy process to monitor success of the turbines and determine if and when it would best to remove fish screens at these projects.
6605	27	Charles Tracy	Pacific Fishery Management Council	For the reasons described above, the preferred alternative fails to meet regulatory requirements for the recovery of listed species under ESA and water temperature requirements of the Clean Water Act, and fails to meet regional goals of the NPCC (2014) and Columbia Basin Partnership Task Force (2019) for the recovery of ESA-listed salmonids and sustainable, harvestable abundances of salmonid populations in the Columbia Basin. Furthermore, the preferred alternative does not improve or restore ESA-designated critical habitat and MSA-designated EFH for salmon in the Basin.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple legal responsibilities, including compliance with Section 7 of the Endangered Species Act. Under Section 7(a)(2) of the ESA, the co-lead agencies must insure that any action authorized, funded, or carried out is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of habitat of such species. Section 7(a)(2) does not require the co-lead agencies to recover ESA-listed species. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide meaningful benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the CRS. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. The Preferred Alternative is predicted to benefit salmon and steelhead. It also meets the other objectives for resident fish, hydropower, water management, and water supply, while minimizing adverse impacts to communities and the economy. The CSS model predicts that average Smolt-to-Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% (within the Northwest Power and Conservation Council recovery targets for the region) as a result of the Preferred Alternative. The NMFS COMPASS and Lifecycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. Chapter 8 of the EIS demonstrates the agencies compliance with applicable laws, including the ESA, MSA and Northwest Power Act. The co-lead agencies look forward to continue cooperation with region on actions to benefit ESA-listed species, such as those described by NMFS in its Columbia Basin Partnership Task Force. Finally, alternatives to include changes to harvest are not within the scope of this EIS. The assumptions regarding harvest are taken from the 2018 EIS from NOAA and reflect current harvest management guidelines. To see their conclusions and effects analyses please go to: https://www.fisheries.noaa.gov/resource/document/environmental-impact-statement-programmatic-review-harvest-actions-salmon-and. For harvest, fisheries in the Columbia River Basin and those that rely upon Columbia River fish stocks are managed by numerous entities, including Federal, state, and tribal governments. These entities are guided by a complex array of policies, laws, compacts, and agreements. The management of Pacific salmon fisheries in particular is complex, and involves numerous entities representing a variety of social, political, and conservation interests. Changes in allowable fishery harvest in the Columbia River Basin are a result of decisions made by state, Federal (i.e., NMFS), and tribal fishery managers based on a variety of environmental, biological, economic, and social factors. The three co-lead agencies (Corps, Reclamation, and Bonneville) do not manage fish stocks, and do not have the authority to do so.
6609	1	Christina St. Germaine	The Clearwater County Economic Development team (CCED)	We recognize the CRSO DEIS process includes a response to The Opinion and Order from US District Court for the District of Oregon, which states the EIS should evaluate how to ensure that the prospective management of the CRS is not likely to jeopardize the continued existence of any endangered or threatened species We also recognize that the CRSO process, within the framework of the National Environmental Policy Act, looks to identify broad-based environmental and socio-economic impacts associated with the proposed alternatives. However, we do not find in the CRSO DEIA any analysis of socio-economic impacts from proposed actions. We cannot support the CRSO DEIS because both direct and indirect economic impacts of its proposed actions on regional economies are not considered, which are as follows: Clearwater County is home to Dworshak Reservoir, the Dworshak National Fish Hatchery and Clearwater Hatchery provide direct local economic value through a number of avenues: federal jobs (USACE, USFWS), state jobs (ID Fish & Game, ID Parks & Rec), commercial vendors (licensed outfitter-guides, campground operations); and indirectly from the hospitality industry (hotels, eating establishments and retail). According to ID Fish & Game angler surveys, steelhead fishing contributes $ 31,677,943 (inflation adjusted) annually in Clearwater River communities; and, throughout the region $ 80,815,718. Fishing on Dworshak Reservoir contributes $4,614,444 to the local economy. The Idaho Department of Labor Regional Economist recently provided multipliers of both jobs and income tied to steelhead fishing in Clearwater County: Jobs Average Earnings Job Multiplier Income Multiplier Outfitters & Guides 24 $23,221 1.54 1.70 Accommodation 55 $18,448 1.49 1.73 Restaurants & Bars 131 $14,692 1.33 1.63 Sporting Goods Stores 37 $35,831 1.55 1.76	The EIS provides an evaluation of the social welfare and regional economic effects of the No Action Alternative and the Multiple Objective alternatives, including the effects on recreation (Section 3.11) and commercial fisheries (Section 3.15). The EIS Section 3.5.3.6 describes the long-term effects to anadromous fish migration in the Snake River and tributaries as major and beneficial, although quantitative impacts from fish modeling results are limited. The EIS described the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. NMFS estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which is described qualitatively. For the effects on recreational fishing under MO3 (Section 3.11.3.5) along the lower Snake River below Lewiston, the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River) as an indicator for fishing visitation in this reach. The EIS describes that the visitation in the long-term in the lower Snake River, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting outfitting and tourism businesses in the region. The social welfare values and regional economic effects associated with recreational fishing under the MOs, as well as river recreation post dam breach under MO3, were not estimated because of the uncertainty and large range in visitation and consumer surplus values among users.
6609	2	Christina St. Germaine	The Clearwater County Economic Development team (CCED)	The importance of angler spending cannot be understated in the Clearwater County economy. We do not understand why the CRSO DEIS does not address the economic impacts of its proposed actions on local and regional economies.	The EIS provides an evaluation of the social welfare and regional economic effects of the No Action Alternative and the multi-objectives alternatives, including the effects on recreation (Section 3.11) and fisheries (Section 3.15). The EIS described the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. NMFS estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which is described qualitatively. The potential for changes in recreational fishing of anadromous fish under MO3 in the Region C is described in Section 3.11. Increases in recreational fishing could support jobs, income, and social benefits in Tribal and rural river communities. For the effects on recreational fishing under MO3 (Section 3.11.3.5) along the Lower Snake River below Lewiston, the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River) as an indicator for fishing visitation in this reach. The EIS describes that the visitation in the long-term in the lower Snake River, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting outfitting and tourism businesses in the region. However, there is uncertainty around recreational fishing visitation in the long-term given the current measures to regulate, protect, and support ESA-listed fish populations and habitat in the region. For MO1, MO2, MO4, and the Preferred Alternative (PA), the evaluation qualitatively describes the potential for effects associated with recreational fishing by referencing the potential effects on relevant fish populations, as described in Section 3.5. Fish modeling results vary for some of the alternatives, for example for the PA and MO4 (i.e., models show either beneficial or adverse effects on anadromous fish), so it is assumed that the potential changes in recreational fishing would follow these changes in fish abundance in the long-term.
6609	3	Christina St. Germaine	The Clearwater County Economic Development team (CCED)	The CRSO DEIS suggests proactive coordination with Libby and Hungry Horse Reservoirs related to drawdowns and resident fish impacts but no such concern given to the Dworshak community. The Dworshak community has aggressively, over the past decade, marketed the bass and kokanee fishery in Dworshak while still maintaining the importance of the resident fish well-being. In fact, the first and second largest record smallmouth bass in Idaho were caught in Dworshak. Since, as previously noted, angler spending is a valued component in Clearwater Countys economy, why are resident fisheries not considered equally throughout the CRSO network?	The Walla Walla District leadership will continue active communication with stakeholders regarding Dworshak operations under the Preferred Alternative. As Dworshak operations are consistent with the No Action Alternative, there were no additional effects discussed in the Preferred Alternative analysis (Chapter 7). The Preferred Alternative analysis indicate the elevations would be very similar to the No Action Alternative by the time smallmouth bass would begin spawning in April or May and remain similar to the No Action Alternative through the summer and fall. Figure 7-13 illustrates the hydrograph in dry, average, and wet years. In this figure the No Action and Preferred Alternative hydrographs are nearly identical in average and wet years during April through June, and in dry years the elevation would be higher than the No Action Alternative at times during these months. The deeper draft is seen in January, February, and partly into March, especially in the wet years, in which the elevation would be lower than the No Action Alternative for a particular date in those months; in other words the reservoir would draft faster and earlier than the No Action Alternative, but it would not result in drawdowns any lower than the No Action Alternative at the lowest point. Effects to smallmouth bass are expected to be negligible. Boat ramps access would be the same as the No Action Alternative during months when they would be in use, and the summer drawdown would also be the same as the No Action Alternative, so mitigation would not be required under NEPA.

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6609	4	Christina St. Germaine	The Clearwater County Economic Development team (CCED)	The CRSO DEIS makes mention of a 2019-2021 Spill Operations Agreement. We learned from Corps staff that the Spill Operations Agreement is a negotiated spill regime between co-lead agencies, (Nez Perce Tribe and States of Oregon and Washington) for implementation in the Lower Snake River and Lower Columbia River Dams. It has been suggested that smolts historically made the downstream migration from the upper reaches of the Clearwater River system to the ocean in days and that with the slack water pools the trip takes months.	Federal, state and Tribal partners came together to develop an agreement on a key component of operating Federal dams in the Columbia River Basin. Parties to the agreement have aligned on a flexible spring spill operation premised on achieving improved salmon survival while also managing costs in hydropower generation and maintaining operational feasibility: (https://www.bpa.gov/efw/FishWildlife/SpillOperationAgreement/Pages/default.aspx) Average travel time through seven of the eight reservoirs and eight dams is presented in the CRSO EIS for each alternative for those species that could be modeled. For Snake River spring/summer Chinook, travel time under the Preferred Alternative is estimated at 15 days, one day fewer than the No Action Alternative.
6609	5	Christina St. Germaine	The Clearwater County Economic Development team (CCED)	We support and applaud the predator control measures: The measures proposed in the CRSO DEIS to reduce predation on downstream anadromous smolts. We support these predator control measures and encourage an aggressive approach to reducing avian predation of anadromous smolts.	The co-lead agencies legal authorities relate to operating and maintaining the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. To comply with the ESA, the co-lead agencies have historically supported actions to mitigate adverse effects to listed species from CRS operations, through funding, direct implementation, and other means. Under the Preferred Alternative, those actions, including for the purpose of reducing pinniped and avian predation on listed species, would generally continue to ensure compliance with the ESA. Other entities in the region have authorities and obligations to mitigate the impacts from pinniped and avian predators and the co-lead agencies will continue to work closely with those entities to benefit ESA-listed salmonids.
6609	6	Christina St. Germaine	The Clearwater County Economic Development team (CCED)	We applaud efforts that will increase flow in the pools enabling swifter migration of smolts through the CRSO hydro system.	Thank you for your comment.
6609	7	Christina St. Germaine	The Clearwater County Economic Development team (CCED)	The CRSO DEIS mentions a Zero Generation Opportunity, which would allow flow through dams without electricity generation. The proposal would extend the Zero Generation Opportunity from mid Dec Feb to Oct 15 Feb 28, when power markets warrant and river conditions make it feasible. The CRSO DEIS also states that a slightly deeper Dworshak would increase water flow through turbines Jan March with a focus on hydropower generation because the power demand markets are higher in winter across the CRSO. It seems the Dworshak water is being used for power generation to enable the Zero Generation Opportunity in the lower Snake-Columbia system. Dworshak has been tapped for years to augment flows for out-migrating anadromous fish. We do not support the elements in Zero Generation Opportunity for the following reasons: The Zero Generation Opportunity seasonal extension seems contradictory to the statement of the regional demand for power being greater in the winter. The additional winter season hydro power generation being considered for upper CRSO system storage facilities seems unsubstantiated (i.e. Libby is also a storage facility and has more generating capacity than Dworshak).	The commenter may be conflating two different issues. Drafting Dworshak slightly deeper has the power benefits described in the EIS. Dworshak often fills too quickly in the spring and then has forced spill to meet flood risk management operations. Spill at Dworshak leads to high TDG in water entering the lower Snake River which could adversely impact anadromous fish. Drafting slightly deeper commensurate with the water supply forecast above Dworshak would reduce the incidence of forced spill and provide power benefits described in the EIS. Due to the sensitivity around refill for summer cooling water, the developed process would use a higher probability of refill than what is used at other headwater projects (Grand Coulee and Hungry Horse). As shown in Section 7.7, Figure 7-12 and Table 7-14 in the Draft EIS, this operation does not measurably affect the elevation at the beginning of April or the flow in April except around the highest 1% of water conditions when flood risk management is an issue. The Zero Generation Operations measure, which is include in the Preferred Alternative, allows the lower Snake River projects to reduce generation during night-time hours when loads are lower. This reduction in generation decreases the outflow on the project which allows for water to be stored in the reservoirs for use later in the morning during high winter load peaks. Increasing water flows from Dworshak during January to March with the Zero Generation Operations measure would allow for more peaking capability on the lower Snake projects to meet high winter load peaks.
6609	8	Christina St. Germaine	The Clearwater County Economic Development team (CCED)	In the slightly deeper Dworshak scenario the CRSO DEIS should consider the impact on resident fish. Bass spawning typically occurs when water temperatures hover around 60 degrees F, which in the Dworshak neighborhood is April May. Given lower water levels in spring and the CRSO EIS lack of inclusion of any climate change assessment on water availability, a slightly deeper Dworshak could have negative impacts on resident smallmouth bass, a highly valued recreational fishery and growing economic engine in Clearwater Countys economy. Additionally, the graphs in CRSO DEIS Figure 7-13 suggest the slightly deeper Dworshak would reach full pool the last week of June and the previously negotiated Dworshak drawdown for fish outmigration begins July 1, resulting in a 1 week full pool recreational opportunity. We have remained actively engaged with the Dworshak recreation program over the years and have kept up with the visitor data collected by the Corps at Dworshak. Recognizing the data collection methodologies have changed over the years, the trend demonstrates a very clear relationship between pool level and visitation. The figures below represent data from USACE Dworshak Reservoir visitor tracking in 1990 (no summer drawdown) and 2019 (summer drawdown). We do not support the slightly deeper Dworshak scenario for the following reasons: There is no consideration to the impact on resident fish and strong potential for negative impacts on resident smallmouth bass. There is no analysis of resident fishery impacts as a result of a slightly deeper Dworshak? The climate change has not been considered in the CRSO DEIS in regard to snowpack and water availability There are no funding resources allocated to Dworshak Reservoir to facilitate water access during the slightly deeper Dworshak levels (boat ramp extensions) for public safety. There are no additional funding resources committed to offset the known negative impacts summer time drawdown has on Dworshak recreation (dock improvements, on water destination facility expansion, campground improvements, OHV use area/camping improvements).	Figures 7-12 and 7-13 offer different ways to view the elevation hydrograph, but both figures indicate the elevations would be very similar to the No Action Alternative by the time smallmouth bass would begin spawning in April or May and remain similar to the No Action Alternative through the summer and fall. Figure 7-13 illustrates the hydrograph in dry, average, and wet years. In this figure the No Action and Preferred Alternative hydrographs are nearly identical in average and wet years during April through June, and in dry years the elevation would be higher than the No Action Alternative at times during these months. The deeper draft is seen in January, February, and partly into March, especially in the wet years, in which the elevation would be lower than the No Action Alternative for a particular date in those months; in other words the reservoir would draft faster and earlier than the No Action Alternative, but it would not result in drawdowns any lower than the No Action Alternative at the lowest point. Effects to smallmouth bass are expected to be negligible. Boat ramps access would be the same as the No Action Alternative during months when they would be in use, and the summer drawdown would also be the same as the No Action Alternative, so mitigation would not be required by NEPA. Through on-going regional climate change studies and work, the co-lead agencies evaluated potential shifts in precipitation and temperature patterns and resulting changes in unregulated Columbia Basin streamflow timing and volumes. The evaluation consisted of the full range of the latest climate change projections developed using multiple global climate models, emissions scenarios, downscaling techniques, and hydrologic models. Details of this evaluation are in Chapter 4 of the EIS. This information was used to describe the potential effects (both beneficial and adverse) on the river systems and resources due to potential changes in climate for all alternatives.
6609	9	Christina St. Germaine	The Clearwater County Economic Development team (CCED)	In Clearwater County the economy and individual livelihoods are closely tied to the natural resources; natural resource management is a leading economic cluster. The jobs and wages associated with the government funded positions, the outfitters and guides who host anglers and the local hospitality businesses are intrinsically linked to the way our resources are managed. We request consideration of the impacts the CRSO EIS preferred alternative will have on the Clearwater County economy.	The EIS provides an evaluation of the social welfare and regional economic effects of the No Action Alternative and the Multiple Objective alternatives, including the effects on recreation (Section 3.11) and commercial fisheries (Section 3.15). The EIS Section 3.5.3.6 describes the long-term effects to anadromous fish migration in the Snake River and tributaries that would occur under a dam breach scenario as major and beneficial, although quantitative impacts from fish modeling results are limited. The impacts to anadromous fish in other locations would have negligible to minor changes from the No Action Alternative. The EIS described the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. NMFS estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which is described qualitatively.
6611	1	lochsalaughy@yahoo.com	N/A	Consider also that the Environmental Protection Administration, forced into action after 17 years by a Clean Water Act lawsuit, has once again prepared a working document leading to a TMDL for water temperature on the Columbia and Snake Rivers. As in its 2003 draft, EPA once again finds the source of increased water temperatures in these impaired water bodies is the reservoirs behind the dams. Now EPA also adds its estimate of temperature increases over time that will result from global warming. The only way the Lower Snake River Dams can meet water quality standards critical for SR salmon and steelhead is with the elimination of the pools behind the LSR dams.	EPA's temperature TMDL evaluates both natural and anthropogenic sources of heat in the Columbia and Snake rivers. The temperature TDML is a comprehensive analysis identifying all the sources of heating in the Columbia and Snake rivers, including the CRS dams and reservoirs. The EIS indicates that some CRS dams can lead to heating and cooling, while other CRS dams have little to no influence on the river temperatures. Regarding the lower Snake River dams, the EIS references historical temperatures in the lower Snake River basin prior to the construction of the lower Snake River facilities and the Hells Canyon Complex. This data shows that temperatures in the pre-dam, free-flowing lower Snake River often exceeded 68F (20C) in July and August and occasionally exceeded 25C. These measurements were taken near the mouth of the Snake River from 1955 to 1958. (Peery, C. A. and T. C. Bjornn. 2002. Water Temperatures and Passage of Adult Salmon and Steelhead in the Lower Snake River. Technical Report 02-1. U.S. Geological Survey, Idaho Cooperative Fish and Wildlife Research Unit, University of Idaho, Moscow, Idaho.) For information regarding the recently issued TMDL for temperature in the Columbia and lower Snake rivers, please see https://www.epa.gov/columbiariver/tmdl-temperature-columbia-and-lower-snake-rivers.
6611	2	lochsalaughy@yahoo.com	N/A	One more observation: In April 2016 NOAA Fisheries provided a biological opinion to the Federal Emergency Management Agency requiring FEMA in Oregon to provide greater protections for imperiled salmon, steelhead and yes, to Southern Resident Killer Whales. NOAAs BiOp states that these species. depend on healthy, functioning floodplain habitat. Altering the natural processes that allow habitat to form and recover from disturbances, such as floods, can affect multiple stages of the salmon life cycle and impede their survival and long-term recovery. Lets place the DEIS in context based on the decision Judge Michael Simon rendered on the operation of the FCRPS: a. More than 20 years ago, Judge Marsh admonished that the Federal Columbia River Power System cries out for a major overhaul. b. Judge Redden, urged the relevant consulting and action agencies to consider breaching one or more of the four dams on the Lower Snake River. however, the federal agencies have ignored these admonishments and have continued to focus essentially on the same approach to saving the listed speciesHydro-mitigation efforts that minimize the effect on hydropower generation operations. c. Judge Simon stated that for the past 20 years the federal action agencies have done their utmost to avoid considering the reasonable alternative of breaching, bypassing, or removing one or more of the Lower Snake River Dams. d. NOAA Fisheries has identified critical habitat necessary through the migratory corridor for the survival of endangered Snake River salmon and steelhead, including a waterway free of obstruction with water quantity and quality conditions and natural cover such as submerged and overhanging large wood, aquatic vegetation, large rocks and boulders, and side channels. e. In 2016 NOAA fisheries provided a biological opinion to the Federal Emergency Management Agency requiring FEMA in Oregon to provide greater protections for imperiled salmon, steelhead and Southern Resident Killer Whales. NOAAs BiOp states that these species. depend on healthy, functioning floodplain habitat. Altering the natural processes that allow habitat to form and recover from disturbances, such as floods, can affect multiple stages of the salmon life cycle and impede their survival and long-term recovery. The science of what is required for the recovery of threatened and endangered Snake River salmonids is clear. Idaho Congressman Mike Simpson encapsulated those requirements in just five words: The salmon need a river. He was referring to the series of four reservoirs that now define the lower Snake River. In 2019 Snake River threatened and endangered spring and summer Chinook salmon population returns were .006 per cent of their historical abundance. For fall Chinook the number was .011 percent; steelhead at .029 per cent; sockeye salmon at .0005 percent. The DEIS calls for a continuation of the status quo, a tweak here, a tuck there, clearly not enough to produce the average 4% SAR needed for fish recovery, just enough to keep the wild salmon and steelhead from going extinct. Maybe.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species as that is a broader goal with shared responsibility. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species as that is a broader goal with shared responsibility. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. It should be noted that the 4% average SAR target referenced refers to the Northwest Power and Conservation Councils target for broad-sense recovery and is separate and distinct from the obligations of any single entity or in this case a requirement to be met solely by the co-lead agencies. Just as the Councils fish and wildlife program encompasses both federal and non-federal stakeholders in the Columbia Basin, the Councils recovery goals are shared by many parties. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets most other EIS objectives including those for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy.
6620	1	lagergren@cs.com	N/A	Also old dams that need extensive work for repairs and need mitigation measures to protect Salmon require electricity for the work and thus will negate the positive contribution of the hydropower they may produce. It has been described for years that the cost benefit of the dams for producing electricity, and for the cost of keeping the dams for cargo transportation up to Lewiston is a decreasing or even a money-losing endeavor. It may be	As explained in Section 3.7.3.5 of the EIS, Potential Replacement Resources and Associated Costs, MO3 (which includes breaching the four lower Snake River dams) would have a direct and substantial impact on the supply of Federal power to meet regional load requirements. Breaching the dams would reduce energy to meet regional load requirements, and reduce generating capacity (peaking capacity) to meet variability in loads. The four lower Snake River dams are among the most

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				cheaper to transport by truck or rail than to barge up the complicated dammed-up river. Lewistons and other communitys economy could benefit far more from a lucrative sport fishing industry IF wild Salmon numbers could be allowed to recover.	valuable projects in FCRPS. These dams provide over 1000 MW of carbon-free energy and up to 2000 MW of peaking capacity at certain times of the year. The dams also have unparalleled ramping capability the ability to quickly generate energy to match spikes in energy usage with over 2200 MW of capability in certain months of the year. Access to barge transportation is the most cost effective means of accessing export markets for many of the grain producers in the Northwest currently and removing that option will increase transportation costs for grain producers, as the EIS shows. Impacts to navigation from MO3, which includes the dam breach measure, along with community effects, are described in Section 3.10.3.5. Impacts to recreation are described in Section 3.11.3.5 for MO3.
6625	1	sjones@2ndhomes.com	N/A	1. The DEIS must include a comprehensive economic analysis of Idahos salmon sportfishery and its potential in the event of restored abundant wild salmon and steelhead returns. In 2019 anglers spent $750 million dollars in the state. In the Clearwater region in 2003, during a decent return year, salmon	The EIS provides an evaluation of the social welfare and regional economic effects of the No Action Alternative and the multi-objectives alternatives, including the effects on recreation (Section 3.11) and fisheries (Section 3.15). The EIS described the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. NMFS estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in tum, angler visitation and spending, and regional economic conditions in Region C, which is described qualitatively. The potential for changes in recreational fishing of anadromous fish under MO3 in the Region C is described in Section 3.11. Increases in recreational fishing could support jobs, income, and social benefits in Tribal and rural river communities. For the effects on recreational fishing under MO3 (Section 3.11.3.5) along the Lower Snake River below Lewiston, the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River) as an indicator for fishing visitation in this reach. The EIS describes that the visitation in the long-term in the lower Snake River, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting outfitting and tourism businesses in the region. However, there is uncertainty around recreational fishing visitation in the long-term given the current measures to regulate, protect, and support ESA-listed fish populations and habitat in the region. For MO1, MO2, MO4, and the Preferred Alternative (PA), the evaluation qualitatively describes the potential for effects associated with recreational fishing by referencing the potential effects on relevant fish populations, as described in Section 3.5. Fish modeling results vary for some of the alternatives, for example for the PA and MO4 (i.e., models show either beneficial or adverse effects on anadromous fish), so it is assumed that the potential changes in recreational fishing would follow these changes in fish abundance in the long-term.
6625	2	sjones@2ndhomes.com	N/A	2. MO3, the dam breaching alternative, is the only option that meets life-cycle survival criteria, achieves meaningful recovery, and minimizes the jeopardy of extinction. According to the scientific models from many agencies in the DEIS, only MO3 will lead to smolt-to-adult ratios (SARs) that meet regional goals. Averaging 4 adults returning for every 100 smolts migrating out (4% SAR), with a range of 2-6% SAR has been deemed necessary for recovery to sustained, harvestable abundance MO3 is the only alternative that adequately minimizes the risk of extinction for Snake River stocks as a baseline; something legally required of this DEIS.	It should be noted that the 2-6% SAR target referenced in this comment refers to the Northwest Power and Conservation Councils (Council) target for broad-sense recovery and is separate and distinct from the obligations of any single entity or in this case a requirement to be met solely by the co-lead agencies. Just as the Councils fish and wildlife program encompasses both federal and non-federal stakeholders in the Columbia Basin, the Councils recovery goals are shared by many parties. Based on the Preferred Alternative analysis, it will make a substantial contribution, but the Councils broad sense recovery goals are beyond the scope of this EIS which focuses on the effects associated with the operation and maintenance of the 14 CRS projects. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species as that is a broader goal with shared responsibility. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the Columbia River System. That call, however, is ultimately the role of NMFS and the USFWS. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets most other EIS objectives including those for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS, the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams, because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system.
6625	3	sjones@2ndhomes.com	N/A	3. Alternative MO3 needs to include an accurate cost-benefit analysis of the four Lower Snake River dams, the power they generate and the does the market want the power? Purchasing replacement power on the open market would cost $11 million/year. This is $38 million/year cheaper than estimated LSRD maintenance and operation expenses and does not include benefits from reduced fish and wildlife and turbine rehab costs. Turbine replacements and maintenance in the next decade at the four dams will cost tens of millions of dollars a year	The EIS evaluated beneficial and adverse effects across an array of resource areas including potential effects at the national, regional and local level; effects are monetized and quantified, where possible, and also described qualitatively. As is common in NEPA analyses, the beneficial and adverse effects of the alternatives are expressed as a variety of qualitative and quantitative environmental and economic metrics throughout the EIS to inform decision-making. The EIS does not employ a cost-benefit framework for decision-making. Instead, the EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. For hydropower, the average annual value of the four lower Snake River dams exceeds the average annual equivalent costs. The generation value at the four lower Snake River dams can be described by a range between the cost to replace the generation through new conventional resources or through a portfolio of zero-carbon resources. Without adding replacement resources, the LOLP without the four lower Snake River dams increased to 13.9 percent above the 6.6% of the No Action Alternative and about the 5% standard set by the Council The cost range of these replacement resources would put the annual value of power between $240 million and $500 million for the four dams combined. These numbers represent about 90 percent of the lost benefits cited in Table 3-171 of the Draft EIS because the four dams represent about 1,000 aMW of the 1,100 aMW of lost generation estimated in MO3. The average annual cost to operate and maintain all authorized purposes at the four lower Snake River dams is $75 million (Appendix Q, Table 5-1) and the annual-equivalent capital costs are $32 million (Appendix Q, Table 4-1). Hydropower costs funded by Bonneville represent about $50 million of the total annual operations and maintenance costs and nearly all of the annual capital costs, approximately $31 million. This puts the annual-equivalent power-specific costs at approximately $81 million a year. As a result, the net benefits from hydropower for the four lower Snake River dams are between $156 million and $417 million and the benefit-cost ratios are between 2.9 and 6.1. If the generation could be reliably replaced with short-term wholesale market purchases (see Table 3-170 of the Draft EIS), the lower bound for net benefits would fall to $57 million and the benefit-cost ratio would fall to 1.7. From a resource competitiveness perspective, the four lower Snake River dams are among the least costly generating resources in the Federal Columbia River Power System (FCRPS) and the planned investment strategy is expected to maintain that status. As shown in the Federal Hydropower presentation at the 2018 Integrated Program Review1, the Headwater/Lower Snake Asset Class2 is forecast to have a 50-year levelized cost of generation3 of $11.41/MWh based on the direct funded capital and expense (O&M) programs outlined in that process. These costs remain competitive with volatile Mid-Columbia spot market energy prices which averaged $37/MWh in 2019 and have averaged $21/MWh in 2020. 1/ The Integrated Program Review (IPR) allows interested parties to see and comment on all relevant Federal Columbia River Power System (FCRPS) capital and expense (O&M) spending level estimates in the same forum. The IPR occurs every two years, or just prior to each rate case, and is the public review for the costs that will be recovered through rates the following two-year rate period. Long-term forecasts for the next 50 years and major upcoming projects are also shared in this forum. This information is available here: https://www.bpa.gov/Finance/FinancialPublicProcesses/IPR/2018IPR/IPR%202018%20Fed%20Hydro%20Workshop.pdf and is incorporated by reference into this EIS. 2/ In the 2018 Integrated Program Review, the Headwater/Lower Snake Asset Class consisted of the four lower Snake River dams, Hungry Horse, Libby, and Dworshak dams. These projects were grouped together because they have similar cost characteristics. The Levelized Cost of Generation for the four lower Snake projects alone is slightly lower than that for the whole class including the headwater projects shown in the table. 3/ Levelized Cost of Generation is defined as the forecasted direct costs and administrative overheads of producing power at a plant amortized over a 50-year period. This cost includes direct funded operations, maintenance, administrative and capital costs as well as Columbia River Fish Mitigation (CRFM) costs. Bonneville systemwide mitigation costs, such as its Fish and Wildlife program, are not included in this metric.
6631	1	N/A	N/A	3. Culture-- the creation of the four dams and the reservoirs flooded 14,000 acres of indigenous homelands (34 ,000 acres, 700 sites according to the state of Washington where the dams are located), containing burial grounds, sacred gathering places, villages, artifacts, and accustomed sites for fishing, hunting, and gathering. While the executive summary views the removal of reservoirs as a negative in terms of this culture, I see it as a positive. As the dams are breached, native sites would need to be protected as they were with a breaching of the Wanapum Dam, so their artifacts are not washed away or compromised by looters. When the breaching and reservoir drawdown are complete, Native peoples can return to these sites to honor and retrieve a part of their history and culture that was lost when the dams were constructed	In the Draft EIS, Table 3-105, the co-lead agencies provide the estimated amount of acreage that would convert from inundated land to non-inundated land, estimated at 13,772 acres. For the purposes of the cultural resources impact analysis, the co-lead agencies rounded this number up to 14,000 acres. This estimate is based on GIS analysis of anticipated land mass areas to be exposed during the implementation of MO3. In Section 3.16.3.6 in the Draft EIS, the co-lead agencies provide an impact analysis to all identified cultural resources in the study area under MO3. On pages 3-1390 through 3-1391 in the Draft EIS, the co-lead agencies noted the exposure of Traditional Cultural Properties would allow a resumption of traditional uses that have not been possible since the dams were constructed and this is viewed as a beneficial effect. The Preferred Alternative identified in the Draft EIS did not include the measure to breach the four lower Snake River dams.
6631	2	N/A	N/A	5. Agriculture-There will be change and loss to families who farm the 47,000 acres along the Snake River. While I recognize this loss is substantial to those involved, I must weigh it against the 34,000 acres and 700 sites that will be restored to the Native peoples if the dams are breached. While our immigrant culture has been here for the past 200 years, Bative culture thrived along the river for at least 12,,000 years. It must be noted that there are 5 million other acres of farmland in Southeastern Washington, not impacted by dam breaching. Certainly agricultural losses must be mitigated. The CRSO indicates that these losses will be near Tri-Cities. The Tri-Cities is bounded not only by the Snake but by the much larger Columbia as well. It seems that it would make sense to study whether irrigation can be provided by the Columbia River itself if the Ice Harbor Dam is breached. A study in Washington indicates that lowering intake structures, increasing pumping capacity, and digging deeper wells can leave at least a third of the 47,000 acres intact. Other alternatives also need to be explored: could farmers be compensated for their loss through financial remuneration, by assisting them in moving to dryland agriculture, by offering them land and infrastructure at new locations. I do not say I do not see that the ways of mitigating agriculture have been fully studied or addressed in this CRSO.	In Region C (lower Snake River) and potentially Region D (mainstem Columbia River) around the confluence of the lower Snake River, the MO3 alternative, which includes breaching the earthen embankment of the four lower Snake River dams, would have adverse effects to farmers and irrigation. Currently and in the No Action Alternative, water is available from the pools of these facilities and from groundwater that results from the pools. Removing the earthen embankment portion of the dams will reduce pool elevations by up to 100 feet, which would make surface pumps inoperable. Groundwater pumps in the wells may also be affected due to decreased groundwater elevations depending on the connectivity of the aquifer to the pools. Municipal and industrial water pumps in the Lewiston area would also likely be adversely effected. Additionally, transportation of farming goods would expect to move off river and on to rail or trucks, as there would be a complete loss of commercial navigation on the lower Snake River and could not be feasibly mitigated. All ports along the Snake River would lose access to the navigation channel. Some ports at the confluence or the Snake and Columbia River could dredge new channels to the Federal channel in the confluence (McNary reservoir) to maintain access. Private or public entities or businesses could take actions and/or build infrastructure to extend pumps or water supply access for water. Ports and farmers can likewise change their transportation modes or connect to the navigation system at a different point on the river. See Chapter 3 analyzes the social and economic effects of implementing a dam breaching alternative (MO3) and Chapter 5 for mitigation discussion. This EIS discusses engineering solutions (pipeline extensions for example) in Section 3.12.3 Environmental Consequences - Specifically under Region C under the MO3 alternative (see page 3-1267, line 3244 in the Draft EIS) and in Appendix N. The report which this EIS draws upon, as discussed, concluded that modifying the existing pump system was cost prohibitive. In Region C under the MO3 alternative this analysis assumes that pumps are unable to deliver water to an estimated 47,926 acres. This is discussed in Section 3.12.3 under Region C and the MO3 alternative. NEPA requires that all relevant, reasonable mitigation measures that could diminish the adverse impacts of the project be identified in the document, even if they are outside the jurisdiction of the lead agency or the cooperating agencies. See 40 C.F.R. 1502.16(h) and 1505.2(c); 46 Fed. Reg. 18026. The inclusion of mitigation measures in Chapter 5 is not intended to indicate that the co-lead agencies, or the Federal government as a whole, have the authority to perform all of the measures listed. If the measures are outside the jurisdiction of the co-lead agencies, those measures will not be included in the Preferred Alternative or Record of Decision (ROD). Their inclusion in Chapter 5 serves to alert other agencies, officials, and the public who can implement the measures to the potential benefits of the measure. The mitigation requested, while identified in the Draft EIS, is not within the co-lead agencies' current authorities. The co-lead agencies do not have the authority to provide mitigation for the effects to private infrastructure such as ports, irrigation pumps, wells, or private docks.
6631	3	N/A	N/A	7. Transportation-- Trucks, railroads, and barges are currently used to transport grain between Tri-Cities and Lewiston, a distance of 140 miles. Barge transport is safest, cheapest, and most reliable followed by rail and then trucking. The grain transported in 100 raill cars is equivaleny to the grain transported in a four barge transport on the River. Barge traffic has declined by 70% in the past 20 years; grain makes up 87% of the cargo still transported, which is taken to the Pacific coast to be exported overseas. Northeastern Washington and North Idaho grain growers rely on rail transport;	The volume of wheat on the river has declined, with variation, over the past 20 years, but steadied the past eight years. For evaluating effects, 2.4 million tons is used, which reflects the average over the past 10 years. Access to barge transportation is the most cost effective means of accessing export markets for many of the grain producers in the Northwest currently and removing that option will increase transportation costs for grain producers, as the EIS described in Section 3.10.3.5. The EIS finds that transportation of freight that is currently barged on the lower Snake River could be accomplished via other transportation modes, but this change would not be without costs to farmers, would require public and private investment in infrastructure, and would result in some adverse regional economic effects, particularly in the short term. The co-lead agencies lack the authority to invest in or mitigate for private infrastructure, such as rail lines.

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				Southeastern Washington growers reliy on rail and barges. There are already many rail-to-coast systems in place without the use of barges. Washington Grain Train provides a transport system from remote rural farmlands serving 2,500 members in Eastern Washington to International ports. Multi rail car loading facilities have been established in at least 22 Eastern Washington sites, allowing farmers to truck their grain short distances to rail transport. I see no mention of these resources or the role they might play in replacing barge transport in the Executive Summary. Both the dams and the rail systems are in need of infrastructure repair. In order to maintain barge traffic millions of dollars must be poured into restoration of the four aging dams. I believe this money would be better spent upgrading railroad infrastructure. Rail transport provides middle-ground option and has the advantage of being able to service remote farming communities both in northern and southern Eastern Washington. In our quest to reduce fossil fuel consumption to ameliorate climate change, rail that travels close to farm lands is the best option since trains are far more fuel efficient and leave substantially less of a carbon footprint than trucking. That is, we are going to need to expand railroad transport of goods and people in order to mitigate climate change, so our investment ought to go into the rail system. Again while loss of barging will bring an end to a family enterprise and local river culture, it will restore the natural historical river culture of fish and their Native American caretakers.	
6646	1	solomon.michelle@gmail.com	N/A	Scientists from the Fish Passage Center have stated that breaching all four of these dams would result in roughly 1 million adult Chinook salmon returning to the mouth of the Columbia River, providing significant relief for endangered Southern Resident orcas. As you know Chinook salmon are the orcas' primary food source from central California to the Salish Sea. And the Columbia Basin supports salmon runs that the orcas have relied on for centuries. Historically half of all the salmon returning to the Columbia Basin were bound for the Snake River. But after the river was dammed more than half a century ago, the wild salmon runs plummeted and left the orcas with fewer fish to eat. Despite the fish ladders and our current interim spill measures, dams continue to cause serious salmon declines by directly killing and preventing their migration. Breaching these dams will cut dam-caused mortality by at least 50%. What's more, these dams have flooded miles of spawning habitat, destroyed healthy riparian forests, and created lethal warm-water reservoirs.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. The co-lead agencies conclude there could be a negligible to minor beneficial effects to SRKW from implementing MO3. CSS and NMFS Lifecycle models predict that lower Snake River Chinook salmon smolt-to-adult returns would have a moderate to major increase under MO3. Operation of Lower Snake River Compensation Plan fish hatcheries under MO3 is uncertain and therefore, production of Snake River hatchery fish is assumed to decline over the long term, while returning adult wild salmon are anticipated to increase. However, the co-leads do not anticipate a lack of hatchery fish in the short term based on the proposed fish hatchery mitigation described in Chapter 5. These additional hatchery fish should mitigate short-term construction effects to Snake River populations. Additionally, to address short-term effects to ESA-listed species, the co-lead agencies propose constructing a new trap and haul facility at McNary and conducting at least two years of trap and haul operations for Snake River fish (Chinook, sockeye, and steelhead). The co-lead agencies agree that the quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differently from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for the whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall-run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall-run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). The co-lead agencies note the contribution to the prey of Southern Resident killer whales through the continued existence of their respective independent congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as Lower Snake River Compensation Plan, which is administered by USFWS.
6646	2	solomon.michelle@gmail.com	N/A	With climate change, the number of days where temperatures will reach deadly levels are expected to increase. Independent research has stated that removing these four dams will help cool the river. By removing these dams, we'll also be increasing salmon access to more than 5,500 miles of free-flowing, climate-resilient, federally protected spawning habitat in northwest Oregon, southeast Washington and central Idaho.	Historically, water temperatures in the lower Snake River were warm (USGS 1960, 1961, 1964; Corps 2002a). Observed historic water temperatures show that average monthly water temperatures during July and August, in the 1950s, averaged 7 to 8 degrees Fahrenheit higher than today's conditions, while maximum daily differences were 10 to 12 degrees Fahrenheit higher. The differences observed in the lower Snake River today, as compared to historical conditions, are a result of the middle and upper Snake River reservoirs combined with the influence that Dworshak Dam operations. The EIS analysis shows that when breaching the four lower Snake River dams, nighttime summer water temperatures, as well as fall water temperatures, would be cooler than No Action conditions in the Snake River. However, even with the dams breached, maximum summer water temperatures would exceed state water quality standards (20C) at times, especially during hot weather events. This is because without the dams, the lower Snake River will be shallower and more susceptible to solar radiation and warming. Increases in water particle travel time are expected, but the lower Snake River has always been a warm system (USGS 1960, 1961, 1964; Corps 2002a) and breaching the dams will not change this fact. Regionally high air and water temperatures result in water quality standard exceedances and are beyond the ability of the CRS to cool; future climate change predictions will result in even more difficult challenges. The models showed minor changes in the Columbia River under MO3, indicating that the operations of the CRS dams have a limited ability to reduce temperatures in the lower Columbia River. Summer water temperatures exiting the Snake River are typically 1 to 3 degrees Fahrenheit warmer than the receiving Columbia River temperatures. Even though the cold water released from Dworshak during the summer is less than 50 degree Fahrenheit, the volume of water released is less than one tenth of the flow in the Columbia River. Since the distance between the confluence of the Snake and Columbia Rivers is about 180 miles downstream from Dworshak, the impact on water temperatures is negligible. Regionally high air and water temperatures result in water quality standard exceedances that are beyond the ability of the CRS to cool. Overall the conclusion in the Draft EIS is that MO3 would be beneficial to anadromous fish for a number of reasons, but other objectives must also be considered in the selection of a Preferred Alternative. The four lower Snake River and four lower Columbia River dams are equipped with adult fish ladders which are safe and effective for passing adult fish upstream, and adult salmon and steelhead passage is generally considered good through the lower Snake and Columbia rivers. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets most other EIS objectives including those for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS, the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams, because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. The climate science community is still developing models that can be used to analyze possible effects to water temperature from climate change and, unfortunately, they have not been fully applied and validated for use with climate affected regulated flow projections of large reservoir systems. Therefore it was not possible to reliably model water temperature changes under climate change for incorporation to either of the fish models. In lieu of this information, the climate analysis used the output from the water quality models under historical conditions, climate change data, and scientific literature to qualitatively assess potential effects to water temperature and anadromous fish. These analyses are documented in Section 4.2.3 for the multiple objective alternatives and Section 7.8.4 for the Preferred Alternative. Overall, the Preferred Alternative is expected to result in benefits to anadromous salmon and steelhead. The analysis in Section 7.8.4 recognizes that some of the benefits to fish from the Preferred Alternative could be offset by the effects of climate change.
6647	1	treeder@portofkalama.com	N/A	2. The MO3 alternative does not meet the objectives identified in the Purpose and Need statement. Breaching the dams would not allow for operation of the Congressionally authorized purposes of maintaining and operating the four lower Snake River dams for navigation, hydropower, irrigation, and recreational benefits.	Thank you for your comment.
6647	2	treeder@portofkalama.com	N/A	3. The MO3 alternative would increase air pollutant emissions due to the increased greenhouse gas emissions from power generation and the shift away from river-based navigation to truck and rail that would follow. Breaching the dams would actually result in the addition of 1,251,000 tons of CO2 per year, which is a factor of 2.38 greater than what is included in the DEIS.	The comment that air pollutants and greenhouse gas emissions would increase under Multiple Objective Alternative 3 is consistent with the findings of the EIS. This comment describes the results of a recent Pacific Northwest Waterways Association report that, due to a variety of differing assumptions from the EIS, is not directly comparable to the EIS navigation analysis.
6647	3	treeder@portofkalama.com	N/A	4. The DEIS understates the harm to transportation that would be caused by dam breaching, particularly with regard to river navigation. The DEIS did consider the downriver grain shipments, which make up 62% of shipments on the Snake River, but did not include the remaining 38% of shipments. The economic impacts of the loss of the 38% of other shipments needs to be addressed. Furthermore, the use of barges on the river for movement of grain is very important. The Port of Kalama sees 400-500 barges per year just from the Snake River system. Maintenance of the dams is essential to maintaining barge traffic for the grain terminals and other industry and to maintain exports from inland ports.	In 2018, 72 percent of overall freight volume on the Lower Snake system traveled downriver, the majority of which (87 percent) was wheat and barley. As discussed in Section 3.10.2.1 of the Draft EIS, 28 percent of overall freight traveled upriver. In 2018, 25 percent of overall freight on the Lower Snake River was petroleum products that terminated below Ice Harbor Dam. These shipments do not utilize the Snake River locks and would not be directly affected by dam removal under MO3. This was unclear in some instances in the Draft EIS, and has been corrected and clarified in Section 3.10 and Appendix L. Other commodities that utilized the Snake River system included pulp and paper products (4 percent) as well as chemicals and iron/steel commodities (8.5 percent), some of which also terminate below Ice Harbor Dam. To the extent that these shipments utilize the Snake River locks and dams, they would be affected under MO3 by increased transportation costs. These potential effects are discussed qualitatively in Section 3.10.3.5.
6647	4	treeder@portofkalama.com	N/A	5. The salmon survival benefits associated with Alternative MO3 are uncertain, speculative, and subject to scientific dispute. Other rivers that are undammed are also experiencing reduced salmon survivability, such as the Fraser River among others. Therefore, there are other forces negatively impacting salmon overall. There is strong evidence to suggest that the downward trend of salmon survival is due in large part to other factors including ocean conditions, and avian and pinniped predation. The DEIS should be revised to address mortality assumptions and predictions used in the DEIS, as well as the evidence that other forces have a significant influence on salmonid survival.	The majority of a salmon's life is spent in the ocean. Therefore, the habitat, food, and predator conditions in the ocean will have a large influence on the proportion surviving to reproduce. When ocean conditions are good, the Columbia Basin enjoys large returns of salmon such as in 2014, for example, when nearly every ESU had record returns. However, when ocean conditions are poor as has been the case for the past several years, the number of adult salmon are much smaller. While none of the alternatives would affect ocean conditions, the co-lead agencies recognize that these conditions are a major driver for adult returns and that numerous studies have shown the importance of ocean conditions in the return of adult salmon and steelhead (Peterson et al. 2019). Among the objectives are improving passage conditions and survival of both juvenile and adult anadromous fish through the CRS. The more healthy juvenile salmon that enter the ocean, whether the conditions there are good or poor, the greater the returns to the Columbia Basin can be. The greater the success adults migrating up the Columbia and tributaries and spawning, more juvenile can be produced for the next generation. Under the Preferred Alternative, actions for the purpose of reducing pinniped and avian predation on listed species, would generally continue to ensure compliance with the ESA. Other entities in the region have authorities and obligations to mitigate the impacts from pinniped and avian predators and the co-lead agencies will continue to work closely with those entities to benefit ESA-listed salmonids. The co-lead agencies analyzed the effects of the operation, maintenance, and configuration of the CRS projects on resources affected by the CRS, including the potential to improve conditions for ESA-listed species. The co-lead agencies also looked at the cumulative effects of other actions, including harvest in Chapters 6 and 7 of the EIS. Research continues to evaluate the magnitude of these effects. For more information see the NMFS website at: https://www.nwfsc.noaa.gov/research/index.cfm.
6657	1	N/A	N/A	In addition, there is no cost-benefit analysis of the removal of the four Lower Snake River dams and the power they generate. The cost of purchasing replacement power on the open market is much less that the estimated LSRD maintenance and operation expenses alone, which does not include benefits from reduced fish and wildlife and turbine rehabilitation costs which cost tens of millions of dollars a year. The benefits of a restored Lower Snake River corridor (140 river miles if the dams were breached) are not sufficiently described. Allowing spillover for fish is a start, but it does not adequately minimize the risk of extinction, which the presence of dams significantly increases.	The EIS evaluated beneficial and adverse effects across an array of resource areas including potential effects at the national, regional and local level; effects are monetized and quantified, where possible, and also described qualitatively. As is common in NEPA analyses, the beneficial and adverse effects of the alternatives are expressed as a variety of qualitative and quantitative environmental and economic metrics throughout the EIS to inform decision-making, including the effects of the alternatives on fish as detailed in Section 3.5. That the effects of the alternatives on fish are not expressed as monetized economic values does not mean that they were not considered in the context of the analysis. The EIS does not employ a cost-benefit framework for decision-making. Instead, the EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations.

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					For hydropower, the average annual value of the four lower Snake River dams exceeds the average annual equivalent costs. The generation value at the four lower Snake River dams can be described by a range between the cost to replace the generation through new conventional resources or through a portfolio of zero-carbon resources. Although the costs of replacing the power with market purchases was analyzed, it is unlikely that short-term wholesale power markets could reliably replace the power for the long term. This range would put the annual value of power between $240 million and $500 million for the four dams combined. These numbers represent about 90 percent of the lost benefits cited in Table 3-171 of the Draft EIS because the four dams represent about 1,000 aMW of the 1,100 aMW of lost generation estimated in MO3. The average annual cost to operate and maintain all authorized purposes at the four lower Snake River dams is $75 million (Appendix Q, Table 5-1) and the annual-equivalent capital costs are $32 million (Appendix Q, Table 4-1). Hydropower costs funded by Bonneville represent about $50 million of the total annual operations and maintenance costs and nearly all of the annual capital costs, approximately $31 million. This puts the annual-equivalent power-specific costs at approximately $81 million a year. As a result, the net benefits from hydropower for the four lower Snake River dams are between $156 million and $417 million and the benefit-cost ratios are between 2.9 and 6.1. If the generation could be reliably replaced with short-term wholesale market purchases (see Table 3-170 of the Draft EIS), the lower bound for net benefits would fall to $57 million and the benefit-cost ratio would fall to 1.7. From a resource competitiveness perspective, the four lower Snake River dams are among the least costly generating resources in the Federal Columbia River Power System (FCRPS) and the planned investment strategy is expected to maintain that status. As shown in the Federal Hydropower presentation <Blockedhttps://www.bpa.gov/Finance/FinancialPublicProcesses/IPR/2018IPR/IPR%202018%20Fed%20Hydro%20Workshop.pdf> at the 2018 Integrated Program Review1/, the Headwater/Lower Snake Asset Class/2 is forecast to have a 50-year levelized cost of generation/3 of $11.41/MWh based on the direct funded capital and expense (O&M) programs outlined in that process. These costs remain competitive with volatile Mid-Columbia spot market energy prices which averaged $37/MWh in 2019 and have averaged $21/MWh in 2020. 1/ The Integrated Program Review (IPR) allows interested parties to see and comment on all relevant Federal Columbia River Power System (FCRPS) capital and expense (O&M) spending level estimates in the same forum. The IPR occurs every two years, or just prior to each rate case, and is the public review for the costs that will be recovered through rates the following two-year rate period. Long-term forecasts for the next 50 years and major upcoming projects are also shared in this forum. This information is available here: Blockedhttps://www.bpa.gov/Finance/FinancialPublicProcesses/IPR/2018IPR/IPR%202018%20Fed%20Hydro%20Workshop.pdf <Blockedhttps://www.bpa.gov/Finance/FinancialPublicProcesses/IPR/2018IPR/IPR%202018%20Fed%20Hydro%20Workshop.pdf> and is incorporated by reference into this EIS. 2/ In the 2018 Integrated Program Review, the Headwater/Lower Snake Asset Class consisted of the four lower Snake River dams, Hungry Horse, Libby, and Dworshak dams. These projects were grouped together because they have similar cost characteristics. The Levelized Cost of Generation for the four lower Snake projects alone is slightly lower than that for the whole class including the headwater projects shown in the table. 3/ Levelized Cost of Generation is defined as the forecasted direct costs and administrative overheads of producing power at a plant annualized over a 50-year period. This cost includes direct funded operations, maintenance, administrative and capital costs as well as Columbia River Fish Mitigation (CRFM) costs. Bonneville systemwide mitigation costs, such as its Fish and Wildlife program, are not included in this metric.
6657	2	N/A	N/A	This report underestimates the benefits of improving Idahos salmon fishery. The fishing industry is a huge draw for tourism, supporting guides, outfitters, and businesses in river towns throughout Idaho, which would positively impact the local economy. Outdoor recreation is a 2.3 billion-dollar industry in Idaho. In summary, the DEIS greatly minimizes the potential benefits of a restored Lower Snake River corridor.	The EIS provides an evaluation of the social welfare and regional economic effects of the No Action Alternative and the Multiple Objective alternatives, including the effects on recreation (Section 3.11) and commercial fisheries (Section 3.15). The EIS Section 3.5.3.6 describes the long-term effects to anadromous fish migration in the Snake River and tributaries as major and beneficial although quantitative impacts from fish modeling results are limited. The EIS described the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. NMFS estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which is described qualitatively. For the effects on recreational fishing under MO3 (Section 3.11.3.5) along the lower Snake River below Lewiston, the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River) as an indicator for fishing visitation in this reach. The EIS describes that the visitation in the long-term in the lower Snake River, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting outfitting and tourism businesses in the region. The social welfare values and regional economic effects associated with recreational fishing under the MOs, as well as river recreation post dam breach under MO3, were not estimated because of the uncertainty and large range in visitation and consumer surplus values among users.
6657	3	N/A	N/A	The argument that decreasing hydropower generation automatically means an increase is greenhouse gas is misleading. Natural gas does not have to be the alternative power source to decreasing hydropower generation. Cost of renewable energies is continuing to drop, and research has shown that these energy sources would provide tons of jobs and boost the economy. Reliance on energy sources that are not finite is a huge investment in our future, both for economic stability and environmental protection	Contrary to the comment about replacement power resources, the EIS did not exclusively examine natural gas. The EIS analysis focuses on primary technologies identified by the Northwest Power and Conservation Council in their 7th Power Plan (7th Power Plan, pages 13-5) that are deemed proven, commercially available, and deployable on a large enough scale in the Northwest. See draft EIS, Section 3.7.3.1, Step 3: Determine Need for Potential Replacement Resources and Associated Costs at page 3-821 and Appendix H, Power and Transmission, Section 2.2. The EIS identifies natural gas as the conventional least-cost replacement portfolio as well as a portfolio of solar, demand response and storage as the least-cost zero-carbon portfolio. See draft EIS, Section 3.7.3.5 at pages 3-904-910. The EIS finds that under these portfolios greenhouse gas emissions increased. See draft EIS, Section 3.8.3.5 at pages 3-1009-1010. For the zero-carbon renewables portfolio, the increase in emissions is due to increased generation from existing fossil fuel power plants because new renewable resource like wind and solar are variable and not always available. The magnitude and timing of the reduction in hydropower generation would occur in particular times seasonally or daily (e.g., during peak demand) during which flexible resources would need to increase generation in order to maintain reliability (i.e., to meet the demand for power and avoid blackouts). In addition, the four lower Snake River dams play an important role in the regional power system, particularly in regards to the integration of renewable power sources, which, as described by the comment, are likely to increase in the future. See draft EIS, Section 3.7.3.1, Integration Services at page 3-832.
6659	1	John Francisco	Northwest Requirements Utilities (NRU)	Summary of Conclusions The co-lead agencies have conducted a robust process that fulfills the statutory and policy purposes of the National Environmental Policy Act (NEPA). NEPA does not dictate any particular policy outcomes and does not mandate particular results. Instead, it regulates the manner in which federal agencies arrive at their outcomes by simply providing the necessary process to ensure that federal agencies take a hard look at the environmental consequences of their actions. The CRSO process as envisioned and carried out by the lead agencies easily and clearly meets this threshold.	Thank you for your comment.
6659	2	John Francisco	Northwest Requirements Utilities (NRU)	The Preferred Alternative represents an objective and sustainable path that meets all objectives set by the lead agencies. In fact, the Preferred Alternative is the only alternative that meets all eight study objectives. The study objectives were formulated with extensive and substantive input from stakeholders. Stakeholders were given ample opportunity at the outset of the process for input to the lead agencies through oral, written and in-person comment opportunities. Four of the eight objectives specifically address improving fish stocks, including lamprey. The remaining objectives recognize the other vital resources provided by the CRS and recognize that increasing anadromous fish and lamprey populations at an untenable societal expense does not represent a balanced or holistic outcome. NRU supports the Preferred Alternative and urges the lead agencies to carry the Preferred Alternative forward to the final environmental impact statement. Mitigation for the Federal Columbia River Power System (FCRPS) is a goal shared by NRU members. NRU members contribute significantly to efforts to improve survival rates of anadromous fish. Mitigation costs currently comprise some 25% of our members wholesale rates and have historically been as high as 33%. Mitigation must be scientific, cost effective and have a nexus with FCRPS operations. We do have concerns with some elements of the Preferred Alternative. The Preferred Alternative primarily relies on increased spill over the dams to meet the objectives focused on increasing fish populations. The levels of spill defined in the Preferred Alternative have not been proven to benefit fish populations and estimates from the two models used in the analysis show disparate results when estimating increases in fish population related to the - 3 - spill assumptions from the Preferred Alternative. We make further comments on this topic and other topics in the following sections of these comments.	The co-lead agencies have used high-quality information and the best available science in the analysis of the alternatives included in the EIS. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the EIS objectives) as well as the EIS objectives for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. The Preferred Alternative is also more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. The co-lead agencies are committed to ongoing coordination with stakeholders through a variety of forums. In areas where we have appropriate authority, we will continue to be strong regional partners. The spill operation for juvenile fish passage is a significant departure from previous operations, so much so that the Washington and Oregon state water quality standards had to be changed to implement the new spill regime. Based on the fish analysis in Section 7.7.4 for the Preferred Alternative, it will make a meaningful contribution towards recovery, but the Councils broad sense recovery goals are beyond the scope of this EIS which is limited to those effects associated with the operation and maintenance of the 14 CRS projects. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% (the lower end of Northwest Power and Conservation Council's recovery targets for the region) as a result of the Preferred Alternative, as a result of the Preferred Alternative increasing SAR from 2.0% to 2.7% for Chinook, a 35% relative increase. The NMFS COMPASS and Lifecycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. To address uncertainty highlighted by the two models, the Preferred Alternative includes working with regional sovereigns to develop a study that assess the effectiveness of the increased spill regime on adult returns as well as assessment and management of adverse unintended consequences, such as long delays of adult migrants, or TDG-related mortality of juvenile migrants. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information.
6659	3	John Francisco	Northwest Requirements Utilities (NRU)	Any new costs resulting from the EIS must be equitably allocated and cannot be borne exclusively by BPA/public power. Cost responsibility for mitigation efforts should equitably align with public benefits. Doing so recognizes the regions shared stake in these efforts and the diverse benefits provided to multiple users of the CRS.	The financial responsibility for fish mitigation is not solely allocated to Bonneville's power ratepayers as the comment suggests. Fish mitigation costs are assigned to each authorized project purpose based on each purposes overall share of project costs, as determined by the cost allocation, by recovering those costs through power rates. Bonneville is required to pay for its share of mitigation costs based on the existing cost allocation. Congress also granted Bonneville discretion to fund the power share directly to the Corps and Reclamation as part of the Energy Policy Act of 1992, in some situations, including the Columbia River Fish Mitigation program. (Energy Policy Act of 1992, Pub. L. No. 102-486, 2406, 106 Stat. 2776, 3009 (1992) (codified at 16 U.S.C. 839d-1 (2012)). Bonneville generally does not, however, directly pay for the capital costs of fish mitigation structures; instead, it reimburses the U.S. Treasury for the power share of appropriations used to construct the structure. As described in Section 3.19 of the EIS and Appendix Q, funding to operate the system comes through multiple mechanisms, including Federal tax dollars appropriated to cover system costs as well as revenue generated from the marketing and sale of hydropower. For power-specific costs, Bonneville typically provides direct funds to both the Corps and Reclamation. For joint related costs, including funding for fish and wildlife mitigation actions, the Corps and Reclamation receive annual congressional appropriations to fund most, if not all, capital investments. Bonneville reimburses the U.S. Treasury for the power share of these appropriations. Once the investment is in place, Bonneville will typically direct fund the power share of the operations and maintenance costs associated with the facility. In addition to congressional appropriations for fish and wildlife and costs directly funded to Corps and Reclamation by Bonneville, the Bonneville Fish and Wildlife Program (which is separate and distinct from direct funding described above) funds hundreds of projects each year to mitigate the impacts of the Federal hydropower system on fish and wildlife. Bonneville began this program to fulfill mandates established by Congress in the Pacific Northwest Electric Power Planning and Conservation Act of 1980 to protect, mitigate, and enhance fish and wildlife affected by the development and operation of the FCRPS. Bonneville uses its authority under 16 U.S.C. 839b(h)(10)(A), to make expenditures to implement its Fish and Wildlife Program, which is funded by Bonneville's electricity ratepayers as part of the rates Bonneville sets to recover its costs. These expenditures provide systemwide funding for actions that also mitigate for the non-power purposes of the CRS, so Bonneville recoups the non-power share of those expenditures from the U.S. Treasury as credit, as required under 16 U.S.C. 839b(h)(10)(C). Bonneville's Fish and Wildlife Program expenditures incurred mitigating the CRS operations identified in the final EIS and adopted in Bonneville's Mitigation Action Plan would continue to be allocated and borne as provided by existing laws governing the FCRPS and the long-standing accounting procedures used to implement them.
6659	4	John Francisco	Northwest Requirements Utilities (NRU)	Fish and Wildlife Two models have been relied on in the study to predict the effects of alternative hydroelectric system operations on Columbia and Snake River salmon and steelhead populations: the COMPASS model used by NOAA Fisheries and the Comparative Survival Study (CSS) model used by the Fish Passage Center. Each model relies on different inputs and assumptions. The two models often align but diverge on expected smolt to adult returns (SAR). The CSS model predicts much higher adult salmon returns associated with increased spill levels and/or dam breaching than the COMPASS model. The choice to prioritize one model over the other in the study is not validation of one model over another. The divergent results of two widely accepted models demonstrates the uncertainty of river operations science. Given this level of uncertainty, it is critical for the federal agencies to design and implement a methodology to monitor impacts of actions proposed in the D-EIS on CRS fish and wildlife. The monitoring methodology must monitor SAR performance and account for unintended consequences of heretofore untested spill levels. The levels of total dissolved gas (TDG) in the	To address this uncertainty and minimize risk, the Preferred Alternative includes an adaptive management plan (Appendix R). This plan involves working with regional sovereigns to develop a study to assess the effectiveness of the increased spill regime on adult returns as well as assessment and management of negative unintended consequences, such as long delays of adult migrants, or TDG-related mortality of juvenile migrants.

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				Preferred Alternative exceed those recommended by the EPA; both Washington and Oregon had to revise previous TDG limits imposed on river operations to allow the proposed levels of TDG that will occur with implementation of the Preferred Alternative. Monitoring of impacts will only have value if the results of monitoring are shared broadly and transparently and those results can be responded to positively.	
6659	5	John Francisco	Northwest Requirements Utilities (NRU)	The D-EIS includes a proposed adaptive management plan to respond to scenarios where actual in-river results differ negatively from estimates generated by the model(s). Federal agencies operating the CRS must be given the flexibility to execute the adaptive management plan, specifically including the authority to reduce spill levels across the CRS to levels where the aforementioned monitoring demonstrates reduction or elimination of negative consequences to salmon, steelhead and other river organisms.	The co-lead agencies anticipate using existing Regional Forum adaptive management workgroups, such as the Technical Management Team (TMT), which have proven effective in managing through unforeseen situations when they occur during the spill season. If TMT cannot resolve a real-time issue, the issue can be elevated to the Regional Implementation Oversight Group, which has representatives from sovereign entities with fisheries management responsibilities.
6659	6	John Francisco	Northwest Requirements Utilities (NRU)	The impacts, both positive and negative, of extreme spill are yet to be proven outside the CSS model and the model results should be viewed with a measure of caution. The CSS model relies on a theory referred to as latent or delayed mortality as the basis for its projected higher survival rates. To elaborate, the theory posits that although juvenile salmon have a very high survival rate, approximately 96-97% on average, past each of the lower Columbia River dams and lower Snake River dams (LSRD), that the act of going through fish bypass passage structures and powerhouses takes a toll that results in fewer returning adult salmonids. This theory, if true, would suggest that the effects of the dams on salmon are not fully captured by the measured survival rates, and that more spill may be needed to avoid passage through turbines and potentially harmful fish bypass structures.	Delayed mortality effects due to multiple potential mechanisms (transportation, multiple dam passage, route of dam passage, water quality) were considered and factor prominently in the analysis and selection of the Preferred Alternative. Further, the model results presented in Section 3.5 and Chapter 7 address levels of delayed mortality. Delayed mortality is captured directly in the CSS model for Smolt-to-Adult returns (SAR) and abundances, and is overlaid with several assumed values (10%, 25% and 50% reductions in latent mortality) in the NMFS Life Cycle model results. Potential delayed mortality in the ocean due to CRS dam passage is discussed throughout the Draft EIS.
6659	7	John Francisco	Northwest Requirements Utilities (NRU)	It is noteworthy that the higher sustained spill operations pursuant to the implementation of the Flexible Spill Agreement in 2019 represented uncharted territory. While there have been periods throughout history with high levels of uncontrolled TDG, 2019 was the first time in the operation of the FCRPS, where TDGs were maintained at levels as high as 120% on a planned and sustained basis for the entire spring spill period. While the full effects of this high and sustained spill level on juvenile salmon will not be realized for years, the earliest signs point to poor results for both juvenile salmon and returning adults. As an example, according to a NOAA Fisheries Science Center memo from September 19, 2019, on juvenile survival for the 2019 migration season, [t]he combined yearling Chinook salmon survival estimate from the Snake River trap to Bonneville Dam tailrace was 41.3% (33.8-48.9%), which was below the long-term average of 48.9%.1 The memo goes on to note that, [t]he combined Snake River Steelhead survival estimate from the Snake River trap to Bonneville Dam tailrace was 41.2% (26.1-56.3%), which was below the long-term average of 45.7%2 We also note that in 2019, adult salmon were stalled repeatedly in their efforts to make it upstream past Little Goose Dam due to increased spill levels. Correspondingly, Claire McGrath at NOAA presented the attached report to the U.S. Army Corps of Engineers Technical Management Team (TMT) Meeting on July 10, 2019. According to the TMT meeting minutes, Ms. McGrath concluded, 1 Preliminary survival estimates for the passage of spring-migrating juvenile salmonids through Snake and Columbia River dams and reservoirs, 2019 2 Preliminary survival estimates for the passage of spring-migrating juvenile salmonids through Snake and Columbia River dams and reservoirs, 2019 - 5 - that despite varying results from the data tools, all of the indicators did consistently point to lower than expected conversion rates and slower travel times in the Lower Monumental to Little Goose reach. The 2019 YTD (as of 7/10) conversion of PIT-tagged adult Chinook from Lower Monumental to Little Goose was 96.2%, whereas the historical average for EOY conversion is 98.3%.3 Many would argue that one year of implementation does not represent a statistical sample, but we point to these initial findings as clearly demonstrating the uncertainty related to extreme spill operations and proof of the need for effective monitoring of impacts and clear action plans to respond if necessary.	The benefit of flexible spill operations to salmon and steelhead relies largely on reduction in PITPH, which is projected to result in increased Smolt-to-Adult return rates (SARs). Therefore in-river survival doesnt tell the whole story. The commenter is correct in that one year of in-river data to assess the benefits of flex spill is not adequate. It will likely take years to understand the true effect because adult returns are required to calculate SARs. The Preferred Alternative includes an adaptive management plan. This plan involves working with regional sovereigns to develop a study to assess the effectiveness of the increased spill regime on adult returns as well as assessment and management of negative unintended consequences, such as long delays of adult migrants, or TDG-related impacts to juvenile migrants.
6659	8	John Francisco	Northwest Requirements Utilities (NRU)	ey Power Supply Observations The D-EIS correctly notes that the four LSRD produce an average of 1,100 megawatts of carbon free electricity each year. That is enough to power a city the size of Seattle. More importantly, due to their location, the LSRD generate power that is more easily distributed to the smaller and more rural NRU member utilities that rely on that power to sustain small towns and irrigate crops for food and export outside the region. Regional power planners are sounding the alarm that the Pacific Northwest is headed for an electricity shortage. The Northwest Power & Conservation Council4 , the Northwest Power Pool5 , consultancy E3 6 , and Energy Strategies for the Western Interstate Energy Board7 , have all issued significant warnings about a potential energy shortage or even blackouts resulting from the retirement of thousands of megawatts of the regions coal plants. Notably, all these forecasts assume that the LSRD remain in place. As disturbing as this risk is with the LSRD in place, the CRSO D-EIS indicates that removing the LSRD from the resource mix would double the risk of blackouts in the region.	The comments about the importance of the four lower Snake River dams for regional power reliability and carbon emissions are consistent with the EIS findings. The EIS analyzed two resource portfolios to replace the hydropower generation of the four lower Snake River dams, both of which maintain regional power system reliability. See Section 3.7.3.5, pages 3-904-910 in the Draft EIS. Under these replacement portfolios, regional power rate pressure increases. See Section 3.7.3.5, at 3-918-924; and Table 3-166 in the Draft EIS. Without replacement resources, however, the statement about the effects of breaching the four lower Snake River dams on regional resource adequacy and power reliability is consistent with the findings of the EIS. See Section 3.7.3.5, Effects on Power System Reliability, at page 3-903; and Appendix H, Table 2-1 in the Draft EIS. The EIS also finds, consistent with the comment, that increasing retirement of coal power plants in the region would adversely affect regional power reliability. See Appendix H, Section 2.3, Sensitivity of LOLP to Assumptions about Coal Capacity in the Draft EIS.
6659	9	John Francisco	Northwest Requirements Utilities (NRU)	Breaching of the LSRD would run counter to current and emerging state policies to curb or eliminate greenhouse gas emissions in the electricity sector. Since the relatively recent start of the CRSO EIS process in 2016, Washington State enacted the Clean 3 7/10/2019 Columbia River Technical Management Team Draft Facilitators Summary 4 NWPCC - Pacific Northwest Power Supply Adequacy Assessment for 2024 5 NWPP - Exploring a Resource Adequacy Program for the Pacific Northwest 6 E3 Projects Substantial Capacity Shortfall in the Pacific Northwest 7 Energy Strategies & Western Interstate Energy Board- Western Flexibility Assessment 8 Columbia River System Operations Draft Environmental Impact Statement Executive Summary, 25-27 - 6 - Energy Transformation Act requiring utilities in Washington to transmit electricity that is coal free by 2025 and carbon neutral by 2030. Earlier this year, Oregons Governor Brown issued an executive order9 to curb greenhouse gases. These actions are certainly only the beginning of stricter emission regulations on the electricity industry. The D-EIS demonstrates that replacing the clean renewable hydropower generated by the LSRD with a lowest cost resource portfolio, consisting primarily of natural gas generation, would increase carbon output in the electricity sector by 10%, in direct conflict with state regulatory policies. 10 Replacing the carbon free generation from the LSRD with non-carbon emitting resources would cost $1 billion and could result in 25% retail rate increases. Utilities who get all of their wholesale power from BPA would see the full brunt of this increase. A rate increase of that size simply isnt tolerable. In many cases, consumers will be unable to pay the additional costs without forsaking other basic needs. The LSRD play another critical role in the clean energy paradigm of the Northwest. To meet the carbon reduction and overall climate change goals, the region will need to add thousands of megawatts of wind and solar power. Wind and solar power generate power intermittently. The LSRD already fill the crucial role of balancing and stabilizing the grid and this need will increase as more intermittent generation is added to the grid. The CRSO D-EIS notes that the LSRD provide roughly 1,100 average megawatts of carbon-free electricity each year under average water conditions, but they can provide over 2,000 megawatts of sustained peaking capabilities during the winter.10 The D-EIS also indicates, the Bonneville Power Administration will often carry up to 25% of its hourly reserves on the LSRD, in part to balance renewables on the grid.10 This flexibility makes the LSRD vital as we move to a cleaner grid.	The comment makes various statements about the importance of hydropower and the four lower Snake River dams for the regional power system and achieving clean energy goals; these statements are consistent with discussions and findings in the EIS. Specifically, the importance of hydropower generation from the dams for resource adequacy and power system reliability is consistent with the findings of the EIS, as is the statement that replacing lost hydropower generation with renewables under Multiple Objective (MO) Alternative 3 (which includes breaching of the four lower Snake River dams) could cost up to $1 billion. The EIS further describes the operational characteristics of the four lower Snake River dams in Section 3.7.3.5, Lower Snake River Full Replacement (Used in Rate Sensitivity Analysis).
6659	10	John Francisco	Northwest Requirements Utilities (NRU)	Other Socioeconomic Considerations Although NRU is organizationally focused on the power sector, we recognize the cumulative impacts of changes to the CRS on the customers served by our member electric utilities. Breaching the LSRD would eliminate barging of goods from rural communities to the confluence of the Snake River with the Columbia River. The loss of barging as a transportation mechanism for agricultural goods would significantly increase truck traffic, especially during the condensed harvest. Tractor trailers would be added to narrow rural roads significantly increasing safety risks, adding additional 9 https://www.oregon.gov/gov/Documents/executive_orders/eo_20-04.pdf 10 Columbia River System Operations Draft Environmental Impact Statement Executive Summary, 25-27 - 7 - costs to already shrinking margins on agricultural crops and increasing carbon emissions. The loss of irrigated land associated with breaching of the LSRD would be devastating to the rural communities served by NRUs members. Irrigation is not only beneficial for increasing yields and allowing flexibility in crop choice, irrigation often allows the farming of otherwise infertile land. Without access to the pools formed behind the LSRD, many multi-generational farms would cease to exist. With the demise of those farms comes the loss of support jobs that sustain the most vulnerable communities.	Environmental and human health impacts associated with increased emissions to shipping goods by rail and/or truck are evaluated and described in the Air Quality Section (3.8), and increase health and safety concerns due to increased truck traffic on roadways and potential for increased accidents are described in the Navigation and Transportation Section for other social effects (Section 3.10.3.5). This EIS discusses engineering solutions (pipeline extensions for example) in Chapter 3.12 Section 3.12.3 Environmental Consequences - Specifically under Region C under the MO3 alternative (see page 3-1267, line 3244, in the Draft EIS) and in Appendix N. The report which this EIS draws upon, as discussed, concluded that modifying the existing pump system was cost prohibitive. In Region C under the MO3 alternative this analysis assumes that pumps are unable to deliver water to an estimated 47,926 acres. This is discussed in Section 3.12.3 under Region C and the MO3 alternative.
6662	1	felice.kelly@gmail.com	N/A	The proposed flexible spill plan is not sufficient to save salmon populations, especially because flex spill will not significantly reduce the transit time of juvenile fish, as shown from the implementation of a similar Flex Spill plan in 2019. One of the issues with flex spill is that it provides the Corps with the flexibility to spill when hydro needs are low, which is usually during the day, while salmon migrations are often highest at night, when spill is lower, reducing its beneficial effects	The CSS model predicts that Smolt-to-Adult return (SAR) rates will increase for both Snake River spring Chinook and steelhead with median values well above 2% (within the Northwest Power and Conservation Council's recovery targets for the region) as a result of the Preferred Alternative, which includes the flexible spill operation measure. While the Draft EIS analysis did consider and present juvenile fish travel time through the CRS, the benefit of flexible spill to salmon and steelhead relies largely on reduction in the proportion of fish passing through powerhouses, which is projected to result in increased SARs. Therefore in-river survival and travel time does not tell the whole story. It will likely take years to understand the true effect because adult returns are needed to calculate SARs. The Preferred Alternative includes an adaptive management plan. This plan involves working with regional sovereigns to develop a study to assess the effectiveness of the increased spill regime on adult returns as well as assessment and management of negative unintended consequences, such as long delays of adult migrants, or TDG-related impacts on juvenile migrants.
6662	2	felice.kelly@gmail.com	N/A	In addition this plan fails our orca populations. Southern Resident Orcas depend on abundant salmon for their survival, and best available science says that breaching the lower four snake river dams gives Southern Resident Orca the best chance for recovery. The DEIS says that breaching the dams would have a negligible effect for orca, but the orca scientists have repeatedly advocated for the breaching of the lower four Snake River dams to restore the salmon populations that the orca depend on.	SRKW analysis is described in the EIS including in the FEIS Chapter 3 (Vegetation, Wetlands, Wildlife, and Floodplains) which has been updated for SRKW (Section 3.6.2.6 and Table 3-102) and FEIS Chapter 7 (Preferred Alternative) with additional analysis information on SRKW and potential increase in forage fish, in particular, Chinook salmon in Section 7.7.8. The co-lead agencies utilized current high quality information and best available science in its analysis of the effects of the operation, maintenance, and configuration of the CRS projects. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. The EIS analysis found that only a minor effect to the Southern Resident killer whale would result from implementing MO3 (which includes the dam breach measure). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for whales (NOAA and WDFW 2018). This list includes many Columbia River Basin

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					Chinook salmon stocks including Lower Columbia fall run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differentially from hatchery and wild fish. Hatchery fish today likely make up most fish consumed by SRKW (NOAA BiOp 2020). The EIS analysis of the Preferred Alternative determined the overall effect to SRKW to be negligible in large part because hatchery production is consistent between the No Action Alternative and the Preferred Alternative. Because the impact from the Preferred Alternative was determined to be negligible, the agencies determined that existing hatchery production would be sufficient to address any potential impacts to prey availability for SRKWs. The co-lead agencies note the contribution to the prey of SRKW through the continued existence of their respective independent congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as the Lower Snake River Compensation Plan, which is administered by U.S. Fish and Wildlife Service. The Preferred Alternative and Proposed Action in the agencies' biological assessment carry forward certain mitigation measures described in Chapters 2 and 7 of the EIS, which include continued salmon and steelhead hatchery production. The Preferred Alternative has negligible effects to SRKWs as described in Section 7.7.8.
6662	3	felice.kelly@gmail.com	N/A	Finally, the Draft EIS fails to honor our treaty promises. Native tribes are more than simply river stakeholders as they have inherent rights as first people. Native nations also have treaties with the United States government which gives them sovereign status. Indigenous people gave up thousands of acres of their land for the right to hunt and fish in their usual and accustomed places, a promise which has not been kept by the government.	The 19 Federally recognized Tribes in the Columbia River Basin have been consulted and provided input on the Draft EIS. The co-lead agencies recognize these Tribal governments as sovereign nations and appreciate and respect their perspectives. Tribal interests are summarized in Section 3.17. Tribal input, concerns, interests, and especially treaty rights were considered throughout the Draft EIS analyses and in the formulation of the Preferred Alternative. Treaty specific information is included in Section 3.17 as well as Chapter 7. The co-lead agencies recognize and respect the legal obligations imposed by treaties. The co-lead agencies accordingly included Protecting Native American treaty and reserved rights and fulfilling trust obligations for natural and cultural resources throughout the environment affected by the Columbia River System operations as a purpose in the Purpose and Need Statement in Chapter 1 to ensure treaty obligations were a key consideration of decision making. The co-lead agencies are engaging in government-to-government consultation with the tribes, and several tribes are cooperating agencies on the CRSO EIS. The EIS recognizes the economic and cultural importance of salmon to Tribes in a number of sections throughout the document. The cultural significance and impacts of salmon and steelhead fisheries are described in the Ceremonial and Subsistence Fisheries sub-section and the Social Importance of Commercial, Ceremonial and Subsistence Fisheries sub-section of Section 3.15.2.1. Fisheries tribal interests are provided in Section 3.15.4 additional details regarding the economic significance of salmon and steelhead fisheries have been added to the recreation analysis (Section 3.11) including tribal interests (Section 3.11.3.7). Treaty rights are discussed in the Executive Summary, Section 3.16 Cultural Resources, and Section 3.17 Indian Trust Assets, Tribal Perspectives, and Tribal Interests. Appendix P includes copies of tribal perspectives that were submitted by tribes. Tribal consultation is described in Sections 1.5, 3.5, and 3.15; and Chapter 9. Most sub-sections within Chapter 3 include a Tribal Interests section at the end of the sub-section that attempts to summarize tribal issues by topic.
6666	1	Aaron Lieberman	Idaho Outfitters & Guides Association	Background The Snake Basin and its tributaries in Idaho have a disproportionate importance to the Columbia Basin and to downstream users, where 19% of total Columbia River Basin flow originates. Historically, the Snake River has produced 55% of the total Columbia Basin summer steelhead, 45% of the total Columbia Basin summer chinook, and 39% of the total Columbia Basin spring chinook. Once producing over 1.5 million wild chinook in the 1880s, Snake River stocks have shown precipitous declines by as much as 99%. Numbers have run as low as 1,167 wild chinook in 1995. Because of these declines, wild-origin Snake River Basin sockeye, spring/summer (sp/ su) chinook, fall chinook, and steelhead have all been listed under the Endangered Species Act (ESA). 3 Our hatchery stocks have also shown declines in the uppermost reaches of the Columbia and Snake River System, threatening Idahos recreation and tourism industry. Idaho releases more than 18 million hatchery sp/su chinook for recreational angling opportunity, but lately our state has struggled to even reach broodstock needs across multiple sub-basins. Idaho fishing seasons are greatly suppressed, have reduced take limits, or been outright shut down as a direct impact of low fish returns.	The EIS provides an evaluation of the social welfare and regional economic effects of the No Action Alternative and the multi-objectives alternatives, including the effects on recreation (Section 3.11) and fisheries (Section 3.15). The EIS described the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. NMFS estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which is described qualitatively. The potential for changes in recreational fishing of anadromous fish under MO3 in the Region C is described in Section 3.11. Increases in recreational fishing could support jobs, income, and social benefits in Tribal and rural river communities. For the effects on recreational fishing under MO3 (Section 3.11.3.5) along the Lower Snake River below Lewiston, the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River) as an indicator for fishing visitation in this reach. The EIS describes that the visitation in the long-term in the lower Snake River, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting outfitting and tourism businesses in the region. However, there is uncertainty around recreational fishing visitation in the long-term given the current measures to regulate, protect, and support ESA-listed fish populations and habitat in the region. For MO1, MO2, MO4, and the Preferred Alternative (PA), the evaluation qualitatively describes the potential for effects associated with recreational fishing by referencing the potential effects on relevant fish populations, as described in Section 3.5. Fish modeling results vary for some of the alternatives, for example for the PA and MO4 (i.e., models show either beneficial or adverse effects on anadromous fish), so it is assumed that the potential changes in recreational fishing would follow these changes in fish abundance in the long-term. In addition to the stressors caused by the maintenance and operation of the CRS dams, there are many other stressors to these fish populations from outside the CRS hydro-system. These include, poor ocean conditions, harvest, access to habitat, among others. Current ocean conditions have limited adult returns up and down the west coast regardless of migration impediments.
6666	2	Aaron Lieberman	Idaho Outfitters & Guides Association	II. THE DEIS FAILS TO EVALUATE ECONOMIC IMPACTS OF THE NORTHWEST SALMON AND STEELHEAD FISHING INDUSTRY 4 The dEIS entirely fails to consider the economic impacts of the Northwests salmon and steelhead fishing industry. When evaluating the economic impacts of each alternative, the analysis completely ignores the sportfishing economy and its estimated contribution of over $757 million in Idaho alone (over $2 billion region-wide) . 1 Just as Snake River salmon and steelhead play a disproportionate role in the historical Columbia River abundance, salmon and steelhead fishing also plays a disproportionate role in small Central Idaho economies. Idaho riverside towns are overwhelmingly rural and heavily dependent on natural resource and recreational based economies. In Idaho, fishing for salmon and steelhead is estimated at 20-25% of total angling effort. There is an estimated $757 million in total spending for fishing in Idaho yearly in which salmon and steelhead fishing correlates to between $151.4-189.25 million per year to the state. Idaho salmon and steelhead anglers spend almost twice as much as cold water anglers, and three times as much as warm water anglers . 2 American Sportfishing Industry. https://asafishing.org/industry/american-sportfishing-1 association-highlights-barriers-to-economic-success-in-idaho-salmon-discussion/ O Laughlin, Jay. 2005. Economic Impact of Salmon and Steelhead Fishing in Idaho: Review of 2 the Idaho Rivers United Report. College of Natural Resources, University of Idaho. Issue Brief No. 6. https://www.webpages.uidaho.edu/fish510/PDF/Steelhead%20economics.pdf 5 Table 1: Summary of Regional and Other Social Effects .	The EIS provides an evaluation of the social welfare and regional economic effects of the No Action Alternative and the Multiple Objective alternatives, including the effects on recreation (Section 3.11) and commercial fisheries (Section 3.15). The EIS Section 3.5.3.6 describes the long-term effects to anadromous fish migration in the Snake River and tributaries as major and beneficial, although quantitative impacts from fish modeling results are limited. The EIS described the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. NMFS estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which is described qualitatively. For the effects on recreational fishing under MO3 (Section 3.11.3.5) along the lower Snake River below Lewiston, the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River) as an indicator for fishing visitation in this reach. The EIS describes that the range in estimated visitation in the long-term in the lower Snake River, including recreational fishing, and that it would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting jobs, income, and tourism businesses. The social welfare effects under MO3 on commercial fisheries (Section 3.15.3.5) are described as major and beneficial in the long-term in this reach, with increases in regional economic effects if commercial fish catch rates increase. The reports the commenter cites have been reviewed and incorporated into the analysis (see Region C Sections 3.11.2.2, 3.11.3.2, and 3.11.3.5).
6666	3	Aaron Lieberman	Idaho Outfitters & Guides Association	3 The agencies analysis of regional and other social effects in shown in Table 1 above. The dEIS relied solely on qualitative, rather than quantitative analyses to evaluate impacts despite the existence of several current studies on the economic contributions of outdoor recreation and Slide presented by Army Corps of Engineers to Idaho Governors Salmon Working Group 3 March 2020. 6 sportfishing in states with anadromous fish runs. This contrasts with the analysis of water supply, irrigation, navigation, and hydropower generation, all of which were evaluated quantitatively. At the March 5, 2020 Idaho Governors Salmon Workgroup meeting, an Army Corps of Engineers economist stated economic impacts of sportfishing were outside the scope of the EIS, despite all other resources evaluated in the analysis with quantified effects.	The EIS provides an evaluation of the social welfare and regional economic effects of the No Action Alternative and the Multiple Objective alternatives, including the effects on recreation (Section 3.11) and commercial fisheries (Section 3.15). The EIS Section 3.5.3.6 describes the long-term effects to anadromous fish migration in the Snake River and tributaries as major and beneficial, although quantitative impacts from fish modeling results are limited. The EIS described the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. NMFS estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which is described qualitatively. For the effects on recreational fishing under MO3 (Section 3.11.3.5) along the lower Snake River below Lewiston, the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River) as an indicator for fishing visitation in this reach. The EIS describes that the range in estimated visitation in the long-term in the lower Snake River, including recreational fishing, and that it would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting jobs, income, and tourism businesses. The social welfare effects under MO3 on commercial fisheries (Section 3.15.3.5) are described as major and beneficial in the long-term in this reach, with increases in regional economic effects if commercial fish catch rates increase. The reports the commenter cites have been reviewed and incorporated into the analysis (see Region C Sections 3.11.2.2, 3.11.3.2, and 3.11.3.5).
6666	4	Aaron Lieberman	Idaho Outfitters & Guides Association	In 2001, Idaho anglers enjoyed a single year spike in the Chinook salmon runs returning to the Snake, Clearwater, and Salmon Rivers. Anglers totaled 448,000 days fishing salmon during the 2-4-month salmon seasons, generating $46 million to 15 river communities and $43 million to the rest of the state . That year, the spring Chinook season brought $10 million to Riggins alone 4 (estimated population 417), where the total spending that year was $44 million . That same year 5 Lewiston saw $8.8 million and Orofino $8 million from the same salmon season. Just as robust salmon and steelhead returns can provide an economic boom to these riverside towns, feeble returns can devastate them. During the four-month steelhead fishing closure on the Clearwater River in 2019, the Clearwater Region missed out on $8.6 million a month ($34.4 U.S. Fish and Wildlife Service and U.S. Bureau of the Census (2003). 2001 National Survey of 4 Fishing, Hunting, and Wildlife-Associated Recreation. Idaho. FHW/01-ID Rev. U.S. Dept. of the Interior and U.S. Dept. of Commerce. 20. http://www.census.gov/prod/2003pubs/01fhw/fhw01id.pdf Idaho Fish and Wildlife Foundation. 2003.https://idfg.idaho.gov/press/salmon-fishing-valuable-5 idahos-economy. 7 million total), with the majority of the loss in Clearwater County . The Idaho Fish and Game 6 Commission then re-opened the fishing season in 2020 for only catch and release opportunity for hatchery-origin steelhead. These losses can and will be felt for years following the 2019 steelhead fishing season closure for businesses directly and indirectly tied to steelhead	The EIS provides an evaluation of the social welfare and regional economic effects of the No Action Alternative and the Multiple Objective alternatives, including the effects on recreation (Section 3.11) and commercial fisheries (Section 3.15). The EIS Section 3.5.3.6 describes the long-term effects to anadromous fish migration in the Snake River and tributaries as major and beneficial, although quantitative impacts from fish modeling results are limited. The EIS described the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. NMFS estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which is described qualitatively. For the effects on recreational fishing under MO3 (Section 3.11.3.5) along the lower Snake River below Lewiston, the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River) as an indicator for fishing visitation in this reach. Again, there is uncertainty around recreational and commercial fishing visitation in the long-term given the current measures to regulate, protect, and support ESA-listed fish populations and habitat in the region. However, the EIS describes that the visitation in the long-term in the lower Snake River, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative,

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				fishing. A survey in 2001 concluded that if salmon fishing were not available in Idaho, 73% of Idaho salmon fishermen would travel and spend their money elsewhere . 7	supporting jobs, income, and tourism businesses. The social welfare effects under MO3 on commercial fisheries (Section 3.15.3.5) are described as major and beneficial in the long-term in this reach, with increases in regional economic effects if commercial fish catch rates increase.
6666	5	Aaron Lieberman	Idaho Outfitters & Guides Association	Structural and operational measures to the Columbia River System identified in the dEIS will have profound impacts on Snake River anadromous fish and the corresponding riverside towns reliant on adult fish returns. It is unacceptable that the dEIS, despite thousands of pages of other analyses, did not include publicly available data sources to quantify both the economic potential of abundant fish returns as well as the devastating financial impacts of declining salmon and steelhead populations on rural communities in Idaho and throughout the Pacific Northwest. III. THE PREFERRED ALTERNATIVES STRUCTURAL AND OPERATIONAL MEASURES FALL SHORT TO RECOVER SNAKE RIVER BASIN SALMON AND STEELHEAD Data sourced from Kathryn Tacke, Idaho Department of Labor. https://billingsgazette.com/6 outdoors/steelhead-fishing-closure-hammers-idaho-economy/article_481f7f8c-7a85-5a7ebf5c-029b53b9144f.html Idaho Fish and Wildlife Foundation. The Economic Impact of the 2001 Salmon Season in 7 Idaho. 2003. https://www.webpages.uidaho.edu/fish510/PDF/FishingEconReport.05.pdf 8	There are benefits and costs associated with operating the lower Snake River projects. The EIS evaluated beneficial and adverse effects across an array of resource areas including potential effects at the national, regional and local level; effects are monetized and quantified, where possible, and also described qualitatively. As is common in NEPA analyses, the beneficial and adverse effects of the alternatives are expressed as a variety of qualitative and quantitative environmental and economic metrics throughout the EIS to inform decision-making, including the effects of the alternatives on fish as detailed in Section 3.5. That the effects of the alternatives on fish are not expressed as monetized economic values does not mean that they were not considered in the context of the analysis. The EIS does not employ a cost-benefit framework for decision-making. Instead, the EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as the dam breaching alternative. However, the Preferred Alternative also meets most of the other objectives of the study for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. In addition, the co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the Columbia River System. The EIS provides an evaluation of the social welfare and regional economic effects of the No Action Alternative and the Multiple Objective alternatives, including the effects on recreation (Section 3.11) and commercial fisheries (Section 3.15). The EIS Section 3.5.3.6 describes the long-term effects to anadromous fish migration in the Snake River and tributaries that would occur under a dam breach scenario as major and beneficial, although quantitative impacts from fish modeling results are limited. The impacts to anadromous fish in other locations would have negligible to minor changes from the No Action Alternative. The EIS described the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. NMFS estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which is described qualitatively. For the effects on recreational fishing under MO3 (Section 3.11.3.5) along the lower Snake River below Lewiston, the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River) as an indicator for fishing visitation in this reach. Again, there is uncertainty around recreational and commercial fishing visitation in the long-term given the current measures to regulate, protect, and support ESA-listed fish populations and habitat in the region. However, the EIS describes that the visitation in the long-term in the lower Snake River, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting jobs, income, and tourism businesses. The contribution of Columbia River origin fish to ocean fisheries is described in Section 3.15.2.1. Because there is considerable uncertainty regarding the overall effects of the alternatives on regional fish populations, and how such changes may affect the management of the fisheries, the specific quantitative and monetized impacts associated with changes in commercial fisheries under the alternatives was limited. This analysis evaluates potential impacts on fisheries by referencing the potential effects on relevant fish populations, as described in Section 3.5.
6666	6	Aaron Lieberman	Idaho Outfitters & Guides Association	The preferred alternative in the dEIS does not adequately provide for salmon and steelhead population recovery because it will not improve smolt to adult rates (SARs) to levels identified and accepted by scientists as necessary for harvest or recovery. The Northwest Power and Conservation Council has identified SAR ranges from 2-6% as necessary for true recovery for anadromous stocks. This range provides a gauge of whether life cycle survival rates can both 8 avoid extinction and make progress toward broad-scale salmon restoration. Harvestable populations require consistent SARs of around 4% to meet the National Marine Fisheries Services 48-year recovery standard for sp/su chinook in the Snake River basin. Current SARs for Snake River sp/su chinook sit just under 1%, which is less than half of the minimum SAR range the Northwest Power and Conservation Council has affirmed for multiple years as necessary for maintenance of existing populations. This is a far reach from the mid-to upper goals of 4-6% SAR identified as population abundance and recovery . 9 It is important to consider survival in all life stages and in certain areas of the Columbia River system when assessing SARs. Snake River sp/su chinook and steelhead consistently display some of the lowest SARs in the Columbia River Basin, despite enduring the same pinniped predation, ocean conditions, and downstream fishing pressure. Studies have displayed that survival rates of sp/su chinook is lower than similar downriver populations that experience fewer Independent Scientific Advisory Board. Review of the 2014 Columbia River Basin Fish and 8 Wildlife Program. 2018. https://www.nwcouncil.org/sites/default/files/isab-2018-3review2014fwp23march.pdf CSS 2016 Annual Report, Chapter 7, Petrosky et al. http://www.fpc.org/documents/CSS.html9 9 dams . Despite the dEIS claiming that juvenile survival is high through the lower Snake River, 10 the 2019 CSS report estimates only 48% juvenile survival from Lower Granite dam to Bonneville Dam for Snake River steelhead from 1994-2019. Snake River chinook survival is estimated only slightly better at 54% on average. The CSS Report noted that the risk of mortality increases by about 12% for each powerhouse encounter a juvenile salmon experiences . This 11 CSS report does not even account for mortality in reservoirs. Additionally, there is evidence that Snake River chinook suffer substantial delayed mortality as a result of their outmigration experience in the smolt stage . 12 Schaller, H.A., and C.E. Petrosky. 2007. Assessing hydrosystem influence on delayed 10 mortality of Snake River stream-type Chinook salmon. North American Journal of Fisheries Management 27:810-824. CSS Annual Report. 2019. http://www.fpc.org/documents/CSS/2019CSSAnnualReport.pdf11 Williams, J.G., S.G. Smith, R.W. Zabel, W.D. Muir, M.D. Scheuerell, B.P. Sandford, D.M. 12 Marsh, R.A. McNatt, and S. Achord. 2005. Effects of the federal Columbia River power system on salmonid populations. U.S. Dept. Commerce, NOAA Tech. Memo. NMFS-NWFSC-63. 150 pp Marmorek, D., M. Porter and A. Hall. 2011. Comparative Survival Study (CSS) Workshop Report. Prepared by ESSA Technologies, Ltd., Vancouver, B.C. for the Fish Passage Center (Portland OR) and U.S. Fish and Wildlife Service (Vancouver WA). 147 pp. http://www.fpc.org/ Schaller, H.A., C.E. Petrosky and E.S. Tinus. 2014. Evaluating river management during seaward migration to recover Columbia River stream-type Chinook salmon considering the variation in marine conditions. Canadian Journal of Fisheries and Aquatic Sciences. 71:259-271. 10 Table 2: Comparison of Alternatives of In-River Surival, PITPH, and SARs for Snake River Spring Chinook, relative to the No Action Alternative . 13 Table 3: Comparison of Alternatives of In-River Survival, PITPH, and SARs for Snake River Steelhead, relative to the No Action Alternative . 14 Refer to footnote 2.13 Refer to footnote 2.14 11	It should be noted that the 2-6% Smolt-to-Adult return (SAR) target referenced in this comment refers to the Northwest Power and Conservation Council (Council) target for broad-sense recovery and is separate and distinct from the obligations of any single entity or in this case a requirement to be met solely by the co-lead agencies. Just as the Councils fish and wildlife program encompasses both federal and non-federal stakeholders in the Columbia Basin, the Councils recovery goals are shared by many parties. Based on the Preferred Alternative analysis, it will make a substantial contribution, but the Councils broad sense recovery goals are beyond the scope of this EIS, which focuses on the effects associated with the operation and maintenance of the 14 CRS projects. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species as that is a broader goal with shared responsibility. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. The effects of delayed mortality are discussed throughout the EIS analysis for each alternative and current high quality data and the best available scientific information was used for this analysis. Based on analysis by the CSS, SARs associated with population declines (SARs of less than 1%) have the potential to be greatly reduced under the Preferred Alternative, and on average, SARs are expected to be well above 2.0% for Snake River spring Chinook salmon and steelhead. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. The co-lead agencies conclude the expected outcomes for salmon and steelhead associated with MO3 are appropriately acknowledged and framed appropriately with impacts to other authorized purposes.
6666	7	Aaron Lieberman	Idaho Outfitters & Guides Association	Management actions taken in the PA predict SARs for Snake River sp/su chinook to reach 2.7% at best, as shown in Table 2. Table 3 shows the estimated SAR under the PA is even lower for Snake River Steelhead at 2.4%. At worst, the Life Cycle Model predicts an extinction trajectory under the PA with a SAR below 1%, with Snake River sp/su chinook SARs predicted at a troubling 0.81%. The Fish Passage Center conducted the analyses of the alternatives through the Comparative Survival Study (CSS). The analyses concluded that the PA results in a SAR less than one percent 36-39% of the time for yearling chinook and steelhead, while MO3 results in a SAR less than 12 one percent only 12-19% of the time. The MO3 yields SARs greater than two percent up to 68% of the time compared to the PA of 37% of the time . 15	The co-lead agencies disagree with this comment and instead stand by the data and results presented in the draft CRSO EIS. Estimates of Smolt-to-Adult returns (SARs) (and all other fish metrics) represent the average outcome of 80 different river flow conditions, not the best outcome as portrayed in this comment. As these values represent an average, there will be many river conditions that produce SARs above the 2.7% average and many that produce values below that estimate. As noted by the ISAB in their review of the CSS model results generated for this EIS (ISAB 2020-1), changing climate conditions should be carefully assessed when considering potential impacts to salmon and steelhead, but the co-lead agencies note the concerns raised by the ISAB regarding the CSS's quartile range analysis and the likelihood or probabilities of SARs falling below 1 percent or above 2 percent. The co-lead agencies will evaluate that analysis as it evolves but are not relying on the probability analysis at this time. As noted in the response above, there is a wide range in predicted outcomes between CSS and NMFS modeling approaches. Based on analysis by the CSS, SARs associated with population declines (SARs of less than 1%) have the potential to be reduced under the Preferred Alternative, and on average, SARs are expected to be above 2.0% for Snake River spring Chinook salmon and steelhead. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. The expected outcomes for salmon and steelhead associated with MO3 are appropriately acknowledged and framed appropriately with impacts to other authorized purposes.
6666	8	Aaron Lieberman	Idaho Outfitters & Guides Association	Table 4: Escapement goals for wild-and natural-origin Snake River salmon and steelhead aggregated at the species level. Ten-year average returns to Lower Granite Dam calculated for years 2008-2017. NOAA minimum abundance threshold represents values that NOAA has identified to minimize long-term extinction risk. Escapement goals to the Snake River basin include populations in Washington, Oregon, and Idaho. Proposed escapement goals to Idaho include the component of the Snake River basin aggregate that returns to spawn in Idaho tributaries . 16 Table 4 above further highlights the inadequacy of the PA SAR projections to minimize the long term extinction risk for wild-and natural-origin Snake River salmon and steelhead. Idaho will From the Chapter 2 CSS analyses and March 3, 2020 presentation of the CSS analyses to the 15 Pacific Fishery Management Council Habitat Committee on the CRSO-EIS Idaho Department of Fish and Game (IDFG).2019. Fisheries Management Plan 2019-2024. 16 Idaho Department of Fish and Game, Boise, USA. 13 simply never dig out of the 10-year return averages and trend towards recovery goals with SARs >4% for sp/su chinook, steelhead, and sockeye with the PA projections.	See response to Comment 6666-6.
6666	9	Aaron Lieberman	Idaho Outfitters & Guides Association	Despite clear evidence for the management actions and structural changes needed to recover Snake River anadromous stocks, the dEIS focuses on the No Action Alternative (NAA) as the basis for therange of alternatives. The NAA has been rejected by courts and is the sole reason that this dEIS analysis has been conducted. We believe the agencies should not champion the PA SAR improvements off of a legally flawed baseline. The agencies should step away from claiming the PA operations will meet the objectives and needs just because it provides minor improvements to the flawed NAA and towards actions that will keep fish alive through the system and analysis out of the courts. The final draft should incorporate a complete alternative that benefits multiple users, but our organizations will not support implementation of river system operations that may continue to contribute to the extinction of salmon and steelhead. It is a disservice to all Idaho communities reliant on salmon and steelhead to settle with an alternative that simply holds the line	NEPA requires evaluation of effects of alternative potential actions against a baseline approach of status quo, the "no action alternative." The data analysis and evaluation should help determine which actions would be most effective. The legal status of the No Action Alternative is not relevant to analysis of potential action effectiveness.

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				just above the threat of extinction and does not strive for abundance. Strong salmon and steelhead runs are part of the Northwests historical identity and is the very reason why the Salmon River is named. We cannot continue to accept the action agencies inadequate analysis only to move the goalposts of success and provide for minimal improvements to our fish populations while Idahos riverside communities continue to dwindle as a direct result of these actions.	
6666	10	Aaron Lieberman	Idaho Outfitters & Guides Association	IV. THE DEIS DOES NOT ADDRESS CLIMATE CHANGE AND ASSOCIATED IMPACTS FROM WARMER CONDITIONS THROUGHOUT THE FCRPS. While the dEIS studies a wide range of alternatives, it does not address in detail the impacts of climate change on salmonids in the long term. Millions of dollars have been spent to improve spawning and rearing habitat for salmon and steelhead- much of that in central Idaho- in part to combat climate change. This has led to small improvements in fish populations and natal stream survival rates and will continue to be an important action in the future. However, continuing to pursue habitat improvements as the primary way to recover Snake River stocks will fail because it hinges upon fish first making it to these spawning and rearing areas. The improvements from habitat restoration and natal stream temperatures may not be enough to offset the conditions that salmonids must endure when entering the FCRPS during their out-migration as well as during their return as adults through multiple reservoirs, which exposes fish to heightened stressors, including temperature. This is especially true when accounting for climate change in the near and long term future.	Historically, water temperatures in the lower Snake River were warm (USGS 1960, 1961, 1964; Corps 2002a). Observed historic water temperatures show that average monthly water temperatures during July and August, in the 1950s, averaged 7 to 8 degrees Fahrenheit higher than today's conditions, while maximum daily differences were 10 to 12 degrees Fahrenheit higher. The differences observed in the lower Snake River today, as compared to historical conditions, are a result of the middle and upper Snake River reservoirs combined with the influence that Dworshak Dam operations. The EIS analysis shows that when breaching the four lower Snake River dams, nighttime summer water temperatures, as well as fall water temperatures, would be cooler than No Action conditions in the Snake River. However, even with the dams breached, maximum summer water temperatures would exceed state water quality standards (20C) at times, especially during hot weather events. This is because without the dams, the lower Snake River will be shallower and more susceptible to solar radiation and warming. Increases in water particle travel time are expected, but the lower Snake River has always been a warm system (USGS 1960, 1961, 1964; Corps 2002a) and breaching the dams will not change this fact. Regionally high air and water temperatures result in water quality standard exceedances and are beyond the ability of the CRS to cool; future climate change predictions will result in even more difficult challenges. The models showed minor changes in the Columbia River under MO3, indicating that the operations of the CRS dams have a limited ability to reduce temperatures in the lower Columbia River. Summer water temperatures exiting the Snake River are typically 1 to 3 degrees Fahrenheit warmer than the receiving Columbia River temperatures. Even though the cold water released from Dworshak during the summer is less than 50 degree Fahrenheit, the volume of water released is less than one tenth of the flow in the Columbia River. Since the distance between the confluence of the Snake and Columbia Rivers is about 180 miles downstream from Dworshak, the impact on water temperatures is negligible. Regionally high air and water temperatures result in water quality standard exceedances that are beyond the ability of the CRS to cool. Overall the conclusion in the Draft EIS is that MO3 would be beneficial to anadromous fish for a number of reasons, but other objectives must also be considered in the selection of a Preferred Alternative. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets most other EIS objectives including those for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS, the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams, because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. The climate science community is still developing models that can be used to analyze possible effects to water temperature from climate change and, unfortunately, they have not been fully applied and validated for use with climate affected regulated flow projections of large reservoir systems. Therefore it was not possible to reliably model water temperature changes under climate change for incorporation to either of the fish models. In lieu of this information, the climate analysis used the output from the water quality models under historical conditions, climate change data, and scientific literature to qualitatively assess potential effects to water temperature and anadromous fish. These analyses are documented in Section 4.2.3 for the multiple objective alternatives and Section 7.8.4 for the Preferred Alternative. Overall, the Preferred Alternative is expected to result in benefits to anadromous salmon and steelhead. The analysis in Section 7.8.4 recognizes that some of the benefits to fish from the Preferred Alternative could be offset by the effects of climate change.
6666	11	Aaron Lieberman	Idaho Outfitters & Guides Association	The dEIS should put more emphasis on evaluating the impacts of climate change on Snake River salmonids. The dEIS only evaluates these impacts on a 25-year scale while economics were evaluated on a 50-year timeframe. Because of the discrepancy in time scales, the PA implements almost no mitigation to offset the negative impacts climate change will have over the next 50 years or more. The 25-year analysis downplays the potential compounding effects of the reservoir and slack water system on salmonids and yields a PA that does little to combat this 15 threat. After the appropriate analysis and time scale is implemented in the analysis, the action agencies should incorporate new measures to mitigate for the impacts of climate change. In the meantime, the agencies should consider spilling at 125% TDG over all Columbia and Snake River dams during out-migration to reduce the water transport time and should adjust operations that will drastically reduce reservoir temperatures in late summer and early fall for adult returns.	The temporal scope of the EIS is assumed to be 25 years from the signing of the Record of Decision (ROD) in order to have a similar period of analysis for comparison of effects across resources for all multiple objective alternatives. While the Preferred Alternative was developed largely focused on the analysis based on historical and synthetic hydrology, climate change data was also considered. Through on-going regional climate change studies and work, the co-lead agencies evaluated potential shifts in precipitation and temperature patterns and resulting changes in unregulated Columbia Basin streamflow timing and volumes. The evaluation consisted of the full range of the latest climate change projections developed using multiple global climate models, emissions scenarios, downscaling techniques, and hydrologic models. Details of this evaluation are in Chapter 4 of the EIS. This information was used to describe the potential effects (both beneficial and adverse) on the river systems and resources due to potential changes in climate for all alternatives, including the Preferred Alternative. With the uncertainty associated with climate change, it is important that we establish methods for adapting and increasing flexibility on the system. There are measures in the Preferred Alternative that are adaptive to emerging changes in climate and ensure there is flexibility to respond to future changes. One example of this is the habitat restoration program that counters increased stream temperature with deeper pools and more shaded areas. With respect to fish results under the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% (the lower end of Northwest Power and Conservation Council's recovery targets for the region) as a result of the Preferred Alternative, as a result of the Preferred Alternative increasing SAR from 2.0% to 2.7% for Chinook, a 35% relative increase. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. To address uncertainty highlighted by the two models, the Preferred Alternative includes working with regional sovereigns to develop a study that assess the effectiveness of the increased spill regime on adult returns as well as assessment and management of adverse unintended consequences, such as long delays of adult migrants, or TDG-related mortality of juvenile migrants. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information. The Preferred Alternative will make a meaningful contribution towards recovery. Finally, the Preferred Alternative includes the Juvenile Fish Passage Spill Operations measure, which includes spill up to 125% total dissolved gas at certain projects given existing operating constraints
6666	12	Aaron Lieberman	Idaho Outfitters & Guides Association	V. THE DEIS ANALYSIS OF IMPACTS OF MO3 IS INCOMPLETE It is well documented that Columbia Basin salmon smolt are targeted by avian predators and warm water fish species that thrive in the warm slack water from numerous reservoirs throughout the system. However, the methods used in the dEIS do not accurately predict how predation rates vary across the range of alternatives and, in particular, MO3. In MO3, the COMPASS model actually predicts an increase in predation rates on wild fish because of the elimination of hatchery fish. MO3 assumes that all hatchery fish production in the Snake River basin would cease to exist because BPA would not be obligated to mitigate for the impacts of the Snake River dams. However, both of these assumptions are incorrect. Predatory fish are well adapted to slow moving water provided by the reservoir system and will be an increasing threat in the future as climate change continues to improve conditions for warm-water species. Higher water velocity under MO3 will greatly reduce encounter rates between salmonids and predators, decrease the suitable habitat for predator species, and decrease predator densities. The assumption that hatchery efforts will be terminated with MO3 shows that the scope of the dEIS is too narrow to solve the multiple issues the CRSO faces. Hatcheries provide robust recreational opportunities 16 and reduce fishing impacts on wild fish. It is likely that hatcheries will be needed for years, even in actions such as MO3, to help meet mitigation goals until wild stocks are fully recovered. We supports continued implementation of hatcheries to provide for recreational opportunity in Idaho while wild stocks continue to recover.	The Draft EIS acknowledges that with the breaching of the four lower Snake River dams in MO3, there would no longer be an obligation to fund the Lower Snake River Compensation Plan, which accounts for much of the hatchery production in the basin and other mitigation activities could be adjusted. The effects to populations as they transition from primarily hatchery production to an increased wild production of fish is qualitatively discussed in Section 3.5.3.6. The fish models are based upon data collected from past fish runs and there is no data available to inform a quantitative analysis for wild fish in the absence of hatchery fish. Over time, increased returns of wild fish would be expected as wild fish replace hatchery fish, and the Snake River resident fishery would improve as the reservoir habitats transition to riverine. The long term overall effect of MO3 would be beneficial for Snake River salmon and steelhead as well as resident fish, so no mitigation for this effect was identified. Additional hatchery production would be in place for limited years to offset the short term dam breaching and construction effects. Mitigation measures were proposed for both anadromous and resident fish for a transitional period for the breaching of the four lower Snake River dam embankments, as described in Sections 5.4.3.2 and 5.4.3.3. Proposed mitigation includes two years of hatchery production along with trap and haul operations for the anadromous fish during this period. These mitigation measures would reduce adverse effects to resident and anadromous fish in Region C. Although there is uncertainty, the quantitative and qualitative analysis use current high quality information and best available science to predict the effects. With respect to the Preferred Alternative, the fish analysis in Section 7.7.4 shows that it will provide substantial benefits to ESA-listed salmon and steelhead, which can help contribute to broader recovery goals.
6666	13	Aaron Lieberman	Idaho Outfitters & Guides Association	The evaluation on the loss of irrigated acres in MO3 is incomplete. The dEIS states that all irrigated acresreceiving water from the current pumps would no longer be irrigated (with condition) and would convert to dryland pasture (without condition). This may be true if the action agencies proceeded with only breaching the four Snake River dams with no mitigation plan in place, but it is far from a realistic action that would be taken. The dEIS does not provide any opportunities to evaluate actions that can be taken that are outside administrative authority, so the public is left with an unrealistcally dark picture of what MO3 may bring to farmers and irrigators who currently rely on a dammed Snake River system. This analysis also perpetuates the notion that it is either fish or farms in the Northwest, which could not be further from the truth. MO3 should have included an evaluation, even if out of the administrative scope, that showed the possibility of legislation to provide federal funds to modify irrigation systems, upgrade rail infrastructure, and mitigate for the loss of barging along the Snake River to allow the continuation of an extremely important economic and social sector of the Northwest.	This EIS discusses engineering solutions (pipeline extensions for example) in Section 3.12.3 Environmental Consequences - Specifically under Region C under the MO3 alternative (see line page 3-1267 line 3244 in the Draft EIS) and in Appendix N. The report which this EIS draws upon, as discussed, concluded that modifying the existing pump system was cost prohibitive. In Region C, under the MO3 alternative this analysis assumes that pumps are unable to deliver water to an estimated 47,926 acres. This is discussed in Section 3.12.3 under Region C and the MO3 alternative. As described in Chapter 5 Mitigation, specific regulations guide the development of appropriate mitigation measures to address environmental impacts. If MO3 were to be selected as the Preferred Alternative, more detailed evaluations and NEPA would be needed along with congressional authorization and appropriations to assess the engineering requirements of the project and to potentially further refine and develop mitigation measures. However, it should be noted that as described in Section 5.1.1., Overview of Mitigation, mitigation measures developed as part of a NEPA process are not intended to indicate the co-lead agencies, or the Federal government as a whole, has the authority to perform all of the measures described. But rather, it provides a list of potential mitigation needs, some of which could be implemented by other agencies, officials and/or the public who would potentially benefit from the mitigation measures.
6666	14	Aaron Lieberman	Idaho Outfitters & Guides Association	VI. THE ACTION AGENGIES PARTICIPATION AND RESPONSE DURING THE DEIS OPEN COMMENT PERIOD WAS INADEQUATE Covid-19 17 The Northwest is feeling the very real threat of the COVID-19 outbreak, and many towns near the Columbia and Snake Rivers are rightfully focused on community health at this time. A comment extension was requested by dozens of organizations, federal legislators, city officials, and chambers of commerce to allow time for impacted individuals to focus on health and safety first before engaging on the dEIS. We believe this comment extension was warranted and is common practice, but the action agencies denied any opportunity to provide for in-person meetings and comment opportunities in the future by adhering to the original timeline. We believe this is yet another missed opportunity in the EIS process where Idahoans have been excluded from adequate participation and a federal process has been pushed forward on an arbitrary timeline during unprecedented times for our nation. Failing to provide adequate public participation in this process will certainly lead to further public distrust and will likely perpetuate the cycle of litigation surrounding the FCRPS.	The co-lead agencies considered requests to extend the public comment period. This NEPA process included a wide array of cooperating agencies whose close involvement throughout the process allowed the co-lead agencies to incorporate feedback. Given the broad range of comments received and the extensive Federal and non-Federal participation in the overall process as well as the level of public engagement in the six virtual public meetings in the region, the co-lead agencies determined that an extension was not warranted and that the 45-day public comment period was adequate consistent with NEPA regulations. The meeting format made the public meetings equally accessible for the public, regardless of their location. The CRSO EIS website notified the public on April 9, that they should plan to submit comments by the close of the comment period.
6666	15	Aaron Lieberman	Idaho Outfitters & Guides Association	BPA response during comment period On March 30, Bonneville Power Administrations Senior Spokesperson delivered responses to various reporters to clarify issues identified by constituents during the ongoing public comment period. We believe this response was first, an inappropriate action during an open comment period and, second, did not provide legitimate rebuttals. BPAs email focuses on the Snake River Dams operations and the Administrations financial situation- two of the most debated subjects tied to this process. From this response, it is obvious that BPA does not seek robust discussions on impactful changes to the Columbia River system and only has the agencys self-interest in 18 mind. We believe BPAs response is a narrow, incomplete analysis of all factors and will only limit broad input from Americans in the future, undermining the NEPA process.	Bonneville provided clarifying information based on information included in the draft CRSO EIS to correct inaccurate media reports. The clarifying information focused on how Bonneville collects revenue, the power characteristics of the four lower Snake river dams, and the impacts of breaching on Bonneville's customers.
6666	16	Aaron Lieberman	Idaho Outfitters & Guides Association	VII. CONCLUSION For decades, the action agencies have been boasting minor tweaks to the Columbia River system. The agencies peddle that salmon and steelhead will recover under a new analysis that proposes more minor tweaks, while the agencies own data shows otherwise. Courts have consistently struck down the action agencies analysis, with recovery of salmon and steelhead at the crux of the issue. In National Wildlife Federation, et al. v. National Marine Fisheries Service, et al., 184 F. Supp. 3d 861 (D. Or. 2016), Judge Simon concluded the previous analysis focus on essentially the same approach to saving the listed species-minimizing hydro mitigation efforts and maximizing habitat restoration. Despite billions of dollars spent on the efforts, the listed species continue to be in a perilous state. He rejected the analysis and demanded a new study, stating One of the benefits of the NEPA analysis, which requires that all reasonable alternatives be analyzed, is that it allows innovative solutions to be considered and may finally be able	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-lead agencies numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3, which includes breaching the four lower Snake River dams. The Preferred Alternative also meets the EIS objectives, including those for: resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the draft EIS the co-lead agencies did not identify MO3 because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system.

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				to break through any bureaucratic logjam that maintains the status quo...The FCRPS remains a system that cries out for a new approach. A NEPA process may elucidate an approach that will finally move the listed species out of peril. 19 It is not only the judicial branch that sees the water seeping through the cracks in the Columbia River System management framework and the consistent failure of system operations to save Snake River salmon and steelhead. The Northwest Power and Conservation Council states that despite $16.3 billion spent on fish and wildlife restoration, all Snake River anadromous fish remain at high risk of extinction . The Governors of Idaho and Washington have convened 17 working groups comprised of dozens of stakeholders in an attempt to break through the administrative logjam to seek solutions that are collaborative and encourage outside thinking that may save anadromous fish and the communities that rely on them. The PA, if implemented, will continue to fall short of benefiting Idaho riverside communities, anadromous fish, ratepayers and taxpayers. Our organizations fully recognize that this complex balance is too large for any administrative levers pulled alone to solve. A true solution to keep all parties whole and to save our anadromous fish from the risk of extinction will require congressional action from our Northwest leaders. Legislation is needed to address strategies and actions that will substantially recover anadromous fish populations while providing certainty in the future for ratepayers and others who currently rely on the status quo. This dEIS provides negligible benefits while risking another round of litigation in the courts and several more years of depressed wild salmon and steelhead returns. With the PA, the action agencies have proven yet again they are willing to continue to spend time, resources, and money to run out the clock on Information presented by Russ Thurow, U.S. Forest Service, to Idaho Governors Salmon 17 Workgroup meeting January 17, 2020. 20 our anadromous fish, riverside communities, sportfishing industry, and our way of life in the Northwest.	The co-lead agencies recognize that there are many effects to salmon and steelhead populations outside those associated with the operation, maintenance and configuration of the dams, including ocean conditions. A whole ecosystem approach would be welcomed by the co-lead agencies, who will be active participants in regional discussions and solutions for achieving broader recovery objectives.
6666	17	Aaron Lieberman	Idaho Outfitters & Guides Association	THE DEIS DISREGARDS THE ECONOMIC CONTRIBUTIONS AND IMPACT OF SALMON AND STEELHEAD FISHING, AND GUIDING, IN IDAHO AND THE NORTHWEST. 1 Our goal has been to develop an approach to river management that balances these multiple perspectives and can serve as a springboard to continued progress in the region on recovery and mitigation for fish and wildlife, reliable and affordable clean electricity, and economic vitality for the many communities that depend on the CRS for their livelihoods.2 Whereas the CRSO DEIS process acknowledges The Opinion and Order from US District Court for the District of Oregon, which states the EIS should evaluate how to ensure that the prospective management of the CRS is not likely to jeopardize the continued existence of any endangered or threatened species, the CRSO process, within the framework of the National Environmental Policy Act, also ostensibly identifies broad-based environmental and socio-economic impacts associated with the proposed alternatives. However, in its analysis of the [socio]economic impacts of the respective Multiple Objective Alternatives, the CRSO DEIS fails entirely to consider the Sportfishing economyits contributions and the anticipated impacts of the respective alternatives to it. Despite the dEISs utter and complete ommitance, the importance of these fish and the outfitting & guiding industry to these rural Idaho communities cannot be overstated. Ours is an industry that has long been negatively impacted by the decline in sportfishing opportunities for salmon and steelhead, in our businesses as well as their respective communities economically, culturally and socially. According to the Idaho Outfitters and Guides Licensing Board (IOGLB), there are currently between 1500 and 2000 guides in Idaho Licensed for, and reliant on, Salmon and Steelhead fishing. Approximately 80% of these resident Idaho Outfitters live in and contribute to the economies of communities with an average population of ~500. Idaho riverside towns, where these Salmon and Steelhead outfitters and guides reside and operate, are overwhelmingly rural and heavily dependent on natural resource and recreational based economies. According to the Idaho Department of Labor, the annual average earnings of steelhead guides is ~$23,000. Using the Income Multiplier generated for our industry by the Idaho Department of Labor, that represents and economic contribution of between $58,650,000 and $78,200,000 associated with Salmon and Steelhead guides alone. This figure, staggering in and of itself, does not include the broader impact and generated spending of the outfitters3 that employ those guides, not least the induced spending of those businesses and professionals nor that of their clients in their respective communities and Idaho as a whole. 4 The importance of salmon and steelhead fishing in rural Idaho communities and their economies is thrown into still sharper relief when framed in terms of the States Sportfishing economy on the whole (beyond outfitting and guiding specifically). On the whole, the sportfishing economy contributes an estimated $757 million dollars per year in Idaho alone.5 Based on estimates from the Idaho Department of Fish and Game regarding the proportionate angling effort for Salmon and Steelhead, that would extrapolate to a base contribution of between $151-189 million/year to the State for Salmon and Steelhead fishing. Table 1: Summary of Regional and Other Social Effects. The agencies analysis of regional and other social effects is shown in Table 1 above. Whereas the Action Agencies plan details the impacts on other industries/sectors, including agriculture, subsidized barging, and power generation, the dEIS relies solely on qualitative, rather than quantitative analyses to evaluate impacts of/on sportfishing (not to mention Idahos outfitters, guides, and rural fishing communities)despite the existence of several current studies on the economic contributions of outdoor recreation and sportfishing in states with anadromous fish runs.	The EIS evaluated benefits and adverse effects across an array of resource areas including potential effects at the national, regional and local level; effects are monetized and quantified, where possible, and also described qualitatively. The EIS provides an evaluation of the social welfare and regional economic effects of the No Action Alternative and the Multiple Objective alternatives, including the effects on recreation (Section 3.11) and commercial fisheries (Section 3.15). The EIS Section 3.5.3.6 describes the long-term effects to anadromous fish migration in the Snake River and tributaries that would occur under a dam breach scenario as major and beneficial, although quantitative impacts from fish modeling results are limited. The impacts to anadromous fish in other locations would have negligible to minor changes from the No Action Alternative. The EIS described the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. NMFS estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which is described qualitatively. For the effects on recreational fishing under MO3 (Section 3.11.3.5) along the lower Snake River below Lewiston, the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River) as an indicator for fishing visitation in this reach. The EIS describes that the visitation in the long-term in the lower Snake River, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting jobs, income, and tourism businesses. The contribution of Columbia River origin fish to ocean fisheries is described in Section 3.15.2.1. Because there is considerable uncertainty regarding the overall effects of the alternatives on regional fish populations, and how such changes may affect the management of the fisheries, the specific quantitative and monetized impacts associated with changes in commercial fisheries under the alternatives was limited. This analysis evaluates potential impacts on fisheries by referencing the potential effects on relevant fish populations, as described in Section 3.5.
6666	18	Aaron Lieberman	Idaho Outfitters & Guides Association	This contrasts with the analysis of water supply, irrigation, navigation, and hydropower generation, all of which were evaluated quantitatively. For all management alternatives and their Preferred Alternative, the economies of recreation and fishing (from guiding, outfitting, hotels, restaurants, gas stations, boat shops, license fees, etc.) were not even accounted for despite existing, publicly available data. At the March 5, 2020, Idaho Governors Salmon Recovery Workgroup meeting, an Army Corps of Engineers economist stated economic impacts of sportfishing were outside the scope of the EIS, despite all other resources evaluated in the analysis included quantified effects. In 2001, during the height of our modern day anadromous fish returns to Idaho, anglers fished 475,000 days for steelhead and 448,000 for salmon.6 The 2-4-month salmon seasons generated $46 million to 15 river communities and $43 million to the rest of the state.7 That year, the spring Chinook season brought $10 million to Riggins alone (estimated population 417), where the total spending that year was $44 million. That same year Lewiston saw $8.8 million and Orofino $8 million from the same salmon season. In 2003, the Idaho Department of Fish and Game calculated that sportfishing generated $438 million in direct spending, including $32 million on outfitters and guides. (Adjusted for inflation, that would amount to $598,197,213 statewide and $51,898,388 on outfitters and guides, again, without factoring in additional, standard multipliers.)8 Just as robust salmon and steelhead returns can provide an economic boom to these riverside towns, feeble returns can devastate them. During the four-month steelhead fishing closure on the Clearwater River in 2019, the Clearwater Region missed out on $8.6 million a month ($34.4 million total), with the majority of the loss in Clearwater County.9 The Idaho Fish and Game Commission then re-opened the fishing season in 2020 for only catch and release opportunity for hatcheryorigin steelhead. These losses can and will be felt for years following the 2019 steelhead fishing season closure for businesses directly and indirectly tied to steelhead fishing. A survey in 2001 concluded that if salmon fishing were not available in Idaho that 73% of Idaho salmon fishermen would go elsewhere.10 Fishing outfitters, guides, and their rural communities continue to helplessly watch the downward arc of Idahos anadromous fish. Their hardship is not hypothetical; it is real and immediate and longendured. That the dEIS neither quantified the economic potential of abundant fish returns nor the devastating financial impacts of declining salmon and steelhead populations on rural communities in Idaho and throughout the Pacific Northwest is unacceptable. The economic and cultural impacts of salmon and steelhead in Idaho must be given full consideration by the federal agencies that control this system. Previous EISs included such information, but this newest iteration does not.	There are benefits and costs associated with operating the lower Snake River projects. The EIS evaluated beneficial and adverse effects across an array of resource areas including potential effects at the national, regional and local level; effects are monetized and quantified, where possible, and also described qualitatively. As is common in NEPA analyses, the beneficial and adverse effects of the alternatives are expressed as a variety of qualitative and quantitative environmental and economic metrics throughout the EIS to inform decision-making, including the effects of the alternatives on fish as detailed in Section 3.5. That the effects of the alternatives on fish are not expressed as monetized economic values does not mean that they were not considered in the context of the analysis. The EIS does not employ a cost-benefit framework for decision-making. Instead, the EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as the dam breaching alternative. However, the Preferred Alternative also meets most of the other objectives of the study for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. The EIS provides an evaluation of the social welfare and regional economic effects of the No Action Alternative and the Multiple Objective alternatives, including the effects on recreation (Section 3.11) and commercial fisheries (Section 3.15). The EIS Section 3.5.3.6 describes the long-term effects to anadromous fish migration in the Snake River and tributaries that would occur under a dam breach scenario as major and beneficial, although quantitative impacts from fish modeling results are limited. The impacts to anadromous fish in other locations would have negligible to minor changes from the No Action Alternative. The EIS described the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. NMFS estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which is described qualitatively. For the effects on recreational fishing under MO3 (Section 3.11.3.5) along the lower Snake River below Lewiston, the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River) as an indicator for fishing visitation in this reach. However, the EIS describes that the visitation in the long-term in the lower Snake River, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting jobs, income, and tourism businesses. The contribution of Columbia River origin fish to ocean fisheries is described in Section 3.15.2.1. Because there is considerable uncertainty regarding the overall effects of the alternatives on regional fish populations, and how such changes may affect the management of the fisheries, the specific quantitative and monetized impacts associated with changes in commercial fisheries under the alternatives was limited. This analysis evaluates potential impacts on fisheries by referencing the potential effects on relevant fish populations, as described in Section 3.5. The EIS recognizes the economic and cultural importance of salmon to Tribes in a number of Sections throughout the document. The Fisheries Section 3.15 as well as Section 3.17, in particular, include discussion of reductions in anadromous species catch and associated adverse social effects that have occurred in Tribal communities. The cultural significance and impacts of salmon and steelhead fisheries are described in the Fisheries Section 3.15.2.1, which includes Sections that describe ceremonial and subsistence fisheries as well as the social importance of commercial, ceremonial and subsistence fisheries. The studies that the commenter notes were reviewed and a number of these studies were included in the analysis (see Sections 3.11.2.2., 3.11.3.2, and 3.11.3.5).
6666	19	Aaron Lieberman	Idaho Outfitters & Guides Association	THE DEIS IS INADEQUATE TO RESTORE SALMON & STEELHEAD The dEIS Executive Summary acknowledges its impetus as being in response to the need to review and update management of the CRS, including evaluating impacts to resources in the context of new information and changed conditions in the Columbia River basin, and further, that the operation and maintenance of the Columbia River System affects threatened and endangered fish populations within the region, and the co-lead agencies are committed to mitigating these effects. Despite the Congressionally authorized and mandated objectives of the Columbia River Systems Operations, not least the calls from stakeholders across the region for actions that will lead to recovery of listed and endangered Snake River stocks of Salmon and Steelhead, the Preferred Alternative identified in this dEIS fails to put forward operational and structural measures/changes to improve smolt to adult rates (SARs) to levels identified and accepted by scientists as necessary for harvest or recovery. This failure has largely to do with the fact that the dEIS uses the legally discounted No Action Alternative (NAA) as its baseline for relative improvements vis-a-vis Smolt-to-Adult Return (SAR) metrics. To put it very simply, the approach is not dissimilar from a student receiving a failing grade of 50% on a test, then claiming to have rectified the shortfall by an improvement to 55% the next time around. Rather, the dEIS selects strategies already in use and makes small tweaks to reservoir releases in the higher tributaries. Both central approaches in the PA are already in use, and while each has utility in particular cases and in degrees, neither have yielded results approximating Federal obligations to conserve endangered fish	See response to Comment 6666-6. In addition, the agencies used current, high quality modeling information consistent with NEPA and did not rely on information contained in the Plan for Analyzing and Testing Hypotheses (PATH) Weight of Evidence Report (ESSA Technologies 1998), which is over 20 years old and does not reflect current CRS operations.

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				populationeven just above extinction-trend levels. The Northwest Power and Conservation Council (NPCC) has identified SAR ranges from 2-6% as necessary for true recovery for anadromous stocks (this range provides a gauge of whether life cycle survival rates can both avoid extinction and make progress toward broad-scale salmon restoration). The NPCC 2%6% SAR objectives are consistent with analyses conducted by PATH, in support of the 2000 Biological Opinion of the Federal Columbia River Power System (FCRPS) found that median SARs of 4% were necessary to meet the National Marine Fisheries Service (NMFS) interim 48-year recovery standard for Snake River spring/summer Chinook; meeting the interim 100-year survival standard required a median SAR of at least 2%.	
6666	20	Aaron Lieberman	Idaho Outfitters & Guides Association	Current SARs for Snake River sp/su chinook sit just under 1%, which is less than half of the minimum SAR range the Northwest Power and Conservation Council has affirmed for multiple years as necessary for maintenance of existing populations. The Comparative Survival Study (CSS) also notes in its 2017 annual report that 1% SAR is associated with population decline. This is a far reach from the mid-to-upper goals of 4-6% SAR identified as population abundance and recovery. 11 It is important to consider survival in all life stages and in certain areas of the Columbia River system when assessing SARs. Snake River sp/su chinook and steelhead consistently display some of the lowest SARs in the Columbia River Basin, despite enduring the same pinniped predation, ocean conditions, and downstream fishing pressure. Studies have displayed that survival rates of sp/su chinook is lower than similar downriver populations that experience fewer dams.12 Despite the dEIS claiming that juvenile survival is high through the lower Snake River, the 2019 CSS report estimates 48% juvenile survival from Lower Granite dam to Bonneville Dam for Snake River steelhead from 1994-2019. Snake River chinook survival is estimated only slightly better at 54% on average. The CSS Report noted that the risk of mortality increase by about 12% of each powerhouse encounter a juvenile salmon experiences.13 This CSS report does not even account for mortality in reservoirs. Additionally, there is evidence that Snake River chinook suffer substantial delayed mortality as a result of their outmigration experience in the smolt stage.14	See response to Comment 6666-6.
6666	21	Aaron Lieberman	Idaho Outfitters & Guides Association	Management actions taken in the Preferred Alternative estimate high-end SARs for Snake River sp/ su chinook to reach 2.7%. The anticipated SAR for Snake River Steelhead under the Preferred Alternative is worse still at 2.4%. The Life Cycle Model predicts a potential extinction trajectory under the PA with a SAR below 1%, with Snake River sp/su chinook SARs predicted at a troubling 0.81%. Beginning in 2013 the Comparative Survival Study (CSS) workgroup began developing life cycle models for the purpose of examining survival at specific life stages, which is a critical component of NOAAs Biological Opinion on the operation of the Federal Columbia River Hydrosystem. This modeling provides integrated assessments of tributary smolt production, main-stem passage survival, ocean survival, and smolt to adult return rates. At the request of the Federal Action Agencies, the CSS used the Grande Ronde Life Cycle Model and the cohort-specific model to analyze six federal operational alternatives for the Columbia River Systems Operations (CRSO) Environmental Impact Statement (EIS), using the 80-year water record. The Fish Passage Center conducted the analyses of the alternatives in this dEIS through the Comparative Survival Study (CSS). The analyses concluded that the Preferred Alternative results in a SAR that is less than one percent 36-39% of the time for yearling chinook and steelhead, while MO3 results in a SAR less than one percent only 12-19% of the time. The MO3 yields SARs greater than two percent up to 68% of the time compared to the PA of 37% of the time.	The co-lead agencies used current high quality data and the best available science in the analysis in the CRSO EIS. Specific to salmon and steelhead, the agencies used both two primary modeling approaches which yielded a range of potential outcomes for the alternatives. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult return (SAR) rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% (within the Northwest Power and Conservation Council's recovery targets for the region) as a result of the Preferred Alternative. SAR values reflect the methods used for estimation, and this should be taken into account when comparing estimates against the Council's regional SAR objectives for recovery. The Council did not prescribe a specific method of SAR calculation. SARs reported by hatcheries using coded wire tags often incorporate a harvest correction factor for ocean, recreational and Tribal harvest. Due to the different approaches of the models, including the length of the historical survival time series, use of different hatchery and natural origin populations, and other factors, the two models estimated substantially different SAR under the No Action Alternative for Snake River spring Chinook: 0.88% from the NMFS COMPASS model, assuming no latent mortality, and 2.0% SAR from the CSS life cycle model, which is within the Council's targeted range for recovery.
6671	1	N/A	N/A	In an increasingly electronified and digitized world, we are seeing unprecedented amounts of stress placed upon the power grid. At the same time, demand for green energy has also skyrocketed due to political and environmental concerns. Though more and more avenues are becoming available for production of said green energy, many options have the same problem: They do not adequately meet the schedule of the grid. The ideal solution for this problem would be battery storage. Unfortunately, battery storage is still an area of science that could benefit from further refinement and economy of scale. Until then, the availability of resources that are non-carbon producing, renewable, and responsive to changes in the grid as well as relatively low cost such as hydroelectric power, is invaluable. Not only does hydro power spool up quickly when demand needs to be met, but it can also in some situations double as storage for excess power produced by the grid in times of low demand. It is much easier to control when the gates of a dam open than when the sun shines or the wind blows. Since the primary electro-physical issue faced by the power grid today is the increasingly bipolar shape of demand, the ability to shift to high production in a short amount of time is a great advantage. With this in mind, it is particularly disturbing to see the possibility of breaching or reducing the efficacy of the Lower Snake River Dams (LSRDs) in Multiple Objective Alternatives 3 and 4. The Draft EIS wisely rejects these alternatives, both of which would have extremely negative impacts on the hydropower system. To accept the loss of 1,000 1,300 average megawatts of hydropower production, especially in this time of national emergency and faltering economy, would seem the height of negligence when confronted with the issues of the electrical industry today.	The statements regarding the importance of hydropower as a reliable power source, and the ability of hydropower to integrate renewables and adjust generation to meet load are consistent with the findings of the EIS. Consistent with the comment, the EIS did identify battery storage as a potential solution for replacement sources. See Section 3.7.3.5 - Potential Replacement Resources and Associated Costs. Regarding the concern voiced by the comment regarding the loss of power under Multiple Objective alternative 3 and Multiple Objective alternative 4, the co-lead agencies developed a Preferred Alternative that provides an adequate, efficient, economical and reliable power supply and includes a combination of measures from all the alternatives with consideration of environmental, economic, and social effects.
6674	1	boleneus@gmail.com	N/A	My comment is attached. I included three images in the attached document. I would like to send a more readable version of images 1 and 3 if allowed. Combines the two images are approximately 3.5 MB in a single document which I have been unable to reduce size. Please use my email to request that I forward the larger document by other means.	The co-lead agencies are sorry for any technical difficulty experienced. It is accurate that the website had file size limitations that were listed for a single entry. That was not to limit you in your comments, but to alert you to submit in multiple entries either contact the CRSO info helpline, or mail your materials to the P.O. Box listed on the CRSO website and on other news and informational releases.
6674	2	boleneus@gmail.com	N/A	Theme: The region will not be supplied with adequate electric supply if the four dams on the Snake River are removed. The removal of dams will exacerbate supply problems worsened by Washingtons new electricity law. If the four dams on the Snake River are removed the supply of electricity will be at deficit conditions, permanently. IMAGE 1 [letter contains graph] shows the electric supply and load from Bonneville Power Administration during two weeks in November. All forms of electricity are included: Hydro, Fossil, Biomass, Wind and Nuclear. There is excess supply of electricity. Note the blue area, which includes all sources of supply exceeds the load. This is the current situation. The supply is adequate. It is comfortable. This data is provided by BPA. BPA transmits electricity to 120 utility customers with enough electricity to supply seven to nine (7-9) Seattles. The purpose in this comment is to shown how well the state is supplied with electricity today but that electricity after 2045 will not supply all customers full time. Three figures (images) are produced to compare today with the same two weeks in 2045 under conditions that will exist for two weeks in 2045 in addition to show how poorly is the performance of wind electric generation. IMAGE 1. SHOWS SUPPLY OF ELECTRICITY FROM THE BONNEVILLE POWER ADMINISTRATION SYSTEM DURING TWO WEEKS IN NOVEMBER 2019 COMPOSED OF WIND (RED), FOSSIL/BIOMASS (GREEN), NUCLEAR (ORANGE) AND HYDRO (BLUE). LOAD (or demand) IS THE BLACK LINE. TOTAL PERIOD SHOWN EACH WEEK IS 168 HOURS, A TOTAL OF 336 HOURS (only 226 hours of 336 are shown). NOTE, IN PARTICULAR THE WIND GENERATION (RED) IS NOT PRODUCING MUCH ELECTRICITY. WIND EXCEEDS 50% OF ITS CAPACITY FOR ONLY 16 HOURS (4.8%) DURING THE 336 HOURS SHOWN. The problem that will exist in the future when the new electricity law takes full effect, the Clean Electricity Transformation Act of 2019 in Washington, if the dams are removed involves a combination of problems that will develop and events to reduce supply that are not foreseen: 1. The new electricity law in Washington passed into law in 2019 requires that all fossil fuel sources are removed by 2025, requires that renewable forms of electricity provide supply for what is lost from fossil fuels. It also requires that Washingtons electricity can produce no carbon dioxide by 2040 or ZeroCarbon. The Zero Carbon adds to the developing dilemma.	The statement that Multiple Objective Alternative 3 (which includes breaching the four lower Snake River dams) would have substantial effects on the regional power system, requiring replacement resources to maintain reliability, is consistent with the findings of the EIS. See draft EIS, Section 3.7.3.5, Effects on Power System Reliability at page 3-903 and Appendix H, Table 2-1. The EIS did not analyze all potential effects of the Washington's Clean Energy Transformation Act legislation; however, it does acknowledge potential effects on regional reliability due to upcoming coal power plant retirements and finds that additional marginal renewable power resources would be needed, consistent with the concern voiced by the comment. Appendix H, Section 2.3, Sensitivity of LOLP to Assumptions about Coal Capacity, provides additional details. The statement also makes suggestions about concerns regarding the reliability of wind power; the EIS did not find wind cost-effective at improving power system reliability, and thus, did not include it in the base case resource portfolios. The graphic cited by the commenter appears to rely on data provided by Bonneville's transmission business line: https://transmission.bpa.gov/Business/operations/Wind/baltwg3.aspx. This graphic displays Bonneville's load and resource balance within its Balancing Authority Area, which includes non-Federal generation and load, and omits Federal generation and Federal load not located in the Bonneville Balancing Authority Area (BAA, the area for which Bonneville's transmission business line is responsible). The footnote to the table notes that this is the load in the BAA. It does not include all of the load served by the Federal Columbia River Power System(FCRPS) for which Bonneville's power business line is responsible. Bonneville sends power to customers that are in other BAAs. Conversely, some of the load within Bonneville's BAA is served by other power providers. Thus, this graphic does not assess whether power from the FCRPS is surplus.
6674	3	boleneus@gmail.com	N/A	2. Between 2025 and 2040 cap and trade will begin to take effect because Washington is not allowed to use carbon-emitting sources of electricity although through cap and trade with the electricity imported from other places but customers will be charged very large fees for the extra service that could amount to an extra 20 cents to 30 cents per kwhr. The carbon is not reduced as the electricity still emits carbon, but it is emitted somewhere else.	The EIS considers Washington's Clean Energy Transformation Act and examines the potential costs of carbon compliance including the Washington state fees for fossil-fuel generation mentioned in the comment (see Section 3.7.3.1, Additional Power Rate Sensitivity Analysis and Other Regional Cost Pressure Analysis, Cost of Carbon Compliance in the draft EIS).
6674	4	boleneus@gmail.com	N/A	3. By 2030 natural gas must be removed from the generation of electricity and must end completely by 2045. This ends all fossil fuel generation before 2045. Cap and trade will expand but cap and trade does not end the emission of carbon. Renewables will continue to expand at a high cost. The cost of electricity from wind generation in Ontario was estimate to cost 40 cents to 44 cents per kwhr. 4. The cost of electricity will continue to increase as renewable forms of energy expand while the actual supply will increase only slightly. A 100 % increase in renewables can only increase supply by 10%. The cost of renewables increases but the supply does not increase a similar amount. Renewables cannot replace fossil fuels but few understand this dilemma. Wind generation now in Washington amounts to 4,782 megawatts (MWs) that comes from about 3,000 wind turbines. Image 2 is a chart from BPA to show the number of days per month that the approximate 3,000 wind turbines produce no electricity over a period of 776 days from Jan. 1 2013 to Feb. 10 2015 when all turbines were producing. This is full demonstration of the wind deficit. The turbines are there but they produce almost no electricity. Note the number of autumn to wintertime days during the November 2013 to March 2014 is 18+15.4+10+18.2+10.2+9.2 days, a total of 81 days. The reason that wind turbines do not produce electricity is because the wind is calm most times during these periods when the need is greatest. It would not matter how many turbines are built, the turbines cannot produce electricity when wind is calm for several days and the deficit becomes far more severe during autumn-winter times. The deficit during the 776 day period is 265.2 days without electricity. During these times when wind is not producing electricity other forms of electricity must fill the deficit. Removing Snake River dams places electric supplies at great risk. IMAGE 2. SHOWS NUMBER OF DAYS PER MONTH THAT WIND GENERATION FALLS BELOW 5% OF CAPAICTY ON THE BONNEVILLE SYSTEM, A TOTAL OF 265.2 DAYS DURING THE 776 DAY PERIOD FOR JAN. 1 2013-FEB. 10 2016.	The comment analyzes wind power generation and notes the seasonality and variability of wind energy in the region, which is consistent with information presented in the EIS. In the renewables portfolio, the EIS did consider wind power as a potential replacement resource; however, wind power was not found to be cost-effective at improving regional power reliability compared to solar resources. See Appendix H, Power and Transmission, Section 2.3, page 2-12 in the Draft EIS. The EIS acknowledges the dispatchability issues of renewables, as noted by the comment, in Section 3.7.2.2, Power System Flexibility and Reliability.
6674	5	boleneus@gmail.com	N/A	5. The number of customers will increase by 1.25% to 1.5% per year enlarging customer load, the number of customers needing electricity by 2045 will increase by 37.5% All of these factors increase dependence while decreasing supply. Fast forward to 2045 as shown in image 3. The image 3 shows supplies of electricity remaining during the two week period in November 2045, with hydro supply decreasing by 11.5%, the amount now capable from	The comment states multiple concerns with the adequacy of the power system to meet growing demand in the future should loads increase and reliance on fossil fuels decline. While the specific calculations and analysis presented in the comment are not consistent with the findings of the EIS, the broader concerns about reliability of the future power system are consistent with discussions in the EIS.

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				the 4 Snake River dams and fossil supplies eliminated. The image shows load increasing by 37.5% to accommodate additional customers. It shows an additional 4,000 MWs of wind turbine capacity added to overcome the loss from the four dams. Wind capacity is now 4,000 MW + 4,792 MW = 8,782 MWs total. Also 82MW of solar/biomass are also added but solar only produces electricity during daylight hours. The result shown in the image is that the supply of electricity is at a deficit condition. The deficit, the amount of electricity demand that is failed to be supplied to households is 154,820 MWs. The demand line lies above the total amount of supply illustrated. This means that for any two week period in November that 259,765 residences cannot be supplied with electricity. This amount of electricity shortage equals the load for 5 to 6 counties in the State of Washington is another way of saying that customers in 5 to 6 Washington counties are denied electric supply. IMAGE 3. SHOWS THE TOTAL ELECTRICITY SUPPLY FOR THE BONNEVILLE SYSTEM FOR THE SAME TWO WEEK PERIOD USED ABOVE BUT FOR NOVEMBER 9-17, 2045 AFTER FOSSIL SOURCES ARE REMOVED and THE FOUR SNAKE RIVER DAMS ARE REMOVED. THE RENEWABLE SUPPLY IS INCREASED BY 82 MWs (SOLAR, BIOMASS) AND 4,000 WMs (WIND). AGAIN NOTE THE WIND (RED). WIND GENERATED ELECTRICITY CANNOT PROVIDE THE SUPPLY NEEDED TO REPLACE THE COMBINED LOSSES OF THE FOUR SNAKE RIVER DAMS AND THE FOSSIL SOURCES. THE WIND IS STILL MOST OF THE AUTUMN-WINTER MONTHS AND CANNOT GENERATE ELECTRICITY. IT DOES NOT MATTER HOW LARGE IS THE FLEET OF WIND TURBINES IF THE WIND IS NOT BLOWING. ANOTHER FACTOR IS THE SOLAR ONLY PRODUCES ELECTRICITY DURING WINTER ABOUT 3 HOURS PER DAY. THE RESULT IS THAT MORE THAN A QUARTER MILLION CUSTOMERS MUST GO WITHOUT AN ELECTRICITY SUPPLY. THE MAIN REASON IS THAT RENEWABLE FORMS OF ELECTRICITY CANNOT PROVIDE A FILL TIME SUPPLY. WHO ARE THE VOLUNTEERS TO GO WITHOUT ELECTRICITY? THE DEFICIT OF ELECTRICITY SUPPLY IS 154,820 MWs WHICH MEANS 259,765 HOUSEHOLDS MUST BE WITHOUT ELECTRICITY (YELLOW ARROWS AND YELLOW LINE). THE DEFICIT PRODUCED BY THIS CONDITION IS THE SAME AS SAYING: FOR THE 3,864,000 CUSTOMERS PROMISED ELECTRICITY THAT 3,670,000 CUSTOMERS MUST DO WITHOUT ELECTRICITY.	
6676	1	N/A	N/A	The document notes that breaching the dams would cost about $955 million or about $35.4 million a year over 50 years. However, it doesnt consider current operating losses, new construction costs and repairs of dams nor the taxpayer subsidies to the Port in Lewiston, barge companies and Portland Power and Electric. These last three are operating at a substantial loss and would have to be compensated. Breaching the dams would actually save the government nearly $79 million a year in dam maintenance costs and $32 million in capital costs. Comparing breaching with continuing the same failing strategy indicates that breaching operations and maintenance costs come to $477.5 million a year which is a DECREASE in expenditures of about $729,000 annually.	The cost analysis estimates the capital and O&M costs savings that would occur under MO3 (see Tables 4-1 and 5-1 in Appendix Q). The capital costs include additional construction and capital requirements that would be needed in the future to maintain the lower Snake River dams. Section 3.10 discusses the potential effects of currently operating barge companies in a dam breach scenario. If MO3, which includes the dam breach measure, were to be selected as the Preferred Alternative, further evaluation, studies, and NEPA would be needed along with congressional authorization and appropriations to assess the requirements of the project and to potentially compensate for the changes in river conditions.
6676	2	N/A	N/A	Some say that breaching the dams would adversely affect transportation of goods along the river. However, freight transport on the Lower Snake has been in decline for 20 years. Barges no longer carry paper, pulp, logs, lumber, petroleum, or agricultural products. The waterway has been abandoned in favor of truck and rail. Concurrently, costs of maintaining commercial navigation on the Lower Snake continue to rise and are subsidized by taxpayers. These transportation methods are not profitable for the ports, the barges, or for the power produced by the dams. The transportation costs are important to consider along with the livelihood of agriculture and fishing tourism. However, the costs of new construction of rail infrastructure and new energy sources are listed WITHOUT listing the operation losses of the existing power company and its outdated infrastructure, all subsidized by taxpayers. Therefore, the DEIS is lacking in critical data and analysis.	Access to barge transportation is the most cost effective means of accessing export markets for the many grain producers in the Northwest currently and removing that option will increase transportation costs for grain producers, as the EIS described in Section 3.10.3.5. It is true however, that barge movements on the Snake/Columbia river have declined over the past 20 years, but it also appears that the decline has stabilized over the past 10 years. The EIS finds that transportation of freight that is currently barged on the Lower Snake River could be accomplished via other transportation modes, but this change would not be without costs to farmers, would require public and private investment in infrastructure, and would result in some adverse regional economic effects, particularly in the short term.
6688	1	sarahjmadsen@me.com	N/A	The DEIS fails to honor treaty rights of the Nez Perce, Shoshone-Bannock, Umatilla, Warm Springs and Yakama tribes.	Tribal input, concerns, interests, and especially treaty rights were considered throughout the Draft EIS analyses and in the formulation of the Preferred Alternative. Treaty-specific information is included in Section 3.17 as well as Chapter 7. The co-lead agencies recognize and respect the legal obligations treaties impose. In terms of honoring our treaty obligations, the co-lead agencies comply with environmental laws and regulations and all other applicable Federal statutory and regulatory requirements, included "Protecting Native American treaty and reserved rights and fulfilling trust obligations for natural and cultural resources throughout the environment affected by the Columbia River System operations" as a purpose in the Purpose and Need Statement in Chapter 1 to ensure treaty obligations were a key consideration of decision-making. The co-lead agencies are engaging in government-to-government consultation with the tribes, and several tribes are cooperating agencies on the CRSO EIS. Treaty rights are discussed in the Executive Summary, Section 3.16, Cultural Resources, and Section 3.17, Indian Trust Assets, Tribal Perspectives, and Tribal Interests and Chapter 7, Preferred Alternative. Tribal consultation is described in Sections 1.5, 3.5, and 3.15; and Chapter 9. Most sub-sections within Chapter 3 include a Tribal Interests section at the end of the sub-section that attempts to summarize tribal issues by topic.
6691	1	maggieevans1998@gmail.com	N/A	The report does not discuss the consequences of river impoundment and hatchery rearing on the reproductive success and survival rate of the river's fish populations (Marschall et al, 2011). Due to a multitude of factors, with dams being one of the most impactful, the abundance of fish has drastically decreased over the course of the century. To accommodate for the dwindling fish populations, hatcheries have attempted to mitigate the decreasing fish populations who are disappearing due to the ongoing destruction and alteration of their habitat.The mitigation process, however, is not enough to maintain or restore the decreasing fish populations or support the organisms who are highly dependent upon them as a food source. Studies have also shown that the death rate of hatchery fish is much higher than that of wild fish (Plumb et al, 2005). In addition to there being a low survival rate among hatchery fish, studies have shown that the amount of time taken by hatchery fish to migrate down river and navigate the impoundments takes approximately twice as long as the period of time taken by wild fish populations who are already facing migration delays due to decreased water velocity caused by dam reservoirs (Johnson et al, 2019). The period of time taken while migrating downstream is critically important to other organisms who are dependent upon the fish for survival, and wild fish populations who are able to migrate in a more timely manner are not large enough to continue to sustain these species. Because the dams increase the period of time needed for wild and hatchery fish to migrate downstream, the synchronicity of migration patterns between native fish and other native organisms has been thrown off, causing a decrease in the population size or even the extinction of many important species, including apex predators such as orcas and bears. The end result will be a trophic cascade that will alter the entire ecosystem system at whole.	Hatchery programs have long been a part of the approach for salmon recovery. Based on our analysis of fish resources in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Under this alternative, hatchery programs would continue as under the No Action Alternative, and a number of other mitigation measures would continue as well, but no new hatchery operations are proposed. Many ESUs/DPSs of ESA-listed fish include fish produced in hatcheries. Hatchery origin fish are very important to Tribal and sport harvest in within the Columbia River Basin, and many hatchery programs are important supplementation to rebuilding natural populations. Further, the three co-lead agencies have legal requirement to produce hatchery fish as mitigation for components of the CRS. The effects of hatchery programs on ESA-listed fish are evaluated through individual consultations under the Endangered Species Act. Changes in fish travel time through the CRS was a key metric analyzed and reported from both the NOAA models as well as the CSS models. The co-lead agencies conclude there could be a negligible to minor beneficial effects to SRKW from implementing MO3. CSS and NMFS Lifecycle models predict that lower Snake River Chinook salmon smolt-to-adult returns would have a moderate to major increase under MO3. Operation of Lower Snake River Compensation Plan fish hatcheries under MO3 is uncertain and therefore, production of Snake River hatchery fish is assumed to decline over the long term, while returning adult wild salmon are anticipated to increase. However, the co-leads do not anticipate a lack of hatchery fish in the short term based on the proposed fish hatchery mitigation described in Chapter 5. These additional hatchery fish should mitigate short-term construction effects to Snake River populations. Additionally, to address short-term effects to ESA-listed species, the co-lead agencies propose constructing a new trap and haul facility at McNary and conducting at least two years of trap and haul operations for Snake River fish (Chinook, sockeye, and steelhead). The co-lead agencies agree that the quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differently from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020).
6691	2	maggieevans1998@gmail.com	N/A	Another factor that the report failed to address was the important role that free flowing rivers have on the hydrological cycle, as well as the dispersion of nutrients and sediment. It did not mention the multitude of negative impacts that the dams are having on riparian, marine, estuarine, and freshwater ecosystems that are heavily dependent upon these sources to maintain their natural functions. According to a study by Hydrology and Earth System Sciences, anthropogenic impacts have resulted in up to 100% decrease in annual natural river discharge, with the western USA being one of the most heavily affected (Doll et al, 2009). The study also found a positive correlation between decreased river discharge and decreased fish abundance within the river basins. Sediment deposition downstream, as well as in estuaries and marine environments, have been drastically reduced over the years due to dam blockage, causing extreme environmental alterations, resulting in the collapse of important ecosystems that are no longer habitable for the native species that once thrived.	The effects that dams have on natural riverine processes are discussed in Chapter 3 of the EIS, as well as in Technical Appendix D.
6692	1	nina.englander@doj.state.or.us	Oregon Department of Justice	Unreasonable schedule that drives inadequate analyses. The lead federal agencies (Army Corps of Engineering [ACOE], Bureau of Reclamation [BOR], and Bonneville Power Administration [BPA]) proceeded with an accelerated and arbitrary schedule, dictated by Executive Order, to develop the CRSO DEIS by February 28, 2020, complete the public comment period by April 13, 2020, and have a Record of Decision (ROD) by September 2020. This timeline is significantly shorter than the court-ordered NEPA schedule, which the federal agencies informed the Court was the minimum schedule that would allow them to do [the NEPA process] right." NWF v. NMFS, 3:01-cv-00640-SI, ECF No. 2070 at 5 (June 3, 2016). This abbreviated schedule simply did not provide the lead federal agencies enough time for their technical teams to conduct thorough and robust analyses required by NEPA. Taking time to do the necessary work is essential for such a complex system of 14 dams. The rush to produce the document is evident in the technical shortcomings of the CROS DEIS, as expressed below and in our attached technical comments.	NEPA requires agencies to consider the significant environmental consequences of their proposed actions and inform the public about their decision making. NEPA also requires that the agencies look at a reasonable range of alternatives that can meet the purpose and need of the action. To meet this requirement of NEPA, after evaluating scoping comments from the public, the co-lead agencies collaborated with cooperating agencies in teams of technical experts through several iterations to create 12 alternatives that could meet the CRSO EIS Purpose and Need Statement: first, eight single objective alternatives, and then four multiple objective alternative (MOs). The MOs were determined to be more efficient and reasonable, as the MOs were composed of combinations of measures from the single objective alternatives and could meet a variety of the defined objectives as well as the Purpose and Need Statement. The Draft EIS considered the environmental consequences of the range of alternatives and disclosed to the public those consequences through Chapters 3, 4, 5, 6, and 7. The Draft EIS meets the requirements of NEPA, as outlined in 42 U.S.C. 4331, et seq., 40 C.F.R. Parts 1500 1508 (CEQs regulations for implementing NEPA), and co-lead agency specific NEPA regulations. The co-lead agencies were not able to extend the timeline to prepare the EIS and they considered requests to extend the public comment period. This NEPA process included a wide array of cooperating agencies whose close involvement throughout the process allowed the co-lead agencies to incorporate feedback. Given the broad range of comments received and the extensive Federal and non-Federal participation in the overall process as well as the level of public engagement in the six virtual public hearings in the region, the co-lead agencies determined that an extension was not warranted and that the 45-day public comment period was adequate as per NEPA regulations. The CRSO website reminded the public on April 9, that they should plan to submit comments by the close of the comment period.
6692	2	nina.englander@doj.state.or.us	Oregon Department of Justice	Compressed public comment period; denied request for extension. I wrote to you on March 27, 2020, and expressed concern about the national health emergency related to the Coronavirus Disease-2019, and its associated impact on the CRSO DEIS public comment schedule. In particular, the CRSO DEIS was released for public comment on February 28, 2020. Two weeks later, on March 13, 2020, President Trump declared a national emergency concerning the outbreak of COVID19. On March 23, 2020, I issued Executive Order 20-12, which requires all Oregonians to stay home unless absolutely necessary. I have also ordered all Oregon schools closed for the remainder of this school year. President Trump declared COVID-19 Declarations of Disaster for Washington on March 22, Oregon on March 29, and Idaho on April 9. In light of these extraordinary circumstances, the ability of all Oregonians including Oregon state agenciesto review and provide thorough comments on the voluminous CRSO DEIS was severely constrained. Similar requests for extension to the public comment period were echoed in separate letters from the federal delegation and numerous Non-Governmental Organizations. Even before the COVID-19 crisis the ACOE recognized the likelihood of an extension in a court filing, stating [i]n light of the publics interest in a meaningful opportunity to comment on a draft EIS that addresses numerous complicated and potentially controversial topics, an extension of the 45 day regulatory minimum period for public comment will likely be warranted (as is often the case for complex NEPA processes). NWF v. NMFS, 3:01-	The co-lead agencies considered requests to extend the public comment period. This NEPA process included a wide array of cooperating agencies whose close involvement throughout the process allowed the co-lead agencies to incorporate feedback. Given the broad range of comments received and the extensive Federal and non-Federal participation in the overall process as well as the level of public engagement in the six virtual public meetings in the region, the co-lead agencies determined that an extension was not warranted and that the 45-day public comment period was adequate consistent with NEPA regulations. On April 9, the CRSO EIS website was updated to inform the public that they should plan to submit comments by the close of the comment period.

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				cv-00640-SI, ECF No. 2070 at 15 (June 3, 2016). Despite these extraordinary circumstances, on April 7, 2020, the ACOE denied all requests for extension. I am perplexed and disappointed in this decision by ACOE, especially considering the COVID-19 pandemic is the most significant public health emergency in the past 100 years.	
6692	3	nina.englander@doj.state.or.us	Oregon Department of Justice	Dismissal of Snake River dam removal option without thorough analysis. As you know, Oregon is actively engaged in a long-standing effort to recover salmon and steelhead in the Columbia Basin as a vital part of our ecological, cultural and economic heritage and prosperity. The science is clear that removing the earthen portions of the four lower Snake River dams is the most certain and robust solution to Snake River salmon and steelhead recovery. No other action has the potential to improve overall survival two- to three-fold and simultaneously address both the orca and salmon recovery dilemma. This option reduces direct and delayed mortality of wild and hatchery salmon associated with dam and reservoir passage and provides the most resilience to climate change (e.g., reduced thermal loading in the lower Snake and Columbia rivers and better access to and from the alpine headwaters most resilient to shrinking snowpacks). These likely benefits to salmon and steelhead need to be assessed along with the impacts to power generation, irrigation, flood control, and river-dependent commerce, and how these sectors can be made whole or provided reasonable offsets associated with potential removal of the Snake River dams. The Northwest Power and Conservation Council can provide the necessary assessment of long-term costs to the power section and how they may be mitigated. Additional studies will be needed to address impacts to and offsets for irrigation, flood management, and river-dependent commerce. The CRSO DEIS does not include this comprehensive and robust assessment of the removal of the Snake River dams, and hence does not meet the standards of NEPA.	The co-lead agencies understand and acknowledge that model estimates for the MO3 alternative that includes dam breaching showed the greatest predicted potential smolt-to-adult returns (SARs) for Snake River salmon and steelhead among the alternatives. The purpose of the analysis in the EIS is not limited to salmon issues. The EIS analysis provides analysis of multiple objectives and resources of the CRS including flood risk management, water supply, hydropower generation, fish and wildlife conservation (including a variety of other species than salmon and steelhead), navigation, cultural resources, recreation and other environmental and socioeconomic resources. In addition, the EIS seeks to identify a Preferred Alternative that achieves a reasonable balance of multiple river resource needs and co-lead agency mission requirements. In addition to the benefits for Snake River salmon and steelhead of dam breaching, the analysis showed major adverse impacts, particularly to navigation, irrigation, and power supply and reliability. Dam breaching would substantially increase the likelihood of a blackout. Different models predict different long-term survival benefits to ESA-listed species from dam breach, benefits that can contribute to recovery. Under the NMFS Comprehensive Passage (COMPASS) model, juvenile Snake River spring/summer Chinook in-river survival would improve by 9.6% due to dam breach, which is a 19% relative increase over the No Action Alternative. The NMFS Lifecycle Model predicts an increase in adult returns of 13.6% for these same fish under MO3 (no latent mortality assumed) relative to the No Action Alternative (from 0.88% to 1%). Results for Snake River steelhead are similar (10% absolute improvement, or 23% relative juvenile survival increase - smolt-to-adult returns (SARs) for steelhead were not modeled). SAR is the rate at which of a group of fish survive from their smolt life stage to a defined ending point where they return as adult. Under the Comparative Survival Study (CSS) model, juvenile in-river survival for the Snake River spring/summer Chinook is predicted to improve by 10.4% due to dam breach, which is an 18% relative increase over the No Action Alternative, while SARs would increase by 115% (from 2% to 4.2% 0.02 to 0.042). The CSS model predicts that Snake River steelhead would see juvenile survival increase by 25.8% which is a 46% relative increase over the No Action Alternative. The CSS model also predicts that SAR increase by 177% (from 1.8% to 5%). Though differing in predictions, both modeling groups predict dam breaching is the best CRSO EIS alternative for salmon and steelhead. One simply predicts adult return increases an order of magnitude higher than the other. We understand and acknowledge that model estimates for the alternative that includes dam breaching showed the greatest predicted potential smolt-to-adult returns (SARs) for Snake River salmon and steelhead among the alternatives, as well as other effects to species in both the upper and lower Columbia River. Regarding Southern Resident Killer Whales (SRKW), the population dynamics of the SRKW are complicated, and there is no one factor that contributes to the overall success of this species; however, the co-lead agencies agree that the quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Additionally, Section 7.7.8 states impacts to Southern Resident killer whales would be negligible. Thus, the co-lead agencies expect salmon and steelhead increases would come from operational measures and existing hatchery production carried forward into the Preferred Alternative. These hatcheries include conservation and safety net hatcheries, as well as through the continued existence of certain independent Congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as the Lower Snake River Compensation Plan, which is administered by USFWS. Moreover, NMFS concluded in its 2020 CRS BiOp that operations, maintenance and configuration of the CRS is not likely to adversely affect SRKW. The CRSO EIS meets or exceeds Federal standards for an EIS. The document fully complies with CEQs Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act (40 CFR Parts 1500-1508). In addition, processes for evaluation were guided by the overarching procedures described in the Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies (42 USC 1962a-2). Finally, the co-lead agencies have the expertise to analyze the power impacts, costs and potential mitigation actions and coordinated, at appropriate times with the Northwest Power and Conservation Council.
6692	4	nina.englander@doj.state.or.us	Oregon Department of Justice	Additional technical shortcomings. NEPA requires utilization of high quality information and accurate scientific analysis, as well as professional integrity, including scientific integrity, of the discussions and analyses within an EIS. Oregon state agencies have identified numerous errors and deficient analyses in the draft EIS, as detailed in our comments, which the action agencies must address in the final EIS to appropriately disclose and objectively analyze potential significant environmental impacts. The CRSO DEIS fails to identify an environmentally preferred alternative; identify a preferred alternative that satisfies the purpose and need statement; utilize high quality information and accurate scientific analyses; adequately and equitably analyze water quality, climate, and socioeconomic impacts across resources; and identify and implement reasonable mitigation measures.	NEPA does not require an EIS to include the environmentally preferable alternative. As discussed in the Council on Environmental Quality's NEPA Regulations, the environmentally preferable alternative must be identified in the Record of Decision. (see 40 C.F.R. 1505.2, "The record, which may be integrated into any other record prepared by the agency, including that required by OMB Circular A95 (Revised), part I, sections 6(c) and (d), and part II, section 5(b)(4), shall: (a) State what the decision was. (b) Identify all alternatives considered by the agency in reaching its decision, specifying the alternative or alternatives which were considered to be environmentally preferable...."). Here, the co-lead agencies wanted to benefit from public comments on the draft and final EIS before identifying the environmentally preferable alternative and will use this information to select the Preferred Alternative and identify the environmentally Preferable Alternative in their Record of Decision. Thus, not identifying the environmentally preferable alternative in the draft EIS is not a supplementation trigger under NEPA. The co-lead agencies have utilized the most current, highest quality, best available references to analyze the effects of action alternatives. NEPA requires federal agencies to assess the environmental effects of their proposed actions prior to making decisions. The Draft EIS provides a comprehensive and unbiased analysis of the effects of the alternatives and Preferred Alternative, while also considering cumulative effects within the basin, inclusive of potential mitigation actions proposed for certain resources and alternatives as described in Chapter 5.
6692	5	nina.englander@doj.state.or.us	Oregon Department of Justice	The CRSO DEIS can be used to evaluate a bridge to a more sustainable future for salmon and steelhead, while concurrently maintaining economic growth, necessary flood management for the Pacific Northwest, and protecting the viability of the hydropower system that has long provided the foundation of affordable energy for the region. If the EIS is modified to comply with NEPA as described herein, subsequent implementation of the Preferred Alternative with more robust fish measures can be an acceptable interim step if matched with a commitment and funding from the lead federal agencies to timely perform all necessary studies and analyses for refinement and clarity related to adaptive management and long-term plans for the CRSO, including preparing for potential removal of the lower Snake River dams. The process must be based on established science and have enough specificity to assure a longterm solution for salmon and steelhead, while maintaining operation of the CRS in a manner that recognizes the importance of the hydropower system to meeting the states economic and climate goals. This vision of the future can only be realized with leadership from and strong collaboration with the four states (Oregon, Washington, Montana and Idaho). It must include a formal partnership with the federal lead agencies, NOAA Fisheries, and the federally recognized tribal governments. The process to formulate that vision must also provide meaningful engagement with and input from the public and others who depend on the Columbia River System, including the energy sector, agriculture, and navigation interests. It can draw upon the work of NOAAs Columbia Basin Partnership that seeks a collaborative approach to comprehensive, integrated solutions for salmon management with full consideration of energy, agriculture, transportation, recreation, and other community needs.	The co-lead agencies recognize the desire to continue the conversation across the region about the future of salmon recovery, affordable and reliable clean electricity, tribal perspectives, and economic vitality for the many people who depend on the CRS for their way of life. The co-lead agencies will be active participants in regional discussions and solutions achieving broader recovery objectives. The Preferred Alternative for long-term system operations, maintenance and configuration of the CRS presented in the Draft EIS is based on todays conditions and environment. Its also important to note that technology is quickly changing, as is the regions dynamic environment and energy market, and the region needs to consider new information and adaptively manage resources. The co-lead agencies recognize that no matter which alternative in the CRSO Draft EIS is identified as the Preferred Alternative, the identification would likely draw criticism from some stakeholders or sovereigns. The region includes stakeholders, sovereigns, and other interested parties with diverse and varied opinions on these very important topics, and many are strong in the belief that their perspective is the best path forward. It is important to keep in mind that factors, both human-caused and natural, that are outside the responsibility and control of the co-lead Federal agencies also contribute to the decline and recovery of fish, and will continue to strongly influence fish and their habitat. Salmon and steelhead have been adversely affected in the Columbia River Basin over the last century by many activities including human population growth, urbanization, introduction of exotic species, overfishing, development of cities and other land uses in the floodplains, water diversions for all purposes, dams, mining, farming, ranching, logging, hatchery production, predation, ocean conditions, and loss of habitat. Operation, configuration and maintenance of the Columbia River System requires mitigation for its effects, and the EIS is not intended or required to serve as an overall salmon recovery plan for the region. All of the human-caused impacts that have contributed to the decline of fish, and how the region should properly and effectively address those impacts, should be part of the continued regional discussion. The co-lead agencies look forward to participating in that discussion. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% (the lower end of Northwest Power and Conservation Council's recovery targets for the region) as a result of the Preferred Alternative, as a result of the Preferred Alternative increasing SAR from 2.0% to 2.7% for Chinook, a 35% relative increase. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. To address uncertainty highlighted by the two models, the Preferred Alternative includes working with regional sovereigns to develop a study that assess the effectiveness of the increased spill regime on adult returns as well as assessment and management of adverse unintended consequences, such as long delays of adult migrants, or TDG-related mortality of juvenile migrants. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information. The Preferred Alternative will make a meaningful contribution towards recovery.
6692	6	nina.englander@doj.state.or.us	Oregon Department of Justice	The State of Oregon, by and through its Departments of Environmental Quality, Fish and Wildlife, Energy, Water Resources and Agriculture, reviewed and analyzed the draft Environmental Impact Statement (Draft EIS) to ensure it provides a full and fair disclosure of the significant environmental impacts of the proposed Columbia Rivers System Operations (the Project). Unfortunately, Oregon finds that this draft EIS fails in several respects to meet the requirements of the National Environmental Policy Act (NEPA). It bears repeating that the purpose of this Columbia River System Operations (CRSO) court-ordered NEPA process was to force the consideration of environmental impacts in the decision-making process. * * * [T]o consider more aggressive changes to the [CRSO] to save the imperiled listed species.1 In the courts mandate it cited the benefits of the required NEPA analysis as potentially allowing the agencies, public, and public officials to evaluate system alterations even those outside of the statutory authority of the action agencies to finally be able to break through any bureaucratic logjam that maintains the status quo.2 The Draft EIS fails to meet this court-ordered mandate, and fails to meet NEPA requirements. Remedy is still possible. The errors made in this Draft EIS can be corrected and the legal deficiencies can be remedied. The public, agencies, and all decisionmakers are better served by a Final EIS that is comprehensive, accurate, objective, and transparent in its identification and disclosure of CRSO environmental impacts and a reasonable range of alternatives to that action.	NEPA requires agencies to consider the significant environmental consequences of their proposed actions and inform the public about their decision making. NEPA also requires that the agencies look at a reasonable range of alternatives that can meet the purpose and need of the action. To meet this requirement of NEPA, after evaluating scoping comments from the public, the co-lead agencies collaborated with cooperating agencies in teams of technical experts through several iterations to create 12 alternatives that could meet the CRSO EIS Purpose and Need Statement: first, eight single objective alternatives, and then four MOs. The MOs were also determined to be more efficient and reasonable, as the MOs were composed of combinations of measures from the single objective alternatives. The Draft EIS considered the environmental consequences of the range of alternatives and disclosed to the public those consequences through Chapters 3, 4, 5, 6, and 7. The Draft EIS meets the requirements of NEPA, as outlined in 42 U.S.C. 4331, et seq., 40 C.F.R. Parts 1500 1508 (CEQs regulations for implementing NEPA), and co-lead agency specific NEPA regulations.
6692	7	nina.englander@doj.state.or.us	Oregon Department of Justice	Final EIS Must Include a Dam Breach Alternative Without Inclusion of Other Measures that Obscure Beneficial Impacts to Listed Species The Ninth Circuit has explained: The touchstone for our inquiry is whether an EIS's selection and discussion of alternatives fosters informed decision-making and informed public participation.3 Here, the action agencies choice to combine measures (e.g., structural components and operations of the CRSO) in each alternative that have opposing effects on the environment prevent informed decision-making by masking the environmental impacts of individual measures, effectively undermining any ability of decisionmakers or the public to discern the environmental benefits or adverse impacts of particular measures. For example, each alternative is a combination of measures with differing objectives, with consequent opposing effects on the human environment. In short, the action agencies process of screening alternatives and recombination of measures into multiple objective alternatives has sacrificed the ability to discern the environmental impacts of key measures in comparative form resulting in complete masking of benefits of certain measures. This choice has eliminated the opportunity to discern each measures, and consequently, each alternatives comparative merit. In addition, the Ninth Circuit has also clarified that [t]he existence of a viable but unexamined alternative renders an environmental impact statement inadequate.4 Oregon urges the action agencies to review and consider the proffered reasonable alternative for inclusion in the Final EIS.5 The public and public officials deserve to understand the environmental consequences of all reasonable alternatives, including the adverse impacts associated with the status quo as well the potential benefits of innovative solutions that may be outside of the action agencies existing authority.6 As the Ninth Circuit has warned, [i]t is precisely this sort of uncritical[] privileging of one form of use over another that we have held violates NEPA.	See response to Comment 6692-21. The co-lead agencies complied with NEPA by using high quality information in the EIS and making this information available to the public for review and comment. The analysis in the EIS and from public comments will be used to inform the co-lead agencies' decision in the Record of Decision. Although Fish and Wildlife is one of the authorized purposes, it is not the only purpose, and the co-lead agencies must balance all resources, and sometimes focus some purposes over others. The analysis of the Multiple Objective alternatives reflect these trade-offs and have allowed the co-lead agencies to understand the effects of emphasizing some purposes over others to seek the most acceptable balance for future operations. The Multiple Objective alternatives relied on preliminary analysis of the Single Objective alternatives to inform the combination of alternatives analyzed in the final range. The measures in the final range of alternatives were combined in deliberate ways to display the trade-offs inherent in the operation of such a complex system. The EIS clearly describes the effects analysis in Chapters 3, 4, 6, and 7.
6692	8	nina.englander@doj.state.or.us	Oregon Department of Justice	Lastly, Oregon urges the action agencies to comply with NEPAs requirement to consider whether it can carry out its proposed action in a less environmentally damaging manner, and to 3 Calif. v. Block, 690 F.2d 753, 767 (9th Cir.1982); see also 'Ilio'ulaokalani Coal. v. Rumsfeld, 464 F.3d 1083, 1094 (9th Cir. 2006) (We make a pragmatic judgment whether the [Environmental Impact Statement's] form, content and preparation foster both informed decisionmaking and informed public participation.) (quoting City of CarmelByTheSea v. U.S. Dep't of Transp., 123 F.3d 1142, 115051 (9th Cir.1997) (internal quotation marks omitted)). 4 Morongo, 161 F.3d at 575 (internal quotations and citations omitted). 5 See United Neighbors United,	The co-lead agencies disagree that the EIS focuses on a strict adherence to statutory authorities as evidenced by the co-lead agencies evaluation of breaching the four lower Snake River dams - an alternative outside existing co-lead agency authority. Moreover, the Preferred Alternative is not simply a modification of existing operations. The spill operation for juvenile fish passage in the Preferred Alternative is a significant departure from previous operations, so much so that the Washington and Oregon state water quality standards had to be changed to implement the new spill regime. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. The CSS model, predicts that median Smolt to Adult return rates would increase for both Snake River spring Chinook and steelhead and would average well above 2% (the lower end of Northwest

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				Inc. v. Jewell, 831 F.3d 564, 577 (D.C. Cir. 2016) (holding failure to examine an alternative that results in less take of endangered species was error because it would better inform public by sharply defining the issues and providing a clear basis for choice among options) (quoting 40 C.F.R. 1502.14). 6 NWF v. NMFS, 184 F. Supp. 3d 861, 947-48 (D. Or. 2016) (One of the benefits of a NEPA analysis, which requires that all reasonable alternatives be analyzed, is that it allows innovative solutions to be considered and may finally be able to break through any bureaucratic logjam that maintains the status quo.). 7 See Oregon Nat. Desert Assn v. BLM, 625 F.3d 1092, 1124 (9th Cir. 2010) (quoting California v. Block, 690 F.2d 753, 767 (9th Cir. 1982) 4 select an environmentally-preferred alternative.8 NEPAs purpose is undermined where, as here, the action agencies refuse to abandon strict adherence to its existing statutory authorities. This causes two issues. First, it led the action agencies to propose a preferred alternative that merely adds a few modifications to its existing operations, which result only in a slight improvement in environmental benefits. This error is compounded by failure to include analysis of single objectives, and instead, the Draft EIS analysis includes description of alternatives that include multiple objectives that once combined prevent informed decision-making. Second, the action agencies include in their purpose and need statement fulfillment of statutory authorizations, which directly results in exclusion of any alternative that may require additional authority from Congress. For example, NEPA requires analysis of even those alternatives outside of the authority of the action agencies. The record of decision must identify all alternatives considered and specify the alternatives considered environmentally preferable. While an agency may discuss a preferred alternative in light of its statutory missions (or even economic considerations), what the agencies have done here is preclude selection of a reasonable alternative by having its purpose and need statement include carrying out its existing statutory authorizations.	Power and Conservation Council's recovery targets for the region) as a result of the Preferred Alternative (increasing from 2.0% to 2.7% for Chinook, a 35% relative increase). And even though the Preferred Alternative is a multiple objective alternative, this is not a detriment, as the comment suggests. Rather, it allows analysis of the EIS objectives, separately and together, to determine the beneficial and adverse effects. Finally, consistent with NEPA, the agencies developed a Purpose and Need Statement that allowed it to evaluate alternatives within and outside existing authorities. If the agencies selected MO3, which includes breaching the four lower Snake River dams, as the Preferred Alternative in its Record of Decision, the agencies would use this EIS to seek Congressional authorization and appropriations to breach these dams.
6692	9	nina.englander@doj.state.or.us	Oregon Department of Justice	Oregon urges the Final EIS to correct the purpose and need statement as well as to incorporate throughout analysis of the proffered feasible, reasonable alternative, as an environmentally preferred alternative. Significantly, if a supplemental Draft EIS is issued that corrects these errors, Oregon is not stating that the action agencies must select the environmentally-preferred alternative nor that this alternative cannot be eliminated as the preferred alternative for potentially-legally sound reasons (example, required delay in ability to implement). Oregon is requesting only adherence to NEPA to adequately and fairly disclose and discuss all reasonable alternatives to inform the public and decision-makers of their environmental consequences. Oregon rejects the Draft EISs attempt to obscure and distort the environmental effects of breaching the lower Snake River dams, or otherwise, its omission of an option with more beneficial outcomes for imperiled species. Even if that reasonable alternative is not the eventually chosen preferred alternative, the region deserves an objective, complete analysis of the actual environmental impacts of breaching one or more of the lower Snake River dams.	NEPA does not require an EIS to include the environmentally preferable alternative. As discussed in the Council on Environmental Quality's NEPA Regulations, the environmentally preferable alternative must be identified in the Record of Decision. (see 40 C.F.R. 1505.2, "The record, which may be integrated into any other record prepared by the agency, including that required by OMB Circular A95 (Revised), part I, sections 6(c) and (d), and part II, section 5(b)(4), shall: (a) State what the decision was. (b) Identify all alternatives considered by the agency in reaching its decision, specifying the alternative or alternatives which were considered to be environmentally preferable...."). Here, the co-lead agencies wanted to benefit from public comments on the draft and final EIS before identifying the environmentally preferable alternative and will use this information to select the Preferred Alternative and identify the environmentally Preferable Alternative in their Record of Decision. Thus, not identifying the environmentally preferable alternative in the draft EIS is not a supplementation trigger under NEPA. Moreover, the preliminary analysis of the Single Objective alternatives informed the combination of measures which make up the final range of alternatives for analysis in this EIS. The CRS is a complex system with competing authorities. As such, the co-lead agencies needed to develop reasonable alternatives that could be used to operate the CRS into the future. A lower Snake River dam breach alternative would not account for operations of the rest of the system of projects and EIS purposes. The co-lead agencies, with assistance from the cooperating agencies developed a reasonable range of alternatives that could or would realistically be implemented, these alternatives were developed and analyzed. The co-lead agencies disagree that an alternative that only evaluates breaching the four lower Snake River dam is a complete or implementable alternative. The Draft EIS contains a range of alternatives intended to emphasize trade-offs required to balance competing needs in a complex system. The intent of the EIS, as stated in the Purpose and Need Statement, is to provide a plan for operations and configuration of the CRS. An EIS that presented alternatives focused only on breaching the four lower Snake River dams, as you suggest, would not provide a reasonable range of alternatives as required by NEPA. Finally, the EIS clearly articulates the impacts, costs and benefits of breaching the four lower Snake River dams.
6692	10	nina.englander@doj.state.or.us	Oregon Department of Justice	Analysis in Draft EIS is Inadequate, Inaccurate (Errors and Omissions), Evidences Bias, and Lacks Scientific Rigor NEPA requires that the Action Agencies utilize high quality information and accurate scientific analysis,9 and ensure professional integrity, including scientific integrity, of the discussions and analyses within an EIS.10 Oregon state agencies have identified numerous errors and deficient analysis in the Draft EIS, as specifically set forth below, which the action agencies must address in the Final EIS to appropriately disclose and objectively analyze potential 8 See 40 C.F.R. 1505.2(b). 9 See 40 C.F.R. 1500.1(b). 10 40 C.F.R. 1502.24. 5 significant environmental impacts to comply with that mandate.11 Further, Oregon urges the action agencies to consider removing the extraneous discussions as indicated below], as well as discussion of socioeconomic effects unrelated to environmental impacts of the CRSO. An EISs purpose is to disclose environmental impacts of the proposed action and reasonable alternatives to that action. The action agencies go to great lengths to instead discuss socioeconomic impacts on the region as a result of changes in proposed operations of the hydrosystem in contrast to the short shrift given to the proposed operations impacts on the natural and physical environment and the relationship of people with that environment.12 This appears to be the reverse situation than that discussed in Metro Edison, where here, the action agencies instead of plaintiffs attempt to utilize the Draft EIS to air [its] policy objections to reasonable alternatives involving changes in CRSO structures and operations.13 But the U.S. Supreme Courts statement is equally applicable that [t]he political process, and not NEPA provides the appropriate forum in which to air policy disagreements.14 The Final EIS should eliminate this evidence of bias. Instead, the action agencies using objective, scientific rigor must allow the public and decision-makers to assess comparative merit of alternatives in light of their environmental impacts.	The EIS evaluates the performance of the CRSO EIS alternatives with respect to multiple stated objectives, for example related to improving fish passage and survival, reliable power generation, and minimizing greenhouse gas emissions. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the EIS objectives) as well as the EIS objectives for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. The Preferred Alternative is also more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. The EIS evaluated benefits and adverse effects across an array of resource areas including potential effects at the national, regional and local level. Consistent with NEPA analysis framework, the beneficial and adverse effects are expressed as a variety of qualitative and quantitative environmental and economic metrics. The co-lead agencies invited a number of entities (including Tribes, states, and agencies) from across the region to participate in the EIS process as cooperating agencies, and over 30 of those invited agreed to participate. Staff from the Cooperating Agencies joined the technical teams and provided their expertise and review of the development and analysis of the alternatives. Leaders from the co-lead agencies met with Tribal leaders for formal consultation, and with other organizations and stakeholders to have dialogue and receive feedback as the EIS progressed. However, only the co-lead agencies have authority to make decisions regarding future operation, maintenance and configuration of the dams in the CRS system. The co-lead agencies selected senior staff from across the country with expertise in their fields to serve on the EIS team. The draft EIS was subjected to two internal agency reviews by the Corps of Engineers experts not involved in the development of the document. Additionally, the entire document, analysis, and modeling were reviewed following an Independent External Peer Review (IEPR) process that meets OMB circular on peer review requirements under the "Information Quality Act" and the Final Information Quality Bulletin for Peer Review by the Office of Management and Budget (referred to as the "OMB Peer Review Bulletin). It also meets guidance for the implementation of both Sections 2034 and 2035 of the Water Resources Development Act (WRDA) of 2007 (Public Law (P.L.) 110-114) and standards of the National Academy of Sciences independent peer review. The final IEPR report will be publicly available. Also, see response to Comment 6692-3.
6692	11	nina.englander@doj.state.or.us	Oregon Department of Justice	Draft EIS Fails to Include Identification or Adequate Analysis of Proposed Mitigation The U.S. Supreme Court has stated that omission of a reasonably complete discussion of possible mitigation measures [] undermine[s] the action-forcing function of NEPA. Without such a discussion, neither the agency nor other interested groups and individuals can properly evaluate the severity of the adverse effects.15 The Draft EIS includes a mere listing of potential mitigation without information or discussion regarding why such measures will be effective. NEPA requires that mitigation must be developed where it is feasible to do so, including identification of [a]ll relevant, reasonable mitigation measures.16 This Draft EIS falls far short 11 See 40 C.F.R. 1502.2f). 12 See 40 C.F.R. 1508.14 (defining human environment as used in NEPA, stating: When an environmental impact statement is prepared and economic or social and natural or physical environmental effects are interrelated, then [the EIS] will discuss all of these effects on human environment.). 13 See Metropolitan Edison Co. v. People Against Nuclear Energy, 460 U.S. 766 (1983). 14 Id. 15 Robertson v. Methow Valley Citizens Council, 490 U.S. 332, 352 (1989). 16 See 40 C.F.R. 1502.14(f); 1502.16(h); see also Council on Environmental Quality, Forty Most Asked Questions Concerning CEQ's National Environmental Policy Act Regulations, 46 Fed. Reg. 18026 (Mar. 23, 1981), Questions 19a and 19b (requiring disclosure of full spectrum of appropriate mitigation) (All relevant, reasonable mitigation measures that could improve the project are to be identified, even if they are outside of the jurisdiction of the lead agency or the cooperating agencies, and thus would not be committed as part of the RODs of these agencies. This will serve to alert agencies or officials who can implement these extra measures, and will encourage them to do so. Because the EIS is the most comprehensive environmental document, it 6 of meeting these requirements as described more specifically below, especially with respect to mitigation necessary to offset impacts to listed species. If proposed mitigation measures are unenforceable, or lack monitoring commitments or sufficient resources to assure performance, the action agencies have no reasonable basis to conclude that such measures will effectively reduce environmental impacts of the CRSO.17 As identified in the specific state agency comments that follow, the action agencies have not sufficiently identified or analyzed possible mitigation measures to support a conclusion that environmental impacts have been reduced to less-than-significant levels. Oregon agencies have identified those that should and must be included to adhere to NEPA mandate that federal agencies [i]nclude appropriate mitigation measures not already in the proposed action or alternatives.	The co-lead agencies do not concur with the commenter's assessment that the Draft EIS did not include and analyze adequate, feasible mitigation, including mitigation measures outside the jurisdiction of the co-lead agencies. Chapter 3 described the direct and indirect effects; Chapter 4 described the future climate conditions and effects, Chapter 5 captured actions to mitigate those remaining effects, after careful screening by the teams of other potential methods (workshop matrices are included in Appendix R, Part 3). It also included a brief discussion of how those measures are anticipated to offset specific effects and is summarized in the tables of Chapter 5. Chapter 6 looked cumulatively at these effects, including the addition of mitigation, and determined the cumulative effects of the action. Appendix R includes a preliminary mitigation and monitoring and adaptive management plan in order to measure whether the actions are reaching success or triggers additional actions are needed. The co-lead agencies do not concur with the commenter's assessment that the Draft EIS did not include and analyze adequate, feasible mitigation, including mitigation measures outside the jurisdiction of the co-lead agencies. Chapter 3 described the direct and indirect effects; Chapter 4 described the future climate conditions and effects, Chapter 5 discussed the ongoing mitigation actions funded by the co-lead agencies and captured additional actions to mitigate effects from Multiple Objective Alternatives 1, 2, 3 and 4, after careful screening by the teams of other potential methods (workshop matrices are included in Appendix R, Part 3). It also included a discussion of how those measures are anticipated to offset specific effects and is summarized in the tables of Chapter 5. Chapter 6 looked cumulatively at these effects, including the addition of mitigation, and determined the cumulative effects of the action. Chapter 7 included a description of the direct, indirect, cumulative and climate effects of the Preferred Alternative as well as mitigation carried forward from the No Action Alternative and additional mitigation proposed for the Preferred Alternative. Appendix R includes a mitigation and monitoring and adaptive management plan in order to measure whether the actions are reaching success or triggers additional actions are needed. As noted in Chapters 5 and 7, implementation of MO3 and Multiple Objective alternative 4 (MO4) would have potential for significant adverse effects to several resources that could not be mitigated by the co-lead agencies. In MO3, in order to offset these effects, the EIS notes the measures that should be taken by others to: protect ground and river water quality, provide recreational opportunities, extension of irrigation and water supply pipelines and wells, and transfer of a shipping industry. Other impacts, such as loss of cruise line tourism, increased greenhouse gases, and traffic, did not have feasible mitigation measures. However these effects are discussed in the environmental justice section (Section 3.18). NEPA requires that all relevant, reasonable mitigation measures that could diminish the adverse impacts of the project be identified in the document, even if they are outside the jurisdiction of the lead agency or the cooperating agencies. See 40 C.F.R. 1502.16(h) and 1505.2(c); 46 Fed. Reg. 18026. The inclusion of mitigation measures in Chapter 5 is not intended to indicate that the co-lead agencies, or the Federal government as a whole, have the authority to perform all of the measures listed. If the measures are outside the jurisdiction of the co-lead agencies, those measures will not be included in the Preferred Alternative or Record of Decision (ROD). Their inclusion in Chapter 5 serves to alert other agencies, officials, and the public who can implement the measures to the potential benefits of the measure. The mitigation requested, while identified in the Draft EIS, is not within the co-lead agencies' current authorities.
6692	12	nina.englander@doj.state.or.us	Oregon Department of Justice	Action Agencies Violate NEPA By Providing an Insufficient Comment Period Given the existing public health emergency that constitutes extraordinary circumstances, Oregon finds the minimum 45-day public comment period does not comport with NEPA as it does not provide for adequate disclosure.19 Given this fact in addition to the numerous errors and omission in this Draft EIS, including but not limited to the missing reasonable alternative, Oregon requests that the action agencies circulate a supplemental Draft EIS once it has addressed all cited deficiencies in order to provide for meaningful consideration by the public and decisionmakers.20 The proposed reasonable alternative is not qualitatively within the spectrum of existing alternatives,21 and absent its inclusion, the action agencies risk not only violating NEPA but to directly contravene the courts order that required this analysis in the first instance.	The co-lead agencies considered requests to extend the public comment period. This NEPA process included a wide array of cooperating agencies whose close involvement throughout the process allowed the co-lead agencies to incorporate feedback. Given the broad range of comments received and the extensive Federal and non-Federal participation in the overall process as well as the level of public engagement in the six virtual public meetings in the region, the co-lead agencies determined that an extension was not warranted and that the 45-day public comment period was adequate consistent with NEPA regulations. On April 9, the CRSO EIS website was updated to inform the public that they should plan to submit comments by the close of the comment period.
6692	13	nina.englander@doj.state.or.us	Oregon Department of Justice	Oregon Water Resources Department Comments City of Arlington in Gilliam County has a Columbia River Surface Water Right The Oregon Water Resources Department (WRD) notes that with respect to water use in north central Oregon (Chapter 3.12, Region D) the Draft EIS does not indicate that the City of Arlington in Gilliam County has a Columbia River surface water right, not currently in use. It appears that the Action Agencies did not consider this water supply use in its analysis. WRD has identified this error previously. The Final EIS should explain whether this omission is because the right is still under development and more a future water use? If this is the case, the Department disagrees, but the EIS should make this clarification.	The EIS analysis considers effects to currently used water for M&I. It is unknown when this water right will be used and how much will be used, so it is not included. This sentence will be added to Section 3.12.2.1 for clarification: Water rights that have been applied for but are not currently being used are not included in this EIS because it is unknown when they will be used and how much will be used.
6692	14	nina.englander@doj.state.or.us	Oregon Department of Justice	Need for Mitigation Draft EIS should identify and discuss mitigation for all impacts The Action Agencies concluded that the Preferred Alternative is unlikely to impact water supply obligations. The Department generally agrees. However, if adjusted in a way that lowers reservoir elevations, lowering water levels may impact intakes of surface water diversions and wells; and the Draft EIS should identify and describe sufficient mitigation of those impacts. It is also important to note that this analysis did not consider impacts on water rights issued but under development (see comment above). Impacts to those rights should also be mitigated.	NEPA requires that all relevant, reasonable mitigation measures that could diminish the adverse impacts of the project be identified in the document, even if they are outside the jurisdiction of the lead agency or the cooperating agencies. See 40 C.F.R. 1502.16(h) and 1505.2(c); 46 Fed. Reg. 18026. The inclusion of mitigation measures in this chapter is not intended to indicate that the co-lead agencies, or the Federal government as a whole, has the authority to perform all of the measures listed. If the measures are outside the jurisdiction of the co-lead agencies, those measures will not be included in the Preferred Alternative or Records of Decision (ROD). Their inclusion in this chapter serves to alert other agencies, officials, and the public who can implement the measures to the potential benefits of the measure. The mitigation requested, while identified in the Draft EIS, is not within the co-lead agencies' current authorities. The co-lead agencies do not have the authority to provide mitigation for the effects to private infrastructure such as irrigation pumps, wells, or private docks.
6692	15	nina.englander@doj.state.or.us	Oregon Department of Justice	Oregon Department of Environmental Quality Water Temperature Analysis The Oregon Department of Environmental Quality (DEQ) acknowledges the consideration the co-lead agencies gave to evaluating MO3 stream temperature changes that shows, in comparison to the No Action Alternative (NAA), faster stream temperature response in the lower Snake River to seasonal and diurnal changes in air temperature and solar radiation following	Generally, shallower rivers are more susceptible to warming and cooling. However, the water temperature is the result of 5 heat fluxes, volume of the river and downstream transport, therefore simple explanations are not universally applicable.

Letter No.	Comment No.	Commenter Name/Email	Affiliation	Comment	Response[1/]
				dam breaching. Although dam breaching is expected to result in warmer spring water temperature, the overall seasonal thermal regime will become more normative. However, to provide a more complete picture on MO3 impacts on stream temperature, the co-lead agencies should provide clear conclusions in the Final EIS regarding post-breach reduced travel time of water, as faster flow rate, will influence stream temperature. DEQ suggests further describing why there is a difference between the seasonal, post-breach, lower Snake River water temperature compared with that of the NAA. Adding more detail to this section will help to elucidate why spring water temperature is higher post-breach compared to the NAA, whereas the commonly held assumption is that dam breaching will result in cooler water temperatures. For example, describe how the Snake River in the NAA is a larger body of water, which is slower to warm and slower to cool, and how this contributes to warmer spring stream temperature in comparison to MO3. This is important information for the public and 8 decisionmakers. Additionally, the Draft EIS refers only to "temperature" and should, instead, expressly clarify, as applicable, water temperature or air temperature. Chapter 4, lines 806-818, is an example of where these issues should be addressed. Suspended Sediments For MO3, the Draft EIS predicts the release of an extraordinary amount of suspended sediment and turbidity due to dam breaching. The EIS should identify best management practices that could be implemented to mitigate sediment discharges to reduce the short-term impacts associated with sedimentation resulting from dam breaching. Please identify and analyze effect of existing procedures or BMPs that would minimize release of suspended sediment in the Final EIS.	Regarding water temperatures in the lower Snake River, it is well known that reservoirs create a lag in the thermal response to environmental conditions, leading to colder conditions in the spring and warmer conditions in the fall as compared to unregulated systems. Breaching the dams would reverse these effects. Under a dam breach scenario, spring water temperatures will warm more quickly than No Action conditions. Similarly in the fall, under a dam breach scenario, fall water temperatures will cool more quickly than No Action conditions. These results make logical sense and are supported by results from CRSO EIS numerical water quality modeling. What has surprised some stakeholders are the predicted summer water temperature effects under dam breaching. Many believe that removing the dams will result in colder water temperatures as compared to the No Action Alternative. While some cooler water temperatures may be observed in the summer under dam breaching, especially during cooler summer weather conditions and at night, water temperatures will remain warm and exceed the state water quality standard at times. This is because without the dams, the lower Snake River will be shallower and more susceptible to solar radiation and warming. Increases in water particle travel time are expected, but the lower Snake River has always been a warm system (USGS 1960, 1961, 1964; Corps 2002a) and breaching the dams will not change this fact. The co-lead agencies' analysis shows that under a dam breach scenario, water temperatures in the lower Snake River would still exceed State water quality standards during the summer and especially during hot weather events. Details regarding this analysis can be found in the Water Quality Appendix D, Section 6.2.1.2. The impact of travel time cannot be evaluated independently from other hydraulic factors like depth. Changes in hydrology and flow have been captured in CSS and NMFS COMPASS fish modeling and analysis. Direct and indirect effects of MO3, as compared to the No Action Alternative, include downriver sedimentation as described in cumulative effects Table 6-11 (Section 6.3.1.2.4). Near-term sedimentation effects following the MO3 Breach Snake Embankments measure are predicted to last up to ten years (depending on the hydrologic regime) as legacy sediment deposits within the former reservoirs are incrementally eroded and re-deposited throughout the lower Snake Reach. Near-term sedimentation effects are expected to be particularly large in the upstream end of Lake Wallula on the Columbia River. The effects of sediment deposition at left bank recreation and boat-launch sites below the Snake confluence would likely be permanent. Long-term sedimentation effects would include continued deposition in quiescent areas prone to shoaling as a result of annual sediment delivery that had previously been trapped by the lower Snake River dams, but not directly interfere with Columbia River navigation. Mitigation actions for these potential impacts to navigation are detailed in Section 5.4.3.5 and propose dredging to maintain this reach of the Federal navigation channel. Likewise, public and private port facilities both near the confluence of the lower Snake River and on the left bank of Lake Wallula would need to conduct sequential dredging in order to avoid interruptions in service and maintain access to the navigation channel. Dredging mitigation for maintaining the Federal navigation channel would be a Corps' expense, while dredging to maintain port facilities and access to the Federal navigation channel would not be a Corps' expense. Dredging operations are expected to remain similar to No Action Alternative in the remaining reach of the Columbia River navigation channel. If MO3 was selected in the ROD, further studies and NEPA analysis would need to be performed for implementation, including engineering plans, best management practices, and mitigation for breaching the embankments of the four lower Snake River dams. The formulation of the MO3 drawdown and embankment removal plan for the four lower Snake River dams mirrored that developed in the 2002 Lower Snake River Feasibility Report/EIS. This approach includes reservoir drawdowns prior to breaching combined with the stepped approach of embankment breaching (by removing the earthen Sections of Lower Granite and Little Goose dams in year 1 and Lower Monumental and Ice Harbor dams in year 2) which are specific best management practices aimed at reducing suspended sediment and turbidity in the lower Snake River under MO3. If MO3 is identified as the selected alternative in the ROD, the co-lead agencies would further study the potential impacts and refine the elements of the plan (means, methods, and timing) as well as implementation measures to insure that suspended sediment and turbidity were appropriately mitigated in accordance with applicable laws and regulations.
6692	16	nina.englander@doj.state.or.us	Oregon Department of Justice	The Oregon Department of Energy (ODOE) appreciates the tremendous amount of work and effort that went into the analysis of the potential impacts to the power sector in the development of the Draft EIS, as reflected in Section 3.7 and Appendix H, in particular. Impacts to the power sector, as the Draft EIS shows, can be quantified in terms of the cost (or avoided cost) to the power sector of achieving other specific non-power objectives. The preferred alternative results in minimal overall costs to the power sector, especially compared to MO3 and MO4 that would incur significant costs associated with a replacement of energy due to a reduction in hydropower output, a replacement of the capacity contribution necessary to maintain the reliability of the regional power system, and mitigation of potential increased greenhouse gas emissions associated with these replacement power resources. In order to prepare for a long-term solution for salmon recovery that restores the lower Snake River, further analysis is needed to determine how to minimize or mitigate resulting costs to the power sector. This mitigation should be identified, discussed, and thoroughly analyzed in the Final EIS. While ODOE appreciates the amount of analysis that went into evaluating the estimated changes in power generation associated with MO1, MO2, MO3, MO4, and the Preferred Alternative, ODOE believes that that analysis was flawed in several important respects that will be discussed in greater detail below.	As noted by the comment, the Preferred Alternative places additional rate pressure of 2.7 percent on Bonneville wholesale power rates, which is significantly below the rate pressure associated with the effects of Multiple Objective (MO) Alternative 3 or MO4 relative to the No Action Alternative. The comment is also generally correct that this amount of rate pressure is within a level that Bonneville has historically been able to mitigate through the costs over which it has significant control. Conversely, the power rate effects of MO3 and MO4 do not fall within the range of costs Bonneville has historically been able to mitigate through cost controls. See draft EIS, Section 3.7.3.5, at pages 3-918-924, Table 3-166 and Section 3.7.3.6, Electricity Rate Pressure, at pages 3-945-950, Table 3-182. The comment also suggests that additional analysis is needed to mitigate the resulting costs to the power sector for salmon recovery that restores the lower Snake River. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. The Preferred Alternative provides substantial benefits to ESA-listed salmon and steelhead, which would contribute to recovery targets, but recovery is a broader responsibility than the co-lead agencies. Specific to power, the EIS relied on the Northwest Power and Conservation Councils 7th Power Plan and Mid-Term Update as the source for resource replacement costs. See Section 3.7.3.1, Step 3: Determine Need for Potential Replacement Resources and Associated Costs, at 3-821 and Appendix H, Power and Transmission, at Section 2.2 in the draft EIS. If MO3 was selected as the Preferred Alternative, then Congress would need to authorize this recommendation and provide implementation funding. There would also need to be additional environmental compliance processes, including NEPA processes to identify how to breach the dams and replace the power generation and transmission. As part of these processes, mitigation of these costs to regional customers would likely require a concerted effort by regional utilities, state governments, policy makers, Tribal entities, and other stakeholders and interests to collaboratively work together to find alternative means of serving regional energy needs.
6692	17	nina.englander@doj.state.or.us	Oregon Department of Justice	Power System Reliability Step 2 of the methodology for power and transmission analysis considers effects on power system reliability from the alternatives evaluated.24 Maintaining a reliable power system is a cornerstone of our daily lives and the health of the regional economy. Federal hydropower resources have made incredibly significant contributions to maintaining this reliability in the Northwest for much of the last century. That said, maintaining overall power system reliability in the Northwest is complex and multijurisdictional, involving not only BPA, but several large investor-owned utilities, consumerowned utilities, and multiple state regulators. The Northwest Power and Conservation Council (NWPCC) provides the regions most comprehensive regular assessment of the adequacy of the Northwest power system to maintain reliability into the future.25 Many of the regions electric utilities rely upon the annual resource adequacy assessment developed by the NWPCC to inform their own planning for capacity resources to maintain system reliability. Particularly as the retirements of coal units accelerate, these assessments are more critical than ever, and a complete analysis of the problem requires detailed probabilistic analysis of how the regional power system is likely to perform under a range of future scenarios and conditions. In addition, an emerging effort led by the Northwest Power Pool (NWPP), which includes BPA, is developing a proposal for the establishment of a formalized regional resource adequacy program to maintain power system reliability in the Northwest.26 Significant new details around this proposal are due to be released in 2020, with the prospect of a new regional program being established within the next couple of years. ODOE raises these issues here as important context for the analysis that is provided within the Draft EIS related to regional power system reliability. The overall reliability of the regional power system should not be the focus of the analysis within the Draft EIS.27 While we acknowledge the substantial contributions that federal hydropower resources have made and will continue to make toward maintenance of overall regional power system reliability, these issues are much broader than the scope of the Draft EIS and are already being addressed in more appropriate venues. 24 Draft EIS at 3-819. 25 Northwest Power and Conservation Council, Pacific Northwest Power Supply Adequacy Assessment for 2024. October 31, 2019. Available online: https://www.nwcouncil.org/reports/pacific-northwest-power-supply-adequacy-assessment-2024 26 For more information, see Northwest Power Pool, Resource Adequacy Program. https://www.nwpp.org/about/workgroups/12 27 Harms discussed in an EIS must have a sufficiently close connection to the physical environment. See Metropolitan Edison Co. v. People Against Nuclear Energy, 460 U.S. 766 (1983). 10 Specifically, we do not believe that the Draft EIS is the appropriate vehicle to speculate about the potential for future coal plant retirements,28 although we do not dispute that significant evidence suggests that more coal capacity is likely to retire. The likelihood of those retirements occurring is not impacted by the proposed action discussed in the Draft EIS, and any challenges that those retirements present for the regional power system will need to be assessed and dealt with irrespective of CRSO operations. A more robust analysis of the impact of these potential coal retirements requires a broader set of tools and scope of analysis than what the Draft EIS provides. That said, Table 3-147 29 summarizes the impact to power system reliability (as measured by Loss of Load Probability, the metric employed by the NWPCC in its regional resource adequacy assessment) from MO2 compared to the No Action Alternative under three different coal scenarios: Base Case (4,246 MW of coal remains operational); Limited Coal Capacity (1,741 MW of coal remains operational); No Coal Capacity (0 MW of coal remains operational). As reflected in the table, the LOLP under the No Coal Capacity scenario would be a staggering 63% (compared to the regions stated standard of 5.0% LOLP). In short, this means that even under the No Action Alternative there would be insufficient power supply available to meet electric demand at least once per year in more than 6 out of every 10 years. Power system reliability impacts of this type would be severe and historically unprecedented in the Northwest. Participants in the existing regional efforts described above are acutely aware of these potential future challenges to power system reliability and are actively working to develop robust solutions to address them. Incorporating an analysis of these speculative future challenges is not appropriate in the context of the Draft or Final EIS because: (1) this process lacks the necessary tools and regional scope; and (2) this process is intended to compare environmental impacts of multiple alternatives for Columbia River System Operations against a No Action Alternative which reflects the status quo (not a speculative version of the future). Specific Recommendation: Delete section or revise text in the Final EIS to reflect that the analysis of multiple potential future coal retirement scenarios is incomplete, beyond the scope of this process, and requires a more robust regional analysis to fully evaluate potential reliability impacts. 28 See Draft EIS, Appendix H, Section 2.3 Sensitivity of LOLP to Assumptions about Coal Capacity, at p. H-2-8 to H-2-10. 29 Draft EIS at 3-887. 11	Consistent with the comment, the focus of the EIS is the operation, maintenance and configuration of the CRS projects, and one of the purposes is to provide an adequate, efficient, economical, and reliable power supply that supports the integrated Columbia River Power System. See Section 1.2 of the Draft EIS. For the power analysis, this includes an assessment of the change in reliability if the CRS projects change operations. While the focus of the analysis is on the CRS projects, the projects do not operate in isolation from the rest of the regional system; power is traded among utilities. This is also the reason why the Northwest Power and Conservation Council, the Northwest Power Pool, Bonneville (in the annual White Book), and other organizations regularly reassess regional reliability and why individual utilities rely on these regional assessments, as noted in the comment. Changes in operations at the CRS projects affect how much power Bonneville sells to, and purchases from, other utilities. Conversely, changes in generation capacity at other utilities also affect the amount of power Bonneville sells to, and purchases from, other utilities. Reliability is one of the purposes in this EIS and Bonneville-related statutes. None of those other forums referenced in the comment, have an obligation to examine the environmental impacts of operating, maintaining and configuring the CRS. The co-lead agencies, consistent with NEPA, considered the direct, indirect and cumulative effects to regional reliability. The EIS used the best available resource information about the regional resource mix in 2017 when the power analysis was initiated. As that resource mix information changed, a study was performed to assess how the change in input would affect the analysis. The changes in the regional coal-fired generators does affect the operation of the CRS projects, and thus, was appropriately included in the power generation and transmission analysis. The comment notes that the EIS should not speculate about coal-plant retirements. In performing the sensitivity analysis of the impact of coal plant retirements, Bonneville initiated this special study in 2019. With the recent passage of Washington's Clean Energy Transformation Act (CETA) legislation and Oregon's discussions on carbon legislation, it became apparent that the distribution of coal plants was evolving rapidly. Rather than speculate about further announcements that might be made regarding coal-plant retirements, Bonneville chose as a bookend to analyze a no-coal scenario through a sensitivity analysis. While decisions about coal-plant retirements are not necessarily affected by CRS operations, there is an effect from coal retirements on both the need for, and cost of replacement resources to meet regional load. Thus, to analyze the potential effects to power generation and transmission, including reliability, the co-lead agencies, consistent with NEPA, chose not to ignore new information on coal retirements, and thus, included this information in its effects analysis. To the extent that the CRS operations induce regional capacity concerns, many load-serving entities would need to plan to build replacement resources. The framework of this EIS quantifies those effects by developing an other regional cost pressure analysis. The Other Regional Cost Pressure analysis shows the incremental resource needs to the region of the limited coal retirement scenario and the no coal scenario for each Multiple Objective alternative (MO). The Other Regional Cost Pressure analysis combines the effects of the MOs with a limited coal or no coal scenario and estimates whether incremental resources would be needed (above those identified in the MO) to return regional reliability to the level of the No Action Alternative. See Section 3.7.3.1, Additional Power Rate Sensitivity Analysis and Other Regional Cost Pressure Analysis, pages 3-829-830 in the Draft EIS. This cost is represented as an additional unassigned cost (i.e., it is not reflected in the rates analysis) because the EIS does not take a position on what entity (e.g., the region, Bonneville) would be responsible for the incremental costs created by additional coal retirements. The statement that the regional Loss of Load Probability (LOLP) under a no-coal scenario is unprecedented is consistent with the findings of the EIS. Even under the limited-coal scenario, the LOLP is extremely high. As noted by the comment, Bonneville is participating in regional forums concerned with regional resource adequacy. The EIS did not focus on addressing the needs in the No Action Alternative except to the extent that it impacts the needs of the other EIS alternatives relative to the No Action Alternative. As described above, the coal sensitivity analysis was used to provide an estimate of the incremental resources needed to maintain regional reliability in light of recent information regarding coal retirements. These retirements were announced in recent years, and the EIS identifies those resources that have been slated to retire (or are no longer able to serve regional loads) during the 2020s. See Section 3.7.3.1, Rate Sensitivity Analysis, Table 3-121, at pages 3-841-842 in the Draft EIS. This analysis is included as a sensitivity, but is not included in the rates of either the Bonneville or region finances tables. Thus, the coal analysis impacts is appropriately described in the EIS. The commenter misunderstands the types of impacts that must be considered in an EIS under NEPA. Consistent with the Council on Environmental Quality's implementing Regulations for NEPA, the co-lead agencies considered environmental, social and economic effects. (See 40 C.F. R 1508.14). Specifically, [w]hen an environmental impact statement is prepared and economic or social and natural or physical environmental effects are interrelated, then the environmental impact statement will discuss all of these effects on the human environment. Id. Additionally, the high-quality information included in the EIS and known changes to the regional grid since the Northwest Power and Conservation Councils Seventh plan, need to be factored into the analysis, since they will have effects on the expected value of Federal generation in the future. Thus, the sensitivity analysis properly falls within the effects contemplated under NEPA.
6692	18	nina.englander@doj.state.or.us	Oregon Department of Justice	Power Replacement Costs Step 3 of the methodology for power and transmission analysis determines the need to develop new power resources to replace any reduced output from the hydropower system, and the associated costs of developing those resources.30 ODOE appreciates the detailed and robust analysis that the drafters undertook to analyze the potential need for new power resources to replace any reduced output from the hydropower system. ODOE does not identify here any particular concerns with this step of the analysis, and we appreciate that an effort was made to evaluate both the least-cost portfolio of replacement resources and a zero-carbon portfolio of replacement resources. ODOE does have concerns, however, with the identification of the estimated costs for potential power replacement resources. The primary concern that ODOE has is with reliance upon the NWPCCs Seventh Power Plan Midterm Assessment31 (published in February 2019) as the basis for determining the overnight capital cost of building new power resources.32 ODOE recognizes that the Draft EIS adjusted these numbers further to reflect real 2022 dollars, but we do not believe this accurately captures the rapid changes in technology costs occurring within the power sector. The Draft EIS seems to acknowledge this: Because only	Consistent with the comment, the EIS presents a range of replacement resource costs that would be needed to maintain regional reliability at the No Action Alternative level based on two resource portfolios: one that is based on renewable resources and another that is based on natural gas resources, which are generally the least cost means to maintain reliability (see Section 3.7.3.5, Potential Replacement Resources and Associated Costs in the draft EIS). The EIS acknowledges that the energy sector is constantly undergoing transformation and that technological improvements will likely bring other options and changes in costs. As noted in the comment, to avoid speculation, the EIS analysis focuses on primary technologies identified by the Northwest Power and Conservation Council (Council) in their 7th Power Plan (7th Power Plan, page 13-5) that are deemed proven, commercially available, and deployable on a large enough scale in the Northwest. See draft EIS, Section 3.7.3.1, Step 3: Determine Need for Potential Replacement Resources and Associated Costs, at 3-821 and Appendix H, Power and Transmission, at Section 2.2. The EIS uses the best available resource cost information from the Council to estimate the potential range in costs of these replacement resources. The basis for developing these portfolios may be found in Section 3.7.3.1, Methodology, and for Multiple Objective (MO) Alternative 3 specifically, Section 3.7.3.5, Potential Replacement Resources and Associated Costs in the draft EIS.

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				the single mid-point was used in the CRSO EIS analysis there are resource cost uncertainties that could result in higher and lower cost outcomes for the MOs.33 Particularly as it pertains to estimated costs for the zerocarbon portfolios, ODOE is less concerned that actual resource costs could be higher than estimated, but we have significant concerns that actual costs might be lower than estimated. This concern grows the further into the future (e.g., beyond 2022) that any potential power replacement resources would need to be built. For example, Table 2-3 from App. H 34 is reproduced below: 30 Draft EIS at 3-819. 31 Available online: https://www.nwcouncil.org/sites/default/files/7th%20Plan%20Midterm%20Assessment%20Final%20Cncl%20Doc%20%232019-3.pdf 32 Draft EIS at Footnote 48, p. 3-835 and Appendix H, p. H-2-5. 33 Draft EIS at 4-385. 34 Draft EIS at Appendix H, p. H-2-6. 12 In particular, ODOE notes the capital cost estimate for solar at $1,350 to $1,500/kW. ODOE does not recommend a specific alternative cost estimate. ODOE is, however, including below a table developed by the National Renewable Energy Laboratory (NREL) for its 2019 Annual Technology Baseline35 that projects the future capital cost of solar out to 2050: NRELs forecast of capital costs for solar PV continues to decline significantly in the Low case and moderately in the Mid case. By 2032, for example, it appears that NREL forecasts solar PV 35 National Renewable Energy Laboratory, 2019 Annual Technology Baseline. Available online: https://atb.nrel.gov/electricity/2019/index.html?t=su 13 costs could be as low as $500/kW in the Low case, or approximately 60% lower cost than the low estimate provided for solar in the Draft EIS. Even in 2022, it appears that NREL forecasts a cost closer to $1,000/kW in its Low and Mid cases (approximately 25% less than the low estimate in the Draft EIS). We note that the Northwest Power Council also identified a further 10% to 15% reduction in solar capital costs just from 2018 to 2020.36 ODOE raises these issues here primarily because of the uncertainty involved around the timeline of implementing some of the measures evaluated by the various alternatives within the Draft EIS. For example, MO3 evaluates breaching the four Lower Snake River Dams. It is highly unlikely that this could occur by 2022 under any circumstance. A more robust analysis of the cost of potential power replacement resources in that scenario would consider a forecast of how power replacement costs would be likely to change some number of years into the future. A more comprehensive analysis would also utilize some method of portfolio optimization to identify a combination of complementary resources that could replace any reduction in output from the federal hydropower system, including targeted energy efficiency investments, demand response measures, and storage in addition to an evaluation of renewable generation technologies. Specific Recommendation: Final EIS must include a more robust power replacement analysis that includes the development of an optimized portfolio of resources that incorporates forecasted technology costs over the following time horizons: 2022, 2030, 2035, and 2040.	The statement in the comment that the EIS uses the midpoint resource cost estimate is consistent with the EIS methodology. To address uncertainty surrounding potential costs, the EIS included a range of resource costs from the Mid-term Update in the sensitivity analyses for each wholesale rate pressure analysis. To further address concerns about potential reductions in resource costs. consistent with the comment, publicly released draft information, such as updated prices for solar and battery storage, from development of the 8th Power Plan is included as rate sensitivities in the final EIS. In response to this comment from Oregon and other public comments, the final EIS will include an expanded description of how the potential replacement resource portfolios were selected for the EIS. Briefly, the EIS analysis ran trial studies of seven different replacement resources for each alternative that needed replacement resources to evaluate their effectiveness at lowering the LOLP relative to the cost for the need in each alternative. (See Section 3.7.3.1 in the draft EIS). The comment suggests that additional energy efficiency should be assumed in the EIS, beyond what is achieved in the Councils Plan. The EIS analysis considers that all energy efficiency assumed in the Councils 7th Plan is achieved. This assumption is appropriate and likely aggressive. The Councils recent State of the Columbia River System, Fiscal Year 2019 Annual Report, February 2020, p. 11 (https://www.nwcouncil.org/sites/default/files/2020-3.pdf), states While the region currently is on track to meet Seventh Plan goals, there are some areas to watch including forecasts of declining savings form efficiency programs. And whether the region will identify new savings opportunities to replace those of residential lighting. Utilities achievements in energy efficiency have been on an annual decline since 2016. Forecasts from utilities show that this trend is expected to continue, despite relatively stable funding levels. Given this trend, there is some uncertainty as to whether there will be enough savings from other mechanisms to reach the 1,400 average megawatt goal by the end of Fiscal Year 2021. This information indicates that it would be difficult to increase the energy efficiency goals beyond the Councils Plan. Based on this information, it is not likely that substantial amounts of additional energy efficiency would be available as prices increase, such as in MO3. Finally, the Final EIS reflects potential changes to future costs in the rate sensitivity, considers updates to its resource optimization approach and describes the optimization in more detail. Finally, the EIS uses the best available resource cost information from the Northwest Power and Conservation Councils 7thPower Plan and Mid-Term update to estimate the potential range in costs of these replacement resources, with the exception of batteries which used newer sources, namely, 2018 and 2019 IRPs from Northwestern Energy and Puget Sound Energy. To further address concerns about potential reductions in resource costs, consistent with the comment, publicly released draft information, such as updated prices for solar and battery storage, from development of the Council's 8th Power Plan is included as rate sensitivities in the final EIS. The final EIS will include the de-escalating cost curves prepared by the National Renewable Energy Laboratory (NREL) that will be used by the Council in the 8th Power Plan. Based on responses to public comments, the final EIS contains an expanded description of how the potential replacement resource portfolios were selected for the EIS. (See Chapter 3, Section 3.7.3.1).
6692	19	nina.englander@doj.state.or.us	Oregon Department of Justice	Customer Power Rate Impacts As noted in the introduction to this section of ODOEs comments, impacts to the power sector resulting from the alternatives discussed in the Draft EIS can be quantified in terms of cost. There are technically feasible options for replacing any reduction in power output from the federal hydropower system that results from this or any other process; the issue resolves itself as a matter of cost, and an allocation of those costs. BPA is required by the Northwest Power Act to provide preference and priority in selling power to consumer-owned utilities (including municipal utilities, rural electric cooperatives, peoples utility districts, and tribal utilities)37. These preference customers of BPA often purchase firm power from BPA, and many are full requirements customers that receive 100% of their power from BPA to serve retail customers. As a result, any costs of actions taken pursuant to the alternatives evaluated within the Draft EIS will impact these preference customers the most. In Oregon, consumer-owned utilities (preference customers of BPA) serve the most rural and lowest income areas of the state, which creates questions around how to equitably allocate the costs to achieve non-power objectives within the Columbia River System. This discussion should be included in the EIS. Step 5 of the methodology for power and transmission analysis evaluates the impact of each alternative on customer rates. As explained in the Draft EIS, this analysis of BPAs rates considers multiple variables, including: (1) the cost of potential replacement power resources and new transmission investments; (2) impacts to BPA revenues from surplus power sales and 36 Starrett, M., Solar, Battery Storage, and Solar + Battery Storage Reference Plants, Staff presentation to the Northwest Power and Conservation Council. October 8, 2019. See, page 8, slide 16, available online: https://www.nwcouncil.org/sites/default/files/2019_1015_p4.pdf 37 Draft EIS at 3-799. 14 transmission sales; and (3) the cost of any structural or operational measures within an alternative.38 To the extent that these variables result in net costs for the power customers of BPA, robust cost mitigation efforts should be considered that consider the potential inequities in how these costs are allocated across the region. Figure 3-165,39 as an example, illustrates how BPA spends every dollar of its power revenues during the BP-20 rate period from October 1, 2019 through September 30, 2021: As a self-funded government entity, BPA is required by law to sell power to its customers in a manner that reflects its actual costs. To develop its revenue requirement for serving its power customers, BPA must consider its program costs, debt payments, and other costs established through the ratemaking process (including the Residential Exchange program, power purchases, and the cost of transmission).40 On account of the scale of some of the costs associated with the alternatives evaluated within the Draft EIS, ODOE recommends that an analysis be conducted of 38 Draft EIS at 3-823. 39 Draft EIS at 3-805. 40 Draft EIS at 3-804. 15 how best to equitably allocate the costs across the region to achieve the non-power objectives sought by each alternative. Specific Recommendation: Update the cost analysis within the EIS to include an evaluation of how to equitably allocate the costs of achieving non-power objectives within the EIS.	Consistent with the comment, the EIS presents a range of replacement resource costs that would be needed to maintain regional reliability at the No Action Alternative level based on two resource portfolios: one that is based on renewable resources and another that is based on natural gas resources, which are generally the least cost means to maintain reliability (see Section 3.7.3.5, Potential Replacement Resources and Associated Costs in the draft EIS). The EIS acknowledges that the energy sector is constantly undergoing transformation and that technological improvements will likely bring other options and changes in costs. As noted in the comment, to avoid speculation, the EIS analysis focuses on primary technologies identified by the Northwest Power and Conservation Council (Council) in their 7th Power Plan (7th Power Plan, page 13-5) that are deemed proven, commercially available, and deployable on a large enough scale in the Northwest. 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6692	20	nina.englander@doj.state.or.us	Oregon Department of Justice	The Oregon Department of Fish and Wildlife (ODFW) has participated in good faith as a cooperating agency in the EIS process since the summer of 2017, providing feedback in a timely manner despite difficult timelines. ODFW has actively reviewed documents, commented and made recommendations to the Action Agencies throughout the process. Active participation as a cooperating agency resulted in thousands of comments and recommendations across hundreds of versions of previous Draft EIS development components, very little of which has been incorporated into this Draft EIS. High-Level Draft EIS Concerns Purpose and Need The Draft EIS does not satisfy the purpose of the CRSO court-ordered NEPA process, which was to evaluate the large-scale project of the 2014 BiOp RPA and its alternatives. Judge Simon repeatedly emphasized that the goal of the EIS is to force the consideration of environmental impacts in the decision-making process. For example, the option of breaching, bypassing, or even removing a dam may be considered more financially prudent and environmentally effective than spending hundreds of millions of dollars more on uncertain habitat restoration and other alternative actions.41 The Action Agencies appear to believe that it satisfied the purpose of CRSO court-ordered NEPA process through its development and analysis of Multiple Objective 3 (MO3). However, MO3 was fundamentally deficient from its inception because it is a proposed action that includes both structural and operational measures that in some cases benefit but in other instances result in detrimental impacts to natural resources in a manner that masks the environmental impact of individual measures. For example, the Action Agencies selection of individual measures that are combined in MO3 obscures the actual beneficial environmental impacts to water quality, including anadromous fish species, of the option of breaching, bypassing, or even removing a dam that would have informed the public and decisionmakers as the Court had urged. Further, the Draft EIS summarily dismissed MO3 from further consideration during the Preferred Alternative selection process based upon the action agencies inclusion of meeting its agency statutory obligations in its purpose and need statement. NEPA is clear that an agency must analyze a reasonable alternative to its proposed action, even if it was outside of its statutory authority to implement. The Action Agencies inclusion of its statutory mandates in its purpose 41 NWF v. NMFS, 184 F. Supp. 3d 861, 942-43 (D. Or. 2016) (emphasis added). 16 and need statement resulted in precluding further analysis of that reasonable alternative, preventing public disclosure and discourse.	The co-lead agencies appreciate ODFWs participation as a cooperating agency in the NEPA process. In the development of this EIS, the co-lead agencies have complied with NEPA and its implementing regulations. The co-lead agencies have considered a reasonable range of alternatives developed to the meet the purpose and need and study objectives. Those alternatives included a broad range of operations and other measures, including breaching certain CRS project dams. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-lead agencies numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3, which includes breaching the four lower Snake River dams. The Preferred Alternative also meets the EIS objectives including those for: resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS the co-lead agencies did not identify MO3 because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. The EIS concluded MO3, which includes breaching the four lower Snake River dams would have greater improvement to certain salmon species in the lower Snake River. It did not, however, conclude there was greater certainty of that result in MO3 over any other alternative. Because of delayed response time in MO3, and the potential severity of the short term effects, MO3 would likely have the most substantial uncertainty in terms of beneficial effects. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% (the lower end of Northwest Power and Conservation Council's recovery targets for the region) as a result of the Preferred Alternative, as a result of the Preferred Alternative increasing SAR from 2.0% to 2.7% for Chinook, a 35% relative increase. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. To address uncertainty highlighted by the two models, the Preferred Alternative includes working with regional sovereigns to develop a study that assess the effectiveness of the increased spill regime on adult returns as well as assessment and management of adverse unintended consequences, such as long delays of adult migrants, or TDG-related mortality of juvenile migrants. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information. The Preferred Alternative will make a substantial contribution towards recovery. Additionally, the co-lead agencies evaluated many different flow and spill levels and as well as seasonal patterns for when flows are enhanced or reduced. The Preferred Alternative represents an operation that provides a balanced approach between spring and summer flow and spill levels to benefit salmon and steelhead, while also providing benefits to resident fish in the upper portion of the Columbia Basin.
6692	21	nina.englander@doj.state.or.us	Oregon Department of Justice	Adequacy and Equity of the Development and Analysis of Reasonable Alternatives This Draft EIS does not contain a true anadromous fish-focused alternative. Early in the Draft EIS process, a suite of structural and operational measures were identified, some of which likely benefited anadromous fish survival and some of which likely decreased anadromous fish survival. The action agencies then chose and reassembled a subset of these measures into four multiple objective alternatives (MOs) without any quantitative or qualitative analysis of the individual measures. Failure to conduct analysis of individual measures effectively eliminated any understanding of the relative nature, magnitude or duration of any one measures impact of anadromous fish survival. The four MOs and the No Action Alternative were then analyzed both quantitatively and qualitatively. However, these analyses captured only the interacting effects of combinations of individual measures on the affected environment. Thus, the true efficacy of any measure meant to benefit anadromous fish was obscured and could not be considered. Although ODFW is not necessarily advocating for this particular alternative, an example of an environmentally preferred alternative that would likely avoid jeopardy of ESA listed anadromous salmonids, lead to recovery, and that was not analyzed as part of the Draft EIS process but should have been would contain the following measures (from Tables 2-7 and 29). Structural Measures: 1) Modify the upper ladder serpentine flow control ladder sections at Bonneville Dam 2) Expand network of Lamprey Passage Systems to bypass impediments 3) Modify turbine cooling water strainer systems to safely exclude Pacific lamprey 4) Modify turbine intake bypass screens that cause juvenile lamprey impingement 5) Modify existing fish ladders, incorporating lamprey passage features and criteria 6) Lower Snake River Breach a. Develop procedures to operate existing equipment during reservoir drawdown (Lower Granite, Little Goose, Lower Monumental, and Ice Harbor Dams) b. Develop contingency plans to address unexpected issues with drawdown operations (Lower Granite, Little Goose, Lower Monumental, and Ice Harbor Dams) Operational Measures: 1) Remove earthen embankments and adjacent structures, as required, at each lower Snake River Dam 2) Modify equipment and infrastructure to adjust to drawdown conditions at each lower Snake River Dam 3) Develop procedures to operate existing	The preliminary analysis of the Single Objective alternatives informed the combination of measures which make up the final range of alternatives for analysis in this EIS. The CRS is a complex system with competing authorities. As such, the co-lead agencies needed to develop reasonable alternatives that could be used to operate the CRS into the future. The Co-Lead Agencies are required to evaluate a reasonable range of alternatives in the EIS. However, when there are potentially a very large number of alternatives, only a reasonable number of examples, covering the full spectrum of alternatives, must be analyzed and compared in the EIS. Alternatives for this EIS were developed from measures identified during public scoping, regional forums with scientists and technical experts from cooperating agencies, and expert opinion from within the co-lead agencies and in the literature. These alternatives represent a reasonable range of alternatives for the maintenance and operation of the CRS. All of the measures listed by the commenter were evaluated as part of the EIS, several of which were carried forward into the Preferred Alternative. Other measures were not carried forward into the Preferred Alternative, and Chapter 7 describes the rationale for developing the Preferred. The agencies disagree that an alternative that includes breaching the four lower Snake River dams and spring spill operations to 125% Total Dissolved Gas (TDG) at all four lower Columbia River dams, plus draw down and the McNary flow target is reasonable given the unacceptable risks to public safety from such an alternative. For Power and Transmission, MO3 and Multiple Objective alternative 4 (MO4), individually each caused large loss-of-load probability (LOLP) results (e.g. increased incidence of blackouts). Without major addition of new resources, MO3 would result in power shortages in about one in seven years. MO4 would produce power shortages in about one in every four years. If MO4 were implemented, in addition to breaching the four lower Snake River projects as called for in MO3, then the LOLP would be even higher, with power shortages potentially occurring almost every year. Additionally, if these MOs were combined, in 5% of the years, the power shortages would average close to 1,000 MW in early August when the region might be experiencing a heatwave with particularly high demand for air conditioning. 1,000 MW is about the average amount of power consumed by Seattle City Light. As shown in Section 3.7, MO3 causes an increase in power reliability concerns in the winter and the summer. MO4 increases power reliability concerns in the summer. Thus, the combination has the largest impact during the summer. The cost of zero-carbon replacement resources for MO3 and MO4 individually are up to $1 billion/year. Resource replacements and associated transmission interconnections for the combination of MO3 and MO4 would be higher, though not likely as high as the sum of the two MOs individually. Assuming that the replacement resources consist largely of wind, solar, and batteries, this would require well over 50 square miles of solar power (more than two and a half times the size of Crater Lake), large areas of new wind generation, and unprecedented amounts of batteries (more batteries in the Northwest alone than the total projection of batteries expected in the entire US by 2023 per the Energy Information Administration).

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				equipment during reservoir drawdown at each lower Snake River Dam 4) Develop contingency plans to address unexpected issues with drawdown operations at each lower Snake River Dam 17 5) Lower Columbia River Fish Passage Spill a. Spill through surface passage structures for steelhead overshoots, overwintering steelhead, and kelt b. Set juvenile fish passage spill to 125 percent TDG 6) Other Operational Measures. a. Strive to hold minimum 220 kcfs spring flow/200 kcfs summer flow at McNary Dam using upstream storage b. Reservoir drawdown to Minimum Operating Pool to reduce outmigration travel time (McNary, John Day, The Dalles, and Bonneville Dams) 7) Maintain all existing fish and wildlife mitigation programs This constitutes a reasonable alternative not analyzed in the Draft EIS, which is significantly distinguishable from the other analyzed alternatives. ODFW urges the action agencies to adhere to NEPAs mandate and incorporate review of this reasonable yet unexamined alternative.	In addition, the reduced generation capability under MO3, particularly throughout the summer, in combination with the impacts of the measures in MO4, and the uncertainty about the characteristics of replacement resources, would result in less capability to provide voltage support and dynamic stability for transmission system reliability than under MO3 or MO4 individually. Thus, combining MO4 with breaching the four lower Snake River projects, would produce unreasonable power and transmission reliability impacts, and it is highly speculative that replacement resources could be sited, permitted and built to address these impacts. This potential alternative has not been evaluated for direct, indirect and cumulative effects to other resources. Thus, an alternative combining juvenile fish passage spill up to 125% and breaching the four lower Snake River dams is unreasonable, and thus was not proposed as an alternative. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit ESA-listed juvenile and adult anadromous salmonids (two of the objectives), and also meets most of all the other objectives of the study for resident fish, lamprey, hydropower generation, water management, and water supply. It minimizing adverse effects to communities and the economy. The Preferred Alternative is likely to satisfy multiple complex and at times conflicting legal requirements for a complex system.
6692	22	nina.englander@doj.state.or.us	Oregon Department of Justice	Adequacy and Equity of Water Quality Analysis The Draft EIS water quality analysis fundamentally failed to analyze and summarize environmental effects of water quality in a manner which allows the public or decisionmakers to understand the full range potential impacts to fish and fish habitats. The water temperature analysis focused solely on daily maximum temperatures, although important to fish and aquatic species, does not adequately inform environmental consequences. The water quality analysis does not adequately address the following environmental information: 1) The full range of daily water temperature fluctuation across alternatives, including average daily mean and daily minimum temperatures. 2) The water temperature benefits likely to occur under MO3 particularly as they relate to the enhance ability for summer cold water releases from Dworshak Reservoir and the restoration of ecological functions such as reconnection of hyporheic flow, floodplain creation, development of riparian habitat to cool the lower Snake River. 3) The water temperature benefits likely to occur under MO3 as result of less solar heat accumulation with conversion from four reservoirs to restoration of approximately 140 miles of riverine habitats. 4) The water temperature impairments likely from measures to increase reservoir forebay elevations, increasing reservoir surface area and decreasing water travel time which are found in all Alternatives including the PA. 5) Opportunities to use cooler water from reservoir depth to reduce fish ladder water temperatures at John Day dam and other lower Columbia River projects that demonstrate mild stratification from the Corps temperature monitoring data. 6) Mitigation actions that could be employed during drought or low water years to prevent fish kills the nature of those that occurred during the summer of 2015. The Final EIS must include a more robust water temperature environmental consequences analysis that describes and contrasts water temperature impacts in a meaningful way considering the affected resources including anadromous fish. The Final EIS must also include a 18 contingency plan to manage water temperatures during drought years, low flow years, and during periods of high temperature to avoid future fish kills such as that which occurred in 2015.	The co-lead agencies chose to use the daily maximum water temperature metric in the analysis since most state water quality standards for water temperature are based on this metric. This temperature analysis evaluates the important factors that impact temperature and is similar to TMDLs and other efforts in the region. Fish appropriate water quality metrics were provided for incorporation into COMPASS and CSS modeling and other analysis to evaluate the impacts to anadromous fish. The fish team also used water quality outputs to qualitatively examine effects to fish species based upon known relationships between water temperatures and fish responses where quantitative models were not available. In this way the team was able to discuss effects on time and locality scales that may not be detected by the models. Predicted water temperatures under MO3, indicates that nighttime summer water temperatures, as well as fall water temperatures, would be cooler than No Action conditions in the Snake River. In addition, riverine processes would be restored. This is described in Chapter 3-4 and Appendix D. Regarding fish ladder water temperatures, reservoir water temperature data was used to determine the potential for water temperature improvements in the lower Snake River fish ladders. Cooling water pumps have been installed at Lower Granite and Little Goose adult passage ladders to reduce temperature differentials between ladder and river and to reduce thermal stress during upstream passage. Additional considerations at other locations are included in the EIS. Regarding mitigation actions that could be employed during drought or lower water years to prevent fish kills, an adaptive management plan has been developed for this EIS that captures those potential actions. That information can be found in Appendix O. The CRS is a complex system with multiple, sometimes competing, congressionally-authorized purposes. The Purpose and Need Statement and the objectives developed for this EIS reflect these multiple purposes, as do the alternatives developed to meet them. This EIS was developed to evaluate the operation and maintenance of the CRS system over the next 20 years, with the expectation that the co-lead agencies will continue to meet the multiple, authorized purposes until directed differently by Congress. Although fish and wildlife conservation is one of the authorized purposes, it is not the only purpose, and the co-lead agencies must balance all resources. The analysis of the multiple objective alternatives reflect these trade-offs and have allowed the co-lead agencies to understand the effects of emphasizing some purposes over others in order to find the most acceptable balance for future operations. Recovery of ESA-listed salmon is outside of the authority of the co-lead agencies, and was not an objective of this EIS. Recovery of ESA species is the purview of NMFS and the US Fish and Wildlife Service. As required by NEPA, the co-lead agencies evaluated each alternative for its effects on a suite of resources. These effects are summarized in Section 3 of the Executive Summary, fully described by resource and alternative in Chapter 3, summarized by resource and alternative in Table 3-1, and once again presented for comparison in Table 7-1. Effects of the Preferred Alternative can be found in Chapter 7. Effects specific to anadromous fish are described in Section 3.5.3 and Chapter 7. Table 3-61 compares expected survival by alternatives, and Table 3.62 provides a comparison of the alternatives specific to anadromous fish.
6692	23	nina.englander@doj.state.or.us	Oregon Department of Justice	Adequacy and Equity of the Climate Analysis The Draft EIS analysis misrepresents the impacts of climate change and does not identify sufficient measures to avoid and mitigate impacts. The Draft EIS Climate section asserts that future conditions will include reduced snowpack, increased water temperatures and lower summer discharges, and a likely increase in the frequency of cumulative daily temperature exceedance events. However, these climate impacts are not integrated into and should be in the descriptions of water temperature impacts described in Chapter 3, the Affected Environment and Environmental Consequences sections. For example, the Draft EIS states, Air temperature is projected to be warmer throughout Region C and D (Section 4.1). Warmer air temperature combined with projected reduced summer and fall flow volume (Section 4.2) will likely lead to increased riverine and reservoir surface water temperature but does not discuss how these climate conditions will exacerbate water temperatures that already exceed water quality standards for temperature (68 F) approximately 257 times each summer on average in the Lower Columbia River as measures at the forebay of McNary, The Dalles, John Day, and Bonneville Dams under the No Action Alternative. The Draft EIS makes no further distinction between the remaining alternatives as to how this may differ. In actuality, anadromous salmonids, fish that have evolved to cold water habitats, will be exposed to more individual extreme water temperature exceedances or more cumulative exposure to less severe water temperature exceedances can and will be negatively impacted a survive less The Draft EIS states, Historical water temperatures have already approached lethal limits for adult steelhead in the upper Snake and middle Columbia Rivers (Wade et. al 2013). Thus, even minor increases in thermal exposure put some of these populations above lethal limits. ODFW agrees, and also asserts that that this is likely to occur with greater regularity as the effects of climate change persist in the Columbia Basin. However, this connection between climate impacts and historic water temperature problems is not adequately described in the Draft EIS. From the perspective of anadromous salmonid survival any alternative that does not include measures to mitigate excessive water temperatures will result in sub-lethal effects (compromised fitness) or direct lethal mortality. Further, the PA analysis described in Chapter 7contains no mention of the effects of increased water temperature on fish populations, particularly the effects caused by climate change. Finally, the Draft EIS does not include a thermal emergency contingency plan. The Draft EIS must anticipate thermal emergencies and provide a plan to mitigate such events. The Final EIS must include that plan to meet the requirements of NEPA.	Through on-going regional climate change studies and work, the co-lead agencies evaluated potential shifts in precipitation and temperature patterns and resulting changes in unregulated Columbia Basin streamflow timing and volumes. The evaluation consisted of the full range of the latest climate change projections developed using multiple global climate models, emissions scenarios, downscaling techniques, and hydrologic models. Details of this evaluation are in Chapter 4 of the EIS. This information was used to describe the potential effects (both beneficial and adverse) on the river systems and resources due to potential changes in climate for all alternatives. The co-lead agencies agree with your concern relating to water temperatures in the Columbia and Snake rivers and that is why the agencies have used the best information and resources available to model and evaluate impacts from operations described in each of the alternatives on water temperatures. The study results indicate that the operations of the CRS do impact water temperature but the CRS has limited ability to reduce temperatures in the lower Snake and Columbia rivers outside of Dworshak operations. Regionally high air and water temperatures result in water quality standard exceedances and are beyond the ability of the CRS to cool; climate change will stress the system even further. The climate science community is still developing models that can be used to analyze possible effects to water temperature from climate change, and unfortunately, have not been fully applied and validated for use with climate affected regulated flow projections of large reservoir systems. Therefore it was not possible to reliably model water temperature changes under climate change for this EIS. In lieu of this information, the climate analysis used the output from resource models, like water quality and fish, under historical conditions, available climate change data, and scientific literature to qualitative assess potential effects to resources (described in Chapter 4). Regarding mitigation actions that could be employed during drought or lower water years to prevent fish kills, an adaptive management plan has been developed for this EIS that captures those potential actions. That information can be found in Appendix O. Regarding a thermal emergency contingency plan, the EIS is intended to evaluate multiple alternative ways of meeting a purpose and need for an action. The alternatives and analysis metrics, such as temperatures in different water year types, were developed for this purpose. Scenarios such as a "thermal emergency" in a specific year would be part of the adaptive management through existing forums such as the Technical Management Team.
6692	24	nina.englander@doj.state.or.us	Oregon Department of Justice	Adequacy and Equity of the Socioeconomic Analysis The Draft EIS includes an inequitable economic analysis of climate change. The Draft EIS goes into an extremely detailed future looking view of how climate change and the regions efforts to decrease carbon heavy power production such as coal and gas generation facilities will severely 19 exacerbate power reliability and replacement cost under MO3 and MO4. At the same time the Draft EIS fails to provide the same, or any, analysis for how climate change will impact salmonid survival, and what those impacts would have on regional cultural and socioeconomic resources. The Draft EIS did not include a socioeconomic analysis of recreational fisheries. Further, the Draft EIS includes an inequitable economic analysis of commercial and tribal fisheries that greatly undervalues these fisheries in geographic scope and current economic value. The Draft EIS fails to translate any of the changes in relative fish abundance across alternatives into comparable fishery socioeconomic gains or losses for the public and decisionmakers consideration. The socioeconomic elements of the Draft EIS fail to address or employ widely-accepted professional economic standards to ensure a thorough, objective, and transparent evaluation of the Draft EIS alternatives. These standards are defined in court interpretations of the National Environmental Policy Act, the Corps guidance documents for socioeconomic analyses, and other socioeconomic analysis process standards42. Consequently, there are severe, systemic gaps in the socioeconomic analyses of the Draft EIS that inaccurately represent regional effects of alternatives with respect to recreational, commercial and tribal fisheries in a manner that prevents reasoned decision-making. Specifically, the Draft EIS fails to: 1) Make use of all the available, relevant, accurate, and reliable socioeconomic information. 2) Make a substantial, objective effort at studying, analyzing, and evaluating all the socioeconomic issues relevant to the actions considered. 3) Account fully for the socioeconomic importance of ecosystems and ecological risks. 4) Consider equally both monetized and non-monetized effects. 5) Examine the multiple socioeconomic consequences of the preferred alternative and other alternatives. 6) Fully disclose all relevant information, and provide full transparency to the decisionmaking process, to enable the public and decisionmakers to understand the rationale for selecting the preferred alternative. The Final EIS must be modified to include all of the available socioeconomic information as opposed to the Draft EISs current limited analysis. For example, the Draft EIS reports current 42 Principles and Requirements for Federal Investments in Water Resources (pdf) Interagency Guidelines (pdf) Department of the Interior. 2015. Agency specific procedures for implementing the Council on Environmental Qualitys Principles, Requirements, and Guidelines for Water and Land Related Resources Implementation Studies Executive Order 12866. 1993. Regulatory planning and review Office of Management and Budget. 2003. Circular A-4: regulatory analysis 20 gross domestic product (GDP) and full-time equivalent (FTE) fishery values for Oregon and Washington. But those numbers reflect only the current state and value of salmon fisheries in Oregon and Washington, which, due in large part to negative impacts from the CRS Operations, are operating under a constraining set of rules that severely limits harvest. Given that other sections of the Draft EIS evaluate alternative futures, it is equally warranted to scale fishery economic values to that of a future with healthy salmon populations and what that would mean to the fisheries GDP and FTEs of the states. Hatchery contributions in the region are significant, but are not considered in the analysis. Both ocean and in-river fisheries that depend on the health of Columbia River salmon stocks provide millions of dollars in economic activity annually. From 2012-2015, Gislason et al. (2017) estimated that commercial and recreational salmon fishing accounted for an annual average of $1,996 million in GDP and supported 26,700 FTE jobs in the U.S. economy. The Draft EIS simply does not provide an equitable economic analysis of fisheries as a commodity. If the Action Agencies had analyzed a true anadromous focused alternative, as has been repeatedly suggested by ODFW, then increased regional employment and economic value would be substantial. Furthermore, recreational fishing is combined with other recreational activities into a single metric in the Draft EIS socioeconomic analysis of recreational use, and thus provides no measure of the economic impacts of different alternatives on recreational fishing. For the states with fisheries most impacted by CRS operations, recreational angling for salmon accounted for an annual average $238 million in GDP and 3,160 FTE (Washington) and $173 million in GDP and 2,850 FTE (Oregon) (Gislason et al. 2017). Likewise, the Draft EIS lacks an economic analysis of river and ocean commercial fisheries and tribal fisheries. Commercial salmon harvest accounted for an annual average $241 million in GDP and 3,090 FTE (Washington) and $55 million in GDP and 910 FTE (Oregon) (Gislason et al. 2017). Beyond economic activity, salmon are profoundly important for the native peoples of the Northwest. As co-managers of the salmon resource, the non-monetary tribal interests must be an integral part of this discussion. As stated previously, fisheries can be further constrained by listed species, depending on the actions proposed in the alternatives. Given the significant contributions of	Through on-going regional climate change studies and work, the co-lead agencies evaluated potential shifts in precipitation and temperature patterns and resulting changes in unregulated Columbia Basin streamflow timing and volumes. The evaluation consisted of the full range of the latest climate change projections developed using multiple global climate models, emissions scenarios, downscaling techniques, and hydrologic models. Details of this evaluation are in Chapter 4 of the EIS. This information was used to describe the potential effects (both beneficial and adverse) on the river systems and resources due to potential changes in climate for all alternatives. Quantitative data that describes how climate change hydrology will affect reservoir operations in the Columbia Basin in still under development and was not available for us in this study. The climate science community is still developing quantitative models that can address possible effects in water temperature from climate change, and unfortunately, have not been fully applied and validated for use with climate affected regulated flow projections of large reservoir systems. This data is critical to analyzing potential effects to fish quantitatively. In lieu of this information, the climate analysis used the output from resource models, like water quality and fish, under historical conditions, available climate change data, and scientific literature to qualitative assess potential effects to resources (described in Chapter 4). Chapter 7, Preferred Alternative, describes the process to select the Preferred Alternative. The EIS evaluated beneficial and adverse effects across an array of resource areas including potential effects at the national, regional and local level; effects are monetized and quantified, where possible, and also described qualitatively. As is common in NEPA analyses, the beneficial and adverse effects of the alternatives are expressed as a variety of qualitative and quantitative environmental and economic metrics throughout the EIS to inform decision-making, including the effects of the alternatives on fish as detailed in Section 3.5. That the effects of the alternatives on fish are not expressed as monetized economic values does not mean that they were not considered in the context of the analysis. The EIS does not employ a cost-benefit framework for decision-making. Instead, the EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The EIS provides an evaluation of the social welfare and regional economic effects of the No Action Alternative and the Multiple Objective alternatives, including the effects on recreation (Section 3.11) and commercial fisheries (Section 3.15). The EIS Section 3.5.3.6 describes the long-term effects to anadromous fish migration in the Snake River and tributaries that would occur under a dam breach scenario as major and beneficial, although quantitative impacts from fish modeling results are limited. The impacts to anadromous fish in other locations under MO3 would have negligible to minor changes from the No Action Alternative. The EIS described the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. NMFS estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which is described qualitatively. For the effects on recreational fishing under MO3 (Section 3.11.3.5) along the lower Snake River below Lewiston, the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River) as an indicator for fishing visitation in this reach. The EIS describes that the visitation in the long-term in the lower Snake River, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting outfitting and tourism businesses in the region. The social welfare values and regional economic effects associated with recreational fishing under the MOs, as well as river recreation post dam breach under MO3, were not estimated because of the uncertainty and large range in visitation and consumer surplus values among users. For MO1, MO2, MO4, and the Preferred Alternative, the recreational fishing evaluation describes the impacts by referencing the potential effects on relevant fish populations, as described in Section 3.5. Fish modeling results vary for some of the alternatives, for example for the Preferred Alternative and MO4 (i.e., models show either beneficial or adverse effects to anadromous fish), so it is assumed that the potential changes in recreational fishing would follow these changes in fish abundance. The contribution of Columbia River origin fish to ocean fisheries is described in Section 3.15.2.1. Because there is considerable uncertainty regarding the overall effects of the alternatives on regional fish populations, and how such changes may affect the management of the fisheries, the specific quantitative and monetized impacts associated with changes in commercial fisheries under the alternatives was limited. This analysis evaluates potential impacts on fisheries by referencing the potential effects on relevant fish populations, as described in Section 3.5. The EIS recognizes the economic and cultural importance of salmon to Tribes in a number of sections throughout the document. The Fisheries Section 3.15 as well as Section 3.17, in particular, include discussion of reductions in anadromous species catch and associated adverse social effects that have occurred in Tribal communities. The cultural significance and impacts of salmon and steelhead fisheries are described in the Fisheries Section 3.15.2.1, which includes sections that describe ceremonial and subsistence fisheries as well as the social importance of commercial, ceremonial and subsistence fisheries.

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				commercial, recreational and tribal fisheries to regional economies, a fishery-specific economic analysis should be given equal weight with other commodity-specific analyses in the Draft EIS. These above-described issues with the Draft EIS prevent reasoned decision-making.	
6692	25	nina.englander@doj.state.or.us	Oregon Department of Justice	The Draft EIS fails to ensure the professional and scientific integrity of the discussions and analyses. Where high quality scientific evidence is presented, it is commonly caveated based primarily on speculation and is discounted in favor of less scientifically-defensible information. 21 This presents a subjective view and ultimately a biased representation of the state of the science.	NEPA requires Federal agencies to assess the environmental effects of their proposed actions prior to making decisions. The Draft EIS provides a comprehensive and unbiased analysis of the effects of the No Action Alternative, the Multiple Objective alternatives and the Preferred Alternative, while also considering cumulative effects within the basin. The co-lead agencies invited a number of entities (including Tribes, states, and agencies) from across the region to participate in the EIS process as cooperating agencies, and over 30 of those invited agreed to participate. Staff from the cooperating agencies joined the technical teams and provided their expertise and review of the development and analysis of the alternatives. Leaders from the co-lead agencies met with Tribal leaders for formal consultation, and with other organizations and stakeholders to have dialogue and receive feedback as the EIS progressed. However, only the co-lead agencies have authority to make decisions regarding future operation, maintenance and configuration of the dams in the CRS system. The co-lead agencies selected senior staff from across the country with expertise in their fields to serve on the EIS team. The Draft EIS was subject to two internal agency reviews by Corps of Engineers reviewers not involved in the development of the document. Then the document, analysis, and modeling were reviewed following an Independent External Peer Review process. The Corps hired an independent panel of experts to review and provide feedback on the EIS and models used in the analysis. The final IEPR report will be publicly available.
6692	26	nina.englander@doj.state.or.us	Oregon Department of Justice	A few examples are noted as follows. The Draft EIS uses two quantitative modeling approaches to predict survival benefits or decrements across alternatives: (1), the Northwest Fisheries Science Centers (NWFSC) Comprehensive Passage (COMPASS) and Life-cycle models and, (2), the Comparative Survival Studys (CSS) Cohort and Life-cycle models (CRSO-84, CSS Annual Report 2017). Despite the fact that both approaches have been reviewed and scrutinized extensively, the discussion and summarization of the results of the two models are presented in a biased manner: (1) Model results between models (e.g., NWFSC and CSS) are not given fair and equitable consideration; (2) CSS Model results are presented with misleading and unnecessary qualifier statements while output from NWFSC models are represented as fact with no qualification and no meaningful discussion of assumptions; (3) Fish modeling results are presented in a biased manner, use unnecessarily charged language, and are generally not presented in a fair and transparent manner particularly when modeling results differ between models. Examples of this bias become particularly pronounced as the effect descriptions in Chapter 3 are characterized in Chapter 7 as the justification for choosing the PA. The Draft EIS employs a TDG tool, a model used to quantify exposure of out-migrating salmon and steelhead to total dissolved gas (TDG) and the contribution of TDG to mortality irrespective of other sources. The model has not been peer-reviewed or otherwise scrutinized in any meaningful way, yet output, particularly related to reach-average exposure, is nonetheless presented as reputable. Model parameters are based almost solely on laboratory studies conducted decades ago. It strains credulity that these parameters, and consequently the mechanisms that drive output, would realistically represent the real-world effects of variation in TDG. Further, the model is highly dependent on or sensitive to uncertain parameter assumptions (e.g., TDGcrit. from laboratory studies), where the unsubstantiated selection of values can have a disproportionate effect on outcomes. The authors of the Draft EIS point to some of these insufficiencies briefly, but then include estimates as though TDG tool were a completely qualified model upon which decisions can be made. The Final EIS should eliminate the use of the TDG tool in its analysis of fish survival. The Draft EIS fails to consider in any meaningful way empirical field observations of TDG impacts to fish migrating in-river through the Snake and Columbia Rivers collected over two decades as part of the well-established Smolt Monitoring Program (SMP; http://www.fpc.org/smolt_home.html).	The co-lead agencies do not agree that the CRSO EIS presents information regarding the CSS Life Cycle model in a biased manner. Since the CSS model supports the choice of the Preferred Alternative, the co-lead agencies have utilized the outputs from CSS, in part, in order to make the selection of the Preferred Alternative. Most of the ecological models implemented for the CRSO EIS have entered into a peer review process using the IEPR process, although evaluations were not yet available at the time the draft CRSO EIS was distributed. These include the University of Washington (UW) TDG model. As there is no empirical data for the 125% TDG spill targets at all flow levels, we felt the need to model this highlight possible exposure levels. The UWs TDG model was already built, so we used that. This model does incorporate empirical data on fish behavior and survival, but the TDG-survival relationships are (necessarily) based on laboratory relationships. Because of the limitations of current models related to TDG and survival, those outputs from the TDG model were not used for decision making purposes. Experiments with confined fish will not accurately represent free swimming fish, which we know from telemetry studies of both adults and juveniles change depth regularly and can spend significant time at compensating depths, which reduce gas loading. The IEPR process should provide insight on the UW TDG model.
6692	27	nina.englander@doj.state.or.us	Oregon Department of Justice	As noted above, the Draft EIS relies heavilyin modeling or generally in discussionon information from laboratory or in situ mesocosm experiments. While useful in shedding light specific mechanisms underlying a response, scaling results from such experiments to the natural environment where conditions vary in time and space can be, and commonly is, tenuous. With this in mind, it is all the more surprising that empirical information from the SMP was discounted in the Draft EIS. Through the SMP, the action agencies have funded decades of monitoring at projects within the lower Snake and Columbia Rivers in order to observe for signs of GBT in fish as a means of identifying if adaptive managements changes to spill operations are necessary to avoid adverse impacts to fish. This federally funded program constitutes the best available data characterizing real-world population-level effects of variation in TDG on anadromous fish. The final EIS must consider 22 thoroughly this information to provide a more accurate picture of the effects of TDG on lifecycle survival across alternatives.	TDG levels are regulated under the Federal Clean Water Act, and administered by the States. Both Oregon and Washington have reassessed the available data on effects of TDG levels up to 125% of saturation on fish and other aquatic organisms. Based on this reassessment Oregon issued a 5-year "standard modification" and Washington issued a permanent rule change, supported by the Environmental Protection Agency (EPA), to allow TDG saturation up to 125%. There is considerable uncertainty in the effects; and therefore, monitoring was required by the states and EPA to ensure any adverse effects are detected and allow for adaptive management. Migrating salmon and steelhead may spend sufficient time at depths that will compensate for the high gas levels. However, fish and other organisms that spend extended times in less than a few meters of depth are at high risk. The Preferred Alternative will require a robust monitoring plan for salmon and steelhead to help narrow the uncertainty between the biological models and will help determine how effective increased spill can be in increasing salmon and steelhead returns to the Columbia Basin. Please see Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information. The co-lead agencies are aware of the Smolt Monitoring Program gas bubble trauma monitoring and recognize that it will be valuable tool for adaptive management as we implement the Preferred Alternative. While we have seen 125% or even greater TDG in the river in past years, it has been due to high flow events that forced spill due to limited powerhouse capacity. The river conditions will be different in the Preferred Alternative with higher TDG levels over much longer period of time and a smaller volumes of water in the river, and so we felt the need to model this and shed some light on possible effects. The UWs TDG model was already built, so the co-lead agencies utilized it for the analysis. This model does incorporate empirical data on fish behavior and survival, but the TDG-survival relationships are (necessarily) based on laboratory relationships. We agree with the comment that scaling results from such experiments to the natural environment where conditions vary in time and space can be, and commonly is, tenuous. The key component of this issue is understanding smolts exposure to TDG.
6692	28	nina.englander@doj.state.or.us	Oregon Department of Justice	The Draft EIS includes inaccurate analysis of environmental effect because it arbitrarily ties discontinuation of Lower Snake River Compensation Plan hatchery releases to implementation to MO3, which is then argued will create a survival decrement for naturally produced Snake River salmonids and applied as a predator swamping impact. This is a false premise for several reasons: (1) The Lower Snake River Compensation Plan is direct mitigation for the effects of the Snake River Dams. Even if a breach alternative were implemented, it would likely be years before breaching occurred and longer still for the full impact of these dams to be abated; (2) Implementation of an MO3 style breach alternative would require the action agencies to seek congressional authorization and funding, and a supplemental EIS would likely have to be developed. It is implausible that no mitigation package would be designed in that instance to maintain all sectors of society during, at the very least, the transition period to when one or more dams are removed. Specifically, it is highly unlikely Lower Snake River Compensation Plan hatchery releases would be discontinued abruptly as language in the Draft EIS asserts. Further, a period of monitoring to demonstrate naturally-produced fish abundances were actually increasing to levels that would allow limiting hatchery supplementation would be needed; (3) If the Lower Snake River Dams were breached, the lower 140 miles of habitat would be converted from a reservoir habitat that supports nonnative predatory fish species such as bass, walleye, and channel catfish to a riverine habitat type that is unsuitable for these predators. Thus, population abundances of nonnative predatory fish species would decrease, reducing exposure to predators, and likely mitigating and predator swamping effect; and (4) there are other effects of breaching of the four lower Snake River dams that would likely protect migrants from any predator swamping impact. Fish travel times are predicted to decrease substantially under MO3, further limiting exposure to both fish and avian predators. Also, according to CSS modeling, smolt to adult return rates under MO3 are predicted to exceed the level necessary to achieve generational increases in abundance. Therefore, any predator swamping effect would likely be temporary and attenuate as productivity accrues. This is important to consider given that any potential reduction in hatchery production would be gradual, as noted above. Given these points, the certainty of the predator swamping argument espoused in the Draft EIS is incomplete, if not misleading, and should be tempered or removed.	The Draft EIS acknowledges that with breaching of the lower Snake River dams in MO3, there would no longer be an obligation to fund the Lower Snake River Compensation Plan, which accounts for much of the hatchery production in the basin, other mitigation activities could be adjusted, and transportation of Snake River salmon and steelhead would no longer be possible. The effects to populations as they transition from primarily hatchery production to an increased wild production of fish is qualitatively discussed in Section 3.5.3.6. As stated on page 3-548, the co-lead agencies recognize there would be transitional needs that would be addressed through mitigation and adaptive management. The fish models are based upon data collected from past fish runs and there is no data available to inform an quantitative analysis for wild fish in the absence of hatchery fish. The co-lead agencies took a qualitative approach to inform the reader of other factors that could affect salmon but acknowledged the magnitude of those effects is not known. The Draft EIS (Page 3-550) objectively presents these factors and discusses the tradeoffs, including: 1.) the predators that remain after dam breach would be mostly native fish adapted to riverine systems and there would be lower predation by non-native reservoir fish; 2.) decreased travel time through the corridor would reduce avian and piscine predation; 3.) the reduced predation risk may be offset by a reduction in hatchery fish and lower predator swamping effect. A summary of this qualitative discussion is provided for the reader for each Snake River species.
6692	29	nina.englander@doj.state.or.us	Oregon Department of Justice	The Draft EIS suggests that after independent review (IEPR) of the NWFSC and CSS approaches to modeling, changes in conclusions may be reflected in the Final EIS and ROD (the similarities and differences in the two CSS models as well as COMPASS will be the subject of IEPR, the results of which will inform the final version of this EIS.). This would presumably occur without public or cooperating agency review and thus would place interpretation of findings from the IEPR and modification to the EIS at the sole discretion of the action agencies. This is antithetical to a fair and transparent process.	The IEPR process involves addressing all IEPR panel comments and all the comments and their resolutions will be publicly available. For this EIS, any comments and resolutions regarding the NMFS and CSS models are coordinated with NMFS and Fish Passage Center. In compliance with NEPA, the Final EIS would be published in the Federal Register, and the agencies would refrain from making a decision for a minimum of 30 days. During this time, the public may submit comments to the co-lead agencies for consideration in their Record of Decision. Ultimately, the co-lead agencies, as lead agencies, have final responsibility for the analysis in the draft and final EISs and the decision made in ROD.
6692	30	nina.englander@doj.state.or.us	Oregon Department of Justice	Language in the Draft EIS states, These eddies can adversely affect downstream travel time and in-river survival and are not accounted for in the models during low flow conditions. Consequently, to some degree both models may have the potential to overestimate improvements in juvenile survival, travel time, and SARs. Eddy formation would not be new under MO4; 23 Eddies form under current conditions. So, any deleterious effects due to eddies would be inherent in fitted model coefficients. Thus, models would not overestimate survival benefits due eddy formation specifically. Ultimately, eddy formation occurs in natural riverine habitats and any eddies that occur at CRS projects do not delay downstream travel times in any measurable way.	It is very much the case that eddies and non-uniform tailrace circulation is known to occur in the tailraces of dams under certain conditions. The Corps has funded creation of scaled physical models at the Engineer Research and Development facility in Vicksburg, MS, to carry out dye studies to help identify optimum spillbay and turbine balances under a range of flow conditions. In addition, 3D computational fluid dynamics models have been used at some of the CRS dams. The percentage of spill called for under MO4 would be in the high range of recently observed conditions during high flow years, and would typically exceed the range of spill during lower flow years, so there are few real world observations. Results from the dye studies at physical models allow us to qualitatively describe formation of eddies under this proposed range of conditions.
6692	31	nina.englander@doj.state.or.us	Oregon Department of Justice	Mitigation As participant in the development of the CRSO EIS as Cooperating Agency, the ODFW repeatedly recommended the following list of mitigation measures to Avoid, Minimize, Rectify, Reduce, or Compensate for environmental impacts to anadromous fish from the proposed CRSO structural and operational measures: 1) Install Passive Integrated Transponder (PIT) detector arrays at all project spillway weirs and other undetected passage routes as technology allows. 2) The Action Agencies should immediately fund or conduct lethal removal of any California or Steller Sea lion predating on salmonids or sturgeon at passage pinch points such as Bonneville Dam. 3) Optimize dam flows for White Sturgeon spawning and early life stage survival. 4) Reduce load following limited to +/- 5%. 5) Develop contingency operations to increase both juvenile and adult fish survival during drought, low flow years, or years of excessive water temperatures similar to 2015. 6) Construct and operate cool water intakes in the forebay of John Day dam to cool fish ladder temperatures during high water temperature periods. 7) Change FRM to make more water available to fish (relax rule curves to manage towards normative hydrograph). 8) Mimic natural hydrograph (ops) (including in the estuary). 9) Build secondary fish ladders at Lower Granite and Little Goose dams to facilitate year around volitional fish passage during periods when the primary ladders are dewatered for annual maintenance. Design secondary ladder entrances to minimize adult delay during high spill operations. 10)Maintain less than 1-degree Celsius water temperature differential between fish ladders and tailraces for all CRS projects. 11)Modify CRS project powerhouse intake fish screens to reduce lamprey impingement. 12)Spill Increase to maximize SPE (shouldn't change hydrograph) to improve juvenile fish passage. 13)Cease juvenile fish	NEPA requires that all relevant, reasonable mitigation measures that could diminish the adverse impacts of the project be identified in the document, even if they are outside the jurisdiction of the lead agency or the cooperating agencies. See 40 C.F.R. 1502.16(h) and 1505.2(c); 46 Fed. Reg. 18026. The inclusion of mitigation measures in Chapter 5 is not intended to indicate that the co-lead agencies, or the Federal government as a whole, have the authority to perform all of the measures listed. If the measures are outside the jurisdiction of the co-lead agencies, those measures will not be included in the Preferred Alternative or Record of Decision (ROD). Their inclusion in Chapter 5 serves to alert other agencies, officials, and the public who can implement the measures to the potential benefits of the measure. The co-lead agencies, in coordination with technical teams, including the cooperating agencies, compiled lists of all potential mitigation measures. Then, in comparison of the effects of each alternative to the No Action Alternative, highlighted where effects were minor, moderate, and major adverse effects. If adverse effects were negligible or minor but otherwise not measurable, and the resource did not otherwise have institutional or legal significance (i.e. wetlands), then mitigation was not proposed. If, when compared to the No Action Alternative, there were moderate or adverse effects, the teams developed a mitigation tool box (Appendix R, Part 3), which also presents rationales for not carrying forward mitigation measures. The commenter's proposed mitigation measures do not, however, appear to offset impacts associated with action alternatives. These were proposed in the workshop process and not selected because they did not offset identified effects of the Multiple Objective alternatives, and were accordingly not carried forward into the Preferred Alternative.

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				transport systems and focus on improving in-river juvenile salmonids survival. 14)Optimize spill patterns at each project. This would require conducting deferred maintenance and repairs at The Dalles project to allow for full operation of spillbay operations. 15)Provide volitional passage and reintroduce anadromous fish above barriers when and where appropriate within the Columbia Basin. 24 16)Develop and implement environmental flow operations to provide periods of overbank flow when and where appropriate. 17)Expand Albeni Falls flow operations to expand protections for downstream Chum operations below Bonneville. 18)Increase opportunities for selective flow augmentations from storage reservoirs to benefit flow and water temperatures to increase anadromous fish survival. 19)Maximize storage of cold water at DWA, LIB and CJO projects for later summer flow augmentation. 20)Minimize reservoir operating elevations and viability operations to minimize reservoir surface area and fish travel time through reservoirs. 21)Reduce tailrace water elevation fluctuations due to load following (for sturgeon this would be directed to early life stage development time). 22)Increase likelihood of refill at storage projects that provide downstream water temperature management. 23)Increase shoreline vegetation for habitat and shading. 24)Implement deeper (existing) storage reservation diagrams to reduce FRM draft. 25)Investigate development of guide\ curves to avoid situations where heavy spill has to occur in the spring to meet FRM requirements. Concept would be to have a guide curve that is forecast based (to only be used in high water supply situations) to allow for earlier draft than the current SRDs. 26)Change seasonal/monthly turbine operations/priorities to change temperature mixing for cooling. 27)Repair and reconfigure stilling basins (project specific) to higher elevation/less depth for plunging flows to limit TDG. 28)Install deterrents to fish entrance of draft tubes when not in operation 29)Reconnect mainstem and off channel habitats. 30)Restore mainstem habitat through increased habitat complexity (rapid, riffle, run, pool), shallow water rearing habitat connectivity, temperature reduction, riparian function restoration, restore ecosystem processes. 31)Decrease White Sturgeon habitat fragmentation through dam passage improvements and/or dam removal. 32)Develop strategies to rebuild and/or augment fish ladders to promote volitional sturgeon passage. 33)Develop operational plans to strategically draw down reservoirs to minimize absorption of solar radiation and minimize volume of reservoir habitats that favor exotic predatory fish species. 34)Expand wire arrays to minimize avian predation at project tailraces. 35)Install wire array to dissuade avian predation at McNary 36)Modify project operations to allow larval lamprey (ammocoetes) in shallow water rearing areas to safely move to deeper water as water surface elevation drops. Unfortunately, none of these recommendations appear as new mitigation measures in Mitigation Chapter of the Draft EIS. These are important mitigation opportunities to effectively offset 25 many of the unintended consequences to anadromous salmonids that would occur as a result of implementation of the structural and operational measures currently proposed in the Draft EIS. ODFW urges the action agencies to incorporate of these mitigation measures as part of the Final EIS.	
6692	32	nina.englander@doj.state.or.us	Oregon Department of Justice	The Preferred Alternative (PA) does not meet the purpose and need for the proposed action. Specifically, the Draft EIS purpose and need states, In addition, the co-lead agencies are responding to the Opinion and Order issued by the U.S. District Court for the District of Oregon such that this EIS will evaluate how to insure that the prospective management of the System is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of designated critical habitat, including evaluating mitigation measures to address impacts to listed species. The Draft EIS claim, Operations intended to benefit anadromous and resident fish should contribute to the survival and recovery of ESA-listed species. Yet neither of the quantitative fish models supports this assertion (particularly when climate change is considered). In fact, both approaches to modeling alternatives predict anadromous Snake River ESA-listed yearling salmonid smolt-to-adult return (SARs) survival rates below that necessary to avoid jeopardy and move toward recovery. Specifically, CSS analyses predict the PA will be deficient, in terms of average Snake River yearling Chinook life-cycle survival (~2.7% SAR) relative to that necessary to facilitate recovery (2-6% SAR range, averaging 4% SAR). The NWFSCs life-cycle model predicts the PA will underperform more severely for Snake River yearling Chinook Salmon survival (<1.0% SAR) falling far below not only what is necessary for recover, but also the rate of adult return required to avoid population declines (2% SAR). This is true even when output from this model is scaled to mimic latent effects (1.12% SAR with a 50% adjustment). Where other species and stocks were modeled, or where surrogates were considered in lieu of direct estimates, the PA similarly fell short of the rate of adult return likely necessary for recovery or to avoid generational decreases in abundance.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA listed species. The EIS set forth eight objectives which, in tandem with the purpose and need statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the EIS objectives) as well as the EIS objectives for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. The Preferred Alternative is also more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. The co-lead Agencies are required to evaluate a reasonable range of alternatives in the EIS. However, when there are potentially a very large number of alternatives, only a reasonable number of examples, covering the full spectrum of alternatives, must be analyzed and compared in the EIS. Alternatives for this EIS were developed from measures identified during public scoping, regional forums with scientists and technical experts from cooperating agencies, and expert opinion from within the co-lead agencies and in the literature. These alternatives represent a reasonable range of alternatives for the maintenance and operation of the CRS. For additional information on the alternatives development, see Chapter 2 and Appendix A, which explains why single-objective alternatives were not carried forward for detailed study in the EIS. It should be noted that the 2-6% Smolt-to-Adult return (SAR) target referenced in this comment refers to the Northwest Power and Conservation Council (Council) target for broad-sense recovery and is separate and distinct from the obligations of any single entity or in this case a requirement to be met solely by the co-lead agencies. Just as the Councils fish and wildlife program encompasses both federal and non-federal stakeholders in the Columbia Basin, the Councils recovery goals are shared by many parties. Based on the Preferred Alternative analysis, it will make a substantial contribution, but the Councils broad sense recovery goals are beyond the scope of this EIS, which focuses on the effects associated with the operation and maintenance of the 14 CRS projects. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species as that is a broader goal with shared responsibility. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. The effects of delayed mortality are discussed throughout the EIS analysis for each alternative and current high quality data and the best available scientific information was used for this analysis. Based on analysis by the CSS, SARs associated with population declines (SARs of less than 1%) have the potential to be greatly reduced under the Preferred Alternative, and on average, SARs are expected to be well above 2.0% for Snake River spring Chinook salmon and steelhead. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information.
6692	33	nina.englander@doj.state.or.us	Oregon Department of Justice	Failure to Disclose and Analyze Environmental Effects of a Preferred Alternative Beyond Year One Operation There is a fundamental disconnect between the time period of analysis cited in the Draft EIS (e.g., likely environmental impacts over a 25-year period) and the description of the PA (only one year of operational measures clearly described with subsequent years operations dependent upon adaptive management that appears to allow significant variations in operation not analyzed in the Draft EIS). This disconnect is compounded by language in Appendix R that inadequately describes adaptive management (presumably operation in years 2-25). In other words, Appendix R describes adaptive management and suggests the PA could be fundamentally changed as opportunities are presented. Yet there is no description of what these opportunities might be or 26 what operational changes may be implemented; however, this Draft EIS also includes a description of environmental consequences of the Preferred Alternative. So which is it? Have the action agencies failed to accurately analyze the likely environmental impacts of the PA (i.e., misrepresented environmental impacts for year one only as opposed to 25 years of such operations), or does this Draft EIS fail to identify and disclose to the public what operations and measures were analyzed as occurring in years 2-25 in the PA? This PA appears to be that of a programmatic EIS, but there is no acknowledgment by the action agencies that site-specific analysis must be conducted when more concrete operations and measures are identified. In short, the action agencies have analyzed only the impacts of a single year of proposed operations. This was done without apparent consideration of future check-points or any proposals for supplemental analysis to assess environmental impacts if and when operations or structural measures are manipulated in future years. As discussed above, given the Action Agencies failure to identify the environmental impacts of individual measures or structural changes, this Draft EIS does not provide typical bookends to allow such adaptive management in the future absent supplemental environmental analysis.	The effects of the Preferred Alternative are described for a 25-year period of analysis, not a single year of operations. If it is determined based on new information that actions should be modified as part of an adaptive management process, the co-lead agencies will review the change being considered to determine if the effects are described in this EIS. Depending on the change being considered, an updated Record of Decision may or may not need to be issued based on the analysis in the EIS. If the the expected effects are not described in the EIS, then it may be necessary to prepare a supplemental NEPA document to evaluate the proposed change in accordance with the Council on Environmental Quality's Regulations for Implementing the Procedural Provision of the National Environmental Policy Act (40 C.F.R. 1500-1508).
6692	34	nina.englander@doj.state.or.us	Oregon Department of Justice	NEPA Process Irregularities Chapter 1 and 2 of the Draft EIS describe how the Draft EIS will use descriptors such as no effect, marginal effect, minor effect, and major effect to characterize the magnitude, duration, and severity of environmental consequences. Yet Chapter 7, abandons use of these descriptors as effects are described to justify the choice of the PA and, in particular, justifying why other alternatives or measures in other alternatives are discounted. ODFW believes the Final EIS must use consistent language when discussing alternatives	The Co-Lead agencies agree that consistent language should be used when discussing alternatives and updated Chapter 7 to ensure consistent use of descriptors of effects.
6692	35	nina.englander@doj.state.or.us	Oregon Department of Justice	Recreational fisheries socioeconomic analysis is absent from the PA analysis. The economic contributions section of the PA is a brief summary of previously developed regional economic analyses and lacks any recent or current analysis. Consequently, this section is not based-upon sound science and is overly general, not being specific to the study area. Further detail and context are needed for the reader to be able to interpret this summary and compare these studies while understanding the key assumptions specific to each without having to solely rely on dated analyses	The EIS evaluated beneficial and adverse effects across an array of resource areas including potential effects at the national, regional and local level; effects are monetized and quantified, where possible, and also described qualitatively. As is common in NEPA analyses, the beneficial and adverse effects of the alternatives are expressed as a variety of qualitative and quantitative environmental and economic metrics throughout the EIS to inform decision-making, including the effects of the alternatives on fish as detailed in Section 3.5. That the effects of the alternatives on fish are not expressed as monetized economic values does not mean that they were not considered in the context of the analysis. The EIS does not employ a cost-benefit framework for decision-making. Instead, the EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as the dam breaching alternative. However, the Preferred Alternative also meets most of the other objectives of the study for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. The analysis in Chapter 7 incorporates and relies upon the analysis in the previous chapters. The EIS provides an evaluation of the social welfare and regional economic effects of the No Action Alternative and the Multiple Objective alternatives, including the effects on recreation (Section 3.11) and commercial fisheries (Section 3.15). The EIS described the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. NMFS estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which is described qualitatively.

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					For the effects on recreational fishing under MO3 along the lower Snake River below Lewiston, the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River) as an indicator for fishing visitation in this reach. The EIS describes that the visitation in the long-term in the lower Snake River, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting tourism businesses. For MO1, MO2, MO4, and the Preferred Alternative, the recreational fishing evaluation describes the impacts by referencing the potential effects on relevant fish populations, as described in Section 3.5. Fish modeling results vary for some of the alternatives, for example for the Preferred Alternative and MO4 (i.e., models show either beneficial or adverse effects to anadromous fish), so it is assumed that the potential changes in recreational fishing would follow these changes in fish abundance. The contribution of Columbia River origin fish to ocean fisheries is described in Section 3.15.2.1. Because there is considerable uncertainty regarding the overall effects of the alternatives on regional fish populations, and how such changes may affect the management of the fisheries, effects associated with changes in commercial and recreational fisheries under the alternatives were described qualitatively. This analysis evaluates potential effects on fisheries by referencing the potential effects on relevant fish populations, as described in Section 3.5.
6692	36	nina.englander@doj.state.or.us	Oregon Department of Justice	There are terminology errors in the Passive Use Values Sections that should be corrected. Clarifications are made in the page specific comments. The key issue is the interchangeable use of the terms "passive use" and "non-use values". These types of values are different and using the same term for them interchangeably is incorrect and confusing. There are also quite a few misuses of the term Total Economic Value (TEV), which by definition, should include non-use values. In addition, in the summary of studies it is unclear how the dollar values for the WTP estimate were adjusted for inflation and put into a comparable year, until the reader gets to the table at the very end of the section. 27 The social welfare section lacks robust quantitative analysis; therefore, the analysis lacks scientific rigor for all scenarios. It is overwhelmingly qualitative in nature; the authors defend this putative necessity by stating: Due to the complexity of fishery management, it is not possible to predict changes in fishery management that may result from changes in fish abundance. This lack of quantitative data makes is difficult to compare scenarios and hard to determine the magnitude of impact(s) on social welfare. The Final EIS should include an assessment using the current fishery management schema as the baseline and quantitatively estimate changes in management structures, actions and allocations according to predicted changes in species abundances. This approach may require some assumptions; however, it would make quantitative comparisons of the alternatives possible and the necessary assumptions could be clearly defined, presented, and disclosed, including a discussion of uncertainty related to future fishery management.	The EIS acknowledges in Section 3.15.2.2 that various definitions of passive use values exist, and that this document relies on the definitions consistent with the referenced source studies in this section, as well as the Northwest Power and Conservation Council and NMFS. Based on these definitions, for example, catch and release fisheries are a non-consumptive use value, whereas keeping fish to eat would be a consumptive use value. Passive use values include the option to use the resource in the future ("option value") and thus are referred to as "passive use" instead of "non-use," although these terms are often used synonymously. Additionally, passive use/non-use values are described as a component of total economic value in this Section. The commenter is correct that the EIS does not include a quantitative analysis of the effects of the alternatives on fisheries. Consistent with NEPA analysis framework, the beneficial and adverse effects in the EIS are expressed as a variety of qualitative and quantitative environmental and economic metrics. The fisheries analysis references the effects of the alternatives on fish, as detailed in Section 3.5. That the effects of the alternatives on fish are not expressed as monetized economic values does not mean that they were not considered in the context of the analysis.
6692	37	nina.englander@doj.state.or.us	Oregon Department of Justice	Failure to Utilize High Quality Information and Accurate Scientific Analysis The water quantity/quality dataset for the PA provided to the fish modelers characterized variation on a daily average time step (CSS-78). The Juvenile Fish Passage Spill Operations measure in the PA, based on the Regional 2020 Flexible Spill Agreement operation requires data analysis on an hourly time step given operations change within day (i.e., 16-hours enhanced spill/8-hours power-focused spill). Because fish at dams begin to sound at dusk, they are more vulnerable to increased powerhouse encounter rates during nighttime hours than during daytime hours. This behavior cannot be modeled where input data do not capture diel variation in water quantity/quality parameters. Therefore, the fish modeling results are almost certainly overestimating the actual survival benefit of the PA (CSS Memo CRSO-77; Chapter 2 of the CSS 2019 Annual Report). The PA, as currently constructed, will not be able to provide adequate fish survival benefits particularly in light of pressures on survival from future climate change. Although the CSS modeling predicts a slight improvement in SARs under the PA, compared to the NAA, predicted mean rates were still far less than the 4% regional benchmark necessary for healthy and harvestable populations. Further, SARs at the lower end of all simulations (i.e., 25th percentile) for the PA was less than 2%; below the level necessary (2% SAR) to achieve population replacement and avoid generational decreases in abundance. These values at the lower end of predictions will become increasingly more likely with future climate change as conditions in both freshwater and the ocean vary more dramatically. The only alternative analyzed as part of the CRSO EIS capable of SARs that meet these regional goals to rebuild populations (2% SARs) and provide for recovery to healthy and harvestable populations (Average 4% SARs) is MO3 the alternative including breach. Yet, language in the PA dismisses the breach measures as viable components of a PA as they would likely, in the Action Agencies' estimation, preclude meeting many objectives of the purpose and need. The argument focuses heavily on deleterious impacts to flood risk management (FRM), water supply/irrigation, hydroelectric power generation, navigation and recreation and seems to imply that these impacts cannot be mitigated. In addition, and as noted above, the PA fails to acknowledge that breach measures are the only mitigation action that would likely lead to recovery of imperiled salmon and steelhead stocks. The document seems to 28 point to uncertainty in modelling of benefits to fish as a rationale to discount output, yet one conclusion remains consistent among the different approaches (i.e., CSS vs NWFSC fish modeling results); breach appears to be the one path that could precipitate recovery of listed	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-lead agencies numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets most other EIS objectives, including those for: resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the draft EIS the co-lead agencies did not identify MO3 because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. In its analysis of effects, the CRSO EIS used high-quality data and best science, including models and studies published in peer review science journals. Specific to salmon and steelhead, the agencies used two primary modeling approaches which yielded a range of potential outcomes for the alternatives. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult return rates will increase for both Snake River spring Chinook and steelhead and will average above 2% as a result of the Preferred Alternative, increasing SAR from 2.0% to 2.7% for Chinook, a 35% relative increase. The NMFS COMPASS and Lifecycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. To address uncertainty highlighted by the two models, the Preferred Alternative includes working with regional sovereigns to develop a study that assess the effectiveness of the increased spill regime on adult returns as well as assessment and management of adverse unintended consequences, such as long delays of adult migrants, or TDG-related mortality of juvenile migrants. The framework for the adaptive management process is detailed in Appendix R, Part 2, Process for Adaptive Implementation of the Flexible Spill Operational Component of the CRSO EIS. The Preferred Alternative will make a substantial contribution towards recovery targets. Regarding biases due to hourly vs. daily averages: In practice, model estimates may not underestimate powerhouse passage (or overestimate survival) due to day vs. night passage differences because limitations on nighttime spill reductions are already in place through the adaptive management process and lessons learned from the 2019 flexible spill operation. These adjustments in the amount of night-time spill were informed by state, Tribal, and Federal biologists with expertise in dam operations and their effects to fish passage. These examples of adaptive management will continue during post-ROD operations.
6692	38	nina.englander@doj.state.or.us	Oregon Department of Justice	Appendix R: The Process for Future Adaptive Implementation of the Fish Spill Operation Taken as a whole the description of the process for adaptive management simply implies the operations under the PA will change through time, starting in year 2 of 25. There is no actual information which allows the reader to discern how operations will change, and consequently, if operations will change for the better or worse for fish survival as compared to the first year of operation in PA (e.g., heavier focus on power generation). Further, specific language in Appendix R suggests future (i.e., beyond year two) implementation of a block spill experimental design or virtually any operational or structural adjustments to the PA deemed opportunities, regardless of whether those adjustments are detrimental to fish.	The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. The framework for the adaptive management process is detailed in Appendix R, Part 2, Process for Adaptive Implementation of the Flexible Spill Operational Component, of the Columbia River System Operations EIS. It is the intention of the co-lead agencies to engage regional state, Tribal, and Federal fish managers in the development of an appropriate adaptive management process utilizing their respective salmonid management expertise. The goal of that adaptive management process would be to consider additional opportunities to further the effectiveness of the operation while maintaining the goals of the flexible spill operation: additional improvements for salmon and steelhead, maintain opportunities to operate the CRS for hydropower generation in a flexible manner that provides value to the Northwest, is implementable by the dam operators, and provides opportunity to reduce uncertainty and improve the learning opportunities around how operations of the CRS can influence the magnitude of latent mortality effects. The co-lead agencies have not made any determinations on what the preferred approach would be for a regionally developed study plan, and intend to develop that study jointly with regional experts. Unforeseen outcomes or unintended consequences will be monitored and adjusted using current in-season management teams, such as the Technical Management Team. The co-lead agencies do not feel that the short-term nature of this operation is an accurate interpretation of the Preferred Alternative. If no adaptive management needs are identified, the operation would continue through the duration of the ESA consultation period. The co-lead agencies will provide additional clarifying text in Appendix R to make these points more clearly.
6692	39	nina.englander@doj.state.or.us	Oregon Department of Justice	Failure to Accurately Disclose Likely Environmental Impacts for Specific PA Measures All but two of the Structural Measures in the PA either are measures retained from the NAA or are new measures developed to benefit lamprey (some of which are likely to constrain survival of salmon and steelhead). The only structural measures included in the PA that were developed to mitigate for reductions in salmonid survival are the Lower Granite Trap Modifications and the Bonneville Ladder Serpentine Weir Modifications. Both of these measures have been reduced in scope to only include trap gate modifications which will likely reduce anticipated benefits to less than measurable levels. Taken as whole, the Structural Measures in the PA will have an overall adverse impact on salmonid survival as compared to those in the No Action Alternative. Conversely, all of the Operational Measures in the PA are different from those proposed in the NAA except one: the Fall Operational Flexibility for Hydropower at Grand Coulee. Of the sixteen new Operational Measures, fifteen are likely to be harmful to salmonid survival either directly or by shifting risk of available water for spring flow from power generation or irrigation onto flow availability for fish. Only one Operational Measure, the Juvenile Fish Passage Spill Operation, is likely to benefit survival of salmonids as compared to the NAA. As noted, only one Operational Measure-Fall Operational Flexibility for Hydropower at Grand Coulee-is likely to be neutral to salmonid survival. Taken as a whole, the fourteen new Operational Measures are likely to be harmful to salmonids, functionally eroding the potential benefits of the Juvenile Fish Passage Spill Operation. Generally, any measures in the PA to promote salmon and steelhead survival would be ameliorated by actions to support other objectives; Concerns on measures specific to the PA These two PA measures showed promise for anadromous fish benefits early in the Draft EIS process but were narrowed in scope during development of the PA that any potential would be negligible and not likely measurable in magnitude: 29 1) Lower Granite Trap Modifications measure - The measure has been reduced in scope to include modifications to just the trap gate which may have also reduced the potential benefits to adult salmonid survival; 2) Bonneville Ladder Serpentine Weir Modifications measure - The measure has been reduced in scope to include modifications to just the trap gate which may have also reduced the potential benefits to adult salmonid survival as compared to its scope in MO1 and MO3; These seventeen PA measures are described as beneficial or neutral to fish survival in the Draft EIS but are actually harmful to anadromous salmonids if they were implemented: 1) Ice Harbor Project Turbines 1 to 3 Replacement and Generator Rewind measure- Even if the direct mortality of high-capacity turbines is shown to be no higher than that of the existing turbines, the increased turbine flow will lead to increase powerhouse passage of the run-at-large. This effect, compounded over multiple dams, will have a net negative impact on the smolt-to-adult returns. If the increased powerhouse flows are not included in the modeled datasets provided to the fish modelers, the increase in powerhouse passage will not have been reflected in the PA modeling fish analyses. This failure to accurately disclose impacts results in an overly optimistic picture of benefits to fish under the Preferred Alternative; 2) McNary Project Turbine Replacement measure- Even if the direct mortality of highcapacity turbines is shown to be no higher than that of the existing turbines, the increased turbine flow will lead to increase powerhouse passage of the run-at-large. This effect, compounded over multiple dams, will have a net negative impact on the smolt-to-adult returns. If the increased powerhouse flows are not included in the modeled datasets provided to the fish modelers, the increase in powerhouse passage will not have been reflected in the PA modeling fish analyses. Ultimately this results in a Draft EIS description of a measure beneficial to fish survival that in reality will be a measure that is detrimental to fish survival; 3) Improved Fish Passage Turbines at John Day Dam measure- Even if the direct mortality of high-capacity turbines is shown to be no higher than that of the existing turbines, the increased turbine flow will lead to increase powerhouse passage of the run-at-large. This effect, compounded over multiple dams, will have a net negative impact on the smolt-toadult returns. If the increased powerhouse	The commenter is correct in that many actions currently underway to improve the conservation and survival of anadromous fish in the CRS are being carried into the Preferred Alternative (PA). It is also correct that not many new structural changes are included in the PA. That is because the overhaul of the CRS for fish passage, which has been undertaken over the past few decades, is nearing completion. While the co-lead agencies did consider additional passage structures, only a few were carried forward into the PA. Instead, the PA includes increasing spill for juvenile fish as the primary means of improving survival for salmon and steelhead migrating through the system. This is no small change: in order to implement it the States of Washington and Oregon had to change their water quality standards. The CSS model predicts an overall improvement in SARs for Snake River salmon and steelhead as a result of the Preferred alternative, averaging greater than 2% for both salmon and steelhead. In addition, the Preferred Alternative has measures intended to increase upstream passage success and reduce injury and mortality for Pacific lamprey. These measures are proposed structural improvements that include converting extended-length submersible bar screen material to screen material that would not impinge or entangle juvenile lamprey, expanding the network of lamprey passage structures to bypass impediments in fish ladders, changing the design for turbine cooling water strainers, and replacing turbines for safer fish passage. The co-lead agencies do not agree that powerhouse flows were incorrectly captured in the EIS analysis. Turbine flows were accurately represented in the No Action Alternative for Ice Harbor and McNary turbines as well as for John Day in the Preferred Alternative. The co-lead agencies would remove screens in front of IFP turbines only after testing to ensure passage conditions would not erode overall dam survival. PITPH would not change with screens in or out. Operations above 1% peak turbine efficiency in order to manage TDG, implement the use of contingency reserves, and carry balancing reserves are expected to be utilized on a basis that will have negligible effects on salmon and steelhead. The co-lead agencies have provided estimates of frequency and duration of these operations and do not expect them to have a measurable impact. These operations were also included in the co-lead agencies proposed action to NMFS and USFWS for further review and potential refinement. While different from the No Action Alternative, the increased forebay range flexibility measure is the same operation as described in the 2019-2021 Spill Operation Agreement and consulted upon in the 2019 NMFS CRS BiOp. This operation is not expected to have any biologically significant effect on travel time or survival. The early start of transport measure is intended to allow for early transportation to continue to monitor and assess the efficacy of transportation compared to in-river migration. If migration timing shifts earlier, this will be an important operation to consider. The actual start of spring transportation will continue to be coordinated with regional salmon and steelhead experts through the Technical Management Team. The co-lead agencies will implement the zero generation operation in a manner that has negligible effects to any salmon or steelhead present in the river. Nighttime operations will end prior to daylight hours and allow attraction flow to fish ladders to aid passage for fish that are attempting to pass the projects. Daytime zero generation operations will not be implemented until mid-December when juvenile and adult migration has largely ceased. These effects have been qualitatively assessed by the co-lead agencies and will also be reviewed by NMFS and USFWS during the development of their respective Biological Opinions. Avian predation, particularly of steelhead, continues to be an area of emphasis. The modified operation of the John Day reservoir has been proposed and supported by many regional salmon and steelhead experts. Contrary to the characterization in this comment, the full pool operation at the John Day project would only be implemented outside of the fish passage spill season (i.e. full pool operations would not occur in July and August).The temporary extension of Performance Standard spill is only anticipated for use in the event of unanticipated negative impacts of the 125% flexible spill operation included in the Preferred Alternative. This action would be used to alleviate known harm and would therefore be a benefit in the instances when used. Structural improvement at Little Goose are intended to improve known issues. Additional structural modifications would be proposed, assessed, and implemented if warranted and found effective through existing Regional Forum processes such as the Fish Facilities Design Review Workgroup (FFDRWG).

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				flows are not included in the modeled datasets provided to the fish modelers, the increase in powerhouse passage will not have been reflected in the PA modeling fish analyses. Ultimately this results in a Draft EIS description of a measure beneficial to fish survival that in reality will be a measure that is detrimental to fish survival; 4) Fewer Fish Screens measure - Fish screens are in place to shift salmonid power house encounters toward bypass systems and away from turbines to increase survival. Assertions that "fish friendly turbines" will markedly reduce direct mortality is dubious, because even assuming a marginal reduction in mortality, removing screens promotes 30 passage through turbines; so, on average, the mortality burden will necessarily be greater than if screens were in place; 5) Sliding Scale at Libby and Hungry Horse measure - Storage Project draft limits/targets are set based on irrigation supply draft limits and/or FRM curves and targets. Any measure that allows for increased draft prior to spring refill or increased storage for irrigation will increase the likelihood that the volume of water that would have been available for spring flow augmentation is instead redirected to achieve refill targets or irrigation supply targets instead. This effectively prioritizes power production and/or irrigation over fish survival; 6) Modified Draft at Libby measure - Storage Project draft limits/targets are set based on irrigation supply draft limits and/or FRM curves and targets. Any measure that allows for increased draft prior to spring refill or increased storage for irrigation will increase the likelihood that the volume of water that would have been available for spring flow augmentation is instead redirected to achieve refill targets or irrigation supply targets instead. This effectively prioritizes power production and/or irrigation over fish survival. 7) Planned Draft Rate at Grand Coulee measure - Storage Project draft limits/targets are set based on irrigation supply draft limits and/or FRM curves and targets. Any measure that allows for increased draft prior to spring refill or increased storage for irrigation will increase the likelihood that the volume of water that would have been available for spring flow augmentation is instead redirected to achieve refill targets or irrigation supply targets instead. This effectively prioritizes power production and/or irrigation over fish survival; 8) Update System FRM Calculation at Grand Coulee measure - Storage Project draft limits/targets are set based on irrigation supply draft limits and/or FRM curves and targets. Any measure that allows for increased draft prior to spring refill or increased storage for irrigation will increase the likelihood that the volume of water that would have been available for spring flow augmentation is instead redirected to achieve refill targets or irrigation supply targets instead. This effectively prioritizes power production and/or irrigation over fish survival; 9) Slightly Deeper Draft for Hydropower measure - Storage Project draft limits/targets are set based on irrigation supply draft limits and/or FRM curves and targets. Any measure that allows for increased draft prior to spring refill or increased storage for irrigation will increase the likelihood that the volume of water that would have been available for spring flow augmentation is instead redirected to achieve refill targets or irrigation supply targets instead. This effectively prioritizes power production and/or irrigation over fish survival; 10)Contingency Reserves Within Juvenile Fish Passage Spill measure - This measure simply transfers the risk from a need for a contingency operational change from power generation onto fish survival. When contingency reserves are employed, fish survival will be diminished. Incorporation of this measure does not support the purpose and need of action to address improving the survival and recovery of species; 11)Above 1% Turbine Operations measure- This measure would increase the proportion of flow going through the powerhouse as opposed to over the spillway when implemented. Salmonid survival decreases as the proportion of flow increases going through 31 powerhouses as opposed to over the spillway. Incorporation of this measure does not support purpose and need of action to address improving the survival and recovery of species; 12)Increased Forebay Range Flexibility measure - This measure will increase the average forebay elevation in reservoirs during the salmonid outmigration season which will result in greater travel times and decrease salmonid survival; 13)Start Early Transport measure - Smolt-to-Adult return rates (SARs) are typically better for salmonids that migrate in the river as compared to those that are transported, particularly earlier in the spill season. This will likely decrease salmon and steelhead SARs; 14)Zero Generation Operations measure - this measure will effectively increase ponding during fall/winter periods. Although there will be few juvenile salmonids outmigrating during this period, there are kelt and adult overshoot steelhead that will need to move downstream preferably via spill as opposed to through turbines; 15)Predator Disruption Operations measure - Similar to the Corps previous avian predation management plans, this measure is highly unlikely to be effective at decreasing predation rates by avian predators on juvenile salmonids. The avian predators of the Columbia River have proven to be extremely flexible in moving nesting locations in response to previous Corps management actions. At the same time increasing the forebay elevations during spring salmonid outmigration periods will not likely be effective at reducing avian predation rates and will increase juvenile salmonid travel time and decrease survival of outmigration salmonids through the John Day reservoir; 16)John Day Full Pool measure - operating John Day pool at full elevation will create a larger reservoir surface area which will decrease juvenile salmonid survival during the fish passage season and increase the collection and absorption of solar radiation over the summer and early fall portions of the year. This will likely increase water temperatures during periods (July, August, and September) when temperatures already exceed state and tribal water quality standards and lead to decreased adult salmonid survival and possibly the incidence of severe adult fish kills such as those that occurred in 2015; 17)The Temporary Extension of Performance Standard Spill Operations mitigation measure will negate any benefits to salmonid survival resulting from the Juvenile Fish Passage Spill Operations measure; This PA measure will only prolong unintended consequences to anadromous fish if repaired to status quo: 1) Maintenance improvements to the Little Goose jetty and retaining wall mitigation measure - as currently described, this measure would simply repair/rebuild the jetty and retaining wall to preexisting condition. The Little Goose tailwater configuration is the most problematic project from the perspective of potential adult delay and/or juvenile egress of all the projects under consideration as part of the CRSO EIS, particularly during high spill conditions. Juvenile fish passage spill is annually curtailed at this project due to potential unintended biological consequences - perceived adult delay. Alternatively, this mitigation measure should first evaluate what tailrace configurational 32 changes need to occur to alleviate the unintended biological consequences and rebuild tailrace structural features in such a way as to provide meaningful mitigation rather than just rebuilding to the known problematic status quo configuration.	
6694	1	ander690@wwu.edu	N/A	My main concern is in regards to how this report addresses the plans to comply with the Endangered Species Act. As it stands, this report shows the Columbia River Systems Operations preferred course of action is to maintain its dangerous status quo in regards to the endangered fish populations of the Snake Dams and effectively ignore the consideration of dam breaching. I understand that dam breaching was one of the actions considered in MO3, but due to the fact that this option is not preferred, and because economic cost was more greatly considered than ecological cost, it is clear to see that MO3 actions will not be implemented if considerable pressure is not put on your organization. Without dam breaching, the perilous state that Chinook and other fish species are currently existing in the Lower Snake River will be extended, and almost guarantee the eventual extinction of this species that you are required to restore to comply with the mandates of the Endangered Species Act and the Northwest Power Act. I greatly question the listed preferred action which includes to maintain these dams that have been demonstrated to cause the decline of endangered fish species and maintain these fish at a fraction of their historic abundance. This is unacceptable when you consider that this is in complete violation of the Endangered Species Act. Additionally, I believe it to be wildly irresponsible that not one peer reviewed article was cited in the entire DEIS report. There is clear, scientifically backed evidence that shows that 1) the current, costly efforts in salmon conservation are not working to increase salmon populations and 2) the only action that has been shown to work in regards to greatly restoring endangered fish species hurt by dams has been dam breaching.	There are many factors that effect salmonid populations that are outside the authority of the co-lead agencies. Both human-caused and natural factors that are outside the responsibility and control of the co-lead federal agencies, also contribute to the decline and recovery of fish, and will continue to strongly influence fish and their habitat. Salmon and steelhead have been adversely affected in the Columbia River Basin over the last century by many activities including human population growth, urbanization, introduction of exotic species, overfishing, development of cities and other land uses in the floodplains, water diversions for all purposes, dams, mining, farming, ranching, logging, hatchery production, predation, ocean conditions, and loss of habitat. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple legal responsibilities, including compliance with Section 7 of the Endangered Species Act. Under Section 7(a)(2) of the ESA, the co-lead agencies must insure that any action authorized, funded, or carried out is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of habitat of such species. The EIS concluded MO3, which includes breaching the four lower Snake River dams would have greater improvement to certain salmon species in the lower Snake River. It did not, however, conclude there was greater certainty of that result in MO3 over any other alternative. Because of delayed response time in MO3, and the potential severity of the short term effects, MO3 would likely have the most substantial uncertainty in terms of beneficial effects. Section 3.5 provides a summary of the fish analysis for the No Action Alternative and four of the multiple objective alternatives. Chapter 7 provides a summary of the fish analysis for the Preferred Alternative. With respect to the Preferred Alternative, the CSS model predicts that average Smolt to Adult return rates would increase for both Snake River spring Chinook and steelhead and will average above 2% (the lower end of the Northwest Power and Conservation Councils recovery targets for the region) as a result of the Preferred Alternative, increasing from 2.0% to 2.7% for Chinook, a 35% relative increase. The NMFS COMPASS and Lifecycle Models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information. Based on the EIS analysis of the Preferred Alternative, it will make a substantial contribution towards recovery targets. Chapter 8 demonstrates the agencies compliance with applicable laws, including NEPA and the ESA. Finally, Chapter 11 includes all of the references relied on in the EIS, including peer-reviewed articles.
6694	2	ander690@wwu.edu	N/A	Five years ago, the 106 foot San Clemente Dam located on this river was torn down due to concerns over the endangered steelhead trout that are indigenous to this area. Before the dam was removed, there were many conservation efforts similar to the ones occurring on the Columbia River, and just like the Columbia River, none of them were working to restore steelhead. Now, just five years later, over a hundred endangered trout have been found past the dam removal site where zero existed before, and the number is projected to keep growing.	The commenter is correct regarding success in restoration of spawning habitat and reintroduction into blocked areas following dam removal such as on the Elwha or San Clemente Rivers. However, these examples do not necessarily have relevance to the lower Snake River Dams. Using some prominent examples in the Pacific Northwest, the Elwha and Condit dams had no passage, and provided few economic benefits. The Draft EIS analysis predicts short term adverse effects including high sediment and low oxygen concentrations that will be harmful to fish as a result of dam breach. However, the Draft EIS also found that in the longer term, the alternative that includes the measure to breach the lower Snake River dams has the greatest predicted benefit for Snake River salmon and steelhead compared to the other alternatives. The EIS set forth eight objectives which, in tandem with the purpose and need statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as the alternative that includes the measure to breach the lower Snake River dams. However, the Preferred Alternative also meets the other objectives of the study for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse impacts to communities and the economy. The alternative that includes the measure to breach the lower Snake River dams, by contrast, has significant regional economic impacts and community effects, and meets only a small subset of the EIS objectives. Thus, the co-lead agencies did not recommend dam breaching because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system.
6697	1	cknowles@biologicaldiversity.org	Center for Biological Diversity	Scientists from the Fish Passage Center have stated that breaching all four of these dams would result in roughly one million adult Chinook salmon returning to the mouth of the Columbia River, providing significant relief for endangered Southern Resident orcas. As you know Chinook salmon are the orcas' primary food source from central California to the Salish Sea, and the Columbia Basin supports salmon runs that the orcas have relied on for centuries.	SRKW analysis is described in the EIS including in the FEIS Chapter 3 (Vegetation, Wetlands, Wildlife, and Floodplains) which has been updated for SRKW (Section 3.6.2.6 and Table 3-102) and FEIS Chapter 7 (Preferred Alternative) with additional analysis information on SRKW and potential increase in forage fish, in particular, Chinook salmon in Section 7.7.8. The co-lead agencies utilized current high quality information and best available science in its analysis of the effects of the operation, maintenance, and configuration of the CRS projects. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. The EIS analysis found that only a minor effect to the Southern Resident killer whale would result from implementing MO3 (which includes the dam breach measure). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and

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					WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differentially from hatchery and wild fish. Hatchery fish today likely make up most fish consumed by SRKW (NOAA BiOp 2020). The EIS analysis of the Preferred Alternative determined the overall effect to SRKW to be negligible in large part because hatchery production is consistent between the No Action Alternative and the Preferred Alternative. Because the impact from the Preferred Alternative was determined to be negligible, the agencies determined that existing hatchery production would be sufficient to address any potential impacts to prey availability for SRKWs. The co-lead agencies note the contribution to the prey of SRKW through the continued existence of their respective independent congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as the Lower Snake River Compensation Plan, which is administered by U.S. Fish and Wildlife Service. The Preferred Alternative and Proposed Action in the agencies' biological assessment carry forward certain mitigation measures described in Chapters 2 and 7 of the EIS, which include continued salmon and steelhead hatchery production. The Preferred Alternative has negligible effects to SRKWs as described in Section 7.7.8. The scientists from the Fish Passage Center (FPC) models predicted that breaching the four lower Snake River dams would result in an increase in about 100,000 adult Chinook salmon returning to the mouth of the Columbia River (see Section 3.5). The FPC has indicated that an alternative not analyzed in the CRSO, which includes breaching the four lower Snake River dams, along with increasing spill at the lower Columbia River projects to the 125% gas cap would result in about one million fish returns. This alternative was not analyzed in the CRSO EIS. Improving ESA-listed juvenile and adult anadromous salmonid conditions were two of the eight multiple objectives of the CRSO EIS. The agencies disagree, however, that an alternative that includes breaching the four lower Snake River dams and spring spill operations to 125% TDG at all four lower Columbia River dams is reasonable given the unacceptable risks to public safety from such an alternative.
6705	1	aloise.ca@gmail.com	N/A	First, there are 72 Southern Resident Orcas left. They are starving to death as the four lower Snake River dams cut off salmon runs. Second, every year some 8 millions salmon are killed by these dams. These two species are going extinct even with all the money spent on hatcheries and fish ladders have not solved the problem so that now the Salmon returns to the Snake River system are only 5% of their historical numbers. There is no recovery from extinction and if we don't address this now, all of the North American West Coast will be affected by the extinctions of Salmon and the Southern Residents. This scenario is not ok! By failing to act, You are violating endangered species act.	Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed anadromous fish species and is not expected to diminish the likelihood of recovery. Recovery is a broader regional goal and is above and beyond the co-lead agencies' obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the Columbia River System. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. The population dynamics of the SRKW are complicated and there are multiple factors that contribute to the overall success of this species. The quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differently from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for the whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall-run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall-run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). According to NOAA and the EPA, the estimated SRKW population has fluctuated between 67 and 98 whales between 1960 and 2015. The Snake River dams were constructed between 1962 and 1975. The SRKW population increased from a record low in 1970 to its highest population numbers in 1995. Those years were not high years for Snake or Columbia River Chinook Salmon. Ocean conditions between 2011 and 2013 were good years for salmon. At the same time, 2010 and 2013 were good outmigration years. Particularly, 2011 and 2012 were above normal in water supply, which would mean more cooler water was available and there was better survival of salmon, and 2011 through 2014 were higher than normal spill years as well. The combination of outmigration and ocean conditions created improved adult salmon returns. The EIS has analyzed spill as a measure in the Preferred Alternative and determined the overall effect to SRKW to be negligible. Because the impact from the Preferred Alternative was determined to be negligible, the agencies determined that existing hatchery production would be sufficient to address any potential impacts to prey availability for SRKWs. The co-lead agencies note the contribution to the prey of SRKW through the continued existence of their respective independent Congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as the Lower Snake River Compensation Plan (other than under MO3), which is administered by USFWS. The Preferred Alternative and Proposed Action in the agencies' biological assessment carry forward certain mitigation measures described in Chapters 2 and 7 of the EIS, which include continued salmon and steelhead hatchery production. The Preferred Alternative has negligible effects to SRKWs as described in Section 7.7.8 in large part because hatchery production is consistent between the No Action Alternative and the Preferred Alternative. The Biological Assessment (BA) describes the effect of the Proposed Action on the SRKW forage species (see BA Section 3.5.1.2, Southern Resident Killer Whale). The proposed changes in operation of the Columbia River System include increased spring spill during the downstream migration of juvenile spring and summer run Chinook salmon. The result of this action includes potential increases of juvenile fish passing through the spillways, reductions in juvenile fish direct and indirect mortality associated with downstream passage, and the Comparative Survival Study (CSS) model predicts increases in numbers of returning adults, which will benefit SRKWs foraging in and around the mouth of the Columbia River in winter and spring (See EIS Section 7.7.8). The CSS model results predicts Snake River Chinook salmon would have relative improvements in smolt-to-adult returns of 35 percent (see EIS Section 7.7.4). The smolt-to-adult return ratio (SAR) is the rate at which of a group of fish survive from their smolt life stage to a defined ending point where they return as adults. While recovery targets will require more than just the efforts of federal agencies, the CSS models indicate the potential for SARs of Snake River Chinook salmon and steelhead to increase to levels that could approach recovery targets set by the Northwest Power and Conservation Council. The BA, also consistent with the EIS, acknowledges past improvements to the configuration and operation of the Columbia River System, additional improvements to the environmental baseline as a result of completed estuary and tributary habitat actions, and the prospective non-operational conservation measures proposed in Chapter 2 of the Draft EIS, all contribute towards maintaining and improving Chinook abundance. Relevant conservation measures include, among other things, a commitment to continue funding the conservation and safety net hatchery programs listed in Chapter 2 of the Draft EIS. As discussed above, the agencies will fulfill congressionally authorized hatchery mitigation objectives through the funding of hatchery programs that are operated consistent with their independent hatchery program consultations during the term covered by this consultation. Based on those hatchery program consultations, the production levels associated with congressionally authorized hatchery mitigation objectives will continue, at minimum, to be consistent with levels previously analyzed by NOAA in the system consultations in 2008, 2014, and 2019. For the 2020 ESA consultations, therefore, the agencies expect that collectively, all of the actions described above (substantial modifications to migration conditions designed to benefit key prey species, combined with improvements to Chinook spawning and rearing habitat in the tributaries and Columbia River estuary, and continued hatchery production) ensure that remaining Chinook mortality from all sources in the mainstem migratory corridor will continue to be more than offset, resulting in a net gain in Chinook salmon abundance available as a prey source for SRKW. Finally, the 2019 NMFS Fisheries BiOp included increased spring spill operations that are similar to operations evaluated in CRSO EIS, and NOAA validated that the hatchery production of Chinook salmon mitigates for the impacts of operating the Columbia River System and total mortality through the mainstem migratory corridor from all sources. FEIS Chapter 3 (Vegetation, Wetlands, Wildlife, and Floodplains) has been updated for SRKW (Section 3..6.2.6 and Table 3-102). FEIS Chapter 7 (Preferred Alternative), has been updated with additional analysis information on SRKW and potential increase in forage fish, in particular, Chinook salmon (Section 7.7.8).
6705	2	aloise.ca@gmail.com	N/A	So, we are, now, in 2020, Salmon population has further declined. For example, Snake River sockeye salmon were listed as endangered in November 1991, and their listing was reaffirmed in June 2005. This list, from 2005, includes Five anadromous salmon populations and three anadromous steelhead trout populations present in the LSRP. And nothing, in your actual or past EIS, indicate the repercussions on the greater environment of the ocean, including Resident Southern Killer Whales, who are directly impacted by, has they were placed on the endangered species list in 2005.	Chapter 6 of the EIS includes RFFA 7, Fishery Management, addresses Salmon Fishery Management Plans – commercial fisheries plans prepared by the Pacific Fishery Management Council (PFMC), which are implemented and enforced by NMFS in Federal waters (e.g., 300 miles offshore). The "greater ocean environment" beyond the proximity covered in these plans is out of the scope of this EIS. Currently, PFMC has established a Southern Resident Killer Whale Workgroup to reassess the effects of Federal ocean salmon fisheries on Southern Resident killer whales and to potentially recommend conservation measures or management that better limit fisheries effects on Chinook salmon in Federal waters. Chapters 6 and also discusses the cumulative effects to Anadromous Fish, including Snake River sockeye is discussed in Sections 6.3.1.4 and 7.9.7.
6705	3	aloise.ca@gmail.com	N/A	EPA documents showed, the Four Lower River Snake Dams have been a problem since the beginning, by failures on respecting the Endangered Species Act, the Fish and Wildlife Coordination Act of 1958 and the Water Resources Development Act of 1976.	The co-lead agencies demonstrate compliance with applicable laws in Chapter 8. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. As described in Chapter 7 of the FEIS, the preferred alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as Multiple Objective Alternative 3 (MO3), which includes breaching the four lower Snake River dams. However, the preferred alternative also meets the EIS objectives for resident fish, lamprey, hydropower generation, water management, and water supply and greenhouse gas emissions, while minimizing adverse impacts to communities and the economy. The EIS concluded MO3, which includes breaching the four lower Snake River dams would have greater improvement to certain salmon species in the lower Snake River. It did not, however, conclude there was greater certainty of that result in MO3 over any other alternative. Because of delayed response time in MO3, and the potential severity of the short term effects, MO3 would likely have the most substantial uncertainty in terms of beneficial effects. Section 3.5 provides a summary of the fish analysis for the No Action Alternative and four of the multiple objective alternatives. Chapter 7 provides a summary of the fish analysis for the Preferred Alternative. With respect to the Preferred Alternative, the CSS model predicts that average Smolt to Adult return rates would increase for both Snake River spring Chinook and steelhead and will average above 2% (the lower end of the Northwest Power and Conservation Councils recovery targets for the region) as a result of the Preferred Alternative, increasing from 2.0% to 2.7% for Chinook, a 35% relative increase. The NMFS COMPASS and Life Cycle Models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information. To comply with the Fish and Wildlife Coordination Act (FWCA), the co-lead agencies have coordinated and responded to three FWCA Reports: a 1972 report for construction of the lower Snake River Dams; in 1995 report for the Columbia River System Operation Review project, and a 2020 report for this current CRSO EIS (see Appendix U). In 1975, Lower Snake River Fish and Wildlife Compensation Plan (LSRCP) was developed using the 1972 FWCA Report as the basis, and authorized by Congress in the the Water Resources Development Act of 1976.

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6714	1		The Legislative Committee of the Oregon Chapter of the American Fisheries Society	Climate Change Effects and Implications. The Columbia River System Operations Draft Environmental Impact Statement (CRSODEIS) Multiple Objective 3 (MO3) evaluates the removal of the Snake River dams. While the CRSODEIS states this alternative [s]howed the highest predicted potential smolt-to-adult returns (SARs) for Snake River salmon and steelhead among the alternatives, it is rejected based in part citing [i]ncreases in juvenile salmon and steelhead survival, decreases in travel time, and reductions in powerhouse encounters in MO3 could be reduced or offset by the effects of climate change. The CRSODEIS states this is because Breaching the lower Snake River dams would require replacement of lost power generation and flexible capacity. Lost power generation could be replaced by gas or renewable sources. Loss of navigation would result in an increase in truck and/or train transport. The CRSODEIS contention that [l]ost power generation could be replaced by gas or renewable sources. Loss of navigation would result in an increase in truck and/or train transport relies heavily on the status quo. The analysis does not consider potential savings from conservation measures such as energy efficient buildings or increasing home solar units. The CRSODEIS assumes the extra trucks and train engines will use traditional diesel fuel rather than biodiesel. For consistency in assessment, the Preferred Alternative as well as MO3 must respond to the evaluation criterion: Minimize Greenhouse Gas Emissions from Power Production in the Northwest by Generating Carbon Free Power Through a Combination of Hydropower and Integration of Other Renewables. In the current CRSODEIS, the Preferred Alternative is not fully evaluated on this criterion. The ORAFS considers climate change to be a dire threat to native fishes of the Pacific Northwest. Climate change and its associated ocean acidification from increased levels of CO2 in the atmosphere are also serious threats to marine shellfish and finfish including migratory salmon, steelhead, smelt, lamprey and sturgeon that depend on the ocean for part of their lives. Climate change, ocean acidification, and alternative means of generating and conserving electricity to reduce greenhouse gas emissions are not as new to ORAFS as to many entities. The ORAFS has been addressing the climate change issue for over 30 years and in 1990 presented an Award of Merit to Sam Sadler of the Oregon Department of Energy for his leadership in compiling the Oregon Task Force on Global Warming: Report to the Governor and Legislature. Part One: Possible Impacts on Oregon from Global Warming. Part Two: State Agency Recommendations and Proposed Actions. June 1990. This involvement has made ORAFS very familiar with alternative ways that have been implemented to generate and conserve electricity in the Pacific Northwest and with new alternatives being developed, such as wave energy buoys off the Oregon Coast. The CRSODEIS contends there may be an increase in greenhouse gasses from the removal of the Snake River dams. However, much of the presumed increase is speculative. In contrast, benefits to Pacific salmon, steelhead, and Pacific lamprey, as well as other native fishes in the Columbia River basin will be direct, immediate, and undeniable. The CRSODEIS needs to respond to the question of how greenhouse gasses from removing the Snake River dams can be compared with improved fish passage, water quality, spawning habitat, as well as the [m]ajor long-term beneficial effects to wetlands, floodplains, fish, wildlife, and vegetation in the Lower Snake River. (CRSODEIS).	The decline of salmon populations is complex and recovery of those species will take collaboration between various agencies including NOAA and the Tribes. The co-lead agencies acknowledge that the ocean environment is a contributor to the decline in salmon populations that is beyond the scope of the CRSO EIS. While none of the alternatives would affect ocean conditions, we recognize that these conditions are a major driver for adult returns and that numerous studies have shown the importance of this environment in the return of adult salmon and steelhead (Peterson et al. 2019). As such two of the models used in these analyses, NMFS Lifecycle and CSS models, use metrics of ocean productivity to predict adult returns. The carbon-free attributes of the Federal hydropower system are described in the Air Quality Section of the Draft EIS (Section 3.8). The analysis includes the effects to GHG emissions resulting from changes in hydropower generation for each alternative, including breaching the Lower Snake River dams in MO3. Overall the conclusion in the Draft EIS is that MO3 would be beneficial to anadromous fish for a number of reasons, but other objectives must also be considered in the selection of a Preferred Alternative. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets most other EIS objectives including those for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS, the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams, because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system.
6714	2		The Legislative Committee of the Oregon Chapter of the American Fisheries Society	Thermal Effects. Salmonid migrations are delayed by excessive temperatures, resulting in increased pre-spawn mortality of adults (Sherwood 2015)5 as well as increased morbidity and decreased production of juveniles and smolts (Hughes & Davis 1996)6. As indicated in the decision of U.S. Ninth Circuit Court of Appeals in Columbia Riverkeeper vs. Wheeler (2019)7, the Washington Department of Ecology had failed to issue temperature TMDLs (total maximum daily loads) for the Lower Snake River. USEPA (2020)8 listed a 20 C 1-day maximum for the Lower Snake River. Oregon Department of Environmental Quality 7-day average maximum temperature criteria for salmonid spawning, rearing, and migrating salmon are 13 C, 18 C, and 18 C, respectively (DEQ 2008)9. These criteria indicate that the Lower Snake River (as well as most of the Columbia River in the USA) is in violation of existing Oregon DEQ temperature criteria throughout most of its length (USEPA 2018)10. Those excessive temperatures are largely driven by the dam/reservoir projects because the reservoirs large surface areas and slower flows result in warmer water (USEPA 2018). Temperatures are further increased by warm tributary waters, irrigated agriculture return flows, and city and industrial point-source discharges. Continued climate change is expected to further warm the water and decrease the flows (USEPA 2018). How the breaching of the Lower Snake River dams would reduce the primary source of warming in that reach must be addressed in the CRSODEIS. Thermal issues in the Columbia and Snake rivers are exacerbated by abnormally warm temperatures resulting from climate change. For example, in 2015, a combination of a heat wave, drought, and malfunction in temperature monitoring stations at Dworshak Dam lead to decreased flow releases in the Columbia River during peak upstream migration of Snake River Sockeye Salmon. As a result, Columbia River temperatures at some stations were reported in excess of 25 C (NOAA)11 and NOAA estimates that only 8% of the returning Sockeye Salmon survived passage between Bonneville Dam and Lower Granite Dam, compared to a 5-year average survival rate of 64%. In addition, Nelson (2019)12 estimates that migration rate slowed significantly as a result of elevated stream temperatures, with migrations taking an extra 10 days to complete. These low flow/high temperature events are predicted to be more common and extreme as the climate warms. Surviving these events requires a combination of (1) rapid migration not impeded by dams or reservoirs, and (2) cold-water refugia where fish can hold during migration.	Historically, water temperatures in the lower Snake River were warm (USGS 1960, 1961, 1964; Corps 2002a). Observed historic water temperatures show that average monthly water temperatures during July and August, in the 1950s, averaged 7 to 8 degrees Fahrenheit higher than today's conditions, while maximum daily differences were 10 to 12 degrees Fahrenheit higher. The differences observed in the lower Snake River today, as compared to historical conditions, are a result of the middle and upper Snake River reservoirs combined with the influence that Dworshak Dam operations. The EIS analysis shows that when breaching the four lower Snake River dams, nighttime summer water temperatures, as well as fall water temperatures, would be cooler than No Action conditions in the Snake River. However, even with the dams breached, maximum summer water temperatures would exceed state water quality standards (20C) at times, especially during hot weather events. This is because without the dams, the lower Snake River will be shallower and more susceptible to solar radiation and warming. Increases in water particle travel time are expected, but the lower Snake River has always been a warm system (USGS 1960, 1961, 1964; Corps 2002a) and breaching the dams will not change this fact. Regionally high air and water temperatures result in water quality standard exceedances and are beyond the ability of the CRS to cool; future climate change predictions will result in even more difficult challenges. The models showed minor changes in the Columbia River under MO3, indicating that the operations of the CRS dams have a limited ability to reduce temperatures in the lower Columbia River. Summer water temperatures exiting the Snake River are typically 1 to 3 degrees Fahrenheit warmer than the receiving Columbia River temperatures. Even though the cold water released from Dworshak during the summer is less than 50 degree Fahrenheit, the volume of water released is less than one tenth of the flow in the Columbia River. Since the distance between the confluence of the Snake and Columbia Rivers is about 180 miles downstream from Dworshak, the impact on water temperatures is negligible. Regionally high air and water temperatures result in water quality standard exceedances that are beyond the ability of the CRS to cool. Overall the conclusion in the Draft EIS is that MO3 would be beneficial to anadromous fish for a number of reasons, but other objectives must also be considered in the selection of a Preferred Alternative. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets most other EIS objectives including those for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS, the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams, because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system.
6714	3		The Legislative Committee of the Oregon Chapter of the American Fisheries Society	Habitat Connectivity. The critical role of connected rivers for the long-term persistence of native migratory fishes has been alluded to earlier in this letter. Hydroelectric facilities affect fish passage as well as daily and seasonal patterns of river flow and temperature (Poff et al. 1997)13. Whereas the focus of mitigation at dams often focuses on passage, generally for highly mobile fishes, the impacts on the overall pattern of river flow can affect the timing of life stage progression of native fishes (Waples et al. 2009)14. Migratory fishes are adapted to predictable patterns of discharge and temperature that cue transition between life stages. Water storage and non-ecologically driven river discharge patterns associated with anthropogenic needs for hydropower and municipal/agricultural water at best complicate, and at worst negate life stage completion for native fishes. Dam removal facilitates the return of natural flow regimes and seasonal patterns of available river flow that are critical for native fishes and floodplain ecosystems. Persistence of imperiled salmonids relies on access to habitat for juvenile, smolt and adult life stages. While passage improvement has reduced mortality through Columbia River dams, the alteration to the hydrograph and river habitats has not been effectively mediated through dam management actions. In fact, alterations in flow and temperature associated with hydroelectric dam construction has already dramatically altered the environment (Arismendi et al. 2012)15. How the Preferred Alternative and MO3 address the issue of altered flow regimes needs to be addressed in the CRSODEIS in order to evaluate the different alternatives with respect to fish life history completion.	Flow and temperature, and how these are affected by MO1, MO2, MO3 and MO4 relative to the No Action Alternative is analyzed in Chapter 3 and in Chapter 7 for the Preferred Alternative. Flow is also incorporated into the COMPASS model and the CSS and NMFS life cycle models for salmon and steelhead. Regarding MO3: The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets most other EIS objectives including those for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS, the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams, because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system.
6714	4		The Legislative Committee of the Oregon Chapter of the American Fisheries Society	The Northwest Power and Conservation Councils Fish and Wildlife Plan, created in response to the Power Act, has spent 30 plus years and more than 17 billion dollars and has failed to reach its modest goal of just 5 million salmon returning to the Columbia River. The program is largely based on the status quo that employs hatcheries as a substitute for conservation (i.e., mitigation). The EIS must recognize the status quo has failed and that parity is now more important than ever. As the Independent Scientific Advisory Board stated [i]f the region is serious in its desire to restore wild Pacific salmon the status quo is not an option. (Williams et al. 1999)	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the Endangered Species Act (ESA), in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Similarly, the Northwest Power Act does not obligate the co-lead agencies to recover ESA-listed species or to ensure restoration of other fish and wildlife. Instead, the co-lead agencies fish and wildlife mitigation responsibilities under Northwest Power Act are more limited primarily, managing and operating FCRPS projects, which includes the CRS, to protect, mitigate, and enhance (as opposed to recover) fish and wildlife affected by such projects in a manner that provides equitable treatment with the projects other authorized purposes and consistent with the purposes of the Act and applicable laws. In addition, Bonneville has a specific responsibility to fund protection, mitigation, and enhancement of fish and wildlife to the extent affected by development and operation of FCRPS projects consistent with the Northwest Power and Conservation Councils (Council) fish and wildlife program, the Councils power plan, and the purposes of the Act, which includes assurance of an adequate, efficient, economical, and reliable power supply. Therefore, contrary to the comments broad assertion, the Northwest Power Act does not make Bonneville responsible for funding the regional effort to recover wild salmon and steelhead. Moreover, the comments suggestion that approximately $17 billion in fish and wildlife mitigation investment has been ineffective to recover ESA-listed species is misplaced. Those investments delivered the intended results when considered in the appropriate statutory context of the Northwest Power Acts anadromous fish provisions which call for improved survival of such fish at FCRPS projects and sufficient flows between the projects to improve production, migration, and survival. For example, as of 2014 this investment had facilitated juvenile dam passage survival of 96% and 93% for spring and summer migrants respectively, see Endangered Species Act Federal Columbia River Power System 2016 Comprehensive Evaluation Section 1, at 17, t.2 (Jan. 2017), a marked improvement compared to when Congress passed the Northwest Power Act and the estimated average juvenile mortality at each mainstem dam and reservoir complex was 15-20% with losses recorded as high as 30%. See Nw. Res. Info. Ctr. v. Nw. Power Planning Council, 35 F.3d 1371, 1374 (9th Cir. 1994) (citing a Sept. 4, 1979 report by U.S. General Accounting Office describing the systems impacts on anadromous fish).
6714	5		The Legislative Committee of the Oregon Chapter of the American Fisheries Society	The new Environmental Impact Statement (EIS) for the operation of the Columbia River power system directly affects sustainable management of fishes in the Columbia River basin and does not include a comprehensive discussion of several points. We summarize our three major areas of concern below. Opening statement. Recent archaeological research found a remarkable stability in salmon use by Native Americans over a period of 7,500 years in the Columbia basin (Campbell and Butler 2011)1. However, by 1870, Euro-Americans dominated the salmon fisheries and their management. In a relatively short 150 years, the Euro-American management of the Columbia Rivers two key resources–salmon and the water– brought the salmon to the brink of extinction. There are many causes for this, but most are subsumed under one overarching problem, which is clearly shown in the following paragraph from a statement signed by the United States Secretary of the Interior on March 6, 1947: It is, therefore, the conclusion of all concerned that the overall benefits to the Pacific Northwest from a thoroughgoing development of the Snake and Columbia are such that the present salmon run must be sacrificed. This means that the Departments efforts should be directed toward ameliorating the impact of this development upon the injured interests and not toward a vain attempt to hold still the hands of the clock (Gardner 1947) This statement clearly showed a dismissive attitude toward salmon. The salmon were relegated to a much lower priority than economic development in the Columbia basin. The result was catastrophic. The Northwest Power and Conservation Council estimates that, at a minimum, the number of salmon entering the Columbia River prior to economic development was approximately 10 million fish (Northwest Power Planning Council 1986)3. The recent average has been around 2 million salmon. So, the lower priority for salmon has created an approximate annual deficit of 8 million fish. Congress recognized that the higher priority given to economic	Chapters 5 (Section 5.2.1), Chapter 7, and Chapter 8 (Section 8.3.6) as well as the introduction (p. 16) describe the co-leads requirements to comply with the Power Act. Provisions of the Northwest Electric Power Planning and Conservation Act of 1980 (Northwest Power Act) (16 U.S.C. 839 et seq.) require Bonneville to balance multiple public duties and purposes: helping to ensure the Pacific Northwest has an adequate, efficient, economical, and reliable power supply; promoting energy conservation and the use of renewable resources; and, consistent with the program developed by the Northwest Power and Conservation Council (Council), protecting, enhancing, and mitigating fish and wildlife to the extent affected by the development and operation of the Federal Columbia River Power System (FCRPS), which includes the CRS. Bonneville complies with these provisions of the Northwest Power Act through the Fish and Wildlife Program and other actions. Under the Northwest Power Act, the co-lead agencies exercise their responsibilities of operating the CRS in a manner that provides equitable treatment for fish and wildlife and with the other purposes for which CRS facilities are operated and managed. In addition, the co-lead agencies consider in their decision making the Councils Fish and Wildlife Program and Mainstem Amendments to the fullest extent possible. In their management and operation of the CRS, the co-leads have fulfilled the fish and wildlife mitigation mandate in the Northwest Power Act, providing fish and wildlife equitable treatment with the other congressionally authorized purposes of the FCRPS (16 USC 839b(h)(11)(A)(i)). Since the 1990s, the Federal agencies have overhauled system operations and infrastructure, achieving juvenile dam passage survival that meets or exceeds performance standards of 96% and 93% for spring and summer migrants respectively, a marked improvement as compared to when Congress passed the Act. Travel time improved for yearling Chinook and juvenile steelhead through the system, even in low flow years such as 2015, 3 and total In-River survival has improved for migrating juvenile salmon and steelhead. Comparing two time periods reported in NOAAs reach study, (19972007 and 20082016), there has been a 10% survival increase for hatchery and wild sockeye salmon, a 2% increase in hatchery and wild Chinook (4% for wild), and a 25% survival increase for hatchery and wild steelhead (13% for wild). Bonneville's Fish and Wildlife (F&W) Program funds hundreds of projects each year to mitigate the impacts of the development and operation of the Federal hydropower system on fish and wildlife. Offsite protection and mitigation actions typically address impacts to fish and wildlife not caused directly by the CRS, but they are actions that can improve overall conditions for fish to help address uncertainty related to any residual adverse effects of the CRS. For example, F&W Program funding improves habitat in the mainstem as well as tributaries and the estuary, builds hatcheries and boosts hatchery fish production, evaluates the success of these efforts, and improves scientific knowledge through research.

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				development relative to salmon was a mistake and tried to correct the error by enacting the Pacific Northwest Electric Power Planning and Conservation Act of 1980 (Power Act). One of the goals of the Power Act was to attempt to create parity between fish and electric power production in terms of river management (McConnaha et al. 2006)4. Now, the region is about to adopt a new EIS for the operation of the Columbia River power system. Will the EIS achieve the parity Congress intended between power (economic development) and the great Pacific salmon runs of the Columbia River system?	The comment further claims that there is no evidence in the EIS of the agencies adherence to the equitable treatment mandate of the Act. The equitable treatment provision of the Act directs the agencies management and operation of the Columbia River System provide equitable treatment for fish and wildlife with the other authorized purposes for which the system is managed, such as flood risk management, hydropower generation, irrigation, navigation, and recreation. See 16 U.S.C. 839b(h)(11)(A)(i). The co-lead agencies provide fish and wildlife with equitable treatment on a system-wide basis. See NW. Envtl. Def. Ctr. v. Bonneville Power Admin., 117 F.3d 1520, 1533-34 (9th Cir. 1997) (While each power marketing action that affects the system implicates the equitable treatment provisions, Bonneville may properly exercise its obligation by insuring equitable treatment for fish on a systemwide basis.); Confederated Tribes of the Umatilla Indian Reservation v. Bonneville Power Admin., 342 F.3d 924, 931 (9th Cir. 2003) (The equitable mandate of [the Northwest Power Act] does not require every Bonneville decision to treat fish and wildlife equitably. For example, Bonneville may make some decisions that place power above fish, so long as on the while, it treats fish on par with power.). Through this EIS process, the co-lead agencies have considered management and operation of the Columbia River System for its multiple authorized purposes. And, as noted above, CSS analysis of the Preferred Alternative predicts an increase in smolt-to-adult return rates as compared to the no action alternative. The co-lead agencies inclusion of alternatives MO3 and MO4 which are focused on benefiting fish, plus the incorporation of measures specifically designed for improved benefits to fish and wildlife, as balanced against other purposes, reflects equitable treatment of fish and wildlife consistent with the Northwest Power Act.
6718	1	N/A	N/A	The PA is a balanced approach that benefits the ESA-listed species while meeting the eight objectives developed by the co-lead agencies and minimizes adverse economic, environmental, and social impacts. Furthermore, it builds on the current Flexible Spill Agreement and supports adaptive management. However, we have concerns regarding utilizing Flexible Spill as the key component of the PA. Increasing spill levels to 125% Total Dissolved Gas (TDG) is an unprecedented action resulting in higher power costs.	The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the biological models and will help to determine how effective increased spill can be in increasing salmon and steelhead returns to the Columbia Basin. The effectiveness of the spill program will be monitored, as will the effects to generating resources around the basin. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information. The EIS recognizes the concern voiced in the comment regarding increasing power rates. Under the Preferred Alternative, which includes juvenile fish passage spill operations contemplated under the 2019-2021 Spill Operation Agreement, the Bonneville's wholesale power rate pressure is 2.7 percent relative to the No Action Alternative. These estimates compare the Preferred Alternative to the No Action Alternative, which is not the same as comparing the Preferred Alternative to current operations. Consequently, the estimates are not a comparison to the BP-20 wholesale power rates, which were set assuming the financial impact of the 2019-2021 Spill Operation Agreement, and therefore already include a substantial portion of the cost pressures found in the Preferred Alternative. The remaining rate pressure associated with the Preferred Alternative falls within a level that Bonneville has historically been able to absorb through the costs over which it has significant control. See Draft EIS Section 3.7.3.1 at page 3-187.
6718	2	N/A	N/A	Further examination of the potential benefits and unintended consequences of higher spill levels must be conducted in the future as the 2019 operations of the Federal Columbia River Power System (FCRPS) at 120% TDG has shown minimal benefit to ESA-listed species. There must be scientific analyses conducted in the future that clearly shows the benefits of increased spill levels to this magnitude.	TDG levels are regulated under the Federal Clean Water Act, and administered by the states. Both Oregon and Washington have reassessed the available data on effects of TDG levels up to 125% of saturation on fish and other aquatic organisms. Based on this reassessment Oregon issued a five-year "standard modification" and Washington issued a permanent rule change, supported by the Environmental Protection Agency (EPA), to allow TDG saturation up to 125%. However, as noted by the commenter, there is considerable uncertainty in the effects of free swimming fish; and therefore, monitoring was required by the states and EPA to ensure any negative effects are detected and allow for adaptive management. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. The framework for the adaptive management process is detailed in Appendix R, Part 2, Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS. It is the intention of the co-lead agencies to engage regional state, Tribal, and Federal biologists in the development of an appropriate adaptive management process utilizing their respective salmonid management expertise. The goal of that adaptive management process would be to consider additional opportunities to further the effectiveness of the operation while maintaining the goals of the flexible spill operation: additional improvements for salmon and steelhead, maintain opportunities to operate the CRS for hydropower generation in a flexible manner that provides value to the Northwest, is implementable by the dam operators, and provides opportunity to reduce uncertainty and improve the learning opportunities around how operations of the CRS can influence the magnitude of latent mortality effects. Unforeseen outcomes or unintended consequences will be monitored and adjusted using current in-season management teams, such as the Technical Management Team.
6718	3	N/A	N/A	Additionally, Clearwater supports strengthening and expanding measures to mitigate for avian predation in the Columbia Basin in the PA. Avian predation is a major source of mortality of ESA-listed species therefore, the Final EIS must include a thorough and detailed plan to address avian predators.	The Preferred Alternative includes measures to reduce avian predation on mitigate adverse effects to listed species from CRS operations. The Preferred Alternative includes a large suite of predation mitigation measures, some of which include maintaining avian wires in the tailrace of lower Columbia and Snake River dams, active hazing of gulls at the dams, and the pattern of operating the spillway gates all mitigate for predation at the dams by birds and fish. In addition, water management actions (the Predator Disruption Operations measure) in the John Day reservoir is expected to further reduce avian predation on migrating juvenile fish. The Predator Disruption Operations will mitigate Caspian Tern predation on juvenile salmon and steelhead in the lower Columbia Rivers. Management efforts are ongoing to reduce salmonid consumption by terns in the lower Columbia River, and similar efforts are in progress to reduce the nesting population of Double-crested cormorants in the estuary. In addition, the co-lead agencies will continue to work closely with other entities in the region to mitigate impacts from pinniped and avian predators.
6722	1	N/A	N/A	As Idahos largest state-based conservation organization, we represent over 20,000 supporters, many of whom have a deep personal interest in anadromous and resident fish recovery, renewable energy, and rural Idaho communities. ICL represents members whose livelihoods depend on the return of abundant, harvestable populations of salmon and steelhead. Ensuring the restoration of these species is of paramount importance and directly impacts our members. Part of the purpose for this DEIS is to evaluate how to insure that the prospective management of the System is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of designated critical habitat, including evaluating mitigation measures to address impacts to listed species.1 ICL believes that recovery of endangered Snake River salmon and steelhead populations is inherently important, but also valuable for Idaho communities. We believe the action agencies should alter the Preferred Alternative to include the measures included in MO3. The DEIS and other research has shown that breaching of the lower Snake River dams leads to the highest probability of recovering endangered salmon and steelhead, and that there is no other path toward abundant, harvestable populations of these fish.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery as compared to the No Action. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the Columbia River System. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3, which includes breaching the four lower Snake River dams. The Preferred Alternative also meets most other EIS objectives including those for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS, the co-lead agencies did not identify MO3 because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% (the lower end of Northwest Power and Conservation Council's recovery targets for the region) as a result of the Preferred Alternative, as a result of the Preferred Alternative increasing SAR from 2.0% to 2.7% for Chinook, a 35% relative increase. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. To address uncertainty highlighted by the two models, the Preferred Alternative includes working with regional sovereigns to develop a study that assess the effectiveness of the increased spill regime on adult returns as well as assessment and management of adverse unintended consequences, such as long delays of adult migrants, or TDG-related mortality of juvenile migrants. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information. The Preferred Alternative will make a meaningful contribution towards recovery.
6722	2	N/A	N/A	The Preferred Alternative will not recover endangered salmon and steelhead to ESA-delisting status, and certainly not to abundance. ICL is concerned that the Preferred Alternative does not address critical issues for Snake River spring/summer Chinook salmon and steelhead trout. It is clear that the DEIS process went awry from the start on this subject, when the objectives for CRS operations were limited to merely improving conditions for juvenile and adult migration through the system. The DEIS used no quantitative goals, beyond assessing whether a given alternative was better or worse than the No Action Alternative (NAA). Indeed, the Action Agencies have already been directed to not operate under the NAA, because those conditions put endangered fish populations in jeopardy of extinction. The Preferred Alternative does not improve that situation. In a time when regional wild salmon recovery goals are generally agreed upon as a Smolt to Adult Return (SAR) rate of 2 to 6% annually, averaging at least 4%, the Preferred Alternative falls well short. The model used to predict relative benefits to Snake River fish runs (CSS) showed that under the Preferred Alternative, Spring/Summer Chinook SAR would increase by 35% and steelhead SAR would increase by 28%.2 Taking average SARs from Snake River populations as a baseline for these predicted improvements, the results are still short of regional recovery standards. Across a 10-year period, SARs average 1.20% for wild Snake River Spring/Summer Chinook (LGR-BON, Juv. Migration 2006-2016) and 2.42% for wild Snake River steelhead (LGR-BON, Juv. Migration 2006-2016).3 The CSS results predict those metrics improving to 1.62% and 3.10%, respectively. If only recent returns are investigated, the results are even worse. For juvenile migration years 2014 to 2016, average SARs for the same populations are 0.44% for Spring/Summer Chinook and 1.07% for steelhead. Improvement, as predicted by CSS, would result in SARs of 0.60% and 1.37%, respectively. The LCM was not able to report results on steelhead (another 2 DEIS, page 33 3 Idaho Department of Fish and Game critical flaw in a well-funded and long-developing document), but its results for Chinook similarly do not bring that population within recovery standards. In addition, the Fish Passage Center (FPC), which developed the CSS and provided results to the Action Agencies for this report, is careful to note that model results for the Preferred Alternative are likely overestimates.4 Because of the nature of the flow data provided to FPC, the model cannot provide results at high enough resolution to factor in changes in spill during the day. Migrating fish are more likely to encounter the powerhouse during at night than during the day, and powerhouse encounters are a known contributor to mortality. Lower performance standard spill in evening or nighttime hours would thus increase powerhouse encounters (measured by the PITPH index). PITPH is an input for the CSS model, so a higher PITPH is very likely to lead to lower estimates for survival and SAR. The benefits claimed for fish under the Preferred Alternative, which already do not meet regional standards for recovery, could thus be vastly overstated. Analysis of the Preferred Alternative through CSS could be redone using flow and spill data at hourly resolution, which will factor in the timing of low spill operations and provide more accurate estimates of the impact to anadromous fish under the Preferred Alternative.	It should be noted that the 2-6% Smolt-to-Adult return (SAR) target referenced in this comment refers to the Northwest Power and Conservation Council (Council) target for broad-sense recovery and is separate and distinct from the obligations of any single entity or in this case a requirement to be met solely by the co-lead agencies. Just as the Councils fish and wildlife program encompasses both Federal and non-Federal stakeholders in the Columbia Basin, the Councils recovery goals are shared by many parties. Based on the analysis of the Preferred Alternative, the co-lead agencies believe their actions will make a substantial contribution, but the Councils broad-sense recovery goals are beyond the scope of this EIS, which contemplates the effects associated with the operation and maintenance of the 14 CRS projects. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species as that is a broader goal with shared responsibility. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the CRS. That call, however, is ultimately the role of NMFS and the USFWS. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. Based on analysis by the CSS for this Preferred Alternative, SARs associated with population declines (SARs of less than 1%) have the potential to be reduced under the Preferred Alternative, and on average, SARs are expected to be above 2.0% for Snake River spring Chinook salmon and steelhead. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. In practice, model estimates may not overestimate PITPH due to day vs. night passage differences because limitations on nighttime spill reductions are already in place through the adaptive management process and lessons learned from the 2019 flexible spill operation. These adjustments in the amount of nighttime spill were informed by state, Tribal, and Federal biologists with expertise in dam operations and their effects to fish passage. These examples of adaptive management will continue during implementation of the operations in the selected alternative.
6722	3	N/A	N/A	MO3 would most benefit ESA-listed species, but was not accepted as the Preferred Alternative. The DEIS includes an alternative under which much higher returns are predicted. MO3 presents improvements that would place Snake River SARs well within regional standards. Under MO3, the CSS model predicts that Snake River Spring/Summer Chinook SAR would increase by 170% and steelhead SAR would increase by 178%.5 Taking the 10-year Snake River SAR (LGR-LGR, Juv. Migration 2006-2016) averages (0.94% for wild Spring/Summer Chinook, 1.74% for wild steelhead), CSS predicts SARs of 2.54% for Chinook and 4.69% for steelhead under MO3. Again, if we factor in only recent years of returns (0.36% for wild Spring/Summer Chinook, 0.74% for wild steelhead), CSS predicts SARs of 0.98% for Chinook and 2.06% for steelhead. These predicted SARs are still mostly below the 4% average criterion, but it is clear from the analysis that the cornerstone of any plan to restore Snake River salmon and steelhead is breaching of the lower Snake River dams. Operational changes as proposed under the Preferred Alternative seem unable to achieve the same results.	The co-lead agencies disagree with this comment and instead reiterate the data in the CRSO Draft EIS appropriately represents the expected outcomes for salmon and steelhead associated with MO3. These impacts are framed appropriately with impacts to other authorized purposes. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets most other EIS objectives including those for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS, the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams, because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. It should be noted that the 4% average SAR target referenced refers to the Northwest Power and Conservation Councils target for broad-sense recovery and is separate and distinct from the obligations of any single entity or in this case a requirement to be met solely by the co-lead agencies. Just as the Councils fish and wildlife program encompasses both federal and non-federal stakeholders in the Columbia Basin, the Councils recovery goals are shared by many parties. Based on the Preferred Alternative analysis, it will make a substantial contribution, but the Councils broad sense recovery goals are beyond the scope of this EIS, which focuses on the effects associated with the operation and maintenance of the 14 CRS projects.

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					The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species as that is a broader goal with shared responsibility. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. The effects of delayed mortality are discussed throughout the EIS analysis for each alternative and current high quality data and the best available scientific information was used for this analysis. Based on analysis by the CSS, SARs associated with population declines (SARs of less than 1%) have the potential to be greatly reduced under the Preferred Alternative, and on average, SARs are expected to be well above 2.0% for Snake River spring Chinook salmon and steelhead. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin.
6722	4	N/A	N/A	The DEIS uses different metrics to compare MO3 and the Preferred Alternative. Confusingly, the DEIS does not use the same SAR metrics for its comparisons of alternatives. For MO3, the CSS model predictions are based around SARs for juvenile fish that passed Lower Granite dam (LGR) and returned as adults to the same location. For the Preferred Alternative, CSS predictions are 4 Comparative Survival Study of PIT-tagged Spring/Summer/Fall Chinook, Summer Steelhead, and Sockeye, 2019 Annual Report, Chapter 2. Comparative Survival Study Oversight Committee and Fish Passage Center. http://www.fpc.org/documents/CSS/CRSO/CRSO-84.pdf 5 DEIS, page 25 instead based around LGR-BON SARs, which compare juvenile fish counted at Lower Granite with adult fish returning to Bonneville dam. These predictions for the Preferred Alternative exclude passage through the CRS as adults. This exclusion is significant because the Preferred Alternative could have negative impacts on adult fish migration through the system because of greater spill. When dams release more water to benefit juveniles, it can lead to fallback for migrating adults, or masking of the fish ladder.6 Each of these phenomena make upstream adult migration more difficult, with a clear effect on SAR. Thus, reported CSS predictions from Chapter 7 and the Executive Summary cannot truly be compared with CSS predictions reported for MO3. Predictions made for the Preferred Alternative are artificially inflated, as adults returning to Bonneville do not all return to Lower Granite, and this difference could be made even more significant by the spill regime included in the Preferred Alternative.	All of the SARs presented in the EIS were from Lower Granite Dam to Bonneville Dam. The Lower Granite Dam to Lower Granite Dam SARs presented in Chapter 3 for MO3 were a typo and should have read "Lower Granite to Bonneville Dam;" this has been corrected in the Final EIS. The intent is to have consistent comparisons between the multiple objective (MO) alternatives and the No Action Alternative consistent with NEPA.
6722	5	N/A	N/A	The DEIS does not adequately analyze future impacts of climate change on either a reservoir system retained under the PA or the riverine system created under MO3. Climate change is not properly addressed in the DEIS analysis of the multiple objective alternatives and the Preferred Alternative. While an analysis of climate change effects does appear in Chapter 4, these effects are never covered in comparing the alternatives and their relative impacts to fish and wildlife. Chapter 4 shows that climate change will have major effects on water quality and quantity in the Columbia River Basin. Higher air temperatures and an altered hydrograph could lead to increased water temperatures. This is a particular problem in the Snake River where parts of the system are already approaching or above lethal limits for steelhead, and fishway temperatures already cause fallback for Chinook, sockeye, and steelhead. This effect will increase as river temperatures rise7 and could cause moderate to severe changes in salmon and steelhead populations.8 It is clear that MO3 would cause large changes in the temperature regime of the lower Snake River, with much greater cooling at night, compared to operations under the NAA.9 Salmon suffer when water temperatures reach 68F or higher,10 as it currently does much of the time on the lower Snake River in the summer.11 With climate change, these temperatures, which already devastated Snake River sockeye in 201512, will continue to routinely ravage annual salmon and steelhead runs. Restoring the lower Snake River to its riverine form would allow the river to cool more quickly, providing cold water refugia for salmon and steelhead to migrate in as adults. The Preferred Alternative does little to mitigate the ongoing trend of warming water in the lower Snake River reservoirs. Predicted water temperatures under the PA are very similar to those under the NAA, 6 DEIS, page 1-101 7 DEIS, page 4-34 8 DEIS, page 4-33 9 DEIS, page 3-270, page 3-275 10 National Marine Fisheries Service, 2015 Adult Sockeye Salmon Passage Report, pp. 2022 (2016). 11 Fish Passage Center, Requested data summaries and actions regarding sockeye adult fish passage and water temperature issues in the Columbia and Snake rivers (Oct. 28, 2015). 12 Columbia and Snake sockeye decimated by 2015s warm rivers, The Idaho Statesman. https://www.idahostatesman.com/news/local/news-columns-blogs/letters-from-the-west/article71657737.html which are already dangerous for migrating adult salmon and steelhead. The DEIS predicts exceedances of water quality standards, even during average years. In average flow years, temperatures are expected to exceed 68F for much of the adult salmon migration season at each of the lower Snake River dams, and to exceed 72F at Ice Harbor dam.13 These predictions are based on historical operations, and do not reflect the expected effects of climate change. Hot summers with low flows, as occurred in 2015, will happen more and more frequently and it is imperative that salmon populations are given a migration corridor resilient to these effects. The DEIS acknowledges that for each of the alternatives, climate change will likely reduce the benefits and increase adverse effects to salmon and steelhead.14 However, no more specific analysis on any of the alternatives is completed, so it is impossible to ascertain the magnitude of effects (beneficial or adverse) of each alternative under a changing climate. Given this lack of depth, it is also not possible to conclude whether a given alternative will actually improve conditions for salmon and steelhead. Before any real conclusions can be made about whether an alternative improves conditions for salmon and steelhead, an analysis of each alternative under the expected impacts of climate change must be completed. Climate change is not a hypothetical scenario which might occur: it is a certainty, and its impacts need to be investigated as part of all alternatives.	Through on-going regional climate change studies and work, the co-lead agencies evaluated potential shifts in precipitation and temperature patterns and resulting changes in unregulated Columbia Basin streamflow timing and volumes. The evaluation consisted of the full range of the latest climate change projections developed using multiple global climate models, emissions scenarios, downscaling techniques, and hydrologic models. Details of this evaluation are in Chapter 4 of the EIS. This information was used to describe the potential effects (both beneficial and adverse) on the river systems and resources due to potential changes in climate for all alternatives. The climate science community is still developing quantitative models that can address possible effects in water temperature from climate change, and unfortunately, have not been fully applied and validated for use with climate affected regulated flow projections of large reservoir systems. This data is critical to analyzing potential effects to fish quantitatively. In lieu of this information, the climate analysis used the output from resource models, like water quality and fish, under historical conditions, available climate change data, and scientific literature to qualitative assess potential effects to resources (described in Chapter 4). A system water quality model was developed to look at water temperature and TDG effects throughout the Columbia and Snake River system for this EIS. Breaching the four lower Snake River dams would result in long-term benefits including improvements to fall water temperatures and the restoration of the river to more normative riverine processes; this is stated in Chapter 3, pages 3-271 through 3-272 and Appendix D, Section 6.2.3. Under a dam breach scenario, spring water temperatures will warm more quickly than No Action conditions. Similarly in the fall, under a dam breach scenario, fall water temperatures will cool more quickly than No Action conditions. These results make logical sense and are supported by results from CRSO numerical water quality modeling. What has surprised some stakeholders are the predicted summer water temperature effects under dam breaching. Many believe that removing the dams will result in colder water temperatures as compared to the No Action Alternative. While some cooler water temperatures may be observed in the summer under dam breaching, especially during cooler summer weather conditions and at night, water temperatures will remain warm and exceed the state water quality standard at times. This is because without the dams, the lower Snake River will be shallower and more susceptible to solar radiation and warming. Increases in water particle travel time are expected, but the lower Snake River has always been a warm system (USGS 1960, 1961, 1964; Corps 2002a) and breaching the dams will not change this fact. Regionally high air and water temperatures result in water quality standard exceedances and are beyond the ability of the CRS to cool; future climate change predictions will result in even more difficult challenges.
6722	6	N/A	N/A	The DEIS fails to rigorously explore and objectively evaluate alternatives to maintaining the electric system while meeting other multiple objectives. Here ICL comments on three aspects - the failure to use industry best practices to assess energy system options, the misrepresentation of the impact to system reliability, and the failure to properly include climate change in analysis of replacement generation portfolios. These are not the only flaws in the energy analysis portion of the DEIS. ICL incorporates by reference here the comments on this DEIS filed by the Northwest Energy Coalition. 1. The DEIS did not use well-known industry best practices to assess the need for and cost of replacement energy resources. The agencies state in the purpose and need to be met here that: This EIS will also allow the co-lead agencies and the region to evaluate the costs, benefits and tradeoffs of various alternatives to meet multiple objectives, including the ability to provide an adequate, efficient, economical, and reliable power supply that supports the integrated Columbia River Power System.15 All of the Multiple Objective Alternatives developed here would change the energy services provided by the CRS when compared to the No Action alternative. Thus, one of the most critical parts of this DEIS is captured in Appendix H, which analyzes the impact of the alternatives on the Columbia River System projects and transmission system.16 Here, the most important step in the analysis is to determine the Need for 13 DEIS, page 7-84 14 DEIS, page 4-37 to 4-38. 15 DEIS, page 16 16 DEIS, Appendix H Replacement Power Resources and Cost of Resources. This DEIS Replacement Power Analysis is irretrievably flawed due to the use of stale data, inadequate analytical tools, and misrepresenting the facts on the ground. Considering a range of alternatives to the proposed action is the heart of the environmental impact statement and the action agencies must rigorously explore and objectively evaluate all reasonable alternatives.17 This evaluation must be based on accurate scientific analysis, expert agency comments, and public scrutiny.18 And the agencies must insure the professional integrity, including scientific integrity, of the discussions and analyses in environmental impact statements.19 For decades, electric system operators in this region, and across the country, have used established industry best practices to perform this analysis through Integrated Resource Planning. For this DEIS the federal agencies did not use these established methodologies nor explain why the approach taken has scientific integrity. The agencies could have paired a legitimate Integrated Resource Plan with an Environmental Impact Statement. The Tennessee Valley Authority (TVA) published just such an analysis in 2019, which documents the hallmarks of a rigorous, scientific approach commonly used throughout the United States.20 The TVA IRP is highly instructive and relevant because this agency is essentially equivalent to the Bonneville Power Administration as a corporate agency of the United States with the mission of marketing power from federal resources to local power customers and providers. The most glaring difference between the TVA approach and the CRSO DEIS is the lack of alternatives the CRSO action agencies considered here. TVA evaluated 30 portfolios of resource options to determine the optimal portfolio to meet future needs.21 This is standard industry practice also used in the Northwest Region. PacifiCorp is a major electric system operator in the region with an IRP that considers 50 different portfolios to find the optimal mix of resources.22 Similarly the Idaho Power Company IRP considered 44 portfolios.23 By stark contrast, for the CRSO EIS the federal agencies considered just four alternatives to the No Action Alternative. Beyond the narrow range of alternatives, the CRSO EIS is further inadequate because each alternative was not an optimized collection of related measures, rather a hand selected, narrow choice of measures that does not properly incorporate how the CRS actually operates and the obvious technological and pricing trends in the industry. The Replacement Power analysis applied to these alternatives failed to follow industry standards and thus failed to take the requisite hard look required under NEPA. 17 40 C.F.R 1502.14 18 40 C.F.R. 1500.1(b) 19 40 C.F.R. 1502.24 20 TVA 2019 IRP available at: https://www.tva.com/Environment/Environmental-Stewardship/Integrated-Resource-Plan 21 TVA 2019 IRP at ES-6 22 PacifiCorp 2019 IRP, page 171, available at: https://www.pacificorp.com/content/dam/pcorp/documents/en/pacificorp/energy/integrated-resource-plan/2019_IRP_Volume_I.pdf 23 Idaho Power 2019 IRP at 99, available at: https://www.idahopower.com/energy-environment/energy/planning-and-electrical-projects/our-twenty-year-plan/ Industry best practice is for power system planners to use software tools to develop the optimal portfolio of options to meet electric system	The EIS uses multiple industry standard models and data to assess the effects of the changes in hydropower generation under each alternative. These included GENESYS, AURORA and GridView among others. The EIS describes the overall power models and methodology in the draft EIS in Section 3.7.3.1 Methodology and in additional detail in Appendices H, I and J. Regarding the consideration of climate change, the EIS evaluated the potential effects of climate change on hydropower generation, finding that uncertainty regarding future power generation under different potential climate change scenarios does not affect the overall conclusions of the alternatives. See Section 4.2.5, Chapter 7 and Appendix J Chapter 6 in the draft EIS for additional detail. The EIS uses the best available resource cost information from the Northwest Power and Conservation Council to estimate the potential range in costs of these replacement resources. See draft EIS, Section 3.7.3.1, Step 3: Determine Need for Potential Replacement Resources and Associated Costs, at page 3-821 and Appendix H, Power and Transmission, at Section 2.2. The purpose of providing the range of replacement resource options is to present a reasonable range in potential costs. The basis for developing these portfolios may be found in Section 3.7.3.1, Methodology, and for Multiple Objective (MO) Alternative 3 specifically, Section 3.7.3.5, Potential Replacement Resources and Associated Costs in the draft EIS. The EIS acknowledges that the energy sector is constantly undergoing transformation and that technological improvements will likely bring other options. To avoid speculation, the EIS analysis focuses on primary technologies identified by the Northwest Power and Conservation Council (Council) in its 7th Power Plan (7th Power Plan page 13-5) that are deemed proven, commercially available, and deployable on a large enough scale in the Northwest. See draft EIS, Section 3.7.3.1, Step 3: Determine Need for Potential Replacement Resources and Associated Costs, at page 3-821 and Appendix H, Power and Transmission, at Section 2.2. While the EIS specifically identified two portfolios, it evaluated all primary technologies from the 7th Power Plan to identify the most cost-effective resources at improving regional reliability. After identifying the most cost-effective resources, the EIS analyzed two resource portfolios to replace the hydropower generation of the lower Snake River dams, both of which maintain regional power system reliability. See Section 3.7.3.5, pages 3-904-910 in the draft EIS. One portfolio contains natural gas and the other was a renewable portfolio of solar, storage and demand response. In response to public comments, Appendix H, Section 2.2 in the Final EIS contains an expanded description of how the potential replacement resource portfolios were selected for the EIS. The commenter suggests or questions why a competitive resource review, also known as an integrated resource plan (IRP), was not performed as part of the EIS analysis. An IRP is a resource planning tool that utilities use to plan for future resource builds and acquisitions to fulfill the utility's specific needs over a certain planning horizon, typically 20 years. Some utilities are required to conduct an IRP by their local or state utility commissions. Bonneville is not required to perform an IRP, but does perform resource planning to inform its decisions, including for this EIS. There are many different methods and tools that are used by utilities when performing an IRP. Furthermore, the output of an IRP is often driven by state energy policies, such as carbon emission requirements. Even if an IRP optimizes resource portfolios, the real costs of that portfolio are not known until a competitive request for proposal solicitation can be completed and evaluated. As explained in the draft EIS in Section 3.7.3.1, Base Case Methodology and Cost Sensitivities Analysis, the EIS analysis evaluates the power impacts of the MOs on regional power system reliability, as measured through loss of load probability (LOLP). The regional scope of the EIS is necessary because the impacts of the MOs on power system reliability and costs transcend individual utilities and states. Thus, for example, the EIS addresses the cost impacts of replacement resources for each MO regardless of whether Bonneville pays for the replacement resources. If Bonneville does not replace the lost capability caused by an MO, regional reliability would still be worse than the No Action Alternative and above the Council's 5 percent standard, leaving other regional utilities to acquire the necessary resources. The EIS addressed the regional nature of the costs and resources needed to maintain power system reliability under the MOs. Finally, the Councils RPM model does not include the necessary data to analyze alternatives to Columbia River System operations, maintenance and configuration. Thus, this model was not used to analyze the CRSO EIS alternatives.

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				needs. Known as capacity expansion models, these common software tools allow for power system planners to iterate towards a collection of measures optimized to meet system needs.24 In one of the most glaring failures of the CRSO EIS, the agencies here did not use the capacity expansion tool specifically designed by the Northwest Power and Conservation Council, the Regional Portfolio Model, to assess the optimal portfolio of options specific for the CRS.25 Instead, the agencies use a different tool, GENESYS, that is designed to assess the adequacy of a single option. By using the wrong tool when the right tool is known, available, and specifically designed to address the issue under consideration here, the federal agencies failed to insure the professional integrity, including scientific integrity, of the discussions and analyses in environmental impact statements.	
6722	7	N/A	N/A	The DEIS misrepresents the impact of planned coal generation retirement on regional reliability and resource adequacy. Along with failing to develop adequate, science-based alternatives, the federal agencies applied an unfounded assumption to critique the ability of the alternatives to meet the purpose and need. Maintaining a reliable electric system is a legitimate purpose and need for this DEIS. Where the agencies fail though is in misrepresenting the impact of planned retirement of coal-powered generation plants in the region. The agencies state: without coal, more of the capability or replacement capability of the lower Snake River (LSR) projects would be needed for power system reliability.27 This assumption is demonstrably false. The federal agencies do not have any ownership interest in coal plants, rather regulated utilities in the region own and operate these plants under regulation by their respective state utility commissions. PacifiCorp, who is the primary owner of every coal plant in the region, has an Integrated Resource Plan that documents the path to exit coal plants while maintaining reliable and affordable energy.28 The LSR projects are not a part of the plan, and thus the assertion these dams are needed for reliability is not accurate. By misrepresenting facts in the analysis, the federal agencies here failed to insure the professional integrity, including scientific integrity, of the discussions and analysis in environmental impact statements.	This comment is inconsistent with the findings of the EIS. The comment ignores the rigorous evaluation framework used in the EIS, which incorporates detailed modeling to accurately assess regional reliability as measured through the loss-of-load probability (LOLP) metric under alternative operations of the Columbia River System. GENESYS results show that under Multiple Objective (MO) Alternative 1, MO3, and MO4, the ability of the region to meet load is degraded, and replacement resources would be required in order to maintain regional reliability at the No Action Alternative level. GENESYS is a regional model, and when one resource produces less power, other resources increase generation when necessary and possible to meet load. For MO3 and MO4, even with new renewable replacement resources to maintain regional reliability, the GENESYS model indicates that existing carbon-emitting plants would increase net generation. The base analysis includes all of the coal plants expected to be operational in 2022. Even assuming all coal plants currently in operation remain available throughout the study period (see Appendix H, Power and Transmission, Section 2.3, at Table 2-5 in the draft EIS), regional reliability would decrease without the four lower Snake River dams without additional replacement resources. See draft EIS, Section 3.7.3.5, Effects on Power System Reliability, at page 3-903 and Appendix H, Table 2-1.
6722	8	N/A	N/A	The DEIS does not properly account for the impacts of climate change on generation operations under any alternative. Climate change is not properly addressed in the DEIS analysis of the multiple objective alternatives and the Preferred Alternative. While an analysis of climate change effects does appear in Chapter 4, these 24 TVA IRP at Chapter 6, PacifiCorp IRP at chapter 7, Idaho Power IRP at chapter 8. 25 NWPCC Regional Portfolio Model described in Appendix L to the 7th Northwest Power Plan, available at: https://www.nwcouncil.org/sites/default/files/7thplanfinal_appdixl_rpm_3.pdf 26 40 C.F.R. 1502.24 27 DEIS Appendix H, line 653 28 PacifiCorp 2019 IRP, Chapter 8, available at: https://www.pacificorp.com/content/dam/pcorp/documents/en/pacificorp/energy/integrated-resource-plan/2019_IRP_Volume_I.pdf 29 40 C.F.R. 1502.24 effects are never covered in comparing the alternatives and their relative impacts to power generation and transmission. Chapter 4 shows that climate change will have major effects on both demand for electricity (load) and on the annual hydrograph, causing shifts in annual generation patterns for the CRS projects. Because the Replacement Power Analysis is only based on a single year, 2022, it does not factor in these significant and fairly well-understood trends. Across the 25-year horizon the DEIS claims to analyze when assessing impacts, the River Management Joint Operating Committee (RMJOC) concluded that, compared to present conditions, the spring peak flow would occur earlier, and summer flows would be generally lower.30 Generation is thus expected to be at low levels for longer in the summer. Demand will generally increase in the summer and decrease in the winter as air temperatures rise across the region.31 The DEIS thus acknowledges that generation and load will both be altered by climate change, and in a way that brings CRS generation patterns out of sync with load. The region is predicted to have even higher load during summer, exactly when the CRS is at its low point for generation. The existing hydroelectric system is simply not suited to the task of meeting this load change, and avenues for system change and diversification should be sought to properly adjust. The DEIS, however, simply concludes that climate change does not affect the overall conclusion regarding the net effect of any of the MO alternatives relative to NAA.32 No details about the scope, methodology, inputs, or results leading to this conclusion are provided in the DEIS. Blanket statements without adequate explanation that contradict other information in the DEIS is the hallmark of arbitrary agency action. Beyond the failure to analyze the impact of climate change on the energy system, the DEIS also dismisses any possibility that a replacement power portfolio for the lower Snake River dams could contribute to mitigation for the effects of climate change. The lower Snake River dams are especially vulnerable to such effects, being run-of-river projects that are dependent on upstream storage to regulate flow. A different portfolio of resources could better respond to climatic changes, while diversifying BPAs overall resource mix to better serve the uncertain conditions that climate change will bring alongside well-modeled trends.	As referenced in Chapter 4, Section 4.2.5.1 on page 4-53 in the Draft EIS, the details for the analysis are contained in the Hydropower Appendix. While the Draft EIS incorrectly identified the Hydropower Appendix as Appendix H, the Final EIS correctly references the Hydropower Appendix as Appendix J. Analysis of climate effects on the Preferred Alternative are included in Section 7.8.7 in the draft EIS. The EIS hydropower analysis used four sets of 30-year streamflow records from the RMJOC-II data set (2020-2049, labeled the 2030s). The analysis did not rely on water conditions for the single year 2022. The four scenarios represent a reasonable range of potential climate change impacts and provide a quantifiable basis for understanding how future changes in climate may impact generation. The EIS did not model changes in load associated with climate change because this aspect of the analysis was constrained to 2022. However, as noted by the comment and as described qualitatively in Section 4.2.5.2 in the Draft EIS, Energy Demand (Loads), the changes in temperature would affect demand. The power shortages in winter under all alternatives are likely to be reduced into the 2030s as loads in those months decrease (absent other changes). Conversely, the summer power shortages that increase in MO1, MO3, and MO4 as compared to the No Action Alternative are likely to be further exacerbated as temperatures and load in those months increase and as the low-flow period in summer lengthens. For the Preferred Alternative, the increased reliability in late August could potentially ameliorate projected power shortages in that period due to increasing temperatures and loads. See Section 7.8.7 in the Draft EIS. The EIS did not model hydropower with replacement portfolios plus climate change. The comment is correct that the region needs resources that are able to respond to climate change. Alternatives that increase generation or seasonal flexibility (or both), like MO2, would be beneficial for adapting to the changing hydrograph and power demand associated with climate change. Alternatives that decrease summer generation or seasonal flexibility (or both), like MO3 and MO4, increase the challenges associated with a changing hydrograph. Increases in solar power generation, such as those included in the potential replacement resource portfolios would ameliorate the summer challenges by increasing summer generation.
6722	9	N/A	N/A	The DEIS does not sufficiently analyze the socioeconomic impacts of CRS operations on communities in Idaho that depend on the Snake River, its tributaries, and the runs of anadromous fish that migrate upstream. ICL is similarly concerned that the DEIS did not include nearly enough analysis on the impacts of the alternatives to communities outside the area of the CRS projects, especially Idaho communities on upstream tributaries of the Snake River. Actions taken under any alternative will have major effects on the recreation-based economies of these towns. To a large degree, the recreation economy in towns like Riggins, Orofino, Salmon, Whitebird, and Kamiah is centered on salmon and steelhead: guides, outfitters, and tackle shops cater to anglers wanting to catch fish. Stores, restaurants, gas stations, and hotels rely on the tourist dollars spent in their communities. Collectively, through direct and indirect spending, the dollars spent in these small communities are vital and difficult to replace. Other tourism businesses depend on fish to bring visitors to the area in the first place. Many small communities are nearly entirely dependent on recreational fishing, and will not survive if salmon or steelhead seasons are closed due to the low returns that have become commonplace in recent years. Fish hold inherent value as a species to be seen in these places as well. Recreationists who dont fish are often just as captivated by the thought of seeing a Chinook salmon 900 miles from the ocean. Idahos wilderness and beauty bring visitors to Central and North Idaho for rafting trips, float trips, camping excursions, and retreats. Salmon and steelhead are an integral part of Idahos appeal. The DEIS contains no analysis of how CRS operations impact these places and people. The 2002 CRSO EIS addressed the subject, but now is under apparent doubt from the Action Agencies: In contrast, applying the results of the contingent behavior study conducted for the 2002 EIS would yield an estimate that would range from approximately 1.2 to 3.4 million annual visits (adjusted and unadjusted for population) under MO3 in the long term, depending on whether or not California estimates are included. As described above, the Corps has expressed concerns that the 2002 EIS may have overstated recreation benefits from dam breach. (3-1219) Despite the concerns of the Army Corps, no real reevaluation of these estimates was completed in the current DEIS process, just vague generalizations about past studies. We believe that if this analysis were to be completed again, it would show significant economic benefits to Idaho, Oregon, Montana, and Washington communities related to recovering fish populations. In Idahos rural river towns, even modest amounts of spending related to salmon and steelhead angling are integral parts of the economy. With an improved fishery, Idahos river communities would thrive. This is the only statement in the DEIS that relates improved salmon and steelhead returns to economic benefits for the recreation economy. The MOs that improve fish survival and abundance would generally result in beneficial effects for recreational fishing, while MOs that reduce fish survival and abundance would adversely affect recreational fishing. In particular, the presence of additional fish may improve the quality of existing recreational fishing trips (e.g., through increased catch rates), resulting in additional value (consumer surplus) for anglers (i.e., a higher UDV). Additional fish may also generate additional trips as more anglers could be supported (Melstrom et al. 2015; Poe et al. 2013). (page 3-1181) The DEIS includes no comprehensive economic analysis that goes beyond stating the obvious: more fish make for better fishing. The loosely discussed fishing trips account for $8.6 million per month for B-run Clearwater steelhead alone. Unfortunately, this figure is only known because that fishery was shut down in 2019 due to low returns. Clearwater River communities missed out on the lifeblood of their economy because too few steelhead passed through the CRS on their way back to natal streams in the Clearwater basin. Because the DEIS did not include a comprehensive review of impacts to upstream communities, we can only analyze the economic impact that salmon and steelhead have on Idahos recreation economy based on old data. An Idaho Department of Fish and Game survey shows that in 2003, anglers spent $438 million in direct expenses while fishing in Idaho, broken down as follows33: $148 million spent at restaurants and on groceries $91 million for transportation $60 million for equipment (boats, camping, etc.) $62 million for fishing tackle $45 million on hotels and campgrounds $32 million on outfitters and guides Considering trends in adventure tourism, it is fair to estimate that these totals have significantly increased since 2003, perhaps approaching $1 billion annually. In any given year, there are more than 2,000 licensed outdoor guides working in the state of Idaho. Many of them rely on robust returns of salmon and steelhead, which are almost entirely dependent on CRS operations. The DEIS does not adequately address the economic impact that recreational fishing for salmon and steelhead has on the rural Idaho economy. This is a glaring flaw of the document, and it cannot be considered a comprehensive analysis of how the CRS impacts its environment until it includes a much more robust investigation of these impacts under the alternatives.	The EIS provides an evaluation of the social welfare and regional economic effects of the No Action Alternative and the multi-objectives alternatives, including the effects on recreation (Section 3.11) and fisheries (Section 3.15). The EIS described the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. NMFS estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which is described qualitatively. The potential for changes in recreational fishing of anadromous fish under MO3 in the Region C is described in Section 3.11. Increases in recreational fishing could support jobs, income, and social benefits in Tribal and rural river communities. For the effects on recreational fishing under MO3 (Section 3.11.3.5) along the Lower Snake River below Lewiston, the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River) as an indicator for fishing visitation in this reach. The EIS describes that the visitation in the long-term in the lower Snake River, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting outfitting and tourism businesses in the region. However, there is uncertainty around recreational fishing visitation in the long-term given the current measures to regulate, protect, and support ESA-listed fish populations and habitat in the region. The contribution of Columbia River origin fish to ocean fisheries is described in Section 3.15.2.1. Because there is considerable uncertainty regarding the overall effects of the alternatives on regional fish populations, and how such changes may affect the management of the fisheries, the specific quantitative and monetized impacts associated with changes in commercial fisheries under the alternatives was limited. This analysis evaluates potential impacts on fisheries by referencing the potential effects on relevant fish populations, as described in Section 3.5.
6729	1	N/A	N/A	Hancock Natural Resource Group (HNRG) is a registered investment advisor and an indirect, wholly owned subsidiary of Manulife Financial Corporation. HNRG, and all associated investment divisions and operating entities is committed to responsible investing and sustainable management of its clients assets, including the ongoing reduction of environmental impact and improvement of sustainability and stewardship performance. The HNRG, through its operating entity, Hancock Farmland Services (HFS) manages its clients agriculture investments in a manner that integrates the development, management, and operation of agricultural lands for useful products with a commitment to conserve soil, air, and water quality, biological diversity, and	In Region C (lower Snake River), and potentially Region D (mainstem Columbia River) around the confluence of the lower Snake River, MO3 alternative, which includes breaching the earthen embankment of the four lower Snake River dams, would have adverse effects to farmers and irrigation. Currently and in the No Action Alternative, water is available from the pools of these facilities and from groundwater that results from the pools. Removing the earthen embankment portion of the dams would reduce pool elevations by up to 100 feet, which would make surface pumps inoperable. Groundwater pumps in the wells may also be affected due to decreased groundwater elevations depending on the connectivity of the aquifer to the pools. Municipal and industrial water pumps in the Lewiston area would also likely be adversely effected. Additionally, transportation of farming goods would expect to move off river and on to rail or trucks, as there would be a complete loss of commercial navigation on the lower Snake River and could not be feasibly mitigated. All ports along the Snake River would lose access to the navigation channel. Some ports at the confluence or the Snake and Columbia River could dredge new

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				wildlife habitats. HFS also participates actively in the vibrant, healthy communities in which we operate. Through its prominent agricultural lessees, HFS irrigates land along the Ice Harbor-McNary Pools, Lower Snake River. These private sector operations are among the most productive and efficient irrigated properties in the world. Consequently, HFS is highly concerned about any operational changes made by the Columbia River System Operations (CRSO) agencies affecting Pool elevations and flow operations via the ESA-BiOp review alternatives. The alternatives, involving either breaching Ice Harbor Dam or lowering McNary Pool to minimum operating pool (MOP), would severely impact irrigation pumping. HFS holds a Board of Director position on the Columbia-Snake River Irrigators Association (CSRIA), and we have approved the technical/policy analysis provided to the CRSO agencies by CSRIA, per the CSRIA Risk Mitigation Response Alternative White Paper (CSRIA.org/ESA Risk Mitigation). In this White Paper, CSRIA explicitly identifies the required EIS and economic analysis methodologies, the impact area, and the impact mitigation economic valueall of which should be included within the EIS irrigation sector review. Very specifically, the Draft EIS existing irrigation sector impact area is incorrect. While the Ice Harbor Pool irrigated acres are slightly less that the CSRIA estimate (about 54,000 acres), the Draft EIS fails to account for the McNary Pool acres (about 37,000) that will be affected by breaching/pool drawdown. Under dam breaching, it is not realistic to expect the reach below Ice Harbor Dam to the mainstem Columbia River to remain stable or the same as under existing physical conditions. The inflows to this reach will be at a much higher water velocity, coming from a much narrower channel, and with very high silt and debris concentrations. Irrigation pumping stations along the entire impact area, including the Upper McNary Pool reach, are highly sensitive to pool elevation drawdowns and siltation issues. The MOP operations will definitely impact the pump stations and conventional operations. These are high dollar impacts. Consequently, while there are many technical, policy, and political issues at play within the EIS analyses, the impact area must be correctly identified.	channels to the Federal channel in the confluence (McNary reservoir) to maintain access. Private or public entities or businesses could take actions or build infrastructure to extend pumps or water supply access for water. Ports and farmers can likewise change their transportation modes or connect to the navigation system at a different point on the river. The federal co-lead agencies would not mitigate for these impacts to water users or ports. Chapter 3 analyzes the social and economic effects of implementing a dam breaching alternative (MO3) and Chapter 5 includes the mitigation that could be necessary if MO3 was selected. The co-lead agencies did not identify MO3 as the Preferred Alternative.
6730	1	westphalbri@gmail.com	N/A	Since my major complaint is that the Preferred Alternative is predetermined based on meeting the objectives given, I, as a commentor can have the same preconceived notion, that is, what conclusion meets the only real environmental objective: SAVE THE FISH! Recall that the National Environmental Policy Act (NEPA) process is all about the environment and as such this EIS should not be addressing power output, water management, and water supply as primary objectives since they are not directly related to the environment. The purpose of NEPA is to promote efforts which will prevent or eliminate damage to the environment and biosphere. Giving objectives such as power and water management the same weighting as salmon, lamprey, and emissions goes against NEPA. I understand the indirect effects power and water management may have to the environment but don't understand how they are on equal footing to direct effects on the biosphere. As such, I believe the current NEPA evaluation is in direct violation of the intent of NEPA. A graded system wherein fish priorities (biosphere) are given higher emphasis than non-environmental considerations such as power should have een mplemented and evaluated, so that rigorous analyses could have been performed on the objectives.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA listed species. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-lead agencies numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as the MO3 which includes the dam breaching measure. The Preferred Alternative also meets the EIS objectives for: resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS the co-lead agencies did not identify MO3 because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. As required by the National Environmental Policy Act (NEPA), the co-lead agencies evaluated each alternative for its effects on a suite of resources. These effects are summarized in Section 3 of the Executive Summary, fully described by resource and alternative in Chapters 3, 4, 5, 6 and 7; summarized by resource and alternative in Table 3-1, and presented for comparison in Tables 7-1 and 7-55 in the Draft EIS. Effects specific to anadromous fish are described in Sections 3.5.3 and 7.7.4. In the Draft EIS, Table 3-61 compares expected survival by alternatives, and Table 3-62 provides a comparison of the alternatives specific to anadromous fish. The EIS considered the impact of all of the actions and measures in the alternatives for a multitude of ecological resources, such as water quality and fish, as time progresses from implementation into the future. There are many ecosystem and individual resource effects that occur outside the operation and maintenance of the CRS. Salmon and steelhead and other resources have been adversely affected in the Columbia River Basin over the last century by many activities including human population growth, urbanization, introduction of exotic species, overfishing, development of cities and other land uses in the floodplains, water diversions for all purposes, dams, mining, farming, ranching, logging, hatchery production, predation, ocean conditions, and loss of habitat (see Chapters 6 and 7 for additional information). The co-lead agencies analyzed the effects of the operation, maintenance, and configuration of the CRS projects on resources affected by the CRS. The co-lead agencies also looked at the cumulative effects of past, present, and reasonably foreseeable future actions and trends in Chapter 6 (Cumulative Effects) and Chapter 7 (Preferred Alternative), of the EIS. Further, Chapter 4 (Climate) provides an overview of the project changes in future regional climate and discusses how these changes would affect each of the resources under each alternative.
6730	2	westphalbri@gmail.com	N/A	To quantify my comments: 1) By including non-environmental considerations such as power and water management as primary objectives, the NEPA process was clearly not followed. If inclusion is necessary for indirect environmental effects of these objectives, then a weighting system should be applied such that less merit is given to these objectives than to the other five primary objectives (fish, lamprey, and emissions). A thorough technical evaluation of the objectives would have prioritized their importance as related to NEPA and applied a graded approach to their merits in meeting the NEPA process. Then, as results are tallied based on the relative importance of the objectives, a true evaluation of the alternatives on the effects to the environment would have been possible. 2) Although I recognize that the Bonneville Power Association (BPA) is a governmental agency, it has one purpose: to produce and sell power. To include the BPA as a contributor to the EIS is like asking the wolf to lend house building suggestions to the three little pigs. The EIS should never have included BPA input. 3) Since implementation of protocols to increase fish (and lamprey) survival rates have only been instituted in the last 5 years, drawing conclusions on their effectiveness is premature at best and irresponsible to say the least.	First, the commenter misunderstands what effects must be considered as part of an EIS. As the Council on Environmental Quality's NEPA regulations state, "[ef]fects include[] ecological (such as the effects on natural resources and on the components, structures, and functioning of affected ecosystems), aesthetic, historic, cultural, economic, social, or health, whether direct, indirect, or cumulative." 40 C.F.R. 1500.8). Thus, the CRSO EIS appropriately analyzed economic effects. Second, the commenter misunderstands the varied and complex mission of the Bonneville Power Administration (Bonneville). Bonneville is a nonprofit federal power marketing administration based in the Pacific Northwest. Although Bonneville is part of the U.S. Department of Energy, it is self-funding and covers its costs by selling its products and services. Bonneville markets wholesale electrical power from 31 federal hydroelectric projects in the Northwest, one nonfederal nuclear plant and several small nonfederal power plants. The dams are operated by the U.S. Army Corps of Engineers and the Bureau of Reclamation. The nonfederal nuclear plant, Columbia Generating Station, is owned and operated by Energy Northwest, a joint operating agency of the state of Washington. Bonneville provides about 28 percent of the electric power used in the Northwest and its resources primarily hydroelectric make Bonneville power nearly carbon free. Bonneville also operates and maintains about three-fourths of the high-voltage transmission in its service territory. BPAs territory includes Idaho, Oregon, Washington, western Montana and small parts of eastern Montana, California, Nevada, Utah and Wyoming. Bonneville promotes energy efficiency, renewable resources and new technologies that improve its ability to deliver on its mission. It also funds regional efforts to protect and rebuild fish and wildlife populations affected by hydropower development in the Columbia River Basin. Bonneville is committed to public service and seeks to make its decisions in a manner that provides opportunities for input from all stakeholders. In its vision statement, Bonneville dedicates itself to providing high system reliability, low rates consistent with sound business principles, environmental stewardship and accountability. And finally, implementation of protocols to increase fish and lamprey rates has been around much longer than five years. The co-lead agencies relied on high quality information in their fish and lamprey analysis. See Sections 3.5 and 7.7.4.
6739	1	cindy@orcanetwork.org; Howard Garrett	Orca Network	We would first of all like to express our disappointment that the comment period was not extended beyond April 13th. At only 45 days, the time allotted for this comment period was not sufficient to fully read and understand a document of this magnitude. Given current events with the pandemic and the inability to host inperson public meetings, we felt that the public needed more time to read and digest this information and give it the attention it deserves so they could prepare educated and thoughtful comments.	The co-lead agencies considered requests to extend the public comment period. This NEPA process included a wide array of cooperating agencies whose close involvement throughout the process allowed the co-lead agencies to incorporate feedback. Given the broad range of comments received and the extensive Federal and non-Federal participation in the overall process as well as the level of public engagement in the six virtual public meetings in the region, the co-lead agencies determined that an extension was not warranted and that the 45-day public comment period was adequate consistent with NEPA regulations. The CRSO EIS website notified the public on April 9, that they should plan to submit comments by the close of the comment period.
6739	2	cindy@orcanetwork.org; Howard Garrett	Orca Network	We would also like to express our disappointment that the DEIS did not adequately represent the importance of Columbia Basin salmon to the endangered Southern Resident orcas, and it fails to recognize the biological need of Southern Residents to have continuous access to salmon from a variety of river systems throughout their range. 2 Southern Resident orcas are a genetically, acoustically, socially, and culturally distinct population of fish-eating orcas. They were listed as endangered under the U.S. Endangered Species Act in 2005 but are continuing to decline despite the protection and recovery actions initiated by this listing. In 2019 the population dropped to just 73 orcas, the lowest number in four decades 1, and the Center for Whale Research announced in January that an adult male may be missing from L Pod. Their main threats include a lack of available prey, namely due to a decline in their primary prey, Chinook salmon; environmental contaminants, particularly bio-accumulative organochlorines such as DDT, PBDEs, and PCBs; and vessel effects and sound, as well as increased potential for oil spills and disease. 2 Of these threats, lack of prey is widely recognized as the biggest limiting factor in their recovery. Salmon depletion has led to changes in their social structure, decrease in presence in their core summer feeding areas, an increase in stress hormones and a miscarriage rate of almost 70%.3 In the 2008 Recovery Plan for the Southern Resident Orcas, the National Marine Fisheries Service (NMFS) stated that perhaps the single greatest change in food availability for resident killer whales since the late 1800s has been the decline of salmon in the Columbia River basin. NMFS also stated that Columbia-Snake River Basin salmon has the largest potential for increasing Chinook salmon abundance throughout the Southern Residents range.4 Yet the CSRO DEIS states that Puget Sound Chinook salmon stocks are more important to Southern Resident orcas than Snake River stocks due to their availability for greater periods of the year and also claims that the food available to Southern Resident killer whales from the lower Snake River population is only a small percentage of their overall diet. Changes to food availability may change the whales foraging behavior patterns slightly but will not change their overall condition or population dynamics.5 We know from a variety of research and data sources that Southern Resident orcas spend over half the year in coastal waters and that Columbia basin salmon make up over half of their outer coastal diet. Photogrammetry studies show that the Southern Residents are experiencing a decline in body condition between October and May.6 Data from sightings, acoustic recordings, satellite tagging, and prey and fecal samples show that they are traveling primarily in coastal habitat during this time, and that Chinook salmon continue to be the preferred prey in these waters, further underscoring the need for an abundant, healthy food source throughout their range.7 Data from the National Oceanic and Atmospheric Administration (NOAA) compiled from satellite-tagging studies, dedicated surveys, and passive acoustic monitoring from hydrophones located in coastal waters shows that all three pods in the Southern Resident population use the coastal waters of Washington year-round, with the highest use occurring during the winter and early spring.8 The data indicates that, of the total time the orcas spend in coastal habitat each year, approximately 50% of that time is spent off the coast of Washington, and NOAA has identified this as a high-use foraging area for the population.9 The concentration of use of the waters between Grays Harbor and the mouth of the Columbia River appears to be driven by the timing of seasonal Chinook runs, and the Columbia and Snake River are listed as priority Chinook stocks for Southern Resident orcas.10. We also know, as evidenced particularly in 2018 and 1 Center for Whale Research Orca Survey data 2 National Marine Fisheries Service. 2008. Recovery Plan for Southern Resident Killer Whales (Orcinus orca). National Marine Fisheries Service, Northwest Region, Seattle, Washington 3 Data from the Center for Whale Research; Wasser S.K. et al. 2017. Population growth is limited by nutritional impacts on pregnancy success in endangered Southern Resident killer whales (Orcinus orca). 4 NMFS (2008) Recovery Plan for Southern Resident Killer Whales (Orcinus orca), 5 DEIS at 3-759, table 3-106. 6 Fearnbach, H. et al. 2018. Using aerial photogrammetry to detect changes in body condition of endangered southern resident killer whales. 7 National Marine Fisheries Service Biological Report, 2019. Proposed Revision of the Critical Habitat Designation for Southern Resident Killer Whales. 8 Proposed Revision of the Critical Habitat Designation for Southern Resident Killer Whales: Draft Biological Report. National Marine Fisheries Service, September 2019. Available: https://www.fisheries.noaa.gov/action/critical-habitat-southern-resident-killer-whale 9 Hanson, M.B., E.J. Ward, C.K. Emmons, and M.M. Holt. 2018. Modeling the occurrence of endangered killer whales near a U.S.	SRKW analysis is described in the EIS including in the FEIS Chapter 3 (Vegetation, Wetlands, Wildlife, and Floodplains) which has been updated for SRKW (Section 3.6.2.6 and Table 3-102) and FEIS Chapter 7 (Preferred Alternative) with additional analysis information on SRKW and potential increase in forage fish, in particular, Chinook salmon in Section 7.7.8. The co-lead agencies utilized current high quality information and best available science in its analysis of the effects of the operation, maintenance, and configuration of the CRS projects. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. The EIS analysis found that only a minor effect to the Southern Resident killer whale would result from implementing MO3 (which includes the dam breach measure). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differentially from hatchery and wild fish. Hatchery fish today likely make up most fish consumed by SRKW (NOAA BiOp 2020). The EIS analysis of the Preferred Alternative determined the overall effect to SRKW to be negligible in large part because hatchery production is consistent between the No Action Alternative and the Preferred Alternative. Because the impact from the Preferred Alternative was determined to be negligible, the agencies determined that existing hatchery production would be sufficient to address any potential impacts to prey availability for SRKWs. The co-lead agencies note the contribution to the prey of SRKW through the continued existence of their respective independent congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as the Lower Snake River Compensation Plan, which is administered by U.S. Fish and Wildlife Service. The Preferred Alternative and Proposed Action in the agencies' biological assessment carry forward certain mitigation measures described in Chapters 2 and 7 of the EIS, which include continued salmon and steelhead hatchery production. The Preferred Alternative has negligible effects to SRKWs as described in Section 7.7.8.

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				Navy Training Range in Washington State using satellitetag locations to improve acoustic detection data. 10 NOAA Fisheries and Washington Department of Fish and Wildlife 2018. Southern Resident Killer Whale Priority Chinook Stocks Report. 3 2019, that Southern Residents will shift their patterns and feed off the coast during the summer when there is little to no salmon available in the Salish Sea, underscoring the importance of these coastal runs as Puget Sound and Fraser River stocks continue to decline or fail to improve.	
6739	3	cindy@orcanetwork.org; Howard Garrett	Orca Network	Of the alternatives presented in the CRSO DEIS, MO3, Snake River dam breaching plus increased spill over the Columbia River dams, represents the best chance of recovery for Snake River salmon and for Southern Resident orcas. The benefits of dam breaching were demonstrated in a recent white paper entitled Southern Resident Killer Whales & Columbia/Snake River Chinook: A Review Of The Available Scientific Evidence which was written by five PhDs and submitted earlier this year.	The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets most other EIS objectives including those for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS, the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams, because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Moreover, the EIS analysis found only a minor effect to the Southern Resident killer whale would result from implementing MO3 (which includes the dam breach measure). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults form the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differentially from hatchery and wild fish. Hatchery fish today likely make up most fish consumed by SRKW (NOAA BiOp 2020).
6757	1	N/A	N/A	The following are comments specific to the scope and findings of the Draft EIS. Draft EIS Scope The Agencies decision to exclude the Upper Snake River and its tributaries from the analysis of the Draft EIS is appropriate. It is wisely noted that the Upper Snake River, amongst other basins, are operated separately and have entered into their own agreements, coordination programs, and management efforts. The Nez Perce Agreement, which was ratified by Congress in 2004, settled much of the tribal water disputes above Hells Canyon. The agreement consists of specific provisions/requirements, including flow augmentation, and the establishment of a 30-year biological opinion that is extendable. Appropriately, the CRSO Draft EIS excludes the Upper Snake River from the scope of consideration, as to not interfere with such Congressionally approved agreements.	Thank you for your comment.
6757	2	N/A	N/A	Additional Flow Augmentation The topic of flow augmentation is one that has troubled our members for years. Research has not shown any significant biological benefits to increased stream/river flows. Additionally, the Draft EIS provides little, if any, information as to how flow augmentation supports species listed under the Endangered Species Act. For this reason, we question its proposal and inclusion in several of the alternatives, particularly Alternative 4. IFBF Policy supports reevaluating the use of flow augmentation until the science shows a benefit to the intended species of concern. Any flow regime that is considered in the final EIS must be both scientifically justifiable and comply with state water law. IFBF opposes Alternative 4 and any additional flow augmentation requirements not supported by science as they would have severe negative effects on water rights and other uses.	Flow augmentation from all the storage projects upstream does provide some benefit downstream. It is a required operation under the Biological Opinions to help provide additional flow for downstream fish, both directly below the project and in the lower river. Multiple Objective Alternative 4 was not identified as the Preferred Alternative due to its impacts upstream and not creating additional benefit in the lower river.
6765	1	john@snakeriverboard.org	Snake River Salmon Recovery Board	Specific comment and data sources for consideration in the draft EIS: Adult salmon and steelhead tributary overshoot in the Middle Columbia and Snake Basins, as it pertains to the Tucannon populations of summer steelhead and spring Chinook salmon and Walla Walla populations of steelhead are largely over-looked in the EIS document. Some mention of fallback was covered in the following: [letter contains screen shot of lines 2723-2732 of the DEIS] The preferred alternative indicates a potential increase in fallback, but the impacts on overshoot are not discussed. Overshoot needs to be defined in the document, as it is distinctly different than homing, fallback, or straying whereby fish that overshoot their natal tributary are not fish that are part of the natural straying population, rather fish that seek to return downstream but have no adult downstream fish passage opportunity. Estimates of mortality related to overshoot for the Tucannon River wild and hatchery summer steelhead show that in some years more than 50% of adult steelhead returning to Ice Harbor Dam pass the Tucannon River, Little Goose and Lower Granite Dam. Returns of fish to the Tucannon River of fish that are detected above LGD often ranges between 0%-20%. (Copeland et al., 2013). Investigation of mortality related to both overshoot and kelt emigration should be warranted in the Lower Snake Basin to better understand the mechanisms causing overshoot and how to improve survival in spawning tributaries as well as repeat spawners. Year-round fish passage, upstream and downstream, should be considered in the preferred alternative. Line 7273: These data do not accurately represent survival of Snake River or Mid-C stocks that are losing individuals that overshoot and result in increased mortality or inability to fallback downstream to natal rivers. Data cites straying but it is unclear if this category includes overshoots that do try to navigate back downstream to natal rivers at a later date. Tucannon stocks in particular have as much as 50% overshoot (Richins and Skalski, 2018). [letter contains screen shot of these lines in the DEIS] Pg. 3-299, Line 7714: Much of the life history discussion skips over the effects of repeated dam passage and fallback by Mid-Columbia and Snake River populations. While this example is correct in that Snake River steelhead will encounter 8 dams, the fish that overshoot must navigate back through the hydropower system, often with the only downstream passage available being through turbines which lead to greater risk of injury. The Tucannon steelhead were briefly mentioned, however its worth highlighting that as many as 50% of fish will bypass the mouth of the Tucannon and proceed beyond Lower Granite (Bumgarner and Dedloff, 2011). [letter contains screen shot of these lines from the DEIS] Line 9783: It is important that these models incorporate population differences in how fish experience and navigate dams as adults. Mid-Columbia steelhead and Tucannon steelhead show higher overshoot rates than other populations and therefore are at a higher risk of not reaching their intended spawning areas whether it be due to injury passing through hydropower system, or inability to navigate back and becoming lost to the intended population. Some model pieces used existing DPS to project effects on other populations which may not be giving an accurate picture of adult survival (Bumgarner and Dedloff, 2011). [letter contains screen shot of DEIS] Line 9906: Models dont appear to consider the effects of overshoot and repeated navigation back down through dams by adult fish. Particular emphasis should be given to Tucannon stocks that see a large portion of fish migrate over Lower Granite and very few (20%) returning to the Tucannon. It does not appear that the models or MOs capture the different effects on adult overshoots. (Bumgarner and Dedloff, 2011). [letter contains screen shot of DEIS] Line 9943 Table 3-60: This may not be an appropriate option. Different ESU/DPS have differing rates of passage, straying, and overshoot so a surrogate will not capture the unique differences among populations (Keefer and Caudill, 2013; Bumgarner and Dedloff, 2011). [letter contains screen shot of DEIS]	Section 7.6.4.3 describes preliminary measures agreed to by the co-lead agencies during informal ESA consultation with NMFS and USFWS on the Preferred Alternative. Due to the fact that the consultation is ongoing, the measures in this Section may be modified prior to the Final EIS. In the case of steelhead overshoots (and kelts), this Section includes the following: To reduce the take of overshooting adult Middle Columbia River and Snake River Basin steelhead, the co-lead agencies, beginning in 2020, would implement offseason surface spill as a means of providing safe and effective downstream passage for adult steelhead that overshoot and then migrate back downstream through McNary Dam and the Snake River dams during months when there is no scheduled spill for juvenile passage. The co-lead agencies would implement this measure within the October 1 to November 15 and March 1 to March 30 timeframes based on the analysis already included in this EIS for MO4. The commenter is correct that the model analyses do not accurately or fully capture the effect of the dams on the escapement of adult steelhead overshoots and kelts. These effects of dams on escapement of adult steelhead overshoots and kelts are discussed qualitatively in the Draft EIS.
6765	2	john@snakeriverboard.org	Snake River Salmon Recovery Board	Line 10109: This should also be highlighted as a major concern in the Snake River System as noted in Erhart 2018. [letter contains screen shot of DEIS]	The co-lead agencies recognize the importance of predation by piscivorous predators and evaluated this factor in the Snake River as well as the Columbia River. This statement in the "Effects Common to All" Section is intended to be more broad and inclusive of the entire Columbia River Basin (including the Snake River) as it applies common to all salmon and steelhead. The analyses of resident fish populations are considered specific to Snake River fish in Region C of the resident fish analyses and applied to anadromous fish in the "Snake River Salmon and Steelhead" Sections under Anadromous Fish, all in Section 3.5.3.
6765	3	john@snakeriverboard.org	Snake River Salmon Recovery Board	Line 10623: While this section does talk about ST kelts navigating downstream, it doesnt talk about the issues with pre-spawn overshoots or fallback issues. For particular populations, the portion of fish that must successfully navigate back down through a hydropower dam is significantly greater than other populations and should be acknowledged as such. None of the MOs discuss ways to reduce likelihood of fish that bypass and then do not navigate back down. Regarding Kelts, it is previously noted that up to 50% of post-spawn steelheads are indeed kelts. It is unclear if the models accurately capture the potential importance of this particular life history characteristic-particularly when those fish will have to try and successfully navigate back down all of the hydropower dams (Bumgarner and Dedloff, 2011). [letter contains screen shot of DEIS]	The commenter is correct that none of the MOs included specific measures to improve downstream adult steelhead overshoot passage. That is because this is an ongoing action that will be carried forward from the No Action Alternative. Section 7.6.4.3 describes preliminary measures agreed to by the co-lead agencies during informal ESA consultation with NMFS and USFWS on the Preferred Alternative. Due to the fact that the consultation is ongoing, the measures in this Section may be modified prior to the Final EIS. In the case of steelhead overshoots (and kelts), this Section includes the following: To reduce the take of overshooting adult Middle Columbia River and Snake River Basin steelhead, the co-lead agencies, beginning in 2020, would implement offseason surface spill as a means of providing safe and effective downstream passage for adult steelhead that overshoot and then migrate back downstream through McNary Dam and the Snake River dams during months when there is no scheduled spill for juvenile passage. The co-lead agencies would implement this measure within the October 1 to November 15 and March 1 to March 30 timeframes based on the analysis already included in this EIS for MO4. The commenter is correct that the model analyses do not accurately or fully capture the effect of the dams on the escapement of adult steelhead overshoots and kelts. These effects of dams on escapement of adult steelhead overshoots and kelts are discussed qualitatively in the Draft EIS.
6765	4	john@snakeriverboard.org	Snake River Salmon Recovery Board	Line 13054: There is no mention of predator modifications for Snake dams (avian or aquatic). This should also be highlighted as a concern in the Snake River System, see Erhart, 2018. Northern Pike will also pose a major problem if they continue to spread. It seems that a greater consideration of the impacts of non-native fish predators is warranted in this document. The following tables list the measures being carried forward in the preferred alternative (Table 7-5, Measures Included in the Preferred Alternative to Benefit Endangered Species Act-listed Fish that are Being Carried Forward from Previous Commitments by the Co-Lead Agencies, Line 7-41) and the ones being considered. (Table 7-6, Preliminary List of Measures Agreed to by the Co-Lead Agencies during Endangered Species Act Consultation on the Preferred Alternative, line 7-46). Given the known predation of salmonids in the Columbia and Snake Basin, no measures are provided to address nonnative fish predation on salmonids. Measures are included on controlling native	The Preferred Alternative has multiple measures targeting reducing predation rates (from both birds and fish) in the McNary and John Day pools. The bird dissuasion measures at both the Columbia and Snake river hydropower projects are slated to continue under the Preferred Alternative. These actions are intended to reduce predation on juvenile salmonids while they are in the immediate vicinity of the lower Snake River projects and are at potentially higher risk of predation. There is no or very limited nesting by avian predators within the lower Snake River region (few cormorants at the mouth of the Clearwater for example), but from a colony/habitat focus, attention is in the Columbia where the nesting colonies are located (plus off channel locations such as Potholes). As a result, there is not much data for direct measure of avian predation within the lower Snake River directly; breeding/nesting terns, cormorants, gulls, and pelicans foraging in the lower Snake River are believed to come from the respective nesting colonies on the Columbia and at off channel locations. For more information see Chapter 5 of the 2004-2009 Synthesis Report on the abundance, distribution, and diet composition of cormorants over-wintering on the lower Snake River. http://www.birdresearchnw.org/Avian%20Predation%20Synthesis%20Report%202004-2009%20Final%20v2.pdf BPAs Northern pikeminnow program includes the lower Snake River reservoirs and there are multiple sport reward stations throughout the lower Snake River region.

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				fish (i.e. pike minnow) control and native avian and marine mammals, although they could be bolstered as this is of significant concern (Chasco et al. 2017). Specifically, reducing predation rates (from both birds and fish) in the McNary and John Day pools and lower reaches tributaries is needed. Consideration should be given to impacts of non-native warm water fish predation and the impacts to Snake River Spring and Fall Chinook. Studies have shown juvenile Chinook and particularly age zero fall Chinook are consumed at a high rate by smallmouth bass. The study estimates (based on empirical evidence of the study), that between April 2013 to September 2015 more than 300,000 chinook salmon were consumed in Lower Granite Reservoir. The study supports an increasing rate of consumption of chinook by smallmouth bass and not an increase in abundance. This mortality rate could be reasonably expanded to the rest of the lower Snake and Columbia as well since walleye another efficient predator. These studies support reduced feeding efficiency during periods of increased flow and reduced temperature (Erhart, 2018).	
6767	1	gregg.larson@mcg.com	N/A	We first need to acknowledge that dam power is NOT CARBON-FREE! This mistruth has been continued in the report and propagated from those that support the stats-quo failure of salmon that are nearly extinct in the Snake River.	The EIS considers that hydropower does not emit carbon through the process of generating electricity. However, the emissions analysis considers the potential effects of methane emissions from hydropower reservoirs. Appendix G, Chapter 5 of the Draft EIS details the assessment of reservoir methane emissions from the Columbia River System projects. The findings are summarized in Section 3.8. This assessment finds that reservoir characteristics and management substantially influence methane emissions, so methane emissions vary by site. A 2016 study developed by the Corps' Walla Walla District concluded that for the relatively clean reservoirs of the Federal Columbia River Power System, which include the lower Snake River dams, conditions for low dissolved oxygen concentrations are not prevalent; thus methane gas is generally not an issue. Additionally, in 2017, the Northwest Power and Conservation Council found that data on these sites were insufficient to estimate the reservoir methane emissions specifically for the Columbia River System but that methane emissions at high levels are not likely due to the lower organic and nutrient loads to the system, and higher dissolved oxygen content. The EIS describes that emerging technologies would allow for better measuring and understanding the effects of reservoir methane emissions from Columbia River System projects, including the four lower Snake River dams.
6773	1	wwpinneys@gmail.com	N/A	For so many legitimate and legal reasons I wish to add myself to the vast long requesting list that this deadline date must be pushed out to 15 June or 1 July (how about 4 July fireworks to celebrate dam decommissioning?).	The co-lead agencies considered requests to extend the public comment period. This NEPA process included a wide array of cooperating agencies whose close involvement throughout the process allowed the co-lead agencies to incorporate feedback. Given the broad range of comments received and the extensive Federal and non-Federal participation in the overall process as well as the level of public engagement in the six virtual public meetings in the region, the co-lead agencies determined that an extension was not warranted and that the 45-day public comment period was adequate consistent with NEPA regulations. The CRSO EIS website notified the public on April 9, that they should plan to submit comments by the close of the comment period.
6773	2	wwpinneys@gmail.com	N/A	The time scale used for the comparative analysis of the four MOs to the No Action Alternative is a 25-year period from 2020 to 2045. For the purposes of conducting the economic analysis, a 50-year period of analysis is used to better capture the full array of changing costs and investments, and represent the total costs, benefits, and tradeoffs being evaluated in each of the MOs. Pg 3-1. Costs out 50 years (unforeseen or unplanned) cannot be estimated or incorporated but likely can significantly influence selection of Preferred Alternative, unless PA was preselected by design as this case strongly indicates.	The Preferred Alternative includes a combination of measures that meet the Purpose and Need and objectives of the Columbia River System Operations (CRSO) EIS, while balancing the authorized purposes of the 14 Federal dam and reservoir projects that make up the CRS. The temporal scope of the EIS is assumed to be 25 years from the signing of the Record of Decision (ROD) in order to have a similar period of analysis for comparison of effects across resources for all multiple objective alternatives. The 50 year time scale for economics is to understand investments annualized. For instance, large construction costs, such as dam breaching, look disproportionately high without looking at the life of the cost and changes of investment. Additionally, maintenance cost could be lost or under-calculated without capturing the life of a project.
6773	3	wwpinneys@gmail.com	N/A	The NAA is not the baseline for which to adequately compare effects to any of the resources, either beneficial or detrimental, especially for wild salmon and steelhead because NAA has been determined Jeopardy to the ESA-listed ESUs and DPS in the Court Order and all the BiOps that have been remanded.	The No Action Alternative considers what would happen if the CRS continued to be operated, maintained, and configured with no change. For this EIS, the No Action Alternative describes the operation, maintenance, and configuration of the CRS, from September 30, 2016, the date the Notice of Intent to complete the CRSO EIS was published in the Federal Register. The No Action Alternative is required by the National Environmental Policy Act (NEPA), in accordance with the Council on Environmental Quality regulations (40 Code of Federal Regulations [CFR] 1502.14). The co-lead agencies assume that, to the extent possible, all ongoing, scheduled, and routine maintenance activities for the Federal infrastructure and all structural features, including those recently constructed or reasonably foreseeable, are included in the No Action Alternative. The No Action Alternative provides a baseline condition for comparing environmental effects of the action alternatives, or MOs and the Preferred Alternative. The No Action Alternative assumes the CRS will continue to be operated for all congressionally authorized purposes, requiring a balancing of operations across the 14 projects within the CRS. Current operations include actions agreed to in previous ESA consultations among the co-lead agencies, National Marine Fisheries Service (NMFS), and U.S. Fish and Wildlife Service (USFWS). NEPA and the ESA are distinct laws that treat baseline conditions differently; thus, the agencies appropriately applied the NEPA standards to the No Action Alternative (i.e. status quo for an ongoing action). The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the EIS objectives) as well as the EIS objectives for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. The Preferred Alternative is also more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% (the lower end of Northwest Power and Conservation Council's recovery targets for the region) as a result of the Preferred Alternative, as a result of the Preferred Alternative increasing SAR from 2.0% to 2.7% for Chinook, a 35% relative increase. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. To address uncertainty highlighted by the two models, the Preferred Alternative includes working with regional sovereigns to develop a study that assess the effectiveness of the increased spill regime on adult returns as well as assessment and management of adverse unintended consequences, such as long delays of adult migrants, or TDG-related mortality of juvenile migrants. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information. The Preferred Alternative will make a meaningful contribution towards recovery.
6773	4	wwpinneys@gmail.com	N/A	Peaking, Ramping, Balancing, & Reserve hydropower benefits of the Lower Snake River Dams (LSRDs). - Claimed over 2,000 MW with a value of $966 million for replacement cost. - Inconsistent with claimed 15 MW in 2002 EIS, Waddell et al. 2020 Claims of Sustained Peaking, Ramping, Reserve, Flexibility and Balancing Power from the lower Snake River Dams, What Is Feasible?	The EIS power analysis relies on historical data on the ramping and flexibility of the four lower Snake River dams. Table 3-160 in Section 3.7.3.5 of the draft EIS presents the historical sustained ramping capability of the four lower Snake River dams. The value of this flexibility was calculated using recent rate information from Bonneville's BP-20 rate case and 2030 LT Aurora runs. See draft EIS, Section 3.7.3.5 at page 3-910, and Tables 3-163, 3-164. Contrary to the statement in the comment, the 2002 EIS identified the lower Snake River dams as 15 percent, rather than 15 MW, of the Federal Columbia River Power System ramping capacity.
6773	5	wwpinneys@gmail.com	N/A	Recreation Visitation Estimated at 2.4 million non-local visitors/year for LSRDs. - 2.4 million visitors is more than those going to Mt Rainier, 6,575 visitors every day. - Data from 2002 EIS since corrected to 53,000 visitors/year by Earth Economics 2016 National Economic Analysis of Four LSRDs. - Used to extrapolate Multiple Objective 3 (MO3) losses of 1,420 jobs, $59 million in labor income, and $189 million in annual sales. No benefits quantified, though 3-4,000 jobs would be created (Earth Economics 2016). - The slope, aspect, and confinement (with a couple deeply imbedded canyons that are spring fed and historically had the highest density of indigenous tribal fishing camps and site) characteristics (1935 Dept of War river sounding survey sheets on milar originals and digitized layer files for the 3-d fluvial geomorphic and MASS2 models used in 2002 FR/DEIS and FEIS for the Snake River App H and other Appendices and main synthesis text, PNNL-Battelle and Corps Walla Walla) resulting from the selection and implementation of MO3 to re-setting the restored LSR geomorphology, rapid-run-pool habitats, natural river hydraulics, and the juxtaposition of the LSR to quite a substantial number of well-established present day and historically viable white water outfitters (along the Clearwater and Salmon rivers and within Lewiston, Moscow, other smaller towns, as well as Boise), as well as substantial boons in canoe and drift boating for families, and other highly-used popular white water recreation activity streams where these operators boat (i.e., Lochsa, Selway, Salmon, Grande Ronde, et al rivers) would far out-economy grow the present narrow pooled water use area that is concentrated only off-shore within the pool-to-free flow transition reach located between southern Lewiston, ID and south-eastern Clarkston, WA. Only during the hottest summer months of July through August is this narrow and short stretch of very limited and over-packed to the point of highly dangerous footprint of stagnant waters used. The swimming beaches are routinely closed for the over-concentration of, rapid growth of, and accumulation of the usual water quality constituent contaminants, such as swimmers itch, giardia, et al. Restoring MO3 would significantly restore and extend the white water based recreation use and economics to those towns several magnitudes exceeding the present rec conditions in the over-extrapolated opinions of the Ports and their lobbying entities just if one only considers the fact that white water would be allowable and exciting to raft and boat and float on 140 miles of restored free-flowing river for 6-9 months each year as opposed to the restricted and very densely used and dangerous 1-2 miles of impounded transitional pool between Lewiston and Clarkston. The vastly increased and restored Free-flow related water borne recreational opportunities afforded under MO3 would realistically be quite similar to the increasing magnitude of sport-fishing access and successful catch rates afforded by shoreline and boat accessed fishing for all ranges of ages within the public. - Dreamed up woes of too much sediment and garbage (smells) in the breached and drawn down channel off Lewiston and Clarkston are simply chicken-little tactics. Yes, there will be transformers, shopping carts, and rubbish up to discarded cars in the channel restricted near the city reaches constituting the Clearwater and Snake rivers confluence, as witnessed by the actual researchers working the 1992 Drawdown Test (archived photography @ Corps-Walla Walla), just as the construction works and bureaucrats working during each construction activity phase of each LSR dumped and deposited (leftovers) a great deal of rubbish piles and heavy equipment (liquid drained bulldozers, cement mixers, even at least one wrecked airplane, etc, including an encapsulated fill of contaminated materials). Yes, all this needs requirements for clean up just like it should never have been human-placed in the first place. These dumpings are not the rivers fault, or the rivers doing based upon river function and ecology, but were the human citizens of Lewistons and Clarkstons inappropriate behaviors through a couple decades of time purposely abusing the stealthy opportunity of depositing rubbish under water where it would be site-unseen, at least until a breach. Again, a result of lack of (and intent not to) enforcing local laws and state and federal Acts and statutes.	As described in Table 3-256, visitation at Lower Granite accounts for over 60 percent of visitation at the four lower Snake River projects. The Corps counts visits as recreation visitor days for all non-campers. For example, two people boating on a reservoir for two days would count as four visits. For campers, consistent with NPS visits, campers are counted per night. That is a party of two stay for two nights is counted as four visits. This may account for relatively higher number of visits as each day that a person visits is counted as a "visit." The visitation data comes from Corps sources, including traffic counters and visitor use surveys and includes the most up to date visitation data available at the time of the analysis. It should be noted that project visitation data (at each reservoir) includes recreation areas on the reservoirs as well as recreation areas located above the lake or below the dam in the river reaches. Section 3.11.3.5 describes the impacts under MO3 in the long term when the transition to river conditions is complete. The EIS describes that the visitation in the long-term in the lower Snake River, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting jobs, income, and tourism businesses. This visitation in the long-term is predicated on the need to developed access to the river resource. However, a specific estimate of river-based visitation was not provided because of the uncertainty and the large range in potential visitation. The EIS described the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. NMFS estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which is described qualitatively. For the effects on recreational fishing under MO3 (Section 3.11.3.5) along the lower Snake River below Lewiston, the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River) as an indicator for fishing visitation in this reach. The EIS describes that the visitation in the long-term in the lower Snake River, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting outfitting and tourism businesses in the region. The social welfare values and regional economic effects associated with recreational fishing under the MOs, as well as river recreation post dam breach under MO3, were not estimated because of the uncertainty and large range in visitation and consumer surplus values among users. The contribution of Columbia River origin fish to ocean fisheries is described in Section 3.15.2.1. Because there is considerable uncertainty regarding the overall effects of the alternatives on regional fish populations, and how such changes may affect the management of the fisheries, the specific quantitative and monetized impacts associated with changes in commercial fisheries under the alternatives was limited. This analysis evaluates potential impacts on fisheries by referencing the potential effects on relevant fish populations, as described in Section 3.5. Visual resources and noise resources are described in Sections 3.13 and 3.14, respectively.
6773	6	wwpinneys@gmail.com	N/A	MO3 anadromous fish mitigation with additional hatchery salmon, cost of 78.1 million. - Absent in the 2002 EIS breach alternative because appropriate timing is in winter, when almost no fish are in the river. Breaching is the mitigation, preventing the death of ~8 million chinook smolts per year.	The breaching would be timed as well as can be controlled to take place outside of the migration period. However, the hatchery fish mitigation is to provide fish during the short-term effects associated not with the demolition, but the flushing of stagnant water and sediments as the reservoir elevation drops substantially, anticipated to drop dissolved oxygen levels in the water column significantly, and potentially cause 2-7 years of no biological productivity and aquatic losses. Description of these effects are in the Multiple Objective alternative 3 analysis for water quality and fish in Chapter 3. The method proposed for breaching the four lower Snake River dams is based on extensive analysis completed for the 2002 Feasibility Study, which also considered dam breaching. The methodology developed is intended to minimize impacts to ESA-listed fish runs, other aquatic organisms and the built environment, while providing maximum protection to human health and safety. The CRSO EIS uses the same assumptions.
6773	7	wwpinneys@gmail.com	N/A	Lines 16542 to 16554 is just another derived scare tactic derived by BPA solely towards the states and tribes and fishermen. BPA does not fund mitigation hatcheries of USFWS, the Lower Snake River Compensation Plan (LSRCP) hatcheries the Corps built as mitigation to harvestable salmon numbers due to the construction of the 4 lower Snake River dams and Dworshak dam. Yes, detrimental poorly managed hatcheries such as Lyons Ferry (although deemed as an index for the ocean and mutual harvest plans with Canada by being included in their FRAModel) needs to cease and be closed for its horrible impacts on wild salmon populations production related to quite bad broodstock choices among many systemic problems, it is that bad.	Hatchery programs are included in the No Action Alternative and would be expected to continue under alternatives MO1, MO2, and MO4, and certain hatcheries would continue under MO3. No new hatchery programs are considered as mitigation under any alternatives, but MO3 does include increased hatchery production due to short-term impacts from breaching the four lower Snake River dams. Diversity is an important factor in an ESU's ability to persist and adapt, and is one of the factors considered in assessing an ESU's long term viability, along with abundance, productivity, and spatial structure. There is an extensive body of literature developed from studying these factors and managing the conservation of salmon and steelhead, including hatcheries as one tool. Hatchery programs have long been a part of the approach for salmon recovery. Based on the fish analysis in Section 7.7.5, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Under this alternative, hatchery programs would continue as

Letter No.	Comment No.	Commenter Name/Email	Affiliation	Comment	Response[1/]
				But realistically, there is a strong legal argument that the Corps would remain on the hook for funding, at least to the point of property transfer, certain mitigation hatcheries such as the two at Dworshak dam, since they were funded as mitigation for projects other than the Snake River or complexed with the Snake River mitigation. Mitigation cannot just go away without some transfer because the effects of the existence and operation of the four LSR dams across the decades do not magically go away until the point that either the mitigation plan is fully completed or the salmon and steelhead recover to the populations escapement, diversity, and productivity vitalities of the river environments pre-dam year.	proposed under the No Action Alternative, and a number of other mitigation measures would continue as well, but no new hatchery programs are proposed. Figure 3-111, which combines hatchery and wild fish, in the Draft EIS was an illustration that the CRS can and has supported large numbers of returning adult salmon and steelhead. Over time, the Preferred Alternative is anticipated to benefit both wild and hatchery fish. Hatchery origin fish are very important to tribal and sport harvest within the Columbia River Basin, and many hatchery programs are important supplementation to rebuilding natural populations. The three co-lead agencies have legal requirements to produce hatchery fish as mitigation for components of the CRS. The co-lead agencies do not have authority over tribal, commercial or recreational fishing; however, through increased abundance anticipated under the Preferred Alternative, more fish may be available for catch. Overtime, the Preferred Alternative is anticipated to benefit both wild and hatchery fish and the co-lead agencies continue to support information developed by the Hatchery Scientific Review Group and the Northwest Power and Conservation Council's Three-Step Review process. Regarding the Lower Snake River Compensation Plan (LSRCP), Bonneville directly funds the U.S. Fish and Wildlife Services annual operations and maintenance of the LSRCP. Congress authorized the LSRCP as part of the Water Resources Development Act of 1976 (90 Stat. 2917) to offset fish and wildlife losses caused by construction and operation of the four lower Snake River dams. A major component of the authorized plan was the design and construction of fish hatcheries and satellite facilities. The LSRCP is administered through the USFWS. The LSRCP hatcheries and satellite facilities produce and release more than 19 million salmon, steelhead and rainbow trout each year as part of the programs mitigation responsibility. Upon the breaching of the lower Snake River dams as analyzed in MO3, Bonneville would no longer have an obligation to fund US Fish and Wildlife Service for the operations and maintenance of the LSRCP facilities. Bonneville's funding authority is directly tied to the operation of the LSR dams. The co-lead agencies also recognize that there would be transitional needs that would be addressed in the additional mitigation measures for MO3 discussed in Chapter 5. The co-lead agencies, note as well that there are other hatcheries in the Snake River basin that would continue to produce fish not tied to LSRCP. Bonneville would continue to fund the LSRCP under all of the other alternatives, including the Preferred Alternative.
6773	8	wwpinneys@gmail.com	N/A	Lines 16873 through 16886 is blatantly incorrect and designed to mislead to indicate that increasing hatchery factory fish supplementation for both harvest and wild fish genome replacement (more naturalized surrogates) is acceptable. Only a PR exercise that result in extinction of the wild and extirpation of the natural, and eventually the majority of the hatchery once the agencies and Congress decides they are too expensive. The origin or characterization of the proposed 85% hatchery SR Spring/summer-run chinook salmon are not mainstem produced related to their genotype or wild stock ancestry, other than possibly a twist in wordage given their release or hatchery facility place, but predominantly come from state and tribal managed hatcheries spread throughout the Salmon and other river subbasins.	Hatchery programs are included in the No Action Alternative and would be expected to continue under alternatives MO1, MO2, and MO4, and certain hatcheries would continue under MO3. No new hatchery programs are considered as mitigation under any alternatives, but MO3 does include increased hatchery production due to short-term impacts from breaching the four lower Snake River dams. Diversity is an important factor in an ESU's ability to persist and adapt, and is one of the factors considered in assessing an ESU's long term viability, along with abundance, productivity, and spatial structure. There is an extensive body of literature developed from studying these factors and managing the conservation of salmon and steelhead, including hatcheries as one tool. Hatchery programs have long been a part of the approach for salmon recovery. Based on the fish analysis in Section 7.7.5, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Under this alternative, hatchery programs would continue as proposed under the No Action Alternative, and a number of other mitigation measures would continue as well, but no new hatchery programs are proposed. Figure 3-111, which combines hatchery and wild fish, in the Draft EIS was an illustration that the CRS can and has supported large numbers of returning adult salmon and steelhead. Over time, the Preferred Alternative is anticipated to benefit both wild and hatchery fish. Hatchery origin fish are very important to tribal and sport harvest within the Columbia River Basin, and many hatchery programs are important supplementation to rebuilding natural populations. The three co-lead agencies have legal requirements to produce hatchery fish as mitigation for components of the CRS. The co-lead agencies do not have authority over tribal, commercial or recreational fishing; however, through increased abundance anticipated under the Preferred Alternative, more fish may be available for catch. Overtime, the Preferred Alternative is anticipated to benefit both wild and hatchery fish and the co-lead agencies continue to support information developed by the Hatchery Scientific Review Group and the Northwest Power and Conservation Council's Three-Step Review process.
6773	9	wwpinneys@gmail.com	N/A	Salmon survival/mortality data insufficient. - Most specifically for SR fall chinook salmon, the purely qualitative evaluations of response to alternatives shows the co-leads lack of care and knowledge for managing for such stocks. Qualitative only treatment professes too much over-speculation weighted on the authors wants and desires. Both sides of the argument are not addressed. More data and science has been collected for SR fall chinook than for any of the other ESA-listed stocks, but since they spawn and rear in the impounded mainstem and tributary confluence regions of the SR, NOAA has followed suit with BPA and the Corps to mitigate this critically important stocks productivity with factory hatchery stock transgression, thus diluting their fitness and genomes into the newly created naturals instead of producing more larger bodied and more fecund robust wilds. Yes, the alternative evaluation tables in the main text of the CRSO EIS recognize the Appendix statements that MO3 would restore 15x (as in multiplied times more, and not %) spawning habitat acreage restored (but mis-interprets the 140 miles of restored bankfull width of rearing habitats because they failed to consult the 2002 FR/EIS Appendix H, by design, since the River Dynamics team was the only entity that used existing evaluations such as Appendix H Fluvial Geomorphology). The additional habitat restoration and designations were not used in either the LCM/COMPASS or CSS production modeling exercises, as clearly requested during Scoping and within the Corps own staff. But since SARs for fall chinook are not even addressed in the CRSO EIS, then if the restored habitat place, space, and function (fecundity) under MO3 (given 2-5 (2002) or 7 years (CRSO DEIS)) would be incorporated in the models production functions, then SARs would likely peak beyond 8-10%. The restored habitats and macroinvertebrate productivity, diversity, and distribution of biomass in a breached and restored channel of the SR would be near equivalent to 2-4 Hanford Reach spawning area footprints, thus producing as much as and up to 4 times more wild-determined spawner falls that Hanford Reach and/or that expanded habitat currently not used to carrying capacity in the Snake and Clearwater rivers confluence, lower reach of the Clearwater River, and the Grande Ronde subbasin tributary mouths. Yes, there are ample datasets for production modeling for SR fall chinook population demographics (Fall Chinook Recovery Plan and many other sources either compiled or un-compiled), but NOAA continues to decide against them for model development citing too complex, as well as in their incompetence-by-design aimed at burying the issue through slow replacement into extirpation, and ultimately extinction via unsuccessful hatcheries. Fall chinook are key to ecologically adequate feeding of chinook eating ecotype of orca, only unrecognized due to no poop sampling capability to date within the too-rough-for-human-work near-ocean orca distribution in late-fall and early winter timeframes. NOAA, and the co-leads in this CRSO EIS need to recognize such publications such as Wietkamp 2010 coded-wire tag catch evaluation in Transactions that clearly and robustly illustrate the fall chinook overlap in place and time with orca.	The commenter is correct that extensive research and monitoring of Snake River fall Chinook and unlisted upper Columbia fall Chinook has taken place in the recent decades by USGS, USFWS, University of Idaho and others. In drafting the CRSO EIS, the CRS Fish Technical Team evaluated the use of a USGS Snake River fall Chinook model, and a second model developed at U.S. Dept. of Energy (Perkins et al. 2011). Unfortunately, neither of these high-quality models was adequately capable of representing fish response to the proposed changes in CRS operations under the MOs. Therefore qualitative analysis was appropriate. The co-lead agencies disagree that the qualitative analysis was "over-speculation weighted on the authors wants and desires", but rather objective and accurate. It is correct that neither the NMFS Life Cycle model or CSS Life Cycle model included expanded spawner capacity in their modeling. There is considerable uncertainty around expectations for expanded spawning areas under MO3. In the pre-impoundment era before the construction of Ice Harbor dam, most Snake River fall Chinook spawning occurred in the tributaries and middle/upper Snake upstream of Lower Granite (Groves and Chandler 1999). Scour from ice in the winter and relatively high water temperatures during fall (compared to the upper Columbia) were believed to be limiting factors. It is not known if ice formation would be a contemporary issue below Hells Canyon, and there is some doubt whether adequate gravels would be available in the lower Snake. However, temperatures would be expected to cool earlier in fall. Perkins, T. A., & Jager, H. I. (2011). Falling behind: delayed growth explains life-history variation in Snake River fall Chinook salmon. Transactions of the American Fisheries Society, 140(4), 959-972. Groves, P. A., & Chandler, J. A. (1999). Spawning habitat used by fall Chinook salmon in the Snake River. North American Journal of Fisheries Management, 19(4), 912-922. Moreover, the EIS analysis found only a minor effect to the Southern Resident killer whale would result from implementing MO3 (which includes the dam breach measure). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults form the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differentially from hatchery and wild fish. Hatchery fish today likely make up most fish consumed by SRKW (NOAA BiOp 2020).
6773	10	wwpinneys@gmail.com	N/A	Purely qualitative analyses do not satisfy the intent of NEPA, ESA, and the other environmental Acts, laws and statutes, especially those used in the CRSO EIS due to being based on self-interest opinions and the overly-complexed and mis-representative and mis-used CEMs (Conceptual Ecological Models) of Bureau of Reclamation (BoR) contribution to the dead-end processing. It is impossible to address all those boxes and their linkages in a meaningful and biological or scientifically logical means, totally unsupported. The other agencies have long abandoned such practices of persuasion decades ago. Plus, no evaluation of non-ESA-listed stocks that are robust because of free-flow natural river habitat and hydraulics, such as the Hanford Reach fall-summer stock that is vital to the regional harvestable monitoring. Such comparative evaluations have been routine in past NEPA and ESA consultations to help identify critical causative factors that robust and healthy populations possess, but the ESA-listed populations/ESUs/DPSs lack and need restored.	Quantitative evaluations were conducted to determine the effects of each of the alternatives when appropriate. In instances when quantitative evaluations were not appropriate or possible, qualitative discussions are included to describe the effects of each of the alternatives. The evaluations are clear, transparent, and repeatable based on high quality information. The co-lead agencies invited a number of entities (including Tribes, states, and agencies) from across the region to participate in the EIS process as Cooperating Agencies, and over 30 of those invited agreed to participate. Staff from the Cooperating Agencies joined the technical teams and provided their expertise and review of the development and analysis of the alternatives. Leaders from the co-lead agencies met with Tribal leaders for formal consultation, and with other organizations and stakeholders to have dialogue and receive feedback as the EIS progressed. However, only the co-lead agencies have authority to make decisions regarding future operation and configuration of the dams in the CRS system. The co-lead agencies selected senior staff from across the country with expertise in their fields to serve on the EIS team. The draft EIS was subjected to two internal agency reviews by the Corps of Engineers experts not involved in the development of the document. Additionally, the entire document, analysis, and modeling were reviewed following an Independent External Peer Review (IEPR) process that meets OMB circular on peer review requirements under the "Information Quality Act" and the Final Information Quality Bulletin for Peer Review by the Office of Management and Budget (referred to as the "OMB Peer Review Bulletin). It also meets guidance for the implementation of both Sections 2034 and 2035 of the Water Resources Development Act (WRDA) of 2007 (Public Law (P.L.) 110-114) and standards of the National Academy of Sciences independent peer review. The final IEPR report will be publicly available.
6773	11	wwpinneys@gmail.com	N/A	Does not assess the contribution of latent and reservoir mortalities to reach survival trends and SAR values, and recovery standards for each multiple objective even though the Biological Assessment confirms that the PA adversely affects all stocks. Applied only a guessing what if exercise in COMPASS/LCM, thus leaving the critical question to more research with more requested funding if it actually comes during times when co-leads are in a no funding or significantly cut funding era. In reality, all passage routes in the NAA and MO1, MO2, and MO4 have some level of latent mortality stress and pressures leading to insufficient ocean survivals, so not even a 30+ year research program will rectify and split any uncertainties caused within one or more of the smolt transport, spill program, or bypass survival parameter vectors. Any combination of synergistic latent mortalities from multiple passage route proportions passed concurrently is dramatically confounding, and the process to tease or parse these route determined cause-and-effects just leads to a repeat of the much wasted (in funding and smolts and adult straying) NMFS welfare research smolt transportation program. The smolt transportation program is a well-defined near-40 year long RM&E that has proven beyond a doubt to either provide even slightly inconsequential or negligible beneficial nor detrimental bumps to SARs, so it just gets repeated annually, but it and bypass have proven to high latent mortality effectiveness in most flow years. It just depends how the co-leads and NMFS wishes to redefine latent mortality. MO3 breaching save substantial monies and time (for which has run out for salmon) successfully eliminates this boondoggle RM&E instead of perpetuating its no-ending trajectory into oblivion.	Multiple mechanisms have been proposed to understand the impact of delayed mortality or 'carryover effects' between experiences in one lifestage influencing survival or physiology in subsequent lifestages (Gosselin et al. 2018). These include transportation related delayed mortality, injuries caused by passing multiple dams via any route, delays caused by reservoir and dam passage, and exposure to toxins. (Gosselin, J. L., Zabel, R. W., Anderson, J. J., Faulkner, J. R., Baptista, A. M., & Sandford, B. P. (2018). Conservation planning for freshwater-marine carryover effects on Chinook salmon survival. Ecology and evolution, 8(1), 319-332. The benefits of transportation for Snake River ESUs have been estimated as a ratio of the post Lower Granite Dam SAR of the transported group vs. all smolts that travel in-river (TIR) or the T:B ratio of transported smolts vs. those detected at the dam bypass. It has been more challenging to estimate the fraction of fish passing undetected over dam spillways using mark recapture methods, however the new detector at the surface passage weir at Lower Granite Dam should make this easier. Both the TIR and T:B time series from the lower Snake show that both hatchery and natural origin steelhead, yearling Chinook and sockeye benefit from transport during most years, especially late in the season and in warm conditions. Some groups such as hatchery steelhead benefit substantially, with an average of twice more transported adults returning, per capita. If the transportation program was ended, there would be fewer adults returning, available for spawning, harvest, and supporting marine mammals in the food chain.
6773	12	wwpinneys@gmail.com	N/A	One of the most significant fatal flaws is the non-reporting and non-addressing anywhere in the primary text of the main report what the COMPASS model Snake River (SR versus Columbia River (CR) reach survival results are for the NAA and the MOs. The Lower Granite to McNary (through Ice Harbor), sometimes called the SR reach survival (4 dams) and the lower Columbia River (4 dams McNary through Bonneville) reach survivals that have been parsed out of or constitute the entire Columbia River hydrosystem (8 dams) passage is the comparison required to attribute effects between alternatives.	The CRS anadromous technical team did not request separate lower Snake and lower Columbia reach survival rates for Snake River ESUs because the CSS model is not designed for estimating survival for each reservoir. In the appendix, travel times are reported for the Lower Granite to McNary dam reach and McNary to Bonneville dam reach, with NMFS COMPASS. Survival rates for both Rock Island (RIS) to Bonneville Dam and McNary to Bonneville Dam (the reach with only Federal dams) are reported for the Upper Columbia spring Chinook ESU by COMPASS, and McNary to Bonneville also with CSS. If one assumes some comparability between the upper Columbia and lower Snake ESUs, one could use these data to compare changes between the alternatives for the lower Columbia and lower Snake reaches.
6773	13	wwpinneys@gmail.com	N/A	Predominantly the salmon analyses are based upon hatchery fish passage and productivity since so few wild spawners are truly protected (realistically on the short-edge of extinction). The 80-85% hatchery component of all stocks is highly subjective due to the allowance of naturals being produced. Spawner and rearing sizes and fitness has declined as time goes on as more hatchery broodstock are used in place of lost and mined wild spawners for broodstock, even as NOAA keeps including and subtracting certain hatcheries they have deemed wild supplementation, to no benefit of the true wild remnant component. NOAA needs some real true and honest biological demographic evaluation and recovery management for this critical issue because it is most probable that the end is here for wild fish, as both wild, natural, and hatchery fish replace one another and all dwindle exponentially. NOAA and the co-leads do not even use the wild terminology anymore, as it was mandated for the listing, due to some harvest lawsuits around 2005 and their own mismanagement interpretation of ESA, out of convenience and pandering to industries like BPA. The true percent hatchery component is most likely 95-99%.	This Draft EIS analyzes the effects of the operations, maintenance, and configuration of the CRS projects to one another and to the No Action Alternative. Current high quality information was utilized to evaluate the metrics for that purpose (juvenile survival, travel time, transportation ratio, powerhouse passage, smolt-to-adult returns, and adult abundance). This evaluation includes both hatchery and natural-origin fish. As described in the Methodology Section (Section 3.5.3.1 on page 3-358) both CSS and NMFS life cycle models include both hatchery and natural-origin fish in both the input data and the output results. Also, hatchery programs are discussed briefly in the Affected Environment description to give the reader the general information on hatchery programs that are a part of the ESU/DPS described. Based on our analysis of fish resources in Chapter 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Under this alternative, hatchery programs would continue as under the No Action Alternative, and a number of other mitigation measures would continue as well, but no new hatchery operations are proposed. Hatchery origin fish are very important to Tribal and sport harvest within the CRB, and many hatchery programs are important supplementation to rebuilding natural populations. Further, the three co-lead agencies have legal requirement to produce hatchery fish as mitigation for components of the CRS. The effects of hatchery programs on ESA-listed fish are evaluated through individual consultations under the Endangered Species Act.

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6773	14	wwpinneys@gmail.com	N/A	Buried and hidden deeply with Appendix E are the Tables 4-3 through 4-12. These rather long and complicated tables contain the Raw Data outputs of the biologically important metrics that populated and resulted as output metrics from the COMPASS model for each MO and NA Alternative, most importantly the individual subbasin reach survival and travel time, et al, estimates for each year of the 80+ year inflow record (1929 through 2008), BUT not for the proposed Preferred Alternative (PA) as composited by BPA. In COMPASS the PA run will be a negative response in reach survivals compared to all MO3s except the Power MO2. These Tables included the 2-4 different versions of COMPASS calibrations for MO3 derived to analyze the effects on the reach survival estimates. Since these alternate calibrations are poorly written up anywhere in the CRSO EIS body and Appendices, one had to use the Raw Data outputs in order to evaluate if these alternate calibrations were really different enough to calculate different outcome statistics for reach survival. Basically some verification was warranted that the breaching routines and files that Pinney of Corps and Beers of UW develop was being used and was the best science, instead of proposals by BPA that unimpounded reaches of the parr lifestage individuals (non-migratory and non-smolted) would be used for reach survival estimation. The corrected breached reach surrogate reaches appear to be used and tested within the 4 COMPASS MO3 calibrations, in that the result column for Snake River (SR) reach survival of spring-run only chinook is consistently 88-99% (with only 1 or 2 down in the 70%s) for all iterations of MO3 calibrations (NOTE: THESE ARE NOT the un-composited dam/concrete only survival tests for individual dams as BPA and the Corps perpetuate in the media, BUT THE LGR-IHR/MCN reach post breach survival through the 4 post-breached dams and reservoirs), whereas the NAA and other MOs 1, 2, and 4 reach survival estimates for the SR for spring-run only chinook is consistent for a much more variable range between 71 to ~80% (with a few years up around 84%) indicating the capture of a very status quo derived strategy. When each annual (year) SR reach survival for MO3 (88-99%) is combined with the totally consistent Columbia River (CR between McNary and Bonneville) reach survival estimates for the rest of the MO3 (40-mid60%s), generated at the same time step and river conditions as the SR estimates, you get the overly averaged and washed out entire Lower Granite to Bonneville reach survivals of 40-mid60%s (since SR MO3 natural condition survivals are consistently in a tight range across all years near 100%, even though the CR has quite a lot of variation in its annual reach survival range for NAA, MO1, MO2, and MO4 (although MO4 does have a slight bump in reach survivals a few % higher than the other MOs, just as MO2 range has a slightly lower % range, which the main text write-up for COMPASS results discredits in its treatment for spill)). Results for steelhead show the same trends although the survival calculations are a few % lower than those comparable for spring-run Chinook. Bottom line: The NOAA-constructed information for the best selection of a Preferred Alternative is there in only the Appendices and NOT in the CRSO DEIS body, and these tables fully supports 4 LSR dam breaching in alternative MO3, but the information is well hidden in the complexity of reporting in the Appendices, and by design of the co-leads to dissuade the reader to their pre-determined and pre-selected status quo is acting woefully and gravely to salmon and steelhead that these vital and critical reach survival statistics were not brought forth in any adequate means or manner by the co-lead synthesizing authors. The resultant COMPASS modeled reach survivals in the Appended Tables of Raw Data of Appendix E are very consistent with both NOAA NWFSC annual reporting of the PIT-tag detection modeling (50-70%s SR and 40-60% CR reach survivals) and the PATH modeling statistical exercises for breach Alt 4 in the 2002 FR/EIS for Snake River juvenile salmon migration (85-96% SR reach survivals, CR variability stays near the same). Plus, the COMPASS model has not even been run for the PA, or any fall chinook stocks, and any variability or range metrics around any of the average survival estimates have not been reported and addressed (as is typical if you wish any scientific vigor in review or presentation because technically this is a publication that gages how competent the analyzers are, be they statisticians or just simply computerized modelers). If, or when, COMPASS is run for the PA it will demonstrate a more negative response than even the incorrect NAA that has been used.	The co-lead agencies direct the commenter to Chapter 7 of the Draft EIS and FEIS for all life cycle model based estimates of effects to salmon and steelhead associated with the Preferred Alternative. These results are based on both NOAA LCM and COMPASS models as well as from the CSS life cycle models. Appendices have also been updated in the FEIS with additional technical data generated by the models. However, as described in Chapter 3.5, there are no quantitative model results for Snake River fall Chinook salmon. That species has a life history that is unable to be modeled effectively by either NOAA or the CSS. For the 2000 Biological Opinion, NOAA proposed estimating free-flowing Snake River survival rates by estimating survival rates of PIT-tagged smolts from both the Salmon River trap, and from the Snake River trap (at the head of Lower Granite Reservoir) to the Lower Granite bypass. The per-kilometer survival rate of the free-flowing portion of the Snake River could be inferred from these difference between these two trap-to-dam estimates (Ferguson et al (2004). For the 2020 Draft EIS, NMFS used a similar method of estimating free-flowing survivals and travel times with their COMPASS model. PIT-based monitoring efforts have occurred at 20-plus additional hatchery and wild trap locations in the Snake and upper Columbia since the 2000 BiOp. In the appendix, NOAA carries out a sensitivity analysis for the choice of upstream trap location by comparing free-flowing survival rates estimates from the Grande Ronde, Salmon, and Imnaha traps to Lower Granite Dam to represent dam breach conditions under alternative MO3. There is a wide variance in per-kilometer travel times and survival rates to Lower Granite Dam among all of the possible hatchery release sites and screw trap locations upstream of Lower Granite Dam. The river conditions and migration behavior of fish in tributaries to the Snake River is much less representative of river conditions we expect in the Lower Snake river following dam breaching than are the river conditions in the free-flowing Snake River between the confluence of the Clearwater River and the confluence of the Salmon River. NOAA selected the three locations because each trap location was low in the tributary and are very close to the mainstem Snake River; we expect that reach of the free-flowing Snake to be very similar to what the breached lower Snake would look like in MO3. Traps further up in the tributaries are likely to tag more parr while these three traps tend to intercept mostly smolt-aged fish which arrive at Lower Granite time without further rearing behavior. Yet it does appear that some fish in the GRN and IMN data exhibit parr-like behavior, especially in early April. This is a major contributor to why the GRN-IMN model predicts slower migration and lower survival in MO3 than the other calibrations, and the reason for why it was placed into the appendix. The Salmon trap-to-Lower Granite reservoir free-flowing survival rate is used as a representative yearling Chinook population for the main text of the MO3 analysis. In response to the comment "outside the range of the data so the model is useless," this criticism can only apply to the SNK calibration. Yes, MO3 is outside the range of the calibration data for the SNK calibration, as is noted in the Draft EIS text. The calibration between the Snake River Trap and LGD was just a calibration used to get at the GRN-IMN and SAL calibrations, and was not used in any prospective model runs for the Draft EIS. However, the SAL and GRN-IMN calibrations are NOT outside the range of the calibration data when used for MO3. Flow, water velocity and temperature are all comparable between the free-flowing reaches of the Snake River used for calibration and the breached Lower Snake in MO3. Ferguson J. (2004) Memorandum to FCRPS biological Opinion Remand Administrative Record RE: Updated estimates of free-flowing river survival. NW Fisheries Science Center.
6773	15	wwpinneys@gmail.com	N/A	The NAA is not the required baseline to be used for salmon and steelhead, the No Jeopardy and/or recovery (NOT the improvement standard as wished-for in the objectives, this merry-go-round has been fought and lost in the Courts for several times) of the MPGs that constitute the ESU and DPS vitality away from extinction and simple just surviving is the basecase. The CRSO must use the analyses in the 2008 BiOp, the 2002 FR/EIS for Snake River juvenile salmon migration, and those stock-specific recovery plans that are currently available. The link to the Fish Passage Center documents that were illegally held under NEPA and ESA et al regarding the FPCs analysis of the CRSO DEIS alternatives finds that: (1) the Preferred Alternative in the DEIS is usually the third or fourth best alternative in terms of different fish survival analyses; (2) the beneficial results of the Preferred Alternative likely are overstated; (3) other best alternatives for maximizing salmon and steelheaddam breaching combined with spill and seasonal drawdowns for water temperature regulation at the lower Columbia Damswas not included in the DEIS after it was proposedthe breach alternative in the DEIS, MO3, has high spill at the mid-Columbia dams; (4) the new turbines likely kill more fish than the old turbines, because they draw water in at greater speeds, drawing more fish to the turbines, and the new turbines have about the same mortality rates for juvenile salmon and steelhead. Balloon tag (rotating steel striking and pressure differential damages alone) and sensor fish releases and mostly bead strikes are not justifiable and robust enough means of extrapolating for the estimated turbine induced survivals for various well-established and regionally articulated problems. http://www.fpc.org/documents/CSS.html SAR calculations should be include jack numbers because they cannot be verified biologically successful spawners. Through a non-disclosure agreement, the federal agencies required the Fish Passage Center to withhold these documents from the general public until the CRSO DEIS was made public on 2/28/20.	The co-lead agencies developed the No Action Alternative consistent with regulations implementing NEPA, which allow that for ongoing actions, the No Action Alternative represents no change from current management direction and intensity at the time of the Notice of Intent to the Prepare the EIS. NEPA and ESA have different requirements and thus, it is appropriate to use different baselines to comply with the requirements of the respective laws. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the EIS objectives) as well as the EIS objectives for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. The Preferred Alternative is also more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% (the lower end of Northwest Power and Conservation Council's recovery targets for the region) as a result of the Preferred Alternative, as a result of the Preferred Alternative increasing SAR from 2.0% to 2.7% for Chinook, a 35% relative increase. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. To address uncertainty highlighted by the two models, the Preferred Alternative includes working with regional sovereigns to develop a study that assess the effectiveness of the increased spill regime on adult returns as well as assessment and management of adverse unintended consequences, such as long delays of adult migrants, or TDG-related mortality of juvenile migrants. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information. The Preferred Alternative will make a meaningful contribution towards recovery. The co-lead agencies contracted with the Fish Passage Center (FPC) to produce the CSS modeling results presented in the draft EIS. Any additional modeling that was not presented in the draft EIS is not part of the CRSO EIS and was not developed by the co-lead and cooperating agencies. Improving juvenile and adult anadromous salmonids were two of the eight objectives of the CRSO EIS. The agencies disagree, however, that an alternative that includes breaching the four lower Snake River dams and spring spill operations to 125% TDG at all four lower Columbia River dams is reasonable given the unacceptable risks to public safety from such an alternative. For Power and Transmission, MO3 and MO4, individually each caused large loss-of-load probability (LOLP) results (e.g. increased incidence of blackouts). Without major addition of new resources, MO3 would result in power shortages in about one in seven years. MO4 would produce power shortages in about one in every four years. If MO4 were implemented, in addition to breaching the four lower Snake River projects as called for in MO3, then the LOLP would be even higher, with power shortages potentially occurring almost every year. Additionally, if these MOs were combined, in 5% of the years, the power shortages would average close to 1,000 MW in early August when the region might be experiencing a heatwave with particularly high demand for air conditioning. 1,000 aMW is about the average amount of power consumed by Seattle City Light. As shown in Section 3.7, MO3 causes an increase in power reliability concerns in the winter and the summer. MO4 increases power reliability concerns in the summer. Thus, the combination has the largest impact during the summer. The cost of zero-carbon replacement resources for MO3 and MO4 individually are up to $1 billion/year. Resource replacements and associated transmission interconnections for the combination of MO3 and MO4 would be higher, though not likely as high as the sum of the two MOs individually. Assuming that the replacement resources consist largely of wind, solar, and batteries, this would require well over 50 square miles of solar power (more than two and a half times the size of Crater Lake), large areas of new wind generation, and unprecedented amounts of batteries (more batteries in the Northwest alone than the total projection of batteries expected in the entire US by 2023 per the Energy Information Administration). In addition, the reduced generation capability under MO3, particularly throughout the summer, in combination with the impacts of the measures in MO4, and the uncertainty about the characteristics of replacement resources, would result in less capability to provide voltage support and dynamic stability for transmission system reliability than under MO3 or MO4 individually. Thus, combining MO4 with breaching the four lower Snake River projects, would produce unreasonable power and transmission reliability impacts, and it is highly speculative that replacement resources could be sited, permitted and built to address these impacts. This potential alternative has not been evaluated for direct, indirect and cumulative effects to other resources. Thus, an alternative combining juvenile fish passage spill up to 125% and breaching the four lower Snake River dams is unreasonable, and thus was not proposed as an alternative. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), and also meets most of all the other objectives of the study for resident fish, lamprey, hydropower generation, water management, and water supply and greenhouse gas emissions. It minimizing adverse impacts to communities and the economy. The Preferred Alternative is likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. The co-lead agencies disagree the Improved Fish Passage turbines would adversely affect SARS. See Section 3.5 and Section 7.7.4 for additional information. The new John Day and Ice Harbor turbines will be designed to operate within the existing turbine operating range. McNary turbines will be designed with an increased range. Once installed, the new turbines will be tested and validated for fish survival. Although only the McNary turbines will be designed for an increased operating range, the overall level of spill at any given project is determined not by the individual turbine unit capacity but by overall project operations management decisions. These decisions will occur through the Regional Forum and guided by the Adaptive Management Plan. Adaptive management strategies will be used to assure no detrimental impact.
6773	16	wwpinneys@gmail.com	N/A	Snake Chinook deemed insignificant prey source for Southern Resident Killer Whales (SRKW). - Ignores past and more recent NOAA and independent (plus NOAA contracted-UnivWash and many others) data on SRKW diet, for example the February 2020 Risk Assessment on chinook harvest effects to SRKW's (even given its critical weaknesses that include analysis only with an unjustified 2 lower Columbia River spring chinook populations because they are in the FRAModel, while also failing to incorporate any analyses on the more important fall chinook stocks (including Snake River and mid-Columbia River (Hanford Reach)) that comprise the greatest substance of their FRAModels, and correlative salmon tag recovery and catch statistical mapping that would be highly correlative to orca hunting and feeding distribution datasets for both fall and spring and summer lifestages of important salmon stocks to orca viability. Weitkamp (2010) in Transactions (Fig 5 pp 159-160 as just one example) and many others (Lichatowich book Salmon without Rivers as just one example), if NOAA would actually look, clearly demonstrates historical passage of Snake/Columbia river origin fall, summer, and spring spawners through Johnstone Strait and the Salish Sea environments that would be taken by feeding orcas in past years.	SRKW analysis is described in the EIS including in the FEIS Chapter 3 (Vegetation, Wetlands, Wildlife, and Floodplains) which has been updated for SRKW (Section 3.6.2.6 and Table 3-102) and FEIS Chapter 7 (Preferred Alternative) with additional analysis information on SRKW and potential increase in forage fish, in particular, Chinook salmon in Section 7.7.8. The co-lead agencies utilized current high quality information and best available science in its analysis of the effects of the operation, maintenance, and configuration of the CRS projects. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. The EIS analysis found that only a minor effect to the Southern Resident killer whale would result from implementing MO3 (which includes the dam breach measure). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differentially from hatchery and wild fish. Hatchery fish today likely make up most fish consumed by SRKW (NOAA BiOp 2020).

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					The EIS analysis of the Preferred Alternative determined the overall effect to SRKW to be negligible in large part because hatchery production is consistent between the No Action Alternative and the Preferred Alternative. Because the impact from the Preferred Alternative was determined to be negligible, the agencies determined that existing hatchery production would be sufficient to address any potential impacts to prey availability for SRKWs. The co-lead agencies note the contribution to the prey of SRKW through the continued existence of their respective independent congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as the Lower Snake River Compensation Plan, which is administered by U.S. Fish and Wildlife Service. The Preferred Alternative and Proposed Action in the agencies' biological assessment carry forward certain mitigation measures described in Chapters 2 and 7 of the EIS, which include continued salmon and steelhead hatchery production. The Preferred Alternative has negligible effects to SRKWs as described in Section 7.7.8.
6773	17	wwpinneys@gmail.com	N/A	NAA is incorrect baseline for alternative comparisons. It is the jeopardizing status quo, where the required most informative baseline is similar to the more appropriate salmon and steelhead production baseline that can be readily developed in consulting the orca scientists datasets and documentation, such as what was used in the recent renditions of the SRKW Recovery analyses and plans.	As stated in the Purpose and Need in Section 1.2, the ongoing action that requires evaluation under NEPA is the long-term coordinated operation and management of the CRS projects for the multiple purposes. As stated in the Forty Most Asked Questions Concerning CEQ's National Environmental Policy Act Regulations, in the case where there is an ongoing management program or plan, the No Action Alternative would be "no change" from current management program or plan. The No Action Alternative is required by the National Environmental Policy Act (NEPA), in accordance with the Council on Environmental Quality regulations (40 Code of Federal Regulations [CFR] 1502.14) and is provides benchmark for comparing environmental effects of the other alternatives. The No Action Alternative considers what would happen if the CRS continued to be operated, maintained, and configured with no change.
6773	18	wwpinneys@gmail.com	N/A	Irrigation mitigation of MO3 based on devaluing irrigated land, 47,840 acres at cost of $313.7 million. - Mitigation method justifies loss of 4,800 jobs, $232 million in labor income and 460.5 million in sales. - Pipe extension and pump installation mitigation overlooked, estimated at $20 million from Sampson, Rob 2018 A brief review of the impacts to irrigated farmland from breaching the four dams on Lower Snake River.	NEPA requires that all relevant, reasonable mitigation measures that could diminish the adverse impacts of the project be identified in the document, even if they are outside the jurisdiction of the lead agency or the cooperating agencies. See 40 C.F.R. 1502.16(h) and 1505.2(c); 46 Fed. Reg. 18026. The inclusion of mitigation measures in Chapter 5 is not intended to indicate that the co-lead agencies, or the Federal government as a whole, have the authority to perform all of the measures listed. If the measures are outside the jurisdiction of the co-lead agencies, those measures will not be included in the Preferred Alternative or Record of Decision (ROD). Their inclusion in Chapter 5 serves to alert other agencies, officials, and the public who can implement the measures to the potential benefits of the measure. The mitigation requested, while identified in the Draft EIS, is not within the co-lead agencies' current authorities. The co-lead agencies do not have the authority to provide mitigation for the effects to private infrastructure such as irrigation pumps, wells, or private docks. This EIS discusses engineering solutions, including pipeline extensions, in Section 3.12.3. MO3, Region C discussion begins on page 3-1267 line 3244 in the Draft EIS and is also found in Appendix N. The EIS draws upon the 2002 Lower Snake River Juvenile Salmon Migration Feasibility Report and Environmental Impact Statement which concluded that modifying the existing pump system was cost prohibitive. As discussed in Section 3.12.3, for MO3, in Region C this analysis assumes that pumps are unable to deliver water to an estimated 47,926 acres.
6773	19	wwpinneys@gmail.com	N/A	25 to 50% increase in rail shipment costs cannot be justified without cost estimate modeling and supporting data. - Use of recently upgraded rail line along the snake that can move all grain to market is not mentioned.	How rail rates would change without lower Snake River shallow draft barging can not bet known with certainty. Therefore, in order to evaluate the impacts of potential rate increases, a range of rail rate increases are evaluated, from 0 to 50 percent. As the modeling effort shows, if rail rates are not increased, freight volume would likely exceed current capacity, which would put upward pressure on rail rates. If rail rates increase by 50 percent, truck transport would be relatively attractive to shippers, which would put competitive pressure on rail companies not to increase rail rates much higher. As such, the modeled range of increased rates appears reasonable.
6773	20	wwpinneys@gmail.com	N/A	Flood conveyance dredging at Lewiston absent in multiple objective costs and should not exist in MO3. - Should increase cost by approx. $12 million/year for NA, MO1, MO2, MO4 & PA.	Dredging costs were developed based upon historic dredging quantities and costs. Although these costs may generally be referred to as simply dredging costs or navigation dredging costs, dredging outside of the federal navigation channel could still occur in the future if needed and are captured within the historic quantities. Dredging costs were included for all alternatives, and it is recognized that dredging would no longer be needed on the lower Snake near Lewiston, ID under MO3. These dredging costs are reflected under the operations and maintenance costs reported in Section 3.19 of the EIS, and described in more detail in Appendix Q.
6773	21	wwpinneys@gmail.com	N/A	LSRD breach cost from 2002 EIS without mitigation uncorrected and escalated to $994 million. - Error of approx. $600 million, from Waddell et al. 2016 Reevaluation of The Lower Snake River Juvenile Salmon Migration Feasibility Report and Supplemental Environmental Impact Statement Appendix D Natural River Drawdown Engineering. - Stated as $994 million in chapter 3, inconsistent with appendix Q that says it is $955 million. - Failure to recognize and document that breaching MO3 still is the least cost alternative (Table 3-4, pp 3-11) even given the major critical flaws based on un-truths perpetuated in the cost and economic evaluations.	Engineers and cost estimators at the USACE reached out to dam breaching experts at Reclamation and considered techniques used at other facilities. Approaches and constraints associated with those techniques were compared to those used in the 2002 EIS and determined the approach used in the 2002 EIS was still appropriate. The USACE engineering and cost estimators then double checked engineering requirements, quantities, and reestablished cost estimates based on current prices. Breaching costs are estimated to be $994 million in project first costs (no discounting), $955 million discounted and presented in 2019 dollars, or $36 million in annual-equivalent costs over the 50-year period (using a discount rate of 2.875%). In terms of the implementation and system cost analysis (Section 3.19), MO3 would result in the largest decreases in costs (increases in cost savings) compared to the No Action Alternative. However, this does not account for losses in other benefits under MO3, such as hydropower, navigation, and irrigation. The Preferred Alternative was chosen to meet the purpose and need to operate the system for the congressionally authorized multiple purposes, including fish, hydropower, and water supply, while minimizing adverse effect to biological and socioeconomic resources.
6773	22	wwpinneys@gmail.com	N/A	Congressional authorization assumption for MO3 incorrect and has been overly bastardized for over two decades to dissuade and delay the necessary breaching alternative, be it Alt 4 in the 2002 FR/DEIS for the Snake River and the 2002 FR/FEIS for the Snake River and this CRSO DEIS. The Corps HQ down to the Division needs to apply some true leadership to rectify this false whose got the power and authority excuse derivation. The Corps has the power and authority to manage, thus decommission and deconstruct, its water projects, as demonstrated by the failed bill put before Congress by the southeast and central Washington representatives to the House.	If MO3 were selected as the Preferred Alternative, the Corps could use the CRSO EIS as a basis for seeking congressional authority to breach the lower Snake River dams. After receiving both authority and appropriations from Congress, the Corps could initiate a detailed construction and design report for the breach measure, identification of disposal areas, real estate acquisition and disposal, permits, and mitigation requirements, including temporary fish hatchery production. Each of these actions are required prior to breaching, and the Corps does not have the authority or appropriations necessary to immediately breach the project's embankments. More information is available in the Corps Engineering Regulation (ER) 1165-2-119 Water Resources Policies and Authorities, Modifications to Completed Projects (Sept. 20, 1982) or ER 1105-2- 100, Appendix G, Section III Post Authorization Changes.
6773	23	wwpinneys@gmail.com	N/A	Breach alternative MO3 conflated with construction and mitigation costs on other dams. See comment that the original hatchery-for-harvestable fish mitigation for the Snake River dam construction will not vanish since the detrimental effects of the dams themselves, even under no operation/decommissioning, would still be present until the mitigation targets are completed or the salmon and steelhead are recovered to the pre-dam condition within the Snake River.	The method proposed for breaching the lower Snake River Dams is based on extensive analysis completed for the 2002 Feasibility Study, which also considered dam breaching. The methodology developed is intended to minimize impacts to ESA fish runs, other aquatic organisms, the built environment, and provide maximum protection to human health and safety. The EIS uses the same assumptions. For the purposes of this EIS, the 2002 cost estimates were inflated to 2019 price levels. The co-lead agencies will continue to adhere to Federal standards for dam and levee safety and human life safety considerations. In the event that breaching of the lower Snake River dams is implemented, additional analysis will be conducted to refine methods and costs. Funding decisions for the Bonneville F&W Program are not being made as a part of the CRSO EIS process. However, a range of potential F&W Program costs are included to inform the broader cost analysis for each alternative in the EIS. In the case of the Preferred Alternative, Bonneville included a range of potential F&W Program costs to acknowledge the possibility that the Preferred Alternative could provide biological benefits to anadromous fish species (see Chapter 7 of the EIS, Preferred Alternative) and that this could, in turn, reduce the need for some offsite mitigation funded through the Bonneville F&W Program. By analyzing a range of costs, Bonneville reflects the year-to-year fluctuations related to managing its program and also acknowledges the uncertainty around both the magnitude of biological benefits and the potential impacts on funding, including the timing of funding decisions. Future budget adjustments would be made in consultation with the region through Bonneville's budget-making processes and other appropriate forums and consistent with existing agreements. In 2016, Bonneville's F&W Program budget was $267,000,000, and the LSRCP budget was $32,303,000. When these budgets are adjusted to represent 2019 dollars, they become $281,536,000 and $34,062,000, respectively, which are the budgets used under the No Action Alternative. For the Preferred Alternative, Bonneville would continue funding the operations and maintenance of the LSRCP facilities, consistent with the No Action Alternative. Bonneville's F&W Program costs under the Preferred Alternative are estimated to range from no change from the No Action Alternative to a decrease of approximately 17 percent, or approximately $47 million, annually. Bonneville's fiscal year 2020 decisions to adjust the F&W Program budget to $249 million and the LSRCP budget to $30.5 million (BP-18 Rate Case) are consistent with the range of costs analyzed for the Preferred Alternative. This information can be found in several places in the body of the Draft EIS, but the best citation is probably Appendix Q, Chapter 7 Summary of All Costs. Finally, Chapter 5 describes mitigation proposed for MO3, including increased short-term hatchery production and trap-and-haul in the short-term to offset effects of sediment and low DO associated with breaching.
6773	24	wwpinneys@gmail.com	N/A	Power Replacement Costs & Loss of Load Probability overstated for 1,000 MW. - Least-cost power resource acquisition strategy not modeled, most up-to-date costs of wind and solar not used for cost replacement, if needed. - CRSO DEIS admits that the more extreme spill MO4 and other spilling alternatives, such as the loosely described and formulated proposed PA, would require just as much and quite a bit more power replacement with its inflated costs.	The EIS presents a range of replacement resource costs that would be needed to maintain regional reliability at the No Action Alternative level based on two resource portfolios: one that is based on renewable resources and another that is based on natural gas resources, which are generally the least cost means to maintain reliability (see Section 3.7.3.5, Potential Replacement Resources and Associated Costs in the draft EIS). The EIS uses the best available resource cost information from the Northwest Power and Conservation Council to estimate the potential range in costs of these replacement resources, with the exception of batteries which used newer sources, namely, 2018 and 2019 Integrated Resource Plans from Northwestern Energy and Puget Sound Energy. See draft EIS, Section 3.7.3.1, Step 3: Determine Need for Potential Replacement Resources and Associated Costs at page 3-821 and Appendix H, Power and Transmission, at Section 2.2. The final EIS addresses updated costs to resources based on publicly available draft information being prepared for the Councils 8th Power Plan. The basis for developing these portfolios may be found in Section 3.7.3.1, Methodology, and for MO3 specifically, Section 3.7.3.5, Potential Replacement Resources and Associated Costs. Based on responses to public comments, the final EIS contains an expanded description of how the potential replacement resource portfolios were selected for the EIS. (See Section 3.7.3.1 and Appendix H, Section 2.2 in the Final EIS.) To further address concerns about potential reductions in resource costs, consistent with the comment, publicly released draft information, such as updated prices for solar and battery storage, from development of the 8th Power Plan is included as rate sensitivities in the final EIS. The Final EIS also includes the de-escalating cost curves prepared by the National Renewable Energy Laboratory (NREL) that will be used by the Council in the 8th Power Plan. The statement that MO4 would require more replacement power than MO3 is consistent with the findings of the EIS; however, the Preferred Alternative does not require replacement power to maintain power system reliability, contrary to the statement in the comment (see Section 7.7.9).
6773	25	wwpinneys@gmail.com	N/A	Greenhouse gas emissions from LSRDs ignored in MO3. - From US Department of Energy 2013 Evaluating greenhouse gas emissions from hydropower complexes on large rivers in Eastern Washington. The increasing incidence of lubricate spills and leakage and higher water and climatic temperatures have increased the incidence and distribution of algal blooms that produce methane released upon their dying. Substrate sediment methane is not a concern upon a breach implementation due to low incidence and dissipation rates as the water is more turbulent under higher velocities and that sediment drops out. The CRSO EIS mischaracterizes this scare tactic issue. The reservoir producing releases of methane throughout the upper water column depths and the decaying algal mats will continue to be a more detrimental effect to the water quality and ecology of the reservoirs. Vast peer reviewed and technical literature informs a logical and data-driven based scientist to conclude, not speculate, that the greatest time period of methane generation and release within the Snake and Columbia rivers would have been the extremely massive daily concrete manufacture and placements required for each dams construction, in that the lime dependent concrete forming of similar scaled large construction pours have been routinely monitored to produced greatly health exceedance concentrations of methane release. - The water quality sections and appendix C treatment of dissolved oxygen (d02) is chemically and physically illogical with intent to scare away from MO3. 02 is not oil or decaying vegetative biomass found pouring into the deeply located soils or sediments. 02 depletion or anoxia is known in deep reservoir and pool environments that are stagnant with slow seepage under extreme low velocities, hence even run-of-river reservoirs on the Snake and Columbia rivers where pool velocities are consistently much below 1 fps. The Snake River has always had exceedingly higher 02 throughout the majority of its water column, and the turbulence and higher water velocities derived during a breach would act to not only release those compounds at a negligible rate but dissipate those compounds, of which higher 02 concentrations would be readily transported from upriver and transformed in the replaced water entering the mainstem reach. If the CRSO DEIS would accept and use the much more robust and logically-thought-threw and scientifically debated evaluation for sedimentation, turbidity, water temperature, and timing and methods of breaching the earthern fill sections at each dam documented in the 2002 FR/FEIS for Snake River juvenile salmon migration, much as the CRSO DEIS did for the 3-d GIS and 2-d MASS2 modeling files by the River Mechanics team, the CRSO DEIS would clearly conclude that no to near zero (or inconsequential or negligible) migratory salmon and steelhead lifestages would be present or passing through the impact zones during the water evacuation of MO3 and consequentially any stored methane or releasing oxygen would have no adverse effect, but only	We chose to use a process-based model to predict impacts to dissolved oxygen rather than empirical models that may have little relevance to the system. Our analysis was based on the data that has been collected in the lower Snake River over the past 20 years. Specifically for dissolved oxygen (DO), two different methodologies were used to estimate impacts to DO under MO3, using CE-QUAL W2. The EIS results were compared to reservoirs with similar sediment composition and agreed based on this comparative analysis. The first method was developed using correlations of measured data from Fall Creek Lake, Oregon (USGS Gage 14151000, Fall Creek Blw Winberry Creek, Near Fall Creek, OR). The second method was based on the mobilization of anoxic pore water and the biochemical oxidation of organic matter associated with deposited and re-mobilized/re-suspended sediments during reservoir drawdown and dam breach. This method assumed sediment oxygen demand (SOD) rates of 0.1, 0.5, 1.0, and 2.0 grams per square meter per day (g/m2/day). The two highest rates are based on measurements obtained from several Snake River sediment cores that were collected in 1997 (Normandeau 1999) and ranged from 0.8 to 2.2 g/m2/day. The estimated number of days when the oxygen concentrations would be less than 5 mg/L, 2.5 mg/L, and 0.5 mg/L (anoxia) under Method 1 (data correlation) and Method 2 (with an SOD of 0.5 g/m2/d) in the headwater are similar and range from 21-23 days, 15-19 days, and 11-17 days, respectively. The estimated number of days when the oxygen concentrations would be less than 5 mg/L, 2.5 mg/L, and 0.5 mg/L (anoxia) under Method 1 (data correlation) and Method 2 (with an SOD of 0.5 g/m2/d) in the forebay range from 17-20 days, 4-7 days, and 0 days, respectively. Method 2 with a SOD of 0.1 g/m2/d results in nominal dissolved oxygen concentration effects with respect to the three dissolved oxygen criteria and locations selected, while estimated dissolved oxygen concentration effects with SOD rates of 1.0 and 2.0 g/m2/d suggest the longest periods of low dissolved oxygen within the Lower Monumental reservoir. Regarding methane emissions, Appendix G, Chapter 5 of the Draft EIS details the assessment of reservoir methane emissions from the CRS projects. The findings are summarized in Section 3.8. and Appendix G include references to and discussion of Arntzen et al. (2013), research supported by the U.S. Department of Energy that is referenced in this comment. In the case of the four lower Snake River dams, recent research concluded that data were insufficient to estimate the reservoir methane emissions specifically for the CRS, but that methane emissions at high levels are not likely due to the lower organic and nutrient loads to the system, and higher dissolved oxygen content. The EIS describes that emerging technologies would allow for better measuring and understanding the effects of reservoir methane emissions from CRS projects, including the four lower Snake River dams. Section 3.8 discusses the greenhouse gas effects from breaching the four lower Snake River dams.

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				an uncertain low probability for near zero (or inconsequential or negligible) on the possible few juvenile salmon or steelhead remnants. Vast positive experience from other national and international dam breaching and removal projects across a relatively high range of dam heights and river channel and pool configurations clearly show that free-flowing waters will repair 02 sinks, as well as produce much lower methane emission in short timeframes.	
6775	1	robertggriswold@gmail.com	N/A	The preferred alternative continues the long-standing tradition of making incremental improvements when meaningful changes are clearly required. This approach invites litigation, additional court remands and continued declines in Snake River salmon and steelhead populations, particularly the wild component. The need to increase survival of endangered Snake River sockeye is particularly urgent. Sockeye recovery requires increasing smolt-to-adult survival by an order of magnitude, under the proposed alternative smolt-to-adult survival would likely remain well below 1%. The Northwest Power and Conservation Council established a goal of 2- 6% smolt-to-adult survival. The only alternative identified in the CRSO-DEIS that can meet this goal is MO 3. This alternative would provide the most benefits, based on your analysis, including shortened smolt travel times, decreased gas exposure, reduced predation, and increased survival rates and population productivity. I request that you reconsider this plans preferred alternative. Based on your analysis the preferred alternative will not provide the survival benefits needed to stabilize and recover Snake River salmon and steelhead populations. MO3 is the only alternative identified that can achieve sufficient population productivity to achieve this goal.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple legal responsibilities, including compliance with Section 7 of the Endangered Species Act. Under Section 7(a)(2) of the ESA, the co-lead agencies must insure that any action authorized, funded, or carried out is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of habitat of such species. The EIS concluded MO3, which includes breaching the four lower Snake River dams would have greater improvement to certain salmon species in the lower Snake River. It did not, however, conclude there was greater certainty of that result in MO3 over any other alternative. Because of delayed response time in MO3, and the potential severity of the short term effects, MO3 would likely have the most substantial uncertainty in terms of beneficial effects. Section 3.5 provides a summary of the fish analysis for the No Action Alternative and four of the multiple objective alternatives. Chapter 7 provides a summary of the fish analysis for the Preferred Alternative. With respect to the Preferred Alternative, the CSS model predicts that average Smolt to Adult return rates would increase for both Snake River spring Chinook and steelhead and will average above 2% (the lower end of the Northwest Power and Conservation Councils recovery targets for the region) as a result of the Preferred Alternative, increasing from 2.0% to 2.7% for Chinook, a 35% relative increase. The NMFS COMPASS and Lifecycle Models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information. Based on the EIS analysis of the Preferred Alternative, it will make a substantial contribution towards recovery targets.
6779	1	N/A	N/A	Appendix P provides documentation provided by the Native Nations on Environmental Justice concerns regarding the Snake River Dams. Construction and continued operation of these dams has been documented to be detrimental to the Religious beliefs and practices, Environmental welfare, personal health, the availability and abundance of Subsistence Resources. The costs and injustices that are addressed in these concerns are not adequately analyzed nor sufficiently valued in the discussion of each of the options in this Draft EIS.	Treaty rights are discussed in the Executive Summary, Section 3.16 Cultural Resources, and Section 3.17 Indian Trust Assets, Tribal Perspectives, and Tribal Interests. Appendix P includes copies of tribal perspectives that were submitted by tribes. Tribal consultation is described in Sections 1.5, 3.5, and 3.15; and Chapter 9. Most sub-sections within Chapter 3 include a Tribal Interests section at the end of the sub-section that attempts to summarize tribal issues by topic. Treaty specific information is included in Section 3.17 as well as Chapter 7. The treaties bind all parties and are the supreme law of the land. The co-lead agencies recognize and respect that supremacy. In terms of honoring our treaty obligations, the co-lead agencies included Protecting Native American treaty and reserved rights and fulfilling trust obligations for natural and cultural resources throughout the environment affected by the Columbia River System operations as a purpose in the Purpose and Need Statement in Chapter 1 to ensure treaty obligations were a key consideration of decision making. The co-lead agencies are engaging in government-to-government consultation with the tribes, and several tribes are cooperating agencies on the CRSO EIS. The EIS recognizes the economic and cultural importance of salmon to Tribes in a number of sections throughout the document. The cultural significance and impacts of salmon and steelhead fisheries are described in the Ceremonial and Subsistence Fisheries sub-section and the Social Importance of Commercial, Ceremonial and Subsistence Fisheries sub-section of Section 3.15.2.1. Fisheries tribal interests are provided in Section 3.15.4 additional details regarding the economic significance of salmon and steelhead fisheries have been added to the recreation analysis (Section 3.11) including tribal interests (Section 3.11.3.7).
6780	1	sedgemon@ci.richland.wa.us	N/A	We submit the following comments for consideration as the Agencies finalize the EIS. Maximizing hydropower produced from the Columbia River System and Lower Snake River Dams enables the City to provide affordable, low-cost electric rates. Any increase in spill means a decrease in hydroelectric generation, which results in increased wholesale power costs and higher retail rates negatively affecting City customers. Replacing the carbon-free power and dispatchable peaking capacity and flexibility from the Lower Snake River Dams with a similar portfolio could result in a 50% increase in BPAs wholesale rates. Since the Citys wholesale power costs are over 60% of its electric utility total costs, customers could experience a 25% increase in retail power costs. Higher electric rates cause businesses to reduce employment and increase prices negatively impacting employees, customers, and the economy. Power that is more expensive affects all customers, but it provides the largest financial burden on low- and fixed-income customers.	The comment that power costs in the region would increase under Multiple Objective 3 (MO3), which includes breaching the four lower Snake River dams, is consistent with EIS findings. See Section 3.7.3.5, at pages 3-918-924, and Table 3-166 in the Draft EIS. The Preferred Alternative does not include breaching the four lower Snake River dams, which was a measure within MO3 and included in the evaluation of that alternative. The statement that increased power costs decrease economic activity is also consistent with the findings of the EIS. The comment that increases in utility costs can adversely affect vulnerable groups is consistent with discussions in the EIS. The Environmental Justice analysis in Section 3.18.3 and Chapter 7, provides further detail on potential disproportionate effects including to Tribal, low-income and minority populations. Under the Preferred Alternative the Bonneville wholesale power rate pressure is estimated to be 2.7 percent relative to the No Action Alternative. A portion of that rate pressure has already been incorporated into the BP-20 wholesale power rates; and, the remaining rate pressure likely falls within a level that Bonneville has historically been able to absorb through the costs over which it has significant control.
6780	2	sedgemon@ci.richland.wa.us	N/A	The Lower Snake River Dams provide the City grid stability, critical capacity, and flexible carbon-free power. Breaching the Lower Snake River Dams will impact the reliability of the Columbia River Systems energy system, doubling the risk of blackouts in the Northwest. The Lower Snake River Dams – especially Ice Harbor Dam – provide critical peaking capacity for our area during periods of high loads like cold weather events. Without the dams the City and Tri-Cities will likely experience brownouts and blackouts. Power production at Ice Harbor Dam has averted Tri-Cities blackouts in the past with the most recent critical event occurring March 2019.	The measure to breach the four lower Snake River dams that was evaluated in MO3, was not included in the Preferred Alternative (PA) identified in the Draft EIS. The effects of the PA on power are described in Section 7.7.9 of the Draft EIS. Overall, hydropower would decrease relative to the No Action Alternative under the PA. However, because of the shape of the remaining hydropower generation in the PA, the loss of load probability was essentially the same as that of the No Action Alternative and identification of replacement resources was not necessary. The EIS analyzed two resource portfolios to replace the hydropower generation of the four lower Snake River dams, both of which maintain regional power system reliability. See Section 3.7.3.5, pages 3-904-910 in the Draft EIS. Without replacement resources, however, the statements in the comment about the effects of breaching the four lower Snake River dams on regional power system reliability unless and until replacement resources are acquired are consistent with the findings of the EIS. The importance of the four lower Snake River dams, particularly Ice Harbor, for stability in the Tri-Cities area is also consistent with the findings of the EIS. See Draft EIS Section 3.7.3.5, Bonneville Transmission System Reliability and Operations. The loss of generation at Ice Harbor would require that a transmission reinforcement project be in place prior to breaching of the dams. If the dams were breached prior to completion of the reinforcements, the Tri-Cities area would be vulnerable to a potential loss of load event.
6780	3	sedgemon@ci.richland.wa.us	N/A	As noted in the EIS, the loss of hydropower generation at Ice Harbor Dam would require BPA to build a $94 million transmission reinforcement project prior to breaching. Costs of this magnitude would increase power costs substantially.	The statement that under Multiple Objective (MO) Alternative 3 (which includes breaching the four lower Snake River dams) transmission reinforcement would be required and cost $94 million is consistent with the findings of the draft EIS in Section 3.7.3.5, Bonneville Transmission System Reliability and Operations. The wholesale transmission rate pressures and the retail rate effects associated with the costs under MO3 are discussed in the draft EIS in Section 3.7.3.5, Bonneville Wholesale Transmission Rate Pressure and Retail Rate Effects.
6780	4	sedgemon@ci.richland.wa.us	N/A	The City needs the hydroelectricity the Lower Snake River Dams produce in order to meet Washington States Clean Energy Transformation Act carbon-neutral requirement by 2030 and carbon-free target by 2045. Replacing the hydroelectricity lost from breaching the dams with a flexible, dispatchable resource to meet loads would mean using higher cost and higher greenhouse- gas-emissions natural gas generation to augment periods when renewables cannot generate.	The comment that costs and greenhouse gas emissions increase from replacing the hydropower from the four lower Snake River dams, even using renewables is consistent with the findings of the EIS (see draft EIS, Section 3.8.3.5, Greenhouse Gas Emissions from Power Generation). The statement that replacing the lost capability of four lower Snake River dams with additional resources, whether carbon-emitting or zero-carbon, could lead to higher overall costs is consistent with the findings in the EIS. See draft EIS, Section 3.7.3.5 at pages 3-918-924 and Table 3-166.
6780	5	sedgemon@ci.richland.wa.us	N/A	Breaching the dams and the locks will eliminate a low-cost, efficient way to barge bulk farm commodities and other goods up and down the Columbia and Snake Rivers. The barges would be replaced with semi-trucks and railcars. In 2018, it would have taken 38,966 rail cars or 149,870 semi-trucks to move the cargo that was barged on the Snake River. The additional semi-trucks and railcars would increase greenhouse gas emissions. The City would no-doubt be impacted due to additional demands on existing road and rail infrastructure, increased traffic, and more air pollution. The highways and roads would need to be expanded and new infrastructure built. This would require increased infrastructure maintenance and cost to taxpayers.	The impacts described by the commenter are consistent with the effects described in the EIS in Section 3.10.3.5. Section 3.10 of the Draft EIS provides an evaluation of the Columbia Snake River Navigation System, assessing its relative efficiency, low costs for shippers, safety considerations, and low air emissions relative to other transportation modes. The EIS acknowledges that depending on how rail rates respond to dam breach, shortline rail capacity could be exceeded. The EIS also evaluates the additional transportation infrastructure investments and associated costs that would be required, as well as the increases in air emissions that would occur. The EIS finds that truck ton-miles may experience an increase of 19 percent to 84 percent under MO3 when compared to the No Action Alternative, depending on the rail rate increases that occur. The EIS analysis found that truck trips would increase between 14,000 to 79,000 truck trips per year, which would increase air pollutant and greenhouse gas emissions in the region and add to traffic and congestion in the region. Rail ton-miles would increase by as much as 86 percent (when rail rates are not assumed to increase) or decrease by 2 percent (when rail rates increase by 50 percent). Under low rail rate increase scenarios, additional shortline rail capacity would be required that could cost $25 to $50 million. Under a scenario where rail rates increase by 50 percent, more shipping demand would be transferred to trucks, reducing the demands on rail infrastructure, but increasing demands on roads. Under this scenario, up to $10 million in additional road wear-and-tear costs may occur.
6780	6	sedgemon@ci.richland.wa.us	N/A	Breaching the Lower Snake River Dams would decrease the Citys tourism and recreational opportunities. Approximately 18,000 passengers vacation annually on the Columbia and Snake Rivers using commercial cruise lines. The City estimates it could lose over $2.2 million dollars in total tourist spending if the commercial cruise lines operating on the lower Columbia and Snake Rivers were eliminated due to dam breaching. This does not include potential reduction in jobs and income of associated businesses and employees in Richland. Even if the number of cruises was reduced to voyages only on the Columbia River, the City would be adversely affected.	Cruise ship visitation is characterized in Section 3.10, including a description of its economic contribution to the region. Section 3.10.3.5 describes the contribution of cruise ships as supporting approximately 230 jobs in the region, $6.2 million in labor income, and $17.8 million in annual output (sales). As described under MO3, a substantial portion of these trips and associated regional economic benefits would be lost under MO3.
6780	7	sedgemon@ci.richland.wa.us	N/A	The Citys potable and irrigation water supplies would likely be disrupted by breaching the Lower Snake River Dams. The City has two intake structures on the Columbia River for its potable water supply and an intake for irrigation. If breaching the Lower Snake River Dams affects the water level of the McNary Pool, the Citys potable water supply could be adversely effected. A 1.5 ft. decrease in water level below its current intake design level would necessitate dredging and building containment basins large enough to handle the 30 million gallons per day demand. It is unknown if this work could be achieved due to the cost and environmental impact.	McNary pool elevations are not anticipated to drop below current operating minimums under any alternative. The breaching of the lower Snake dams in MO3 may cause a temporary increase in sediment, which may require increased maintenance.
6780	8	sedgemon@ci.richland.wa.us	N/A	Studies have shown that removing the dams would increase salmon returns by only 17%. The most updated science from the National Oceanic and Atmospheric Administration Fisheries finds that conditions in ocean waters need to improve in order for fish numbers to increase. Focusing primarily on the Columbia-Snake River System where BPA has made over $17 billion in improvements have been made in world-class fish passage infrastructure is not the solution to increasing fish returns. Ninety-three to 97% of fish make it through the Lower Snake River Dams due to the investments in safe fish passage. Forty to 50% of juvenile fish make it through Columbia and Snake River dams which is comparable to survival in free-flowing rivers such as the Frasier River. Predation is a huge source of mortality for endangered and threatened juvenile and adult salmon. Birds consume 4% to 21% of migrating juvenile salmon each year. Eleven years of research from 2008 to 2019 indicate that a greater number of upper Columbia steelhead smolt, including those from the Snake River, were consumed by avian predators than died from all causes combined. Regarding adult salmon predation, in 2017, sea lions consumed over 40% of adult salmon migrating through the Columbia River estuary.	The co-lead agencies legal authorities relate to operating and maintaining the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. To comply with the ESA, the co-lead agencies have historically supported actions to mitigate adverse effects to listed species from CRS operations, through funding, direct implementation, and other means. Under the Preferred Alternative, those actions, including for the purpose of reducing pinniped and avian predation on listed species, would generally continue to ensure compliance with the ESA. Other entities in the region have authorities and obligations to mitigate the impacts from pinniped and avian predators and the co-lead agencies will continue to work closely with those entities to benefit ESA-listed salmonids
6780	9	sedgemon@ci.richland.wa.us	N/A	We are concerned additional spill is included in the preferred alternative since it results in less power generation. The 125% of TDG spill operation is untested. It is not known that additional spill will benefit fish and in fact, may harm them.	TDG levels are regulated under the Federal Clean Water Act, and administered by the states. Both Oregon and Washington have reassessed the available data on effects of TDG levels up to 125% of saturation on fish and other aquatic organisms. Based on this reassessment Oregon issued a five-year "standard modification" and Washington issued a permanent rule change, supported by the Environmental Protection Agency (EPA), to allow TDG saturation up to 125%. However, as noted by the commenter, there is considerable uncertainty in the effects of free swimming fish; and therefore, monitoring was required by the states and EPA to ensure any negative effects are detected and allow for adaptive management. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. The framework for the adaptive management process is detailed in Appendix R, Part 2, Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS. It is the intention of the co-lead agencies to engage regional state, Tribal, and Federal biologists in the development of an appropriate adaptive management process utilizing their respective salmonid management expertise. The goal of that adaptive management process would be to consider additional opportunities to further the effectiveness of the operation while maintaining the goals of the flexible spill operation: additional improvements for salmon and steelhead, maintain opportunities to operate the CRS for hydropower generation in a flexible manner that provides value to the Northwest, is implementable by the dam operators, and provides opportunity to reduce uncertainty and improve the learning opportunities around how operations of the CRS can influence the magnitude of latent mortality effects. Unforeseen outcomes or unintended consequences will be monitored and adjusted using current in-season management teams, such as the Technical Management Team.

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6780	10	sedgemon@ci.richland.wa.us	N/A	Fish mitigation costs are a tremendous expense for BPA customers. Over $17 billion for fish and wildlife habitat restoration has been funded by BPA customers and ultimately, every business and residential customer NW electric utilities serve. It is time to have others benefiting from fish mitigation efforts share these costs as well. Incremental costs resulting from system operations that reduce hydropower production, including increased spill at the dams, should be equitably allocated so that preference customers do not solely bear incremental costs that provide broader social and environmental benefits.	Bonneville is statutorily obligated to pay for its share of project costs, including fish mitigation. Bonneville's share of project costs are established by existing cost allocations at each FCRPS dam. The cost allocations used in this EIS were developed based on methodologies adopted by Corps and Reclamation and reflected in their policies. Although each methodology has a different approach, the fundamental goal of any cost allocation is to allocate a share of the projects costs (capital and O&M) to each of its authorized purposes (e.g., flood control, navigation, power, irrigation). Fish mitigation costs are assigned to each authorized purpose based on each purposes overall share of project costs, as determined by the cost allocation. Bonneville is required to pay for its share of mitigation costs based on the existing cost allocation. Although Congress authorized Bonneville to fund the power share directly to the Corps and Reclamation as part of the Energy Policy Act of 1992. (Energy Policy Act of 1992, Pub. L. No. 102-486, 2406, 106 Stat. 2776, 3009 (1992) (codified at 16 U.S.C. 839d-1 (2012)), in some situations, including the Columbia River Fish Mitigation program, Bonneville does not directly pay for the capital costs of fish mitigation structures; instead it reimburses the U.S. Treasury for the power share of appropriations used to construct the structure. Additionally, as described in Section 3.19 of the EIS and Appendix Q, funding to operate the system comes through multiple mechanisms, including Federal tax dollars appropriated to cover system costs as well as revenue generated from the marketing and sale of hydropower. For power-specific costs, Bonneville typically provides direct funds to both the Corps and Reclamation. For joint related costs, including funding for fish and wildlife mitigation actions, the Corps and Reclamation receive annual Congressional appropriations to fund most, if not all, capital investments. Bonneville reimburses Treasury for the power share of these appropriations. Once the investment is in place, Bonneville will typically direct fund the operations and maintenance costs associated with the facility. In addition to congressional appropriations for fish and wildlife, the Bonneville Fish and Wildlife Program funds hundreds of projects each year to mitigate the impacts of the Federal hydropower system on fish and wildlife. Bonneville began this program to fulfill mandates established by Congress in the Pacific Northwest Electric Power Planning and Conservation Act of 1980 to protect, mitigate, and enhance fish and wildlife affected by the development and operation of the FCRPS. This program is funded by Bonneville's electricity ratepayers as part of the rates Bonneville sets to recover its costs. Bonneville's Fish and Wildlife Program expenditures incurred mitigating the CRS operations identified in the final EIS and adopted in Bonneville's Mitigation Action Plan would continue to be allocated and borne as provided by existing laws governing the FCRPS and the long-standing accounting procedures used to implement them.
6790	1	N/A	N/A	Climate Change A fault of the DEIS is its dismissal of wind and solar power as reliable substitutes for the loss in hydropower generation if the dams are breached. As noted in the Washington State Department of Natural Resources Plan for Climate Resilience, published in February 2020, among its priorities is to "accelerate salmon and orca recovery efforts." The agency also is "leasing state trust lands for wind and solar power production and is exploring the power potential of geothermal energy," according to the DNR plan. In a no-dam scenario, the CRS DEIS implies the loss of hydropower can only be replaced by greenhouse-gas emitted electricity generation from coal or natural gas sources. As noted in the 2019 study, "ECONorthwest Lower Snake River Dams: Economic Tradeoffs of Removal," hydropower generated by the four dams now is a fraction of what is used statewide.	Contrary to the statement in the comment, the EIS did not dismiss renewable power sources and does not imply that the loss of hydropower can only be replaced by fossil fuel generation. The EIS considered a zero-carbon replacement portfolio to replace lost generation from the four lower Snake River dams in Multiple Objective Alternative 3. See draft EIS, Section 3.7.3.5 at pages 3-904-910. The zero-carbon replacement portfolio included solar, demand response, and storage technologies; wind was less cost-effective for this alternative. See draft EIS, Section 3.7.3.5 at pages 3-907-910. Under the zero-carbon portfolio, the EIS finds that fossil fuel-based generation from existing power plants would increase to replace lost balancing resources and maintain reliability (i.e., to meet the demand for power and avoid outages). See draft EIS, Section 3.8.3.5 pages 3-1009-1010. Regarding the statement about the amount of generation, while the four lower Snake River dams account for a small portion of the total power of the region, they represent a larger portion of the Federal Columbia River Power System from which Bonneville markets power. Using average water conditions and 80-year water data, the four lower Snake River dams produce between 460 aMW to upwards of 1400 aMW of power during the winter months of December through February, which are typically the most energy intensive months for Bonneville. See draft EIS, Section 3.7.3.5, Changes in Power Generation and Table 3-159.
6790	2	N/A	N/A	Fish Federal efforts to restore salmon habitat in the region have cost taxpayers $17 billion dollars, yet Chinook salmon and 12 other species remain listed as endangered, and the last five plans have been found inadequate and illegal. Throughout these failed mitigation efforts, the one constant has been the existence of the dams, which, among the added stresses of passage, in part obstruct the fish from hundreds of miles of pre-dam habitat critical to juvenile salmon development. A key component of the Southern Resident Orca Task Force final report is to increase the supply of Chinook through increased production of hatchery-spawned fish. But the abundance of hatcheries has not yielded an increase in Chinook. According to the Washington Department of Fish and Wildlife (WDFW), 90 percent of all salmon caught in the Columbia River are hatchery raised; 40 percent never migrate to the ocean and do not benefit the orcas. Removing obstacles to upstream habitat for the wild fish population is the best option for increased survival.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets most other EIS objectives including those for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS, the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams, because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. The co-lead agencies conclude there could be a negligible to minor beneficial effects to SRKW from implementing MO3. CSS and NMFS Lifecycle models predict that lower Snake River Chinook salmon smolt-to-adult returns would have a moderate to major increase under MO3. Operation of Lower Snake River Compensation Plan fish hatcheries under MO3 is uncertain and therefore, production of Snake River hatchery fish is assumed to decline over the long term, while returning adult wild salmon are anticipated to increase. However, the co-leads do not anticipate a lack of hatchery fish in the short term based on the proposed fish hatchery mitigation described in Chapter 5. These additional hatchery fish should mitigate short-term construction effects to Snake River populations. Additionally, to address short-term effects to ESA-listed species, the co-lead agencies propose constructing a new trap and haul facility at McNary and conducting at least two years of trap and haul operations for Snake River fish (Chinook, sockeye, and steelhead). The co-lead agencies agree that the quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differently from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for the whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall-run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall-run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). The co-lead agencies note the contribution to the prey of Southern Resident killer whales through the continued existence of their respective independent congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as Lower Snake River Compensation Plan, which is administered by USFWS.
6790	3	N/A	N/A	Without the benefit of reservoirs if the dams are removed, motorboat users are estimated to lose $7.41 per-person per trip (McKean et al, 2012, 2005). However, that loss is far outweighed by what a free-flowing river would offer: multiple-day float trips, wildlife viewing, and drift-boat fishing are estimated to generate a per-user-day recreational value of $228. Additionally, a random utility method analysis found there will be a 68 percent increase in trips to the area if the dams are removed. When considered in the context of discount rates of 2.75% and 7%, the increase in recreational value ranges from $341 million to $1.2 billion, according to ECONorthwest. The ECONorthwest study also cites a variety of studies indicating there is a willingness to pay to reduce the extinction risk of the region's iconic salmon and orcas, as high as $356 in one case (Stratus Consulting, 2015).	Section 3.11.3.5 describes river recreation in the long-term post breach when river conditions are established. Visitation would be predicated on the development of recreation access and roads to access the river resource. The EIS describes that the visitation in the long-term in the lower Snake River, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting jobs, income, and tourism businesses. The social welfare values associated with river recreation post dam breach were not estimated because of the uncertainty (and large range) in visitation and consumer surplus values among users. In addition, the timeline of the EIS precluded an extensive survey of post dam breach recreation. The EIS has a different charge than the ECONorthwest study. The ECONorthwest analysis and the EIS employ different analytical frameworks and rely on different findings with respect to the outcomes of breaching the four lower Snake River dams. First, the ECONorthwest report applies a cost-benefit analysis framework, emphasizing monetization of all categories of impacts. Consistent with NEPA analysis frameworks, the EIS expresses beneficial and adverse effects across a variety of qualitative and quantitative environmental and economic metrics. That the effects of the alternatives on fish are not quantified as monetized economic values does not mean that they were not considered in the context of the analysis. Second, the findings of the ECONorthwest report that the benefits outweigh the costs of breaching the dams rely on the implicit assumption that breaching would result in restoration of salmon populations. The fish effects analysis in Section 3.5 of the EIS does not find that Multiple Objective alternative 3 would result in recovery of salmon or steelhead populations or in restoring the populations to historical levels. Thus, the values presented in the ECONorthwest report should not be considered as representative of the benefits of MO3. However, the results from the ECONorthwest study contribute to the overarching conclusion of Section 3.15.2.2 that describes that the literature consistently demonstrates that people hold passive use values for salmon. The study used a very limited sample of 20 trips to the region. The EIS analysis found only a minor effect to the Southern Resident killer whale would result from implementing MO3 (which includes the dam breach measure). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differentially from hatchery and wild fish. Hatchery fish today likely make up most fish consumed by SRKW (NOAA BiOp 2020).
6796	1	kairos42@earthlink.net	N/A	Irrigation impacts under MO3 vastly overstated old and flawed assumptions brought forward into the DEIS. No loss in farm income with breaching. Corrected cost to modify irrigation systems is $20 million, instead of a farm value loss of $314 million. This is a fatal flaw of the DEIS and renders immediate breaching highly beneficial to the region. The DEIS, Chapter 3 page 1267 used the 2002 EIS as a basis for concluding that modifying the existing pump system was cost prohibitive. The 2002 EIS irrigation modification concept was based on a single large pumping station, sedimentation pond and approximatively 10 miles of pressurized pipeline for distribution sized for the maximum August demands of over 850 CFS. This was roughly estimated to cost $291 million which was more than the farmland was valued at. Hence a farmland valuation analysis was used in 2002 and carried forth as a planning assumption in the 2020 DEIS. However, at the time this $291 concept and cost estimate was challenged as being incorrect, but was not changed given the time constraints and the belief by Walla Walla planners that even if it was of no cost, it would not change the overall economic analysis and benefit cost ratio in favor of keeping the dams. Devaluing farm land led local irrigators to undertake a long term pro breaching agenda for fear of loosing their farms to a government buyout. In 2016 EarthEconomics validated the amount of acreage in the 2002 EIS and in 2018 Rob Sampson, a water supply civil engineer, recalculated the initial pump and pipe line extension plan noted in the 2002 EIS. His work showed it was entirely feasible	This EIS discusses engineering solutions, including pipeline extensions, in Section 3.12.3. The MO3, Region C discussion begins on page 3-1267 line 3244 in the Draft EIS and is also found in Appendix N. The EIS draws upon the 2002 Lower Snake River Juvenile Salmon Migration Feasibility Report and Environmental Impact Statement which concluded that modifying the existing pump system was cost prohibitive. As discussed in Section 3.12.3, for MO3, in Region C this analysis assumes that pumps are unable to deliver water to an estimated 47,926 acres. In Region C (lower Snake River) and potentially Region D (mainstem Columbia River) around the confluence of the lower Snake River, the MO3 alternative, which includes breaching the earthen embankment of the four lower Snake River dams, would have adverse effects to farmers and irrigation. Currently and in the No Action Alternative, water is available from the pools of these facilities and from groundwater that results from the pools. Removing the earthen embankment portion of the dams will reduce pool elevations by up to 100 feet, which would make surface pumps inoperable. Groundwater pumps in the wells may also be affected due to decreased groundwater elevations depending on the connectivity of the aquifer to the pools. Municipal and industrial water pumps in the Lewiston area would also likely be adversely effected. Additionally, transportation of farming goods would expect to move off river and on to rail or trucks, as there would be a complete loss of commercial navigation on the lower Snake River and could not be feasibly mitigated. All ports along the Snake River would lose access to the navigation channel. Some ports at the confluence or the Snake and Columbia River could dredge new channels to the Federal channel in the confluence (McNary reservoir) to maintain access. Private or public entities or businesses could take actions and/or build infrastructure to extend pumps or water supply access for water. Ports and farmers can likewise change their transportation modes or connect to the navigation system at a different point on the river. The federal co-lead agencies would not mitigate for these impacts to water users or ports. See Chapter 3 analyzes the social and economic effects of implementing a dam breaching alternative (MO3) and Chapter 5 for mitigation discussion.

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				using widely excepted screening and pumping technologies to add additional pipes and pumps to the natural river elevations after breaching. This revised cost estimate is $20 million in 2019 dollars. Additional electricity costs of approximately $1 million per year could be fully or wholly paid for by BPAs Irrigation Assistance Program. Conclusion, Irrigation famers on Ice Harbor pool can be kept whole at a tiny fraction of the the $314 million cost due to lost value of non-irrigated farm land. Job losses of 4,800 are incorrect, there would be no job losses with breaching. Indeed, approximately 5,000 acres of former farmland, orchards and vineyards could be reclaimed with breaching adding approximately 1,000 agricultural jobs in the lower Snake Valley. Sampsons report, A brief review of the impacts to irrigated farmland from breaching the four dams on Lower Snake River is attached. Link to prospective piece on agriculture in lower Snake Valley after breaching: https://indd.adobe.com/view/5f823ffb-2346-4bb5-91e2-58ab339ebe21	
6804	1	N/A	N/A	Fish management at the dams is continuously being redesigned and upgraded, and I am fully confident that it is the best action for all concerned parties and issues. Those who want to remove or redesign any dams to enhance fish migration should look at the appalling Dworshak Dam on the North Fork Clearwater River in Clearwater County, Idaho. It is the third tallest dam in the United States and lacks fish ladders, thus blocking fish passage, and has completely extirpated anadromous fish migration into the upper reaches of the North Fork Clearwater River and its tributaries in Idaho. Further, water pollution in and around Puget Sound is much more hazardous to fish life than the dams of the Columbia and Snake Rivers and should be thoroughly analyzed for cleanup and intelligent clean water management.	Dworshak Dam is one of the 14 Federal projects included in the CRSO EIS and analysis of the alternatives considers effects of operations, maintenance, and configuration of Dworshak. The co-lead agencies did not consider an alternative to remove Dworshak Dam. Regarding Puget Sound, the effects mentioned in the comment involve a variety of issues beyond the scope of the CRS project. However, water quality effects for the Columbia River Basin were considered in the EIS analysis and are described in Chapter 1, 2, and Section 7.8.3 of the EIS. Additionally, the U.S. Army Corps of Engineers is in partnership with other Federal, state and non-governmental organizations and have been implementing habitat projects for salmon, orcas, and wildlife all around the Puget Sound as part of the Puget Sound Nearshore Ecosystem Restoration Project
6812	1	MagicFan031@gmail.com	N/A	I would like to first address the things that I believe are remiss in the CRSO DEIS. The most vital: the importance of Columbia Basin salmon to the endangered Southern Resident orca population. The DEIS is not providing an adequate, scientifically supported summation of this relationship within the document, downplaying the role of one of the largest river systems that supplies critical sustenance to these orcas year-round. In the National Marine Fisheries Services (NMFS) 2008 Recovery Plan for the Southern Resident orcas it is stated that: perhaps the single greatest change in food availability for resident killer whales since the late 1800s has been the decline of salmon in the Columbia River basin. Reading further into this document, NMFS concludes that Columbia-Snake River Basin salmon stocks maintain the largest potential for increasing Chinook salmon abundance throughout the Southern Residents range. This declaration is a jarring contrast to the CRSO DEIS assessment that Puget Sound Chinook salmon stocks yield a higher importance to Southern Residents than Columbia-Snake River salmon. The argument provided for the attention around Puget Sound Chinook salmon stocks is that Puget Sound salmon are available to Southern Residents over a greater period of time throughout the year than Columbia-Snake River salmon are. The DEIS goes on to claim that the food available to Southern Resident killer whales from the lower Snake River population is only a small portion of their overall diet. Changes to food availability may change the whales foraging behavior patterns slightly but will not change their overall condition or population dynamics. This statement is simply not correct when compared to ongoing data analysis of Southern Residents diet and movements. Multiple papers, studies, and reports from the National Marine Fisheries Service, National Oceanic and Atmospheric Administration, Washington Department of Fish and Wildlife, et al., concerning the Southern Residents, have shown through surveys, satellite-tagging data, prey fecal samples, and acoustical monitoring that these orcas are spending over half of the year outside of the Salish Sea, off the coasts of Washington and northern Oregon. NOAA has identified this coastal region as a high-use foraging area for Southern Residents and their satellite-tag data has shown that all three pods in this population utilize this range year-round, not just in winter and early spring. The timing and use of this range has been shown to directly correspond with the timing of seasonal Chinook salmon returning to the Columbia River system to spawn. In turn, prey fecal samples show that Columbia Basin salmon make up over half of the Southern Residents coastal diet while they occupy this region. Based on the data and summations provided by these experts, I struggle to understand how the conclusion drawn by the DEIS is that body condition and population dynamics within the Southern Resident orca population would not improve if we remove the structures that have squelched out certain salmon stocks to extinction while rendering other stocks to merely a fraction of their historic numbers? The chosen alternative currently indicated in the DEIS will do nothing more than slow the continued decline of salmon stocks in the Columbia-Snake River. As salmon stocks remain remarkably low, Southern Resident mortality will increase. And with their community believed to be down to 72 individuals, with Center for Whale Research reporting a missing male in January, they are facing the very real threat of functional extinction at a rapidly increasing rate.	SRKW analysis is described in the EIS including in the FEIS Chapter 3 (Vegetation, Wetlands, Wildlife, and Floodplains) which has been updated for SRKW (Section 3.6.2.6 and Table 3-102) and FEIS Chapter 7 (Preferred Alternative) with additional analysis information on SRKW and potential increase in forage fish, in particular, Chinook salmon in Section 7.7.8. The co-lead agencies utilized current high quality information and best available science in its analysis of the effects of the operation, maintenance, and configuration of the CRS projects. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. The EIS analysis found that only a minor effect to the Southern Resident killer whale would result from implementing MO3 (which includes the dam breach measure). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differentially from hatchery and wild fish. Hatchery fish today likely make up most fish consumed by SRKW (NOAA BiOp 2020). The EIS analysis of the Preferred Alternative determined the overall effect to SRKW to be negligible in large part because hatchery production is consistent between the No Action Alternative and the Preferred Alternative. Because the impact from the Preferred Alternative was determined to be negligible, the agencies determined that existing hatchery production would be sufficient to address any potential impacts to prey availability for SRKWs. The co-lead agencies note the contribution to the prey of SRKW through the continued existence of their respective independent congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as the Lower Snake River Compensation Plan, which is administered by U.S. Fish and Wildlife Service. The Preferred Alternative and Proposed Action in the agencies' biological assessment carry forward certain mitigation measures described in Chapters 2 and 7 of the EIS, which include continued salmon and steelhead hatchery production. The Preferred Alternative has negligible effects to SRKWs as described in Section 7.7.8. The Draft EIS meets the requirements of NEPA, as outlined in 42 U.S.C. 4331, et seq., 40 C.F.R. Parts 1500 1508 (CEQs regulations for implementing NEPA), and co-lead agency specific NEPA regulations. The Draft EIS' effects analysis of each resource is based on best available existing information as stated in Section 3.1.1.
6812	2	MagicFan031@gmail.com	N/A	Of the other alternatives listed in the CRSO DEIS, MO3 Snake River dam breaching plus increased spill over the Columbia River dams represents the best, wholistic approach necessary to achieve the recovery and protection of endangered salmon, therefore also recovering Southern Resident orcas. To add support for MO3, I would like to suggest reviewing the stakeholder process and report that was mandated in 2018 by Governor Inslees Southern Resident orca task force. While the final report still did not adequately represent the Columbia-Snake River Chinook salmon stockSouthern Resident orca relationship, and does not present a perfect solution for all stakeholders, this process was vital in bringing the people most affected by any decisions regarding these dams to one table. It would be a considerable waste of taxpayer money, effort, and time if this overall process was not weighed as a factor when considering the DEIS alternative options.	The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets most other EIS objectives including those for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS, the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams, because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. Moreover, the EIS analysis found only a minor effect to the Southern Resident killer whale would result from implementing MO3 (which includes the dam breach measure). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults form the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differentially from hatchery and wild fish. Hatchery fish today likely make up most fish consumed by SRKW (NOAA BiOp 2020). Regarding stakeholder involvement: NEPA by design involves the public. In addition to public meetings and public review, many cooperating agencies were involved in development of the EIS, including State of Washington agencies.
6813	1	spuddybuddy@ubertuber.org	N/A	The analysis of the MO3 alternative is flawed by making outlandish assumptions about the cost of renewable energy infrastructure to replace the hydropower generated by the lower Snake River dams. It assumes that the entire generating capacity is replaced by solar with exorbitant estimates for the cost of operating solar. Solar energy costs are below $50/MWh and dropping rapidly, which works out to a little over $100M/year for watt-for-watt replacement. It also assumes that any battery capacity costs would be borne by the BPA alone and not shared with other utilities and state and Federal agencies building out the legally mandatory zero carbon grid across the West coast. The analysis of the MO3 project should be redone using a competitive bidding process to determine the least cost method for replacing the hydroelectric power generation. It is clear that the DEIS stacked the deck against breaching the lower Snake River dams through inflated cost estimates for power replacement. Correct cost estimates will show that the true costs are much lower and in fact lower than maintaining the dams themselves.	The four lower Snake River dams are cost effective. As explained in Section 3.7.3.5 of the EIS, Potential Replacement Resources and Associated Costs, breaching the four lower Snake River dams would have a direct and substantial impact on the supply of Federal power to meet regional load requirements. These impacts would impact both actual energy to meet regional load requirements and generating capacity (peaking capacity) to meet variability in loads. The four lower Snake River dams are among the most valuable projects in FCRPS. These dams provide over 1,000 MW of carbon-free energy and up to 2,000 MW of sustained peaking capacity at certain times of the year. The dams also have unparalleled ramping capability the ability to quickly generate energy to match spikes in energy usage with over 2,000 to approximately 2,300 MW of capability in certain months of the year. While the increase in solar and wind generation is consistent with the EIS discussion in 3.7.2.1 Power Generation, the EIS still finds that the regional power system requires replacement power resources to maintain reliability under MO3. For hydropower, the average annual value of the four lower Snake River dams exceeds the average annual equivalent costs. The generation value at the four lower Snake River dams can be described by a range between the cost to replace the generation through new conventional resources or through a portfolio of zero-carbon resources. Although the costs of replacing the power with market purchases was analyzed, it is unlikely that short-term wholesale power markets could reliably replace the power for the long term. This range would put the annual value of power between $240 million and $500 million for the four dams combined. These numbers represent about 90 percent of the lost benefits cited in Table 3-171 of the Draft EIS because the four dams represent about 1,000 aMW of the 1,100 aMW of lost generation estimated in MO3. The average annual cost to operate and maintain all authorized purposes at the four lower Snake River dams is $75 million (Appendix Q, Table 5-1) and the annual-equivalent capital costs are $32 million (Appendix Q, Table 4-1). Hydropower costs funded by Bonneville represent about $50 million of the total annual operations and maintenance costs and nearly all of the annual capital costs, approximately $31 million. This puts the annual-equivalent power-specific costs at approximately $81 million a year. As a result, the net benefits from hydropower for the four lower Snake River dams are between $159 million and $419 million and the benefit-cost ratios are between 3.0 and 6.2. If the $34 million per year for the Lower Snake River Compensation Plan is added to the capital and expense costs, benefits still exceed costs under each replacement power scenario. Considering these costs, the net benefits range from $125 million to $385 million and the benefit-cost ratios range from 2.1 to 4.3. In the less-likely scenario that generation could be reliably replaced with short-term wholesale market purchases and assuming that the four dams represent 90% of the $150 million in market purchases required to replace the lost generation cited in MO3 (see Table 3-170), the lower bound for net benefits would fall to $54 million and the benefit-cost ratio would fall to 1.7. With the Lower Snake River Compensation Plan included, the lower bound for annual net benefits becomes $20 million and the benefit-cost ratio becomes 1.2. From a resource competitiveness perspective, the four lower Snake River dams are among the least costly generating resources in the Federal Columbia River Power System (FCRPS) and the planned investment strategy is expected to maintain that status. As shown in the Federal Hydropower presentation at the 2018 Integrated Program Review (see Footnote 1 below), the Headwater/Lower Snake Asset Class (see Footnote 2 below) is forecast to have a 50-year levelized cost of generation (see Footnote 3 below) of $11.41/MWh based on the direct funded capital and expense (O&M) programs outlined in that process. These costs remain competitive with volatile Mid-Columbia spot market energy prices which averaged $37/MWh in 2019 and have averaged $21/MWh in 2020. Footnotes: 1. The Integrated Program Review (IPR) allows interested parties to see and comment on all relevant Federal Columbia River Power System (FCRPS) capital and expense (O&M) spending level estimates in the same forum. The IPR occurs every two years, or just prior to each rate case, and is the public review for the costs that will be recovered through rates the following two-year rate period. Long-term forecasts for the next 50 years and major upcoming projects are also shared in this forum. This information is available here: https://www.bpa.gov/Finance/FinancialPublicProcesses/IPR/2018IPR/IPR%202018%20Fed%20Hydro%20Workshop.pdf and is incorporated by reference into this EIS. 2. In the 2018 Integrated Program Review, the Headwater/Lower Snake Asset Class consisted of the four lower Snake River dams, Hungry Horse, Libby, and Dworshak dams. These projects were grouped together because they have similar cost characteristics. The Levelized Cost of Generation for the four lower Snake projects alone is slightly lower than that for the whole class including the headwater projects shown in the table.

Letter No.	Comment No.	Commenter Name/Email	Affiliation	Comment	Response[1/]
					3. Levelized Cost of Generation is defined as the forecasted direct costs and administrative overheads of producing power at a plant annualized over a 50-year period. This cost includes direct funded operations, maintenance, administrative and capital costs as well as Columbia River Fish Mitigation (CRFM) costs. Bonneville system-wide mitigation costs, such as its Fish and Wildlife program, are not included in this metric.
6814	1	N/A	N/A	The preferred alternative should include elements of multiple objective alternative 3 (MO3), specifically breaching of the four lower Snake River dams.	There were a number of reasons that the dam breaching measure in MO3 was not included in the Preferred Alternative. These reasons are summarized in the Executive Summary and described in more detail in Sections 7.2, 7.3, and 7.4 of the CRSO EIS. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-lead agencies numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. The Preferred Alternative also meets the EIS objectives including those for: resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS the co-lead agencies did not identify MO3 because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system.
6816	1	moffett007@gmail.com	N/A	I am a enrolled member of the Nez Perce Tribe. I am the president of the nonprofit organization called Nimiipuu Protecting the Environment (NPtE). We do not represent the Nez Perce Tribe. We act, advocate & teach about environmental protections within the Nez Perce Tribe's traditional territory covered by the Treaties and agreements with the United States. It is because of the federal undertaking of the CRSO DEIS that I comment. The DEIS does not adequately protect Nez Perce Treaty Rights & Responsibilities. NPtE, strongly recommends the breaching of the 4 Lower Snake River Dams (LSRD). The DEIS does not follow the Court's decision to consider breachi g as the viable alternative to restore anadromous fisheries, restore the Snake River to a more free flowing Riverine ecosystem improving habitat. Essentially, this DEIS maintains the status quo, which condemns Snake River fisheries closer to extinction. Treaty fishing has been closed because of deteriorating runs. Tribal members such as myself & family have had to curtail treaty fishing, which we depend on for our daily living & cultural survival. This condition, & 2020 may be even a worse year for the fish runs, is not sustainable & the DEIS does nothing to improve the situation for fish, the River, or in meeting Treaty obligations, except to require more Tribal sacrifices, which does not even contribute to any substantial improvements to Treaty fishing.	Tribal input, concerns, interests, and especially treaty rights were considered throughout the Draft EIS analyses and in the formulation of the Preferred Alternative. Treaty specific information is included in Section 3.17 as well as Chapter 7. The co-lead agencies recognize and respect the legal obligations imposed by treaties. The co-lead agencies accordingly included Protecting Native American treaty and reserved rights and fulfilling trust obligations for natural and cultural resources throughout the environment affected by the Columbia River System operations as a purpose in the Purpose and Need Statement in Chapter 1 to ensure treaty obligations were a key consideration of decision making. The co-lead agencies are engaging in government-to-government consultation with the tribes, and several tribes are cooperating agencies on the CRSO EIS. The EIS recognizes the economic and cultural importance of salmon to Tribes in a number of sections throughout the document. The cultural significance and impacts of salmon and steelhead fisheries are described in the Ceremonial and Subsistence Fisheries sub-section and the Social Importance of Commercial, Ceremonial and Subsistence Fisheries sub-section of Section 3.15.2.1. Fisheries tribal interests are provided in Section 3.15.4 additional details regarding the economic significance of salmon and steelhead fisheries have been added to the recreation analysis (Section 3.11) including tribal interests (Section 3.11.3.7). Treaty rights are discussed in the Executive Summary, Section 3.16 Cultural Resources, and Section 3.17 Indian Trust Assets, Tribal Perspectives, and Tribal Interests. Appendix P includes copies of tribal perspectives that were submitted by tribes. Tribal consultation is described in Sections 1.5, 3.5, and 3.15; and Chapter 9. Most sub-sections within Chapter 3 include a Tribal Interests section at the end of the sub-section that attempts to summarize tribal issues by topic. NEPA requires agencies to consider the significant environmental consequences of their proposed actions and inform the public about their decision making. NEPA also requires that the agencies look at a reasonable range of alternatives that can meet the purpose and need of the action. To meet this requirement of NEPA, after evaluating scoping comments from the public, the co-lead agencies collaborated with cooperating agencies in teams of technical experts through several iterations to create 12 alternatives that could meet the CRSO EIS Purpose and Need Statement: first, eight single objective alternatives, and then four Multiple objective alternatives (MOs). The MOs were also determined to be more efficient and reasonable, as the MOs were composed of combinations of measures from the single objective alternatives. The twelve single objective alternatives were not effective in meeting the Purpose and Need Statement or multiple objectives, and were therefore not complete or implementable. Dam breaching measures were developed in the MO3 which considers the benefits and adverse effects of breaching the four lower Snake River dams. The Draft EIS considered the environmental consequences of the range of alternatives and disclosed to the public those consequences through Chapters 3, 4, 5, 6, and 7. The Draft EIS meets the requirements of NEPA, as outlined in 42 U.S.C. 4331, et seq., 40 C.F.R. Parts 1500 1508 (CEQs regulations for implementing NEPA), and co-lead agency specific NEPA regulations. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy species habitat. See Chapter 8, Compliance with Environmental Laws, Regulations and Executive Orders, for more information. This EIS has been developed in consultation with National Marine Fisheries Service (NMFS) and U.S. Fish and Wildlife Service (USFWS) to find an acceptable balance that allows the co-leads to meet the stated Purpose and Needs Statement while minimizing impacts to affected ESA species and their habitats. Both human-caused and natural factors that are outside the responsibility and control of the co-lead agencies, also contribute to the decline and recovery of ESA-listed species, and would continue to strongly influence fish and their habitat. Salmon and steelhead have been adversely affected in the Columbia River Basin over the last century by many activities including human population growth, urbanization, introduction of exotic species, overfishing, development of cities and other land uses in the floodplains, water diversions for all purposes, dams, mining, farming, ranching, logging, hatchery production, predation, ocean conditions, and loss of habitat. See Chapters 6 and 7 for information on cumulative effects to ESA-listed species. As described in Section 2.4, Range of Alternatives, MO3 includes a measure to breach the Lower Snake River dams. New congressional authority and associated funding would be required to implement the dam breaching measures evaluated in the EIS. However, the measures are carried forward in the analysis to align with the District Courts Opinion and Order, as well as in response to comments received during public scoping.
6816	2	moffett007@gmail.com	N/A	All federal agencies have a trust responsibility to Treaty Tribes & their members. Treaty Fishing Rights & Responsibilities are being mismanaged. Treaty environmental protections help to ensure Treaty resources, like water, animals & plants exist in perpetuity. Only breaching the 4 LSRDs meet U.S. Treaty obligations & will make sure we are doing our utmost to protect Mother Earth.	Tribal input, concerns, interests, and especially treaty rights were considered throughout the Draft EIS analyses and in the formulation of the Preferred Alternative. Treaty specific information is included in Section 3.17 as well as Chapter 7. The co-lead agencies recognize and respect the legal obligations imposed by treaties. The co-lead agencies accordingly included Protecting Native American treaty and reserved rights and fulfilling trust obligations for natural and cultural resources throughout the environment affected by the Columbia River System operations as a purpose in the Purpose and Need Statement in Chapter 1 to ensure treaty obligations were a key consideration of decision making. The co-lead agencies are engaging in government-to-government consultation with the tribes, and several tribes are cooperating agencies on the CRSO EIS. Treaty rights are discussed in the Executive Summary, Section 3.16 Cultural Resources, and Section 3.17 Indian Trust Assets, Tribal Perspectives, and Tribal Interests. Appendix P includes copies of tribal perspectives that were submitted by tribes. Tribal consultation is described in Sections 1.5, 3.5, and 3.15; and Chapter 9. Most sub-sections within Chapter 3 include a Tribal Interests section at the end of the sub-section that attempts to summarize tribal issues by topic.
6818	1	brees@pacifier.com	N/A	The federal government as had 2 decades and several federal lawsuits to get it right, but the salmon crisis remains an obstacle to robust rural commerce and propagates an adversarial environment between neighbors in our rural communities. The current DEIS does much the same and most importantly, continues the trajectory of the extinction of wild salmon forever from the Columbia River Basin. This is something we simply cannot accept as a society. In the case of this DEIS, its clear that we need our NW policymakers to foster a process that brings together our regions stakeholders to have a meaningful discussion and come to a collaborative solution that works for farmers, fishermen and maintains a reliable energy grid for our communities.	The CRSO EIS documents the assessment of benefits and impacts of changes to the operations of the 14 Federal projects of the Columbia River System. Using a multi-disciplinary approach and with the coordination and consideration of our cooperating agencies and Tribes, as well as public stakeholder input, and by using current, high quality information, the co-lead agencies developed the Preferred Alternative. This alternative best meets the purpose and need for the system operations in the region, as well as meets most of the objectives of the EIS in consideration of changing operations. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the Columbia River System. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. With respect to the Preferred Alternative, the CSS model predicts that average Smolt to Adult return rates would increase for both Snake River spring Chinook and steelhead and will average above 2% (the lower end of the Northwest Power and Conservation Councils recovery targets for the region) as a result of the Preferred Alternative, increasing from 2.0% to 2.7% for Chinook, a 35% relative increase. The NMFS COMPASS and Life Cycle Models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information. Based on the EIS analysis of the Preferred Alternative, it will make a substantial contribution towards recovery targets. Finally, the co-lead agencies disagree the Preferred Alternative is a continuation of same actions. The spill operation for juvenile fish passage is a significant departure from previous operations, so much so that the Washington and Oregon state water quality standards had to be changed to implement the new spill regime. The Preferred Alternative also includes other operational, structural and mitigation measures to improve conditions for ESA-listed salmon and steelhead.
6823	1	dstone@sbtribes.com	Shoshone-Bannock Tribes	Purpose and Need Statement (CRSO DEIS) During the Tribes review of the available materials our perspective is the Preferred Alternative (PA) does not meet the DEIS intent as expressed in the Purpose and Need. The DEIS does not provide for the conservation of fish and wildlife resources, including threatened, endangered, and sensitive species. primarily due to the lack of a reasonably foreseeable recovery for listed stocks and in some instances inherent risks to listed stocks from the PA. The DEIS does not protect and preserve cultural resources from the Tribes perspective; as stated elsewhere in Tribal comments, anadromous fish are considered a gift from the Creator to sustain our people and are inherently a cultural resource that the Tribes have relied upon from time immemorial. The DEIS does not comply with environmental laws and regulations and all other applicable federal statutory and regulatory requirements, including those specifically addressing the System such as requirements under the Northwest Power Act to adequately protect, mitigate, and enhance fish and wildlife, including related spawning grounds and habitat, affected by such projects or facilities in a manner that provides equitable treatment for such fish and wildlife with other purposes for which such system and facilities are managed and operated. The DEIS does not protect Native American treaty and reserved rights and trust obligations for natural and cultural resources throughout the environment affected by System operations based on the projected lack of abundance within the Snake River basin where the Tribes primary fisheries occur. Furthermore, the DEIS and associated PA do not meet the stated CRSO Objectives. The PA does not meaningfully Improve ESA-listed anadromous salmonid juvenile fish rearing, passage, and survival and does not appreciably Improve ESA-listed anadromous salmonid adult fish migration through the hydrosystem. Using the CRSO Definition of Effects, the best available science (CSS and COMPASS) suggests that, at best, the DEIS PA would have a Negligible or Minor effect on juvenile and anadromous adult survival relative to the No Action Alternative (NAA). For example, the DEIS states that the PA represents a 35% increase in survival relative to the NAA. Presently, many listed Snake River Basin stocks have an average SAR survival of 0.7% (or less). A 35% increase from 0.7% would be a 0.95% SAR. Given current freshwater productivity levels, SARs less than 1% put listed stocks in a steep decline, below replacement, and at a high risk of near-term extirpation. In fact, the best-available science suggests that Snake River populations need to be at or above a 2% SAR just to be at replacement; population recovery will only occur in the SAR range of 2-6% (4% average) consistent with NPCC goals. Therefore, the DEIS PA appears to knowingly put ESA listed Snake River stocks in jeopardy. This outcome is unacceptable to the Tribes and does not appear to meet the stated purpose and need, nor objectives, outlined in this environmental review. The purpose and need for any environmental document delineates the boundaries for a specific evaluation; in the case of the DEIS, those boundaries are roughly characterized as maintaining navigation, contract water delivery, hydropower generation, mitigation measures for fish and wildlife impacted by system operations, and considering treaty rights and interests during the decision making process. As with most evaluative criteria, there are weighted lines, or stated another way, some issues will have a higher priority than others due to the scope of impacts for the agencies involved in the decision-making process. For example, the marketing of power generated from the Columbia River System is the primary purpose for the Bonneville Power Administrations existence, likewise the delivery of contract water to users is the primary purpose of the Bureau of Reclamation, and finally, the Army Corps of Engineers maintains the navigation portion of the system; while each agency has an obligation to comply with the tenets of the other boundaries, these overriding purposes are viewed as hard lines in the decision-making process. The Tribes have a different perspective of the values that make the Columbia River Basin unique. To protect these values, the Northwest Power Act requires the Action Agencies to develop programs to protect, mitigate, and enhance fish and wildlife in a	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA listed species. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-lead agencies numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3, which includes breaching the four lower Snake River dams. The Preferred Alternative also meets the EIS objectives including those for: resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS the co-lead agencies did not identify MO3 because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% (the lower end of Northwest Power and Conservation Council's recovery targets for the region) as a result of the Preferred Alternative, as a result of the Preferred Alternative increasing SAR from 2.0% to 2.7% for Chinook, a 35% relative increase. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. To address uncertainty highlighted by the two models, the Preferred Alternative includes working with regional sovereigns to develop a study that assess the effectiveness of the increased spill regime on adult returns as well as assessment and management of adverse unintended consequences, such as long delays of adult migrants, or TDG-related mortality of juvenile migrants. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information. The Preferred Alternative will make a meaningful contribution towards recovery. Tribal input, concerns, interests, and especially treaty rights were considered throughout the Draft EIS analyses and in the formulation of the Preferred Alternative. Treaty specific information is included in Section 3.17 as well as Chapter 7. In terms of honoring our treaty obligations, the co-lead agencies included Protecting Native American treaty and reserved rights and fulfilling trust obligations for natural and cultural resources throughout the environment affected by the Columbia River System operations as a purpose in the Purpose and Need Statement in Chapter 1 to ensure treaty obligations were a key consideration of decision making. The co-lead agencies are engaging in government-to-government consultation with the tribes, and several tribes are cooperating agencies on the CRSO EIS. The EIS recognizes the economic and cultural importance of salmon to Tribes in a number of sections throughout the document. The cultural significance and impacts of salmon and steelhead fisheries are described in the Ceremonial and Subsistence Fisheries sub-section and the Social Importance of Commercial, Ceremonial and Subsistence Fisheries sub-section of Section 3.15.2.1. Fisheries tribal interests are provided in Section 3.15.4 additional details regarding the economic significance of salmon and steelhead fisheries have been added to the recreation analysis (Section 3.11) including tribal interests (Section 3.11.3.7). Treaty rights are discussed in the Executive Summary, Section 3.16 Cultural Resources, and Section 3.17 Indian Trust Assets, Tribal Perspectives, and Tribal Interests. Appendix P includes copies of tribal perspectives that were submitted by tribes. Tribal consultation is described in Sections 1.5, 3.5, and 3.15; and Chapter 9. Most sub-sections within Chapter 3 include a Tribal Interests section at the end of the sub-section that attempts to summarize tribal issues by topic. Finally, Chapter 8 demonstrates the co-lead agencies' compliance with applicable laws, including the ESA and the Northwest Power Act.

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				manner that provides equitable treatment for such fish and wildlife with the other purposes for which such system and facilities are managed and operated. The concept of Equitable Treatment is often used as a measure of inputs compared with received outputs, it does not necessarily mean that all scales are equally balanced; but it does require a demonstration of fairness and equal consideration for different user groups. In the current evaluation, one of the primary drivers for the in-depth evaluation of the entire system is that there are significant impacts to anadromous fishes, to the point that the current system configuration contributes to species level decline and in some instances, impedes that species ability to recover. From a concept of equitable treatment, the fish and user groups who rely on them would been seen as an input, while the resulting decision made in this DEIS would determine the projected output for that group of users and the actual resource itself. The Tribes primary concern is that the PA does not adequately balance the scale of equity by promoting a condition where listed salmonids will avoid risks of extinction and move towards stability and recovery. Another stated purpose is to promote the protection of Native American treaty rights and interests for natural and cultural resources. It has been clear that federal agencies and most tribes do not view the obligations in the same manner. For example, the Tribes would consider the perpetuation and presence of anadromous fishes on our homelands reserved by a treaty right to harvest, as a trust asset that the federal agencies must protect in a conservative manner; this is not a view shared by the Action Agencies. For the right to have meaning, to promote the protection of the traditional harvest of anadromous fishes throughout the Columbia River Basin, there must be fish to harvest. Minor or negligible improvements in anadromous fish returns will not sustain tribal communities and cultural practices, will not provide meaningful fisheries, and will not alleviate the near-term risks of anadromous stocks currently at risk of extirpation. The underlying need the Action Agencies are responding to is to evaluate the management of the system in the context of new information or changed circumstances in the Columbia River Basin. From the date of petitions to list various anadromous stocks in the Snake River Basin under the Endangered Species Act conditions are little changed and, in some cases, adult returns in 2016-2019 reflect population levels that led to listings in the early 1990s. This evaluation should respond to several decades of litigation over the management of the Columbia River Basin by taking decisive action to protect, enhance, and ultimately recover listed stocks of salmonids. The recovery of anadromous fishes in the Columbia River Basin is the primary driver for most of the conflict, and it relates to the current abundance issues that we are collectively facing as managers. Having a hard line on promoting the recovery of anadromous fish in the face of the current crisis is no less significant for the Tribes than generating energy, navigating goods downriver, or delivering contracted water from reservoirs.	
6823	2	dstone@sbtribes.com	Shoshone-Bannock Tribes	In an effort to protect important resources the Tribes developed policy that offers guidance to technical staff and federal resource managers regarding habitat conditions that sustain natural and cultural resources in the Snake River system. The Tribes stress the importance of initiating efforts to restore the Snake River system and affected unoccupied lands to a natural condition; it should be noted that this policy is truly a ridgetop to ridgetop view of a holistic watershed. The Shoshone-Bannock Tribes Policy for Management of the Snake River Basin Resources states: The Shoshone Bannock Tribes (Tribes) will pursue, promote, and where necessary, initiate efforts to restore the Snake River systems and affected unoccupied lands to a natural condition. This includes the restoration of component resources to conditions which most closely represents the ecological features associated with a natural riverine ecosystem. In addition, the Tribes will work to ensure the protection, preservation, and where appropriate-the enhancement of Rights reserved by the Tribes under the Fort Bridger Treaty of 1868 (Treaty) and any inherent aboriginal rights. It is the intent of these Tribal comments to offer our unique perspective on natural resource management in the Columbia River Basin. The Tribes believe that through responsible and collaborative partnerships with managers in the region, we will ensure that future generations of Tribal members have opportunities to enjoy the natural landscape, gather resources, and continue traditional cultural practices. In the context of the DEIS, it is important to recognize the challenges faced by listed or sensitive species across the landscape and to critically evaluate whether this document recognizes the exigency of the current context and addresses those issues in an appropriate manner. We expect that the Action Agencies will consider all comments from the Tribes and make every effort to consider our perspective during the decision-making process.	Thank you for your comment and participation as a cooperating agency and a sovereign Tribal government. The co-lead agencies have engaged in a three-tiered process for engaging Tribes at technical, policy, and leadership levels to ensure all Tribal comments and perspectives are carefully considered. Tribal input has been critical and important to improving the quality of this EIS.
6823	3	dstone@sbtribes.com	Shoshone-Bannock Tribes	Consideration during the NEPA Process The National Environmental Policy Act (NEPA, 42 U.S.C. 4321-4347, January 1, 1970) requires federal agencies to provide a process that results in a more comprehensive and strategic approach to decision-making; integrating environmental considerations into proposed federal actions to achieve a productive harmony among our various social, economic, and environmental objectives. Tribal input is a necessary part of the NEPA process, helping managers effectively consider Tribal rights and issues; prior to implementing a decision. Without effective consultation, the Tribes often bear the burden of conservation activities or the adverse impacts from management decisions, such as the impacts from diminished anadromous fish returns. It must be noted that the Tribes and numerous other groups requested an extension on consultation processes and comment periods due to the current pandemic and that these requests were denied in favor of holding the timeline intact. For consultation to have meaning there must be an opportunity to participate, while conference calls are one avenue it does not replace the significance of a formal meeting at a Reservation, with the elected leadership of those most affected.	The co-lead agencies considered requests to extend the public comment period. This NEPA process included a wide array of cooperating agencies whose close involvement throughout the process allowed the co-lead agencies to incorporate feedback. Given the broad range of comments received and the extensive Federal and non-Federal participation in the overall process as well as the level of public engagement in the six virtual public hearings in the region, the co-lead agencies determined that an extension was not warranted and that the 45-day public comment period was adequate consistent with NEPA regulations. On April 9, the CRSO EIS website was updated to inform the public that they should plan to submit comments by the close of the comment period. The co-lead agencies appreciate Shoshone-Bannock Tribes' contributions throughout the development of the CRSO EIS and looks forward to continued coordination as part of government-to-government consultations.
6823	4	dstone@sbtribes.com	Shoshone-Bannock Tribes	Cultural Resources Tribal perspectives of cultural resources are significantly more holistic than the current federal definitions offered in the DEIS. Plainly speaking, a cultural resource is any material, resource, or practice of a cultural nature. The unique relationship of a Tribal member and the environment influences a worldview where the geographic location, the equipment used to harvest, the oral history and songs, and the species sought by that member are all one cultural resource that defines our Tribal existence. The fish is as inseparable from the river as a cultural resource as it is in a biological sense; each of these relationships define our culture, they make us who we are as Shoshone and Bannock (Newe) peoples. The Tribes recommend this expanded definition of cultural resources be utilized in the immediate evaluation because of the landscape level proposal to manage a cultural resource at risk of extinction. Simply because artifacts are not present within a specific polygon, does not necessarily mean that the resource is not culturally significant to the Tribes.	In the Draft EIS, the co-lead agencies used a property-based definition of "cultural resources," as this is consistent with Federal laws and regulations, which focus on specific bounded properties. Tribal interests and holistic perspectives on the integration of Native American culture with the environment were addressed throughout the EIS and by inclusion of statements from the Tribes, see Section 3.17. The co-lead agencies note that many of the Traditional Cultural Properties analyzed in the Draft EIS incorporate elements of the natural environment. Please see Section 3.16.2.6 for the traditional cultural resource types, many of which explicitly include hunting, fishing, and gathering areas.
6823	5	dstone@sbtribes.com	Shoshone-Bannock Tribes	As clearly stated in the Tribes Perspective, we fully support the implementation of Multiple Objective 3 (MO3) from the DEIS as it represents the clearest path to sustainable fisheries and preservation of Tribal Rights and Interests. In reviewing available materials, the Tribes recognize that the Action Agencies do not have the absolute authority to implement MO3 due to overlapping Congressional purposes for the affected infrastructure on the Lower Snake River. In an effort to promote a diplomatic approach to the various management perspectives on the Columbia River, the Tribes would like the FEIS and ROD to clearly authorize the respective heads of the Action Agencies to develop a recommendation to Congress requesting a standing committee be appointed to study the issue and develop a dam breaching authorization that meets the needs of the Pacific Northwest region. The benefit of a standing Congressional committee would be to inform a select group of bipartisan legislators from the Pacific Northwest regarding the challenges and solutions available at the conclusion of this EIS process. It is evident the current draft PA will not solve the multitude of issues that are present in the Columbia River Basin, primarily due to extremely low survival and associated low abundance of numerous listed anadromous fish stocks and marine mammals such as southern resident orcas. The Tribes support an approach that would allow for ongoing recovery projects to protect, restore, and enhance listed Snake River stocks while the legislative process is allowed to develop a more comprehensive solution to this problem. Beginning in 1991, with the listing of Snake River Sockeye Salmon, the Tribes have watched as the region developed approaches to reconcile hydrosystem management with anadromous fish. Meanwhile, while salmon stocks collapse in the Snake River, the conflict between extractive resource use and conservation has only grown. There is a need for a regional solution and it appears the only entity able to resolve this conflict is Congress. This solution needs to include all of the stakeholders, regardless of their perspective, to ensure that in the end all parties are kept whole. The Tribes urge the Action Agencies to work directly with cooperating agencies and the Northwest Congressional delegation on developing a legislative effort to find a comprehensive solution to end the salmon wars gripping our region.	The co-lead agencies recognize the desire to continue the conversation across the region about the future of salmon recovery, affordable and reliable clean electricity, tribal perspectives, and economic vitality for the many people who depend on the CRS for their way of life. The co-lead agencies will be active participants in regional discussions and solutions for mitigating the effects of the CRS and achieving broader recovery objectives. The Preferred Alternative for long-term system operations, maintenance and configuration of the CRS presented in the Draft EIS is based on todays conditions and environment. Its also important to note that technology is quickly changing, as is the regions dynamic environment and energy market, and the region needs to consider new information and adaptively manage resources. The co-lead agencies recognize that no matter which alternative in the CRSO Draft EIS is identified as the Preferred Alternative, the identification would likely draw criticism from some stakeholders or sovereigns. The region includes stakeholders, sovereigns, and other interested parties with diverse and varied opinions on these very important topics, and many are strong in the belief that their perspective is the best path forward. It is important to keep in mind that factors, both human-caused and natural, that are outside the responsibility and control of the co-lead Federal agencies also contribute to the decline and recovery of fish, and will continue to strongly influence fish and their habitat. Salmon and steelhead have been adversely affected in the Columbia River Basin over the last century by many activities including human population growth, urbanization, introduction of exotic species, overfishing, development of cities and other land uses in the floodplains, water diversions for all purposes, dams, mining, farming, ranching, logging, hatchery production, predation, ocean conditions, and loss of habitat. Operation, configuration and maintenance of the Columbia River System requires mitigation for its effects, and the EIS is not intended or required to serve as an overall salmon recovery plan for the region. All of the human-caused impacts that have contributed to the decline of fish, and how the region should properly and effectively address those impacts, should be part of the continued regional discussion. The co-lead agencies look forward to participating in that discussion. The Preferred Alternative is predicted to benefit ESA-listed juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3, which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets the EIS objectives for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS the co-lead agencies did not identify MO3 because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. The EIS concluded MO3, which includes breaching the four lower Snake River dams would have greater improvement to certain salmon species in the lower Snake River. It did not, however, conclude there was greater certainty of that result in MO3 over any other alternative. Because of delayed response time in MO3, and the potential severity of the short term effects, MO3 would likely have the most substantial uncertainty in terms of beneficial effects. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% (the lower end of Northwest Power and Conservation Council's recovery targets for the region) as a result of the Preferred Alternative, as a result of the Preferred Alternative increasing SAR from 2.0% to 2.7% for Chinook, a 35% relative increase. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. To address uncertainty highlighted by the two models, the Preferred Alternative includes working with regional sovereigns to develop a study that assess the effectiveness of the increased spill regime on adult returns as well as assessment and management of adverse unintended consequences, such as long delays of adult migrants, or TDG-related mortality of juvenile migrants. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information. Based on the analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the CRS. This EIS has been developed in consultation with National Marine Fisheries Service (NMFS) and U.S. Fish and Wildlife Service (USFWS) to find an acceptable balance that allows the co-lead agencies to meet the Purpose and Need Statement while minimizing impacts to affected ESA-listed species and their habitats. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species.
6823	6	dstone@sbtribes.com	Shoshone-Bannock Tribes	Meaningful Abundance and Tribal subsistence for Anadromous Fish The Tribes remain committed to advocacy for pristine waters and to promote the subsistence consumption of fish as a component of our culture, preserved indefinitely by the Fort Bridger Treaty of 1868. Shoshone and Bannock peoples believe strongly that water is life, everything living owes its very existence to the presence of water, and our procurement of subsistence foods	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species as that is a broader goal with shared responsibility. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to

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				from our home has been diminished to the point where our members are fortunate if they receive a single anadromous fish meal in a year. The Tribes represent a unique group of high fish consumers whose very subsistence lifestyle can be impacted by the loss of fisheries resources; indeed, we have seen a notable transition from anadromous fish to resident fish species during the decline in abundance in Idaho for virtually every population. Subsistence hunting can be characterized in a number of ways, but generically it is the procurement of nutrients from the natural environment to sustain life. A subsistence diet includes the pursuit of protein sources, like anadromous fish, and in the case of Shoshone and Bannock peoples they relied on the presence of anadromous protein to sustain their communities and perpetuate successive generations. While that perspective is relatively common, the magnitude of historical subsistence or the needs of our contemporary communities is often severely underrepresented in most discussions about salmon recovery. In the Tribal Perspectives section, the Tribes describe our historic consumption in detail, but would like to further translate the semblance of what subsistence harvest might look like for a Tribal member in a contemporary setting. In an effort to use existing policies from the State of Oregon, the Tribes would represent this abstract concept by using Oregons Fish Consumption guidelines for subsistence of 175 grams, per person, per day of salmon. The following equation shows the approximate values to meet the needs of SBT Tribal members living in a subsistence manner from salmon . (175 gr/day * 365 days * 6000 Tribal members)/1000 = 383,250 Kilograms annually. Assuming a generous 4 kilo/per salmon, this would equate to a harvest of approximately 95,812 salmon per year or ~16 salmon per year, per person. Currently, the Shoshone-Bannock Tribes estimate an average of 460 salmon for the last 39 years, this equates to less than .3 kilo/year, per member; it is common that some of our members do not receive a single salmon meal in any given year. The PA and DEIS demonstrate that our membership will continue to share the burden of conservation and the impacts to our culture will continue to be multi-generational. As you can see, the number for a subsistence need of salmon for one Tribe, the SBT, is orders of magnitude above projected returns, even under a recovery scenario described in the DEIS. Conceptually, this shows a need for a paradigm shift across the entire basin in how we discuss and manage anadromous fish resources in tandem with the Columbia River hydrosystem. The Columbia River was sustained by the pulse of abundant, annual returns of anadromous fishes, and as stewards of this resource we have come dangerously close to severing this ecological and cultural exchange. The Tribes now find ourselves watching a slow march toward extinction for numerous populations of Pacific salmon and steelhead. The purpose in describing this abstract vision of subsistence is not to castigate federal or state fish managers, nor is the intent to lay out a vision for anadromous fish returns that cannot ever be attained because it would come close to historical returns; the Snake River Policy of the Tribes recognizes that we will never return to pre-contact conditions. The intent of this comment is to demonstrate what our desired future condition would be; every Tribal member procuring organic and high-quality protein from anadromous fish resources in our homelands. The primary concern with current abundance in the Snake River Basin is that our membership has been significantly limited in meaningful fisheries, particularly in Idahos wild waters. One way to visualize this scenario is the current concern for populations in the Middle Fork Salmon River, specifically the population located in Bear Valley Creek. Over the past decade the Tribes have intensively monitored the population to minimize harvest related impacts from Tribal members, and to monitor the relative stability of this wild fish population. The last five years have seen a precipitous decline in abundance to levels where it may be at risk if immediate improvements to SARs are not achieved. Fisheries are constrained by the abundance of returning adults, a conservation measure the Tribes manage through the implementation of our Tribal Resource Management Plan; simply put, when abundance is high Tribal members can harvest throughout the season at a conservative rate, when returns are low, then our Commission adopts minimal harvest guidelines that range from three adult salmon to 1% of the return. At the current SAR rate, averaged over the past decade, it would take expanded decades to restore meaningful fisheries. A projected increase in SAR of 28-35% would change the current rate from less than half a percent to just under one percent; still far below replacement and orders of magnitude from populations like Bear Valley recovering in a significant way. The breadth of this issue becomes clear when you measure abundance across the 26 listed wild populations in the Snake River Basin. For the past three years, and highly probable in 2020, not a single wild population in Idaho could be considered viable; and in the same time frame only seven of those populations remained above the critical population threshold. In reviewing the available materials, it seems highly unlikely that the measures proposed by the Action Agencies in the PA, even if implemented immediately, would resolve the current stock collapse in the Snake and Columbia River basins. [Text contains tables that do not transfer to database.] *This figure demonstrates the need for urgency in every discussion about salmon recovery in the Snake River basin. The trend is increasing for stocks performing below the critical population threshold, an issue that could cause a myriad of population level and ecological problems for stocks attempting to reach recovery targets. It is important to note that we are currently undergoing a status review for specific Snake River populations under the Endangered Species Act. The current population level status of threatened is in place for almost all stocks except Snake River Sockeye Salmon who are listed as endangered. The comments in the DEIS assume none of these stocks will be re-classified in the latest status review, which would fundamentally alter the landscape for fish management in Idaho. Fisheries in central Idaho have not received an equitable share of attention or support to promote conservation of these stocks in the DEIS. Specific measures need to be included in the FEIS and Record of Decision (ROD) that demonstrate a clear path forward for programs specifically targeted to conserve wild populations in Idaho. Snake River Sockeye Salmon Tribal Sockeye staff has reviewed the available materials and remain concerned about the specific direction, and lack of discussion, for this endangered population of salmon. The Tribes have remained staunch advocates for conservation measures for Snake River Sockeye Salmon, petitioning for the listing of this stock in 1991. The DEIS does not adequately describe how proposed management of the Columbia River System will alter, improve, or affect Sockeye Salmon recovery. It is critical to highlight the need to include specific, measurable, and reasonably certain to occur mechanisms to avoid extirpation of this population. For example, an adequate discussion in the DEIS would include detailed plans to support Snake River Sockeye Salmon passage at all life stages and mechanisms to avoid adult mortality while migrating through the Lower Four Snake River dams and associated reservoirs. The Tribes recognize that there are difficult decisions in managing river operations for a myriad of listed species, particularly in the lower Snake River; however, there is an alternative that demonstrates abundance can be improved significantly by divesting aging infrastructure such as the lower Snake River dams. Based on our decades of experience working in the Upper Salmon River with this species, we find it unlikely that negligible improvements in SAR will alter the current conditions hampering recovery. Snake River Sockeye Salmon are the longest and latest returning runs in the Columbia River Basin, which amplifies the risks of poor migratory conditions during late-summer migration. The FEIS and ROD should adequately address, in a specific narrative, how the system operations will impact this stock specifically and measures that will mitigate for known or foreseeable impacts.	diminish the likelihood of recovery. The effects of delayed mortality are discussed throughout the EIS analysis for each alternative and current high quality data and the best available scientific information was used for this analysis. Based on analysis by the CSS, SARs associated with population declines (SARs of less than 1%) have the potential to be greatly reduced under the Preferred Alternative, and on average, SARs are expected to be well above 2.0% for Snake River spring Chinook salmon and steelhead. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. Tribal input, concerns, interests, and especially treaty rights were considered throughout the Draft EIS analyses and in the formulation of the Preferred Alternative. Treaty specific information is included in Section 3.17 as well as Chapter 7. The treaties bind all parties and are the supreme law of the land. In terms of honoring our treaty obligations, the co-lead agencies included Protecting Native American treaty and reserved rights and fulfilling trust obligations for natural and cultural resources throughout the environment affected by the Columbia River System operations as a purpose in the Purpose and Need Statement in Chapter 1 to ensure treaty obligations were a key consideration of decision making. The co-lead agencies are engaging in government-to-government consultation with the tribes, and several tribes are cooperating agencies on the CRSO EIS. The EIS recognizes the economic and cultural importance of salmon to Tribes in a number of sections throughout the document. The cultural significance and impacts of salmon and steelhead fisheries are described in the Ceremonial and Subsistence Fisheries sub-section and the Social Importance of Commercial, Ceremonial and Subsistence Fisheries sub-section of Section 3.15.2.1. Fisheries tribal interests are provided in Section 3.15.4 additional details regarding the economic significance of salmon and steelhead fisheries have been added to the recreation analysis (Section 3.11) including tribal interests (Section 3.11.3.7). Treaty rights are discussed in the Executive Summary, Section 3.16 Cultural Resources, and Section 3.17 Indian Trust Assets, Tribal Perspectives, and Tribal Interests. Appendix P includes copies of tribal perspectives that were submitted by tribes. Tribal consultation is described in Sections 1.5, 3.5, and 3.15; and Chapter 9. Most sub-sections within Chapter 3 include a Tribal Interests section at the end of the sub-section that attempts to summarize tribal issues by topic. Section 3.18, Environmental Justice, describes the unique conditions of minority populations, low-income populations, and tribes that may heighten their vulnerability to effects from the alternatives.
6823	7	dstone@sbtribes.com	Shoshone-Bannock Tribes	Climate Science The Tribes would like to see climate change addressed in greater detail throughout the DEIS and how potential changes in climate could drive significant impacts to Tribal resources, such as salmon, located within assessment area. The Tribes recommend including specific adaptation strategies to ameliorate the projected effects of climate change within the assessment area in an effort to increase ecosystem resiliency. The presented analysis should establish quantifiable recovery metrics based on the available data to promote climate regulating ecosystem services, as well as maintenance and enhancement of large landscapes that are dominated by native assemblages of fish and wildlife. The current projections show that by the 2050s, if global greenhouse gas emissions continue on their current path (referred to as Representative Concentration Pathway (RCP) 8.5), at minimum average annual temperatures will increase 5 F in the fall and at maximum, 9.5 F in the winter. As a consequence of this anticipated temperature increase, the Tribes climate assessment finds that species such as Bull Trout, Chinook Salmon, Sockeye Salmon, and Snake River Steelhead are extremely vulnerable to the effects of climate change by the 2050s. Even under a best case scenario (RCP 4.5), which assumes that global greenhouse gas emissions will peak by the 2040s and then begin to decline, those previously described four fish species are expected to be extremely vulnerable to climate change. Specific measures and clearly described adaptive management triggers should be included in the FEIS and ROD to demonstrate the Action Agencies awareness of this issue and commitment to operate the system in a manner that prioritizes fish survival during low water conditions or extreme weather events.	The technical and policy elements of this Draft EIS are in full compliance with binding the Corps' policy and guidance for qualitative assessment of climate threats and their plausible effects and impacts. The primary controlling policy and guidance are the the Corps' Climate Adaptation Policy Statement, signed by the Assistant Secretary of the Army for Civil Works in 2011, updated and signed again in 2013, and remains in force now; and USACE Engineering and Construction Bulletin 2018-14, "Guidance for Incorporating Climate Change Impacts to Inland Hydrology in Civil Works Studies, Designs, and Projects." The numerical-model simulated outputs were evaluated by multiple technical means (see record of the full Corps Agency Technical Review), and were tested using the set of analytical measures created by the Corps Climate Preparedness and Resilience program to ensure that sound science and engineering compliance with the Corps' climate change policy and guidance. Those analytical tests are described in ECB 2018-14 (listed just above) and in the Corps' Engineer Technical Letter 1100-2-3, "Guidance for Detection of Nonstationarities in Annual Maximum Discharges." The assessment of climate threats and impacts is qualitative only in the sense that the biological and other impacts models did not directly ingest the physical hydroclimatology outputs modeled for the assessment. Those hydroclimatology outputs are fully quantitative and so can be the basis for refined estimates of effects and impacts should those be required following this Draft EIS. Regarding blocked areas, measures to reintroduce salmon above Chief Joseph and Grand Coulee dams were evaluated early in the alternative development process but eliminated from further consideration. Reintroduction is an important and complex, large-scale concept. Its consideration, evaluation, and implementation should involve multiple Tribal, Federal, state, and other entities. A coordinated approach among water users, Tribes, states, multiple Federal agencies, and others would be necessary. To allow so many differing interests to coordinate on such a complex topic, which may include international considerations, a decision-making framework and a series of regional workshops would be necessary just to approach the first step of defining reintroduction objectives. Given the incompatibility of such a wildlife management decision-making framework with an analysis of the operation of the CRS, it is not feasible to proceed with a detailed consideration of reintroduction in this EIS. Moreover, to meaningfully analyze reintroduction as a measure, the details of the proposal would need to be understood well enough to include in hydrologic, water quality, and fish models. That information is not presently available, and development of those details was not possible in the timeframe of this NEPA process. Nevertheless, the agencies and interested regional sovereigns are developing a framework to address critical information gaps. Through on-going regional climate change studies and work, the co-lead agencies evaluated potential shifts in precipitation and temperature patterns and resulting changes in unregulated Columbia Basin streamflow timing and volumes. The evaluation consisted of the full range of the latest climate change projections developed using multiple global climate models, emissions scenarios, downscaling techniques, and hydrologic models. Details of this evaluation are in Chapter 4 of the EIS. This information was used to describe the potential effects (both beneficial and adverse) on the river systems and resources due to potential changes in climate for all alternatives. Quantitative data that describes how climate change hydrology will affect reservoir operations in the Columbia Basin in still under development and was not available for us in this study. The climate science community is still developing quantitative models that can address possible effects in water temperature from climate change, and unfortunately, have not been fully applied and validated for use with climate affected regulated flow projections of large reservoir systems. This data is critical to analyzing potential effects to fish quantitatively. In lieu of this information, the climate analysis used the output from resource models, like water quality and fish, under historical conditions, available climate change data, and scientific literature to qualitative assess potential effects to resources (described in Chapter 4).
6823	8	dstone@sbtribes.com	Shoshone-Bannock Tribes	Marine Derived Nutrients and Freshwater Productivity Abundant populations of anadromous fishes (e.g., salmon, steelhead, and lamprey) historically contributed large amounts of marine-derived nutrients (MDN) to aquatic and terrestrial ecosystems in the Pacific Northwest (PNW) of the United States of America (California, Oregon, Washington, and Idaho). In the Columbia River Basin an estimated 5-9 million anadromous fishes returned annually.	The CRSO EIS addresses abundance of anadromous fish among alternatives, which is the driving mechanism of marine nutrient cycling. The commenter is correct that there are broad ecological effects from marine nutrient cycling. However, the actual mechanisms, effects, magnitudes, and processes are very complex and uncertain. The analyses used in this Draft EIS were for the purposes of comparing the effects of operation, maintenance and configuration of the CRS projects to one another and to the No Action Alternative. For the purposes of comparing alternatives, a more detailed analyses of marine nutrient transfer throughout the spawning habitats was not completed. Section 3.5 identifies that fish migration through the

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				Nutrients and carbon (C) sequestered in the marine environment, where approximately 95% of the body mass of Pacific salmon accumulates, are subsequently delivered to inland watersheds via upstream migrations. These migrations represent a major energy vector from the marine environment to freshwater and terrestrial ecosystems. Following periods of intense commercial harvest, hydrosystem development, hatchery production, and habitat loss, significant declines in Pacific salmon abundance have occurred throughout the region. Returning anadromous adults in the Columbia River Basin, once estimated at 5-9 million fish annually, now return at an average of 2-3 million fish per year. Healthy populations of Pacific salmon, steelhead trout, and Pacific lamprey that once provided annual subsidies to otherwise nutrient-impoverished environments largely remain depressed or have been extirpated. Currently, Pacific salmon occupy approximately 40% of their historic range and contribute just 6-7% of the MDN historically delivered to PNW rivers and streams. Consequently, many forested streams and rivers of the region are now characterized as ultra-oligotrophic, a condition of low nutrient concentrations suggested to result from a combination of parent geology and low numbers of returning anadromous fishes. In the Upper Salmon River Basin of central Idaho, primary production is often nutrient-limited, and reductions in the amount of marine-derived nutrients delivered by spawning salmon and steelhead could be exacerbating the degree of oligotrophication. The paucity of returning adult anadromous fishes and watershed scale nutrient deficits may constrain freshwater productivity and effectively limit efforts to recover salmon and steelhead populations. This is truly a landscape-scale issue. For example, Scheuerell et al. (2005) examined P-transport dynamics by spring/summer Chinook salmon (Oncoryhnchus tshawytscha) in the Snake River Basin and estimated that over the past 40 years <2% of historical marine-derived phosphorus is currently delivered to natal spawning and rearing streams. Across large spatial scales, Alldredge et al. (ISAB 2015) and Achord et al. (2003) found evidence of density-dependence at population sizes well below historical levels, suggesting nutrient deficits as a limiting factor capable of reducing stream rearing carrying capacities. In the state of Idaho, Thomas et al. (2003) estimated that 25-50% of streams and rivers are nutrient-limited. Moreover, observations of variable density-dependent factors at low spawning densities could lead to a net nutrient export from freshwater ecosystems, as more nutrients leave as smolts than are returned as adults. In a recent analysis of Idaho Chinook salmon populations, Kohler et al. (2013) demonstrated that in the majority of stream-years evaluated, adults imported more nutrients than juvenile progeny exported; however, in 3% of the years, juveniles exported more nutrients than their parents imported. On average, juvenile emigrants exported 22% 3% of the N and 30% 4% of the P their parents imported. Similarly, Evans et al. (2019) reported nutrient export by juveniles exceeded nutrient import by adults in Sockeye salmon nursery lakes in the Upper Salmon River. Given contemporary anadromous production, hydrosystem conditions, low smolt to adult returns (SAR), and ocean productivity trends, conservation efforts could be stymied by a lack of available organic material and nutrient subsidies in the form of anadromous fishes returning to freshwater rearing habitat in the Snake and Salmon River basins. To place this in context of salmon recovery, the Tribes have spent a significant amount of time working in the Yankee Fork Salmon River (Yankee Fork). In the Yankee Fork primary production is often nutrient-limited, and reductions in the amount of marine-derived nutrients (MDN) delivered by spawning salmon and steelhead could be exacerbating the degree of oligotrophication. In the Yankee Fork watershed, results from nutrient diffusing substrata experiments (NDS bioassays) indicated that biofilms were primarily nitrogen-limited; biofilm chlorophyll a and ash free dry mass (AFDM) increased on nitrogen-amended NDS bioassays. Biofilm biomass represents the foundation of the aquatic food web from which bottom-up trophic transfer of MDN can occur. In upper Salmon River streams, biofilm standing crops on natural substrates was positively correlated with total nitrogen (N) and phosphorus (P) concentrations, suggesting that low levels of total and dissolved nutrients constrain primary production. In the YFSR, water samples collected and analyzed for total and dissolved N and P concentrations supports the classification of this watershed as oligotrophic. Furthermore, N:P ratios are extremely low (i.e., <10) and suggest strong N-limitation. Taken together, a large body of empirical evidence from the YFSR highlight nutrient limitation as a factor limiting primary production and potentially constraining stream rearing carrying capacities and ultimately recovery efforts. The purpose of clarifying this issue, is that salmon recovery is linked to virtually every ecological process in anadromous influenced areas. While setting goals to promote restoration of fisheries to recovery targets is laudable, the Tribes view significant increases in abundance as having positive ecological benefits across the entire region. The DEIS discusses improvements in habitat as primarily a physical characteristic, dealing with structure and hydrology, without spending a great deal of time to discuss the functional impacts that a lack of marine derived nutrients can have on habitats that support listed species like Snake River Sockeye Salmon, Chinook Salmon, and steelhead trout. The Tribes would like the FEIS to discuss the correlation between depressed levels of marine nutrient import into tributary habitats and the projected abundance of anadromous fish returning to those habitats for spawning or freshwater rearing.	lower Snake River corridor would improve under MO3. Section 3.5.2.3 recognizes that anadromous fish deliver resources that affect food web productivity and influence flora and fauna across the Columbia River Basin. This indicates that, in some areas, MO3 would likely improve freshwater and terrestrial ecosystems where these populations of anadromous fish return to spawn as compared to the No Action Alternative. However, the EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets most other EIS objectives including those for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS, the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams, because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system.
6823	9	dstone@sbtribes.com	Shoshone-Bannock Tribes	nake River Blocked Area The Tribes remain concerned about the significant amount of historically accessible habitat that is currently unavailable to Chinook Salmon and steelhead trout above the Hells Canyon Complex and other federal facilities on tributaries to the Snake River. The current aspirations for implementing ceremonial fisheries and research is currently limited by the lack of abundance in available stocks. While this is not necessarily a result of CRS operations, the Tribes vision for bringing fish back into historic watersheds is currently lacking a clear path for these actions. In the FEIS and ROD, the Action Agencies should describe the actual effects for Snake River stocks at a population level and ultimately support actions to bring fish back across their historic range. The Tribes acknowledge the difficulty of this request and would offer support to Agency staff if this recommendation is considered for the FEIS and ROD.	We understand and appreciate the Tribe's concern. While the co-lead agencies don't have legal authority to affect passage conditions at the Hells Canyon Complex, effects of the lack of fish passage in the Hells Canyon Complex are nevertheless reflected in the No Action Alternative.
6823	10	dstone@sbtribes.com	Shoshone-Bannock Tribes	Discussion about CSS, COMPASS (Life-Cycle Modelling) According to the CSS model, MO3 (Lower Snake River dam breach with 120% spill) resulted in the highest modeled SARs and in-river survivals followed by MO4 (spill to 125%). Among the federal DEIS alternatives, only MO3 and MO4 appear likely to meet the NPCC regional SAR goal of a range of 2-6% with a 4% average SAR. Meeting this SAR goal is supported by the best-available science that suggests that listed Snake River salmon and steelhead trout populations are at imminent risk of precipitous decline when at or below a 1% SAR and are merely at replacement when SAR is ~2%. To avoid risks of extirpation and achieve recovery, SARs in the 2-6% range with an average of 4% are necessary. This appears to be true for listed Snake River Chinook Salmon and steelhead trout populations; however, SAR levels would likely need to be even higher (>6%) to avoid extinction and achieve recovery for Snake River Sockeye Salmon. That said, only MO3 and MO4 appear to decrease travel time, decrease powerhouse encounters, and increase in-river survival, and thus SARs, in any biologically meaningful way. For example, the DEIS states that the PA represents a 35% increase in survival relative to the NAA. Presently, many listed Snake River Basin stocks have an average SAR survival of 0.7% (or less). A 35% increase from 0.7% would be a 0.95% SAR. Given current freshwater productivity, SARs less than 1% put listed stocks in a steep decline, below replacement, and at a high risk of near-term extirpation (Figures 1 and 2). In fact, the best-available science suggests that Snake River populations need to be at or above a 2% SAR just to be at replacement; population recovery will only occur in the SAR range of 2-6% (4% average) consistent with NPCC goals. Therefore, the DEIS PA appears to knowingly put ESA listed Snake River stocks in serious jeopardy. As stated previously, this is unacceptable to the Tribes.	The co-lead agencies used current high quality information and best available science in the analysis of the CRSO EIS. Specific to salmon and steelhead, the agencies used both two primary modeling approaches which yielded a range of potential outcomes for the alternatives. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult return (SAR) rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% (within the Northwest Power and Conservation Council's recovery targets for the region). The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. SAR values reflect the methods used for estimation, and this should be taken into account when comparing against the Council's regional SAR objectives for recovery. SARs reported by hatcheries using coded wire tags often incorporate a harvest correction factor for ocean, recreational and Tribal harvest. Due to the different approaches of the models, including the length of the historical survival time series, use of different hatchery and natural origin populations, and other factors, the two models estimated different SAR under the No Action Alternative for Snake River spring Chinook: 0.88% SAR for COMPASS, assuming no latent mortality, and 2.0% SAR for the CSS lifecycle model, which is at the low end of the Council's targeted range for recovery. As the commenter points out, density dependence and freshwater productivity rates among tributary populations influence the SAR rate necessary to reach the rate-of-replacement for adult spawners (CSS annual report 2017, 2018). The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets most other EIS objectives including those for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS, the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams, because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system.
6823	11	dstone@sbtribes.com	Shoshone-Bannock Tribes	Request for Formal Consultation The Tribes would like to request a government to government consultation with the Action Agencies and the Fort Hall Business Council on the DEIS and the remaining NEPA process in anticipation of the FEIS and ROD. The foundation of government relations is the consultation process and the Tribes would like to acknowledge the Action Agencies efforts to engage in consultation from the initiation of this process in 2016. The formal consultation meeting is an opportunity for leadership to engage in policy level dialogue on important issues around salmon recovery and the wildlife program; as well as discuss any issues raised in these comments or issues that require resolution by the Action Agencies.	The co-lead agencies coordinated and held a virtual government-to-government meeting between the Shoshone Bannock Tribe Fort Hall Business Council and the co-lead agency executives on May 20, 2020.
6823	12	dstone@sbtribes.com	Shoshone-Bannock Tribes	From a Tribal perspective the federal trust responsibility doctrine should require federal agencies to manage lands and resources for the benefit of Tribal rights and interests. The Tribes recognize that the Action Agencies have endeavored to maintain an open and honest exchange of information regarding cultural resources; now the Tribes request that the Action Agencies consider these comments to support an alternative that would help heal the Columbia River Basin in a meaningful way for everyone who calls it home. Meaningful restoration of anadromous fish species across the Snake River basin would demonstrate a commitment to protect cultural resources and uphold the trust responsibility to tribes across the basin. Consistency with Fish Accord Obligations In 2008 the Tribes joined with other regional managers in developing an agreement (Fish Accord) to manage our portfolio of projects in a manner consistent with the Fish and Wildlife Program (Program). The Tribes further extended that agreement with the Bonneville Power Administration, Bureau of Reclamation, and the Army Corps of Engineers through 2022 or when the Action Agencies issue a final decision on the ongoing environmental evaluation for the CRSO. The Tribes have shared these comments to the DEIS with the Action Agencies and view each of our recommendations as consistent with our commitments through the Fish Accord as a partner in managing the resources of the Columbia River Basin. Nothing contained in this letter is intended to be, nor shall it be construed to be, inconsistent with our commitments through the Fish Accord or subsequent extension agreement. It is the intent of these comments to offer the Tribes perspective on the available materials and our view on the most appropriate alternative presented in the CRSO DEIS.	Thank you for the comment and your commitment through the Fish Accords as a partner in managing resources in the basin. The co-lead agencies appreciate the contributions and input of the Shoshone Bannock Tribes in the EIS, including discussions and comments pertaining to the Preferred Alternative.
6824	1	mitch@endangered.org	N/A	As an American who is concerned about the health of our rivers and the communities who rely on them, I value the opportunity to express my concerns regarding the Draft EIS. The ability for all citizens to make their voices heard in regards to decisions that impact the natural systems and species	The co-lead agencies considered requests to extend the public comment period. This NEPA process included a wide array of cooperating agencies whose close involvement throughout the process allowed the co-lead agencies to incorporate feedback. Given the broad range of comments received and the extensive Federal and non-Federal participation in the overall process as well as the level of public engagement in the six virtual public meetings in the region, the co-lead agencies

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				which are held for them in public trust by the U.S. Government is critical. Thus I must express my alarm at the way this comment period was conducted. The Draft EIS is a highly controversial and complicated document. The complexity of this issue, as well as the global emergency caused by the spread of the Corona Virus in the Pacific Northwest and across the country, calls for an extension of the comment period to provide adequate opportunity for feedback.	determined that an extension was not warranted and that the 45-day public comment period was adequate consistent with NEPA regulations. The CRSO EIS website notified the public on April 9, that they should plan to submit comments by the close of the comment period.
6824	2	mitch@endangered.org	N/A	n addition to a lack of adequate response time, the mechanism used to collect comments through phone calls faced significant challenges, limiting participation in the public comment process, I do not feel that the public has been given adequate opportunity to make concerns fully heard.	The public had several ways to submit comments such as the online comment form and through the mail. Given the broad range of comments received and the extensive Federal and non-Federal participation in the overall process as well as the level of public engagement in the six virtual public hearings in the region, the co-lead agencies determined the 45-day public comment period was consistent with NEPA regulations.
6824	3	mitch@endangered.org	N/A	In conclusion, a new approach is urgently needed to develop a comprehensive plan. The people of the Northwest and nation require and deserve one that (1) recovers salmon abundance (not merely avoids extinction), (2) invests in vibrant fishing and farming communities to provide them a healthier future, (3) supports a reliable, affordable and increasingly decarbonized regional energy system and (4) addresses the historical damage that the construction of these dams have done to the tribal communities in the region.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Recovery of ESA species is the purview of NMFS and the U.S. Fish and Wildlife Service. This EIS has been developed in consultation with NMFS and USFWS to find an acceptable balance that allows the co-leads to meet congressionally authorized purposes while minimizing impacts to affected ESA species and their habitats. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the Columbia River System. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the EIS objectives) as well as the EIS objectives for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. The Preferred Alternative is also more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% (the lower end of Northwest Power and Conservation Council's recovery targets for the region) as a result of the Preferred Alternative, as a result of the Preferred Alternative increasing SAR from 2.0% to 2.7% for Chinook, a 35% relative increase. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. To address uncertainty highlighted by the two models, the Preferred Alternative includes working with regional sovereigns to develop a study that assess the effectiveness of the increased spill regime on adult returns as well as assessment and management of adverse unintended consequences, such as long delays of adult migrants, or TDG-related mortality of juvenile migrants. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information. The Preferred Alternative will make a meaningful contribution towards recovery. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information. The EIS analysis of the Preferred Alternative found the overall effect to SRKW to be negligible in large part because hatchery production is consistent between the No Action Alternative and the Preferred Alternative. Because the impact from the Preferred Alternative was determined to be negligible, the agencies determined that existing hatchery production would be sufficient to address any potential impacts to prey availability for SRKWs. The co-lead agencies note the contribution to the prey of SRKW through the continued existence of their respective independent congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as the Lower Snake River Compensation Plan, which is administered by U.S. Fish and Wildlife Service. The Preferred Alternative and Proposed Action in the agencies' biological assessment carry forward certain mitigation measures described in Chapters 2 and 7 of the EIS, which include continued salmon and steelhead hatchery production. Socioeconomic effects were analyzed in the Draft EIS. Investing in fishing and farming communities, however, is outside the scope of this project and outside the authorities of the co-lead agencies. The U.S. Government supports the development of alternative forms of energy through many different programs and policies. For example, the Bonneville Power Administration also has a robust conservation program, from which about 90 aMW in conservation are saved a year. Further, when acquiring long-term resources, the Bonneville Power Administration statutory directives give priority to conservation and renewable resources. In terms of honoring our treaty obligations, the co-lead agencies comply with environmental laws and regulations and all other applicable Federal statutory and regulatory requirements, including protecting Native American treaty and reserved rights and trust obligations for natural and cultural resources throughout the environment affected by the CRS operations. Addressing the historical damage that the construction of the dams has done to Tribal communities is not part of the EIS or required by NEPA. However, mitigation programs that are currently in place to address construction of the dams would continue. This includes such program as the John Day Mitigation program which was originally authorized to offset mainstem fall Chinook salmon production losses that resulted from construction of The Dalles and John Day Dams and is implemented by the Corps. Mitigation for these losses is particularly important to regional Tribes that historically depended on these salmon for ceremonial, subsistence and economic support. Lower Snake River Fish and Wildlife Compensation Program would continue and this program was initiated to provide fish and wildlife compensation for construction of the four lower Snake River projects (Ice Harbor, Lower Monumental, Little Goose, and Lower Granite). Other mitigation efforts such as Operational Loss Assessments would also continue.
6824	4	mitch@endangered.org	N/A	I strongly urge this body to extend the comment period to provide adequate opportunity for thorough feedback from the public and to restructure their Preferred Alternative proposal to reflect independent science around the urgency of dam impacts on salmon, tribal communities and Southern Resident Orca.	See response to Comment 6824-1.
6829	1	N/A	N/A	Introduction This EIS was drafted in response to the need to review and update operations, maintenance, and configuration of the 14 multiple purpose dams and facilities, the Lower Granite Dam significantly impacts my operation. The topography of the Snake River region differs greatly from some of the areas of the Columbia River System (CRS). The geographic scope and climate vary greatly throughout this entire system and it should be noted that there cannot be a one-size fits all analysis.	Analysis in Chapters 3, 4, 6, and 7 analyzed effects of the alternatives at each project by different geographic region (A through D). For example, Region A includes three projects geographically located in the upper basin - Hungry Horse and Libby in Montana and Albeni Falls in Idaho. Effects of operation, maintenance and configuration to each one of those projects are analyzed separately. Similarly, the analysis for the remaining 11 projects is broken out by region and focuses on each respective geographic scope.
6829	2	N/A	N/A	Fish Modeling The EIS correctly used two different approaches to estimate how changes to the CRS operations would change the rates of adult salmon and steelhead returns to the Columbia and Snake Rivers. It is commendable that both of these approaches were used as it shows transparency as well as a well-rounded analysis. Reintroduction The concept of reintroduction, is again, one that is complex in nature as well as one that requires in-depth analysis and sound, peer reviewed science to help make determinations. The EIS correctly identifies that a coordinated approach is needed and that there are gaps in information. Steps to develop a framework and fill the informational gaps are taking place.	The co-lead agencies agree that using both the NMFS COMPASS/Life Cycle model and the CSS Life Cycle model was appropriate. The NMFS COMPASS/LCM models and the CSS models use different statistical approaches and input variables. Both are able to provide a good fit to recent survival, and travel time estimates, but the models do have substantially contrasting forecasts for these metrics under hypothetical scenarios of CRS operation with respect to flow and spill. The Fish Technical Teams for the EIS made the decision to present results from both sets of models for the final evaluation, along with descriptions of methods.
6829	3	N/A	N/A	Water Quality This is a very concerning section as it states that there are elevated water temperatures in the Columbia River Basin due to regular climatic events and climate variability, along with regional controversy regarding the role that the federal agencies may play in higher water temperatures. This management section must undergo serious scrutiny. Any conclusion regarding causation for water temperatures must be based upon scientifically proven, evidence based science, not blanket statements of fault.	Consistent with the requirements of NEPA, the co-lead agencies are using up-to-date, high quality, and relevant information and models in the alternative analysis. Both CE-QUAL W2 and HEC-RAS have been calibrated and peer-reviewed by respected scientists from Portland State University, EPA and the USGS, as well as many cooperating agencies. In addition, the USEPA and co-lead agencies worked together to compare the co-lead agencies' CE-QUAL W2/RAS model (used for EIS analysis) and the EPA's RBM-10 model (used for the draft TMDL assessment). Efforts included identifying and comparing similarities and differences in the two models and assessments, and concluded that both models provide useful and technically appropriate analyses of the Columbia and lower Snake River water temperatures. As such, the EPA agrees with the co-lead agencies that the CE-QUAL W2 and HEC RAS models are appropriate to use in developing the Draft EIS (see EPA review comment letter # 16-0059). Additionally, the EIS has undergone a third party, neutral Independent Expert Peer Review on the tools used, as well as the assumptions and conclusions in the EIS.
6829	4	N/A	N/A	Multiple Objectives 1 through 4 The WCA concurs with the EIS that the multiple objectives 1 through 4 are not ideal to meeting EIS objectives as set forth.	Thank you for your comment. The co-lead agencies presented a range of alternatives, including extensive measures, for the continued operation and maintenance of the CRS and evaluated the alternatives to inform decision making and the public. As described in Chapter 2, many alternatives were considered and then eliminated from further consideration for the reasons described therein. The co-lead agencies agree that the EIS followed the required NEPA process and fulfills the intent of NEPA in terms of sufficiency. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the EIS objectives) as well as the EIS objectives for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. The Preferred Alternative is also more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system.
6830	1	communications@portwhitman.com	N/A	As the draft EIS states, breaching the dams would eliminate this valuable shipping method, increasing transportation and associated production costs, crowding our roads and increasing carbon emissions. The draft EIS captures some of this economic and societal impact, but we believe it is understated still. An independent engineering study commissioned by the Pacific Northwest Waterways Association (PNWA) concluded that to adequately move 2.4 million metric tons of grain from farms to overseas ports by truck and rail instead of barge would cost more than 10 times the capital cost assumption used in the draft EISmore than $800 million. While grain accounts for 62 percent of shipments on the Snake River, other commodities make up 38 percent. As the draft EIS only accounts for grain, the transportation impacts of breaching the lower Snake River dams are underestimated by at least 38 percent. These transportation impacts, coupled with a $458 million loss in irrigation, places many family farms at great risk. If farm subsidies are not increased, more than 1,100 farms could be at risk of bankruptcy, according to the study for PNWA. The average regional net farm pre-tax income was only $40,211 in 2017. With wheat prices already down near the break-even point, the study calculates that the federal government would need to increase annual direct payments to farmers by up to $38.8 million to maintain current income levels. Among the farmers who escape bankruptcy, how many would rather retire than face steep losses? How many future generations would forfeit a rich farming tradition as their family operations go under? According to the 2017 Census of Agriculture, the average age of a farmer in the United States is 57.5, and 96 percent of farms and ranches are family owned. In Washington state, the greatest number of centennial farms reside in Whitman County. About 20 percent of the states centennial farmsfarms that have been in the same family 100 years or moreare located in the county, according to a 2014 report by the state Department of Agriculture. Family farms, the foundation of our county and our nation, would crumble under an extreme decision to breach the lower Snake River dams. The agribusiness industry that supports our farmers would face similarly adverse outcomes. Dam breaching would eliminate all or most of the jobs at ports that rely on river navigation. All jobs at the Port of Almota and about 75 percent of the jobs at Port of Central Ferry would be eliminated under MO3. In 2016, these ports together employed 67 people, generated about $6.4 million in gross regional product and supported $3.3 million in labor income payroll. While the draft EIS correctly states that ports would be adversely affected, it does not estimate the number of jobs that would be lost under MO3. Other social justice considerations should be elaborated in the report as well. Nearly one in five people living in the 10-county area most impacted by a dam breaching alternativeincluding Whitman Countyare at or below the federal poverty level. Cutting the affordable transportation and hydropower supplied by the dams would exacerbate the challenges faced by our rural communities.	The EIS discusses in Section 3.10 that barge traffic ceases on the lower Snake River under MO3, regional businesses that support port and barge activities as well as associated employment opportunities would be affected, including towing companies. The EIS states that the commercial navigation industry supports employment for a wide range of transportation and material moving occupations, and points out that while some of these positions, such as material moving workers, including freight, stock, and material movers, may be readily transferable to support for road or rail transportation activities, others, such as boat captains, pilots and operators, and ship engineers, would not be transferable, and could result in relocation of some workers to areas downstream or to other professions not dependent on river navigation. The EIS also report points out that the tow boat companies state that approximately 50 percent of their business is conducted on the lower Snake River, and that they expect that removal of the ability to utilize the river could threaten their ability to maintain profitability. The EIS evaluates the increases in transportation rates that would likely result from removal of lower Snake River navigation capability from dam breach in Section 3.10. The EIS finds that under a dam breach scenario, average transportation costs for wheat farmers would increase 10 to 33 percent, but that individual farmers could experience increases that are doubled, depending on their specific location and other conditions. The cost increases to specific shippers would depend upon location and would vary throughout the region, depending on transportation options at each location. Generally, those grain shippers that are the furthest from alternate shipping locations (shuttle rail facilities or river ports on the Columbia River) would be the most negatively impacted. Note, cost scenarios for specific farmers are presented below in the Regional Economic Effects Section in Section 3.10.3.5.
6830	2	communications@portwhitman.com	N/A	As the draft EIS states, breaching the lower Snake River dams could cost up to an additional $1 billion annually to replace the energy alone and raise customer rates by 25 percent or more. However, these figures underestimate the total economic burden, as they do not include the loss of jobs and	The information cited in the comment is consistent with the findings of the EIS. The EIS evaluates the costs of replacement resource portfolios that would be required to avoid increasing the risk of an outage. See Section 3.7.3.5, Potential Replacement Resources and Associated Costs in the Draft EIS. The approach in the analysis is to first evaluate the increased risk of power outages related to an alternative, but then to identify the resources that are needed to avoid that increased

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				income associated with an energy shortage. During the last energy shortage in 2000-2001, the Northwest lost 5,000 jobs as customer rates spiked and companies shuttered.	outage risk. Thus, instead of identifying the potential socioeconomic costs of power shortage, it identifies the costs of replacement resource portfolios that would be required to avoid increasing the risk of an outage. Given this, the analysis identifies that the expected outcome of MO3, which includes breaching of the four lower Snake River dams, would be an increase in the cost of power and resulting regional economic effects. See Sections 3.7.3.5, Potential Replacement Resources and Associated Costs, page 3-904 in the Draft EIS and Social and Economic Effects of Changes in Power and Transmission, page 3-928 in the Draft EIS.
6830	3	communications@portwhitman.com	N/A	Finally, we are pleased that your preferred alternative sustains reservoir-based recreation. Boyer Park and Marina in Colfax is one of only a few places to recreate on water in Whitman County. If the Lower Granite Lock and Dam were breached, the park would lose its marina, and with it, much of its recreational valueas we saw with Red Wolf Marina during the 1992 drawdown experiment. This significantly limits access to recreational opportunities in our community, especially for those without the physical ability, training or means to navigate a powerful river current. Our neighboring ports, the Port of Clarkston and Port of Lewiston, would also face missed recreational opportunities if the dams are removed. Each summer, thousands of passengers enjoy the Columbia and Snake rivers on cruise vessels, which travel the 325 river miles between Vancouver and Clarkston, relying on the locks to get up and down the rivers. More than 18,000 cruise passengers visited riverside communities in 2017, contributing over $15 million to the local and regional economies. Without the dams, this growing river cruise industry would cease to bring tourism dollars to the surrounding communities.	Cruise line visitation is characterized in Section 3.10, including a description of its economic contribution to the region. Section 3.10.3.5 describes the contribution of cruise ships as supporting approximately 230 jobs in the region, $6.2 million in labor income, and $17.8 million in annual output (sales). Section 3.10.3.5 describes the adverse effects to cruise line operations under MO3. Similarly, effects to recreation are described in Section 3.11.
6830	4	communications@portwhitman.com	N/A	As you prepare the final EIS, we urge to consider the port districts along the lower Snake River and the broader communities we represent. Please expand your analysis of the cumulative impacts of dam breaching to include the above figures.	Absent more specific parameters for requested further study, please see Chapter 3, Section 3.10.3.5 for three social welfare scenarios and regional economic effects analyses of M03 (dam breach).
6834	2	N/A	N/A	The solutions lie in recognition that this is a Northwest-wide problem requiring significant change across the salmon life-cycle. People concerned about salmon are likely expecting far too much from an EIS limited to examination of operational changes for the federal hydrosystem when a comprehensive effort addressing Harvest, Hatcheries, Habitat and Hydro is required.	The co-lead agencies agree that there are many ongoing, important efforts related to salmon and steelhead management in the Northwest. There are many factors, both human-caused and natural, that are outside the responsibility and control of the co-lead Federal agencies also contribute to the decline and recovery of fish, and will continue to strongly influence fish and their habitat. Salmon and steelhead have been adversely affected in the Columbia River Basin over the last century by many activities including human population growth, urbanization, introduction of exotic species, overfishing, development of cities and other land uses in the floodplains, water diversions for all purposes, dams, mining, farming, ranching, logging, hatchery production, predation, ocean conditions, and loss of habitat. Operation, configuration and maintenance of the Columbia River System requires mitigation for its effects, and the EIS is not intended or required to serve as an overall salmon recovery plan for the region. All of the human-caused impacts that have contributed to the decline of fish, and how the region should properly and effectively address those impacts, should be part of the continued regional discussion. The co-lead agencies look forward to participating in that discussion.
6838	1	eisenba2@wwu.edu	N/A	The EIS looks at how the alternatives will produce emissions but does not discuss current emissions, aside from claiming its clean power generation. In addition, consequences of climate change need to be considered for future mitigation techniques.	The EIS evaluated current emissions as part of the No Action Alternative and changes to emissions resulting from changes to operations, maintenance and configuration of the CRS projects under the Multiple Objective Alternatives, including the Preferred Alternative. See Section 3.8 and 7.7.10. Regarding climate change, through on-going regional climate change studies and work, the co-lead agencies evaluated potential shifts in precipitation and temperature patterns and resulting changes in unregulated Columbia Basin streamflow timing and volumes. The evaluation consisted of the full range of the latest climate change projections developed using multiple global climate models, emissions scenarios, downscaling techniques, and hydrologic models. Details of this evaluation are in Chapter 4 of the EIS. This information was used to describe the potential effects (both beneficial and adverse) on the river systems and resources due to potential changes in climate for the No Action Alternative and the Multiple Objective Alternatives, including the Preferred Alternative. With the uncertainty associated with climate change, it is important that the co-lead agencies establish methods for adapting and increasing flexibility on the system. There are measures in the Preferred Alternative that are adaptive to emerging changes in climate and ensure there is flexibility to respond to future changes. One example of this is the habitat restoration program that counters increased stream temperature with deeper pools and more shaded areas. See Chapters 5 and 7 for additional information on the mitigation proposed for each alternative.
6838	2	eisenba2@wwu.edu	N/A	The EIS use of the indigenous peoples plight as a tool is highly inappropriate. It does not look at them as a current people with an ongoing problem that was in part, exacerbated by the created of the LSRDs. The EIS cites, flood control as a reason the dams should remain in place. Stating that it would destroy important native sites but ignores the fact that important native sites were destroyed when the dams were created in the first place. These tribes which include Umatilla, Yakima, Nez Perce, Coleville, Wanapum, Burns Paiute Tribe, Couer dAlene Tribe, Kalispel, Kootenai Tribe of Idaho, Northwestern band of the Shoshoni Nation, Shoshone-Bannock Tribes, Shoshone-Paiute Tribes, Confederated Tribes of the Warm Springs Reservation of Oregon, and the Spokane Tribe4 are not just experiencing a physical problem but cultural and spiritual problems. I understand I cannot speak for the tribes but they have been vocal enough about the situation and deserve to be heard. They are losing their identity as a people. Gary Dorr, former chairman of the Nez Peirce tribal council has states that [o]ur culture is the salmon, the dams destroy our way of life. The fight against the dams is a fight for our fishing rights and sovereignty. Keeping the Nez Peirce tribe from fishing violates their treaty rights 5. Explaining that the LSRDs need to be kept in place to protect he tribes, while the tribes rights were exploited is insulting.	The EIS and the co-lead agencies recognized and considered the past and present effects that resulted from the construction of the CRS. The environmental justice analysis takes into account the cumulative effects analysis in the EIS, which adequately considers the ongoing effects of the existence of the system to anadromous fish and other resources affected by the CRS. Tribal input, concerns, interests, and especially treaty rights were considered throughout the Draft EIS analyses and in the formulation of the Preferred Alternative. Treaty specific information is included in Section 3.17 as well as Chapter 7. The treaties bind all parties and are the supreme law of the land. The co-lead agencies recognize and respect that supremacy. In terms of honoring our treaty obligations, the co-lead agencies included Protecting Native American treaty and reserved rights and fulfilling trust obligations for natural and cultural resources throughout the environment affected by the Columbia River System operations as a purpose in the Purpose and Need Statement in Chapter 1 to ensure treaty obligations were a key consideration of decision making. The co-lead agencies are engaging in government-to-government consultation with the tribes, and several tribes are cooperating agencies on the CRSO EIS. The EIS recognizes the economic and cultural importance of salmon to Tribes in a number of sections throughout the document. The cultural significance and impacts of salmon and steelhead fisheries are described in the Ceremonial and Subsistence Fisheries sub-section and the Social Importance of Commercial, Ceremonial and Subsistence Fisheries sub-section of Section 3.15.2.1. Fisheries tribal interests are provided in Section 3.15.4 additional details regarding the economic significance of salmon and steelhead fisheries have been added to the recreation analysis (Section 3.11) including tribal interests (Section 3.11.3.7). Treaty rights are discussed in the Executive Summary, Section 3.16 Cultural Resources, and Section 3.17 Indian Trust Assets, Tribal Perspectives, and Tribal Interests. Appendix P includes copies of tribal perspectives that were submitted by tribes. Tribal consultation is described in Sections 1.5, 3.5, and 3.15; and Chapter 9. Most sub-sections within Chapter 3 include a Tribal Interests section at the end of the sub-section that attempts to summarize tribal issues by topic.
6838	3	eisenba2@wwu.edu	N/A	Five of the six purposed alternatives do not address the mandate to restore the salmon populations and by proxy the Southern Resident Orca (SRO) populations, whose plight has been grossly omitted from the EIA. The actions for the Columbia River EIA include flood control, navigation, hydropower, irrigation, fish and wildlife conservation, recreation, water supply, and water quality. The EIA addresses a variety of issues, but the main issue is the health and population of the Chinook Salmon and the Southern Resident Orcas (SRO).	The co-lead agencies are not mandated to restore ESA-listed species. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the Columbia River System. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the EIS objectives) as well as the EIS objectives for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. The Preferred Alternative is also more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% (the lower end of Northwest Power and Conservation Council's recovery targets for the region) as a result of the Preferred Alternative, as a result of the Preferred Alternative increasing SAR from 2.0% to 2.7% for Chinook, a 35% relative increase. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. To address uncertainty highlighted by the two models, the Preferred Alternative includes working with regional sovereigns to develop a study that assess the effectiveness of the increased spill regime on adult returns as well as assessment and management of adverse unintended consequences, such as long delays of adult migrants, or TDG-related mortality of juvenile migrants. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information. The Preferred Alternative will make a meaningful contribution towards recovery. Regarding Southern Resident killer whales (SRKW), the population dynamics of the SRKW are complicated and there are multiple factors that contribute to the overall success of this species. The quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKW, along with vessel traffic and noise, and toxic contaminants. The operation of the CRS directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these Federal dam and reservoir projects, and the associated effects would indirectly affect SRKW. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differently from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020). The overall health and condition of the SRKW depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and Washington Department of Fish and Wildlife (WDFW) have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for the whales (NMFS and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall-run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall-run, and Snake River spring/summer-run. SRKW also are known to eat some steelhead, coho, and chum salmon, halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea. SRKW are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKW feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). Details on the most crucial prey stocks for SRKW, as well as their population and range, is available from several fact sheets and videos available here: https://www.fisheries.noaa.gov/species/killer-whale#spotlight. For more information, visit this NMFS StoryMap on SRKW: https://noaa.maps.arcgis.com/apps/Cascade/index.html?appid=3405e6637bf74e998d4ebe992c54f613. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Additionally, Section 7.7.8 states impacts to SRKW would be negligible. Thus, the co-lead agencies expect salmon and steelhead increases will come from operational measures and existing hatchery production carried forward into the Preferred Alternative. These hatcheries include conservation and safety net hatcheries, as well as through the continued existence of certain independent congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as the Lower Snake River Compensation Plan, which is administered by USFWS. Moreover, NMFS concluded in its 2020 CRS BiOp that operations, maintenance and configuration of the CRS is not likely to adversely affect SRKW.
6838	4	eisenba2@wwu.edu	N/A	The preferred alternative is not suitable enough to address the while ecosystem. That alternative looks at the river as a closed system when river and terrestrial ecosystems are just as connected as river and ocean ecosystems. Modifying the John Day Reservoir to disrupt predation ignores animals that are not aquatic that rely on salmon. Salmon are a food source for orca, birds, other fish, and humans. Denying the ecosystem predation is not the answer to increase salmon numbers. Denying non-human animals, the right to predate on salmon not only harm river and estuarine ecosystems they harm terrestrial ecosystem as well along with its biodiversity. According to EPA Laws and Regulations, practices can only be ensured that do not cause harm to endangered species or their habitat by destruction or modification6. Both the salmon of the Columbia river7 and the Southern Residents are listed as Federally Endangered. The prolonged presence of the LSRD contradict this law. Even though the dams use spillways, turbines, and juvenile bypass system if the fish is too big than its ability to get through the dams is diminished8. The Orca Taskforce has highlighted three main problems that affect our SRO ability to thrive including prey deficiency, vessel noise, toxic contaminants 9. first problem that should be addressed by the EIS is prey	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple legal responsibilities, including compliance with Section 7 of the Endangered Species Act. Under Section 7(a)(2) of the ESA, the co-lead agencies must insure that any action authorized, funded, or carried out is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of habitat of such species. Section 7(a)(2) does not require the co-lead agencies to recover ESA-listed species. The EIS set forth eight objectives which, in tandem with the Purpose and Need statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. As described in Chapter 7 of the FEIS, the preferred alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives) as well as the EIS objectives for resident fish, lamprey, hydropower generation, water management, and water supply and greenhouse gas emissions, while minimizing adverse impacts to communities and the economy. Regarding Southern Resident Killer Whales (SRKW), the population dynamics of the SRKW are complicated, and there is no one factor that contributes to the overall success of this species; however, the co-lead agencies agree that the quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Additionally, Section 7.7.8 states impacts to Southern Resident killer whales would be negligible. Thus, the co-lead agencies expect salmon and steelhead increases would come from operational measures and existing hatchery production carried forward into the Preferred Alternative. These hatcheries include conservation and safety net hatcheries, as well as through the continued existence of certain independent

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				deficiency and the solution doesnt seem to be hatchery fish. The survival of these types of fish are two-thirds lower than wild fish10. Again, the SRO should have been taken into consideration when drafting the EIS.	Congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as the Lower Snake River Compensation Plan, which is administered by USFWS. Moreover, NMFS concluded in its 2020 CRS BiOp that operations, maintenance and configuration of the CRS is not likely to adversely affect SRKW.
6839	1	Kristin Meira	Pacific Northwest Waterways Association	The DEIS understates the harm to transportation that would be caused by the dam breaching measures included in MO3. Although the DEIS recognizes the transportation-related harm that would occur in the dam breaching scenario, it understates those impacts. First, the DEISs traffic impact analysis does not fully account for the economic impacts of the dam breaching alternative because it only considers downriver grain shipments. This is problematic because grain accounts for only 62 percent of the shipments on the Snake River; other commodities make up the remaining 38 percent. Because the DEIS fails to account for the non-grain commodities, it understates the dam breaching impact by at least 38 percent. It also fails to account for the fact that the total commodity shipments on the Snake River increased by 11 percent between 2017 and 2018, which amplifies the extent to which the economic harm of dam breaching is understated. Second, the DEIS underestimates the increase in truck and train transportation that will flow from MO3, and the corresponding increases in air pollution. The DEIS projects that dam breaching would cause an additional 182 unit trains per year and 79,250 added truck trips. But those assumptions consider only one-way trips, and as noted above, they exclude non-grain commodity movements. As a result, they underestimate air quality impacts by a factor of 2.38breaching the dams would actually result in the addition of 1,251,000 tons of CO2 per year. Third, the DEIS incorrectly assumes that transportation costs attributed to MO3 will be limited to: increased shipping cost increases (of up to 50 percent or $0.38 per bushel of wheat); increased highway maintenance costs (of up to $10 million per year); and increased rail/grain storage/other capital infrastructure costs (of up to $86 million total). In fact, extensive capital April 13, 2020 Page 9 PNWA Comment on CRSO Draft EIS Pacific Northwest Waterways Association 4224 NE Halsey Street, Suite 325 Portland, OR 97213 Telephone: 503-234-8550 Fax: 503-234-8555 investments in roads, grain storage facilities, and rail networks will be required to implement MO3. The DEIS estimates improvements would cost up to $86 million but does not identify where funding for these projects will come from. An independent engineering study on this issue concluded that to adequately move 2.4 million metric (MM) tons of grain from farms to overseas ports by truck/rail instead of barge would cost more than 10 times greater than the capital cost assumption used in the DEISwhich equates to more than $800 million. Fourth, the DEIS fails to consider the impact that increased transportation costs will have on the regions dryland farmers. Over 1,100 of these farmers are operating in affected areas, with average pretax income of only $40,211 per establishment. (USDA 2017 Census). Many farmers could be at risk of bankruptcy or foreclosure if MO3 were implemented due to the 25 percent to 50 percent (or higher) increase in transportation shipping costs. Wheat is a dryland crop in these areas, and the land and climate is perfectly suited to this particular crop, but not many others. Irrigation is impractical on most of these lands. It is likely that wheat farms that are made less competitive by the loss of this federal transportation system will have production and net income risk, with severe loss of land values as well. Unless federal farm subsidies were raised significantly or outright buyouts initiated, farm bankruptcies are the likely result. The DEIS does not evaluate the cost of these increases in farm subsidies or bankruptcies. In addition, anything that inhibits movement of grain to export facilities can negatively influence the regions reputation as a reliable supplier to world markets. The barging system on the inland Snake and Columbia Rivers is extremely reliable from an on-time arrival perspective at export facilities on the deep draft Lower Columbia River. In contrast, rail on-time arrivals at export facilities can be quite variable, which adds costs and uncertainty in meeting shipping schedules. This is another reason that shifting from barging to rail adds more cost and uncertainty to the reliability of service. Fifth, the DEIS does not account for many national costs that are typically evaluated with transportation capital facilities, such as transportation and infrastructure capital and lifecycle costs, safety issues, fuel costs, and property value impacts. Using the United States Department of Transportations (USDOT) Benefit-Cost Analysis Guidance for Discretionary Grant Programs, January 2020 guidelines, the national cost impacts associated with MO3 may exceed $4 billion over 30 years. This equates to a net present value of $1.9 billion (30-year analysis at standard 7.0 percent annual discount rate). In assuming that the transportation-related costs associated with MO3 are below $100 million, the DEIS likely understates the national cost of MO3 by approximately $1.8 billion in net present value dollars, based on the USDOT guidelines. And the DEIS does not evaluate increased highway deaths from increased truck traffic. Sixth, the DEIS underestimates the costs of necessary improvements to the short line rail system. The DEIS concludes rail improvement costs for short line systems would be only $30 million to $36 million. But those estimates are based on the findings presented in the 2002 draft environmental impact statement, which is nearly 20 years out of date. Based on feedback received from shippers and farmers within the study region, many of the elevator and rail network assumptions contained in the DEIS depend on facilities that have been abandoned or April 13, 2020 Page 10 PNWA Comment on CRSO Draft EIS Pacific Northwest Waterways Association 4224 NE Halsey Street, Suite 325 Portland, OR 97213 Telephone: 503-234-8550 Fax: 503-234-8555 are no longer in working order. As a result, short line rail network costs contained in the DEIS significantly understate the actual capital and rolling stock investment that is required. Actual rail capital costs required to handle the shift in commodities that would occur with dam breaching would be $300 to $353 million, which is about 10 times higher than what is assumed by the DEIS. The final DEIS should be revised to account for these discrepancies so that it accurately portrays the negative impacts that dam breaching would have on both the economy and the environment.	Section 3.10 of the Draft EIS provides an evaluation of the Columbia Snake River Navigation System, assessing its relative efficiency, low costs for shippers, safety considerations, and low air emissions relative to other transportation modes. The EIS acknowledges that depending on how rail rates respond to dam breach, shortline rail capacity could be exceeded. The EIS also evaluates the additional transportation infrastructure investments and associated costs that would be required, as well as the increases in air emissions that would occur. The co-lead agencies' working level of traffic for the model was 2.4 million, which reflects the average over the past 10 years. In 2018, 72 percent of overall freight volume on the Lower Snake system traveled downriver, the majority of which (87 percent) was wheat and barley. As discussed in Section 3.10.2.1 of the Draft EIS, 28 percent of overall freight traveled upriver. In 2018, 25 percent of overall freight on the Lower Snake River was petroleum products that terminated below Ice Harbor Dam. Since these shipments do not utilize the Snake River locks, they would not be directly affected by dam removal under MO3. Other commodities that utilized the Snake River system included pulp and paper products (4 percent) as well as chemicals and iron/steel commodities (8.5 percent), some of which also terminate below Ice Harbor Dam. To the extent that these shipments utilize the Snake River locks and dams, they would be affected under MO3 by increased transportation costs. These potential effects are discussed qualitatively in Section 3.10.3.5. How rail rates would change without lower Snake River shallow draft barging cannot be known with certainty. Therefore in order to evaluate the impacts of potential rate increases, a range of rail rate increases are evaluated, from 0 to 50 percent. As the modeling effort shows, if rail rates are not increased freight volume would likely exceed current capacity, which would put upward pressure on rail rates. If rail rates increase by 50 percent, truck transport would be relatively attractive to shippers, which would put competitive pressure on rail companies not to increase rail rates much higher. As such, the modeled range of increased rates appears reasonable. The FEIS includes an additional discussion of sensitivity to some parameters in Appendix L. The EIS finds that truck ton-miles may experience an increase of 19 percent to 84 percent under MO3 when compared to the No Action Alternative, depending on the rail rate increases that occur. The EIS analysis found that truck trips would increase between 14,000 to 79,000 truck trips per year, which would increase air pollutant and greenhouse gas emissions in the region and add to traffic and congestion in the region. Rail ton-miles would increase by as much as 86 percent (when rail rates are not assumed to increase) or decrease by 2 percent (when rail rates increase by 50 percent). Under low rail rate increase scenarios, additional shortline rail capacity would be required that could cost $25 to $50 million. Under a scenario where rail rates increase by 50 percent, more shipping demand would be transferred to trucks, reducing the demands on rail infrastructure, but increasing demands on roads. Under this scenario, up to $10 million in additional road wear-and-tear costs may occur. The EIS acknowledges that under some scenarios the profitability of farms could be severely affected. The EIS does not employ a cost-benefit framework for decision-making. Consistent with NEPA analysis frameworks, the EIS expresses beneficial and adverse effects across a variety of qualitative and quantitative environmental and economic metrics. Estimates were developed for infrastructure costs based on input from local stakeholders during this study period, as well as using published reports as information sources, including the 2002 Lower Snake River Feasibility Study/EIS (2002 EIS), and the 1999 Lund Report. To the extent possible, the CRSO EIS navigation and transportation model structure reflects the best available current information based upon input from both shortline and mainline rail representatives. As described in Section 3.10.3.5, increases in infrastructure demands could vary widely following dam breach, depending on factors such as the changes in rail rates, which influence the mix of alternative transportation modes that are utilized. In EIS scenarios, the largest demands on rail would occur under Scenario 1, when rail rates are assumed not to increase and rail transit would be relatively more attractive. In contrast, increased highway use would be highest under Scenario 3, when rail rates are assumed to increase by 50 percent. The EIS also notes that the high rail demand scenario and the high highway demand scenario would not both occur. In addition, infrastructure investments are transitional costs, and would primarily be borne by private entities, including rail lines and grain shippers. Over time, prices should adjust to cover these costs. Some highway costs would be transferred to the trucking industry through fees, though most costs would likely be borne by public entities. The EIS analysis finds that transportation of freight that is currently barged on the lower Snake River could be accomplished via other transportation modes, but this change would not be without costs to farmers, would require public and private investment in infrastructure, and would result in some adverse regional economic effects, particularly in the short term. Ultimately, rail infrastructure investments would be at the discretion of the railroads.
6839	2	Kristin Meira	Pacific Northwest Waterways Association	The salmonid survival benefits associated with MO3 are speculative, uncertain, and subject to scientific dispute. The salmonid survival benefits predicted in the DEIS with respect to MO3 are uncertain, speculative, and subject to scientific dispute. The projected benefits of MO3 are based largely on predictions of salmonid smolt mortality from downstream passage at Lower Snake and Columbia River dams, estimates of adult returns, and the premise that dam breaching could potentially increase smolt to adult returns (SARs). In assessing predictions for seaward migrating spring Chinook salmon and steelhead smolts relative to the corresponding adult return run size, the DEIS relies on two different models: the Life Cycle Model (LCM) and Comparative Survival Study (CSS) model. These models use different assumptions and different combinations of environmental variables to predict survival including how delayed smolt mortality factors into the respective analysis. As a result of these differences, predictions of Snake River Chinook salmon and steelhead SARs vary significantly depending on the model used. The CSS model predicts that MO3 will increase SARs by 170 percent compared to the No Action Alternative. By contrast, the LCM predicts SARs to increase by only 14 percent. The DEIS fails to adequately explain the uncertainty and scientific dispute associated with the CSS model prediction. First, the DEIS should be revised to include additional technical scrutiny of the CSS model and its projections. As noted, the two models on which the DEISs survival predictions are based project wildly different SARs increases. That variance, in itself, calls into the question the reliability of the predictions. As the DEIS acknowledges, the fact the two models predict a wide range of improved SARs for MO3 indicates higher uncertainty pertaining to the level of benefits compared to the other alternatives. Yet, the DEIS reports and apparently relies on the same projections in articulating the survival benefits associated with each of the alternatives. Before issuing the final EIS, the co-lead agencies should conduct a more robust analysis of the models and the validity of their predictions, particularly the extreme magnitude of the benefits protected under the CSS model in connection with MO3. April 13, 2020 Page 11 PNWA Comment on CRSO Draft EIS Pacific Northwest Waterways Association 4224 NE Halsey Street, Suite 325 Portland, OR 97213 Telephone: 503-234-8550 Fax: 503-234-8555 Second, the DEIS fails to explain how the inflated SARs increase projected by the CSS Model for MO3 comports with existing data assessing overall dam passage survival rates. Data collected between 2010 to 2014 report the mean survival of juvenile salmon over the dams was between 94 and 99 percent, with a higher survival rate at the Snake River dams. This fact calls into question the CSS models prediction that removal of the Snake River dams would result in such an extraordinary increase in salmonid survival, when the more limiting downstream dams remain in place. The final version of the EIS should be revised to address this discrepancy. Third, the DEIS fails to explain how the extreme SARS increase projected by the CSS model comports with a region-wide trend of declining smolt-to-adult survival rates. Smolt-to-adult survival rates for Snake River Chinook salmon consistently have fallen short of objectives provided by the Northwest Power and Conservation Council, and they have hit a record low in recent years. The same is true with respect to the smolt-to-adult survival rates for the John Day River basin, which have experienced a dramatic decline observed since 2013 and are also at a record low. Given this declining trend throughout much of the Columbia Basin, the CSS SARs prediction solely based on the removal of the Snake River dams is questionable. The DEIS does not explain how dam removal could reverse a declining trend in smolt-to-adult survival that has been occurring since the mid-1990s, and which has continued even as improvements to spill operations have been implemented. There is strong evidence to suggest the downward trend is actually attributable to factors unrelated to the dams, including those occurring in the ocean during the bulk of the fish lifecycle. Such factors may include changes in the Pacific Decadal Oscillation, which effects ocean productivity, or the blob of warm water within the Northeast Pacific Ocean that was in place from 2014 through 2016. These or other offshore factors could have a greater influence on survival rates than reducing challenges during freshwater migration under MO3 by removing only half the dams Snake River fish would encounter. Another non-dam factor likely contributing to declining survival rates of salmonid populations is avian and marine mammal predation. One study conducted on upper Columbia steelhead smolts over the course of 11-years found that birds were responsible for between 31 and 53 percent of juvenile mortality in the river. A similar one-year study on the Snake River produced similar results. These studies suggest that avian predation plays a significant role in juvenile salmonid survival. Likewise, marine mammal predation is a growing problem on the lower Columbia River, as the population of California sea lions at the	To address this uncertainty and minimize risk, the Preferred Alternative includes an adaptive management plan (Appendix R). This plan involves working with regional sovereigns to develop a study to assess the effectiveness of the increased spill regime on adult returns as well as assessment and management of negative unintended consequences, such as long delays of adult migrants, or TDG-related mortality of juvenile migrants. Models used in this EIS have all undergone independent external peer review and will continue to be reviewed as the Preferred Alternative is implemented. All models will be updated with new data annually. The co-lead agencies have used caution when comparing SARs between different populations, ESUs, and river basins as it is extremely challenging to find two populations that are suitable references for each other. The ISAB has noted those challenges in using that line of reference specifically related to comparisons of John Day populations to Snake River populations (ISAB 2020-1). It is important to keep in mind that factors, both human-caused and natural, that are outside the responsibility and control of the co-lead agencies also contribute to the decline and recovery of fish, and will continue to strongly influence fish and their habitat. Salmon and steelhead have been adversely affected in the Columbia River Basin over the last century by many activities including human population growth, urbanization, introduction of exotic species, overfishing, development of cities and other land uses in the floodplains, water diversions for all purposes, dams, mining, farming, ranching, logging, hatchery production, predation, ocean conditions, and loss of habitat. Operation, configuration and maintenance of the CRS requires mitigation for its effects, and the EIS is not intended or required to serve as an overall salmon recovery plan for the region. All of the human-caused impacts that have contributed to the decline of fish, and how the region should properly and effectively address those impacts, should be part of the continued regional discussion. We look forward to participating in that discussion. The commenter is correct, modeling of alternatives for the CRSO EIS did not consider additional hatchery production or habitat restoration projects as mitigation. Mitigation program measures are described in the EIS in Chapter 5. With regards to the number of hatchery fish that would be produced in the absence of the Snake River dams, the co-lead agencies acknowledged in the EIS that funding levels would likely shift, but that changes in production levels are unknown as other funding sources outside of the Lower Snake River Compensation Plan could be increased.

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				Bonneville dam has dramatically increased in recent years. Although the DEIS touches on some of these issues, it does not fully address them. The DEIS correctly acknowledges some survival challenges unrelated to the dams. For example, the DEIS notes potential increases in juvenile salmon and steelhead survival, decreases in travel time, and reductions in powerhouse encounters projected to occur under MO3 could be offset by the effects of climate change, which is likely to cause warming and increased predation. However, the DEIS does not adequately explain how the survival increases predicted by the CSS April 13, 2020 Page 12 PNWA Comment on CRSO Draft EIS Pacific Northwest Waterways Association 4224 NE Halsey Street, Suite 325 Portland, OR 97213 Telephone: 503-234-8550 Fax: 503-234-8555 model under MO3 account for ocean conditions, predation, and other factors unrelated to the dams. The final EIS should address these issues. With regard to predation, the final EIS should also consider alternatives such as the successful active management model established by the Columbia River Inter-Tribal Fish Commission (CRITFC). Fourth, the DEIS fails to adequately address the scientific dispute regarding the assumptions underlying the CSS Model. The CSS Model relies on the concept of delayed mortality, which hypothesizes that smolt salmonids experience stress events when passing through dam turbines, juvenile bypass systems, and spillways, and those stress events cumulatively reduce survival. But that hypothesis is subject to vigorous scientific dispute. For example, Welch et al. (2008) measured the survival of salmon smolts and found survival during downstream migration of some Columbia and Snake River Chinook and steelhead stocks appears to be as high, or higher, than that of the same species migrating out of the Fraser River, a large river system in southern British Columbia, which has no dams. Also of note, smolt survival during migration through the hydrosystem, when scaled by either time or distance migrated, was higher when compared with survival in the lower Columbia River and estuary where dams are absent. These results raise important questions regarding the factors that are preventing the recovery of salmon stocks in the Columbia and Fraser basins. Rechisky et al. (2014) tested whether there was support for hydrosystem induced delayed mortality of migrating yearlings from the Snake River versus migrating yearlings from the mid-Columbia River. They found no support for hydrosystem delayed mortality, as survival of in river migrating Snake and mid-Columbia River yearlings was indistinguishable. Similarly, Haeseker et al (2012) calculated seasonal, life-stage specific survival rate estimates for Snake River Chinook and steelhead, conducting multiple regression analyses to identify the freshwater and marine environmental factors associated with survival of each life stage. They found the most important variable for characterizing the smolt-to-adult survival rates for both species was the Pacific Decadal Oscillation Index, not freshwater variables. The DEIS should be revised to account for the substantial body of literature calling into question the delayed mortality assumptions on which the extreme CSS model predictions are based, and to address the mounting evidence that ocean conditions have a significant influence on smolt-to-adult survival. Fifth, we have noted inconsistencies in the assumptions with regard to hatchery fish in the fish survival models versus other assumptions elsewhere in the document. The DEIS correctly notes that "currently, hatchery fish account for 80-90 percent of all juvenile Snake River fish passing CRS projects. COMPASS and CRS models do not account for this potential major reduction in juvenile fish production." (3-548, lines 16557-16558), and that "closure of the hatcheries funded by BPA will result in a loss of 19 million salmon, steelhead and resident rainbow trout." (2-36, lines 1151-1164; 3-897, line 24727). Further, the "COMPASS and CSS modeling results indicate that survival rates would increase by as much as 25% and travel times would decrease April 13, 2020 Page 13 PNWA Comment on CRSO Draft EIS Pacific Northwest Waterways Association 4224 NE Halsey Street, Suite 325 Portland, OR 97213 Telephone: 503-234-8550 Fax: 503-234-8555 by as much as 30% relative to the No Action Alternative. However, as reductions in hatchery fish could reduce the numbers of juvenile Snake River chinook by as much as 85%, this reduction in the number of hatchery fish would likely result in a reduction of these predicted survival rates of wild Chinook because of increased predation rates" (3-559, lines 16895-16902). The 2002 EIS rightly recognized that increased fishing in the area could not be assured post-breaching: "recreational fishing visitation was not included in the 2002 study due to the uncertainty around it being an allowable activity, given the current measures to regulate, protect and support ESA-listed fish populations and habitat in the region."(3-1219, lines 1821-1824). Yet in the current DEIS, improved recreational fishing after dam breaching is touted, with no explanation for this reversal in logic. Notwithstanding these important unanswered questions regarding the extreme survival rates predicted for MO3 under the CSS model, the DEIS appropriately rejected MO3 in favor of the preferred alternative, which provides evidence-based survival benefits while protecting the regions other environmental, economic, social, and cultural values.	
6840	1	N/A	N/A	The Chamber of Commerce relies heavily on the tourism that the Dworshak Reservoir brings in for our community. We do not support the CRSO DEIS because both direct and indirect impacts it will have on our tourism. Clearwater County is home to Dworshak Reservoir, the Dworshak National Fish Hatchery and Clearwater Hatchery provide direct local economic value through a number of avenues: federal jobs (USACE, USFWS), state jobs (ID Fish & Game, ID Parks & Rec), commercial vendors (licensed outfitter-guides, campground operations); and indirectly from the hospitality industry (hotels, eating establishments and retail). The Dworshak Reservoir was built to help prevent flooding and also for recreational use. Taking even more water out will only reduce the recreational aspect that it was created for. According to ID Fish & Game angler surveys, steelhead fishing contributes $ 31,677,943 (inflation adjusted) are spent annually in the Clearwater River; and, throughout the region $ 80,815,718. An additional $4,614,444 in angler spending is directly contributed from fishing on Dworshak Reservoir.	Section 3.11.3.2 describes the economic contribution of visitation, including fishing visitation at Dworshak reservoir and the other reservoirs in Region C. Under the Preferred Alternative (Section 7.7.5.3 and Section 7.7.13.1), reservoir elevations could be lower in January through March during wet years in Dworshak Reservoir as a result of the Slightly Deeper Draft for Hydropower (Dworshak) measure. During typical water-level years, there would be no differences in water surface elevations compared to the No Action Alternative. There would be small adverse impacts to resident fish from entrainment from this measure, as described in Section 7.7.4; access for water-based visitation, including fishing, would be affected during wet years between January and March, decreasing by approximately one percent. Regional economic effects from this small change in visitation would be negligible.
6841	1	mike.edmondson@osc.idaho.gov	State of Idaho	The EIS has identified some controversial issues. In addition to flex spill operations and the intended benefits to ESA-listed anadromous fish, MO3 examined breaching the four lower Snake River dams. Both NMFS Science Center and Fish Passage Center modeled the anticipated outcomes and come up with notably differing predictions. This has created a dueling science scenario between the NMFS Science Center and the Fish Passage Center models. The issue of dam breach requires more than a biological perspective. It has a replacement power component that includes not only the sources of replacement power but also the transmission line usage and location. If possible, this EIS, biological opinion and final Record(s) of Decision should try to document latent mortality of juvenile fish in the hydro system to clarify this factor which impedes closer compatibility between the models	The commenter is correct: the two primary modeling approaches used in the CRSO anadromous fish analysis yielded a range of potential outcomes for the alternatives. With respect to the Preferred Alternative, the CSS model predicts that average Smolt to Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% as a result of the Preferred Alternative. The COMPASS and NMFS Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. To address uncertainty related to latent mortality and the effects of increased spill, the Preferred Alternative will be implemented using a robust monitoring and adaptive management plan. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets most other EIS objectives including those for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS, the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams, because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system.
6841	2	mike.edmondson@osc.idaho.gov	State of Idaho	Idaho commends the action agencies for replying to our comments and recently sending the response matrix to us. Idaho asks to work through the outstanding comments from the ADEIS process and hereby requests a continued dialogue with the action agencies to resolve these issues. Idaho looks forward to working through these comments cooperatively in the time between the Draft EIS and Final EIS.	Thank you for your comment, and the co-lead agencies look forward to continued coordination with Idaho.
6841	3	mike.edmondson@osc.idaho.gov	State of Idaho	Lack of economic analysis on sportfishing in Idaho in the DEIS Fishing is tremendously important to the Idaho economy. Multiple studies of Idaho sportfishing economics conducted in the past two decades estimate annual angler-related expenditures range from about $450 million to $750 million. Anadromous fisheries typically comprise 20-25% of the total, meaning salmon and steelhead fisheries generate well over $100 million in spending each year. The 2001 chinook fishery, which was an exceptional return year, generated an estimated $90 million in a period of weeks. The City of Riggins received an estimated $10 million in spending, which comprised about 25% of the total spending in Riggins for the year.	The EIS provides an evaluation of the social welfare and regional economic effects of the No Action Alternative and the Multiple Objective alternatives, including the effects on recreation (Section 3.11) and commercial fisheries (Section 3.15). The EIS Section 3.5.3.6 describes the long-term effects to anadromous fish migration in the Snake River and tributaries as major and beneficial. The EIS described the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. NMFS estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which is described qualitatively. For the effects on recreational fishing under MO3 (Section 3.11.3.5) along the lower Snake River below Lewiston, the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River) as an indicator for fishing visitation in this reach. However, the EIS describes that the visitation in the long-term in the lower Snake River, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting jobs, income, and tourism businesses. The social welfare effects under MO3 on commercial fisheries (Section 3.15.3.5) are described as major and beneficial in the long-term in this reach, with increases in regional economic effects if commercial fish catch rates increase. Again, there is uncertainty around recreational visitation and commercial fishing in the long-term given the current measures to regulate, protect, and support ESA-listed fish populations and habitat in the region.
6841	4	mike.edmondson@osc.idaho.gov	State of Idaho	Lack of inclusion of hatchery Salmon and Steelhead abundances in the DEIS All the Alternatives (except MO3) include the continuation of the Lower Snake River Compensation (LSRCP) hatchery programs, yet the DEIS anadromous fish models do not explicitly analyze the changes in hatchery-origin adult returns. Because the LSRCP is a mitigation action for the operation of the dams on the Lower Snake River the EIS should evaluate how the alternatives would affect LSRCP hatchery returns. In Idaho Chinook salmon and steelhead fisheries are directed almost entirely on hatchery salmon and steelhead, and therefore hatchery adult abundance is directly related to non-treaty fish harvest and fishing opportunity. As a result, the abundance of hatchery-origin returns has substantial economic and social impacts within Idaho. The lack of analysis of the effect of actions on hatchery-origin adult returns is a major oversight in the DEIS	This Draft EIS analyzed the effects of the operation, maintenance, and configuration of the CRS projects and compared the alternative approaches to one another and to the No Action Alternative. Current high quality information was utilized to evaluate the metrics for that purpose (juvenile survival, travel time, transportation ratio, powerhouse passage, smolt-to-adult returns, and adult abundance) includes both hatchery and natural-origin fish. As described in the Methodology Section (Section 3.5.3.1 on page 3-358) both CSS and NMFS life cycle models include both hatchery and natural-origin fish in both the input data and the output results. The effects to populations as they transition from primarily hatchery production to an increased wild production of fish is qualitatively discussed in Section 3.5.3.6. As stated on page 3-548, the co-lead agencies recognize there would be transitional needs that would be addressed through mitigation and adaptive management. The fish models are based upon data collected from past fish runs and there is no data available to inform an quantitative analysis for wild fish in the absence of hatchery fish. The co-lead agencies took a qualitative approach to inform the reader of other factors that could affect salmon but acknowledged the magnitude of those effects is not known. The Draft EIS (page 3-550) objectively presents these factors and discusses the tradeoffs, including: 1) the predators that remain after dam breach would by mostly native fish adapted to riverine systems and there would be lower predation by non-native reservoir fish; 2) decreased travel time through the corridor would reduce avian and piscine predation; 3) the reduced predation risk may be offset by a reduction in hatchery fish and lower predator swamping effect. A summary of this qualitative discussion is provided for the reader for each Snake River species. Note, abundance estimates were only available for select populations with enough return data upon which to build the models, so the changes in abundance are considered an index upon which to compare alternatives, which meets the purpose of the NEPA process. They are not an absolute estimate of all fish returning to the basin of origin. See Section 3.5.3.1 for a summary of populations used, and Appendix E for specific results for each population.

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6841	5	mike.edmondson@osc.idaho.gov	State of Idaho	Anadromous Fish Models and outputs used in the analysis The models employed in the CRSO DEIS are poorly described in the DEIS. Understanding the models and what drives them requires extensive study of other documentation, which may not be referenced in the DEIS. Further elaboration of the model details, particularly CSS, should be included in the CRSO EIS. Neither Chapter 3 Affected Environment nor Chapter 7 Preferred Alternative of the DEIS differentiate between the CSS LCM and CSS Cohort analysis when discussing the results despite the differences in design and data inputs between these two models. The two are presented as separate in Appendix E but the PA is not included in appendix E. Therefore, the results for the PA are difficult to interpret relative to the other MOs, particularly for Snake River Chinook Salmon. Several models were used to quantitatively evaluate the results of the various Alternatives relative to the No Action Alternative. The NWFSC-LCM uses the COMPASS model to predict abundances of smolts heading to the ocean (# smolts below Bonneville, see Appendix E; Figure 1-1, pdf page 28) to estimate the adult abundances presented in Appendix E. It is not clear whether this input was the deterministic output from COMPASS or the Monte Carlo output of COMPASS. We can only assume they used the deterministic COMPASS output which does not include any estimate of uncertainty (or variation) surrounding the smolt LGR-BON survival estimates and may be highly sensitive to small changes in the input parameter datasets such as river velocity, temperature, and spill proportion. Therefore, the inputs to the NWFSC- LCM were static and we are left to assume all uncertainty in the SAR produced with NWFSC LCM arose in ocean survival only. However, uncertainty around the SARs is not clearly presented in Appendix E and Chapter 7 of the DEIS, so it is not possible to evaluate how variable the outcomes of the alternatives would be and if that variability would arise in freshwater or the ocean. Reservoir temperature seems to play an important role in juvenile survival with the LCM model and may lead to the lack of sensitivity of the juvenile survival metrics across alternatives. Mean temperature experience for smolts from in the Snake River varied little between the NAA, MO1, MO2, and MO4 from 11.24 to 11.49 (Appendix Table 3-12, E-3-16, pdf page 187, units not provided but assumed Celsius). Meanwhile, it varied more within the four groups modelled in MO3 (Mean temp experience 11.73 for Grand Rhonde-Imnaha to 11.09 for Snake Wild/Hatchery) and the difference in predicted smolt survival within the four MO3 groups (0.55 0.63) varied more than all other alternatives (0.5010-0.5096). This is evidence that temperature is a major driver of the results of the COMPASS model, potentially dampening positive survival effects of any measure that does not directly contribute to a change in temperature within reservoirs. For example, mean temperature experience in MO4 is the highest of the non-MO3 alternatives and juvenile survival (Table 3-12) and SARs (Table 3-22, p E-3-21, pdf page 192) are also the lowest of the non-MO3 alternatives. The LCM may be further reducing smolt survival of MO4 by the TDG model predicted mortality, but it is not clear in available documentation how the TDG model is embedded within the survival calculation in COMPASS (See confusing, seemingly unused results on L4899 Table 3-17). Appendix 8 of the COMPASS 2.0 documentation presents a sensitivity analysis of the model that demonstrates the COMPASS model for estimating juvenile survival is not sensitive to changes in proportion of spill, therefore the characteristics of the model regarding its application to some of the Multiple Objective Alternative (MO4 and the PA) were known. We suggest the Action Agencies review and discuss the sensitivity analysis of the COMPASS model contained in Appendix 8 of the COMPASS 2.0 documentation, where the authors point out that juvenile survival estimates are very dependent on temperature and respond to spill proportion only at the lowest levels of spill (COMPASS 2.0 documentation). This is also the conclusion for the lack of sensitivity to spill described in Faulkner et al. (in press). In addition, ISAB (2017) provided an extensive list of recommendations, and it is unclear how many were accounted for in COMPASS version 2.0 (released as a draft in 2019) and subsequently applied in the CRSO DEIS analysis.	Extended discussion of methods for the NMFS COMPASS/LCM models are available in cited documentation (Zabel, Jordan et al. 2019). The LCM does include Monte Carlo sampling for estimating quantile results for adult abundance, which is presented in Appendix E. COMPASS is a mechanistic model estimating dam and reservoir passage through the hydrosystem. A mean and variance is estimated as a functional relationships between river environment and dam operations and output metrics such as survival, travel time, and powerhouse passage and so forth. Confidence intervals are presented for survival in the appendix. For this analysis, variance is driven by both within year and interannual variance from the 80-year water record. The COMPASS model estimates SAR as a function primarily of arrival timing in the estuary (and a random function matching observed variance of ocean survival rates). The commenter makes a valid point in asking how TDG impacts potentially influence adult abundance in the Life Cycle model. The TDG model was created as a secondary survival function with results always presented separate from both the COMPASS and LCM model results. Thus the effects of potential gas bubble trauma resulting from high TDG in MO4 do not influence adult abundances in the results. It is most straightforward to compare potential additional TDG related mortality to the in-river survival metric from COMPASS. We agree with the commenter's observation that temperature does not vary substantially between MO1, 2, and 4, in which spill volumes are the variable that changes to a large magnitude under the alternative operations. Thus temperature is not driving the observed changes in survival and travel time. Incidentally, when interpreting model results, it is important not to overlook the effect of % transported, which increases under MO2, and declines a large amount under MO3 and MO4. The CSS cohort model takes a statistical approach to estimate the effect of change % transported on SAR. In the COMPASS model, transported smolts have higher in-river survival; Smolt-to-Adult returns (SAR) are estimated separately based on historical PIT data for in-river and transported fish, and uses time of arrival in the estuary as a predictive variable.
6841	6	mike.edmondson@osc.idaho.gov	State of Idaho	Statement on Hatchery Mitigation Congress authorized the Lower Snake River Compensation Plan (LSRCP) as part of the Water Resources Development Act of 1976 (90 Stat. 2917) to offset fish and wildlife losses caused by construction and operation of the four lower Snake River dams. The EIS needs to insure sufficient operation and maintenance funds are provided so the steelhead and fall chinook mitigation programs continue to meet the congressionally authorized mitigation goals. While the LSRCP has been a successful mitigation program for steelhead and fall chinook, the LSRCP Snake River spring/summer Chinook program has never achieved the mitigation goal of 58,700 adults since the inception of the program in the 1980s. The DEIS needs to commit the necessary resources to meet the mitigation goals for spring/summer Chinook salmon. This will not only entail sufficient operation and maintenance funds to maintain current levels of production, it will require commitment of sufficient capital funds for facility expansion and improvement. The 58,700 adult return goal to Lower Granite is the congressionally authorized return level. On average, the returns are over 30,000 adults short of the goal (see Figure 1 below). In order to fully achieve the total adult goal of 58,700, the LSRCP will require an additional production of about three million smolts. This could be achieve by expanding capacity at existing facilities most logically Sawtooth Fish Hatchery (SFH) and Clearwater Fish Hatchery (CFH). CFH has rearing space for approximately 1.6 million smolts with the existing infrastructure on the hatchery. A new water supply pipeline would allow utilization of all existing raceways, ultimately returning, on average, an additional 6 thousand adults. Total capital cost of the project has been approximated at $45 million. Alternatively, SFH smolt production could be increased by about 3 million smolts through construction of additional raceways and development of water supply. This would result in a projected annual return of an additional 10,000 adults. Total cost of the infrastructure development would be approximately $10 million. [Text contains trables that do not transfer to database.] Figure 1. Returns of Lower Snake River Compensation Plan adult Spring/Summer Chinook Salmon relative to the mitigation goal of 58,700 adults above the project area. Graph from US v. OR Production Advisory Committee unpublished report.	Hatchery programs are included in the No Action Alternative and would be expected to continue under alternatives MO1, MO2, and MO4, and certain hatcheries would continue under MO3. No new hatchery programs are considered as mitigation under any alternatives, but MO3 does include increased hatchery production due to short-term impacts from breaching the four lower Snake River dams. Diversity is an important factor in an ESU's ability to persist and adapt, and is one of the factors considered in assessing an ESU's long term viability, along with abundance, productivity, and spatial structure. There is an extensive body of literature developed from studying these factors and managing the conservation of salmon and steelhead, including hatcheries as one tool. Hatchery programs have long been a part of the approach for salmon recovery. Based on the fish analysis in Section 7.7.5, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Under this alternative, hatchery programs would continue as proposed under the No Action Alternative, and a number of other mitigation measures would continue as well, but no new hatchery programs are proposed. Figure 3-111, which combines hatchery and wild fish, in the Draft EIS was an illustration that the CRS can and has supported large numbers of returning adult salmon and steelhead. Over time, the Preferred Alternative is anticipated to benefit both wild and hatchery fish. Hatchery origin fish are very important to tribal and sport harvest within the Columbia River Basin, and many hatchery programs are important supplementation to rebuilding natural populations. The three co-lead agencies have legal requirements to produce hatchery fish as mitigation for components of the CRS. Hatchery production goals for harvest are outside the scope of the EIS. The co-lead agencies do not have authority over tribal, commercial or recreational fishing; however, through increased abundance anticipated under the Preferred Alternative, more fish may be available for catch. Overtime, the Preferred Alternative is anticipated to benefit both wild and hatchery fish and the co-lead agencies continue to support information developed by the Hatchery Scientific Review Group and the Northwest Power and Conservation Council's Three-Step Review process.
6841	7	mike.edmondson@osc.idaho.gov	State of Idaho	Evaluation and inclusion of avian and pinniped predation impacts and management on Salmon and Steelhead The management of predators is an important mitigation program in the Columbia River Basin. The DEIS does not evaluate whether the control of predation is sufficient to achieve the contributions toward improving adult abundance and juvenile survival numbers. Avian Predation – Recent and ongoing research shows avian predation can be a leading cause of mortality. Smolt predation by Caspian terns, Double-crested cormorants and Ring-billed gulls is now considered the dominant mortality factor limiting survival of some ESA-listed steelhead populations. While ongoing federally approved plans over the last decade specific to Army Corps-owned lands have helped, a more aggressive set of actions is required. The federal agencies need to lead and implement a basin wide strategy in cooperation with state, tribal and other non-federal partners to reduce the numbers of avian predators that colonize in large numbers in the Columbia River estuary and areas in the interior Columbia basin. Such actions might include: Better alignment of conflicting federal missions, particularly the U.S. Fish and Wildlife Services implementation of the Migratory Bird Treaty Act, the National Wildlife Refuge Act, and other similar laws with NOAA Fisheries and the U.S. Fish and Wildlife Services implementation of the Endangered Species Act to ensure priority protection of ESA-listed salmon, steelhead and other listed fish to aid recovery of these species. Streamlining of federal permit processes to allow for states and tribes to expedite non-lethal and lethal control of avian predators. Maintaining necessary bird array devices and wires, boat crews and depredation programs at federal hydropower dams and ensuring operation and maintenance budgetary resources and authority for them. In addition to actions in the preferred alternative to control bird nesting on the Blalock Islands near John Day Dam, increased management of colonies and nesting in additional areas of the Columbia River, including Miller Rocks, the Umatilla National Wildlife Refuge and the McNary Wildlife Refuge near the Dalles, John Day, and McNary Dams. Better coordination with states and tribes to enhance control of avian predators on state-owned or managed lands near the Columbia River estuary. Comments on pinniped predation Each year thousands of adult salmon that migrate from the Pacific Ocean up the Columbia River are eaten by sea lions. A recent study by NOAA Fisheries found that, in 2017 alone, over 24,000 adult salmon were consumed by sea lions. The Independent Scientific Advisory Board also recently noted that pinnipeds likely have the greatest impact on smolt-to-adult returns (SARs) because they consume fish close to the end of their life cycle. Public Law 115-329 was enacted with bipartisan support to address pinniped predation on ESA-listed salmon and steelhead. This important law authorizes streamlined implementation to control sea lion predationFull implementation of the law has not yet been realized. Control efforts are labor intensive and resource demanding. To date, states have been challenged with implementing actions given the limited funding. In recent years, Stellar Sea Lions have increased in abundance below Bonneville Dam, presenting additional challenges. The presence of Stellar Sea Lions through summer and early fall extends the period of necessary sea lion management by a period of months. Additionally, the much larger size of Stellar Sea lions require much larger and heavier duty equipment. In addition to the limited resources for control efforts, we understand ongoing research to estimate predation rates on adult Chinook salmon is in jeopardy of losing funding. This research has been extremely valuable to fisheries managers in evaluating run sizes and return timing prior to fish being detected at Bonneville Dam. Furthermore, the results from this study will be important in informing the congressional report required by Public Law 119-329. The PA should include actions to more effectively manage pinniped predation, such as but not limited to: A more expeditious approval process of state and tribal permits to control these sea lions. Support for pinniped removal activities from April through September, to minimize impacts of both CSL and SSL. Support for research to continue monitoring mortality rates of adult Salmon and Steelhead survival.	The co-lead agencies' legal authorities relate to operating and maintaining the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy designated critical habitat. To comply with ESA, the co-lead agencies have historically supported actions to mitigate adverse effects to ESA-listed species from the CRS operations, through funding, direct implementation, and other means. Sea lions are protected under the Marine Mammal Protection Act. With the exception of continuation of the pikeminnow program, the co-agencies are not proposing additional predator management actions in the Preferred Alternative. The avian management plan encourages birds to nest in alternate locations outside of the Columbia River Basin. As analyzed in Section 7.7.7, the Predator Disruption Operations measure in the John Day reservoir could delay nesting water birds, forego nesting, or relocate to other areas, reducing avian predation on migrating juvenile salmonids. As discussed in Section 3.6.3.2, Caspian terns are highly mobile during the breeding season and move between breeding colonies in a given year and between years, demonstrating a willingness to nest away from the Columbia River while still foraging on juvenile salmonids (Corps 2014, 2018, 2019). Under the Preferred Alternative, actions that reduce pinniped and avian predation on ESA-listed species, would generally continue to ensure compliance with ESA as described in Section 7.6.4.1, Ongoing Programs, including ongoing measures to haze and monitor pinniped predators. Other entities in the region have authorities and obligations to mitigate the impacts from pinniped and avian predators. The co-lead agencies will continue to work closely with and assist NOAA, States and tribes efforts to benefit ESA-listed salmonids, including pinniped removal efforts near Bonneville Dam.
6841	8	mike.edmondson@osc.idaho.gov	State of Idaho	Appendix R: Monitoring and Adaptive Management Part 1, Framework Appendix R lays out a process by which the region will try to balance power supply, infrastructure integrity, and fish passage while learning to better manage the system. Overall, it describes a process that has largely occurred since the 2008 Biological Opinion. The Flexible Spill Working Group was the result of a settlement agreement reached by some parties in the Columbia	The co-lead agencies are currently in discussions with the states and Tribes on the structure of this forum. While the intent is to keep the spirit of the FSWG, there will be some modifications to the Draft EIS in this area based on our current discussions.

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				River Basin and its continuation after the FEIS is released and the ROD is signed appears to be redundant to other regional fora both in membership and responsibility. If this group is formally established its responsibilities relative to other regional forums needs to be clarified and dispute resolution guidance needs to be standardized.	
6841	9	mike.edmondson@osc.idaho.gov	State of Idaho	General comment on preferred alternative, MO4, and northern Idaho concerns It appears there will be negligible changes or impacts to Lake Pend Oreille under the preferred alternative. Idaho continues to have concerns related to MO4, which proposed to lower Lake Pend Oreille up to three feet during the summer months, eliminating the stable summer pool that is required under the Congressional authorization for Albeni Falls Dam. Without the opportunity to engage the action agencies on this specific topic following the official release of the draft preferred alternative, we remain unsure how the preferred alternative could potentially impact lake levels in northern Idaho, but it does seem clear that the potential operational change that we were concerned about under MO4 has been removed from the preferred alternative. We are supportive of this decision to exclude the operational measures in MO4 affecting lake levels in northern Idaho and agree with the action agencies analysis that it would have a severe impact on recreation and the socioeconomics factors surrounding Lake Pend Oreille. The annual uncertainty of summer lake levels, alone, would have created economic hardship, regardless of whether the operation would have been implemented.	The Preferred Alternative is not expected to have adverse effects to Lake Pend Oreille when compared to the No Action Alternative. Information on how the Preferred Alternative may effect reservoir elevations is included in Section 7.7.1, Hydrology and Hydraulics. The figures that show the summary hydrographs of the reservoirs are particularly useful to see effects on reservoir elevations under different water year conditions.
6841	10	mike.edmondson@osc.idaho.gov	State of Idaho	Introduction Ch 1 Line 727-734: Federal agencies operate a series of 31 multipurpose dams known as the Federal Columbia 727 River Power System on the Columbia River and its tributaries, 14 of which are operated as a 728 coordinated system, referred to as the Columbia River System. The 14 CRS projects are 729 described below. The other FCRPS projects, such as those in the Willamette subbasin, the Yakima subbasin, or the Boise River Basin, operate more independently. The output at the projects with hydropower facilities is used in meeting the regions electricity demand. However, the multi-purpose operation of these other FCRPS projects is generally not factored into the coordinated planning scenarios of the CRS. The DEIS should specify that operations of the upper Snake River (USR) projects (i.e., federal projects upstream from Brownlee Reservoir) are covered under a separate Biological Opinion. Reference the USR in the in Section 1.8: Relevant NEPA and ESA Reports and Documents.	The comment is correct that the 14 projects comprising the CRS are operated together as a system separate from other components of the broader Federal Columbia River Power System. The co-lead agencies have carefully defined the action subject to this NEPA analysis to included only the integrated operation of the 14 CRS projects. As described, in Chapter 1 "The Dalles, and Bonneville. Projects in the upper Snake, Willamette, and Rogue River Basins are excluded from the CRS because these are coordinated and operated separately."
6841	11	mike.edmondson@osc.idaho.gov	State of Idaho	Ch 1 L 1299: Water temperatures in the lower Snake River are primarily determined by a combination of the temperature of the water originating from the middle Snake River and the Clearwater River. Lower and middle Snake River maximum summer temperatures exceeded the current 68 F (20 C) Washington standard before the dams were constructed (Corps 2002, Peery et al. 2003). Although this may be an accurate statement, the EIS should recognize that the Run-of-river projects can exacerbate the already present temperature issues during the summer. The lower Snake River downstream of Lower Granite Dam has severe temperature issues despite the influence of cool water from Dworshak Reservoir.	The co-lead agencies agree with the commenter's concern relating to water temperatures in the Columbia and Snake rivers and that is why the agencies have used the best information and resources available to model and evaluate impacts from operations described in each of the alternatives on water temperatures. The study results indicate that the operations of the CRS do impact water temperature but the CRS has limited ability to reduce temperatures in the lower Snake and Columbia rivers outside of Dworshak operations. Regionally, high air and water temperatures result in water quality standard exceedances and are beyond the ability of the CRS to cool. Temperature in the Snake River upstream of the confluence with the Clearwater River often exceeds state water quality standards. Drier and warmer years such as 2015, as summarized in NOAAs 2015 Adult Sockeye Salmon Passage Report (September 2016, National Marine Fisheries Service document) point out that tributary temperatures in the Okanogan and Salmon rivers were above 25C. The EPA is the lead agency on developing the temperature TMDL, and in doing so will evaluate the impact of all anthropogenic and natural sources of heat in the Columbia and Snake rivers. For information regarding the recently issued TMDL for temperature in the Columbia and lower Snake rivers, please see https://www.epa.gov/columbiariver/tmdl-temperature-columbia-and-lower-snake-rivers. In contrast, the EIS evaluated the impact of several actions the co-lead agencies could take and their impact on river temperatures as they relate to current and historic river temperatures. Thus, the EIS did realistically and clearly analyze, to the extent practicable, whether the hydrosystem is causing or contributing to compliance with the water quality standards as compared to historic river temperatures. In addition to investigating the operational impacts on water temperature, the co-lead agencies have taken other actions to address water temperature effects on fish passage. Cooling water pumps have been installed at Lower Granite and Little Goose adult passage ladders to reduce temperature differentials between ladder and river and to reduce thermal stress during upstream passage. Additional considerations at other locations are included in the EIS. In addition, the co-lead agencies are actively working on implementing the recommendations identified in NMFS' 2015 Adult Sockeye Salmon Passage Report (September 2016, National Marine Fisheries Service document) to improve management decision making and reduce, to the extent practicable, the negative effects of high summer temperatures on migrating salmon, including adult sockeye salmon.
6841	12	mike.edmondson@osc.idaho.gov	State of Idaho	Ch 3 L124: For purposes of comparing MOs and developing preliminary costs, the EIS assumes that (1) operations under the MOs, including the measures in MO3 that include lower Snake River projects embankment breach, would be initiated at the signing of the RODs and (2) the construction period for these structural measures would occur over 2 consecutive years. It is not valid to assume that measures in MO3 (breaching) would be initiated at the ROD and would occur within two consecutive years. Breaching would require approval from Congress because the action diverges from the congressionally authorized purposes of the projects as noted in the document in Chapter 3 line 138 and Section 2.4 of the Executive Summary, Section 7 paragraph 4 of the Executive Summary, and elsewhere in the DEIS. Recognizing an assumption regarding timelines needed to be made, the two year assumption in this context is not supported in the document or by case studies of dam removal elsewhere in the U.S.	The co-leads agree that initiating the construction of a dam breach could not start with signing of the ROD. However, by choosing a single start year applicable across MOs, the EIS provides a level playing field from which to compare the impacts and costs of each MO (See Section 3.19 and Appendix Q for additional discussion). Establishing an actual year of implementation for each of the MOs would have injected a subjective timing element into the measurement of the relative impacts of differing CRS operations on each of the alternatives. For example, MO3 with dam breaching requires Congressional action. Had a timing element been included in the comparison of the MOs, the EIS could have assumed that Congress would not act by 2022, but by 2035, or some other subjective date. The impacts of the MO on the various objectives identified in the EIS would then have had to be scaled to these subjective future dates, skewing the results. MOs that could be implemented more quickly (such as those involving only operational changes) would generally show smaller costs and more overall benefits compared to those requiring long lead times (such as dam breach). This subjectivity would have been added to the analysis with little additional analytical benefit and potentially a detriment to the EIS because of the speculative nature of the timing assumptions the co-lead agencies would have had to make. The more analytically sound approach is the one adopted by the EIS. The use of a single study year for implementation of the alternative allows for a comparison of before-and-after effects for each alternative, utilizing the most recently available and vetted models and data up and through 2022. The single start year ensured that the effects of the MOs could be compared fairly with each other and the NAA without the co-lead agencies speculating on when Congress might act, when resources would be removed, or when resources would be constructed and online. Finally, if MO3 were selected as the Preferred Alternative, the Corps could use the CRSO EIS as a basis for seeking congressional authority to breach the lower Snake River dams. After receiving both authority and appropriations from Congress, the Corps could initiate a detailed construction and design report for the breach measure, identification of disposal areas, real estate acquisition and disposal, permits, and mitigation requirements, including temporary fish hatchery production. Each of these actions are required prior to breaching, and the Corps does not have the authority or appropriations necessary to immediately breach the project's embankments. More information is available in the Corps Engineering Regulation (ER) 1165-2-119 Water Resources Policies and Authorities, Modifications to Completed Projects (Sept. 20, 1982) or ER 1105-2- 100, Appendix G, Section III Post Authorization Changes.
6841	13	mike.edmondson@osc.idaho.gov	State of Idaho	L 7225 page 3-300 and Figure 3-111: Although the number of adult salmon and steelhead has declined since 2014, even with consistent operations of the CRS, and NMFSs 2020 status review will encompass years with lower returns and declining ocean conditions, these returns show that salmon and steelhead can pass upstream and downstream through the system in its current configuration when conditions are suitable. The figure and associated text t present an inaccurate picture of the returns to the Columbia River. For a more accurate picture of the status of Columbia River Salmon and Steelhead returns we suggest plotting returns of Salmon and Steelhead to the Columbia River mouth rather than Bonneville Dam Counts. These values are available from the Joint Staff Report Status Report of Columbia River Fish Runs and Fisheries from 1938 to 2000. This report is available at https://www.dfw.state.or.us/fish/OSCRP/CRM/reports.asp . Updates are available through 2018. Also including the total salmon and steelhead returns for the time series for Lower Granite Dam and Priest Rapids Dam provides a more complete picture of the status of returns to significant portions of the Columbia River Basin. The recent increases are, in part, due to reductions in harvest below Bonneville dam which is a management decision in response to declining runs and court cases which recognized the treaty rights of tribes fishing upstream of Bonneville Dam (see US v Oregon). For example, total salmon landings exceeded 20 million pounds and peaked at 32 million pounds in 1941 (Johnson et al. 1948. The effects on salmon populations of the partial elimination of fixed fishing gear on the Columbia River in 1935. Oregon Fish Commission. Contribution No. 11, Portland, OR) L 7244 and Figure 3-112: This references a figure that shows concrete to concrete survival (aka dam passage only) while discussing reach survival in the next paragraph. The concrete to concrete survival figure is misleading because the vast majority of freshwater mortality occurs in the reservoirs. We suggest including a figure showing NOAAs overall juvenile reach survival estimates for the system.	For the purpose of supporting the following Draft EIS statement which references Figure 3-111: these returns show that salmon and steelhead can pass upstream and downstream through the system in its current configuration when conditions are suitable, we feel this figure is appropriate. Regarding Figure 3.112, we agree that NOAA's overall juvenile reach survival estimates for the system should also be presented and will add it to the FEIS. However the intent of Figure 3-112 was to show progress towards meeting individual dam survival goals. The Draft EIS reference to this figure clearly states that the dam survival estimates do not include systemwide or latent effects and that discussion of these can be found in Section 3.5.3.1. All of the MOs include modeled results of in-river system survival estimates relative to the No Action Alternative. The inclusion of a figure showing NOAA's overall juvenile reach survival estimates for the system will add value, but not affect the analysis. In general, the NMFS COMPASS model results track well with the annual empirical estimates of in-river system survival.
6841	14	mike.edmondson@osc.idaho.gov	State of Idaho	L 9971 p 3-364: Because the quantitative results below are not presented with any estimates of uncertainty or statistical precision (e.g. standard error, or confidence bounds) these estimates are best suited for relative comparisons of the differences between alternatives, rather than comparisons between models. Uncertainty, or variation in simulation outputs, is an important consideration when interpreting the results for juvenile survival estimates and SARs. The ability to evaluate uncertainty weighs heavily on the readers ability to interpret whether the decisions based on the modeling results are justifiable whether in the context of comparing Alternatives within models or across models. We cannot find a justification for why uncertainty for these model results are not presented in this DEIS. Documentation for variation in the CSS cohort-specific model from the Fish Passage Center (McCann et al. 2019, Chapter 2) presents interquartile ranges for the SARs estimates generated in that model. It should be noted that for every alternative, the interquartile range is skewed downward suggesting that there are higher probability of low SARs (i.e., << 1) occurring than high SARs (i.e., < 5). This is important for evaluating the conditions under which we can expect very low adult salmon and steelhead returns. The variation included in the CSS results documentation should be included in the FEIS. Additionally, there is no public documentation of the variation around the model results from the NWFSC-LCM. Variation (or uncertainty) is a necessary model output for assessing the validity of a model and uncertainty for all model results involving SAR and juvenile survival (included in EIS) needs to be presented.	Relative comparisons of trends is appropriate when comparing outputs from different models or comparing trends in different metrics. Values of absolute change are also reported for all metrics, however the co-lead agencies echo the advise of the CRSO modeling teams that trend analysis is an appropriate framework to analyze complex model results with their inherent uncertainty. As noted by the ISAB in their review of the CSS model results generated for this EIS (ISAB 2020-1), changing climate conditions should be carefully assessed when considering potential impacts to salmon and steelhead, but the co-lead agencies note the concerns raised by the ISAB regarding the CSS's interquartile range analysis and the likelihood or probabilities of SARs falling below 1 percent or above 2 percent. The co-lead agencies will evaluate that analysis as it evolves but are not relying on the probability analysis at this time. Confidence intervals for in-river survival is included in Appendix E, although the commenter is correct that confidence intervals were not published along with mean estimates in the main tables of the EIS. NMFS' Life Cycle model presents adult abundance with quantiles of 2.5, 25, 50, 75 and 97.5. In contrast with reporting measurements from a study, with a mean and standard error, in a model it can be challenging to define the source of variance that is creating the confidence interval in a life cycle model. Variance is created by the changing river conditions within each season, and additional variance is created by using the 80-year water record. Metrics spanning multiple life stages, such as SAR and adult abundance, reflect variance in the different stages, both from the 80-year water record and data uncertainty from historical fish survival estimates.
6841	15	mike.edmondson@osc.idaho.gov	State of Idaho	Chapter 7 Preferred Alternative Anadromous Fish section Ch 7 L 1404 1409: Relative to the development of a trap and haul plan and Line 1409 relative to refurbishing the adult trap at Ice harbor. IDFG developed the Trap and Haul Emergency Procedures and Feasibility Plan at Lower Granite Dam for sockeye salmon and shared it with the region in 2017. It is available on the TMT website here: https://pweb.crohms.org/tmt/022217_Emergency_Trap_and_Haul_Plan_FINAL.PDF Given the existence of this document we do not see the need for consideration of the matter in the DEIS. We appreciate the attention paid to adult sockeye migration concerns as it relates to structural and temperature issues. However, we do not believe refurbishing the adult trap at Ice Harbor Dam for the purpose of trapping and hauling sockeye salmon is necessary, and believe it would be a misuse of limited resources. Since 2017 weve seen no evidence to suggest that trapping at Ice Harbor Dam or Snake River dams other than Lower Granite Dam has become feasible or warranted. If anything we have stronger data indicating the number of Upper Columbia River sockeye stray into the Snake River as far as Lower Granite Dam. Adult sockeye trapping at Lower Granite Dam is feasible because of the large contingent of fisheries personnel from multiple agencies (NOAA, USACE, IDFG and NPT) who routinely operate the adult trap and handle ESA listed adults and routinely transport adults for brood collection programs this experience as well as the infrastructure contribute the successful	The 2015 Adult Sockeye Salmon Passage Report (NOAA 2016), included a recommendation to consider trapping downstream of Lower Granite as potentially more fish could be collected for brood stock. The Trap and Haul Emergency Procedures and Feasibility Plan (IDFG 2017) supports a pilot study to better assess the logistic and operations difficulties. The Ice Harbor Ladder trap provides and existing opportunity to trap in the ladder for studies, or brood stock. However, IDFG and members of other regional forums, in particularly FPOM would collaborate on any such use of the trap. Removal of turbine intake screens as temperature management measure would likely have significant adverse effects on fall Chinook. This would eliminate juvenile salmon transportation, which after 1 July typically results in greater returns than those left in-river, presumably because the transported fish are out of the hot water and in the estuary in three days. However, instead of being collected, they would all pass through the turbines, not the bypass. The survival rate of subyearling Chinook through turbines in warm water is consistently very low due the very active predator populations in the tailrace. The higher turbine efficiency would not lead to fewer powerhouse encounters, because the spill cap would not change. Removing the screen would increase power production 1-2%, so would have very little effect on hydrology even is not operating to a spill level. As part of the No Action Alternative and Preferred Alternative, engineering efforts are ongoing to design structural improvements that would protect the stilling basin and allow removal of the 150 kcfs constraint at Bonneville Dam. While there are not any physical constraints limiting spill at The Dalles, spill is generally managed to be contained within the spillwalls to optimize egress conditions and survival of spillway passed fish. Maintenance efforts are underway to ensure all spillgates and in proper working order. Decisions to spill for fish beyond current levels at both dams would continue to be evaluated in the future and balance juvenile survival benefits, adult passage impacts, and TDG management.

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				implementation of trap and haul when emergency conditions warrant. Water temperatures at Snake River dams downstream of Lower Granite Dam is another key consideration. If emergency trap and haul is given serious consideration then a thermal emergency already likely exists and the temperatures in the tailrace, fish ladder, and adult trap are consistently warmer than at the adult trapping facility at Lower Granite Dam. Increased temperatures increases the risk of handling mortalities. L 889: The removal of fish screens needs to be carefully considered as increased turbine efficiency could translate into additional powerhouse encounters from migrating salmon and steelhead smolts. Evaluations should be coordinated with state and tribal fish managers as well as federal fishery agencies. L 1016: We appreciate the consideration of adaptive management for the juvenile spill operations program. The adaptive management should consider defined performance metrics such as powerhouse encounters, juvenile reach survival and juvenile fish travel times. L 1037: The EIS should consider structural improvements to allow spill to increase beyond the 150kcfs constraint at Bonneville Dam and beyond performance spill at the Dalles. L 1164 7.6.3.16: Predator Disruption Operations at John Day --This action is an attempt to mitigate the establishment of nesting colonies of Caspian terns. Continuation of this operation needs to be evaluated on an annual basis in the context of the risk of colony establishment and ongoing success. L 1207: The DEIS should recognize the established mitigation goals. The DEIS should also recognize the age of the facilities and their ability to continue to meet mitigation goals in the future is contingent on sufficient allocation of capital funds for maintenance and repair. Additional resources are needed to meet mitigation goals where they are not being met (Snake River Spring/Summer Chinook Salmon). Meeting the LSRCP Snake River Spring/summer Chinook salmon mitigation goals will require increases to production and increases in survival. L 2696 Table 7-24: This table includes Number of Powerhouse Passages predicted by COMPASS and CSS. However, there is no analog to the COMPASS value presented in this table relative to Appendix E Table 3-12. Appendix E Table 3-12 reports proportion of fish experiencing a powerhouse, and the mean number of bypass passages, turbine passages, and spillway passages. Metrics in the PA should match metrics presented for the other alternatives in Appendix E. The PA presents a limited number of salmon and steelhead metrics relative to the MO1, MO2, MO3, and MO4 in Chapter 3 and Appendix E. The results of the Preferred Alternative should include the same tables for outputs related to Salmon as presented for the other MOs in Appendix E. L 4522: The DEIS states, Avian predators displaced from nesting habitat in Lake Umatilla under the Preferred Alternative would be expected to relocate to other islands and continue to forage within the Columbia River Basin. This is concerning and indicates that predation on salmon and steelhead may not be reduced only displaced resulting in no net change in survival of juvenile salmon and steelhead. L 5838: The DEIS states, increased stream temperatures could impact fish in all regions and any positive changes from the DEIS could be offset by climate impacts. The DEIS has no actions outside of Dworshak Dam operations designed to mitigate the effects of potentially increasing water temperatures. The DEIS should evaluate additional thermal management operations to mitigation potential increasing trends in water temperatures.	The co-lead agencies recognize that there are hatchery maintenance and infrastructure needs in the region. This is a regional issue that is being worked through a variety of public and regional forums that are broader than the scope of the CRSO EIS. The direct funding agreement between Bonneville and USFWS provides operational and maintenance funds for LSRCP to administer their mitigation program. Capital funding is currently not a component of the direct funding agreement between Bonneville and USFWS. In response to the statement regarding status of meeting mitigation goals, details around how USFWS manages and administers the LSRCP is appropriately outside the scope considered in the CRSO EIS. Predator dissuasion could redistribute nesting within the basin and an adaptive management plan is being developed for this measure. The co-lead agencies agree with your concern relating to water temperatures in the Columbia and Snake rivers and that is why the agencies have used high quality information and resources available to model and evaluate impacts from operations described in each of the alternatives on water temperatures. The study results indicate that the operations of the CRS do impact water temperature, but the CRS has limited ability to reduce temperatures in the lower Snake and Columbia rivers outside of Dworshak operations. Regionally, high air and water temperatures result in water quality standard exceedances and are beyond the ability of the CRS to cool. Drier and warmer years such as 2015, as summarized in NOAAs 2015 Adult Sockeye Salmon Passage Report (September 2016, National Marine Fisheries Service document) point out that tributary temperatures in the Okanogan and Salmon rivers were above 25C. Cooling water pumps have been installed at Lower Granite and Little Goose adult passage ladders to reduce temperature differentials between ladder and river and to reduce thermal stress during upstream passage. Additional considerations at other locations are included in the Draft EIS. In addition, the co-lead agencies are actively working on implementing the recommendations identified in NOAA's 2015 Adult Sockeye Salmon Passage Report (September 2016, National Marine Fisheries Service document) to improve management decision making and reduce, to the extent practicable, the adverse impacts of high summer temperatures on migrating salmon, including adult sockeye salmon. The water temperature analysis specific to MO3 (the dam breaching scenario) utilized the Dworshak CE-QUAL W2 (2-dimensional model) and the lower Snake River HEC-RAS (1-demesional models) to predict water temperatures under a dam breach scenario, while incorporating operations at Dworshak Dam for downstream water temperature management. No Action Dworshak operations were used in the MO3 analysis. Results were provided to the fish team for incorporation into COMPASS and CSS modeling and other analysis to evaluate the impacts to anadromous fish. However, even with the dams breached, maximum summer water temperatures would exceed state water quality standards (20C) at times, especially during hot weather events. The climate science community is still developing models that can be used to analyze possible effects to water temperature from climate change at the appropriate resolution (river-scale vs. global- or regional-scale), and unfortunately, have not been fully applied and validated for use with climate affected regulated flow projections of large reservoir systems. Therefore, it was not possible to reliably model water temperature changes under climate change for this EIS. In lieu of this information, the climate analysis used the output from the water quality models under historical conditions, climate change data, and scientific literature to qualitatively assess potential effects to water temperature (Section 4.2.3 and Section 7.8.4). The EPA is the lead agency on developing a water temperature TMDL for the Columbia and Snake Rivers, and in doing so will evaluate the impact of all anthropogenic and natural sources of heat in the Columbia and Snake rivers. In contrast the Draft EIS evaluated the impact of several actions the co-lead agencies could take and their impact on river temperatures as they relate to current and historic river temperatures. Thus, the draft EIS did realistically and clearly analyze, to the extent practicable, whether the CRS is causing or contributing to compliance with the water quality standards as compared to historic river temperatures. In addition to investigating the operational impacts on water temperature, the co-lead agencies have taken other actions to address water temperature impacts on fish passage. See Chapters 3, 4, 7 and 8 for additional information.
6841	16	mike.edmondson@osc.idaho.gov	State of Idaho	Appendix R: Monitoring and Adaptive Management Part 1, Framework Appendix R Chapter 5 Decision making, action agency author, and the regional forum L 291-304: This language is confusing because it appears to use verbiage directly from the 2019-2021 Flexible Spill Agreement, except for the last sentence Given that this framework will be applied after the expiration of the Agreement, the FSWG would be open to any interest CRS sovereign that requests to be included. We believe that the addition of a working group that lies between TMT and RIOG is unnecessary beyond the current Flexible Spill Agreement. The FSWG served as an explicit acknowledgement that some CRS sovereigns had signed a CRS operation related legal agreement while others were not signatories. We assume this will not be the case after that agreement has ended. Operations involving spill have to date, and should continue to be, coordinated and discussed at TMT. It is unwieldy to have yet another forum with the authority to elevate to RIOG on only issues related to spill. That said, we assume that the issues envisioned to move from TMT to the FSWG would only involve spill patterns, but that is not made clear in the dEIS.	The co-lead agencies are currently in discussions with the states and Tribes on the structure of this forum. While the intent is to keep the spirit of the FSWG, there will be some modifications to the Draft EIS in this area based on our current discussions.
6841	17	mike.edmondson@osc.idaho.gov	State of Idaho	Appendix E- Ch 1 Methods and Models Results from the analysis of the Preferred Alternative should be included in the appendix alongside the other MOs rather than as a standalone in Chapter 7. Comparisons of the PA against the MOs is challenging given the current format. . It also appears that there are anadromous fish metrics estimated for the MOs in appendix E that are not reported for the PA. Currently, only the overall adult abundances are presented in the PA, whereas population specific adult abundance is presented in Appendix E. L 473 478 & Table 1-4 & Table 1-5: The reduction in turbine associated mortality reported in this methods section is direct mortality occurring through a blade strike or barotrauma only. However, fish passing through an IFP turbine experience forces that are still difficult to comprehend (80-90 G acceleration; See 2020 AFEP Annual Meeting presentations) and, when they survive it, is equally difficult to understand the validity of discounting indirect mortality after turbine passage on the grounds of lack of data. While the COMPASS model uses a conservative 50% reduction in turbine-related mortality, it seems more reasonable to assume that fish that pass through turbines return as adults at very low rates. Additionally, the referenced modelling is not available to the public at present and should be made available and appropriately cited in the FEIS. L 564: The COMPASS model was substantially reconfigured to evaluate Chinook Salmon population response to breaching of the lower Snake River dams in MO3. Compass modeled four groups of juvenile salmon based on the location of tagging (Salmon River Trap at Whitebird; SAL, Snake River Trap at the head of Lower Granite Pool; SNK, and the Grand Rhonde & Imnaha River Traps; GRNIMN). The DEIS states that the alterations in the calibration of migration rate does not fit the scenario of higher water velocities through the Lower Snake relative to any velocity contained in the calibration dataset (L593). While acknowledging it caused no numerical issues, extrapolation beyond the range of a dataset is problematic (e.g., See L587 where the calibration data is from Lower Granite to McNary). Throughout the results, this caveat should be noted. While modifications to the COMPASS analysis may have been mathematically correct it is likely that this was not an appropriate model for MO3 because the parameters used in the Reservoir Survival Module (Temperature, Flow, and Spill Proportion) are too far outside the bounds of the calibration dataset and results from that analysis should be used with caution. Rather than split the three separate groups of fish, it may be easier to understand the results if only the analysis on the Snake River Trap is presented as it represents fish from the majority of the ESU. Fish tagged at the Salmon River Trap and recaptured at the Snake River Trap may be the best calibration dataset for migration rates in the MO3 analysis because of the free flowing nature of the river. L 629-638: Caveats regarding the calibration noted above should also be included as a footnote in the results tables (pdf page 187) so that it is clear in both places that calibration of the COMPASS model is not adequate for evaluating MO3. This explains why MO3-GRNIMN is drastically lower than the Salmon Trap or Snake River Trap estimates. L 641-644: The DEIS states, It appears that both assumptions for the MO3-GRNIMN calibration are being violated to some extent. Given this statement of violating the assumptions of the model, we disagree that including it in the DEIS provides a valuable measure of uncertainty. Rather it is a misuse of the model. We suggest removing the analysis of this trap group. L 677-681: This paragraph describes the four populations groups analyzed with the NWFSC-LCM, one from the upper Columbia and three Salmon River populations. The LCM uses COMPASS hydropassage inputs to produce adult return metrics. It is not clear anywhere in this section which COMPASS survival and smolt numbers where used for the Salmon River populations for MO3 given the separate analyses for different trap groups (SNK, SAL, GRNIMN). Presumably, this was analyzed using the MO3 SAL COMPASS results as inputs to the adult portion of the model. This needs to be specified. The EIS should clarify the term population groups. The recovery plan and data collected for the Snake River Spring Chinook Salmon ESU is organized by populations and Major Population Groups (MPG). The South Fork Salmon and Upper Salmon River are names of populations and also names of MPGs however the East Fork Salmon is not an MPG. Later in the DEIS on line 696 the description of the data inputs indicates that three Salmon River Major Populations Groups L 709-713: Survival and travel time output from the COMPASS model representing alternative scenarios of hydrosystem management was integrated into the model of wild adult abundance (Faulkner et al. in press). Data from both hatchery and wild origin juveniles was used to calibrate function relationships with dam operations and river conditions in COMPASS The sentences here imply that hatchery and wild fish interactions with the hydrosystem were used to estimate the parameters used in the LCM for wild fish only. Given the differences between hatchery and wild fish, this analysis should be completed with COMPASS outputs from wild fish only. Alternatively, the EIS should provide a defensible justification for combining hatchery and natural origin fish for calibrating COMPASS for use within the LCM. Combining hatchery and wild fish in the calibration data is problematic as noted by Burke et al. (in press) who explicitly state that they limited their analyses to wild fish only because of clear differences in the responses and survival rates between wild and hatchery fish. L 731-738: This sensitivity analysis consists of scaling adult abundance and SARs by incremental percentages. Given the latent mortality issue was important enough to include in the sensitivity analysis, the DEIS should clarify how the reduction in latent mortality was estimated and on which outputs the values were applied. As written it is not clear. It appears the 10% reduction in latent mortality was estimated as follows: SARoutput * 1.10 but applied only to the in-river migrating group. Alternatively, it may have only been applied to the ocean survival component (i.e., OceanSurvival * 1.10)? This is not necessarily a sensitivity analysis, but rather a scaling exercise, which underscores a major concern of the model outputs that it does not account for freshwater experience in its estimate of ocean survival. The modeled output describes population declines or population increases depending on which level of latent mortality the reader chooses to focus on making this effort considerably less useful for management decisions. We suggest acknowledging this model was not designed to account for latent mortality and this represents a minimum return from MOs that could reduce latent mortality substantially (MO3 & MO4). L 761-769: We suggest citing the Fish Passage	Because the Preferred Alternative was developed after the other multiple objective alternatives, incorporating measures from those other alternatives, analysis of the Preferred Alternative is described in Chapter 7 and not in Chapter 3.5 or Appendix E. It is correct that neither the NOAA Life Cycle model or CSS Life Cycle model included expanded spawner capacity in their modeling. There is considerable uncertainty around expectations for expanded spawning areas under MO3. In the pre-impoundment era before the construction of Ice Harbor dam, most Snake River fall Chinook spawning occurred in the tributaries and middle/upper Snake upstream of Lower Granite (Groves and Chandler 1999). Scour from ice in the winter and relatively high water temperatures during fall (compared to the upper Columbia) were believed to be limiting factors. It is not known if ice formation would be a contemporary issue below Hells Canyon, and there is some doubt whether adequate gravels would be available in the lower Snake. However, temperatures would be expected to cool earlier in fall. Groves, P. A., & Chandler, J. A. (1999). Spawning habitat used by fall Chinook salmon in the Snake River. North American Journal of Fisheries Management, 19(4), 912-922. For the 2000 Biological Opinion, NOAA proposed estimating free-flowing Snake River survival rates by estimating survival rates of PIT-tagged smolts from both the Salmon River trap, and from the Snake River trap (at the head of Lower Granite Reservoir) to the Lower Granite bypass. The per-kilometer survival rate of the free-flowing portion of the Snake River could be inferred from these difference between these two trap-to-dam estimates (Ferguson et al (2004). For the 2020 Draft EIS, NOAA used a similar method of estimating free-flowing survivals and travel times with their COMPASS model. PIT-based monitoring efforts have occurred at 20-plus additional hatchery and wild trap locations in the Snake and upper Columbia since the 2000 BiOp In the appendix, NOAA carries out a sensitivity analysis for the choice of upstream trap location by comparing free-flowing survival rates estimates from the Grande Ronde, Salmon, and Imnaha traps to Lower Granite Dam to represent dam breach conditions under alternative MO3. There is a wide variance in per-kilometer travel times and survival rates to Lower Granite Dam among all of the possible hatchery release sites and screw trap locations upstream of Lower Granite Dam. The river conditions and migration behavior of fish in tributaries to the Snake River is much less representative of river conditions we expect in the Lower Snake river following dam breaching than are the river conditions in the free-flowing Snake River between the confluence of the Clearwater River and the confluence of the Salmon River. NOAA selected the three locations because each trap location was low in the tributary and are very close to the mainstem Snake River; we expect that reach of the free-flowing Snake to be very similar to what the breached lower Snake would look like in MO3. Traps further up in the tributaries are likely to tag more parr while these three traps tend to intercept mostly smolt aged fish which arrive at Lower Granite time without further rearing behavior. Yet it does appear that some fish in the GRN and IMN data exhibit parr-like behavior, especially in early April. This is a major contributor to why the GRN-IMN model predicts slower migration and lower survival in MO3 than the other calibrations, and the reason for why it was placed into the appendix. The Salmon trap-to-Lower Granite reservoir free-flowing survival rate is used as a representative yearling Chinook population for the main text of the MO3 analysis. In response to the comment "outside the range of the data so the model is useless": this criticism can only apply to the SNK calibration. Yes, MO3 is outside the range of the calibration data for the SNK calibration, as is noted in the EIS text. The calibration between the Snake River Trap and LGD was just a calibration used to get at the GRN-IMN and SAL calibrations, and was not used in any prospective model runs for the Draft EIS. However, the SAL and GRN-IMN calibrations are NOT outside the range of the calibration data when used for MO3. Flow, water velocity and temperature are all comparable between the free-flowing reaches of the Snake River used for calibration and the breached Lower Snake in MO3. Ferguson J. (2004) Memorandum to FCRPS Biological Opinion Remand Administrative Record RE: Updated estimates of free-flowing river survival. NW Fisheries Science Center. Related to estimating passage through IFP turbines, sensor fish successfully identified and played in a significant role in solving spillway passage injuries at both The Dalles and Ice Harbor and are also commonly used to assess fish passage conditions through turbines.. Although certainly not an analogy for a fish, their motions are controlled by the hydraulics of the water and structure the impact and do provide a measure of the physical environment fish are passing through. Less violent sheer and turbulence is obviously a benefit for fish. Balloon tags, do best represent the potential for trauma to passing fish and not total mortality. Certainly, fewer traumatic injuries would lead to a lower mortality rate. The magnitude of the survival rate increase for naturally passing fish is unknown. The assumption used in the COMPASS model was a 50% reduction in mortality, which translates into about 6% increase in survival rates. The actual magnitude that will be achieved is, of course, uncertain. However, given the extensive modifications throughout the turbine including the stay vanes, runner, and draft tube that create a passage environment with less violent sheer, significantly reduced chance of passing through gaps, elimination of very low pressures and great reduction of recirculation within the draft tube that would bring fish back to the turbine blades after passing most of the turbine an increased probability of both direct and indirect survival is reasonable. Relying on the best available science, the co-lead agencies assumed mortality would be halved. All of the empirical ecological models implemented for the CRSO EIS have entered into a peer review process using the IEPR process, although evaluations were not yet available at the time the draft CRSO EIS was distributed. These include the University of Washington (UW) TDG model. As there is no empirical data for the 125% TDG spill targets under all flow conditions, we felt the need to model this to assess possible exposure rates. The UWs TDG model was already built, so we used that. This model does incorporate empirical data on fish behavior and survival, but the TDG-survival relationships are (necessarily) based on laboratory relationships. Because of the limitations of current models related to TDG and survival, those outputs from the TDG model were not used for decision making purposes. Experiments with confined fish will not accurately represent free swimming fish, which we know from telemetry studies of both adults and juveniles change depth regularly and can spend significant time at compensating depths, which reduce gas loading. Results from the IEPR process on the UW TDG model will be included along with review of CSS and NOAA in the FEIS.

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				Center memorandum which detail the methods for the CSS Life Cycle model for clarity and transparency. Update this section by referencing Chapter 2 of the 2019 CSS Annual report where this specific CSS analysis is contained. Section 1.5 TDG model The TDG model is part of the NWFSC-LCM. The TDG section needs to be included with the NWFSC-LCM earlier in the appendix rather than after the CSS model. The current organization is not logical and this comment was made by Idaho on previous iterations of the Administrative Draft of the CRSO EIS. While Appendix E states that the TDG model is a standalone module within COMPASS, there is no description of how the Reach Average Exposure is integrated with the LGR-BON survival estimate from COMPASS or, to what degree, TDG may be altering that survival rate. Understanding how much influence the TDG model exerts over juvenile reach survival requires a more detailed description of how the TDG model fits within the LCM. This is especially true when evaluating the effects of the PA and MO4 which contain higher TDG exposure given the operations proposed in the alternatives. L 891: A major limitation in the outputs of the TDG model is that the dose dependent mortality rates were estimated from laboratory studies of fish held in constant levels of supersaturation– not the variable levels of TDG fish are actually exposed to in the environment. The DEIS should provide the outputs of the reach level survival predictions in context with observed reach level survivals to determine if the assumptions used in the models produce mortality in the range of observed values. L 1070-: The TDG model recognized the need to account for vertical distribution of fish in the water column due to its effects on TDG exposure. However the isosceles triangle which was chosen for simplicity fails to account for behavioral actions of fish to avoid TDG levels that may cause stress and mortality. Stevens et al. (1980) showed a behavioral response in a laboratory experiment that indicated juvenile rainbow trout and coho, sockeye, and Chinook salmon can detect air-supersaturated water and will move laterally to avoid it. Stevens,D.G., A.V. Nebeker and R.J. Baker. 1980. Avoidance Response of Salmon and Trout to Air-Supersaturated Water. Transactions of the American Fisheries Society 9:751-754. L 4904 & L4904 (Tables 3-18 & 3-40): These tables are identical and its unclear why Table 3-40 is in this section because it refers to the Cohort model while the other results refer to the CSS Life Cycle Model. L 4906 Table 3-21: This table refers to CSS results, but the column headings are the same as the NWFSC-LCM results presented in Table 3-20. It would be simpler to have different column headings because, while it is true that the reduction in latent mortality columns are Not Applicable (N/A) to the CSS models, it implies that CSS did not account for latent mortality. It did, but not in the same way. Additionally, the MO3 column refers to MO3-SAL, but the CSS life cycle model did not model abundance using data from the Salmon River.	
6841	18	mike.edmondson@osc.idaho.gov	State of Idaho	Appendix R - Ch 6 L 313-321: The DEIS states, The Flexible Spill Work Group (FSWG) role in implementation of the flexible spill operation component of the selected alternative is outlined for each step of the process below. Opportunities for input are confined by the sideboards of the selected alternative, as outlined in Record of Decision (ROD), and consistent with the Endangered Species Act consultations associated with the CRSO EIS. Further, the Action Agencies retain the authority to make final decisions related to actual project operations planned and completed consistent with the FEIS/ROD. However, if at any time a FSWG member has a specific question or concern related to any aspect of flex spill implementation, the appropriate Action Agency will respond to that input to the extent practicable and will provide feedback on how the members concerns were addressed. This paragraph appears to ignore the role of TMT and other subordinate working groups (i.e., Fish POM, SCT, etc) in the process of adaptive management of the CRS operations. Furthermore, it appears in the language retain the authority to make final decisions pushes the boundaries of what we see as the collaborative process that involves State and Tribal fish and water managers. L 348-374: Each of these steps listed as a FSWG Opportunity is already coordinated in regional collaborations under the current RIOG structure. It is clear that the Flexible Spill Working Group proposed in this DEIS adds a forum and if it is retained there needs to be a clear plan for how the responsibilities of the new group fits into the existing regional fora. It is not clear how the FSWG will add to these processes or steps, except for adding an analog to the Technical Management Team. Some of the current forum that deal with regional aspects of CRS management are: 1. Columbia River Treaty (CRT) Sovereigns make suggestions for preparing recommendations by the U.S. Entity, BPA, and COE. Recommendation move from Entity to Department of State 2. Treaty and NON-Treaty Operations and Treaty Operating Plans- Discusses, formulates, water storage and releases from Canada, funding for management with consideration for flood control management and the Fish Operations Plan (FOP) 3. Regional Implementation Oversight Group (RIOG) Formerly named the Policy Working Group. Formed to be a policy group to make operational decisions elevated from the Technical Management Team and Systems Configuation Team. This is a sovereign group. There are several working groups that deal with hydropower, hatcheries, habitat, and harvest- but can also include predation and Research, Monitoring, and Evaluation. The group provides NOAA a sovereign perspective on issues. Originally a non-agreement in RIOG was elevated to the Executive Committee, and four Governors, Federal administrators of BPA, COE, NOAA, BOR and the Tribal Chairs. Recently the Federal Administrators are just making the call, but this undermines State and Tribal sovereign input. 4. Technical Management Team (TMT) - created by NOAA as part of a process to gather fish/water managers for discussions on reservoir and river operations for fish and suggest changes to FOP if necessary. TMT meets every week (Wednesday) beginning in late March or Early April until about the 30th of August. TMT deals with operations, the Systems Configuration Team (SCT) deals with science and structure. 5. System Configuration Team (SCT). The SCT reviews the physical make-up of the hydroelectric system in the Basindams, fish screens and ladders, spill deflectors, and other structures to determine what the optimal system would look like that incorporates all the needs of the system. 6. Fish Operation Plan (FOP) describes the COE operations for fish passage at Columbia River dams, the Lower Snake River dams, and Dworshak Reservoir. State and Tribal fish managers help construct the plan with the Action Agencies and coordinate on drafts/final documents. Changes to the FOP are generally made in the Technical Management Team (TMT). 7. Army COE Implementation Report the Corps of Engineers prepares report of exceptions to the FOP or operations set forth in TMT. Covers from April 3rd until June 20th, the spring salmon operational period. 8. Dworshak Board Operational Plan a process contained in the Nez Perce Settlement Agreement and formulated in an MOA. Consists of COE, Nez Perce Tribe, Idaho, BPA, and NOAA/NMFS; An Operational Plan is prepared that details the release of 200,000 acre feet of water from Dworshak reservoir after salmon season, August 30th. This release of water is in September until the elevation reaches 1520 feet. Water is primarily for breaking a thermal block in the main stem Snake River from Lower Granite to the confluence of the Columbia. 9. Fish Passage, Operations, and Maintenance (FPOM) FPOM is comprised of the regional sovereigns, COE, and BPA and meets monthly or more frequently as necessary. FPOM deals with the day to day management and maintenance of fish passage structures and coordinates turbine outages and spillway issues. It also directs the fish transport program. Issues in FPOM coordination can be elevated to TMT. 10. Fish Passage Advisory Committee (FPAC) FPAC is comprised of state, tribal, and federal fish managers. They construct and present operation measures aimed at improving fish passage conditions to TMT. They also oversee Sort-by-Code PIT tag requests to ensure conflict does not occur between studies.	Based on comments to the Draft EIS, the future of the FSWG, after the expiration of the 2019-2021 Spill Agreement, is currently being evaluated. Options include the formal incorporation of the FSWG into the Regional Forum process or the integration of the FSWG function into the RIOG. Were the FSWG to continue, participation would be open to any Columbia River System sovereign that expresses a desire to participate. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information.
6841	19	mike.edmondson@osc.idaho.gov	State of Idaho	Analysis in Chapters 3 and 7 of the Draft EIS utilize a 2017 coal retirement dataset and 2017 coal capacity assumptions for the base case scenario analysis. The dataset and assumptions are outdated; they no longer present current coal capacity in the Northwest; and they inaccurately portray the future impacts of alternatives. It is inaccurate to assume that 4,246 MW of coal generating capacity would continue to serve regional loads over the study period. The limited coal capacity scenario and no coal capacity scenarios are more accurate assumptions for coal capacity in the Northwest. The coal capacity generation assumption throughout the CRSO EIS should be improved by utilizing more recent coal capacity assumptions for all critical analysis throughout the document. The Northwest Power and Conservation Council released the Pacific Northwest Power Supply Adequacy Assessment annual update in November 2019. The report claims that 1,619 MW of coal-fired generating capacity has been announced to retire by 2021, and that an additional 127 MW of coal-fired generating capacity has been announced to retire by 2024. The social and economic effects of changes in the power and transmission section of 7.9 fails to analyze the limited coal and no coal scenarios. Analysis in Chapters 3 and 7 of the Draft EIS fails to include the cost of reconfiguring transmission resources. This analysis is critical for capturing the complete direct and indirect effects of MO3 and the Preferred Alternative. With so much baseload coal capacity being retired WECC-wide, and the requirement to replace that capacity with renewables and other low-carbon resources, the region will require adequate transmission infrastructure to accommodate a reconfigured grid whilst maintaining reliability.	The statement in the comment that potential additional coal power retirements would decrease power reliability in the region is consistent with the findings in the EIS. As noted in the comment, since development of the No Action Alternative, additional coal retirements have been announced. To address this concern, the EIS considered two potential coal retirement scenarios. See draft EIS, Section 3.7.3.1, Availability of Coal Resources at pages 3-841-842 and Section 3.7.3.2, Table 3-123. The EIS acknowledges that assumptions regarding coal capacity have changed since the base case was developed in 2017. See draft EIS, Section 3.7.3.1, Base Case Methodology and Cost Sensitivity Analysis, at page 3-816; see also Id. at page 3-823. To address these changes, the EIS analysis uses additional analysis to inform the rates results of the updated coal retirements. This was done by developing an other regional cost pressure analysis. The Other Regional Cost Pressure analysis shows the incremental resource costs to the region of the limited coal retirement scenario and the no coal scenario for each Multiple Objective (MO) Alternative. In other words, the Other Regional Cost Pressure analysis combines the effects of the MO with a limited coal or no coal scenario and identifies the incremental resources needed (above those identified in the base case analysis for the MO) to return regional reliability to the level of the No Action Alternative. See draft EIS, Section 3.7.3.1, Additional Power Rate Sensitivity Analysis and Other Regional Cost Pressure Analysis at pages 3-829-830. This cost is represented as an additional unassigned cost (i.e., it is not reflected in the rates analysis) because the EIS does not take a position on what entity would be responsible for the incremental costs created by additional coal retirements (e.g., the region, Bonneville). The Preferred Alternative also discusses the potential effects of coal capacity; see Section 7.7.9, Table 7-30 in the draft EIS. Given the uncertainty of the amount of capacity needed, the technology that would be available at the time, and the type and timing of resources to replace future coal retirements, the replacement costs, and thus, the potential economic effects were not estimated for any alternative. A full-scale assessment of transmission system reliability was not performed for a coal replacement scenario. Rather, the coal replacement analysis was intended to consider a set of replacement resources and the power reliability challenges the region faces with the combination of the removal of coal plants and potential changes in hydropower generation from the EIS alternatives. The scope of coal replacement was not known at the outset of the CRSO EIS analysis and did not inform the base assumptions. During the development of the EIS, it became apparent that additional coal retirements would occur independent of the CRSO EIS. The EIS added the sensitivity analysis to augment the detailed assessment considered under the CRSO EIS alternatives to ensure the EIS properly evaluated all effects.
6841	20	mike.edmondson@osc.idaho.gov	State of Idaho	Additional inadequacy of the existing transmission system would occur under MO3 with the retirement of baseload hydropower resources. Analysis in Section 3.7 of the Draft EIS fails to acknowledge the difficulty of acquiring new resources. Acquiring and permitting new resources is time consuming, and there are major costs of delay, including jeopardizing reliability and other socioeconomic impacts on energy sector jobs and the price of electricity. These costs should be analyzed and included in Chapter 3 and Chapter 7.	Contrary to the comment, the EIS acknowledges permitting requirements and developing replacement resources; see draft EIS, Section 3.7.3.1, Step 3: Determine Need for Potential Replacement Resources, at pages 3-820-21. In response to this suggestion from Idaho and other public comments, Appendix H, Section 2.2.4 in the Final EIS describes the process and timeline associated with acquiring new resources. The EIS also acknowledges that potential delays in developing resources would have adverse effects on power reliability and assesses these potential delays qualitatively for each alternative (see Sections 3.7 and 7.7.9, Other Social Effects section for each alternative).
6841	21	mike.edmondson@osc.idaho.gov	State of Idaho	Chapters 3 and 7 of the Draft EIS fail to analyze the effects of alternatives to regional service providers, specifically the municipal and cooperative utility providers that utilize Bonneville Power Administrations (BPA) generation and transmission. These service providers face more constraints than vertically integrated utilities and will be disproportionately affected by changes to CRSO. These effects should be robustly analyzed in the environmental justice sections of Chapter 3 and 7, as many municipal and cooperative utility providers serve low-income and minority communities identified in Appendix O. Chapter 7, section 7.7.20: Claims that increases to power and transmission rates from the Preferred Alternative would occur across the region at levels	The EIS does acknowledge that regional utilities that purchase most or all of their power from Bonneville would likely be more directly affected by retail power rate pressure. The EIS recognizes concerns around the affordability of electricity, and the Environmental Justice analysis (Section 3.18.3 and Section 7.7.20 of the EIS) provides further detail on this as well as the potential disproportionate effects to tribal, low-income and minority populations. As pointed out in the comment, the EIS also discusses that Bonneville customers, such as the municipal and cooperative utility providers mentioned in the comment, may have larger increases in rate pressures than other regional utilities that do not purchase power directly from Bonneville. See draft EIS, Sections 3.7.3.3, 3.7.3.4, 3.7.3.5, 3.7.3.6 and 7.7.9, Social and Economic Effects of Changes and Power and Transmission. Although the power generation effects analysis does not focus on individual public power utilities, Chapter 5 and Exhibit 1 of Appendix H, Power and Transmission, provides additional details on potential rate increases by county as well as for urban and rural utility customers.

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				that would not be considered disproportionately high and adverse to environmental justice populations compared to the No Action Alternative. However, Page 7-173, lines 5133-5135, claims, "Regional utilities that purchase most or all of their power from Bonneville would experience larger effects than independently operated utilities (IOUs) or other public utilities that do not purchase Bonneville power directly." Given that Appendix O identifies populations that meet the low-income criteria to be considered environmental justice populations and are BPA customers, additional socioeconomic analysis is required to illustrate the effect of the Preferred Alternative to these populations. These populations are subject to socioeconomic vulnerabilities that must be included within analysis of the Preferred Alternative. Throughout environmental justice sections in the Draft EIS, discussions on power generation and transmission only include analysis on the energy cost burden of residents within and surrounding the CRS, and how energy cost burdens for residents may change with alternatives. Alternatives will also have a large impact on commercial and industrial energy cost burdens that will impact the costs of goods and services to low income populations, minority populations, and Indian Tribes, and should therefore be included in the environmental justice analysis. Changes in hydropower generation and pricing amongst alternatives will impact power providers trading in the wholesale energy market and the Western Energy Imbalance Market, which will subsequently impact reliability and electricity prices throughout the region affecting low income populations, minority populations, and Indian Tribes. There is also no discussion on the impact of alternatives to transmission services and the subsequent impact on reliability and electricity prices throughout the region affecting low income populations, minority populations, and Indian Tribes.	The EIS also analyzed the wholesale market prices mentioned in the comment and the effect of changes to market prices were included in the rate analysis. Regarding the potential effect of the Preferred Alternative, these estimates compare the Preferred Alternative to the No Action Alternative, which is not the same as comparing the Preferred Alternative to current operations. Consequently, the estimates are not a comparison to the BP-20 wholesale power rates, which were set assuming the financial impact of the 2019-2021 Spill Operation Agreement and therefore, already include a substantial portion of the cost pressures found in the Preferred Alternative. The remaining rate pressure associated with the Preferred Alternative falls within a level that Bonneville has historically been able to mitigate through the costs over which it has significant control.
6841	22	mike.edmondson@osc.idaho.gov	State of Idaho	Page 3-1064, Line 31831: Idahos Port of Lewiston has shipped numerous pieces of oversized equipment to Canada. Dam breaching would eliminate utilization of the Columbia/Snake River and U.S. Highways 12 and 95 as shipping routes to Canada and the interior of the U.S. Page 3-1087, Line 32284, Survey responses could be bias due to a 4-month extended lock closure during 2016. This bias may would be reflected in the modeling assumptions. Page 3-1093, Line 32490: If 2016 is the base year for the analysis, would the 4-month extended lock closure impact the analysis? Page 3-1095, Line 32518: Question the assumption that grain shipped down the river system will remain constant over time. For example, when the cost per barrel of oil increases to 2012 levels, Class A rail companies will dedicate equipment to oil shipments causing rail car shortages for other commodities. Furthermore, rail companies will institute rail car surcharge rates costing thousands of additional dollars to secure a rail car. The agriculture industry is unable to compete with the oil industry when high rail surcharge rates are instituted. This has been observed in the past and this scenario will undoubtedly occur again in the future. The river system will be needed to ship grain due to rail car shortage and pricing, however if dams are breached, river transportation will not be available.	The survey data was not collected during the four-month extended lock outages. Although there was a planned shutdown of the Snake River at the end of 2016 for a few weeks, the freight tonnage on river was not significantly affected. Freight tonnage in 2016 was 4 percent lower than the 10-year average. This would not substantially affect the SCENT model results, and would not affect the modeling conducted for MO3 (dam breach). For additional information, please refer to L.2.2 in Appendix L. The assumption that grain volume remains constant through time has been described relative to how Northwest wheat competes in the world wheat market and is not comparable to oil production. Most Pacific Northwest wheat merchants and cooperatives benefit when Class I rail capacity is tight and rail cars on the secondary freight market increase.
6841	23	mike.edmondson@osc.idaho.gov	State of Idaho	Page 3-1099, Line 32567: Question 124,000 cy of dredge material per year. The confluence of the Clearwater and Snake River was dredged in 2006. The next dredging project was undertaken in 2015 a period of 9-years between dredging projects. In the 2015-2016 dredging project 372,603 cy of sediment was removed. If we divide 372,603 by 9 years = 41,400 cy average per year sedimentation rate. The 124,000 cy of dredge material per year is a high estimate. Additional information on page 3-1081, Line 32108.	It is true that in recent years the average annual dredged volume of material has been much lower than the 124,000 CY/year cited. This is because the number cited is an average from 1975 to 2015. Typically longer averaging periods are more representative. However, there has been a change in dredging patterns that should be acknowledged. The PSMP has a provision for dredging outside of the navigation channel for the sole purpose of increasing flow conveyance to maintain flood risk at Lewiston. This provision is in harmony with the Lower Granite Water Control Manual, which states that maintaining levee freeboard at Lewiston is a project function. The current requirements for conveyance dredging, which are outlined in the PSMP, are more stringent (i.e. several criteria need to be met before performing conveyance dredging) than conveyance requirements during the early years of the project. As such, conveyance dredging has not been performed in recent years. Since conveyance dredging has not been performed since the new requirements were put into place, data to determine annual conveyance dredging volumes, does not exist. While 124,000 CY/yr might be a high estimate, in the absence of data it was judged to be the most representative number, given that 41,000 CY/year is a low estimate that does not include any conveyance dredging. A clarification of navigation dredging volumes has been added to EIS, Section 3.10.3.2.
6841	24	mike.edmondson@osc.idaho.gov	State of Idaho	Page 3-1118, Line 33058: The EIS states that others agree that a 50% increase is likely to be a reasonable upper limit. The term others must be defined and or a citation by provided. Idaho Cooperating Agencies and meetings with agricultural representatives have stated that a 100% increase is reasonable to expect in a monopolistic transportation market. The EIS does not demonstrate that a 50% increase in rail rates would entice shipping volume back to barge movements at the Tri-Cities. Stating that a 50% increase is a reasonable upper limit is without foundation. The EIS does not provide empirical data to support this constraint. The cost of trucking is the only constraint to rail pricing. Current trucking rates are $3.81per mile. Realistically, rail companies would find the sweet spot for pricing at a rate that would be optimal for rail revenues, but not enough to support a truck/barge move to the Tri-Cities. Additional analysis is required to arrive at a valid upper end increase in rail rates. Page 3-119, Line 33086: Question with some limited expansion. Please see explanation for line 33092 below. Constructing facilities to handle an additional 39 M bushels of capacity cannot be reasonably defined as limited expansion. Page 3-1119, Line 33089: The EIS states that shippers have reported that shuttle rail facilities can accommodate up to 25 million bushels per year with some storage adjustments The shuttle storage facilities themselves MAY be able to handle the volume of grain, however the rail infrastructure serving the shuttle rail facilities is not adequate to handle the increased rail volume. Significant rail improvements would be necessary at Four Lakes and McCoy unit train facilities. Additionally, the unit train facility at Endicott (Lacrosse) is not capable of handling 25 million bushels per year. Rail construction costs are approximately $1 million per mile. The cost to improve rail in order to reach a volume of 25 million bushels at the shuttle facilities is significant. The EIS must further define these costs. Page 3-1119, Line 33092: This sentence seems to imply that the 3 M ton (99 M bushel) capacity of the four-unit train facilities is adequate to transport 138 M bushels of grain (71 M bushels (rail) + 67 M bushels (barge). It appears that the capacity of the four-unit train facilities are 39 M bushels short. The first assumption under Scenario 1 would not be true without constructing 39 M bushels or 39.4% of additional handling capacity to make up the difference. Page 3-1119, Line 33110: Typo Should be Ritzville. Page 3-1119, Line 33108: There appears to be a disconnect between line 33108 and line 33121. In the first sentence, the EIS states that the four shuttle rail facilities can absorb the increased grain shipments. In Line 33121, the EIS states that Due to this required increased in capacity, it would seem that this increase would be unlikely to occur without an associated increase in rail rates. Line 33108 is inaccurate. Page 3-1120, Line 33157: As previously noted, should the number of unit trains increase by 94%, the rail infrastructure is unable to handle the increase. As stated in Page 3-1102, Line 32669: the cost to upgrade the entire PCC rail network to the 286,000-pound standard, WDOT would have to invest $150 million. Page 3-1123, Line 33193: The EIS notes that Pasco, WA would experience a large volume increase, mostly from shipments arriving via truck traveling longer distances to access river ports. What substantiates this statement? An explanation or citation is needed to support this assertion. Current trucking rates are approx. $3.81 per mile ($3.29 per mile + fuel costs of $0.52/mi.). Pasco is 130 miles from Lewiston. The McCoy unit train facility is 72 miles from Lewiston. Hauling to Pasco adds approximately $0.44 per bushel in transportation costs. It is questionable whether Idaho grain would be transported to Pasco even if rail rates increased by 25%. Costs associated with Scenario 2 should be further researched. The NAA cents/ bushel appears low. Page 3-1125 Line 33226 33233: Question the accuracy of 50% representing a reasonable high estimate. The EIS states that rail rates increased by 40% during periods of lock closure. Lock closures are temporary and grain transport is planned for months in advance. Grain is prepositioned at Lower Columbia River elevators ahead of lock closure. Overseas buyers are aware of lock closures and plan for scheduling grain purchases. Breaching dams is permanent. If rail companies increase rates by 40% under a temporary lock closure, then increasing rates by only 50% under a monopolistic transportation scenario is not reasonable. Rail companies will price their services just under trucking rates. Page 3-1126, Line 33242: Noted that Idaho farmers will experience rate increases double or triple a 24 cent per bushel increase in transportation costs. Page 3-1126, Line 33253: See comments for Page 3-1123, Line 33193. Page 3-1127, Table 3-246: The total change from NNA of 24 cents per bushel is low when considering the cost of trucking is $3.81 per mile. Additionally, it should be noted that 24 cents per bushel does not reflect how farmers will be impacted by the increased cost to improve rail lines (short line and class 1), unit train facilities, storage facilities, highways and additional handling costs. Page 3-1132, Line 33414: For the cost comparison of a Colfax farmer versus a Grangeville farmer, the trucking cost component should reflect $3.81 per mile throughout the comparison. Page 3-1137, Line 33587: Typo Scenario 3. Not Scenario 1. Page 3-1137, Line 33593: Clarification Construction cost should be $25 million. Not $25 million per year. Page 3-1140, Line 33605: Quoting the 2002 EIS, states if carrier face effective competition in rail-served markets. The point being that there would not be serious competition to rail service other than trucking. Page 3-1140, Line 33613: Reference Page 3-1102, Line 32667. WSDOT estimated the cost just to upgrade the PCC network to handle 286,000-pound cars at $150 million. Page 3-1140, Line 33620 33626: Referencing the 2002 EIS concerning mainline rail capacity is not appropriate. The 2020 EIS should not rely on statements by a BNSF representative from 18 years ago. Additional research should be undertaken concerning mainline rail capacity issues. Page 3-1142, Line 33697 33702: A study by FCS Group found that the average regional net farm cash income was only $42,825. Given the devastating increase in agricultural transportation costs, over 1,100 farms may be at risk on bankruptcy. Page 3-1142, Line 33707 33715: This paragraph illustrates several questions which the EIS should analyze: Will the U.S Government subsidize the increase in transportation costs to the agricultural industry, farmers, timber interests and other businesses negatively impacted by dam breaching? Adequate rail capacity could take decades to construct, if ever. Rail companies will have monopolistic pricing opportunities. What is the economic impact to rural Idaho communities due to the impact of higher transportation costs? For example, how many rural Idaho farmers are expected to go out of business? When the first barge departed from Lewiston in 1975, rail rates fell throughout Idaho and eastern Washington as railroads now had to compete with barge transportation. If dams are breached, rail rates will increase due to monopolistic pricing opportunities throughout Idaho and eastern Washington. The EIS should provide analysis on not just local increases in rail rates, but increases throughout the region. Page 1145, Line 33795: Question the increased transportation cost range of $0.07 to $0.24 per bushel. This analysis should be revised to reflect actual truck rates of $3.81 per mile.	The response to these comments can be found in comment IDs 31766-8 through 31766-27.

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				Additionally, it should be noted in this section that the full impact of increased transportation costs is not captured within the $0.07 to $0,24 per bushel range. Costs associated with improvements to unit train loading facilities, storage capacity, rail lines (short line and class 1), highways and additional handling costs are not captured within the stated cost increase. These additional costs will be substantial and ultimately paid by the farmer. Page 3-1145, Line33808: See comments for Page 3-1140, Line 33613.	
6841	25	mike.edmondson@osc.idaho.gov	State of Idaho	Appendix L Navigation and Transportation Content of Appendix L and Chapter 3 of the EIS shows that the content concerning navigation and transportation in the two document is very similar. Concerns express above for Chapter 3 of the EIS are similarly expressed for Appendix L.	Thank you for your comment. The responses for the concerns for Chapter 3 content reflect responses to similar concerns for Appendix L.
6853	1	jeff@ioga.org	N/A	Despite five judicial invalidations and the overwhelming longitudinal-evidence demonstrating the impact of the hydro system (viz. the Lower Four Snake River Dams) on anadromous fish decline, this Federal plan's recommended alternative prioritizes a flex spill approach spilling more water over the dams during juvenile salmon out-migrating to the ocean and continuing the transport of fish around dams using trucks and barges. Both approaches are already in use, and while each has utility in particular cases and in degrees, neither have yielded results approximating Federal obligations to conserve endangered fish populations even just above extinction-trend levels. The rearview strategy and limited scope of the DEIS bars it from providing recommendations that actually stand to realize our most pressing priorities: fishing and farming communities, forward-looking energy planning, and salmon & steelhead restoration. Whereas the Action Agencies plan details the impacts (positive and negative, across the different alternatives) on other industries, including agriculture, subsidized barging, and power generation, Idahos outfitters, guides and rural fishing communities are literally and completely ignored from the impact analysis. For all management alternatives and their Preferred Alternative, the economies of recreation and fishing (guiding, outfitting, hotels, restaurants, gas stations, boat shops, license fees, etc.) were not even accounted for despite existing, publicly available data.Previous EISs included such information, but this newest iteration does not. Moreover, the Preferred Alternative implements strategies already in use and makes small tweaks to reservoir releases in the higher tributaries. The economic and cultural impacts of salmon and steelhead in Idaho must be given full consideration by the federal agencies that control this system. To date, Bonneville Power Administration has spent $17 billion in fish recovery efforts to mitigate for downriver impacts with little to show for it. Yet despite evidence supporting a need for change, the draft plan seeks to continue with the same strategies and failed, irresponsible spending.	The co-lead agencies recognize the importance of fishing and recreation to the economy. The EIS recognizes the social and economic values associated with salmon although these values are not all expressed in monetary terms. Section 3.15 provides a discussion of the value of fisheries (commercial and subsistence) associated with salmon, as well as passive use values that people hold for these fish. Section 3.11 describes recreational values associated with the fish. Given uncertainty associated with the specific effects of the alternatives on overall fish abundance, these values are described qualitatively. Additionally, Section 3.17 provides information on the cultural significance of the salmon to regional Tribes. The comments suggestion that approximately $17 billion in fish and wildlife mitigation investment has been ineffective to recover ESA listed species is misplaced. Those investments delivered the intended results when considered in the appropriate statutory context of the Northwest Power Acts anadromous fish provisions which call for improved survival of such fish at FCRPS projects and sufficient flows between the projects to improve production, migration, and survival. For example, as of 2014 this investment had facilitated juvenile dam passage survival of 96% and 93% for spring and summer migrants respectively, see Endangered Species Act Federal Columbia River Power System 2016 Comprehensive Evaluation Section 1, at 17, t.2 (Jan. 2017), a marked improvement compared to when Congress passed the Northwest Power Act and the estimated average juvenile mortality at each mainstem dam and reservoir complex was 15-20% with losses recorded as high as 30%. See Nw. Res. Info. Ctr. v. Nw. Power Planning Council, 35 F.3d 1371, 1374 (9th Cir. 1994) (citing a Sept. 4, 1979 report by U.S. General Accounting Office describing the systems impacts on anadromous fish).
6854	1	ericquaempts@ctuir.org	Confederated Tribes of the Umatilla Indian Reservation Department of Natural Resources	On behalf of the Confederated Tribes of the Umatilla Indian Reservation (CTUIR), Department of Natural Resources, I attach comments on the Columbia River System Operations Draft Environmental Impact Statement. The CTUIR is a federally recognized tribe, 84 Fed. Reg. 1200, 1201, with rights reserved by the Treaty of 1855, 12 Stat. 945, entered into with the United States on June 9, 1855. The CTUIR is a cooperating agency pursuant to an MOU entered into between the Tribe and the Lead Agencies effective February 2, 2018. The attached comments are technical in nature and self-explanatory. However, the ability of the CTUIR to meaningfully participate in the CRSO process was materially hampered by the arbitrary shortening of the review period by the administration and Lead Agencies.	This NEPA process included a wide array of cooperating agencies whose close involvement throughout the process allowed the co-lead agencies to incorporate feedback. Given the broad range of comments received and the extensive Federal and non-Federal participation in the overall process as well as the level of public engagement in the six virtual public meetings in the region, the co-lead agencies determined that an extension was not warranted and that the 45-day public comment period was adequate and consistent with NEPA regulations. The CRSO EIS website reminded the public on April 9, that they should plan to submit comments by the close of the comment period.
6854	2	ericquaempts@ctuir.org	Confederated Tribes of the Umatilla Indian Reservation Department of Natural Resources	The CTUIR DNR looks forward to written responses to our concerns and resolution in the final document.	Appendix T of the Final EIS provides responses to comments that were submitted on the Draft EIS.
6854	3	ericquaempts@ctuir.org	Confederated Tribes of the Umatilla Indian Reservation Department of Natural Resources	The Confederated Tribes of the Umatilla Indian Reservation (CTUIR) has worked for decades with the Action Agencies and other co-managers to protect, mitigate, and enhance fish and wildlife, including related spawning grounds and habitat, affected by Columbia River System Operations (CRSO). The collaborative nature of this work with the Action Agencies increased markedly following the signing of the 2008 Columbia Basin Fish Accords and the 2018 Extension of those Accords. One of the goals of the CTUIRs efforts is to secure equitable treatment for such fish and wildlife with the other purposes for which the CRSO system and facilities are managed and operated. This work led to the planning and implementation of important measures to improve the operations and configuration of the dams, to habitat protection and restoration projects, and to the supplementation of naturally spawning populations of fish through state of the art fish production facilities. This work alone has not been enough, however, as much work remains to be done to restore, protect and enhance the salmon, steelhead, lamprey sturgeon and freshwater mussel resources of the Columbia Basin. These resources are all First Foods of the CTUIR on which it members depend. The CRSO Environmental Impact Statement (EIS) effort presented an opportunity to study and present a meaningful restoration path forward, in conjunction with the other purposes of CRSO. Unfortunately, based on the DEIS released February 28, 2020, substantial revisions are needed to achieve a meaningful path forward for these important resources. Under its Treaty of 1855, 12 Stat. 945, the CTUIR reserved for itself and its members the right to take fish at all usual and accustomed areas. Tribal members have fished on the Columbia River for subsistence, ceremonial and commercial purposes since time immemorial. The Supreme Court of the United States has repeatedly recognized the significance of the treaty reserved right to fish at off-reservation usual and accustomed places, holding that the right is not much less necessary to the existence of the Indians than the atmosphere they breathed. Washington v. Washington State Comml Pass. Fishing Vessel, 443 U.S. 658, 680, 99 S. Ct. 3055, 3071-3072 (1978), quoting United States v. Winans, 198 U.S. 371, 380 (1905). This treaty right to fish is a property right, protected by the Fifth Amendment to the Constitution of the United States. See Muckleshoot Indian Tribe v. United Sates Corps of Engineers, 698 F.Supp. 1504, 1510 (W.D. Wash. 1988), citing Menominee Tribe of Indians v. United States, 391 U.S 404, 411-412, 88 S.Ct. 1705, 1710-1711 (1968). The Treaty also creates a federal trust responsibility under which the federal government maintains an affirmative obligation to safeguard the subject matter of federal treaties. Thus, federal agencies must use their authorities in a manner that will protect and enhance– not degrade – the fish species that underlie treaty fishing rights. Further, [i]n carrying out its fiduciary duty, it is the government's, and subsequently the Corps', responsibility to ensure that Indian treaty rights are given full effect. NW Seafarms v. US Army Corps, 931 F.Supp. 1515, 1520 (W.D.Wash. 1996), citing, Seminole Nation v. United States, 316 U.S. 286, 296-97, 62 S. Ct. 1049, 1054-55, 86 L. Ed. 1480, 86 L. Ed. 1777 (1942) (finding that the United States owes the highest fiduciary duty to protect Indian contract rights as embodied by treaties). This duty does not cease once a fish run becomes viable. Tribal members must be allowed to achieve their CTUIR Public Comments April 13, 2020 Page 2 of 46 "moderate living," even if this living standard may only be achieved by allowing the tribes to enjoy the "same level of exclusive use and exploitation" they had at the time the treaty was signed. United States v. Adair, 723 F.2d 1394 (9th Cir. 1984) cert. denied, 467 U.S. 1252 (1984). In short, the Tribe has an absolute right to a fair share of the fish destined to pass tribal fishing places. U.S. v. Oregon (Sohappy v. Smith), 302 F. Supp. 899 911 (D.Or. 1969). These fish include those artificially propagated for rebuilding, mitigation and enhancement purposes. United States v. Washington, 759 F.2d 1353 (9th Cir. 1985)(en banc) (holding that hatcheryreared fish are fish within meaning of treaty fishing clause and subject to allocation thereunder). The harvest rights and federal fiduciary obligations properly cabin any consideration of the Treaty right to harvest to the environmental baseline. Including Treaty harvest in the baseline is consistent with the purpose of the CRSO EIS, which is to examine different hydrosystem operation configurations. All alternatives studied in the CRSO EIS should have been analyzed for their effect on Columbia River fisheries and their ability to contribute to the recovery of stocks to harvestable levels that support tribal fisheries and communities.	Tribal input, concerns, interests, and especially treaty rights were considered throughout the Draft EIS analyses and in the formulation of the Preferred Alternative. Treaty specific information is included in Section 3.17 as well as Chapter 7. The co-lead agencies recognize and respect the legal obligations imposed by treaties. The co-lead agencies accordingly included Protecting Native American treaty and reserved rights and fulfilling trust obligations for natural and cultural resources throughout the environment affected by the Columbia River System operations as a purpose in the Purpose and Need Statement in Chapter 1 to ensure treaty obligations were a key consideration of decision making. The co-lead agencies are engaging in government-to-government consultation with the tribes, and several tribes are cooperating agencies on the CRSO EIS. The EIS recognizes the economic and cultural importance of salmon to Tribes in a number of sections throughout the document. The cultural significance and impacts of salmon and steelhead fisheries are described in the Ceremonial and Subsistence Fisheries sub-section and the Social Importance of Commercial, Ceremonial and Subsistence Fisheries sub-section of Section 3.15.2.1. Fisheries tribal interests are provided in Section 3.15.4 additional details regarding the economic significance of salmon and steelhead fisheries have been added to the recreation analysis (Section 3.11) including tribal interests (Section 3.11.3.7). Treaty rights are discussed in the Executive Summary, Section 3.16 Cultural Resources, and Section 3.17 Indian Trust Assets, Tribal Perspectives, and Tribal Interests. Appendix P includes copies of tribal perspectives that were submitted by tribes. Tribal consultation is described in Sections 1.5, 3.5, and 3.15; and Chapter 9. Most sub-sections within Chapter 3 include a Tribal Interests section at the end of the sub-section that attempts to summarize tribal issues by topic. Analysis shows that the Preferred Alternative would meet the objectives for improving juvenile salmon, adult salmon, resident fish and lamprey. The analysis found ranges in potential effects due to different assumptions included in each of the fish models used in the study.Using the Comparative Survival Study (CSS), Snake River Chinook salmon and steelhead are expected to see relative improvements in smolt-to-adult returns of 35 percent and 28 percent, respectively. The Smolt-to-Adult return ratio (SAR) is the rate at which of a group of fish survive from their smolt life stage to a defined ending point where they return as adult. While achieving long-term recovery targets will require more than just the efforts of Federal agencies, the CSS models indicate the potential for SARs of Snake River Chinook salmon and steelhead to increase to levels that could approach recovery targets set by the Northwest Power and Conservation Council. If latent mortality effects are reduced by passing more juvenile fish through the spillway, the NMFS Lifecycle Model (LCM) also shows that levels of SARs would increase. However, if latent mortality effects are not reduced, or are different than modeled, the LCM predicts that SARs for Snake River spring Chinook salmon may be lower than the No Action Alternative (a range of -7.5 percent to +28 percent change relative to the No Action Alternative) due to reduced opportunities for fish transportation. Results for upper Columbia River stocks are beneficial based on LCM estimates. In-river survival and SARs are anticipated to increase. The CSS model does not currently model upper Columbia fish. The Preferred Alternative also has measures intended to increase upstream passage success and reduce injury and mortality for Pacific lamprey. These measures are proposed structural improvements that include converting extended-length submersible bar screen material to screen material that would not impinge or entangle juvenile lamprey, expanding the network of lamprey passage structures to bypass impediments in fish ladders, changing the design for turbine cooling water strainers, and replacing turbines for safer fish passage. The Preferred Alternative would also meet the objective to improve resident fish. Effects to resident fish vary by region and species, but are generally minor relative to the No Action Alternative.
6854	4	ericquaempts@ctuir.org	Confederated Tribes of the Umatilla Indian Reservation Department of Natural Resources	The CTUIR worked with and utilized staff of the Columbia River Inter-Tribal Fish Commission in the CTUIRs participation as a Cooperating Agency in the CRSO EIS study. As a Cooperating Agency the CTUIR submitted comments to the Action Agencies on draft products as they were produced, including but not limited to draft EIS chapters, the December 2019 Administrative Draft EIS, and the January 2020 draft Preferred Alternative. All of the CTUIR comments submitted on those products, and throughout the CRSO EIS study process, are incorporated as if restated in these comments on the DEIS.	Thank you for your comment.
6854	5	ericquaempts@ctuir.org	Confederated Tribes of the Umatilla Indian	Further, while the CTUIR is submitting these comments to comply with the unreasonable April 13, 2020 comment deadline which precluded a transparent and full review of the DEIS due in part to the COVID-19 pandemic, the CTUIR reserves the right to submit further comments on this DEIS through its government-to-government or Fish Accord relationships with the Action Agencies.	Thank you for your comment. The co-lead agencies appreciate CTUIR's contributions throughout the development of the CRSO EIS and looks forward to continued coordination as part of government-to-government consultations and Fish Accords discussions.

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			Reservation Department of Natural Resources		
6854	6	ericquaempts@ctuir.org	Confederated Tribes of the Umatilla Indian Reservation Department of Natural Resources	Executive Summary of Comments The DEIS is a product of a failed process. It suffers from structural flaws. These structural flaws include, but are not limited to, overly narrow purpose and goal statement, overly narrow Affected Environment, inconsistent and improper modeling analyses, and the absence of fishery impacts analyses.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA listed species. The co-lead agencies disagree that the Purpose and Need Statement is too narrow given the wide breadth of resource and legal and institutional purposes it encompasses. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-lead agencies numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives) as well as the EIS objectives for: resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. The Preferred Alternative is also more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. The co-lead agencies relied on high quality information in the evaluation of effects to resources, including in the modeling analyses, affected by CRS operations, maintenance and configuration. Alternatives to include changes to harvest are not within the scope of this EIS. The assumptions regarding harvest are taken from the 2018 EIS from NOAA and reflect current harvest management guidelines. To see their conclusions and effects analyses please go to: https://www.fisheries.noaa.gov/resource/document/environmental-impact-statement-programmatic-review-harvest-actions-salmon-and. For harvest, fisheries in the Columbia River Basin and those that rely upon Columbia River fish stocks are managed by numerous entities, including Federal, state, and tribal governments. These entities are guided by a complex array of policies, laws, compacts, and agreements. The management of Pacific salmon fisheries in particular is complex, and involves numerous entities representing a variety of social, political, and conservation interests. Changes in allowable fishery harvest in the Columbia River Basin are a result of decisions made by state, Federal (i.e., NMFS), and tribal fishery managers based on a variety of environmental, biological, economic, and social factors. The three co-lead agencies (Corps, Reclamation, and Bonneville) do not manage fish stocks, and do not have the authority to do so. The EIS does analyze, however, impacts to fisheries are analyzed in Section 3.15 and 7.7.17. See response to Comment 31775-2.
6854	7	ericquaempts@ctuir.org	Confederated Tribes of the Umatilla Indian Reservation Department of Natural Resources	The DEIS is also inadequate due to incomplete and improper cultural resources analyses, poor analyses of mitigation and questionable assumptions.	The co-lead agencies respectfully disagree that the cultural resources analysis presented in the Draft EIS is incomplete or improper. The cultural resource analysis presented in Section 3.16 and Section 7.7.18 in the Draft EIS provides a complete review and impact analysis of known and/or identified cultural resource property types within the EIS study area. The impact analyses demonstrate a comparison of impacts to cultural resources from the alternatives across the Columbia River System.
6854	8	ericquaempts@ctuir.org	Confederated Tribes of the Umatilla Indian Reservation Department of Natural Resources	The DEIS also does not appropriately incorporate tribal sovereign perspectives.	Tribal input, concerns, interests, and especially treaty rights were considered throughout the development of the Draft EIS analyses and in the formulation of the Preferred Alternative. Please see the Tribal discussion in the Executive Summary, the Tribal Perspectives Section of 3.17 and submittals from Tribes in full in Appendix P. Effects to resources are discussed in Section 3.17.2, Tribal Perspectives Summaries.
6854	9	ericquaempts@ctuir.org	Confederated Tribes of the Umatilla Indian Reservation Department of Natural Resources	The DEIS also fails to adequately address Indian Trust Assets.	Indian Trust Assets are analyzed in Section 3.17.1. Given the importance to the Tribes of these resources that do not meet the Department of Interior's definition of an Indian Trust Asset, effects to those resources are discussed in Section 3.17.2, Tribal Perspectives Summaries.
6854	10	ericquaempts@ctuir.org	Confederated Tribes of the Umatilla Indian Reservation Department of Natural Resources	The DEIS further suffers from a bias in favor of power generation and flood control throughout.	The EIS evaluated beneficial and adverse effects across an array of resource areas including potential effects at the national, regional and local level; effects are monetized and quantified, where possible, and also described qualitatively. As is common in NEPA analyses, the beneficial and adverse effects of the alternatives are expressed as a variety of qualitative and quantitative environmental and economic metrics throughout the EIS to inform decision-making, including the effects of the alternatives on fish as detailed in Section 3.5. That the effects of the alternatives on fish are not expressed as monetized economic values does not mean that they were not considered in the context of the analysis. The EIS does not employ a cost-benefit framework for decision-making. Instead, the EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as the MO3 which includes the dam breaching measure. However, the Preferred Alternative also meets most of the other objectives of the study for: resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. As required by the National Environmental Policy Act (NEPA), the co-lead agencies evaluated each alternative for its effects on a suite of resources. These effects are summarized in Section 3 of the Executive Summary, fully described by resource and alternative in Chapters 3, 4, 5, 6 and 7; summarized by resource and alternative in Table 3-1, and presented for comparison in Tables 7-1 and 7-55 in the Draft EIS. Effects specific to anadromous fish are described in Sections 3.5.3 and 7.7.4. In the Draft EIS, Table 3-61 compares expected survival by alternatives, and Table 3-62 provides a comparison of the alternatives specific to anadromous fish. The EIS considered the impact of all of the actions and measures in the alternatives for a multitude of ecological resources, such as water quality and fish, as time progresses from implementation into the future. There are many ecosystem and individual resource effects that occur outside the operation and maintenance of the CRS. Salmon and steelhead and other resources have been adversely affected in the Columbia River Basin over the last century by many activities including human population growth, urbanization, introduction of exotic species, overfishing, development of cities and other land uses in the floodplains, water diversions for all purposes, dams, mining, farming, ranching, logging, hatchery production, predation, ocean conditions, and loss of habitat (see Chapters 6 and 7 for additional information). The co-lead agencies analyzed the effects of the operation, maintenance, and configuration of the CRS projects on resources affected by the CRS. The co-lead agencies also looked at the cumulative effects of past, present, and reasonably foreseeable future actions and trends in Chapter 6 (Cumulative Effects) and Chapter 7 (Preferred Alternative), of the EIS. Further, Chapter 4 (Climate) provides an overview of the project changes in future regional climate and discusses how these changes would affect each of the resources under each alternative.
6854	11	ericquaempts@ctuir.org	Confederated Tribes of the Umatilla Indian Reservation Department of Natural Resources	In sum, the DEIS fails to disclose and analyze significant considerations that are part of the fabric of laws and policies that address the protection, mitigation and enhancement of fish affected by the development and continued operation of the CRSO.	The agencies are aware of their responsibilities under all applicable laws, including their responsibilities under the Northwest Power Act and will demonstrate compliance in Chapter 8, Compliance with Environmental Laws, Regulations and Executive Orders in the Final EIS and in their decision document.
6855	1	N/A	N/A	Introduction This EIS was drafted in response to the need to review and update operations, maintenance, and configuration of the 14 multiple purpose dams and facilities, the Lower Granite Dam significantly impacts my operation. The topography of the Snake River region differs greatly from some of the areas of the Columbia River System (CRS). The geographic scope and climate vary greatly throughout this entire system and it should be noted that there cannot be a one-size fits all analysis.	Analysis in Chapters 3, 4, 6, and 7 analyzed effects of the alternatives at each project by different geographic region (A through D). For example, Region A includes three projects geographically located in the upper basin - Hungry Horse and Libby in Montana and Albeni Falls in Idaho. Effects of operation, maintenance and configuration to each one of those projects are analyzed separately. Similarly, the analysis for the remaining 11 projects is broken out by region and focuses on each respective geographic scope.
6855	2	N/A	N/A	Water Quality This is a very concerning section as it states that there are elevated water temperatures in the Columbia River Basin due to regular climatic events and climate variability, along with regional controversy regarding the role that the federal agencies may play in higher water temperatures. This management section must undergo serious scrutiny. Any conclusion regarding causation for water temperatures must be based upon scientifically proven, evidence based science, not blanket statements of fault.	Consistent with the requirements of NEPA, the co-lead agencies are using up-to-date, high quality, and relevant information and models in the alternative analysis. Both CE-QUAL W2 and HEC-RAS have been calibrated and peer-reviewed by respected scientists from Portland State University, EPA and the USGS, as well as many cooperating agencies. In addition, the USEPA and co-lead agencies worked together to compare the co-lead agencies' CE-QUAL W2/RAS model (used for EIS analysis) and the EPA's RBM-10 model (used for the draft TMDL assessment). Efforts included identifying and comparing similarities and differences in the two models and assessments, and concluded that both models provide useful and technically appropriate analyses of the Columbia and lower Snake River water temperatures. As such, the EPA agrees with the co-lead agencies that the CE-QUAL W2 and HEC RAS models are appropriate to use in developing the Draft EIS (see EPA review comment letter # 16-0059). Additionally, the EIS has undergone a third party, neutral Independent Expert Peer Review on the tools used, as well as the assumptions and conclusions in the EIS.
6868	1	info@narn.org	N/A	Fish scientists have monitored Snake River wild salmon population declines since the 1950s. They have intensively studied the plight of the wild salmon in the last several decades using advanced tagging methods and modeling. The role that dams and reservoirs, habitat, hatcheries, harvest, predators and the ocean play in salmon survival is well understood. In order to restore Snake River salmon populations to sustainable numbers, scientists have determined that they must consistently return adults to the uppermost Snake River dam, Lower Granite, at a minimum rate of 2% to 6%. Since 1975 when the eight dams (four on the lower Columbia River and four on the lower Snake River) were completed, return rates have only rarely exceeded the 2 percent survival minimum. From 1994 to 2004, they ranged from 0.35 to 2.5 percent, exceeding 2 percent in just a single year. An extensive modeling	The agencies used current, high-quality modeling information consistent with NEPA and did not rely on information contained in the Plan for Analyzing and Testing Hypotheses (PATH) Weight of Evidence Report (ESSA Technologies 1998), which is over 20 years old and does not reflect current CRS operations. The Smolt-to-Adult return (SAR) rate necessary to meet the rate-of-replacement for each population has been found to vary as a function of the level of density dependence in the spawning and early juvenile rearing stages, and also by the life history strategy of the salmon species. For example, species that spend relatively shorter periods in freshwater such as chum or fall Chinook often are able to increase in adult abundance despite SARs below 1%. It should be noted that the 2-6% SAR target referenced in this comment refers to the Northwest Power and Conservation Councils target for broad-sense recovery and is separate and distinct from the obligations of any single entity or in this case a requirement to be met solely by the co-lead agencies. Just as the Councils fish and wildlife program encompasses both Federal and non-Federal stakeholders in the Columbia Basin, the Councils recovery goals are shared

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				effort completed in 2000 analyzed of the causes of mortality for Snake River salmon. The model demonstrated that the four lower Snake River dams were the most significant factor preventing recovery. The cumulative effect of eight dams on the lower Columbia and lower Snake Rivers is too much for salmon survival and if the four dams on the lower Snake were removed (cutting the total number of dams Snake River stocks face in half), these salmon can rebound to healthy levels. More recent studies also show that populations of other Columbia Basin salmon that migrate through four or less dams and reservoirs, such as those from the Yakima and John Day rivers are performing significantly better than those from the Snake river. Those populations, like the Snake, also encounter mortality as a result of habitat destruction, harvest, hatcheries, predators and ocean conditions, but they are not imperiled. The difference lies in the number of mainstem dams they encounter. A key benefit for Snake River populations is the amount of high quality habitat they have that is not found in the other Columbia basins. As a result of this extensive research, hundreds of federal, state, tribal and independent scientists have concluded that removing the four lower Snake River dams is the best and perhaps only means to protect these fish from extinction and recover healthy populations.	by many parties. Based on the Preferred Alternative analysis, it will make a substantial contribution, but the Councils broad sense recovery goals are beyond the scope of this EIS which focuses on the effects associated with the operation and maintenance of the 14 CRS projects. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species as that is a broader goal with shared responsibility. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the Columbia River System. That call, however, is ultimately the role of NMFS and the USFWS. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. Specific to salmon and steelhead, the agencies used both two primary modeling approaches which yielded a range of potential outcomes for the alternatives. With respect to the Preferred Alternative, the CSS model predicts that average SAR rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% (within the Councils recovery targets for the region) as a result of the Preferred Alternative. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. In relation to the comment that fish passing few dams have higher SARs and survival, the co-lead agencies follow the guidance from the Independent Science Advisory Board, and do not typically weigh performance of one population vs. another. It is difficult to isolate causative factors in those types of comparisons (ISAB 2020-1).
6868	2	info@nam.org	N/A	The federal governments salmon plans have failed because they circumvented legal requirements and politicized science. The Endangered Species Act lays out certain basic principles and requirements to ensure that we do not inadvertently allow species to go extinct. Instead of following this species protection law, the federal government has ignored its requirements, reinterpreted them in inconsistent and dangerous ways, and attempted to rewrite them. In the latest plan, for example, the federal government treated dams as unchangeable parts of the environment, much like a mountain.	The CRSO EIS analyzes the impacts of operations, maintenance and configuration of the CRS projects. Consistent with NEPA's treatment of ongoing actions, such as the CRS, the co-lead agencies evaluated changes to operations, maintenance and configuration as well as breaching the four lower Snake River dams. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Recovery is a broader regional goal and is above and beyond the co-lead agencies' obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the Columbia River System. That call, however, is ultimately the role of NMFS and the USFWS. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species.
6868	3	info@nam.org	N/A	Additionally, the federal government has ignored sound science. Tribal, state and federal fisheries biologists have all supported the removal of the four lower Snake River dams as a keystone action necessary for any valid salmon plan. To date, the federal government has ignored this scientific consensus due not to scientific principles, but rather due to political issues.	Consistent with the requirements of NEPA (40 C.F.R. 1500.1(b)), the co-lead agencies used current, high quality information to evaluate the effects of MO3, which includes breaching the four lower Snake River dams. Quantitative evaluations were conducted to determine the effects of each of the alternatives when appropriate. In instances when quantitative evaluations were not appropriate or possible, qualitative discussions are included to describe the effects of each of the alternatives. The evaluations are clear, transparent, and repeatable based on the best available information. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. The EIS set forth eight objectives, which in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-lead agencies numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as the MO3 which includes the dam breaching measure. The Preferred Alternative also meets the EIS objectives for: resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS the co-lead agencies did not identify MO3 because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. The EIS concluded MO3, which includes breaching the four lower Snake River dams would have greater improvement to certain salmon species in the lower Snake River. It did not, however, conclude there was greater certainty of that result in MO3 over any other alternative. Because of delayed response time in MO3, and the potential severity of the short term effects, MO3 would likely have the most substantial uncertainty in terms of beneficial effects. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% (the lower end of Northwest Power and Conservation Council's recovery targets for the region) as a result of the Preferred Alternative, as a result of the Preferred Alternative increasing SAR from 2.0% to 2.7% for Chinook, a 35% relative increase. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. To address uncertainty highlighted by the two models, the Preferred Alternative includes working with regional sovereigns to develop a study that assess the effectiveness of the increased spill regime on adult returns as well as assessment and management of adverse unintended consequences, such as long delays of adult migrants, or TDG-related mortality of juvenile migrants. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information. The Preferred Alternative will make a meaningful contribution towards recovery.
6874	1	N/A	N/A	The impetus for the preparation of this DEIS is derived from an order by Judge Simon that emerged from yet another successful challenge to an unlawful and scientifically deficient Biological Opinion. In his order, it was clear that the Judge wanted a review of the effects of the four Snake River dams. The DEIS is far more expansive than the Judge intended and addresses many extraneous issues. The intent was to examine the needs of the endangered fish species however; the Agencies have proposed yet again, a biased analysis that does not place the endangered fish at the top of the list of issues of concern.	The commenter correctly notes that in his Order of Remand, Judge Simon urged the Corps and Reclamation to evaluate breaching the four lower Snake River dams. The Opinion and Order, however, also invalidated for staleness the underlying system operations NEPA document relied upon by the Corps and Reclamation. Thus, the scope of the CRSO EIS appropriately responds to the Opinion and Order by incorporating current information and conditions into a CRS-wide EIS as well as evaluating breaching the four lower Snake River dams. The EIS evaluated beneficial and adverse effects across an array of resource areas including potential effects at the national, regional and local level; effects are monetized and quantified, where possible, and also described qualitatively. As is common in NEPA analyses, the beneficial and adverse effects of the alternatives are expressed as a variety of qualitative and quantitative environmental and economic metrics throughout the EIS to inform decision-making, including the effects of the alternatives on fish as detailed in Section 3.5. That the effects of the alternatives on fish are not expressed as monetized economic values does not mean that they were not considered in the context of the analysis. The EIS does not employ a cost-benefit framework for decision-making. Instead, the EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. In this EIS, the Preferred Alternative meets the eight objectives of the EIS, including two objectives to improve passage and survival for ESA listed fish. Additionally, it meets the EIS purpose and need and minimizes adverse impacts to the human and natural environment. The EIS set forth eight objectives, which in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-lead agencies numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as the MO3 which includes the dam breaching measure. The Preferred Alternative also meets the EIS objectives for: resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS the co-lead agencies did not identify MO3 because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. The EIS concluded MO3, which includes breaching the four lower Snake River dams would have greater improvement to certain salmon species in the lower Snake River. It did not, however, conclude there was greater certainty of that result in MO3 over any other alternative. Because of delayed response time in MO3, and the potential severity of the short term effects, MO3 would likely have the most substantial uncertainty in terms of beneficial effects. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% (the lower end of Northwest Power and Conservation Council's recovery targets for the region) as a result of the Preferred Alternative, as a result of the Preferred Alternative increasing SAR from 2.0% to 2.7% for Chinook, a 35% relative increase. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. To address uncertainty highlighted by the two models, the Preferred Alternative includes working with regional sovereigns to develop a study that assess the effectiveness of the increased spill regime on adult returns as well as assessment and management of adverse unintended consequences, such as long delays of adult migrants, or TDG-related mortality of juvenile migrants. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information. The Preferred Alternative will make a meaningful contribution towards recovery.
6874	2	N/A	N/A	This DEIS does not adequately implement the provisions of NEPA and has wasted valuable time and money through failure to analyze appropriate measures to achieve delisting. The DEIS appears to fall short of the requirements of many federal laws, particularly the Clean Water Act and the Endangered Species Act. At a bare minimum, one should expect full compliance with relevant federal laws.	Chapter 8 describes how the co-lead agencies complied with all applicable laws, regulations, and executive orders including the Endangered Species Act (ESA) and Clean Water Act. As stated in Chapter 8, a biological assessment (Appendix V) was submitted to both NMFS and USFWS dated December 20, 2019, to support development of biological opinions. The biological opinions from NMFS and USFWS were received in July 2020 and can also be found in Appendix V. NMFS and USFWS determined that the proposed action would not likely jeopardize the continued existence of ESA-listed species, and would not likely destroy or adversely modify designated critical habitat for the same species. Compliance with Clean Water Act is described in Chapter 8. The Clean Water Act Section 404 b(1) evaluation of the CRSO project can be found in Appendix W. The ESA does not require the co-lead agencies to take affirmative actions to recover ESA-listed species for delisting. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the Columbia River System. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species.
6874	3	N/A	N/A	This long and voluminous document is without vision or planning for a future that continues to generate hydropower while also recovering the endangered population of native anadromous fish. In short, it dramatically fails the region by continuing to follow the same old path to decline of the endangered anadromous fish. Upon review of the DEIS, it is clear that only alternative MO-3 will result in the recovery of endangered fish in the Snake River. After many years of intensive efforts and billions of dollars expended, we are now faced with the reality that while improvements have been made, the removal of the Snake River dams is the only proposed alternative that could lead to full recovery of the fish. The DEIS fails to adequately or appropriately analyze MO-3, and how our region can move to economic prosperity and modernization. Instead, it regurgitates the false choices of the past, (energy vs salmon, transportation vs salmon, irrigation vs salmon) which have kept salmon runs depressed, starved Southern Resident Killer Whales and destroyed jobs in sport, commercial and tribal salmon dependent communities. The preferred alternative is worse than the status quo. It is preposterous that this alternative has been chosen. Allowing additional water withdrawals for irrigation and municipal uses will reduce the ability to manage flows for smolt travel and will increase water temperatures during the summer migration. Winter use of water for hydropower now used for these purposes only benefits revenues from the hydro system at the expense of endangered anadromous fish. It is very hard to rationalize the reasoning for this decision. Finally, the economic analysis that supports the DEIS is flawed. The analysis of the effects of MO-3 gives short shrift to the economic benefits of dam removal. The DEIS does not include an equitable economic analysis of recreational, commercial and tribal fisheries. Improvements in the sport fishing and outdoor recreation activities are under estimated while the costs of removal received full attention within the analysis. Again, it is a reflection of Federal Action Agency bias that has been prevalent for years	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA listed species. 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					The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. National Marine Fisheries Service (NMFS) and the Washington Department of Fish and Wildlife (WDFW) have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for the whales (NMFS and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including lower Columbia fall run (Tules and Brights), Upper Columbia and Snake fall run (Upriver Brights), Lower Columbia River spring run, Middle Columbia River fall run, and Snake River spring/summer run. SRKW also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKW are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). NMFS CSS and Lifecycle models predict that lower Snake River Chinook salmon Smolt-to-Adult return rates (SARs) would have a moderate to major increase under MO3. Operation of Lower Snake River Compensation Plan fish hatcheries under MO3 is uncertain and therefore, production of Snake River hatchery fish is assumed to decline over the long-term, while returning adult wild salmon are anticipated to increase. However, the co-leads do not anticipate a lack of hatchery fish in the short-term based on the proposed fish hatchery mitigation described in Chapter 5. These additional hatchery fish should mitigate short-term construction effects to Snake River populations. Additionally, to address short-term effects to ESA-listed species, the co-lead agencies propose constructing a new trap and haul facility at McNary and conducting at least two years of trap and haul operations for Snake River fish (Chinook, sockeye, and steelhead). Therefore, there may be short-term adverse effects to the SRKW population as the lower Snake River wild salmon populations adjust to changes associated with dam breaching. The co-lead agencies agree that the quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKW, along with vessel traffic and noise, and toxic contaminants. The operation of the CRS directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these Federal dam and reservoir projects, and the associated effects would indirectly affect SRKW. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differently from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NMFS BiOp 2020). The co-lead agencies conclude there could be a negligible to minor beneficial effects to SRKW from implementing MO3. Additionally, MO3 is not likely to adversely affect the SRKW distinct population segment in the short-term analysis because increased hatchery production and the new trap and haul facility at McNary proposed for MO3 in Chapter 5 would address any potential short-term impacts. Additional details on the most crucial prey stocks for SRKW, as well as their population and range, is available from several fact sheets and videos available here: https://www.fisheries.noaa.gov/species/killer-whale#spotlight. For more information, visit this NMFS StoryMap on SRKW: https://noaa.maps.arcgis.com/apps/Cascade/index.html?appid=3405e6637bf74e998d4ebe992c54f613. Moreover, the potential economic effects from breaching of the lower Snake River dams are presented in the EIS, organized by resource area and type of economic impact, with additional details provided in resource specific appendices. Economic effects are described for changes to Power and Transmission (Section 3.7), Navigation and Transportation (Section 3.10), Water Supply (Section 3.12), and Recreation (Section 3.11). Potential economic impacts are evaluated for social welfare effects (national economic effect), regional economic effects, and other social effects. Additionally, the environmental effects associated with increased emissions from shipping goods by rail or truck are evaluated and described in the Air Quality Section (Section 3.8), and increase health and safety concerns are described in the Navigation and Transportation Section for other social effects (Section 3.10.3.5). Breach of the dams has the potential to drop surface and groundwater levels up to 100 feet and it is not possible from an engineering or cost standpoint to replace the delivery mechanisms. Assumptions regarding the cost of reconfiguring water supply systems are discussed in the Water Supply Environmental Consequences Section for MO3 (Section 3.12.3.4, Region C). Effects to livelihoods are captured to the extent possible in the regional economic effects and other social effects sections that follow. Please see Section 3.12 and Appendix N for additional information. Finally, the EIS recognizes the value of recreational and commercial fishing to the region. Section 3.15 describes the values associated with fisheries in the Northwest. Section 3.11 characterizes the sportfishing economy in the region. However, the uncertainty regarding the overall effects of the alternatives on regional fish populations, and how such changes may affect the management of the fisheries, limits a quantitative analysis of the specific impacts of each alternative on these values. The effects are therefore discussed qualitatively. The social welfare effects on fisheries under MO3 are described as major and beneficial in the long-term, with increases in regional economic effects if commercial fish catch rates increase. For the effects on recreational fishing under MO3 (Section 3.11.3.5), the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River). As described in Section 3.15.3.5, under MO3 commercial and ceremonial and subsistence fisheries targeting anadromous fish species across all regions may see major beneficial effects in the long term. Ceremonial and subsistence fisheries targeting residential species in Region C may see long term benefits, while those in Regions A may experience some moderate adverse effects.
6879	1	N/A	N/A	As an initial matter, we request an extension of the 45-day comment period to review the DEIS and provide the Action Agencies further information on the connection between Columbia River Basin salmon and survival and recovery of the SRKWs. The 2019 Novel Coronavirus (COVID-19) pandemic has continued to escalate dramatically from day-to-day in our region and at this time most public facilities are closed, nearly all work places have severely limited access, and many of us are subject to shelter-in-place orders. The COVID-19 social distancing and safety precautions have closed or limited the hours and access to several of the regions science labs and university facilities, which directly impacts the ability to work for some of the undersigned. In addition, at least two of the undersigned are in a high-risk category, live near a cluster of cases of COVID-19 in the Pacific Northwest, and have been subject to restrictions that are longer and more severe than most. The COVID-19 restrictions have materially impacted our ability to provide the Action Agencies will a full scientific review and analysis of the DEIS. Accordingly, we request that the public comment deadline be extended until the public health crisis is over. In case our request for an extension is not granted, we respectfully submit these comments to the Action Agencies on the Columbia River System Operations DEIS, which includes fourteen federal dams and reservoir projects in the Columbia River Basin.	The co-lead agencies considered requests to extend the public comment period. This NEPA process included a wide array of cooperating agencies whose close involvement throughout the process allowed the co-lead agencies to incorporate feedback. Given the broad range of comments received and the extensive Federal and non-Federal participation in the overall process as well as the level of public engagement in the six virtual public meetings in the region, the co-lead agencies determined that an extension was not warranted and that the 45-day public comment period was adequate consistent with NEPA regulations. The CRSO EIS website notified the public on April 9, that they should plan to submit comments by the close of the comment period.
6879	2	N/A	N/A	I. Increasing Columbia River Basin adult salmon returns is critical to the survival and recovery of SRKWs NOAA listed the SRKWs as endangered under the Endangered Species Act in 2005 when the population numbered 88 whales.1 Despite almost fifteen years of federal protection, the population has continued to decline from a high census count in 1995 of 98 whales to a low point of only 73 whales today.2 The National Marine Fisheries Service (NOAA Fisheries) has recognized the SRKWs as one of eight marine species most at risk of extinction and considers them a recovery priority number one: a species whose extinction is almost certain in the immediate future because of a rapid population decline . . . .3 By NOAA Fisheries own assessment, the population must increase by an average 2.3 percent per year for 28 years in order to be removed from the Endangered Species list,4 yet under current conditions NOAA projects a continued downward trend over the next 50 years.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. The EIS analysis found that only a minor effect to the Southern Resident killer whale would result from implementing MO3 (which includes the dam breach measure). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. 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The co-lead agencies note the contribution to the prey of SRKW through the continued existence of their respective independent congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as the Lower Snake River Compensation Plan, which is administered by U.S. Fish and Wildlife Service. The Preferred Alternative and Proposed Action in the agencies' biological assessment carry forward certain mitigation measures described in Chapters 2 and 7 of the EIS, which include continued salmon and steelhead hatchery production. The Preferred Alternative has negligible effects to SRKWs as described in Section 7.7.8. The Draft EIS meets the requirements of NEPA, as outlined in 42 U.S.C. 4331, et seq., 40 C.F.R. Parts 1500 1508 (CEQs regulations for implementing NEPA), and co-lead agency specific NEPA regulations. The Draft EIS' effects analysis of each resource is based on best available existing information as stated in Section 3.1.1.
6879	3	N/A	N/A	A lack of their preferred prey, Chinook salmon, is widely recognized as the primary limiting factor to their immediate survival and future recovery, with increased mortality and decreased fecundity shown to be correlated with coastwide indices of Chinook salmon abundance.12	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. The EIS analysis found that only a minor effect to the Southern Resident killer whale would result from implementing MO3 (which includes the dam breach measure). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differentially from hatchery and wild fish. Hatchery fish today likely make up most fish consumed by SRKW (NOAA BiOp 2020). The EIS analysis of the Preferred Alternative determined the overall effect to SRKW to be negligible in large part because hatchery production is consistent between the No Action Alternative and the Preferred Alternative. Because the impact from the Preferred Alternative was determined to be negligible, the agencies determined that existing hatchery production would be sufficient to address any potential impacts to prey availability for SRKWs. The co-lead agencies note the contribution to the prey of SRKW through the continued existence of their respective independent congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as the Lower Snake River Compensation Plan, which is administered by U.S. Fish and Wildlife Service. The Preferred Alternative and Proposed Action in the agencies' biological assessment carry forward certain mitigation measures described in Chapters 2 and 7 of the EIS, which include continued salmon and steelhead hatchery production. The Preferred Alternative has negligible effects to SRKWs as described in Section 7.7.8. The Draft EIS meets the requirements of NEPA, as outlined in 42 U.S.C. 4331, et seq., 40 C.F.R. Parts 1500 1508 (CEQs regulations for implementing NEPA), and co-lead agency specific NEPA regulations. The Draft EIS' effects analysis of each resource is based on best available existing information as stated in Section 3.1.1.

Letter No.	Comment No.	Commenter Name/Email	Affiliation	Comment	Response[1/]
6879	4	N/A	N/A	One recent population viability analysis considered how SRKW population growth would respond to reductions in current threat levels for each of the three threats, singly or in combination.13 They found that only by addressing prey abundance could the NOAA Fisheries recovery goal of 2.3 percent growth for the SRKW population be achieved.14 The authors concluded that reaching the recovery target without increasing Chinook salmon numbers is likely impossible.15 NOAA Fisheries itself has recognized that the principle impediment to orca recovery is a severe shortage of preyparticularly Chinook salmon.16	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat. 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The Draft EIS' effects analysis of each resource is based on best available existing information as stated in Section 3.1.1.
6879	5	N/A	N/A	For their immediate survival and future recovery, the SRKWs need abundant, diverse, and accessible Chinook salmon prey throughout their range and across seasons.17 Salmon are the mainstay of the SRKWs diet. This diet must support daily life activities (e.g., foraging, traveling, socializing, resting), in addition to gestation, lactation, and growth.18 To maintain this high energy balance, SRKWs preferentially consume Chinook salmon, particularly older (>3 years), larger Chinook age classes.19 Larger salmon offer the additional benefit that fewer are needed to provide a given amount of nutritional value, so larger individuals require fewer prey capture events, and less foraging effort. Chinooks large size, relatively high fat and energy content, and year-round occurrence from multiple sources within the SRKWs range contributes to the SRKWs preferenceand the preference persists despite the much lower abundance of Chinook in some areas and during certain time periods compared to other salmonids.20 Underscoring the importance of Chinook to the SRKWs, scientists have found a strong correlation between Chinook abundance and SRKW impaired 13 Robert C. Lacy, et al. (2017) Evaluating Anthropogenic Threats to Endangered Killer Whales to Inform Effective Recovery Plans, 7 Sci. Reports 14119. 14 Id. 15 Id. at 4-5. 16 NOAA Biological Report at 28. 17 Washington State Southern Resident Orca Task Force (2019) Final Report and Recommendations, available at: https://www.governor.wa.gov/sites/default/files/OrcaTaskForce_FinalReportandRecommendations_11.07.19.pdf 18 NOAA Biological Report at 27. 19 Id. at 10, 27. 20 Id. at 10. See Ford, J. K. B., & Ellis, G. M (2006) Selective foraging by fish-eating killer whales Orcinus orca in British Columbia. Marine Ecology Progress Series 316, 185-199. Figure 3. Aerial photograph comparing a robust female with an emaciated one. Credit: Fearnbach, H. et al., Using aerial photogrammetry to detect changes in body condition of endangered southern resident killer whales, Endangered Species Research 35: 175-180 (2018). April 13, 2020 5 body condition (peanut head), reduced growth rate, reduced overall length,21 reduced social cohesion,22 reduced fecundity,23 and reduced survival.24 Reproductive-age females seem to be particularly vulnerable to nutritional stress. One recent study found that up to 69 percent of all detectable SRKW pregnancies were unsuccessful; of these, up to 33 percent failed relatively late in gestation or immediately post-partum, when the energetic cost and risk is especially high (to the mother whale). The authors concluded that [l]ow availability of Chinook salmon appears to be a . . . significant cause of late pregnancy failure, and that point[s] to the importance of promoting Chinook salmon recovery to enhance population growth of Southern Resident killer whales.25 In particular, the authors concluded that the results of the study strongly suggest that recovering Columbia River Chinook (CRC) runs should be among the highest priorities for managers aiming to recover this endangered population of killer whales.26 A. The Columbia River Basin is not a small part of SRKW diet The SRKWs are some of the most well-studied killer whales on the planet.27 Despite the wealth of scientific literature available on SRKWs, and the numerous studies that were submitted to the Action Agencies by these authors and others during scoping of the DEIS, the DEIS only includes three referenced sources of information on the SRKWs.28 The DEIS does not 21 Durban, J. et al. (2009) Size and body condition of Southern Resident killer whales, Report to the Northwest Regional Office, National Marine Fisheries Service, Contract AB133F08SE4742; Fearnbach, H. et al. (2011) Size and long-term growth trends of endangered fish-eating killer whales, 13 Endangered Species Research 173; Fearnbach, H. et al. (2018) Using aerial photogrammetry to detect changes in body condition of endangered southern resident killer whales, Endangered Species Research 35: 175-180; Groskreutz et al. (2019) Decadal changes in adult size of salmon-eating killer whales in the eastern North Pacific, Endangered Species Res, 40:183- 188. 22 Parsons KM, Balcomb KC , Ford JKB, Durban JW (2009) The social dynamics of the southern resident killer whales and implications for the conservation of this endangered population. Anim Behav 77: 963971; Ford, J.K.B. et al., (2005) Linking prey and population dynamics: Did food limitation cause recent declines of resident killer whales (Orcinus orca) in British Columbia? Canadian Science Advisory Secretariat Research Document 2005/042. 23 Ward EJ, Holmes EE, Balcomb KC (2009) Quantifying the effects of prey abundance on killer whale reproduction. J Appl Ecol 46: 632640; Wasser S.K. et al. (2017) Population growth is limited by nutritional impacts on pregnancy success in endangered Southern Resident killer whales (Orcinus orca). PLoS ONE 12(6): e0179824, https://doi.org/10.1371/journal.pone.0179824. 24 NOAA Biological Report at 13; Ayres, K.L. et al. (2012) Distinguishing the impacts of inadequate prey and vessel traffic on an endangered killer whale (Orcinus orca) population, PLoS ONE 7(6):e36842; Ford JKB, Ellis GM, Olesiuk PF, Balcomb KC (2009) Linking killer whale survival and prey abundance: food limitation in the oceans apex predator? Biology Letters 6: 139142; Ward, E.J. et al. (2013) Estimating the impacts of Chinook salmon abundance and prey removal by ocean fishing on Southern Resident killer whale, NOAA Technical Memorandum NMFS-NWFSC-123. 25 Wasser S.K. et al. (2017) Population growth is limited by nutritional impacts on pregnancy success in endangered Southern Resident killer whales (Orcinus orca). PLoS ONE 12(6): e0179824, https://doi.org/10.1371/journal.pone.0179824. 26 Id. 27 NOAA Fisheries, Species Directive: Killer Whales, available at: https://www.fisheries.noaa.gov/species/killerwhale. 28 The three sources are the Center for Whale Researchs website (last accessed in 2018); a 2016 5-year review of the SRKWs by the National Marine Fisheries Service; and a list of priority salmon stocks developed by the National Marine Fisheries Service and the Washington Department of Fish and Wildlife. See Columbia River System Operations DEIS at 11-9, 11-48, and 11-50. April 13, 2020 6 address or consider any peer-reviewed studies from independent scientists about the SRKWs or the most recent NOAA Fisheries conclusions, including scientific analysis and review of the SRKWs presence in coastal habitat and the importance of Columbia River Basin salmon in particular to SRKW survival. 1. The mouth of the Columbia River is a recognized hot spot for SRKW foraging and one of the most important sources of salmon for nutritionally stressed SRKWs. The SRKWs spend more than half the year inhabiting the coastal waters of Washington, Oregon, and northern California. In particular, NOAA Fisheries data compiled from tagged whales, dedicated surveys, and passive acoustic monitoring indicates the SRKWs spend significant time in the winter and spring (November through May) off the mouth of the Columbia River and have been present there thirty-five times more often than would be expected by chance.29 Although the vast majority of research on SRKWs is conducted in the Salish Sea, the majority of the population spends the majority of their time in the Pacific, and the majority of their time there is likely within the range of Columbia Basin Chinook. NOAA Fisheries itself has noted this area to be a high use foraging area, and approximately 50 percent of the time spent by the SRKWs in coastal waters is between Grays Harbor and the Columbia River.30 NOAA Fisheries recently proposed designation of the mouth of the Columbia River, along with other coastal habitat, as critical habitat for the SRKWs.31 In its Draft Biological Report in support of the proposed revision of critical habitat designation for SRKWs, NOAA Fisheries highlighted the critical importance of the prey found in the SRKWs coastal habitat, especially the Columbia River, to SRKW survival and recovery.32 In our expert opinion, Columbia River Basin salmon are critically important to SRKW survival and continued declineor only negligible increaseof Columbia Basin salmon would jeopardize the survival of the SRKWs. Analysis of fish scale and Southern Resident fecal samples collected on the outer coast indicate that Chinook are the primary species consumed on the outer coast and that over half the Chinook consumed by the Southern Residents are from the 29 Hanson, M.B., E.J. Ward, C.K. Emmons, and M.M. Holt (2018) Modeling the occurrence of endangered killer whales near a U.S. Navy Training Range in Washington State using satellitetag locations to improve acoustic detection data. Prepared for: U.S. Navy, U.S. Pacific Fleet, Pearl Harbor, HI. Prepared by: National Oceanic and Atmospheric Administration, Northwest Fisheries Science Center under MIPR N0007017MP4C419. 8 January 2018. 33 p.; Hanson, M.B., C.K. Emmons, and E.J. Ward (2013) Assessing the coastal occurrence of endangered killer whales using autonomous passive acoustic recorders. J. Acoustic Soc. Am. 134(5) 3486-3495; NMFS (2014) Southern Resident Killer Whales: 10 Years of	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. The EIS analysis found that only a minor effect to the Southern Resident killer whale would result from implementing MO3 (which includes the dam breach measure). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. 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				Research and Conservation; See also National Marine Fisheries Science Center data and reports on Southern Resident tagging project, https://tinyurl.com/vj4dcbs 30 Hanson, M.B., E.J. Ward, C.K. Emmons, and M.M. Holt (2018) Modeling the occurrence of endangered killer whales near a U.S. Navy Training Range in Washington State using satellitetag locations to improve acoustic detection data. Prepared for: U.S. Navy, U.S. Pacific Fleet, Pearl Harbor, HI. Prepared by: National Oceanic and Atmospheric Administration, Northwest Fisheries Science Center under MIPR N0007017MP4C419. 8 January 2018; Proposed Revision of the Critical Habitat Designation for Southern Resident Killer Whales: Draft Biological Report. National Marine Fisheries Service, September 2019. Available: https://www.fisheries.noaa.gov/action/critical-habitat-southern-resident-killer-whale 31 National Marine Fisheries Service: Proposed Rulemaking to Revise Critical Habitat for Southern Resident Killer Whale Distinct Population Segment. 84 FR 49214 32 See e.g. NOAA Biological Report at 33. April 13, 2020 7 Columbia River Basin.33 Elevated triiodothyronine hormone concentrations in early spring indicate that Southern Resident orcas particularly forage on the early spring Columbia River runs.34 The Columbia Basin early spring interior race Chinook runs likely serve to replenish energetic reserves expended during the previous winter as well as help sustain the whales until . . . late summer Chinook runs peak and therefore should be among the highest priorities to recover the SRKW.35 [Text contains figures that do not transfer to database.] Figure 4 & 5: Density and duration of occurrence of Southern Resident killer whale based on model of satellite-tagged movement tracks (left) and acoustic recorders and satellite-tagged movement tracks (right) show mouth of Columbia River to be area of high occurrence. Credit: Hanson, M.B., E.J. Ward, C.K. Emmons, and M. M. Holt. 2018. Modeling the occurrence of endangered killer whales near a U.S. Navy Training Range in Washington State using satellitetag locations to improve acoustic detection data. Prepared for: U.S. Navy, U.S. Pacific Fleet, Pearl Harbor, HI. Prepared by: National Oceanic and Atmospheric Administration, Northwest Fisheries Science Center under MIPR N0007017MP4C419. 8 January 2018. 33 p. 33 Ward, E. et al (May 2019) NWFSC Science to Inform SRKW Distribution and Diet, Presentation to Pacific Fisheries Management Council SRKW Working Group: available at https://www.fisheries.noaa.gov/webdam/download/92840008 ; NOAA Biological Report at 11. 34 Wasser S.K. et al. (2017) Population growth is limited by nutritional impacts on pregnancy success in endangered Southern Resident killer whales (Orcinus orca). PLoS ONE 12(6): e0179824, https://doi.org/10.1371/journal.pone.0179824; Hanson, M.B., J.A. Nystuen, M.O. Lammers (November 2013) Assessing the coastal occurrence of endangered killer whales using autonomous passive acoustic recorders, J. Acoust. Soc. Am. 134 (5) Ward, E. et al (May 2019) NWFSC Science to Inform SRKW Distribution and Diet, Presentation to Pacific Fisheries Management Council SRKW Working Group, available at https://www.fisheries.noaa.gov/webdam/download/92840008, https://www.fisheries.noaa.gov/event/ad-hocsouthern- resident-killer-whale-workgroup]. 35 Wasser S.K. et al. (2017) Population growth is limited by nutritional impacts on pregnancy success in endangered Southern Resident killer whales (Orcinus orca). PLoS ONE 12(6): e0179824, https://doi.org/10.1371/journal.pone.0179824. April 13, 2020 8 While it may be correct that Puget Sound Chinook salmon stocks are one of the most important salmon stocks for SRKWs,36 it is equally true that Columbia River Basin salmon stocks are one of the most important stocks for SRKW survival and recoveryin particular, the fat rich spring Chinook. The SRKWs need to maintain a balance of energy year-round to support daily activities, as well as gestation, lactation, and growth.37 The orcas rely on multiple stocks of Chinook, depending on availability at different times of the year and in different parts of their range.38 The DEIS fails to account for the fact that salmon from all of the rivers within the orcas range are not available to the orcas on a year-round basis but, instead, are critical to the orcas survival in specific seasons.39 The spatiotemporal distribution of Chinook runs within the orcas range means that different runs are more available, and therefore more important, to the SRKWs at different times of the year.40 Columbia Basin Chinook provide the SRKWs with a key source of food and nutrition during the winter and spring, and they likely sustain the whales until the Fraser River runs peak in the Salish Sea in late summer.41 The size of individual salmon and their caloric content vary by species, geographic area, season, and year, and therefore have different value to SRKWs as well.42 This too makes the fat-rich inland spring Chinook from the Columbia River Basin uniquely important. The DEIS concludes that the Multiple Objective Alternative 3 (MO3), i.e. lower Snake River dam breaching alternative, would result in a moderate to major increase in smolt-to adult returns and overall abundances of adult salmon and steelhead over the long term, and that would increase the prey base available to . . . killer whale[s]. 43 However, the Action Agencies 36 Columbia River Systems Operation DEIS at 3-685. 37 NMFS (Sept. 2019) Proposed Revision of the Critical Habitat Designation for Southern Resident Killer Whales: raft Biological Report, available at: https://www.fisheries.noaa.gov/action/critical-habitat-southern-resident-killerwhale 38 NMFS (2019) Endangered Species Act (ESA) Section 7(a)(2) Biological Opinion and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Response. Consultation on the Delegation of Management Authority for Specified Salmon Fisheries to the State of Alaska. NMFS Consultation Number: WCR-2018-10660. April 5, 2019. 443 p. 39 Ford M.J. et al. (2016) Estimation of a Killer Whale (Orcinus orca) Populations Diet Using Sequencing Analysis of DNA from Feces. PLoS ONE 11(1): e0144956. https://doi.org/10.1371/journal.pone.0144956; Hanson M.B. et al. (2010) Species and stock identification of prey consumed by endangered southern resident killer whales in their summer range. Endang Species Res 11:69-82. https://doi.org/10.3354/esr00263 40 Ayres KL, et al. (2012) Distinguishing the Impacts of Inadequate Prey and Vessel Traffic on an Endangered Killer Whale (Orcinus orca) Population. PLoS One 7: e36842, http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0036842; Shelton, A.O. et al (2019) Using hierarchical models to estimate stock-specific and seasonal variation in ocean distribution, survivorship, and aggregate abundance of fall run Chinook salmon. Can. J. Fish. Aquat. Sci. 76(1): 95-108. doi:10.1139/cjfas-2017- 0204; Weitkamp, L.A. 2010. Marine Distributions of Chinook Salmon from the West Coast of North America Determined by Coded Wire Tag Recoveries, Transactions of the American Fisheries Society, 139:1, 147-170 41 Wasser S.K. et al. (2017) Population growth is limited by nutritional impacts on pregnancy success in endangered Southern Resident killer whales (Orcinus orca). PLoS ONE 12(6): e0179824, https://doi.org/10.1371/journal.pone.0179824 42 Mesa, M., & Magie, C. (2006) Evaluation of energy expenditure in adult spring chinook salmon migrating upstream in the Columbia River Basin: An assessment based on sequential proximate analysis. River Research and Applications, 22(October), 10851095. http://doi.org/10.1002/rra; O'Neill, S. M. et al. (2014) Energy content of Pacific salmon as prey of northern and Southern Resident Killer Whales. Endangered Species Research. 25: 265 281. 43 Columbia River System Operations DEIS at 3-758. April 13, 2020 9 conclude without citation or analysis that the effect for the prey-limited SRKWs would be only minor. 44 We agree that MO3 would result in the greatest increase in overall abundance of adult salmon over the longer term. We find no support for the conclusion that the impact on the severely nutritionally stressed SRKWs of a moderate to major increase in adult salmon returns over the long term would be minor. We challenge the Action Agencies in their response to our comments to outline a credible survival and recovery plan for SRKWs that does not include lower Snake River dam breaching. While Lower Snake River dam breaching by itself may not be enough to recover SRKWs, in our expert opinion, recovery of this population of whales is not achievable without lower Snake River dam breaching. In reaching its conclusion, the DEIS relies on the priority stock list (Priority List) developed by NOAA Fisheries and the Washington Department of Fish and Wildlife. That list, however, is not at odds with the conclusion that Columbia Basin salmon are one of the most important stocks for SRKWs. The Priority List ranks each stock in the SRKWs range, and six of the Priority Lists top ten stock groups originate in the Columbia Basin, including lower Columbia (fall), upper Columbia, Snake (fall), lower Columbia (spring), middle Columbia, and Snake River (spring/summer).45 Furthermore, as described in the Priority List document itself, a number of assumptions and caveats are incorporated in the model that give unwarranted preference to Puget Sound and Fraser River salmon stocks. First, the list of stocks and prioritization reflects the observed diet of prey-limited, endangered SRKWs.46 Second, the priority stock report states that there was no spatial correction factor for sample collection (stocks originating from near the sample locations are more likely to be collected), and, no correction factor for abundance (more abundant stocks are more likely to be identified in the diet).47 Sampling effort in Puget Sound and other inland waters of Washington State is much greater than on the outer coast due to logistical constraints for researchers.48 Another major flaw in this analysis is that it does not take into account restoration potential of these stocks, and so currently depleted stocks are underrepresented. The DEIS recognizes that under MO3 prey should increase beyond [the No Action Alternative] over the long term, and that this could change SRKW foraging behavior both over the short and long term as whales react to changes in prey availability.49 This is an important recognition that the SRKWs are responsive to changing Chinook salmon availability, and that they would indeed be likely to adapt their foraging behavior to benefit from any increase in Columbia River Basin stocks. The Columbia River Basin is a critical source of salmon for this prey limited species, and an increase in overall abundance of salmon from the largest river system in the whales range 44 Columbia River System Operations DEIS at 3-758. 45 NOAA Fisheries West Coast Region and WDFW (June 2018) Southern Resident Killer Whale Priority Chinook Stocks Report. Available at: https://archive.fisheries.noaa.gov/wcr/publications/protected_species/marine_mammals/killer_whales/recovery/srkw _priority_chinook_stocks_conceptual_model_report___list_22june2018.pdf; See NOAA Fisheries Chinook Salmon https://www.fisheries.noaa.gov/species/chinook-salmon-protected 46 NOAA Fisheries West Coast Region and WDFW (June 2018) Southern Resident Killer Whale Priority Chinook Stocks Report. Available at: https://archive.fisheries.noaa.gov/wcr/publications/protected_species/marine_mammals/killer_whales/recovery/srkw _priority_chinook_stocks_conceptual_model_report___list_22june2018.pdf; 47 Ibid. 48 See Draft Biological Report. 49 Columbia River System	

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				Operations DEIS at 3-759. April 13, 2020 10 would have a major impact on SRKWs. NOAAs own recovery plan for SRKWs states, [p]erhaps the single greatest change in food availability for resident killer whales since the late 1800s has been the decline of salmon in the Columbia River basin.50	
6879	6	N/A	N/A	The DEIS acknowledges that the Action Agencies Preferred Alternative would result in only a minor change in prey availability in comparison to current conditions (i.e the No Action Alternative); however, the DEIS concludes that this would have only a negligible effect on SRKWs.51 This is contrary to the science and NOAA Fisheries own findings and conclusions in other studies and reports, which consistently recognize the SRKWs as among the most at risk of extinction unless immediate action to increase prey availability is taken.52 In our expert opinion, if there is only a minor change in prey availability for the SRKWs from the largest river system in their range, the SRKWs will continue to decline and ultimately go extinct.	SRKW analysis is described in the EIS including in the FEIS Chapter 3 (Vegetation, Wetlands, Wildlife, and Floodplains) which has been updated for SRKW (Section 3.6.2.6 and Table 3-102) and FEIS Chapter 7 (Preferred Alternative) with additional analysis information on SRKW and potential increase in forage fish, in particular, Chinook salmon in Section 7.7.8. The co-lead agencies utilized current high quality information and best available science in its analysis of the effects of the operation, maintenance, and configuration of the CRS projects. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. The EIS analysis found that only a minor effect to the Southern Resident killer whale would result from implementing MO3 (which includes the dam breach measure). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differentially from hatchery and wild fish. Hatchery fish today likely make up most fish consumed by SRKW (NOAA BiOp 2020). The EIS analysis of the Preferred Alternative determined the overall effect to SRKW to be negligible in large part because hatchery production is consistent between the No Action Alternative and the Preferred Alternative. Because the impact from the Preferred Alternative was determined to be negligible, the agencies determined that existing hatchery production would be sufficient to address any potential impacts to prey availability for SRKWs. The co-lead agencies note the contribution to the prey of SRKW through the continued existence of their respective independent congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as the Lower Snake River Compensation Plan, which is administered by U.S. Fish and Wildlife Service. The Preferred Alternative and Proposed Action in the agencies' biological assessment carry forward certain mitigation measures described in Chapters 2 and 7 of the EIS, which include continued salmon and steelhead hatchery production. The Preferred Alternative has negligible effects to SRKWs as described in Section 7.7.8. The Draft EIS meets the requirements of NEPA, as outlined in 42 U.S.C. 4331, et seq., 40 C.F.R. Parts 1500 1508 (CEQs regulations for implementing NEPA), and co-lead agency specific NEPA regulations. The Draft EIS' effects analysis of each resource is based on best available existing information as stated in Section 3.1.1.
6880	1	Whitney Neugebauer	Whale Scout	The DEIS Does Not Deliver the Holistic Solution Needed to Recover Wildlife and Support Rural Economies. Our organizations share the belief that the lower Snake River can be restored in a way that benefits everyone. To ensure the sustainable recovery of salmon and other endangered wildlife, the four lower Snake River dams must be breached. The services the dams provide, though, can and should be replaced. Through strategic planning and investments, state and federal governments can build the infrastructure needed to replace the services provided by these dams, including energy production7, transportation of agricultural goods, and irrigation.8 Making these investments now will decrease local communities reliance on these dams, allowing our region to more quickly and easily transition to operating without them. Breaching the lower Snake River dams is critical to recovering wild salmon and steelhead in the Snake River basin. Rebuilding Snake River salmon runs will greatly benefit endangered Southern Resident orcas, support coastal and inland fishing businesses, and sustain the many tribes who, under various treaties, have reserved their right to harvest healthy and abundant salmon runs as they have since time immemorial. The Action Agencies evaluated breaching these four dams under Multiple Objective Alternative 3 in the DEIS. However, while the Action Agencies looked at some of the transition investments needed to accompany dam breaching, their assessment was narrowly focused, overestimated transition costs, and ignored key findings in energy sector expert reports.9 The Action Agencies Preferred Alternative does not provide the holistic plan that the region needs. Essentially, the Preferred Alternative is a continuation of the flexible spill agreement already agreed to for 2020 and 2021 by the states of Washington and Oregon, the Nez Perce Tribe, and BPA. At best, the business-as-usual approach of the Preferred Alternative will result in half as many salmon returning to the mouth of the Columbia as there would be under a dam breaching scenario, and this issue will likely compound each year.10 While increasing spill is an important short-term action for salmon, the only viable long-term solution is breaching the dams and restoring the lower Snake River. The Action Agencies have chosen a timid step when our region needs a bold, long-term, sustainable plan in which federal, state, and tribal agencies work together to solve these interlocking and complex issues. Many such solutions can be found through emerging conversations among stakeholders in the Pacific Northwest, including Governor Inslees Lower Snake River Stakeholder Process. Through these collaborative dialogues, stakeholders identified the types of investments needed to support local communities after the dams are breached.11 Restoring salmon runs by breaching the four lower Snake River dams is necessary to put Southern Resident orcas on the path towards survival, but to do this, we all need to work together. The Pacific Northwest does not have to choose between orcas and clean energy or between fishing and farming communities. The DEIS ignores these important realities and reinforces existing divisions within our region.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3, which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets the EIS objectives including those for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the draft EIS, the co-lead agencies did not identify MO3 because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. Regarding Southern Resident Killer Whales (SRKW), the population dynamics of the SRKW are complicated, and there is no one factor that contributes to the overall success of this species; however, the co-lead agencies agree that the quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Additionally, Section 7.7.8 states impacts to Southern Resident killer whales would be negligible. Thus, the co-lead agencies expect salmon and steelhead increases would come from operational measures and existing hatchery production carried forward into the Preferred Alternative. These hatcheries include conservation and safety net hatcheries, as well as through the continued existence of certain independent Congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as the Lower Snake River Compensation Plan, which is administered by USFWS. Moreover, NMFS concluded in its 2020 CRS BiOp that operations, maintenance and configuration of the CRS is not likely to adversely affect SRKW. The co-lead agencies are committed to ongoing coordination with stakeholders through a variety of forums. In areas where we have appropriate authority, we will continue to be strong regional partners.
6880	2	Whitney Neugebauer	Whale Scout	II. The DEIS Fails to Satisfy National Environmental Policy Act requirements. A. The National Environmental Policy Act. The National Environmental Policy Act (NEPA) requires that to the fullest extent possible all federal agencies must complete a comprehensive environmental impact statement in connection with actions that significantly affect the environment.12 In enacting NEPA, Congress recognized the profound impact of human activities, including resource exploitation, on the environment and declared a national policy to create and maintain conditions under which man and nature can exist in productive harmony. NEPA has two fundamental two goals: (1) to ensure that the agency will have detailed information on significant environmental impacts when it makes decisions; and (2) to guarantee that this information will be available to a larger audience. NEPA requires the Action Agencies to take a hard look at environmental consequences of their actions. To advance its clear policy objectives, NEPA establishes action-forcing procedures that require agencies to take a hard look at environmental consequences.15 A hard look requires a meaningful comparison of the environmental consequences of all alternatives, including the proposed alternative.16 A hard look does not allow the agency to take a soft touch or brush-off of negative effects.17, 18 To have taken the required hard look, the Action Agencies must utilize public comment and the best available scientific information.19 By focusing agency attention in this way, NEPA ensures that the agency will not act on incomplete information, only to regret its decision after it is too late to correct.20 (ii) NEPA requires the Action Agencies to assess all reasonable alternatives. The heart of NEPA analysis requires the Action Agencies to [r]igorously explore and objectively evaluate all reasonable alternatives to the proposed action and provide reasons for declining to comprehensively analyze any alternative which was eliminated from the analysis.21 While NEPA imposes no requirement to choose the least environmentally detrimental alternative for action, it does mandate that for each alternative, the agency must consider relative scientific findings on the likely environmental impacts. (iii) NEPA requires the Action Agencies to consider direct, indirect, and cumulative impacts of their actions. In analyzing the Preferred Alternative, no action alternative, and all other reasonable alternatives, the Action Agencies failed to properly consider the three types of impacts: direct, indirect, and cumulative.23 Direct effects are caused by the action and occur at the same time and place, while indirect effects are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable ... [and] may include growth inducing effects.24 Cumulative impacts include impacts on the environment resulting from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions, by any person or agency, and impacts resulting from individually minor but collectively significant actions taking place over a period of time. The Action Agencies must respond to contrary opposing views and expert comments. The Action Agencies must satisfy NEPAs requirements to explain opposing viewpoints and their rationale for choosing one viewpoint over the other.26 When an informed objection to an agencys alternative(s) is presented, the Action Agencies have a duty to give a viable proposed alternative due consideration.27 A NEPA analysis is inadequate if it fails to disclose responsible scientific opposition to agency actions.28 Courts have set aside NEPA analyses where the Action Agencies failed to respond to scientific analysis that calls into question the agencys assumptions or conclusions.29 As an example, the Action Agencies must respond to opposing scientific viewpoints objectively and in good faith, including those of the governments own experts like the Fish Passage Center.	The Draft EIS meets the requirements of NEPA, as outlined in 42 U.S.C. 4331, et seq., 40 C.F.R. Parts 1500 1508 (CEQs regulations for implementing NEPA), and co-lead agencies' specific NEPA regulations. The EIS includes all required elements such as purpose and need for the action, alternatives, affected environment, and environmental consequences, necessary for an EIS as outlined in 42 U.S.C. 4331, et seq., 40 C.F.R. Parts 1502.10. NEPA requires agencies to consider the significant environmental consequences of their proposed actions and inform the public about their decision making. NEPA also requires that the agencies look at a reasonable range of alternatives that can meet the purpose and need of the action. To meet this requirement of NEPA, after evaluating scoping comments from the public, the co-lead agencies collaborated with cooperating agencies in teams of technical experts through several iterations to create 12 alternatives that could meet the CRSO EIS Purpose and Need Statement: first, eight single objective alternatives, and then four MOs. The MOs were also determined to be more efficient and reasonable, as MOs were composed of combinations of measures from the single objective alternatives. The Draft EIS considered the environmental consequences of the range of alternatives and disclosed to the public those consequences. Section 3.1 presents the NEPA definitions of the types of impacts and assumption that effects analysis of each resource is based on current, high quality information relevant to the project area, and co-lead agency expertise. The analysis of cumulative impacts are presented in Chapter 6 and Chapter 7 for the Preferred Alternative. The Draft EIS presents opposing scientific information. For example, in Section 3.5 and Chapter 7, the fish results provide a range of effects from the NMFS Lifecycle Model and Fish Passage Center's Comparative Survival Study.
6880	3	Whitney Neugebauer	Whale Scout	B. The Action Agencies Failed to Take a Hard Look at the Direct Impacts on Columbia Basin Salmonids and Failed to Adequately Assess the Alternative of Breaching the Four Lower Snake River Dams. The CRSO has substantially affected the natural ecological structure and functionality of the Columbia River watershed.31 The Columbia River system is one of the largest in North America, with a drainage area of over a quarter million square miles.32 What was once an ecologically functional river system providing ecological goods and services for fish, wildlife, and humans has been transformed into a carefully regulated environment.33 Dam operations and alterations have resulted in the loss of once important spawning grounds and rearing habitat, and has significantly degraded migration corridors for salmon and steelhead populations.34 Many of our organizations provided the Action Agencies with citations to relevant peer-reviewed studies regarding Columbia and Snake River salmon restoration, and we provide those here again. (Appendix A). After decades of protection and management, most federally protected salmonid populations in the Columbia and Snake rivers remain in poor	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA listed species. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-lead agencies numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as the MO3 which includes the dam breaching measure. The Preferred Alternative also meets the EIS objectives for: resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS the co-lead agencies did not identify MO3 because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system.

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				condition and at high risk of extinction.35 Despite great efforts to restore these stocks, several evolutionary significant units (ESUs) still remain at high risk of extinction.36 Approximately 65% of the extant interior Columbia Basin ESUs are considered at high risk of extinction, ~29% are at a maintained risk of extinction (the second-highest risk category), only 4% are considered viable, and just 2.5% are considered highly viable.37 Although returns of some Chinook salmon populations have recently increased depending on good ocean conditions, these are mostly dominated by hatchery fish instead of wild fish.38 Extensive scientific papers and federal reports demonstrate that the CRSO has caused substantial harm and decreased the likelihood of survival and recovery of these threatened and endangered salmon and steelhead populations throughout the Columbia Basin.39 The National Marine Fisheries Service (NMFS) recognizes that dam presence and operations in the Basin directly and indirectly contribute to most of the mortality of juvenile and adult salmonids migrating through the system.40 Within the Columbia Basin, the annual abundance, population growth rate, and returns-per-spawner (e.g., smolt-to-adult returns) for most wild salmonid populations (i.e., not hatchery origin) are less than 1.0.41 This indicates that wild salmonid population abundance is declining, populations are not growing, and returns are decreasing generation after generation, even though hatchery-origin salmon production may be increasing. In fact, in the Columbia Basin, most salmonid population abundance is below the minimum viable abundance numbers estimated by the Interior Columbia Technical Recover Team.42 The longer a population remains at low abundance, the greater the likelihood of extinction from stochastic events, inbreeding, and environmental disturbance.43 At moderate and high risk of extinction, salmon and steelhead populations throughout the interior Columbia Basin can remain at relatively low numbers for decades without reaching recovery goals.44 Dam structures and operations substantially delay the recovery of salmonid species because they lead to several factors that reduce the likelihood of survival. Impacts from dam operations in the Snake and Columbia rivers that directly limit the survival and recovery of salmon and steelhead populations include, but are not limited to: juvenile mortality at mainstem hydro projects, physical passage barriers, reduced water flows that delay passage and lead to mortality, altered channel morphology, fallbacks, straying of adults and juveniles, drastic temperature fluctuations in both reservoirs and fish ladders.45 Indirect adverse impacts from dam operations include, but are not limited to: increase of infectious diseases due to lacerations during dam passage, increased predation by birds within reservoirs, increased predation by birds and marine mammals in estuarine areas, changes in water flows and temperature, decreased oxygen levels within reservoirs, delayed or latent mortality, and amplified climate change effects.46 For example, changes in stream flow and velocity associated with reservoirs affect salmon migration patterns in the Columbia Basin.47 Dam operations affect downstream habitat quality by increasing water temperatures, increasing metabolic demand of fishes, and inducing straying.48 Disease outbreaks are also associated with higher water temperatures.49 The Action Agencies have failed to adequately evaluate all reasonable alternatives to both reduce and offset these impacts associated with continued CRSO operations to avoid jeopardy on ESA-protected salmonids and maintain or restore essential habitat features that prevent adverse modification of critical habitat. The Action Agencies have failed in the DEIS to take the necessary hard look to evaluate all reasonable alternatives to both reduce and offset the impacts associated with continued dam operations to avoid jeopardy on ESA-protected species and maintain or restore essential habitat features that prevent adverse modification of critical habitat. More effective actions such as dam removal or modification of dam operations are necessary to eliminate the adverse modification of critical habitat for salmonids and to change the status quo. Indeed, scientific evidence shows that dam removal would provide the much-needed boost to salmon and eel populations, help the long-term restoration of riverine ecosystems, increase marine nutrients input from the ocean to freshwater habitat, and improve physical conditions within tributaries and mainstem habitat.50 The Action Agencies failed to fully assess the environmental benefits of dam removal in the EIS. Dam removal is becoming increasingly common as a management strategy for environmental restoration.51 In the Pacific Northwest, over a dozen dams have been already removed.52 Currently, four large dams on the Klamath River in California are scheduled for removal in 2022, showing that large dam removal projects are feasible.53 The EIS should analyze the potential ecosystem services of dam breaching, not only on salmonid recovery but also critical habitat of protected species. Restoring natural river flows and hydrodynamics, by removing dams and passage barriers, would likely benefit the ecological functioning of the entire river basin by increasing salmon survival, potentially increasing spawning areas, increasing salmon run numbers, and ultimately increasing nutrient supply to the interior basin.54 For example, Chinook salmon in the Rogue River spawned in newly deposited gravel just a few months after dam removal. A major benefit to removing impediments to water flow would be increased survival of smolts as well as increased passage for adult salmonids to historical spawning grounds.55 Dam removal would also increase flow volumes which decreases travel time of smolts and thus increases salmonid juvenile survivorship.56 In addition, flow restoration stabilizes water temperatures preventing drastic changes in water temperatures (increasing or declining) that are known to affect fish survival.57 Dam removal would also prevent fish concentration in certain areas that are easily predated by birds and marine mammals.58 Finally, dam removal may restore ecological important nutrient flows and sediment dynamics that are essential for ecosystem health and productivity. Scientific evidence has shown that dam removal provides several ecological and socioeconomic benefits as soon as one to three years.60 Beyond the direct positive effects that dam removals have on fish, aquatic organisms, and the species that depend on them for food, the entire watershed will benefit from increased vegetation, water flow, and biodiversity, and improved water quality.61 Cleaner water is valuable for agriculture, livestock, and human consumption. In addition, removal costs could be lower than the funds needed to maintain old infrastructure and the mitigation and restoration projects associated with the impacts of dam systems.62 The DEIS vastly underestimates both the CRSO impacts on salmonids and the value that removing the four lower Snake River dams would have on the species. What is clear is that the Preferred Alternative will not bring the Columbia Rivers treasured salmonids any closer to recovery. We expect the Action Agencies to fully and accurately assess the impacts of their status quo approach to managing the Columbia River System on salmon, including the scientific information cited to in this letter and included in Appendix A, and revisit the alternative of removing the four lower Snake River dams as the best first step towards sustainable salmon recovery.	The EIS concluded MO3, which includes breaching the four lower Snake River dams would have greater improvement to certain salmon species in the lower Snake River. It did not, however, conclude there was greater certainty of that result in MO3 over any other alternative. Because of delayed response time in MO3, and the potential severity of the short term effects, MO3 would likely have the most substantial uncertainty in terms of beneficial effects. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% (the lower end of Northwest Power and Conservation Council's recovery targets for the region) as a result of the Preferred Alternative, as a result of the Preferred Alternative increasing SAR from 2.0% to 2.7% for Chinook, a 35% relative increase. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. To address uncertainty highlighted by the two models, the Preferred Alternative includes working with regional sovereigns to develop a study that assess the effectiveness of the increased spill regime on adult returns as well as assessment and management of adverse unintended consequences, such as long delays of adult migrants, or TDG-related mortality of juvenile migrants. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information. The Preferred Alternative will make a meaningful contribution towards recovery.
6880	4	Whitney Neugebauer	Whale Scout	C. The Action Agencies Failed to Fully Consider Indirect Impacts to Southern Resident Orcas, Failed to Include the Best Available Scientific Information, and Failed to Address Contrary Viewpoints. The nations leading Southern Resident orca scientists and experts have unequivocally stated that if we do not breach the four lower Snake River dams, it may be impossible to prevent the extinction of the Southern Resident orcas.63 Extensive comment letters to the Action Agencies during the February 2017 NEPA scoping period focused on the connection between Columbia Basin salmon and Southern Resident orcas.64 Many of our organizations provided the Action Agencies with a detailed bibliography of peer-reviewed studies that highlight the importance of restoring Snake River salmon to recover Southern Resident orcas, and we provide one here again in Appendix B. Despite the extensive scientific information provided to the Action Agencies, the DEIS has only two paragraphs dedicated to Southern Resident orcas.65 Without any citations, the DEIS boldly claims that, [t]he food available to Southern Resident killer whales from the lower Snake River population is only a small percentage of their overall diet. Changes to food availability may change the whales foraging behavior patterns slightly but will not change their overall condition or population dynamics.66 Under this assumption, the DEIS falsely concludes that any increase in salmon (under any alternative) would provide only a negligible or minor benefit to the Southern Residents.67 This statement is flatly inaccurate for several reasons. First, Snake River salmon, both currently and historically, are important food sources for Southern Resident orcas. Like many predators, Southern Resident orcas travel long distances in search of their prey. Data from satellite-tagged orcas show that all three pods spend time foraging for salmon off the west coast in the spring and winter.68 During this time, the Southern Residents spend a considerable amount of time at the mouth of the Columbia River foraging for salmon as they return to spawn in the Columbia Basin, including the Snake River and its tributaries.69 Using this information, NMFS and the Washington Department of Fish and Wildlife assessed the relative importance of various salmon runs to the Southern Residents. That analysis identified Snake River Chinook salmon runs as two of the top ten most important salmon stocks to the orcas in their current diet.70 Historically, the importance of these stocks was likely much higher given that there were significantly more Snake River salmon prior to dam construction.71 Before the lower Snake River dams were built, half of all salmon returning to the Columbia Basin were bound for spawning grounds in the Snake River and its tributaries.72 At that time, the Washington Department of Fisheries warned in its 1949 annual report that the dams could have lasting impacts on salmon and the local economy: Another serious threat to the Columbia river fishery is the proposed construction by the U.S. Army Engineers of Ice Harbor and three other dams on the lower Snake river between Pasco, Wash. and Lewiston, Idaho to provide slackwater navigation and a relatively minor block of power. The development would remove part of the cost of waterborne shipping from the shipper and place it on the taxpayer, jeopardizing more than one-half of the Columbia River salmon production in exchange for 148 miles of subsidized barge route. The transportation saving to the shipper would amount to $2,000,000 annually, while salmon runs having a wholesale value of about $9,000,000 would be threatened with destruction. Second, wild Snake River Chinook salmon are particularly important to orcas due to their size and fat content. While salmon spend their adult years in the Pacific Ocean, they build up enough fat and energy to propel them from the ocean to their inland spawning grounds.74 Once adult salmon enter the river and begin the journey to their native spawning grounds, they do not eat.75 Snake River salmon have one of the longest spawning migrations in the Pacific Northwest, traveling from the ocean to rivers and streams in central Idaho and northeast Oregon.76 Because of this, Snake River salmon tend to require more nutrients stored in their	SRKW analysis is described in the EIS including in the FEIS Chapter 3 (Vegetation, Wetlands, Wildlife, and Floodplains) which has been updated for SRKW (Section 3.6.2.6 and Table 3-102) and FEIS Chapter 7 (Preferred Alternative) with additional analysis information on SRKW and potential increase in forage fish, in particular, Chinook salmon in Section 7.7.8. The co-lead agencies utilized current high quality information and best available science in its analysis of the effects of the operation, maintenance, and configuration of the CRS projects. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. The EIS analysis found that only a minor effect to the Southern Resident killer whale would result from implementing MO3 (which includes the dam breach measure). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differentially from hatchery and wild fish. Hatchery fish today likely make up most fish consumed by SRKW (NOAA BiOp 2020). The EIS analysis of the Preferred Alternative determined the overall effect to SRKW to be negligible in large part because hatchery production is consistent between the No Action Alternative and the Preferred Alternative. Because the impact from the Preferred Alternative was determined to be negligible, the agencies determined that existing hatchery production would be sufficient to address any potential impacts to prey availability for SRKWs. The co-lead agencies note the contribution to the prey of SRKW through the continued existence of their respective independent congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as the Lower Snake River Compensation Plan, which is administered by U.S. Fish and Wildlife Service. The Preferred Alternative and Proposed Action in the agencies' biological assessment carry forward certain mitigation measures described in Chapters 2 and 7 of the EIS, which include continued salmon and steelhead hatchery production. The Preferred Alternative has negligible effects to SRKWs as described in Section 7.7.8. The Draft EIS meets the requirements of NEPA, as outlined in 42 U.S.C. 4331, et seq., 40 C.F.R. Parts 1500 1508 (CEQs regulations for implementing NEPA), and co-lead agency specific NEPA regulations. The Draft EIS' effects analysis of each resource is based on best available existing information as stated in Section 3.1.1.

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				fat than other salmon, making them especially important to orcas.77 Third, Southern Resident orca recovery will require state, federal, and tribal governments to protect and rebuild salmon runs throughout the Southern Resident orcas range, which includes the mouth of the Columbia River where orcas forage during late winter and early spring.78 The DEIS myopically argues that salmon recovery efforts should be focused in the Salish Sea.79 The consequences of neglecting other foraging areas would divert resources to just half of the orcas annual range. The Southern Residents typically spend summer and fall in the Salish Sea (which includes Puget Sound) foraging for salmon returning to local rivers from June through November. In the winter, the orcas typically head out into the Pacific Ocean, foraging for salmon as far south as Monterey Bay, California.80 During this time, images from aerial photogrammetry typically document a decline in the orcas body condition.81 Reproductive-age females showed some of the greatest signs of nutritional stress during this time, and as a result, over two-thirds of Southern Resident orca pregnancies are terminated prematurely (including many dangerous late-term miscarriages) because of nutritional stress.82 If salmon recovery efforts were solely focused in the Salish Sea, as the Action Agencies suggest, orcas would not have sufficient food during the time of year they need it most. Fourth, restoring the lower Snake River will provide more salmon to Southern Resident orcas than almost any other salmon recovery project being considered. In the 2008 Recovery Plan for the Southern Resident Orcas, NMFS stated that [p]erhaps the single greatest change in food availability for resident killer whales since the late 1800s has been the decline of salmon in the Columbia River basin. In that same plan, NMFS went on to state that the Columbia-Snake River Basin, by orders of magnitude, has the largest potential for increasing Chinook salmon abundance throughout the Southern Residents range.83 Additionally, because Snake River salmon spawn in high alpine, federally protected Wilderness areas, these runs are more insulated from the impacts of climate change and development, providing orcas with both a large and more reliable source of food into the future.84 According to the Fish Passage Center, breaching all four lower Snake River dams and increasing spill on the lower Columbia dams would result in roughly 1 million adult Chinook salmon returning to the mouth of the Columbia River annually.85 By removing these dams, we can also increase salmon access to roughly 5,500 miles of free-flowing spawning habitat in Central Idaho and northeast Oregon, much of which is both climate-resilient and federally protected.86 For all of these reasons, the future of Snake River salmon is of the utmost importance to the future of the Southern Resident orcas. Many of these points and studies have already been provided to the Action Agencies, and yet the DEIS did not mention any of them. We expect the Action Agencies to fully and accurately consider the impacts of the status quo approach to managing the Columbia River System on Southern Resident orcas, including the scientific information cited in this comment letter, those listed below in Appendix B, and in the two documents submitted with this letter as attachments: Attachment A Salmon and Orca Scientist White Paper and Attachment B Chapter 2 of the Fish Passage Centers 2019 Comparative Survival Study (CSS) Report.	
6880	5	Whitney Neugebauer	Whale Scout	D. The Action Agencies Failed to Fully Assess the Cumulative Impacts of Climate Change on Salmon and Failed to Include the Best Scientific Information on Climate Change Impacts. In the DEIS, the Action Agencies failed to fully assess the impacts of climate change on reservoir temperatures and what that would mean for salmon survival. Anthropogenic climate change is one of the greatest threats to wildlife both globally and locally. On the lower Snake River, water temperatures in the large, slackwater reservoirs created by the four dams increase every year, posing increasing risks to salmon.87 These lethal temperatures kill both adult and juvenile salmon and at the same time benefit invasive, salmon-eating fish found throughout these reservoirs. First, the DEIS does not provide any information about the efficacy of current efforts to mitigate the effects of lethal water temperatures on salmon. While the DEIS mentions the currently utilized option of releasing cool water from the Dworshak Dam into the Snake River, it does not discuss how effective that strategy has been or how effective it is likely to be given ever increasing temperatures.89 Over the last several years, Columbia and Snake River temperatures have exceeded 20 degrees Celsius (68 degrees Fahrenheit).90 At this temperature, salmon have difficulty migrating upstream, and mortality from stress and disease increases.91 The Fish Passage Center has stated that, under a climate change scenario, the long-recognized and largely unaddressed problem of high water temperatures in the [Columbia and Snake Rivers] becomes an ever-increasing threat to the survival of salmon.92 It is critical for the Action Agencies to assess the efficacy of current water temperature cooling measures, particularly into the future, in order to evaluate mitigation strategies under all alternatives in the DEIS. Second, the DEIS does not rely on appropriate models to predict climate change impacts on water temperatures and salmon. The model used as part of the water quality assessment provided in Appendix D of the DEIS looked at water temperatures over a 5-year period from 2011 to 2015. This model does not predict how climate change will further impact temperatures in either an impounded or free-flowing river.93 The DEIS also used a model developed by the River Management Joint Operating Committee (RMJOC), but, as the DEIS notes, the full RMJOC assessment of climate change is not complete: A second part of the RMJOC-II study, which is not yet available, will provide an assessment of how these projected unregulated streamflows perform in a regulated Columbia River system.94 The DEIS also states that this climate model does not include predicted water temperatures.95 These two models fail to accurately assess of how climate change will increase water temperatures in reservoirs and, thus, how that will impact salmon survival. This is particularly timely given that water temperature in these reservoirs are the subject of yet another lawsuit against the federal government for mismanagement of the river and its wildlife. In December 2019, the Ninth Circuit Court of Appeals ruled that under the Clean Water Act, 33 U.S.C. 1313(d)(2), the Environmental Protection Agency has an immediate duty to set a Total Maximum Daily Limits (TMDLs) for water temperature in the Columbia and Snake Rivers because the states of Washington and Oregon have conclusively refused to do so.96 Recently, the court denied the agencys request for an en banc and panel rehearing of this issue, so the ruling stands.97 Independent research and computer modeling suggest that even with elevated air temperatures, a free-flowing Snake River will be more resilient to climate change and water temperatures will be significantly lower than they would be in a dammed river.98 Additional modeling by the Environmental Protection Agency demonstrates that the presence of multiple dams on the Columbia and Snake Rivers has warmed the rivers to unsafe levels for salmon.99 Despite this, the DEIS claims that climate change impacts will be the same on the lower Snake River regardless of if dams are breached or not.100 This may be because the models cited in the DEIS did not examine water temperatures when considering the long-term climate change impacts. We strongly urge the Action Agencies to rectify this glaring error and update its analyses by including these other models. The Action Agencies must also assess the impacts that increasing reservoir water temperatures will have on predation of juvenile salmon by invasive, non-native fish. Several studies have indicated that predation from these invasive species is a major and potentially limiting factor for salmon recovery in the Columbia Basin.101 The DEIS notes that dams have altered habitat in a way that generally favors non-native and invasive species at the expense of native species.102 Further, the DEIS states that most of the invasive species are warm water fish while native species are cold water adapted.103 It goes on to state that warmer water temperatures increase the predation rate of invasive fish on salmonids.104 However, this analysis stops too short. Later in the DEIS, the Action Agencies claim that a free-flowing Snake River may increase the presence of many invasive salmon predators, contradicting their earlier point. 105 As stated above, dam breaching is expected to significantly reduce overall in-stream water temperatures, which will make the habitat less suitable to invasive, warm-water adapted species. Many of these invasive species are also adapted to slackwater environments like lakes and ponds, which are typically warmer than free-flowing rivers. In the 2017 Recovery Plan for Snake River Spring/Summer Chinook Salmon and Steelhead, NMFS stated, when discussing dam breaching, that, It is likely that the return to a more riverine system in this portion of the Snake River could reduce salmon predation losses to native and non-native invasive fishes that have taken advantage of the reservoir habitat, such as northern pikeminnow and walleye. Migrating smolts would be less exposed due to decreased travel times through the lower Snake River.106 The EIS must integrate these findings. Breaching the four lower Snake River dams would not only decrease salmon migration time, it would also decrease lethal water temperatures and invasive predators. The Action Agencies should recognize these added benefits to salmon survival when assessing the alternative of dam breaching in the EIS.	Through on-going regional climate change studies and work, the co-lead agencies evaluated potential shifts in precipitation and temperature patterns and resulting changes in unregulated Columbia Basin streamflow timing and volumes. The evaluation consisted of the full range of the latest climate change projections developed using multiple global climate models, emissions scenarios, downscaling techniques, and hydrologic models. Details of this evaluation are in Chapter 4 of the EIS. This information was used to describe the potential effects (both beneficial and adverse) on the river systems and resources due to potential changes in climate for all alternatives. Quantitative data that describes how climate change hydrology would affect reservoir operations in the Columbia Basin is still under development and was not available for use in the EIS. The climate science community is still developing quantitative models that can address possible effects in water temperature from climate change, and unfortunately, have not been fully applied, available at the resolution required (river-scale and global- or regional-scale) and validated for use with climate affected regulated flow projections of large reservoir systems. This information is critical to analyzing potential effects to fish quantitatively. In lieu of this information, the climate analysis used the output from resource models, like water quality and fish, under historical conditions, available climate change data, and scientific literature to qualitatively assess potential effects to resources (described in Chapter 4). The RMJOC-II Part 2 study was still in review at the time of the draft publication and final EIS development. Though the quantitative data from the Part 2 study was not included in this study, the qualitative conclusions were verified with the draft conclusions of the RMJOC-II Part 2 study for the final EIS. Climate effects were considered a Reasonable Foreseeable Future Action (RFFA19) in both Chapters 6 and 7. The analysis in Section 3.4 for MO1 analyzed changes to Dworshak releases. Due to the effects analysis in Section 3.4, the co-lead agencies did not carry forward this measure from MO1 into the Preferred Alternative. Future analysis of Dworshak releases would be speculative at this time, and was not included in this EIS.
6880	6	Whitney Neugebauer	Whale Scout	E. The DEIS Mischaracterizes the Impacts of Dam Breaching on Other Wildlife. The Action Agencies did not sufficiently analyze all alternatives because they did not present a complete or accurate characterization of the various actions and potential direct, indirect, or cumulative impacts they may have, such as impacts on other wildlife. As written, the DEIS conveys much more optimism for maintaining the status quo than any of the alternatives, particularly dam breaching. The Action Agencies must provide additional information, context, and analysis to help guide decision making. While the DEIS lists actions the Action Agencies have taken to support ESA-listed fish, it does not provide any information about the effectiveness of these projects or programs.107 While the amount of money committed to fund these projects is impressive, it is unclear how successful these actions have been, particularly given that none of the ESA-listed salmon in the Columbia Basin have been recovered.108 Given the limited time and resources available, it is important for the Action Agencies to assess their current efforts to demonstrate that these investments are making timely and meaningful strides towards recovery. In particular, the Action Agencies should provide information about the degree to which habitat restoration and predator removal efforts have contributed to salmon recovery and returns. Additionally, the Action Agencies must report their success in a way that puts it in the context of Basin-wide salmon recovery. One of the most important data points for salmon recovery is the smolt-to-adult ratio (SAR): the number of adults that return to spawn for every smolt that hatches.109 SARs are used by managers to assess the progress of salmon runs towards recovery goals.110 Current SARs for spring/summer Chinook salmon are estimated to be around 1%.111 The Northwest Power and Conservation Council has stated that 2% SARs	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. It should be noted that the average SAR targets referenced in this comment refers to the Northwest Power and Conservation Councils target for broad-sense recovery and is separate and distinct from the obligations of any single entity or in this case a requirement to be met solely by the co-lead agencies. Just as the Councils fish and wildlife program encompasses both federal and non-federal stakeholders in the Columbia Basin, the Councils recovery goals are shared by many parties. Many dam removal projects that have occurred across the United States have very different circumstances than what is contemplated in MO3. The Elwha dam in Washington State, however has little relevance to the lower Snake River dams. The Elwha dam had no fish passage and provided no economic benefits. In contrast, the four lower Snake River dams provide upstream and downstream fish passage, produce power, and provide navigation and recreation opportunities. For power, the four lower Snake River dams produce upwards of 1,000 aMW of power, which is approximately 12 percent of the average power produced by the FCRPS. See Draft EIS, Section 3.7.3.5, Changes in Power Generation, Table 3-159. Losing this amount of power is equivalent to losing power capable of serving 800,000 homes in the Northwest. See Draft EIS, Section 3.7.3.5, Summary of Effect, at 9-935. The four lower Snake River dams would still have regulated flows due to the dams located upstream. The analysis of the impacts to vegetation and wildlife from the alternatives is provided in Section 3.6 and Section 7.7.7 for the Preferred Alternative. MO3, the alternative that includes the measure to breach the lower Snake River dams, was analyzed in 3.6.3.5. In summary, riparian vegetation would die at its current location as the water elevation lowers and invasive species may colonize newly exposed shoreline. To offset these effects, mitigation proposed would be to replant approximately 13,000 acres of arid, upland native vegetation on newly exposed soils and approximately 1,500 acres of emergent and forested, scrub-shrub wetland habitat adjacent to the new surface elevations of the lower Snake River.

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				are needed to maintain current populations, while 4-6% is needed for recovery.112 Rather than relying on this metric, the Action Agencies instead use misleading data points without putting them in the appropriate context. For example, when discussing juvenile passage over the dams, the DEIS reports juvenile survival rates and migration times.113 While these numbers are indeed important to consider, viewing them in isolation paints a more optimistic narrative for salmon than the reality. These numbers only provide the percentage of fish that survive going from the forebay of a dam to its tailrace. While these survival rates seem high, these percentages do not account for deaths that occur between dams in reservoirs either from latent mortality or from predation. Models from the Fish Passage Center suggest that only 54% of juvenile salmon spawning from above Lower Granite Dam survive the journey over Bonneville Dam.114 The Action Agencies frequently state that hatchery operations, which currently produce 85% of Chinook salmon smolts in the region, would be shuttered if the lower Snake River dams were breached.115 Should this happen, the Action Agencies claim that any potential gains from river restoration would be lost or greatly reduced.116 However, while the Action Agencies would no longer be required to mitigate the impact of these dams, hatchery production would not necessarily need to halt immediately.117 The Action Agencies are presenting the public with a false choice. The Action Agencies analysis of the environmental impacts of dam breaching largely assumes that the only necessary management activity to occur would be the removal of the four earthen berms, and that the environment would be left to respond on its own. For example, the DEIS focuses on increased sedimentation and invasive plant colonization that would follow dam breaching.118 Dam breaching, though, presents an opportunity for active riparian and in-river habitat restoration, such as dredging contaminated soils behind the dams, planting trees and native shrubs in newly exposed areas, removing invasive species, and excavating areas for wetlands. The Action Agencies propose actions like these to mitigate potential impacts at the confluence of the Columbia and Snake Rivers, yet they fail to propose similar steps for newly exposed habitat along the Snake River due to dam breaching.119 The DEIS also emphasizes the negative impacts of dam breaching on local wildlife populations in the short term, only briefly mentioning the long-term benefits to species.120 Dam breaching will significantly alter the landscape by restoring the Snake River to its original state. Through active restoration, riparian forests and wetlands can recover relatively quickly. Riparian corridors are also one of the most important habitat types for many wildlife species, and while many species will be disturbed in the short-term by dam breaching activities, it is most likely that native wildlife throughout the region will greatly benefit from a restored, free-flowing Snake River. For instance, following dam removal on the Elwha River in Olympic National Parks, biologists found 1,741 spawning adult Chinook on the river, 75% of which were spawning above the recently removed lower dam.121 Following extensive dam removal on the Rouge River (which began in 2008), fall Chinook populations doubled every year from 2015 2018, despite severe droughts, El Nino, and other environmental factors that usually decrease salmon returns.122 We encourage the Action Agencies to provide a more robust and appropriately balanced assessment of the long-term benefits a free-flowing river would provide to local wildlife.	The co-lead agencies note the continued existence of their respective independent congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as Lower Snake River Compensation Plan (LSRCP), which is administered by USFWS. In addition, the co-lead agencies did not propose any restoration efforts under MO3 as part of the Alternative development. Therefore, the area may colonize with invasive species as described in the alternative.
6880	7	Whitney Neugebauer	Whale Scout	III. The Action Agencies Must Also Consult with NMFS to Ensure that Their Actions Do Not Jeopardize Listed Species or Adversely Modify Critical Habitat. Under the Endangered Species Act, 16 U.S.C. 1531 et seq.(ESA), federal agencies may not take an action if it is likely to result in harm to listed species or affect critical habitat. The ESA aims to conserve species of fish, wildlife, and plants facing extinction as well as the ecosystems upon which endangered and threatened species depend.123 The ESA defines critical habitat as the physical and biological features that are essential to the conservation of listed species.124 For example, in the Columbia Basin, migratory corridors are considered critical habitat defined by several primary constituent elements such as water temperature, water quantity, water quality, and safe passage.125 The ESA also requires each agency to use the best scientific and commercial data available.126 The Action Agencies must consult with NMFS on any actions that may directly or indirectly affect ESA-listed species and their critical habitat, which includes actions related to the CRSO.127 Specifically, section 7 requires that the Action Agencies insure that any action authorized, funded, or carried out by such agency . . . is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of designed critical habitat.128 To jeopardize the continued existence of a species means to engage in an action that reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species.129 NEPAs implementing regulations require that, to the fullest extent possible, agencies must prepare draft environmental impact statements concurrently with and integrated with environmental impact analyses and related surveys and studies that the ESA requires.130 Along with the other alternatives analyzed in the DEIS, the Preferred Alternative certainly may affect several ESA-listed species, including salmon and orcas, as well as the critical habitat for these species, triggering the ESAs requirements. The Action Agencies operation and maintenance of the CRSO directly impacts about 13 runs of salmon ESUs and steelhead distinct population segments (DPSs) listed under the ESA within the Columbia-Snake watershed. ESA-protected salmon and steelhead species that the Preferred Alternative will affect include: 1) Snake River fall Chinook salmon; 2) Snake River spring/summer Chinook salmon; 3) Snake River steelhead (Oncorhynchus mykiss); 4) Upper Columbia River spring Chinook salmon; 5) Upper Columbia River steelhead; 6) Middle Columbia River steelhead; 7) Snake River sockeye salmon (Oncorhynchus nerka); 8) Columbia River chum salmon (Oncorhynchus keta); 9) Lower Columbia River Chinook salmon; 10) Lower Columbia River coho salmon (Oncorhynchus kisutch); 11) Lower Columbia River steelhead; 12) Upper Willamette River Chinook salmon; and 13) Upper Willamette River steelhead.131 NMFS has designated critical habitat for 12 of these 13 salmonid species.132 In addition, the CRSO indirectly impacts the endangered Southern Resident orca DPS that depend on the Basins salmon populations as a vital prey source.133 Along with the other alternatives analyzed in the DEIS, the Preferred Alternative may affect several ESA-listed species both directly and indirectly, including salmon, steelhead, and Southern Resident orcas, triggering the requirements of the ESA. Because the CRSO may affect ESA-listed species and their critical habitat, the Action Agencies must consult with NMFS on the Preferred Alternative. After consultation, investigation, and analysis, NMFS must prepare a new biological opinion to evaluate the effects of the proposed actions on the survival and recovery of listed species and designated critical habitat. Under the ESA, recovery means improvement in the status of listed species to the point at which listing is no longer appropriate.134 NMFSs biological opinion should include a summary of the science-based information upon which the opinion is based, an analysis of the effects of the agency actions on listed species and critical habitat, and whether the actions are likely to jeopardize the continued existence of a listed species or result in the destruction or adverse modification of critical habitat135 If NMFS determines that the Preferred Alternative may jeopardize the survival of ESA-listed species or adversely modify a species critical habitat, the action must be modified or eliminated. Therefore, NMFSs biological opinion must specify all reasonable and prudent alternatives that avoid jeopardy and make recommendations that promote the conservation of the listed species or species critical habitat.136	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the Columbia River System. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. Finally, the NMFS and USFWS Biological Opinions demonstrate that CRS operations, maintenance and configuration do not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat and are included as an appendix to the EIS.
6880	8	Whitney Neugebauer	Whale Scout	Generally, the DEIS is poorly written and organized. Finding information is difficult, and it is not communicated clearly. It also contains several contradictions and grammatical errors. We expect the Action Agencies to thoroughly edit this document and organize it in a more sensible and accessible way before publishing the Final EIS.	The co-lead agencies analyzed the integrated operation, maintenance, and configuration of the 14 projects that comprise the CRS. Because the CRS has a broad geographic reach, is subject to numerous legal mandates, and implicates numerous complicated and contested subjects, the analysis is necessarily lengthy. The intent of the Executive Summary is to serve as a primer and broad summary of findings. The Final EIS will expand the table of contents that was in the draft EIS to assist readers in finding specific topics. The EIS also includes an index, so the public knows where to look for detailed analysis in either the main body of the EIS or the appendices.
6880	9	Whitney Neugebauer	Whale Scout	Additionally, the DEIS contains several inaccurate statements regarding grizzly bears (Ursus arctos horribilis).137 We are providing corrections to those statements and the relevant supporting science here: 1. The current Bitterroot population is not an experimental population. A 10J rule was approved for the Bitterroot Ecosystem, but it was never implemented. Only bears that are physically moved by wildlife managers into the ecosystem would be considered part of this experimental population. To date, no bears have been physically moved by wildlife managers into the ecosystem. The bears living in the Bitterroot Ecosystem today immigrated there on their own. These bears are fully protected as a threatened species under the ESA. 2. The size of the current grizzly bear population in the North Cascades Ecosystem is largely unknown but is typically estimated to be lower than 20 bears.139 3. The DEIS left out the Selkirk population of grizzly bears in northeast Washington, directly west of the Cabinet-Yaak Ecosystem. The Selkirk Ecosystem is estimated to have around 80 grizzly bears. This ecosystem is well within the boundaries of the CRSO analysis.	The final EIS reflects the correct listing status for grizzly bear in the Bitterroot recovery area. The Selkirk Mountains Ecosystem (SE) is located in northern Idaho, northeastern Washington, and southeast British Columbia and has an estimated 80 grizzly bears. It is located between the Kootenai River on the east and the Pend Oreille River to the west. While the boundaries of the SE come very close to the Vegetation, Wetlands, Wildlife, and Floodplains study area, the two do not overlap. Therefore, it was not described in the EIS. However, effects to grizzly bear by CRS regions were described in Section 3.6.3 and 7.7.8, regardless of whether effects overlapped with a ecosystem recovery zone.
6880	10	Whitney Neugebauer	Whale Scout	Finally, section 3.16, Cultural Resources, is not written in a culturally sensitive way. For example, a single paragraph describes all Native American cultures and history in the CRSO area from 2000 B.C. to 1720 A.D.141 This vastly oversimplifies the diversity of tribes and First Nations who have lived in the region since time immemorial. When discussing Christian missionaries, the Action Agencies only acknowledge the role missionaries played in spreading diseases that decimated many Native American communities, but the agencies should also recognize that many missionaries instituted racist systems of violence and oppression (like Indian Schools) that stole children from their families and stripped them of their cultures and languages.142 Throughout this section, the Action Agencies emphasize potential risks to cultural resources and minimize the benefits.143 We recommend that the Action Agencies consult with local tribal governments and officials in order to rewrite this section to more accurately describe the history of Native Americans in the region and the impacts dam breaching would have on their cultural resources and reserved treaty rights.	In Section 3.16, the co-lead agencies have adequately identified the historic context for which to conduct the comparative impact analysis from all of the action alternatives on cultural resources. Additional details about historical events in the Northwest would not have assisted in the comparative analysis between the No Action Alternative and the action alternatives. Content was provided to the co-lead agencies by several Tribes and is incorporated in both Section 3.17 and in other specific locations throughout the document. Some of these locations include 3.17.2 (Tribal perspective summaries), 3.17.2.2 (general overview, including documenting impacts to Tribal culture), and Appendix P (Tribal Perspectives). The co-lead agencies are engaging in government-to-government consultation with the tribes, and several tribes are cooperating agencies on the CRSO EIS.
6880	11	Whitney Neugebauer	Whale Scout	V. Public Engagement Was Severely Curtailed and Has Not Been Meaningful. The Action Agencies failed to provide adequate or meaningful opportunities for the public to comment on the DEIS. It is extremely disingenuous that the public was given only 45 days, the regulatory bare minimum, to provide comments on a document that is almost 8,000 pages long and covers an array of complex issues throughout the region. The Action Agencies provided no justification for shortening the timeline, which was originally scheduled for 120 days.144 Members of Congress and many of our organizations have requested that the Action Agencies extend the public comment period back to its original 120-day timeline. Moreover, many	The co-lead agencies considered requests to extend the public comment period. This NEPA process included a wide array of cooperating agencies whose close involvement throughout the process allowed the co-lead agencies to incorporate feedback. Given the broad range of comments received and the extensive Federal and non-Federal participation in the overall process as well as the level of public engagement in the six virtual public meetings in the region, the co-lead agencies determined that an extension was not warranted and that the 45-day public comment period was adequate consistent with NEPA regulations. On April 9, the CRSO EIS website was updated to inform the public that they should plan to submit comments by the close of the comment period.

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				individuals across the region have also been responding to the global public health crisis caused by the spread of COVID-19, leaving the public with even less time to fully or fairly review the DEIS. We strongly recommend that the Action Agencies either extend the public comment period to at least 120 days or provide a supplemental public comment period after the COVID-19 crisis has subsided. A supplemental public comment period was recently provided to solicit additional comments on the North Cascades Grizzly Bear Environmental Impact Statement. Recently, the state Department of Ecology cited the COVID-19 pandemic to justify extending the public comment period for the state environmental review of a proposed dam on the Chehalis River from April 27 to May 27.146 Both of these projects have a much narrower scope and impacts a smaller geography than the CRSO DEIS. It is not unreasonable, especially in light of the current public health crisis, that the Action Agencies would provide additional opportunities for public comment and engagement.	
6881	1	Fred Heutte	NW Energy Coalition	Effects of DEIS Alternatives for ESA Listed Species The DEIS analysis clearly shows that MO3 results in the most improvement for Lower Snake salmon and steelhead compared to the No Active Alternative and the other Multiple Objective Alternatives (see Table 3-61 below). However, the Preferred Alternative did not incorporate the main elements of Joint Commenters Comments on CRSO DEIS April 13, 2020 - Page 6 MO3. Instead, the Preferred Alternative chose an approach with allegedly lower net power costs but only a small net benefit for fish. DEIS Chapter 3, Table 3-61 (emphasis supplied)	The spill operation for juvenile fish passage is a significant departure from previous operations, so much so that the Washington and Oregon state water quality waivers had to be changed to implement the new spill regime. The co-lead agencies used current high quality and the best available science in the analysis of the CRSO EIS. Specific to salmon and steelhead, the agencies used two primary modeling approaches which yielded a range of potential outcomes for the alternatives. With respect to the Preferred Alternative, the CSS model predicts that average Smolt to Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% as a result of the Preferred Alternative. The COMPASS and NMFS Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be in creasing salmon and steelhead returns to the Columbia Basin. This monitoring program will include substantial monitoring efforts to track the effects of dissolved gas levels on juvenile and adult fish. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets most other EIS objectives including those for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS, the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams, because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system.
6881	2	Fred Heutte	NW Energy Coalition	1.4 NWEC/ICL Scoping Comments The Joint Commenters review of the CRSO DEIS uses the scoping comments submitted on February 7, 2017 by the NW Energy Coalition and the Idaho Conservation League (NWEC/ICL Scoping Comments) as a basis to assess the Preferred Alternative and MO3 energy analysis. That submission is submitted along with these comments for reference. In the Scoping Comments, NWEC and ICL proposed that the CRSO EIS energy analysis be conducted in accordance with widely accepted practices for utility integrated resource planning (IRP), using a scenario assessment approach, a combination of advanced computer modeling tools and expert judgment to provide a fully optimized energy portfolio selected with respect to a least cost/least risk perspective. This combination of elements, based on longstanding principles and practices of IRP analysis, is needed to effectively assess programmatic alternatives for achieving the energy oriented outcomes defined for the CRSO EIS. The NWEC/ICL Scoping Comments provided the following summary of recommendations: Ongoing support by an independent technical review panel consisting of the Agencies and a broad range of stakeholders, as well as ongoing public input to assure the full range of information and experience can be provided to the assessment. 1 https://www.nww.usace.army.mil/Library/2002-LSR-Study/ Joint Commenters Comments on CRSO DEIS April 13, 2020 - Page 10 Evaluation of the current operations of the LSR dams within the context of the Columbia River System, the Northwest regional power system, and the Western Interconnection. Assessment and comparison of continued operation of the LSR dams and potential alternative resource portfolios that could better meet CRS responsibilities while minimizing or eliminating environmental impacts and meeting all federal statutory and regulatory requirements. Alternatives to be considered should include: (1) continued operation of the LSR dams (no action alternative); (2) reduced operation of the LSR dams to provide additional spill for fish passage, including a resource portfolio of replacement energy resources; (3) full replacement of the LSR dams with a range of potential resource alternatives. Consideration of the full range of electric services provided by the LSR dams and alternative portfolios energy, capacity, flexibility and reliability from the perspective of electric system requirements, not merely the potential output of an electric resource, as well as their environmental costs and benefits. Utilization of transparent, consistent and commonly accepted methods, inputs, metrics and analysis. Consideration of future system conditions through a scenario assessment framework, to assess potential changes in energy demand, resource availability and cost, economic trends, energy policy, climate change and other key factors. Consideration of ongoing changes and improvements to the Columbia River System, Northwest power system and Western Interconnection. Balancing the costs of all alternative actions against the risks inherent in any forward looking assessment, including environmental costs and benefits. NWEC/ICL Scoping Comments at 2-3 First, the NWEC/ICL Scoping Comments proposed that the energy assessment be conducted with assistance from a technical review team, similar to the Hydropower Impact Team that assisted with the 2002 LSR EIS.2 That team included 16 subject matter experts from the US Army Corps of Engineers, 2 Lower Snake River Juvenile Fish Mitigation Feasibility Study: Technical Report on Hydropower Costs and Benefits, Drawdown Regional Economic Workgroup: Hydropower Impact Team, March 1999, https://www.nww.usace.army.mil/portals/28/docs/environmental/drew/powerdoc.pdf Joint Commenters Comments on CRSO DEIS April 13, 2020 - Page 11 the Bonneville Power Administration, other federal agencies, the Northwest Power and Conservation Council, utilities, industry representative and the NW Energy Coalition. Such a technical review had proven its worth for the 2002 LSR EIS and could assist in defining the methods and reviewing the results of the DEIS energy assessment to consider alternative federal actions to comply with NEPA and ESA requirements in a complex and fast-changing CRS and regional electric power system context. And as further explained below, utility integrated resource planning (IRP) generally includes a stakeholder technical review process to provide guidance, concepts and data for the planning process. Second, a key element of comprehensive energy analysis is the consideration of a wide range of alternative resource options and future scenarios of supply, demand and system conditions. As stated in the NWEC/ICL Scoping Comments: Considering a range of alternatives to the proposed action is the heart of the environmental impact statement and the action agencies must rigorously explore and objectively evaluate all reasonable alternatives. 40 C.F.R 1502.14. This evaluation must be based on accurate scientific analysis, expert agency comments, and public scrutiny. 40 C.F.R. 1500.1(b). Moreover, Agencies shall insure the professional integrity, including scientific integrity, of the discussions and analyses in environmental impact statements. 40 C.F.R. 1502.24. NWEC/ICL Scoping Comments at 5 As the NWEC/ICL Scoping Comments observed, substantial changes have occurred within the Columbia River System and the electric power system of the Pacific Northwest and Western Interconnection in the two decades since the bulk of the energy analysis for the 2002 EIS was conducted in 1997-99. As discussed below, the DEIS fails to fully consider the effects these changes and others with direct bearing on the CRS, and hence fails to provide the public and decision-makers with relevant and important information to make an informed choice among the alternatives presented in the DEIS. This is a significant failure.	Referred to Power team (B. Koehler, May 7, 2020)
6881	3	Fred Heutte	NW Energy Coalition	2.1 Deficiencies of the DEIS Replacement Power Analysis The DEIS energy analysis was conducted according to a multi-step process described in DEIS Appendix H, Section 1.1, Framework for the Analysis. The figure above indicates the basic analysis stages. The focus of these comments is primarily on Step 3, Need for Replacement Power Resources and Cost of Resources, referred to below as the Replacement Power Analysis. Joint Commenters Comments on CRSO DEIS April 13, 2020 - Page 14 Because the outcome of Step 3 directly shapes the results achieved in the first stage of Step 5, Wholesale Power Rate Analysis and Market Effects, and Step 6, Socioeconomic Implications of Electricity Rate Changes, the inaccurate and insufficient analysis in the Replacement Power Analysis renders the conclusion of the DEIS energy analysis on wholesale power rates and consumer bill impacts equally inaccurate and insufficient. The Replacement Power Analysis is the pivotal component of the DEIS energy analysis. This stage of the framework is essential for: (1) fully and accurately estimating the energy system value of the CRS and particularly the hydrogeneration of the four Lower Snake River project; and (2) fully and accurately assessing options for need, cost and performance of replacement power under the Preferred Alternative and four Multiple Objective Alternatives. As recommended in the NWEC/ICL Scoping Comments and further explained below, an integrated resource planning (IRP) process is the established and longstanding method for this type of comprehensive assessment, as conducted by the Northwest Power and Conservation Council and the regions electric utilities. The Oregon Public Utility Commission summarized its guidelines for IRP analysis as follows: Consistent with our guidelines, a utility's IRP must include the following key components: Identification of capacity and energy needs to bridge the gap between expected loads and resources Identification and estimated costs of all supply-side and demand-side resource options Construction of a representative set of resource portfolios Evaluation of the performance of the candidate portfolios over the range of identified risks and uncertainties Selection of a portfolio that represents the best combination of cost and risk for the utility and its customers. Oregon Public Utility Commission, Order No. 17-386, October 9, 2017 Below, we review the generally accepted process and the foundational elements for IRP analysis. We compare that approach with the specific steps, data inputs, modeling constraints and other factors Joint Commenters Comments on CRSO DEIS April 13, 2020 - Page 15 employed in the DEIS Replacement Power Analysis, and describe how the DEIS fails to achieve the provide a complete, accurate and rational DEIS energy analysis.	The steps of the EIS power analysis are consistent with the description in the comment. Within the power analysis, the EIS replacement power analysis also follows many of the steps described in the comment, including identifying the capacity and energy needs to ensure regional power reliability; constructing portfolios of resources; and evaluating the performance of the portfolios. In selecting replacement resource portfolios, the EIS evaluated a variety of factors to determine the least-cost resource including how the resource affected costs related to regional imports, exports, fuel use and capital costs for the actual resource. These costs were then divided by the reliability benefit to determine the cost effectiveness. The Northwest Power and Conservation Councils GENESYS model was used to evaluate reliability effects and cost-effectiveness. It is important to note that the CRSO EIS examines a variety of resources, not solely power. The replacement resource analysis and assumptions are further described in Chapter 2 of Appendix H in the draft EIS. Based on responses to public comments, the final EIS contains an expanded description of how the potential replacement resource portfolios were selected for the EIS. The commenter suggests or questions why a competitive resource review, also known as an integrated resource plan (IRP), was not performed as part of the EIS analysis. An IRP is a resource planning tool that utilities use to plan for future resource builds and acquisitions to fulfill the utility's specific needs over a certain planning horizon, typically 20 years. Some utilities are required to conduct an IRP by their local or state utility commissions. Bonneville is not required to perform an IRP, but does perform resource planning to inform its decisions, including for this EIS. There are many different methods and tools that are used by utilities when performing an IRP. Furthermore, the output of an IRP is often driven by state energy policies, such as carbon emission requirements. Even if an IRP optimizes resource portfolios, the real costs of that portfolio are not known until a competitive request for proposal solicitation can be completed and evaluated. As explained in the draft EIS in Section 3.7.3.1, Base Case Methodology and Cost Sensitivities Analysis, the EIS analysis evaluates the power impacts of the Multiple Objective (MO) Alternatives on regional power system reliability, as measured through loss of load probability (LOLP). The regional scope of the EIS is necessary because the impacts of the MOs on power system reliability and costs transcend individual utilities and states. Thus, for example, the EIS addresses the cost impacts of replacement resources for each MO regardless of whether Bonneville pays for the replacement resources. If Bonneville does not replace the lost capability caused by an MO, regional reliability would still be worse than the No Action Alternative and above the Northwest Power and Conservation Council's 5 percent standard, leaving other regional utilities to acquire the necessary resources. The EIS addressed the regional nature of the costs and resources needed to maintain power system reliability under the MOs. For further discussion about the resource selection process used in the EIS in lieu of an IRP, please refer to the response to the Northwest Energy Coalition's comment 6881-4.
6881	4	Fred Heutte	NW Energy Coalition	2.2 The CRSO DEIS Does Not Follow Established Methods for Integrated Resource Planning The electric power system provides essential services and is comprised of critical infrastructure and systems supporting the entire economy, including life, health and safety. Because the system is capital-intensive	The commenter questions why an integrated resource plan (IRP) was not performed as part of the EIS analysis. The commenter describes in detail the purpose of an IRP, its use in state utility resource planning, and the resulting output of the process a preferred resource portfolio. The commenter contends that by failing to conduct a similar process in the EIS power resource replacement analysis, the EIS is incomplete and inadequate.

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				and must continuously and simultaneously optimize reliability, economic and environmental objectives, integrated resource planning is designed to explore a wide range of possible conditions for electric power demand, resource supply, availability and cost, and coordination of generation, transmission, distribution and demand side components over time. IRP assessments must consider long time horizons, typically 20 years or more, because of the capital intensity and long operating lifetime of energy resources. Thus, integrated resource planning helps reduce the risks of overinvestment, threats to system reliability, and excessive environmental impacts. IRP assessment must also consider various forms of system constraints and risks. As a result, IRP assessment includes a rigorous review of alternatives in order to achieve a least cost/least risk outcome. As a consequence, IRP analysis must review existing system resources and consider the need for new resources as the consequence of potential resource retirements, future changes in power demand, and the effects of technology innovation on the cost and availability of new resources. The IRP analysis must then consider a wide range of resource portfolios, including options for new resources, using scenario assessment. Finally, the IRP must assess the range of potential portfolios through the least cost/least risk lens and select the new portfolio that can best meet system needs. As the comments below demonstrate, the DEIS energy analysis fails to achieve any of these requirements. As a consequence, the results greatly overstate the costs and understate the benefits especially of MO3. Joint Commenters Comments on CRSO DEIS April 13, 2020 - Page 16 Foundational IRP Element #1: Long-Term Assessment Summary: The DEIS Replacement Power Analysis focuses on a single study year 2022 rather than a 20-year planning horizon, in accordance with established best practice. The DEIS does not explain why the single reference year was chosen for the Replacement Power Analysis and does not explain the choice of 2022 as the reference year. As a result, the DEIS analysis does not test for a comprehensive range of loads, resources, interconnection and system conditions over time, in accordance with IRP assessment. Utility IRP methods generally include a long-term planning horizon; 20 years is often used as providing the best balance between the uncertainties of future system conditions and the long lead times, capital intensity and extended lifetime of new resources, which typically ranges from 5 to 50 years. In the Northwest, the Northwest Power and Conservation Council, Portland General Electric, PacifiCorp, Chelan PUD, Avista Utilities, Idaho Power, Puget Sound Energy, Seattle City Light and many others use 20 years as the time horizon for their IRPs, even when they expect specific resource retirements. In contrast, the DEIS Replacement Power Analysis uses a single planning year, 2022. By choosing a single reference year, the DEIS energy assessment provides a snapshot view that is arbitrary, incomplete and not at all indicative of the dynamic conditions expected for CRS operations over the coming years and decades. This precludes the long-term system assessment required to consider changing conditions for the CRS over many years and decades. In addition, as discussed at length below, the use of a 2022 reference year is particularly inappropriate for MO3. As a consequence, the replacement power portfolio for MO3 is not adequately assessed and is very likely to have much higher apparent cost than would be the case with a more appropriate starting date and long-term assessment in line with standard IRP practice. Foundational IRP Element #2: Scenario Assessment Summary: Unlike standard utility IRP assessment, the DEIS conducts an extremely limited review of scenarios. The DEIS does not explain why this very limited set of scenarios was chosen instead of the multi-factor and more wide-ranging scenario assessment needed for a comprehensive, accurate and sufficient Replacement Power Analysis. Joint Commenters Comments on CRSO DEIS April 13, 2020 - Page 17 Using an appropriate long-term time horizon for an IRP assessment enables planner to assess existing and new resources under a wide range of future system conditions, considering changes in electricity demand, climate change, technology innovation, energy markets and other dynamic factors. To facilitate the IRP process, these varying elements are aggregated together as scenarios. The purpose of scenario assessment, broadly speaking, is to test the feasibility space of different resource portfolios in meeting future demand requirements under widely varying conditions. For example, the Northwest Power and Conservation Councils 7th Northwest Power Plan4 includes more than 20 scenarios, each assessed against 800 futures generated from combinations of regional load and resource projections under conditions. The scenario assessment considers historical temperature, rainfall and Columbia basin hydrosystem conditions, and includes forward projections for fuel (especially natural gas), power market prices, current and future resource costs, and many other factors. In stark contrast to established best practices, the DEIS energy analysis provides a very limited assessment. The Replacement Portfolio Analysis in Step 3 of the framework, in which the replacement resource mix for each DEIS alternative is selected, effectively has only a single scenario. The subsequent wholesale and retail rate pressure analysis in Steps 5 and 6 of the process have a very limited set of sensitivities. As a result, the DEIS energy analysis, particularly for the crucial portfolio selection in Step 3, does not set forth a rational range of scenarios commensurate with standard IRP practice, and the DEIS does not explain why it failed to do so. Under NEPA, Agencies shall insure the professional integrity, including scientific integrity, of the discussions and analyses in environmental impact statements.5 By failing to adhere to established industry practices, this DEIS is not the requisite hard look under NEPA. 4 Northwest Power and Conservation Council, Seventh Northwest Conservation and Electric Power Plan, February 2016, https://www.nwcouncil.org/reports/seventh-power-plan 5 40 CFR 1502.24. Joint Commenters Comments on CRSO DEIS April 13, 2020 - Page 18 Foundational IRP Element #3: Resource Portfolio Optimization Summary: The DEIS does not conduct the iterative, progressive approach to resource portfolio optimization that is key to recommending a robust new resource plan to meet the least cost/least risk criterion. Instead, the DEIS considers a single, static metric for resource adequacy in a single year, 2022, and does not proceed to any of the other steps considered essential for rational resource optimization in standard utility IRP practice. Resource portfolio optimization in a crucial step in the IRP process, and thus a major part of any legitimate energy system plan. Without optimization, it is nearly certain that the resulting resource portfolio will have significantly greater cost, weaker performance and lower system value than it should. While the effort to optimize resource portfolios must be methodical and thorough, a wide range of methods and models can be used to accomplish this key outcome. The resource portfolio development process must be rigorous, comprehensive and as objective as possible, and must be guided by a careful mix of modeling and expert judgment. As mentioned above, the process for IRP resource portfolio optimization typically starts with development of a wide range of system scenarios and resource portfolios, which are then iterated in stages. At each stage, the range of candidate portfolios is narrowed and re-optimized, leading toward selection of a preferred resource portfolio in the final stage that best meets all relevant criteria and constraints. An optimized resource portfolio must include a review of both existing and potential new resources, including all their relevant capabilities and costs. The review must assess all current and potential new resources on a comparable basis, using multiple criteria covering capital and operating cost, environmental cost and benefit, and system resource adequacy and operational reliability. Because energy resources have varying costs, capabilities and effects, they interact differently with the overall power system. The potential contribution of each resource to total system value must be examined in concert with all others. The ultimate measure is not the performance of a given resource on its own, but rather how individual resources interact with the electric system to provide reliable, affordable energy to customers. IRP resource portfolio optimization includes many performance metrics and constraints. In overview, these include operational reliability, resource adequacy, and energy, capacity and flexibility value. Joint Commenters Comments on CRSO DEIS April 13, 2020 - Page 19 The resource portfolio development process must be rigorous, comprehensive and as objective as possible, and must be guided by a careful mix of modeling and expert judgment. The outcome must be a preferred resource portfolio that meets least cost/least risk criteria. As mentioned above, the process for IRP resource portfolio optimization typically starts with development of a wide range of system scenarios and resource portfolios, which are then iterated in stages. At each stage, the range of candidate portfolios is narrowed and re-optimized, leading toward selection of a preferred resource portfolio in the final stage that best meets all relevant criteria and constraints. In contrast to these established methods, models, data and review processes, the DEIS Replacement Power Analysis, conducts only the most cursory approach to developing replacement power portfolios for the alternatives under consideration. As described more fully below, the DEIS does not explain why the analysis did not incorporate other data and factors that were readily available to the energy analysis to develop robust resource portfolios that could be selected through scenario assessment, portfolio optimization and least cost/least risk screening. The DEIS does not conduct a review of a range of potential resource portfolios, then narrow them down by testing them across a wide range of scenarios over time. The DEIS does not explain why the alternatives are assessed with respect to a single study year, 2022, rather than the long-term horizon that is standard practice. The DEIS energy analysis therefore has resulted in a materially incomplete, misleading and arbitrary assessment of replacement options for all alternatives presented, and most especially MO3. Development of DEIS Replacement Power Portfolios The DEIS describes the Replacement Power Analysis portfolio selection process as follows: To determine the optimal mix of resources under each portfolio, this analysis assesses the cost-effectiveness of specific power resources by dividing the total costs by the LOLP benefit. The most cost-effective resources were then added into the GENESYS model until the resulting LOLP reached the No Action Alternative LOLP (6.6 percent). DEIS, Appendix H at line 606 Joint Commenters Comments on CRSO DEIS April 13, 2020 - Page 20 A check against resource adequacy is a key part of any IRP process. But assessing the adequacy of an alternative is fundamentally different than developing that alternative in the first place. The use of a resource adequacy model to develop resource portfolios is not a rational way to match the demanding test of meeting all system requirements over multiple years and decades in a least cost/least risk fashion. We start by reviewing the loss of load probability (LOLP) metric. The LOLP is a measure of system resource adequacy in a future year. It is a metric that is widely used in the electric utility industry to assess whether sufficient system resources will exist in each operating hour across a year to meet anticipate system demand. The Northwest Power and Conservation Council developed the	NEPA and IRP Legal Requirements There are a number of differences between the scope and the framework of the EIS that make conducting an IRP or IRP-like analysis incompatible with the CRSO EIS analysis. IRPs are a utility resource acquisition planning tool, usually developed in response to state regulatory requirements, and are not a requirement for a NEPA analysis. Many utilities perform IRPs to fulfill regulatory requirements created by state law or state utility commissions. In this regard, the scope of an IRP in almost all cases is from a particular utility's perspective solving for that utility's energy need over a planning horizon (typically 20 years) using the utility's criteria or objectives. The scope of the CRSO EIS is much broader in that Columbia River System operations affect communities throughout the Northwest. The EIS analyzes the impacts of the various alternatives, including the No Action Alternative and five MOs, on not just Bonneville, or Bonneville's customers, but on the region as a whole. For this reason, the power resource replacement analysis in the EIS does not identify the cost of resources for a particular utility, but presents the costs as costs of either Bonneville (through its wholesale power rates) or costs of other utilities in the region (through the regional retail rates analysis). In this context, the power resource replacement analysis for the EIS produces two representative resource portfolios which reflect available resource replacement options that could achieve the reliability metric of the EIS. In analyzing these alternatives, the EIS analysis does not purport to decide which resource portfolio should be chosen to address the impacts of a particular MO. Instead, the power resource analysis provides resource options that would be available to address any energy shortfalls caused by changes to CRS operations and associated power generation under the MOs. The EIS makes no finding on which utilities would be responsible for procuring resources, or what type of resources those utilities would acquire. For this reason, the replacement analysis remains neutral on these questions, producing results that enable the co-lead agencies to compare between the differing CRS operations in the alternatives in an objective manner. In this way, the EIS resource analysis appropriately focuses its effects analysis on evaluating options and estimating regional (non-utility specific) impacts caused by alternative CRS operations. The commenter describes a number of benefits that an IRP provides to selecting least-cost/low-risk resource portfolios and raises concerns that, by not doing an IRP, the EIS resource replacement analysis does not reflect a reasonable estimate of the potential resource replacement costs for the MOs. That concern ensuring that the EIS includes reasonable estimates of the replacement resource costs is a concern that the co-lead agencies share with the commenter. To that end, the power replacement analysis performed for the EIS includes many of the features identified by the commenter as being important to a reasonable least-cost/least-risk replacement resource analysis. Based on public comments, the final EIS contains more description of the processes and steps used in the power resource replacement analysis for determining the resource replacement portfolios in Appendix H, Section 2.2.2. The specific difference between the objectives and scope of an IRP and the CRSO EIS are described in detail below. Following this discussion is a broader explanation of the steps taken in the power resource replacement analysis, which in general show that the analyses performed in the EIS included many of the rigorous methodological approaches which would be employed in an IRP. Finally, the co-lead agencies acknowledge that if there were to be a substantial need for resource development, many of the actions requested by commenter would occur in the proper regional forum at the appropriate time. Differences between EIS Analysis and IRP Scope. Although the commenter refers to an industry standard IRP, there are, in fact, multiple ways and methods to perform an IRP. Common to most, though, are a few elements. One common element in almost all IRPs is the objective to reach a preferred resource portfolio for a particular utility. That is, the IRP optimizes the utility's existing resources to meet its loads, and then looks to solve for any deficiencies (as defined by the utility) with new resources (often optimized through multiple iterations) for a particular planning horizon (typically 20 years). As the commenter notes, guiding the resource optimization decisions by the utility are a host of criteria and objectives. These objectives are typically driven by particular policies or mandates that apply to the utility's acquisitions, such as carbon elimination, reliability margins, location, fuel type, etc. The resulting resource analysis supporting the utility's IRP focuses on resources that meet the utility's power needs, following that utility's identified criteria or objectives. The CRSO EIS power replacement analysis has a much broader scope. This follows from the broader scope of NEPA, which looks to analyze the impacts of CRS operations on power generation and transmission. The EIS analysis then explains how those impacts would affect regional consumers rather than specific utilities. A broader regional scope requires a broader power replacement analysis. The analysis in the EIS provides this broader scope by comparing the expected hydropower generation of the Federal Columbia River Power System under the status quo (the No Action Alternative [NAA]) and each MO alternative, and then uses the Northwest Power and Conservation Councils GENESYS model to quantify the associated level of reliability using the Loss of Load Probability (LOLP) metric. To the extent additional resources are needed to maintain system reliability at the NAA level, the analysis proceeds to choose potential replacements using resource optimization, with these replacements sized to the amount necessary to return each MO to the same level of reliability as the NAA. (The Preferred Alternative had roughly the same LOLP as the NAA, and thus, did not require replacement resources). Both the cost and generation profile of these resource replacement portfolios, along with the expected power generation under each alternative, are then folded into the rate pressure analysis to support the socioeconomic impacts analysis, which evaluates retail rate impacts at the regional level over a planning horizon of 50 years. Importantly, the output of this analysis does not characterize the cost impacts of a single preferred resource portfolio nor assign power replacement costs to a particular utility (or group of utilities). Rather, the power rates analysis shows the cost impacts for a range of portfolios, with those impacts generically applied to Bonneville and to regional utilities. This is a key assumption and one that is fundamentally different from an IRP. In an IRP, the utility is assumed to be the acquirer of resources, so only its interest (and those of its immediate customers) are at issue. Moreover, the utility retains substantial control over the outcome of its analysis, making judgment calls on which combination of resources best align to that utility's particular needs and criteria. In this NEPA analysis, however, the EISs broader scope means the co-lead agencies must look at resource replacement from a regional perspective, rather than an individual utility (or individual state) perspective. That broader view results in replacement options that reflect groupings of resources to best meet the objectives of the EIS (maintaining regional reliability), but also leaves open further optimization by individual utilities following whatever objectives and criteria the utility chooses. Output / Solving for LOLP The commenter also raises concerns about the limited criteria the EIS uses to solve for its power resource replacement analysis. The EIS uses the LOLP metric as the measure of regional reliability. The Northwest Power and Conservation Councils (Council) LOLP standard was used because it provides an objective third-party metric from which the EIS could measure the effects of the MOs, including the Preferred Alternative on regional reliability. LOLP does this by indicating when replacement resources are needed to maintain reliability, irrespective of which individual utility has lost a resource, which better aligns with the broader scope of the CRSO EIS. When LOLP changes under an MO, the power resource replacement analysis acquires resources, if necessary, to return regional reliability to the LOLP of the NAA. The commenter contends that solving only for LOLP is not a rational way to meet load over multiple decades on a least cost/least risk basis commonly employed through resource optimization performed in an IRP. Once again, the scope of the EIS and its objectives are not comparable with an IRP. As the commenter describes, the output of an IRP is a preferred portfolio that meets the criteria and objectives identified by the utility in its process. Those objectives and criteria are generally the product of the utility's policy or state mandates, and vary from utility to utility. For example, PacifiCorps IRP targets a reserve margin of 15 percent; Idaho Powers IRP targets 13 percent. Both utilities have different carbon objectives, and thus, select different resources in their respective preferred portfolio. These criteria obviously influence which resources are chosen for the preferred portfolio from a least-cost/least-risk perspective. Unlike an IRP, the CRSO EIS is not solving for a particular utility's resource need. Rather, the CRSO EIS analysis compares alternative operations and their effects relative to a base case (in this case, the NAA) consistent with the requirements of NEPA (see 40 C.F.R. 1502.14). To measure these effects, the power replacement analysis must apply a base-line requirement that can be applied across the MOs. The decision to use LOLP as that metric ensured that the reliability impacts of the MOs could be evaluated transparently and regionally across alternatives. The LOLP metric does this by providing a regional look at the impacts of resource losses and acquisitions on the power system as a whole. This broader scope better aligns with the requirements of NEPA, mainly present[ing] the environmental impacts of the proposal and the alternatives in comparative form, thus sharply defining the issues and providing a clear basis for choice among options by the decision-maker and the public.(see 40 C.F.R. 1502.14). The limitations of existing regional resources and the resulting reliability, cost, and carbon emissions implications are an important impact to consider. By looking at the regional impact of the MOs, the analysis is able to show, holistically, the effects of different operations on resource adequacy and the need for additional resources, if any, to reliably meet demand for power. This enables the co-lead agency decision-makers to make informed decisions. Seeing the broader impacts of the MOs provides the co-lead agencies a fuller picture of the reliability challenges that could arise with the different MO operations, both with the current regional resource mix and with a sensitivity analysis incorporating forecasted coal-plant retirements. These broader impacts would be muted (or erroneously excluded) in a utility-specific IRP analysis. Stated another way, had the EIS solved for a particular load (or group of loads) as in an IRP, the analysis would not have addressed the MOs effects on other regional loads, muting the effects of the MO on reliability. Already, the region is above the Councils target for LOLP of 5 percent, with the NAA carrying a 6.6 percent probability of resource insufficiency. This indicates that, under certain system conditions, regional resources are already short and may not be sufficient to meet demand. Developing the power replacement analysis so that it relied on the regions already limited resources to support reliability, without incorporating associated costs necessary to meet instantaneous demand, would not have provided an accurate picture of the resources needed to maintain reliability under certain CRS operations. Ignoring the existing resource limitations would be inconsistent with the twin aims of NEPA, which are to ensure agencies consider significant impacts of an action and inform the public of these impacts to demonstrate it has considered these impacts in its decision-making. The CRSO EIS appropriately analyzed the resource limitations to the public and will use this impacts analysis and public comments in its decision-making. The commenter also appears to contend that in using LOLP as the metric for the EIS, the EIS omits other important factors that would go into the selection of replacement resources for the four lower Snake River dams. For instance, the commenter suggests that the EIS power replacement analysis selects resources that reduce LOLP, but does so in a way that is oblivious to regional objectives and policies that would influence rational resource decisions. To the contrary, the portfolios selected by the EIS reflect a reasonable range of resource options that align with regional objectives and policies. Specifically, the EIS develops two general portfolios for each MO: a conventional least-cost portfolio (comprised of natural gas-fired resources) and a zero-carbon portfolio (predominantly solar). Along with reliability, these portfolios address the two key decision variables regional utilities and policy makers would consider in making future resource replacement decisions: (1) cost and (2) emissions profile. The EIS uses these two portfolios to specifically acknowledge that different utilities would emphasize different factors in seeking to return regional reliability to the NAA levels. Some utilities would emphasize cost (conventional least-cost portfolio) while others would emphasize carbon content (zero-carbon portfolio). Between these two portfolios are many different potential variations. Selecting the right combination of resources from carbon and non-carbon, dispatchable and non-dispatchable, new technology or old technology, etc. into a preferred resource portfolio for a specific utility is not within the scope of the EIS. Having established a reasonable range of resource portfolios that would likely be in play to replace lost capability caused by the various MOs, the EIS thoroughly evaluates the costs of these bookend portfolios in the power resource replacement analysis. Duration The commenter questions the use of 2022 as the study year for the EIS and contrasts that single-year analysis with a 20-year horizon typically used in an IRP. The reason for this difference lies in the differing objectives of a power resource replacement analysis conducted pursuant to NEPA and an IRP resource process for regulated utilities fulfilling state mandates. As discussed above, the focus of the CRSO EIS is to measure the impacts of the proposed system operations on various affected resources, one of which is power reliability. To do that, though, there needs to be an established point-in-time from which to measure the effects of the MOs as compared to the No Action Alternative. The EIS accomplishes this comparison by assuming each MO (and its effects) were fully in place by 2022. Both practical and analytical reasons support this approach. Practical reasons support using 2022 as the beginning year because at the time the analysis was prepared, this year coincided with the latest available data from the Councils Power Plan to run the GENESYS model to calculate LOLP. In other words, 2022 is the latest date that data were available from which to calculate the effects of the MO on LOLP. Had the EIS used 2023 or any later date, the co-lead agencies would have had to develop their own data set to estimate the effects of the MOs on LOLP. Using 2022 allowed the EIS to use, in a non-biased fashion, the Councils existing data set to run the GENESYS model with no additional adjustments. Analytical reasons also support using 2022 as the study date. Although there would be virtually no chance that all pre-requisites for resource construction (or elimination as in MO3) would be completed by 2022, the use of 2022 as a start year does not degrade the analysis in the EIS, but in fact, enhances it because it removes the subjective variable of resource replacement timing that could have impacted the relative weighting of the MOs. By choosing a single start year applicable across MOs, the EIS provides a level playing field from which to compare the impacts and costs of each MO (See Section 3.19 and Appendix Q for additional discussion). Had the EIS adopted a later start date for the MOs or key measures within an MO for evaluating future resource decisions, as in an IRP, for the replacement resource and rate pressure analysis, the co-lead agencies would have had to speculate about when the various elements of the MOs would have been in effect. Establishing an actual year of implementation for each of the MOs would have injected a subjective timing element into the measurement of the relative impacts of differing

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				GENESYS model two decades ago to assess the resource adequacy of the Northwest regional power system using the LOLP metric as a primary measure. GENESYS is regarded as being the most capable model for that purpose in the Northwest, in particular because of its highly sophisticated emulation of CRS hydrogeneration under a full range of hydrological flow, hydrogeneration and power system conditions. The Council resource adequacy assessment is updated annually and looks forward five years. The assessment has proven to be highly robust and provides valuable guidance for regional decision makers and the public. However, that assessment only includes existing resources and committed new resources, including the Councils regional energy efficiency target. The annual resource adequacy assessment does not generate and test candidate power portfolios to fill any resource adequacy gap that effort is considered in the Councils Northwest Regional Power Plan every five years. The agencies here have ready access to the appropriate tools to develop optimized resource portfolios. To develop the preferred resource mix for the Northwest Regional Power Plan, the Council uses its capital expansion model, the Regional Portfolio Model (RPM). Capital expansion models are the core of IRP assessment, because they simulate power system conditions over the planning time horizon for the scenarios, data, constraints and resource portfolios of a full IRP assessment. Their outputs can be used to iterate, optimize and select the least cost/least risk preferred portfolio. Some capital expansion models are vendor-supplied, while others, like the Councils RPM, are internally developed. Regardless of source, the established industry practice is to use capacity expansion tools to develop Joint Commenters Comments on CRSO DEIS April 13, 2020 - Page 21 alternative portfolios, and then use resource adequacy tools to assess these alternatives. The DEIS skipped this step to develop a robust set of alternatives and thus fails to comply with NEPA. The DEIS Replacement Power Analysis consisted of three steps. First, GENESYS was used to derive loss of load probability (LOLP) values for the existing Northwest power system as modeled in 2022 under the median water scenario. This resulted in a 6.6% annual LOLP metric. This is a static annual value for the single year of 2022 and does not incorporate future changes of loads, resources, climate change and future hydro variability, changes in western power markets and many other factors that must be considered in IRP analysis. Second, changes to resource operation in the existing system were loaded into GENESYS and run for each of the Multiple Objective Alternatives. These changes included modified generation patterns at the CRS generation facilities in accordance with the hydroregulation study for each alternative. Overall, this resulted in the changes to average annual LOLP in 2022 (illustrated in column two of Table ES-10 below), before considering power replacement portfolios. DEIS Appendix J, Table ES-10 Third, resources by type (natural gas, wind, solar, battery storage, demand response) were added in economic merit order and run in the GENESYS model until the annual LOLP in 2022 again reached the 6.6% level. Note that this third step was only conducted for MO1, MO3 and MO4, because MO2 resulted in a lower LOLP than the baseline. Joint Commenters Comments on CRSO DEIS April 13, 2020 - Page 22 This third step constitutes the full and entire process of developing the power replacement portfolios in the DEIS. No additional iteration or optimization whatsoever was conducted. This process is not the robust development and analysis of alternatives required by NEPA. The agencies do not explain how the cost-effectiveness for each resource type was determined and how the resources were assembled in economic order sequence to create each replacement power portfolio. Such details would normally be explained at length during a standard IRP process. The process described fails to select the best replacement portfolios considering their interaction with the entire system, as would an adequate IRP assessment As a result, it is nearly certain that the net costs of the replacement power portfolios resulting from the DEIS Replacement Power Analysis significantly exceed what a fully optimized review would accomplish. The DEIS fails to explain either why its limited approach is rational and reliable, nor why it did not take the steps of a standard IRP analysis to weigh and optimize the many factors over the long duration time horizon needed to select the lowest cost and least risk replacement portfolio, especially for MO3. Foundational IRP Element #4: Least Cost/Least Risk Assessment Summary: The DEIS does not explain why the Replacement Power Analysis does not define least cost/least risk criteria nor construct the power replacement portfolios to include all factors necessary to achieve those criteria. In particular, the DEIS energy assessment does not explicitly address system risk as well as system cost. Therefore, the DEIS does not conduct a rational or robust least cost/least risk assessment across a full planning horizon of 20 years or more. Utility IRP analysis in the Pacific Northwest generally engages in some form of least cost/least risk assessment. That is, rather than merely solving for a single objective function over time, such as minimizing cumulative system cost, IRP modeling must also account for multiple elements of risk. Among these are operational reliability, longer term resource adequacy, and financial risk. The Oregon Public Utility Commission order on the Portland General Electric 2016 Integrated Resource Plan describes the industry standard for least cost-least risk planning: The IRP is a road map for providing reliable and least cost and least risk electric service to the utility's customers, consistent with state and federal energy policies, while Joint Commenters Comments on CRSO DEIS April 13, 2020 - Page 23 addressing, and planning for, uncertainties. The primary outcome of the process is the selection of a portfolio of resources with the best combination of expected costs and associated risks and uncertainties for the utility and its customers. Oregon PUC Order 17-386 at 3 Above we describe the industry best practice for developing alternative resource portfolios. In sum: Tradeoff analysis and expert judgment must be combined with computer modeling to achieve a fully optimized system portfolio that appropriately balances cost and risk. To accomplish this result, a co-optimization approach is employed to find the best balance between minimizing production cost over time (least cost) while also minimizing variation in both direct and externality risks, usually through a proxy cost factor (least risk). There are many recognized methods for achieving a least cost/least risk planning result and defining a new resource portfolio, but the DEIS employed none of them. For example, the Northwest Power and Conservation Council uses its Regional Portfolio Model (RPM) to construct the preferred least cost/least risk resource mix for its 20-year resource portfolio and associated 5-year action plan, all of which are updated approximately every five years in the Northwest Regional Power Plan. The RPM operates in quarterly steps over a 20-year time horizon. For each of more than 20 scenarios in the 7th Northwest Power Plan, the RPM model generated about 800 futures representing ranges of load, resource and market price conditions across the 80 time steps, incorporating additional elements for risk assessment such as stochastic shocks to market prices. The RPM model selects the optimal mix of existing and new resources across all time steps for each scenario and aggregates the results to a cost metric and a risk metric. The complete set of scenario cost and risk metrics across the 800 futures is then plotted to show an efficient frontier where cost and risk are minimized. Finally, the Council reviews those scenarios falling closest to the efficient frontier and applies further analysis, extensive stakeholder input and expert judgment to select the future resource portfolio included in the 20-year regional plan and the associated 5-year action plan. Joint Commenters Comments on CRSO DEIS April 13, 2020 - Page 24 In contrast, to select the new resources for the Preferred Alternatives and the four Multiple Objective Alternatives, the DEIS Replacement Power Analysis only assesses baseline conditions for the single study year of 2022, rather than a multi-decade study period with a comprehensive scenario assessment. The replacement power portfolios for each alternative consist of only two the least cost conventional portfolio and the zero-carbon portfolio. Those portfolios were selected to return MO1, MO3 and MO4 to the 6.6% LOLP baseline of the No Action Alternative but not to meet any other important performance criteria and constraints. The set of two portfolio options for each DEIS alternative is far more limited than the wide range of portfolios typically considered in IRP analysis. Rather than assessing the full range of energy, flexibility and other criteria to steer toward a least cost/least risk portfolio, the criterion for selection of the DEIS replacement portfolios is a single factor resource adequacy as denoted by the LOLP metric. This is not a rational, accurate or sufficient step to create an optimized, least cost/least risk power replacement portfolio. In conclusion, as a result of the omissions and deficiencies in the DEIS Replacement Power Analysis for MO3, the results are incomplete and inadequate. Consequently, the rate pressure analysis in Step 5 and the socioeconomic impact analysis in Step 6 of the framework analysis, which are based entirely on the Power Replacement Analysis, are likewise incomplete and inaccurate.	CRS operations on each of the alternatives. For example, MO3 with dam breaching requires Congressional action. Had a timing element been included in the comparison of the MOs, the EIS could have assumed that Congress would not act by 2022, but by 2035, or some other subjective date. The impacts of the MO on the various objectives identified in the EIS would then have had to be scaled to these subjective future dates, skewing the results. MOs that could be implemented more quickly (such as those involving only operational changes) would generally show smaller costs and more overall benefits compared to those requiring long lead times (such as dam breach). Similarly, subjective assumptions on timing could have been employed for the construction of replacement resources, especially for large-scale solar installations requiring environmental compliance, permitting, etc., and conventional gas-fired units, which are carbon emitting and potentially constrained by regulatory policy. All of this subjectivity would have been added to the power resource replacement analysis with little additional analytical benefit and potentially a detriment to the EIS because of the speculative nature of the timing assumptions the co-lead agencies would have had to make. The more analytically sound approach is the one adopted by the EIS. The use of a single study year for implementation of the alternative allows for a comparison of before-and-after effects for each alternative, utilizing the most recently available and vetted models and data up and through 2022. The single start year ensured that the effects of the MOs could be compared fairly with each other and the NAA without the co-lead agencies speculating on when Congress might act, when resources would be removed, or when resources would be constructed and online. Additionally, the commenter appears to suggest that by choosing a single study year, the costs included in the power resource replacement analysis are artificially high. The EIS does not front-load replacement costs in 2022. Rather, all resources included in the resource portfolios are amortized over their accounting useful life, and a longer useful life than might be reasonably predicted if replacement resources were constructed by Independent Power Producers or Investor-Owned Utilities. See draft EIS, Section 3.7.3.1 Additional Power Rate Sensitivity Analysis Rate Sensitivity Assumptions Resource Financing Assumptions. The starting period for that amortization is 2022, so only one year of amortization of the replacement resources is included in the EIS rate pressure analysis. Additionally, the EIS includes NPV (net present value) analysis (See draft EIS, Section Bonneville Financial Analysis under each alternative in Section 3.7.3 and in Section 7.7.9.5) as well as imputed socioeconomic impacts over 50 years (See draft EIs, Section Social and Economic Effects of Changes in Power and Transmission under each alternative in Section 3.7.3 and in Section 7.7.9.6). The combination of this before-and-after approach to assess regional reliability with the imputed impacts over time allows for easy comparison of the alternatives and informs the public and the region of the relative costs and benefits of differing CRS operations. To address concerns about potential reductions in resource costs, consistent with the comment, publicly released draft information, such as updated prices for solar and battery storage, from development of the Council's 8th Power Plan is included as rate sensitivities in the final EIS. The final EIS includes the de-escalating cost curves prepared by the National Renewable Energy Laboratory (NREL) that will likely be used by the Council in the 8th Power plan. The Analysis Performed by the EIS Addresses Many of Commenters Concerns The commenter states that better resource replacement data could have been developed had the EIS used an IRP for developing resource replacement portfolios. Specifically, the commenter notes that optimization, scenario analysis, and the selection of a least-cost, least-risk optimized resource portfolio would have resulted in a more cost-effective evaluation of replacement resources. While the scope and objectives of an IRP are not directly comparable to the type of analysis needed for an EIS, the commenters emphasis on the benefits of some of the features of an IRP are well taken. In fact, the EIS power analysis includes many of the features that the commenter suggests are needed to provide an objective least-cost/least-risk, optimum resource portfolio. Source Data One of the important components of an IRP is objective data. Most IRP processes use source data from third-party vendors or other third-party sources to produce an objective assessment of future resource availability, capabilities, and costs. Like an IRP, the EIS uses data from a third-party source to estimate the effects of the MOs on future power costs: the Councils 7th Power Plan and Mid-Term Update with the exception of batteries which relied on draft data from the Council's upcoming 8th Power Plan that became available in the fall 2019. See draft EIS, Section 3.7.3.1, Step 3: Determine Need for Potential Replacement Resources and Associated Costs at page 3-821 and Appendix H, Power and Transmission, Section 2.2. The Council is statutorily required to focus on evaluating cost-effect resources from a regional perspective, and therefore, is a recognized leader in producing data for use in estimating regional resource replacement costs. Such data are used in each of the four key inputs to the power resource replacement analysis: (1) the projected loads to be served; (2) the types of resources that are available for selection; (3) the cost of those resources; and (4) (along with the GENESYS model), the effectiveness of those resources to influence LOLP. In addition, as described in other comments, the resource cost analysis is updated in the final EIS to reflect recent studies that indicate the declining costs for resources through an added sensitivity adjustment entitled Forward Cost Curves. In these ways, the source of the data used by the EIS follows the leading industry standard and is objectively and analytically sound. This complies with NEPAs requirement to use high quality information in the analysis (see 40 C.F.R 1500.1(b)). Optimization and Scenario Analysis The commenter highlights the importance of optimization and related scenario analysis, noting that these activities are crucial to establishing a least-cost/least-risk optimized resource portfolio. In particular, the commenter notes that various vendors and models exist that optimize resources to produce the most efficient resource portfolios. The commenter notes the EIS did not use an optimization program, but instead used a single step optimization, by resource type and economic merit order. The commenter contends additional optimization and scenario analysis should have been conducted in the EIS to produce more reasonable costs estimates. The co-lead agencies acknowledge that resource optimization and scenario analysis are important parts of resource acquisition planning. When specific utility resource needs and parameters are established, optimization and scenario analysis can help decision-makers make informed decisions about which portfolio of resources best achieves the objectives of the utility. These activities are clearly needed when establishing the utility's preferred portfolio. The EIS, however, is not designed to replace or be equivalent to a utility resource selection process, nor is it establishing a preferred resource portfolio for the region. Instead, as described above, it is intended to provide a reasonable range of replacement resource options, and their incremental costs, from which to measure the impacts of the various MOs. Utility-specific optimization and scenario analysis would occur as a separate step, independent of the EIS, constrained and directed by the particular criteria and objectives of the utility. For this reason, a vendor-supplied optimization program and detailed scenario analysis were not deemed to be necessary for the EIS. This is not to suggest that the EIS did not perform any resource optimization as contended by the commenter. Instead, the EIS performs a form of optimization that focuses on ensuring that the portfolios used in the power replacement analysis (1) reflect reasonable estimates of the cost of available replacement resources; and (2) as applied to the MOs, are the least-cost resource categories available. The EIS used the screened set of primary resources and cost data from the regions regional resource planning organization, the Council, as a primary source for these replacement resources. This approach allows the co-lead agencies to eliminate obvious non-viable resource portfolios, and provides a spectrum of primary resource portfolios to assess the impacts of the MOs. It intentionally leaves open any further optimization for utilities or policy makers to make with their respective specific criteria or objectives. The first element of this analysis (reasonable costs) occurs inherently through the data used in the power analysis. As noted above, the EIS relies on resource data developed by the Council in the 7th Power Plan (with the exception of batteries which used 2018 and 2019 regional utility IRP data). The EIS uses the data underlying this portfolio as the basis for determining the type of resource options available to replace lost capability caused by the MOs. From this data set, seven resource options were evaluated. These include (1) natural gas; (2) demand response; (3) solar; (4) Montana wind; (5) Gorge wind; (6) a combined solar/wind; and (7) batteries. These resources are identified by the Councils 7th Power Plan as primary resources for meeting future energy needs, (except batteries, which were expected to become and now are a primary resource in the upcoming 8th Power Plan). These resource portfolio assumptions (along with the Councils cost estimates with applicable updates) form the basis of the resource cost estimates used in the EIS for the MOs. To further address concerns about potential reductions in resource costs, consistent with the public comments, publicly released draft information from development of the 8th Power Plan is included as rate sensitivities in the final EIS. As discussed above, the final EIS also includes the de-escalating cost curves prepared by NREL that will be used by the Council in the 8th Power plan. In this way, the source of data used in the EIS already reflects a screened set of primary resources, and their costs, that are viable today and scalable to the region. These costs estimates are further refined through the resource evaluation process used in the EIS. Commenter highlights that part of the optimization process includes the interaction between resources and the power system as a whole. In other words, optimization acknowledges the impacts of different resources on regional surpluses, deficits, fuel costs, and other related factors. This interaction is taken into account in the EISs power resource replacement analysis. As will be explained in greater detail in the final EIS, the costs of the seven resources described above are adjusted in the EIS to reflect their variable costs or savings to the region. For example, the analysis includes not only the fuel costs of both natural gas and coal but also includes the other variable costs (operation and maintenance [O&M]) as well. Furthermore, the fixed O&M costs are also included in the annual fixed costs of the resource in addition to their capital costs. Alternatively, the solar resource reduces regional expenditures for natural gas O&M and fuel, resulting in substantial regional savings. These savings are credited to the solar resources. In this way, the power resource replacement analysis provides a robust and analytically sound basis for the costs of the resource portfolios used to support the EIS. The second element of the power analysis (least cost) occurs through the ranking of the resources by their effectiveness in reducing LOLP. To do this, the power replacement analysis compares each resource portfolios effectiveness at reducing regional LOLP and divides this effectiveness by the resources costs. For example, in the case of MO3, adding 500 MW of natural gas to regional resources has the effect of reducing LOLP by 4 percentage points. Dividing the costs of 500 MW of natural gas ($22 million as estimated from the Councils fixed cost data and the EISs change in power system costs) by 4 (the LOLP benefit) results in a cost of reliability-benefit ratio for natural gas of approximately $5,500,000 per LOLP percentage point. Applying the same math to 500 MW of Gorge wind, which reduces LOLP by only 0.4 percentage points, results in the much higher cost of reliability benefit ratio of $120,000,000 per percentage point reduction in LOLP. As a result, Gorge wind was not selected as a least-cost resource option for the MOs. Through this iterative process, the EIS establishes two portfolios that meet the reliability objectives of reducing the LOLP to the NAA levels on a least-cost basis. The conventional natural gas portfolio reflects a least-cost option, reducing LOLP the most per dollar of investment. The zero-carbon portfolio, solar with demand response, and for MO3, solar and demand response reflects the least-cost renewable resources group for reducing LOLP. For MO3, batteries were added to solar and constrained to a 2:1 ratio of solar to battery in order to return some of the lost sustained peaking and ramping capability and to avoid leaning on other regional resources to make up for these generation characteristics. The amount of replacement resources (gas, solar, and batteries) were scaled until the LOLP of each MO matched the LOLP of the No Action Alternative. As noted before, these portfolios are not intended to be the sole portfolios that utilities, policy makers, or federal agencies would choose to develop. Between these two resource portfolios are many combinations which could be optimized with other resources to achieve the specific objectives the utility seeks. In response to this and other public comments, Appendix H, Section 2.2.2 of the EIS contains an expanded description of how the replacement resources were selected. Looking to the future The Preferred Alternative discussed in the EIS is not expected to result in additional resource acquisitions to maintain regional reliability at the NAA level, so other processes are unlikely to be needed to address prospective acquisition decisions as a result of implementing the Preferred Alternative. Nonetheless, if acquisitions are needed in the future, the concerns raised by commenter would likely be addressed in those separate processes (if any), outside of a federal NEPA process, in which the utility (or utilities') resource portfolio decisions are considered. The co-lead agencies would expect those processes to involve many stakeholders, where the objectives and criteria concerns expressed by commenter could be addressed. Regional utilities and policy makers have a long-history of collaboration and cooperation in resource development, siting, and participation. Bonneville, in particular, would engage in appropriate regional processes if it needed to acquire resources to ensure an adequate, efficient, economical and reliable supply of power to meet its obligations. The detailed elements of an IRP analysis highlighted by commenter, with computer optimization, scenario analysis, and the meeting of multiple objectives throughout a 20-year time horizon, would likely occur when deciding the specific utility resource acquisition plan. The commenter identifies important considerations that warrant full development in processes outside of a federal NEPA process for planning and acquiring future resources for specific utilities.
6881	5	Fred Heutte	NW Energy Coalition	3.1 The Choice of the Year 2022 is Infeasible and Inappropriate for Assessment of MO3 Even under the most rapid process conceivable, LSR dam breach and hydrogeneration retirement cannot possibly be completed in 2022. The DEIS defends the use of the 2022 date as follows: The construction costs for the structural measures were assumed to be implemented over the first two years of the project (2021 and 2022), consistent with guidance provided by the co-lead agencies. Although some of these measures, especially the dam breaching measures, may take a number of years to implement or may not start for a number of years (pending further studies), it was necessary to provide a consistent time-frame for implementation in the evaluation to compare across the alternatives. DEIS Appendix Q at Q-3-2 While we agree that using a consistent time-fram is important, the DEIS	The commenter questions the use of 2022 as the study year for the EIS and contrasts that single-year analysis with a 20-year horizon typically used in an IRP. The reason for this difference lies in the differing objectives of a power resource replacement analysis conducted pursuant to NEPA and an IRP resource process for regulated utilities fulfilling state mandates. As discussed above, the focus of the CRSO EIS is to measure the impacts of the proposed system operations on various affected resources, one of which is power reliability. To do that, though, there needs to be an established point-in-time from which to measure the effects of the MOs as compared to the No Action Alternative. The EIS accomplishes this comparison by assuming each MO (and its effects) were fully in place by 2022. Both practical and analytical reasons support this approach.

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				focus on 2022 is arbitrary because, as the agencies admit, dam breach under MO3 is not be possible by 2022. Many financial, engineering, contractual, legal and other steps are needed to accomplish dam breach, hydropower retirement and related activities, as well as acquisition of the replacement power portfolio. Completion of these activities under MO3 would take several years to put in place. The choice of the starting year for the Replacement Power Analysis is consequential. Compared to a later year that is closer to the first feasible time that MO3 can be implemented, many factors in the regional power system and CRS will have changed. Of particular importance to the anticipated cost for MO3, the ongoing decline of clean energy resource costs will proceed further because of technology innovation and policy such as the Clean Energy Transformation Act in Washington,6 decreasing the actual cost of the replacement portfolio for MO3. Furthermore, the data and models available for the DEIS energy analysis can easily accommodate a shift in the reference year for MO3. The DEIS does not provide any rationale for the use of a single reference year for the Replacement Power Analysis and other purposes, includes information to contradict that this is a reasonable date, and still proceeds with the analysis of a flawed single reference year that biases the results of the analysis. In conclusion, the DEIS's explanation that use of a single reference year, 2022, is needed for consistency across Alternatives is inadequate given the nature of resource planning. 6 See Washington State Department of Commerce, Clean Energy Transformation Act (CETA), https://www.commerce.wa.gov/growing-the-economy/energy/ceta/	Practical reasons support using 2022 as the beginning year because at the time the analysis was prepared, this year coincided with the latest available data from the Council's Power Plan to run the GENESYS model to calculate LOLP. In other words, 2022 is the latest date that data were available from which to calculate the effects of the MO on LOLP. Had the EIS used 2023 or any later date, the co-lead agencies would have had to develop their own data set to estimate the effects of the MOs on LOLP. Using 2022 allowed the EIS to use, in a non-biased fashion, the Council's existing data set to run the GENESYS model with no additional adjustments. Analytical reasons also support using 2022 as the study date. Although there would be virtually no chance that all pre-requisites for resource construction (or elimination as in MO3) would be completed by 2022, the use of 2022 as a start year does not degrade the analysis in the EIS, but in fact, enhances it because it removes the subjective variable of resource replacement timing that could have impacted the relative weighting of the MOs. By choosing a single start year applicable across MOs, the EIS provides a level playing field from which to compare the impacts and costs of each MO (See Section 3.19 and Appendix Q for additional discussion). Had the EIS adopted a later start date for the MOs or key measures within an MO for evaluating future resource decisions, as in an IRP, for the replacement resource and rate pressure analysis, the co-lead agencies would have had to speculate about when the various elements of the MOs would have been in effect. Establishing an "actual" year of implementation for each of the MOs would have injected a subjective timing element into the measurement of the relative impacts of differing CRS operations on each of the alternatives. For example, MO3 – with dam breaching – requires Congressional action. Had a timing element been included in the comparison of the MOs, the EIS could have assumed that Congress would not act by 2022, but by 2035, or some other subjective date. The impacts of the MO on the various objectives identified in the EIS would then have had to be scaled to these subjective future dates, skewing the results. MOs that could be implemented more quickly (such as those involving only operational changes) would generally show smaller costs and more overall benefits compared to those requiring long lead times (such as dam breach). Similarly, subjective assumptions on timing could have been employed for the construction of replacement resources, especially for large-scale solar installations requiring environmental compliance, permitting, etc., and conventional gas-fired units, which are carbon emitting and potentially constrained by regulatory policy. All of this subjectivity would have been added to the power resource replacement analysis with little additional analytical benefit – and potentially a detriment – to the EIS because of the speculative nature of the timing assumptions the co-lead agencies would have had to make. The more analytically sound approach is the one adopted by the EIS. The use of a single study year for implementation of the alternative allows for a comparison of before-and-after effects for each alternative, utilizing the most recently available – and vetted – models and data up and through 2022. The single start year ensured that the effects of the MOs could be compared fairly with each other and the NAA without the co-lead agencies speculating on when Congress might act, when resources would be removed, or when resources would be constructed and online.
6881	6	Fred Heutte	NW Energy Coalition	4.1 The Obligation to Acquire Energy Efficiency The Replacement Power Analysis portfolios use inadequate information for energy efficiency resource availability. This is a serious omission in the DEIS energy analysis and raises important issues with respect to the Northwest Power Act. The DEIS purports to address this issue as follows: Table 2-3 provides the per unit capital costs ($/kW) of the replacement resources identified for each alternative and portfolio. The analysis used the midpoint of the costs for the resource replacement selection. The NW Councils 2022 load forecast that was used for the LOLP reliability modeling include all cost-effective conservation. According to the 7th Power Plan, by 2022 there is 1,871 aMW of conservation available to the region price at $80 per MWh or below. There is an additional 148 aMW of conservation price at over $80 dollars per MW and half of it is price at over $140 dollars per MWh. This conservation has a higher cost than the other resources that were developed for the MOs, and therefore were not included. DEIS Appendix H at line 680 Joint Commenters Comments on CRSO DEIS April 13, 2020 - Page 27 However, analysis for the 7th Power Plan was primarily conducted in 2015 based on data available up to that time. It has been five years since the 7th Plan energy efficiency analysis was conducted, and a further two years until the DEIS Replacement Power Analysis single study year of 2022. Furthermore, as extensively discussed above, resource acquisition to cover reductions in hydrogeneration under MO3 would occur in some later year, during which time additional cost-effective energy efficiency resources are likely to become available. For the last several decades, energy efficiency has benefitted from rapidly emerging technology innovation in residential, commercial and industrial energy use. These improvements in opportunities for energy efficiency are not easily captured over long time horizons. Therefore, conservation assessments from five years ago are outdated and of limited and uncertain usefulness for the DEIS Replacement Power Analysis. Furthermore, the Councils analysis provides estimates not just for a single year, but for the changing costs and availability of energy efficiency over time. However, the DEIS did not employ such data and methods, nor does the DEIS explain why such steps were not taken to incorporate the most accurate available information. This calls into question the validity of the price and availability of the energy efficiency resource used in this analysis. In addition, the amount of cost-effective conservation chosen is a function of all the other aspects of any given scenario and portfolio. According to the DEIS Replacement Power Analysis, under alternatives MO1, MO3 and MO4, CRS hydrogeneration would decline, and therefore regional power supply would fall relative to demand. As that occurs, costs will rise and the cost-effectiveness limit for replacement resources will go up. The Councils RPM model takes all of this into account, adjusting for market price effects as it assesses, iterates and optimizes the selection of resources into its resource portfolio. But instead of incorporating all the dimensions of the Councils energy efficiency analysis, the DEIS chooses a crude average cost. This likely falls short of full assessment of additional cost-effective energy efficiency that could be included in the DEIS replacement portfolios, thus decreasing their cost. The DEIS does not explain the reasons for not using the full Council analysis.	The Northwest Power and Conservation Councils (Council) 7th Power Plan is still the current power plan until the 8th Power Plan is completed. The 7th Power Plan included conservation targets over the 20 year period of the plan. See draft EIS, Section 3.7.3.1 Step 3: Determine Need for Potential Replacement Resources and Associated Costs at page 3-821 and Appendix H, Power and Transmission, Section 2.2. The analysis in the EIS includes all energy efficiency in the Councils plan through 2022. See draft EIS, Appendix H, Power and Transmission, Section 2.2, page H-2-3. Northwest utilities are required by law to acquire all cost effective conservation regardless of the status of the four lower Snake River dams. Therefore, if the amount of cost-effective energy efficiency increases, utilities are required to achieve it regardless of the status of the Federal Columbia River Power System (FCRPS). The comment suggests that additional energy efficiency should be assumed in the EIS, beyond what is achieved in the Councils 7th Power Plan. The EIS analysis considers that all energy efficiency assumed in the Councils 7th Plan is appropriate and, likely, aggressive. The Councils recent State of the Columbia River System, Fiscal Year 2019 Annual Report, February 2020, p. 11 (https://www.nwcouncil.org/sites/default/files/2020-3.pdf), states While the region currently is on track to meet Seventh Plan goals, there are some areas to watch including forecasts of declining savings form efficiency programs. And whether the region will identify new savings opportunities to replace those of residential lighting. Utilities achievements in energy efficiency have been on an annual decline since 2016. Forecasts from utilities show that this trend is expected to continue, despite relatively stable funding levels. Given this trend, there is some uncertainty as to whether there will be enough savings from other mechanisms to reach the 1,400 average megawatt goal by the end of Fiscal Year 2021. This information indicates that it would be difficult to increase the energy efficiency goals beyond the Councils Plan. Based on this information, it is not likely that substantial amounts of additional energy efficiency would be available as prices increase, such as in Multiple Objective (MO) Alternative 3. The Resource Adequacy assessment for the EIS includes all cost-effective conservation forecasted through 2022. The draft EIS did not assume any costs for cost effective energy efficiency as a replacement resource because it is assumed to happen in the base case regardless of the status of the FCRPS, and therefore, is not part of the cost delta between the No Action Alternative and Multiple Objective alternatives. Stated another way, the load forecast used in the EIS analysis already assumes all cost effective conservation and energy efficiency have been achieved. Thus, the load in the No Action Alternative and each MO has already been reduced by all economic energy efficiency and conservation. Adding additional conservation in addition to that already assumed in the Councils Plan is unlikely to be either economically viable or, as discussed above, achievable. The socioeconomic discussion in each alternative discusses the potential for consumers to alter their behavior in response to changes in electricity pricing. See draft EIS, Section 3.7.5.3 through 3.7.5.6, Socio and Economic Effects, for example, page 3-932, on potential changes to residential electricity use from rate changes in MO1.
6881	7	Fred Heutte	NW Energy Coalition	4.2 Overestimated New Resource Costs The DEIS Replacement Power Analysis relies on supply resource cost data from the Councils 7th Northwest Regional Power Plan and its 2018 Midterm Assessment. DEIS Chapter 3 at line 673. These resource costs are outdated and more recent cost data sources were available for the DEIS analysis, but were not used. For example, the National Renewable Energy Laboratory launched its Annual Technology Baseline (ATB),7 which provides a sophisticated, freely available, fully documented framework for assessing future resource costs that includes estimation of technical innovation, policy drivers and market acceptance. The ATB has rapidly become an authoritative source for electric generation and battery storage resource cost estimates. Along with using stale information on costs and performance, the DEIS further overstates the cost of MO3 by electing to start in 2022, a date the agencies themselves say is not a reasonable starting point. Application of such outdated resource pricing further overstates the overall cost of MO3. If a more feasible starting point is chosen, the continually declining costs of clean energy replacement resources will materially decrease the cost of MO3. Solar photovoltaic (PV) resources illustrate these concerns. While PV systems have been commercially available since the 1970s, over the last decade PV has rapidly ascended to become a leading source of renewable energy, along with wind power. This has been driven by rapid technological innovation and development of global supply changes, and as a result costs have rapidly decline. Technical innovation continues to emerge with PV systems. In the last two years, bifacial PV modules have rapidly become a significant fraction of the market, and are poised to become the dominant format within the next few years. Because bifacial modules collect both direct insolation and reflect surface energy, it is estimated they will add about 10% to output at little or no incremental cost.8 7 Annual Technology Baseline, National Renewable Energy Laboratory, atb.nrel.gov. 8 National Renewable Energy Laboratory, Bifacial Solar Advances with the Timesand the Sun, February 2020, https://www.nrel.gov/news/features/2020/bifacial-solar-advances-with-the-times-and-the-sun.html Joint Commenters Comments on CRSO DEIS April 13, 2020 - Page 29 Secondly, while PV considered by itself is a variable energy resource, considerable effort is being made to improve its performance, decrease output variability and match system demand more precisely. These most recent and important development is the rapid emergence of integrated hybrid PV-battery storage power plants. Advances on the hybrid front have been so rapid that there was almost no cost and performance data available in 2018, but now it is estimated that hybrid PV-storage projects are nearly half of the interconnection queue in California. The potential was already apparent in mid-2019, when the California Independent System Operator noted that approximately 41% of the total capacity currently seeking interconnection to their system was hybrid resources, mostly consisting of PV-battery configurations.9 At the same time, PV-battery hybrid resource costs have declined at unprecedented rates. Two recent articles considered the costs of a new PV-hybrid project being constructed under contract with the Los Angeles Department of Water and Power (LADWP). The project will consist of 400 MW of PV and 300 MW/1200 MWh of battery resources. Analysts suggest the value of the project will be under $40/MWh for energy and $127/kW-year for capacity, below the cost of a new gas peaker power plant.10 While the costs for such hybrid projects in the Northwest will be higher due to the somewhat less favorable solar resource in this region, their value will be considerable given the potential for co-optimization with the storage and flexibility capabilities of the CRS, while providing adding to overall system energy, capacity and resource adequacy, especially during the late summer when demand is high and the spring freshet has depleted and hydrogeneration potential is very limited. DEIS Replacement Portfolio Analysis failed to incorporate these widely known and established industry trends and instead relied on stale information that consistently overstates the costs of the alternatives. 9 CAISO, Hybrid Resources Initiative: Issue Paper Stakeholder Meeting, July 22, 2019, http://www.caiso.com/InitiativeDocuments/Presentation-HybridResources-IssuePaper.pdf 10 Energy Storage News, "Battery storage at US$20/MWh? Breaking down low-cost solar-plus-storage PPAs in the USA," March 20, 2020, https://www.energy-storage.news/blogs/battery-storage-at-us20-mwh-breaking-down-low-cost-solar-plus-storage-ppas; and EnergyGPS, "Grateful for Reliability, April 3, 2020, https://www.energygps.com/Newsletter/b/Newsletter-Grateful-for-Reliability-1620014 Joint Commenters Comments on CRSO DEIS April 13, 2020 - Page 30 The DEIS analysis adopts a PV capital cost of $1,350 to $1,500/kW (2019$). DEIS Appendix H, Table 2-3. Those costs are applied to the single study year of 2022. By that time, costs are likely to decline by a significant amount, reflecting deeply embedded declining cost trends over many years, yet the DEIS made no attempt to account for that. Assessments seeking to assess future technical, performance and cost trajectories for resources undergoing profound innovation such as PV have several analytical tools at their disposal. Here we discuss and apply two that are particularly relevant to future resource cost projections at least one of which should have been employed in the DEIS energy analysis. The first is a technique is known as experience curve analysis (often called learning curve analysis, though that term is more limited in applicability). This relies on the robust and well documented process through which technologies undergoing technical innovation decline in cost by a fixed factor, known as the learning rate, for a	The battery storage comments are a duplicate of Comment 6881-8, the next comment. Response is provided in that location. The EIS acknowledges that the energy sector is constantly undergoing transformation and that technological improvements will likely bring other options and changes to costs. To avoid speculation, the EIS analysis focuses on primary technologies identified by the Northwest Power and Conservation Council (Council) in their 7th Power Plan (7th Plan at page 13-5) that are deemed proven, commercially available, and deployable on a large enough scale in the Northwest. See draft EIS, Section 3.7.3.1, Step 3: Determine Need for Potential Replacement Resources and Associated Costs, at 3-821 and Appendix H, Power and Transmission, Section 2.2. The EIS uses the best available resource cost information from the Council to estimate the potential range in costs of these replacement resources. The purpose of providing the range of replacement resource options is to present a reasonable range in potential costs. The basis for developing these portfolios may be found in Section 3.7.3.1, Methodology, and for Multiple Objective (MO) Alternative 3 specifically, Section 3.7.3.5, Potential Replacement Resources and Associated Costs in the draft EIS. The final EIS incorporates the forward cost curves presented by the Council on February 27, 2020, to the Generating Resources Advisory Committee for the 8th Power Plan. In response to public comments, Appendix H, Section 2.2 in the Final EIS contains an expanded description of how the potential replacement resource portfolios were selected for the EIS. The comment questions the use of 2022 as the study year for the EIS. The choice of before-and-after analysis around fiscal year (FY) 2022 was primarily made due to the availability of data and the need to establish a point-in-time from which to measure the effects of the MOs to the No Action Alternative. Establishing an estimated actual year of implementation for each of the MOs would have injected an additional timing element that could have affected the relative impacts analysis of the MOs. For example, MO3, which includes breaching the four lower Snake River dams requires an Act of Congress. To ensure this MO received equal treatment when comparing it to other MOs, the EIS assumes all pre-requisites for MO3 have occurred by FY 2022. Had a timing element been included in the comparison of the MOs, the EIS analysis could have assumed that Congress would not act by 2022, but by 2030 or some other subjective date, placing MO3 at a distinct disadvantage compared to other MOs, which could be completed by a sooner subjective date. Similarly subjective assumptions on timing could have been employed for the construction of replacement resources, especially for large-scale solar installations requiring environmental compliance, permitting, potential large acquisitions, etc., and conventional gas-fired units which are carbon emitting and politically unpopular. The choice of a single date (2022) from which to measure the environmental consequences of each MO removed the timing subjectivity from the EIS analysis and provided a level playing field from which to compare the impacts and costs of each MO (See Section 3.19 and Appendix Q for additional discussion). In this way, the choice of the modeling approach in the evaluation framework largely mitigates many of these concerns. Consistent with the statements and observations in the comment, the EIS considered battery storage coupled with solar power for the additional flexibility and capacity benefits. The use of storage technologies, is considered a long-term resource of the 7th Power Plan, but has become more commercially available since the release of the 7th Power Plan, will likely be considered a primary resource in the Councils 8th Power Plan, and is examined in the EIS. As discussed above, the EIS uses the best available resource cost information from the Council to estimate the potential range in costs of these replacement resources from the 7th Power Plan and the 7th Power Plan Mid-term Update in February 2019. For the 8th Power Plan, reference plant data was prepared by the Council between October 2019 to February 2020, which was not in time for inclusion in the draft EIS. However, the final EIS incorporates the forward cost curves presented by the Council based on National Renewable Energy Laboratory forecasts on March 3rd, 2020, to the Generating Resources Advisory Committee for the 8th Power Plan. The purpose of providing the range of replacement resource options is to present a reasonable range in potential costs. The basis for developing these portfolios may be found in Section 3.7.3.1, Methodology, and for MO3 specifically, Section 3.7.3.5, Potential Replacement Resources and Associated Costs in the draft EIS. To address uncertainty surrounding potential costs, the EIS included the range of resource costs from the Council's Mid-term Update in the sensitivity analyses for each wholesale rate pressure analysis. To further address concerns about potential reductions in resource costs, the EIS expands the potential range of resource costs included in the sensitivity analyses to include future cost decreases. In addition, as noted by the comment, solar performance and costs are not as favorable in the Northwest as other regions, thus more regionally specific data and information, such as the costs sourced from the Council are often best suited to estimating regional resource costs.

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				given amount of aggregate market expansion. Research by the Santa Fe Institute demonstrated the robust performance of experience curve assessment in considering future resource cost trajectories across 62 industries.11 In 2013, NWEC submitted a paper to the Western Electricity Coordinating Council (WECC), describing the technique and use of experience curve analysis specifically with regard to PV technology and markets.12 In general, as the global installed capacity of PV doubles in size, cost comes down by about 20% for modules and 15% for balance of system costs. That observation has remained robust since a 1978 analysis by the Solar Energy Research Institute (now NREL) to the present time. To illustrate the importance of the deficiency in the DEIS energy analysis of future resource costs, we use these two methods described above to assess the future costs of PV resources in relation to the costs in the DEIS. As mentioned, the DEIS adopts the Councils 2018 estimate of $1,350 to $1,500/kW-ac (2019$) for grid-scale PV in 2022. To simplify the explanation, we assume a midpoint 11 Nagy B, Farmer JD, Bui QM, Trancik JE (2013) Statistical Basis for Predicting Technological Progress. PLoS ONE 8(2): e52669. https://doi.org/10.1371/journal.pone.0052669 12 NW Energy Coalition, Experience Curves and Solar PV, September 3, 2012, available at: https://app.nwcouncil.org/media/6867808/2012-09-03-nwec-experience-curves-and-solar-pv.pdf Joint Commenters Comments on CRSO DEIS April 13, 2020 - Page 31 value of $1,425/kW-ac. A full assessment within an IRP analysis would consider ranges of future costs as part the scenario, portfolio optimization and least cost/least risk analysis. NWECs experience curve assessment assumes that the global PV market will double in size by 2022 and double again by 2026, a possible starting point for MO3. This results in a capital cost of $1,193/kW-ac in 2022 and $1,000/kW-ac in 2026. NRELs ATB referred to above as the industry standard for projecting future resource costs projects a midpoint cost range for PV of $1,214/kW-ac in 2022 and $1,071/kW-ac in 2026. There is good agreement between the simplified experience curve method and the more detailed ATB method. The table below compares these results to the DEIS analysis. Source PV cost per kW-ac (2019$) Change DEIS 2022 $1,425 NWEC experience curve 2022 $1,193 -16% NREL ATB 2022 $1,214 -15% NWEC experience curve 2026 $1,000 -30% NREL ATB 2026 $1,071 -25% Within an IRP context, the experience curve and ATB methods can provide valuable guidance for assessing resource costs over time. As illustrated here, projecting out-of-date resource costs forward into the future risks greatly overstating costs for resource portfolios. The DEIS does not explain why the agencies used stale data and methods for assessing future resource costs in the Replacement Power Analysis. As a result of this failure to insure the professional and scientific integrity of the analysis, the DIES significantly overstates the apparent cost of the replacement portfolios. This failure undercuts the selection of the Preferred Alternative. Joint Commenters Comments on CRSO DEIS April 13, 2020 - Page 32 4.3 Hybrid Solar-Battery Storage As noted in DEIS Appendix H, Table 2-2, the zero carbon replacement power portfolio for MO3 includes 2,550 MW of solar with 1,250 MW of battery storage. First, the analysis fails to provide any explanation of why 1,250 MW is the right amount of incremental storage, and notes that this was done last in the analysis as an add-on. Further, it does not consider the perspective that the LSR dam attributes lost are the same ones that the rest of the CRS system might have in excess if significant amounts of solar and wind are developed on the system. Second, the DEIS does not consider additional storage resources when determining how much solar and demand response are necessary to return the system to the LOLP baseline. This means the analysis of MO3 is likely overbuilt from a capacity perspective. To properly build the portfolio, the DEIS should have calculated the flexibility need created, added storage to provide that, then counted this storage in the LOLP analysis to determine what additional solar/wind capacity is required to return the system to the benchmark LOLP. As a result of this one error, the MO3 portfolio likely should have had either less solar, less storage, or less of both, resulting in a material reduction in portfolio cost. Third, as shown in DEIS Appendix H, Table 2-3 below, the DEIS Replacement Power Analysis includes a cost $2,568/kW for hybrid solar plus battery storage resources, based on an October 2019 staff presentation to the Northwest Power and Conservation Council. However, the DEIS applies this value in an incorrect fashion. As shown below, the Council presentation was based on a reference facility with equivalent solar nameplate capacity and storage capacitya 100 MW-ac solar plant and 100 MW/400 MWh battery facility. Joint Commenters Comments on CRSO DEIS April 13, 2020 - Page 33 However, in the DEIS Replacement Power Analysis, the hybrid resource chosen, as shown in Table 2-2, Appendix H above, is 2,550 MW solar and 1,250 MW of battery storage. The DEIS analysis does not explain whether the battery capability is the same as in the Council analysis, that is, 4-hour storage (100 MW/400 MWh). That said, use of the Councils cost for solar and battery storage significantly overstates the hybrid resource cost for MO3, because 2,550 MW of solar is paired with 1,250 MW of battery capacity instead of the one-for-one cost basis of the Councils estimate. Because battery storage is still relatively expensive, this considerably overweights the combined resource cost per kW. This apparent error should be corrected in the Final EIS. Furthermore, even since the Councils analysis in 2019, hybrid solar and battery storage project costs have quickly fallen and media reports indicate similar systems may now have capital costs at least one third less, or approximately $1,700/kW. NWEC estimates a correction to the DEIS solar+battery cost could reduce the annualized value of the capital cost of the zero carbon portfolio for MO3 (Appendix H, Table 2-4) by more than one quarter, Joint Commenters Comments on CRSO DEIS April 13, 2020 - Page 34 from $389 million to $270 million per year; and rate pressure on BPA wholesale power rates and consumer electric bills would drop accordingly.	
6881	8	Fred Heutte	NW Energy Coalition	.3 Hybrid Solar-Battery Storage As noted in DEIS Appendix H, Table 2-2, the zero carbon replacement power portfolio for MO3 includes 2,550 MW of solar with 1,250 MW of battery storage. First, the analysis fails to provide any explanation of why 1,250 MW is the right amount of incremental storage, and notes that this was done last in the analysis as an add-on. Further, it does not consider the perspective that the LSR dam attributes lost are the same ones that the rest of the CRS system might have in excess if significant amounts of solar and wind are developed on the system. Second, the DEIS does not consider additional storage resources when determining how much solar and demand response are necessary to return the system to the LOLP baseline. This means the analysis of MO3 is likely overbuilt from a capacity perspective. 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Joint Commenters Comments on CRSO DEIS April 13, 2020 - Page 33 However, in the DEIS Replacement Power Analysis, the hybrid resource chosen, as shown in Table 2-2, Appendix H above, is 2,550 MW solar and 1,250 MW of battery storage. The DEIS analysis does not explain whether the battery capability is the same as in the Council analysis, that is, 4-hour storage (100 MW/400 MWh). That said, use of the Councils cost for solar and battery storage significantly overstates the hybrid resource cost for MO3, because 2,550 MW of solar is paired with 1,250 MW of battery capacity instead of the one-for-one cost basis of the Councils estimate. Because battery storage is still relatively expensive, this considerably overweights the combined resource cost per kW. This apparent error should be corrected in the Final EIS. Furthermore, even since the Councils analysis in 2019, hybrid solar and battery storage project costs have quickly fallen and media reports indicate similar systems may now have capital costs at least one third less, or approximately $1,700/kW. NWEC estimates a correction to the DEIS solar+battery cost could reduce the annualized value of the capital cost of the zero carbon portfolio for MO3 (Appendix H, Table 2-4) by more than one quarter, Joint Commenters Comments on CRSO DEIS April 13, 2020 - Page 34 from $389 million to $270 million per year; and rate pressure on BPA wholesale power rates and consumer electric bills would drop accordingly.	The comment makes numerous statements regarding the potential of battery storage and the solar plus storage portfolio in Multiple Objective (MO) Alternative 3. Based on responses to public comments, the final EIS contains an expanded description of how the potential replacement resource portfolios were selected for the EIS. (See Section 3.7.3.1). The EIS explains that battery storage is necessary to replace some of the capabilities of the four lower Snake River dams such as peaking and flexibility that are not afforded by conventional solar power. The EIS assumes that half of the quantity of solar would be matched with storage. See Section 3.7.3.5, at pages 3-904-905 in the draft EIS. In response to this and other public comments, in the final EIS, the power analysis revised the portfolio to address the concern stated in the comment regarding the potential to overbuild the battery storage and solar. The Loss of Load Probability analysis is performed to size the total amount of solar and battery resources needed to return the region to the No Action Alternative level of reliability, while maintaining the 2:1 solar to battery ratio. Moreover, this comment misunderstands the calculation used. It is true that the technology priced by the Northwest Power and Conservation Council (Council) is based upon a 100MW/400MWh battery (that is, a battery which discharges at a rate of 100MWs for a four hour duration). The combined solar plus battery installation of 1,275MW was priced at this value of $2,568/kW/yr, while the remaining 1,275MWs of naked solar (i.e., not backed by batteries) is priced at the Councils Mid-term Assessment price of $1,425/kW-yr (2016$). See Chapter 2 of Appendix H in the draft EIS. The final EIS incorporates updated resource costs, including declining cost curves, into the rate sensitivity portion of the analysis. In the base case, however, the full solar amount would be priced at the Mid-term Assessment price of $1425/kW/yr, while the remaining batteries would be priced at the Councils separate battery cost of $1,400/kW/yr (also in the same presentation referenced in this comment). This allows for proper treatment of differing useful lives (30 years for solar, 15 years for batteries), and avoids unintended confusion over resource costing in the final EIS.
6881	9	Fred Heutte	NW Energy Coalition	4.4 Demand Response Demand response refers to contractual and/or rate design methods to reduce electricity end use at times of system peak demand, usually very limited number of hours per year. Demand response provides high value because otherwise the most expensive reserve generation must be activated to meet system peaks and provide other flexibility for a limited amount of hours in a year. These capabilities are particularly important in comparing a replacement resource mix to the energy services provided by LSR hydrogeneration. The DEIS Replacement Power Analysis limits demand response to 600 MW. The DEIS states: The CRSO base case analysis uses the NW Councils 7th plan for costs and amounts of achievable demand response. Consistent with the 7th Power Plans estimates, the Joint Commenters Comments on CRSO DEIS April 13, 2020 - Page 35 analysis assumes 400 MW of demand response developed in the near-term by Bonneville, in partnership with Bonnevilles power customer utilities, and another 200 MW of demand response developed by regional investor owned utilities. DEIS Appendix 3 at line 25495 However, this is not consistent with the Councils estimates. The Council 7th Plan recommendations identified 600 MW of demand response as the minimum amount available, not the ceiling assumed in the DEIS:The Councils assessment identified more than 4,300 megawatts of regional demand response potential. A significant amount of this potential, nearly 1,500 megawatts, is available at relatively low cost; less than $25 per kilowatt of peak capacity per year. As the Council explained, When compared to the alternative of constructing a simple cycle gas-fired turbine, demand response can be deployed sooner, in quantities better matched to the peak capacity need, deferring the need for transmission upgrades or expansions. Council 7th Power Plan at 1-10. The Council summarized their recommendation for demand response as follows: The Councils analysis indicates that a minimum of 600 MW of demand response resources would be cost-effective to develop under all future conditions tested across all scenarios which do not rely on increased firm capacity imports.	The EIS analyzed demand response using the Northwest Power and Conservation Councils 7th Power Plan as guidance. See draft EIS, Section 3.7.3.1 at page 3-837. The 7th Power Plan states that a minimum of 600 MW of demand response resources would be cost-effective to develop under all future conditions tested across all scenarios which do not rely on increased firm capacity imports. This is about 75% of their games. The final EIS includes a more detailed discussion of how replacement resources were selected. See Appendix H, Section 2.2. For the EIS, demand response was evaluated similarly to other resources in their ability to lower the Loss of Load Probability (LOLP) of an alternative cost effectively. Demand response was less cost-effective at lowering the LOLP than other resources. Therefore, the EIS did not include more than 600 MW. The reasons for this is that demand response is an energy-limited resource. Like the 7th Power Plan, the EIS assumed that this resource is only available 50 hours per year. Therefore, because of its energy-limited nature, demand response is only deployed when other options are not able to cover an LOLP event, essentially making demand response function as the most costly resource. Demand response is likely to be more helpful in events when the demand spikes briefly and other resources are not available, but not as useful for multi-day cold snaps or summer heat waves. Demand response is more suited to capacity than to sustained capacity and energy. Note that the EIS follows the Councils practice of considering demand response as a load curtailment, meaning that not only does it reduce demand when deployed, but that the demand does not shift to a different time. However, some forms of demand response, like space and water heat, irrigation pumping, or air conditioning is more likely to shift demand without reducing the energy need. The assumption that demand response would solely be load curtailment is a best-case scenario in terms of demand response supporting reliability. The EIS acknowledges that the energy sector is constantly undergoing transformation and that technological improvements will likely bring other options. Demand response is discussed in Section 3.7.3.1 on pages 3-866 to 3-868 in the draft EIS.

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				Council 7th Power Plan at 3-4 (emphasis supplied). Furthermore, the Councils Plan clearly shows that substantially more demand response would be available at lower cost than other alternatives selected by the DEIS analysis within five years if the region chose to develop it. For example, as shown in Fig. 3-7 of the 7th Power Plan below, over 2,000 MW of cost-effective demand response is available in the 7th Plan at less than $77/kW-year (2012$), compared to new natural gas power plants at $125/kW-year and above. 7th Plan, Table H-10, Frame Gas Turbine Cost Summary. Joint Commenters Comments on CRSO DEIS April 13, 2020 - Page 36 7th Northwest Power Plan at 3-22 Demand response is well suited to Northwest and winter peaking needs and at scale could directly substitute for LSR hydrogeneration ramping and sustained peaking capacity, while gaining additional reliability and economic benefits from reduced transmission losses and congestion, and reducing risk from interannual hydro variability, especially during low or critical water periods when the LSR hydrogeneration operating range will be reduced by 20% or greater. The DEIS does not include the full range of the demand response resource potential identified by the Councils 7th Plan, and does not provide an explanation for this omission. The failure to use accurate availability and cost for demand response resources means that,, especially for MO3, the DEIS Replacement Power Analysis increases the need for other more expensive resources, particularly battery storage, to address the capacity gap if the LSR hydrogeneration is retired.	
6881	10	Fred Heutte	NW Energy Coalition	4.5 Wind Energy The Joint Commenters are concerned that Montana wind is not included in the DEIS replacement portfolios, especially for MO3. It is well known that Montana wind is available in vast quantities, with very high capacity factors. And as the DEIS states, Montana wind has a generation profile that is closely aligned with Pacific Northwest area loads. DEIS Appendix H at line 816. Yet the DEIS Joint Commenters Comments on CRSO DEIS April 13, 2020 - Page 37 includes solar plus battery resources in MO3, but not Montana wind. Nor does the DEIS assess wind plus battery storage or pumped storage, a significant possibility in Montana due to the potential availability of the Absaroka Gordon Butte project, a proposed highly efficient 400 MW project that could be available by 2025. The fragmentary comments on wind analysis in the DEIS make it difficult to discern the reason for this result. One possibility is that when solar PV was picked for the MO3 alternative, and then battery storage resources were added to provide winter flexibility, this sequence precluded the full consideration of Montana wind. Again in this instance, the DEIS energy analysis fails to provide sufficient information about the resource portfolio assessment, and a comprehensive IRP analysis may well have resulted in the inclusion of significant quantities of Montana wind.	The EIS included Montana wind, Columbia Gorge wind, and a combination of wind and solar as potential replacement resources. For Multiple Objective (MO) Alternative 2, Montana wind was found to be the most cost-effective avoided resource build, meaning the resource-build difference between MO2 and the No Action Alternative. In contrast, for MO1, MO3, and MO4, solar alone was found to be the most cost-effective option at improving regional power reliability. Wind in the Columbia River Gorge was not selected as a zero-carbon replacement resource primarily due to the fact that additional Columbia River Gorge wind provides very little incremental benefit in reducing the Loss of Load Probability (LOLP). Even with the addition of 25,000 MW of new Columbia River Gorge wind, regional LOLP remained at 37.1 percent when considering potential coal retirements. In contrast, the addition of 25,000 MW of solar capacity would reduce LOLP to below 10 percent (a reduction of approximately 40 percent). See draft EIS, Appendix H, Power and Transmission, Section 2.3 at page 2-12. The EIS did evaluate pumped storage as a potential replacement resource among other storage technologies. See draft EIS, Section 3.7.3.5 at page 3-909. While there are several feasible sites in the region that could provide pumped storage capacity, those projects have additional costs, permitting and environmental concerns. There is also uncertainty that these resources would provide sufficient energy and capacity to provide a credible source of replacement resources. Further, the capability of these pumped storage sites would not be able to address the scope of replacement resource needs considered in the EIS. See draft EIS, Section 3.7.3.5 at page 3-909. In the draft EIS, Appendix H, Chapter 2, provides additional details on resource selection, including discussing pumped storage. In response to public comments, Appendix H, Section 2.2 of the final EIS contains an expanded description of how the potential replacement resource portfolios were selected for the EIS.
6881	11	Fred Heutte	NW Energy Coalition	4.6 Renewable Energy and Storage Capacity and Flexibility Value The DEIS Replacement Portfolio Analysis takes a limited view of renewable energy and storage resource capabilities, and misrepresents the capabilities of hydrogeneration. The DEIS states: Solar, however, does not produce energy during the night. Wind, however, can produce energy during both the daytime and nighttime hours. Together, these resources would allow for generation day and night, mitigating the lost firm energy production of the lower Snake River projects. Utility-scale batteries would replace the lost flexibility and ramping capability of the lower Snake River projects. However, the batteries provide an imperfect replacement for the lost capability of the lower Snake River projects because, while batteries can be discharged to provide energy, they also need to be recharged and consume energy on a net basis. DEIS Chapter 3 at line 27404 While it is appropriate and necessary to measure the net contribution any particular resource makes to system value, no resource stands alone. Wind, solar and battery resources will be operated in conjunction with CRS hydrogeneration and other resources. One of the important missing pieces of the DEIS analysis is full consideration of how CRS hydrogeneration and new renewable, storage and demand response resources can be operated in coordinated and complementary fashion, increasing overall system value. For MO3, the DEIS did not assess system flexibility following LSR dam breach and hydrogeneration retirement and optimize the resource portfolio accordingly. For example, an optimized mix of advanced energy efficiency, demand response, storage, and renewable generation diversity could enhance the ability of the remaining CRS hydrogeneration to provide flexibility. Joint Commenters Comments on CRSO DEIS April 13, 2020 - Page 38 Concerning resource diversity, considerable research has shown that diversifying the system portfolio by resource type, performance and geographic diversity will add significant value. For example, the comprehensive Western Wind and Solar Integration Study found that increasing the size of the geographic area over which wind and solar resources are drawn substantially reduces variability.13 The claim that energy storage such as batteries are an imperfect replacement is incomplete and misleading. Hydropower is indeed a form of renewable energy, subject to variable energy input from climate and weather patterns just as wind and solar are. Hydropower also inherently combines energy storage and energy generation capability, the same as hybrid wind or solar plus battery storage systems. It is possible that an optimized combination of clean energy resources could provide more system flexibility year-round. Again, because the DEIS did not conduct an IRP analysis, this opportunity was not explored, and particularly for MO3, the analysis is incomplete and inaccurate.	The comment expresses concerns that the EIS misrepresents the capabilities of hydropower resources and about the combination of renewable energy and storage resources. The EIS does acknowledge that multiple resources can work in a coordinated fashion, for example the integration role of hydropower in bringing new renewable power online, or the demand response resources that reduce system costs in the renewable replacement resource portfolios for each alternative. While it is accurate that the EIS resource models such as GENESYS and AURORA are not optimizers, they do run thousands of simulations of the regional power system to evaluate various potential outcomes regarding the coordination and operation of resources under various water conditions. The EIS did evaluate changes in hydropower generation following breaching of the four lower Snake River dams under Multiple Objective (MO) Alternative 3 and then evaluated a variety of potential replacement resources, including storage, solar and wind as mentioned in the comment. See draft EIS, Section 3.7.3.5, Lower Snake River Full Replacement at pages 3-905-910. The analysis also considered combinations of solar and wind, with solar power being consistently the most cost-effective resource identified in the analysis. The EIS also considered multiple potential locations for replacement wind generation as mentioned in the comment; however, these were not found to be cost effective relative to solar power at improving reliability and reducing overall power system costs. Regarding improved flexibility, the EIS finds that losing the hydropower from the four lower Snake River dams would decrease flexibility, though the addition of battery storage would address some of this loss. Based on responses to public comments, Appendix H, Section 2.2 of the final EIS contains an expanded description of how the potential replacement resource portfolios were selected for the EIS. The comment suggests that additional energy efficiency should be assumed in the EIS, beyond what is achieved in the Northwest Power and Conservation Councils (Council) 7th Power Plan. All cost effective conservation identified by the Councils 7th Power Plan is included in the load forecast. See draft EIS, Appendix H, Power and Transmission, Section 2.2 at page H-2-3. Under Washington and Oregon law, all cost effective conservation must be acquired regardless of the status of the Federal Columbia River Power System. Therefore, conservation was not considered a potential resource replacement. The EIS analysis considers that all energy efficiency assumed in the Councils 7th Plan is appropriate and, likely, aggressive. The Councils recent State of the Columbia River System, Fiscal Year 2019 Annual Report, February 2020, p. 11 (https://www.nwcouncil.org/sites/default/files/2020-3.pdf), states While the region currently is on track to meet Seventh Plan goals, there are some areas to watch including forecasts of declining savings from efficiency programs. And whether the region will identify new savings opportunities to replace those of residential lighting. Utilities achievements in energy efficiency have been on an annual decline since 2016. Forecasts from utilities show that this trend is expected to continue, despite relatively stable funding levels. Given this trend, there is some uncertainty as to whether there will be enough savings from other mechanisms to reach the 1,400 average megawatt goal by the end of Fiscal Year 2021. This information indicates that it would be difficult to increase the energy efficiency goals beyond the Councils Plan. Based on this information, it is not likely that substantial amounts of additional energy efficiency would be available as prices increase, such as in MO3. The commenter suggests or questions why a competitive resource review, also known as an integrated resource plan (IRP), was not performed as part of the EIS analysis. An IRP is a resource planning tool that utilities use to plan for future resource builds and acquisitions to fulfill the utility's specific needs over a certain planning horizon, typically 20 years. Some utilities are required to conduct an IRP by their local or state utility commissions. Bonneville is not required to perform an IRP, but does perform resource planning to inform its decisions, including for this EIS. There are many different methods and tools that are used by utilities when performing an IRP. Furthermore, the output of an IRP is often driven by state energy policies, such as carbon emission requirements. Even if an IRP optimizes resource portfolios, the real costs of that portfolio are not known until a competitive request for proposal solicitation can be completed and evaluated. For further discussion about the resource selection process used in the EIS in lieu of an IRP, please refer to the response to Northwest Energy Coalitions comment 6881-4 above.
6881	12	Fred Heutte	NW Energy Coalition	4.7 Battery Storage The DEIS Replacement Portfolio Analysis considerably underestimates the potential size and capabilities of battery storage. The DEIS states: To provide a similar level of sustained ramping (Table 3-160, above) as the lower Snake River projects, 2,265 MW of batteries would be needed. Additionally, the lower Snake River projects provide 250 MW of operating reserves. This would bring the total to 2,515 MW of batteries needed to replicate the peaking and flexibility of the lower Snake River projects. Developing utility-scale batteries of this size is untested. The largest battery facility in the world is currently 100 MW. DEIS Chapter 3 at 27427 This statement is incomplete and misleading. Large grid battery storage projects with contract commitments that are expected be completed by the end of 2021. Major utilities and producers are scaling up battery storage globally.14 In California alone these include Strata Oxnard (100 MW/400 MWh, online data December 2020), AES Alamitos (100 MW/400 MWh, 2021), Tesla Moss Landing 13 See National Renewable Energy Laboratory, Western Wind and Solar Integration Study, https://www.nrel.gov/grid/wwsis.html 14 GreenTech Media, The Biggest Batteries Coming Soon to a Grid Near You, September 3, 2019, https://www.greentechmedia.com/articles/read/the-biggest-batteries-coming-soon-to-a-grid-near-you Joint Commenters Comments on CRSO DEIS April 13, 2020 - Page 39 (182.5 MW/730 MWh, December 2020) and Vistra Moss Landing (300 MW/1,200 MWh, December 2020). And notably, the FPL Manatee Energy Storage Center will combine an existing solar project and a new 409 MW/900 MWh battery storage facility in Florida by late 2021. In Oregon, new storage development15 includes: The 2019 acquisition by Portland General Electric of a part of the Wheatridge three-way hybrid project developed by NextEra Energy Resources LLC, including 300 MW of wind, 50 MW of solar and 30 MW of battery storage starting in December 2021. Obsidian Renewables LLC has broken ground for the planned 400-MW Obsidian Solar Center in Lake County with a potential 50-MW flow battery storage system. The Avangrid Bakeoven Solar Project in Wasco County, under review by the Oregon Energy Facility Siting Council, would combine 100 MW of lithium-ion or flow batteries and 303 MW of solar generation with construction starting in 2020. Ecoplexus is pursuing the proposed 63-MW Madras Solar Energy Facility in Jefferson County, with up to 240 MWh of energy storage. Much of the capacity for these projects is already in the Bonneville transmission interconnection queue since it will require federal transmission to wheel power to offtakers. The DEIS does not accurately represent the current capability of battery storage resources.	As noted by the commenter, at the time of the Draft EIS, the largest operational battery was 100 MW. The commenter has identified a number of future planned battery projects that have expected capacity ranges from 100 MW to 409 MW. Pricing information for these projects is not provided. This comment is consistent with the EIS findings that new technologies and practices are developing in the energy markets at all times. These potential future projects, however, are also below the range of batteries needed to replace the peak capability of the four lower Snake River dams. In the draft EIS, the base case identified a need for 1,275 MW of batteries for Multiple Objective Alternative 3 and the full-replacement portfolio for the four lower Snake dams required 2,215 MW. As a result of public comments, the base-case quantity is being adjusted in the final analysis to 980 MW.
6881	13	Fred Heutte	NW Energy Coalition	4.8 Inverter-Based Resources The DEIS Replacement Power Analysis completely sets aside the value of essential reliability services from inverter-based resources, for example, solar, wind and battery storage. The DEIS states: Another limitation of the wind, solar, and battery portfolio is its inability to provide voltage and inertia benefits. As described above, the lower Snake River projects provide voltage and inertia benefits to the transmission system. Currently, wind, solar, and batteries do not provide the same level of voltage support as an installed generator, though this may change with advancements in technology. Providing inertia benefits from solar and wind resources and battery technology, however, would be more challenging because these facilities do not have the same heavy rotating mass as hydro 15 S&P Global, Kicking coal, Oregon emerges as a solar and energy storage development hub," March 6, 2020, https://www.spglobal.com/marketintelligence/en/news-insights/latest-news-headlines/kicking-coal-oregon-emerges-as-a-solar-and-energy-storage-development-hub-57104313 Joint Commenters Comments on CRSO DEIS April 13, 2020 - Page 40 generators. New technologies that would allow wind, solar, and batteries to mimic the inertia characteristics of synchronous generators have yet to be developed. DEIS Chapter 3 at line 27439 The technical and field test evidence is totally contrary to this statement. According to the North American Electric Reliability Council (NERC) Essential Reliability Services Working Group (ERSWG), these services are broadly grouped together as frequency support, voltage support and ramping and balancing.16 Inverter-based resources have inherent advantages over conventional resources using spinning mass, including coal, nuclear, gas and hydro. While hydrogeneration is clearly superior to thermal generation in terms of ramp rates, minimum power levels (Pmin), emissions and other attributes, inverter-based resources rely on power electronics and can be much faster and more faithful to a control signal for fast frequency response, voltage support, ramping and other essential reliability services.17 Two recent major field studies have validated these findings. In the first study, CAISO, NREL and FirstSolar conducted a rigorous field test of a 300 MW solar facility in Arizona. The results showed that solar projects can reliably provide frequency control, voltage control and ramping capability at scale, with much better response time and fidelity than conventional resources.18 In the second study, CAISO, Avangrid Renewables, NREL and General Electric conducted tests at a 131 MW wind facility near San Diego,	The EIS does acknowledge that Currently, wind, solar, and batteries do not provide the same level of voltage support as an installed generator, though this may change with advancements in technology. (Lines 27441 to 27443 in the draft EIS). The EIS simply recognizes that this capability is not yet proven or accepted for wide scale use. At least two of the sources cited by the commenter (https://www.nerc.com/comm/Other/essntlrlbltysrvcstskfrcDL/ERSWG_Sufficiency_Guideline_Report.pdf and http://www.caiso.com/Documents/WindPowerPlantTestResults.pdf) similarly conclude that additional work would be necessary in order to conclude that renewable resources would be operationally feasible for the provision of reliability service. Those sources also conclude that contractual arrangements for the provision of reliability services such as automatic generation control (AGC) response, voltage support, and provision of reserves from any potential replacement resources, including renewable resources, would also need to be developed. It is not currently clear that renewable resources would meet availability requirements to allow them to provide such services. The tests cited by the commenter do indicate the promise of power electronic devices to provide benefits attributable, in large part, to the ability of the electronics to respond more quickly. The tests are, however, limited in scope. The example cited was for a 300 MW resource, which is substantially smaller than the potential loss of generation considered in the EIS (a resource replacement of up to 5,000 MW under the zero-carbon replacement portfolio for Multiple Objective (MO) Alternative 4). Given the uncertainty of when battery storage plus inverter based technology might truly be able to replace the benefits of the lost hydropower generation, it would be premature for the EIS to assume that the technology would be available in a timely manner and in the quantity required to be a viable replacement resource. The EIS acknowledges that in the future, renewable resources may be able to provide these reliability services. The EIS also recognizes that the technology is not mature and is not ready for application on a utility-wide basis. Rather, the EIS chose resources that can provide reliability services with certainty to perform analysis for the EIS. To assume that the renewable resources stand ready to provide such capability in a timely manner to support actions under the various MOs would introduce additional uncertainty into the assessment for the EIS. Specifically, the EIS acknowledges that the energy sector is constantly undergoing transformation and that technological improvements will likely bring other options. To avoid speculation, the EIS analysis focuses on primary technologies identified by the Northwest Power and Conservation Council (Council) in their 7th Power Plan (7th Power Plan page 13-5) that are deemed proven, commercially available, and deployable on a large enough scale in the Northwest. See draft EIS, Section 3.7.3.1, Step 3: Determine Need for Potential Replacement Resources and Associated Costs at page 3-821 and Appendix H, Power and Transmission, Section 2.2.

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				also finding the wind plant performed as well as or better than conventional units.19 16 NERC, Essential Reliability Services Whitepaper on Sufficiency Guidelines, December 2016, https://www.nerc.com/comm/Other/essntlrlbltysrvcstskfrcDL/ERSWG_Sufficiency_Guideline_Report.pdf 17 Michael Milligan, Sources of grid reliability services, Electricity Journal, 2018, https://doi.org/10.1016/j.tej.2018.10.002 18 Utility Dive, "California solar pilot shows how renewables can provide grid services," October 16, 2017, https://www.utilitydive.com/news/california-solar-pilot-shows-how-renewables-can-provide-grid-services/506762/ Also see Clyde Loutan et al., Demonstration of Essential Reliability Services by a 300-MW Solar Photovoltaic Power Plant https://www.nrel.gov/docs/fy17osti/67799.pdf 19 Utility Dive, Wind plants can provide grid services similar to gas, hydro, easing renewables integration: CAISO, March 13, 2020, https://www.utilitydive.com/news/wind-plants-can-provide-grid-services-similar-to-gas-hydro-easing-renewab/574070/ Also see California ISO, Avangrid Renewables and NREL, "Avangrid Renewables Tule Wind Farm: Demonstration of Capability to Provide Essential Grid Services, March 2020, http://www.caiso.com/Documents/WindPowerPlantTestResults.pdf Joint Commenters Comments on CRSO DEIS April 13, 2020 - Page 41 To be sure, much work remains to provide full system integration and compensation to enable the capabilities of inverter-based resources. However, as the electric power system expands and requires additional reliability and resilience, the superior performance of inverter-based resources will surely mean an important and growing role for wind, solar and battery systems in providing essential reliability services. By focusing its analysis on 2022 as a replacement date, the DEIS arbitrarily avoids addressing any of these developments and their potential role in replacing the power from the Lower Snake River dams. The DEIS does not explain why, in the face of abundant engineering analysis and field testing, it rejected consideration of these capabilities. This failure means it is likely the Replacement Power Analysis assumes additional resources at greater cost than necessary over time especially inflating the overall costs of MO3.	
6881	14	Fred Heutte	NW Energy Coalition	4.9 Pumped Storage While the DEIS Replacement Power Analysis provides a short description of the pumped hydro resource, it does not further review directly relevant developments in the Northwest. There are at least three pumped storage projects that could be constructed in the region by the mid to late 2020s, Swan Lake (Klamath County, Oregon), Goldendale (Klickitat County, Washington), and the Absaroka Gordon Butte project (Meagher County, Montana). Each could provide significant support and increase the capacity and flexibility of the CRS. The DEIS only discusses the prospective cost of pumped storage, and does not discuss whether these important resource characteristics were considered.	The EIS did evaluate pumped storage as a potential replacement resource among other storage technologies. See draft EIS, Section 3.7.3.5 at page 3-909. While there are several feasible sites in the region that could provide pumped storage capacity, those projects have additional costs, permitting and environmental concerns. There is also uncertainty that these resources would provide sufficient energy and capacity to provide a credible source of replacement resources. Further, the capability of these pumped storage sites would not be able to address the scope of replacement resource needs considered in the EIS. See draft EIS, Section 3.7.3.5 at page 3-909. In the draft EIS, Appendix H, Chapter 2 provides additional details on resource selection, including discussing pumped storage. Based on responses to public comments, the final EIS contains an expanded description of how the potential replacement resource portfolios were selected for the EIS. (See Section 3.7.3.1 and Appendix H, Section 2.2.)
6881	15	Fred Heutte	NW Energy Coalition	4.10 Future Market Value Over the last decade, power markets in the Western Interconnection have started undergoing a profound change on both the supply and demand side. These changes have already substantially affected the operation and net revenues of the CRS. The DEIS Replacement Power Analysis does not consider these factors with regard to the alternatives, particularly MO3. The first key factor is the persistently low natural gas commodity prices since 2010, when shale gas became a dominant factor in the North American market. The price of gas has varied between about Joint Commenters Comments on CRSO DEIS April 13, 2020 - Page 42 $2.50 and $4.00/mmBtu over the last decade, well below the higher prices for most of the previous decade. Natural gas power plants generally set the marginal price in western power markets, though the price may vary in different markets and trading hubs. Even in the Northwest, gas sets the price for power products at the Mid-C market hub most of the year, except during the spring runoff, when hydrogeneration peaks, and most thermal generation goes offline for annual maintenance. In California, the advent of substantial solar resources has led to the widely recognized duck curve. During the middle of the day, solar energy, which has very little variable cost, displaces natural gas and other competing resources. The less efficient gas plants reduce output or go offline until the late afternoon ramp when overall demand rises toward early evening peak. In the years since 2014, this effect has become more and more pronounced. However, while mid-day California market prices are much lower than a decade ago, evening peak prices are much higher. Overall, total annual revenue in the California market, and to a great degree at Mid-C, is still correlated to natural gas prices. The Bonneville Power Administration has been at a disadvantage selling its secondary energy from the CRS into the Mid-C and California markets. As the price of commodity natural gas has declined and market prices have fallen accordingly, BPA secondary revenues have declined, causing significant rate pressure on its wholesale firm power rates and the bills paid by its preference utility consumers. As a recent presentation on the draft BPA 2020 Resource Program Update indicated, these trends are likely to continue, especially as renewable energy that is cheaper than natural gas begins to set market prices in California and throughout the west in a greater percentage of hours across the year. Joint Commenters Comments on CRSO DEIS April 13, 2020 - Page 43 As the chart above20 illustrates, the Mid-C High Load Hour product (heavy blue trace) is projected to decline substantially over this decade, partly because of continued decline in gas prices and partly from the increase in less expensive renewable energy. As the secular trend in both the Northwest and California power markets goes downward, CRS secondary energy sales revenue will decline. But because of the need for system flexibility, both in the morning and late afternoon ramp periods, the value proposition of the non-firm power capabilities of the CRS will shift from bulk secondary energy to flexibility, capacity and ramping products. Because LSR dams are primarily run-of-river facilities, their hydrogeneration is less flexible than the mainstem Columbia CRS projects, and the relative value of the LSR hydrogeneration flexibility as well as energy will decline going forward. But because the DEIS Replacement Power Analysis only considers conditions in the study year of 2022, these effects are not adequately captured, leading to an arbitrary overvaluation of the LSR hydrogeneration in the DEIS.	The conclusion of this comment is inconsistent with the findings of the Draft EIS. The comment accurately describes the trends underlying the west coast energy market in recent years, and provides a reasonable vision of how those trends might continue to unfold over time. However, the claim that the four lower Snake River dams are run-of-river and not useful for capacity and flexibility purposes is inaccurate. See draft EIS, Section 3.7.3.5, Zero-Carbon Replacement (Base Case Analysis), and Lower Snake River Full Replacement (Used in Rate Sensitivity Analysis). The four lower Snake River dams are not strictly run of the river, and have substantial peaking and ramping capability due to their ability to drop to near zero, and ramp up to full capacity for a sustained period except in very high or low water conditions or with high levels of spill for juvenile fish passage. Sustained peaking capability is limited under certain water conditions and some times of year; however, the four lower Snake River projects are instrumental to the region as renewable penetration increases and ramping requirements (say to meet the duck curve) increase. Arguably, its value would only increase over time, rather than diminish as this comment inaccurately asserts. This is because, as the commenter correctly identifies, the advent of substantial variable resources, like the solar that lead to the duck curve, creates capacity requirements that hydropower resources are well-suited to provide. Counter to the commenters claim, the four lower Snake River projects do have operational flexibility that can help provide this capacity requirement as they operate within a 3- to 5-foot elevation range in the fall and winter, and within a 1 or 1.5 foot elevation range during the fish passage season. Bonneville does use this small operating range to peak, i.e., to increase generation for brief periods of high demand when conditions permit. They provide approximately 2,000 MW of sustained peaking capacity at certain times of the year. See draft EIS, Section 3.7.3.5, Changes in Power Generation, Table 3-159. The dams also provide important ramping capability the ability to quickly generate energy to match spikes in energy usage with over 2,000 to 2,300 MW of capability in certain months of the year. See draft EIS, Section 3.7.3.5, Lower Snake River Full Replacement at pages 3-905-907 and Table 3-160. The use of fiscal year (FY) 2022 as a focal point for the rate pressure analysis fairly compares each alternative relative to the No Action Alternative in a consistent manner. It distills each alternative into a before and after state, and estimates expected rate pressure relative to the No Action Alternative consistently. The socioeconomic analysis then imputes that expected rate effect over time to weigh the socioeconomic costs or benefits of each alternative with the other objectives in the analysis. Speculation on future trends, especially those far out into the future, could lead stakeholders to make decisions based upon forecasts which imply a false level of precision, and understate the degree of uncertainty involved in forecasting future trends. Recent history would certainly suggest, however, that hydropower flexibility would remain at least as important to the region as it is today, and arguably more important in the future as more and more baseload carbon-based resources are removed from the grid, and in expectation, replaced by intermittent resources (such as wind and solar). This comment does well to support the value that the four lower Snake River projects provide to the region today and may continue to provide in the future. While it is true that the four lower Snake River projects are not as flexible as some of the other Federal projects, this does not mean the four lower Snake River projects are not valuable. In fact, from a resource competitiveness perspective, the four lower Snake River dams are among the least costly generating resources in the Federal Columbia River Power System (FCRPS), and the planned investment strategy is expected to maintain that status. As shown in the Federal Hydropower presentation at the 2018 Integrated Program Review1/, the Headwater/Lower Snake Asset Class/2 is forecast to have a 50-year levelized cost of generation/3 of $11.41/MWh based on the direct funded capital and expense (O&M) programs outlined in that process. These costs remain competitive with volatile Mid-Columbia spot market energy prices, which averaged $37/MWh in 2019 and have averaged $21/MWh in 2020. Further, the four lower Snake River dams have considerably more value than purchases made in the spot market. To make a proper comparison, the energy shape, capacity attributes, carbon content, and reliability attributes need to be considered. The four lower Snake River dams have advantages in all of these areas relative to spot market purchases. 1/ The Integrated Program Review (IPR) allows interested parties to see and comment on all relevant Federal Columbia River Power System (FCRPS) capital and expense (O&M) spending level estimates in the same forum. The IPR occurs every two years, or just prior to each rate case, and is the public review for the costs that will be recovered through rates the following two-year rate period. Long-term forecasts for the next 50 years and major upcoming projects are also shared in this forum. This information is available here: https://www.bpa.gov/Finance/FinancialPublicProcesses/IPR/2018IPR/IPR%202018%20Fed%20Hydro%20Workshop.pdf and is incorporated by reference into this EIS. 2/ In the 2018 Integrated Program Review, the Headwater/Lower Snake Asset Class consisted of the four lower Snake River dams, Hungry Horse, Libby, and Dworshak dams. These projects were grouped together because they have similar cost characteristics. The Levelized Cost of Generation for the four lower Snake projects alone is slightly lower than that for the whole class including the headwater projects shown in the table. 3/ Levelized Cost of Generation is defined as the forecasted direct costs and administrative overheads of producing power at a plant annualized over a 50-year period. This cost includes direct funded operations, maintenance, administrative and capital costs as well as Columbia River Fish Mitigation (CRFM) costs. Bonneville systemwide mitigation costs, such as its Fish and Wildlife program, are not included in this metric.
6881	16	Fred Heutte	NW Energy Coalition	4.11 Interregional Imports The DEIS Replacement Power Analysis does not consider increasing interregional power imports from California and other areas in the Western Interconnection for the replacement portfolios, especially MO3. The Northwest power market, particularly at the Mid-C trading hub, has followed the California market more closely in recent years, with the exception of the spring runoff period in the Northwest. That is because the Pacific Intertie allows for substantial trading between the two regions. In the near future, significant amounts of California surplus power will flow from the low-priced CAISO market to the Northwest when system conditions price the Mid-C market at a higher level. Thus, both markets will converge and, on average, decline in price. 20 Bonneville Power Administration, 2020 Resource Program Update, March 17, 2020, https://www.bpa.gov/Finance/RateCases/BP-22-Rate-Case/Documents/Combined%20PPT%20for%20workshop%203.17.pdf Joint Commenters Comments on CRSO DEIS April 13, 2020 - Page 44 The chart above21 illustrates these ongoing developments. It shows net power exports from the Northwest to California in March 2020 on the AC Intertie. The red trace shows North-South transfer capacity and the yellow trace shows South-North capacity, which vary when there are outages or planned maintenance on the AC Intertie system. The blue trace shows net exports. Over the last year, net imports to the Northwest where the blue line goes below zero, have been occurring more frequently than in the past. In the month of March, when the Northwest snowpack is beginning to melt and winter demand peaks have declined, Mid-C prices are generally lower than California market prices. As a result, over the last two decades, power almost never flowed from California to the Northwest in March. However, starting in 2019, that has changed, whenever California prices are low enough relative to the Mid-C market. It now seems clear that imports into the Northwest will continue to grow and costs will decline. There are a number of factors including the continued decline in natural gas prices, increasing solar energy, 21 https://transmission.bpa.gov/BUSINESS/Operations/Paths/Interties/monthly/AC/2020/AC_2020-03.xls Joint Commenters Comments on CRSO DEIS April 13, 2020 - Page 45 changes in demand and the interannual variation of hydro in each region. This provides an important opportunity to include interregional imports as a potential replacement resource, especially during the winter. Increased imports would be a particularly good choice for mid-winter replacement of LSR hydrogeneration. However, the DEIS Replacement Power Analysis does not address this possibility nor explain why it did not do so. Again, this likely inflates the costs of the MO3 alternative.	This comment mischaracterizes the evaluation framework used in the draft EIS. The Loss of Load Probability modeling in the CRSO EIS explicitly included the import assumptions from the Councils 2022 Resource Adequacy Assessment. Moreover, the rate analysis incorporated modeling from AURORA using BP-20 Final Proposal assumptions. See draft EIS, Appendix H, Power and Transmission, at page H-2-7. AURORA models the entire Western Interconnection and accounts for growth of solar generation within California and across the Western Electricity Coordinating Council, lower natural gas prices, projected levels of demand, and seasonal variation of hydropower generation for dozens of water years in the Northwest, California, and British Columbia. AURORA reflects the increasing likelihood of power flows from California and the expected impacts on regional market prices. Accordingly, changes to imports from California are incorporated into the market analysis used to value net secondary revenues and forecast rate pressure under each of the alternatives.
6881	17	Fred Heutte	NW Energy Coalition	4.12 Power Market Structure Because the Replacement Power Analysis only included the study year of 2022, it did not consider the profound changes in power market structure in the Northwest and the Western Interconnection. We provide two examples. In March 2022, the Bonneville Power Administration expects to become a participant in the Western Energy Imbalance Market (EIM), which optimizes generation dispatch and use of reserves within each hour across most of the Western Interconnection. On Sept. 26, 2019, BPA signed an implementation agreement with the California Independent System Operator and a record of decision in a move toward joining the EIM in 2022.22 In addition, after becoming an EIM Entity, Bonneville will be eligible to join the proposed Enhanced Day Ahead Market extension to the EIM, enabling it to change CRS operations to reduce operating costs and risks and increase revenues for both firm power and secondary sales. While the eventual fruition of the EDAM is not certain, the growing consensus through the Western Interconnection is that market expansion offers substantial reliability, economic and environmental benefits. Bonneville engaged in two substantial studies including a full net benefits study to assess the relative value of joining the EIM. The EIM Record of Decision indicates that net benefits could fall in the range of $29 to $34 million per year.23 The anticipated benefits of the EDAM are expected to be much larger, and if it commences operation in the coming years, the existing Mid-C market and other trading hubs in the Western Interconnection will	The comment questions the use of 2022 as the study year for the EIS. The choice of a single date (2022) from which to measure the environmental consequences of each MO removed the timing subjectivity from the EIS analysis and provided a level playing field from which to compare the impacts and costs of each MO. The choice of before-and-after analysis around FY2022 was primarily made due to limited availability of data and the need to establish a point-in-time from which to measure the effects of the MOs to the No Action Alternative. Establishing an estimated actual year of implementation for each of the MOs would have injected an additional timing element that could have affected the relative impacts analysis of the MOs. For example, MO3 dam breaching requires an Act of Congress. To ensure this MO received equal treatment when comparing it to other MOs, the EIS assumes all prerequisites for MO3 have occurred by FY 2022. Had a timing element been included in the comparison of the MOs, the EIS analysis could have assumed that Congress would not act by 2022, but by 2030 or some other subjective date, placing MO3 at a distinct disadvantage compared to other MOs, which could be completed by a sooner subjective date. Similarly subjective assumptions on timing could have been employed for the construction of replacement resources, especially for large-scale solar installations requiring environmental compliance, permitting, potential large acquisitions, etc., and conventional gas-fired units which are carbon emitting and politically unpopular. The choice of a single date (2022) from which to measure the environmental consequences of each MO removed the timing subjectivity from the EIS analysis and provided a level playing field from which to compare the impacts and costs of each MO. See Section 3.19 and Appendix Q for additional discussion. In this way, the choice of the modeling approach in the evaluation framework largely mitigates many of the concerns raised in the comment.

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				diminish in participation, reducing market depth, stability and efficient price discovery. 22 Bonneville Power Administration, Energy Imbalance Market, https://www.bpa.gov/Projects/Initiatives/EIM/Pages/Energy-Imbalance-Market.aspx 23 Administrator's Record of Decision, Energy Imbalance Market Policy, September 2019, at 112, https://www.bpa.gov/news/pubs/RecordsofDecision/rod-20190926-Energy-Imbalance-Market-Policy.pdf Joint Commenters Comments on CRSO DEIS April 13, 2020 - Page 46 Yet because the Replacement Power Analysis only included the study year of 2022, no analysis was conducted to examine the potential benefits and challenges of CRS participation in the changing power market structure, even though ample information to do so was available and the effects of this interconnection process are highly relevant to assessing the feasibility and costs of implementing MO3. The DEIS does not discuss the EIM and EDAM, and does not explain this omission.	The comment also suggests that modeling Bonneville's Energy Imbalance Market (EIM) participation is an important factor that should have been included in the EIS. As the comment notes, Bonneville's Administrator's Record of Decision in September 2019 signaled Bonneville's intent to join the EIM. Bonneville, however, has not made a final decision to join the EIM, nor will a final decision to join be made until after this EIS is complete. As such, revising the EIS to include a potential decision to join the EIM would not be consistent with the decision making framework Bonneville has committed to use. Even if the CRSO EIS were revised to include Bonneville's participation in the EIM, it would not likely affect the results of the EIS. The EIM benefits noted by the commenter rely on production cost modeling techniques using an assumption of perfect economic dispatch from the moment of entering the EIM. Bonneville's rates analysis, as used in the CRSO EIS, already optimizes dispatch regionally. Therefore, the CRSO EIS already presumes some optimal dispatch and benefits similar to those expected through the EIM. The comment also notes that additional benefits of the Enhanced Day Ahead Market (EDAM) should have been considered in the EIS. As of the publication of the CRSO Final EIS, the California Independent System Operation (CAISO) has not presented any formal proposals for extending the CAISOs Day Ahead Market to the EIM. There is, then, nothing for the CRSO EIS to consider in this analysis. Even if such a proposal were made, Bonneville has not stated whether it would participate in such a market. For these reasons, the EISs omission of EDAM a market that has yet to be developed and for which Federal resource participation is uncertain was appropriate.
6881	18	Fred Heutte	NW Energy Coalition	4.13 Transmission Resources and Operations Because the Replacement Power Analysis only included the study year of 2022, it did not consider potential transmission expansion, grid modernization and more efficient operations. Among other elements directly relevant to the CRS, this includes the ongoing efforts by BPA to revise its open access transmission tariff, reshape its transmission products for the emerging needs of more diverse and flexible resources, engage in a major grid modernization program supporting its participation in the EIM and other system optimization purposes, and potentially add new transmission lines and supporting resources. One major example is the possible Montana-to-Washington transmission expansion, which would add 600 MW of transfer capacity in the federal transmission system between western Montana and eastern Washington. An earlier environmental review of the projected was halted in 2013 when Bonneville determined that commercial offtaker potential had dwindled. Now, as a result of the review of the Montana Renewable Development Action Plan in 2018, co-sponsored by Bonneville and the Governor of Montana, and with further state energy policy developments and cost reductions favoring expanded transmission capacity to carry Montana wind to load in northern Idaho, Washington and Oregon, the prospects of M2W are improving. An even larger new transmission project known as Garrison-to-Ashe is also on the drawing boards, with a prospective completion date of 2030. Federal transmission expansion, grid modernization, tariff reform and more efficient transmission system operations will improve the value of renewable energy resources that could replace LSR hydrogeneration. But the DEIS fails to address these opportunities.	The EIS did examine a Montana wind portfolio of up to 660 MW based on available transmission capacity and the Washington state shares of Colstrip 1&2, which closed in 2019 per the Montana Renewable Development Action Plan. This portfolio was selected as part of the M02 avoided build. While transmission expansion may be necessary to integrate additional resources from more remote locations, the identified resource replacements for the Multiple Objective (MO) Alternatives were able to meet the Loss of Load Probability of the existing system (No Action Alternative level) without the need for additional transmission reinforcement. The efforts cited by the commenter, such as tariff revision, different transmission products, grid modernization, and EIM participation are activities that have not been decided and would be set to happen independent of actions that may occur as a result of the CRSO EIS. These efforts, however, would not change the fundamental needs the EIS considered; the EIS would still need to consider the changes in generation resources under the various MOs. Also, there is no certainty about the benefits of the efforts cited by the commenter, which is another reason why the efforts were not analyzed in the consideration of replacement resource portfolios in the EIS. See Appendix H, which describes the approach to the analysis in detail. The EIS identified replacement resource portfolios, including zero-carbon replacement resources, to identify a set of feasible resources that might be integrated into the transmission system at the lowest cost. While the completion of the Montana to Washington (M2W) and Garrison to Ashe transmission (GASH) projects could bring in resources from Montana into the Western Interconnection, those projects would also bring a substantial addition of cost. These projects are also not committed projects at this time, rather, they have been identified in studies that Bonneville was obligated to perform in response to requests for service across multiple transmission systems. The M2W and GASH projects addressed only the needs on the Bonneville network. Those projects did not consider expansion required in Montana that might also be necessary in order to integrate the output from resources in Montana. The EIS was able to identify a set of replacement resources that may be able to meet the requirements identified under the various MOs without adding uncertainty from projects that may or may not be completed. If the efforts cited by the commenter materialize, then they could be factored into future decision making on the need to replace generation from the MOs or to replace coal-fired power generation.
6881	19	Fred Heutte	NW Energy Coalition	4.14 Columbia River Treaty The DEIS has been conducted in parallel with ongoing negotiations between the US and Canada over the future of the Columbia River Treaty, with two of the co-lead agencies, the Bonneville Power Administration and US Army Corps of Engineers jointly constituting the US Entity. Certain provisions of the Treaty expire in 2024. The DEIS states: The 2016 CRT-related operations, were applied in the EIS analysis, as the best-available information. If CRT-related operations change in a manner that presents new information or circumstances resulting in significant changes that were not previously addressed, those changes will be addressed by this NEPA process if they are identified in time or subsequently in another NEPA process, if necessary. DEIS Chapter 2 at 2326 Because the Columbia River Treaty drives CRS planning and operations in a foundational way, it should have been analyzed in the Replacement Power Analysis, but was not due to the limitation of the analysis only to the study year of 2022.	As the comment notes, the Draft EIS captures the effects to the CRS of storage in Canada that is coordinated with the United States under the Columbia River Treaty using the best available information in 2016, which included information from 2022-based studies and forecasts. Regarding the Power Supply and Replacement Resources chapter of Appendix H, the Columbia River Treaty requires the development of certain power studies in advance, and 2022 information from those studies, as well as other information described in the analysis, represented the best available information at the time of the CRSO Draft EIS. As aspects of the Columbia River Treaty regarding Canadian operations in 2024 and beyond remain the subject of an ongoing negotiation between the governments' of the United States and Canada, the co-lead agencies--including Bonneville and the Corps as members of the U.S. Entity--must continue to use the best available information that was applied in the Draft EIS to capture the effects of the Columbia River Treaty operations on the CRS in the FEIS.
6881	20	Fred Heutte	NW Energy Coalition	4.15 Inappropriate and Incomplete Coal Sensitivity In a complete diversion from the trend of not considering anything outside of the 2022 study year, the DEIS conducts a self-styled coal sensitivity considering the impact on regional energy, capacity and resource adequacy if additional coal generation serving the Pacific Northwest is retired beyond announced retirements as of the Replacement Power Analysis in 2022. With regard to MO3, the DEIS states: In the future condition with additional coal-plant retirements, this option would not be sufficient to return the LOLP to the No Action level, because without coal, more of the capability or replacement capability of the Lower Snake River (LSR) projects would be needed for power system reliability. DEIS Appendix H at line 653 This sensitivity is built upon completely erroneous assumptions and completely disregards the likelihood that the relatively inflexible and risky coal resource can be replaced with a more diverse, reliable, less polluting and less costly portfolio that affords additional flexibility to the CRS and improves Northwest power system performance. Joint Commenters Comments on CRSO DEIS April 13, 2020 - Page 48 Noting the ongoing development of public policy promoting a transition from fossil fuel generation to clean energy resources, the DEIS further states: In light of this legislative and policy trend, the co-lead agencies assume that no new gas-fired generation would be built to replace the lost generation from the lower Snake River dams, only zero-carbon resources may be selected. At the utility-scale, the current best options are solar and wind resources, some batteries, and demand response programs. For MO3, the EIS analysis identified a potential zero-carbon replacement portfolio consisting of 2,550 MW of solar resources, , and 600 MW of demand response to restore LOLP. Tis portfolio relies on using the existing regional system to help make up for some of the lost capabilities of the lower Snake River projects - primarily by operating thermal plants more frequently to meet regional load. However, in light of regional policy initiatives to curtail or cease the operation of thermal plants, a zero-carbon resource replacement portfolio with insufficient dispatchable sustained capacity may not be feasible. If the replacement does not include firm generating capacity with only 600 MW of dispatchable capability, it is likely not a realistic assumption for MO3 where a substantial amount of generation capacity is lost. DEIS Chapter 7 at line 386 The Joint Commenters agree that new gas-fired generation should not be built to replace LSR hydrogeneration. But we strongly disagree that regional clean energy policy undermines the feasibility of replacing LSR hydrogeneration with a clean energy portfolio. Indeed, as explained at length in these comments, the DEIS does not provide a valid test of that assertion. Furthermore, the manifest goal of Northwest clean energy policy is to expand the capability of those resources to replace thermal generation in a reliable, clean and affordable manner. The success already accomplished under these policies is a matter of record. Here we cite two examples. The respective utilities with requirements under the 2006 Washington Energy Independence Act have met their responsibilities to acquire all cost-effective energy efficiency and to achieve the targets under the Acts Renewable Portfolio Standards, and often exceeded them.24 And in Oregon, SB 1547, the coal-to-clean legislation passed in 2016, sets a new Renewable Portfolio Standard of 50% by 2040 and requires utilities to cease using coal-fired power no later than 2025. All three of Oregons investor 24 NW Energy Coalition, I-937: The only thing we had to fear was fear itself: The first in a series celebrating the passage of Initiative 937 and its many benefits for Washington," September 27, 2016, https://nwenergy.org/uncategorized/i-937-the-only-thing-we-had-to-fear-was-fear-itself/ Joint Commenters Comments on CRSO DEIS April 13, 2020 - Page 49 owned utilities, Portland General Electric, PacifiCorp and Idaho Power, have responded by accelerating coal retirement plans and committing to major clean energy acquisitions. Those clean energy actions replicated throughout the region by coal-owning utilities will rapidly reduce the apparent resource adequacy gap resulting from coal retirement. The Joint Commenters fully anticipate this will result in reduced energy costs, major reductions in greenhouse gas emissions, and improved environmental performance. Turning to the DEIS coal sensitivity analysis itself, as noted in the DEIS, announced coal retirements as of 2022 are already included in the energy assessment. Yet the DEIS forges on to assess how further retirements of part or all of the remaining coal fleet could affect the CRS as if they occurred in 2022. The DEIS states: While the scope of the CRSO EIS analysis is not necessarily to address resource adequacy issues related to the No Action Alternative because the coal-plant retirements are not serving Federal load, resource acquisitions made by the region for the coal-plant retirements will affect how changes in CRS hydropower would impact the region. DEIS Chapter 3 at line 25385 Yet no one would argue that all regional coal could be, or even should be retired in 2022, despite the reduction in climate change that might entail. Retiring the entire coal fleet, with its far greater contribution to the Northwest power system than LSR hydrogeneration, will require a careful and measured effort to phase out those resources and replace them with a clean energy portfolio. As discussed above, state policy and utility IRP processes under way in the region are fully taking up that task. The DEIS ignores these processes and instead makes unfounded assertions. In particular, the coal retirement sensitivity appears to build linkages between MO3 and coal-plant retirements that do not exist. In reality, coal units in the West are used to meet capacity needs of their owners. No preference customer of the Bonneville Power Administration is an owner of a share of any existing coal generation. The preference customers and Bonneville itself have no legal obligation whatsoever for the future course of such coal plants, nor for resource replacement as they are retired. Rather coal plant retirement decisions that ensure reliable, affordable energy services are the responsibility of the owners and the respective state utility commissions that regulate them. At the date of submission of these comments, Portland General Electric (PGE) is pursuing a comprehensive strategy to replace the energy and capacity services of its Boardman coal plant in Oregon and its share Joint Commenters Comments on CRSO DEIS April 13, 2020 - Page 50 of the Colstrip coal plant in Montana, as well as other system changes. In 2019, PGE and the Bonneville Power Administration executed two contracts for 100 MW of power services for five years. This contract, executed before filing of the DEIS, does not appear to be included in the coal sensitivity analysis. PGE is also currently seeking consideration of acknowledgement by the Oregon Public Utility Commission (OPUC) of its 2019 Integrated Resource Plan, including up to 150 aMW of renewable energy resources and up to 690 MW of capacity resources. PacifiCorp is addressing coal retirement and replacement in its 2019 IRP, and is also seeking acknowledgement from the OPUC and approval by other regulatory commissions in its six-state service area targeting almost 2,400 aMW of new solar resources collocated with about 600 MW of battery storage as well as almost 2,000 MW of new wind resource by the end of 2023, and construction of a new high-capacity transmission line by 2024 in order to transfer additional wind resources to replace coal, to improve reliability and address other system needs. Other investor owned	The analysis for the case of additional coal-plant retirements in the EIS was conducted as a sensitivity study. This left the base case consistent with the study assumption of a 2022 year while also addressing the issue that the regional resource mix is changing rapidly during this decade, largely due to new information that was not available when the power analysis for the EIS was initiated in 2016. The characteristics of coal plants are embedded in the Loss of Load Probability (LOLP) modeling used by Bonneville and the Northwest Power and Conservation Council. This includes the ability to dispatch to meet load. See draft EIS, Section 3.7.3.1, Base Case Methodology and Cost Sensitivity Analysis at page 3-816 and Id. at page 3-823. This sensitivity study evaluated other replacement options that may be less costly. Also, the power analysis only looked at portfolios that were less polluting as all replacement resources were non-carbon emitting. The comment is correct that the zero-carbon replacement portfolio only includes non-carbon emitting resources in the replacement resources. If new gas-fired generation was selected to replace the coal generation, gas-generation would be closer to a 1 MW for 1 MW replacement with the major difference between coal generation and gas generation being slightly lower gas generation due to lower forced outage rates relative to coal generation. For the base case Multiple Objective (MO) Alternative analysis, two different replacement portfolios were identified, a least-cost gas-fired alternative and a least-cost carbon-free replacement portfolio. See draft EIS, Section 3.7.3.5 at pages 3-904-910. The comment is correct that the regional system would have to make up for some, if not most, of the capabilities of the four lower Snake River dams putting further strain on the regional power system. As shown through the coal sensitivity LOLP analysis, this is ever more challenging if both the coal plants and the four lower Snake River dams are to be replaced by non-dispatchable energy reasons. See draft EIS, Appendix H, Power and Transmission Section 2.3. at pages H-2-8 15. For this reason, the least-cost carbon free replacement portfolio included batteries to make up for some of the sustained peaking and ancillary services that the projects provide but cannot be picked up in the GENESYS model. Removing the generation from the four lower Snake River projects in the region requires that other dispatchable generation in the region are used in place of these projects. As more of this dispatchable generation is retired (i.e. the coal plants), it increases power system reliability risks to the region as is demonstrated in the LOLP analysis requiring increasingly larger amounts of non-carbon resources and batteries (that only provide short term energy storage) to maintain reliability. The EIS analysis concurs with the assessment that the regional coal fleet is a much larger contributor to the regional power system than the four lower Snake River dams and that retirement of the entire coal fleet would require a careful and measured plan. In fact, that is the exact point of the coal sensitivity analysis, that replacing the four lower Snake River dams with non-dispatchable generation makes that careful and measured coal retirement plan even more challenging. See draft EIS, Section 3.7.3.2, No Action Alternative at pages 3-845-84 and Table 3-123. The 2022 date in the EIS was selected so that a comparison and impact assessment could be made, and it does not suggest that all coal plants would retire in 2022. The increased reliability strain is the same regardless of whether the replacement plan is implemented quickly or slowly. The power system reliability studies prepared for this EIS are done using a regional study, which includes all loads and resources of the Northwest. Therefore, all loads and resources are linked in terms of reliability. It is in this context that replacement resources for the four lower Snake River dams could occur at the same time the regional Investor Owned Utilities (IOUs) would be replacing their coal plants with alternative power sources, and the EIS does not suggest that all of this would happen in the year 2022. While the EIS is not intended to be a power optimization study of the Northwest power system, the EIS concludes that removing hydropower at the same time the region is carefully working through a measured plan to replace the coal fleet would exacerbate the challenge of maintaining a low LOLP. We agree with the assessment that planned replacement resources proposed by IOUs are not included in the analysis as the analysis only includes on-line generating resources. Further, the analysis does not reach any conclusions where the specific resource replacement plan is needed. Rather, the analysis contemplates the entire spectrum of potential outcomes for coal retirement replacements by concluding that power system reliability objectives are harder to meet if the coal replacement resources are from non-dispatchable sources and are mostly unaffected if replaced with gas generation. The analysis does not suggest that nothing is being done by utility coal owners. The point of the coal sensitivity analysis is to quantitatively demonstrate that resource replacement decisions for the coal fleet can impact the cost to replace the generation from the four lower Snake River dams. This is because reliability targets are measured at the regional level and get progressively harder and harder to meet with each unit of dispatchable generation that is replaced with non-dispatchable generation. The resources examined in the power system reliability analysis are the same types of resources that are in the planning stages by both PacifiCorp and Portland General Electric. The EIS, however, did not include Wyoming wind generation that is being developed by PacifiCorp, which could provide some diversification benefits. Regardless, the conclusions in the EIS included the full spectrum of potential outcomes from no additional cost impacts if replaced with gas resources to substantial cost impacts if replaced with non-dispatchable resources. Including the diversity benefits of Wyoming wind could likely have a modest impact on the non-dispatchable resource replacement side of the coal sensitivity analysis. A full scale assessment of transmission system reliability was not performed for a coal replacement scenario. Rather, the coal replacement analysis was intended to consider a set of replacement resources and the power reliability challenges the region faces with the removal of coal plants. The scope of coal replacement was not known at the outset of the CRSO EIS analysis and did not inform the base assumptions. During the development of the EIS, it became apparent that additional coal retirements would occur independent of the CRSO EIS. The EIS added the sensitivity analysis to augment the detailed assessment considered under the MO alternatives. The transmission analysis completed for the EIS was intended as a feasibility assessment of whether the replacement resources identified to maintain the LOLP of the existing system might reasonably be able to meet that power reliability metric. A full transmission reliability assessment as suggested by the commenter is not possible without knowing more detail about the actual replacement resources. Detailed interconnection and integration studies would be completed as detailed information becomes available. Until there is certainty about the final replacement resources, it is premature to complete a full system assessment suggested by the commenter. The EIS relied on a summer 2023 base case for its assessment. The EIS made use of the summer conditions in order to consider which conditions would create a worst case for transmission system stress. The summer conditions produce greater stress with respect to the resource locations in the CRS. With higher ambient temperatures, the transmission system equipment must operate at reduced levels to respect the reduced ratings. Inter-regional transfers combined with heavy load in Central Washington and Oregon near the major CRS projects also create stress for the transmission system during the summer. Finally, the reduced (or even removed) generation considered in the MOs means that those resources would not be available to provide needed voltage support or active power to maintain reliable operation. Winter loads, while also critical to consider for reliable system operation are not as sensitive to generation provided from the CRS projects. The winter generation levels considered in the MOs would allow for increased output to provide needed voltage support and capacity for reliable system operation. The coal sensitivity study includes state policies to remove coal resources from the Northwest by removing certain coal plants from the regional power system. However, it does not include individual utility plans to acquire resources. The study is not designed to be a regional Integrated Resource Plan, rather the analysis is designed to highlight the reliability challenges the region faces with the removal of the coal plants and reductions in Federal Columbia River Power System hydropower generation.

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				utilities that own coal generation resources in the Northwest that are retiring or may retire within this decade are also considering replacement portfolios. None of these replacement plans are considered in the DEIS coal sensitivity. The assumption that nothing will be done until coal generation actually retires is false. The DEIS does not assess that state utility commissions will mandate that utility coal-owners develop fully optimized and least-cost resource portfolios as part of the approval process to replace the coal resources, thus maintaining overall operational reliability and resource adequacy on their systems and assuring continuity of operation for the Northwest power system as a whole. Indeed, the DEIS does not reference the comprehensive and detailed IRP analyses being conducted to address exactly this question by every utility owning coal resources in the Northwest and the Western Interconnection. Nor does the DEIS explain why this information was not studied. Furthermore, increased coal retirements in the West will change the landscape of operational reliability and resource adequacy. The new resource portfolios being developed by PGE, PacifiCorp and others are more diverse by resource type, performance and geography than has ever been the case in the past. They rely strongly on fast-response generation, demand side and storage resources, all with inverter-based grid interconnections that can respond much faster and more precisely to a control signal that coal generation. They do not require minimum run rates that require uneconomic operation during Joint Commenters Comments on CRSO DEIS April 13, 2020 - Page 51 periods of low system demand. They do not produce the wide array of environmental pollutants and greenhouse gases of coal generation. They do not depend on volatile fuel markets. The replacement portfolios will not only be cheaper than continuing operation of most of the Northwest coal fleet, they will also provide improved reliability and resource adequacy. None of these factors, well developed in technical literature and demonstrated in the IRPs referred to here, are reflected in the DEIS energy analysis. The timing of coal generation retirements and the nature of potential replacement resources will have an effect on CRS operations, given that the Western Interconnection is a synchronous system under federal mandatory reliability standards for frequency regulation and other compliance requirements. Under the NERC transmission planning (TPL) mandatory reliability standards, studying these factors is a legal requirement for the BPA transmission system, and studies must be conducted for time frames out to 10 years. However, no such analysis was undertaken for the DEIS energy analysis. Indeed, the related transmission studies in Step 4 of the DEIS energy analysis framework have deficiencies of their own. The transmission reliability analysis (Appendix H, page H-3-14) was only performed for the base case for a 2023 study year using WECC powerflow cases. Oddly, the DEIS used a summer WECC case but performed a peak load analysis where it assumed minimum hydro output. Yet the DEIS transmission analysis appears not to have made use of the WECC Heavy Winter powerflow case. In any event, there was no explanation nor any demonstration of analytical results to justify this choice. In summary, the DEIS coal sensitivity completely ignores the policy, planning and resource acquisition steps that are being taken to retire coal and gain immense economic, climate, environmental and reliability gains. The DEIS justifies its inadequate and misleading analysis with vague references to impacts on the CRS, but provides very little analysis or evidence, especially on transmission impacts. The DEIS does not explain why it did not conduct the long-term IRP analysis that would be required to assess potential impacts of coal retirement on the CRS and the resource portfolios for the DEIS alternatives.	
6881	21	Fred Heutte	NW Energy Coalition	4.16 Conventional Least-Cost Portfolio The Replacement Power Analysis refers to the all-gas replacement scenario for MO3 as a least cost portfolio. However, an IRP analysis would not determine that a specific resource is least cost by assessing only one attribute, such as contribution to resource adequacy. Least cost resources are identified through replacement portfolio optimization, which was not accomplished in the DEIS. The blanket assumption that the specific type of natural gas generation chosen for the least-cost conventional portfolio is without technical merit and is inconsistent with economic conclusions from almost every recent Western Interconnection IRP process, which favor mixes of renewables, gas, energy storage and demand side resources.	The commenter suggests or questions why a competitive resource review, also known as an integrated resource plan (IRP), was not performed as part of the EIS analysis. An IRP is a resource planning tool that utilities use to plan for future resource builds and acquisitions to fulfill the utility's specific needs over a certain planning horizon, typically 20 years. Some utilities are required to conduct an IRP by their local or state utility commissions. Bonneville is not required to perform an IRP, but does perform resource planning to inform its decisions, including for this EIS. There are many different methods and tools that are used by utilities when performing an IRP. Furthermore, the output of an IRP is often driven by state energy policies, such as carbon emission requirements. Even if an IRP optimizes resource portfolios, the real costs of that portfolio are not known until a competitive request for proposal solicitation can be completed and evaluated. In selecting replacement resource portfolios, the EIS evaluated a variety of factors to determine the least-cost resource including how the resource affected costs related to regional imports, exports, fuel use and capital costs for the actual resource. These costs were then divided by the reliability benefit to determine the cost effectiveness. Natural gas was determined as the least-cost resource for improving reliability. The replacement resource analysis and assumptions are further described in Chapter 2 of Appendix H in the draft EIS. Based on responses to public comments, the final EIS contains an expanded description of how the potential replacement resource portfolios were selected for the EIS.
6881	22	Fred Heutte	NW Energy Coalition	4.17 Substantial Costs for Necessary LSR Powerhouse Upgrades Not Considered The Lower Snake River hydro generation facilities commenced commercial operation between 1962 and 1975. Since these facilities are assumed to have an engineering and economic life of 50 years, the risk of unforced outage and longer shutdown for extended maintenance, and even forced retirement, continues to grow as the 50-year anniversary approaches. The common language metaphor for this process is the bathtub curve 25 high maintenance costs when a facility is first put into place, followed by a long period of reliable and low-cost operation, and then increasing costs as parts begin to weaken and fail, followed either by refurbishment, replacement or retirement. The bathtub curve is a useful way to conceptualize the future of the LSR hydrogeneration facilities. Of the 24 generation units at the LSR dams, the first three at Ice Harbor dam are now undergoing a refurbishment and replacement program. In a news release in June 2019, the project manager stated, After 50 years of operation and increasing maintenance requirements, the need to replace the existing turbine runners at Ice Harbor presented the opportunity to pursue new turbine runner designs with fish passage improvement as a priority.26 The project cost is currently estimated at $92 million. The first 25 Sumereder, C. (2008). Statistical lifetime of hydro generators and failure analysis. IEEE Transactions on Dielectrics and Electrical Insulation, 15(3), 678685. doi:10.1109/tdei.2008.4543104 26 US Army Corps of Engineers Walla Walla District, New high-tech turbines at Ice Harbor improve safety for fish, produce more power. https://www.nww.usace.army.mil/Media/News-Releases/Article/1866445/19-067-new-high-tech-turbines-at-ice-harbor-improve-safety-for-fish-produce-mor/ Joint Commenters Comments on CRSO DEIS April 13, 2020 - Page 53 new turbine was placed in service in May 2019, about 57 years after the original equipment began commercial operation. If CRS operations continue in accordance with the DEIS Preferred Alternative, similar upgrade and replacements will be required at the other 21 LSR generating units starting in this decade. If the MO3 is adopted, these costs will be avoided. The first three generating units at Ice Harbor commenced operation in 1962, the second set of three units in 1976. Likewise, an initial and second set of generators commenced operation at Lower Monumental in 1969 and 1981, at Little Goose in 1970 and 1978, and at Lower Granite in 1975 and 1979, respectively. Thus, the 50th anniversaries for the various turbine groups began in 2012 (Ice Harbor 1-3) and will conclude in 2031 (Lower Monumental 4-6), with a substantial amount of powerhouse facilities reaching that anniversary in the mid to late 2020s. Lower Snake River Hydro Generation 50th Anniversary Dates Data source: US Army Corps of Engineers, Walla Walla Division It is reasonable to foresee that no later than the mid-2020s, the Army Corps of Engineers and BPA will need to agree on a refurbishment and modernization program for the 21 remaining generation units in Joint Commenters Comments on CRSO DEIS April 13, 2020 - Page 54 the four Lower Snake River dams if the Preferred Alternative or another option other than MO3 is pursued. Indeed, the first set of units at Lower Monumental and Little Goose have already passed the 50th anniversary. However, the CRSO DEIS steadfastly refuses to directly address this likelihood. Instead, the DEIS states, DEIS, Appendix Q, Annex A, Q-A-7 and 8 It appears from this language that the prospect for avoiding the future necessary refurbishment and modernization of the four Lower Snake River dam powerhouses is not considered in the DEIS energy analysis for MO3. Furthermore, on March 31, 2020, the Bonneville Power Administration issued a message by email that included the following statement: Major powertrain replacements for the Snake River Dam hydroelectric assets are not currently forecasted to occur within our 20-year system asset plan. Long-term planning analyses that calculate the optimal economic time to replace equipment based on current and expected equipment health, probability of failure and outage consequence, point to the late 2030s as the earliest replacement dates. In fact, most of the optimal replacement Joint Commenters Comments on CRSO DEIS April 13, 2020 - Page 55 dates are spread between the 2040s and 2060s for the Lower Snake dams for turbine and generator replacements.27 To the knowledge of the Joint Commenters, this is the first statement made publicly by Bonneville that the LSR powerhouse upgrades can be delayed until the original equipment is 70 to 90 years old. As previously noted, current work on the first three generation units at Ice Harbor will cost about $92 million under contracts executed several years ago. Similarly, a major modernization project for the powerhouse at McNary dam on the Lower Columbia River is also in progress. The McNary project will cost approximately $340 million to upgrade 980 MW of generation. Together, the Lower Snake River dams have a combined nameplate capacity of over 3,000 MW, more than three times as much as McNary. While it is not possible to make a direct comparison, it seems likely that a complete Lower Snake River hydrogeneration upgrade could cost well in excess of $1 billion. Whether this occurs starting in the mid to late 2020s, or is mostly accomplished after 2040, the DEIS totally fails to address this crucial element affecting future CRS operations and costs.	The four lower Snake River dams are among Bonneville's lowest cost resources. Although the turbines at the four lower Snake River dams are between 41 and 50 years old and nearing their design lives, there are no plans for any immediate replacements. Investment decisions are driven by equipment condition, probability and consequence of failure and, as such, it is common for equipment to be in service well past its design life. For example, some turbine runners at McNary dam will be over 70 years old by the time the replacement project is complete. Long-term planning analyses that calculate the optimal economic time to replace equipment based on current and expected equipment condition, probability of failure and outage consequence, point to the late 2030s as the earliest replacement dates for major powertrain equipment at the four lower Snake River dams. Most turbine replacements are forecasted between the 2040s and 2060s which would put the turbines at the four lower Snake River dams at about the same age at replacement as McNary. Moreover, the average annual cost to operate and maintain all authorized purposes at the four lower Snake River dams is $75 million (Appendix Q, Table 5-1 in the Draft EIS) and the annual-equivalent capital costs are $32 million (Appendix Q, Table 4-1 in the Draft EIS). Hydropower costs funded by Bonneville represent about $50 million of the total annual operations and maintenance costs and nearly all of the annual capital costs, approximately $31 million. This puts the annual-equivalent power-specific costs at approximately $81 million a year. As a result, the net benefits from hydropower for the four lower Snake River dams are between $159 million and $419 million and the benefit-cost ratios are between 3.0 and 6.2. If the generation could be reliably replaced with short-term wholesale market purchases (see Table 3-170 of the Draft EIS), the lower bound for net benefits would fall to $20 million and the benefit-cost ratio would fall to 1.2. From a resource competitiveness perspective, the four lower Snake River dams are among the least costly generating resources in the Federal Columbia River Power System (FCRPS) and the planned investment strategy is expected to maintain that status. As shown in the Federal Hydropower presentation at the 2018 Integrated Program Review1/, the Headwater/Lower Snake Asset Class/2 is forecast to have a 50-year levelized cost of generation/3 of $11.41/MWh based on the direct funded capital and expense (O&M) programs outlined in that process. These costs remain competitive with volatile Mid-Columbia spot market energy prices which averaged $37/MWh in 2019 and have averaged $21/MWh in 2020. 1/ The Integrated Program Review (IPR) allows interested parties to see and comment on all relevant FCRPS capital and expense (O&M) spending level estimates in the same forum. The IPR occurs every two years, or just prior to each rate case, and is the public review for the costs that will be recovered through rates the following two-year rate period. Long-term forecasts for the next 50 years and major upcoming projects are also shared in this forum. This information is available here: https://www.bpa.gov/Finance/FinancialPublicProcesses/IPR/2018IPR/IPR%202018%20Fed%20Hydro%20Workshop.pdf and is incorporated by reference into this EIS. 2/ In the 2018 Integrated Program Review, the Headwater/Lower Snake Asset Class consisted of the four lower Snake River dams, Hungry Horse, Libby, and Dworshak dams. These projects were grouped together because they have similar cost characteristics. The Levelized Cost of Generation for the four lower Snake projects alone is slightly lower than that for the whole class including the headwater projects shown in the table. 3/ Levelized Cost of Generation is defined as the forecast direct costs and administrative overhead of producing power at a plant annualized over a 50-year period. This cost includes direct funded operations, maintenance, administrative and capital costs as well as Columbia River Fish Mitigation (CRFM) costs. Bonneville systemwide mitigation costs, such as its Fish and Wildlife program, are not included in this metric. The EIS estimates the costs to operate and maintain the CRSO, as well as the value of power, navigation, agriculture, and public water supply that would be adversely affected if the lower Snake River dams are breached under MO3. The EIS also estimates the effects of dam breach on anadromous fish species, but these are not explicitly quantified or monetized. The EIS considered multiple tradeoffs between potential effects, but an explicit cost benefit analysis for the EIS alternatives was not completed consistent with NEPA (40 C.F.R. 1502.23).
6881	23	Fred Heutte	NW Energy Coalition	1. The DEIS confirms that dam breaching and clean energy power replacement can maintain electric system reliability while providing the best chance for fish restoration. 2. The DEIS fails to meet energy industry resource planning standards, resulting in numerous inaccuracies and an exaggerated cost for clean energy power replacement. 3. Because the DEIS fails to provide the accurate information needed to make informed decisions, a new, more rigorous study is required. The preceding comments of the Joint Commenters demonstrate conclusively that the DEIS energy analysis failed to meet industry standards and did not achieve optimized, least cost/least risk outcomes for the energy resource portfolios for each of the DEIS alternatives, especially MO3, the dam breach/hydrogeneration retirement alternative. This has resulted in proposed replacement portfolios that are nearly certain to be substandard in performance and excessively high in cost, with 27 BPA Finances and Snake Dam hydroelectric information, G. Douglas Johnson, Senior Spokesman, BPA, March 31, 2020. Joint Commenters Comments on CRSO DEIS April 13, 2020 - Page 56 proportionally excessive costs for	The EIS describes the resource group options that could be used to return regional reliability to the No Action Alternative level available for replacing the capability and other operation changes proposed in MO3, which includes breaching the four lower Snake River dams. One of the resource options the EIS evaluated was a zero-carbon portfolio. The regional rate pressure associated with a zero-carbon resource portfolio ranges between 12 and 50 percent. See EIS, Section 3.7.3.5. The commenters concerns with the range of resource options, the data used to estimate the cost of those options, and the methodology used in the power replacement analysis, are addressed in detail in response to Comment 6881-4. An expanded discussion of the analysis is also provided in Appendix H, Section 2.2.2, of the Final EIS.

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				wholesale and retail electric rates. These failures directly result in the agencies selecting a preferred alternative without adequate justification. Thus, the CRSO DEIS fails to accomplish a hard look at the energy options to mitigate impact to protected species required by the National Environmental Policy Act and the Endangered Species Act. The Joint Commenters recommend that the entire energy analysis be redone for the final EIS, employing comprehensive long-term portfolio analysis consistent with standard industry practices.	
6881	24	Fred Heutte	NW Energy Coalition	The DEIS fails to meet energy industry resource planning standards, resulting in numerous inaccuracies and an exaggerated cost for clean energy power replacement. The errors stem from a failure to adequately consider a full range of possible replacement resources, a failure to optimize the selected replacement resources to achieve the most efficient outcome, and outdated and incomplete cost assumptions for replacement resources. These shortcomings were exacerbated by the use of inconsistent time frames for different elements of the analysis, the use of a static year rather than a multi-year analysis of the replacement portfolio, and by the arbitrary assumption of a 2022 implementation date. The result is an exaggerated estimate of clean energy replacement costs leading to a similarly exaggerated estimate of impacts to consumer electricity bills Because the DEIS fails to provide the accurate information needed to make informed decisions, a new, more rigorous study is required. A study that meets the standards of the regions utilities and the Northwest Power and Conservation Council for integrated resource planning (IRP) would examine energy and capacity needs over a span of 20 years, fully explore demand requirements and resource options, and test and optimize combinations of possible replacement resources. The result would be: Significantly lower costs to acquire wind, solar, storage, and demand-side resources. Less need for new generating and transmission resources because demand response and energy efficiency would make larger contributions than the DEIS assumes. A more efficient and cost-effective system that could improve region-wide reliability and greatly reduce the impact on customer rates.	The commenters concerns with the range of resource options, the data used to estimate the cost of those options, and the methodology used in the power replacement analysis, are addressed in detail in response to Comment 6881-4. An expanded discussion of the analysis is also provided in Appendix H, Section 2.2.2, of the Final EIS.
6885	1	jthompson@washingtonports.org	Washington Public Ports Association	Climate Impacts We request the action agencies to reconsider the centrality of climate impacts in their analysis. The DEIS does not adequately evaluate the climate-related consequences on salmonids listed under the Endangered Species Act. Scientific uncertainty is the likely reason for this omission. However, it seems clear today that the greatest single risk to the survival of these species in the mid- to long-term is climate change. We request the DEIS be modified to utilize climate risk as an organizing principle and critical factor used to evaluate competing alternatives and actions. Missteps on climate jeopardize the billions of dollars that have been invested as well as the resulting achievements.	The technical and policy elements of this Draft EIS are in full compliance with binding USACE policy and guidance for qualitative assessment of climate threats and their plausible effects and impacts. The primary controlling policy and guidance are the USACE Climate Adaptation Policy Statement, signed by the Assistant Secretary of the Army for Civil Works in 2011, updated and signed again in 2013, and remains in force now; and USACE Engineering and Construction Bulletin 2018-14, "Guidance for Incorporating Climate Change Impacts to Inland Hydrology in Civil Works Studies, Designs, and Projects." The numerical-model simulated outputs were evaluated by multiple technical means (see record of the full USACE Agency Technical Review), and were tested using the set of analytical measures created by the USACE Climate Preparedness and Resilience program to ensure that sound science and engineering compliance with USACE climate change policy and guidance. The assessment of climate threats and impacts is qualitative only in the sense that the biological and other impacts models did not directly ingest the physical hydroclimatology outputs modeled for the assessment. Those hydroclimatology outputs are fully quantitative and so can be the basis for refined estimates of effects and impacts should those be required following this Draft EIS. Water temperature modeling for each alternative is described in Chapter 3, however, as you note it was not conducted for conditions of future climate change. Information to develop, drive, and analyze specific projections of future water temperature and fish characteristics were not available on the timeline of this report.
6885	2	jthompson@washingtonports.org	Washington Public Ports Association	Social Costs of MO3 We urge the action agencies to re-evaluate the social consequences caused by removing facilities on the Lower Snake River considered in Alternative MO3. Social science literature establishes a causal link between profound personal and social costs that result from economic disruption on this scale. The toll includes increased suicide rates, increased addiction rates, increased domestic violence rates, increased incarceration rates and reduced lifetime earning potential. Sadly, effects of these disruptions are not limited to adults. Research conclusively demonstrates ongoing epigenetic consequences affecting generations far into the future. Preventing adverse childhood experiences is the central objective of state social service programs designed to break the cycle of abuse, neglect and the resulting cycles of violence and dysfunction. The out-migration of talent creates a self-reinforcing downward spiral in communities that cannot be staunched by short-term mitigation strategies. We recognize this pattern elsewhere in the Pacific Northwest and across the country as small communities have lost or had their economic bases eroded. Social science literature predicts shattering consequences for the small communities that rely on the river for their livelihoods. The DEIS must more fully account for these profound and long-lasting effects.	Section 3.10 of the Draft EIS describes the commercial and regional importance of the Snake River as part of the Columbia Snake Navigation System, as well as its relative efficiency, low costs for shippers, and relatively low air emissions relative to other transportation modes. The EIS also evaluates the additional transportation infrastructure investments that would be required, as well as the increases in air emissions that would occur. Additional regional economic impacts of these potential changes are discussed in section 3.10.3.5. Other social effects are described in section 3.10.3.5, including transitions of port communities that have evolved to be dependent on the current state of the river.
6885	3	jthompson@washingtonports.org	Washington Public Ports Association	Stranded Assets Resulting from MO3 Small communities have invested scare public resources to construct assets that form the core of their local economies. Public and private investments in marinas, parks and other public spaces, cruise facilities, storage terminals and transshipment infrastructure will be stranded, i.e. of no productive value. WPPA, in WPPA - CRSO Comments April 13, 2020 Page Three coordination with the Washington State Freight Mobility Strategic Investment Board completed the most recent update of the Marine Cargo Forecast & Rail Capacity Analysis (MCF) in 2017. Chapter 7 of the report identified and documented commercial infrastructure important to trade and goods movement in Washington including those facilities along the Snake River. We request the action-agencies modify the DEIS to more completely reflect the current and future economic value of these facilities that would be lost by dam breaching considered in MO3.	The EIS does broadly identify ports and recreation areas that are anticipated to be negatively impacted by MO3. If MO3 was selected and authorized by Congress, an implementation plan would be prepared that would include site specific information that details the construction, breaching, disposal, and mitigation actions required to implement MO3, as well as identifying all of the associated permitting for this action. The demand for waterway transportation is influenced by many factors, both related to the river operations and competing modes. In many cases, that demand is affected by private sector choices (investments by Class I railroads, construction of shuttle rail elevators by grain companies) that are largely difficult to predict into the future. The approach taken in the EIS is to utilize historical volumes as a barometer of what generally has been demanded and to provide impacts relative to that since it is known with certainty. That being said, in order to better characterize the level of uncertainty in which impacts should be considered, additional information has been added to the Navigation Appendix that puts the findings into context using recent historical highs and lows as a guide.
6885	4	jthompson@washingtonports.org	Washington Public Ports Association	Consequences for Tourism and Recreation of MO3 The MO3 analysis of Snake River recreation in the DEIS does not adequately recognize its importance to the Lower Snake River region. The analysis underestimates the number of facilities and the cost of mitigation that would be needed in this Alternative. The evaluation of land-based alternatives fails to understand important features of geography and climate. It is critical that the DEIS fully reflect mitigation needed to offset the impacts of this alternative, including: 1. Investment in new river access, including roadways and boat ramps. The DEIS does not specifically identify the costs or source of funding for these facilities. 2. Facilities abandoned by the U.S. Army Corps of Engineers will be orphaned and their economic benefits lost. Visitation at these locations totaled over 1.7 million visits in Fiscal Year 2018. The DEIS should identify the source of funding to preserve these facilities, including a plan that protects their future viability. 3. Prevailing winds will increase fugitive dust as a result of exposed sediments. The DEIS does not adequately evaluate the public health consequences nor does it identify a program or funding to eliminate the impact on any remaining river-based recreation. Absent a programmatic response the value of the recreation amenity will be reduced and local air quality will be degraded. 4. The DEIS overstates the potential for improved recreational and tribal fishing. The removal of facilities on the Lower Snake River will bring an end to mitigation funding from the Bonneville Power Administration and would curtail access to mitigation funding from this source, including support for hatchery facilities. 5. We ask the action agencies to modify the DEIS as it related to land-based recreation. The DEIS does not identify an ongoing source of funds to support a shift to this use. As a practical matter, the coincidence of the summer recreational season with summertime temperatures that often exceed 100 degrees and a lack of natural shade create an inhospitable environment for this purpose. 6. The DEIS should reflect an accurate assessment of the number of cruise boat passengers traversing the Lower Snake River and fails to mention Clarkston, Washington as an important location for embarkation/debarkation. This oversight would result in an underestimated economic and social value of this activity. 7. Finally, the DEIS would benefit from a more complete evaluation of the consequences of this alternative on nationally-designated recreation sites. These include the Clearwater & Snake River National Recreation Trail and the Hells Canyon National Recreation Area. The Clearwater Snake Trail hosts regional middle school, high school and college track meets, attracting thousands of visitors to the region to participate in or watch competitions. Accessible only by water, Americas deepest gorge attracts visitors from around the world.	Chapter 5 in the EIS describes the proposed mitigation measures under each of the MOs. Section 5.4.3.6 describes the potential for mitigation measures for recreation under MO3. Mitigation by the co-lead agencies is not anticipated under MO3 to maintain access to the river. Since the lower Snake River projects would be deauthorized, the co-lead agencies would no longer operate the project lands for recreation. After project lands have been transferred to other agencies and/or entities, recreational sites and associated facilities could be modified as determined by others. If breaching were to be selected as the Preferred Alternative, further evaluation, studies, and NEPA would be needed along with congressional authorization and appropriations to implement the alternative. At this time, there is no mitigation proposed for adverse effects to recreation because the co-lead agencies would no longer operate the project lands after the projects are deauthorized. The EIS provides an evaluation of the social welfare and regional economic effects of the No Action Alternative and the multi-objectives alternatives, including the effects on recreation (Section 3.11) and fisheries (Section 3.15). The EIS described the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. NMFS estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which is described qualitatively. The potential for changes in recreational fishing of anadromous fish under MO3 in the Region C is described in Section 3.11. Increases in recreational fishing could support jobs, income, and social benefits in Tribal and rural river communities. For the effects on recreational fishing under MO3 (Section 3.11.3.5) along the Lower Snake River below Lewiston, the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River) as an indicator for fishing visitation in this reach. The EIS describes that the visitation in the long-term in the lower Snake River, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting outfitting and tourism businesses in the region. However, there is uncertainty around recreational fishing visitation in the long-term given the current measures to regulate, protect, and support ESA-listed fish populations and habitat in the region. Based on the evaluation in the Fish Section, which describes major and beneficial impacts to anadromous fish in the Snake River under MO3, a focus on salmon and steelhead fishing in this region was evaluated for the No Action Alternative and MO3 (see discussion in 3.11.3.2 and 3.11.3.5). The potential for visitation under MO3 in the lower Snake River in the long-term is predicated on that access would be developed for the resource. As described in Section 3.11.3.5, access to the river and its recreational opportunities will be paramount for the reestablishment of river visitation to the lower Snake River. For example, parking lots, boat launches, new trailheads, access roads, etc., would need to be developed to facilitate the drawing of visitors to the region. In addition, examples of the costs that would be incurred are provided. As described previously, further studies and NEPA would be conducted if MO3 were chosen for implementation. Regarding hatchery impacts associated with MO3, as described in Section 3.5, the co-lead agencies anticipate that changes in hatchery funding may occur as needs and obligations shift. The co-lead agencies do not anticipate that hatchery operations would be shuttered. As noted in Section 3.5, the co-lead agencies also recognize that there would be transitional needs that would be addressed in the additional mitigation measures for MO3 discussed in Chapter 5. Additionally, the Bonneville F&W Program funding for offsite mitigation projects in the Snake River Basin, implemented by local, state, Tribal, and Federal entities, would be reviewed, and potentially adjusted. Any changes of this nature would be implemented over time as the effectiveness of dam breaching is observed and would be done in consultation with fish and wildlife managers, regulatory agencies, and the Northwest Power and Conservation Council. Consistent with this, offsite mitigation projects for the other CRS dams would be reviewed and could be adjusted as operations change over time. Proposed project modifications would be coordinated with project sponsors and regional stakeholders to determine appropriate funding levels. Although Bonneville's funding of the Lower Snake River Comp Plan hatcheries would no longer be authorized under MO3, remaining fish hatcheries would continue to produce fish and other Federal or state entities may continue funding the hatcheries. Regarding cruise ships, this activity is addressed in Section 3.10 Navigation and Transportation. Clarkston, Washington, and its role as a primary point of debarkation, is described in Section 3.10.3.2. Impacts on the industry, including Clarkston, are described in Section 3.10.3.5.
6885	5	jthompson@washingtonports.org	Washington Public Ports Association	The DEIS incorporates state-of-the-art scientific evaluations of the tradeoffs among alternatives. WPPA is not qualified to comment of the substance of this ongoing work. However, we believe the DEIS should tell the story of what has been achieved through the investment of public resources. Billions of public dollars have been invested in order to restore the fish production capacity of the Columbia and Snake River systems. These investments have had a tremendous impact on the efficiency of fish passage through the dams on the Lower Snake River. As a result, juvenile passage at Ice Harbor (95% in 2007 study), Lower Monumental (99% in 2012 study), Little Goose (98% in 2012 study), and Lower Granite (97.5% in 2008 study) has shown dramatic improvement since the early 1990s (U.S. Army Corps of Engineers data). Hydropower system revenues have also supported considerable public investments in habitat restoration and hatchery production of salmon and steelhead to improve the restoration of runs in the Columbia and Snake Rivers. The public would benefit from a better understanding of what has been achieved as a result of their investments. We request this information is included in the DEIS. Much has been accomplished through enormous public investment. The successes that have been achieved are important context for the public and decision makers going forward. Much has been accomplished within the context of current operations.	Current and anticipated future fish and wildlife mitigation measures and operations are described under the No Action Alternative, Section 2.4.2. Many of the structural and operation measures are carried forward and proposed to be implemented or expanded under the Preferred Alternative (See Section 7.6). Funding of fish and wildlife mitigation actions and programs is described in Appendix Q, Section 6.1 and Table 6-1. Additionally, Section 5.2.1 describes the existing mitigation programs under the No Action Alternative and provides a high-level summary of some of the accomplishments stemming from the significant Federal investment to date. Since the 1990s, the Federal agencies have overhauled system operations and infrastructure, achieving juvenile dam passage survival that meets or exceeds performance standards of 96% and 93% for spring and summer migrants respectively, a marked improvement as compared to when Congress passed the Act and the estimated average juvenile mortality at each mainstem dam and reservoir project was 15%20% with losses recorded as high as 30%. Travel time improved for yearling Chinook and juvenile steelhead through the system, even in low flow years such as 2015, and total In-River survival has improved for migrating juvenile salmon and steelhead. Comparing two time periods reported in NOAAs reach study (19972007 and 20082016), there has been a 10% survival increase for hatchery and wild sockeye salmon, a 2% increase in hatchery and wild Chinook (4% for wild), and a 25% survival increase for hatchery and wild steelhead (13% for wild).
6885	6	jthompson@washingtonports.org	Washington Public Ports Association	Commercial Goods Movement & Transportation Infrastructure While the DEIS accounts for wheat that is transported on the Snake River, the alternatives analysis does not account for any other commercial goods movement today or in the future. Chapter 4 of the MCF highlights the historical trends and provides a 20-year forecast for movement on the Columbia/Snake River System. Under each of the growth scenarios performed for the	In 2018, 72 percent of overall freight volume on the Lower Snake system traveled downriver, the majority of which (87 percent) was wheat and barley. As discussed in Section 3.10.2.1 of the Draft EIS, 28 percent of overall freight traveled upriver. In 2018, 25 percent of overall freight on the Lower Snake River was petroleum products that terminated below Ice Harbor Dam. These shipments do not utilize the Snake River locks and would not be directly affected by dam removal under MO3. This was unclear in some instances in the Draft EIS, and has been corrected and clarified in Section 3.10 and Appendix L. Other commodities that utilized the Snake River system included pulp and paper products (4 percent) as well as chemicals and

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				study, tonnage using the Snake River, also known by its Marine Highway designation as M-84, is expected to grow. WPPA requests the DEIS more accurately account for commercial activity using the Columbia/Snake River System. WPPA believes the MO3 analysis significantly understates costs to maintain, modernize and in some cases rebuild alternative transportation infrastructure to replace goods movement along the Snake River. Many roads in the region are not all-weather and cannot accommodate increased freight shipment, particularly on a year-around basis. Furthermore, the states rail system has either insufficient capacity, significant backlog in maintenance or has been deemed surplus and abandoned. Again, Chapter 6 of the MCF highlights existing and future capacity, including expected constraints on the states Class I rail network through 2035. The report shows that while existing capacity is sufficient, even modest future growth will require new infrastructure capacity to accommodate future commercial activity and goods transport. The analysis conducted for the MCF does not contemplate conversion of tonnage currently being transported on the Snake River to all rail or truck-to-rail modes. This would most assuredly require immediate new Class I infrastructure to support increased tonnage as a result of MO3. In addition to the need for additional Class I railroad infrastructure, Class III, also known as shortline rail infrastructure has not been maintained adequately to allow for significantly increased tonnage brought on by MO3. Washington State Department of Transportation has documented the condition of the states shortline railroads in several plans, including the Washington State Rail Plan, the Shortline Inventory and Needs Assessment as well as well as the Palouse River and Coulee City Rail System Strategic Plan. These plans document millions in backlogged maintenance and preservation needs that would be required to support a modal conversion away from the current river transport. In certain cases, rail infrastructure may need to be rebuilt, as much of the rail system supporting the Palouse region of Washington has been abandoned. All WPPA - CRSO Comments April 13, 2020 Page Five told, the cost to increase capacity on Washington states road and rail network to support MO3 is vastly larger than that contemplated in the DEIS. WPPA requests the action agencies review the costs of infrastructure improvement associated with MO3. An area of significant concern to WPPA and our members is a lack of clarity around the analysis of transportation cost increases anticipated by MO3. Again, Chapter 4 of the MCF discusses the critical role the Columbia/Snake River System play in reducing shipping costs for all commodities and goods moved along the river system by providing competition between barge, rail and truck transportation modes. WPPA appreciates the DEIS considering multiple scenarios of cost increases but believes the analysis does not adequately incorporate the compounded impact that such increases (50% or higher increase in shipping costs) would have on the industries that rely on river transportation to manage costs. WPPA requests the action agencies more thoroughly analyze and model increases expected under MO3.	iron/steel commodities (8.5 percent), some of which also terminate below Ice Harbor Dam. To the extent that these shipments utilize the Snake River locks and dams, they would be affected under MO3 by increased transportation costs. These potential effects are discussed qualitatively in Section 3.10.3.5. In terms of forecasting freight volumes, the EIS recognizes that demand for waterway transportation is influenced by many factors, both related to the river operations and competing modes. In many cases, that demand is affected by private sector choices (investments by Class I railroads, construction of shuttle rail elevators by grain companies) that are largely difficult to predict into the future. The approach taken in the EIS is to utilize historical volumes as a barometer of what generally has been demanded and to provide impacts relative to that since it is known with certainty. That being said, in order to better characterize the level of uncertainty in which impacts should be considered, additional information has been added to the Navigation Appendix that puts the findings into context using recent historical highs and lows as a guide. Reviewing the MCF, it is noted that WPPA forecasts a range a 2.3 million metric tons to 3.1 million tons in 2035. This is consistent with the 2.4 million tons assumption utilized in the EIS TOM analysis in Section 3.10. Both the MCP and EIS under MO3 anticipated that some investment in rail, road and elevator capacity will be needed. The MCF does not indicate where or how much of such investment is warranted (Chapter 6). Their general statements about impacts and need for supply chain investments provide no further information on cost estimates than the most recent details utilized in the EIS. The impact on shippers was the focus of the models analysis, so industries that rely on river transportation to manage costs were considered. Capacity impact were discussed following the models findings. How rail rates would change without lower Snake River shallow draft barging can not bet known with certainty. Therefore, in order to evaluate the impacts of potential rate increases, a range of rail rate increases are evaluated, from 0 to 50 percent. As the modeling effort shows, if rail rates are not increased freight volume would likely exceed current capacity, which would put upward pressure on rail rates. If rail rates increase by 50 percent, truck transport would be relatively attractive to shippers, which would put competitive pressure on rail companies not to increase rail rates much higher. As such, the modeled range of increased rates appears reasonable. The EIS acknowledges that depending on how rail rates respond to dam breach, shortline rail capacity could be exceeded. Under low rail rate increase scenarios, additional shortline rail capacity would be required that could cost $25 to $50 million. Under a scenario where rail rates increase by 50 percent, more shipping demand would be transferred to trucks, reducing the demands on rail infrastructure, but increasing demands on roads. Under this scenario, up to $10 million in additional road maintenance costs may occur. It should be noted the co-lead agencies had discussions with WSDOT colleagues during the preparation and considered their information in developing road maintenance cost estimates. The EIS analysis finds that transportation of freight that is currently barged on the lower Snake River could be accomplished via other transportation modes, but this change would not be without costs to farmers, would require public and private investment in infrastructure, and would result in some adverse regional economic effects, particularly in the short term. Ultimately, rail infrastructure investments would be at the discretion of the railroads. The EIS finds that average transportation costs for wheat farmers would increase 10 to 33 percent, but that individual farmers could experience increases that are doubled, depending on their specific location and other conditions.
6887	1	N/A	N/A	The DEIS doesnt mention load following operations or providing ancillary services; power peaking is mentioned only once (p. 26) and then wholly in the context of the dispatchable power that would lost with breaching ACOEs four lower Snake River projects. The DEIS totally fails to address any of the environmental impacts of the CRS most basic day-to-day operations on the environment.	This response assumes the comment is in regards to the Executive Summary, given the comment reference to page 26. While it is true that the Executive Summary does not discuss load-following, Chapter 2, Alternatives, specifically Section 2.4.2.1, subsection on Power System Operations, on pages 2-23 to 2-25 in the Draft EIS, discusses load following in the context of the No Action Alternative. Appendix J, Hydropower, Chapter 4.3, discusses the changes in system flexibility for following load and for integrating variable renewable energy generation. The impacts of load following and potential changes in load following on other resources are discussed in the respective sub-sections of Chapter 3, e.g., Section 3.6 on Vegetation, Wetlands, Wildlife and Floodplains.
6887	2	N/A	N/A	This glaring omission is also evident in all of the DEIS discussions of wind (and solar) integration. See Executive Summary, p.4, 21, 26, 27, 31.	See response to preceding comment, Comment 6887-1.
6887	3	N/A	N/A	ACOE, BOR and BPA should take a hard look at such impacts and reformulate their alternatives so as to avoid and/or mitigate the deleterious impacts of changes in projects discharges due to load following, power peaking and, now, integration of wind and solar resources.	The comment does not indicate what deleterious impacts of changes in project discharges are of concern. Grand Coulee ramping rates incorporate tailwater restrictions imposed by the Geological Survey Office in Denver, CO, to prevent bank sloughing below Grand Coulee dam. Other project ramping rates incorporate concerns around public safety for recreation downstream and other uses. Daily and hourly ramping rates may be exceeded during flood emergencies to protect health and public safety and in association with power or transmission emergencies. Otherwise, ramp rates are followed except when they would cause a unit(s) to operate in the rough zone. The rough zone is a zone of chaotic flow in which all parts of a unit are subject to increased vibration and cavitation that could result in premature wear or failure of the units. Impacts to resources affected by power operations, including ramping rates are included in Chapter 3 (e.g., Section 3.6 Vegetation, Wildlife, Wetlands and Floodplains). For additional information on ramping rates, see Chapter 2.
6894	1	ericquaempts@ctuir.org	Confederated Tribes of the Umatilla Indian Reservation Department of Natural Resources	The attached comments are technical in nature and self-explanatory. However, the ability of the CTUIR to meaningfully participate in the CRSO process was materially hampered by the arbitrary shortening of the review period by the administration and Lead Agencies.	This NEPA process included a wide array of cooperating agencies whose close involvement throughout the process allowed the co-lead agencies to incorporate feedback. Given the broad range of comments received and the extensive Federal and non-Federal participation in the overall process as well as the level of public engagement in the six virtual public meetings in the region, the co-lead agencies determined that an extension was not warranted and that the 45-day public comment period was adequate consistent with NEPA regulations. On April 9, the CRSO EIS website was updated to inform the public that they should plan to submit comments by the close of the comment period.
6894	2	ericquaempts@ctuir.org	Confederated Tribes of the Umatilla Indian Reservation Department of Natural Resources	The CTUIR DNR looks forward to written responses to our concerns and resolution in the final document.	See response to Comment 6894-2.
6894	3	ericquaempts@ctuir.org	Confederated Tribes of the Umatilla Indian Reservation Department of Natural Resources	Disclosure and Analyses of Significant Issues The process for assembling and analyzing the alternatives failed to distinguish truly significant issues from non-significant issues. There was also a failure of cooperative consultation, which should be emphasized in a NEPA process. 40 CFR 1501.1(b). As a Cooperating Agency, we were expected to raise questions about the environmental reviews and information gaps. 40 CFR 1503.3 (c). Questions we raised throughout the process, and comments submitted, were often disregarded or ignored by the staff of the co-lead agencies (US Army Corps of Engineers, Bureau of reclamation and Bonneville Power Administration) leading the EIS process. In the end, the co-leads provided effectively no feedback to cooperating agencies on whether our comments and suggestions were incorporated in the analysis or not, and why or why not. The timeline for the CRSO EIS also precluded transparent and meaningful analysis, review, dialogue and collaboration. The Trump administrations October 2018 Executive Memorandum on Promoting the Reliable Supply and Delivery of Water in the West, arbitrarily imposed an inadequate timeline on the development of the CRSO EIS, substantially shortening the timeline established by the United States District Court for the District of Oregon. The current comment deadline fell during spring First Foods ceremonies, the day after Easter, and during Passover.	The co-lead agencies invited a number of entities (including Tribes, states, and agencies) from across the region to participate in the EIS process as cooperating agencies, and over 30 of those invited agreed to participate. Staff from the cooperating agencies joined the technical teams and provided their expertise and review of the development and analysis of the alternatives. Leaders from the co-lead agencies met with Tribal leaders for formal consultation, and with other organizations and stakeholders to have dialogue and receive feedback as the EIS progressed. The co-lead agencies selected senior staff from across the country with expertise in their fields to serve on the EIS team. The Draft EIS was subject to two internal agency reviews by the Corps of Engineers experts not involved in the development of the document. Additionally, the entire document, analysis, and modeling were reviewed following an Independent External Peer Review (IEPR) process that meets OMB circular on peer review requirements under the "Information Quality Act" and the Final Information Quality Bulletin for Peer Review by the Office of Management and Budget (referred to as the "OMB Peer Review Bulletin). It also meets guidance for the implementation of both Sections 2034 and 2035 of the Water Resources Development Act (WRDA) of 2007 (Public Law (P.L.) 110-114) and standards of the National Academy of Sciences independent peer review. The final IEPR report will be publicly available. The co-lead agencies considered requests to extend the public comment period. This NEPA process included a wide array of cooperating agencies whose close involvement throughout the process allowed the co-lead agencies to incorporate feedback. Given the broad range of comments received and the extensive Federal and non-Federal participation in the overall process as well as the level of public engagement in the six virtual public hearings in the region, the co-lead agencies determined that an extension was not warranted and that the 45-day public comment period was adequate consistent with NEPA regulations. On April 9, the CRSO EIS website was updated to inform the public that they should plan to submit comments by the close of the comment period.
6894	4	ericquaempts@ctuir.org	Confederated Tribes of the Umatilla Indian Reservation Department of Natural Resources	Moreover, the tribes and other sovereigns in Pacific Northwest are prioritizing the health and safety of the people in responding to the COVID-19 emergency. Since February 28, almost 22,000 people within the United States have died as a result of COVID-19 infections. https://www.cdc.gov/coronavirus/2019-ncov/cases-updates/cases-in-us.html (last visited April 13, 2020). Adherence to the CRSO timeline and associated comment deadlines during the COVID-19 pandemic further compounded the flaws of the DEIS. As a result of the COVID- 19 pandemic, elected officials have little time for policy consideration of the DEIS. Mandated social distancing measures prevent meaningful government-to-government consultation on the DEIS. The broad disruption caused by the COVID-19 emergency frustrated the ability of the tribes and the public to provide input on the DEIS. Despite these complications, the federal government refused to suspend the CRSO EIS process or extend the public comment deadline, despite repeated requests by multiple sovereigns.	The co-lead agencies considered requests to extend the public comment period. This NEPA process included a wide array of cooperating agencies whose close involvement throughout the process allowed the co-lead agencies to incorporate feedback. Given the broad range of comments received and the extensive Federal and non-Federal participation in the overall process as well as the level of public engagement in the six virtual public meetings in the region, the co-lead agencies determined that an extension was not warranted and that the 45-day public comment period was adequate consistent with NEPA regulations. On April 9, the CRSO EIS website was updated to inform the public that they should plan to submit comments by the close of the comment period.
6894	5	ericquaempts@ctuir.org	Confederated Tribes of the Umatilla Indian Reservation Department of Natural Resources	Structural Flaws Many of the structural flaws in the DEIS are broad and are programmatic or policy in nature. These flaws typically affect more than one chapter of the DEIS. These flaws include a narrow purpose and need statement, a failure to study all reasonable or viable alternatives, and a lack of rational explanations for alternatives not studied. Further, much of the DEIS suffers from a preference for technical detail over analysis of the programmatic issues, including but not limited to the Columbia River Fish Mitigation (CRFM) program, lamprey restoration program, and the analysis for Upper Columbia salmon and steelhead stocks. Another structural flaw is that the co-lead Agencies incomplete or inaccurate understanding of the CSS, COMPASS and HEC-WAT analytical models resulted in a confusing, albeit detailed, assemblage of model results without clear analysis of their implications, limitations and relevance to the objectives of each alternative. Additionally, the DEIS fails to analyze impacts to fishery management or harvest opportunity. The tribal harvest should be included in the baseline. The lack of harvest opportunity analysis runs counter to the Tribal Perspectives of the Columbia River Treaty Tribes, as well as the goals for non-Indian fisheries (and the corresponding economic effects of the non-Indian fisheries). The discussions in the Affected Environment sections do not meaningfully depict the nature and extent of the impacts that the Basins hydro system has had on the Columbia Basins anadromous fish. Meaningfully depicting these impacts cannot be avoided. Under NEPA, regardless of the selection of the baseline, all cumulative effects must be revealed.	As is common in NEPA analyses, the beneficial and adverse effects of the alternatives are expressed as a variety of qualitative and quantitative environmental and economic metrics throughout the EIS to inform decision-making, including the effects of the alternatives on fish as detailed in Section 3.5. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-lead agencies numerous legal obligations. The Preferred Alternative is predicted to benefit ESA-listed juvenile and adult anadromous salmonids (two of the objectives) as well as the objectives for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. Table 7-1 in Chapter 7 in the Draft EIS provides a summary of the beneficial and adverse effects of the alternatives, including the quantified social welfare costs and benefits for a number of the resource areas as well as the implementation costs of the alternatives. To achieve a broad range of alternatives, the co-lead agencies collaborated with cooperating agencies in teams of technical experts through several iterations to create 12 alternatives that could meet the CRSO EIS Purpose and Need Statement: first, the eight single objective alternatives (SOs), and then four Multiple Objective alternatives (MOs). After completing the effort to develop the SOs and MOs, the co-lead agencies evaluated all 12 alternatives against screening criteria of completeness and efficiency. Completeness was used to evaluate the extent to which a given alternative provides and accounts for all actions to meet most or all objectives, and thereby satisfying the Purpose and Need Statement. Efficiency was considered as how well (without duplication of effort) an alternative would meet objectives. Usually, cost effectiveness is part of this consideration, but costs were not available at the early screening of alternatives. In this case, efficiency was based on efficiency of analysis of measures and the elimination of duplication of effort. A detailed descriptions of the single objective alternatives and their measures are located in Appendix A, Alternatives Development. A description of the alternatives removed from further consideration is in Section 2.4. The co-lead agencies recognize the importance of Pacific lamprey and will continue to work with CRITFC, CRITFC member tribes, and regional entities through existing frameworks such as the Corps-Tribal Lamprey Work Group, the Pacific Lamprey Conservation Initiative and the Corps Regional Forum workgroups (e.g., FFDRWG) to implement ongoing programs, as well as the lamprey measures described in the Preferred Alternative.

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					The analyses completed and described in this Draft EIS were for the purposes of comparing the effects of the multiple objective alternatives for operation, maintenance, and configuration of the CRS projects to one another and to the No Action Alternative. The measures in the Draft EIS to meet the objective of improving conditions for Pacific lamprey were developed to address issues described in the Affected Environment and Effects of the No Action Alternative. These measures were designed to work in concert with the ongoing mitigation programs related to lamprey, such as habitat restoration, reintroduction and translocation, and other efforts. Measures identified in the Draft EIS do not include all lamprey passage improvements that could be potentially implemented at the lower Columbia and lower Snake River dams, but the Corps believes that potential actions contemplated in preliminary lamprey program planning discussions with CRITFC staff and others related to the 2018 Accords Extensions are consistent with the measures and analyses included in the Draft EIS. Lamprey measures identified in the Draft EIS (and similar operational or structural measures) do not include research, monitoring or evaluation actions that may be needed to refine passage designs, inform operations, or address critical uncertainties. This includes the juvenile lamprey and adult lamprey migration behavior and fate studies identified in the 2018 Accords Extensions and in subsequent program planning and coordination discussions with CRITFC and others. For the purposes of the Draft EIS, measures must address known operational and structural issues, but this does not preclude development and implementation of future juvenile and adult lamprey studies. For Columbia River System dams, it is accurate to note that CRFM annual appropriations have declined over the past couple years and are projected to remain lower into the near future. However, a reduced reliance on the CRFM program into the future is a result of significant investments in construction of components of the dams for the benefit of improved salmon passage. The Corps CRS fish program is now transitioning to a program that is expected to be primarily sustained through long-term Operations and Maintenance funding. For future construction requirements aimed at improving anadromous fish passage throughout the CRS, the Corps will continue to express capability in the annual budgeting process. Implementation of all measures including lamprey measures is dependent on funding availability. In 2020, the Corps did receive $20M in funding to implement actions contemplated in the 2018 Accords Extensions. As noted by CRITFC, and in similar comments from CTUIR, the Corps is currently refining cost estimates and developing a preliminary implementation plan for this $20M program. The Corps will continue to coordinate closely with CRITFC and other Accords tribes on prioritization of actions within this program and will continue to ensure consistency with measures identified and analyzed in the Draft EIS. Additional information on CRFM is included in Chapters 2, 5 and 7 of the EIS. Tribal input, concerns, interests, and especially treaty rights were considered throughout the Draft EIS analyses and in the formulation of the Preferred Alternative. Treaty specific information is included in Section 3.17 as well as Chapter 7. The treaties bind all parties and are the supreme law of the land. The co-lead agencies recognize and respect that supremacy. In terms of honoring our treaty obligations, the co-lead agencies included Protecting Native American treaty and reserved rights and fulfilling trust obligations for natural and cultural resources throughout the environment affected by the Columbia River System operations as a purpose in the Purpose and Need Statement in Chapter 1 to ensure treaty obligations were a key consideration of decision making. The co-lead agencies are engaging in government-to-government consultation with the tribes, and several tribes are cooperating agencies on the CRSO EIS. The EIS recognizes the economic and cultural importance of salmon to Tribes in a number of sections throughout the document. The cultural significance and impacts of salmon and steelhead fisheries are described in the Ceremonial and Subsistence Fisheries sub-section and the Social Importance of Commercial, Ceremonial and Subsistence Fisheries sub-section of Section 3.15.2.1. Fisheries tribal interests are provided in Section 3.15.4 additional details regarding the economic significance of salmon and steelhead fisheries have been added to the recreation analysis (Section 3.11) including tribal interests (Section 3.11.3.7). Treaty rights are discussed in the Executive Summary, Section 3.16 Cultural Resources, and Section 3.17 Indian Trust Assets, Tribal Perspectives, and Tribal Interests. Appendix P includes copies of tribal perspectives that were submitted by tribes. Tribal consultation is described in Sections 1.5, 3.5, and 3.15; and Chapter 9. Most sub-sections within Chapter 3 include a Tribal Interests section at the end of the sub-section that attempts to summarize tribal issues by topic.
6894	6	ericquaempts@ctuir.org	Confederated Tribes of the Umatilla Indian Reservation Department of Natural Resources	Poor Analysis of Mitigation The CEQ regulations concerning mitigation describe several types of mitigation actions at 40 CFR 1508.20. As pointed out in the DEIS, these include rectifying the affected environment and compensating for the impacts to resources of concern. The omission of ongoing mitigation from the DEIS and the limited scope of proposed mitigation are major issues that need to be rectified. Further, there is no alignment of identified impacts with proposed mitigation. Specific impacts are identified in Affected Environment, but there is no reference to those impacts in the mitigation chapter. The mitigation chapter does not reflect the significant input requested of, and provided by, the Cooperating Agencies. Finally, the DEIS uses the No Action Alternative (NAA) as a baseline for mitigation obligations. This NAA was already deemed inadequate by the District of Oregon. The DEIS fails to present any alternative with adequate mitigation measures.	NEPA requires that all relevant, reasonable mitigation measures that could diminish the adverse impacts of the project be identified in the document, even if they are outside the jurisdiction of the lead agency or the cooperating agencies. See 40 C.F.R. 1502.16(h) and 1505.2(c); 46 Fed. Reg. 18026. The inclusion of mitigation measures in Chapter 5 is not intended to indicate that the co-lead agencies, or the Federal government as a whole, have the authority to perform all of the measures listed. If the measures are outside the jurisdiction of the co-lead agencies, those measures will not be included in the Preferred Alternative or Record of Decision (ROD). Their inclusion in Chapter 5 serves to alert other agencies, officials, and the public who can implement the measures to the potential benefits of the measure. Ongoing mitigation is provided in Chapter 5 of the EIS. NEPA does not require identification of mitigation for the continuation of the No Action Alternative. The co-lead agencies, in coordination with technical teams, including the cooperating agencies, compiled lists of all potential suites of mitigation measures. Then, in comparison of the effects of each alternative to the No Action Alternative, highlighted where there were minor, moderate, and major adverse effects. If adverse effects were negligible or minor but otherwise not measurable, and the resource did not otherwise have institutional or legal significance (i.e. wetlands), then mitigation was not proposed. If, when compared to the No Action Alternative, there were moderate or adverse effects, the teams developed appropriate mitigation of type and scale. The suite of mitigation measures to select from were in the team's developed mitigation tool box (Appendix R, Part 3), which also presents rationales for not carrying forward mitigation measures.
6894	7	ericquaempts@ctuir.org	Confederated Tribes of the Umatilla Indian Reservation Department of Natural Resources	Bias in Language and Model Results Improperly Influenced Results As noted above, the DEIS fails to adequately explain the differences between COMPASS and the CSS data and complexity, and what those differences mean for the model results. Further, the description of model effects is biased and inconsistent, in favor of uses and objectives other than fish and wildlife. This is also apparent in the level of detail given to various impacts. For example, the Executive Summary goes into great detail on impacts to power rates from the measures, but only gives a general discussion for other affected purposes.	The Comparative Survival Study model was run by the Fish Passage Center; and the COMPASS and Life Cycle models were run by NMFS's Northwest Fisheries Science Center for the co-lead agencies. Different models predict different long-term survival benefits to ESA listed species from dam breach, benefits that can contribute to recovery. Under the NMFS COMPASS model, juvenile Snake River Spring/Summer Chinook in-river survival would improve by 9.6% due to dam breach, which is a 19% relative increase over the No Action Alternative. The NMFS Lifecycle Model predicts an increase in adult returns of 13.6% for these same fish under MO3 (no latent mortality assumed) relative to the No Action Alternative (from 0.88% to 1%). Results for Snake River steelhead are similar (10% absolute improvement, or 23% relative juvenile survival increase - Smolt-to-Adult returns (SARs) for steelhead were not modeled). Under the CSS model, juvenile in-river survival for the Snake River Spring/Summer Chinook is predicted to improve by 10.4% due to dam breach, which is an 18% relative increase over the No Action Alternative, while SARs would increase by 115% (from 2% to 4.2% 0.02 to 0.042). The CSS model predicts that Snake River steelhead would see juvenile survival increase by 25.8% which is a 46% relative increase over the No Action Alternative. The CSS model also predicts that SAR increase by 177% (from 1.8% to 5%). Though differing in predictions, both modeling groups predict dam breaching is the best CRSO EIS alternative for salmon and steelhead. One simply predicts adult return increases an order of magnitude higher than the other. The EIS evaluated beneficial and adverse effects across an array of resource areas including potential effects at the national, regional and local level; effects are monetized and quantified, where possible, and also described qualitatively. As is common in NEPA analyses, the beneficial and adverse effects of the alternatives are expressed as a variety of qualitative and quantitative environmental and economic metrics throughout the EIS to inform decision-making, including the effects of the alternatives on fish as detailed in Section 3.5.
6894	8	ericquaempts@ctuir.org	Confederated Tribes of the Umatilla Indian Reservation Department of Natural Resources	Failed Cooperation and Collaboration with Cooperating Agencies NEPA implementation should emphasize cooperative consultation among agencies. 40 CFR 1501.1(b). At a minimum, consultation is a dialogue where information is shared. As cooperating agencies, we were expected to raise questions about needing additional information to fulfill our environmental reviews. 40 CFR 1503.3 (c). Our cooperative agency experience was far from what these NEPA regulations envision. Exploration of issues during scoping, regardless of significance, were typically allocated five minutes for discussion on a conference call convened with more than 40 participants. There was little opportunity for collaborative dialogue among subject matter experts from the cooperating agencies and co-lead federal agencies. The process for assembling and analyzing the alternatives failed to discern truly significant issues from non-significant issues. This was due to the nature by which information was collected by the co-lead federal agencies, which seemed to have be based on accumulating detailed recommendations for actions, rather than collaboratively developing a shared understanding of the programmatically integrated suite of measures that have already been implemented and using these as a departure point for future plans. Multi-Objective Alternatives were developed and reworked (when Single Objective Alternatives were dropped) by the co-lead agencies with no input from the cooperating agencies. Questions throughout the process could not be asked in technical workgroups, but were directed to the NEPA policy team. We eventually came to understand that these were the designated NEPA leads for the co-lead federal agencies. When the cooperating agencies convened their own meetings for collaborative scientific discussion, the co-lead agencies issued a written admonishment directing that no cooperating agency should provide information, or collect, assemble, or analyze data related to the CSRO EIS unless specifically requested by the co-lead agencies. Technical input from individual cooperating agencies was directed to continue to be formatted into cells in an Excel spreadsheet, which aided input-tracking but did not create any dialogue with the cooperating agencies.	The co-lead agencies selected senior staff from across the country with expertise in their fields to serve on the EIS team. The CRSO EIS technical teams included experts from across over 30 cooperating agencies. Ultimately, the co-lead agencies are responsible for selecting and implementing an alternative. The rationale for doing so is presented throughout Chapter 7, which identifies a Preferred Alternative based on weighing the benefits in achieving the Purpose and Need Statement and EIS objectives while considering the potential adverse effects to the human and natural environment. With such large co-lead agency and cooperating agency teams, the co-lead agencies used spreadsheets to ensure the cooperating agency comments were captured accurately, so the co-lead agencies could respond appropriately. As for analysis conducted outside of the CRSO EIS process, any use of predecisional information developed as part of the CRSO EIS process is inappropriate and a violation of the MOU signed by cooperating agencies, as discussed in the letter sent to the cooperating agencies at the time. Team members from the cooperating agencies participated in the technical team meetings, in which alternative development, alternative analysis, and effects were discussed and presented for inclusion in the EIS. The co-lead agencies and cooperating agencies understood which measures the co-lead agencies would employ from the fish analysis, were part of the evaluation of the measures and alternatives, and were provided opportunities to comment on this analysis during development of the EIS. Development of alternatives and separate technical analysis outside of the co-lead agency process by select few team members does not meet the transparency required by NEPA. The co-lead agencies requested this work be conducted within the team, and not a separate effort. Finally, many cooperators asked questions in technical meeting related to a different resource aspect or analysis, or wanting to explore scopes of analysis outside the EIS. Technical team leads deferred these questions first back to the points of contact identified in the cooperating agency MOU, and then to policy leads if resolution was not reached. This followed the process established in the MOUs with each cooperating agency.
6894	9	ericquaempts@ctuir.org	Confederated Tribes of the Umatilla Indian Reservation Department of Natural Resources	Scope and Foundation of the EIS A. The Purpose and Need Statement and Objectives are Improperly Narrow The co-lead agencies constructed improperly narrow Purpose and Need Statement and Objectives for the DEIS. As written, these essentially prescribe a status quo outcome. In doing so, the co-lead agencies effectively ignore the Order from the District Court for the District of Oregon Order, which affirmed that the CRS cries out for a major overhaul in terms of fish survival rates. The Objectives of the DEIS, or the statements of the desired outcome of the EIS, merely strive for the EIS to improve listed salmonids within the CRS: Improve ESA-listed anadromous salmonid juvenile fish rearing, passage, and survival within the CRS through actions including but not limited to project configuration, flow management, spill operations, and water quality management. (Improve Juvenile Salmon) Improve ESA-listed anadromous salmonid adult fish migration within the CRS through actions including but not limited to project configuration, flow management, spill operations, and water quality management. (Improve Adult Salmon) These objectives, by their explicit terms, do not include treaty rights, ESA, or NWPA compliance. As a result of these narrow objectives, probabilities of survival and recovery of listed salmonids (ESA compliance) were not analyzed in the DEIS. Its noteworthy that they are not analyzed in the draft BA either. Similarly, alternative "offsite mitigation" measures (a term of art under the Northwest Power Act in 16 USC 839b(h)(8)(A)) were not analyzed in the DEIS. The way the objectives are written create an implication that each objective needs to be balanced with the others.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA listed species. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-lead agencies numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. The Preferred Alternative also meets the EIS objectives for: resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS the co-lead agencies did not identify MO3 because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. The EIS concluded MO3, which includes breaching the four lower Snake River dams would have greater improvement to certain salmon species in the lower Snake River. It did not, however, conclude there was greater certainty of that result in MO3 over any other alternative. Because of delayed response time in MO3, and the potential severity of the short term effects, MO3 would likely have the most substantial uncertainty in terms of beneficial effects. Regarding the Preferred Alternative, this alternative is not simply a minor change to operations and maintenance of the CRS. The spill operation for juvenile fish passage in the Preferred Alternative is a significant departure from previous operations, so much so that the Washington and Oregon state water quality standards had to be changed to implement the new spill regime. The CSS model predicts that average Smolt-to-Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% (the lower end of Northwest Power and Conservation Council's recovery targets for the region) as a result of the Preferred Alternative, as a result of the Preferred Alternative increasing SAR from 2.0% to 2.7% for Chinook, a 35% relative increase. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. To address uncertainty highlighted by the two models, the Preferred Alternative includes working with regional sovereigns to develop a study that assess the effectiveness of the increased spill regime on adult returns as well as assessment and management of adverse unintended consequences, such as long delays of adult migrants, or TDG-related mortality of juvenile migrants. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information. Based on the analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the CRS. This EIS has been developed in consultation with National Marine Fisheries Service (NMFS) and U.S. Fish and Wildlife Service (USFWS) to find an acceptable balance that allows the co-lead agencies to meet the Purpose and Need Statement while minimizing impacts to affected ESA-listed species and their habitats. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. The comment suggests that alternative offsite mitigation measures were not analyzed in the Draft EIS. Many of the mitigation programs funded by the co-lead agencies consist of offsite mitigation. Bonneville's Fish and Wildlife Program is primarily an off-site mitigation or enhancement program. See 16 U.S.C. 839b(h)(8)(A). In other words, Bonneville funds off-site enhancement, not mitigation at the dams. Bonneville's Fish and Wildlife Program is first described in section 2.4.2 as an existing program under the No Action Alternative that will continue. This section provides a high-level overview of Bonneville's Fish and Wildlife Program, many of its major subprograms and their benefits, including habitat actions, hatchery actions, predator management, lamprey research and mitigation, and wildlife mitigation. Section 2.4.2 also describes some of the many CRS improvements and the associated benefits for fish. In addition to this overview of Bonneville's Fish and Wildlife Program, the description of the affected environment throughout the relevant sections in Chapter 3 of the EIS, by definition, reflects the effects of past and ongoing

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					mitigation efforts, even if they are not itemized or highlighted as being the results of a specific mitigation effort. NEPA does not require the agencies to distinguish the past and ongoing effects of all the mitigation projects Bonneville has funded over the 40-year history of the Northwest Power Act, particularly given that Bonneville now uses over 600 contracts annually to implement its Fish and Wildlife Program. In addition, the Agencies 2020 CRS Biological Assessment includes analysis of the implementation and effectiveness of both tributary habitat restoration actions and the CRS overhaul. Tribal input, concerns, interests, and especially treaty rights were considered throughout the Draft EIS analyses and in the formulation of the Preferred Alternative. Treaty specific information is included in Section 3.17 as well as Chapter 7. The treaties bind all parties and are the supreme law of the land. The co-lead agencies recognize and respect that supremacy. In terms of honoring our treaty obligations, the co-lead agencies included "Protecting Native American treaty and reserved rights and fulfilling trust obligations for natural and cultural resources throughout the environment affected by the Columbia River System operations" as a purpose in the Purpose and Need Statement in Chapter 1 to ensure treaty obligations were a key consideration of decision making. Chapter 8 demonstrates the co-lead agencies' compliance with applicable laws, including the ESA and the Northwest Power Act.
6894	10	ericquaempts@ctuir.org	Confederated Tribes of the Umatilla Indian Reservation Department of Natural Resources	The Current Conditions and Programs under the NAA are not Adequately Described or Analyzed Late in 2019, NOAA notified the region that Adaptive Management Implementation Plan (AMIP) safe-guards (low adult returns) had been meet for Snake River steelhead and were likely to be met for Upper Columbia River Steelhead. Yet, nowhere in the DEIS do they mention this. The PA and BA should at least acknowledge this and ensure that additional measures and safeguards to improve and protect adult returns be implemented. The tribes are working with NOAA to identify respective actions, such as more kelt collection and reconditioning, and avian hazing at Miller Rocks. We also repeatedly requested the Action Agencies to accelerate actions that they have existing authority to take to reduce avian predation on listed Upper Columbia and Snake River stock, such as implementing the John Day reservoir operation this year, 2020. The Action Agencies failed to act on any of these actions, nor have they included new actions in the DEIS Proposed Action. Notably, the DEIS PA identifies only two actions (the flex spill operation, and the John Day reservoir operations to reduce nesting at the Blalock Island) to improve the survival of all ESA listed species, including those that have already triggered the AMIP safe guards.	The co-lead agencies discussed current status of AMIP triggers on lines 7236-7243 in the draft CRSO EIS. The co-lead agencies reviewed the Rapid Response Actions identified in the AMIP and note that several actions were implemented in recent years that are likely to increase abundance and productivity. In particular, the co-lead agencies implemented spring juvenile fish passage spill operations that exceeded the performance standard spill operations developed in coordination with NMFS. These operations are part of the 2019-2021 Spill Operation Agreement with the states of Oregon and Washington and the Nez Perce Tribe to increase spill levels with the intention to benefit juvenile salmonids, while offsetting impacts to power generation and operational feasibility. Increased levels of spill were also implemented in 2020. The co-lead agencies have also started transport in 2018 and 2019 earlier than in the past, with the intended benefit of increasing the rates of Snake River steelhead transportation. Moreover, the co-lead agencies are also taking many steps to curtail predation of ESA-listed salmonids by a variety of predators, including pinnipeds, avian predators, and Northern pikeminnow. The co-lead agencies worked with regional stakeholders and enabled additional collection of Snake River steelhead kelts for subsequent reconditioning at Little Goose Dam. That operation was subsequently affected by access restrictions due to COVID-19 response, but has resumed. The co-lead agencies did not implement modifications to John Day pool operations as those are the focus of this Draft EIS review and are proposed for inclusion in the Preferred Alternative. If warranted, additional kelt collection may continue to be implemented after current the ESA consultation and NEPA analysis have been completed. Adaptive management to address these types of issues will continue to be a point of emphasis for the co-lead agencies. Finally, the agencies are continuing their efforts in funding hatchery programs to preserve and rebuild the genetic resources of ESA-listed salmon and steelhead in the Columbia and Snake River basins.
6894	11	ericquaempts@ctuir.org	Confederated Tribes of the Umatilla Indian Reservation Department of Natural Resources	The Alternative Selection Process was Flawed and Omitted Important Measures and Considerations from Disclosure and Analysis Section 2.3 suggests that cooperating agencies were collaborated with during the alternative selection process. This was not the case. While cooperating agencies were invited to suggest measures that may be included in alternatives, the development of the single and multipleobjective alternatives (MOs) was solely completed within the co-lead agencies; in no way was the process collaborative. Likewise, the decision to remove single-objective alternatives (SOs) and revamp the multi-objective alternatives was completed solely within the co-lead agencies. The slight exception was MO4, which was presented for consideration by the Nez Perce Tribe. However, here the agencies significantly amended MO4 from what the Nez Perce Tribe submitted without coordination with that or any other tribe. The co-lead agencies built their alternatives out of various measures upon the theory that the alternatives would then provide (1) bookends of impacts i.e., the extremes; and (2) modularity the ability to decipher which measures were driving various impacts. Ultimately, a preferred alternative could be built out of the various measures with known impacts. However, this effort failed for multiple reasons: 1. Focus on specific actions, or measures, fails to consider important programmatic efforts relevant to the CRSO (discussed more below). 2. Due to the time compaction for completing the EIS, the SOs were eventually dropped from review. These SOs would have presented a better bookend review. 3. MO combinations obfuscate any useful conclusions. All the MOs were formulated in a way that produce similar results. For instance, MO3 negates the benefits of breach by reducing spill in the lower river; MO4 takes away from reviewing the fish benefits of 125% TDG by reducing spring and summer flows through changed reservoir operation. 4. The effects analysis of the MOs does not evaluate the component measures within each of the MOs, making it difficult to identify which components of an MO provide benefits for fish versus which are a detriment. Additionally, some measures within MOs were written with biases that preclude a thorough comparison of the alternatives, because the measures all have different components: 1. MO4 is written to use a hard constraint for the McNary Flow target verses the target constraint used in NAA and MO1 and analyzed in previous biological opinions. Inclusion of the hard constraint masks and exaggerates the impacts of a max spill alternative. This makes MO4 look unreasonable due to significant cost, extensive reservoir drainage and increased impacts to resident fish. The description of the McNary flow target measure in MO4 is insufficient to explain the significant impact of that action in the alternative. 2. MO1, MO3 and MO4 all fail to limit spill at Bonneville to 150Kcfs.1 This is a structural limitation of the facility and it is unrealistic to assume that the Corps would exceed this spill level, and capricious then to include such in its modeling. Without this limit, the alternatives appear to spill a lot more in the alternatives, which make both the power cost and adult returns (SAR) effects artificially high. In this way, the alternatives are not reasonable, and the results biased. Moreover, the EISs reliance on bookends and modularity precluded evaluation of several reasonable alternatives: 1. A true breach or natural river alternative, as we believe was requested by the District of Oregon. MO3 the breaching alternative negates the fish benefits of breaching the Snake River Dams by, among other actions, decreasing spill in the lower river, precluding a true analysis of the potential benefits of breaching on Snake River stocks. A true breach/ natural river alternative would include spill in the lower river that supports juvenile fish passage, adequate spring flows, and optimized Dworkshak release schedules to regulate water temperature as was included in MO1. The agencies do not explain why they did not do this, particularly in light of the District Courts order. 2. A realistically implementable operation. As formulated, none of the four MOs provide a balanced, standalone operation or were ever intended to be considered as the final action as written. 3. An optimized spill operation. Such operation was requested during scoping and would have looked dam-by-dam at optimal and balanced spill operations that provide the best passage for fish while considering power needs. 4. The current Flex Spill operation. While the proposed alternative partially adopts the 2020 Flex Spill operation (with significant changes), a reasonable review of alternatives would have included the operation as an MO so the results were available for consideration in developing a preferred alternative. The EIS analysis was the chance to take a hard look at a new approach to CRS management and the opportunity to evaluate a practical suite of measures or reasonable alternatives for achieving the DEIS objectives. The DEIS does not provide a rational explanation for its failure to do so.	Section 2.2 of the Executive Summary of the EIS specifically states that the cooperating agencies contributed to the EIS by providing information, participating on technical teams, and reviewing draft documents. It does not state that the cooperating agencies collaborated in the alternative selection process. The MOU signed by cooperators specifically states that the co-lead agencies maintain responsibility for decisions. Regarding alternatives, the preliminary analysis of the Single-Objective (SO) alternatives informed the development of the Multiple-Objective (MO) alternatives. However, the SO alternatives were not developed as viable, complete solutions, as they were focused on only one resource objective and would not provide the comprehensive management strategy needed for the multi-purpose CRS nor would the SOs meet the Purpose and Need Statement. The SOs did provide bookends, as you noted, for example regarding effects of various spill regimes, and the team used them in that way. Ultimately, the range of alternatives needed to provide realistic options for meeting competing project purposes and congressional authorities. See Appendix A for more information. Finally, the co-lead agencies adequately evaluated breaching the four lower Snake River dams with 120% fish passage spill at the lower Columbia River Projects. The measure to adjust Dworshak releases under MO1 was ineffective as discussed in Section 3.4, and that was why it was not carried forward into the Preferred Alternative.
6894	12	ericquaempts@ctuir.org	Confederated Tribes of the Umatilla Indian Reservation Department of Natural Resources	Important Potential Operational and Structural Modifications to the Hydrosystem Were not Analyzed In our initial scoping comments, we indicted that the EIS should consider a range of system operations and improvements with the goal of improving fish passage and whole system survival, including: 1. An optimized spill program under existing water quality waivers based on individual project characteristics and designed to maximize juvenile survival. 2. Permanent drawdown or seasonal drawdown at specific projects. 3. Altered flood control operations in low and mid-range water years to better support spring flow for migrating juveniles. 4. Replace drum gates at Grand Coulee Dam, or change the way the work is done on them, to eliminate or reduce the need for maintenance and associated reservoir draw down. 5. Additional turbines at certain reservoir projects to increase system and flood management flexibility and ensure delivery of flow augmentation when needed for migrating juvenile fish. 6. Additional predation control measures, such as additional bird wires and pinniped control measures. 7. Additional analysis to determine what additional options, either structural or operational, could be implemented to reduce thermal issues now and in the future. 8. Additional lamprey measures. See lamprey discussion below. The DEIS does not give these operations and improvements adequate consideration, and does not provide a rational explanation for its failure to do so.	Section 2.2 of the Executive Summary of the EIS specifically states that the cooperating agencies contributed to the EIS by providing information, participating on technical teams, and reviewing draft documents. The MOU signed by cooperating agencies specifically states that the co-lead agencies maintain responsibility for decisions. The co-lead agencies are required to evaluate a reasonable range of alternatives in the EIS. However, when there are potentially a very large number of alternatives, only a reasonable number of examples, covering the full spectrum of alternatives, must be analyzed and compared in the EIS. Alternatives for this EIS were developed from measures identified during public scoping, regional forums with scientists and technical experts from cooperating agencies, and expert opinion from within the co-lead agencies and in relevant literature. These alternatives represent a reasonable range of alternatives for the maintenance, configuration, and operation of the Columbia River System. Finally, the alternatives did include an evaluation of a wide range of spill levels, drawdown as part of MO4, drum gate maintenance at Grand Coulee as discussed in Section 2.4.2.1, predation measures, water temperature impacts from the various alternatives as described in Sections 3.4 and 7.3, including operational and structural measures, and lamprey measures as discussed in Chapter 7. Additional turbines may be evaluated as part of separate processes, as necessary.
6894	13	ericquaempts@ctuir.org	Confederated Tribes of the Umatilla Indian Reservation Department of Natural Resources	Significant Programmatic Issues Are Obscured from Review by Measure-Based Alternatives The focus on specific actions, called measures, in the DEIS has overshadowed important programmatic issues of significance to the tribes. NEPA documents must concentrate on the issues that are truly significant to the action in question. Further, the following examples highlight that the DEIS appears to be a harbinger of the elimination of certain ongoing Corps programmatic efforts. Since the DEIS is intended to have a 25-year duration, the focus on specific measures to the exclusion of programmatic needs is troubling. 1. The DEIS does not meaningfully disclose and analyze the reductions in the CRFM program. The Corps Columbia River Fish Mitigation program (CRFM) has been a decades long endeavor supported by the Tribes, Pacific Northwest states and congressional delegation. The history, accomplishments and lessons learned from the CRFM are not described in the DEIS. Presumably one would expect to find a discussion of the CRFM in section 1.7 of the DEIS. Over $2 billion dollars has been appropriated by Congress to support this program and institutions such as the System Configuration Team (SCT) have developed around this program.2 While the NAA and MOs assume some continuing level of structural improvements at the CRS dams, the pace of CRFM activity is only revealed by Table 6.1 in Appendix Q (Costs), which identifies that CRFM funding will be reduced to $2 million per year. At its peak, CRFM funding was two orders of magnitude greater. There are two consequences related to the scope change of CRFM we wish to highlight at this time. First the CRFM program is more than just a collection of construction projects at the Corps dams. It represents the Corps ongoing programmatic support, including personnel, for Columbia River anadromous fish passage. The loss of staff capability represented by this budget contraction will impact ongoing working relationships between the Corps and CRITFCs member tribes. While providing repetitive detail about a limited list of structural measures in the NAA and MOs, the DEIS fails to address the programmatic consequences of the loss of the CRFM and the Corps ability to participate in regional decision making concerning its CRS dams. The DEIS should describe the effects of eliminating or drastically modifying the CRFM program. Second, the breadth of configuration measures for the CRS dams is limited and nonrepresentative of ongoing and planning actions. If the DEIS is intended to represent future structural measures for a 25-year period, the measures are far too narrow and too specific to portray a realistic range of activities currently envisioned by co-managers. For instance, collection and	The notion that the Columbia River Fish Mitigation (CRFM) program is being dismantled is not accurate. For CRS dams, it is accurate to note that CRFM annual appropriations have declined over the past couple years and are projected to remain lower into the near future. However, a reduced reliance on the CRFM program into the future is because much of the major overhaul of the CRS for the benefit of improved salmon passage has already been constructed. The Corps CRS fish program is now transitioning to a program that is expected to be primarily sustained through long-term Operations and Maintenance funding. For future construction requirements aimed at improving anadromous fish passage throughout the CRS, the Corps will continue to express capability in the annual budgeting process. The analyses used in this Draft EIS were for the purposes of comparing the effects of the Multiple Objective alternatives for operation and configuration of the CRS projects to the No Action Alternative. The measures in the Draft EIS to meet the objective of improving conditions for Pacific lamprey were developed to address issues described in the Affected Environment and Effects of the No Action Alternative. These measures were designed to work in concert with the ongoing mitigation programs related to lamprey, such as habitat restoration, reintroduction and translocation, and other efforts. Implementation of all measures, including lamprey measures, is dependent on funding availability. In 2020, the Corps did receive $20M in funding to implement actions contemplated in the 2018 extension of the Columbia Basin Fish Accords. The Corps is currently refining cost estimates and developing a preliminary implementation plan for this $20M program. The Corps will continue to coordinate closely with the Columbia River Inter-Tribal Fish Commission and other Accords tribes on prioritization of actions within this program and will continue to ensure consistency with measures identified in the Draft EIS.

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				reconditioning of steelhead kelts has shown significant benefits in the Yakima and Snake river systems. The discussion of steelhead kelts in the DEIS does not reveal either the scope of efforts now ongoing or planned actions such as expanded kelt trapping operations at CRS dams.3 The only kelt measures in the DEISs MOs are spill passage related. The kelt section of the DEIS should be expanded to address current knowledge concerning kelts and current and planned trapping at Corps dams and reconditioning actions be undertaken by the tribes.4 Similarly, the full suite of potential salmon and steelhead measures should be examined. Even in the near term, questions about the SCT project priority lists for 2018 and 2019 have been repeatedly addressed to the co-lead federal agencies by the Tribes. We have asked that the DEISs range of alternatives at least examine the full range of measures in the SCT project prioritization lists so as not to preclude their future management consideration and implementation. These actions are at least reasonably foreseeable, yet many of them are not mentioned at all in the DEIS. It would be appropriate for the co-lead agencies to answer whether the measures in the NAA and MOs fully include the SCT actions under active consideration by state, federal and tribal experts who participate in SCT, but may not have been involved in preparation of the DEIS.	
6894	14	ericquaempts@ctuir.org	Confederated Tribes of the Umatilla Indian Reservation Department of Natural Resources	Following the 2008 Accords Agreement, the Corps developed a detailed programmatic approach to address the needs of Pacific Lamprey at CRS dams.6 Attached is the Corps Lamprey Program Prioritization Matrix (spreadsheet) identifying priority fixes for adult and juvenile lamprey at mainstem dams (Attachment B). The spreadsheet identifies relative costs and Corps and CRITFC Lamprey Tribal Task Force (comprised of representatives from CRITFC member treaty tribes) priorities as of March 2020. The priority actions matrix developed by the Corps is not a comprehensive list of all needed work for adult and juvenile lamprey at mainstem dams. It should be regarded as a starting point of known and immediate needs to be addressed in the near-term. From this list, the Lamprey Tribal Task Force identified a subset of high priority actions at recent meetings. Those included (1) a. Improving juvenile downstream passage and survival through Columbia and Snake river dams; b. Monitoring and evaluation of juvenile survival and passage success through mainstem Columbia and Snake river dams using juvenile lamprey acoustic tags, (2) Structural modifications to fishways at Columbia and Snake River dams to improve upstream adult passage efficiency and success, (3) Enhancement of the tribal translocation program through improvements to adult trapping systems, and improvements to existing and development of new adult holding facilities at Bonneville, The Dalles and John Day dams, and (4) Assessing the fate of adult lamprey in the lower Columbia River between Bonneville and John Day dams through acoustic telemetry. The Corps is currently working on revised cost estimates and timelines for the projects identified in the spreadsheet, which could alter priority rankings. These lamprey actions are funded through the CRFM. If the CRFM is dismantled as indicated by the cost assumptions in Appendix Q,and discussed above, how will the Corps participation in the lamprey passage program be accomplished? The Corps recently allocated $20 Million of workplan funding towards lamprey, which is great news, but that money in only available and will only fund lamprey efforts through about 2022. With a proposed 25-year term for the EIS, and the CRFM budget dwindling, the continuation of and support for needed lamprey effort is highly uncertain. Each of the MOs contains the same partial list of lamprey measures, which only address a portion of the lamprey priority list identified above. The EIS should include the whole priority list as possible actions for the 25-year term of the EIS. The lamprey measures seem to be focused at dams within the Portland District. For instance, with regard to adult passage modifications, the action list for McNary Dam and the Snake River dams upstream is limited to rounding 90-degree corners at fish ladders. Rounding ladder features is an inexpensive and short-term process, yet the scope of the DEIS, without further NEPA analysis, would preclude other adult passage measures at the Walla Walla District projects during the following 20-year period? Failure to return Pacific Lamprey throughout the Basin is unacceptable.	The co-lead agencies recognize the importance of Pacific lamprey and will continue to work with CTUIR, other Tribes, and regional entities through existing frameworks such as the Corps-Tribal Lamprey Work Group, the Pacific Lamprey Conservation Initiative and the Corps Regional Forum workgroups (e.g., FFDRWG) to implement ongoing programs as well as the lamprey measures described in the Draft EIS. The notion that the Columbia River Fish Mitigation program is being dismantled is not accurate. For Columbia River System dams, it is accurate to note that CRFM annual appropriations have declined over the past couple years and are projected to remain lower into the near future. However, a reduced reliance on the CRFM program into the future is a result of significant investments in construction of components of the dams for the benefit of improved salmon passage. The Corps CRS fish program is now transitioning to a program that is expected to be primarily sustained through long-term Operations and Maintenance funding. For future construction requirements aimed at improving anadromous fish passage throughout the CRS, the Corps will continue to express capability in the annual budgeting process. The analyses used in this Draft EIS were for the purposes of comparing the effects of the multiple objective alternatives for operation, maintenance, and configuration of the CRS projects to one another and to the No Action Alternative. The measures in the Draft EIS to meet the objective of improving conditions for Pacific lamprey were developed to address issues described in the Affected Environment and Effects of the No Action Alternative. These measures were designed to work in concert with the ongoing mitigation programs related to lamprey, such as habitat restoration, reintroduction and translocation, and other efforts. Measures identified in the Draft EIS do not include all lamprey passage improvements that could be potentially implemented at the Lower Columbia and Lower Snake River dams, but the Corps believes that potential actions contemplated in preliminary lamprey program planning discussions with CTUIR staff and others related to the 2018 extension of the Accords are consistent with the measures and analyses included in the Draft EIS. CTUIR is correct that actions beyond the scope of the measures included in the Draft EIS or ongoing activities would potentially require further NEPA analysis. Lamprey measures identified in the Draft EIS (and similar operational or structural measures) do not include research, monitoring or evaluation actions that may be needed to refine passage designs, inform operations, or address critical uncertainties. This includes the juvenile lamprey and adult lamprey migration behavior and fate studies identified in the 2018 Accords Extensions and in subsequent program planning and coordination discussions with the CTUIR and others. For the purposes of the Draft EIS, measures must address known operational and structural issues, but this does not preclude development and implementation of juvenile and adult lamprey studies. Implementation of all measures including lamprey measures is dependent on funding availability. In 2020, the Corps did receive $20M in funding to implement actions contemplated in the 2018 Accords Extensions. As noted by CTUIR, the Corps is currently refining cost estimates and developing a preliminary implementation plan for this $20M program. The Corps will continue to coordinate closely with CTUIR and other Accords Tribes on prioritization of actions within this program and will continue to ensure consistency with measures identified in the Draft EIS.
6894	15	ericquaempts@ctuir.org	Confederated Tribes of the Umatilla Indian Reservation Department of Natural Resources	The DEIS fails to disclose and analyze the need for a comprehensive predator control program. Both the Northwest Power and Conservation Council and Columbia River Treaty Tribes visions for predator management recognize the value of a coordinated and systematic approach to predator management which are described below: a. Wy-Kan-Ush-Mi Wa-Kish-Wit Since the publication of the Spirit of the Salmon Plan in 1995 (Wy-Kan-Ush-Mi Wa-Kish-Wit), we have witnessed an alarming increase in predation of salmon, lamprey, and juvenile sturgeon by birds, marine mammals, and other fish.7 In the basin, newly created habitat from navigation dredge spoils increased predacious bird populations; a lack of historical primary food sources brought more hungry sea lions upriver who congregated at Bonneville Dam to feed on Spring Chinook; and changes in the CRS flow regime and the explosion of exotic species in CRS reservoirs expanded predacious fish populations. These negative changes in avian, mammalian, and fish species population dynamics have tipped the predator/prey balance to the point that active management is required to rebalance predator populations and reduce salmon, lamprey, and sturgeon losses. Active management will keep predators at a level that is more in balance with the environment and reduce losses of Columbia River salmon and other native fish populations. Responding to these observations the tribes recommended the following actions in 2014: 1. Develop a common metric for fish, bird, and marine mammal predation (i.e ., adult equivalents) so that comparisons and impacts can be properly assessed . 2. Investigate, monitor, evaluate, and propose solutions to habitat changes at Columbia River tributary confluences where hydro-logic modifications have resulted in increased sediment deposition and potentially attracted predator responses. 3. Investigate indirect food web effects of predation. 4. Apply active, adaptive management practices to predation sources. 5. Pursue legislative solutions to barriers preventing active management. 6. Persuade co-managers to prioritize salmon management in anadromous waters and remove barriers to harvest non-native fish species. 7. Focus public outreach on benefits of native fish communities and balanced ecosystems. 8. Develop greater cross-agency cooperation and investigation opportunities. https://plan.critfc.org/assets/wy-kan-update.pdf A recent presentation by CRITFC to the NW Council is attached to these comments (Attachment C). b. NPCC Fish and Wildlife Program In its most recent Fish and Wildlife Program, the Northwest Power and Conservation Council also recognized the growing impacts of predators on the anadromous fish of the Columbia River Basin. Predator management is requiring more program resources and efforts year by year. Everyone involved in the program, including the Council, Bonneville, the Corps of Engineers, the fish and wildlife agencies and tribes, and others, must work together to continue developing a more effective systemwide, ecosystem-based approach for assessing and addressing the impacts of fish, avian, and pinniped predation on salmon and steelhead and other fish species important to the program. It is imperative to scientifically advance the understanding of predation impacts. It is important to understand which predator management actions have the greatest effect on adult returns and SARs and retarget efforts on those actions for cost-effective predation management. https://www.nwcouncil.org/sites/default/files/2020-1.pdf. The Program contains systemwide measures for predator control that are directed to Bonneville, the Corps, Bureau of Reclamation and others for their implementation. For example, the Program provides: Predation by double-crested cormorants, Caspian terns, and several other bird species continues to have a significant impact on ESA-listed juvenile salmon and steelhead in the Columbia and Snake rivers. A recent trend has been reduced support for this effort. The action agencies (Bonneville, Corps of Engineers, Bureau of Reclamation) working with state and tribal partners, should continue to provide adequate funding to implement activities, both in the estuary and inland, to reduce avian predation on listed juvenile salmon and steelhead. In contrast, the CRSO DEIS contains parsimonious mitigation measures for predators which are not responsive to the broader guidance from the tribes and the Council. Thoughtful analyses of the Northwest Power Act requirements and the obligations to implement Councils Program regarding predator management are not found in the DEIS. The DEIS should contain more programmatic responses, for instance committing to fund a Regional Predator Management Forum, with additional monitoring, that includes all funding and implementation partners to collaboratively and comprehensively evaluate and address predation (including piscivorous, avian, and pinniped predation) on salmon and steelhead from the river mouth to the spawning grounds.	The co-lead agencies legal authorities relate to operating and maintaining the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. To comply with the ESA, the co-lead agencies have historically supported actions to mitigate adverse effects to listed species from CRS operations, through funding, direct implementation, and other means. Under the Preferred Alternative, those actions, including for the purpose of reducing pinniped and avian predation on listed species, would generally continue to ensure compliance with the ESA. The Preferred Alternative includes a large suite of predation mitigation measures, some of which include maintaining avian wires in the tailrace of lower Columbia and Snake River dams, active hazing of gulls at the dams, and the pattern of operating the spillway gates all mitigate for predation at the dams by birds and fish. The Predator Disruption Operations will mitigate Caspian Tern predation on juvenile salmon and steelhead in the lower Columbia Rivers. Management efforts are ongoing to reduce salmonid consumption by terns in the lower Columbia River, and similar efforts are in progress to reduce the nesting population of Double-crested cormorants in the estuary. The co-lead agencies currently implement a Northern Pikeminnow Management Program which includes an ongoing base program and general increase in northern pikeminnow sport-reward fishery reward structure to reduce predation by these fish. This measure would continue under the Preferred Alternative. Management of gamefish such as walleye typically falls within the authority of state fish and wildlife agencies. Other entities in the region have authorities and obligations to mitigate the impacts from pinniped and avian predators and the co-lead agencies will continue to work closely with those entities to benefit ESA-listed salmonids. As for the suggestion that the three co-lead agencies (Corps, Reclamation, and Bonneville) develop a Regional Predator Management Forum, the species that are of concern due to their predation of anadromous fish in the Columbia River are managed by numerous entities, including Federal, state, and Tribal governments. These entities are guided by a complex array of policies, laws, and agreements. The three co-lead agencies (Corps, Reclamation, and Bonneville) have limited authority to manage predators of fish.
6894	16	ericquaempts@ctuir.org	Confederated Tribes of the Umatilla Indian Reservation Department of Natural Resources	Preferred Alternative The Draft Preferred Alternative (PA) is based on 2021 operations under the Flex Spill Agreement, although it presents some significant changes. While increasing spill to a 125 TDG flex spill operation, numerous changes from the current Flex Spill Agreement threaten to make the PA operation worse for salmon and steelhead than the 2020 operations under the Flex Spill Agreement a change in the wrong direction. Below are further detailed comments on individual measures presented in the Draft PA, however, the following summary of our concerns paints a composite picture. In short, the benefits of a 125 Flex Spill Operation are systematically eroded by one power measure after another such that fish benefits are degraded to an unknown degree. In the end, the PA presents only slightly improved fish survival (if any) compared to the NAA, and those conclusions are based upon multiple layers of uncertainty. The PA reduces spring flows through altered water management operations at Libby, Coulee and Dworshak. This means less spring flow for Upper Columbia stocks, and this would occur in all years, not just high flow years. At Dworshak, the additional winter drawdown would be based on unreliable and uncertain early forecasts, which could similarly reduce spring flows in the Snake to the detriment of Snake River stocks. The impacts to the Upper Columbia stocks are especially troubling due to their current condition and the limited benefits provided to them from Flex Spill operations. In addition to the spring flow changes, the PA includes several other measures with detrimental or unknown effects on anadromous salmonids: 1. Options for unrestricted turbine flexibility outside of peak efficiency with unknown levels of impact and no mitigation proposed; 2. Fall zero generation (zero flow) in the Snake (effects unknown on adult fall chinook, steelhead, and coho, and on juvenile fall chinook) with no mitigation proposed; 3. Reliance on already implemented or phased out actions (structural and avian) with no commitment to ensure benefits of those efforts are implemented and maintained over time; 4. Options to reduce Fish and Wildlife Program with no metric or decision framework	Many measures have been included in the Preferred Alternative that benefit ESA-listed species in both the upper and lower Columbia River. The spill operation for juvenile fish passage in the Preferred Alternative is a significant departure from previous operations. See Section 7.6.3 titled Preferred Alternative Operational Measures. In addition, a large number of structural changes are included to benefits salmonid species and Pacific lamprey. See Section 7.6.2 titled Preferred Alternative Structural Measures. The framework for the adaptive management process has been updated and is detailed in Appendix R, Part 2, Process for Adaptive Implementation of the Flexible Spill Operational Component of the CRS EIS. The co-lead agencies intend to further refine the adaptive management approach with regional experts to more further define the decision making process, including those items that trigger the need for a decision to be made. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult return rates would increase for both Snake River spring Chinook and steelhead and will average above 2% (the lower end of the Northwest Power and Conservation Councils recovery targets for the region) as a result of the Preferred Alternative increasing SAR from 2.0% to 2.7% for Chinook, a 35% relative increase. The NMFS COMPASS and Lifecycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. To address uncertainty highlighted by the two models, the Preferred Alternative includes working with regional sovereigns to develop a study that assess the effectiveness of the increased spill regime on adult returns as well as assessment and management of adverse unintended consequences, such as long delays of adult migrants, or TDG-related mortality of juvenile migrants. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information. It is the intention of the co-lead agencies to engage regional state, tribal, and federal biologists in the development of an appropriate adaptive management process utilizing their respective salmonid management expertise. The goal of that adaptive management process would be to consider additional opportunities to further the effectiveness of the operation while maintaining the goals of the flexible spill operation: additional improvements for salmon and steelhead, maintain opportunities to operate the CRS for hydropower generation in a flexible manner that provides value to the Northwest, is implementable by the dam operators, and provides opportunity to reduce uncertainty and improve the learning opportunities around how operations of the CRS can influence the magnitude of latent mortality effects. The co-lead agencies have not made any determinations on what the preferred approach would be for a regionally developed study plan, and intend to develop that study jointly with regional experts. Unforeseen outcomes or unintended consequences will be monitored and adjusted using current in-season management teams such as the Technical Management Team. If no adaptive management needs are identified, the operation would continue through the duration of the ESA consultation period. The co-lead agencies will provide additional clarifying text in Appendix R to make these points more clearly.

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				identified for evaluating that option; and 5. No additional fish mitigation, other than JDA operations for birds; almost all mitigation measures are for power flexibility that will result in negative impacts to fish. The PA action is then only set for one year, so all out year operations are highly uncertain. The PA points to the Adaptive Management Appendix for future year operations. This Adaptive Management Framework adds in significant additional uncertainty for fish benefits: 1. While written in the form of changes needed for fish, the appendix would allow for decreases in spill and other unknown actions that could have detrimental effect, with no real assurances that regional input will be adopted. Based on experience, it is likely that the Action Agencies will act in the interest of their primary agency missions (power, flood control, irrigation and navigation) without providing fish and wildlife equitable leverage in decision making. 2. A latent mortality test is required but unknown, with unknown effects on fish. If, for example, the previously discussed block study is implemented, this would significantly reduce spill from Flex Spill Agreement. It is not clear how that decision will be made. There are no fish goals stated in the PA to compare operational results to (to guide necessary change in operation), and no metrics have been provided to support future decision making. Moreover, the minimal fish benefits attributed to the PA rely on unknown benefits from reductions in latent mortality and are otherwise biased high. First, the base COMPASS model does not account for latent mortality and only shows benefit of the PA above the NAA when an arbitrary range of latent mortality rates are employed in the model. Second, the CSS model results are biased high due to the selected model inputs, (i.e.; daily time steps in operations data rather than hourly time steps consistent with PA operation, operations data sets did not include fully loaded powerhouse operations like we see in reality, so spill proportion is weighted higher than reality). The PA fails to mention this or take it into consideration. Based on the above, additional elements will be needed for the PA to cushion or otherwise address the inherent uncertainty in the action. This may include: 1. More mitigation to offset measures for hydro flexibility and unknown benefit of Flex Spill; 2. Maintained or increased Fish and Wildlife Program spending in order to improve from 2016/NAA baseline and not just maintain status quo survival statistics; 3. A charter identifying side boards on the Appendix Flex Spill Workgroup and clear definition for decision making framework within it; and 4. Check-ins and/or off-ramps. The PA rests on significant uncertainty and degrading fish populations; the availability of immediate and significant action is required.	
6894	17	ericquaempts@ctuir.org	Confederated Tribes of the Umatilla Indian Reservation Department of Natural Resources	The Preferred Alternative Does not Respect Tribal Rights and Interests, Including Fisheries and Cultural resources The statements regarding respecting treaty rights are unsupported by the PA. While there are numerous references to respecting treaty rights and tribal culture, the PA does not respect treaty rights as it reduces current actions to improve salmon and steelhead survival. It also suggests further future reductions to offsite mitigation based on results we will not see for 20 years. Finally, we find little or no evidence that our input has been incorporated within most sections of the DEIS. The PA needs to improve salmon survival from current conditions (not from 2016) and address whether these conditions will meet the tribal goals described in the Tribal Perspectives document provided in June 2019.	Tribal input, concerns, interests, and especially treaty rights were considered throughout the Draft EIS analyses and in the formulation of the Preferred Alternative. Treaty specific information is included in Section 3.17 as well as Chapter 7. The co-lead agencies recognize and respect the legal obligations imposed by treaties. The co-lead agencies accordingly included Protecting Native American treaty and reserved rights and fulfilling trust obligations for natural and cultural resources throughout the environment affected by the Columbia River System operations as a purpose in the Purpose and Need Statement in Chapter 1 to ensure treaty obligations were a key consideration of decision making. The co-lead agencies are engaging in government-to-government consultation with the tribes, and several tribes are cooperating agencies on the CRSO EIS. The EIS recognizes the economic and cultural importance of salmon to Tribes in a number of sections throughout the document. The cultural significance and impacts of salmon and steelhead fisheries are described in the Ceremonial and Subsistence Fisheries sub-section and the Social Importance of Commercial, Ceremonial and Subsistence Fisheries sub-section of Section 3.15.2.1. Fisheries tribal interests are provided in Section 3.15.4 additional details regarding the economic significance of salmon and steelhead fisheries have been added to the recreation analysis (Section 3.11) including tribal interests (Section 3.11.3.7). Treaty rights are discussed in the Executive Summary, Section 3.16 Cultural Resources, and Section 3.17 Indian Trust Assets, Tribal Perspectives, and Tribal Interests. Appendix P includes copies of tribal perspectives that were submitted by tribes. Tribal consultation is described in Sections 1.5, 3.5, and 3.15; and Chapter 9. Most sub-sections within Chapter 3 include a Tribal Interests section at the end of the sub-section that attempts to summarize tribal issues by topic. The scope of the EIS focuses on the area affected by the alternatives presented for operation, maintenance, and configuration of Columbia River System Projects. The alternatives are evaluated in terms of change from the No Action Alternative, which is the baseline condition of 2016 when the development of the EIS began. The co-lead agencies defined the No Action Alternative consistent with NEPA and implementing regulations. In the case of an ongoing action, such as operation of the CRS, the no action alternative represents no change in current management direction or level of management intensity. The no action alternative thus assumes the existence of the CRS projects and does not attempt to hypothesize the direct and indirect costs of each of Congress's decisions to construct CRS projects. Under NEPA, the co-lead agencies are required to analyze a range of alternatives, including the No Action Alternative, to meet the purpose and need of the Project. The EIS analyzing the effects of the No Action Alternative on resources, environmental and socioeconomic, at present and into the future. These effects are summarized in Section 3 of the Executive Summary, fully described by resource and alternative in Chapters 3, 4, 5, 6 and 7; summarized by resource and alternative in Table 3-1, and once again presented for comparison in Tables 7-1 and 7-55. The mitigation identified in the EIS is to offset impacts of each Multiple Objective alternative compared to the No Action Alternative, which was the scope of analysis for this EIS. NEPA does not require identification of mitigation for the continuation of the No Action Alternative. Each alternative, including the Preferred Alternative, has a number of proposed measures intended to benefit fish. Multiple Objective alternative 1, Multiple Objective alternative 3, Multiple Objective alternative 4 and the Preferred Alternative all meet the objectives for adult and juvenile ESA-listed fish, as well as resident fish, with an overall beneficial effect over the No Action Alternative, and did not have an overall adverse effect to fish; therefore additional mitigation was not warranted.
6894	18	ericquaempts@ctuir.org	Confederated Tribes of the Umatilla Indian Reservation Department of Natural Resources	Water Management Measures Make the Preferred Alternative Worse for Fish Than 2020 Flex Spill Operation The PA proposes to move water from spring into January at Coulee, Libby and Dworshak, creating a worse situation for many salmon and steelhead stocks than we currently have with the 2020 Flex Spill Agreement. While different rationales are given, primarily, these operations provide more for power flexibility. This additional power flexibility was not part of the 2020 Flex Spill operations under the Flex Spill Agreement, and is detrimental to fish survival. The new drafting operations are not limited to high flow years but would occur in average and low flow years and would occur in 75% of all water years. At Libby, the operation states that they will draft deeper in January when inflow forecasts are less than 6.9 MAF, which is most years. From a fish perspective, this is backwards thinking. These new power flexibility operations will result in less spring flows for both Upper Columbia and Snake River stocks, likely resulting in higher water temperatures as well. Flow timing and volume have been proven to be two of the most important factors for juvenile migration, travel times and survival. Deeper drafts at Dworshak (DWR) are included as a measure to help protect TDG issues at nearby hatcheries. However, Total Dissolved Gas issues are only a concern during high flow events when large volumes of water need to be moved and units are not available, as was witnessed in 2017. A deeper draft would not have helped in 2017; units were needed to move the water. So, the DWR drawdown is really another operation to increase power flexibility, but at the risk of not refilling the reservoir and/or decreasing spring flows. Failure to reach full pool reduces summer flow augmentation and lower Snake water temperature management capacity. Moreover, the decision timeframe of December/January for determining whether to drawdown DWR is not implementable; adequate information is not available at that time. While the flow changes from each of the above measures may not be large, their combined effects could add up to significant flow reductions in the river. Moreover, the actions are changes from the power flexibility operations agreed to for 2020 under the Flex Spill Agreement, therefore representing power benefits and fish detriments from the 2020 operations that fulfilled the 3 pillars. Without more (explanations, limitations, mitigation), these measures are unacceptable.	Chapter 7, Section 7.7 in the Draft EIS analyzes the effect of the Preferred Alternative on flow relative to the No Action Alternative. While the commenter is correct in that the new water management measures will result in less spring flow, the reductions are relatively minor. For example, flows at McNary Dam (Table 7-17) show relatively minor decreases, the largest being 2% (4.4 kcfs) in May at the 99% exceedance probability. Other spring flows are within 1% of the No Action Alternative. Regarding Dworshak deeper draft, the comment is partially correct. The deeper early draft in large water years simply moves some of the draft into January and February, thus spreading it out and reducing TDG. It does help with power generation. In large snow pack years that start building early, there is information to base the deeper draft on. It can have a negative impact on refill, but the implementation rules would minimize that impact.2017 is not a reasonable year to base analysis on since Unit 3 was not available. In most years, we have three turbines available but are only running one small unit instead of full power house. The current drawdown moves most of the flood control water in March and April when we have little additional capacity, resulting in more spill which elevates TDG. The deeper draft would really be best described by an earlier draft as it moves part of the flood control draft into January and February. Before the operation could be implemented additional analysis, rule curves, and forecasting procedures would need to be approved for the reservoir. The commenter is likely correct in that a decision timeframe of December/January for determining whether to drawdown Dworshak may not implementable; and may require additional time prior to implementation if large uncertainty in annual forecasts remain...
6894	19	ericquaempts@ctuir.org	Confederated Tribes of the Umatilla Indian Reservation Department of Natural Resources	Increased Turbine Operation Flexibility Needs Sideboards on Implementation. The PA includes operation of turbines outside of the 1% range. While some excursion is acceptable, the current way it is written is too broad and would allow excursions anywhere and for any reason. At some projects, operating outside of 1% has almost no impact since the turbines do not have capacity beyond 1%. However, other projects such as McNary could be operated 4-6 kcfs higher per turbine which equates to over 50 kcfs swing in flow moved from spill to the turbines. Meanwhile, the effects analysis assumes operation within the 1% bound. Specific sideboards are needed to minimize effects. The action agencies need to work with regional managers to come up with a mutually acceptable plan that considers individual project data and operations to create sideboards on turbine operations outside of 1% efficiency. Alternatively, this measure should be removed from the PA.	The co-lead agencies are coordinating guidelines and limitations for operations outside the 1% operating range. The overall level of spill at any given Project is determined not by the individual turbine unit capacity but by overall project operations management decisions. These decisions will occur through the Regional Forum and guided by the Adaptive Management Plan. Adaptive management strategies will be used to assure no detrimental impact.
6894	20	ericquaempts@ctuir.org	Confederated Tribes of the Umatilla Indian Reservation Department of Natural Resources	Structural fish measures provide little benefit to anadromous salmonids. Many of the PA structural measures have little to no benefit for salmon and steelhead and should not be listed as beneficial to fish. Most of these fish measures appear to provide a hydro-power benefit instead, which is a step back from the Flex Spill Agreement. Those included in the PA are less than what was proposed in the multi-objective alternatives. For example, the Lower Granite Trap modifications and the Bonneville Serpentine Weir both have reduced scope providing almost no benefit above the NAA. In addition, most of the structural measures listed in the PA are already completed. Although they are additions to the NAA, their status towards completion should be clarified. The Columbia River Fish Management (CFRM) Program is characterized as being complete in 10 years since few new actions have been identified. The PA needs to accurately portray the minimal fish benefits associated with limited structural measures included in the PA and clearly identify that most have already been completed. Additional structural measures should be included in the mitigation toolbox to ensure NEPA coverage and to support advocating for increases in the CRFM budget. This should include (but not be limited to) all actions currently on the SCT list to assure EIS coverage and not foreclose on their funding. The scope of the DEIS must be sufficiently broad to provide NEPA coverage for all structural measures in the current Systems Configuration Team (SCT) spreadsheet analyses. The PA should provide for continued implementation of high priority measures from the SCTs analyses.	The co-agencies agree that the structural measures proposed in the Draft EIS provide small incremental benefits to fish survival when compared to increased spill or dam breach as modeled by CSS. There are two explanations for this: 1. Latent mortality, as modeled by CSS assigns a large survival benefit (Smolt-to-Adult) for large reductions in powerhouse passage; 2. the overhaul of the four lower Snake and Columbia River dams is near completion. All the big structural fixes, such as surface flow bypass, juvenile bypass systems and improvements, spillway improvements, avian predation deterrence, adult ladder improvements, have been constructed. What remains in the CRFM budget and SCT spreadsheet is completion of that construction effort. Funding for operating and maintaining the facilities that were constructed under this overhaul will continue into the future. The remaining actions on the SCT list are almost exclusively actions recommended in a BiOp, and as such are being carried into the Preferred Alternative from the No Action Alternative. Unless otherwise noted, all other actions that were planned or part of ongoing CRS operations and maintenance in 2016 when the EIS was initiated are included as part of the Preferred Alternative. Therefore the items in the SCT spreadsheet will have continued NEPA coverage.
6894	21	ericquaempts@ctuir.org	Confederated Tribes of the Umatilla Indian Reservation Department	The Preferred Alternative Fails to Meaningfully Disclose and Analyze That the Corps Reliance on O&M Funding to Meet its Fish Obligations Will be Increasing, but the Current Corps O&M Funding Trajectory is Declining The PA indicates that most of the Corps actions will shift to an O&M funding source, however Corps commitments to O&M funding are declining. Actions included in the PA that appear to rely on O&M funding include replacement and upgrades to existing system, continued implementation of existing management plans, and multiple lines of research, among others. Most of these items are hidden as continuing actions under the NAA, with continuing implementation assumed. The lack of certainty surrounding full implementation of these actions due to lack of funding is not acknowledged or factored into the effects analysis.	Section 7.2 describes that the No Action Alternative, MO1, MO2, and MO4 (described in Chapter 2) allow for the operation of the projects in furtherance of all of the congressionally authorized purposes to varying degrees. This includes flood risk management, navigation, irrigation, hydropower generation, fish and wildlife conservation, and recreation. Therefore existing funding mechanisms and congressional authorizations would continue under the Preferred Alternative. In addition, some programs are funded by Bonneville's electricity ratepayers as part of the rates Bonneville sets to recover its costs. However, under MO3, new congressional authority through the passage of new laws and associated funding would be required to implement the dam breaching measures. CRSO implementation and system requirements and associated costs, such as for project capital investments and operations and maintenance, were assumed to be fully funded to meet these requirements. Additional feasibility studies and engineering and design studies would be needed to implement the Preferred Alternative once this EIS is completed. The co-lead agencies are aware that potential funding challenges are a reality for all actions, but the assumptions for the EIS analysis are projects would be funded as implemented. The co-lead agencies also note Appendix R describes the Monitoring and Adaptive Management Plan. The agencies will also discuss the mitigation measures in their Record of Decision.

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			of Natural Resources		
6894	22	ericquaempts@ctuir.org	Confederated Tribes of the Umatilla Indian Reservation Department of Natural Resources	Fish Effects Analysis Depicts Minimal Improvements Based on High Levels of Uncertainty The analysis in the PA does not determine what benefits to salmon and steelhead are expected or needed, nor does it give a goal. The regional SAR goals are not discussed in the DEIS goals and are described as improvement without any quantitative goal. The analysis depicts almost little to no benefit for many of the stocks and when one considers confidence intervals (not shown in the summary chapters of the DEIS, only in the appendix) there is not a statistical difference between the PA and NAA (base case). Notably, the analyses do not indicate whether the measures result in increasing abundance trends towards the NPCC goal of 5 million salmon and increasing steelhead, and SARs between 2 and 6 percent. Progress towards achieving the NPCC goal should be one of the metrics to determine success of FCRPS hydro operations and mitigation measures.	Based on the analysis in the CRSO EIS, the Preferred Alternative will make a substantial contribution to improving Snake River anadromous fish runs, but broad-sense recovery goals like those mentioned in this comment are beyond the scope of this EIS, which focuses on the effects associated with the operation and maintenance of the 14 CRS projects. The co-lead agencies used high-quality information in the analysis of the CRSO EIS. Specific to salmon and steelhead, the agencies used two primary modeling approaches which yielded a range of potential outcomes for the alternatives. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult (SAR) return rates will increase for both Snake River spring Chinook and steelhead and will average above 2% (within the Northwest Power and Conservation Council recovery targets for the region) as a result of the Preferred Alternative. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. It should be noted that the 2-6%SAR target referenced refers to the Councils target for broad-sense recovery and is separate and distinct from the obligations of any single entity or in this case a requirement to be met solely by the co-lead agencies. Just as the Councils fish and wildlife program encompasses both Federal and non-Federal stakeholders in the Columbia Basin, the Councils recovery goals are shared by many parties.
6894	23	ericquaempts@ctuir.org	Confederated Tribes of the Umatilla Indian Reservation Department of Natural Resources	The Preferred Alternatives Flex Spill Operation Relies on Unsupported Latent Mortality Assumptions to Show Fish Benefits The NOAA analysis performed in the PA relies heavily on assumptions regarding improvements in Latent Mortality to achieve any benefit when compared to the NAA (base case). Latent Mortality is associated with powerhouse passage. Analyses have shown that juvenile fish that pass through powerhouses experience a decrease in survival at later life stages compared to their spillway passed cohorts. Latent and delayed mortality refers to subsequent mortality at later life stages after the initial powerhouse passage experience. The CSS model is based on relationships built on SARs calculated from different passage routes from the long data time series of past years of adult returns (empirically based). CSS model analyses of CRSO-EIS do not require any assumptions regarding delayed mortality. Delayed/latent mortality that occurs is captured in the SAR metric. NOAAs Life cycle model, specifically the COMPASSS component does not include delayed/ latent mortality. Arrival time of juvenile salmon and steelhead to below Bonneville is the primary metric in COMPASS analyses used to access operational alternatives (including the PA) The CSS models do show a slight improvement in SARs for the PA when compared to NAA (base case) since the PA reduces Pit PH (powerhouse passages). Pit PH is an index to estimate the number of fish passing powerhouses. However, the improvement described in the DEIS of 35% is a relative improvement and the resulting absolute SAR with the PA is still small and below the regional 4% SAR goal. Conversely, the NOAA life cycle model does not show an improvement in the PA and actually shows it can be worse than the NAA (base case). NOAA modelers add a latent mortality adjustment factor into their model and arbitrarily used a range of values (0 50%). Once the Latent Mortality adjustment was used NOAAs Life Cycle Model did show a benefit when a 25% Latent Mortality reduction factor was added to the modeling, see appendix E. We agree that Latent Mortality is an important factor that needs to be considered, but the PA relies solely on this improvement to achieve even the modest improvements when compared to the NAA (base case). Any benefits of the PA in the NOAA analysis are questionable, because the NOAA latent mortality assumption lacks an empirical basis. If latent mortality improvements are less than this 25% threshold this could result in no benefit from the PA. The CSS analyses of the PA estimate that at low flow and poor ocean conditions, the predicted SAR with the PA is less than 1% which is less than population replacement levels. CSS analyses show that with implementation of the PA, predicted SARs are below the 1% SAR population replacement level 36% to 39% of the time. For these reasons we believe that additional mitigation actions are needed to ensure benefits are realized. Furthermore, additional monitoring and research should be conducted to evaluate how the PA operation is performing. See recommended addition mitigation and actions below.	The spill operation for juvenile fish passage is a significant departure from previous operations, so much so that the Washington and Oregon state water quality standards had to be changed to implement the new spill regime. Based on the fish analysis in Section 7.7.5, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species. For example, the CSS and COMPASS models predict that power house encounters would be cut in half relative to the No-Action Alternative for Snake River spring/summer Chinook salmon. The uncertainty lies in the hypothesis that reduced powerhouse encounters will result in increased adult returns. To address this uncertainty, the Preferred Alternative includes an adaptive management plan. This plan involves working with regional sovereigns to develop a study to assess the effectiveness of the increased spill regime on adult returns as well as assessment and management of adverse unintended consequences, such as long delays of adult migrants, or TDG-related mortality of juvenile migrants. Please see Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information. The model results presented in Section 3.5 and Section 7.7.4 address latent mortality and reservoir mortality. Latent mortality is captured directly in the CSS model for SARs and abundances, and is overlaid with several assumed values (10%, 25% and 50% reductions in latent mortality) in the NMFS Life Cycle model results. Reservoir mortality is captured in the juvenile survival metrics presented in Chapter 3. Delayed mortality in the ocean due to CRS dam passage is discussed throughout the Draft EIS.
6894	24	ericquaempts@ctuir.org	Confederated Tribes of the Umatilla Indian Reservation Department of Natural Resources	The Preferred Alternatives CSS Fish Benefits are Biased High All analyses by NOAA and the CSS were based on 80-year water record model generated data sets from the USACOE. The PA represents an operation that is based on an hourly operation, but the data sets provided to analyze the PA were based on daily average operations. The anomalies in the PA data sets were identified in a memorandum to the federal action agencies. The discussion of the benefits of the PA does not address the disparity of the data sets relative to the proposed operations. Specifically, the implications of analyzing an hourly operation (the PA) on the basis of a daily average operation (the PA data set), is not discussed in the DEIS. The PA analysis should account for the fact that the data sets provided to the CSS project were in daily average time steps, yet the proposed operation occurs on an hourly time step therefore raising doubts regarding the results. The CSS (memo January 24, 2020) highlighted their concern that the CSS predicted benefits are overestimates of predicted SARs. This creates a CSS analysis which shows more benefit to survival than is likely to occur (biased high). In addition, the hydraulic data sets has powerhouse operations that do not represent reality. Instead of fully loading the powerhouse when possible as is common practice, flow through the powerhouse is reduced, which results in more spill occurring then would actually occur. This would bias the fish models into predicting better survival then what would actually occur. The DEIS PA fails to mention this or take the biological effect into consideration.	In practice, model estimates may not overestimate PITPH due to day vs.. night passage differences because limitations on nighttime spill reductions are already in place through the adaptive management process and lessons learned from the 2019 flexible spill operation. These adjustments in the amount of night time spill were informed by state, Tribal, and Federal biologists with expertise in dam operations and their effects to fish passage. This example of adaptive management will continue under the Preferred Alternative, as described in Appendix R.
6894	25	ericquaempts@ctuir.org	Confederated Tribes of the Umatilla Indian Reservation Department of Natural Resources	The level of Improvement for new Turbines at Ice Harbor, McNary, and John Day are Unfounded and not Supported by Past Data and Research The PA includes installation of new turbines at John Day, Ice Harbor, and McNary dams. However, these actions are already planned to occur in the base case so it is misleading that they are identified as new fish benefits in the PA. Furthermore, the DEIS arbitrarily assumed that these turbines would have a 50% improvement in juvenile migrant survival. This assumption is not supported by any available studies. See detailed comments below in our comments on Effects Analysis modeling. Moreover, the PA indicates that generation capacity at John Day and McNary will increase hydraulic capacity. This increase in generation capacity was not included in the hydraulic modeling that was provided to the fish model or the economic models and would impact the results from both models. With more water going through the turbines, economic impacts would be reduced. More importantly, juvenile survival would be decreased (see detailed discussion below). This information needs to be considered against the unsubstantiated survival improvement accredited to the new turbines, something the analysis fails to do.	IFP turbines at John Day are not included in the No Action Alternative, only the Preferred Alternative. McNary and Ice Harbor (units 1-3) are part of the No Action Alternative because of the progress that has been made on these projects and the Preferred Alternative because work is yet to be done on implementing these projects. Survival estimates are based on the best available data. Once installed the new turbines will be tested and validated for fish survival. However, the turbine survival rates used in the model are based on empirical estimates, known to be biased low (Carlson et al 2012), but are unadjusted in the NMFS COMPASS model, as the magnitude of survival improvement is difficult to estimate. Only McNary turbines will have greater capacity. Project wide operations decisions determine the amount of water passing through turbines, not strictly turbine hydraulic capacity.
6894	26	ericquaempts@ctuir.org	Confederated Tribes of the Umatilla Indian Reservation Department of Natural Resources	There is Unaccounted for Bias or Uncertainty in the Preferred Alternative Analysis The following biases or uncertainties are not addressed or explained: a. Zero Generation in the Snake (as proposed for in the fall in the PA) has not been analyzed; b. Avian losses are not accounted for (see below); c. Significant uncertainty from the Adaptive Management Appendix is not considered and all risk is on the fish side of the equation while minimizing risk on the hydro-power system; and d. Looking at the PA data set in detail, spill plus powerhouse does not always come out the same as the daily average flow, by a large magnitude. Sometimes water disappears and sometimes there is a lot of extra water (more than fishway flows for instance). Due to the uncertainties and modeling biases, significantly more fish mitigation measures should be considered to counter these uncertainties and allow the PA to be consistent with the NPCC goals of 5 million fish and 2-6% SARs.	The co-lead agencies will implement the zero generation operation in a manner that has negligible effects to any salmon or steelhead present in the river. Nighttime operations will end prior to daylight hours and allow attraction flow to fish ladders to aid passage for fish that are attempting to pass the projects. Daytime zero generation operations would not be implemented until mid-December when juvenile and adult migration has largely ceased. These effects have been analyzed by the co-lead agencies and were also reviewed by National Marine Fisheries Service (NMFS) and U.S. Fish and Wildlife Service (USFWS) during the development of their respective Biological Opinions. Losses of salmonids due to avian predation is complex and is a function of species, location, timing, and habitat availability for birds. The Draft EIS describes avian predation on salmonids quantitatively when information is available and qualitatively when data is lacking. The current rates of predation are only known for certain species at certain locations, as described in the affected environment and No Action Alternative of Chapter 3 Section 5. For example, predation of juvenile steelhead from the upper Columbia River has been monitored at Crescent Island on the mainstem Columbia River and has declined from nearly 23% in 2009 to approximately 4% in 2017 (Draft EIS p. 3-290). Avian predation of juvenile steelhead at Crescent Island has been eliminated due to management actions (Draft EIS p. 3-290). Chapter 3, Section 6, describes effects to avian habitat availability at key locations on the mainstem Columbia River. Changes in operations affect the acres of available habitat for Caspian terns and cormorants, thus impacting the potential numbers of birds that may be nesting and foraging on salmonids. Where it is anticipated the alternatives would result in changes to avian predation from the No Action Alternative, Chapter 3, Sections 5 and 6, describe those effects. In addition, models used to describe effects to fish species include historical losses due to predation, so those effects are captured in the modeling. Chapter 7 includes measures to reduce avian predation and quantitatively describes effects to salmonids. The framework for the adaptive management process is detailed in Appendix R, Part 2, Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS. It is the intention of the co-lead agencies to engage regional state, Tribal, and Federal fish managers in the development of an appropriate adaptive management process utilizing their respective salmonid management expertise. The goal of that adaptive management process would be to consider additional opportunities to further the effectiveness of the operation while maintaining the goals of the flexible spill operation: additional improvements for salmon and steelhead, maintain opportunities to operate the CRS for hydropower generation in a flexible manner that provides value to the Northwest, is implementable by the dam operators, and provides opportunity to reduce uncertainty and improve the learning opportunities around how operations of the CRS can influence the magnitude of latent mortality effects. The co-lead agencies have not made any determinations on what the preferred approach would be for a regionally developed study plan, and intend to develop that study jointly with regional experts. Unforeseen outcomes or unintended consequences will be monitored and adjusted using current in-season management teams, such as the Technical Management Team. The co-lead agencies acknowledge the uncertainty associated with the model outputs of both the CSS and the NMFS models. That is why we are implementing the adaptive management framework as part of the preferred alternative/proposed action. Outflows through the dams are divided into multiple different types, mainly comprised of the powerhouse turbine flow and the spill. The spill flow has several different components. There is fish spill, powerhouse bypass channel, attraction spill, lack of market spill and forced spill due to lack of turbine capacity. In addition there is miscellaneous flow, which includes lockages, leakage and other flows. For more information, see Appendix B, Part 2: Spill Analysis. As for the Northwest Power Act mandates and compliance, some context is necessary to understand where the Agencies stand with regard to the goals and objectives of the Northwest Power and Conservation Council (Council). For additional information, see response to Comment 31775-111. The Act anticipates a Columbia River Basin Fish and Wildlife Program (Program) based primarily on hydrosystem actions and identifies two mitigation priorities for anadromous fish, both of which the region has largely achieved. The Program must provide for improved survival of such fish at hydroelectric facilities and provide flows of sufficient quality and quantity between such facilities to improve production, migration, and survival of such fish. 1/ These goals and objectives apply to all hydroelectric projects in the Northwest. Appendix B to the Councils 2014 Program, which remains in effect, indicates the hydrosystem affecting anadromous fish in the basin includes 136 dams, some built even before Bonneville Dam. 2/ Congress required four agencies the Corps, Reclamation, and Bonneville along with the Federal Energy Regulatory Commission, which has regulatory authority over more than 100 dams in the basin to implement the substantive mitigation provisions of the Act. 3/ Four agencies and over 100 dams are thus needed to implement the Councils Program, because Congress mandated that Northwest Power Act mitigation be planned and implemented on a system-wide basis. 4/ Moreover, neither the Act nor the Councils Program has goals and objectives specific to the CRS (or the FCRPS). Suggesting that the co-lead agencies failed to meet Northwest Power Act mandates by falling short of the Councils Program goals conflates system-wide goals applicable to over 100 dams to the 14 hydroelectric projects comprising the CRS. In addition to applying to more than just the CRS projects, the Councils five million salmon goal can be influenced or even thwarted by factors other than the dams that have had adverse impacts on salmon, including population growth, habitat degradation, harvest, irrigation, and natural conditions including ocean conditions and climate. The Councils SARs goals suffer a similar shortcoming. Research shows that SARs are heavily influenced by factors other than in-river flows and spill

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					conditions, particularly ocean conditions that are beyond the control of CRS operations. For example, one study found a threefold difference in SARs for sockeye salmon that migrated downstream as juveniles in 2008 and 2010 despite nearly identical survival through the CRS from McNary to Bonneville dams. 5/ The researchers found the difference in sockeye SARs most closely correlated with ocean and climate indicators and concluded the large difference in SARs were the result of varying ocean conditions. The Councils SARs and adult fish goals do not reasonably apprise co-lead agency compliance with the Northwest Power Act because those goals are not tailored to the CRS specifically and do not meaningfully inform compliance with the Acts mitigation mandates. 1/ 16 U.S.C. 839b(h)(2)(A), (6)(E). 2/ See Council, 2014 Program, Appendix B, Compilation of Information on Salmon and Steelhead Losses in the Columbia River Basin, page 136 (Mar. 1986). 3/ 16 U.S.C. 839b(h)(11)(A). 4/ 16 U.S.C. 839b(h)(1)(A). 5/ Williams, J.G., Smith, S.G., Fryer, J.K., Scheuerell, M.D., Muir, W.D., Flagg, T.A., Zabel, R.W., Ferguson, J.W., and Casillas, E., INFLUENCE OF OCEAN AND FRESHWATER CONDITIONS ON COLUMBIA RIVER SOCKEYE SALMON ONCHORHYNCHUS NERKA ADULT RETURN RATES in Fisheries Oceanography (2014).
6894	27	ericquaempts@ctuir.org	Confederated Tribes of the Umatilla Indian Reservation Department of Natural Resources	The Preferred Alternative Fails to Disclose the Regional Importance of the Northwest Power Acts Fish and Wildlife Program, and to Analyze Whether the Actions Proposed in the DEIS are Consistent With the Program The DEISs discussion of the Northwest Power Acts Fish and Wildlife Program focuses on the cost of the program, fails to note its benefits, and does not disclose or analyze the individual measures within the Program for which the co-lead agencies have statutory obligations to take into account and implement. In various iterations the Program has been in existence since 1982. The region invests hundreds of millions of dollars in its implementation annually. Nevertheless, the DEISs discussion is essentially limited to the following point (DEIS, 7-39): Bonnevilles Fish and Wildlife (F&W) Program funds hundreds of projects each year to mitigate the impacts of the development and operation of the Federal hydropower system on fish and wildlife. Bonneville began this program to fulfill mandates established by Congress in the Pacific Northwest Electric Power Planning and Conservation Act of 1980 (Northwest Power Act), 16 USC 839b(h)(10)(A), to protect, mitigate, and enhance fish and wildlife affected by the development and operation of the FCRPS. Each year Bonneville funds projects with many local, state, tribal, and Federal entities to fulfill its Northwest Power Act fish and wildlife responsibilities and to implement offsite mitigation actions listed in various Biological Opinions for ESA-listed species. Offsite protection and mitigation actions typically address impacts to fish and wildlife not caused directly by the CRS, but they are actions that can improve overall conditions for fish to help address uncertainty related to any residual adverse effects of the CRS. The benefits of the Fish and Wildlife Program are not disclosed or analyzed. Offsite mitigation is intended to replace survival benefits that cannot be fully addressed through modifying operations of the hydropower system alone. 16 USC 839b(h)(8)(A). Offsite protection and mitigation compensates for losses arising from the development and operation of the CRS hydroelectric facilities. The NAA alternative assumes the 2016 Program. However, the DEIS fails to disclose and analyze the fact that BPA has reduced Fish and Wildlife Program funding since 2016, cutting the budget by $30M in 2018 due to spill surcharge and negotiated reductions. This reduction in mitigation spending is not accounted for in the PA analysis and creates bias in cost analysis as well as assumptions about the benefits of current mitigation actions. In addition, the Co-Lead agencies discuss reducing the off-site fish and wildlife mitigation funding if the benefits to fish are as anticipated. The DEIS fails to disclose or analyze what level of benefit (abundance, SARs, etc.) will drive that discussion and decision. Nor does the DEIS disclose or analyze the process or timeline for consideration of that discussion and decision.	Funding decisions for the Bonneville Fish and Wildlife (F&W) Program are not being made as a part of the CRSO EIS process. However, a range of potential F&W program costs are included to inform the broader cost analysis for each alternative in the EIS. In the case of the Preferred Alternative, Bonneville included a range of potential F&W program costs to acknowledge the possibility that the Preferred Alternative could provide biological benefits to anadromous fish species (see Chapter 7 of the EIS, Preferred Alternative) and that this could, in turn, reduce the need for some offsite mitigation funded through the Bonneville F&W Program. By analyzing a range of costs, Bonneville reflects the year-to-year fluctuations related to managing its program and also acknowledges the uncertainty around both the magnitude of biological benefits and the potential impacts on funding, including the timing of funding decisions. Future budget adjustments would be made in consultation with the region through Bonneville's budget-making processes and other appropriate forums and consistent with existing agreements. As discussed in Section 7.7.21.1, in 2016, Bonneville's F&W Program budget was $267,000,000, and the Lower Snake River Compensation Plan (LSRCP) budget was $32,303,000. When these budgets are adjusted to represent 2019 dollars, they become $281,536,000 and $34,062,000, respectively, which are the budgets used under the No Action Alternative. For the Preferred Alternative, Bonneville would continue funding the operations and maintenance of the LSRCP, consistent with the No Action Alternative. Bonneville's F&W Program costs under the Preferred Alternative are estimated to range from no change from the No Action Alternative to a decrease of approximately 17%, or approximately $47 million, annually. Bonneville's fiscal year 2020 decisions to adjust the F&W Program budget to $249 million and the LSRCP budget to $30.5 million (BP-18 Rate Case) are consistent with the range of costs analyzed for the Preferred Alternative. With regard to benefits of ongoing mitigation actions, Section 2.4.2 provides a high-level overview of Bonneville's Fish and Wildlife Program, many of its major subprograms and their benefits, including habitat actions, hatchery actions, predator management, lamprey research and mitigation, and wildlife mitigation. Section 2.4.2 also describes some of the many CRS improvements and the associated benefits for fish. The fish and wildlife mitigation projects that Bonneville funds have been recommended by the Northwest Power and Conservation Council (Council) and either derive from, or have been incorporated into, the Councils Columbia River Basin Fish and Wildlife Program. Further, the Independent Scientific Review Panel periodically reviews the mitigation projects under certain statutory criteria such as benefits to fish and wildlife. 16 U.S.C. 839b(h)(10)(D(iv). And for fish and wildlife managers that implement Northwest Power Act mitigation through Fish Accord agreements with the co-lead agencies, the managers and co-lead agencies have agreed that such mitigation projects are consistent with the Councils Fish and Wildlife Program. See responses to Comments 31775-51, 6894-56, and 6894-49. With regard to the comments about the policies and mandates of the Northwest Power Act, the FEIS has been edited to provide more detailed discussion of those mandates and how the Agencies comply with them. See Chapter 5.1.2.
6894	28	ericquaempts@ctuir.org	Confederated Tribes of the Umatilla Indian Reservation Department of Natural Resources	The Mitigation Package Contained in the Preferred Alternative is Lacking There is very little offered in the PA in terms of fish mitigation. Most fish mitigation is ongoing, and the discussions regarding this ongoing mitigation do not disclose its extent or effects on listed and non-listed species. (See Fish and Wildlife Program and Avian Predation discussions.) With respect to new fish mitigation measures proposed in the DEIS, the only new operational measure with fish benefit is JDA pool operations to aid with predation dissuasion. Further, the off-season surface spill study for Steelhead overshoots (and bull trout migration) has been reduced to studies only. This is an important mitigation action that needs to occur as soon as possible under any alternative and not wait for additional studies. Tributary habitat restoration is also at a slower implementation pace than the NAA, due to budget cuts. Additional mitigation measures should be included; see below for some recommendations.	See response to Comment 31775-54. The Preferred Alternative includes actions that benefit fish species and habitat through additional measures, ongoing programs, mitigation measures, and ESA consultation. As described in Section 7.6.1, a number of measures that are carried forward, modified, or added from the alternatives in Chapter 2 are intended to improve survival of anadromous salmon and steelhead, lamprey, and resident fish. Some examples are structural measures for lamprey passage, juvenile fish passage spill operations, and predator disruption operations. Section 7.6.4.1 provides summaries of the ongoing programs that would be carried forwarded in the Preferred Alternative. The majority of those ongoing programs are mitigation currently being implemented. Additional mitigation measures identified to offset effects from measures in Section 7.6.1 are presented in Section 7.6.4.2 that include mitigation measures for fish effects (Plant Cottonwood Trees (Up to 100 Acres) Near Bonners Ferry for resident fish and Temporary Extension of Performance Standards Spill Operation for adult salmonid passage delays). Section 7.6.4.3 describes the measures incorporated into the Preferred Alternative as a result of informal and formal ESA consultation. The Bull Trout Access to Perched Tributaries in the Kootenai River measure includes both completing an assessment and two projects for upstream passage. The Surface Spill to Reduce Take of Overshooting Adult Steelhead measure would provide an operational method to address the overshooting steelhead. Chapters 2, 5, and 7 discuss the co-lead agencies' ongoing mitigation programs, and the co-lead agencies are unaware of the concern from the commenter that tributary habitat restoration is occurring at a slower pace currently.
6894	29	ericquaempts@ctuir.org	Confederated Tribes of the Umatilla Indian Reservation Department of Natural Resources	Predator management actions identified for the PA, while continuing, are actually at a lower level than the NAA due to budget cuts and lack of commitment by COE. Recent avian predation rates indicate that avian predation continues to be a major source of fish loss in both CRS reaches and the estuary. The extent of this fish loss is not adequately portrayed or accounted for in the EIS analysis.	The co-lead agencies disagree that the extent of avian predation on fish in the CRS is not adequately portrayed. The co-lead agencies legal authorities relate to operating and maintaining the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. To comply with the ESA, the co-lead agencies have historically supported actions to mitigate adverse effects to listed species from CRS operations, through funding, direct implementation, and other means. Under the Preferred Alternative, those actions, including for the purpose of reducing pinniped and avian predation on listed species, would generally continue to ensure compliance with the ESA. Other entities in the region have authorities and obligations to mitigate the impacts from pinniped and avian predators and the co-lead agencies will continue to work closely with those entities to benefit ESA-listed salmonids.
6894	30	ericquaempts@ctuir.org	Confederated Tribes of the Umatilla Indian Reservation Department of Natural Resources	Inland avian predation management measures are insufficient. The AAs execution of the IAPMP has failed to keep colony specific avian predation rates less than 2% per ESU or to maintain breeding colonies at less than 40 pairs of nesting terns (e.g. Blalock Island). However, the greatest deficiency of the IAPMP is not in the execution of the plan, but the biological scope of the plan. At the time the IAPMP was written and implemented, we knew very little about other avian predator species and their impacts on ESA salmon and steelhead. The Action Agencies have funded research and continues to fund research that has added to our understanding of the impacts of avian predation and must be reflected in the IAPMP. For example, recent research has estimated Upper Columbia steelhead mortality by all species of avian predators to be as high as 53%. Gulls in the plateau region (e.g. Miller Island) are now known to contribute, largely, to the high steelhead and sockeye mortality estimates. For Miller Rocks, the 2007 to 2019 average Gull predation on Snake River Sockeye has been 6.2%, Snake River Steelhead 7.2% and Upper Columbia Steelhead 8.2%. Hence, the IAPMP must be broadened to include all predatory avian species, not just Caspian terns. This predation is occurring in the affected area of the DEIS. The majority of this predation takes place in the tailrace of the dams and is directly related to presences and operation of the dams. [letter contains graph figure here]. 2020 marks the first year that the Bureau of Reclamation (BOR) has funded dissuasion efforts on Goose Island. In 2019, the Priest Rapids Coordinating Committee funded all of the dissuasion and vegetation effort. It is our understanding that BORs work represents a 50% reduction in effort from 2019. Were skeptical that BOR will produce the same results as the PRCC with only half the effort. Furthermore, the DEIS states, Reclamation will continue passive and active dissuasion efforts on Goose Island. There are dozens of islands in the Potholes reservoir area. All of the islands are in BORs jurisdictional authority and any of them could host the next colony of Caspian tern or another avian predator. BORs avian predation responsibility to all the areas in their jurisdiction, not only Goose Island, should be clearly stated in the DEIS. a. Caspian Tern (CATE) predation management at East Sand Island. The USFWS will not issue egg taken permits for non-managed satellite colonies on ESI. This means that if an egg is laid outside the managed colony, the nest becomes protected under the auspices of the migratory bird treaty act. Terns are colonial nesters and if one nest becomes protected, it will likely result in a new colony. At a minimum, egg take permits must be issued. Until 2019, the AAs, researchers and the adaptive management team targeted 3,125 nesting pairs on terns on the managed colony. That target was a widely accepted but never achieved. In 2019, USFWS began citing the upper number in the range as the target (4,375) without explaining its rationale. This was a departure from the widely accepted management goal of 3,125. The CATE Predation Plan has not met its biological goals for nesting numbers in most years nor has it met its original biological goals, as stated in previous BiOps, of reducing CATE predation on steelhead to less than 6%. The COE has not moved to further reduce habitat at ESI to achieve the nesting pair goal and has moved funding away from this program to Operation and Maintenance, which has a negative funding trajectory. This calls into question the certainty of the future support and funding of these management operations. b. Double-crested Cormorant predation management at East Sand Island. The DEIS predation section essentially restates the Corps responsibility to the DCCO ESI management plan. After modifying the terrain on ESI in a way that was consistent with the management plan, the COE stated that they have met the management objectives of this plan and are phasing this program out. However, the COE did not meet its biological goals of nesting pairs on ESI prior to making terrain modification. This has caused a majority of the colony to move further upstream and enhance and create new incipient colonies at such sites as Astoria- Megler Bridge, a location known as The Towers, various Navigation Markers, and the Longview Bridge. The COE can say they are closing out their management plan, but their actions to date have not meet the biological goals of reducing DCCO predation. Rather, they have moved the birds further upstream which will likely increase their predation impacts on listed salmon and steelhead stocks. Like the tern management plan, future funding for this program has been moved to the Corps of Engineers Operation and Maintenance budget which has a negative funding trajectory. This calls into question the certainty of the future support and funding of these management operations. [letter contains graph figure here]	The co-lead agencies have historically supported actions to mitigate adverse effects to listed species from CRS operations, through funding, direct implementation, and other means. Under the Preferred Alternative, those actions, including implementation of actions for the purpose of reducing predation on ESA-listed species, would generally continue to ensure compliance with the ESA. Other entities in the region have authorities and obligations to mitigate the impacts from pinniped and avian predators and the co-lead agencies will continue to work closely with those entities to benefit ESA-listed salmonids. Columbia Plateau Response: The Inland Avian Predation Management Plan (IAPMP) has been focused on reducing predation by Caspian terns with initial efforts being implemented at Goose Island (Potholes Reservoir near Othello, WA) and Crescent Island (McNary Reservoir near Burbank, WA). The objectives of the IAPMP have been met at these two locations in recent years and as of 2019, there has been a 49% reduction in the total number of Caspian terns nesting on the Columbia plateau region since implementation of the IAPMP begun (Collis et al. 2020; http://www.birdresearchnw.org/2019%20GPUD%20Final%20Report.pdf). Adaptive management efforts to dissuade incipient colonies that have formed following implementation of the IAPMP have been implemented where the co-lead agencies have authority and management responsibilities which includes Potholes Reservoir including at the NW Rocks starting in 2014 and at small islands in the northern portions of Potholes Reservoir starting in 2015. The co-lead agencies continue to monitor and adaptively manage all of Potholes Reservoir to dissuade terns from nesting on co-lead agency managed lands in the area and this is anticipated to continue as described in the Draft EIS. However, the co-lead agencies recognize that some Caspian terns have moved to other locations and that some of these locations are managed by other entities outside of the co-lead agencies current management abilities. The co-lead agencies will continue to work closely with these other entities in the region who have authorities and obligations to mitigate the impacts from avian predators to benefit ESA-listed salmonids as well as implement a new reservoir management operation for the John Day reservoir to dissuade nesting Caspian tern as described in the Draft EIS. The IAPMP was developed with the best information available at the time and gulls were not identified as warranting directed management efforts at nesting colony locations by the co-lead agencies at agency-managed properties at that time. The co-lead agencies propose to continue, under the Preferred Alternative, predation reduction measures such as hazing at the agencies' CRS facilities as described in the Draft EIS to ensure the operation of the CRS does not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat. The co-lead agencies can only address certain types of predation by gulls, such as when they are foraging within the direct footprint of the co-lead agencies' CRS facilities where the agencies have management abilities. Other entities in the region have authorities and obligations to mitigate the impacts from avian predators as well and the co-lead agencies will continue to work closely with those entities to benefit ESA-listed salmonids. Management of gulls at Miller Rocks just upstream of Miller Island is not feasible by the co-lead agencies as they do not own or manage this property and therefore do not have the authority or abilities to manage avian predation at this location. The Bureau of Reclamation has been engaged with and funding actions associated with management of piscivorous waterbirds on the Columbia River plateau including at Potholes Reservoir since 2010. Starting in 2014 when the implementation of the IAPMP begun, BOR began funding their respective commitments associated with implementation of the IAPMP in coordination with the other co-lead agencies. While the Priest Rapids Coordinating Committee has funded additional avian predation efforts in the region, and agreed to fund all 2019 activities at Potholes Reservoir, the Bureau of Reclamation intends to continue implementing and funding future actions necessary to implement the IAPMP where they are the responsible agency. CATE RESPONSE: The goal of the CATE management plan was to reduce habitat at East Sand Island to a minimum of 1.0 acre following the creation/enhancement of habitat at alternative sites outside of the Columbia River basin. Habitat creation/enhancement was completed and habitat at East Sand Island reduced to 1.0 acre preceding the 2015 breeding season. The number of breeding pairs nesting on East Sand Island was used as a proxy to assess predation rates, but the stated goal of the plan was defined as an acreage of habitat and not the number of pairs in the estuary. Depredation permits are issued to alleviate some form of damage, not to achieve population control. As a result, depredation permits are issued only if the requested lethal take of birds is consistent with the conservation of the species (e.g., the species remains at a healthy and sustainable level). (From USFWS DCCO FAQ website: https://www.fws.gov/pacific/migratorybirds/pdf/DCCOQ_A_USFWS03212016.pdf). The co-lead agencies legal authorities relate to operating and maintaining the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. To comply with the ESA, the co-lead agencies have historically supported actions to mitigate adverse effects to listed species from CRS operations, through funding, direct implementation, and other means. Under the Preferred Alternative, those actions, including for the purpose of reducing avian predation on listed species, would generally continue to ensure compliance with the ESA. Other entities in the region have authorities and obligations to mitigate the impacts from pinniped and avian predators and the co-lead agencies will continue to work closely with those entities to benefit ESA-listed salmonids. DCCO RESPONSE: The management goal of the DCCO plan was a reduction of the breeding colony at East Sand Island via lethal and non-lethal means to no more than 5,380 5,939 breeding pairs nesting. As described in the DCCO management plan, an average 3-year peak estimate of the breeding colony would be used to assess management objectives after implementation of Phase II activities (i.e. habitat modification). Actions would be considered successful when the average 3-year peak colony size estimate does not exceed 5,380 5,939 breeding pairs while no management activities are conducted. In coordination with USFWS, the Corps defines no management activities to mean non-lethal activities described in Chapter 5 of the FEIS. Specifically, Phase II activities are intended to consist of lower maintenance, non-lethal hazing and dissuasion actions that reduce the amount of human presence needs on East Sand Island to ensure colony size objectives are not exceeded.

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					Hazing and dissuasion activities would be implemented as needed, and would continually transition to methods that are most effective, least impactful to non-target species, and require the least management effort and cost. Pending evaluation of the peak colony size during the 2020 breeding season, if the average 3-year breeding colony is less than 5,939 breeding pairs, management objectives will be met and actions will transition long-term operation and maintenance of the colony. Similar to the CATE management plan, the co-lead agencies support efforts to offset adverse effects to listed species from CRS operations, through funding, direct implementation, and other means.
6894	31	ericquaempts@ctuir.org	Confederated Tribes of the Umatilla Indian Reservation Department of Natural Resources	The extent of sea lion predation is unclear. While the California Sea Lion program has been successful (and presumedly continues), it is unclear if a Stellar Sea Lion program is included in the EIS.	The co-lead agencies' legal authorities relate to operating and maintaining the CRS to meet multiple statutory purposes. They are also required to ensure that operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy designated critical habitat. To comply with the ESA, the co-lead agencies have historically supported actions to mitigate adverse effects to ESA-listed species from CRS operations, through funding, direct implementation, and other means. Under the Preferred Alternative, those actions, including for the purpose of reducing pinniped (California and Steller sea lion) and avian predation on ESA-listed species, would generally continue to ensure compliance with the ESA. Under the Preferred Alternative, actions that reduce pinniped and avian predation on ESA-listed species, would generally continue to ensure compliance with ESA as described in Section 7.6.4.1, Ongoing Programs, including ongoing measures to haze and monitor pinniped predators. Other entities in the region have authorities and obligations to mitigate the impacts from pinniped (both California and Steller sea lions) and avian predators and the co-lead agencies will continue to work closely with those entities to benefit ESA-listed salmonids.
6894	32	ericquaempts@ctuir.org	Confederated Tribes of the Umatilla Indian Reservation Department of Natural Resources	A comprehensive Columbia River predator control program should be considered as a mitigation measure to address predation through the freshwater migration of juvenile salmon and steelhead. This should include at least the following: 1. Increased predation control both inland and in the estuary for avian, expand to include other species such as gulls; 2. Measures at dams, hatchery outfalls, hatchery release locations, and river mouths must have active hazing during periods of hatchery and volitional releases. These control actions must have some lethality incorporated to maximize effectiveness of reducing losses from avian predators. 3. Improved avian deterrence at projects (e.g. wires, enhanced hazing and lethal deterrence for all species), most notably in those areas immediately downstream of dam tailrace and forebays. 4. Sea Lion Predation control to include Stellar as well as California Sea Lions. 5. Maintain options to manage river levels during the spawning periods for walleye and smallmouth bass to limit recruitment of these invasive non-native fish.	The Endangered Salmon Predation Prevention Act authorizes NOAA to issue permits to states and Tribes to kill sea lions in the lower Columbia River and some tributaries in order to protect certain fish from sea lion predation. The co-lead agencies do not have authorities to administer the Act. However, the co-lead agencies have supported actions to mitigate adverse effects to listed species from CRSO operations, through funding, direct implementation, and other means. Under the Preferred Alternative, those actions, including for the purpose of reducing pinniped and avian predation on listed species, would generally continue as described in Chapter 7.
6894	33	ericquaempts@ctuir.org	Confederated Tribes of the Umatilla Indian Reservation Department of Natural Resources	Lamprey measures in the Preferred Alternative are incomplete and funding unclear. The lamprey measures listed in the have been identified since 2016. They have not been implemented due to lack of funding commitment by the co-lead agencies. The lamprey measures disclosed in the DEIS represent only a portion of the list of needed lamprey actions even as identified in the Corps Lamprey Priority Matrix, which is itself just a start, and does not cover all lamprey needs. Recent funding commitments only provide funding through about 2022, and it unclear how that funding relates to this EIS and implementation of the lamprey measures identified for the DEIS. Future lamprey actions through the 25-year term of CRS EIS have not been identified, nor has their funding. With the reduction/phase out of the CRFM budget (also discussed above), funding for additional and future lamprey measures is uncertain. Including all actions in the matrix would demonstrate the importance of the actions, provide NEPA coverage, and assist with future funding requests.	See response to Comment 3894-13. Measures identified in the Draft EIS do not include all lamprey passage improvements that could be potentially implemented at the Lower Columbia and Lower Snake River dams, but the Corps believes that potential actions contemplated in preliminary lamprey program planning discussions with the Columbia River Inter-Tribal Fish Commission (CRITFC) staff and others related to the 2018 extension of the Accords are consistent with the measures and analyses included in the Draft EIS. CRITFC is correct that actions beyond the scope of the measures included in the Draft EIS or ongoing activities would potentially require further NEPA analysis.
6894	34	ericquaempts@ctuir.org	Confederated Tribes of the Umatilla Indian Reservation Department of Natural Resources	The Preferred Alternative should include additional measures. The following list includes potential mitigation actions that could be implemented to mitigate for fish impacts. These actions were identified and suggested during the development of the mitigation toolbox but are not currently identified in the Draft EIS as potential mitigation. As a Cooperating Agency, we were never told the disposition of our recommendation to add these items to the toolbox. With the uncertainty of the action moving forward, and the reliance on an adaptive management framework as identified in the Adaptive Management Appendix, it is important that these actions be included somewhere in the EIS analysis to provide the NEPA coverage for quick implementation and to assist with identifying funding. As noted above, at least some of these should be add as mitigation to the PA as currently drafted. 1. Predation actions noted above; 2. Adult ladder temperature cooling pumps for McNary and John Day; 3. Vertical slot weir gates for adult steelhead fallback post spill make operation more cost effective; 4. Evaluate options to increase the number of RSW/TSW at dams to create the best possible surface passage attraction flow and increase the number of surface passage routes. (This alternative would require modifications of existing spill patterns and would need to be modeled); 5. Evaluate potential options to increase Kelt collection at projects in both Snake and lower Columbia; 6. Replace/place Cells at Little Goose Dam North Shore adult entrance; 7. Replace trunnion pin and wire ropes at The Dalles spillway; 8. Install additional Spillway Pit Detection (Ice Harbor, work collaboratively with Mid-Col to get detection there, possibly Wannapum, and location in lower Columbia); 9. Increase Pit Barges and other detection arrays below and at Bonneville Dam; 10. Implement shad reduction measures; 11. Look at ways to fund/implement 10-year Lamprey Plan (Strong need to get juvenile active tag study going); 12. During times when no adult ladders in operation, (ie LWG and LGS) run the RSW to assist overshot steelhead; 13. Work to increase funding through CRFM and O&M to ensure actions and maintenance will be completed; and 14. Continue to address measures under consideration in SCT analyses. 15. Monitoring of adult migration may assist in the development of actions to increase survival or reduce overshoot.	Appendix R, Part 3 presents the mitigation toolbox including rationale for not carrying forward mitigation measures. Potential actions as listed in this comment, especially the structural actions, may require further refinement for site-specific analysis including NEPA and other applicable laws. The commenter's proposed mitigation measures do not appear to offset impacts associated with implementing the Multiple Objective alternatives (MOs), including the Preferred Alternative. These mitigation measures were proposed in the workshop process and not selected as they did not offset identified effects of the MOs, and were not carried forward into the Preferred Alternative.
6894	35	ericquaempts@ctuir.org	Confederated Tribes of the Umatilla Indian Reservation Department of Natural Resources	The Adaptive Management Appendix Does not Adequately Address Future Fish Survival The following aspects of the Adaptive management Appendix need to be corrected. 1. Flex Spill is only for one year, and the Flex Spill Workgroup is problematic. The Adaptive Management Appendix essentially reduces the proposed actions flex spill to a single year, with uncertainty of operation for the rest of the term of the EIS. The Flex Spill operation should be a defined 15-year commitment. The adaptive management process should require consensus from all parties to deviate from that fixed operation. It is unclear how the Flex Spill Workgroup will be organized and what the decision-making process will be. As written, the Workgroup would consult and inform regional interest, but leaves the decisions to the action agencies with uncertain limitations. The process also has the potential to undermine the TMT and FPAC groups. Based on experience there is not enough assurance that non-Federal parties input will be given due consideration. The Flex Spill Workgroup needs set sideboards and a clearly defined decision-making framework. 2. The Fourth Pillar to test latent mortality opens wide uncertainty. Appendix X unilaterally adds a Fourth Pillar to the Flex Spill Agreement pillars to require testing for latent mortality. Previous discussions have looked at a block study as this test. A block study would decrease the PAs spill operation and cause unanalyzed fish effects. Other potential tests could do the same. Any latent mortality test should have regional consensus and mitigation for any possible fish effects. 3. There is uncertainty regarding any future Spill Surcharge. Our current understanding is that future spill surcharges will be taken completely out of the BPA fish and wildlife budget, and not shared by all parties. BPA needs to model uncertainty and adaptive management to include all costs in rates cases and prevent future spill surcharges.	The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. The framework for the adaptive management process is detailed in Appendix R, Part 2, Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS. It is the intention of the co-lead agencies to engage regional state, Tribal, and Federal fish managers in the development of an appropriate adaptive management process utilizing their respective salmonid management expertise. The goal of that adaptive management process would be to consider additional opportunities to further the effectiveness of the operation while maintaining the goals of the flexible spill operation: additional improvements for salmon and steelhead, maintain opportunities to operate the CRS for hydropower generation in a flexible manner that provides value to the Northwest, is implementable by the dam operators, and provides opportunity to reduce uncertainty and improve the learning opportunities around how operations of the CRS can influence the magnitude of latent mortality effects. The co-lead agencies have not made any determinations on what the preferred approach would be for a regionally developed study plan, and intend to develop that study jointly with regional experts. Unforeseen outcomes or unintended consequences will be monitored and adjusted using current in-season management teams, such as the Technical Management Team. The co-lead agencies do not feel that the short-term nature of this operation is an accurate interpretation of the Preferred Alternative. If no adaptive management needs are identified, the operation would continue through the duration of the ESA consultation period. The co-lead agencies will provide additional clarifying text in Appendix R to make these points more clearly. Regarding the spill surcharge, it was removed from power rates in BP-20. See BP-20-E-Bonneville-19 Power and Transmission Rate Policy Testimony. Fredrickson et. al, page 15-17. The spill surcharge was included in BP-18 rates due to the significant cost recovery risk the court-ordered spill injunction created with little ability for Bonneville to model the impact without speculation. In BP-20, the circumstances surrounding the spill assumptions changed and allowed Bonneville to model planned spill in its rates, removing the need for the Spill Surcharge for cost recovery in the same way it did for BP-18 power rates. Regardless, the outcomes of the funding decisions for the Bonneville F&W program are not being made as part of the CRSO Draft EIS. Future spending level decisions and rate provisions would be made in consultation with the region through Bonneville's processes and other appropriate forums.
6894	36	ericquaempts@ctuir.org	Confederated Tribes of the Umatilla Indian Reservation Department of Natural Resources	The Affected Environment Sections and Analyses are Inadequate The discussions in the Affected Environment sections and the analyses of effects do not meaningfully depict the nature and extent of the impacts that the Basins hydro system has had on the Columbia Basins anadromous fish. Meaningfully depicting these impacts cannot be avoided. Under NEPA, regardless of the selection of the baseline, all cumulative effects must be revealed. At a minimum, the DEIS should be revised to incorporate and analyze the nature and extent of the impacts described in the Tribal Perspectives document that was submitted to the colead agencies at their request.	Consistent with the Council on Environmental Quality's June 24, 2005 guidance and interpretation of CEQ Regulations for Implementing the Procedural Provisions of NEPA, 40 C.F.R parts 1500-1508, "Agencies are not required to list or analyze the effects of individual past actions unless such information is necessary to describe the cumulative effect of all past actions combined... Generally agencies can conduct an adequate cumulative effects analysis by focusing on the current aggregate effects of past actions without delving into the historical details of individual past actions." However, the analysis of current conditions includes the ongoing effects of the existence of the system, inclusive of a host of other factors influencing natural and cultural resources of concern to potentially affected tribes. System operations are the focus of the EIS, not the existence of the system (and to the extent the analysis considers the existence of the system, i.e. breach, the effects analysis captures the cumulative effect of project existence). Tribal input, concerns, interests, and especially treaty rights were considered throughout the Draft EIS analyses and in the formulation of the Preferred Alternative. Treaty specific information is included in Section 3.17 as well as Chapter 7. The treaties bind all parties and are the supreme law of the land. The co-lead agencies recognize and respect that supremacy. In terms of honoring our treaty obligations, the co-lead agencies included Protecting Native American treaty and reserved rights and fulfilling trust obligations for natural and cultural resources throughout the environment affected by the Columbia River System operations as a purpose in the Purpose and Need Statement in Chapter 1 to ensure treaty obligations were a key consideration of decision making. The co-lead agencies are engaging in government-to-government consultation with the tribes, and several tribes are cooperating agencies on the CRSO EIS. Treaty rights are discussed in the Executive Summary, Section 3.16 Cultural Resources, and Section 3.17 Indian Trust Assets, Tribal Perspectives, and Tribal Interests. Appendix P includes copies of tribal perspectives that were submitted by tribes. Tribal consultation is described in Sections 1.5, 3.5, and 3.15; and Chapter 9. Most sub-sections within Chapter 3 include a Tribal Interests section at the end of the sub-section that attempts to summarize tribal issues by topic. Chapter 7 provides the effects analysis on Cultural Resources and Indian Trust Assets, Tribal Perspectives, and Tribal Interests, in Sections 7.7.18 and 7.7.19 in the Draft EIS, respectively.
6894	37	ericquaempts@ctuir.org	Confederated Tribes of the Umatilla Indian Reservation Department of Natural Resources	Tribal Cultural Resources are not Adequately Addressed The CTUIR continues to have fundamental disagreements with the action agencies regarding the scope of the analysis of the CRSO DEIS for impacts to cultural resources. By selecting an arbitrary distance of one mile from the reservoirs, the agencies are taking an impermissibly narrow view of the human environment under NEPA, and failing to interpret it comprehensively to include the natural and physical environment and the relationship of people with that environment. 40 CFR 1508.14. As noted, this is a fundamental flaw in the analysis, a concern the CTUIR raised in our scoping comments of February 7, 2017 and our comments to the draft Cultural Resources Chapter in the email of Catherine Dickson on March 27, 2019. In conference calls and comments the CTUIR raised this concern again and again and yet the agencies retained the one-mile limitation on the analysis and even refused to acknowledge in the DEIS that there was a disagreement on this issue among the cooperating agencies. To quote the National Preservation Institute: NEPA's concern is with the "human environment," defined as including the natural and physical (e.g., built) environment and the relationships of people to that environment. A thorough environmental analysis under NEPA should systematically address the "human" social and cultural aspects of the environment as well as those that are more "natural," and should address the relationships between natural and cultural. Culturally valued aspects of the environment generally include historic properties, other culturally valued	Regarding the definition of cultural resources, the co-lead agencies used a property-based definition of cultural resources based on Federal laws, regulations and policies. This includes the definition of historic property provided in the National Historic Preservation Act, the definition of archaeological resources provided in the Archaeological Resources Protection Act, the guidance provided by the National Park Service regarding traditional cultural properties, and the definition of sacred sites provided in Executive Order 13007. The co-lead agencies acknowledge the holistic perspective of Tribes when it comes to management of resources. Tribal interests and perspectives were addressed throughout the Draft EIS by inclusion of statements from the Tribes, consideration in applicable resource sections of tribal views, and in Section 3.17, Tribal Perspectives. The co-lead agencies selected the size of the study area based on the area where the effects from the proposed structural and operational measures are expected to occur. This study area is sufficient for the agencies to understand the effects of the different alternatives and to enable the agencies to make an informed evaluation of the alternatives. The co-lead agencies focused on the locations where there were understandable direct and indirect effects, as opposed to third and fourth order effects, which are harder to predict, require speculation, and thus difficult to evaluate, as a part of the NEPA process. Finally, the co-lead agencies analyzed the entire range of property-based cultural resources in the EIS, which included the built environment and traditional cultural properties, as well as archaeological resources. The analysis was based on over 20 years of data accumulated as a part of the Federal Columbia River Power System (FCRPS) Cultural Resource Program, which engages closely with Tribes on traditional cultural properties. Please see Section 3.16 (Table 3-289, in the Draft EIS), which documents the inclusion of over 1,300 traditional cultural properties in the analysis and Section 7.7.18 for the effects of the Preferred Alternative on cultural resources.

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				pieces of real property, cultural use of the biophysical environment, and such "intangible" sociocultural attributes as social cohesion, social institutions, lifeways, religious practices, and other cultural institutions. These impacts are usually analyzed either as impacts on "cultural resources," or as "social impacts," or as both but many such impacts actually fall into the cracks between the "cultural resource" and "social impact" categories as usually defined.8 As noted in our comments, the easiest way to address cultural resource impacts is to use the whole basin as the study area. If the agencies will not do that, the agencies will need a carefully crafted argument as to why the study area selected meets each of the project purposes/changes proposed in the alternatives. The study area for irrigation and environmental justice are both much larger than the cultural resources study area, accounting for job losses for irrigation changes and impacts to communities distant from the projects themselves. Because changes to river operations affect cultural resources (farming practices impact native plants and animals for example), the study area should be broad as well. Similarly, the EIS suffers from insufficient analysis when certain study areas are broad if that furthers certain goals (such as keeping the dams because of importance to local farmers/shippers), but other study areas are small when it seems a larger area might highlight other goals. Fish are a cultural resource (in and of themselves, under NEPA, as opposed to fishing sites which are considered under the NHPA) and from Judge Simon's perspective, the primary point of this NEPA study is to determine impacts to the fish populations. Those fish migrate well beyond one mile from the edge of the reservoirs. The study area for aquatic habitat is virtually the whole basin. Figure 3-109, page 3-287, lines 6767-6768. The narrow scope of the CRSO DEIS study area is further impaired by a focus on archaeological resources while ignoring cultural resources (in the NEPA sense rather than archaeological resources under ARPA and the NHPA). From our participation as a cooperating agency in the teams reviewing drafts of the documents, it appears that the agencies were thinking only about archaeological sites (cultural resources team), TCPs (cultural resources team), Sacred Sites (likely cultural resources team, but possibly tribal liaison team), and Trust Assets (tribal liaison team). The other types of cultural resources we brought up in our scoping comments, such as cultural values (identity, traditional practices, first foods), social resources (community), and economic activity of tribal importance (by resource or geographic area) appear to have been relegated to the socioeconomics team. Yet from our position on the socioeconomics team, we know that they exclusively focused on economic impacts, did not do work specific to tribes, and failed to consider social impacts at all. We feared that separating cultural resources into three different teams increased the likelihood that some concerns would be lost altogether, and further that all cultural resources would not get the thorough consideration they need and deserve. This is exactly what happened. The CTUIR believes this is in part because the Action Agencies cultural resources team consisted exclusively of archaeologists; the agencies representatives should have had the benefit of additional expertise in other types of cultural resources.	
6894	38	ericquaempts@ctuir.org	Confederated Tribes of the Umatilla Indian Reservation Department of Natural Resources	The analysis in the DEIS of sacred sites focuses exclusively on Executive Order 13007 and does not address the obligation to examine these sites under NEPA or other laws as cultural resources. Significantly, the DEIS does not address sacred sites under the NHPA as historic properties of importance to tribes. By focusing narrowly on the authority of EO 13007, the agencies precluded open and honest discussions about sacred sites with tribes because information sent to agencies under EO 13007 does not have specific statutory protections from release under the Freedom of Information Act as does information sent under the NHPA or ARPA. The CTUIR specifically raised this concern about confidentiality of sacred site info in a December 6, 2018 call with the agencies. The CRSO addressed the concern by stating [w]here appropriate, agencies will maintain the confidentiality of sacred sites. CRSO DEIS page 3-1355, lines 6098-6099. Tribes will not share sensitive sacred sites information if the agency will only commit to protect the confidentiality of that information as appropriate. Additionally, when the CTUIR identified the Columbia River as a sacred site, the agencies made no response. We learned in the DEIS [t]he co-lead agencies believe this does not meet the definition in the Executive Order as it is not discrete or narrowly delineated. CRSO DEIS page 3-1355, lines 6116-6117. No discussion with the CTUIR on this subject was held. The CTUIR believes the site we identified meets the definition in the Executive Order. The agencies position also ignores the potential for analysis of this designation under either the NHPA or ARPA, both of which authorize the designation of lands of significance to the tribe. The CTUIR incorporates by reference all comments we have previously provided to the agencies.	The co-lead agencies requested information from Tribes to identify sacred sites consistent with Executive Order (EO) 13007. While data collected to identify historic properties under the National Historic Preservation Act (NHPA) may be similar in nature to the data or information related to sacred sites, Federal agencies cannot make the assumption that this information can be used interchangeably without specific information provided by Tribes. The traditional cultural property (TCP) information and data used to conduct the impact analysis described in the cultural resources Section 3.16.2.6 was largely derived from co-lead agencies efforts to comply with Section 106 of the NHPA through the ongoing efforts of the Federal Columbia River Power System (FCRPS) Cultural Resources Program. This information was gathered by the co-lead agencies in part to identify historic properties of importance to Tribes. Because of the requirements of EO 13007 the co-lead agencies could not make the assumption that any of the TCPs used in the Draft EIS analysis were also sacred sites and instead relied on information requested from the Tribes regarding sacred sites during the CRSO EIS process. The co-lead agencies determined that all Federal land within 1 mile of the lower Snake River and lower Columbia River Projects is neither discrete nor narrowly delineated, as required to meet the definition of sacred sites in EO 13007.
6894	39	ericquaempts@ctuir.org	Confederated Tribes of the Umatilla Indian Reservation Department of Natural Resources	The DEIS Fails to Analyze Harvest Opportunities for Treaty and Non-Indian Fisheries The DEIS repeatedly states that [d]ue to the complexity of fishery management, it is not possible to predict changes in fishery management that may result from changes in fish abundance. This statement is inconsistent with the reality of fishery management. Coastwide, harvest managers in the United States and Canada regulate salmon fisheries based on abundance predictions. West coast ocean fisheries are for the most part managed based on one of two approaches, either aggregate abundance-based management or Individual stock-based management. Both approaches manage harvest based on anticipated salmon abundance.9 In the Columbia Basin, harvest is managed in accordance with the US v. OR 2018-2027 Management Agreement that sets forth harvest schedules from which changes in fisheries harvest regulations are regularly predicted and adopted.10 These harvest schedules have been analyzed for the effects on abundance, productivity, spatial structure and diversity of affected salmon and steelhead populations.11 The lack of harvest opportunity analysis runs counter to the Tribal Perspectives of the Columbia River Treaty Tribes. The lack of harvest opportunity analysis also runs counter to the goals for non-Indian fisheries and the corresponding economic effects of these fisheries. No rational explanation is given for the failure of the DEIA to analyze impacts to harvest opportunity.	The EIS recognizes the value of commercial as well as tribal and recreational fishing to the region. Section 3.15 describes the values associated with fisheries in the Pacific Northwest. Section 3.11 characterizes recreational fishing activities in the region. However, the uncertainty regarding the overall effects of the alternatives on regional fish populations, and how such changes may affect the management of the fisheries, limits a quantitative analysis of the specific impacts of each alternative on these values. The effects are therefore discussed qualitatively.
6894	40	ericquaempts@ctuir.org	Confederated Tribes of the Umatilla Indian Reservation Department of Natural Resources	The DEIS Analysis of Hatchery Impacts is Incomplete The DEIS asserts without basis or support that the Lower Snake River Compensation Plan hatchery production will terminate is Snake River Dams are breached. The DEIS discloses no legal or factual analyses to support this position. The effects of the Snake River dams will persist in future populations of Snake River lamprey, sturgeon, salmon and steelhead. Tribal analyses indicated that hatchery production must continue until the impact of the dams has been mitigated, well beyond the 25-year scope of this EIS. The DEIS failure to disclose the facts regarding hatchery mitigation generally and the LSRCP specifically leaves the tribes with no reasonable analysis or factual basis to consider the veracity of the DEIS statements. With respect to the other hatchery production occurring in the Columbia River Basin, including the mitigation and supplementation programs, the DEIS should provide for fully funding hatcheries, current operations as well as deferred maintenance and repairs, to meet their hydro system mitigation goals according to the recent U.S. v. Oregon hatchery assessment. Hatchery facilities authorized to mitigate for the hydro system are rapidly aging, with inadequate funding identified for capital upgrades, repairs, and maintenance. Estimated costs for deferred maintenance of the Lower Snake River Compensation plan facilities alone is over $100,000,000. 1. Non-operational conservation measures for ESA-listed salmon and steelhead. This section highlights a small sub-set of Action Agency (AA) funded hatchery programs in the Columbia Basin, of which there are more than 170, and includes comments on the Biological Analysis released with the DIES. By not accounting for all of the hatchery programs in the Basin, the future of the hatchery programs that have not been identified herein is opaque and should be elucidated. The AAs fund hatchery programs that have the primary purpose to mitigate for impacts to fish from construction/operation of hydropower dams. Above Bonneville Dam, the AAs fund annual target releases of ~66 million salmon and steelhead. Regardless of how individual hatchery programs are managed (i.e., for harvest, supplementation, and/or reintroduction), every single program funded by the Action Agencies serves the purpose of mitigation including the programs identified in table 2-18 of the Biological Analysis (which only add up to a target release of 3.35 million). See Attachment D for an overview of Columbia River Basin Hatchery Programs. The six programs identified in table 2-18 represent only ~5% of the hatchery production funded by the Action Agencies (above Bonneville Dam). The AA-funded hatchery programs include both ESA-listed and non-listed salmon and steelhead. Of only ESA-listed production that the AAs fund (~17 million annually), table 2-18 represents only 20% of those programs that are managed to supplement natural populations and use local broodstock (do these not count as conservation and safety net hatchery actions?). If the purpose of this section and table 2-18 is to identify only the ESA-listed programs that are managed as supplementation programs (i.e., conservation/safety net), then the table does not come close to capturing the number of existing programs that should be listed.	The CRSO EIS acknowledges that with breaching of the Snake River dams in MO3, there would no longer be an obligation to fund the Lower Snake River Compensation Plan, which accounts for much of the hatchery production in the basin, other mitigation activities could be adjusted, and transportation of Snake River salmon and steelhead would no longer be possible. The rationale for this, as stated in the Draft EIS, is that Bonneville's funding is directly tied to the operation of the LSR dams. The effects to populations as they transition from primarily hatchery production to an increased wild production of fish is qualitatively discussed in Section 3.5.3.6. As stated on page 3-548, the co-lead agencies recognize there would be transitional needs that would be addressed through mitigation and adaptive management. The fish models are based upon data collected from past fish runs and there is no data available to inform an quantitative analysis for wild fish in the absence of hatchery fish. The co-lead agencies took a qualitative approach to inform the reader of other factors that could affect salmon but acknowledged the magnitude of those effects is not known. A summary of this qualitative discussion is provided for the reader for each Snake River species. The analyses used in this Draft EIS were for the purposes of comparing the effects of the action alternatives for operation and configuration of the CRS projects to one another and to the No Action Alternative. Hatchery programs are discussed briefly in the Affected Environment to give the reader the general information on hatchery programs that are a part of the ESU/DPS described. For the purposes of comparing alternatives, however, a more detailed description is not needed. The scope of this Draft EIS is the operation and configuration of CRS projects; a complete analysis of all hatchery programs and the status of maintenance/operations of each one is beyond this scope.
6894	41	ericquaempts@ctuir.org	Confederated Tribes of the Umatilla Indian Reservation Department of Natural Resources	The following errors, omissions and inadequacies relate to modeling and underlying analysis of biological effects and apply to all MOs and the Preferred Action. The current status of the fish is not adequately considered. For example, the upper Columbia stocks triggered the AMIP. Ironically, upper Columbia spring Chinook are used as a surrogate for upper Columbia sockeye for system survival; yet, the same data is not provided for upper Columbia spring Chinook. Only McNary to Bonneville survival is presented for chinook. The data also ignores similar CSS results from previous studies. All models used in the DEIS are required to have a third-party review. We understand that this is ongoing as of the time of DEIS release, but the public will not be given a chance to see the third-party review for consideration in our comments. A. Issues With the CSS and Compass Modeling Discussion and Results 1. The DEIS fails to adequately explain the differences between COMPASS and the CSS data and complexity. Broadly, COMPASS makes a large number of predictions that are not directly observed, and breaks survival into multiple individual route of passage survivals for each reach (spill, bypass, turbine, and other configuration routes for each dam), whereas the CSS models treat the entire hydrosystem as an aggregate of 2 routes of passage (number of powerhouses passed vs spilled on average). The CSS models are thus "cumulative effects" sensitive, whereas COMPASS looks for effects that may not be noticeable incrementally unless they are added up to full "accumulation". 2. When comparing the predictions of the CSS models and the COMPASS	Rock Island to Bonneville survival rates are reported in Appendix E for COMPASS model results from the Upper Columbia Chinook ESU. Take note, that when comparing levels of change in major metrics between the MOs vs. the No Action Alternative, adding the Rock Island-to-McNary segment doesn't seem to significantly change the level of effect that one would interpret from changes in operations. This is a fair description of distinctions between the two modeling approaches, except instead of calling this 'error,' we consider this to simply be distinctions due to differences in model construction. All models must make assumptions which led us to use both modeling approaches . The NMFS COMPASS/LCM models and the CSS models use different statistical approaches and input variables. Both are able to provide a good fit to recent survival, and travel time estimates, but the models do have substantially contrasting forecasts for these metrics under hypothetical scenarios of hydrosystem operation with respect to flow and spill. The Fish Technical Teams for the EIS made the decision to present results from both sets of models for the final evaluation, along with descriptions of methods. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. CRS survival rates are not necessarily that different between the models, and any difference could potentially be explained by a different composition of hatchery and wild fish entering into the PIT data used to calibrate each model. In annual observations, Chinook and steelhead tagged in the CSS study do show higher survival rates than smolts tagged at Lower Granite Dam by the NOAA juvenile survival study. The differences in SAR are due to the different assumptions of carryover effects or delayed mortality of the model systems. There is not necessarily a problem with the CSS models having more variability in hydrosystem survival. COMPASS was calibrated with PIT survival and travel time data and properly captures the observed variability.

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				model, the EIS draws attention to the fact that CSS models and COMPASS predict similar hydrosystem survivals, but do not predict similar SARs. This is misleading for two reasons. First there are two CSS models, which are different in nature, yet those two predict similar hydrosystem survivals and SARs. Secondly, both CSS models predict more variability in hydrosystem survival than the COMPASS model. (see Sec. 3.5) 3. The DEIS states in "Critical data" (Sec. 3.5) that anomalous years are driving the trend, yet it contradicts the point. The DEIS states effectively that ocean survival was high when the ocean was cold and fewer fish went through powerhouses in 1999 and 2000, and subsequently low when the ocean was cold and more fish went through the powerhouses in 2001, which corroborates that powerhouses have a negative impact on survival, yet the DEIS takes issue with including data that have a strong influence on the result because the COMPASS model is not responsive to that contrast. The DEIS should perhaps instead draw attention to the fact that COMPASS is failing to detect a signal in the data. 4. The DEIS subjectively states that excluding thermal exposure in the CSS models "likely overestimates" powerhouse effects. This ignores the positive relationship between the implementation of the hydrosystem and temperatures. 5. The DEIS fails to mention that the two CSS models make statistical estimations of the effect of the freshwater hydrosystem on latent ocean mortality. 6. In the COMPASS (NOAA) model, NOAA used data from one Upper Columbia River (UCR) Spring Chinook population, as a surrogate to model UCR sockeye. However, they did not then use these data to model the actual, larger UCR Spring Chinook population. This begs the question: If this one population is not adequate to represent the entire UCR Spring Chinook how can it be used as a surrogate for UCR Sockeye. The selection of data seems seems arbitrary, and no explanation for the discrepancy is provided in the DEIS. 7. Water Temperature in COMPASS. The DEIS notes that the water temperature models that use flow relationships in COMPASS were not used for the CRSO scenario runsinstead water temperature predicted by the Corps was used in COMPASS. No rationale was given for this change or any analyses or validation as to whether not this change to the COMPASS model runs decreased or reduced the efficacy or reliability of the COMPASS evaluations. B. Latent Mortality in CSS and COMPASS 1. The COMPASS life cycle model was expanded/revised to include latent mortality effects in the 2018 CRSO Biological Opinion and in this DEIS. This revision has not undergone extensive peer review and was the subject of debate within the CRSO anadromous technical team. The COMPASS modeling results include four arbitrary levels of assumed latent morality reductions (0, 10, 25, and 50%). The exploration of potential latent mortality impacts, in the COMPASS modeling, is positive; however, the COMPASS modeling does not link these latent mortality effects to specific CRS operations or fish powerhouse passage experience and is aspect open for criticism. There is ample research that fish that pass powerhouse experience some level of latent mortality. 2. The Executive Summary describes delayed or latent mortality as a key factor in explaining different predictions between the models. While this is accurate, the write-up fails to acknowledge the COMPASS model runs included variable latent mortality reduction levels of 10%, 25% and 50% which result in increased adult abundance, if true. 3. Furthermore, the models were informed by common hydrological datasets provided by the Action Agencies. These datasets were not open to cooperating agency review and appear to have received insufficient validation. For example, the MO1, MO3 and MO4 dataset fails to apply the 150kcfs spill cap constraint associated with stilling basin structural integrity (ie. rock entrainment and erosion). This inaccuracy in datasets will result in overestimates of SARS and underestimates of power generation. C. Other Problems with the Modeling 1. COMPASS SAR results need further explanation for MO3 and MO4 alternatives. COMPASS SARs are similar for MO3-4 compared to MO1-2 because fish migrate inriver at a more natural rate of migration. The method COMPASS used for calculating SARs is heavily reliant on date of ocean entry. Therefore, in-river fish in MO3-4 enter the ocean a few days later than transported fish in MO1-2, so they are assumed to have is not obvious that transported fish would survive better in the ocean than in-river fish migrating at a more natural rate, based entirely on entry date into the ocean. 2. There is CSS data available that was not incorporated in this report. Even though it was not generated specifically for this EIS, it represents the NAA and should be used as a reference. For example, CSS has calculated system survival for Upper Columbia stocks and could be used qualitatively to demonstrate potential impacts under each of the MOs. 3. The Action Agencies do not consistently include confidence intervals throughout the DEIS and appendices. Confidence intervals (standard deviation) are provided in Appendix E but not in Chapter 3, the Preferred Alternative, or the BA. This omission means that it is impossible to evaluate the statistical significance of the data and, by extension, and the benefit asserted by the Lead Agencies. 4. The DEIS states (Appx E Sec. 1.4.2) that summary statistics for SARs and return abundances for the CRSO were calculated differently that under the CSS modelers (McCann et al. 2017). For the CRSO, the action agencies picked somehow (not stated how) random averages over the 80 year historical flow period for the two metrics, while the CSS modelers used the average of the last 10 flow years in the historical period. The CRSO authors do not provide a rationale for this change, however, given the overall reduction in flows over the last 10 years, the CRSO appears to bias for higher flows and thus higher survival rates. In any case, the CSS flow choice methodology should have remained for CRSO analyses for consistency.	An 80-year historical water record with flows and water quality variables was generated with the HYDSIM and ResSim models for use in the CRSO EIS. The models were able to simulate the effects of hypothetical operations included as measures in the MOs, such as monthly irrigation diversions, reservoir elevation changes, spill and so forth. Climate change was also included as an additional trend. The co-lead agencies used temperature data sets that were developed by the water quality team as part of the CRSO EIS development. Sensor fish successfully identified and played in a significant role in solving spillway passage injuries at both The Dallas and Ice Harbor. Although certainly not an analogy for a fish, their motions are controlled by the hydraulics of the water and structure the impact and do provide a measure of the physical environment fish are passing through. Less violent sheer and turbulence is obviously a benefit for fish. Balloon tags, do best represent the potential for trauma to passing fish and not total mortality. Certainly, fewer traumatic injuries would lead to a lower mortality rate. The magnitude of the survival rate increase for naturally passing fish is unknown. The assumption used in the COMPASS model was a 50% reduction in mortality, which translates into about 6% increase in survival rates. The actual magnitude that will be achieved is, of course, uncertain. However, given the extensive modifications throughout the turbine including the stay vanes, runner, and draft tube that create a passage environment with less violent sheer, significantly reduced chance of passing through gaps, elimination of very low pressures and great reduction of recirculation within the draft tube that would bring fish back to the turbine blades after passing most of the turbine an increased probability of both direct and indirect survival is reasonable. Relying on the best available science, the co-lead agencies assumed mortality would be halved. Turbine intake screens would not be removed, unless a telemetry based survival study demonstrates survival would not be decreased. The most recent 10 years in the 80-year water record have a below average number of 'dry years' falling in the lowest 20th percentile of snowpacks or water supply. It might be a mistake to interpret the most recent years as being representative of a progressive linear trend of climate change. There may have been periods of acceleration of the rate of change during the past 80 years, as well as periods of drought or high rainfall that were caused by shorter term decadal cycles. For the EIS, the technical teams chose to represent the best available information about future climate impacts in Chapter 4.
6894	42	ericquaempts@ctuir.org	Confederated Tribes of the Umatilla Indian Reservation Department of Natural Resources	Modeling of High Capacity Turbines High Capacity turbines are included as a measure in several of the DEIS alternatives. However, the data sets provided by BPA did not include increases in flow through the powerhouses due to the installation of high capacity turbines. The assumptions of increased survival through new turbines at John Day dam, McNary and Ice Harbor (fish friendly turbines) are not supported by any available studies. Survival estimates are, at best, equal to those of older turbine units (Skalski and Townsend 2005, Deng et al. 2019, Heisey et al. 2019). However, the higher flow through these turbines will cause higher absolute turbine passage, leading to lower overall dam survival and larger impacts of latent mortality. In Turbine Improvement Assumptions Final, the document used to justify increased survivals in the DEIS modelling based on bead strike studies, the underlying assumption is that 50% of fish would experience mortality due to both low pressures and strike/shear. While this number is useful for design it is not based on any biological study, data, or other form of evidence and should not be used in any survival estimates. The same document assumes equal improvements in direct and indirect turbine mortality. There is also no evidence provided for this assumption and it seems to be an example of optimistic estimate not based in reality. Further, the interpretation of bead strike studies has resulted in an assumption of a 50% decrease in turbine mortality. This assumption has not been backed up by increased survival in studies with live fish at Wanapum or Ice Harbor Dams, both of which showed no detectable increase in survival. Additionally, any increase in turbine capacity will increase the total number of smolts passing via the powerhouse. This will have impacts not only on concrete survival, but cumulative negative impacts throughout the hydrosystem. The PA assumes reduced turbine mortality with the installation of new turbines. The DEIS stated that these new turbines will improve fish passage conditions, lower TDG, and improve turbine efficiency and capacity. Turbine passage can directly cause fish mortality through blade strikes, rapid pressure changes, and other physical stresses. Turbine and powerhouse passage is also associated with delayed mortality, manifesting in the estuary or first year of ocean life. While direct mortality due to turbine passage has been studied primarily with models, sensor fish, and bead strike studies, tests with live smolts are relatively uncommon. Indirect and delayed mortality have been associated with powerhouse and turbine passage in a wide range of work demonstrating reduced estuary and first-year ocean survival for individuals who passed via one or more powerhouses during their outmigration (Haeseker et al. 2012, Petrosky and Schaller 2010, Tuomikoski et al. 2010, FPC 2010, FPC 2011a, FPC 2011b). There are few studies available to test the assumptions of increased turbine survival. In 2005, a comparison of turbine survival was done at Wanapum Dam, comparing one high-capacity turbine to single turbine of the old design (Skalski and Townsend 2005). In this study, balloon and radio-tagged smolts were released into the turbines under a range of conditions, making it difficult to interpret the results of the tests. Both balloon and radio tags have a number of methodological problems, including: a) requiring a minimum size that does not represent the runat- large, b) releasing fish via tubes into turbines that cause large pressure differences that do not approximate actual passage conditions, and c) tag burdens that significantly impede swimming ability and, therefore, affect the probability of blade strikes and other injuries. For extensive comments on the difficulties of interpreting the results of balloon tag studies, see FPC (2004), FPC (2012), JTS (2004), and JTS (2005). Additionally, a complicated study design makes determining a biologically significant difference between turbines virtually impossible to detect. A significant three-way interaction effect between turbine type, flow, and entry depth means that any difference in survival between the turbines cannot be separated from the other factors in the study. Although the study results have been described as showing equal survival between the turbines, the study design makes it impossible to determine if this result is a product of study design or if direct mortality is equal between the two turbine designs. In 2019, sensor and balloon fish were deployed through the new turbine in Unit 2 of Ice Harbor Dam. The reports from these studies have not yet been made available, so a full review of their ability to address assumptions and interpretation of the results is not possible. However, the presentations at AFEP 2019 showed that severe shear or strike events were reduced only in two of four tested flows, and a reduction of 50% was only observed under one tested flow (Deng et al. 2019). Survivals of balloon-tagged fish were not significantly different under any of the tested conditions (Heisey et al. 2019). These studies indicate the increases in survival developed from bead strike studies and physical modelling efforts are overstated. Modifications to the hydrosystem must be thought of in the context of the entire salmonid lifecycle, not just the concrete survival at each project. Even if the direct mortality of highcapacity turbines is shown to be no higher than that of the existing turbines, the increased turbine flow will lead to increase powerhouse passage of the run-at-large. This effect, compounded over multiple dams, will have a net negative impact on the smolt-to-adult returns. If the increased powerhouse flows are not included in the modeled datasets provided to the fish modelers, the increase in powerhouse passage will be lost.	The measures for Ice Harbor and McNary IFP turbines were included in the No Action Alternative based on the progress made in design, environmental compliance, and implementation. These measures were carried forward in the Preferred Alternative along with the John Day IFP turbine measure. Sensor fish have successfully identified and played a significant role in solving spillway passage injuries at both The Dalles and Ice Harbor. Although certainly not a perfect analogue for a fish, their motions are controlled by the hydraulics of the water and structure impact and do provide a measure of the physical environment fish are passing through. Less violent sheer and turbulence is obviously a benefit for fish. Balloon tags do best represent the potential for trauma to passing fish and not total mortality. Certainly, fewer traumatic injuries would lead to a lower mortality rate. The magnitude of the survival rate increase for naturally passing fish is unknown. Relying on the best available science, the co-lead agencies assumed mortality would be halved. The assumption used in the COMPASS model was a 50% reduction in mortality, which translates into about 6% increase in survival rates. The actual magnitude that will be achieved is, of course, uncertain. However, given the extensive modifications throughout the turbine including the stay vanes, runner, and draft tube that create a passage environment with less violent sheer, significantly reduced chance of passing through gaps, elimination of very low pressures and great reduction of recirculation within the draft tube that would bring fish back to the turbine blades after passing most of the turbine an increased probability of both direct and indirect survival is reasonable. Again, the magnitude is uncertain. Turbine intake screens would not be removed, unless a telemetry based survival study demonstrates survival would not be decreased. The opinion that more fish would pass the turbine because of the increase hydraulic capacity is not accurate. The amount of water passing through the powerhouse is actually controlled by operation decisions on spill levels, and is not solely dependent on the hydraulic capacity of the turbines. It should be noted that only turbines at McNary would have increased hydraulic capacity.

Letter No.	Comment No.	Commenter Name/Email	Affiliation	Comment	Response[1/]
6894	43	ericquaempts@ctuir.org	Confederated Tribes of the Umatilla Indian Reservation Department of Natural Resources	Water Temperature Effects Analysis High summer water temperatures in the Columbia River System are known to have detrimental outcomes on fish survival and recovery. These losses will only be intensified by a warming climate. It is essential to project how each EIS alternative will impact water temperature and thus fish survival in the Columbia system. Numerical modeling was used by the Action Agencies to simulate the impacts of each EIS alternatives on water temperature and quality. The DEIS Executive Summary summarizes findings from the modeling efforts and recognizes that MO3 would have major benefits for anadromous fish survival: Model estimates for MO3 showed the highest predicted potential smolt-to-adult returns (SARs) for Snake River salmon and steelhead among the alternatives.12 In addition, DEIS Chapter 3 on Affected Environment and Environmental Consequences details results of the extensive modeling effort and analyses done to evaluate MO3 and reports significant improvements in water quality: Water temperature differences (up to 8.8 degrees Fahrenheit) between impounded (No Action Alternative) and non-impounded (MO3) river conditions would be greatest in the fall.Over the long term, MO3 would have moderate to major beneficial effects on water quality in Region C through the restoration of natural, river, and water quality processes; a substantial cooling effect in the fall; greater nighttime cooling and respite from warm water temperature conditions in the summer; and a reduction in overall system TDG.13 Yet despite the predictions of significant benefits to fish SARs and water quality, MO3 actions were not identified in the Preferred Alternative. DEIS Chapter 3 presents the framework that was used to define the overall level of impact of water temperature outcomes for each CRSO EIS alternative. For water temperatures, the level of impact (negligible, minor, moderate, or major) was defined based on the absolute change in the maximum and minimum water temperatures as averaged over the 5-year simulation period (2011-2015)14. Taking a 5-year averaged approach to determine a single impact of each alternative fails the public by obscuring predictions of the numerical modeling effort which predicted hourly temperature changes for a wide range of hydrologic (wet, dry, average) and weather conditions (hot, cold, average). Appendix D presents more detailed predictions of MO3 actions on water temperature in graphics that clearly show between 2-10 F water temperatures improvements for the Snake River during the critical summer and fall seasons for a wide range of hydrologic and weather conditions (Appendix D, Figures 6-23 to 6-27). In their decision framework, the DEIS defines water temperature changes of >2 degrees Fahrenheit to be a major impact15. In addition to the predicted cooling, diel temperature conditions are predicted by the numerical models. The DEIS reports Average diel temperature differences seldom exceed 1 degree Fahrenheit under the no Action Alternative.Average differences would range from 2.5 to 3.5 degrees Fahrenheit for the same time period if MOE was implemented (Figure 6-29).16 Diel temperature fluctuation could provide thermal refuge for migrating adults even in the lower river. There is no rational explanation for why the thermal benefits predicted by the numerical modeling for a free-flowing river were not part of the preferred alternative solution. EPA used an alternative one-dimension model, RBM10, to evaluate the Columbia River system as part of the temperature TMDL process and also developed a model of a free flowing river scenario. The DEIS reports EPA modeling results in Appendix D, Annex A that detail daily average temperature predictions with no Lower Snake River dams17. EPA also presented modeling results using RBM10 during the TMDL process18. The DEIS and EPA water quality models overlap geographically and temporally, and although the results may not be directly comparable, EPAs analysis offers comparison between a free flowing and impounded scenario that offers insights that supports the benefits of MO3: A. The free-flowing scenario results in a significantly cooler Lower Snake River by 1-2C during the period when the Snake River currently typically exceeds 20C (mid-July mid September). B. The free-flowing scenario significantly reduces the number of days that exceed a daily average of 20C. C. The cooler daily average temperatures in the summer and fall under the free-flowing scenario as noted above will result in cooler temperatures for a few migrating adult sockeye in July, for a significant number of adult steelhead in July, August, and September , and for a significant number of adult Fall Chinook in August and September19. Currently, in July and August the Snake River is warmer than the Columbia River by 2-3C at a time when Snake River temperatures exceed 20C. Adult steelhead may delay migration up the Snake and hold in the cooler Columbia River. In the MO3 scenario, the predicted cooling and migration. The cooler summer and fall temperatures would provide less stressful migration conditions for adult steelhead and fall Chinook salmon migrating up the Lower Snake River.	The co-lead agencies agree with your concern relating to water temperatures in the Columbia and Snake rivers and that is why the agencies have used the best information and resources available to model and evaluate impacts from operations described in each of the alternatives on water temperatures. Breaching the four lower Snake River dams would result in long-term benefits including improvements to fall water temperatures and the restoration of the river to more normative riverine processes; this is stated in the Draft EIS Chapter 3, pages 3-271 through 3-272 and Appendix D, Section 6.2.3. Predicted water temperatures under MO3, indicates that nighttime summer water temperatures, as well as fall water temperatures, would be cooler than No Action conditions in the Snake River. However, even with the dams breached, maximum summer water temperatures would exceed state water quality standards (20C) at times, especially during hot weather events. All water quality data, in addition to data from the other resource teams (fish, wildlife, navigation, hydropower, cultural resources, etc.) were used to select the Preferred Alternative. The system water quality model is limited by available data and run times, so modeling long-term record sets was not possible for EIS analysis. Instead, a 5-year period (20112015) that represent a wide range of environmental response to hydrology (wet, dry, average) and weather conditions (hot, cold, average) were selected to model each EIS alternative against. The co-lead agencies feel that this 5-year period of data represents a good range of conditions to compare EIS alternatives against. The CRS is a complex system with multiple, sometimes competing, congressionally-authorized purposes. The Purpose and Need Statement and the objectives developed for this EIS reflect these multiple purposes, as do the alternatives developed to meet them. This EIS was developed to evaluate the operation and maintenance of the CRS system over the next 20 years, with the expectation that the co-lead agencies will continue to meet the multiple, authorized purposes until directed differently by Congress. Although fish and wildlife conservation is one of the authorized purposes, it is not the only purpose, and the co-lead agencies must balance all resources. The analysis of the multiple objective alternatives reflect these trade-offs and have allowed the co-lead agencies to understand the effects of emphasizing some purposes over others in order to find the most acceptable balance for future operations. Recovery of ESA-listed salmon is outside of the authority of the co-lead agencies, and was not an objective of this EIS. Recovery of ESA species is the purview of NMFS and the US Fish and Wildlife Service. As required by NEPA, the co-lead agencies evaluated each alternative for its effects on a suite of resources. These effects are summarized in Section 3 of the Executive Summary, fully described by resource and alternative in Chapter 3, summarized by resource and alternative in Table 3-1, and once again presented for comparison in Table 7-1. Effects from the Preferred Alternative are discussed in Chapter 7. Effects specific to anadromous fish are described in Section 3.5.3. Table 3-61 compares expected survival by alternatives, and Table 3.62 provides a comparison of the alternatives specific to anadromous fish.
6894	44	ericquaempts@ctuir.org	Confederated Tribes of the Umatilla Indian Reservation Department of Natural Resources	Finally, the DEIS process should have included an alternative that combined optimized Dworshak releases to regulate water temperature with a free free-flowing Lower Snake River. The options that were only evaluated in MO1 which proposed releasing more Dworshak water in June/July, less in August, and more again in September/October. This schedule would release cold water during the peak of the sockeye and S/S Chinook migrations in June/July and again during the peak of fall Chinook and steelhead migrations in September and October. This option should have been combined with an evaluation of a free-flowing lower Snake River to fully evaluate the best options for fish survival.	As is common in NEPA analyses, the beneficial and adverse effects of the alternatives are expressed as a variety of qualitative and quantitative environmental and economic metrics throughout the EIS to inform decision-making, including the effects of the alternatives on fish as detailed in Section 3.5. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-lead agencies numerous legal obligations. The Preferred Alternative is predicted to benefit ESA-listed juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3, which includes breaching the four lower Snake River dams. The Preferred Alternative also meets the EIS objectives including those for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. Tables 7-1 and 7-55 in Chapter 7 provides a summary of the beneficial and adverse effects of the alternatives, including the quantified social welfare costs and benefits for a number of the resource areas as well as the implementation costs of the alternatives. During the formulation of the Preferred Alternative, Multiple Objective alternative 3, which includes the measure to breach the four lower Snake River dams, was not selected due to the inability to meet other objectives (e.g., irrigation, recreation, transportation), and therefore was not evaluated in combination with the Dworshak releases. Finally, as described in Section 3.4, adjusting the timing of Dworshak releases did not provide water temperature benefits, and thus, was not included in the Preferred Alternative. To achieve a broad range of alternatives, the co-lead agencies collaborated with cooperating agencies in teams of technical experts through several iterations to create 12 alternatives that could meet the CRSO EIS Purpose and Need Statement: first, eight single-objective alternatives (SOs), and then four Multiple Objective alternatives (MOs). After completing the effort to develop the SOs and MOs, the co-lead agencies evaluated all 12 alternatives against screening criteria of completeness and efficiency. Completeness was used to evaluate the extent to which a given alternative provides and accounts for all actions to meet most or all objectives, thereby satisfying the Purpose and Need Statement. Efficiency was considered as how well (without duplication of effort) an alternative would meet objectives. Usually, cost effectiveness is part of this consideration, but costs were not available at the early screening of alternatives. In this case, efficiency was based on efficiency of analysis of measures and the elimination of duplication of effort. A detailed descriptions of the SOs and their measures are located in Appendix A, Alternatives Development. A description of the alternatives removed from further consideration is in Section 2.4.
6894	45	ericquaempts@ctuir.org	Confederated Tribes of the Umatilla Indian Reservation Department of Natural Resources	Power/Economics: The DEIS Power And Economics Analyses Are Flawed and Fail To Incorporate and Analyze Important Information Sources Early in the DEIS development process, tribal staff urged the Co-lead Agencies to adapt their power analyses to recognize the rapid evolution of western energy markets and the role of the CRS in this setting. The ever-increasing integration of the Western electricity grid creates opportunities and threats for both fish and power. Independently from the DEIS process the co-lead agencies, state and tribal parties entered into a Flex Spill Agreement for an interim period of three years. Unlike the DEIS, the process for developing the Flex Spill agreement was forward-looking, innovative and collaborative. It was not and is not a comprehensive agreement and its limits are clearly described within the Agreement itself. Nevertheless, the Agreement was founded on innovations in analytical methods that assisted the parties collaborative dialogue. For instance, the Flex Spill Agreement is based on hourly spill operations in attempt to accommodate time-of-day pricing that occurs in Western energy markets. The selection of analytical methods in these analyses was carried out solely by the co-lead agencies, despite offers of assistance from the tribes. As an example, CRITFC has extensive capability to perform analyses with a HYDSIM based analytical tool it developed for just this kind of setting. Called CIS, the analytical tool is capable of modeling and comparing multiple operation scenarios for CRS projects, quickly and easily. It has been used by the 15 tribes in the U.S. portion of the Columbia Basin to analyze the potential effects of modernizing the Columbia River Treaty. An explanation of CIS was provided to the co-lead agencies. CRITFCs offer went into a void. In the case of anadromous fish, the development of future system scenarios were not iterative. Rather it was based on a one-way information flow. Energy is important to certain economic sectors in the region, but overall the economy of the region is highly dependent on the natural capital provided by the Columbia River and its tributaries and other factors that is far larger than CRS energy outputs and which the DEIS failed to disclose or analyze. The DEIS should have disclosed to the public the broader natural capital values of the Columbia River Basin, which are described in The Value of Natural Capital in the Columbia River Basin: A Comprehensive Analysis by Earth Economics. https://ucut.org/wpcontent/uploads/2017/12/ValueNaturalCapitalColumbiaRiverBasinDec2017.pdf. This broader context of natural capital management is important economic context for changes in CRS configuration and operations, which are minor in comparison. The DEIS also fails to consider the effects of built capital resources on the natural capital of the Basin. In many cases, such as the CRS, the built capital has degraded the natural capital of the basin. This degradation is described in the Earth Economics report, the 1999 Tribal Circumstances report and the 2019 Tribal Perspectives document. The loss of the Basins natural capital has profoundly damaged the tribes cultures and economies. Restoring the natural capital lost to the tribes is not disclosed or analyzed in the DEIS. Moreover, future sustainability of the natural capital of the Columbia River Basin is not analyzed in the DEIS. Our prior comments urged the co-lead agencies to consider the Tribes Energy Vision for the Columbia River. It was originally published in response to the energy crisis of 2001, when the federal dams violated their ESA operation requirements.20 Those violations were the result of regional utilities assumptions that spot market power supplies would be adequate to address the regions needs. Those faulty assumptions cost BPA hundreds of millions of dollars. The 2003 Energy Vision for the Columbia River described solutions to address conflicts between peak power production and Columbia Basin salmon. Against the backdrop of fish problems associated with serving loads, the plan identified less harmful and less expensive ways to provide electricity for peak loads. The CRITFC 2013 Energy Vision for the Columbia River builds on the recommendations made in 2003. Like its predecessor, the 2013 plan recommended measures to reduce the pressures of the regions energy demands on the Columbia River and its ecosystem and included recommendations that would benefit the DEIS. The DEIS fails to disclose and analyze the tribes concerns and recommendations to evolving nature of the regions energy demands and the pressures they place on the Columbia Rivers ecosystem, including its anadromous fish. It also	The comment suggests that the EIS should have adapted its power analysis to recognize the rapid changes occurring in the western energy markets. The comment is not clear, though, as to what aspect of the western energy market the EIS omitted. The EIS recognizes that the energy market is constantly changing. To that end, the EIS included updated information concerning coal retirements, demand response, resource integration, and other factors that could affect the power analysis. See Section 3.7.3.1, Additional Power Rate Sensitivity Analysis and Other Regional Cost Pressure Analysis, pages 3-829-841 in the Draft EIS. In addition, in response to comments, the EIS will update the data used in estimating replacement resources costs for solar and batteries using publicly released draft information from development of the 8th Power Plan; this information is included as rate sensitivities in the Final EIS. The Final EIS will also include the de-escalating cost curves prepared by the National Renewable Energy Laboratory (NREL) that will likely be used by the Council in the 8th Power Plan. The EIS analysis also considers emerging technologies in the resources analysis, though it recognizes that most of these new resource options have not reached the scale needed in the EIS to be cost-effective. See Section 3.7.3.5, Replacement Resource Options, pages 3-907-910 in the Draft EIS. The co-lead agencies are proposing an adaptive implementation framework for juvenile fish passage spill operations, which builds off the lessons learned from the 2019-2021 Spill Operation Agreement. The framework for the adaptive management process is detailed in Appendix R, Part 2, Process for Adaptive Implementation of the Flexible Spill Operational Component, of the CRSO EIS. It is the intention of the co-lead agencies to engage regional state, Tribal, and Federal biologists in the development of an appropriate adaptive management process utilizing their respective salmonid management expertise. The goal of that adaptive management process would be to consider additional opportunities to further the effectiveness of the operation while maintaining the goals of the flexible spill operation: additional improvements for salmon and steelhead, maintain opportunities to operate the CRS for hydropower generation in a flexible manner that provides value to the Northwest, is implementable by the dam operators, and provides opportunity to reduce uncertainty and improve the learning opportunities around how operations of the CRS can influence the magnitude of latent mortality effects. Regarding the selection of modeling tools in the EIS, the analysis uses high quality resource information and a variety of industry-standard, robust models to analyze the effects of the alternatives on hydropower generation and Western energy markets. See Appendices H, I, and J. Bonneville is familiar with the CIS comparison tool developed by CRITFC and used during the Columbia River Treaty Review (CRTR). Specifically, the Tribes used the modeling portion for their analytical work while Bonneville used HYDSIM. The display feature of the Tribes tool was used for the Sovereign Review Team work with the Tribes and the Federal agencies. For the EIS, Bonneville chose to use its own staff for hydropower modeling with HYDSIM because staff have the necessary expertise with HYDSIM, using the tool for decades in many different areas. While cooperating agencies are invited to supply specialized technical expertise to assist the co-lead agencies, the co-lead agencies had sufficient expertise to run models and perform the necessary operations required for the EIS. CRITFC was not a cooperating agency, though later in the EIS process they were utilized for technical assistance by the Confederated Tribes of the Umatilla Indian Reservation who were a cooperating agency. Bonneville did host several meetings with the cooperating agencies who expressed an interest in hydropower, describing the plan progress and outcomes of modeling, soliciting feedback along the way. Bonneville's modeling on HYDSIM was closely coordinated with the Corps hydroregulation modeling in ResSim. The teams used a parallel modeling process, with weekly or even daily check-ins, to effectively peer-review the two models and analyses. The EIS recognizes the environmental, social, and economic values of the natural resources of the Columbia River Basin and the focus is on how the CRSO EIS Alternatives affect these resources. For example, Section 3.5 evaluates effects of the alternatives on fish and Section 3.15 describes the values that people hold for salmon, including for commercial fishing, ceremonial and subsistence purposes, and passive use (e.g., existence values); Section 3.11 describes the effects on recreation (including fishing and other types of recreation); and Section 3.17 provides information on the cultural significance of the salmon to regional Tribes. Beyond the effects on fish, the EIS additionally evaluates potential effects on wildlife species and habitats (Section 3.6), agricultural productivity (Section 3.12), and air quality (Section 3.8). The EIS also recognizes the economic and cultural importance of salmon to Tribes in a number of sections throughout the document. The Fisheries analysis (Section 3.15 as well as Section 3.17), in particular, includes discussion of reductions in anadromous species catch and associated adverse social effects that have occurred in Tribal communities. The cultural significance and impacts of salmon and steelhead fisheries are described in the Fisheries section 3.15.2.1, which includes information on ceremonial and subsistence fisheries as well as the social importance of commercial, ceremonial and subsistence fisheries.

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				does not provide a rational explanation for its failure to do so. We are pleased that the DEIS recognizes the NW Councils regional energy plan, but the tribes Vision goes beyond the Councils regional energy planning. We specifically incorporated by reference herein the power and economics comments of the Yakama Nation. The analyses reported by the Yakama Nation were developed with input and support from the technical staff of CRITFC, as delegates of the CTUIR in the Cooperating Agency process. Rather than repeat this content here, we are specifically incorporating the Yakama Nations power and economics analyses by reference.	
6894	46	ericquaempts@ctuir.org	Confederated Tribes of the Umatilla Indian Reservation Department of Natural Resources	There are also additional effects that were not considered in the DEIS but should be. These include but are not limited to different flood risk management regimes that may result from the ongoing Columbia River Treaty negotiations.	The current operations of the Columbia River System, including current Treaty-related operations, are included in the EIS analysis. Section 2.5.10 of the Draft EIS explains why re-evaluating system flood risk management was screened out from further consideration in this EIS. Section 2.5.10 also explains that while the U.S. Entity Regional Recommendation stated support for the pursuit of Congressional authorization and appropriations for a region-wide public process to assess potential changes to the current level of flood risk protection, no such authorization or appropriation was provided. As such, a study for this purpose was determined to be outside of the scope of this EIS. If CRT-related operations change after 2024 in a manner that presents new information or circumstances resulting in significant changes that were not previously addressed, those changes will be addressed by this NEPA process if they are identified in time or subsequently in another NEPA process, if necessary.
6894	47	ericquaempts@ctuir.org	Confederated Tribes of the Umatilla Indian Reservation Department of Natural Resources	Similarly, analyses of reservoir ecology should be included in the EIS.	Please see Section 3.5 Aquatic Habitat, Aquatic Invertebrates, and Fish; and Section 3.6 Vegetation, Wetlands, Wildlife, and floodplains for information on reservoir ecology. Additional information is also available in associated Appendices E and F.
6894	48	ericquaempts@ctuir.org	Confederated Tribes of the Umatilla Indian Reservation Department of Natural Resources	Climate Change The DEIS lack of quantitative regulated flow and river operations modeling based on the RMJOC II 160 climate change projections is a significant flaw. The DEIS states that the BPA approach used to examine four of the RMJOC II climate change scenarios does not, meet the policies or technical guidance of the Corps or Reclamation under the time frame of the EIS. This is a significant failing of the DEIS to adequately evaluate the DEIS alternatives for climate change impacts as required by ESA and NEPA. We anticipate that Phase II of the RMJOC II project will contain the Phase I climate change scenarios with regulated flows and river operations based on updated flood risk and irrigation data is necessary to fill this inadequacy. The DEIS notes that having quantifiable understanding how future climate may impact EIS alternatives is important to BPAs understanding of impacts to generation and revenue in the future. It is no less important and is vital to understanding the other metrics examined in this EIS such as flood risk, ecosystem function with respect to anadromous and resident fish, water quality, recreation and water supply. In this section, the DEIS notes that the four climate change scenarios BPA chose to evaluate for power generation provide a general spread of future climate scenarios, but they are not adequate considering the full suite of 160 climate scenarios in the RMJOC II study. Further, the approach BPA used to estimate and compare power generation and review four RMJOC I unregulated climate change scenarios by regulating them through HYDSIM runs is an interesting preliminary first look but lacks adequate daily flood risk rule curves and appears to lack validated modified flows. The details of how BPA established data sets used to replace the 80-year modified flow data set and the volume forecast data sets used in all of the alternatives are not provided. Assumptions are provided as to how BPA established URCs for the four climate change scenarios, but they are not the approach that is required for robust flood risk evaluations. The revised URCs are based on the HYDSIM 14 period time step and do not have the precision of the daily time steps that the Corps uses when generating flood risk curves and URCs. In addition, the four climate scenarios chosen were based on the spread of 160 scenarios, culled down to 19 scenarios and based on annual runoff. It would much more informative to examine a fuller suite of scenarios culled by seasonal volumes for each metric considered (i.e. spring and early summer volume forecasts for fish; winter volume forecasts for flood risk). In Appendix J Hydrogeneration, the summary section that provides the results of the BPA model comparisons between historical climate (80-year historical record) and the four RMJOC II climate scenarios for all of the DEIS alternatives. These results indicate there were negligible differences between historical climate and future climate change scenarios for all DEIS alternatives with respect to power generation and revenue. Dynamic changes to potential load demand and market shifts from winter generation to summer generation, new generation resources and conservation technologies are all important uncertainties under current examination by BPA and the Northwest Power and Conservation Council. These uncertainties need to be assessed, weighed and accounted for in revised EIS modeling to establish a more robust approach to examining climate change effects on future power needs.	Through on-going regional climate change studies and work, the co-lead agencies evaluated potential shifts in precipitation and temperature patterns and resulting changes in unregulated Columbia Basin streamflow timing and volumes. The evaluation consisted of the full range of the latest climate change projections developed using multiple global climate models, emissions scenarios, downscaling techniques, and hydrologic models. Details of this evaluation are in Chapter 4 of the EIS. This information was used to describe the potential effects (both beneficial and adverse) on the river systems and resources due to potential changes in climate for all alternatives. Quantitative data that describes how climate change hydrology will affect reservoir operations in the Columbia Basin in still under development and was not available for us in this study. The climate science community is still developing quantitative models that can address possible effects in water temperature from climate change, and unfortunately, have not been fully applied and validated for use with climate affected regulated flow projections of large reservoir systems. This data is critical to analyzing potential effects to fish quantitatively. In lieu of this information, the climate analysis used the output from resource models, like water quality and fish, under historical conditions, available climate change data, and scientific literature to qualitative assess potential effects to resources (described in Chapter 4). The RMJOC-II Part 2 study was still in review at the time of the draft publication and final EIS development. Though the quantitative data from the Part 2 study was not included in this study, the qualitative conclusions were verified with the draft conclusions of the RMJOC-II Part 2 study for the final EIS.
6894	49	ericquaempts@ctuir.org	Confederated Tribes of the Umatilla Indian Reservation Department of Natural Resources	Continuing Mitigation Actions are not Adequately Described or Considered Within the Affected Environment and Analytical Framework The Northwest Power Acts Fish and Wildlife Program (BPA/Council) is noted as an existing mitigation program under Section 5.2.1 (p. 5-5). There are also extremely high-level discussions of the program in Chapters 2 (Measures Previously Committed to By The Co-Lead Agencies to Benefit Endangered Species Act-Listed Fish, 2-29 through 2-34) and Chapter 7 (Ongoing Programs, 7-39 through 7-43). The most complete discussions of the Fish and Wildlife Program is contained Appendix Q, which discusses costs which seems to be the primary point of consideration in the EISThere is no discussion of the Programs goals, objectives and measures. The Affected Environment chapter fails to mention that the NPCC, consistent with the Northwest Power Act, has identified a regional goal of 5 million salmon and steelhead with SARs in the 2-6% range. These are important benchmarks that the DEIS should be measuring their analysis against. While the DEIS NAA assumes a 2016 Baseline, the discussions in the Affected Environment sections do not meaningfully depict the nature and extent of the cumulative impacts that the Basins hydrosystem has had on the Columbia Basins anadromous fish. The NAA carries with it substantial unmitigated salmon and steelhead losses due to the CRSO dams configurations and operations. The broad scope of these impacts are described in multiple sources, including the Tribal Perspectives submitted by Warm Springs, Umatilla, Nez Perce and Yakama tribes in June 2019. In an effort spanning multiple years with numerous public hearings in a notice and comment style, the NW Power Planning Council considered the extent of hydropower related salmon and steelhead losses and concluded by adopting Program goals in 1987. The effort is described in multiple volumes. https://www.nwcouncil.org/reports/2014-columbia-river-basinfish- and-wildlife-program/appendix-b-estimates-hydropower-related-losses. Costs for Implementing the Fish and Wildlife Program are approximately $300 million annually, recently reduced to $282M. Program implementation is a key factor in the overall balance of activities that fulfills the equitable treatment mandates that apply to the co-lead agencies pursuant to 16 USC 839b(h)(11). The cost analysis in Appendix Q suggests reducing Fish and Wildlife Program funding and proposes funding cuts that are so substantial that they represent major shifts in regional governmental activities and policies. Table 12 in Appendix Q describes a $105 million/year (37%) reduction of Program spending associated with MO3 and MO4. Appendix Q describes a metric, benefits, that would evidently justify this 37% reduction in Program funding. There is, however, no actual appraisal in the DEIS of the biological benefits of the BPA actions implementing the Fish and Wildlife Program, let alone an analysis placing such benefits in the context of the full extent of the CRS dams effects. Without more, it is simply irrational to assume that co-lead agencies statutory obligations under the Northwest Power Act can be met using such gross assumptions. Unless the DEIS contains a thorough, accurate and meaningful discussion of the Fish and Wildlife Programs implementation, including progress toward its goals and mitigation objectives, there is no basis to assume a 37% funding reduction in Program implementation should accompany MO3 and MO4 While federal agencies are given latitude in establishing their objectives in a NEPA analysis, that latitude does not relieve the agencies from considering cumulative actions, cumulative impacts as well as direct and indirect effects. In this regard, the DEIS fails to accurately consider the context and intensity of the dams historic and long-term effects as well as this context for establishing appropriate mitigation measures. This situation is again symptomatic of the structural flaws that flow from an inadequate analysis of the CRSO dams cumulative baseline effects and a DEIS scope that only seeks improvement in juvenile and adult passage. Since reductions in Fish and Wildlife Program funding are beyond the stated scope of the DEIS objectives, the DEIS should not purport to analyze such measures.	Consistent with CEQ's June 24, 2005 guidance and interpretation of CEQ Regulations for Implementing the Procedural Provisions of NEPA, 40 C.F.R parts 1500-1508, "Agencies are not required to list or analyze the effects of individual past actions unless such information is necessary to describe the cumulative effect of all past actions combined... Generally agencies can conduct an adequate cumulative effects analysis by focusing on the current aggregate effects of past actions without delving into the historical details of individual past actions." However, the analysis of current conditions includes the ongoing effects of the existence of the system, inclusive of a host of other factors influencing natural and cultural resources of concern to potentially affected tribes. System operations are the focus of the EIS, not the existence of the system (and to the extent the analysis considers the existence of the system, i.e. breach, the effects analysis captures the cumulative effect of project existence). The comment further notes an absence of the goals and objectives established by the Northwest Power and Conservation Council, in particular the 5 million fish goal and the 2% to 6% SAR objective. These goals and objectives apply to the entire federal and non-federal hydroelectric system in the Columbia River basin, not the CRS dams specifically. For more on this issue, see response to Comment 6929-8. In a similar vein, the comment contends the co-lead agencies omitted discussion of unmitigated salmon and steelhead losses documented by the Council. The No Action Alternative, however, reflects conditions existing when the CRSO EIS was drafted. As such, the No Action Alternative reflects full compliance with the Northwest Power Act and other laws with regard to mitigating salmon and steelhead losses as described in the Accord Extension agreements signed in 2018. For more on this issue, see response to Comment 6894-56. The comment also overstates the nature of the co-lead agencies Northwest Power Act responsibilities under section 839b(h)(11). That provision applies to management and operation of the CRS only, not Bonneville's overall mitigation funding effort undertaken to comply in large part with section 839b(h)(10), as described in greater detail in the response to Comment 5962-3.The comment also questions the analysis of reduced Fish and Wildlife Program funding under MO3 and MO4. Funding decisions for the Fish and Wildlife Program are not being made as a part of the CRSO EIS process. However, a range of potential Fish and Wildlife Program costs are included to inform the broader cost analysis for each alternative in the EIS. By analyzing a range of costs, Bonneville reflects the year-to-year fluctuations related to managing its program and also acknowledges the uncertainty around both the magnitude of biological benefits and the potential impacts on funding, including the timing of funding decisions. Future budget adjustments to the Fish and Wildlife Program would be made in consultation with the region through Bonneville's budget-making processes and other appropriate forums and consistent with existing agreements. In the case of MO3 and MO4, Bonneville included a range of potential Fish and Wildlife Program costs to acknowledge the possibility that the alternatives could provide biological benefits to anadromous fish species and that this could, in turn, reduce the need for some offsite mitigation funded through the Bonneville Fish and Wildlife Program. For MO3 and MO4, Bonneville's Fish and Wildlife Program costs are estimated to range from no change from No Action Alternative to a decrease of approximately 37 percent, or approximately $105 million, annually (see Section 3.19.2). With respect to anadromous fish, the Northwest Power Act calls for improved survival at the dams and flows of sufficient quality and quantity . . . to improve [their] production, migration, and survival. The co-lead agencies demonstrate throughout the EIS how they meet these statutory objectives. The Columbia River Basin Fish Accord Extensions (Fish Accords) and Bonneville's comments to the Council on its 2020 amendment process also highlight the actions the Agencies have taken to fulfill the anadromous fish mandates of the Act.1/ Under MO3 or MO4, operational, structural and mitigation measures would substantially benefit anadromous fish. This could potentially necessitate reductions in off-site mitigation funding. The funding decrease modeled in MO3 results because substantially more mitigation would be provided on-site at the dams, thus reducing the need for off-site mitigation; and the power purpose at the four lower Snake River dams is eliminated under MO3 when four dams are breached. Section 3.19 discusses these effects in more detail. Moreover, the co-lead agencies note that through the 2008 Fish Accords and the 2018 Accords Extensions, six tribes, one tribal association, and two states voluntarily affirmed the legal and biological adequacy of CRS operations as well as the off-site mitigation done through Bonneville's Fish and Wildlife Program. Several of the Accord partners published a 10-year review of its Accord-related mitigation accomplishments and the biological benefits obtained. In that report, the entity found Bonneville's $261 million annual funding level during the Accords and mitigation effort was consistent with the Northwest Power Act. For additional information, see the response to Comment 31775-51. Finally, the comment suggests the draft EIS needed to examine the biological benefits of the actions implementing the Bonneville Fish and Wildlife Program with an analysis placing such benefits in the context of the full extent of the CRS dams effects. Bonneville's Fish and Wildlife Program is primarily an off-site mitigation or enhancement program. See, 16 U.S.C. 839b(h)(8)(A). In other words, Bonneville funds off-site enhancement, not mitigation at the dams. Therefore, it is unrealistic to expect the benefits of these off-site enhancement actions to be placed in the context of the CRS dams effects as the comment suggests. For further information on the effectiveness of the co-lead agencies mitigation actions, see the response to Comment 6894-56. 1/ See Bonneville, Recommendations to the Council on Amending the 2014 Fish and Wildlife Program (Dec. 13, 2018) https://app.nwcouncil.org/uploads/2018amend/recs/765/Bonneville%20Recomendations%20to%20Council%20FW%20Program%20Amendment%2012.13.2018.pdf; Final Comments on Draft Addendum Part II (Oct. 18, 2019) https://app.nwcouncil.org/uploads/2018amend/comments/1341/Final%20Bonneville%20Comments%20on%20Draft%20Council%20Addendum%202019.10.18.pdf
6894	50	ericquaempts@ctuir.org	Confederated Tribes of the Umatilla Indian	For MO1, the summary tables of anadromous fish effect in Table 6-20 indicate that MO1 would be similar to the base case which was found to not be sufficient to meet jeopardy standards. However, MO1 has little to no additional mitigation actions. The mitigation proposed for salmon and steelhead is to revert backwards to the operation proposed in the NAA for Little Goose Dam and continue existing predator management programs. No other mitigation is proposed. As discussed with the PA, continuing existing predator management programs at NAA funding levels is not an improvement	The co-lead agencies proposed mitigation actions for MO1 that addressed the potentially negative effects of that alternative. The agencies, in evaluating the range of alternatives for how well they each met the Purpose and Need Statement and the eight objectives, incorporated measures from the multiple objective alternatives to form the Preferred Alternative. This alternative avoids jeopardizing ESA-listed species and does not adversely modify designated critical habitat.

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			Reservation Department of Natural Resources	over the NAA. Rather than reverting to NAA spill levels to encourage adult migration, at the expense of juvenile migrants, the co-lead agencies should propose improvement of the adult fish ladder at Little Goose Dam or construction of a second ladder. This mitigation action was recommended by the tribes for the mitigation toolbox.	
6894	51	ericquaempts@ctuir.org	Confederated Tribes of the Umatilla Indian Reservation Department of Natural Resources	For MO2, the co-lead agencies propose no mitigation actions for salmon and steelhead because even though the alternative is stated to decrease survival for both juveniles and adult abundance. If the NAA poses jeopardy for salmon and steelhead, there should be a significant mitigation package attached to this alternative.	The mitigation package for MO2 is described in Chapter 5, Section 5.4.2 and Chapter 2, Section 2.4.2.1 and includes many actions carried forward from the No Action Alternative. The Preferred Alternative includes a mitigation package that the co-lead agencies expect to offset potential negative effects.
6894	52	ericquaempts@ctuir.org	Confederated Tribes of the Umatilla Indian Reservation Department of Natural Resources	For MO3, the co-lead agencies propose short term mitigation to offset short term impacts caused by breaching the lower Snake dams. They propose constructing or improving trap and haul facilities to get fish out of the river and transport them around the zone of breaching. They also propose to rear more hatchery fish during the construction phase of breaching to replace two lost year classes of salmon and steelhead. The effect of this mitigation action does not offset the impact but reduces the number of fish impacted. No other mitigation is proposed.	The trap and haul facilities and hatchery fish mitigation is to provide fish during the short-term impacts associated not with the demolition, but the flushing of stagnant water and sediments, anticipated to drop dissolved oxygen levels significantly, and potentially cause 2-7 years of no biological productivity and aquatic losses. Description of these impacts are in the Multiple Objective alternative 3 analysis for water quality and fish in Chapter 3.
6894	53	ericquaempts@ctuir.org	Confederated Tribes of the Umatilla Indian Reservation Department of Natural Resources	For MO4, again the co-lead agencies propose to revert backwards to the operation proposed in the NAA for Little Goose Dam and rely on existing predator management programs as described under MO1. No other mitigation is proposed. As with MO1, with adult passage identified as a concern, a second fish ladder at Little Goose (and possibly Lower Granite) should be considered as an appropriate mitigation action.	A second fish ladder entrance at Little Goose was considered. Ultimately, the "Temporary extension of performance standard spill levels in coordination with the Regional Form" was carried forward as mitigation in Multiple Objective alternative 4.
6894	54	ericquaempts@ctuir.org	Confederated Tribes of the Umatilla Indian Reservation Department of Natural Resources	For All MOs and the PA, the DEIS proposes continuation of current (NAA) predator control measures without addition or enhancement, however this fails to recognize: avian predation measures are not meeting biological goals, or have been deemed complete without meeting such goals. (See discussion under PA comments) likely increase in Northern Pike Minnow predation, which the DEIS does recognize but keeps the program at current levels. increases in pinniped predations, which the DEIS also recognizes as likely or uncertain, but fails to mitigate. Many examples exist for additional Affected Environments (e.g.; Water supply, Navigation, etc.) but due to time constraints we have limited our comments to salmon and steelhead.	The co-lead agencies' legal authorities relate to operating and maintaining the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy designated critical habitat. To comply with ESA, the co-lead agencies have historically supported actions to mitigate adverse effects to ESA-listed species from the CRS operations, through funding, direct implementation, and other means. Sea lions are protected under the Marine Mammal Protection Act. With the exception of continuation of the pikeminnow program, the co-agencies are not proposing additional predator management actions in the Preferred Alternative. The avian management plan encourages birds to nest in alternate locations outside of the Columbia River Basin. As analyzed in Section 7.7.7, the Predator Disruption Operations measure in the John Day reservoir could delay nesting water birds, forego nesting, or relocate to other areas, reducing avian predation on migrating juvenile salmonids. As discussed in Section 3.6.3.2, Caspian terns are highly mobile during the breeding season and move between breeding colonies in a given year and between years, demonstrating a willingness to nest away from the Columbia River while still foraging on juvenile salmonids (Corps 2014, 2018, 2019). Under the Preferred Alternative, actions that reduce pinniped and avian predation on ESA-listed species, would generally continue to ensure compliance with ESA as described in Section 7.6.4.1, Ongoing Programs, including ongoing measures to haze and monitor pinniped predators. Other entities in the region have authorities and obligations to mitigate the impacts from pinniped and avian predators. The co-lead agencies will continue to work closely with and assist NMFS, States and tribes efforts to benefit ESA-listed salmonids, including pinniped removal efforts near Bonneville Dam.
6894	55	ericquaempts@ctuir.org	Confederated Tribes of the Umatilla Indian Reservation Department of Natural Resources	Offsite Mitigation is lacking The Offsite Mitigation Package (p. 5-29, 5-33) is lacking in several areas: 1. RM&E. This section is inadequate with regards to habitat condition, implementation of habitat restoration, and evaluation of biological responses. Tributary habitat restoration projects are implemented to reduce the impacts of limiting factors and increase the survival and productivity of focal species of interest. There should be a strong commitment to protecting and improving tributary habitat and implementing monitoring programs for assessing the impacts of limiting factors and effectiveness restoration actions. This will help to inform critical additional habitat improvement needs. The DEIS does not discuss significant regional habitat strategies in progress: the Habitat RM&E Strategy and the Habitat Implementation Strategy. Both strategies are attempting to synthesize standardized metrics (or indicators) of habitat conditions, habitat implementation and the impact on biological response. In addition, the DEIS fails to discuss the Northwest Power Planning Councils Research Plan regarding tributary habitat uncertainty research (2017-4). The following are key RM&E questions or uncertainties from this document. These should be referenced in the EIS with support for implementation. At a minimum, it should be recognized that the tribes should have the autonomy to implement a tributary habitat research program to address these uncertainties. Question 1. Do investments in tributary habitat restoration mitigate for degraded mainstem habitat and passage conditions? 1.1. To what extent do tributary habitat restoration actions improve the survival, productivity, distribution and abundance of native fish populations? 1.2. How much does improving habitat and eliminating barriers (removing dams and culverts, or transporting migrating fish above dams) increase carrying capacity and contribute to recovering important fish populations? 1.3. To what extent is an increase in carrying capacity usurped by non-native invasive species, preventing recovery of native fish and wildlife populations? 1.4. To what extent do restoration efforts provide resilience to buffer against climate events and recover native species of interest? Question 2. What additional habitat restoration projects should be implemented to benefit fish and wildlife? 2.1. Are the cumulative suites of restoration actions benefiting populations of fish and wildlife in tributary watersheds? 2.2. How can habitat restoration actions support or enhance cold water habitat to provide thermal refuges? 2. Habitat Restoration. Offsite mitigation should include increased floodplain restoration actions in tributaries. CRITFC member tribes and others are aggressively assessing and addressing primary limiting factors which are causing significant juvenile fish loss in tributaries. The degree of stream channelization in some Columbia Basin tributaries exceeds 75 percent therefore floodplain restoration must be aggressively embraced as offsite mitigation in the DEIS. Recent Columbia Basin Partnership Task Force modeling determined that tributary juvenile fish mortality in the mid- Columbia sub-region accounts for the highest level of fish mortality in all salmon and steelhead life history phases. The DEIS should recognize and be informed from this effort. For instance, CTUIR is implementing a science-based approach to restore floodplains to naturally functioning and sustaining ecosystems. It is paramount that this work be maintained or increased to continue address the most limited fish life history stages. 3. Lamprey Restoration. See lamprey discussions in sections IV.E.2. and V.M. above. 4. Hatchery Programs. Current hatchery programs are frequently not meeting mitigation requirements and are not fully funded. Offsite mitigation must include increased hatchery fish production to meet mitigation goals and address facility delinquencies such as water supplies and critical capital improvements. This will provide valuable harvest and assist with fish recover by supplementing natural fish production. Additionally, the Affected Environment chapter fails to mention that the NPCC, consistent with the Northwest Power Acts statutory requirements, has identified a regional goal of 5 million salmon and steelhead with SARs in the 2-6% range. These are important benchmarks that the DEIS does not disclose or analyze.	This comment identifies concerns related to: 1) RME, 2) habitat restoration, 3) lamprey restoration, and 4) hatchery programs. In regards to the first two areas, the comment identifies three primary concerns related to tributary habitat condition, habitat project implementation, and the evaluation of biological responses. The 2020 CRS Biological Assessment and proposed action, Appendix V to the EIS, specifically addressed these issues as documented below. 1/ In addition, the co-lead agencies offer the following responses. With regard to tracking habitat conditions from tributary enhancement and restoration projects, Bonneville tracks broad-scale changes in select habitat status and trends information, including stream temperature and flow, across the Columbia River Basin. Bonneville also is exploring opportunities for programmatic integration of temperature and flow data within regional data display and modeling efforts (e.g., the USFS NorWeST stream temperature platform). A subset of watersheds within the Snake River, Upper Columbia and Mid-Columbia ESUs would continue to implement regional habitat data collection to support existing long-term habitat monitoring efforts. Bonneville is also working with regional partners to develop additional monitoring for habitat or fish status and trends as part of the forthcoming Columbia River Basin habitat research, monitoring and evaluation strategy. Bonneville intends to leverage existing efforts capturing habitat or fish status and trends information funded by regional partners and entities wherever possible to address additional or unmet needs. The co-lead agencies, with the Northwest Power and Conservation Council and National Marine Fisheries Service (NMFS), began developing the strategy under the NMFS 2019 CRS BiOp and have committed to finishing it with assistance from the commenting entity and other fisheries managers. With regard to concerns about implementing habitat enhancement and restoration projects, the co-lead agencies have invested heavily in non-operational measures supporting their compliance with applicable laws. The Preferred Alternative and associated ESA consultations continue this practice by including a strong tributary habitat restoration commitment affirmed and detailed in the appendix Supplemental Narrative for Tributary Habitat Actions for listed Salmon, Steelhead and Bull Trout.2/ The co-lead agencies would continue to work with various agencies and project sponsors on prioritization and implementation of restoration actions that provide the greatest benefit to aquatic species and promote resilience with respect to climate change, including improving tributary fish passage and floodplain conditions. To address and evaluate the biological responses of tributary habitat actions, the co-lead agencies proposed monitoring and evaluation using fish status and trend data along with site and watershed-scale effectiveness monitoring. The Proposed Action detailed in the Biological Assessment specifies that, [c]onsistent with the 2018 proposed action, the Action Agencies will continue to support fish status and trend monitoring for one population per major population group (MPG) for the following life stages: returning adult fish (e.g., PIT arrays in fish ladders, tributary PIT arrays and weirs, redd surveys for Chinook), smolt outmigration abundance and condition (e.g., screw traps), and smolt movement and survival (e.g., PIT tagging and associated arrays). Moreover, the co-lead agencies would address habitat restoration effectiveness with monitoring related to their habitat mitigation efforts at a range of scales including the site and watershed scales. This monitoring would serve multiple purposes, including determining if habitat actions are meeting their physical or biological objectives (limiting conditions and relative abundance in ESA-listed species), as well as revealing the benefit of actions on larger scales. To date, many key management questions have been addressed through a variety of regional effectiveness monitoring efforts including site-scale programmatic monitoring intensively monitored watersheds (IMWs). At the site-scale, Bonneville would continue to fund site and project-scale action effectiveness monitoring (AEM) through completion of this programmatic project study design in 2023 to provide a comprehensive, consistent, efficient, and cost-effective approach to monitor and evaluate salmon and steelhead tributary habitat improvement actions (e.g. fish passage, instream wood structures, floodplain enhancement and riparian improvement). The majority of Bonneville's implementation partners conduct site-scale effectiveness monitoring through the AEM Programmatic effort, including multiple habitat actions distributed across the Snake River, Upper Columbia and Middle Columbia ESUs/distinct population segments (DPSs). Results from this work are available on a rolling basis as action categories monitored in the AEM program are completed and evaluated. At the watershed scale, the co-lead agencies intend to complete a summary analysis and synthesis report for the Columbia Habitat Monitoring Program to guide management decisions on habitat priorities funded by Bonneville. The co-lead agencies intend to continue supporting fish status and trend monitoring within the Entiat, Lemhi, and John Day basins, all of which were identified as pilot IMWs in the 2008 BiOp. These monitoring results can inform future effectiveness monitoring called for in the Columbia River Basin tributary habitat RM&E strategy. Moreover, the co-lead agencies also would continue supporting ongoing habitat monitoring for a subset of readily available and high value habitat variables, including stream temperature and flow. The results of this monitoring would be evaluated for integration into regional data display platforms through collaborative efforts with regional experts, including the USFS Rocky Mountain Research NorWeST team. Bonneville intends to continue to fund the development of stream habitat linear networks to display habitat attributes (e.g., stream temperature and flow) in GIS-based data displays and maps in select priority watersheds. Additionally, biologically based fish metrics (e.g., salmon densities) are being explored for use in conjunction with stream habitat metrics to help guide future habitat improvement efforts. Results of site and watershed-scale effectiveness monitoring would continue to be used to guide future habitat action implementation to ensure the co-lead agencies are investing in effective habitat improvement actions designed to help address uncertainty related to any residual adverse effects of CRS management. Additionally, results can help evaluate improvements in habitat and fish status resulting from completed habitat actions in the Columbia River Basin through coordination with the Tributary Technical Team, and evaluation in regional science-based processes such as lifecycle modeling. The development of the regional habitat RM&E strategy is planned to include considerations and recommendations for future effectiveness monitoring. With respect to research on tributary habitat uncertainty and the Northwest Power and Conservation Councils Research Plan, which informs Bonneville's habitat project implementation, the Preferred Alternative provides the following commitment. The co-lead agencies recognize the value of focused, cost-effective, time-bound research and validation monitoring that increases understanding of the cause and effect relationships between habitat actions and biological fish responses. The forthcoming habitat RM&E strategy is proposed to include recommendations for future research priorities consistent with regional critical uncertainties (e.g. Independent Scientific Advisory Board [ISAB] Critical Uncertainties report and the Councils Fish and Wildlife Program Research Plan). In collaboration with NMFS and when necessary to inform management decisions, the co-lead agencies intend to fund fish and habitat research projects with regional partners as priorities and Agency funding availability allows. Lastly, the Agencies would continue to address key research, monitoring, and evaluation questions or uncertainties through the CRS mitigation commitments cited above. Bearing in mind the questions posed are complex and technical in nature, they are best addressed by fisheries and habitat managers, not the managers of the CRS. That such questions persist after decades of work shows their complexity and hints at the additional time and investment necessary to resolve them and resolving them is not within the scope of this EIS, which focuses on CRS operations, maintenance and configuration. Regarding lamprey, the Preferred Alternative includes several measures to improve lamprey passage. Finally, regarding hatchery programs, the co-lead agencies fund the operation and maintenance of safety net, conservation, and mitigation hatchery programs to mitigate for the impacts of CRS operations. The mitigation goals for these hatchery programs are either established by Federal agencies or by state or tribal co-managers in consultation with regulatory agencies. Salmon and steelhead hatchery program goals are formalized in in the Biological Opinions issued by NOAA fisheries. BPAs Fish and Wildlife Program funding of hatchery programs is consistent with the Northwest Power Act and conservation strategies established in regional salmon and steelhead recovery planning processes. The co-lead agencies recognize there are

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					hatchery maintenance and infrastructure needs in the region, and that these needs extend beyond Federally funded hatchery programs. This is a regional issue that is being worked through a variety of public and regional forums that are broader than the scope of the CRSO EIS. 1/ See FEIS Appendix V, 2020 CRS Biological Assessment at 2-94 through 2-103, Section 2.6.1.4 Habitat Improvement Actions. 2/ See FEIS Appendix V, 2020 CRS Biological Assessment, Appendix D, Supplemental Narrative for Tributary Habitat Actions.
6894	56	ericquaempts@ctuir.org	Confederated Tribes of the Umatilla Indian Reservation Department of Natural Resources	The DEIS Omitted Analysis of ESA and NWPA Compliance Without Rational Explanation Based on multiple communications with the co-lead agencies, including review of the DEIS and its draft components, it is clear that the DEIS, its actions and objectives are framed in terms of the co-lead agencies NEPA objectives, not their obligations under the ESA or the Northwest Power Act. Notably, the objectives for the DEIS for ESA-listed anadromous fish are improvement, not survival and recovery required by the ESA or for equitable treatment required by the Northwest Power Act or other federal legal obligations as described in the Tribal Perspectives report. It is worth reading the objectives for the EIS carefully. The two related to ESA-listed anadromous fish read as follows: Improve ESA-listed anadromous salmonid juvenile fish rearing, passage, and survival within the CRS through actions including but not limited to project configuration, flow management, spill operations, and water quality management. (Improve Juvenile Salmon) Improve ESA-listed anadromous salmonid adult fish migration within the CRS through actions including but not limited to project configuration, flow management, spill operations, and water quality management. (Improve Adult Salmon) DEIS Page 18 (Executive Summary). The introduction to the Mitigation chapter of the DEIS describes the NEPA framework of the DEIS, including the mitigation requirements specific to NEPA. Throughout the DEIS development process the foregoing objectives framed the analysis conducted by the co-lead agencies as well as the mitigation considered in the DEIS. NEPA and the case law interpreting it do not require this constrained analysis. As part of the NEPA process, Federal agencies consider appropriate mitigation measures to avoid, minimize, rectify, reduce or eliminate, and/or compensate for specific impacts (CEQ 2011). The mitigation measures summarized in this chapter are intended to reduce the duration and severity of impacts from implementing a specific action. DEIS Page 5-1. Importantly, mitigation measures are only proposed in the DEIS in those instances where the proposed alternative worsens or impacts juvenile survival or adult migration in the CRSO from where it was estimated to be under the No Action Alternative. E.g. DEIS, page 5-24, section 5.4.2.2. As a related matter, effects are categorized to include minor, moderate and major effects for NEPA purposes. As a result, the analyses segmented conditions and effects occurring before and existing in 2016 from those that would occur as a result of the actions contained in the DEIS alternatives. This segmentation is akin to the existence versus operations segmentation that was contained in NOAAs 2004 BiOp for the FCRPS and that was struck down by Judge Redden in May 2005. Appendix V, which is the Biological Assessment for ESA compliance is framed somewhat differently, but it acknowledges the different statutory frameworks as follows: It is important to note that NEPA and the ESA establish different standards for legal compliance and have different approaches to the analysis of the effects of the action. Because of these differences, the analyses performed in the draft EIS and in the BA are tailored to the requirements of each regulatory process. The mitigation chapter of the DEIS includes conclusory discussions of Bonnevilles Fish and Wildlife Program funding commitments under the Northwest Power Act in subsection 5.2.1.1 as well as a similar conclusory statement of the Northwest Power Acts equitable treatment requirements in section 5.2.1. The mitigation discussion fails to disclose and analyze the effectiveness of the ongoing mitigation actions required by the Northwest Power Act, Endangered Species Act or other federal laws. Compared to the narrow improvement and mitigation framework of the DEIS, the June 2019 Tribal Perspective document describes a much different set of objectives that should have framed at least some of the analyses in the DEIS. It includes discussion of tribal plans to effectuate treaty reserved fishing rights as well as the Northwest Power Acts fish and wildlife obligations. Its frame of reference is based on tribal well-being, as opposed to improvement from the status quo. The DEIS fails to disclose and analyze whether the alternatives would achieve those objectives described in the tribal Perspectives report. The EIS omitted analysis of ESA and NWPA compliance and other plans. Contrary to the assertions in the DEIS, there is no evidence that the Co-lead Agencies considered the NPCCs Fish and Wildlife Programs specific goals, objectives and measures with regard to anadromous fish. While some disclosure and analysis of wildlife Program obligations is set forth in the DEIS, such disclosure and analysis does not occur for anadromous fish. Without that disclosure and analysis there is no evidence in the DEIS that the Co-Lead agencies have provided equitable treatment for fish and wildlife. Similarly, neither the DEIS nor the Biological Assessment in Appendix V contain a holistic analysis of whether any of the alternatives would meet ESA requirements. Many federal ESA jeopardy analyses on the CRS (or FCRPS) have preceded the DEIS. They are the subject of many technical and legal publications, but this history not disclosed in the DEIS. There is also no disclosure and analysis of survival metrics or recovery metrics from previous BiOps. Nor does the DEIS contain a discussion of the survival and recovery metrics from NOAA Recovery Plans or the Interior Columbia Technical Review Team. Perhaps the most salient disclosure is contained in a paragraph in Chapter 3 and it does not bode well for future salmon and steelhead returns: On February 4, 2020, the co-lead agencies viewed a presentation prepared by NMFS regarding returns for the 2019 fish passage season and the Adaptive Management Implementation Plan. Although not all returns occurred prior to the presentation, NMFS utilized current return numbers to project return numbers if current return rates continued in 2020 and 2021. These projections signaled that returns are low, especially for Snake River steelhead. The co-lead agencies are currently evaluating the information provided by NMFS and will have a more detailed discussion of this information in the final EIS, including any updates that NMFS may provide once all returns have occurred, if appropriate. DEIS Page 3-301. Notably, the information disclosed by NMFS to the co-lead agencies on February 4, 2020 is not disclosed in the DEIS. The discussion of recovery plans in the Biological Assessment (Appendix V) is only aimed at ensuring the consistency of tributary habitat programs and safety net hatcheries with recovery plans. There is no analysis of recovery per se or its likelihood under any of the alternatives. The absence of such analysis frustrates public consideration of the alternatives and their consequences.	Chapter 8 of the EIS demonstrates the co-lead agencies' compliance with applicable laws, including the ESA and Northwest Power Act. Regarding the ESA, the co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the Columbia River System. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. Finally, the NMFS and USFWS Biological Opinions demonstrate that CRS operations, maintenance and configuration do not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat and are included as an appendix to the EIS. Regarding Northwest Power Act compliance, the comment asserts inadequate analysis in the EIS as to the efficacy of mitigation funded through Bonneville's Fish and Wildlife Program. Bonneville's Fish and Wildlife Program is first described in section 2.4.2 as an existing program under the No Action Alternative that would continue. This section provides a high-level overview of Bonneville's Fish and Wildlife Program, many of its major subprograms and their benefits, including habitat actions, hatchery actions, predator management, lamprey research and mitigation, and wildlife mitigation. Section 2.4.2 also describes some of the many CRS improvements and the associated benefits for fish. In addition to this overview of Bonneville's Fish and Wildlife Program, the description of the affected environment throughout the relevant sections in Chapter 3 of the EIS, by definition, reflects the effects of past and present, ongoing mitigation efforts, even if they are not itemized or highlighted as being the results of a specific mitigation effort. NEPA does not require the agencies to distinguish the past and ongoing effects of all the mitigation projects Bonneville has funded over the 40-year history of the Northwest Power Act, particularly given that Bonneville now uses over 600 contracts annually to implement its Fish and Wildlife Program. In addition, the Agencies 2020 CRS Biological Assessment includes analysis of the implementation and effectiveness of both tributary habitat restoration actions and the CRS overhaul. Although the Northwest Power Act requires Bonneville to fund mitigation consistent with the Northwest Power and Conservation Councils (Council) Columbia River Basin Fish and Wildlife Program (Program) and the purposes of the Act, no statutory provision requires the co-lead agencies to undertake separate analyses regarding the efficacy of such mitigation. Rather, the structure and processes of the Act create a presumption that mitigation measures and projects recommended for implementation by the Council are indeed an effective means for addressing mitigation under the Act. First, the Council develops its Program based largely on the recommendations and expertise of fish and wildlife managers. The mitigation projects that the Council recommends to Bonneville for funding derive from their Program. Further, the Independent Scientific Review Panel periodically reviews the mitigation projects under certain statutory criteria that, for example, include examining whether projects are based on sound scientific principles and benefit fish and wildlife. 16 U.S.C. 839b(h)(10((D)(iv). These statutory processes for vetting and reviewing implementation of mitigation projects provide a reasonable basis for the co-lead agencies to rely on these projects being effective. In addition, for fish and wildlife managers that implement Northwest Power Act mitigation through Fish Accord agreements with the co-lead agencies, the managers and co-lead agencies have agreed that such mitigation projects are consistent with the Councils Program, the underlying assumption being that the mitigation projects address appropriate obligations under the Council Program, and do so effectively. The comment also asserts that the agencies did not consider the Councils Program goals, objectives, and measures for anadromous fish. First, the co-lead agencies note that the Councils Program goals, objectives, and measures have been under a revision process for a substantial portion of this EIS analysis, and that revision remains ongoing. Bonneville submitted comments in the Councils amendment process, including fundamental questions about the legal basis of many of the Programs goals and objectives. 1/ However, even under the Councils prior 2014 Program, the overarching anadromous fish goal includes a smolt-to-adult return of 2-6%. The EIS analyzed SAR implications of the various alternatives. In addition, the CSS model predicts that certain smolt-to-adult return rates under the Preferred Alternative would increase from 2.0% to 2.7%, within the range included in the Council Program goal for anadromous fish. The comment further claims that there is no evidence in the EIS of the agencies adherence to the equitable treatment mandate of the Act. The equitable treatment provision of the Act directs the agencies management and operation of the Columbia River System provide equitable treatment for fish and wildlife with the other authorized purposes for which the system is managed, such as flood risk management, hydropower generation, irrigation, navigation, and recreation. See 16 U.S.C. 839b(h)(11)(A)(i). The co-lead agencies provide fish and wildlife with equitable treatment on a system-wide basis. See NW. Envtl. Def. Ctr. v. Bonneville Power Admin., 117 F.3d 1520, 1533-34 (9th Cir. 1997) (While each power marketing action that affects the system implicates the equitable treatment provisions, Bonneville may properly exercise its obligation by insuring equitable treatment for fish on a systemwide basis.); Confederated Tribes of the Umatilla Indian Reservation v. Bonneville Power Admin., 342 F.3d 924, 931 (9th Cir. 2003) (The equitable mandate of [the Northwest Power Act] does not require every Bonneville decision to treat fish and wildlife equitably. For example, Bonneville may make some decisions that place power above fish, so long as on the while, it treats fish on par with power.). Through this EIS process, the co-lead agencies have considered management and operation of the Columbia River System for its multiple authorized purposes. And, as noted above, CSS analysis of the Preferred Alternative predicts an increase in smolt-to-adult return rates as compared to the no action alternative. The co-lead agencies inclusion of alternatives MO3 and MO4 which are focused on benefiting fish, plus the incorporation of measures specifically designed for improved benefits to fish and wildlife, as balanced against other purposes, reflects equitable treatment of fish and wildlife consistent with the Northwest Power Act. 1/ See Bonneville Power Administration Comments on Draft 2020 Addendum to the Columbia River Basin Fish and Wildlife Program (Oct. 18, 2019), available at https://app.nwcouncil.org/uploads/2018amend/recs/765/Bonneville%20Recomendations%20to%20Council%20FW%20Program%20Amendment%2012.13.2018.pdf; Bonneville Power Administration Comments on Revised Part One of the 2020 Addendum to the Columbia River Basin Fish and Wildlife Program (Jun. 22, 2020) available at https://app.nwcouncil.org/uploads/2018amend/comments/1392/Final%20Council%20Addendum%20Pt%201%20Cover%20Ltr%20and%20Comments%202020.06.22.pdf. See also response to 31775-119 and 6929-8.
6894	57	ericquaempts@ctuir.org	Confederated Tribes of the Umatilla Indian Reservation Department of Natural Resources	Under its Treaty of 1855, 12 Stat. 945, the CTUIR reserved for itself and its members the right to take fish at all usual and accustomed areas. Tribal members have fished on the Columbia River for subsistence, ceremonial and commercial purposes since time immemorial. The Supreme Court of the United States has repeatedly recognized the significance of the treaty reserved right to fish at off-reservation usual and accustomed places, holding that the right is not much less necessary to the existence of the Indians than the atmosphere they breathed. Washington v. Washington State Comml Pass. Fishing Vessel, 443 U.S. 658, 680, 99 S. Ct. 3055, 3071-3072 (1978), quoting United States v. Winans, 198 U.S. 371, 380 (1905). This treaty right to fish is a property right, protected by the Fifth Amendment to the Constitution of the United States. See Muckleshoot Indian Tribe v. United Sates Corps of Engineers, 698 F.Supp. 1504, 1510 (W.D. Wash. 1988), citing Menominee Tribe of Indians v. United States, 391 U.S 404, 411-412, 88 S.Ct. 1705, 1710-1711 (1968). The Treaty also creates a federal trust responsibility under which the federal government maintains an affirmative obligation to safeguard the subject matter of federal treaties. Thus, federal agencies must use their authorities in a manner that will protect and enhance-- not degrade -- the fish species that underlie treaty fishing rights. Further, [i]n carrying out its fiduciary duty, it is the government's, and subsequently the Corps', responsibility to ensure that Indian treaty rights are given full effect. NW Seafarms v. US Army Corps, 931 F.Supp. 1515, 1520 (W.D.Wash. 1996), citing, Seminole Nation v. United States, 316 U.S. 286, 296-97, 62 S. Ct. 1049, 1054-55, 86 L. Ed. 1480, 86 L. Ed. 1777 (1942) (finding that the United States owes the highest fiduciary duty to protect Indian contract rights as embodied by treaties). This duty does not cease once a fish run becomes viable. Tribal members must be allowed to achieve their enjoy the "same level of exclusive use and exploitation" they had at the time the treaty was signed. United States v. Adair, 723 F.2d 1394 (9th Cir. 1984) cert. denied, 467 U.S. 1252 (1984). In short, the Tribe has an absolute right to a fair share of the fish destined to pass tribal fishing places. U.S. v. Oregon (Sohappy v. Smith), 302 F. Supp. 899 911 (D.Or. 1969). These fish include those artificially propagated for rebuilding, mitigation and enhancement purposes. United States v. Washington, 759 F.2d 1353 (9th Cir. 1985)(en banc) (holding that hatcheryreared fish are fish within meaning of treaty fishing clause and subject to allocation thereunder). The harvest rights and federal fiduciary obligations properly cabin any consideration of the Treaty right to harvest to the environmental baseline. Including Treaty harvest in the baseline is consistent with the purpose of the CRSO EIS, which is to examine different hydrosystem operation configurations. All alternatives studied in the CRSO EIS should have been analyzed for their effect on Columbia River fisheries and their ability to contribute to the recovery of stocks to harvestable levels that support tribal fisheries and communities.	Tribal input, concerns, interests, and especially treaty rights were considered throughout the Draft EIS analyses and in the formulation of the Preferred Alternative. Treaty specific information is included in Section 3.17 as well as Chapter 7. The treaties bind all parties and are the supreme law of the land. The co-lead agencies recognize and respect that supremacy. In terms of honoring our treaty obligations, the co-lead agencies included Protecting Native American treaty and reserved rights and fulfilling trust obligations for natural and cultural resources throughout the environment affected by the Columbia River System operations as a purpose in the Purpose and Need Statement in Chapter 1 to ensure treaty obligations were a key consideration of decision making. The co-lead agencies are engaging in government-to-government consultation with the tribes, and several tribes are cooperating agencies on the CRSO EIS. The EIS recognizes the economic and cultural importance of salmon to Tribes in a number of sections throughout the document. The cultural significance and impacts of salmon and steelhead fisheries are described in the Ceremonial and Subsistence Fisheries sub-section and the Social Importance of Commercial, Ceremonial and Subsistence Fisheries sub-section of Section 3.15.2.1. Fisheries tribal interests are provided in Section 3.15.4 additional details regarding the economic significance of salmon and steelhead fisheries have been added to the recreation analysis (Section 3.11) including tribal interests (Section 3.11.3.7). Treaty rights are discussed in the Executive Summary, Section 3.16 Cultural Resources, and Section 3.17 Indian Trust Assets, Tribal Perspectives, and Tribal Interests. Appendix P includes copies of tribal perspectives that were submitted by tribes. Tribal consultation is described in Sections 1.5, 3.5, and 3.15; and Chapter 9. Most sub-sections within Chapter 3 include a Tribal Interests section at the end of the sub-section that attempts to summarize tribal issues by topic.
6899	1	Kari Kostka	The Nature Conservancy of Idaho	TNC supports improvements to anadromous fish passage and survival on Columbia mainstem rivers. Actions identified in the Preferred Alternative, however, are likely not aggressive enough to keep ESA-listed fish stocks from near-term extinction. Moreover, TNC recognizes the alternatives in the DEIS were developed prior to the implementation of flex spill agreement in 2018 and the development of the fish operations plan for 2019. These efforts have led to new information regarding spill for juvenile fish passage and potential benefits to downstream migration. TNC supports these types of efforts to improve fish passage and other survival benefits through the hydro system and continued study of various strategies for long-term benefit.	The spill operation for juvenile fish passage in the Preferred Alternative is a significant departure from previous operations, so much so that the Washington and Oregon state water quality waivers had to be changed to implement the new spill regime. The CSS model, which includes latent mortality effects, predicts that Smolt-to-Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% (within the Northwest Power and Conservation Council's recovery targets for the region) as a result of the Preferred Alternative. That result, however depends upon the latent mortality hypothesis central to the CSS model being correct. To address this uncertainty and minimize risk, the Preferred Alternative includes an adaptive management plan. This plan involves working with regional sovereigns to develop a study to assess the effectiveness of the increased spill regime on adult returns as well as assessment and management of negative unintended consequences, such as long delays of adult migrants, or TDG-related impacts on juvenile migrants.
6899	2	Kari Kostka	The Nature Conservancy of Idaho	Integrating the array of actions necessary to restore abundant anadromous fish populations requires coordinated effort across the entire CRS. TNC believes the DEIS and Preferred Alternative falls short in comprehensively addressing impacts to anadromous fish in the following ways: 1. The DEIS does not include an analysis of the watershed upstream of Hells Canyon Dam and the ecological linkages and aspects of water use and impacts to fish survival downstream. Understanding and recognizing current conditions, how water is used, and identifying opportunities to improve uses and water	The operation, maintenance, and configuration of the 14 dams in the CRS were analyzed in this EIS because they are operated as one system for multiple purposes. The dams not included are operated by others or operated independent of the CRS, so the effects related to these dams are outside of the scope of this EIS. Upper Columbia operations were consistent among the alternatives.

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				quality to benefit conditions throughout the Snake River system and downstream is critical to the overall CRS; 2. The Preferred Alternative does not go far enough identifying actions to substantially move toward NOAAs Recovery Level goals for anadromous fish (and may regress if latent mortality effects are not reduced); and 3. The Preferred Alternative does not provide guidance and provisions to take more aggressive action, such as analyzed in MO3 and MO4, if fish populations continue to decline.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Both human-caused and natural factors that are outside the responsibility and control of the co-lead Federal agencies, also contribute to the decline and recovery of ESA-listed species, and would continue to strongly influence fish and their habitat. Salmon and steelhead have been adversely affected in the Columbia River Basin over the last century by many activities including human population growth, urbanization, introduction of exotic species, overfishing, development of cities and other land uses in the floodplains, water diversions for all purposes, dams, mining, farming, ranching, logging, hatchery production, predation, ocean conditions, and loss of habitat. Operation, configuration and maintenance of the CRS requires mitigation for its effects, and the EIS is not intended or required to serve as an overall salmon recovery plan for the region. Recovery of ESA-listed salmon is outside of the authority of the co-lead agencies, and was not an objective of this EIS. Recovery of ESA species is the purview of NMFS and the US Fish and Wildlife Service. This EIS has been developed in consultation with NMFS and USFWS to find an acceptable balance that allows the co-leads to meet congressionally authorized purposes while minimizing impacts to affected ESA species and their designated critical habitats. With respect to the Preferred Alternative, the fish analysis in Section 7.7.4 shows that it will provide substantial benefits to ESA-listed salmon and steelhead, which can help contribute to broader recovery goals. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the CRS. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. Furthermore, the NMFS Northwest Fisheries Science Center recently identified a mechanism for latent mortality related to how bypasses on the Columbia select for smaller downstream migrants with an overall lower chance of survival at sea. The survival estimates for those fish represent a non-random sampling that is a function of the configuration of structures at dam, not a realized deleterious impact that is expressed at later life stages due to passage through a dam (see Faulkner, J. R., Bellerud, B. L., Widener, D. L., & Zabel, R. W. (2019). Associations among Fish Length, Dam Passage History, and Survival to Adulthood in Two At-Risk Species of Pacific Salmon. Transactions of the American Fisheries Society, 148(6), 1069-1087.). The Corps relies on a comprehensive evaluation of the Preferred Alternative by NOAA in order to determine if and when additional actions are required to avoid jeopardy of the species, and does include an Adaptive Management Framework, and rigorous monitoring program to proactively react to SAR and abundance into the future.
6899	3	Kari Kostka	The Nature Conservancy of Idaho	To achieve lasting stability in the region and to maintain viable, abundant populations of anadromous fish, CRS federal managers must continue to work with stakeholders to implement new strategies in the coming decade (near-term strategies) while determining a path forward to manage the CRSO over the long-term (10+ years). Near-Term Strategies Include: Implement permanent land and water protection projects that catalyze restoration activity in CRS basins by completing biologically significant projects supporting anadromous fish recovery objectives. Ensure prioritization processes for tributary habitat restoration and protection efforts are in place to select the best possible projects. Ensure funding from mitigation programs is applied to projects with high return on investment. Support coordination among states, tribes, and communities across the CRS to identify actions and investments needed to recover abundant anadromous fish populations, honor and protect tribal needs and cultural identity, and strengthen the energy and food production services the region depends on. Long-Term Strategy: To successfully restore abundant anadromous fish populations while balancing needs across the CRS, the region needs to come together to comprehensively identify the actions and investments required. In addition to continued efforts to implement near-term solutions, a well-designed regional strategic vision and plan that moves all interests forward together, while underscoring the importance of tribal and treaty obligations, is the best way to solve such interconnected challenges. This includes continuing to discuss and consider the more aggressive fish survival benefitting actions described in MO3 and MO4 as new information becomes available. We need to work toward fundamentally changing the investment paradigm of public and private partners and improve coordination among management entities from headwaters to the sea.	The co-lead agencies look forward to further opportunities to work with stakeholders to advance common near- and long-term objectives. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Based on the analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery as compared to the No Action Alternative. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the CRS. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the EIS objectives) as well as the EIS objectives for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. The Preferred Alternative is also more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% (the lower end of Northwest Power and Conservation Council's recovery targets for the region) as a result of the Preferred Alternative, as a result of the Preferred Alternative increasing SAR from 2.0% to 2.7% for Chinook, a 35% relative increase. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. To address uncertainty highlighted by the two models, the Preferred Alternative includes working with regional sovereigns to develop a study that assess the effectiveness of the increased spill regime on adult returns as well as assessment and management of adverse unintended consequences, such as long delays of adult migrants, or TDG-related mortality of juvenile migrants. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information. The Preferred Alternative will make a meaningful contribution towards recovery. The co-lead agencies agree that there are many effects to salmon and steelhead populations outside the operation of the dams. Research continues to evaluate the magnitude of these effects. For more information see the NMFS website at: https://www.nwfsc.noaa.gov/research/index.cfm. Finally, the Preferred Alternative carries forward habitat restoration actions.
6903	1	Ben Enticknap	Oceana	As recognized in the Council on Environmental Quality regulations, [a]ccurate scientific analysis, expert agency comments, and public scrutiny are essential to implementing NEPA.2 We find the DEISs consideration of impacts on Southern Resident orcas insufficient and request the Action Agencies consider the best available science regarding Columbia Basin Chinook salmon and endangered orcas in the DEIS. 1 40 C.F.R. 1500.1(c). 2 Id. at 1500.1(b). April 13, 2020 CRSO DRAFT EIS Page 2 of 6 For Southern Resident orcas, the close connection between salmon and dependent wildlife could not be clearer or more pressing. Perhaps the single greatest change in food availability for Southern Resident orcas has been the decline of Chinook salmon in the Columbia River basin (NMFS 2008). Rebuilding Chinook populations in the Columbia-Snake system is a critical need for the recovery of these orcas. This distinct orca population has relied on Columbia basin Chinook for thousands of years, but the orcas are now dangerously nearing extinction just as many Chinook populations are threatened with extinction and not meeting recovery goals. In November 2005, NOAAs National Marine Fisheries Service issued a final rule listing Southern Resident killer whales as endangered (70 Fed. Reg. 69,903 (November 18, 2005)). Primary threats to the orcas recovery include reductions in the quantity or quality of prey (principally Chinook salmon), contaminants, and sound and disturbance from vessel traffic. As of January 24, 2020, with the disappearance of L41, there are now only 72 Southern Resident orcas in the population (figure 1). The Southern Resident orca recovery goal of an annual average 2.3% growth rate over 28 years is not being met. To meet Southern Resident orca recovery goals and prey requirements, Chinook abundance needs to increase by at least 75 percent (Williams et al. 2011). Southern Resident orca births and deaths are closely linked with coastwide Chinook abundance. Diet studies show that 99% of their diet is salmonids, with roughly 80% being the largest and fattiest of fish, the Chinook (Ford et al. 2016). With lower Chinook abundance, Southern Resident orca fecundity decreases and mortality increases (Ward et al. 2009, Ford et al. 2010). Recent low Chinook salmon returns have been perilous for the Southern Residents. There were no successful Southern Resident orca births from 2016 to 2018 and half of the ten orcas born in the 2014-15 baby boom later died. Some orcas have visibly starved to death. In 2018, 3-year old Scarlet, or J50, died after she became so emaciated that she lost the fat at the base of her head - what scientists call "peanut head. [Text contains figure that does not transition to database.] Figure 1. Number of Southern Resident killer whales, 1990 to January 2020. Center for Whale Research. April 13, 2020 CRSO DRAFT EIS Page 3 of 6 Columbia River basin Chinook including Lower Columbia Springs, Lower Columbia Fall, Snake River Spring, Snake River Fall, Middle and Upper Columbia Spring, and Middle and Upper Columbia Summer Chinook are considered among the priority Chinook stocks for increasing abundance to help Southern Resident orca recovery (NOAA and WDFW 2018). The science confirms Southern Residents feed on Columbia River basin Chinook, often in late winter and early spring months when they are foraging near the mouth of the Columbia River. Analysis of fish scales and Southern Resident fecal samples collected on the outer coast indicate that Chinook are the primary species consumed and that over half the Chinook consumed by the Southern Residents are from the Columbia River basin (NMFS 2019).	SRKW analysis is described in the EIS including in the FEIS Chapter 3 (Vegetation, Wetlands, Wildlife, and Floodplains) which has been updated for SRKW (Section 3.6.2.6 and Table 3-102) and FEIS Chapter 7 (Preferred Alternative) with additional analysis information on SRKW and potential increase in forage fish, in particular, Chinook salmon in Section 7.7.8. The co-lead agencies utilized current high quality information and best available science in its analysis of the effects of the operation, maintenance, and configuration of the CRS projects. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. The EIS analysis found that only a minor effect to the Southern Resident killer whale would result from implementing MO3 (which includes the dam breach measure). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differentially from hatchery and wild fish. Hatchery fish today likely make up most fish consumed by SRKW (NOAA BiOp 2020). The EIS analysis of the Preferred Alternative determined the overall effect to SRKW to be negligible in large part because hatchery production is consistent between the No Action Alternative and the Preferred Alternative. Because the impact from the Preferred Alternative was determined to be negligible, the agencies determined that existing hatchery production would be sufficient to address any potential impacts to prey availability for SRKWs. The co-lead agencies note the contribution to the prey of SRKW through the continued existence of their respective independent congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as the Lower Snake River Compensation Plan, which is administered by U.S. Fish and Wildlife Service. The Preferred Alternative and Proposed Action in the agencies' biological assessment carry forward certain mitigation measures described in Chapters 2 and 7 of the EIS, which include continued salmon and steelhead hatchery production. The Preferred Alternative has negligible effects to SRKWs as described in Section 7.7.8. The Draft EIS meets the requirements of NEPA, as outlined in 42 U.S.C. 4331, et seq., 40 C.F.R. Parts 1500 1508 (CEQs regulations for implementing NEPA), and co-lead agency specific NEPA regulations. The Draft EIS' effects analysis of each resource is based on best available existing information as stated in Section 3.1.1.
6903	2	Ben Enticknap	Oceana	In the face of persistent threats to salmon and orca recovery, we support the removal of the lower Snake River dams with increased spill to 125% TDG at the remaining hydro projects in the middle Columbia river. While significant, this proposed approach is not new, and it is grounded in science. It is based on available scientific information which affirms that dam breaching is the most probable option for achieving Snake River Chinook rebuilding goals and recovery. Increased spill and lower Snake River dam removal should occur in concert with other actions such as reintroduction of Chinook above the Hells Canyon dam complex on the Snake River and above the Chief Joseph and Grand Coulee dams on the Columbia. Dam removal should also be done without sudden changes to hatchery production, which should continue to augment wild salmon runs until the historic impacts of the dams has been mitigated. There is likely also tremendous restoration potential in the Columbia River Basin by increasing passage above currently blocked areas and providing salmon access to high quality habitat in the upper reaches of the basin. In its 2017 and 2019 Comparative Survival Study (CSS) Annual Reports, the Fish Passage Center evaluated the effects of various levels of spring spill, as well as removal of the four lower Snake River dams on smolt-to-adult return rates (SARs) for Snake River spring/summer Chinook (McCann et al. 2017, McCann et al. 2019). Using more than twenty years of empirical data on dam passage survival and SARs, the CSS Reports conclude that dam removal on the lower Snake River and spilling to 125% tailrace TDG limits at the remaining four middle Columbia River dams would result in Snake River Chinook SARs and return abundances four times higher than under 2014 BiOp spill levels (McCann et. al. 2019). In terms of an overall increase in adult Chinook, up to a million adult Spring Chinook could return to the mouth the Columbia with lower Snake River dam removal and spill at 125% TDG depending on variable ocean conditions (all runs, originating above Bonneville Dam, hatchery and wild) (figure 2). Modelling efforts consistently show removing the four lower Snake River dams and increasing spill would provide the greatest benefits to Chinook recovery. April 13, 2020 CRSO DRAFT EIS Page 4 of 6 Figure [Text contains figure that does no transfer to database.] Figure 2. Spring Chinook returns and expected spring Chinook returns to the mouth of the Columbia River under the 2014 federal Columbia River hydropower system spill management framework (BiOp) and under revised spill and Lower Snake River (LSR) dam breach management scenarios (Adapted from, M. DeHart 2018).	The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets most other EIS objectives including those for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS, the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams, because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. The co-lead agencies contracted with the Fish Passage Center (FPC) to produce the CSS modeling results presented in the Draft EIS. Any additional modeling that was not presented in the Draft EIS is not part of the CRSO EIS and was not developed by the co-lead and cooperating agencies. The co-lead agencies used high quality data and the best available science in the analysis of the CRSO EIS. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% (within the Northwest Power and Conservation Council's recovery targets for the region) as a result of the Preferred Alternative. The NMFS COMPASS and Life Cycle models predict different outcomes, depending on assumptions used for decreased latent mortality. To address this uncertainty, the Preferred Alternative will be implemented using a robust monitoring plan.
6903	3	Ben Enticknap	Oceana	While comprehensive salmon recovery efforts are needed throughout the West Coast region, the Columbia River basin is critical to the regions orca recovery efforts. Historically the Columbia River basin produced 9 to 16 million salmon per year, including 3.54 million Chinook per year on average (CPB 2019). Todays runs are only a small fraction of their former abundance. The available science suggests lower Snake River dam removal and increased	SRKW analysis is described in the EIS including in the FEIS Chapter 3 (Vegetation, Wetlands, Wildlife, and Floodplains) which has been updated for SRKW (Section 3.6.2.6 and Table 3-102) and FEIS Chapter 7 (Preferred Alternative) with additional analysis information on SRKW and potential increase in forage fish, in particular, Chinook salmon in Section 7.7.8. The co-lead agencies utilized current high quality information and best available science in its analysis of the effects of the operation, maintenance, and configuration of the CRS projects.

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				spill would significantly advance salmon recovery goals toward healthy levels, which, in turn, will greatly benefit endangered orcas and other wildlife by increasing available prey. This action should be coupled with other actions including passage above blocked areas and habitat restoration. Ultimately, we need to see real, meaningful and comprehensive change throughout the Basin to benefit salmon, orcas and people. The DEIS fails to address these broader issues and the needs of the region such as a path forward for sustainable commerce, clean energy production, communities, fisheries, and the overall health of the ecosystem. Importantly, the DEIS fails to consider the best available science on the effects of CRSO operations on Southern Resident orcas.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. The EIS analysis found that only a minor effect to the Southern Resident killer whale would result from implementing MO3 (which includes the dam breach measure). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differentially from hatchery and wild fish. Hatchery fish today likely make up most fish consumed by SRKW (NOAA BiOp 2020). The EIS analysis of the Preferred Alternative determined the overall effect to SRKW to be negligible in large part because hatchery production is consistent between the No Action Alternative and the Preferred Alternative. Because the impact from the Preferred Alternative was determined to be negligible, the agencies determined that existing hatchery production would be sufficient to address any potential impacts to prey availability for SRKWs. The co-lead agencies note the contribution to the prey of SRKW through the continued existence of their respective independent congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as the Lower Snake River Compensation Plan, which is administered by U.S. Fish and Wildlife Service. The Preferred Alternative and Proposed Action in the agencies' biological assessment carry forward certain mitigation measures described in Chapters 2 and 7 of the EIS, which include continued salmon and steelhead hatchery production. The Preferred Alternative has negligible effects to SRKWs as described in Section 7.7.8. The Draft EIS meets the requirements of NEPA, as outlined in 42 U.S.C. 4331, et seq., 40 C.F.R. Parts 1500 1508 (CEQs regulations for implementing NEPA), and co-lead agency specific NEPA regulations. The Draft EIS' effects analysis of each resource is based on best available existing information as stated in Section 3.1.1.
6905	1	anjeet@nezperce.org	Nez Perce Tribe	I At this point, it is self-evident that NEPA's core public involvement and comment requirements will not have been met with a 45-day comment period, for a 7,000 page DEIS, during a public health crisis unprecedented in the history of NEPA itself, given the disruptive effects COVID-19 is having on nearly all members of the tribal public and general public.	The co-lead agencies considered requests to extend the public comment period. This NEPA process included a wide array of cooperating agencies whose close involvement throughout the process allowed the co-lead agencies to incorporate feedback. Given the broad range of comments received and the extensive Federal and non-Federal participation in the overall process as well as the level of public engagement in the six virtual public meetings in the region, the co-lead agencies determined that an extension was not warranted and that the 45-day public comment period was adequate consistent with NEPA regulations. The CRSO EIS website notified the public on April 9, that they should plan to submit comments by the close of the comment period.
6905	2	anjeet@nezperce.org	Nez Perce Tribe	On June 1 1, 1 855, at Pdasx'pa (Walla Walla, Washington), the Nez Perce Tribe (Tribe) reserved by Treaty, and the United States secured to the Tribe, rights that Nez Perce people have exercised since time immemorial, including the right to take fish at all usual and accustomed places, and the rights to hunt, gather, pasture, and travel (12 Stat. 957). These were not merely "rights." For the Nez Perce they were and are a guarantee of our ability to preserve our culture and identity that is inextricable linked to the reserved rights. These Treaty rights are the "supreme law of the land." (U.S. CoNsr., art.YI, cl.2).	The co-lead agencies recognize and respect the legal obligations imposed by treaties. The co-lead agencies accordingly included Protecting Native American treaty and reserved rights and fulfilling trust obligations for natural and cultural resources throughout the environment affected by the Columbia River System operations as a purpose in the Purpose and Need Statement in Chapter 1 to ensure treaty obligations were a key consideration of decision making. The co-lead agencies are engaging in government-to-government consultation with the tribes, and several tribes are cooperating agencies on the CRSO EIS.
6905	4	anjeet@nezperce.org	Nez Perce Tribe	Physical manifestations of the Nez Perce relationship to the Land that are evident and have survived the cataclysmic transformation of the landscape include: camp/village sites, fishing stations, gathering areas, burials/cemeteries, legend/origin sites, sacred sites, ceremonial locations, wdeyekinlsupplication areas, petroglyph/pictograph sites, etc. These sites and many others, are currently being impacted on an hourly basis by the CRS. From its beginning, the CRS grew dam by dam and increasingly overwhelmed and destroyed the Nez Perce relationship with the Land. Today for example, as salmon continue to be imperiled in the river that bears their name and throughout the rest of the Snake River basin, nearly no lamprey are found in the present-day town of Asotin on the Snake River that borrows its name from the Nimiipuutimt word for the place of eels or lamprey. And CRS impacts and injuries have become interconnected and compounded with other harms. Even now, as our people experience the COVID- I9 crisis, we know we are at a higher health risk, and that our health is not what our ancestors' was, precisely because we no longer have - no longer canhave under the present hydrosystem - the healthy diet ofour ancestors.	Many of the cumulative effects and past actions referenced in this comment are included in the affected environment (Chapter 3) and Cumulative Effects (Chapter 6) sections of this EIS. Additionally, the co-lead agencies explicitly acknowledge the magnitude of impacts to tribal culture, interests, and resources from development in the Columbia River basin. These acknowledgements and discussions are primarily contained in the Cultural Resources (3.16) and Tribal Perspectives (3.17) sections as well as the associated Appendix P which includes the perspectives as provided directly by the Tribes.
6905	5	anjeet@nezperce.org	Nez Perce Tribe	The Tribe is providing the attached "High Priority Concerns" with the DEIS. Several of the Tribe's concerns, including concerns about the alternatives and the environmental effects analyses that we have expressed repeatedly during this process, require foundational changes to the EIS. These are not mere "disagreements." They correlate to recognized NEPA legal flaws. We urge you to make these changes. Otherwise, the EIS will not withstand legal scrutiny and will simultaneously undermine meaningful discussions about implementing the actions that salmon, steelhead, and lamprey - and their ecosystems - need.	The co-lead agencies appreciate the Tribe's concerns, and have accordingly responded to each specific comment. The co-lead agencies disagree, however, that the analysis suffers from legal flaws or requires foundational changes. See response to Comment 6905-44.
6905	6	anjeet@nezperce.org	Nez Perce Tribe	The Publics Draft Participation And Comment Period During COVID-19 Public Health Crisis: As of this date, April 13, 2020, it is self-evident that NEPAs core public participation and comment requirements for a draft EIS will not have been met with a 45-day comment period, for a 7,000 page DEIS, during a public health crisis unprecedented in the history of NEPA itself, given the overlapping disruption of the COVID-19 crisis for nearly all members of the tribal public and general public. It is not too late for the action agencies to extend or suspend the public involvement period, and they should think very carefully about doing so. The way the agencies have treated public involvement during this draft comment period violates the spirit and purposes of NEPA public participation in ways that may well invalidate an EIS finalized from this DEIS. And as a matter of permanent legacy, an EIS finalized from this DEIS, after an obliterated public participation period during a historic public health crisis, may go down legal consequences aside as a dishonor to the agencies and the United States they represent.	See response to Comment 6905-1.
6905	7	anjeet@nezperce.org	Nez Perce Tribe	Chapter 1, Introduction:1 Section 1.3.1, Geographic and Temporal Scope (and affecting Chapter 3 throughout): o Geographic Scope is defined in Chapter 1 only as a reference to the general geography of 14 FCRPS projects. Section 1.3.1. A defined or presumptive EIS action or analysis area is not provided. This leaves particular analysis areas to be defined and employed in Chapter 3 resource by resource in arbitrary, inconsistent ways that appear manipulated for each resource so as to optimize analysis outcomes and conclusions that were pre-desired for those resources. Two examples of the consequences of arbitrary, inconsistent effects analysis areas (see Chapter 3 comments below for others): o Section 3.17.1, Indian Trust Assets: An arbitrarily narrow Indian Trust Asset (ITA) analysis area, 1-mile adjacent to project reservoir edges only, is used for the 19 Indian tribes affected by the FCRPS. This results in a conclusion that almost no ITAs are even present in the study area; then no analysis is described or conducted; and a single-sentence conclusory statement is made that, for ITAs for the 19 Indian tribes, No direct or indirect effects to ITAs were identified for any of the alternatives. And insult to injury, Chapter 6 Cumulative Effects then circularly exempts the ITA resources from any cumulative effects consideration -- when in fact the cumulative adverse effects of the CRS for over 80 years have been more devastating for Indian tribes and Indian people than any other group because no effects were found in Chapter 3. o Section 3.18, Environmental Justice: Suddenly an arbitrarily enormous 7-Western-state EIS analysis area is employed, including 139 Western counties across those states, and finding the broadest possible non-Indian Environmental Justice effects with respect not to environmental quality but to (purportedly) power rates across that expanded Western geography. This expanded analysis area conveniently marginalizes the Environmental Justice effects of the CRS on the Indian tribes and other people directly affected, historically and presently, by the location and operation of the dams and reservoirs.	The co-lead agencies selected the size of the study area based on where the effects from the proposed structural and operational measures are expected to occur. This study area is sufficient for the agencies to understand the effects of the different alternatives and to enable the agencies to make an informed evaluation of the alternatives. The co-lead agencies focused on the locations where there were understandable direct effects, as opposed to third and fourth order effects, which are harder to predict, and thus evaluate, as a part of the NEPA process. The co-lead agencies have analyzed ITAs consistent with applicable statutes, regulations, and guidance. Neither the rights of fishing, hunting, and gathering, nor the resources subject to those rights, are "assets held by the federal government" within the meaning the Interior Department Manual, 303 DM 2.5(c). As a result, the co-lead agencies do not consider the rights or resources to be ITAs. The agencies' analysis nevertheless considers effects to the resources subject to the Tribe's rights, as well as the cumulative effects to those rights as a result of effects to underlying resources.
6905	8	anjeet@nezperce.org	Nez Perce Tribe	Section 1.6.2, Resource Concerns: o The Resource Concerns list in this section appears to represent a misunderstanding or mischaracterization of the purposes of NEPA and an EIS, and the nature of the Human Environment that is to be considered under NEPA and CEQ regulations as distinct from 1 The DEIS Executive Summary (ES), in its entirety, misleads the public and decision-makers both as to the impacts of the CRS and as to the (defective) contents of the DEIS. As but two examples, the ES contains no mention or description of reservoir passage survival, instead emphasizing 96% dam passage survival at the eight federal projects on the mainstem Columbia and lower Snake River (and does not explain that this equates to a 28% cumulative mortality rate). And, while the ES states that it is important that tribal perspectives have a prominent place in this document as well as in the management of the CRS (ES at 12), the DEIS does not actually analyze the effects of the action alternatives on tribal perspective information and concerns, including Treaty rights (repeatedly and recently affirmed by the United States Supreme Court), the federal Trust responsibility, etc. 3 the project purposes of the CRS and the agencies non-NEPA considerations of those project purposes, or a mere public popularity list of resources which may or may not align with the Human Environment that is the proper statutory and regulatory purpose of NEPA. The original, and current, purposes of NEPA are fundamental: The purposes of this Act are: To declare a national policy which will encourage productive and enjoyable harmony between man and his environment; to promote efforts which will prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of man; to enrich the understanding of the ecological systems and natural resources important to the Nation; and to establish a Council on Environmental Quality. 42 U.S.C. 4321. The term Human Environment as defined in CEQ regulations, after introduction and use in the NEPA statute, is first and foremost, the natural and physical environment and the relationship of people with that environment. 40 C.F.R. 1508.14. Economic and social effects are only considered when they are interrelated with natural or physical environmental effects. Id. Alone they do not trigger NEPA. Id. And even	Regarding reservoir passage survival, the metric "dam survival rate" is an empirical estimate (or modeled based on empirical data) of the survival rate of a specific group of fish from the immediate forebay through the structures and tailrace, or the inverse of the mortality rate induced by passing through the immediate forebay, structures, and tailrace. It is the most sensitive metric for assessing effects of operations or configuration of a dam and, therefore, is frequently used. When first mentioned at line 7247 on page 3-301 in the Draft EIS, in the Affected Environment section, it is presented clearly as just at-dam survival and not including system or latent mortality. The next section discusses reach survival rates, which do include all mortality from passing the dams, the reservoirs and any other source. Further, the No Action Alternative refers to recent survival rates for discussion purposes; with survival rates through these routes ranging from 97 to 99% (Ploskey et al 2012) on page 3-369 of the Draft EIS. Recent actual reach survivals (incorporating all sources of mortality) are also presented for context in each ESU/DPS in the No Action Alternative, Section 3.5.3.3. However, the juvenile metrics used to evaluate alternatives compared to the No Action Alternative and to one another in the Environmental Consequences chapter were all modeled reach-specific (either from Lower Granite to Bonneville dams, or from McNary to Bonneville dams, depending on ESU/DPS) and included juvenile reach survival, travel time, proportion destined for transport, and powerhouse passage events, as well as discussion of Total Dissolved Gas (TDG) exposure. See Section 3.5.3.1 Methodology for more information, and specifically the list of indicators and primary metrics on page 3-359, in the Draft EIS. See also results for each ESU/DPS for each alternative. Additionally the EIS properly analyzes impacts to power generation and transmission since changes in operations affect generation (i.e. a direct effect) and changes in power generation and transmission could affect the natural environment leading to indirect effects (e.g. reservoir elevation changes potentially causing erosion; changes in generation resulting in building renewable resources). Changes in CRS generation may also affect decisions made by other energy producers leading to cumulative effects on affected resources (e.g. changes to Mid-Columbia project generation). Thus, the EIS properly considers the direct, indirect and cumulative effects to power generation and transmission in Chapters 3, 6 and 7. Regarding Tribal perspectives, the co-lead agencies invited a number of entities (including Tribes, states, and local agencies) from across the region to participate in the EIS process as cooperating agencies, and over 30 of those invited agreed to participate. Staff from the cooperating agencies joined the technical teams and provided their expertise and review of the development and analysis of the alternatives. Leaders from the co-lead agencies met with Tribal leaders for formal consultation, and with other organizations and stakeholders to have dialogue and receive feedback as the EIS progressed. However, only the co-lead agencies have authority to make decisions regarding future operation and configuration of the dams in the Columbia River System.

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				when economic effects are properly considered in a NEPA analysis, as they are here, it is only because of their interrelation with the natural and physical environment which is the heart of NEPA. The point here is that the DEIS appears to reveal, in Section 1.6.2, as in Section 1.2, Purpose and Need, and then as a consequence in several of the environmental resources of Chapter 3, a misunderstanding of the purpose of NEPA and the need for this specific EIS. This EIS should not be in fact driven by a presumed need to consider the effects of various action alternatives on FCRPS project purposes such as, for example, Power Generation and Transmission. Power effects are secondary they can and should be considered here only in their role as a type of economic and social effect that is related to the effects of the action alternatives on the natural and physical environment that is the purpose of NEPA and an EIS. This DEIS does not explain or reflect that understanding and appears in fact to invert the purposes for which EIS analyses are properly conducted, and therefore reaches conclusions that have been driven by an inverted understanding of the actual ecological purposes of NEPA and the proper purpose of a NEPA EIS.	
6905	9	anjeet@nezperce.org	Nez Perce Tribe	Biased content throughout: Language and content of the DEIS is arbitrarily power-centric (including analyses that highlight adverse outcomes for power and do not highlight adverse outcomes for fish), biased against fish, biased against tribal interests, biased against fishingdependent economies that are important economic drivers of rural communities, and biased against the Comparative Smolt Survival (CSS) modeling. o Major revisions are needed to balance the level of detail across resource areas and to evaluate effects findings (including weighting for context and intensity) relative to EIS standardized categories of no, negligible, minor, moderate, and major effect.	The co-lead agencies used high-quality information to analyze the effects of the Multiple Objective alternatives on the human environment and, therefore, disagree that the analysis is biased. Section 3.1 describes how the effects determinations in the EIS relate to the context and intensity factors in the Council on Environmental Quality's NEPA regulations. The Comparative Survival Study model was run by the Fish Passage Center; and the COMPASS and Life Cycle models were run by NMFS's Northwest Fisheries Science Center for the co-lead agencies. Different models predict different long-term survival benefits to ESA listed species from dam breach, benefits that can contribute to recovery. Under the NMFS COMPASS model, juvenile Snake River Spring/Summer Chinook in-river survival would improve by 9.6% due to dam breach, which is a 19% relative increase over the No Action Alternative. The NMFS Lifecycle Model predicts an increase in adult returns of 13.6% for these same fish under MO3 (no latent mortality assumed) relative to the No Action Alternative (from 0.88% to 1%). Results for Snake River steelhead are similar (10% absolute improvement, or 23% relative juvenile survival increase - Smolt-to-Adult returns (SARs) for steelhead were not modeled). Under the CSS model, juvenile in-river survival for the Snake River Spring/Summer Chinook is predicted to improve by 10.4% due to dam breach, which is an 18% relative increase over the No Action Alternative, while SARs would increase by 115% (from 2% to 4.2% 0.02 to 0.042). The CSS model predicts that Snake River steelhead would see juvenile survival increase by 25.8% which is a 46% relative increase over the No Action Alternative. The CSS model also predicts that SAR increase by 177% (from 1.8% to 5%). Though differing in predictions, both modeling groups predict dam breaching is the best CRSO EIS alternative for salmon and steelhead. One simply predicts adult return increases an order of magnitude higher than the other. The EIS evaluated beneficial and adverse effects across an array of resource areas including potential effects at the national, regional and local level; effects are monetized and quantified, where possible, and also described qualitatively. As is common in NEPA analyses, the beneficial and adverse effects of the alternatives are expressed as a variety of qualitative and quantitative environmental and economic metrics throughout the EIS to inform decision-making, including the effects of the alternatives on fish as detailed in Section 3.5.
6905	10	anjeet@nezperce.org	Nez Perce Tribe	Dworshak Dam and Reservoir information is incomplete throughout: DEIS descriptions of Dworshak Dam do not mention that the dam blocked and provides no anadromous fish passage. Descriptions of other CRS dams recite numbers of fish ladders, while the Dworshak Dam 4 description remains silent on the lack of fish passage.	Section 1.9.7.2 p. 1-41 states that "Dworshak Dam blocks upsteam migration on the North Fork of the Clearwater River." Table 1.2 indicates Dworshak does not include fish passage.
6905	11	anjeet@nezperce.org	Nez Perce Tribe	Also, the DEIS does not describe or consider the location of Dworshak Dam on Nez Perce tribal trust land.	The Final EIS will acknowledge the DOI Solicitor's January 16, 2016 Opinion regarding "Status of the Bed of the Clearwater River within the 1863 Treaty Boundaries of the Nez Perce Reservation," which concluded the bed of the Clearwater River within the boundaries of the NPT Reservation is held in trust by the United States for the benefit of the NPT. However, title to the lands encompassing the bed of the Clearwater River within the boundaries of NPT Reservation are not identified in the BIA records as trust lands and are, therefore, not considered as an ITA in the EIS.
6905	12	anjeet@nezperce.org	Nez Perce Tribe	Chapter 2, Alternatives: The DEIS fails to evaluate all reasonable alternatives. As encapsulated by Judge Simon: One of the benefits of a comprehensive environmental impact statement, which requires that all reasonable alternatives be analyzed and evaluated, is that it may be able to break through any logjam that simply maintains the precarious status quo. A comprehensive environmental impact statement may allow, even encourage, new and innovative solutions be developed, discussed, and considered. The federal agencies, the public, and our public officials then will be in a better position to evaluate the costs and benefits of various alternatives and to make important decisions. The Federal Columbia River Power System remains a system that cries out for a new approach and for new thinking if wild Pacific salmon and steelhead, which have been in these waters since well before the arrival of homo sapiens, are to have any reasonable chance of surviving their encounter with modern man. Perhaps following the processes that Congress has established both in the National Environmental Policy Act and in the Endangered Species Act finally may illuminate a path that will bring these endangered and threatened species out of peril. Natl Wildlife Fedn v. Natl Marine Fisheries Serv., 184 F. Supp. 3d 861, 876 (D. Or. 2016). All reasonable alternatives, against this backdrop for this EIS, must include alternatives that maximize benefits for salmon, steelhead, and Pacific lamprey. The two primary CRS actions colloquially referred to as the big swings for fish are readily identified as breaching the four lower Snake River dams or providing maximum spill at the CRS dams. Because of the shorthand used for MO3 (breach alternative) and MO4 (high spill alternative), at first glance it might seem that the DEIS included alternatives for evaluation that maximize benefits for fish. In fact, no alternative in the DEIS maximizes benefits for fish. And, both the MO3 and MO4 alternatives are constructed to neutralize or undermine the benefits for fish associated with breaching the four lower Snake River dams or maximizing spill at the CRS dams. For example, among other things, MO3 caps spill at the (remaining) four lower Columbia River projects, and without an explicit description within the alternative itself immediately terminates hatchery production at the Snake River basin hatcheries collectively referred to as the LSRCP hatcheries, that provide important fishing opportunities to non-Indians and tribes and represent a significant economic driver for rural communities.2 Nor does MO4 maximize fish benefits; rather it identifies a high 2 MO3 itself does not set forth immediate termination of the hatcheries that are collectively referred to as the Lower Snake River Compensation Plan (LSRCP). Instead, the DEIS introduces this in the NAA: LSRCP would be continued, consistent with the No Action Alternative, under all of the Multiple Objective Alternatives except for MO3. (2-37). The subsequent rationalization, set forth in the effects analysis, is Upon the breaching of the LSR dams, Bonneville would no longer have an obligation to fund US Fish and Wildlife Service for the operations and maintenance of the LSRCP facilities. Bonnevilles funding authority is directly tied to the operation of the LSR dams. 3-548; 3-753; see also 3-831; 3-913; 3-1466; 6-48 (incorrectly stating These fish account for 80 to 90 percent of all juvenile Snake River fish passing CRS projects. The actual percentage is around 65%). 5 spill alternative that is applied before and after the spring migration period and adds (costly, power-centric) actions, for example, powerhouse surface passage structures in the lower Columbia and increased water diversion from the upper Columbia. Bottom line: the alternatives in the DEIS do not comply with NEPAs requirements or the opportunity identified in the Courts ruling in Natl Wildlife Fedn. v. Natl Marine Fisheries Serv.	As stated in Chapter 2, the co-lead agencies developed alternatives to meet the objectives and the Purpose and Need. Certain alternatives and measures were designed to emphasize one particular aspect of the Columbia River System, while still meeting the Purpose and Need Statement and objectives. The Purpose and Need Statement includes the need for action as well as the resource and legal and institutional purposes. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Regarding hatchery production under MO3, Bonneville directly funds the U.S. Fish and Wildlife Services annual operations and maintenance of the Lower Snake River Compensation Plan (LSRCP). Congress authorized the LSRCP as part of the Water Resources Development Act of 1976 (90 Stat. 2917) to offset fish and wildlife losses caused by construction and operation of the four lower Snake River dams. A major component of the authorized plan was the design and construction of fish hatcheries and satellite facilities. The LSRCP is administered through the USFWS. The LSRCP hatcheries and satellite facilities produce and release more than 19 million salmon, steelhead and rainbow trout each year as part of the programs mitigation responsibility. Upon the breaching of the lower Snake River dams as analyzed in MO3, Bonneville would no longer have an obligation to fund US Fish and Wildlife Service for the operations and maintenance of the LSRCP facilities. Bonneville's funding authority is directly tied to the operation of the LSR dams. The co-lead agencies also recognize that there would be transitional needs that would be addressed in the additional mitigation measures for MO3 discussed in Chapter 5. The co-lead agencies, note as well that there are other hatcheries in the Snake River basin that would continue to produce fish not tied to LSRCP. Bonneville would continue to fund the LSRCP under all of the other alternatives, including the Preferred Alternative. The co-lead agencies disagree MO4 is constructed to neutralize or undermine the benefits for fish associated with maximizing spill at the CRS dams. The co-lead agencies proposed this alternative as bookend to determine potential benefits to anadromous from maximized spill and flow levels. MO4 resulted in potential substantial improvements to anadromous fish.
6905	13	anjeet@nezperce.org	Nez Perce Tribe	The precise combination of actions (referred to in the DEIS as measures) that make up each of the four MO alternatives are the basis for the subsequent effects analysis conducted at the alternative level. This approach has precluded an understanding, analysis, and meaningful comparison of component actions effectiveness and cost.4 This does not allow for refinement of MO alternatives or the development of a new alternative without a full and complete environmental effects analysis at the alternative level.	The development of the MO alternatives was informed by preliminary analysis of Single Objective alternatives as well as additional analysis conducted on the MOs. Cost estimates were prepared for each of the measures; thus, allowing for comparison among the alternatives and to the No Action Alternative. Whether or not a refinement of a new alternative would trigger additional environmental effects analysis would hinge on whether the existing effects analysis captured the effects of the refinement. The co-lead agencies agree that if a new alternative is developed, it would need likely need additional environmental effects analysis.
6905	14	anjeet@nezperce.org	Nez Perce Tribe	Incomplete Description of Alternatives: o The DEIS does not completely and accurately describe the no action alternative (NAA), which the DEIS uses as a baseline condition for comparing the environmental effects of the MO alternatives and for identifying cumulative effects. The NAA does not disclose the legal inadequacy of operation and the biological deficit situation that operation has imposed on salmon, steelhead, and lamprey as reflected in their imperiled status. Put simply, the NAA represents in large part a system operation that was invalidated under the ESA in federal court in 2016. For example, the NAA does not identify measures that are occurring (e.g., the Northwest Power Acts Fish and Wildlife Program, protective measures for Pacific lamprey), the status of implementation of these measures, the status of funding necessary to implement these measures (e.g., measures that have been identified but This rationale is deceptive and incorrect as a matter of law as it does not acknowledge that only Congress is and would be responsible for decisions associated with the continuation of the important benefits that these hatcheries provide for non-Indian and tribal fisheries, and the benefits these fisheries provide to rural economies. This unsupported assertion of an immediate cessation of the LSRCP hatcheries is also incorrect given that the adverse effects of the impacts of the lower Snake River dams accumulating in total over nearly 60 years will continue to occur for a significant period of time after the dams are breached. No rational breach plan would conceivably terminate a system mitigating fish hatcheries immediately upon breach. 3 The NEPA problems with the alternatives and their subsequent evaluation are independent from the process used to produce them (such as concerns that alternative development was guided by objectives to merely improve fish performance and conditions; objectives that are inaccurate (carbon-free as opposed to low carbon), etc. 4 The Fish and Wildlife Managers matrix of measures, provided in the Cooperating Agency process but not used in the DIES, demonstrated the benefits of conducting an analysis that allows for a meaningful comparison of the effectiveness of actions (measures). 6 have not been implemented because of a lack of funding). (As noted below, these concerns with the NAA are not addressed in Chapter 5 as a matter of mitigation.) For example, the NAA states that Specific operations for fish and wildlife are designated in the following paragraphs and would continue as described under the No Action Alternative, yet the sections entitled Measures Previously Committed to by the Co-Lead Agencies to Benefit Endangered Species Act-Listed Fish and Bonnevilles Fish and Wildlife Program and Direct Funding Agreements with the Corps and Reclamation (and habitat actions and hatchery actions subsections) are vague, opaque, and entirely devoid of detail (2-29 to 2-34). For example, the NAA does not disclose the decrease in the level of funding for the Fish and Wildlife Program that has occurred since 2016, nor identify and confirm the level of commitment to funding for future years. For example, the NAA contains a vague, indecipherable reference to hatchery mitigation (2-31). The NAA does not identify hatchery mitigation commitments in addition to the Fish and Wildlife Program, that Congress authorized to mitigate for dams that are part of the CRS, such as Grand Coulee Fish Mitigation, Dworshak Mitigation, John Day Mitigation. (Nor are these identified as a matter	The co-lead agencies developed the No Action Alternative consistent with regulations implementing NEPA, which allow agencies to use the "status quo" from the time of the Notice of Intent to Prepare the EIS. Funding decisions for the Fish and Wildlife Program are not being made as a part of the CRSO EIS process. However, a range of potential Fish and Wildlife Program costs are included to inform the broader cost analysis for each alternative in the EIS. By analyzing a range of costs, Bonneville reflects the year-to-year fluctuations related to managing its program and also acknowledges the uncertainty around both the magnitude of biological benefits and the potential impacts on funding, including the timing of funding decisions. Future budget adjustments to the Fish and Wildlife Program would be made in consultation with the region through Bonneville's budget-making processes and other appropriate forums and consistent with existing agreements. As discussed in section 7.7.21.1, in 2016, Bonneville's F&W Program budget was $267,000,000, and the Lower Snake River Compensation Plan (LSRCP) budget was $32,303,000. When these budgets are adjusted to represent 2019 dollars, they become $281,536,000 and $34,062,000, respectively, which are the budgets used under the No Action Alternative. For the Preferred Alternative, Bonneville would continue funding the operations and maintenance of the LSRCP, consistent with the No Action Alternative. Bonneville's F&W Program costs under the Preferred Alternative are estimated to range from no change from the No Action Alternative to a decrease of approximately 17%, or approximately $47 million, annually. Bonneville's fiscal year 2020 decisions to adjust the F&W Program budget to $249 million and the LSRCP budget to $30.5 million (BP-18 Rate Case) are consistent with the range of costs analyzed for the Preferred Alternative. In the case of MO3, for example, Bonneville included a range of potential Fish and Wildlife Program costs to acknowledge the possibility that the alternatives could provide biological benefits to anadromous fish species and that this could, in turn, reduce the need for some offsite mitigation funded through the Bonneville Fish and Wildlife Program. For MO3, Bonneville's Fish and Wildlife Program costs are estimated to range from no change from No Action Alternative to a decrease of approximately 37 percent, or approximately $105 million, annually (see section 3.19.2). With respect to anadromous fish, the Northwest Power Act calls for improved survival at the dams and flows of sufficient quality and quantity . . . to improve [their] production, migration, and survival. The co-lead agencies demonstrate throughout the EIS how they meet these statutory objectives. The Columbia River Basin Fish Accord Extensions (Fish Accords) and Bonneville's comments to the Council on its 2020 amendment process also highlight the actions the Agencies have taken to fulfill this anadromous fish mandates of the Act.1/ Under MO3, operational, structural and mitigation measures would substantially benefit anadromous fish. This would allow, if not necessitate, reductions in off-site mitigation funding. The funding decrease modeled in MO3 results because significantly more mitigation will be provided on-site at the dams, thus reducing the need for off-site mitigation; and the power purpose at the lower Snake River dams is eliminated under MO3 when four dams are breached. Any changes of this nature would be implemented over time as the effectiveness of dam breaching is observed and would be done in consultation with fish and wildlife managers, regulatory agencies, and the Northwest Power and Conservation Council. Section 3.19 of the FEIS discusses these effects. Upon the breaching of the LSR dams, Bonneville would no longer have an obligation to fund US Fish and Wildlife Service for the operations and maintenance of the LSRCP facilities. Bonneville's funding authority is directly tied to the operation of the LSR dams. The co-lead agencies also recognize that there would be transitional needs that would be addressed in the additional mitigation measures for MO3 discussed in Chapter 5. Additionally, the Bonneville F&W Program funding for offsite mitigation projects in the Snake River Basin, implemented by local, state, tribal, and federal entities, would be reviewed and potentially adjusted. The comment asserts inadequate analysis in the EIS as to the efficacy of mitigation funded through Bonneville's Fish and Wildlife Program. Bonneville's Fish and Wildlife Program is first described in section 2.4.2 as an existing program under the No Action Alternative that will continue. This section provides a high-level overview of Bonneville's Fish and Wildlife Program, many of its major subprograms and their benefits, including habitat actions, hatchery actions, predator management, lamprey research and mitigation, and wildlife mitigation. The fish and wildlife mitigation projects that Bonneville funds have been recommended by the Northwest Power and Conservation Council (Council) and either derive from, or have been incorporated into, the Councils Columbia River Basin Fish and Wildlife Program. Further, the Independent Scientific Review Panel periodically reviews the mitigation projects under certain statutory criteria such as benefits to fish and wildlife. 16 U.S.C.

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				of mitigation in Chapter 5). These programs produce almost 30 million juvenile salmon and steelhead annually about of the hatchery fish produced above Bonneville Dam. For example, the NAA does not reveal that adult spring and summer Chinook salmon returns have never met their compensation goals under the existing Lower Snake River Compensation Plan. [Text contains figure that does not transfer to database.] For example, the NAA does not disclose measures occurring for Pacific lamprey, and does not disclose that measures identified for lamprey have not been implemented because they have not been adequately funded. For example, the NAA does not disclose that while hundreds of millions of dollars are annually spent upgrading the CRS dams ($238 million in capital infrastructure at CRS dams in 2020 alone is identified by BPA in the 2018 Integrated Program Review Close Out Report, of which $40.5 million is allocated to the four lower Snake River dams), and which is expected to increase to $340 million in 2029), $0 (zero) dollars are identified for capital hatchery upgrades (and the large and ballooning costs of deferred maintenance) at federally funded hatchery facilities that mitigate for federal CRS dams. (For private dams, like the mid-Columbia PUD dams or Idaho Power Company dams, mitigation hatchery upgrades, repair and maintenance are a requirement of their FERC operating licenses). For example, the NAAs mention of habitat actions consists of two brief paragraphs which are vague and devoid of detail, precluding any meaningful understanding of the actions and level of effort that is being evaluated in the NAA. There is no acknowledgement that these habitat actions are part of the federal agencies approach to filling existing gaps for ESA species. There is no acknowledgement of the law of the case in Natl Wildlife Fedn v. Natl Marine Fisheries Service governing habitat actions, including requirements that such actions must be reasonably certain to occur. Further, there is no acknowledgment and differentiation between actions necessary to address existing conditions and actions necessary to address climate change.	839b(h)(10)(D(iv). And for fish and wildlife managers that implement Northwest Power Act mitigation through Fish Accord agreements with the co-lead agencies, the managers and co-lead agencies have agreed that such mitigation projects are consistent with the Councils Fish and Wildlife Program. See responses to Comments 31775-51, 6894-56, and 6894-49. Section 2.4.2 also describes some of the many CRS improvements and the associated benefits for fish. In addition to this overview of Bonneville's Fish and Wildlife Program, the description of the affected environment throughout the relevant sections in Chapter 3 of the EIS, by definition, reflects the effects of past and ongoing mitigation efforts, even if they are not itemized or highlighted as being the results of a specific mitigation effort. NEPA does not require the agencies to distinguish the past and ongoing effects of all the mitigation projects Bonneville has funded over the 40-year history of the Northwest Power Act, particularly given that Bonneville now uses over 600 contracts annually to implement its Fish and Wildlife Program. In addition, the Agencies 2020 CRS Biological Assessment includes analysis of the implementation and effectiveness of both tributary habitat restoration actions and the CRS overhaul. Finally, the commenter conflates what is required under ESA for reasonable and prudent actions with what is required under NEPA for mitigation. Chapters 2, 5 and 7 discuss existing and proposed additional mitigation whiles Chapters 4 and 7 discuss the climate effects of the various alternatives.
6905	15	anjeet@nezperce.org	Nez Perce Tribe	The MOs include measures for Pacific lamprey, without disclosing that these measures have long been identified (see, e.g., Pacific Lamprey Conservation Agreements) but have not been implemented because of a lack of funding, and do not identify a commitment to the funding necessary to implement these measures. Any additional certainty resulting from a multiyear funding commitment does not address the reality that there is no increase or additional funding.	Federal funding for any measure included in an alternative is dependent upon fiscal appropriation from Congress and is not guaranteed, or in the case of Bonneville, availability of ratepayer funding. The Co-lead agencies can request finding to implement the Preferred Alternative and the measures identified within it. The co-lead agencies will designate the Preferred Alternative and adopt appropriate mitigation in their Record of Decision.
6905	16	anjeet@nezperce.org	Nez Perce Tribe	Chapter 3, Affected Environment and Environmental Consequences: Section 3.1, Introduction and Background: o The time scale for analysis is variable: It is 25 years for some aspects, and 50 years for other aspects. See 3-1. It is unclear how the time scale is employed and how it impacts/informs affected environment modeling and analyses. Fish analysis does not specify time frame, identify duration of impacts on fish or realization of benefits for fish.	The time frame associated with the CRSO EIS analysis was dependent on the level of confidence each modeling team had in long range predictive capability of their data sets. As noted in the comment, that time frame typically varied from 25 to 50 years depending on the resource are being analyzed. The temporal scope of the EIS is assumed to be 25 years from the signing of the Record of Decision (ROD) in order to have a similar period of analysis for comparison of effects across resources for all multiple objective alternatives (with the exception of the socioeconomic-related resource analysis - 50 years). Economic effects are longer to capture the annualized costs of long investments, such as construction, and maintenance costs. While many of the effects associated with the preferred alternative are expected to accrue over time, the co-lead agencies also worked with National Marine Fisheries Service and US Fish and Wildlife Service to have consistent analysis frameworks as they developed the Biological Opinions that are included as Appendix V.
6905	17	anjeet@nezperce.org	Nez Perce Tribe	Considerations of Context and Intensity (page 3-3): Never applied to fish and tribal resources in determining the significance of effects on those resources, as required under the NEPA CEQ regulatory definition of Significantly. The DEIS states statements of significance are supported by text describing the context and intensity of the impact, however this is lacking in the actual resource effects sections. All nine factors described (3- 3) have some relation to fish and/or tribal communities; yet, the DEIS does not in fact consider the context and intensity the severity of impacts to precisely these resources.	The co-lead agencies' analysis of current conditions includes the ongoing effects of the existence of the system, and a host of other factors influencing natural and cultural resources of Indian Tribes. The focus of the EIS is system operations, not the construction of the system. To the extent the analysis considers the existence of any system projects, e.g., breach, the effects analysis nevertheless captures the cumulative effects of Congress's decision to construct the projects and, thus, project existence. Regarding intensity, the co-lead agencies respectfully disagree. The co-lead agencies used high-quality information in their analysis and made sure to identify and describe effects to Tribal interests. See Section 3.17.2, which provides Tribal perspective summaries, and Section 3.17.3, which provides a review of Tribal interests. This is in addition to consideration of Tribal perspective contributions provided by many of the 19 involved Tribes. The Federal agencies factored in this information in their evaluation of the alternatives. The intensity, or potential level of effect, on any resource analyzed across the suite of alternatives is characterized on page 3-3 of the Draft EIS. The characterization of effects for any resource with a Tribal interest nexus is disclosed throughout the EIS, including in the fish analysis sections. Finally, tribal input, concerns, interests, and especially treaty rights were considered throughout the Draft EIS analyses and in the formulation of the Preferred Alternative. Treaty specific information is included in Section 3.17 as well as Chapter 7. The treaties bind all parties and are the supreme law of the land. The co-lead agencies recognize and respect that supremacy. In terms of honoring our treaty obligations, the co-lead agencies included "Protecting Native American treaty and reserved rights and fulfilling trust obligations for natural and cultural resources throughout the environment affected by the Columbia River System operations" as a purpose in the Purpose and Need Statement in Chapter 1 to ensure treaty obligations were a key consideration of decision making.
6905	18	anjeet@nezperce.org	Nez Perce Tribe	Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish: o Some data reported in DEIS tables is inconsistent with the CSS cohort-specific model predicted SARs and juvenile travel times for MO3. The SARs (CSS) data reported for MO3 in the DEIS (Table 3-89) does not match the SARs (CSS) results provided in the FPC April 29, 2019 memorandum or the FPC updated January 24, 2020 memorandum (that is substantially similar). In addition, Table 3-89 reports SARs (CSS) as LGR-LGR when similar tables for the other Alternatives present LGR-BON and the FPC reported SARs (CSS) as LGRBON. Juvenile travel time reported forMO3 in DEIS Table 3-88 is also inconsistent with FPC analysis (11.3 days depicted in the DEIS compared to 12.5 in both FPC memorandums). It appears the DEIS 11.3 day content may be a FPC generated wild fish only estimate. However, line 9781 in Chapter 3 states wild fish only estimates were not reported in Chapter 3, and these estimates were limited to Appendix E. o Effects analysis of each alternative in DEIS is modeled for a subset of populations in the Upper Columbia and Snake basins; DEIS does not apply the modeled population outcomes to all populations across the entire affected environment. o The DEIS Tables 3-68, 3-76, 3-83, 3-89, 3-97, and 7-25 report CSS LCM-based abundance as a single metric for the six populations that were modeled. That single number is generated by summing the six predicted abundance responses, the subsequent percent change from NAA reflects an aggregated response of the Grande Ronde/Imnaha MPG (does not include Lookingglass Creek) and is disproportionality influenced by the larger populations in the MPG. The DEIS acknowledges that COMPASS and CSS modeling of SARs and abundance is done on a subset of populations but states the percent change is considered indicative of the Snake River population [sic should be ESU] for the purpose of comparing between MOs. The variation between the six modeled populations is important (CCS LCM MO3 variation across the six populations is 108% to 197%). Accurate abundance response would base the abundance response on an average percent change of the six populations (144%), this would standardize for population size. The resulting abundance response for MO1 would be 6% vs 5% reported in the DEIS; MO2 would be 45% vs 43% reported in the DEIS; MO3 would be 144% vs. 103% reported in the DEIS; MO4 would be 108% vs 99%; and the PA would be 62% vs 58% reported in the DEIS. The MO3 difference in abundance response of 144% vs. 103% reported in the DEIS is significant. o Effects analyses on zero nighttime flows are not conducted. Current zero nighttime flow operations are implemented no earlier than December 1 and only after low adult steelhead abundance criteria are met. The Preferred Alternative proposes zero nighttime flows starting October 15. Analyses must cover impacts to adult migration (not only steelhead, but also fall Chinook and coho salmon) and juvenile migrants (fall Chinook).	Thank you - we did catch errors in Table 3-89 of Chapter 3, in which the SAR for Snake River Chinook had been inaccurately transcribed for MO3; this has been corrected and the reach for SAR has now been labeled. Also, travel time for MO3 in Table 3-88 has been corrected. The co-lead agencies will implement the zero generation operation in a manner that has negligible effects to any salmon or steelhead present in the river. Nighttime operations will end prior to daylight hours and allow attraction flow to fish ladders to aid passage for fish that are attempting to pass the projects. Daytime "zero-generation" operations will not be implemented until mid-December when juvenile and adult migration has largely ceased. These affects have been qualitative assessed by the co-lead agencies and will also be reviewed by NMFS and USFWS during the development of their respective Biological Opinions. The Biological Opinions will be appended to the FEIS.
6905	19	anjeet@nezperce.org	Nez Perce Tribe	Section 3.5.3.6, MO3 effects do not identify beneficial effects of breaching on adult fish migration for Snake River Spring/Summer-Run Chinook Salmon and Snake River Steelhead. (Compare Snake River Coho Salmon, Adult Fish Migration/Survival Long term effects of MO3 on Snake River adult coho would include a lower risk of delay, and fallback because four of the dams would be breached.)	The Fish Technical team are not aware of any existing models that are capable of estimating the change in adult salmon travel time or survival through the hydrosystem as a function of variables such as spill and flow that will change under alternative operations. That said, the cited documentation for the CSS lifecycle and cohort models in the CSS Annual Reports (Appendix b) and memos do report SAR both back to Bonneville and Lower Granite for Snake River ESUs under current conditions. An additional multiyear study has used radiotagging to estimate conversion and travel time of adults through reservoir, tailrace, and ladder passage portions of the hydrosystem (Keefer et al. 2017). We agree that this data should be used in the future to attempt to fit an adult upstream model that uses dynamic inputs related to dam operations. United States. Army. Corps of Engineers. Portland District, Keefer, M. L., Jepson, M. A., Clobough, T. S., Caudill, C. C., Bjornn, T. C., ... & Stuehrenberg, L. C. (2017). Migration of adult salmonids in the Federal Columbia River hydrosystem: a summary of radiotelemetry studies, 1996-2014.
6905	20	anjeet@nezperce.org	Nez Perce Tribe	The DEIS also does not address adult migration through the Lower Snake River in the NAA or any of the other MO alternatives.	The EIS evaluates the effects to adults (and juveniles) in Sections 3.5 and 7.7.4, and the Preferred Alternative includes measures intended to benefit adult fish migration and survival in the Snake River and the Columbia River.
6905	21	anjeet@nezperce.org	Nez Perce Tribe	MO1, MO2, and MO3 include summer spill reductions at the lower Columbia River projects that would impact fall Chinook juveniles; effects on upper Columbia River fall Chinook not identified or discussed in the effects on Upper Columbia fish species.	Agreed. Approximately 50% of the summer Chinook run originating between Priest Rapids and Wells dams could experience a very minor adverse effect from reduced spill between August 15 and August 31. River flow levels through August are unchanged by the Preferred Alternative. Upper Columbia River fall Chinook are discussed in Chapter 7 for the Preferred Alternative (lines 2573-2610).
6905	22	anjeet@nezperce.org	Nez Perce Tribe	Inaccuracies exist in flow datasets applied to effects modeling of all resources, impacting predicted fish impacts and power generation potential. MO4 dataset fails to apply the 150kcfs spill cap constraint associated with stilling basin structural integrity (i.e., rock entrainment and erosion). This inaccuracy in datasets results in overestimates of SARs and underestimates of power generation. Appendix B, Part 2: Spill Analysis graphics (Figure 4-17) of Dworshak flows have incorrect max powerhouse or misallocation between Lack of Market (LOM) and forced spill Full powerhouse flow is 10.5kcfs. Figures 4 -1, 2, 3, 4, 7, and 8 associated with Bonneville, The Dalles, and McNary dams flows have incorrect max powerhouse or misallocation between Lack of Market (LOM) and forced spill. These inaccuracies misrepresent spill due to power demand limitations or project capacity constraints as being done intentionally for fish benefit (overestimates cost of fish spill operations). Spill analysis (Appendix B, Part 2) apply different flow datasets for MO4 and PA at Bonneville, The Dalles, and John Day dams as evidenced by unique flow spikes in MO4 in late March and in PA in mid June. Spill analysis (Appendix B, Part 2) inconsistently apply powerhouse bypass channel flow. Generally, powerhouse bypass channel flow appears in the MO4 graphics but no others.	Thank you for your comment. Outflow through the dams are divided into multiple different types, mainly comprised of the powerhouse turbine flow and the spill. The spill flow has several different components. There is fish spill, powerhouse bypass channel, attraction spill, lack of market spill and forced spill due to lack of turbine capacity. In addition there is also miscellaneous flow, which includes lockages, leakage and other flows. For more information see Appendix B, Part 2: Spill Analysis. The detailed description of the measures for MO4 included spill to 125%, but a spill cap at Bonneville Dam to limit spillway erosion was not included. The perspective used in designing the alternatives was that these should serve as "bookend" scenarios. MO4 was intended to capture the high-end range of spill. The co-lead agencies can then interpret that a real world operation with a modified set of measures or limits such as the Bonneville 150 kcfs spill cap would modify economic costs or survival rates from the modeled bookend scenario.
6905	23	anjeet@nezperce.org	Nez Perce Tribe	Analytical omissions and inaccuracies as to water temperature and water quality: The DEIS does not apply commonly accepted EPA temperature modeling to assess impacts to mainstem temperatures and the TMDL. EPAs 2018 draft report entitled Assessment of Impacts to Columbia and Snake River Temperatures using the RBM10 Model includes a simulation of the impacts of removing the Lower Snake River dams on river conditions. EPAs assessment was made using the RBM10 model which has been peer-reviewed, documented, and applied in the region and elsewhere since 2001. The EPA 2018 report requires careful inclusion and consideration in the EIS because it projects significantly different temperature outcomes for a free-	Both CE-QUAL W2 and HEC-RAS have been calibrated and peer-reviewed by respected scientists from Portland State University, EPA and the USGS, as well as many cooperating agencies. In addition, the USEPA and co-lead agencies worked together to compare the co-lead agencies' CE-QUAL W2/RAS model (used for EIS analysis) and the EPA's RBM-10 model (used for the draft TMDL assessment). Efforts included identifying and comparing similarities and differences in the two models and assessments, and concluded that both models provide useful and technically appropriate analyses of the Columbia and lower Snake River water temperatures. As such, the EPA agrees with the co-lead agencies that the CE-QUAL W2 and HEC RAS models are appropriate to use in developing the Draft EIS (see EPA review comment letter # 16-0059).

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				flowing river, especially when daily average temperature metrics, under specific low, moderate, and high hydrologic conditions are taken into consideration. Further analysis and consideration of adult fish ladder temperature impacts and management options to alleviate temperature differential between ladder and tailraces at John Day, Ice Harbor, and Lower Monumental is warranted.	As stated above, the co-lead agencies and USEPA worked collaboratively to compare RBM-10 and the CRSO EIS water temperature models and concluded that the temperature predictions by both models are within a reasonable estimate of the uncertainty bounds. Differences between model estimates should be viewed as a reflection of the uncertainty in the predictive accuracy of the available tools.
6905	24	anjeet@nezperce.org	Nez Perce Tribe	Description of fish behavior repeatedly does not acknowledge CRS projects as the reason (mechanism) for the described behavior. For example: While Dworshak Reservoir and the North Fork Clearwater River contain healthy populations of bull trout, there is no documented evidence that these fish regularly reach the Snake River (Page 3-349 lines 2434-2436). This statement specifically does not mention that Dworshak Dam does not 10 have juvenile or adult fish passage facilities; as such upstream and downstream passage of bull trout and other species are blocked and precludes them from reaching the Snake River.	Throughout the Draft EIS it is made clear that Dworshak does not have fish passage facilities. Section 1.9.7.2 p. 1-41 States that "Dworshak Dam blocks upstream migration on the North Fork of the Clearwater River." Table 1.2 indicated Dworshak does not include fish passage. Some example text includes: Within this subbasin there are five Columbia River System projects, including one storage dam, Dworshak Dam on the North Fork Clearwater River, and four run-of-river dams on the Snake River. These include Lower Granite, Little Goose, Lower Monumental, and Ice Harbor Dams. All four of the lower Snake projects are equipped with fish passage facilities and Under the No Action Alternative, migration of bull trout to the North Fork Clearwater River Subbasin from the rest of the Clearwater Basin would continue to be blocked by Dworshak Dam, as the dam has no fish ladders or other means of passing fish upstream.
6905	25	anjeet@nezperce.org	Nez Perce Tribe	The DEIS incompletely identifies and underplays the number and scope of hatchery programs that mitigate for impacts of hydrosystem. DEIS asserts that hatchery fish are negatively impacting the productivity of wild fish, while ignoring the effects of the CRS on the productivity of wild fish. BPA/Corps/Reclamation are responsible for producing 61% of the hatchery fish released above Bonneville Dam about 60 million juveniles annually. (The effects of these hatchery release on wild fish are covered under existing Biological Opinions for hatchery operations). There is a suggestion with no citation that hatchery fish may be a major factor in reducing steelhead productivity. This statement Implies that a lot of hatchery fish are spawning naturally in the Snake which is not correct, because the vast majority of steelhead are harvested or return to a hatchery. At the same time, there is no disclosure that a major factor that is actually reducing wild fish productivity is the 57% mortality rate caused by the operation of the CRS dams. Widener et al. 2019 reported survival from Lower Granite Dam to Bonneville Dam for natural-origin Snake River steelhead has averaged .43 from 1999 to 2018. Appendix V (Biological Assessment) is even more misleading. (E.g., 3-40, 3-124). No reference is made to existing Biological Opinions for federal hatchery programs mitigating for federal CRS dams. And there is no disclosure of the 30-50% mortality of juveniles caused by the CRS before they have a chance to get to the ocean and become adults.	The Draft EIS describes and acknowledges the multitude of factors that affect salmon and steelhead throughout their life cycle in the Affected Environment. The Draft EIS analyzes the effects of the configuration, maintenance, and operation of the CRS projects in Chapters 3.4 and 7. The analyses used in this Draft EIS were for the purposes of comparing the effects of the action alternatives for operation and configuration of the CRS projects to one another and to the No Action Alternative. Hatchery programs are discussed briefly in the Affected Environment to give the reader the general information on hatchery programs that are a part of the ESU/DPS described. For the purposes of comparing alternatives, however, a more detailed description is not needed. The statement that the 57% mortality rate of juvenile natural-origin steelhead is caused by the dams is inaccurate and misleading because the estimate includes mortality from multiple sources such as passage mortality, natural mortality, and predation. Hatchery programs have long been a part of the approach for salmon recovery. Based on our analysis of fish resources in Chapter 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Under this alternative, hatchery programs would continue as under the No Action Alternative, and a number of other mitigation measures would continue as well, but no new hatchery operations are proposed. Hatchery origin fish are very important to Tribal and sport harvest in within the Columbia River Basin, and many hatchery programs are important supplementation to rebuilding natural populations. The effects of hatchery programs on ESA-listed fish are evaluated through individual consultations under the Endangered Species Act. Further, the three co-lead agencies have legal requirement to produce hatchery fish as mitigation for components of the CRS.
6905	26	anjeet@nezperce.org	Nez Perce Tribe	Section 3.5.3, Tribal Interests: This description is overly-generalized and does not include accurate, complete information for decision-maker and public consideration; it neither documents nor analyzes the substantial differences in effects of the action alternatives on tribal interests; as a result it does not include the complete effects of the alternatives on tribal interests here or anywhere else in the DEIS. (It specifically lacks any reference to the destruction of fish runs, fish passage, and Nez Perce culture, health, and economic welfare, from the construction and operation of the Dworshak Dam and Reservoir on the North Fork Clearwater River, and the Nez Perce Reservation and Nez Perce tribal trust land.)	The tribal interest sub-sections within each resource analyzed in Chapter 3 are not intended to be comprehensive, but are included as a way to highlight tribal interests within that resource. In Section 3.17 and the submitted Tribal perspectives there are additional discussions on Tribal interests and perspectives related to the alternatives and information on Nez Perce Tribal trust land.
6905	27	anjeet@nezperce.org	Nez Perce Tribe	Section 3.7, Power Generation and Transmission: There is a flaw in the 179-page Power Generation and Transmission section that is so fundamental, as a matter of the legislative purposes of NEPA as originally enacted by Congress, that it can be stated relatively briefly here. At core, NEPA is about promot[ing] efforts which will prevent and eliminate damage to the environment and biosphere and stimulate the health and welfare of man[.] 42 U.S.C. 4321. The term Human Environment is then defined under CEQ regulation, after introduction and use in the NEPA statute, as first and foremost, the natural and physical environment and the relationship of people with that environment. 40 C.F.R. 1508.14. Economic and social effects are only considered when they are 11 interrelated with natural or physical environmental effects. Id. Alone they are not the subject of NEPA and do not trigger NEPA review. Id. As a result, when economic effects are properly considered in a NEPA analysis, as they are in fact here, it is only because of their interrelation with the natural and physical environment which is the core purpose of NEPA. Despite this basic NEPA purpose and framework, the DEIS treats Power Generation and Transmission in Section 3.7 (and throughout the DEIS) as essentially a distinct resource area that merits effects analysis based on its own independent significance. But, again, under NEPA, power effects are secondary and only considered for interrelation with the natural human environment: they are to be considered only in their role as a socioeconomic effect that is related to the effects of the action alternatives on the natural and physical environment that is the purpose of NEPA and an EIS. For the agencies to consider power generation and transmission as an aspect of whether an alternative meets the very purpose of the CRS as a federal project would be legitimate. But that is not what the environmental consequences section of an EIS is for. For the agencies to treat power generation and transmission effects as environmental effects within an EIS, beyond their socioeconomic consequences, is a misconstruction of the purposes of NEPA and an EIS. Here Section 3.7 reads as an analysis of the effects of the alternatives on a key project purpose of the CRS for the agencies, rather than on the natural and physical environment. That is a fundamental error in consideration and analysis in the DEIS that would be not in accordance with law under Administrative Procedure Act review.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. The ongoing action that requires evaluation under NEPA is the long-term coordinated operation and management of the CRS projects for multiple purposes, including hydropower generation and transmission. An underlying need to which the co-lead agencies are responding is to review and update the management of the CRS, including evaluating measures to avoid, offset, or minimize impacts to resources affected by managing the CRS in the context of new information and changed conditions in the Columbia River Basin since the prior systemwide EIS was released. The CRSO EIS evaluates actions within the current authorities of the co-lead agencies, as well as certain actions that are not within their authorities, based on the District Courts observations about alternatives that could be considered and comments received during the scoping process. The EIS also allows the co-lead agencies and the region to evaluate the costs, benefits, and tradeoffs of various alternatives as part of reviewing and updating the management of the CRS. The EIS properly analyzes impacts to power generation and transmission since changes in operations affect generation (i.e. a direct effect) and changes in power generation and transmission could affect the natural environment leading to indirect effects (e.g. reservoir elevation changes potentially causing erosion; changes in generation resulting in building renewable resources). Changes in CRS generation may also affect decisions made by other energy producers leading to cumulative effects on affected resources (e.g. changes to Mid-Columbia project generation). Thus, the EIS properly considers the direct, indirect and cumulative effects to power generation and transmission in Chapters 3, 6 and 7.
6905	28	anjeet@nezperce.org	Nez Perce Tribe	Section 3.11, Recreation: Incomplete resource information is provided and no analysis is conducted with respect to positive/beneficial effects on recreation from MO3 over a complete, comprehensive geographical area of salmon and steelhead restoration, as affecting both Indian and non-Indian communities, and including tourism and related economic benefits. Effects analysis must include beneficial fishing and recreational effects in areas including but well upstream and downstream of merely the breached lower Snake River area.	The EIS provides an evaluation of the social welfare and regional economic effects of the No Action Alternative and the multiple objectives alternatives, including the effects on recreation (Section 3.11) and commercial fisheries (Section 3.15). The potential effects to recreational fishing is based on the description of effects to resident and anadromous fish in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. Under MO3, the EIS Section 3.5.3.6 describes the long-term effects to anadromous fish migration in the Snake River and tributaries that would occur under a dam breach scenario as major and beneficial, although quantitative impacts from fish modeling results are limited. The potential for increases in recreational fishing under MO3 in the Snake River Basin is described in Section 3.11.3.5, which would support jobs, income, and social benefits in Tribal and rural river communities. The effects to anadromous fish under MO3 in other locations would have negligible to minor changes from the No Action Alternative. For the effects on recreational fishing under MO3, see Section 3.11.3.5. The EIS described the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. NMFS estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which is described qualitatively. For MO1, MO2, MO4, and the Preferred Alternative, the evaluation qualitatively describes the potential for effects associated with recreational fishing by referencing the potential effects on relevant fish populations, as described in Section 3.5. Fish modeling results vary for some of the alternatives, for example for the Preferred Alternative and MO4 (i.e., models show either beneficial or adverse effects to anadromous fish), so it is assumed that the potential changes in recreational fishing would follow these changes in fish abundance in the long-term. The contribution of Columbia River origin fish to ocean fisheries is described in Section 3.15.2.1. Because there is considerable uncertainty regarding the overall effects of the alternatives on regional fish populations, and how such changes may affect the management of the fisheries, effects associated with changes in commercial and recreational fisheries under the alternatives were described qualitatively. This analysis evaluates potential effects on fisheries by referencing the potential effects on relevant fish populations, as described in Sections 3.5 and 7.7.4.
6905	29	anjeet@nezperce.org	Nez Perce Tribe	Section 3.16, Cultural Resources: The Cultural Resources section of the DEIS does not include complete and accurate information on the impact of the CRS dams and particularly the four Lower Snake River dams on Tribes including the Nez Perce Tribe, and does not completely and accurately evaluate the effects on tribes and tribal cultural resources of the action alternatives. The highest priority Cultural Resources flaws are: o The DEIS attempts to exclude analysis of any actions taken before 2016, accepting the ongoing impacts from almost a century of federal action on innumerable Tribal cultural resources as status quo and therefore not to be considered under NEPA. This constitutes a serious injustice to the Tribes and these resources, and does not provide complete and accurate resource information to inform a complete and accurate evaluation of the effects of the action alternatives on these resources. 12 o The Area of Analysis for Cultural Resources defined as one mile in all directions from the reservoirs at full pool elevation to include the tailrace of each dam is arbitrary and grossly inadequate to a complete and accurate identification of the impacts of the dams on cultural resources and an evaluation of the effects of the alternatives on those resources. This narrow Area of Analysis severely restricts the cultural resources identified: it excludes cultural resources outside Reservoirs, including those on the Clearwater River between the Dworshak and Lower Granite Reservoirs; it ignores the much larger resource concerns identified by the Tribes; and, it does not even cover all the property used by the action agencies, both for ongoing operations and for mitigation of resource impacts.	In the Purpose and Need Statement (Section 1.2 of the Draft EIS), the co-lead agencies identified September 30, 2016, as the baseline date for analysis of effects coincident with the Notice of Intent to Prepare the EIS. This is consistent with NEPA regulations for an ongoing action, including the action analyzed here, where the focus of analysis is changes in operations and maintenance of the existing system. The co-lead agencies selected the size of the study area based on where the effects from the proposed structural and operational measures are expected to occur. This study area is sufficient for the agencies to understand the effects of the different alternatives and to enable the agencies to make an informed evaluation of the alternatives. The co-lead agencies focused on the locations where there were understandable direct and indirect effects, as opposed to third and fourth order effects, which are harder to predict, speculative, and thus difficult to evaluate, as a part of the NEPA process. The co-lead agencies would conduct separate environmental compliance to implement mitigation of resource impacts in many cases that would provide better site specific information for these efforts. With regard to mitigation of resource effects, the co-lead agencies conduct site-specific environmental compliance processes, such as NEPA, ESA and NHPA, as appropriate. Chapter 8 includes review of compliance with applicable laws and regulation.
6905	30	anjeet@nezperce.org	Nez Perce Tribe	The DEIS focuses on archaeological resources to the exclusion of traditional cultural properties and other ethnographic resources that are significant to the culture and lifeways of the Tribes and continue to be impacted by the CRS dams (for example, the four lower Snake River dams inundated areas of cultural and spiritual importance, traditional gathering areas, fishing and fish processing sites, camping sites, burial locations, travel and trading routes, and village sites).	The co-lead agencies respectfully disagree there is an exclusion of Traditional Cultural Properties (TCPs) in the Draft EIS. For example, Section 3.16.2.6 provides an overview of TCPs. In the Draft EIS, Impact analysis to TCPs is provided in Sections 3.16.3.3 through 3.16.3.7 for the No Action and the Multiple Objective alternatives. In addition, in the Draft EIS, Section 7.7.18 provides an impact analysis to TCPs for the Preferred Alternative. Section 3.16.2.1 of the Draft EIS provides ethnohistory including settlement, subsistence, habitation and material cultural. Within this section numerous references are provided to ethnographic resources which were considered in the analysis.
6905	31	anjeet@nezperce.org	Nez Perce Tribe	The DEIS omits and/or fails to consider critical information concerning the significant positive/beneficial effects that breaching the four lower Snake River dams would have on cultural resources, traditional cultural properties, and other ethnographic resources that are significant to the culture and lifeways of the Tribes that have been and continue to be impacted by the CRS dams. This information was provided by the Nez Perce Tribe, the Confederated Tribes of the Umatilla Indian Reservation, and other tribes both in the Meyer Report for use in the 1999/2002 Lower Snake River Juvenile Salmon Migration Feasibility Study, and was provided again for use in the present DEIS. o As a result of these flaws, the evaluation of the action alternatives on cultural resources is arbitrary, inaccurate, and incomplete. It is worth noting that Tribal representatives in the Cultural Resource Technical Team communicated these flaws and omissions repeatedly to the agency representatives in that group. Also, these flaws and omissions are particularly	The co-lead agencies respectfully disagree the Draft EIS omits the positive or beneficial effects of breaching the four lower Snake River dams. Section 3.16.3.6 discusses impacts from the MO3 to the cultural resources property types, including Traditional Cultural Properties. In the Draft EIS, lines 7054-7060 describe the benefits of MO3 on Traditional Cultural Properties, such as increased access to the river and the ability to experience the river in a pre-inundation condition. The co-lead agencies state on page 3-1388 in the Draft EIS, "In the long term, this would be expected to have a beneficial effect to TCPs."

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				troubling here, given the United States Treaty and trust relationships with Tribe, and where NEPA dictates the consideration and dissemination of complete and accurate information to the public and decision-makers.	
6905	32	anjeet@nezperce.org	Nez Perce Tribe	Section 3.17, Tribal Issues: Summary observation: Only 21 pages of resource information, over three distinct tribal resource issues, with no genuine effects analyses conducted at all, out of approximately 7,000 EIS pages, are provided for the 19 Indian tribes that live within the core geography of the CRS and have been directly impacted by the CRS in nearly every aspect of their social, economic, and 5 As the recently released draft Lower Snake River Dams Stakeholder Engagement Report (Report) illustrates, a candid identification of the ongoing impacts of the CRS dams and particularly the four lower Snake River dams on the tribes is a prominent consideration with respect to any evaluation of alternatives. (See Report, Section 2, Tribal Connections to the Lower Snake River Dams, highlighting Treaty-reserved fishing rights, the loss of salmon, and the loss of access to land and cultural sites relative to the four lower Snake River dams). 13 cultural lives for over 80 years. This is inexplicable and unacceptable, and glaringly fails the hard look at the environmental effects of action alternatives that is fundamentally required in a NEPA EIS.	The co-lead agencies respectfully disagree. The co-lead agencies used high-quality information in the analysis and made sure to identify and describe effects to Tribal interests. See Section 3.17.2, which provides Tribal perspective summaries, and Section 3.17.3, which provides a review of Tribal interests. This is in addition to consideration of Tribal perspective contributions provided by many of the 19 involved Tribes. The Federal agencies factored in this information in their evaluation of the alternatives. Finally, tribal input, concerns, interests, and especially treaty rights were considered throughout the Draft EIS analyses and in the formulation of the Preferred Alternative. Treaty specific information is included in Section 3.17 as well as Chapter 7. The treaties bind all parties and are the supreme law of the land. The co-lead agencies recognize and respect that supremacy. In terms of honoring our treaty obligations, the co-lead agencies included "Protecting Native American treaty and reserved rights and fulfilling trust obligations for natural and cultural resources throughout the environment affected by the Columbia River System operations" as a purpose in the Purpose and Need Statement in Chapter 1 to ensure treaty obligations were a key consideration of decision making.
6905	33	anjeet@nezperce.org	Nez Perce Tribe	Section 3.17.1, Indian Trust Assets (ITAs): The ITA analysis area is arbitrarily and irrationally narrow: limited to one mile from project reservoir edges. This results in a conclusion that almost no Indian Trust Assets are even present in the study area; then no analysis is described or conducted in the DEIS; and a single-sentence conclusory statement is made that, for ITAs for all 19 Indian tribes, No direct or indirect effects to ITAs were identified for any of the alternatives.	The co-lead agencies selected the size of the study area based on the area where the impacts from the proposed structural and operational measures are expected to occur. This study area is sufficient for the agencies to understand the effects of the different alternatives and to enable the agencies to make an informed evaluation of the alternatives. The co-lead agencies focused on the locations where there were understandable direct effects, as opposed to third and fourth order effects, which are harder to predict, and thus evaluate, as a part of the NEPA process. The analysis of Indian Trust Assets in 3.17.1 follows this approach.
6905	34	anjeet@nezperce.org	Nez Perce Tribe	Section 3.17.2, Tribal Perspective Reports: No geographical analysis area is provided or employed for consideration of environmental effects. Tribal Perspective Reports are attached as an EIS appendix, but there is no genuine consideration of the effects of the EIS action alternatives on the information and concerns provided by the multiple tribes that submitted Tribal Perspective Reports. Slightly more than one (1) page in total is provided for descriptions of the five EIS action alternatives in relation to the Tribal Perspective Report information provided by 11 Indian tribes located within the core geography of the CRS. This is not a meaningful consideration of the effects of the alternatives on the information provided by the tribes.	The scope of the Columbia River System Operations Environmental Impact Statement is described in Section 1.3. Tribal input, concerns, interests, and especially treaty rights were considered throughout the Draft EIS analyses and in the formulation of the Preferred Alternative. Treaty specific information is included in Section 3.17 as well as Chapter 7. The treaties bind all parties and are the supreme law of the land. The co-lead agencies recognize and respect that supremacy. In terms of honoring our treaty obligations, the co-lead agencies included Protecting Native American treaty and reserved rights and fulfilling trust obligations for natural and cultural resources throughout the environment affected by the Columbia River System operations as a purpose in the Purpose and Need Statement in Chapter 1 to ensure treaty obligations were a key consideration of decision making. The co-lead agencies are engaging in government-to-government consultation with the tribes, and several tribes are cooperating agencies on the CRSO EIS. The EIS recognizes the economic and cultural importance of salmon to Tribes in a number of sections throughout the document. The cultural significance and impacts of salmon and steelhead fisheries are described in the Ceremonial and Subsistence Fisheries sub-section and the Social Importance of Commercial, Ceremonial and Subsistence Fisheries sub-section of Section 3.15.2.1. Fisheries tribal interests are provided in Section 3.15.4 additional details regarding the economic significance of salmon and steelhead fisheries have been added to the recreation analysis (Section 3.11) including tribal interests (Section 3.11.3.7). Treaty rights are discussed in the Executive Summary, Section 3.16 Cultural Resources, and Section 3.17 Indian Trust Assets, Tribal Perspectives, and Tribal Interests. Appendix P includes copies of tribal perspectives that were submitted by tribes. Tribal consultation is described in Sections 1.5, 3.5, and 3.15; and Chapter 9. Most sub-sections within Chapter 3 include a Tribal Interests section at the end of the sub-section that attempts to summarize tribal issues by topic.
6905	35	anjeet@nezperce.org	Nez Perce Tribe	Section 3.17.3, Tribal Interests / Treaty Rights: No area of analysis information is provided for any of the Indian treaty rights of any of the 19 affected Indian tribes. Incomplete treaty information is provided in an abbreviated table; no actual treaty rights information or detail is provided or employed. No effects analysis is conducted with respect to any action alternative as to effects on any regional Indian treaty rights, in this section or in any of the other environmental resource sections the reader is then directed to. In the unlikely event that the agencies believe Indian treaty rights are not a mandatory environmental effects consideration under a NEPA EIS, the recent D.C. District Court opinion in the ongoing case of Standing Rock Sioux Tribe v. U.S. Army Corps of Engineers provided a reminder, in passing within the opinion, that consideration of impacts on Indian tribal treaty rights is an agency obligation under NEPA. (March 25, 2020 Mem. Op. at 7, citing Standing Rock III, 255 F.Supp 3d 101, 132-34 (D.D.C. 2017).	Tribal input, concerns, interests, and especially treaty rights were considered throughout the Draft EIS analyses and in the formulation of the Preferred Alternative. Treaty-specific information is included in Section 3.17 as well as Chapter 7. The co-lead agencies recognize and respect the legal obligations treaties impose. In terms of honoring our treaty obligations, the co-lead agencies comply with environmental laws and regulations and all other applicable Federal statutory and regulatory requirements, included "Protecting Native American treaty and reserved rights and fulfilling trust obligations for natural and cultural resources throughout the environment affected by the Columbia River System operations" as a purpose in the Purpose and Need Statement in Chapter 1 to ensure treaty obligations were a key consideration of decision-making. The co-lead agencies are engaging in government-to-government consultation with the tribes, and several tribes are cooperating agencies on the CRSO EIS. Treaty rights are discussed in the Executive Summary, Section 3.16, Cultural Resources, and Section 3.17, Indian Trust Assets, Tribal Perspectives, and Tribal Interests and Chapter 7, Preferred Alternative. Tribal consultation is described in Sections 1.5, 3.5, and 3.15; and Chapter 9. Most sub-sections within Chapter 3 include a Tribal Interests section at the end of the sub-section that attempts to summarize tribal issues by topic.
6905	36	anjeet@nezperce.org	Nez Perce Tribe	Section 3.18, Environmental Justice: Similar to the geographic point made above regarding Section 1.3.1, but additionally: Section 3.18 arbitrarily employs an enormous seven-Western-state, 139-county Environmental Justice analysis area, marginalizing Northwest Indian tribe Environmental Justice effects, and the cumulative effects history of the CRS on the Indian tribes who live within the core river geography of the CRS and have experienced the direct adverse effects of the CRS dams at every moment of dam development and expansion over 80 years. Among multiple failures to consider relevant information, Section 3.18 provides no analytical consideration of the Tribal Perspective Reports submitted by 11 Indian tribes, to inform the required Environmental Justice analysis.	The commenter is concerned that the information provided in the tribal perspectives submittals included in Appendix P have not been adequately considered in the Environmental Justice analyses. Based on public comments, the co-lead agencies revised the Environmental Justice analysis (Section 3.18) to provide additional discussion of the potential effects to environmental justice populations. The commenter is also concerned about the geographic area used in the analysis. The study area for the environmental justice analysis is intended to include areas where minority populations, low-income populations, or tribes may be affected by CRSO EIS alternatives. The study area for power effects is larger than the study area for other resources because the potential effects from changes in power and transmission rates are broader. For more detail see Section 3.7.1.3, Area of Analysis.
6905	37	anjeet@nezperce.org	Nez Perce Tribe	Chapter 4, Climate: Climate change was a critical flaw the Federal District Court identified in its opinion and order in Natl Wildlife Fedn v. Natl Marine Fisheries Serv. and thus serves as an important backdrop with respect to a full and complete analysis of climate change and its impacts: The best available information indicates that climate change will have a significant negative effect on the listed population of endangered or threatened species. Climate change implications that are likely to have harmful effects on certain of the listed species include: warmer stream temperatures; warmer ocean temperatures; contracting ocean habitat; contracting inland habitat; degradation of estuary habitat; reduced spring and summer stream flows with increased peak river flows; large-scale ecological changes, such as increasing insect infestations and fires affecting forested lands; increased rain with decreased snow; diminishing snow packs; increased flood flows; and increased susceptibility to fish pathogens and parasitic organisms that are generally not injurious to their host until the fish become thermally stressed. A single year with detrimental climate conditions can have a devastating effect on fish. . . . Similarly, in late July 2013 low flows and high temperatures caused adult sockeye and summer Chinook salmon and steelhead to refuse to enter the fish ladder at Lower Granite Dam for approximately one week. 184 F. Supp. 3d at 914. An analysis of climate change, whether in an ESA or NEPA context, must apply the best available science, address all important aspects of the problem, analyze the effects of climate change, including its additive harm, and how it may reduce the effectiveness of CRS mitigation actions, particularly habitat actions that are not expected to achieve full benefits for decades, and how it increases the chances of a catastrophic effect. Id. at 917. The magnitude of Chapter 4 Climate effects is not used to adjust the absolute NAA baseline conditions against which Chapter 3 effects analysis of multi-objectives are analyzed. (And Climate effects are not considered in Chapter 3.) The qualitative assessment of climate effects on anadromous fish within the NAA describes a likely Major Effect. While the relative impacts of Climate across alternatives may not change, absolute outcomes may become inadequate when NAA baseline conditions are adjusted for future Climate conditions. A quantitative analysis is only provided for Hydropower (in Appendix J); full and complete analysis should be provided for all resources, especially anadromous fish. The hydrology and hydraulics historical data sets (80-year water record) do not include anticipated climate impacts; as a result, the analysis must acknowledge that limitation and the analysis must account for anticipated climate impacts.	The technical and policy elements of this Draft EIS are in full compliance with binding USACE policy and guidance for qualitative assessment of climate threats and their plausible effects and impacts. The primary controlling policy and guidance are the USACE Climate Adaptation Policy Statement, signed by the Assistant Secretary of the Army for Civil Works in 2011, updated and signed again in 2013, and remains in force now; and USACE Engineering and Construction Bulletin 2018-14, "Guidance for Incorporating Climate Change Impacts to Inland Hydrology in Civil Works Studies, Designs, and Projects." The numerical-model simulated outputs were evaluated by multiple technical means (see record of the full USACE Agency Technical Review), and were tested using the set of analytical measures created by the USACE Climate Preparedness and Resilience program to ensure that sound science and engineering compliance with USACE climate change policy and guidance. Those analytical tests are described in ECB 2018-14 (listed just above) and in USACE Engineer Technical Letter 1100-2-3, "Guidance for Detection of Nonstationarities in Annual Maximum Discharges." The assessment of climate threats and impacts is qualitative only in the sense that the biological and other impacts models did not directly ingest the physical hydroclimatology outputs modeled for the assessment. Those hydroclimatology outputs are fully quantitative and so can be the basis for refined estimates of effects and impacts should those be required following this Draft EIS. The decline of salmon populations is complex and recovery of those species will take collaboration between various agencies including NOAA and the Tribes. While individual years can have substantial negative impacts to returning salmon and steelhead, their life history strategy of a single brood year returning over multiple years helps to reduce the potential negative impact from any one single year. Habitat improvements can help improve resiliency to changing river conditions. Many of the types of habitat improvement actions implemented by the co-lead agencies can provide improved conditions for many fish species. Habitat mitigation program descriptions are discussed briefly in the No Action Alternative in Section 3.5.3.3 to give the reader the general information on these programs. Chapter 7 describes programs that would continue as well as new mitigation under the Preferred Alternative. The co-lead agencies acknowledge that the ocean environment is a contributor to the decline in salmon populations that is beyond the scope of the CRSO EIS. While none of the alternatives would affect ocean conditions, we recognize that these conditions are a major driver for adult returns and that numerous studies have shown the importance of this environment in the return of adult salmon and steelhead (Peterson et al. 2019). As such two of the models used in these analyses, NMFS Lifecycle and CSS models, use metrics of ocean productivity to predict adult returns. The climate science community is still developing quantitative models that can address possible effects in water temperature from climate change, and unfortunately, have not been fully applied and validated for use with climate affected regulated flow projections of large reservoir systems. This data is critical to analyzing potential effects to fish quantitatively. The same is true for projecting changes to TDG. In lieu of this information, the climate analysis used the output from resource models, like water quality and fish, under historical conditions, available climate change data, and scientific literature to qualitative assess potential effects to resources (described in Chapter 4). These analyses are documented in Section 4.2.3 for the MO Alternatives and Section 7.8.4 for the Preferred Alternative. Overall, the Preferred Alternative is expected to result in benefits to anadromous salmon and steelhead. The analysis in Section 7.8.4 recognizes that some of the benefits to fish from the Preferred Alternative could be offset by the effects of climate change. Under a dam breach scenario, spring water temperatures will warm more quickly than No Action conditions. Similarly in the fall, under a dam breach scenario, fall water temperatures will cool more quickly than No Action conditions. These results make logical sense and are supported by results from CRSO numerical water quality modeling. What has surprised some stakeholders are the predicted summer water temperature effects under dam breaching. Many believe that removing the dams will result in colder water temperatures as compared to the No Action Alternative. While some cooler water temperatures may be observed in the summer under dam breaching, especially during cooler summer weather conditions and at night, water temperatures will remain warm and exceed the state water quality standard at times. This is because without the dams, the lower Snake River will be shallower and more susceptible to solar radiation and warming. Increases in water particle travel time are expected, but the lower Snake River has always been a warm system (USGS 1960, 1961, 1964; Corps 2002a) and breaching the dams will not change this fact. Regionally high air and water temperatures result in water quality standard exceedances and are beyond the ability of the CRS to cool; future climate change predictions will result in even more difficult challenges.
6905	38	anjeet@nezperce.org	Nez Perce Tribe	Chapter 5, Mitigation: As set forth above, the NAA, the four MOs, and the PA do not describe measures that are occurring (e.g., the Northwest Power Acts Fish and Wildlife Program, protective measures for Pacific lamprey); do not evaluate the adequacy or inadequacy of these measures; and do not 15 describe the status of the funding associated with these measures. Chapter 5 does not address these issues as a matter of mitigation. With respect to the Fish and Wildlife Program, Chapter 5 contains a reference to existing mitigation programs that states [u]nder the No Action Alternative, mitigation currently implemented would continue but then describes that certain programs would move forward with certain modifications, suggesting that more information on the Fish and Wildlife Program is provided Chapter 6 (where there is no additional detail on the Program or any modifications). The information that is provided on the Program in the DEIS (in Appendix Q) focuses on some costs without discussion of funding assumptions and trajectories, the Programs goals, objectives, measures, relationship to the CRSO EIS, etc. For example, all alternatives, as part of the alternative or as part of mitigation, must address hatchery compensation goals established under the existing Lower Snake River Compensation Plan authority and address the fact that adult spring and summer Chinook salmon returns have never met their mitigation goal under existing authority. Mitigation measures that are identified in the DEIS do not contain sufficient detail to meaningfully analyze them. For example, mitigation measures associated with MO-3 include a statement that [t]he co-lead agencies propose raising additional hatchery fish to offset two lost year classes prior to start of breach of the Lower Snake River (5.3.3.2); this statement contains insufficient detail to analyze the adequacy of this proposed mitigation.	Bonneville's Fish and Wildlife Program is summarized in Chapters 2, 5, and 7. Since Bonneville's Fish and Wildlife Program is part of the No Action Alternative and carried into the Multiple Objective and Preferred Alternatives, this program along with the other ongoing programs are analyzed for each resources for each alternative as part of that alternative. As described in Appendix Q, the costs to operate the system are funded through multiple mechanisms including federal tax dollars appropriated to cover system costs, as well as revenue generated through the marketing and sale of hydropower. The baseline cost estimates are based on both recent historic costs or cost requirements based on discussions with agency program or financial experts. Additional studies would be required prior to implementing the Preferred Alternative, including feasibility studies and NEPA along with congressional authorization and appropriations, to assess the requirements of the project. Specific funding requirements, including mitigation measures, would be part of these studies. In addition as described in Section 6.1.1. of Appendix Q, funding decisions for the Bonneville F&W Program are not being made as a part of the CRSO EIS process. However, a range of potential F&W Program costs are included to inform the broader cost analysis for each alternative in the EIS. To make the most of available funds, investments in fish and wildlife mitigation would be prioritized based on biological and cost effectiveness and their connection to mitigating for impacts to the FCRPS. Future budget adjustments would be made in consultation with the region through Bonneville's budget-making processes and other appropriate forums and consistent with existing agreements. The co-leads disagree that the mitigation measures do not contain sufficient detail to meaningfully analyze them. In Chapter 5, the mitigation measures are identified to the scale and resource type appropriate based on the scale and severity of effects detailed in Chapter 3, per each MO, and brought forward for the Preferred Alternative. Additionally, the Tables in Chapter 5 identify the mitigation measure proposed to offset each impact, and the cumulative effect after implementing the measures. The resource teams went through a thoughtful analysis of all potential measures using the mitigation toolbox compiled by co-lead agency and cooperating agency expertise, discussing resource effects, severity, location, and methods to mitigate, before proposing mitigation measures appropriate to the effects. Finally, funding decisions for the Bonneville Fish and Wildlife (F&W) Program are not being made as a part of the CRSO EIS process. However, a range of potential F&W program costs are included to inform the broader cost analysis for each alternative in the EIS. In the case of the Preferred Alternative, Bonneville included a range of potential F&W program costs to acknowledge the possibility that the Preferred Alternative could provide biological benefits to anadromous fish species (see Chapter 7 of the EIS, Preferred Alternative) and that this could, in turn, reduce the need for some offsite mitigation funded through the Bonneville F&W Program. By analyzing a range of costs, Bonneville reflects the year-to-year fluctuations related to managing its program and also acknowledges the uncertainty around both the magnitude of biological benefits and the potential impacts on funding, including the timing of funding decisions. Future budget adjustments would be made in consultation with the region through Bonneville's budget-making processes and other appropriate forums and consistent with existing agreements. As discussed in section 7.7.21.1, in 2016, Bonneville's F&W Program budget was $267,000,000, and the Lower Snake River Compensation Plan (LSRCP) budget was $32,303,000. When these budgets are adjusted to represent 2019 dollars, they become $281,536,000 and $34,062,000, respectively, which are the budgets used under the No Action Alternative. For the Preferred Alternative, Bonneville would continue funding the operations and maintenance of the LSRCP, consistent with the No Action Alternative. Bonneville's F&W Program costs under the Preferred Alternative are estimated to range from no change from the No Action Alternative to a decrease of approximately 17%, or approximately $47 million, annually. Bonneville's fiscal year 2020 decisions to adjust the F&W Program budget to $249 million and the LSRCP budget to $30.5 million (BP-18 Rate Case) are consistent with the range of costs analyzed for the Preferred Alternative.

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					With regard to benefits of ongoing mitigation actions, section 2.4.2 provides a high-level overview of Bonneville's Fish and Wildlife Program, many of its major subprograms and their benefits, including habitat actions, hatchery actions, predator management, lamprey research and mitigation, and wildlife mitigation. Section 2.4.2 also describes some of the many CRS improvements and the associated benefits for fish. The fish and wildlife mitigation projects that Bonneville funds have been recommended by the Northwest Power and Conservation Council (Council) and either derive from, or have been incorporated into, the Councils Columbia River Basin Fish and Wildlife Program. Further, the Independent Scientific Review Panel periodically reviews the mitigation projects under certain statutory criteria such as benefits to fish and wildlife. 16 U.S.C. 839b(h)(10)(D(iv). And for fish and wildlife managers that implement Northwest Power Act mitigation through Fish Accord agreements with the co-lead agencies, the managers and co-lead agencies have agreed that such mitigation projects are consistent with the Councils Fish and Wildlife Program. See responses to Comments 31775-51, 6894-56, and 6894-49. With regard to the comments about the policies and mandates of the Northwest Power Act, the FEIS has been edited to provide more detailed discussion of those mandates and how the Agencies comply with them. See Chapter 5.1.2.
6905	39	anjeet@nezperce.org	Nez Perce Tribe	Chapter 6, Cumulative Effects: Section 6.2, Cumulative Actions Scenario: No cumulative effects analysis is conducted with respect to any Indian Trust Assets, for 19 affected Indian tribes, based on the no-analysis Section 3.17.1 conclusion that there are no direct or indirect effects on ITAs, and so, in Section 6.2, that a cumulative effects analysis is not required.	The reasoning behind the level of analysis of cumulative impacts in Chapter 6 is discussed in6.3.1.17 Indian Trust Assets, Tribal Perspectives, and Tribal Interests and states "Since the CRSO EIS alternatives are not expected to have direct or indirect effects on Indian Trust Assets, there would likely be no change in effects to these assets, and thus there would be no likely cumulative effects to Indian Trust Assets."
6905	40	anjeet@nezperce.org	Nez Perce Tribe	Chapter 6 also appears to omit any consideration of cumulative effects on Tribal Interests/Treaty Rights, for 19 affected Indian tribes, as should have occurred in connection with Section 3.17.3 of the DEIS.	Chapter 6 includes RFFA7, Fishery Management, which discusses the 20182027 United States v. Oregon Management Agreement. The purpose of the agreement is to rebuild weak runs to full productivity and fairly share the harvest of upper river runs between treaty Indian and non-treaty fisheries in the ocean and Columbia River Basin. RFFA7 was included in the cumulative effects analysis in Chapters 6 and 7. Tribal input, concerns, interests, and especially treaty rights were considered throughout the Draft EIS analyses and in the formulation of the Preferred Alternative. Treaty specific information is included in Section 3.17 as well as Chapter 7. The treaties bind all parties and are the supreme law of the land. The co-lead agencies recognize and respect that supremacy. In terms of honoring our treaty obligations, the co-lead agencies included Protecting Native American treaty and reserved rights and fulfilling trust obligations for natural and cultural resources throughout the environment affected by the Columbia River System operations as a purpose in the Purpose and Need Statement in Chapter 1 to ensure treaty obligations were a key consideration of decision making. The co-lead agencies are engaging in government-to-government consultation with the tribes, and several tribes are cooperating agencies on the CRSO EIS. Treaty rights are discussed in the Executive Summary, Section 3.16 Cultural Resources, and Section 3.17 Indian Trust Assets, Tribal Perspectives, and Tribal Interests. Appendix P includes copies of tribal perspectives that were submitted by tribes. Tribal consultation is described in Sections 1.5, 3.5, and 3.15; and Chapter 9. Most sub-sections within Chapter 3 include a Tribal Interests section at the end of the sub-section that attempts to summarize tribal issues by topic. Chapter 7 provides the effects analysis on Cultural Resources and Indian Trust Assets, Tribal Perspectives, and Tribal Interests, in Sections 7.7.18 and 7.7.19 in the Draft EIS, respectively.
6905	41	anjeet@nezperce.org	Nez Perce Tribe	And while there is a table reference to Tribal Perspective Reports, there also appears to be no DEIS consideration or evaluation of cumulative effects that employs the information provided by the 11 Indian tribes who provided those reports for analytical consideration in this DEIS.	The information included in Table 6-44 "Reasonably Foreseeable Future Actions Relevant to Tribal Interests" considered information received from the tribal perspectives submissions, located in Appendix P and was included in the cumulative effects analysis in Chapters 6 and 7. Additionally, tribal input, and their concerns, interests and especially treaty rights were considered throughout this EIS. Please see the treaty rights discussed in the Tribal Perspectives section of 3.17 and discussion of tribal consultation in sections 1.5, 3.5, 3.15 and Chapter 9.
6905	42	anjeet@nezperce.org	Nez Perce Tribe	Original and cumulative adverse effects from the construction and operation of the CRS (which is presently a continuing federal action) are not fully disclosed or addressed. Setting the baseline condition for effects comparisons through establishment of a NAA of 2016 operations, results in a failure to consider or evaluate the enormous historical and cumulative impacts of the CRS, particularly on the natural and cultural resources of affected Indian tribes, including the Nez Perce Tribe.	Consistent with the Council and Environmental Quality's (CEQ) June 24, 2005 guidance and interpretation of CEQ Regulations for Implementing the Procedural Provisions of NEPA, 40 C.F.R parts 1500-1508, "Agencies are not required to list or analyze the effects of individual past actions unless such information is necessary to describe the cumulative effect of all past actions combined... Generally agencies can conduct an adequate cumulative effects analysis by focusing on the current aggregate effects of past actions without delving into the historical details of individual past actions." However, the analysis of current conditions includes the ongoing effects of the existence of the system, inclusive of a host of other factors influencing natural and cultural resources of concern to potentially affected Tribes. System operations are the focus of the EIS, not the existence of the system (and to the extent the analysis considers the existence of the system, i.e. breach, the effects analysis captures the cumulative effect of project existence). Moreover, the No Action Alternative appropriately is the date of the Notice of Intent to Prepare the EIS (September 30, 2016) consistent with CEQ's treatment of ongoing actions (i.e. the No Action Alternative for ongoing actions is the status quo of the date of the Notice of Intent to Prepare the EIS). Tribal input, concerns, interests, and especially treaty rights were considered throughout the Draft EIS analyses and in the formulation of the Preferred Alternative. Treaty specific information is included in Section 3.17 as well as Chapter 7. The treaties bind all parties and are the supreme law of the land. The co-lead agencies recognize and respect that supremacy. In terms of honoring our treaty obligations, the co-lead agencies included Protecting Native American treaty and reserved rights and fulfilling trust obligations for natural and cultural resources throughout the environment affected by the Columbia River System operations as a purpose in the Purpose and Need Statement in Chapter 1 to ensure treaty obligations were a key consideration of decision making. The co-lead agencies are engaging in government-to-government consultation with the tribes, and several tribes are cooperating agencies on the CRSO EIS. Treaty rights are discussed in the Executive Summary, Section 3.16 Cultural Resources, and Section 3.17 Indian Trust Assets, Tribal Perspectives, and Tribal Interests. Appendix P includes copies of tribal perspectives that were submitted by tribes. Tribal consultation is described in Sections 1.5, 3.5, and 3.15; and Chapter 9. Most sub-sections within Chapter 3 include a Tribal Interests section at the end of the sub-section that attempts to summarize tribal issues by topic. Chapter 7 provides the effects analysis on Cultural Resources and Indian Trust Assets, Tribal Perspectives, and Tribal Interests, in Sections 7.7.18 and 7.7.19 in the Draft EIS, respectively.
6905	43	anjeet@nezperce.org	Nez Perce Tribe	The DEIS should be amended to address multiple particular cumulative effects embedded in the NAA, including but not limited to: o Reduced harvest opportunities and connection to traditional fishing areas due to hydrosystem related mortality and reduced adult returns. 16 o Inundation and blocked access to treaty-reserved Usual and Accustomed places, including both active use and archeological sites. This includes reservoir areas of the Lower Columbia, lower Snake, North Fork Clearwater river, and Ahsahka community areas. o Visual landscape alteration by Dworshak Dam and Reservoir. o Coldwater releases from Dworshak Dam during summer months that preclude swimming and social gathering along Clearwater River. o Unmet LSRCP hatchery mitigation.6 o Increased presence of invasive species and resulting impacts to native species. o Dworshak hatchery production.	Justification and identification of the Reasonably Foreseeable Future Actions are discussed in 6.1.3 Identification of Past, Present, and Reasonably Foreseeable Future Actions. Moreover, the No Action Alternative analysis is the date of the Notice of Intent to Prepare the EIS (September 30, 2016) consistent with Council on Environmental Quality's treatment of ongoing actions (i.e. the No Action Alternative for ongoing actions is the status quo of the date of the Notice of Intent to Prepare the EIS). The past and present effects to fish, cultural resources, visual resources, hydrology and hydraulics, and invasive species are discussed in the respective sections of Chapters 3 and 7. Actions such as hatchery production goals are outside the scope of the CRSO EIS.
6905	44	anjeet@nezperce.org	Nez Perce Tribe	Chapter 7, Preferred Alternative: Unacceptable Preferred Alternative: o The Tribe has previously conveyed that given the status and trends of salmon, steelhead, and lamprey in the Snake River Basin, the 2020 and 2021 flex spill operation set forth in the 2019-2021 Spill Operation Agreement (Agreement) is not an acceptable operation for a long period of time (such as a 10 year time frame often examined in a biological opinion or an even longer time frame often examined in a NEPA document). (Here, Appendix V (Biological Assessment) seeks 15 years of ESA coverage, the longest ever sought in the history of the CRSs efforts to comply with the ESA.) o The Tribe entered into the 2019-2021 interim Agreement, agreeing to forbear from pursuing litigation until completion of the EIS, and intending to incrementally benefit juvenile salmon passage in 2020 and 2021, as the Tribe continues working to address the significant fish mortality from the dams and ensure a full analysis of lower Snake River dam breaching. Tribes Press Release, December 17, 2018. o The 2019-2021 Spill Operation Agreement identifies that the principle and objectives of the Agreement (often referred to as the pillars of the Agreement) were solely for the purposes of this Agreement and that no Party makes any concessions regarding the legal validity, scientific validity, or economic cost/benefit of the spill operations contemplated in this Agreement which encompasses the entirety of the Agreement including its principles and objectives. Natl Wildlife Fedn v. Natl Marine Fisheries Serv., Docket 2298-1, 2019-2021 Spill Operation Agreement, at Sections III, IX. 6 Neither the NAA nor any other part of the DEIS reveals that the impacts of the four lower Snake River dams began occurring in 1961 with the construction of Ice Harbor Dam and that all of four lower Snake River Dams were constructed long before in some cases decades, in all cases years before the hatcheries commonly referred to as the Lower Snake River Compensation Plan were implemented; it does not reveal the delay in meeting some compensation goals (Snake River fall Chinook not met until 2008). 17 o The PA fails to identify specific continued actions that would occur, the reduction in fish and wildlife funding that has occurred since 2016, the commitment to fish and wildlife funding that would occur in the future, projects (reasonably certain to occur) that will be implemented, etc., all of which are critical to an informed understanding of the PA. The PA asserts that Additionally, ongoing actions are being carried from the No Action Alternative which includes measures committed to in the past to benefit ESA-listed species. These include actions under Bonnevilles Fish and Wildlife (F&W) Program, Corps Columbia River FIsh Mitigation Program and Reclamations Tributary Habitat Program. 7-22. As noted above in the Tribes comments on Chapter 2, the NAA contains vague references that preclude a meaningful understanding of what actions are continuing. Chapter 7 does not alleviate, and perpetuates, that flaw in its brief description of Ongoing Programs. 7.6.4.1 (7-39 through 7-43). Major hatchery programs (Grand Coulee Mitigation, Dworshak Mitigation, John Day Mitigation) are omitted. The PA contains only vague references to habitat actions that are devoid of detail, precluding any meaningful understanding of the actions and level of effort that is being evaluated in the PA. No mention is made of these habitat actions being part of the federal agencies approach to filling existing gaps for ESA species, the law of the case in Natl Wildlife Fedn v. Natl Marine Fisheries Serv.with respect to habitat actions, and requirements that such actions must be reasonably certain to occur. And the description makes no differentiation between actions necessary to address existing conditions and actions necessary to address climate change. Information in an EIS must be of high quality and must allow for accurate scientific analysis, expert agency comments, and public scrutiny. Here, the Tribe, as a co-manager and partner, is actively implementing habitat projects in watersheds including the Snake, Salmon, Clearwater and watersheds in Northeast Oregon. The information presented in the DEIS7 7 The vagueness Chapter 2 and 7 is compounded in Attachment V (Biological Assessment BA). The Habitat Improvement Actions section starts with the assertion that habitat actions are included to help address uncertainty related to any residual adverse effects of CRS management on ESA-listed migrating salmon and steelhead, including uncertainty regarding such effects. (Appendix V, 2.6.1.4 pages 2-94 through 2-114). The BA does not disclose that these habitat actions are part of the federal agencies approach to filling existing gaps for ESA species, the law of the case in Natl Wildlife Fedn v. Natl Marine Fisheries Serv.,, and requirements that such actions must be reasonably certain to occur. Funding levels and commitments are not identified. This BA asserts that A more detailed description of the Action Agencies proposed tributary habitat actions can be found in Appendix D to the BA, yet neither the BA nor its Appendix D provides any greater detail. The accomplishments table (D-5, Table D.1) does not identify that actions may benefit multiple species (leaving the impression that these accomplishments are always additive); and the very broad accomplishment metrics–the table cites Bonneville 2019 and the references state Tributary habitat metrics taken from [unknown] Bonneville report – appear to be disconnected from Section D.12 (Population Specific Accomplishments Metrics 2007-2018) and the work the Tribe is most familiar with. While the Priorities section properly acknowledges Snake River spring Chinook being a focus priority (D.7, D-11), there is no acknowledgment that Snake River steelhead status has triggered NOAAs significant decline trigger and that continued and additional habitat work for Snake River steelhead is a necessary and high priority. The 5 year metrics set forth in Appendix	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA listed species. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-lead agencies numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3, which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets the EIS for: resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams, because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. The EIS concluded MO3, which includes breaching the four lower Snake River dams would have greater improvement to certain salmon species in the lower Snake River. It did not, however, conclude there was greater certainty of that result in MO3 over any other alternative. Because of delayed response time in MO3, and the potential severity of the short term effects, MO3 would likely have the most substantial uncertainty in terms of beneficial effects. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% (the lower end of Northwest Power and Conservation Council's recovery targets for the region) as a result of the Preferred Alternative, as a result of the Preferred Alternative increasing SAR from 2.0% to 2.7% for Chinook, a 35% relative increase. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. To address uncertainty highlighted by the two models, the Preferred Alternative includes working with regional sovereigns to develop a study that assess the effectiveness of the increased spill regime on adult returns as well as assessment and management of adverse unintended consequences, such as long delays of adult migrants, or TDG-related mortality of juvenile migrants. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information. Based on the analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the CRS. This EIS has been developed in consultation with National Marine Fisheries Service (NMFS) and U.S. Fish and Wildlife Service (USFWS) to find an acceptable balance that allows the co-lead agencies to meet the Purpose and Need Statement while minimizing impacts to affected ESA-listed species and their habitats. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. Chapter 8 of the EIS demonstrates the co-lead agencies' compliance with applicable laws, including the ESA and Northwest Power Act. Also, the co-lead agencies relied on high quality, current information in the development of the CRS. The quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of Southern Resident killer whales (SRKWs), along with vessel traffic and noise, and toxic contaminants. The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall run (tules and brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differentially from hatchery and wild fish. Hatchery fish today likely make up most fish consumed by SRKW (NOAA BiOp 2020). The co-lead agencies note the contribution to the prey of SRKW through the continued existence of their respective independent congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as the Lower Snake River Compensation Plan, which is administered by U.S. Fish and Wildlife Service. The Preferred Alternative carries forward certain mitigation measures described in Chapters 2 and 7 of the EIS, which include continued salmon and steelhead hatchery production. The Preferred Alternative has negligible effects to SRKWs as described in Section 7.7.8 in large part because hatchery production is consistent between the No Action Alternative and the Preferred Alternative. The FEIS includes additional information on SRKWs in Section 3.6 and 7.7.8. Finally, funding decisions for the Bonneville Fish and Wildlife (F&W) Program are not being made as a part of the CRSO EIS process. However, a range of potential F&W program costs are included to inform the broader cost analysis for each alternative in the EIS. In the case of the Preferred Alternative, Bonneville included a range of potential F&W program costs to acknowledge the possibility that the Preferred Alternative could provide biological benefits to anadromous fish species (see Chapter 7 of the EIS, Preferred Alternative) and that this could, in turn, reduce the need for some offsite mitigation funded through the Bonneville F&W Program. By analyzing a range of costs, Bonneville reflects the year-to-year fluctuations related to managing its program and also acknowledges the uncertainty around both the magnitude of biological benefits and the potential impacts on funding, including the timing of funding decisions. Future budget adjustments would be made in consultation with the region through Bonneville's budget-making processes and other appropriate forums and consistent with existing agreements.

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				V (Table 2-19, 2-98) and the fifteen year metrics for 2021-2036 (Table 2-20, 2-99) are broad and general. The information presented does not satisfy the reasonably certain to occur standard or the law of Natl Wildlife Fedn v. Natl Marine Fisheries Serv. for the first five years much less the fifteen year period for which ESA coverage is being sought. These metrics 18 precludes meaningful analyses by the Tribe, by the tribal and general public, and by decision-makers. o Most of the measures in the PA improve non-fish objectives and many of the fish measures in the PA are measures that are ongoing under the status quo. Of the thirty nine measures, 34 target non-fish objectives, one is juvenile fish passage spill, and the remaining four fish measures, while important and good to do, provide modest fish benefits relative to SARs and adult abundance.8 Non-fish objective measures in the PA (e.g., spring flow volumes) appear to reduce existing protective measures for salmon, steelhead, and lamprey. An especially problematic measure in the PA is earlier initiation of Zero NighttimeFlows, as and the work necessary to achieve these metrics have not been coordinated with the Tribe as an onthe- ground implementer of projects. These metrics do not allow for meaningful analyses by the Tribe which is most familiar with these efforts, much less the general public. No information is presented that assures that the highest priority limiting factors are being addressed, that projects are feasible to implement, funding is adequate and committed, etc. This stands in stark contrast to the Action Agencies and NOAAs approach to habitat actions following Judge Reddens rulings in Natl Wildlife Fedn v. Natl Marine Fisheries Serv.. The remainder of the habitat discussion consists of identifying (additional) processes in the form of a Tributary Habitat Improvement Program structure, a Tributary Habitat Steering Committee with a Science Committee, etc. that appear to be disconnected from the Councils Fish and Wildlife Program. The flaws in the DEIS and the PA in disclosing status quo actions and limitations on actions are exacerbated in Appendix V (BA). For example, the Snake River kelt program identified as an ongoing, existing action (Chapter 5), yet Appendix V (BA) treats the kelt program as a potential emergency contingency action (In years of low steelhead returns, reconditioned kelts can help boost abundance of steelhead on the spawning grounds. The Action Agencies could make this program available as a contingency measure should steelhead numbers show significant declines.) Kelt programs are already implemented for Snake and upper Columbia steelhead. And, significant steelhead declines have already triggered NOAAs significant decline analysis. Appendix V (BA) suggests safety net hatchery programs as a potential emergency contingency (The Action Agencies could discuss with hatchery operators potential reprogramming of certain hatchery programs to safety-net hatchery programs to address declining status issues.). This cannot be squared with reality / feasiblity within a time frame that could be impactful. (See, e.g., NOAAs recent exercise related to Southern Resident Killer Whales in seeking to find additional space and water to grow salmon and steelhead). As a further example, omissions and vague references in DEIS exacerbate confusion in BA. Required prior mitigation actions and required actions in reasonable and prudent alternatives not identified/included, resulting in random lists of and reference points for projects. This is true for both hatchery actions (see, e.g., 2-89 and Table 2-18) and habitat. 8 See Table 7-2, 7-23. Of these measures, Lower Granite Trap Modifications should occur as normal operation and maintenance, and will not significantly impact SARs and long-term abundance; Bonneville Ladder Serpentine Weir Modifications would benefit salmon (though may stack up shad in fish ladder) and would improve lamprey passage but will not significantly impacts SARs and long-term abundance; Early Start to Transportation may provide a moderate benefit to steelhead and hatchery Chinook with a likely decrease to no effect on wild Chinook; and Predator Disruption Operations have implementation /effectiveness questions associated with estimating their benefit. 19 effects analyses on this operation have not been conducted.9 The Dworshak Flow reprogramming proposal in the PA contains a TDG justification and a high now pack implementation criteria that are not accurate and not implementable (infeasible implementation due to highly uncertain water supply forecasts in December and January). o The PA does not identify actual spill operations beyond 2021 and leaves spill operations for the duration of the EIS undefined and uncertain, deferring to an adaptive management10 construct (that does not preclude significant reductions in spill from 2020 levels). The PA is grounded in a principle and objective developed solely for the purpose of the 2019-2021 Agreement without any acknowledgment of that limitation or acknowledgment of the governing legal framework. It should come as no surprise the Tribe views this PA as unacceptable. o As noted elsewhere, the DEIS does not contain an analytical construct that allows a measure-specific effects analysis of the PA. o Modelling tools in the EIS are based on daily or monthly averages; PA operation is an hourly operation. o All alternatives, including the PA, must contain a full NEPA effects analysis, to inform decision-makers and the public. The PA fails this requirement. 9 Current Zero Nighttime flow operations are implemented no earlier than December 1 and only after low adult steelhead abundance criteria are met. The PA proposes Zero Nighttime flows starting October 15. Analyses of this operation must cover impacts to adult migration (fall Chinook and coho in addition to steelhead) and juvenile migrants (fall Chinook) 10 The associated Adaptive Implementation Framework set forth in Appendix R proposes formalizing the Flexible Spill Working Group in a way that appears to be duplicative of existing regional forums (TMT and RIOG). In the summer of 2017-winter 2018, the Flexible Spill Working Group, against the backdrop of almost-certain further litigation including injunctive relief if the Action Agencies did not reach agreement with the fish managers and many parties desire to focus on the EIS process ordered by the Court, organically developed and reached the 2019-2021 Spill Operation Agreement. Natl Wildlife Fedn v. Natl Marine Fisheries Serv., Dkt 2298 and 2298-1 (December 18, 2018). This proposal seeks to co-opt the Flex Spill Working Group to implement a flawed PA set forth in a flawed DEIS, while simultaneously, among other things, adding an additional pillar to pillars agreed to solely for the purpose of that Agreement (with no concession that these pillars were consistent with or satisfy any legal requirement under NEPA, the ESA, the Northwest Power Act or any other law).	As discussed in section 7.7.21.1, in 2016, Bonneville's F&W Program budget was $267,000,000, and the Lower Snake River Compensation Plan (LSRCP) budget was $32,303,000. When these budgets are adjusted to represent 2019 dollars, they become $281,536,000 and $34,062,000, respectively, which are the budgets used under the No Action Alternative. For the Preferred Alternative, Bonneville would continue funding the operations and maintenance of the LSRCP, consistent with the No Action Alternative. Bonneville's F&W Program costs under the Preferred Alternative are estimated to range from no change from the No Action Alternative to a decrease of approximately 17%, or approximately $47 million, annually. Bonneville's fiscal year 2020 decisions to adjust the F&W Program budget to $249 million and the LSRCP budget to $30.5 million (BP-18 Rate Case) are consistent with the range of costs analyzed for the Preferred Alternative. With regard to benefits of ongoing mitigation actions, section 2.4.2 provides a high-level overview of Bonneville's Fish and Wildlife Program, many of its major subprograms and their benefits, including habitat actions, hatchery actions, predator management, lamprey research and mitigation, and wildlife mitigation. Section 2.4.2 also describes some of the many CRS improvements and the associated benefits for fish. The fish and wildlife mitigation projects that Bonneville funds have been recommended by the Northwest Power and Conservation Council (Council) and either derive from, or have been incorporated into, the Councils Columbia River Basin Fish and Wildlife Program. Further, the Independent Scientific Review Panel periodically reviews the mitigation projects under certain statutory criteria such as benefits to fish and wildlife. 16 U.S.C. 839b(h)(10)(D(iv). And for fish and wildlife managers that implement Northwest Power Act mitigation through Fish Accord agreements with the co-lead agencies, the managers and co-lead agencies have agreed that such mitigation projects are consistent with the Councils Fish and Wildlife Program. See responses to Comments 31775-51, 6894-56, and 6894-49. With regard to the comments about the policies and mandates of the Northwest Power Act, the FEIS has been edited to provide more detailed discussion of those mandates and how the Agencies comply with them. See Chapter 5.1.2.
6906	1	joseph@wildsalmon.org	Wild Salmon	Indeed the parties to the current, short-term Flexible Spill Agreement made this explicit and respected regional scientists have confirmed that the flexible spill included in the Preferred Alternative will NOT deliver salmon the survival benefits through the hydrosystem they need. The changing climate will further erode any benefits of flexible spill as a long-term approach and only underscores the urgency for meaningful action. The draft plan includes little to address these intensifying impacts.	The spill operation for juvenile fish passage in the Preferred Alternative is a significant departure from previous operations, so much so that the Washington and Oregon state water quality waivers had to be changed to implement the new spill regime. The CSS model, which includes latent mortality effects, predicts that Smolt-to-Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% (within the Northwest Power and Conservation Council's recovery targets for the region) as a result of the Preferred Alternative. That result, however depends upon the latent mortality hypothesis central to the CSS model being correct. To address this uncertainty and minimize risk, the Preferred Alternative includes an adaptive management plan. This plan involves working with regional sovereigns to develop a study to assess the effectiveness of the increased spill regime on adult returns as well as assessment and management of negative unintended consequences, such as long delays of adult migrants, or TDG-related impacts on juvenile migrants.
6906	2	joseph@wildsalmon.org	Wild Salmon	Finally, a dramatically new approach is urgently needed to develop the comprehensive plan the people of the Northwest and nation require and deserve one that (1) recovers salmon abundance, (2) invests in fishing and farming communities to provide them a healthier future, and (3) supports a reliable, affordable and increasingly decarbonized regional energy system.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Recovery of ESA species is the purview of NMFS and the U.S. Fish and Wildlife Service. This EIS has been developed in consultation with NMFS and USFWS to find an acceptable balance that allows the co-leads to meet congressionally authorized purposes while minimizing impacts to affected ESA species and their habitats. Based on the analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery as compared to the No Action Alternative. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the CRS. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the EIS objectives) as well as the EIS objectives for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. The Preferred Alternative is also more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% (the lower end of Northwest Power and Conservation Council's recovery targets for the region) as a result of the Preferred Alternative, as a result of the Preferred Alternative increasing SAR from 2.0% to 2.7% for Chinook, a 35% relative increase. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. To address uncertainty highlighted by the two models, the Preferred Alternative includes working with regional sovereigns to develop a study that assess the effectiveness of the increased spill regime on adult returns as well as assessment and management of adverse unintended consequences, such as long delays of adult migrants, or TDG-related mortality of juvenile migrants. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information. The Preferred Alternative will make a meaningful contribution towards recovery. Socioeconomic effects were analyzed in the Draft EIS. Investing in fishing and farming communities, however, is outside the scope of this project and outside the authorities of the co-lead agencies. The U.S. Government supports the development of alternative forms of energy through many different programs and policies. For example, the Bonneville Power Administration also has a robust conservation program, from which about 90 aMW in conservation are saved a year. Further, when acquiring long-term resources, the Bonneville Power Administration statutory directives give priority to conservation and renewable resources.
6910	1	kberquist@earthjustice.org; ttrue@earthjustice.org	Earthjustice	Because the federal agencies have failed to take a comprehensive approach for more than 20 years and do not propose one in the DEIS, we need an entirely new approach. We must develop a comprehensive plan to restore abundant salmon and steelhead, invest in fishing and farming communities to provide them a more prosperous future, honor our commitments to Native American tribes, and support the development of a reliable, affordable, and clean Northwest energy system.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Recovery of ESA species is the purview of NMFS and the U.S. Fish and Wildlife Service. This EIS has been developed in consultation with NMFS and USFWS to find an acceptable balance that allows the co-leads to meet congressionally authorized purposes while minimizing impacts to affected ESA species and their habitats. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the CRS. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. The Preferred Alternative is nevertheless predicted to benefit salmon and steelhead. It also meets all the other objectives of the study for resident fish, hydropower, water management, water supply and greenhouse gas emissions, while minimizing adverse impacts to communities and the economy. Socioeconomic effects were analyzed in the Draft EIS. Investing in fishing and farming communities, however, is outside the scope of this project and outside the authorities of the co-lead agencies. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the EIS objectives) as well as the EIS objectives for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. The Preferred Alternative is also more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system.

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					With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% (the lower end of Northwest Power and Conservation Council's recovery targets for the region) as a result of the Preferred Alternative, as a result of the Preferred Alternative increasing SAR from 2.0% to 2.7% for Chinook, a 35% relative increase. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. To address uncertainty highlighted by the two models, the Preferred Alternative includes working with regional sovereigns to develop a study that assess the effectiveness of the increased spill regime on adult returns as well as assessment and management of adverse unintended consequences, such as long delays of adult migrants, or TDG-related mortality of juvenile migrants. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information. The Preferred Alternative will make a meaningful contribution towards recovery. In terms of honoring our treaty obligations, the co-lead agencies comply with environmental laws and regulations and all other applicable Federal statutory and regulatory requirements, including protecting Native American treaty and reserved rights and trust obligations for natural and cultural resources throughout the environment affected by CRS operations. The U.S. Government supports the development of alternative forms of energy through many different programs and policies. For example, the Bonneville Power Administration also has a robust conservation program, from which about 90 aMW in conservation are saved a year. Further, when acquiring long-term resources, the Bonneville Power Administration statutory directives give priority to conservation and renewable resources.
6913	1	N/A	N/A	As fish populations continue to drop, our window of opportunity to have a meaningful impact on their recovery is closing. Increased hatchery production is not the answer and only leads to dwindling wild populations of fish. I would like to suggest that you consider yet another alternative- one that includes both breaching the lower Snake River dams AND increasing spill in the meantime to 125% total dissolved gas. This alternative is clearly discussed as MO34 proposed by the Fish Passage Center.	Improving anadromous fish conditions was one of the eight multiple objectives of the CRSO EIS. The agencies disagree that an alternative that includes breaching the four lower Snake River dams and spring spill operations to 125% TDG at all four lower Columbia River dams is reasonable given the unacceptable risks to public safety from such an alternative. MO3 and MO4, individually each caused large loss-of-load probability (LOLP) results (e.g. increased incidence of blackouts). Without major additional of new resources, MO3 would result in power shortages in about one in seven years. MO4 would produce power shortages in about one in every four years. Combining breaching the four lower Snake River dams with spill up to 125% at the lower Columbia River projects is not a reasonable alternative under NEPA. For power and transmission, MO3 and MO4, individually each caused large loss-of-load probability (LOLP) results (e.g. increased incidence of blackouts). Without major additional new resources, MO3 would result in power shortages in about one in seven years. MO4 would produce power shortages in about one in every four years. If MO4 were implemented, in addition to breaching the four lower Snake River projects as called for in MO3, then the LOLP would be even higher, with power shortages potentially occurring almost every year. Additionally, if these MOs were combined, in 5% of the years, the power shortages would average close to 1,000 MW in early August when the region might be experiencing a heatwave with particularly high demand for air conditioning. 1,000 aMW is about the average amount of power consumed by Seattle City Light. As shown in Section 3.7, MO3 causes an increase in power reliability concerns in the winter and the summer. MO4 increases power reliability concerns in the summer. Thus, the combination has the largest impact during the summer. The cost of zero-carbon replacement resources for MO3 and MO4 individually are up to $1 billion/year. Resource replacements and associated transmission interconnections for the combination of MO3 and MO4 would be higher, though not likely as high as the sum of the two MOs individually. Assuming that the replacement resources consist largely of wind, solar, and batteries, this would require well over 50 square miles of solar power (more than two and a half times the size of Crater Lake), large areas of new wind generation, and unprecedented amounts of batteries (more batteries in the Northwest alone than the total projection of batteries expected in the entire US by 2023 per the Energy Information Administration). In addition, the reduced generation capability under MO3, particularly throughout the summer, in combination with the impacts of the measures in MO4 and the uncertainty about the characteristics of replacement resources, would result in less capability to provide voltage support and dynamic stability for transmission system reliability than under MO3 or MO4 individually. Thus, combining MO4 with breaching the four lower Snake River projects, would produce unreasonable power and transmission reliability impacts, and it is highly speculative that replacement resources could be sited, permitted and built to address these impacts. Thus, an alternative combining juvenile fish passage spill up to 125% and breaching the four lower Snake River dams is unreasonable, and thus was not proposed as an alternative.
6919	1	nsarmie2@gmail.com	N/A	The DEIS executive summary states New congressional authority and funding would be required to implement the dam breaching measures in MO3 on page 24 of the executive summary. As a federal project owned and operated by a federal agency, this is incorrect. Army Corps of Engineers headquarters in DC down to individual divisions, such as the Northwest Division, follow the same authorization procedures for federal projects. These procedures are in accordance with the public trust doctrine, assuring that approved projects will benefit the public with a positive investment return, or cost-to-benefit ratio. Once built, these projects must maintain their benefits or be economically viable to continue operation. When a project is no longer economically viable, it is time for the Corps to stop spending money on it, and the Corps has decommissioned (Aka mothballing, care-taker, non-operational status) hundreds of projects in U.S. history under their own authority. It would be an inappropriate precedent to set if all future projects must be decommissioned by a vote of congress, not to mention congesting our legislative bodies. The corps being a federal agency, under governance of the US Army, has the right to uphold its authority on the Lower Snake River Dam projects, like any other. An example of the CORPs authority over projects was during the decommissioning of Willamette Dam in 2011 without the use of congressional authorization. The project quickly went from caretaker status (could be reestablished) to non-operational status (will never operate again). The water behind the dam began moving over the low spill-way and the CORPs became free of their duty to manage and maintain it. Years later, a section 216 Study was initiated to decide what to do with the remaining structure. Similarly, the CORPs could put the Snake River Dams into a caretaker or non-operational status by removing the earthen berm, and allowing water to flow around the concrete structure, absolving them of any future operation and maintenance costs. While the decision process for decommissioning is simple, authorization for changing the purpose of a project was made more multipart, because headquarters did not want projects to change their purpose without congressional authorization. This makes sense, because projects were authorized for a certain reason, and changing that reason, requires approval outside the District. Securing a project for non-operational status is mutually exclusive to changing its purpose, because its purpose is no longer needed. For the Snake River Dams in MO3, their purposes (Navigation and hydropower) would cease with a change in status, and there is no way to put the projects in non-operational status without breaching. Breaching as a means of securing the projects does not need the approval of congress because they will no longer be serving any purpose.	If MO3 were selected as the Preferred Alternative, the Corps could use the CRSO EIS as a basis for seeking congressional authority to breach the lower Snake River dams. After receiving both authority and appropriations from Congress, the Corps could initiate a detailed construction and design report for the breach measure, identification of disposal areas, real estate acquisition and disposal, permits, and mitigation requirements, including temporary fish hatchery production. Each of these actions are required prior to breaching, and the Corps does not have the authority or appropriations necessary to immediately breach the project's embankments. More information is available in the Corps Engineering Regulation (ER) 1165-2-119 Water Resources Policies and Authorities, Modifications to Completed Projects (Sept. 20, 1982) or ER 1105-2- 100, Appendix G, Section III Post Authorization Changes.
6922	1	brad@lrecoop.com	N/A	Preferred alternative must not drastically impact consumer rates The 2020 DEIS addresses customer wholesale power rates in each of the 5 Multiple Objective Alternatives. The viability of any preferred alternative terms must include serious consideration for impact on consumer rates. Rate increases associated with MO3 and MO4 are without question, outside the scope of meeting the providing adequate or economical power supply. Modest rate increases, such as the lower end of estimates provided in the DEIS MO1 of 4.5-8.6% could be acceptable, if there would be significant reduction of fish mortality. Provided that these mortality reduction objectives were met, a potential offset in litigation expenses should be sought to recover these additional costs.	The statements in the comment about hydropower generation and wholesale power rate effects under MO3, MO4, and the Preferred Alternative are consistent with the findings of the EIS (See Sections 3.7.3.5 and 3.7.3.6, Electricity Rate Pressures, as well as Section 7.7.9, Power Generation and Transmission, under the Preferred Alternative). The EIS recognizes that increases in utility costs can adversely affect vulnerable groups. The Environmental Justice analysis (Section 3.18.3 and Section 7.7.20 of the EIS) provides further detail on the potential disproportionate effects to Tribal, low-income and minority populations. Note that the power estimates presented in the EIS are a comparison to the No Action Alternative, rather than the BP-20 wholesale power rates, which were set assuming the financial impact of the 2019-2021 Spill Operation Agreement. In addition, as noted in the EIS, the rate pressure associated with the Preferred Alternative may be offset by cost reductions. See EIS Section 3.7.3.1, at 3-817, in the Draft EIS. Consistent with the comment, the co-lead agencies developed a Preferred Alternative that strives to balance the multiple objectives. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult return rates will increase for both Snake River spring Chinook and steelhead and will average above 2% (the lower end of Northwest Power and Conservation Council recovery targets for the region) as a result of the Preferred Alternative increasing SAR from 2.0% to 2.7% for Chinook, a 35% relative increase. The NMFS COMPASS and Lifecycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. To address uncertainty highlighted by the two models, the Preferred Alternative includes working with regional sovereigns to develop a study that assess the effectiveness of the increased spill regime on adult returns as well as assessment and management of adverse unintended consequences, such as long delays of adult migrants, or TDG-related mortality of juvenile migrants. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information.
6923	1	Torey.wakeland@grandronde.org	The Confederated Tribes of Grand Ronde	The Columbia River includes resources of critical cultural importance to the Tribe, including but not limited to water quality, water quantity, aquatic and riparian habitats, native anadromous fish runs, native aquatic species and wildlife, spiritual values, place-based traditional knowledge, archaeological resources, and aesthetic values. The ongoing CRSO has impacted and will likely continue to impact these resources; the Tribe finds it critically important that the Tribes voice be heard and considered in any decision making process for the CRSO. For this reason, Grand Ronde offers the following comments on the dEIS. Please note that the Tribe considers these to be interim comments only, as the Grand Ronde Tribal Council has officially requested an immediate extension of time for Tribal participation on all projects or processes potentially impacting resources of Tribal importance.	The co-lead agencies considered requests to extend the public comment period. This NEPA process included a wide array of cooperating agencies whose close involvement throughout the process allowed the co-lead agencies to incorporate feedback. Given the broad range of comments received and the extensive Federal and non-Federal participation in the overall process as well as the level of public engagement in the six virtual public meetings in the region, the co-lead agencies determined that an extension was not warranted and that the 45-day public comment period was adequate consistent with NEPA regulations. The CRSO EIS website notified the public on April 9, that they should plan to submit comments by the close of the comment period.
6923	2	Torey.wakeland@grandronde.org	The Confederated Tribes of Grand Ronde	Through a Memorandum of Understanding (MOU) signed with the CoLeads, Grand Ronde has been a Cooperating Agency for the dEIS since 2017. As such, Tribal leaders and staff have actively participated in the scoping, development, and review of the EIS and its elements. CoLead staff have communicated frequently seeking Tribal input on the EIS, and for this the Tribe is grateful and appreciative. However, that said, we would be remiss in our responsibilities if we did not also comment on the shortcomings of the NEPA process as applied to the CRSO-EIS thus far. Timeframes have been too compressed to provide meaningful review periods The Tribe has not yet experienced true Tribal Consultation in this process When the Tribe has provided detailed input, such as on the Tribal Perspectives section, it has been obvious that CoLead staff did not read it, much less consider it Process steps such as meetings and review periods have failed to correct for the Tribes limited capacity and costs of participation Delays in releasing sections of the dEIS for review, and lack of communication on those delays, exacerbated an already hurried timeline.	The co-lead agencies invited a number of entities (including Tribes, states, and agencies) from across the region to participate in the EIS process as Cooperating Agencies, and over 30 of those invited agreed to participate. Staff from the Cooperating Agencies joined the technical teams and provided their expertise and review of the development and analysis of the alternatives. Leaders from the co-lead agencies met with Tribal leaders for formal consultation, and with other organizations and stakeholders to have dialogue and receive feedback as the EIS progressed. The co-lead agencies selected senior staff from across the country with expertise in their fields to serve on the EIS team. The draft EIS was subject to two internal agency reviews by the Corps of Engineers experts not involved in the development of the document. Additionally, the entire document, analysis, and modeling were reviewed following an Independent External Peer Review (IEPR) process that meets OMB circular on peer review requirements under the "Information Quality Act" and the Final Information Quality Bulletin for Peer Review by the Office of Management and Budget (referred to as the "OMB Peer Review Bulletin). It also meets guidance for the implementation of both Sections 2034 and 2035 of the Water Resources Development Act (WRDA) of 2007 (Public Law (P.L.) 110-114) and standards of the National Academy of Sciences independent peer review. The final IEPR report will be publicly available. Tribal input, concerns, interests, and especially treaty rights were considered throughout the Draft EIS analyses and in the formulation of the Preferred Alternative. Treaty specific information is included in Section 3.17 as well as Chapter 7. The treaties bind all parties and are the supreme law of the land. The co-lead agencies recognize and respect that supremacy. In terms of honoring our treaty obligations, the co-lead agencies included Protecting Native American treaty and reserved rights and fulfilling trust obligations for natural and cultural resources throughout the environment affected by the Columbia River System operations as a purpose in the Purpose and Need Statement in Chapter 1 to ensure treaty obligations were a key consideration of decision making. The co-lead agencies are engaging in government-to-government consultation with the tribes, and several tribes are cooperating agencies on the CRSO EIS. The EIS recognizes the economic and cultural importance of salmon to Tribes in a number of sections throughout the document. The cultural significance and impacts of salmon and steelhead fisheries are described in the Ceremonial and Subsistence Fisheries sub-section and the Social Importance of Commercial, Ceremonial and Subsistence Fisheries sub-section of Section 3.15.2.1. Fisheries tribal interests are provided in Section 3.15.4 and additional details regarding the economic significance of salmon and steelhead fisheries have been added to the recreation analysis (Section 3.11) including tribal interests (Section 3.11.3.7). Treaty rights are discussed in the Executive Summary, Section 3.16 Cultural Resources, and Section 3.17 Indian Trust Assets, Tribal Perspectives, and Tribal Interests. Appendix P includes copies of tribal perspectives that were submitted by tribes. Tribal consultation is described in Sections 1.5, 3.5, and 3.15; and Chapter 9. Most sub-sections within Chapter 3 include a Tribal Interests section at the end of the sub-section that attempts to summarize tribal issues by resource.
6923	3	Torey.wakeland@grandronde.org	The Confederated	The Tribe has reviewed and provided comments at several points along the path of development of the dEIS, and greatly appreciates those opportunities to be heard. However, that said, there are some Tribal comments that we feel have either not been addressed or not been addressed adequately by the CoLeads; we repeat such comments below. There are additional Tribal comments on the dEIS for parts the Tribe either has not seen	The No Action Alternative considers what would happen if the CRS continued to be operated, maintained, and configured with no change. For this EIS, the No Action Alternative describes the operation, maintenance, and configuration of the CRS, from September 30, 2016, the date the Notice of Intent to complete the CRSO EIS was published in the Federal Register. The No Action Alternative is required by the National Environmental Policy Act (NEPA), in accordance with the Council on Environmental Quality regulations (40 Code of Federal Regulations [CFR] 1502.14). The co-lead agencies assume that, to the extent possible, all ongoing, scheduled, and routine maintenance activities for the Federal infrastructure and all structural

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			Tribes of Grand Ronde	before this public version, or has not commented on due to limited capacity given restricted timeframes and other constraints. For resources that existed prior to construction of the CRSO dams, the proper baseline metric is the Pre-System Condition (PSC) There should be equity in the rigor of analyses applied to all resources in the dEIS Any additional impact to tribal resources should be considered significant, as those resources are already impacted. Mitigation being carried forward from other commitments should not be considered mitigation for impacts imposed by the proposed action. Mitigation for fish should be basin-wide for all alternatives, as fish are highly impacted throughout the system. The magnitude of the effects is misleading. For example, a finding of No Effect implies that the resource will not be impacted. Current operations already have a Major Effect on resources. The Tribe places the most value on conservation of resources, not maximization of revenue. Fish populations and culturally significant resources need to be highly prioritized.	features, including those recently constructed or reasonably foreseeable, are included in the No Action Alternative. The No Action Alternative provides a baseline condition for comparing environmental effects of the action alternatives, or MOs and the Preferred Alternative. The No Action Alternative assumes the CRS will continue to be operated for all congressionally authorized purposes, requiring a balancing of operations across the 14 projects within the CRS. Current operations include actions agreed to in previous ESA consultations among the co-lead agencies, National Marine Fisheries Service (NMFS), and U.S. Fish and Wildlife Service (USFWS). The focus of the EIS is system operations, not the construction of the system. To the extent the analysis considers the existence of any system projects, e.g., breach, the effects analysis nevertheless captures the cumulative effects of Congress's decision to construct the projects and, thus, project existence. Chapter 2 discusses existing mitigation, while Chapters 5 and 7 specifically discuss additional mitigation proposed for the Multiple Objective Alternatives (Chapter 5) and the Preferred Alternative (Chapter 7).
6923	4	Torey.wakeland@grandronde.org	The Confederated Tribes of Grand Ronde	The inclusion of Pacific lamprey in the dEIS is greatly appreciated. In many cases lamprey are not analyzed as they are not an ESA listed species. The Tribe appreciates measures to enhance lamprey passage in the basin.	The co-lead agencies recognize the value of considering these important native fish and plan to continue ongoing work in coordination with regional stakeholders through frameworks such as the Pacific Lamprey Conservation Initiative to implement ongoing programs as well as the lamprey measures described in the Draft EIS.
6923	5	Torey.wakeland@grandronde.org	The Confederated Tribes of Grand Ronde	There is an under reporting of Tribally based Traditional Cultural Properties (TCPs), sacred sites, properties of traditional religious and cultural significance, and properties of traditional religious and cultural importance by Tribes to the Agency/ies due to the sensitivities of the cultural practices and their locations.	The co-lead agencies acknowledge the sensitivity of the information related to Traditional Cultural Properties, sacred sites, and properties of religious and cultural significance by Tribes. The co-lead agencies were able to conduct analysis on the data available from previous studies. Out of respect for the sensitivity of this information, the co-lead agencies minimized the publication of location specific information as they completed the impact analysis to cultural resources. In the Draft EIS, the co-lead agencies discuss these concerns in Section 3.16.2.7 upon the introduction of sacred sites; and also in Section 3.16.3.1, Traditional Cultural Properties.
6923	6	Torey.wakeland@grandronde.org	The Confederated Tribes of Grand Ronde	1.5.2.3 It is felt by the Tribe that meaningful tribal government-to-government consultation was greatly lacking. In many instances it is felt the Tribes voice was not considered.	The co-lead agencies have engaged in a three-tiered process for engaging Tribes at technical, policy, and leadership levels to ensure all Tribal comments and perspectives are carefully considered. Tribal input has been critical and important to improving the quality of this EIS.
6923	7	Torey.wakeland@grandronde.org	The Confederated Tribes of Grand Ronde	3.4 As this is the first time the water quality section has been available in a completed form, it is a concern that any input the Tribe has will not be considered in the final EIS.	The water quality sections of the EIS have been available for review throughout the EIS process. The Confederated Tribes of the Grand Ronde (CTGR) was provided documents and invited to conduct reviews at every step of the way. Some of these reviews included: (1) review of No Action - March 2019; (2) review of MO1 - March 2019; (3) review of MO2 - May 2019; (4) review of MO3 - May 2019; (5) review of MO4 - April 2019; (6) review of the Adminstrative Draft EIS (including the Preferred Alternative) - January 2020; (7) review of the CRSO model and model documentation reports - February 2019. In addition, the co-lead agencies met with the CTGR one-on-one, via webinar, on March 03, 2020, to discussed EIS results and answer specific questions that the Tribe may have. To suggest that this is the first time that the water quality sections of the EIS have been available in completed form for review is therefore puzzling.
6923	8	Torey.wakeland@grandronde.org	The Confederated Tribes of Grand Ronde	3.4 There is no mention of turbidity being evaluated for water quality impacts, which can have a significant impact on aquatic species.	Turbidity is discussed where data is available and relevant. Additional water quality information for each CRS project can also be found on the CRSO website: https://www.nwd.usace.army.mil/CRSO/#top.
6923	9	Torey.wakeland@grandronde.org	The Confederated Tribes of Grand Ronde	3.5.2.3, 7214-7230 This section is very misleading. It paints a picture that anadromous fish populations are doing well in the basin. The fish populations in the basin are highly impacted by current operations.	The co-lead agencies do not feel that Figure 3-111 on page 3-300 or the text between 7214-7230 is either inaccurate or misleading. This figure and associated text is part of general overview of anadromous fish in the study area. The later Sections of the report do break out analyses and discussion by species and origin. An additional figure detailing cumulative in-river survival from Lower Granite to Bonneville Dam will be added to the FEIS.
6923	10	Torey.wakeland@grandronde.org	The Confederated Tribes of Grand Ronde	3.5.3.3, 10201 Upstream passage survival estimates are not generated. This seems like an easy model to run and would help the reader understand upstream passage impacts.	The Fish Technical Team was not aware of any existing models that are capable of estimating the change in adult salmon travel time or survival through the CRS as a function of variables such as spill and flow that will change under alternative operations. That said, the cited documentation for the CSS Life Cycle and cohort models in the CSS Annual Reports (Appendix B) and memos do report Smolt-to-Adult returns (SAR) both back to Bonneville and Lower Granite for Snake River ESUs under current conditions. An additional multiyear study has used radiotagging to estimate conversion and travel time of adults through reservoir, tailrace, and ladder passage portions of the CRS (Keefer et al. 2017). We agree that this data should be used in the future to attempt to fit an adult upstream model that uses dynamic inputs related to dam operations, but since that model is not currently available, the co-lead agencies could not use it in the CRSO EIS. U.S. Army. Corps of Engineers. Portland District, Keefer, M. L., Jepson, M. A., Clobough, T. S., Caudill, C. C., Bjornn, T. C., ... & Stuehrenberg, L. C. (2017). Migration of adult salmonids in the Federal Columbia River hydrosystem: a summary of radiotelemetry studies, 1996-2014.
6923	11	Torey.wakeland@grandronde.org	The Confederated Tribes of Grand Ronde	3.5.3.4, 14829-14823 Any increase in impact should be considered a Major Impact as anadromous fish species are already highly impacted in the basin.	In the analysis of the effects of the alternative approaches of operation, maintenance, and configuration of the CRS, the EIS compared the effects of each alternative to the No Action Alternative. The magnitude of effect was used in this comparison; otherwise the analysis would not be meaningful and allow for informed decision making. The Preferred Alternative was determined to provide substantial benefits to ESA-listed salmon and steelhead (see Chapter 7, Section 7.7.4). The co-lead agencies then submitted the action as described in the Preferred Alternative to the US Fish and Wildlife Service and NMFS to analyze under the Endangered Species Act to ensure that the actions do not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. These analyses can be found in Appendix V of the EIS.
6923	12	Torey.wakeland@grandronde.org	The Confederated Tribes of Grand Ronde	3.5.4, 20277-20282 The wording of this paragraph is concerning. The message conveyed here is that adverse impacts caused by dams are merely the opinion of tribes. Impacts from dams are well documented and studied; this should be re-worded.	Text will be edited in FEIS.
6923	13	Torey.wakeland@grandronde.org	The Confederated Tribes of Grand Ronde	3.6.4 Any loss of culturally significant plants should be included in the replanting effort.	Suggestion noted. Impacts to vegetation are discussed in Sections 3.6 and 7.7.7. Vegetation mitigation for areas that would be replanted are discussed in Chapter 5, Mitigation.
6923	14	Torey.wakeland@grandronde.org	The Confederated Tribes of Grand Ronde	3.15.4 Same comment as made for 3.5.4. The wording makes the Tribes stance seem ill-informed. The Tribes stance is supported by best available science.	Text will be edited in FEIS.
6923	15	Torey.wakeland@grandronde.org	The Confederated Tribes of Grand Ronde	3.17.1.3 Any adverse effect to fish populations is a direct affect to tribal trust assets.	The co-lead agencies have analyzed ITAs consistent with applicable statutes, regulations, and guidance. Neither the rights of fishing, hunting, and gathering, nor the resources subject to those rights, are "assets held by the federal government" within the meaning the Interior Department Manual, 303 DM 2.5(c). As a result, the co-lead agencies do not consider the rights our resources to be ITAs. The agencies' analysis nevertheless considers effects to the resources subject to the Tribe's rights, as well as the cumulative effects to those rights as a result of effects to underlying resources.
6923	16	Torey.wakeland@grandronde.org	The Confederated Tribes of Grand Ronde	5.4.1.2 Mitigation can occur above Chief Joseph Dam in the form of reintroduction and management. Passage can be added here to mitigate for the loss of habitat.	Measures to reintroduce salmon above Chief Joseph Dam and Grand Coulee were evaluated early in the alternative development process but eliminated from further consideration. Reintroduction is an important and complex, large-scale concept. Its consideration, evaluation, and implementation should involve multiple Tribal, Federal, state, and other entities. A coordinated approach among water users, Tribes, states, multiple Federal agencies, and others would be necessary. To allow so many differing interests to coordinate on such a complex topic, which may include international considerations, a decision-making framework and a series of regional workshops would be necessary just to approach the first step of defining reintroduction objectives. Given the incompatibility of such a wildlife management decision-making framework with an analysis of the operation of the CRS, it is not feasible to proceed with a detailed consideration of reintroduction in this EIS. Moreover, to meaningfully analyze reintroduction as a measure, the details of the proposal would need to be understood well enough to include in hydrologic, water quality, and fish models. That information is not presently available, and development of those details was not possible in the timeframe of this NEPA process. Nevertheless, the agencies and interested regional sovereigns are developing a framework to address critical information gaps.
6923	17	Torey.wakeland@grandronde.org	The Confederated Tribes of Grand Ronde	7.6.2 Passage at Chief Joseph dam should be considered as part of the alternative.	Measures to reintroduce salmon above Chief Joseph and Grand Coulee dams were evaluated early in the alternative development process but eliminated from further consideration. Reintroduction is an important and complex, large-scale concept. Its consideration, evaluation, and implementation should involve multiple Tribal, Federal, state, and other entities. A coordinated approach among water users, Tribes, states, multiple Federal agencies, and others would be necessary. To allow so many differing interests to coordinate on such a complex topic, which may include international considerations, a decision-making framework and a series of regional workshops would be necessary just to approach the first step of defining reintroduction objectives. Given the incompatibility of such a wildlife management decision-making framework with an analysis of the operation of the CRS, it is not feasible to proceed with a detailed consideration of reintroduction in this EIS. Moreover, to meaningfully analyze reintroduction as a measure, the details of the proposal would need to be understood well enough to include in hydrologic, water quality, and fish models. That information is not presently available, and development of those details was not possible in the timeframe of this NEPA process. Nevertheless, the agencies and interested regional sovereigns are developing a framework to address critical information gaps. This effort was initiated on June 23, 2020 when the co-lead agencies participated in a discussion with regional sovereigns concerning fish management in blocked areas.
6923	18	Torey.wakeland@grandronde.org	The Confederated Tribes of Grand Ronde	7.7.4, 2358-2363 Modifying the intake to increase power production in the form of removing protective fish screens is irresponsible and cuts against the core values of the Tribe. 7.7.4 This section is misleading as it does not consider the major impacts on the species under current conditions.	The co-lead agencies do not intend to remove screens in front of turbine units until a process is in place to confirm that salmon and steelhead dam passage survival is not negatively impacted.
6923	19	Torey.wakeland@grandronde.org	The Confederated Tribes of Grand Ronde	7.9.7 Cumulative impacts to anadromous fish are extensive. This section does not hold up to the type of analytical rigor the Tribe would expect to see.	The co-lead agencies recognize both human-caused and natural factors that are outside the responsibility and control of the co-lead Federal agencies, also contribute to the decline and recovery of ESA-listed species, and would continue to strongly influence fish and their habitat. Salmon and steelhead have been adversely affected in the Columbia River Basin over the last century by many activities including human population growth, urbanization, introduction of exotic species, overfishing, development of cities and other land uses in the floodplains, water diversions for all purposes, dams, mining, farming, ranching, logging, hatchery production, predation, ocean conditions, and loss of habitat. Chapters 6 and 7 incorporate the past and present effects described in Section 3.5 into the cumulative effects analysis for fish as described below. Moreover, the cumulative action analysis methods are based on the policy guidance and methodology originally developed by CEQ (1997a). This method includes identifying affected resources and associated direct/indirect effects; establishing the geographic and temporal boundaries of the analysis; identifying the cumulative action scenario; and analyzing the cumulative effects.

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					The Environmental Consequences sections of Chapter 3 present the direct and indirect effects of the Columbia River System Operations (CRSO) Environmental Impact Statement (EIS) Multiple Objective Alternatives (MOs) on each resources affected environment as presented in the Affected Environment sections of Chapter 3. The resource conditions described in those sections account for the effects to resources related to past and present actions. Chapter 6, Cumulative Effects, further considers the cumulative effects of each alternative combined with reasonably foreseeable future actions and conditions for all resources. RFFAs are considered in the cumulative effects analysis for each resource in chapter six. RFFAs are proposed activities that could cause similar effects in the same space and time as the MOs, but that are proposed by an outside entity. RFFAs are not yet implemented. Quantitative evaluations were conducted to determine the effects of each of the alternatives when appropriate. In instances when quantitative evaluations were not appropriate or possible, qualitative discussions are included to describe the effects of each of the alternatives. The evaluations are clear, transparent, and repeatable based on the best available information.
6923	20	Torey.wakeland@grandronde.org	The Confederated Tribes of Grand Ronde	7.9.20 This section states there are no cumulative impacts to tribal trust assets. This is woefully inaccurate. In section 7.10 there is mention of unavoidable affects to resources considered trust assets.	Resources identified as Trust Assets are identified in Section 3.17. Section 3.17.1.1 Introduction and Background provides the legal definition of an Indian Trust Asset. That Section states: "Treaty-reserved rights, for instance, fishing, hunting, and gathering rights on and off reservation, are usufructuary rights that do not meet the Department of Interior (DOI) definition of an ITA." Given the importance to the Tribes of these resources that do not meet the Department of Interior's definition of an Indian Trust Asset, effects to those resources are discussed in Section 3.17.2, Tribal Perspectives Summaries.
6923	21	Torey.wakeland@grandronde.org	The Confederated Tribes of Grand Ronde	NOTICE: The Confederated Tribes of the Grand Ronde Community of Oregon (Grand Ronde or Tribe) has declared an ongoing Tribal state of emergency as of March 18, 2020, due to the effects of the COVID-19 pandemic. The Tribe has taken numerous measures to protect Tribal members, employees, and the general public from the novel coronavirus. These measures include but are not limited to a partial shutdown of Tribal government operations. As a result, normal Tribal government procedures are largely disrupted; many reviews, approvals, communications and other processes involving non-life-threatening topics have been suspended at this time, severely reducing Tribal capacity in responding to the Tribes partner governments on such topics. This is expected to continue for as long as the pandemic continues to pose a risk to the community. For this reason, the Tribe respectfully requests from its partner governments an immediate extension of time for all applicable deadlines on proposed actions potentially impacting resources of Tribal importance. In order to be fair and effective, avoiding any prejudice to or bias against the Tribe, the extension currently must be indefinite; upon the return to normal Tribal government operations, the Tribe should be able to determine the time needed to respond meaningfully to each proposed action. Whether or not this extension request is granted fully and immediately, Grand Ronde acknowledges and reserves the right to take steps it deems necessary for protection of Tribal resources. These steps may include but are not limited to: submitting interim Tribal comments within the comment period that may be later modified by official comments from Tribal Council; submitting technical comments while reserving the Tribes right to later submit policy comments; requesting Tribal consultation on the proposed action upon a return to normal Tribal operations; or choosing not to comment within the comment period while reserving the Tribes right to comment later. The Tribe respectfully notifies its partner governments that such is the case until further notice. Please see language from the Tribal Council Resolution passed at the regularly scheduled meeting of April 1, 2020 (attached). In the case of this proposed action, at this time the Tribe will submit interim comments that may later be modified by official comments from Tribal Council. The Tribe reserves the right to take additional steps or change course at any time, with or without notice. hayu-masi (Many thanks), Torey Wakeland Environmental Policy Analyst Attachment: Tribal Council Resolution No. 106-20	Thank you for your comment. The co-lead agencies considered requests to extend the public comment period. This NEPA process included a wide array of cooperating agencies whose close involvement throughout the process allowed the co-lead agencies to incorporate feedback. Given the broad range of comments received and the extensive Federal and non-Federal participation in the overall process as well as the level of public engagement in the six virtual public meetings in the region, the co-lead agencies determined that an extension was not warranted and that the 45-day public comment period was adequate consistent with NEPA regulations. On April 9, the CRSO EIS website was updated to inform the public that they should plan to submit comments by the close of the comment period.
6924	1	bertbowler@mac.com	N/A	he Federal Draft Environmental Impact Statement (DEIS) for the Columbia River System Operation (CRSO) is seriously flawed. The Preferred Alternative (PA) if adopted will diminish the persistence of Snake River wild salmon and steelhead that have survived for thousands of years. Returns of several hundred thousand were common in the 1950s -1960s reinforced by Idahos plentiful quality habitat. Wild Snake River salmon and steelhead are running out of time. Twenty years since the last EIS is too long. The Northwest deserves a final EIS/ROD with a more aggressive salmon restoration plan and mitigation strategy protecting other river users. A process that accurately schedules removing the four lower Snake River dams using an adaptive management policy is defensible.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3, which includes breaching the four lower Snake River dams. The Preferred Alternative also meets most other EIS objectives including those for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS, the co-lead agencies did not identify MO3 because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. The Preferred Alternative includes several new mitigation measures as well as continuing long-standing mitigation programs managed, funded, or implemented by the co-lead agencies. he co-lead agencies recognize the desire to continue the conversation across the region about the future of salmon recovery, affordable and reliable clean electricity, tribal perspectives, and economic vitality for the many people who depend on the CRS for their way of life. The co-lead agencies will be active participants in regional discussions and solutions for mitigating the effects of the CRS and achieving broader recovery objectives. The Preferred Alternative for long-term system operations, maintenance and configuration of the CRS presented in the Draft EIS is based on todays conditions and environment. Its also important to note that technology is quickly changing, as is the regions dynamic environment and energy market, and the region needs to consider new information and adaptively manage resources. The co-lead agencies recognize that no matter which alternative in the CRSO Draft EIS is identified as the Preferred Alternative, the identification would likely draw criticism from some stakeholders or sovereigns. The region includes stakeholders, sovereigns, and other interested parties with diverse and varied opinions on these very important topics, and many are strong in the belief that their perspective is the best path forward. It is important to keep in mind that factors, both human-caused and natural, that are outside the responsibility and control of the co-lead Federal agencies also contribute to the decline and recovery of fish, and will continue to strongly influence fish and their habitat. Salmon and steelhead have been adversely affected in the Columbia River Basin over the last century by many activities including human population growth, urbanization, introduction of exotic species, overfishing, development of cities and other land uses in the floodplains, water diversions for all purposes, dams, mining, farming, ranching, logging, hatchery production, predation, ocean conditions, and loss of habitat. Operation, configuration and maintenance of the Columbia River System requires mitigation for its effects, and the EIS is not intended or required to serve as an overall salmon recovery plan for the region. All of the human-caused impacts that have contributed to the decline of fish, and how the region should properly and effectively address those impacts, should be part of the continued regional discussion. The co-lead agencies look forward to participating in that discussion.
6925	1	Citizenthad@gmail.com	N/A	WREC concurs with the comments submitted by the National Rural Electric Cooperative Association (NRECA), the Public Power Council (PPC), Northwest Requirements Utilities (NRU) and Northwest River Partners. We share their concerns as well. In addition, WREC is concerned that some of the socio-economic analysis seemed to focus on communities in proximity to the LSRD, possibly to the exclusion of more distant communities. While communities adjacent to the LSRD will certainly bear the brunt of any misguided effort to breech the LSRD, communities such as Pine Valley and Shanty Town, which are approximately 125 miles south of the Idaho-Nevada border will also be impacted by any rate increase that would be necessary to implement any of the other alternatives. WREC also serves West Wendover, Nevada and Wendover, Utah which are approximately 70 miles south of the Idaho-Nevada border.	The retail electricity rate estimates in Section 3.7.3, Chapter 7, and Appendix H, are for the entire Northwest region, not only for the locations around the lower Snake River dams. The figures under Residential Effects in Sections 3.7.3.3, 3.7.3.4, 3.7.3.5, 3.7.3.6, and Section 7.7.9 in the Draft EIS show generation by county, including Elko County in Nevada. Exhibit 1 in Appendix H contains a table of retail rate pressure for each alternative by county, also including Elko County. Note the figures of retail rate pressure in Chapter 5 of Appendix H were inadvertently mislabeled and out of order in the Draft EIS, but are corrected in the Final EIS. Please also see the co-lead agencies comment response to National Rural Electric Cooperative Association (NRECA), the Public Power Council (PPC), Northwest Requirements Utilities (NRU) and Northwest River Partners.
6926	1	ASIHcons@gmail.com	N/A	We have reviewed the Draft EIS and have concluded that the proposed alternatives fail to meet the objective of recovery of anadromous salmonids in the Columbia River basin. Specifically, we find the EIS analysis is fundamentally flawed based on: Inaccurate, selective and misleading use of data to assert that salmon and steelhead abundance is improving. o Analyses that selectively emphasize data from 1990-2015 and ignoring data from 1957 to 1990 hide, unintentionally or intentionally, massive declines in salmon and steelhead populations. o The EIS inappropriately combines salmon and steelhead return to Bonneville Dam from 1938-2019. Unless data are plotted separately by species and origin (hatchery vs. wild fish), the combined data lead to the false conclusion that returns are robust. Declines in wild fish abundance is hidden by including the numbers of hatchery fish.	The co-lead agencies disagree that information provided in the EIS can be characterized in the way this comment conveys. Based on the analysis of the Preferred Alternative, the co-lead agencies believe their actions will make a substantial contribution, but broad sense recovery goals are beyond the scope of this EIS which contemplates the effects associated with the operation and maintenance of the 14 CRS projects. The co-lead agencies used the best available science in the analysis of the CRSO EIS. Specific to salmon and steelhead, the agencies used both two primary modeling approaches which yielded a range of potential outcomes for the alternatives. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult (SAR) return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% (within the Northwest Power and Conservation Council's recovery targets for the region) as a result of the Preferred Alternative. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. The time span of the graphs mentioned in this comment were intended to show trends in fish populations since they were listed under the ESA; there was no intent to ignore previous data. Figure 3-111 on page 3-300 is neither inaccurate nor misleading. The title is "Combined Annual Returns of Salmon and Steelhead to Bonneville Dam 1938-2019." The caption reads: Figure 3-111. Combined Annual Salmon and Steelhead Returns (all species) to Bonneville dam from 1938-2019. These returns are a combination of hatchery and natural origin fish. (data Source: University of Washington-Data Access Real Time (DART) tool). This figure is part of a more general overview of anadromous fish in the study area. The later sections of the CRSO EIS do break out analyses and discussion by species and origin. The comment incorrectly implies that hatchery fish are not relevant to the CRSO EIS. However, hatchery-origin fish are very important to Tribal and sport harvest within the Columbia River Basin, and many hatchery programs are important supplementation to rebuilding natural populations. Further, the three co-lead agencies have legal requirements to produce hatchery fish as mitigation for components of the CRS.
6926	2	ASIHcons@gmail.com	N/A	o The economic and social analyses favor the port of Lewiston and minimize or ignore the tremendous recreation and traditional subsistence economies.	There are benefits and costs associated with operating the lower Snake River projects. The EIS evaluated beneficial and adverse effects across an array of resource areas including potential effects at the national, regional and local level; effects are monetized and quantified, where possible, and also described qualitatively. As is common in NEPA analyses, the beneficial and adverse effects of the alternatives are expressed as a variety of qualitative and quantitative environmental and economic metrics throughout the EIS to inform decision-making, including the effects of the alternatives on fish as detailed in Section 3.5. That the effects of the alternatives on fish are not expressed as monetized economic values does not mean that they were not considered in the context of the analysis. The EIS does not employ a cost-benefit framework for decision-making. Instead, the EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as the dam breaching alternative. However, the Preferred Alternative also meets most of the other objectives of the study for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. The effects of MO3 on recreation is described in Section 3.11.3.5 and on commercial fisheries is described in Section 3.15.3.5. The cultural significance and impacts of salmon and steelhead fisheries are described in the Ceremonial and Subsistence Fisheries subsection and the Social Importance of Commercial, Ceremonial and Subsistence Fisheries subsection of Section 3.15.2.1. Fisheries Tribal interests are described in Section 3.15.4 additional details regarding the economic significance of salmon and steelhead fisheries have been added to the recreation analysis (Section 3.11) including Tribal interests (Section 3.11.3.7). Most sections of Chapter 3 include a Tribal Interests Section at the end that attempts to summarize issues by topic. The EIS described the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. NMFS estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and

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					other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which is described qualitatively. For the effects on recreational fishing under MO3 (Section 3.11.3.5) along the lower Snake River below Lewiston, the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River) as an indicator for fishing visitation in this reach. The EIS describes that the visitation in the long-term in the lower Snake River, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting outfitting and tourism businesses in the region. The social welfare values and regional economic effects associated with recreational fishing under the MOs, as well as river recreation post dam breach under MO3, were not estimated because of the uncertainty and large range in visitation and consumer surplus values among users. For MO1, MO2, MO4, and the Preferred Alternative, the evaluation qualitatively describes the potential for effects associated with recreational fishing by referencing the potential effects on relevant fish populations, as described in Section 3.5. Fish modeling results vary for some of the alternatives, for example for the Preferred Alternative and MO4 (i.e., models show either beneficial or adverse effects to anadromous fish), so it is assumed that the potential changes in recreational fishing would follow these changes in fish abundance in the long-term.
6926	3	ASIHcons@gmail.com	N/A	Inaccurate statements about smolt survival, using a per dam survival metric, ignores the cumulative effects of delayed mortality and reservoir mortality. Overestimate of improvement in operations impacts on smolt to adult survival ratios (SARs) that result in a failure to meet the goal of 4% SAR survival. Missing information and incomplete or inadequate analyses that fail to represent the full range of alternatives, have no quantitative discussion of the effect of climate change on Snake River salmon and steelhead and understate the importance of maintaining wild populations. The 465 miles of the lower Snake and Columbia rivers to the ocean include a series of eight dams and reservoirs that create an almost continuous set of slack water reservoirs. Water travel times from Lower Granite to Bonneville Dam increased from 2 days to about 40 days. Many of the critical ecosystem features required for successful smolt migration have been lost, resulting in slower migration, increased stress, direct mortality and prolonged exposure to predators. Transit time to the sea for smolt migration has slowed from 2 days before mainstream dams were constructed, to an average of 20 days today. This increased travel time for out migration increases loss of smolts due to increased exposure to predation and compromises the necessary physiological changes that enable smolts to adapt to saltwater. The warmer impounded water often creates a thermal barrier to upstream migration. Sockeye Salmon are particularly sensitive to this warmer water. This belies the flaw in using the per dam survival metric. That approach claims >96% survival per dam; the Fish Passage Center (2019) reports that smolt survival from the Snake River to below Bonneville Dam averages about 50%. An estimated 76% of juvenile salmon that pass through the Columbia River hydrosystem died as a result of injury or stress incurred while migrating. The critical importance of SARs is well-recognized 80% of the variation in salmon survival is explained by SARs. It is linked to achieving NOAA interim survival and recovery standards in the 2000 FCRPS BIOP, is an established standard of the Northwest Power Planning Council Fish and Wildlife Program and was recognized by the Independent Science advisory Board as a 1st-order objective for restoring stocks. The recognized standard for survival is a mean SAR of 4% and range of 2%-6%. SARs ranged from 3.5 6.5% in the 1960s when only four dams existed. By the time the eight dams were completed, SARs had fallen below 1% on average. A natural river option is the only alternative that can attain recovery standards providing 2-6% smolt to adult survival ratios (SARs) [IDFG 1997, Limiting Factors and Recovery Options for Anadromous Fish Stocks in Idaho]. The recovery objectives identify a SAR of 2% associated with about 35% of historical productivity (1950-60s BEFORE completion of most of the federal dams), 4% SAR with about 70% of historical productivity and 6% SAR with about 105% historical productivity. The current SARs of Snake River Spring/Summer Chinook average about 1% or less, a ratio consistent with continued population declines. This is in stark contrast with mean SARs of John Day River Chinook (above 3 dams) of about 4% and Yakima River Chinook (above 4 dams) of about 2.5% recently. Snake River SARs are below 1%. Wild Steelhead SARs show a similar pattern. Migrating fish in the Columbia River basin, whether they spawn in the John Day, Yakima, or Snake River experience the same treaty and non-treaty fisheries, pinniped predation, and ocean conditions; the primary differences among them are the number of dams they pass. A 4-fold increase in SARs will be necessary to meet survival standards and reduce extirpation risks for Snake River stocks. We conclude that the more dams and reservoirs migrating fish need to negotiate, the greater the toll on anadromous fish. The final EIS must evaluate each alternative based on its ability to substantially improve SARs and meet the 4% goal.	Travel times under the No Action Alternative and MO1-4 are shown in Appendix E. Under MO3, the CSS model estimates travel time from LGR-BON would be 11-12.5 days for steelhead and Chinook. The per-dam survival estimates are multiplicative in nature and the improvements in at-dam survival over the past 10 years has been shown to contribute to improvements in total in-river serval of smolts migrating through the CRS especially for steelhead. These figures were used to provide context in the Affected Environment Section. The focus of this EIS and the analysis presented throughout this EIS in Chapters 3.5 and 7 utilized total in-river survival, travel time, powerhouse passage rates, and Smolt-to-Adult return rates. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the Columbia River System. That call, however, is ultimately the role of NMFS and the USFWS. It should be noted that the 4% average SAR target referenced refers to the Northwest Power and Conservation Councils target for broad-sense recovery and is separate and distinct from the obligations of any single entity or in this case a requirement to be met solely by the co-lead agencies. Just as the Councils fish and wildlife program encompasses both federal and non-federal stakeholders in the Columbia Basin, the Councils recovery goals are shared by many parties. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% (within the Council's recovery targets for the region) as a result of the Preferred Alternative. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. These improvements are expected to benefit all of the stocks listed in this comment if latent mortality is reduced through higher spill levels. Through on-going regional climate change studies and work, the co-lead agencies evaluated potential shifts in precipitation and temperature patterns and resulting changes in unregulated Columbia Basin streamflow timing and volumes. The evaluation consisted of the full range of the latest climate change projections developed using multiple global climate models, emissions scenarios, downscaling techniques, and hydrologic models. Details of this evaluation are in Chapter 4 of the EIS. This information was used to describe the potential effects (both beneficial and adverse) on the river systems and resources due to potential changes in climate for the Preferred Alternative. With the uncertainty associated with climate change, it is important that we establish methods for adapting and increasing flexibility on the system. There are measures in the Preferred Alternative that are adaptive to emerging changes in climate and ensure there is flexibility to respond to future changes. One example of this is the habitat restoration program that counters increased stream temperature with deeper pools and more shaded areas.
6926	4	ASIHcons@gmail.com	N/A	The No Action Alternative is unacceptable. SARs are so far below the threshold for survival that extinction is almost assured. Multiple Objective Alternative 1 (spill and transport) will not meet minimum recovery standards. Multiple Objective Alternative 2 maximizes power production and degrade conditions for salmon and steelhead populations, further accelerating the path to extinction. Multiple Objective Alternative 3 would breach the four Lower Snake River dams. Models suggest that salmon and steelhead populations would increase approximately 170%. Multiple Objective Alternative 4 increases spill throughout the spring/summer smolt out-migration. Models suggest population increases between 70-75 %. The Preferred Alternative uses flexible spill but fails to achieve recovery. Even the most optimistic projections fail to meet the 2% SAR for Spring Chinook. It is not satisfactory.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy designated critical habitat. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the Columbia River System. Recovery of ESA species is the purview of NMFS and the US Fish and Wildlife Service. This EIS has been developed in consultation with National Marine Fisheries Service and USFWS to minimize impacts to affected ESA species and their habitats. The 2% SAR target referenced in this comment refers to the Northwest Power and Conservation Councils (Council) target for broad-sense recovery and is separate and distinct from the obligations of any single entity or in this case a requirement to be met solely by the co-lead agencies. Just as the Councils fish and wildlife program encompasses both Federal and non-Federal stakeholders in the Columbia Basin, the Councils recovery goals are shared by many parties. The spill operation for juvenile fish passage is a significant departure from previous operations, so much so that the Washington and Oregon state water quality standards had to be changed to implement the new spill regime. Based on the fish analysis in Section 7.7.4 for the Preferred Alternative, it will make a meaningful contribution towards recovery, but the Councils broad sense recovery goals are beyond the scope of this EIS which is limited to those effects associated with the operation and maintenance of the 14 CRS projects. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% (the lower end of Northwest Power and Conservation Council's recovery targets for the region) as a result of the Preferred Alternative, as a result of the Preferred Alternative increasing SAR from 2.0% to 2.7% for Chinook, a 35% relative increase. The NMFS COMPASS and Lifecycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. To address uncertainty highlighted by the two models, the Preferred Alternative includes working with regional sovereigns to develop a study that assess the effectiveness of the increased spill regime on adult returns as well as assessment and management of adverse unintended consequences, such as long delays of adult migrants, or TDG-related mortality of juvenile migrants. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information.
6927	1	N/A	N/A	Specific Comments The CRSO DEIS was designed to deceive the public and decision-makers. The following information essential to decision-making was concealed. Federal District Court Judge Simon ordered a National Environmental Policy Act analysis of, in effect, removing the four lower Snake River dams. The COE previously produced a NEPA analysis that concluded, in effect, the dams were salmon doomsday devices; they could not be fixed to restore salmon, only removal would accomplish that. Instead of doing what the court ordered, the agencies pulled their usual con of hiding the four lower Snake River dams in the forest of an analysis of the entire Federal Columbia River Power System. The agencies compounded the deception, and fatally corrupted their analysis, by using as a premise of the DEIS that the dams authorized purposes must be met. This is not required by NEPA, and would defeat its intent of a wide-open and comprehensive evaluation of alternative ways to achieve the objective of restoring Snake River salmon. The DEIS did not reveal that the authorizing legislation for the dams required that they provide safe passage for Snake River salmon. The DEIS did not reveal that in 1946, decades before the first dam was built, the U.S. Fish and Wildlife Service warned the COE that if the dams were built they would pose an existential threat to Snake River salmon. The DEIS did not reveal that the COE also ignored the catastrophic failure of fish passage facilities just upstream at Idaho Power Company's three-dam Hells Canyon Project built in the late 1950s-early 1960s. There, as predicted, juvenile salmon were unable to pass through the reservoirs; salmon and steelhead were made extinct in the vast upper Snake River Basin. The DEIS did not reveal that the COE design for the lower Snake River dams negligently made no provision whatsoever for juvenile salmon to migrate through the reservoirs and past the dams. The DEIS does not reveal that the preferred alternative does not comport with the following laws, in addition to the legislation authorizing their construction: – Fish and Wildlife Coordination Act. –Laws establishing Snake River Basin Wilderness Areas, Wild and Scenic Rivers, National Recreation Areas and federal land management policies. Within the Snake River Basin is the largest contiguous wilderness and roadless land complex and largest expanse of pristine and near pristine salmon habitat in the coterminous United States. This 14 million-acre area includes more than 4.4 million acres in 6 Wilderness Areas, more than 700 miles in 12 Wild and Scenic Rivers, and nearly 1 million acres within 2 National Recreation Areas. Protecting wild salmon was a primary purpose of the laws creating all these areas. –Lower Snake River Compensation Plan, a contract obligating the federal government to replace with hatchery fish the wild fish estimated (corruptly underestimated) that would be lost due to construction of the dams. –The Pacific Northwest Electric Power Planning and Conservation Act of 1980 (Northwest Power Act). The Power Act requires that Snake River salmon be restored. Salmon were to get equitable treatment with other uses of the Federal Columbia River Power System.	Chapter 8 demonstrates the co-lead agencies' compliance with applicable laws, including the Fish and Wildlife Coordination Act, Wild and Scenic Rivers and the Northwest Power Act. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA listed species. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-lead agencies numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as the MO3 which includes the dam breaching measure. The Preferred Alternative also meets the EIS objectives for: resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS the co-lead agencies did not identify MO3 because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. The Northwest Power Act does not require restoration of Snake River salmon, as the comment suggests, or of any other fish or wildlife. While the Northwest Power and Conservation Council and others, use terms such as rebuilding and restoring when discussing fish and wildlife mitigation, the Northwest Power Acts legal mandates do not. Instead, the Act consistently uses the terms protect, mitigate and enhance when discussing fish and wildlife. 16 U.S.C. 839 b(h)(1), (2), (5), (10), and (11). For example, a purpose of the Act is to protect, mitigate and enhance the fish and wildlife, including related spawning grounds and habitat, of the Columbia River and its tributaries, particularly anadromous fish which are of significant importance to the social and economic well-being of the Pacific Northwest and the Nation and which are dependent on suitable environmental conditions substantially obtainable from the management and operation of Federal Columbia River Power System and other power generating facilities on the Columbia River and its tributaries. 16 U.S.C. 839(6). This language is also reflected in the Purpose and Need Statement for the EIS. Under the Act, the co-lead agencies responsibilities to protect, mitigate, and enhance fish and wildlife apply to the effects of development, management, and operation of the federal dams, including the CRS, 1/ but not to more general restoration of fish and wildlife, which implicates numerous other factors including non-federal dams, population growth, habitat degradation, harvest, and ocean and climate conditions. The comment is correct that the Northwest Power Acts equitable treatment provision directs the co-lead agencies management and operation of the Columbia River System to provide equitable treatment for fish and wildlife with the other authorized purposes for which the system is managed, such as flood risk management, hydropower generation, irrigation, navigation, and recreation. See 16 U.S.C. 839b(h)(11)(A)(i). The co-lead agencies provide fish and wildlife with equitable treatment on a system-wide basis. See NW. Envtl. Def. Ctr. v. Bonneville Power Admin., 117 F.3d 1520, 1533-34 (9th Cir. 1997) (While each power marketing action that affects the system implicates the equitable treatment provisions, Bonneville may properly exercise its obligation by insuring equitable treatment for fish on a systemwide basis.); Confederated Tribes of the Umatilla Indian Reservation v. Bonneville Power Admin., 342 F.3d 924, 931 (9th Cir. 2003) (The equitable mandate of [the Northwest Power Act] does not require every Bonneville decision to treat fish and wildlife equitably. For example, Bonneville may make some decisions that place power above fish, so long as on the while, it treats fish on par with power.). Through this EIS process, the co-lead agencies have considered management and operation of the Columbia River System for its multiple authorized purposes. CSS analysis of the Preferred Alternative predicts an increase in smolt-to-adult return rates as compared to the no action alternative. The co-lead agencies inclusion of alternatives MO3 and MO4 which are focused on benefitting fish, plus the incorporation of measures specifically designed for improved benefits to fish and wildlife, as balanced against other purposes, reflects equitable treatment of fish and wildlife consistent with the Northwest Power Act. Regarding the Lower Snake River Compensation Plan, Bonneville directly funds the U.S. Fish and Wildlife Services annual operations and maintenance of the Lower Snake River Compensation Plan (LSRCP). Congress authorized the LSRCP as part of the Water Resources Development Act of 1976 (90 Stat. 2917) to offset fish and wildlife losses caused by construction and operation of the four lower Snake River dams. A major component of the authorized plan was the design and construction of fish hatcheries and satellite facilities. The LSRCP is administered through the USFWS. The LSRCP hatcheries and satellite facilities produce and release more than 19 million salmon, steelhead and rainbow trout each year as part of the programs mitigation responsibility. Upon the breaching of the lower Snake River dams as analyzed in MO3, Bonneville would no longer have an obligation to fund US Fish and Wildlife Service for the operations and maintenance of the LSRCP facilities. Bonneville's funding authority is directly tied to the operation of the LSR dams. The co-lead agencies also recognize that there would be transitional needs that would be addressed in the additional mitigation measures for MO3 discussed in Chapter 5. The co-lead agencies, note as well that there are other hatcheries in the Snake River basin that would continue to produce fish not tied to LSRCP. Bonneville would continue to fund operation and maintenance of the LSRCP under all of the other alternatives, including the Preferred Alternative. 1/ See 16 U.S.C. 839b(h)(10)(A); 839b(h)(11)(A).

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6927	2	N/A	N/A	The preferred alternative put forth in the DEIS is merely more of the agencies past fanatical betrayal of the public trust, dressed up in the rouge of balance and the mascara of adaptive management, what in August 2011 U.S. District Court Judge James Redden characterized as . . . a cynical and transparent attempt to avoid responsibility for the decline of listed Columbia and Snake River salmon and steelhead. The agencies have succeeded in driving Snake River salmon to the cusp of extinction. The DEIS makes it clear they intend to finish the job.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the Columbia River System. Recovery of ESA species is the purview of NMFS and the US Fish and Wildlife Service. This EIS has been developed in consultation with National Marine Fisheries Service and USFWS to minimize impacts to affected ESA species and their habitats. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% (the lower end of Northwest Power and Conservation Council's recovery targets for the region) as a result of the Preferred Alternative, as a result of the Preferred Alternative increasing SAR from 2.0% to 2.7% for Chinook, a 35% relative increase. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. To address uncertainty highlighted by the two models, the Preferred Alternative includes working with regional sovereigns to develop a study that assess the effectiveness of the increased spill regime on adult returns as well as assessment and management of adverse unintended consequences, such as long delays of adult migrants, or TDG-related mortality of juvenile migrants. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information. The Preferred Alternative will make a meaningful contribution towards recovery.
6929	1	Chandra Ferrari; chandra.ferrari@tu.org	Trout Unlimited	The DEIS does not meet the legal requirements of NEPA. The Action Agencies prepared this DEIS to review and update operations, maintenance, and configuration of the 14 CRS multiple purpose dams and related facilities. DEIS, Executive Summary, p.7. Section 101 of NEPA declares a broad national commitment to protecting and promoting environmental quality.5 In furtherance of this commitment, NEPA requires federal agencies to analyze the environmental impact of their proposed actions by preparing environmental impact statements for actions significantly affecting the environment.6 The purpose of this requirement is to assure that agencies take a hard look at environmental consequences, and provide for broad dissemination of relevant environmental information.7 All impacts must be considered, whether direct, indirect, or cumulative, so long as they are reasonably foreseeable.8 The DEIS is legally insufficient because it: a) fails to clearly articulate what best available science is informing its effects determinations and selection of a preferred alternative; b) fails to adequately analyze the impacts and benefits of the proposed alternatives on aquatic resources and c) articulates a preferred alternative that is likely to jeopardize the continued existence and recovery of listed salmonids and is therefore inconsistent with existing laws.	NEPA requires agencies to consider the significant environmental consequences of their proposed actions and inform the public about their decision making. NEPA also requires that the agencies look at a reasonable range of alternatives that can meet the purpose and need of the action. To meet this requirement of NEPA, after evaluating scoping comments from the public, the co-lead agencies collaborated with cooperating agencies in teams of technical experts through several iterations to get to the range of alternatives. The Draft EIS considered the environmental consequences of the alternatives, including impacts to aquatic resources and disclosed to the public those consequences. The Draft EIS meets the requirements of NEPA, as outlined in 42 U.S.C. 4331, et seq., 40 C.F.R. Parts 1500 1508 (CEQs regulations for implementing NEPA), and co-lead agency specific NEPA regulations. The effects analysis of each resource is based on current, high quality information in Chapters 3, 4, 5, 6 and Chapter 7. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Recovery is a broader regional goal and is above and beyond the co-lead agencies' obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the Columbia River System. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. Finally, the NMFS and USFWS Biological Opinions demonstrate that CRS operations, maintenance and configuration do not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat and are included as an appendix to the EIS.
6929	2	Chandra Ferrari; chandra.ferrari@tu.org	Trout Unlimited	The Vague Purpose and Need Statement and Accompanying Objectives Guiding the DEIS Analysis Enable the Selection of a Legally Inadequate Preferred Alternative 5 Robertson v. Methow Valley Citizens Council, 490 U.S. 332, 348 (1989) (Robertson) (citing 42 U.S.C. 4331). 6 42 U.S.C. 4332(2)(C). 7 Biodiversity Conservation Alliance v. BLM, 404 F.Supp.2d 212, 216 (D.D.C.2005). 8 See 42 U.S.C. 4332(2)(C); 40 C.F.R. 1508.7, 1508.8. April 13, 2020 Page 5 The vague objectives accompanying the purpose and need statement misguide the DEIS analysis from the beginning resulting in selection of a preferred alternative that is inconsistent with ESA requirements and the direction articulated by the National Wildlife Federation v. National Marine Fisheries Service court (hereinafter Court).9 NEPA requires federal agencies to articulate the purpose and need for a proposed action for which environmental review is required.10 The articulation of a purpose and need statement is critical for a properly framed and robust alternatives analysis– the heart of NEPA – because only a sufficiently broad statement will allow full development of an adequate range of alternatives which enables the EIS to provide a clear basis for choice among options by the decision-maker and the public.11 The purpose and need statement should be drafted in such a manner to not curtail a full assessment of alternatives.12 Purpose and need statements are often accompanied by objectives. Importantly, an agency may not define the objectives of its action in terms so unreasonably narrow that only one alternative from among the environmentally benign ones in the agencys power would accomplish the goals of the action.13 The Action Agencies declined the opportunity to articulate a broad purpose and need statement that would facilitate a robust, comprehensive analysis of alternative actions that could offset the impacts of the FCRPS, enable timely recovery of Columbia Basin salmon and steelhead, and be responsive to the deficiencies of the 2016 biological opinion as articulated in Court decision. Instead, the Action Agencies purpose and need statement focuses on reviewing and updating the management of the [FCRPS] System, including evaluating measures to avoid, offset, or minimize impacts to resources affected by the management of the System while ensuring that the prospective management of the System is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of designated critical habitat. DEIS, Executive Summary, p. 16. 9 National Wildlife Federation v. National Marine Fisheries Service, 184 F.Supp.3d 861 (D. Or. 2016). 10 40 CFR 1502.13. 11 See, e.g., Simmons v. U.S. Army Corps, 120 F.3d 664 (7th Cir. 1997); Davis v. Mineta, 302 F.3d 1104, 1118 (10th Cir. 2002); see also 40 CFR 1502.14. 12City of Carmel-by-the-sea v. United Dept of Transp., 123 F.3d 1142, 1155 (9th Cir. 1997). 13 Friends of Southeasts Future v. Morrison, 153 F. 3d 1059, 1066 (9th Cir. 1998) (quoting Citizens Against Burlington, Inc. v. Busey, 938 F. 3d 190, 196 (D.C. Cir. 1991). April 13, 2020 Page 6 In effect, the Action Agencies have assumed the lowest possible bar for species protection by indicating that the purpose of the DEIS is to comply with ESA and then interpreting that obligation throughout the document in an unacceptably narrow manner. Accordingly, there is little acknowledgment that, as part of their obligation under ESA, the DEIS must analyze whether or not proposed actions impede listed species prospects for recovery. The Action Agencies could have provided needed direction and clarification as part of the purpose and needs objectives but declined that opportunity as well as noted in more detail below. Accordingly, the DEIS does not articulate a plan that will help ensure both the survival and recovery of listed salmon and steelhead. Nor does it attempt to reach bolder goals that will rebuild abundant, resilient and harvestable levels of salmon and steelhead which is the goal the region is seeking to attain, as confirmed by the Columbia Basin Partnership.14 With such a low bar for species protection guiding its analysis, the DEIS leaves itself little room for uncertainty or error before running afoul of both NEPA and ESA requirements and the Court decision.15 Unfortunately, as detailed infra, the DEIS conclusions and analysis are underpinned by significant uncertainty providing little assurance that the Preferred Alternative will achieve even the low bar it has set for listed salmonids. a. The stated objective of improving fish populations is insufficient to meet applicable laws, including the Endangered Species Act. TU appreciates that the DEIS includes objectives to identify how the Action Agencies aim to achieve their purpose and need. DEIS, Executive Summary, p. 17. When clearly constructed, project objectives allow a measurable mechanism for decision-makers and the public to assess whether and to what degree the stated alternatives meet the purpose and need. In particular, objectives can help quantify how project alternatives will fulfill ESA obligations and further species recovery objectives. Regrettably, the DEIS objectives, especially for fish species, are too vague to be meaningful. This, in combination with the fact that objectives for other non-fish purposes (i.e., power supply) 14 See Phase 1 Recommendations, Columbia Basin Partnership available at https://www.fisheries.noaa.gov/west-coast/partners/columbia-basin-partnership-task-force. 15 National Wildlife Federation v. National Marine Fisheries Service, 184 F.Supp.3d 861 (D. Or. 2016). April 13, 2020 Page 7 contain more detail, enables an unbalanced DEIS analysis where more environmentally robust alternatives cannot meet the objectives for other purposes yet alternatives with more robust measures for non-fish purposes can still meet the fish objectives with minimal environmental safeguards. For instance, the DEIS contains objectives to improve adult and juvenile salmon and resident fish populations. DEIS, Executive Summary, p. 19. No definition, information or metrics are provided regarded what constitutes improvement. Without direction or metrics to provide meaning to this term, the DEIS analysis appears to be mostly guided by the objective to comply with environmental laws. DEIS, Executive Summary, p. 18. This objective, of course, requires compliance with ESA but does not include any metrics to inform how the Action Agencies will determine that proposed actions are meeting both the survival and recovery prongs of ESA. Section 7 of the ESA requires federal agencies to "insure that any action authorized, funded, or carried out by such agency ... is not likely to jeopardize the continued existence of any endangered species ...."16 To "jeopardize the continued existence of" a species means "to engage in an action that reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species."17 The survival and recovery aspects of this obligation are distinct.18 A species may be jeopardized even "if there is no appreciable reduction of survival odds" because "a species can often cling to survival even when recovery is far out of reach."19 In other words, proposed actions cannot appreciably impede species survival or recovery prospects.20 Accordingly, the Action Agencies must analyze project effects on recovery as well as survival.21 16 16 U.S.C. 1536(a)(2). 17 50 C.F.R. 402.02 (emphasis added). 18 While they are not necessarily mutually exclusive, recovery and jeopardy are two distinct concepts. Cascadia Wildlands v. Thrailkill, 806 F.3d 1234, 1244 (9th Cir. 2015). In making a jeopardy determination, fish agencies are required to assess both the survival and recovery of a listed species. 50 C.F.R. 402.02. The agency is not permitted to resolve the difficulty of distinguishing between survival and recovery by ignoring recovery needs and focusing entirely on survival. Natl Wildlife Fedn, 524 F.3d at 932. 19 See National Wildlife Federation v. National Marine Fisheries Service, 524 F. 3d at 931. 20 Id. at 932. 21 Id. April 13, 2020 Page 8 Unfortunately, the DEIS does not provide sufficient metrics to track whether and in what magnitude and timeframe the alternatives assist the species to hit survival or recovery targets. Such targets (both high end recovery goals and numeric goals required to remove ESA protections for Columbia stocks) have already been articulated by the Columbia Basin Partnership and should have informed this effort. Without targets and metrics, the sufficiency of the alternatives in meeting legal requirements under the ESA and other federal laws cannot be determined. b. The purpose and need facilitates a DEIS analysis that does not conform to the Courts directives in National Wildlife Federation v. National Marine Fisheries Service, 184 F.Supp.3d 861 (D. Or. 2016). The Action Agencies were compelled into the NEPA process pursuant to the Federal District Courts directives in National Wildlife Federation v. National Marine Fisheries Service, 184 F. Supp.3d 861 (D. Or. 2016). The Court ordered that they conduct a NEPA analysis before they adopt and implement a NMFS biological opinion for listed Columbia River	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA listed species. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-lead agencies numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3, which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets the EIS objectives for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams, because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. Additionally, the co-lead agencies evaluated many different flow and spill levels and as well as seasonal patterns for when flows are enhanced or reduced. The Preferred Alternative represents an operation that provides a balanced approach between spring and summer flow and spill levels to benefit salmon and steelhead, while also providing benefits to resident fish in the upper portion of the Columbia Basin. Both human-caused and natural factors that are outside the responsibility and control of the co-lead Federal agencies, also contribute to the decline and recovery of ESA-listed species, and would continue to strongly influence fish and their habitat. Salmon and steelhead have been adversely affected in the Columbia River Basin over the last century by many activities including human population growth, urbanization, introduction of exotic species, overfishing, development of cities and other land uses in the floodplains, water diversions for all purposes, dams, mining, farming, ranching, logging, hatchery production, predation, ocean conditions, and loss of habitat. Operation, configuration and maintenance of the CRS requires mitigation for its effects, and the EIS is not intended or required to serve as an overall salmon recovery plan for the region. Recovery of ESA-listed salmon is outside of the authority of the co-lead agencies, and was not an objective of this EIS. Recovery of ESA species is the purview of NMFS and the US Fish and Wildlife Service. This EIS has been developed in consultation with National Marine Fisheries Service and USFWS to minimize impacts to affected ESA species and their habitats. With respect to the Preferred Alternative, the fish analysis in Section 7.7.4 shows that it will provide substantial benefits to ESA-listed salmon and steelhead, which can help contribute to broader recovery goals. Finally, the NMFS and USFWS Biological Opinions demonstrate that CRS operations, maintenance and configuration do not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat and are included as an appendix to the EIS.

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				salmon and steelhead. Supporting its order, the Court noted: For more than 20 years, NOAA Fisheries, the Corps, and BOR have ignored the admonishments of Judge Marsh and Judge Redden to consider more aggressive changes to the FCRPS to save the imperiled listed species. The agencies instead continued to focus on essentially the same approach to saving the listed speciesminimizing hydro mitigation efforts and maximizing habitat restoration. Despite billions of dollars spent on these efforts, the listed species continue to be in a perilous state. One of the benefits of a NEPA analysis, which requires that all reasonable alternatives be analyzed, is that it allows innovative solutions to be considered and may finally be able to break through any bureaucratic logjam that maintains the status quo. The agencies, public, and public official will be able to evaluate the costs and benefits of various alternatives. The FCRPS remains a system that cries out for a new approach. A NEPA process may elucidate an approach that will finally move the listed species out of peril. National Wildlife Federation v. National Marine Fisheries Service, 184 F.Supp.3d at 876. The Action Agencies indicate that the DEIS is intended to be responsive to the Courts direction. The co-lead agencies assessment also addressed the need to respond to the Opinion and Order issued by the U.S. District Court for the District of Oregon to evaluate how the system can be operated in compliance with Section 7(a)(2) of the ESA. April 13, 2020 Page 9 DEIS, p. 7-3 However, the Action Agencies did not embrace the direction of the Court when structuring the DEIS analysis around a purpose and need statement and accompanying objectives that effectively ensured that the same unproductive path of the previous plans (which were all rejected in federal court) would persist without measures adequate to meet ESA and other legal obligations. Ensuring that the survival and recovery of ESA-listed anadromous fish species is not appreciably reduced by the FRCPS should have been the foundation for the DEIS purpose and need statement and its objectives. The Court recognized the value of objectives, particularly to identify whether and how actions meet ESA obligations.22 Specifically, the Court noted that without metrics tied to any estimated recovery abundance levels and the timeframe needed to achieve those levels, even roughly it cannot be rationally concluded that an alternative will be sufficient to avoid appreciably reducing a species chance of recovery.23 The Court also emphasized the particular importance of metrics when encountering species with low abundance levels recommending the identification of any metric or goal that considers whether the incremental improvements to the currently low abundance levels [of listed fish populations] are sufficient to avoid creating a "new risk of harm" by decreasing the chances of recovery of the listed species.24 The Court further suggested that an analysis of Viable Salmonid Populations (VSP) parameters such actual abundance, spatial structure and diversity should inform a jeopardy analysis.25 As noted above, however, the purpose and need objectives do not identify any metrics that can enable the Action Agencies and members of the public to determine whether the proposed actions meet ESA standards or otherwise benefit fish populations. Instead, vague objectives unmoored to the ESAs legal requirements and fish requirements in other federal laws, including 22 Nat'l Wildlife Fed'n v. Nat'l Marine Fisheries Serv., 184 F. Supp. 3d at 892. 23 Id. at 894. 24 Id. at 892. 25 Id. at 887-890; See also McElhany, P., M.H. Ruckelshaus, M.J. Ford, T.C. Wainwright, and E.P. Bjorkstedt. 2000. Viable salmonid populations and the recovery of evolutionarily significant units. U.S. Dept. Commer., NOAA Tech. Memo. NMFSNWFSC-42, 156 p (identifying four broad categories for VSP parameters: diversity, spatial structure, abundance, and productivity. These factors have been identified as a means to assess populations, establish delisting goals, and provide guidelines for relating viability at the population level and broader levels.) April 13, 2020 Page 10 treaties with Native American tribes, results in a preferred alternative that does little more than preserve the status quo; an outcome which is directly contrary to the Courts direction.	
6929	3	Chandra Ferrari; chandra.ferrari@tu.org	Trout Unlimited	The DEIS Effects Analysis for Aquatic Resources is Incomplete and Unclear Under NEPA, the analysis in an EIS must consider direct, indirect, and cumulative effects of the proposed alternatives. Effects include ecological (such as the effects on natural resources and on the components, structures, and functioning of affected ecosystems), aesthetic, historic, cultural, economic, social, or health, whether direct, indirect, or cumulative. 40 C.F.R. 1508.8. Unfortunately, the DEIS effects analysis is insufficient because of its reliance on multiple, sometimes conflicting, modeling tools that fail to adequately capture the alternatives range of impacts, including the beneficial impacts of LSDR included in Multiple Objective (MO) Alternative 3. TUs specific comments on the DEIS effects analysis are set forth below. a. The DEIS fails to disclose model limitations and does not adequately explain how divergent model results are used to evaluate alternatives The DEIS uses quantitative results from COMPASS, CSS and the Life Cycle Model (LCM) to predict juvenile and adult survival metrics for focus populations of salmon and steelhead. DEIS, p. 3-358. The DEIS notes that, in some scenarios, the models produce very divergent predictions and attributes these to a few critical assumptions. While the models apply different assumptions and predict survival with different environmental variables on different temporal scales, the divergent predictions are the result of only a few critical assumptions. DEIS, p. 3-360. The most significant assumption being attribution of cause for changes in latent mortality. An EIS is required to clearly present information and analysis of the environmental consequences that form the scientific and analytic base for consideration of reasonable alternatives.26 In so doing, it must identify the methodologies used, and must explicitly refer to the scientific sources of information relied upon for the conclusions it sets forth. The DEIS clearly acknowledges and describes the divergent results of the different models. However, the DEIS is less clear about which of the results it is relying upon to reach its effects 26 40 C.F.R. sections 1502.14, 1502.16. April 13, 2020 Page 11 analysis conclusions. The DEIS notes that the models different assumptions produce different results related to the magnitude of benefit and significance of impact of all alternatives. Without additional analysis, inclusion of the results of both models mainly serves to highlight the inherent uncertainty that exists in terms of fish outcomes with implementation of any of the alternatives. The one exception is that all models unequivocally find the most improvement for salmon and steelhead with implementation of MO3, and, despite uncertainty as to the magnitude of benefit, MO3 is in fact the only alternative that ensures the continued existence of salmon and steelhead in the basin. Beyond divergent results, the models each have inherent limitations not adequately identified in the DEIS. For instance, the fact that the models focused only on a subset of stocks for which sufficient data were available. For most stocks, assessment was qualitative; based on application of general findings from empirical models without direct analysis. This shortcoming is not explored or described sufficiently in the DEIS. Additionally, germane questions posed by independent subject matter experts about the models limitations are not addressed. For example, the Independent Science Advisory Board (ISAB) questioned the insensitivity of COMPASS model to differential spill. The DEIS is unclear if this insensitivity, relative to the findings of the CSS model, is due to truly mechanistic/empirically based differences in impact of spill or a lack of variability in the data used to evaluate spill.27 Given the limitations and the wide range of results presented by the different models regarding effects to salmon and steelhead populations, it is necessary for the Action Agencies to disclose what specific model results (and other scientific information) they are relying upon to inform their effects conclusions and selection of a preferred alternative. To the extent there is significant uncertainty in the modeling, the DEIS must account for that by considering the impact on listed fish populations in the event that the worse-case outcome materializes and concrete actions or processes that are recommended to mitigate against that uncertainty. This analysis should be guided by a recognition that the Action Agencies ESA obligation to insure against a likelihood of jeopardy requires that the benefit of the doubt be given to listed species 27 Independent Scientific Advisory Board (ISAB). 2017. Review of NOAA Fisheries Interior Columbia Basin Life-Cycle Modeling (May 23, 2017 draft). Available at https://www.nwcouncil.org/fish-and-wildlife/fw-independent-advisory-committees/independent-scientific-advisory-board/review-of-noaa-fisheries-interior-columbia-basin-life-cycle-modeling-draft-report. April 13, 2020 Page 12 and the burden of protecting against risk and uncertainty on the agency. See Ariz. Cattle Growers Assn v. Salazar, 606 F. 3d 1160, 1166 (9 th Cir. 2010). b. The benefits of LSDR are not adequately captured in the DEIS NEPA requires the consideration of both beneficial and adverse effects of the proposed alternatives.28 It is absolutely essential to the NEPA process that the decisionmaker be provided with a detailed and careful analysis of the relative environmental merits and demerits of the proposed action and possible alternatives, a requirement that we have characterized as "the linchpin of the entire impact statement", Monroe County Conservation Society, Inc. v. Volpe,472 F.2d at 697-98. Natural Resources Defense Council v. Callaway, 524 F.2d 79, 92 (2d Cir. 1975) Despite this requirement, the DEIS does not adequately capture the benefits of MO3. As noted above, the divergent model results highlight the risk of uncertainty present from implementation of the alternatives, but neither is sufficient to capture the benefits of LSDR in MO3. For instance, the presented models do not address the following benefits of dam removal: (1) a much more productive food web (due to the shift to lotic habitat and influxes of marine-derived nutrients) providing increased food sources for salmon and steelhead; (2) habitat complexity and the water temperature, foraging and predator avoidance benefits it provides; (3) improved fitness of smolts due to the fact that they would not have to actively migrate and could ride the current through the lower Snake; (4) reductions in predator populations; 5) improvements in life history and genetic diversity that would be developed and maintained in a complex, free-flowing river; 28 40 C.F.R. 1502.23 ([T]he weighing of the merits and drawbacks of the various alternatives need not be displayed in a monetary cost-benefit analysis.); but see e.g., Sierra Club v. Sigler, 695 F.2d 957, 978-79 (5th Cir. 1983) (holding that NEPA mandates at least a broad, informal cost-benefit analysis, and so agencies must fully and accurately and objectively assess environmental, economic, and technical costs); Chelsea Neighborhood Assns v. U.S. Postal Serv., 516 F.2d 378, 387 (2d Cir. 1975) (NEPA, in effect, requires a broadly defined cost-benefit analysis of major federal activities.); Calvert Cliffs Coordinating Comm. v. U.S. Atomic Energy Commn, 449 F.2d 1109, 1113 (D.C. Cir. 1971) (NEPA mandates a rather finely tuned and systematic balancing analysis of environmental costs against economic and technical benefits); Natl Wildlife Fed. v. Marsh, 568 F. Supp. 985, 1000 (D.D.C. 1983) (The cost-benefit analysis of NEPA is concerned primarily with environmental costs. . . .). April 13, 2020 Page 13 and 6) positive and	The co-lead agencies used current high quality data and the best available science in the analysis of the CRSO EIS. Where data was not available to model effects to certain species, the co-lead agencies explained that lack of data and qualitatively evaluated the effects to those species. More detail on the analytical approach and modeling is captured in Appendix E. Specific to salmon and steelhead, the agencies used two primary modeling approaches which yielded a range of potential outcomes for the alternatives. Results from both models were used by the co-lead agencies to bookend potential effects of the No Action Alternative, the 4 MO's, and the Preferred Alternative. The results of third-party review, both the Corps' Independent Expert Peer Review as well as a recently released ISAB review of the CSS results have been included in the Final EIS and provide more technical review of these models. This review included the use of wild and hatchery fish for both the CSS and the NOAA models. Both modeling approaches consider the effect of transportation on both downstream juvenile migrants as well as returning adult salmon and steelhead. Initial review of the results of the peer review do not indicate fundamental flaws in either the CSS or NMFS approach and both models will continue to frame the potential outcomes associated with all MOs and the Preferred Alternative. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult return (SAR) rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% (within the Northwest Power and Conservation Council's recovery targets for the region) as a result of the Preferred Alternative. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. In relation to the comment that fish passing few dams have higher SARs and survival, the co-lead agencies follow the guidance from the Independent Science Advisory Board, and to not typically weigh performance of one population vs. another. It is difficult to isolate causative factors in those types of comparisons. The 2 to 6 percent Smolt-to-Adult return rates (SARs) target referenced in this comment refers to the Northwest Power and Conservation Councils (Council's) target for broad-sense recovery and is separate and distinct from the obligations of any single entity or in this case a requirement to be met solely by the co-lead agencies. Just as the Councils fish and wildlife program encompasses both Federal and non-Federal stakeholders in the Columbia River Basin, the Councils recovery goals are shared by many parties. Based on the analysis, the Preferred Alternative will make a substantial contribution, but the Councils broad sense recovery goals are beyond the scope of this EIS which focuses on the effects associated with the operation and maintenance of the 14 CRS projects. Regarding MO3 analysis, different models predict different long-term survival benefits to ESA listed species from dam breach, benefits that can contribute to recovery. Under the NMFS COMPASS model, juvenile Snake River Spring/Summer Chinook in-river survival would improve by 9.6% due to dam breach, which is a 19% relative increase over the No Action Alternative. The NMFS Life Cycle Model predicts an increase in adult returns of 13.6% for these same fish under MO3 (no latent mortality assumed) relative to the No Action Alternative (from 0.88% to 1%). Results for Snake River steelhead are similar (10% absolute improvement, or 23% relative juvenile survival increase - Smolt-to-Adult returns (SARs) for steelhead were not modeled). Under the CSS model, juvenile in-river survival for the Snake River Spring/Summer Chinook is predicted to improve by 10.4% due to dam breach, which is an 18% relative increase over the No Action Alternative, while SARs would increase by 115% (from 2% to 4.2% 0.02 to 0.042). The CSS model predicts that Snake River steelhead would see juvenile survival increase by 25.8% which is a 46% relative increase over the No Action Alternative. The CSS model also predicts that SAR increase by 177% (from 1.8% to 5%). Though differing in predictions, both modeling groups predict the alternative that includes the measure of dam breaching will have the highest benefit for several species of salmon and steelhead. One simply predicts adult return increases an order of magnitude higher than the other. The EIS concluded MO3 would have greater improvement to certain salmon species in the lower Snake River. It did not conclude there was greater certainty of that result in MO3 over any other alternative. The conclusions were based on the ranges predicted in two independent models that have different parameters and limitations in their predictive capabilities. Because of delayed response time in MO3, and the potential severity of the short term effects, MO3 would likely have the most substantial uncertainty in terms of beneficial effects. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets most other EIS objectives including those for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS, the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams, because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system.

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				interactive feedback loops that would continue to increase the synergistic benefits of each of these effects. Together, these benefits would be expected to provide a huge boost to Snake River stocks, but the benefits are not addressed in the modeling. This is a major omission. Even if, at this time, there is not sufficient empirical information to robustly capture these beneficial effects in the model, a comprehensive effort to capture them qualitatively should have been made. Additionally, assumptions were made in the models that likely serve to under-estimate the benefit of dam removal. For instance, the LCM model used information about smolt survival taken from free-flowing sections of the Snake River upstream of Lower Granite Reservoir and applied those to downstream reaches to evaluate smolt survival through a free-flowing river below the lower Snake dams. However, upstream migrants are smaller and less mature than a downstream fish would be and therefore downstream fish survival estimates from the LCM are likely under-estimated. c. The effects analysis fails to adequately analyze impacts to wild fish The DEIS notes that, in most cases, quantitative results from COMPASS, CSS, and the Life Cycle Model (LCM) are based on a combination of hatchery and natural origin fish. DEIS, p. 3-358. This fact, along with the existence of large numbers of hatchery fish in certain systems, such as the Snake, confound attempts to estimate impacts to wild fish from implementation of the alternatives. This is problematic as it serves to mask the imperiled status of ESA-listed wild stocks of salmon and steelhead, many of which are experiencing sharp downward population trends, and over-emphasizes solutions that are more tailored for hatchery fish. The Action Agencies must evaluate and disclose how the high number of hatchery fish effect the modeling results and conclusions with respect to wild fish. d. The models fail to adequately capture the full range of impacts from the alternatives and disclose relevant shortcomings NEPA requires the up-front disclosures of relevant shortcomings in the data or models relied upon in environmental documents. Lands Council v. Powell, 395 F. 3d 1019, 1032 (9th Cir. April 13, 2020 Page 14 2005). In some cases, the assumptions used in the models fail to capture the effects to fish populations from certain actions, yet these limitations are not disclosed. As one example, the LCM shows a benefit to MO4s proposal to barge late migrating smolts because such an action allows the smolts to avoid lethal high-water temperatures, particularly in the lower Columbia. However, the model does not account for the fact that adult salmon and steelhead (particularly steelhead) that were transported as juveniles often have a higher tendency to stray into rivers other than their river of origin. Additionally, the model does not contextualize its findings to note that smolt transportation programs that have occurred to date have not met regional SAR goals identified by the Northwest Power and Conservation Council (2% to 6% SAR range, average 4% for ESA-listed Snake and Columbia salmon and steelhead populations).29 For instance, Comparative Survival Study (CSS) data shows the 24 year average SAR of transported wild Snake River Spring Chinook was 0.98%, indicating not only are these fish not approaching the 2% SAR needed to ensure population maintenance, but are declining despite transport.30 Additionally, hatchery Spring Chinook originating from Dworshak, Sawtooth, Catherine Creek and Clearwater hatcheries, that were transported as juveniles all have SARs far less than 1% indicating population decline.31 As stated in the CSS 2019 Annual Report, [f]or Snake River populations, none of the passage routes (in-river or juvenile transportation) have provided SARs within the range of the NPCC objectives.32 Further, [u]nless a minimum level of survival is maintained for listed species sufficient for them to at least persist, the issue of the effect of transportation is moot.33 Accordingly, the benefits from this action (transport) are likely over-stated especially given the precarious state of many of the stocks. 29 Columbia River Basin Fish and Wildlife Program, Northwest Planning and Conservation Council, 2014 Program and Part II of 2020 Addendum available at https://www.nwcouncil.org/reports/2014-columbia-river-basin-fish-and-wildlife-program. 30 Mccann, J., et al. (2019). Comparative Survival Study of PIT-tagged Spring/Summer/Fall Chinook, Summer Steelhead, and Sockeye Comparative Survival Study Oversight Committee and Fish Passage Center. 2019 Annual Report available at http://www.fpc.org/documents/CSS/2019CSSAnnualReport.pdf. 31 Id. 32 Id. 33 Id. quoting Mundy et al. 1994 (an independent peer review of the transportation program in the early 1990s).	
6929	4	Chandra Ferrari; chandra.ferrari@tu.org	Trout Unlimited	iii. The DEIS Fails to Analyze Lower Snake River Compensation Plan Hatchery Impacts as a Direct Effect of the Project as Required by NEPA NEPA defines direct effects of a proposed action as those that are caused by the action and occur at the same time and place. 40 C.F.R. section 1508.8(a). The DEIS notes that the Lower Snake River Compensation Plan (LSRCP) was created to mitigate the loss of salmon and other fish and wildlife affected by the construction of the four Lower Snake River dams. The LSRCP required construction of eight fish hatcheries. Currently, Bonneville directly funds USFWS for the annual operation and maintenance of these LSRCP facilities. DEIS, p. 2-32. LSRCP hatcheries and satellite facilities produce and release more than 19 million salmon and steelhead as part of the programs mitigation responsibility. Id. The LSRCP is included as part of the No Project Alternative and the DEIS notes it would be continued under all of the alternatives except MO3. DEIS, p. 2-37. Despite the direct relationship between operation of the CRSO and LSRCP hatchery operations, the DEIS does not treat LSRCP hatchery effects as direct effects. Instead, its effects analysis notes that anadromous fish are influenced by many factors unrelated to the operations and configuration of the CRS and include competition and interbreeding with hatchery stocks. DEIS, pp. 3-446, 447. In fact, the LSRCP hatcheries are directly related to the operations and configuration of the FCRPS and must be analyzed as such.	The Draft EIS describes and acknowledges the multitude of factors that affect salmon and steelhead throughout their life cycle in the Affected Environment. This Draft EIS analyzes the effects of configuration, maintenance, and operation of the CRS projects in Section 3.4 and Chapter 7. The operation of the hatchery programs in the basin are included in the Affected Environment and, as expected to continue, were evaluated as part of the No Action Alternative evaluation in the Environmental Consequences. In MO3, the effects of discontinuing the LSRCP program was considered qualitatively because the fish models are based upon data collected from past fish runs and there is no data available to inform a quantitative analysis for wild fish in the absence of hatchery fish. The analyses used in this Draft EIS were for the purposes of comparing the effects of the Multiple Objective alternatives for operation and configuration of the CRS projects to one another and to the No Action Alternative. Hatchery programs are discussed briefly in the Affected Environment to give the reader the general information on hatchery programs that are a part of the ESU/DPS described. For the purposes of comparing alternatives, however, a more detailed description is not needed. The scope of this Draft EIS is the operation and configuration of CRS projects; a complete analysis of all hatchery programs is beyond this scope. The effects of hatchery programs on ESA-listed fish are evaluated through individual consultations under the Endangered Species Act.
6929	5	Chandra Ferrari; chandra.ferrari@tu.org	Trout Unlimited	iv. The DEIS Fails to Adequately Analyze the Impacts of Hatchery Fish on Wild Salmon and Steelhead Using the Best Available Science The best available scientific information is clear that hatchery fish do not address the factors limiting wild fish and have, in many cases, contributed to the decline of wild populations. In its 2015 report to Congress, the congressionally-appointed Hatchery Scientific Review Group (HSRG) stated: Hatcheries cannot replace lost habitat and the natural populations that rely on it. It is now clear that the widespread use of traditional hatchery programs has actually contributed to the overall decline of wild populations. Annual Report to Congress on the Science of Hatcheries, 2015, Hatchery Scientific Review Group, (July 2015), p. 2. April 13, 2020 Page 16 This fact is corroborated by the 2015 finding of the Independent Scientific Advisory Board (ISAB) that density dependence (i.e., overcrowding of available habitat) reductions in wild population productivity in the interior Columbia basin is becoming evident and that too many hatchery fish spawning in the wild is a major and pervasive problem.34 In addition to these demographic effects, hatchery fish also jeopardize the genetic integrity and life history diversity of wild fish when they interbreed, threatening their ability to adapt to a changing environment. Unfortunately, these effects are not meaningfully captured in the DEISs effects analysis or in the cumulative effects analysis. Accordingly, the DEIS fails to give more than a cursory analysis to this topic despite the existence of ample research that clearly demonstrates that the productivity of wild populations decreases when hatchery fish spawn in the wild. ISAB at 141. A 2016 study by the Independent Science Advisory Board found that [s]trong density dependence is now evident in at least 25 of 27 spring/summer chinook populations, the Snake River fall chinook population, and all 20 steelhead populations examined upstream of Bonneville Dam. ISAB at 139. As the ISAB points out, this is likely due in part to supplementation programs that result in large numbers of adult hatchery fish on the spawning grounds: 35-80% of chinook spawners and 15-80% of steelhead spawners per ESU and DPS, respectively. ISAB at 141. The Action Agencies analysis of hatchery impacts on wild salmon and steelhead is badly out of step with the best available science. It utterly fails to account for the ISABs reports and the large and growing body of peer-reviewed literature establishing the harmful genetic and ecological impacts of hatcheries on wild populations. Instead, the Action Agencies suggest that hatcheries are beneficial to wild populations without providing a scientific basis for such conclusions. For example, the DEIS says that the preferred alternative includes measures to benefit ESA-listed fish including fish hatchery production (DEIS, p. 7-22), yet offers no scientific support for that conclusion. In other places, the analysis of hatchery impacts is woefully incomplete. For example, in its analysis of MO3, there is a brief qualitative analysis suggesting that the reduction of hatchery fish by as much as 85 percent would result in lower survival rates of wild Chinook as they navigate through the predators inhabiting the migratory 34 Density Dependence and Its Implications for Fish Management in the Columbia Basin, Independent Scientific Advisory Board (ISAB) (February 25, 2015). April 13, 2020 Page 17 corridor DEIS, pp. 3-548, 549, 558. This conclusion is not supported by any quantitative analysis. The DEIS fails to round out this analysis by adequately analyzing the expected predation benefits from dam removal, such as the concomitant reduction in lentic predators that would occur with removal of the reservoirs or the increased ability of salmon and steelhead to avoid predation in a free-flowing river. TU acknowledges that there are benefits to hatchery production, such as maintaining populations on the brink of extinction and reintroducing extirpated populations. But the scientific evidence about the harmful genetic and ecological effects of hatcheries on wild populations is clear. A much more robust analysis, based on the best available science, on the effects of hatcheries on wild salmon and steelhead is required.	The Draft EIS uses current high quality information and best available science to describe and acknowledge the multitude of factors that affect salmon and steelhead throughout their life cycle in the Affected Environment. This information and science was used to analyze the effects of the configuration, maintenance, and operation of the CRS projects in Section 3.4 and Chapter 7. The operation of the hatchery programs in the basin are included in the Affected Environment and, as expected to continue, were evaluated as part of the No Action Alternative evaluation in the Environmental Consequences. In MO3 the effects of discontinuing the LSRCP program was considered qualitatively because the fish models are based upon data collected from past fish runs and there is no data available to inform a quantitative analysis for wild fish in the absence of hatchery fish. The analyses used in this Draft EIS were for the purposes of comparing the effects of the Multiple Objective alternatives for operation and configuration of the CRS projects to one another and to the No Action Alternative. Hatchery programs are discussed briefly in the Affected Environment to give the reader the general information on hatchery programs that are a part of the ESU/DPS described. For the purposes of comparing alternatives, however, a more detailed description is not needed. The scope of this Draft EIS is the operation and configuration of CRS projects; a complete analysis of all hatchery programs is beyond this scope. The effects of hatchery programs on ESA-listed fish are evaluated through individual consultations under the Endangered Species Act.
6929	6	Chandra Ferrari; chandra.ferrari@tu.org	Trout Unlimited	v. The DEIS Fails to Explain How Maintaining Suboptimal Temperature Conditions Meets the Purpose and Need and Requirements of Federal Law The DEIS fails to adequately analyze how maintaining severely degraded temperature conditions, especially considering climate change projections, supports the conclusion that the preferred alternative meets the purpose and need and legal obligations, such as ESA and the Clean Water Act. The DEIS acknowledges the degraded status quo temperature condition and the role that the proposed action has in maintaining that condition. Water temperatures in many reaches do not meet the regulatory standards in the summer and early fall. System operations can impact both water temperature and TDG in the Columbia River Basin DEIS, p. 3-236 Under the No Action, the State water quality standard for temperature is violated on average (for the five years simulated) 57, 71, 71 and 58 days downstream of McNary, John Day, The Dalles and 2207 Bonneville dams, respectively. As comparison, under the Preferred Alternative, the State water quality standard is violated (on average for the five years simulated) 63, 71, 72, and 59 days downstream of McNary, John Day, The Dalles and Bonneville dams, respectively. The differences in tailwater temperatures under the No Action	The co-lead agencies agree with your concern relating to water temperatures in the Columbia and Snake rivers and that is why the agencies have used the best information and resources available to model and evaluate impacts from operations described in each of the alternatives on water temperature. The EIS results indicate that the operations of the CRS do impact water temperature, but the CRS has limited ability to reduce temperatures in the lower Snake and Columbia rivers outside of Dworshak operations. The Draft EIS indicates that some CRS dams can lead to heating and cooling, while other CRS dams have little to no influence on the water temperatures. For example, the Draft EIS references historical temperatures in the lower Snake River basin prior to the construction of the four lower Snake River facilities and the Hells Canyon Complex. This data shows that temperatures in the pre-dam, free-flowing lower Snake River often exceeded 68F (20C) in July and August and occasionally exceeded 25C. These measurements were taken near the mouth of the Snake River from 1955 to 1958. (source: Peery, C. A. and T. C. Bjornn. 2002. Water Temperatures and Passage of Adult Salmon and Steelhead in the Lower Snake River. Technical Report 02-1. U.S. Geological Survey, Idaho Cooperative Fish and Wildlife Research Unit, University of Idaho, Moscow, Idaho.) Regionally high air and water temperatures result in water quality standard exceedances and are beyond the ability of the CRS to cool. Drier and warmer years such as 2015, as summarized in NMFS' 2015 Adult Sockeye Salmon Passage Report (September 2016, National Marine Fisheries Service document) point out that tributary temperatures in the Okanogan and Salmon rivers were above 25C. Cooling water pumps have been installed at Lower Granite and Little Goose adult passage

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				Alternative and the Preferred Alternative are considered negligible. DEIS, p. 7-86. April 13, 2020 Page 18 As noted above, the water quality standard for temperature will be violated at a slightly higher rate under the preferred alternative as compared to the no-action alternative. The DEIS does not explain how essentially maintaining status quo temperature conditions (or worsening them) meets its obligations under federal law. ESA requires that the preferred action not be likely to result in destruction or adverse modification of designated critical habitat of listed species.35 Critical habitat includes areas with the physical or biological features essential to the conservation of listed species and includes elements such as adequate water temperature.36 Critical habitat includes the juvenile and adult migration corridors of the Snake and Columbia Rivers. The Court gave direction on this point noting that [s]imply maintaining the status quo when there is severely degraded habitat that does not serve its conservation role and will be adversely modified unless changes are made to the operations of the FCRPS does not suffice [to meet ESA obligations].37 Accordingly, the preferred alternative, which would maintain harmful water temperatures in contravention of federal law, is legally deficient.	ladders to reduce temperature differentials between ladder and river and to reduce thermal stress during upstream passage. Additional considerations at other locations are included in the Draft EIS (see Chapters 2 and 8). In addition, the co-lead agencies are actively working on implementing the recommendations identified in NMFS' 2015 Adult Sockeye Salmon Passage Report (September 2016, National Marine Fisheries Service document) to improve management decision making and reduce, to the extent practicable, the adverse impacts of high summer temperatures on migrating salmon, including adult sockeye salmon. The water temperature analysis specific to MO3, which includes breaching the four lower Snake River Dams, utilized the Dworshak CE-QUAL W2 (2-dimensional model) and the lower Snake River HEC-RAS (1-dimensional models) to predict water temperatures under a dam breach scenario, while incorporating operations at Dworshak Dam for downstream water temperature management. Specifically, 2016 No Action Dworshak operations were used in the MO3 analysis. Results were provided to the fish team for incorporation into COMPASS and CSS modeling and other analysis to evaluate the impacts to anadromous fish. However, even with the dams breached, maximum summer water temperatures would exceed state water quality standards (20C) at times, especially during hot weather events. The climate science community is still developing models that can be used to analyze possible effects to water temperature from climate change, and unfortunately, have not been fully applied and validated for use with climate affected regulated flow projections of large reservoir systems. The models are also not available at the required resolution (river-scale vs. regional- or global-scale). Therefore, it was not possible to reliably model water temperature changes under climate change for this EIS. In lieu of this information, the climate analysis used the output from the water quality models under historical conditions, climate change data, and scientific literature to qualitatively assess potential effects to water temperature (Section 4.2.3 and Section 7.8.4). EPA is the lead agency on developing a water temperature TMDL for the Columbia and Snake Rivers, and in doing so will evaluate the impact of all anthropogenic and natural sources of heat in the Columbia and Snake rivers. In contrast, the Draft EIS evaluated the impact of several actions the co-lead agencies could take and their impact on river temperatures as they relate to current and historic river temperatures. Thus, the Draft EIS did realistically and clearly analyze, to the extent practicable, whether the hydrosystem is causing or contributing to compliance with the water quality standards as compared to historic river temperatures. In addition to investigating the operational impacts on water temperature, the co-lead agencies have taken other actions to address water temperature impacts on fish passage. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with all applicable laws such as Clean Water Act and ESA. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Based on the fish analysis in Section 7.7.4., the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the Columbia River System. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species.
6929	7	Chandra Ferrari; chandra.ferrari@tu.org	Trout Unlimited	vi. The Affected Environment Omits Necessary Information Central to Understanding Status and Trends of Key Fish Species The Affected Environment section omits information that is central to understanding the status and trends for the relevant salmon and steelhead stocks. The description of each species does not include information expressed in the metrics that the Court found lacking in or missing from the biological opinion. For instance, the DEIS should have displayed relevant information for each stock at the (Evolutionarily Significant Unit or Distinct Population Segment) level regarding both the survival prong and the potential for recovery elements of the jeopardy standard including analysis of the levels of abundance, distribution and life history diversity that are necessary to ensure the likelihood of recovery is not appreciably diminished. This is essential for being able to understand the current status of each species because the minimum population levels needed to ensure survival are found at the ESU/DPS level and not the aggregate species level. 35 16 U.S.C. section 1536(a)(2). 36 16 U.S.C. section 1532(5)(A). 37 Natl Wildlife Fedn, 184 F. Supp.3d at 875. April 13, 2020 Page 19 At a minimum, the final EIS (or revised DEIS) should contain information in tabular or graphic form regarding the three quantitative measures that are part of the trend towards recovery analysis: abundance trend, the median annual change in population in four year running sums, and the recruit per spawner ratios. While necessary, these three measures are not sufficient. There should also be information on the abundance of each of the 27 populations. This information will better inform decision-makers and the public about which populations are at alarmingly low numbers where survival may be in question, or where the low abundance numbers are trending at a level that diminishes the likelihood of recovery.	The metrics and citations provided in this comment are relevant to ESA consultation, not the NEPA process. The co-lead agencies are currently in consultation with NMFS and the U.S. Fish and Wildlife Service. The biological opinions that conclude that consultation process will be appended to the FEIS. In the CRSO EIS, the co-lead agencies focused on utilizing current high quality information and metrics that will enable the co-lead agencies to analyze the effects of the operation and maintenance of the CRS projects and that provide meaningful assessment of information for the comparison between the range of alternatives and the No Action Alternative. This information and analysis has and will inform the public and the decision makers in selecting an alternative in the Record of Decision.
6929	8	Chandra Ferrari; chandra.ferrari@tu.org	Trout Unlimited	vii. The Action Agencies Preferred Alternative Does Not Include Necessary Actions to Meet ESA and Northwest Power Act NEPA requires agencies to: study, develop, and describe appropriate alternatives to recommended courses of action in any proposal which involves unresolved conflicts concerning alternative uses of available resources. This requirement seeks to ensure that each agency decision maker has before him and takes into proper account all possible approaches to a particular project which would alter the environmental impact and the cost-benefit balance. 42 U.S.C. 4332(2)(D).38 A viable but unexamined alternative renders [the] environmental impact statement inadequate.39 As part of the alternatives analysis, the DEIS must examine whether and how the alternatives meet legal obligations including ESA, the Northwest Power Act and treaty obligations. Relevant ESA obligations are discussed more fully in section II(a)(i)(a) supra. The Northwest Power Act requires Action Agencies to take the Fish and Wildlife Program adopted by the Northwest Power 38 Calvert Cliffs' Coordinating Committee, Inc. v. U. S. Atomic Energy Commission, 449 F.2d 1109, 1114 (D.C. Cir. 1971). Further, NEPA section 102(2)(E) requires that the federal lead agency study, develop, and describe appropriate alternatives to recommended course of action in any proposal which involves unresolved conflicts concerning alternative uses of available resources.... 42 U.S.C. 4332(2)(E). The duty to consider alternatives under NEPA 102(2)(E) is at least as broad as the duty under NEPA section 102(2)(C)(iii). The purpose is to insist that no major federal project should be undertaken without intense consideration of other more ecologically sound courses of action, including shelving the entire project or of accomplishing the same result by entirely different means. Environmental Defense Fund v. U.S. Army Corps of Engineers, 492 F.2d 1123 (5th Cir. 1974); see Mandelker, supra 9:22, p. 9-53. 39 Muckleshoot Indian Tribe, supra, 177 F.3d at 814 (quoting Citizens for a Better Henderson v. Hodel, 768 F.2d 1051, 1057 (9th Cir. 1985)). April 13, 2020 Page 20 and Conservation Council (NPCC) into account at each relevant stage of decision-making processes to the fullest extent practicable. 40 The program currently seeks to achieve smolt-to-adult return rates in the 2-6 percent range (minimum 2 percent; average 4 percent) for listed Snake River and upper Columbia salmon and steelhead.41 Additionally, it seeks an increase in total adult salmon and steelhead runs to an average of 5 million annually by 2025 to, among other things, support tribal and nontribal harvest.42 Despite the limitations of the models, the DEIS is clear that removing the lower Snake River dams is the best option for Snake River salmon and steelhead. Both the LCM and CSS model find that MO3 offers Snake River salmon and steelhead the best chance for recovery by improving smolt-to-adult returns (SARs) by the highest percentages of all the studied alternatives. But, as noted above, the benefits to fish populations from this alternative are likely vastly underestimated given modeling limitations. Yet, the Action Agencies selected a different set of actions without LSRD as the preferred alternative. The preferred alternative is expected to yield improvements to SARs that are far less than MO3. In fact, depending on how the assumptions play out, it is possible that the preferred alternative will not even meet the ESAs survival requirement for Snake River salmon and steelhead let alone not appreciably reduce the likelihood of recovery. Depending on the model and Evolutionarily Significant Unit (ESU)/Distinct Population Segment (DPS), the effects to anadromous fish in Regions C and D have the potential to range from a moderate adverse impact to a major beneficial effect. The ranges in potential effects are due to uncertainty and spread between modeled estimates for the Juvenile Fish Passage Spill measure because of the unknown magnitude of latent mortality and an unknown level of reduction in transportation for some species. DEIS, p. 7-88. 40 The Northwest Power Act requires the Northwest Power and Conservation Council (NPCC) to adopt and renew at least once every five years a Fish and Wildlife Program to protect, mitigate, and enhance fish and wildlife, including related spawning grounds and habitat, on the Columbia River and its tributaries. 16 U.S.C. 839b (h)(1). 41 Columbia River Basin Fish and Wildlife Program, Northwest Planning and Conservation Council, 2014 Program and Part II of 2020 Addendum available at https://www.nwcouncil.org/reports/2014-columbia-river-basin-fish-and-wildlife-program. 42 Id. April 13, 2020 Page 21 If a moderate adverse impact situation materializes, the LCM model predicts SARs for Snake River spring/summer Chinook could decrease 7.5 percent under the preferred alternative, with a lower end of the predicted SAR range of less than 1%. This means the preferred alternative is predicted to provide SARs below even the threshold necessary to avoid continued population declines, well below the 2% minimum required for population maintenance, and significantly below the regions 4% average SAR goal (range of 2%-6%) for rebuilding Snake River stocks of salmon and steelhead. The DEIS does not explain how its ESA and Northwest Power Act obligations can be met when this scenario is a real possibility. Moreover, the preferred alternative does not appear to do anything to ameliorate important limiting factors for listed salmon and steelhead, including many factors that will worsen with climate change. For instance, as noted in section II(a)(iv) supra, the preferred alternative does not improve temperature conditions as compared to the no-action alternative. Accordingly, the preferred alternative does not meet the requirements of the ESA or the Northwest Power Act.	Chapter 8 of the EIS demonstrates the co-lead agencies compliance with various laws, including the ESA and Northwest Power Act. As demonstrated in Sections 3.5 and 7.7.4, different models predict different long-term survival benefits to ESA listed species from dam breach, benefits that can contribute to recovery. Under the NMFS COMPASS model, juvenile Snake River Spring/Summer Chinook in-river survival would improve by 9.6% due to dam breach, which is a 19% relative increase over the No Action Alternative. The NMFS Lifecycle Model predicts an increase in adult returns of 13.6% for these same fish under MO3 (no latent mortality assumed) relative to the No Action Alternative (from 0.88% to 1%). Results for Snake River steelhead are similar (10% absolute improvement, or 23% relative juvenile survival increase - Smolt-to-Adult returns (SARs) for steelhead were not modeled). Under the CSS model, juvenile in-river survival for the Snake River Spring/Summer Chinook is predicted to improve by 10.4% due to dam breach, which is an 18% relative increase over the No Action Alternative, while SARs would increase by 115% (from 2% to 4.2% 0.02 to 0.042). The CSS model predicts that Snake River steelhead would see juvenile survival increase by 25.8% which is a 46% relative increase over the No Action Alternative. The CSS model also predicts that SAR increase by 177% (from 1.8% to 5%). Though differing in predictions, both modeling groups predict dam breaching is the best CRSO EIS alternative for salmon and steelhead. One simply predicts adult return increases an order of magnitude higher than the other. The EIS concluded MO3 would have greater improvement to certain salmon species in the lower Snake River. It did not conclude there was greater certainty of that result in MO3 over any other alternative. The conclusions were based on the ranges predicted in two independent models that have different parameters and limitations in their predictive capabilities. Because of delayed response time in MO3, and the potential severity of the short term effects, MO3 would likely have the most substantial uncertainty in terms of beneficial effects. As described in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. The CSS model predicts that average Smolt-to-Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% (the lower end of Northwest Power and Conservation Council's recovery targets for the region) as a result of the Preferred Alternative (increasing from 2.0% to 2.7% for Chinook, a 35% relative increase). The NMFS COMPASS and Life Cycle Models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information. As for the Northwest Power Act mandates and compliance, some context is necessary to understand where the co-lead agencies stand with regard to the goals and objectives of the Northwest Power and Conservation Council (Council). For additional analysis, please also see response to Comment 31775-119. The Act anticipates a Columbia River Basin Fish and Wildlife Program (Program) based primarily on hydrosystem actions and identifies two mitigation priorities for anadromous fish, both of which the region has largely achieved. The Program must provide for improved survival of such fish at hydroelectric facilities and provide flows of sufficient quality and quantity between such facilities to improve production, migration, and survival of such fish. 1/ These goals and objectives apply to all hydroelectric projects in the Northwest. Appendix B to the Councils 2014 Program, which remains in effect, indicates the hydrosystem affecting anadromous fish in the basin includes 136 dams, some built even before Bonneville Dam. 2/ Congress required four agencies the Corps, Reclamation, and Bonneville along with the Federal Energy Regulatory Commission, which has regulatory authority over more than 100 dams in the basin to implement the substantive mitigation provisions of the Act. 3/ Four agencies and over 100 dams are thus needed to implement the Councils Program, because Congress mandated that Northwest Power Act mitigation be planned and implemented on a system-wide basis. 4/ Moreover, neither the Act nor the Councils Program has goals and objectives specific to the CRS (or the FCRPS). Suggesting that the co-lead agencies failed to meet Northwest Power Act mandates by falling short of the Councils Program goals conflates system-wide goals applicable to over 100 dams to the 14 hydroelectric projects comprising the CRS. In addition to applying to more than just the CRS projects, the Councils five million salmon goal can be influenced or even thwarted by factors other than the dams that have had adverse impacts on salmon, including population growth, habitat degradation, harvest, irrigation, and natural conditions including ocean conditions and climate. The Councils SARs goals suffer a similar shortcoming. Research shows that SARs are heavily influenced by factors other than in-river flows and spill conditions, particularly ocean conditions that are beyond the control of CRS operations. For example, one study found a threefold difference in SARs for sockeye salmon that migrated downstream as juveniles in 2008 and 2010 despite nearly identical survival through the CRS from McNary to Bonneville dams. 5/ The researchers found the difference in sockeye SARs most closely correlated with ocean and climate indicators and concluded the large difference in SARs were the result of varying ocean conditions. The Councils SARs and adult fish goals do not reasonably apprise co-lead agency compliance with the Northwest Power Act because those goals are not tailored to the CRS specifically and do not meaningfully inform compliance with the Acts mitigation mandates. 1/ 16 U.S.C. 839b(h)(2)(A), (6)(E). 2/ See Council, 2014 Program, Appendix B, Compilation of Information on Salmon and Steelhead Losses in the Columbia River Basin, page 136 (Mar. 1986). 3/ 16 U.S.C. 839b(h)(11)(A). 4/ 16 U.S.C. 839b(h)(1)(A). 5/ Williams, J.G., Smith, S.G., Fryer, J.K., Scheuerell, M.D., Muir, W.D., Flagg, T.A., Zabel, R.W., Ferguson, J.W., and Casillas, E., INFLUENCE OF OCEAN AND FRESHWATER CONDITIONS ON COLUMBIA RIVER SOCKEYE SALMON ONCHORHYNCHUS NERKA ADULT RETURN RATES in Fisheries Oceanography (2014).
6929	9	Chandra Ferrari; chandra.ferrari@tu.org	Trout Unlimited	viii. MO3 is the Only Alternative with Potential to Rebuild Snake River Stocks to an Abundance Needed to Meet ESA Obligations, Northwest Power Act Goals and Treaty Obligations At a minimum, the preferred alternative must provide reasonable assurance that ESA obligations will be met. However, to achieve cultural and economic stability provided by healthy salmon and steelhead stocks, and to honor federal treaties with Native American tribes, restoring abundant, healthy, and harvestable/fishable populations of naturally produced salmon and steelhead is needed. That is the goal clearly articulated by the Columbia Basin Partnership. MO3, which includes LSRD is the only alternative that has the potential to achieve abundant, healthy, and harvestable/fishable populations of naturally produced Snake River stocks. Accordingly, MO3 is the only legally defensible option for a preferred alternative because it alone has potential to rebuild Snake River stocks to the level of abundance required to comply with the Northwest Power Act, the Endangered Species Act and honor treaty obligations with Columbia Basin tribes. It also is the only alternative that could meet the recovery goals established by the Columbia Basin Partnership. April 13, 2020 Page 22 Actions contained in MO3 are best considered with other complementary actions, such as increased spill, predator management and habitat improvements, that will benefit both Snake River stocks and other ESUs and DPSs in the Columbia Basin. For instance, an analysis by the Fish Passage Center found that combining lower Snake River dam removal with spill to the 125%	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. As described in Chapter 7 of the FEIS, the preferred alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as Multiple Objective Alternative 3 (MO3), which includes breaching the four lower Snake River dams. However, the preferred alternative also meets the EIS objectives for resident fish, lamprey, hydropower generation, water management, and water supply and greenhouse gas emissions, while minimizing adverse impacts to communities and the economy. The EIS concluded MO3, which includes breaching the four lower Snake River dams would have greater improvement to certain salmon species in the lower Snake River. It did not, however, conclude there was greater certainty of that result in MO3 over any other alternative. Because of delayed response time in MO3, and the potential severity of the short term effects, MO3 would likely have the most substantial uncertainty in terms of beneficial effects. Section 3.5 provides a summary of the fish analysis for the No Action Alternative and four of the multiple objective alternatives. Chapter 7 provides a summary of the fish analysis for the Preferred Alternative. With respect to the Preferred Alternative, the CSS model predicts that average Smolt to Adult return rates would increase for both Snake River spring Chinook and steelhead and will average above 2% (the lower end of the Northwest Power and Conservation Councils recovery targets for the region) as a result of the Preferred Alternative, increasing from 2.0% to 2.7% for Chinook, a 35% relative increase. The NMFS COMPASS and Life Cycle Models predict higher levels of risk associated with increased spill levels in the

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				tailrace TDG levels (MO34) resulted in the greatest expected improvements across all biological response metrics for Snake River stocks as compared to the DEIS alternatives including on average exceeding the 4% average SAR regional goal.43 Increased spill operations would also benefit other Columbia stocks. For example, the DEIS notes that under MO3 (spill to the 120% tailrace TDG levels) there is a predicted increase in Columbia spring Chinook salmon in-river survival due to increased spill levels in the lower Columbia River. DEIS, p. 7-9. All included actions should be accompanied by a robust adaptive management program to monitor the effectiveness of the actions toward meeting clearly articulated habitat and biological goals and objectives and to adjust implementation as warranted. These actions can be undertaken in a manner that meets the needs of all stakeholders in the region, including water users, power producers and local communities. a. Lower Snake dam removal is necessary to meet ESA requirements and recovery goals MO3 is the alternative that gives Snake River fish the best chance for persistence and recovery by improving smolt- to- adult returns to the Snake River, with anticipated improvements of 14 percent to 170 percent considering estimates from both models. Snake River salmon and steelhead population numbers have been declining for decades and now stand far from their historic levels. In 2020, Idaho (the final spawning destination for most) saw some of the worst returns on record for both salmon and steelhead. In the 1800s, an estimated 4 million salmon and steelhead made it to the Snake River Basin, gaining 6,000 feet in elevation over 800 miles as they swam from the ocean to spawn. In the 1920s, large-scale dam building began on the Columbia River, the gateway to the Snake River, and populations began to drop. 43 See Life Cycle Evaluations of Fish Passage Operations Alternatives From the Columbia River Systems Operations, Environmental Impact Statement, Fish Passage Center available at https://www.wildsalmon.org/images/factsheets-and-reports/2020.FPC.Report.DEIS.Alternatives.pdf. April 13, 2020 Page 23 By the mid-60s as the Snake River dams were nearing completion only 100,000 adults returned. In 2018, barely 18,000 wild Chinook salmon and steelhead returned to Idaho. 44 While there are multiple causes for the decline of Snake River salmon and steelhead, the best available science is clear on two points. First, if the current conditions experienced by Snake River salmon and steelhead populations do not reverse, these iconic populations will face extinction. Second, removal of the four lower Snake River dams would vastly improve the chances for survival of the Snake River stocks and presents the best chance at recovering those stocks to abundant, healthy, and harvestable/fishable and levels. The reason this action is expected to be so effective is multi-fold. While ocean conditions do have a big impact on salmon and steelhead populations and always have, salmon and steelhead have, over their evolutionary history, developed resiliency in the face of changing ocean conditions through diverse life histories that are spread spatially and temporally across their freshwater and ocean habitats. This diversity ensures overall stability for the different major stocks and allows them to readily take advantage of good years with suitable ocean conditions. Salmon and steelhead fare on average far better over time in watersheds with fewer dams to cross than they do in the Lower Snake River, where they must pass eight dams to get to their spawning grounds this is in spite of being impacted by the same ocean conditions. Additionally, physical contact with each dam kills a certain number of fish, and yet this is only one of many causes of dam-related mortality. Other dam-related mortality factors include: 1) large reservoirs behind the dams provide prime habitat for predators that prey on salmon and steelhead; 2) slow moving water which requires more energy to pass through to get to the ocean and increases the average time for smolts to reach the sea by 10 times; 3) high water temperatures that do not cool at night as they have historically and increase stress on migrating salmon and steelhead; 4) loss of important complex lotic habitat, including spawning reaches for Fall Chinook, due to 140 miles of impounded water; and 5) cumulative stress from the experience of navigating the hydro-system, which subsequently kills a substantial number of successful migrants after they reach the estuary or ocean so that these fish do not return to 44 TU analysis of Fish Passage Center data. April 13, 2020 Page 24 spawn. Dam removal would alleviate these dam-related mortality factors and open the untapped potential of the Snake River to salmon and steelhead. And the benefits of reopening the Snake River would persist, and become ever more critical, with climate change. Representing twenty percent of the total accessible stream habitat within the native distribution of salmon and steelhead on the West Coast and sixty-five percent of the future available cold water, a re-accessible Snake River would be a major climate change refuge for salmon and steelhead populations. Consequently, it has the greatest potential for recovery of any basin on the Columbia River. The DEIS acknowledges that MO3 presents the best opportunity for improving fish SARs and water quality. As described in Chapter 3, model estimates for MO3 showed the highest predicted potential smolt-to-adult returns (SARs) for Snake River salmon and steelhead amongst the alternatives. The two models used to evaluate effects to certain salmon and steelhead (see section 3.5 for 340 specific species) predict a wide range of improved SARs for this alternative, indicating higher uncertainty pertaining to the level of benefits compared to the other alternatives. For example, MO3 is predicted to result in improvements to SARs for Snake River Spring/Summer Chinook that range from 14 percent (LCM) to 140 percent (CSS) relative to the No Action Alternative. Additionally, under MO3 there is a slight increase predicted in upper Columbia spring Chinook salmon in-river survival due to increased spill levels in the lower Columbia River. The quantitative model results vary in the magnitude of their predictions due to how they factor in latent mortality and density dependence. DEIS, p. 7-9 Overall, long-term water quality would improve in the lower Snake River under MO3, with improved water temperatures during the fall and increased nighttime cooling in the summer. In addition, riverine processes would be restored, eliminating some of the pH, and harmful algal bloom problems that currently exist. Elevated TDG would also be eliminated. Additionally, there would be major increases in Snake River fall Chinook spawning habitat and associated potential beneficial effects for recreational, tribal, and commercial fishing. DEIS, p. 7-12. Yet, despite ESA obligations and the overwhelming scientific evidence supporting dam removal, the Action Agencies declined to select MO3 as the preferred alternative because of the April 13, 2020 Page 25 impacts to the power system and the fact that additional authorities/legislation would be required to implement certain components. As described below, neither justification should have precluded consideration of MO3 as the preferred alternative.	absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information.
6929	10	Chandra Ferrari; chandra.ferrari@tu.org	Trout Unlimited	b. The DEIS should include a comprehensive and objective analysis regarding costs and benefits of Lower Snake River dam removal. Under NEPA, social and economic effects must be considered if they are related to the proposed projects natural or physical effects. 40 CFR 1508.8. Inaccurate or incomplete economic information may defeat the purpose of an EIS by impairing the agencys consideration of the adverse environmental effects and by skewing the publics evaluation of the proposed agency action.45 The DEIS notes that MO3 does not meet the purpose and need because removal of the lower four Snake River dams would eliminate hydropower generation and river barge navigation on the lower Snake. This alternative would eliminate hydropower generation and navigation on the lower Snake River which affects the ability of this alternative to meet the Purpose and Need. DEIS, p. 7-9. In recommending that the Action Agencies more thoroughly consider removal of the four lower Snake dams as part of their preferred alternative, TU is mindful of the large economic benefits provided by some, but not all, of the federal dams that constitute the FCRPS. Several produce a large amount of hydroelectric power, the loss of which would have serious negative impacts on the Pacific Northwest. Such impacts are appropriately considered in determining the reasonableness of this action. However, the DEIS discounts information demonstrating that the public benefits currently provided by the Lower Snake River dams can be adequately provided in alternative ways. Additionally, as noted in Section II(a)(ii)(b) supra and Section II(a)(vi)(d) infra, the DEIS fails to adequately capture the immense biological, ecological and economic benefits expected from removing the Lower Snake River dams. These omissions heighten the risk that the Action Agencies consideration of the adverse environmental effects will be impaired and that the publics evaluation of the DEIS will be skewed. 45 Hughes River Watershed Conservancy v. Glickman 81 F. 3d 437, 446 (4th Cir. 1996). April 13, 2020 Page 26 For instance, a report by ECONorthwest, found that public benefits of removing the dams actually outweigh the costs.46 The economic feasibility study demonstrated that transportation of agriculture products could be accomplished just as efficiently and cost-effectively on existing rail lines, and that effects on irrigation would be minimal because most farming in the region is not irrigated. The giant economic value of the regions salmon and steelhead fisheries exceed the value of removal, the report claims. Its authors estimate only a $1 to $2 per month power bill increase for consumers across the region and a slight increase in greenhouse gas emissions. Additionally, in response to DEIS claims that significant cost increases would be needed to replace the energy and capacity of the Lower Snake River dams if they are removed, Rocky Mountain Econometrics produced a follow-up analysis to test the need for the LSRD [Lower Snake River Dams] and what it would cost to cover that need in a pragmatic, economic fashion. The report found that: [a]veraged over the past 11 years the cost of replacing enough power to keep BPAs interchange power levels above 2,000 aMW, to the full capability of the LSRD, by purchasing the equivalent amount of LSRD energy at NP15 prices, is only about $11 million per year, $38 million per year cheaper than the current LSRD M&O cost[.] Rocky Mountain Econometrics, Replacing Needed Lower Snake River Dam Energy Cheaper Than Operating the Dams, February 2020. It is clear that differing estimates exist pertaining to what it will cost to replace the benefits provided by the lower Snake River dams because these estimates are entirely dependent on underlying assumptions. Additionally, there are differing estimates regarding the economic benefits that will materialize from dam removal although the DEIS does not consider this point with any robustness. When a NEPA document includes a cost-benefit analysis, it cannot be misleading.47 Factors that should have been explored in more depth in the DEIS include but are not limited to: the costs of maintaining the aging infrastructure of the dams if they are not removed, changes to reservoir recreation and its associated industry, economic benefits associated with a restored commercial and recreational fishery and the tourism that accompanies 46 See Economic Study on Lower Snake River Dams: Economic Tradeoffs of Removal, ECONorthwest, July 29, 2019 available at	As indicated in the comment, the EIS evaluated tradeoffs associated with the management of the system. However, a benefit cost ratio was not calculated for the CRSO EIS because it is not a requirement of NEPA or the basis of alternative selection under NEPA (see 40 C.F.R. 1502.23). Instead the EIS analyzed, the direct and indirect effects to the natural and human environment, with some effects evaluated quantitatively and monetized, and others evaluated qualitatively. The comment noting the economic benefits and adverse effects of losing hydropower are consistent with the findings of the EIS. Regarding the ECONorthwest study on the costs and benefits of breaching the four lower Snake River dams, the EIS considered this study among others that used various approaches to valuing benefits. This discussion can be found in the draft EIS in Section 3.15.2.2, Benefit Transfer Studies. The EIS analyzes the direct, indirect and cumulative effects to resources affected by CRS operations, maintenance and configuration. Chapters 3, 4, 6 and 7 detail this effects analysis, and denote adverse and beneficial impacts, where appropriate. Moreover, Table 7-1 in Chapter 7 provides a summary of the beneficial and adverse effects of the alternatives, including the quantified social welfare costs and benefits for a subset of the resource areas (specifically, hydropower, navigation, and irrigation) as well as the implementation costs of the alternatives. Contrary to the comment, the loss of the hydropower under MO3 (which includes breaching the four lower Snake River dams) would have substantial adverse effects to the regional power system requiring replacement resources to maintain reliability. See draft EIS, Section 3.7.3.5, Effects on Power System Reliability, at page 3-903; and Appendix H, Table 2-1. The costs mentioned in the comment are inconsistent with the findings of the EIS. Section 3.7.3.5 Potential Replacement Resources describes the reliability and replacement resources identified under Multiple Objective Alternative 3. The comment references a study that relies on spot market prices in California. As discussed in the EIS, power purchases from the spot market prices are not comparable to the sale of firm, reliable service under long-term contracts. Spot prices reflect the price of power at that time and do not guarantee supply for any duration beyond the time offered. Spot sales are typically for short term duration and are usually for a fixed supply. Thus, relying on power purchases on the wholesale market does not ensure reliability. Further, the spot market does not always have sufficient liquidity (i.e., assured quantity) to supply power whenever needed. See Section 3.7.2.5, pages 3-801-02 of the draft EIS. Contrary to the comment, the EIS considered the avoided operations and maintenance (O&M) (expense) and capital costs associated with breaching the four lower Snake River dams in the cost analysis and included these cost savings in the power rates analysis. See Section 3.7.3.5, Bonneville's Fish and Wildlife Program and Lower Snake River Compensation Plan Costs, at page 3-913 in the draft EIS. As described in the draft EIS in Section 3.7.3.5, Table 3-166, the cost savings associated with the loss of the four lower Snake River dams would be offset by higher resource replacement costs, integration costs, and other cost pressures. Section 3.19 discusses System and Implementation Costs of each of the MOs, including MO3. The cost analysis estimates the capital and O&M costs savings that would occur under MO3 (see Tables 4-1 and 5-1 in Appendix Q in the draft EIS). The capital costs include additional construction and capital requirements that would be needed in the future to maintain the four lower Snake River dams. Therefore, the costs of maintaining the infrastructure of the dams under the No Action Alternative are included in the cost analysis. The EIS provides an evaluation of the social welfare and regional economic effects of the No Action Alternative and the Multiple Objective Alternatives, including the effects on recreation (Section 3.11) and commercial fisheries (Section 3.15). The EIS described the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. NMFS estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which is described qualitatively. For the effects on recreational fishing under MO3 (Section 3.11.3.5) along the lower Snake River below Lewiston, the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River) as an indicator for fishing visitation in this reach. The EIS describes that the visitation in the long-term in the lower Snake River, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting outfitting and tourism businesses in the region. The social welfare values and regional economic effects associated with recreational fishing under the MOs, as well as river recreation post dam breach under MO3, were not estimated because of the uncertainty and large range in visitation and consumer surplus values among users.

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				https://static1.squarespace.com/static/597fb96acd39c34098e8d423/t/5d41bbf522405f0001c67068/1564589261882/LSRD_Economic_Tradeoffs_Report.pdf. 47 High Country Conservation Advocates v. U.S. Forest Service, 52 F. Supp. 3d 1174, 1182. April 13, 2020 Page 27 it, the economic benefits associated with increased recreation on a free-flowing Snake River such as increased boating, camping, hiking and hunting opportunities, potential for waterfront redevelopment in Lewiston/Clarkston, and projected costs of flood risk mitigation projects that will be needed if the dams remain (such as raising levees in Lewiston). Without this information, it is impossible for decision-makers and the public to meaningfully weigh the costs and benefits of the alternatives. Importantly, even without dam removal, the Bonneville Power Administration faces the addition of wind, solar, storage, customer-side resources, and grid modernization technologies that are fundamentally changing the Northwest power system and impacting BPAs business model. BPA is experiencing increasing costs and it cannot command the price for wholesale energy that it once could.48 Its aging infrastructure requires significant new investment. Meanwhile, BPAs required fish and wildlife restoration costs - $17 billion over 20 years now account for about 25 percent of BPAs direct power costs yet have failed to restore abundant salmon populations to the Snake River and its tributaries.49 Status quo is not an option for BPA, a fact that is not adequately acknowledged in the DEIS. It is, however, acknowledged in BPAs Strategic Plan. The continuation of some financial policies and practices particularly those around cost management, debt management and reserves would put BPAs long-term financial health at risk.50 BPA must strategically modernize its operations in ways that will benefit consumers, the regional economy and salmon and steelhead. Discounting all information that suggests a change in the status quo is warranted is not productive and will not alter the current unsustainable path. The status quo is not an option for salmon and steelhead either. Actions to protect and recover salmon can be undertaken in a manner that meets the needs of all stakeholders in the region, including BPA, power purveyors, water users and local communities. However, it will take leadership from the Action Agencies to reflect on all available information and enable a fair dialogue with the regions 48 See BPAs 2018-2023 Strategic Plan, page 37 noting that BPA is now selling more surplus power at wholesale prices that are lower than its Priority Firm power rates. This has reduced total revenues and put continued upward pressure on power rates. 49 Bonneville Power Administration, 2018-2023 Strategic Plan, page 41. 50 Bonneville Power Administration, 2018-2023 Strategic Plan, page 12. April 13, 2020 Page 28 stakeholders regarding what is necessary restore salmon and secure a climate friendly energy future that benefits people and the economy.	The comment is correct in that the energy industry is changing rapidly. The EIS acknowledges that more wind and solar would be built in the region, increasing demand for balancing reserves. Likewise, the market is evolving. The EIS discusses Bonneville competitiveness in Section 3.7.2.5, Competitive Pressure on Bonneville's Power Rates in the draft EIS. In recent rate cases, Bonneville has implemented substantial cost reductions which have mitigated cost increases while balancing the need to protect fish and wildlife affected by Federal Columbia River Power System (FCRPS) operations and development. Lower market prices on the wholesale power market have increased cost pressures by decreasing the value of net secondary revenues which serve as an offset to revenue requirement costs collected in rates charged to long term power customers. The need for Bonneville to remain competitive is addressed in Bonneville's Strategic Plan, and Bonneville is on its way to executing that plan. While competitive pressures on the wholesale market are expected to continue, the Preferred Alternative is predicted to benefit salmon and steelhead and also meet the EIS objectives for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse impacts to communities and the economy. Bonneville's revenues have not declined over time, but less of Bonneville's revenue requirement is covered by net secondary sales of surplus power due to an industry-wide decline in market prices for wholesale power, which has required rates to firm requirements customers under long-term contracts to increase. In light of these competitive pressures, Bonneville developed both strategic and financial plans to ensure Bonneville's rates continue to be competitive. See draft EIS, Section 3.7.2.5, at pages 3-801-802 and Section 3.7.3.1, at pages 3-842-843. Bonneville has instilled a renewed focus on cost management discipline, resulting in a cost reduction of $66 million per year for the current rate periods operating costs compared to the last rate periods operating costs. This resulted in an average 0% base rate increase for Power customers at a time when the general economy was facing material inflationary pressure. Bonneville's cost management discipline, and revenue enhancing activities continue to maintain Bonneville's competitiveness relative to other load serving power producers. However, actions such as removing the four lower Snake River dams would result in substantial upward rate pressure for Bonneville customers, moving Bonneville's competitive power products to be less competitive in the marketplace. See Section 3.7.3.5, Table 3-166 of the draft EIS. Moreover, the comments suggestion that approximately $17 billion in fish and wildlife mitigation investment has been ineffective to recover ESA-listed species is misplaced. Those investments delivered the intended results when considered in the appropriate statutory context of the Northwest Power Acts anadromous fish provisions which call for improved survival of such fish at FCRPS projects and sufficient flows between the projects to improve production, migration, and survival. For example, as of 2014 this investment had facilitated juvenile dam passage survival of 96% and 93% for spring and summer migrants respectively, see Endangered Species Act Federal Columbia River Power System 2016 Comprehensive Evaluation Section 1, at 17, t.2 (Jan. 2017), a marked improvement compared to when Congress passed the Northwest Power Act and the estimated average juvenile mortality at each mainstem dam and reservoir complex was 15-20% with losses recorded as high as 30%. See Nw. Res. Info. Ctr. v. Nw. Power Planning Council, 35 F.3d 1371, 1374 (9th Cir. 1994) (citing a Sept. 4, 1979 report by U.S. General Accounting Office describing the systems impacts on anadromous fish). The spring spill operation for juvenile fish passage included in the Preferred Alternative is a significant departure from previous operations, so much so that the Washington and Oregon state water quality standards had to be changed to implement the new spill regime. Based on the fish analysis described in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species. For example, the CSS and NMFS COMPASS models predict that powerhouse encounters would be cut in half relative to the No-Action Alternative for Snake River spring/summer Chinook salmon. The real uncertainty lies in the hypothesis that reduced powerhouse encounters would result in increased adult returns. To address this uncertainty, the Preferred Alternative includes an adaptive management plan. This plan involves working with regional sovereigns to develop a study to assess the effectiveness of the increased spill regime on adult returns as well as assessment and management of adverse unintended consequences, such as long delays of adult migrants, or Total Dissolved Gas-related mortality of juvenile migrants. The co-lead agencies looked at the totality of effects to craft the Preferred Alternative, provided in Chapter 7. As the analysis demonstrates, this alternative is not a continuation of the status quo and includes operational, structural and mitigation measures that will provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery.
6929	11	Chandra Ferrari; chandra.ferrari@tu.org	Trout Unlimited	c. The Action Agencies must adequately evaluate alternatives that are beyond the agencies current authority to implement. The DEIS contends that MO3 cannot be selected as the preferred alternative because it would not meet current congressionally authorized purposes for the four lower Snake River dams. Alternative MO3 would not meet the congressionally authorized purposes of operating and maintaining the four lower Snake River dams for navigation, hydropower, envisioned recreational benefits, and providing irrigation. New congressional authority through the passage of new laws and associated funding would be required to implement the dam breaching measures in MO3. However, the dam breaching measures in MO3 were carried forward in the analysis to align with the District Court's Opinion and Order, and in response to comments received during public scoping that requested this alternative be evaluated. DEIS, p.7-4 NEPA requires that all relevant, reasonable mitigation measures that could diminish the adverse impacts of the project be identified in the document, even if they are outside the jurisdiction of the lead agency or the cooperating agencies. See 40 C.F.R. 1502.16(h) and 1505.2(c); 46 Fed. Reg. 18026. The inclusion of mitigation measures in this chapter is not intended to indicate that the co-lead agencies, or the Federal government as a whole, has the authority to perform all of the measures listed. If the measures are outside the jurisdiction of the co-lead agencies, those measures will not be included in the Preferred Alternative or Records of Decision (ROD). Their inclusion in this chapter serves to alert other agencies, officials, and the public who can implement the measures to the potential benefits of the measure. DEIS, p. 5-2 However, the Action Agencies are not precluded from thoroughly considering MO3 as the preferred alternative even if new Congressional authorities or funding are needed to implement certain actions. NEPA requires the full consideration of all reasonable alternatives even if outside the lead agencys jurisdiction. This requires the Action Agencies to [r]igorously explore and objectively evaluate all reasonable alternatives . . . [and] [i]nclude reasonable alternatives not within the jurisdiction of the lead agency. 40 C.F.R. 1502.14. This includes April 13, 2020 Page 29 reasonable alternatives that are outside the scope of what Congress has approved or funded. 51 NEPA guidance also makes clear that an EIS may serve as the basis for modifying the Congressional approval or funding in light of NEPA's goals and policies.52 Therefore, even if the Action Agencies need congressional authorization or funding for some aspect of MO3, they can thoroughly consider it and then use the DEIS to recommended to Congress new authorities and investments necessary to implement it. Additionally, the Action Agencies can commit in the DEIS to take concrete steps to comprehensively consider elements of MO3, such as seeking a reconnaissance study. The authority to review completed Corps projects was granted in the Flood Control Act of 1970, P.L. 91611, Section 216, which reads: The Secretary of the Army, acting through the Chief of Engineers, is authorized to review the operation of projects the construction of which has been completed and which were constructed by the Corp of Engineers in the interest of navigation, flood control, water supply, and related purposes, when found advisable due (to) the significantly changed physical or economic conditions, and to report thereon to Congress with recommendations on the advisability of modifying the structures or their operation, and for improving the quality of the environment in the overall public interest. Clearly the physical and economic environment has shifted significantly since the Lower Snake River Dams went into operation. Accordingly, this provision is applicable and is a step that the Corps could commit to taking now.	Breaching the earthen embankment of the lower Snake River dams is a major Federal action that conflicts with the authority granted by Congress under which these projects were constructed and are operated. Therefore, de-authorization of the projects by Congress would be required prior to this action occurring. This action also would require expenditures from the Federal government to implement the action which have not been appropriated. The co-lead agencies do not have the authority to override Federal decisions of Congress, remove congressionally approved purposes, or appropriate Federal monies outside of the decisions outlined in annual Congressional Federal appropriation bills. De-authorization and appropriation for the breaching of the earthen embankments are a requirement to implement MO3, which includes breaching the four lower Snake River dams. More information is available in the Corps Engineering Regulation (ER) 1165-2-119 Water Resources Policies and Authorities, Modifications to Completed Projects (Sept. 20, 1982) or ER 1105-2- 100, Appendix G, Section III Post Authorization Changes.
6929	12	Chandra Ferrari; chandra.ferrari@tu.org	Trout Unlimited	d. The DEIS understates biological, ecological and economic benefits of wild fish recovery that MO3 would deliver As described more fully in Section II(a)(ii)(b) supra, the DEIS does not fully capture the range of biological and ecological benefits likely to materialize from breaching the lower Snake River dams. The DEIS also fails to fully capture the economic benefits from breaching. One of 51 See Envtl. Def. Fund, Inc. v. Army Corps of Engineers, 492 F.2d 1123, 1135 (5th Cir. 1974) ([u]nder NEPA, an agency must consider [reasonable] alternatives which may be outside its jurisdiction or control, and not limit its attention to just those it can provide. Central to NEPAs goal of ensuring that agencies do not undertake a project without intense consideration of other more ecologically sound courses of action is a thorough consideration of all appropriate methods of accomplishing the aim of the action, including those without the area of the agencys expertise and regulatory control.) 52 See NEPAs Forty Most Asked Questions, Question 2b.(A) https://www.fws.gov/r9esnepa/NEPA_Handbook/40_Asked_Questions.pdf. April 13, 2020 Page 30 the glaring weaknesses is the failure to assign an economic value to wild fish recovery and increased angling activity that dam breaching and wild fish recovery would bring. Instead, the DEIS uses a qualitative analysis to suggest that new opportunities for angling and recreation may offset other changes. Fishing Activities, as well as other recreation types, would be considerably reduced in the short term during and immediately following breach, but could rebound in the long-term as anadromous fish populations improve. The largest increases in the number of Snake River salmon and steelhead are projected under MO3. Therefore, fishing for these anadromous species could increase in the long term relative to the No Action Alternative. The value of trips could also increase due to the increased abundance and diversity of wild fish. DEIS, p. 3-1214 [N]ew opportunities for land and water-based river recreation and possibly anadromous recreational fishing may offset visitation lossesand recreational opportunities may even increase in the long-term relative to the No-Action Alternative. DEIS, pp. 3-1222, 1223 Despite acknowledging that breaching presents increased long-term fishing opportunity, the DEIS entirely excludes the monetary value of post-breach salmon and steelhead fishing. The DEIS claims that fishing value is limited by uncertainties related to ESA restrictions and similar estimates were excluded from 2002 Corps analysis that was used as the primary basis of this economic impact estimate for the breach option. DEIS, p. 3-1219. In effect, this leaves MO3 without an assigned economic benefit in the DEIS. This improperly skews the finely tuned balancing analysis between environmental and economic considerations that the DEIS must undertake.53 NEPA does not permit analytical gaps. The Action Agencies must find ways to quantify values or properly weigh unquantified environmental amenities and values.54 To remedy this deficiency, the Action Agencies should utilize available, relevant information 53 See Calvert Cliffs Coordinating Comm. v. U.S. Atomic Energy Commn, 449 F.2d 1109, 1113 (D.C. Cir. 1971) (NEPA mandates a rather finely tuned and systematic balancing analysis of environmental costs against economic and technical benefits). 54 NEPA section 102(2)(b); 42 U.S.C. section 4331(a). April 13, 2020 Page 31 including values from the EcoNorthwest Economics Tradeoff Study and provide better assurance that these values are being fully captured in the alternatives selection process. 55	The EIS evaluated beneficial and adverse effects across an array of resource areas including potential effects at the national, regional and local level; effects are monetized and quantified, where possible, and also described qualitatively. As is common in NEPA analyses, the beneficial and adverse effects of the alternatives are expressed as a variety of qualitative and quantitative environmental and economic metrics throughout the EIS to inform decision-making, including the effects of the alternatives on fish as detailed in Section 3.5. That the effects of the alternatives on fish are not expressed as monetized economic values does not mean that they were not considered in the context of the analysis. The EIS does not employ a cost-benefit framework for decision-making. Instead, the EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as the dam breaching alternative. However, the Preferred Alternative also meets most of the other objectives of the study for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. The EIS describes the effects of the alternatives, including dam breach under MO3, on fish (Section 3.5), wildlife (Section 3.6), air quality and greenhouse gases (Section 3.8), recreation (3.11), and commercial fisheries and passive use (Section 3.15). While the effects on fish and passive uses are not monetized, they are described qualitatively. The EIS described the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. NMFS estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which is described qualitatively. For the effects on recreational fishing under MO3 (Section 3.11.3.5) along the lower Snake River below Lewiston, the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River) as an indicator for fishing visitation in this reach. The EIS describes that the visitation in the long-term in the lower Snake River, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting outfitting and tourism businesses in the region. The social welfare values and regional economic effects associated with recreational fishing under the MOs, as well as river recreation post dam breach under MO3, were not estimated because of the uncertainty and large range in visitation and consumer surplus values among users. The ECONorthwest analysis and the EIS employ different analytical frameworks and rely on different findings with respect to the outcomes of breaching the four lower Snake River dams. First, the ECONorthwest report applies a cost-benefit analysis framework, emphasizing monetization of all categories of impacts. Consistent with NEPA analysis frameworks, the EIS expresses beneficial and adverse effects across a variety of qualitative and quantitative environmental and economic metrics. That the effects of the alternatives on fish are not quantified as monetized economic values does not mean that they were not considered in the context of the analysis. Second, the findings of the ECONorthwest report that the benefits outweigh the costs of breaching the dams rely on the implicit assumption that breaching would result in restoration of salmon populations. The fish effects analysis in Section 3.5 of the EIS does not find that Multiple Objective alternative 3 would result in recovery of salmon or steelhead populations or in restoring the populations to historical levels. Thus, the values presented in the ECONorthwest report should not be considered as representative of the benefits of MO3. However, the results from the ECONorthwest study contribute to the overarching conclusion of Section 3.15.2.2 that describes that the literature consistently demonstrates that people hold passive use values for salmon.. Consistent with this comment, the EIS describes that the results of the study are designed to reflect the value people hold for restoring salmon populations and therefore have limited applicability to the benefits of the CRSO alternatives.
6929	13	Chandra Ferrari; chandra.ferrari@tu.org	Trout Unlimited	ix. The Cumulative Effects Analysis Lacks Sufficient Detail to Permit a Meaningful Understanding of How Interconnected Actions Will Affect Aquatic Resources NEPA regulations specify that an EIS should consider cumulative impacts of agency action in an EIS. 40 C.F.R. 1508.25(c). Cumulative impact is defined as the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency... undertakes such other actions. Id. 1508.7. NEPA regulations also require analysis of indirect effects of an agency action. The indirect effects of an action are those caused by the action and are later in time or farther removed in distance but are still reasonably foreseeable. 40 C.F.R. 1508.8(b). More than a cataloguing of related past, present, and future actions is needed; the DEIS must provide	The co-lead agencies recognize both human-caused and natural factors that are outside the responsibility and control of the co-lead Federal agencies, also contribute to the decline and recovery of ESA-listed species, and would continue to strongly influence fish and their habitat. Salmon and steelhead have been adversely affected in the Columbia River Basin over the last century by many activities including human population growth, urbanization, introduction of exotic species, overfishing, development of cities and other land uses in the floodplains, water diversions for all purposes, dams, mining, farming, ranching, logging, hatchery production, predation, ocean conditions, and loss of habitat. Chapters 6 and 7 incorporate the past and present effects described in Section 3.5 into the cumulative effects analysis for fish as described below. The cumulative action analysis methods are based on the policy guidance and methodology originally developed by CEQ (1997a). This method includes identifying affected resources and associated direct/indirect effects; establishing the geographic and temporal boundaries of the analysis; identifying the cumulative action scenario; and analyzing the cumulative effects.

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				detailed analysis.56 [V]ery broad and general statements devoid of specific, reasoned conclusions, will not suffice.57 Regrettably, especially as it relates to impacts to anadromous and resident fish populations, the DEIS mostly catalogues applicable cumulative actions, emphasizes uncertainty and engages in no real analysis of how the actions interplay. For example, the DEIS highlights 17 actions, in addition to the preferred alternative, that will cumulatively affect anadromous fish but contains little specific analysis about these actions relying instead on general conclusions and deferral to uncertainty. Depending on which model is used (LCM or CSS), the effects to anadromous fish in Regions C and D would likely have the potential to range from a major adverse effect to 55 See Economic Study on Lower Snake River Dams: Economic Tradeoffs of Removal, ECONorthwest, July 29, 2019 available at https://static1.squarespace.com/static/597fb96acd39c34098e8d423/t/5d41bbf522405f0001c67068/1564589261882/LSRD_Economic_Tradeoffs_Report.pdf 56 Muckleshoot Indian Tribe v. U.S. Forest Service, 177 F.3d 800, 810 (1999). [The EIS] must analyze the combined effects of the actions in sufficient detail to be useful to the decision maker in deciding whether, or how, to alter the program to lessen cumulative impacts [quoting City of Carmel-By-The Sea v. U.S. Dept. of Transp., 123 F.3d 1142, 1160 (9th Cir. 1997)]. Detail is therefore required in describing the cumulative effects of a proposed action with other proposed actions. Neighbors of Cuddy Mountain, 137 F.3d at 1379; see also Blue Mountains Biodiversity Action v. Blackwood, 161 F.3d 1208, 1214-15 (9th Cir. 1998). 57 Id. at 811. April 13, 2020 Page 32 a major beneficial effect. These results also vary by ESU and DPS. Consistent with Chapter 6, the co-lead agencies determined RFFAs 1, 2, 3, 5, 6, 7, 8, 12, 13, 14, 15, 17, 19, 20, 22, 23 and 26 would likely impact anadromous fish. RFFAs that have the potential to increase TDG, water temperatures, variability of flow, and reduce water levels in the future, such as population growth and development, changes in land use, water withdrawals, new storage projects in the mid-Columbia basin, habitat degradation, and climate change, which could adversely impact anadromous fish, but it is uncertain to what degree. DEIS, p. 7-209. The consideration of cumulative impacts must contain some quantified or detailed information and general statements about possible effects and some risk do not constitute a hard look absent a justification regarding why more definitive information could not be provided.58 This omission lessens the value of the DEIS as the level of improvements that fish populations will see over the life of the project is, in part, dependent on how these other categories of activities are implemented. The fact that the DEIS is constructed to minimize the scope of the Action Agencies obligations to fish species makes it even more critical that these interdependent actions be fully analyzed and considered together in the cumulative effects section. For example, the DEIS fails to give more than a cursory analysis to certain past, present and reasonably foreseeable future impacts to fish populations, such as hatchery and harvest impacts. In the case of hatchery impacts, as noted in Section II(a)(ii)(d) supra, those that are supported by the LSRCP should have been analyzed in the DEIS as direct effects. However, in addition to the LSRCP hatcheries, the DEIS notes that there are more than 100 other hatchery programs in the Columbia River basin. DEIS, p. 6-10. The past, present and reasonably foreseeable future effects of these other hatcheries are appropriately part of the cumulative effects analysis and require more than a perfunctory non-quantitative nod. The science is clear that the productivity and resiliency of wild populations decreases when hatchery fish spawn in the wild and that density-dependent effects are due, in part, to supplementation programs. ISAB at 141. The DEIS generally notes that there are adverse effects that would continue to occur from interactions between hatchery and naturally reproduced 58 Great Basin Mine Watch v. Hankins, 456 F. 3d 955, 971 (9th Cir. 2006). April 13, 2020 Page 33 fish but proceeds to devote the majority of the cumulative effects analysis on this topic to the adverse effect of MO3 concerning reduction of hatchery fish leading to decreased juvenile production. DEIS, pp. 6-44, 6-48. This is a very narrow lens with which to view such a complex issue and constitutes little more than a general statement about possible effects. The cumulative effects analysis should analyze how past and present hatchery activities affect wild salmon and steelhead populations and how reasonably foreseeable actions could alleviate density-driven limits and genetic effects on wild salmon and steelhead. Whether and how these impacts are alleviated will affect the productivity of wild salmon and steelhead which in turn will help determine how effectively the alternatives will meet ESA and recovery goals. This is just one example. As a practical matter, the piece-meal approach to different actions taken in the past, and continued in this DEIS, frustrates rather than enables informed decision-making. The fact is that the major actions being implemented in the Columbia basin are interdependent. Their respective impact on salmon and steelhead (positive and negative) depends on what happens in the other major action areas. Together, they have cumulative impacts on salmon and steelhead. The cumulative effects analysis is the only opportunity in the DEIS, as currently constructed, to consider the potential gains/impacts from various actions in a comprehensive, holistic manner. The DEIS is legally insufficient without it.	The Environmental Consequences sections of Chapter 3 present the direct and indirect effects of the Columbia River System Operations (CRSO) Environmental Impact Statement (EIS) Multiple Objective Alternatives (MOs) on each resources affected environment as presented in the Affected Environment sections of Chapter 3. The resource conditions described in those sections account for the effects to resources related to past and present actions. Chapter 6, Cumulative Effects, further considers the cumulative effects of each alternative combined with reasonably foreseeable future actions and conditions for all resources. RFFAs are considered in the cumulative effects analysis for each resource in chapter six. RFFAs are proposed activities that could cause similar effects in the same space and time as the MOs, but that are proposed by an outside entity. RFFAs are not yet implemented. Quantitative evaluations were conducted to determine the effects of each of the alternatives when appropriate. In instances when quantitative evaluations were not appropriate or possible, qualitative discussions are included to describe the effects of each of the alternatives. The evaluations are clear, transparent, and repeatable based on the best available information. See Sections 6.3.1.4 and 7.9.7 for the cumulative effects analysis to Anadromous Fish.
6929	14	Chandra Ferrari; chandra.ferrari@tu.org	Trout Unlimited	x. The DEIS Climate Change Analysis is Legally Insufficient and Does Not Comport with the Courts Directives NEPA requires agencies to consider the environmental impact of a project and courts have made clear that obligation extends to climate-related environmental impacts.59 Additionally, the Action Agencies note that the purpose of the DEIS is, in part, to respond[] to the Opinion and Order issued by the U.S. District Court for the District of Oregon. DEIS, Executive Summary, p. 16. A key purpose of the DEIS is to [c]onsider and plan for climate change impacts on resources and on the management of the System. Id. Despite these guiding directives, the 59 Center for Biological Diversity v. NHTSA, 508 F.3d 508, 556, 37 ELR 20281 (9th Cir. 2007); Western Organization of Resource Councils et al v. U.S. Bureau of Land Management et al, No. 4:2016cv00021 - Document 34 (D. Mont. 2017); High Country Conservation Advocates v. United States Forest Service, Civil Action No. 13-cv-01723-RBJ (D. Colo. June 27, 2014). April 13, 2020 Page 34 Action Agencies have failed to produce a climate change analysis that is legally sufficient under NEPA or comports with the Courts directive. In its ruling ordering this EIS and a companion biological opinion, the U.S. District Court found that climate change will have a significant negative effect on salmon and steelhead populations and conveyed its expectation that the EIS and the companion biological opinion thoroughly consider climate change effects on ESA-listed salmon and steelhead. The Court described the many ways climate change will impact Columbia River salmon and steelhead: The best available information indicates that climate change will have significant negative effect on the listed populations of endangered or threatened species. Climate change implications that are likely to have harmful effects on certain of the listed species include: warmer stream temperatures; warmer ocean temperatures; contracting ocean habitat; contracting inland habitat; degradation of estuary habitat; reduced spring and summer stream flows with increased peak river flows; large-scale ecological changes, such as increasing insect infestations and fires affecting forested lands; increased rain with decreased snow; diminishing snow-packs; increased flood flows; and increased susceptibility to fish pathogens and parasitic organisms that are generally not injurious to their host until the fish becomes thermally stressed. Even a single year with detrimental climate conditions can have a devastating effect on the listed salmonids. 184 F.Supp.3d at 874. After finding that the best available information indicates that climate change will have a significant negative effect on endangered and threatened salmon and steelhead in the Columbia and Snake Rivers, the Court described what the climate change analysis must contain. Importantly, the Court indicated that the analysis should be based on the best available science, assess climatic changes as additive to the harm already inflicted by dams and other human activities and assess if and how climatic change will affect actions already being taken to restore endangered salmon. Id. That latter point is key as it recognizes that certain measures will be less effective going forward or over a longer-term because of the additive effects of climate change. Further, the Court noted that if climate change impacts on fish populations are large, measures to prevent or moderate them must be large enough to ameliorate the impacts. The Columbia-Snake Basin is a critical geography for salmon and steelhead populations and actions taken pursuant to this EIS will dictate how resilient these populations will be to climate April 13, 2020 Page 35 change effects. Actions that are not guaranteed to meaningfully improve SARs or address limiting factors under current conditions will leave salmon and steelhead populations even more vulnerable to the extreme conditions expected with climate change bringing their extinction closer. The DEIS acknowledges that anadromous fish will be negatively affected by climate change and that the preferred alternatives benefits are likely to be offset by these effects. Because temperature is such a critical factor to anadromous fish habitat, increases in stream temperature due to increased air temperature and changes in hydrology, including declining snowpack, could further impact fish in all regions. Increased water temperatures could also increase suitable habitat for invasive species (e.g., shad and small mouth bass) that could have adverse impacts to native anadromous fish. Positive effects for anadromous species in this Preferred Alternative could be offset by adverse effects from changes in flow and increased stream temperature due to climate change. DEIS, p. 7-201. Yet, contrary to the Courts direction, there is no analysis of the degree to which climate change will cause added harm to listed species and reduce the effectiveness of mitigation measures, and whether the purported benefits from the preferred alternative are sufficient in light of additional harm and decreased effectiveness. The preferred alternative is not guaranteed to even meet replacement level smolt-to-adult return rates for certain species under current conditions. Climate change effects will make it even more difficult for the preferred alternative to meet those target rates and the benefits that it does offer will likely erode with time. Without the implementation of actions that have larger, more durable benefits, anadromous fish populations will continue to decline. Neither does the DEIS adequately explain how it can find that the preferred alternative meets its purpose and need to plan for climate change impacts on resources. Articulating an inadequate solution that will be less effective with time is not a plan to deal with climate change. To better plan for climate change, the DEIS should have identified how climate change will affect specific regions in the Columbia Basin more than others such that certain actions should be prioritized as providing more benefit to salmon and steelhead populations in climate change conditions. It should have then used that information to identify actions sufficient in magnitude and number to	The technical and policy elements of this Draft EIS are in full compliance with binding USACE policy and guidance for qualitative assessment of climate threats and their plausible effects and impacts. The primary controlling policy and guidance are the USACE Climate Adaptation Policy Statement, signed by the Assistant Secretary of the Army for Civil Works in 2011, updated and signed again in 2013, and remains in force now; and USACE Engineering and Construction Bulletin 2018-14, "Guidance for Incorporating Climate Change Impacts to Inland Hydrology in Civil Works Studies, Designs, and Projects." The numerical-model simulated outputs were evaluated by multiple technical means (see record of the full USACE Agency Technical Review), and were tested using the set of analytical measures created by the USACE Climate Preparedness and Resilience program to ensure that sound science and engineering compliance with USACE climate change policy and guidance. Those analytical tests are described in ECB 2018-14 (listed just above) and in USACE Engineer Technical Letter 1100-2-3, "Guidance for Detection of Nonstationarities in Annual Maximum Discharges." The assessment of climate threats and impacts is qualitative only in the sense that the biological and other impacts models did not directly ingest the physical hydroclimatology outputs modeled for the assessment. Those hydroclimatology outputs are fully quantitative and so can be the basis for refined estimates of effects and impacts should those be required following this Draft EIS. The decline of salmon populations is complex and recovery of those species will take collaboration between various agencies including NOAA and the Tribes. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide meaningful benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. The co-lead agencies acknowledge that the ocean environment is a contributor to the decline in salmon populations that is beyond the scope of the CRSO EIS. While none of the alternatives would affect ocean conditions, we recognize that these conditions are a major driver for adult returns and that numerous studies have shown the importance of this environment in the return of adult salmon and steelhead (Peterson et al. 2019). As such two of the models used in these analyses, NMFS Lifecycle and CSS models, use metrics of ocean productivity to predict adult returns. The climate science community is still developing quantitative models that can address possible effects in water temperature from climate change, and unfortunately, have not been fully applied and validated for use with climate affected regulated flow projections of large reservoir systems. This data is critical to analyzing potential effects to fish quantitatively. The same is true for projecting changes to TDG. In lieu of this information, the climate analysis used the output from resource models, like water quality and fish, under historical conditions, available climate change data, and scientific literature to qualitative assess potential effects to resources (described in Chapter 4). These analyses are documented in Section 4.2.3 for the MO Alternatives and Section 7.8.4 for the Preferred Alternative. Overall, the Preferred Alternative is expected to result in benefits to anadromous salmon and steelhead. The analysis in Section 7.8.4 recognizes that some of the benefits to fish from the Preferred Alternative could be offset by the effects of climate change. Under a dam breach scenario, spring water temperatures will warm more quickly than No Action conditions. Similarly in the fall, under a dam breach scenario, fall water temperatures will cool more quickly than No Action conditions. These results make logical sense and are supported by results from CRSO numerical water quality modeling. What has surprised some stakeholders are the predicted summer water temperature effects under dam breaching. Many believe that removing the dams will result in colder water temperatures as compared to the No Action Alternative. While some cooler water temperatures may be observed in the summer under dam breaching, especially during cooler summer weather conditions and at night, water temperatures will remain warm and exceed the state water quality standard at times. This is because without the dams, the lower Snake River will be shallower and more susceptible to solar radiation and warming. Increases in water particle travel time are expected, but the lower Snake River has always been a warm system (USGS 1960, 1961, 1964; Corps 2002a) and breaching the dams will not change this fact. Regionally high air and water temperatures result in water quality standard exceedances and are beyond the ability of the CRS to cool; future climate change predictions will result in even more difficult challenges.

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				address the scale of the climate change threat. For example, the DEIS should have acknowledged the significant level of high-quality cold-water fish habitat in the April 13, 2020 Page 36 Snake River Basin that is expected to remain in the face of climate change and the role that dam removal would play in connecting imperiled fish to that habitat. 60	
6931	1	theconservationangler@gmail.com	N/A	Our comments on the Columbia River DEIS focus primarily on the failures of the Action Agencies Preferred Alternative, which, unless there is a huge turn of events that occurs during your review, will not result in choosing an alternative that leads to a fundamental, thoughtful or comprehensive solution to the regions salmon, energy and environmental issues. The Columbia River DEIS maintains a poor status quo for the wild fish and the communities. It will also fail to protect endangered Columbia-Snake River wild salmon and steelhead, perpetuates failing and subsidized infrastructure and river operations and ignores solutions that are as plain as day for all communities. The Columbia River DEIS considers multiple management alternatives, including one that restores the lower Snake River by removing its four federal dams. However, this option is rejected in favor of implementing an already operational measure relying on a spill management plan already previously rejected it does not protect salmon. The Columbia River DEIS fails to fully and fairly consider exercising broad authority to consider comprehensive solutions that exceed existing legal authorities. As a result, the DEIS only focuses on extinction preventing rather than wild salmon and steelhead restoration. Yet even independent scientific analysis demonstrates that current spill levels will not reverse the current decline of wild salmon and steelhead populations and in fact, only serve to make the river safer for hatchery fish which are even less able to survive their journeys to the 80 or more artificial production facilities that merely add to the travails for wild steelhead and salmon. The Columbia River DEIS fails to articulate a decision-making path forward that provides solutions to specific problems that exist as a result of 90 years worth of mistakes. The Preferred Alternative does nothing to avoid ensuring that salmon recovery must compete with clean energy presenting poor and false choice between affordable energy bills and restoring healthy salmon and steelhead because it exaggerates the cost of replacement power with clean energy sources. The Preferred Alternative ignores wild salmon science throughout the Columbia and Snake River Basins because it does nothing to address the regions subsidy for hatchery production. Without a focus on wild salmon and steelhead, the Federal Partners are simply trying to make the river safe for hatchery salmon and steelhead. The DEIS dismisses an overwhelming body of scientific research that makes it clear that wild salmon and steelhead are best adapted to navigate a healthy the lower Snake River and effectively use the vast amount of highly functional spawning and rearing habitat that is their best chance to recover. The Preferred Alternative ignores the benefits of increasing wild salmon and steelhead runs for struggling fishing communities and Tribal Nations, as well as fails to elaborate on the costs of maintaining the current infrastructure which is already failing, requires huge subsidies to operate and has generally failed to deliver the community and ecological benefits promised at the time of original construction. The Columbia River DEIS fails to protect wild steelhead and salmon or to acknowledge that recommendations for flexible spill at the federal dams will not change the survival benefits for endangered wild salmon and steelhead, and ignores that potential spill benefits will be eroded by climate impacts something a free flowing river can help mitigate. The Columbia River DEIS ignores the benefits and opportunities that come with wild steelhead and salmon recovery for communities up and down the Columbia and Snake Rivers. Instead the DEIS focuses on the financial costs of salmon and steelhead recovery (largely a hugely wasteful expense focused on hatchery salmon and steelhead) and ignores the sacrifices already made by all river communities in terms of lost fishing opportunity, reduced employment and incomes, impacts on Tribal cultures, diets, and feelings of well-being that come from a healthy watershed. Many economic and community benefits will be created by wild steelhead and salmon recovery investments and the associated employment that a healthy watershed generates . The Columbia River DEIS also lightly treats the positive elements of a dam removal alternative in failing to proactively address the issue of avoided costs. By helping the region step away from aging and failing infrastructure as well as the endless addiction to mitigation resources like ill-adapted hatchery salmon and steelhead, abundant flatwater recreation opportunities found elsewhere, The Action Agencies ignore the anticipated savings of more than $1 billion by eliminating the rising capital, operations and maintenance costs for the four Snake River dams. The Preferred Alternative does not contain a thoughtful, regional and agency cross-cutting investment package that absolutely should have been considered, including funding for dam removal, a re-commitment to wild salmon and steelhead recovery, clean energy initiatives and transportation projects can help solve problems and move us all forward together.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the Columbia River System. Recovery of ESA species is the purview of NMFS and the US Fish and Wildlife Service. This EIS has been developed in consultation with National Marine Fisheries Service and USFWS to minimize impacts to affected ESA species and their habitats. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the EIS objectives) as well as the EIS objectives for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. The Preferred Alternative is also more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% (the lower end of Northwest Power and Conservation Council's recovery targets for the region) as a result of the Preferred Alternative, as a result of the Preferred Alternative increasing SAR from 2.0% to 2.7% for Chinook, a 35% relative increase. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. To address uncertainty highlighted by the two models, the Preferred Alternative includes working with regional sovereigns to develop a study that assess the effectiveness of the increased spill regime on adult returns as well as assessment and management of adverse unintended consequences, such as long delays of adult migrants, or TDG-related mortality of juvenile migrants. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information. The Preferred Alternative will make a meaningful contribution towards recovery. Finally, the commenter's comments on cost savings are incorrect (See Section 3.19 and Appendix Q). For hydropower, the average annual value of the four lower Snake River dams exceeds the average annual equivalent costs. The generation value at the four lower Snake River dams can be described by a range between the cost to replace the generation through new conventional resources or through a portfolio of zero-carbon resources. Although the costs of replacing the power with market purchases was analyzed, it is unlikely that short-term wholesale power markets could reliably replace the power for the long term. This range would put the annual value of power between $240 million and $500 million for the four dams combined. These numbers represent about 90 percent of the lost benefits cited in Table 3-171 of the Draft EIS because the four dams represent about 1,000 aMW of the 1,100 aMW of lost generation estimated in MO3. The average annual cost to operate and maintain all authorized purposes at the four lower Snake River dams is $75 million (Appendix Q, Table 5-1) and the annual-equivalent capital costs are $32 million (Appendix Q, Table 4-1). Hydropower costs funded by Bonneville represent about $50 million of the total annual operations and maintenance costs and nearly all of the annual capital costs, approximately $31 million. This puts the annual-equivalent power-specific costs at approximately $81 million a year. As a result, the net benefits from hydropower for the four lower Snake River dams are between $159 million and $419 million and the benefit-cost ratios are between 3.0 and 6.2. If the $34 million per year for the Lower Snake River Compensation Plan is added to the capital and expense costs, benefits still exceed costs under each replacement power scenario. Considering these costs, the net benefits range from $125 million to $385 million and the benefit-cost ratios range from 2.1 to 4.3. In the less-likely scenario that generation could be reliably replaced with short-term wholesale market purchases and assuming that the four dams represent 90% of the $150 million in market purchases required to replace the lost generation cited in MO3 (see Table 3-170), the lower bound for net benefits would fall to $54 million and the benefit-cost ratio would fall to 1.7. With the Lower Snake River Compensation Plan included, the lower bound for annual net benefits becomes $20 million and the benefit-cost ratio becomes 1.2. From a resource competitiveness perspective, the four lower Snake River dams are among the least costly generating resources in the Federal Columbia River Power System (FCRPS) and the planned investment strategy is expected to maintain that status. As shown in the Federal Hydropower presentation at the 2018 Integrated Program Review1/, the Headwater/Lower Snake Asset Class/2 is forecast to have a 50-year levelized cost of generation/3 of $11.41/MWh based on the direct funded capital and expense (O&M) programs outlined in that process. These costs remain competitive with volatile Mid-Columbia spot market energy prices, which averaged $37/MWh in 2019 and have averaged $21/MWh in 2020. 1/ The Integrated Program Review (IPR) allows interested parties to see and comment on all relevant Federal Columbia River Power System (FCRPS) capital and expense (O&M) spending level estimates in the same forum. The IPR occurs every two years, or just prior to each rate case, and is the public review for the costs that will be recovered through rates the following two-year rate period. Long-term forecasts for the next 50 years and major upcoming projects are also shared in this forum. This information is available here: https://www.bpa.gov/Finance/FinancialPublicProcesses/IPR/2018IPR/IPR%202018%20Fed%20Hydro%20Workshop.pdf and is incorporated by reference into this EIS. 2/ In the 2018 Integrated Program Review, the Headwater/Lower Snake Asset Class consisted of the four lower Snake River dams, Hungry Horse, Libby, and Dworshak dams. These projects were grouped together because they have similar cost characteristics. The Levelized Cost of Generation for the four lower Snake projects alone is slightly lower than that for the whole class including the headwater projects shown in the table. 3/ Levelized Cost of Generation is defined as the forecasted direct costs and administrative overheads of producing power at a plant annualized over a 50-year period. This cost includes direct funded operations, maintenance, administrative and capital costs as well as Columbia River Fish Mitigation (CRFM) costs. Bonneville system-wide mitigation costs, such as its Fish and Wildlife program, are not included in this metric.
6931	2	theconservationangler@gmail.com	N/A	We have attached several documents to our comments, and which we wish to incorporate by reference into our comments for your consideration. They include: 1. DEIS IDFG Former Commissioners Comments 2. NW Environmental Advocates Comments on USEPA Cold Water Refugia Plan 3. USEPA Columbia River Cold Water Refugia Draft Plan (Oct 2019) (See Link) 4. Master Collected Quotes: Impact of Hatchery Fish on Wild Fish (Bakke 2019) 5. Lewis and Clarks White Salmon Trout: Coho Salmon or Steelhead? Part I - VI By Bill McMillan (see Link) Report Link for reference 3: file:///C:/Users/theco/Downloads/EPA%20columbia-river-cwr-plan-draft-october-2019.pdf Report Link for Reference 5: https://theconservationangler.files.wordpress.com/2017/05/part-i_lewis-and-clark-steelhead-discovery_part-i_addition_4-7-2017-1.pdf	Thank you for the information.
6932	1	ireland@kootenai.org	Kootenai Tribe of Idaho	The Kootenai Tribe has submitted comments on the Columbia River System Operation Draft Environmental Impact Statement (DEIS) through letters from the Upper Basin Sovereigns and the Upper Columbia United Tribes. In addition, the Kootenai Tribe emphasizes the importance of continued Government to Government consultation with the Co-Lead Agencies on the DEIS and Appendix V - Columbia River System Biological Assessment.	The co-leads appreciate your comments and participation in the development of the Draft EIS. The co-lead agencies will continue to consult with the Kootenai Tribe of Idaho throughout this process.
6935	1	sharongrace@centurylink.net	N/A	Fatal Flaws Abound in the CRSO DEIS The Federal Agencies Failed to Comply with the National Environmental Policy Acts Central Purpose, which Is to Inform The National Environmental Policy Act (NEPA) requires an EIS for a proposed action that will significantly affect the quality of the environment. NEPA and its implementing regulations clearly set forth the purpose of an EIS. It shall provide full and fair discussion of significant environmental impacts and shall inform decisionmakers and the public of the reasonable alternatives which would avoid or minimize adverse impacts or enhance the quality of the human environment. 50 CFR 1502.1. To do this [t]he EIS should present the environmental impacts of the proposal and the alternatives in comparative form, thus sharply defining the issues and providing a clear basis for choice among options by the decisionmaker and the public. 50 CFR 1502.14. The DEIS fails to sharply define the issues or provide a clear basis for choice among the alternatives. For example, it is difficult even to find a cohesive, concise definition of the proposed action for which the CRSO EIS is required. The definition below is borrowed from the Endangered Species Act (ESA) Section 7(a)(2) Biological Opinion and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Response, Continued Operation and Maintenance of the Columbia River System, p. 29: This ESA section 7(a)(2) consultation evaluates the effects of an ongoing federal action: the operation, maintenance, and management of the 14 federal dam and reservoir projects in the Columbia River System that are managed as a coordinated system for multiple congressionally authorized public purposes by the Action Agencies (BPA et al. 2018a). The proposed action includes operational measures (e.g., flood risk management, navigation, fish passage, and hydropower generation) and non-operational measures (e.g., support for conservation hatchery programs, predation management, habitat improvement actions, and RM&E programs). The proposed action, including both operational and nonoperational measures, is largely consistent with RPA measures stemming from the 2008 biological opinion, as supplemented in 2010 and 2014. Presumably this is also the CRSO DEIS No Action Alternative from September 2016, that this member of the general public could not find in the DEIS. Compare this to the confusing Purpose and Need Statement set forth in the CRSO DEIS Executive Summary, p. 16. Since the federal agencies use the No Action Alternative as the baseline, the failure to provide a clear definition of the No Action Alternative is a fundamental failure. The CRSO DEIS is not user friendly. For example, eleven downloads are necessary to obtain a complete copy of the DEIS. Each section does not have its own table of contents. Only the first download contains the table of contents, the table of figures, the table of tables, and the definitions for abbreviations. Therefore, the reader must go back and forth between the first part and any other part to find particular sections or subjects of interest. Perhaps more significant is the fact that for key word searches, one must search through eleven separate downloads in an attempt to find information on a particular subject. This might be reasonable if the comment period were six months. But it is not reasonable for a 45 day comment period. The DEIS is difficult to understand. It uses industry and scientific jargon and goes into great detail on many issues only experts could understand, while providing little or no detail on foundational elements for the public. As an informational document, the CRSO DEIS should be written in lay language that clearly and concisely sets forth each alternative and its associated effects on the environment. This it fails to do.	Chapter 8 of the EIS demonstrates the co-lead agencies' compliance with various laws, including NEPA and the ESA. The No Action Alternative is described in detail in Chapter 2 and its effects are discussed in throughout Chapter 3 in the respective affected resource sections. The proposed action (i.e. preferred alternative) is described and analyzed in detail in Chapter 7. The Table of Contents will be expanded in the Final EIS to aid readers in finding materials. The index is also a good reference. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the Columbia River System. That call, however, is ultimately the role of NMFS and the USFWS. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. The public had several ways to submit comments such as the online comment form and through the mail. Given the broad range of comments received and the extensive Federal and non-Federal participation in the overall process as well as the level of public engagement in the six virtual public hearings in the region, the co-lead agencies determined the 45-day public comment period was adequate consistent with NEPA regulations
6935	2	sharongrace@centurylink.net	N/A	Another fundamental failure is that the DEIS is biased heavily in favor of operations and maintenance of the hydrosystem and its economic effects, while paying almost no attention to commercial, sport or recreational fishing and its economics. It is also biased heavily in favor of the economics of the status quo, rather than the economics abundance fish runs would provide to the Snake/Columbia Basin economy, or the economic benefit that would accompany dams breaching.	The EIS evaluated beneficial and adverse effects across an array of resource areas including potential effects at the national, regional and local level; effects are monetized and quantified, where possible, and also described qualitatively. As is common in NEPA analyses, the beneficial and adverse effects of the alternatives are expressed as a variety of qualitative and quantitative environmental and economic metrics throughout the EIS to inform decision-making, including the effects of the alternatives on fish as detailed in Section 3.5. That the effects of the alternatives on fish are not expressed as monetized economic values does not mean that they were not considered in the context of the analysis. The EIS does not employ a cost-benefit framework for decision-making. Instead, the EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as the MO3 which includes the dam breaching measure. The Preferred Alternative also meets the EIS objectives for: resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS the co-lead agencies did not identify MO3 because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. The EIS recognizes the value of recreational and commercial fishing to the region. Section 3.15 describes the values associated with fisheries in the Northwest. Section 3.11 characterizes the sportfishing economy in the region. However, the uncertainty regarding the overall effects of the alternatives on regional fish populations, and how such changes may affect the management of the fisheries, limits a quantitative analysis of the specific impacts of each alternative on these values. The

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					effects are therefore discussed qualitatively. The social welfare effects on fisheries under MO3 are described as major and beneficial in the long-term, with increases in regional economic effects if commercial fish catch rates increase. For the effects on recreational fishing under MO3 (Section 3.11.3.5), the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River). As described in Section 3.15.3.5, under MO3 commercial and ceremonial and subsistence fisheries targeting anadromous fish species across all regions may see major beneficial effects in the long term. Ceremonial and subsistence fisheries targeting residential species in Region C may see long term benefits, while those in Regions A may experience some moderate adverse effects. As described in Section 3.15.3.5, under MO3 commercial and ceremonial and subsistence fisheries targeting anadromous fish species across all regions may see major beneficial effects in the long term. Ceremonial and subsistence fisheries targeting residential species in Region C may see long term benefits, while those in Regions A may experience some moderate adverse effects.
6935	3	sharongrace@centurylink.net	N/A	An additional foundational flaw in the DEIS is that the federal agencies failed to consider readily available public documents when they drafted the document. Examples are reports drafted by Rocky Mountain Econometrics on hydropower, transport, and navigation; NOAAs studies and recovery plans for Snake/Columbia Basin salmonids; NOAAs studies and documents that discuss the importance of Columbia River Chinook to Southern Resident Killer Whales; University of Washington studies documenting the importance of Columbia summer/spring Chinook to Southern Resident Killer Whales; Earth Economics reports on Snake or Columbia Basin recreation, natural capital, and the economic benefits of breaching the dams; independent studies on Pacific Northwest energy resources, and public studies of reservoir greenhouse gas emissions, to point out a few.	In the Draft EIS, the co-lead agencies used current high quality information and best science, including models, reports and studies published in peer review science journals, in the analysis of these issues. Chapter 11 in the Draft EIS includes references of the many relevant local and published documents considered by the co-lead agencies in the Draft EIS. In the case of documents on killer whales the list of current high quality information reviewed included: NMFS. 2013. Southern Resident Killer Whales: 10 years of Research and Conservation Report Summary; FR. 4264. Endangered and Threatened Species Initiation of 5-Year Review for Southern Resident Killer Whales; NOAA. Ford, Michael J. 2013. Status Review update of Southern Resident Killer Whales; Ford, Michael J., Jennifer Hempelmann, M. Bradley Hanson, Katherine L. Ayres, Robin W. Baird, Candice K. Emmons, Jessica I. Lundin, Gregory S. Schorr, Samuel K. Wasser. 2016. Estimation of a Killer Whale (Orcinus orca) Population's Diet Using Sequencing Analysis of DNA from Feces. PLOS One 11(1): e0144956. Doi: 10.1371/journal.pone.0144956; NMFS. 2016. Southern Resident Killer Whales and Snake River Dams Fact sheet; NOAA. 2016. Southern Resident Killer Whales (Orcinus orca) 5-Year Review: Summary and Evaluation; NOAA. 2018. Southern Resident Killer Whale Priority Chinook Stocks; NOAA. 2019. Endangered Species Act Section 7(a)(2) Biological Opinion, and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Consultation for the Continued Operation and Maintenance of the Columbia River System; NOAA. 2008. Recovery Plan for Southern Resident Killer Whales (Orcinus orca); NOAA. 2018. Salmon recovery and Southern resident killer whale Status; NOAA. 2015. Distribution and Diet of Southern Resident Killer Whales; NOAA. Southern Resident Killer Whale; Priority Chinook Stocks Report. 2018. NMFS West Coast Regional and Washington Department of Fish and Wildlife.
6935	4	sharongrace@centurylink.net	N/A	The DEIS Is Fatally Flawed since the Federal Agencies Suppressed Relevant Information from the Public while Drafting the DEIS The federal agencies are required to make every effort to disclose and discuss at appropriate points in the draft statement all major points of view on the environmental impacts of the alternatives including the proposed action. Emphasis added; 50 C.F.R. 1502.9. The federal agencies failed to comply with this regulatory mandate. In fact, rather than share major points of view while drafting the EIS, the federal agencies actively suppressed information. At the same time the federal agencies were sending updates to the public, (see the Columbia River Systems Operations Update that the federal agencies emailed, mailed and made available on the CRSO website),1 they were hiding important fish survival information analyses developed by other agencies. To withhold this information from the public, the federal agencies required the Fish Passage Center (FPC) to sign a nondisclosure agreement that required the FPC to withhold information from decision makers and the public, until the federal agencies had published the CRSO DEIS. See Attachment 1 to these Comments, FPC Document, DeHart Memo to File re Alleged Noncompliance, dated 10/4/19. As a result, the public was able to review only that information the federal agencies published. The FPC was prohibited from posting its relevant information for the public to review until February 28, 2020, the date the federal agencies published the CRSO DEIS. On that date the FPC posted Chapter 2 of the Comparative Survival Study, the analysis of the CRSO EIS alternatives, in which the FPC determined that lower Snake River dam breaching was the best biologic alternative for salmon and steelhead. See http://www.fpc.org/documents/CSS.html, CRSO tab, Attachment 2 to these Comments. The federal agencies non-disclosure agreement regarding the FPC analyses of the DEIS alternatives forces decision makers and the public to read the FPC material, as well as the 8000 page DEIS in the short 45 comment period. The obvious purpose of the federal agencies forced nondisclosure agreement was to hinder publication of information relevant to the DEIS options. Otherwise it had no purpose. The nondisclosure agreement is particularly repugnant, in light of the fact that taxpayers and ratepayers fund the federal agencies. The public has a right to see that information as it is developed.	Bonneville contracted with several entities to help prepare certain sections of the Draft EIS. As part this process, Bonneville asked its EIS contractors with existing Bonneville contracts, including the National Marine Fisheries Service and Fish Passage Center (FPC), to sign nondisclosure agreements that would expire when the Draft EIS was released. This allowed all contractor information to be reviewed by the co-lead and cooperating agencies and integrated into the overall EIS analysis before release to the public. Specifically, Bonneville contracted with FPC and NMFS to analyze effects to fish from the No Action and Multiple Objective Alternatives. This information is displayed in Sections 3.5 and 7.4 and Appendix E. Consistent with NEPA, this information was used to inform other chapters, including Climate Change (Chapter 4), Mitigation (Chapter 5) and Cumulative Effects (Chapter 6) as well as Chapters 3 (Direct and Indirect Effects Analysis) and Chapter 7 (Preferred Alternative). Prematurely releasing information may have chilled the agencies deliberations, and without proper context it could have served to confuse the public about the actual impacts to affected resources. Thus, waiting until the Draft EIS was released allowed all relevant information to be published at the same time, providing context for the information and reducing unnecessary confusion. It also allowed the public to consider the direct, indirect and cumulative effects to resources affected by the CRS comprehensively instead of reviewing partial information. Finally, NEPA does not require release of preliminary information to the general public prior to release of the Draft EIS, but it does provide for sharing of this type of information with cooperating agencies. The co-lead agencies provided preliminary fish results including the FPCs results to all members of the EIS Fish Technical Team, which included states and Tribes. The cooperating agencies were then offered the opportunity to provide comments on this analysis prior to release of the Draft EIS. Thus, FPCs results were available to the cooperating agencies to the same extent as other analysis prepared by the agencies themselves. Any additional modeling that was not presented in the Draft EIS is not part of the CRSO EIS and was not developed or reviewed by the co-lead and cooperating agencies as part of this EIS. The co-lead agencies also note that any additional modeling conducted by FPC outside the EIS process does not have comparative NMFS Lifecycle Model results.
6935	5	sharongrace@centurylink.net	N/A	The Federal Agencies Failed to Comply with the Page Limits Prescribed in the Federal Regulations The text of final environmental impact statements (e.g., paragraphs (d) through (g) of 1502.10) shall normally be less than 150 pages and for proposals of unusual scope or complexity shall normally be less than 300 pages. Emphasis added; 50 C.F.R. 1502.7. Paragraphs (d) through (g) refer to the body of the EIS. The body includes the purpose and need for the action, the alternatives, the affected environment and the environmental consequences. This is the heart of an EIS. Nat'l Wildlife Fedn v. Nat'l Marine Fisheries Serv., 184 F. Supp. 3d at 878. To sharply define the issues and provide a clear basis for choice among the alternatives to protect ESA-listed fish did not require more than 300 pages. Nevertheless, the Army Corps of Engineers (Corps), Bureau of Reclamation (BOR) and Bonneville Power Authority (BPA) (collectively the federal agencies) ignored the page limit. Rather than draft an EIS the public and decision makers could understand, the federal agencies chose, instead, to write the body of the statement using 5000 pages in a complicated, difficult to read, difficult to analyze DEIS that does not sharply define issues or provide a clear basis for choice among the alternatives.2 To expect the public to be able to read, digest, analyze and make intelligent comments about this four-year-in-the-making DEIS in the 45 day comment period is unreasonable. Thus, the DEIS fails as an informational document.	The Draft EIS meets the requirements of NEPA, as outlined in 42 U.S.C. 4331, et seq., 40 C.F.R. Parts 1500 1508 (CEQs regulations for implementing NEPA), and co-lead agencies' specific NEPA regulations. The Draft EIS includes all required elements such as purpose and need for the action, alternatives, affected environment, and environmental consequences necessary for an EIS as outlined in 42 U.S.C. 4331, et seq., 40 C.F.R. Parts 1502.10. The Draft EIS has a large geographic scope of four states, and discusses complex and detailed information. In order to present enough information for the decisionmakers to make an informed decision and for the public to be informed, the EIS exceeded the recommended number of pages. The Executive Summary provides the reader a condensed summary of the Draft EIS. The public had several ways to submit comments such as the online comment form and through the mail. Given the broad range of comments received and the extensive Federal and non-Federal participation in the overall process as well as the level of public engagement in the six virtual public hearings in the region, the co-lead agencies determined the 45-day public comment period was adequate consistent with NEPA regulations
6935	6	sharongrace@centurylink.net	N/A	The DEIS Is Fatally Flawed because It Uses an Inappropriate Baseline The DEIS uses the No Action Alternative as a baseline against which to compare all other alternatives. While this is standard practice in ordinary EISs, this is not an ordinary EIS. There is a history of 25 years of unlawful biological opinions behind this DEIS. The Oregon district court has ruled that the No Action Alternative in the 2008 BiOp has been unlawful from the time it was first drafted, because the 73 RPAs in it fail to adequately protect ESA listed species.3 Finding negligible or minor adverse impacts to ESA listed species, when compared to an unlawful baseline, is akin to declaring, as the Bush administration did in 2004, that the dams have existed so long that they are part of the natural landscape and, consequently, dont have to be considered. The court rejected this contention.	The No Action Alternative considers what would happen if the CRS continued to be operated, maintained, and configured with no change. For this EIS, the No Action Alternative describes the operation, maintenance, and configuration of the CRS, from September 30, 2016, the date the Notice of Intent to complete the CRSO EIS was published in the Federal Register. The No Action Alternative is required by the National Environmental Policy Act (NEPA), in accordance with the Council on Environmental Quality regulations (40 Code of Federal Regulations [CFR] 1502.14). The co-lead agencies assume that, to the extent possible, all ongoing, scheduled, and routine maintenance activities for the Federal infrastructure and all structural features, including those recently constructed or reasonably foreseeable, are included in the No Action Alternative. The No Action Alternative provides a baseline condition for comparing environmental effects of the action alternatives, or MOs and the Preferred Alternative. The No Action Alternative assumes the CRS will continue to be operated for all congressionally authorized purposes, requiring a balancing of operations across the 14 projects within the CRS. Current operations include actions agreed to in previous ESA consultations among the co-lead agencies, National Marine Fisheries Service (NMFS), and U.S. Fish and Wildlife Service (USFWS). Additionally, NEPA and the ESA are different laws with different baseline definitions; the co-lead agencies applied the appropriate baseline to the No Action Alternative for the CRSO EIS.
6935	7	sharongrace@centurylink.net	N/A	The DEIS Is Fatally Flawed because It Fails to Accurately Set Forth Important Facts Another fatal flaw to the CRSO DEIS is that it fails the honesty test. Spin is abundant. For example, the federal agencies state that the Preferred Alternative better meets the Purpose and Need and objectives of the hydrosystem, while avoiding, reducing, or minimizing adverse effects to environmental, economic, and social resources. CRSO DEIS, p. 7-15. Yet the federal agencies again announce, as they did in 2002, that breaching the four lower Snake River dams and restoring the lower Snake River to a near free flowing river would give migratory fish the best chance of recovering. See, e.g., Executive Summary, p. 25. The agencies also admit that dam breaching is the most cost effective, and is supported by the tribes. Indeed, the tribes have been strong proponents of dam breaching, asserting that breaching the dams will result in large improvements to certain salmonid populations, and this in turn would have beneficial impacts to the overall function of the Northwest ecosystem and for tribal ways of life. Id. at 7-9. As the tribes and federal agencies are well aware, the Ninth Circuit en banc in United States v. Washington, 853 F.3d 946 (9th Cir. 2017), held that both Washington State and the United States governments are liable to signatory tribes for blocking or impeding salmon migration in violation of the 1855 Stevens Treaties. This exposes the United States and potentially 2 Compare this 5000 page DEIS to the 103 page report the Pentagon drafted in 2017 for the security of the United States to warn the nation of the likelihood of a pandemic brought on by a novel coronavirus, predicting with startling accuracy shortages of masks, hospital beds and ventilators that could occur in an outbreak. See, https://www.thenation.com/article/politics/covid-military-shortagepandemic/. 3 The DEIS states that the No Action Alternative includes all operations, maintenance, fish and wildlife programs, and mitigation efforts in effect when the EIS was initiated in September 2016. Executive Summary, p. 19. This is, in essence, the 73 RPAs the court considered and struck down in May 2016. Washington State to huge damages liability to the tribes, if the dams continue to be maintained. Breaching the dams this year can cut off this liability. Another example of the federal agencies shading the truth is that for several years Snake River steelhead runs have been so low that they have hit the trigger prescribed in the federal agencies 2009 FCRPS Adaptive Management Implementation Plan.4 The trigger requires the agencies to engage in immediate action to save the species. Nevertheless, the federal agencies have ignored the trigger. Rather than acknowledge that the trigger has been hit and that the federal agencies are ignoring it, the DEIS merely states: On February 4, 2020, the co-lead agencies viewed a presentation prepared by NMFS regarding returns for the 2019 fish passage season and the Adaptive Management Implementation Plan. Although not all returns occurred prior to the presentation, NMFS utilized current return numbers to project return numbers if current return rates continued in 2020 and 2021. These projections signaled that returns are low, especially for Snake River steelhead. The co-lead agencies are currently evaluating the information provided by NMFS and will have a more detailed discussion of this information in the final EIS, including any updates that NMFS may provide once all returns have occurred, if appropriate. Id., at 3-301. Thus, the DEIS fails its central purpose, to inform the public and decision makers that immediate action is needed to save Snake River steelhead. This would seem to be a critical fact for the public and decision makers to know. In other parts of the CRSO DEIS, the federal agencies are flat out inaccurate with the truth. This is particularly true regarding hydropower and its effects and costs. The federal agencies state as fact that new congressional authority and associated funding would be required to implement lower Snake River dam breaching measures evaluated in the EIS. DEIS Executive Summary, p. 12. But the federal agencies do not inform the public or decision makers that neither new funding nor new congressional authority would be needed to make the dams nonoperational, which is different than the measures the federal agencies evaluated in the EIS. Without additional appropriations or congressional authority, the earthen berms could be breached, allowing fish to pass around the concrete structures. Existing fish credits and mitigation money could cover most, if not all, of the breaching costs.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA listed species. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-lead agencies numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as the MO3 which includes the dam breaching measure. The Preferred Alternative also meets the EIS objectives for: resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS the co-lead agencies did not identify MO3 because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. Tribal input, concerns, interests, and especially treaty rights were considered throughout the Draft EIS analyses and in the formulation of the Preferred Alternative. Treaty specific information is included in Section 3.17 as well as Chapter 7. The treaties bind all parties and are the supreme law of the land. The co-lead agencies recognize and respect that supremacy. In terms of honoring our treaty obligations, the co-lead agencies included Protecting Native American treaty and reserved rights and fulfilling trust obligations for natural and cultural resources throughout the environment affected by the Columbia River System operations as a purpose in the Purpose and Need Statement in Chapter 1 to ensure treaty obligations were a key consideration of decision making. The co-lead agencies are engaging in government-to-government consultation with the tribes, and several tribes are cooperating agencies on the CRSO EIS. The EIS recognizes the economic and cultural importance of salmon to Tribes in a number of sections throughout the document. The cultural significance and impacts of salmon and steelhead fisheries are described in the Ceremonial and Subsistence Fisheries sub-section and the Social Importance of Commercial, Ceremonial and Subsistence Fisheries sub-section of Section 3.15.2.1. Fisheries tribal interests are provided in Section 3.15.4 additional details regarding the economic significance of salmon and steelhead fisheries have been added to the recreation analysis (Section 3.11) including tribal interests (Section 3.11.3.7). Treaty rights are discussed in the Executive Summary, Section 3.16 Cultural Resources, and Section 3.17 Indian Trust Assets, Tribal Perspectives, and Tribal Interests. Appendix P includes copies of tribal perspectives that were submitted by tribes. Tribal consultation is described in Sections 1.5, 3.5, and 3.15; and Chapter 9. Most sub-sections within Chapter 3 include a Tribal Interests section at the end of the sub-section that attempts to summarize tribal issues by topic. If MO3 were selected, the Corps could use this EIS as a basis for seeking congressional authority to breach the lower Snake River dams. After receiving both authority and appropriations from Congress, the Corps could initiate a detailed construction and design report for the breach measure, identification of disposal areas, real estate acquisition and disposal, permits, and mitigation requirements, including temporary fish hatchery production. Each of these actions are required prior to breaching, and the Corps does not have the authority or appropriations necessary to immediately breach the project's embankments. Moreover, those contending that Bonneville has authority to fund the breach of dams typically suggest two statutory alternatives. The first is Bonneville's discretionary direct funding authority found at 16 U.S.C. 839d-l. Congress granted this authority as a means for Bonneville, the Corps, and Reclamation to proceed with funding additions, improvements, or replacements to the multiple purpose projects of the CRS without having to first wait for appropriations for the entire activity. Instead, Bonneville provides the power share directly so that the Corps and Reclamation need only seek appropriations to cover the non-power share; that is, the share attributed to the non-power purposes of the dam. Stated another way, Bonneville can provide direct funding to cover only hydropower costs, whereas costs attributable to or shared by other purposes of the dams would be joint projects and would require congressional appropriations to cover the non-hydropower share of the cost. The breach of a dam is not an addition, improvement, or replacement of a dams power features, so the direct funding authority does not apply to the breach of a dam. Moreover, even if for arguments sake it did, Bonneville could provide no more than the power share of the cost of breaching. Congress would still have to provide appropriations to the Corps for the non-power share. The use of Bonneville's discretionary direct funding authority therefore cannot provide a means of funding the breach of dams absent an act of Congress. The second statutory authority suggested for Bonneville to fund the breach of dams is the Northwest Power Act section 4(h)(10)(A) found at 16 U.S.C. 839(b)(h)(10)(A). The Bonneville Administrator must use the Bonneville Fund to protect, mitigate, and enhance fish and wildlife affected by the operation and development of the FCRPS in a manner consistent with the Northwest Power and Conservation Councils (Council) Fish and Wildlife Program, the Councils Power Plan, and the purposes of the Act. Currently, dam breaching is not part of the current Council Fish and Wildlife Program, the Seventh Power Plan, or evident within the purposes of Act. For example, dam breaching is inconsistent with the statutory purpose of Section 2(6) of the Act, which says in relevant part that anadromous fish are dependent on environmental conditions substantially obtainable from operations and management of the Columbia River System and other hydropower facilities in the basin. Additionally, as Section 3.7 (Power Generation and Transmission) demonstrates, dam breaching is also inconsistent with another purpose of the Northwest Power Act, Section 2(2), which provides for assuring the Pacific Northwest an adequate, efficient, economical, and reliable power supply. Section 4(h)(10)(A) therefore does not mandate or confer authority on the Administrator to fund the breach of a dam.

Letter No.	Comment No.	Commenter Name/Email	Affiliation	Comment	Response[1/]
					Finally, the language related to the Adaptive Management Implementation Plan has been updated in the final EIS.
6935	8	sharongrace@centurylink.net	N/A	The federal agencies state as fact that the lower Snake River projects provide more than 2,000 MW of sustained peaking capabilities during the winter, and a quarter of the federal power systems current reserves holding capability. Executive Summary, p. 25. The agencies fail to inform the public or decision makers, that if the lower Snake River dams were to be used for sustained peaking power, the drawdown behind the dams needed to sustain the peaking power would damage the banks, roads, rail tracks and other infrastructure. It would also take days to refill the reservoirs, during which no power would 4 See https://www.salmonrecovery.gov/Files/BiologicalOpinions/AMIP_09 10 09.pdf. be generated. The agencies contend that the dams play an important role in maintaining reliability, and their flexibility and dispatchability are valuable components of the CRS. Executive Summary, p. 25. The agencies fail to inform the public and decision makers that the Snake River dams generate the most energy when it is least needed in the springtime, when demands for heating and air conditioning are at their lowest. Energy from the Snake River dams is constrained during the low river flows the rest of the year in cold winter months and hot summer months, when the energy is most needed. Thus, the Snake River dams capacity for reliability and flexibility is much less than described by the federal agencies.	Contrary to the statement in the comment and as explained in Section 3.7.3.5 of the Draft EIS, Potential Replacement Resources and Associated Costs, MO3, which includes breaching the four lower Snake River dams, would have a direct and substantial impact on the supply of Federal power to meet regional load requirements. Breaching the four lower Snake River dams would reduce energy to meet regional load requirements, and reduce generating capacity (peaking capacity) to meet variability in loads (see Section 3.7.3.2, Effects on Power System Reliability). The lower Snake River projects operate within a 3- to 5-foot elevation range in the fall and winter, and within a 1- or 1.5-foot elevation range during the fish passage season. Bonneville does use this small operating range to peak, i.e. to increase generation for brief periods of high demand when conditions permit. This is within the normal operating range and does not cause the projects to draw down so deeply as to cause additional effects to affected resources. Regarding seasonality, while the four lower Snake River dams are run-of-river projects, upstream storage projects (Dworshak and Brownlee), regulate some of the water flowing into the lower Snake River, which flows year-round. While the statement in the comment that the most generation occurs in the springtime is accurate, the four lower Snake River projects also produce a substantial amount of power in the winter, which is currently the region's highest demand period. The dams provide up to 2,000 MW of sustained peaking capacity at certain times of the year. See draft EIS, Section 3.7.3.5, Changes in Power Generation, Table 3-159. The dams also provide important ramping capability the ability to quickly generate energy to match spikes in energy usage with over 2,000 to 2,300 MW of capability in certain months of the year. See draft EIS, Section 3.7.3.5, Lower Snake River Full Replacement at pages 3-905-907 and Table 3-160. See Section 3.7.3.5, Changes in Power Generation, Table 3-159; and Appendix J, Chapter 3, for additional detail on hydropower generation results and analysis in the Draft EIS.
6935	9	sharongrace@centurylink.net	N/A	The federal agencies argue that lower Snake River dam breaching would more than double the regions risk of power shortages compared to the No Action Alternativefrom 6.6 percent risk of a year having power shortages in the No Action Alternative (roughly one year in 15) to 13.9 percent in MO3 (or nearly one year in 7). Id., p. 25. The federal agencies also contend that significant quantities of replacement resources would have to be built to maintain regional power reliability at the No Action Alternative levels. They state that without such a resource build-out, the region would face the likelihood of a loss of load event, e.g. a power blackout, nearly one in every seven years in MO3 for the base case including the current fleet of regional coal plants. Id., p. 25. These contentions are not correct. According to Rocky Mountain Econometrics, energy from the lower Snake River dams was needed for only two hours in the last 10 years, and that energy could have been purchased on the open market. In addition, BPA has had surplus energy every year for the last 80 years, except in 1937, a low water year.	Contrary to the statements in the comment, the EIS finds that MO3, which includes breaching of the four lower Snake River dams, would require substantial quantities of replacement resources to maintain regional power reliability at No Action Alternative levels. As explained in Section 3.7.3.5 of the Draft EIS, Potential Replacement Resources and Associated Costs, the four lower Snake River dams are among the most valuable projects in the Federal Columbia River Power System (FCRPS). These dams provide over 1,000 MW of carbon-free energy and up to sustained 2,000 MW of sustained peaking capacity at certain times of the year. See draft EIS, Section 3.7.3.5, Changes in Power Generation, Table 3-159. The dams also provide important ramping capability the ability to quickly generate energy to match spikes in energy usage with over 2,000 to 2,300 MW of capability in certain months of the year. See draft EIS, Section 3.7.3.5, Lower Snake River Full Replacement at pages 3-905-907 and Table 3-160. Regarding the claim that power from the four lower Snake River dams was only needed for two hours in the last 10 years, this is inaccurate. The reference in the Rocky Mountain Econometrics report to Bonneville's Balancing Authority data is specific to the Balancing Authority area for Bonneville's Transmission. This data set represents loads and resources in Bonneville's Balancing Authority (BA) including some that are not Bonneville's resources. It does not include Bonneville's loads served by transfer, scheduled out of region, or scheduled to customers with their own Balancing Authorities such as Seattle and Tacoma. In other words, it does not encompass all of Bonneville's load and includes generation that is not serving Bonneville's preference customers. The seasonality of the power supply is important. The region often has surplus power in the spring when the weather is mild and flows are high. Conversely, there are times of the year, more often in the winter and late summer, when Bonneville may not have enough power to serve its load and relies not only on all of the power from the four lower Snake River dams but is also purchasing power. The Loss of Load Probability analysis of MO3 showed that the region would have an annual risk of power shortages of around 14 percent stemming from shortages in the winter and summer. Please see Appendix J, Hydropower, Section 4.1.2.4 in the Draft EIS. Given upcoming coal retirements, the EIS findings indicate that the region would likely experience a significant regional deficit of power, which will require adding power resources to maintain power system reliability at the No Action Alternative levels. See EIS Sections 3.7.3.3 through 3.7.3.6 and Section 3.7.3.5, Potential Replacement Resources and Associated Costs. Regarding comments about surplus energy, Bonneville's firm power obligations are determined by the load placed on Bonneville throughout the year. These loads tend to be winter peaking, meaning the extra surplus produced in spring does not assist in meeting these firm obligations.
6935	10	sharongrace@centurylink.net	N/A	Regarding costs, the federal agencies contend that for Bonnevilles wholesale power rate, MO3s (the dam breaching alternatives) conventional least-cost natural gas turbine resource portfolio, would cost about $200 million per year. The agencies state that this along with related structural and fish and wildlife spending adjustments, places upward rate pressure of between 8.2 percent and 9.6 percent over the No Action Alternative, depending upon the source of funding for those resources. Id., pp. 25-26.	The costs and upward rate pressures cited by the comment are consistent with the findings of the EIS. See Section 3.7.3.5 Electricity Rate Pressures, pages 3-918-924; and Table 3-166 in the Draft EIS.
6935	11	sharongrace@centurylink.net	N/A	If the Snake River dams energy production were to be replaced by green energy, the federal agencies falsely project a $419 million annual cost for a zero carbon portfolio. Id., p. 26. They then state that, [t]he costs of an expanded zero-carbon resource portfolio designed to replace the full capability of the lower Snake River dams would be significant: up to $527 million a year above the resource costs assumed in the base case analysis. Id. They continue, If Bonneville had to replace the lower Snake River projects full capability with zero-carbon resources, the rate pressure could be up to 50 percent on wholesale power rates. Id., p. 27. All of this cost information is false, since replacement power is not needed. The federal agencies recognize this in the maps set forth in Appendix H where they show that MO3 actually exerts negative pressure on rates in most areas. See DEIS Figure 5-4 and 5-6, Residential Rate Pressure Mapping, below. But if the public or decision makers were to read only the CRSO DEIS Executive Summary, they would not have the true information that dam breaching exerts negative to no pressure on rates. This is the best ratepayer result of all the alternatives.	The figure that the commenter cites, Appendix H, Figure 5-4, displays the data for Multiple Objective (MO) Alternative 2, but was inadvertently mislabeled in the draft EIS. Figure 3-186 in Section 3.7 of the draft EIS, shows the correct figure for MO3. The Tables in Appendix H, Chapter 5, correctly show rate increases for MO3. The error in the graphs in Appendix H is corrected in the final EIS. The other cost numbers cited by the comment are consistent with the findings of the EIS.
6935	12	sharongrace@centurylink.net	N/A	Further, the federal agencies fail to inform the public or decision makers that the No Action Alternative has high costs. BPA customers have experienced a 36% increase in wholesale electricity rates over the last 10 years with the No Action Alternative. According to BPA, 12% of its revenue comes from what BPA calls surplus sales or secondary revenue.5 BPA admits that when BPA produces more power than its wholesale customers need, then BPA goes to the spot market (like a stock trading market) and sells it power at a rate oftentimes lower than BPAs wholesale rate. Id. BPA sometimes pays to get rid of surplus power to avoid too much power on the transmission grid. By statute, BPA is required to set its wholesale rate at its cost of energy production. BPA actually sets it rate at its cost of production of energy, reduced by projected income from BPAs surplus sales. If BPA sells energy for anything less, BPA loses money on the sale. Yet BPA admits that it often sells surplus power for less than the cost of production. That means that BPA ratepayers must pay a higher wholesale rate than surplus buyers pay, but also that ratepayers subsidize surplus buyers. These are most frequently California customers. The federal agencies continue the disinformation throughout the DEIS. In Chapter 7, Table 7.1, page 7-18, the agencies compare the alternatives. In the category whether MO3, the dam breaching alternative, will Provide an Adequate, Efficient, Economical, And Reliable Power Supply That Supports the Integrated Columbia River Power System, the agencies answer No. Due to loss of hydropower generation on Lower Snake Projects, which adversely affects the adequacy, economics and reliability of the system, and leads to significant upward pressure on power rates relative to the No Action Alternative. Compare the two maps below for MO3, dam breaching and the Preferred Alternative for the four states of Washington, Idaho, Montana and Oregon. They show that the pressure put on rates from MO3, the dam breaching alternative, for most areas is -2.5% to 0%, while the preferred alternative exerts rate pressure of 0% to 1%. The rate pressure for the other alternatives rises above 10% in some areas. The information contained in these maps is buried in the CRSO DEIS, at Appendix H, at pp. H-5-39 through H-5-44. The residential rate pressure maps for MO3, the breach alternative, and the Preferred Alternative are displayed below. 5 See https://www.lagrandeobserver.com/news/regional/bpa-seeks-to-clearmisconceptions/ article_fb12c546-7534-11ea-a1bc-affe6d07f750.html. [Text contains figures that do not transfer to database.]	The comment makes numerous statements about Bonneville ratemaking procedures and surplus power. Several of these are accurate and consistent with the methodology, specifically that Bonneville sells power into the spot market and these costs offset wholesale power costs for preference customers. However, other comments are not consistent with the EIS or Bonneville ratemaking procedures. Specifically, it is Bonneville policy not to bid on negative market prices (i.e., to pay a party to take delivery of power). In addition, surplus sales help to reduce the power rates sold to preference customers, not increase them as implied by the comment. The commenter is incorrect to suggest that Bonneville loses money on the sale when it sells power at spot market prices that are below its costs. Bonneville sets its firm wholesale power rates to recover its total costs. Surplus and secondary sales are included in the calculation of these rates as a rate credit. This rate credit is set based on market prices. If the market price is below Bonneville's fully allocated rate, Bonneville provides less rate credit to its firm customers, but this lesser rate credit does not indicate Bonneville has lost money on the sale. Bonneville rates were set to recover its costs. The foundation for Bonneville's power sales and rate-setting is the firm power produced by the Federal Columbia River Power System, namely the power that Bonneville can rely on, even in an adverse water year. Additional power generated in a better water year leads to surplus power which is sold in shorter-term blocks, (hourly, daily, monthly, and sometimes longer periods). Contrary to commenter's statements, the EIS finds that Multiple Objective 3 (MO3) does not meet the objective to provide an adequate, efficient, economical and reliable power supply. Contrary to the statement on power rates in the comment, the EIS finds that power costs increase under MO3. The figure that the commenter cites, Appendix H, Figure 5-4 (on page H-5-41 of the Draft EIS) displays the data for Multiple Objective 2 but was inadvertently mislabeled in the Draft EIS. The error in the graphs in Appendix H have been corrected in the Final EIS. Figure 3-186 in Section 3.7 of the Draft EIS, shows the correct figure for MO3. The tables in Appendix H, Chapter 5 correctly show rate increases for MO3.
6935	13	sharongrace@centurylink.net	N/A	The Federal Agencies Buried the Fact that Dam Breaching Is the Most Cost Effective Alternative for Ratepayers What should be headline information for ratepayers that dam breaching is the most cost effective alternative in terms of operating and maintaining the hydrosystem, the federal agencies have buried in a chart on the very last page of Chapter 3. There the federal agencies finally acknowledge that breaching the four lower Snake dams is the most cost effective alternative. This is despite the many pages the agencies spend discussing the highly inflated costs they have assigned to dam breaching, and after they falsely state that dam breaching could raise rates by as much as 50%. Without the inflated costs, the savings from dam breaching are far greater. [Text contains tables that do not transfer to database.] CRSO DEIS, p. 3-1481.	Section 3.19 and Appendix Q of the EIS describe the implementation and system costs under Multiple Objective 1, 2, 3, and 4, as well as the No Action Alternative. These costs include capital and operations and maintenance costs to maintain the system, construction costs of the structural measures under the action alternatives, and the mitigation measure costs. The costs of dam breaching under MO3 are included in the cost analysis as part of the construction costs of the structural measures. As the commenter indicates, it is true that the implementation and system costs are lower under MO3 than under the other alternatives. However, these cost changes do not include power replacement costs, or reductions in navigation, recreation, and water supply benefits that occur under MO3. These evaluations are described in Section 3.7, Power and Transmission; Section 3.11, Recreation; Section 3.10, Navigation; and Section 3.12, Water Supply. Regarding the dam breaching costs, the method proposed for breaching the four lower Snake River Dams is based on extensive analysis completed for the 2002 Feasibility Study, which also considered dam breaching. The methodology developed is intended to minimize impacts to ESA-listed fish, other aquatic organisms, the built environment, and provides maximum protection to human health and safety. The Draft EIS, inflates the 2002 cost estimates to 2019 price levels. For hydropower, the average annual value of the four lower Snake River dams exceeds the average annual equivalent costs. The generation value at the four lower Snake River dams can be described by a range between the cost to replace the generation through new conventional resources or through a portfolio of zero-carbon resources. Although the costs of replacing the power with market purchases was analyzed, it is unlikely that short-term wholesale power markets could reliably replace the power for the long-term. This range would put the annual value of power between $240 million and $500 million for the four dams combined. These numbers represent about 90 percent of the lost benefits cited in Table 3-171 of the Draft EIS because the four dams represent about 1,000 aMW of the 1,100 aMW of lost generation estimated in MO3. The average annual cost to operate and maintain all authorized purposes at the four lower Snake River dams is $75 million (Appendix Q, Table 5-1) and the annual-equivalent capital costs are $32 million (Appendix Q, Table 4-1). Hydropower costs funded by Bonneville represent about $50 million of the total annual operations and maintenance costs and nearly all of the annual capital costs, approximately $31 million. This puts the annual-equivalent power-specific costs at approximately $81 million a year. As a result, the net benefits from hydropower for the four lower Snake River dams are between $159 million and $419 million and the benefit-cost ratios are between 3.0 and 6.2. If the $34 million per year Lower Snake River Compensation Plan is added to the capital and expense costs, benefits still exceed costs under each replacement power scenario. Considering these costs, the net benefits range from $125 million to $385 million and the benefit-cost ratios range from 2.1 to 4.3. In the less-likely scenario that generation could be reliably replaced with short-term wholesale market purchases and assuming that the four dams represent 90% of the $150 million in market purchases required to replace the lost generation cited in MO3 (see Table 3-170 in the Draft EIS), the lower bound for net benefits would fall to $54 million and the benefit-cost ratio would fall to 1.7. With the Lower Snake River Compensation Plan included, the lower bound for annual net benefits becomes $20 million and the benefit-cost ratio becomes 1.2. From a resource competitiveness perspective, the four lower Snake River dams are among the least costly generating resources in the Federal Columbia River Power System (FCRPS) and the planned investment strategy is expected to maintain that status. As shown in the Federal Hydropower presentation at the 2018 Integrated Program Review1/, the Headwater/Lower Snake Asset Class/2 is forecast to have a 50-year levelized cost of generation/3 of $11.41/MWh based on the direct funded capital and expense (O&M) programs outlined in that process. These costs remain competitive with volatile Mid-Columbia spot market energy prices, which averaged $37/MWh in 2019 and have averaged $21/MWh in 2020. 1/ The Integrated Program Review (IPR) allows interested parties to see and comment on all relevant Federal Columbia River Power System (FCRPS) capital and expense (O&M) spending level estimates in the same forum. The IPR occurs every two years, or just prior to each rate case, and is the public review for the costs that will be recovered through rates the following two-year rate period. Long-term forecasts for the next 50 years and major upcoming projects are also shared in this forum. This information is available here: https://www.bpa.gov/Finance/FinancialPublicProcesses/IPR/2018IPR/IPR%202018%20Fed%20Hydro%20Workshop.pdf and is incorporated by reference into this EIS. 2/ In the 2018 Integrated Program Review, the Headwater/Lower Snake Asset Class consisted of the four lower Snake River dams, Hungry Horse, Libby, and Dworshak dams. These projects were grouped together because they have similar cost characteristics. The Levelized Cost of Generation for the four lower Snake projects alone is slightly lower than that for the whole class including the headwater projects shown in the table.

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					3/ Levelized Cost of Generation is defined as the forecasted direct costs and administrative overheads of producing power at a plant annualized over a 50-year period. This cost includes direct funded operations, maintenance, administrative and capital costs as well as Columbia River Fish Mitigation (CRFM) costs. Bonneville systemwide mitigation costs, such as its Fish and Wildlife program, are not included in this metric.
6935	14	sharongrace@centurylink.net	N/A	The DEIS Is Fatally Flawed because It Contains Disinformation on the Crux of the Issues It Is Supposed to IlluminateEndangered and Threatened Salmon and Steelhead Survival Contrary to the federal agencies attempt to spin the truth that juvenile survival from passage through the dams is in the mid to high ninety percentages, real survival rates may be as low as 14%, when latent mortality is included. As stated previously, the district court in Oregon has found that salmon and steelhead must pass a number of damseight for the Snake River runsand suffer a very high mortality rate in doing so, sometimes as high as 92%. Id. at 788-789. The court made this finding after carefully considering the evidence presented in prior court hearings and documents. Nevertheless, in this DEIS the federal agencies ignore the courts previous finding and relitigate the issue. In doing so they present the same tired disinformation that they have spread throughout the Pacific Northwest for years, and have introduced in court previously to make their specious argument that juvenile salmonid survival through the hydrosystem is excellent. These estimates [ ] show progress towards meeting the individual dam survival goals developed during the 2008 Biological Opinion of 96 percent survival past each dam for yearling Chinook and steelhead, and 93 percent for Snake River sub-yearling fall Chinook. CRSO DEIS, p. 3-301. The DEIS sets forth a map to illustrate the spurious survival rates, terming them recent estimates of dam survival. [Text contains figures that do not transfer to database.] Figure 3-112. Recent Estimates of Dam Survival at Columbia River System Projects 7279 Note: These dam-specific survival estimates do not include systemwide or latent effects. 7280 7281 Figure 3-113. 20152019 Snake River Spring/Summer Chinook Salmon Upstream Survival 7282 Rates 7283 Figure is based on data from NMFS (2017). 0% 20% 40% 60% 80% 100% SR Fall Chinook SR Spr/Sum Chinook SR Sockeye SR steelhead Average Upstream Survival (conversion) Rates adult Snake River salmon and steelhead 2012-2016 BON to LGR (Corrected - harvest and straying removed) BON to LGR (Uncorrected - Includes all sources of loss including harvest and straying) Id. at p. 3-302. The federal agencies include this same map at DEIS Executive Summary, p. 19, Figure ES-4. The map disingenuously depicts juvenile salmon survival through the dams. It purports to show a 92% to 98% dam passage survival rate, rather than a rate as high as 92% mortality. Maps and facts such as these and the accompanying text, couched as fact, render the CRSO DEIS useless as an informational document.6 Moreover, the disinformation-filled graph also shows that the federal agencies believe that the federal court is powerless to curb the federal agencies long-running lawless activity. 6 Nuggets of information are buried deep in the DEIS. If the public or decision makers have the time to read and re-read the 8000 page document, they may be able to find valid information to counter the more readily available disinformation that is highlighted in the DEIS. For example, deep in Chapter 3, the federal agencies admit that COMPASS and CSS modeling estimates of juvenile Snake River spring/summer-run Chinook salmon survival range from 50.4 to 57.6 percent, respectively. CRSO DEIS at p. 3-382.	The data in the Draft EIS are accurate and fully described. Estimates of survival through the dams are put in context in the Draft EIS on page 301: "To aid the downstream passage of juvenile salmon and steelhead, the co-lead agencies have worked to improve passage and survival past the dams and through the reservoirs of the CRS. Figure 3-112, shows recent estimates of survival at the eight lower CRS projects with fish passage. The dam survival estimates do not include systemwide or latent effects (see Section 3.5.3.1). These estimates were developed show progress towards meeting the individual dam survival goals developed during the 2008 Biological Opinion of 96 percent survival past each dam for yearling Chinook and steelhead, and 93 percent for Snake River sub-yearling fall Chinook." Later in this Section (referenced in the quotations above), the Chapter 3 analysis discusses system survival rates, as well as latent mortality. The analysis of alternatives presented in-river system survival, which reflects the commenters "cumulative losses," and SARs (for those populations which could be modeled), among other metrics. The analysis of alternatives presents estimates of survival rates from LowerGranite to Bonneville dam (eight dams) for Snake River spring/summer Chinook and Snake River steelhead from two different models, with the estimates ranging from 40-60%. The mechanism and magnitude of latent mortality are not well understood, as presented in the discussion of Independent Scientific Review on Page 381.
6935	15	sharongrace@centurylink.net	N/A	The DEIS Is Fatally Flawed because It Fails to Elucidate an Approach that Will Move the ESA-listed Species Out of Peril The court ordered the federal defendants to prepare the EIS in the expectation that it would elucidate an approach that would finally move the ESA-listed species out of peril. See Nat'l Wildlife Fedn v. Nat'l Marine Fisheries Serv., 184 F.Supp.3d at 948. The DEIS does not elucidate such an approach. For example, fall Chinook, a primary focus of the EIS, were not modeled. Executive Summary, p. 12. Had the federal agencies analyzed the data correctly, it is likely that lower Snake River dam breaching would have been included in the Preferred Alternative, particularly since the agencies admit that the current Preferred Alternative has only minor benefit to in-river fish survival.7 DEIS, Table 7.1, p. 7-17.	The co-lead agencies used current high quality information in the analysis of the CRSO EIS. The commenter is correct that fall Chinook were not modeled because no reliable model for this ESU currently exists. Effects to fall Chinook were evaluated qualitatively. Specific to other species of salmon and steelhead, the agencies used both two primary modeling approaches which yielded a range of potential outcomes for the alternatives. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% (within the Northwest Power and Conservation Council's recovery targets for the region) as a result of the Preferred Alternative. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. In relation to the comment that fish passing few dams have higher SARs and survival, the co-lead agencies follow the guidance from the Independent Science Advisory Board, and to not typically weigh performance of one population vs. another. It is difficult to isolate causative factors in those types of comparisons.
6935	16	sharongrace@centurylink.net	N/A	The DEIS Is Fatally Flawed because It Ignores the Best Available Science regarding Salmon and Steelhead Productivity in the Snake/Columbia Basin The best available science demonstrates that with lower Snake River dam breaching, large increases in salmon productivity would result. The Fish Passage Center (FPC), in its review of DEIS alternatives, found that for all fish survival metrics, the Preferred Alternative resulted in only slightly better performance than the No Action Alternative and MO1, and had lower performance than both MO3, the dam breaching alternative, and MO4, the high/flexible spill alternative. In addition, the results for the Preferred Alternative are likely overestimates of fish survival, according to the FPC, because the modeled datasets provided by the federal agencies used daily averages. In fact, the FPC reported in 2017 in its Comparative Survival Study (CSS) that breaching the four lower Snake River dams and increasing spill on the four mainstem Columbia Dams to 125% Total Dissolved Gas could increase the salmon runs up to four fold. The FPC did not consider the increase to fall Chinook runs that the recovery of 140 miles of mainstem spawning habitat would bring, although the federal agencies did acknowledge this. DEIS Executive Summary, p. 25. This could increase the salmon runs up to seven fold, according to fisheries biologists. Further, the FPCs report does not include consideration of increased production from more salmon and steelhead migrating through a free-flowing lower Snake River that would result in greater utilization of the high-altitude spawning habitat in Idaho that is the refuge most capable of withstanding the predicted effects of climate change and global warming. Hence, dam breaching best mitigates even the effects of climate change. In addition, emissions of the potent greenhouse gas methanethat the federal agencies did not analyze in the DEIS, except to say that dam breaching would increase greenhouse gas emissions, without critical analysis would be reduced both by near natural flows and the elimination of the warm slack water reservoirs. A near free flowing river would also restore habitat and would return the lower Snake River to a more natural temperature regime under which the salmon evolved and flourished. 7 Moreover, the federal agencies admit that climate change likely will negate any increase in benefits to migratory salmonids that the Preferred Alternative may confer. The FPCs analysis of substantially increased salmon abundance that dam breaching would bring agrees with decades of federal agency reports, as shown by the chronology below, which also exposes the federal agencies unfounded position that the lower Snake River dams need not be breached to recover wild salmon and steelhead. In 1999 the National Marine Fisheries Services (NMFS), aka NOAA Fisheries, determined that to recover Snake River spring/summer Chinook, the most risk averse action would include dam breaching, a harvest moratorium, and vigorous improvements in habitat and hatcheries. (Emphasis in original.)8 For Snake River fall Chinook and steelhead, dam breaching by itself would likely lead to recovery.9 In 2001 the Plan for Analyzing and Testing Hypotheses (PATH) analyses, commissioned by the federal agencies, suggested that breaching was more likely than any other change in the hydropower system to meet survival and recovery criteria for the listed species across the widest range of assumptions and scenarios.10 The Corps 2002 Lower Snake River EIS revealed that breaching the dams had the highest probability of meeting the governments salmon survival and recovery criteria. In comparison, implementing the other so-called reasonable alternatives in the EIS would be slightly worse than doing nothing.11 Further improvements in spill and bypass systems or in transportation were deemed unlikely to be adequate to rebuild the threatened and endangered Snake River salmonid populations.12 In its 2002 Record of Decision the Corps relied on the NMFS 2000 Biological Opinion that concluded, despite the science showing that dam breaching through channel bypass was the best option for salmon recovery, breaching was not necessary at that time. NMFS reserved breaching as a contingency management alternative depending upon the findings in the 2005 and 2008 check-in.13 Check-ins that did occur were cursory at best, or they would have found that fish recovery goals were not being met, and that dam breaching would have to be instituted. In making the decision not to breach in 2002, the Corps announced to the taxpaying public that the dams would not have to be breached, if $350 million were spent (at least $1 billion has been spent to date) on massive system improvement projects (Alternative 3 in the 2002 EIS) on the four Snake River dams to permit less hazardous 8 Budy, P., Analytical Approaches to Assessing Recovery Options for Snake River Chinook Salmon (2001), p. 4, UTCFWRU 2001(1): 5-6, http://www.fws.gov/columbiariver/publications/recopt.pdf. 9 Id., p. 6. 10 USACE, Record of Decision, Lower Snake River Juvenile Salmon Migration Feasibility Study (2002), p. 15, accessed in 2015 athttp://www.nww.usace.army.mil/Portals/28/docs/environmental/lsrstudy/lsr_rod.pdf. 11 USACE, Summary, Improving Salmon Passage, Lower Snake River Juvenile Salmon Migration Feasibility Report (2002), p. 25, accessed in 2015 at http://www.nww.usace.army.mil/Portals/28/docs/environmental/lsrstudy/Summary.pdf. 12 Id. Nonetheless, the federal agencies propose these changes once again. 13 USACE, Record of Decision, supra, p. 21. Recovery goals have not been met for any of the ESAlisted runs, yet the Corps has not implemented breaching as a contingency management alternative. juvenile fish passage. This would give the region time to determine if salmon survival and recovery could be effected through the non-breaching alternatives.14 If these efforts did not succeed, the nine involved federal agencies, including NOAA, agreed that EIS Alternative 4, dam breaching, must be considered.15 Ten years was the outside time period allowed for results.16 It is 18 years later. None of the ESA-listed runs have recovered. NOAA admits in its 2017 recovery plan for spring/summer Chinook and steelhead that Snake River salmon and steelhead are not likely to recover in the next 50 years without dam breaching:17 NMFS estimates that recovery of the Snake River spring/summer Chinook salmon ESU and steelhead DPS, like recovery for most of the ESA-listed Pacific Northwest salmon and steelhead, could take 50 to 100 years. This recovery plan contains an extensive list of actions to move the ESU and DPS towards viable status; however, the actions will not get us to recovery. 18 Emphasis added. The move towards viable status, a much lower standard than the trending toward recovery standard the district court in Oregon has rejected, likely will continue unless the dams are breached immediately, particularly since Snake River salmon runs have declined drastically over the last three years.	In our analysis of effects, the co-lead agencies used current high quality data and the best available science, including models and studies published in peer review science journals. This does not include the PATH analysis, which is over twenty years old and does not include analysis of current operations. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. The CSS model predicts that average Smolt-to-Adult return rates will increase for both Snake River spring Chinook and steelhead and will average above 2% as a result of the Preferred Alternative. In their 2017 report CSS study FPC, analyzed increased spill over BiOp spill and found that without dam breach, a 2.0- to 2.5-fold increased in abundance for Snake River salmon could be achieved with spill to the 120% and 125% gas cap. Regarding dam breach: the EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets most other EIS objectives including those for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS, the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams, because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. The co-lead agencies contracted with the Fish Passage Center (FPC) to produce the CSS modeling results presented in the Draft EIS. Any modeling not presented in the CRSO EIS was not developed by the co-lead and cooperating agencies. Regarding water temperatures: under dam breach scenarios our analysis of MO3, which includes breaching the four Snake River dams, indicates that nighttime summer water temperatures as well as fall water temperatures would be cooler than No Action conditions in the Snake River. However, even with the dams breached, maximum summer water temperatures would exceed state water quality standards (20C) at times, especially during hot weather events. The models showed minor changes in the Columbia River under this alternative. Regarding the comments on recovery: the co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species as that is a broader goal with shared responsibility. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species as that is a broader goal with shared responsibility. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. The commenters statement "In addition, emissions of the potent greenhouse gas methane that the Federal agencies did not analyze in the Draft EIS, except to say that dam breaching would increase greenhouse gas emissions, without critical analysis would be reduced both by near natural flows and the elimination of the warm slack water reservoirs" is not accurate. Appendix G contains a detailed methane evaluation of the Columbia Basin reservoirs. This information is also summarized in Chapter 3.8.2.2. Reservoir drawdown can influence rates of methane ebullition due to a reduction in the hydrostatic pressure on littoral sediments. The magnitude of effects of fluctuating reservoir levels on methane emissions from the littoral zone and riverine areas depends on specific localized site characteristics (Falter 2017). For more discussion on this topic, please refer to Appendix G.

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6935	17	sharongrace@centurylink.net	N/A	The DEIS Is Fatally Flawed because It Fails to Consider the Vital Effects of the Decimation of Snake/Columbia Basin Chinook Salmon on the Critically Endangered Southern Resident Killer Whales These facts are clear regarding the Snake/Columbia Basin, salmon and the salmondependent Southern Resident Killer Whales (SRKWs). The Columbia River historically was one of the largest, if not the largest, salmon producing river in the world. 14 Federal Caucus, Conservation of Columbia Basin Fish, Final Basinwide Salmon Recovery Strategy, Vol. 3, (2000), p. 20, http://permanent.access.gpo.gov/lps57088/d3/Final_Strategy_Vol_3.pdf. 15 Id. 16 Lower Snake River Juvenile Salmon Migration Feasibility Report (2002), Appendix A, Anadromous Fish Modeling, p. A ES-8, It will require anywhere from 2 to 10 years for these studies to provide information about the feasibility of achieving demographic improvements through different management actions. http://www.nww.usace.army.mil/portals/28/docs/environmental/lsrstudy/Appendix_A.pdf. 17 Dam breaching is not one of the measures included in the recovery plan. 18 ESA Recovery Plan for Snake River Spring/Summer Chinook & Snake River Basin Steelhead 2017, p. 241, https://www.fisheries.noaa.gov/resource/document/recovery-plan-snake-river-springsummer- chinook-salmon-and-snake-river-basin. The Snake River, as the largest tributary to the Columbia River, produced about half of the salmon migrating out to the ocean. Based on their historical production, the Snake and Columbia rivers have the most potential for again producing millions of additional salmon. The dams in the Columbia and Snake Rivers kill juvenile salmon in their downriver migration. The federal agencies admit this. See Nat'l Wildlife Fed'n v. Nat'l Marine Fisheries Serv., 839 F. Supp. 2d 1117, 1131 (D. Or. 2011) [T]here is ample evidence in the record that indicates that the operation of the FCRPS causes substantial harm to listed salmonids. . . . NOAA Fisheries acknowledges that the existence and operation of the dams accounts for most of the mortality of juveniles migrating through the FCRPS. Emphasis added. The mortality rate of juveniles passing through the eight dams of the Snake River and Columbia River is as high as 92%. National Wildlife Federation, et al. v. National Marine Fisheries Service (NMFS), et al., 184 F. Supp. 3d 861, 788-789. The high juvenile mortality rate decimates adult returns. The Southern Resident orcas foraging patterns show that the whales likely evolved preying on the huge runs of Chinook produced in the Snake/Columbia Basin. Despite these facts, the federal agencies failed to find the Preferred Alternative that maintains the dams would adversely affect the critically endangered Southern Resident orcas. They were able to do this by ignoring both readily available public documents and the best available science. The federal agencies also failed to consider the fact that from 2016 to the present, which was the operative time for drafting the DEIS, the Southern Resident orcas have significantly increased their time foraging in coastal waters, while significantly reducing the time they spend in the inland Salish Sea. See Bain, David, et al., Southern Resident Killer Whales & Columbia/Snake River Chinook: A Review of the Available Scientific Evidence (February 2020), Attachment 3 to these Comments. The Review compiles much of the more recent scientific research and findings that establish the vital connection between Southern Resident orcas and Snake/Columbia Basin salmon. Ignoring the best available science, and without analysis or scientific basis, the federal agencies state that an increase in food availability would have a negligible effect on killer whales, given that the Snake River and Columbia Chinook populations constitute a small portion of their overall diet. CRSO DEIS, at p. 7-151. There would be a negligible effect on SRKWs prey availability since [t]he Snake River spring/summer Chinook salmon is a negligible portion of their overall diet. CRSO DEIS, at p. 3-779. This is disinformation. It flies in the face of the best available science developed by NOAA and other scientists. Recently in June 2018 NOAA and the Washington Department of Fish and Wildlife (WDFW) developed a prioritized list of West Coast Chinook salmon stocks that are important to the recovery of Southern Resident Killer Whales. See Southern Resident Killer Whale Priority Chinook Stocks, 2018. The Snake and Columbia Rivers produce seven of the top 15 priority stocks identified in the report. Id. at pp. 7-8. A priority stock is defined as a stock that is important to increase critical prey to SRKWs. Id. at p. 2. The Snake/Columbia priority stocks are the Lower Columbia fall Chinook stock, the Upper Columbia and Snake fall stock, the Lower Columbia spring stock, the Middle Columbia fall stock, the Snake River spring/summer stock, the Middle and Upper Columbia spring stock, and the Middle and Upper Columbia summer stock. Id. Significantly, it is likely that the importance of Snake/Columbia Chinook to SRKWs is understated in NOAAs priority prey stock report. The majority of NOAAs sampling was done in inland waters in the Salish Sea during the summer months. Relatively little sampling was done in coastal waters in the fall, winter or spring months. The report itself states, there is currently no spatial correction factor for sample collection. Id. p. 2. NOAA also fails to correct for the timing of the sampling. In addition, the report does not consider the historical contribution of the Snake/Columbia runs to SRKWs, or the dams decimation of the runs over the last 50 years, in determining the current priority stocks. Yet, despite these shortcomings, NOAA determined that the Snake/Columbia Basin produces nearly half the critical prey stocks for the critically endangered Southern Resident orcas. To reach the negligible effect finding for SRKWs in the DEIS, the federal agencies also ignored the coast-wide presence of Snake/Columbia Basin Chinook. The Wild Fish Conservancy compiled data from the Salmon Technical Committees Chinook catch composition for the Pacific Salmon Treaty Managed ocean fishery for the years 1999 to 2010, and for the year 2016. The yellow slice of the pie represents Chinook from the Snake/ Columbia Basin. [Text contains figure that does not transfer to database.] The data shows that Chinook from the Snake/Columbia Basin are by far the largest source of catch from Southeast Alaska to the southern Oregon coast. The charts also demonstrate that since 2010 the Snake/Columbia Basin runs have become a larger part of each depicted Chinook fishery, while Puget Sound stocks have become a smaller part, except in the Georgia Strait fishery. This makes the recovery of the Snake/Columbia runs that much more important and urgent for all predators, including the Southern Resident orcas. The importance of Snake/ Columbia Basin Chinook is not something that NOAA has just stumbled upon. In June 2008 NOAA stated that "[p]erhaps the single greatest change in food availability for resident killer whales since the late 1800s has been the decline of salmon from the Columbia River basin. . . . Returns during the 1990s averaged only 1.1 million salmon, representing a decline of 90 percent or more from historical levels. NOAA, SRKW Recovery Plan Recovery Plan for Southern Resident Killer Whales, (Orcinus orca), National Marine Fisheries Service, Northwest Region, Seattle, Washington, January, 2008, p. II-82. The evidence that NOAA fisheries scientists have collected since 2008 on coastal foraging only strengthens this statement. In 2013 NOAA reported that the Southern Residents could be found in the coastal waters more than half the year.19 More than half of this time is spent between the mouth of the Columbia River and Westport. In fact, NOAAs monitoring data indicates the Southern Resident orcas have been present off the mouth of the Columbia River thirty-five times more 19 See 134 J. Acoust. Soc. Am. 5, Hanson et al., Assessing the Coastal Occurrence of Endangered Killer Whales Using Autonomous Passive Acoustic Recorders (November 2013), 3486, http://oceanwidescience.org/cms/wp-content/uploads/2014/12/Hanson-et-al-2013.pdf (on average the Southern Residents occur in inland waters less than half of the days each year.) often than would be expected by chance.20 21 The Southern Residents visits to the coastal waters off Westport, Washington and the mouth of the Columbia River have coincided with high concentrations of nutrient rich, fatty spring Chinook salmon. University of Washington research shows that the whales appear to be especially reliant on the Snake Rivers nutrient rich, high fat content early spring-run Chinook.22 NOAA reports that the coastal Washington area and northern Oregon inshore area is a Southern Resident killer whale high-use area, particularly for foraging, with documented consumption of essential prey sources. NMFS, Proposed Revision of the Critical Habitat Designation for Southern Resident Killer Whales, Draft Biological Report, September 2019, p. 36. While these areas have salmon originating in many rivers from Canada to California, the largest contributions are from the Columbia Basin (seasonally >50%). Id., pp. 37, 41. NOAAs research indicates the importance of Snake/Columbia salmon to the Southern Resident orcas: Satellite tag data indicated K and L pods utilized the entire Washington outer coast from January-May, an area that represents only 16.2% of the total area they used, but where the whales spent 53.1% of their time. The area between Grays Harbor and the Columbia River is the area of highest concentrated use (Hanson et al. 2017). Tagged whales traveled more slowly off the northern and southern portions of the Washington coast (mean of the median speed of all tagged whales 6.0 and 6.1 km/hr [3.7 and 3.8 mi/hr], respectively) compared to when they were off Oregon and California (7.2 km/hr [4.5 mi/hr]) 20 Hanson, M.B., E.J. Ward, C.K. Emmons, and M.M. Holt. 2018. Modeling the occurrence of endangered killer whales near a U.S. Navy Training Range in Washington State using satellite tag locations to improve acoustic detection data. Prepared for: U.S. Navy, U.S. Pacific Fleet, Pearl Harbor, HI. Prepared by: National Oceanic and Atmospheric Administration, Northwest Fisheries Science Center under MIPR N0007017MP4C419. 8 January 2018. 33 p., Appendix A hereto (Figure from NOAA NWFSC showing concentration of orca presence off Columbia River mouth). 21 Satellite tagging for 2013 through 2016. https://www.nwfsc.noaa.gov/research/divisions/cb/ecosystem/marinemammal/satellite_tagging/blog .cfm (2013); https://www.nwfsc.noaa.gov/research/divisions/cb/ecosystem/marinemammal/satellite_tagging/blog 2014.cfm (2014); https://www.nwfsc.noaa.gov/research/divisions/cb/ecosystem/marinemammal/satellite_tagging/blog 2015.cfm (2015); https://www.nwfsc.noaa.gov/research/divisions/cb/ecosystem/marinemammal/satellite_tagging/blog 2016.cfm (2016) 22 Ayres KL, et al., Distinguishing the Impacts of Inadequate Prey and Vessel Traffic on an Endangered Killer Whale (Orcinus orca) Population (2012) PLoS One 7: e36842, http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0036842; Wasser, S.K., J.I. Lundin, K. Ayres, E. Seely, D. Giles, K. Balcomb, J. Hempelmann, K. Parsons and R. Booth. 2017. Population growth limited by nutritional impacts on pregnancy success in endangered Southern Resident killer whales (Orcinus orca). PLoS One 12: e0179824. (Hanson et al. 2017). Slower travel speeds may be associated with foraging activities. Id., p. 39. The concentration of SRKW visits to the mouth of the Columbia River, illustrated by this NOAA map, demonstrates the importance of Snake/Columbia River Chinook to SRKWs. [Text contains figures that do not transfer to database.] Id., p. 22. Yet, despite all of this evidence, including the fact that Chinook runs	SRKW analysis is described in the EIS including in the FEIS Chapter 3 (Vegetation, Wetlands, Wildlife, and Floodplains) which has been updated for SRKW (Section 3.6.2.6 and Table 3-102) and FEIS Chapter 7 (Preferred Alternative) with additional analysis information on SRKW and potential increase in forage fish, in particular, Chinook salmon in Section 7.7.8. The co-lead agencies utilized current high quality information and best available science in its analysis of the effects of the operation, maintenance, and configuration of the CRS projects. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. The EIS analysis found that only a minor effect to the Southern Resident killer whale would result from implementing MO3 (which includes the dam breach measure). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall run (tules and brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differentially from hatchery and wild fish. Hatchery fish today likely make up most fish consumed by SRKW (NOAA BiOp 2020). The EIS analysis of the Preferred Alternative determined the overall effect to SRKW to be negligible in large part because hatchery production is consistent between the No Action Alternative and the Preferred Alternative. Because the impact from the Preferred Alternative was determined to be negligible, the agencies determined that existing hatchery production would be sufficient to address any potential impacts to prey availability for SRKWs. The co-lead agencies note the contribution to the prey of SRKW through the continued existence of their respective independent congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as the Lower Snake River Compensation Plan, which is administered by U.S. Fish and Wildlife Service. The Preferred Alternative and Proposed Action in the agencies' biological assessment carry forward certain mitigation measures described in Chapters 2 and 7 of the EIS, which include continued salmon and steelhead hatchery production. The Preferred Alternative has negligible effects to SRKWs as described in Section 7.7.8. The Draft EIS meets the requirements of NEPA, as outlined in 42 U.S.C. 4331, et seq., 40 C.F.R. Parts 1500 1508 (CEQs regulations for implementing NEPA), and co-lead agency specific NEPA regulations. The Draft EIS' effects analysis of each resource is based on best available existing information as stated in Section 3.1.1.

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				from the Snake/Columbia Basin constitute nearly half of the SRKWs priority prey, in the CRSO DEIS the federal agencies speciously state as a main finding that Snake and Columbia Chinook are a negligible portion of the SRKWs overall diet. Maybe the best evidence of the Snake Rivers importance to the Southern Resident Killer Whales is the so-called baby boom. The live births of eight orca calves between December 2014 and January 2016 coincided with larger Snake River hatchery salmon runs that occurred in 2013 through 2015. The larger runs occurred in association with a hatchery transport research project that greatly inflated the Snake River Chinook runs. The research project has ended, with the last large runs taking place in 2015. Nevertheless, it provides good evidence that when there are plentiful Snake River Chinook, the endangered orcas can conceive, reproduce, survive and recover. Notable also is that since the transport research project adult Chinook salmon last returned to the Snake River in large amounts in 2015, the Chinook runs have been miserable. Also notable is that at least three of the calves from the 2015 baby boom era have died, along with one of their mothers. Each of the surviving calves (now juveniles) is small in relation to other killer whales their age. Only one baby boom survivor is female. This portends poorly for the future survival of the Southern Residents, as NOAA has reported.	
6936	1	N/A	N/A	The DEIS Preferred Alternative is nothing more, or less, than a program of managed extinction. For 40 years, since the 1980 passage of the Northwest Power Act, states, tribes, Congress, and eventually the Court has granted deference to agency expertise in producing a plan to restore Columbia and Snake River salmon. Since 1995, federal agencies have failed to produce, much less implement a legal salmon recovery plan. Certainly, the expertise is available within each respective federal agency to produce, at minimum, a legal salmon plan. Scientists, policy experts and engineers employed at these agencies, all with advanced degrees in their respective fields, undoubtedly understand what the law requires and what management steps must be taken to meet these requirements. And yet for 40 years, the agencies have failed.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the Columbia River System. Recovery of ESA species is the purview of NMFS and the US Fish and Wildlife Service. This EIS has been developed in consultation with National Marine Fisheries Service and USFWS to minimize impacts to affected ESA species and their habitats. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the EIS objectives) as well as the EIS objectives for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. The Preferred Alternative is also more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% (the lower end of Northwest Power and Conservation Council's recovery targets for the region) as a result of the Preferred Alternative, as a result of the Preferred Alternative increasing SAR from 2.0% to 2.7% for Chinook, a 35% relative increase. The NMFS COMPASS and Lifecycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. To address uncertainty highlighted by the two models, the Preferred Alternative includes working with regional sovereigns to develop a study that assess the effectiveness of the increased spill regime on adult returns as well as assessment and management of adverse unintended consequences, such as long delays of adult migrants, or TDG-related mortality of juvenile migrants. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information. The Preferred Alternative will make a meaningful contribution towards recovery..
6936	2	N/A	N/A	Federal agencies have not merely missed minimum standards for a legal recovery plan. As previous court decisions have pointed out, theyve cynically ignored these standards. In this DEIS, theyve taken the further step of subverting these minimum standards to serve interests outside the ecological health of the river system. For example, drafting up to 1.2 million acre feet from upper Columbia reservoirs in the FCRPS in winter, as called for by the DEIS, facilitates more irrigation and increased power production - but does nothing for fish. It also reduces spring time flows, which negatively affects juvenile salmon survival rates.	The co-lead agencies are not responsible for developing recovery plans. That responsibility lies with the National Marine Fisheries Service and the U.S. Fish and Wildlife Service. The analysis considers the effects of alternatives on ESA-listed species, including compliance with the co-lead agencies' obligations under Section 7(a)(2) of the Endangered Species Act. As described in Section 7.6.3.6, Lake Roosevelt Additional Water Supply was updated for the Preferred Alternative to pump up to 45,000 acre-feet of water above the No Action due to the uncertainty over the timing and extent of the development of new water supply projects for the full volume. Finally, under the Preferred Alternative, spring flows decrease by less than 3% on average on the lower Snake River, and are essentially unchanged from the No Action Alternative in May and June. On the lower Columbia River flows decrease by less than 2% in March, and less than 1% the rest of spring. There would be negligible effects to juvenile salmon survival rates based on flow changes. See Sections 7.7.1 and 7.7.4.
6936	3	N/A	N/A	Today, with abundant, affordable distributed energy options, the question should be inverted - how does the Federal Columbia River Power System (FCRPS) fit our vision of shared abundance in the region? Otherwise, we are dancing around the fundamental conflict of interest underlying this DEIS: it is coordinated by an unappropriated federal agency dependent for its existence on sales of electricity from a portfolio of aging hydropower dams and from which it derives considerable economic, social, and political influence. This DEIS has much to do with BPAs challenged competitive position, and its struggle to remain what Administrator Elliot Mainzer has called the power provider of choice, and less to do with confusion about what salmon need.	Bonneville is a public agency, providing an adequate, efficient, economical, and reliable power to the region as directed by Congress and the Northwest Power Act. In addition, it provides other social benefits such as energy efficiency, residential exchange (sharing the benefits with customers of investor-owned utilities), low density discounts, and irrigation rate discounts in addition to funding fish and wildlife mitigation programs. See draft EIS, Power Revenue Requirement at pages 3-804 to 3-807. If the region chose to reduce Bonneville's size (and Congress agreed in the case of breaching of the four lower Snake River dams), then Bonneville would act accordingly. However, should Bonneville provide less power to the region, other entities in the region would need to acquire new resources to maintain reliability, which would have a similar impact on electricity rates paid by retail customers compared to Bonneville acquiring replacement resources. These two scenario are included for the EIS alternatives as the Bonneville Finances and the Region Finances scenarios described in Chapter 3, Section 3.7.3.1, and Appendix H. Regarding the comment about abundant and affordable distributed generation, the EIS analysis incorporated the regional generation and load as forecasted by the Northwest Power and Conservation Council (Council) for 2022 in its power analysis. This includes wind and solar power. Despite the large increase in wind and solar generation in recent years, the EIS analysis finds that the regional loss-of-load probability (risk of a year with blackouts) for the No Action Alternative is at 6.6% , which is above the Councils target of 5%. Wind and solar power are variable generation resources and are not always available when demand for power is high such as during a winter cold snap when the wind may be calm and the sun not shining as intensely as in the summer. With the announced retirement of most coal-fired generating plants in the region, the risk of power shortages is expected to increase rapidly unless the region builds more new generation. See draft EIS, Section 3.7.3.2.
6936	4	N/A	N/A	In fact, for over 25 years, fisheries biologists have told us how: remove the four lower Snake River dams (LSRD) in eastern Washington that impair migration to and from the best habitat remaining in the lower 48 the high elevation, cold water streams of central Idahos vast wilderness. And, more recently, the 2019 Comparative Survival Study (CSS) added another definitive result. A product of the Independent Scientific Advisory Board (ISAB) for the Northwest Power and Conservation Council, the CSS determined that, despite more than $16B spent on the Columbia basin Fish & Wildlife program in the last 20 years, smolt-to-adult survival (SARs) for Snake River salmon remain well below thresholds for even maintaining populations, much less recovery. The agency responsible for collecting and processing relevant data, the Fish Passage Center, addressed the futility of alternatives to restoring the rivers flow: it is clear that there are only two options left for the region, increase spill to the 125% gas cap and/ or remove the four lower Snake River dams. Conversely, the CSS quantifies expected benefits of actual restoration modeling a 4x increase in abundance by removing the LSRD and allowing water to flow through the remaining Columbia River dams during the juvenile outmigration: This analysis predicts that higher SARs and long-term abundances can be achieved by reducing powerhouse passage and water transit time, both of which are reduced by increasing spill, and reduced further when the lower four Snake River dams are breached, This finding is consistent with the opinion of the Western Division of the American Fisheries Society, which recently renewed a resolution stating that, based on the best scientific information available, if society-at-large wishes to restore Snake River salmon, steelhead, Pacific lamprey, and white sturgeon to sustainable, fishable levels, then a significant portion of the lower Snake River must be returned to a free-flowing condition.	The co-lead agencies contracted with the Fish Passage Center (FPC) to produce the CSS modeling results presented in the draft CRSO EIS. Any modeling not presented in the EIS was not developed by the co-lead and cooperating agencies. We are unsure what information CSS used in the analysis referenced in this comment and it was also not modeled under the NOAA Life Cycle model. All models used in the analysis for this EIS must undergo independent external peer review. Recent reviews by the ISAB and independent contractors hired by the co-lead agencies for the Independent External Peer Review Process are still ongoing. This information will be provided in the FEIS. The co-lead agencies acknowledge in the Draft EIS that implementation of MO3 would have benefits to salmon and steelhead. However, the co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets most other EIS objectives including those for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS, the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams, because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system.
6939	1	Emmett Palmer	N/A	Currently in the Northwest, we have 2.5 times more energy in clean energy, wind and solar, than that produced by the four dams on the lower Snake River. We can adjust to live without the electricity from these dams; they produce only two to four percent of electricity used in the Pacific Northwest. Only six percent of the power they generate goes to Idaho. In 2016, the Pacific Northwest had a surplus of 16 percent in energy. California used to be a large purchaser of power from BPA, but because the state has invested substantially in solar energy, California no longer needs or buys as much as energy from BPA. Also, we have to acknowledge that these dams are part of a hydro system designed for a climate that no longer exists. Snow is melting earlier, meaning peak water in the dams no longer corresponds with peak electrical load. In other words, the value of summer electricity produced by these dams is not as high as it once was.	While the four lower Snake River dams account for a small portion of the total power of the region, they represent a larger portion of the Federal Columbia River Power System (FCRPS) from which Bonneville markets power. For example, the four lower Snake River dams produce around 1,000 aMW of power, which is approximately 12 percent of the average power produced by the CRS. See Section 3.7.3.5, Changes in Power Generation, Table 3-159. This amount of lost power from breaching the four lower Snake River dams is equivalent to the amount of power used to serve 730,000 homes in the Pacific Northwest. See draft EIS, Section 3.7.3.5, Summary of Effect at page 9-935. Moreover, these projects produce during the peak times of usage. Using average water conditions, and 80-year water data, the four lower Snake River dams produce between 460 aMW to upwards of 1400 aMW of power during the winter months of December through February, which are typically the most energy intensive months for Bonneville. See draft EIS, Section 3.7.3.5, Changes in Power Generation, Table 3-159, noting that generation from the four lower Snake River dams is approximately 90 percent of the power loss in Multiple Objective Alternative 3. As described in Section 3.7.3.5 of the EIS, Potential Replacement Resources and Associated Costs, the four lower Snake River dams are among the most valuable projects in the Federal Columbia River Power System (FCRPS). See draft EIS, Section 3.7.3.5, Lower Snake River Full Replacement at pages 3-905-907. Regarding the percentage of power delivered to Idaho, Bonneville sells power from the FCRPS as a unified system, not from specific projects. In this regard, a portion of the power generated from the four lower Snake River dams is not exclusively sold to Idaho. Further, the seasonality of the power supply is important. The region often has surplus power in the spring when the weather is mild and flows are high. The Loss of Load Probability analysis for MO3 showed that the region would have an annual risk of power shortages of around 14 percent stemming from shortages in the winter and summer. See draft EIS, Appendix J, Hydropower, Section 4.1.2.4; Section 3.7.3.5 at pages 3-918-924; and Table 3-166. The statement that Bonneville's revenues include the sale of surplus energy is accurate; however, Bonneville's surplus power is still in demand, and is sold regionally and exported beyond the region when available. If the output of the four lower Snake River dams is removed, then Bonneville would have less firm power (used to serve regional utilities) and less surplus power to sell. The rate pressure impacts of this outcome are described in the draft EIS in Section 3.7.3.5, Table 3-166. Regarding potential climate change effects on hydropower generation, the EIS analyzed multiple scenarios and the potential effects of climate change on hydropower generation are described in Section 4.2.5, Power Generation and Transmission, for the No Action Alternative, MO1, MO2, MO3, MO4 and in Chapter 7 for the Preferred Alternative.
6940	1	Valerie Yates	N/A	So with regard to my comment, I share that with you because I'd like to get right to a recommendation. And like prior commenters, I'd like to share that I'm recommending a two-tiered approach to save our endangered Snake River salmon, Southern Resident orca, and our ratepayers lots of money. The first tier being an emergency response action for the immediate drawdown and breach of the Lower Granite and Little Goose Dam, followed by the remaining two dams in subsequent years. Tier 2 is addressing system operations and further mitigation activities in the rest of the Columbia River basin using the new EIS, assuming that the four lower Snake River dams have been breached.	The Draft EIS evaluated under Multiple Objective 3 (MO3) removal of the earthen embankment of the four lower Snake River dams (referenced as tier one in the comment) including operations (referenced as tier two in the comment) of the other ten Federal dams in the CRS and mitigation for effects to resources from implementing this alternative. If MO3 were selected, the Corps could use this EIS as a basis for seeking congressional authority to breach the four lower Snake River dams. After receiving both authority and appropriations from Congress, the Corps could initiate a detailed construction and design report for the breach measure, identification of disposal areas, real estate acquisition and disposal, permits, and mitigation requirements, including temporary fish hatchery production. Each of these actions are required prior to breaching, and the Corps does not have the authority or appropriations necessary to immediately breach the project's embankments. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. The ESA does not require the co-lead agencies to take affirmative actions to support recovery of ESA-listed species. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat. The co-lead agencies agree that the quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differently from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for the whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall-run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run,

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					Middle Columbia River fall-run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). The EIS analysis in Section 3.6 (Vegetation, Wetlands, Wildlife and Floodplains) The co-lead agencies conclude there could be a negligible to minor beneficial effects to SRKW from implementing MO3. CSS and NMFS Lifecycle models predict that lower Snake River Chinook salmon smolt-to-adult returns would have a moderate to major increase under MO3. Operation of Lower Snake River Compensation Plan fish hatcheries under MO3 is uncertain and therefore, production of Snake River hatchery fish is assumed to decline over the long term, while returning adult wild salmon are anticipated to increase. However, the co-leads do not anticipate a lack of hatchery fish in the short term based on the proposed fish hatchery mitigation described in Chapter 5. These additional hatchery fish should mitigate short-term construction effects to Snake River populations. Additionally, to address short-term effects to ESA-listed species, the co-lead agencies propose constructing a new trap and haul facility at McNary and conducting at least two years of trap and haul operations for Snake River fish (Chinook, sockeye, and steelhead). Additional details on the most crucial prey stocks for SRKW, as well as their population and range, is available from several fact sheets and videos available here: https://www.fisheries.noaa.gov/species/killer-whale#spotlight. For more information, visit this NMFS StoryMap on SRKW: https://noaa.maps.arcgis.com/apps/Cascade/index.html?appid=3405e6637bf74e998d4ebe992c54f613. The co-lead agencies note the contribution to the prey of Southern Resident killer whales through the continued existence of their respective independent congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as Lower Snake River Compensation Plan, which is administered by USFWS. The Preferred Alternative carries forward certain mitigation measures described in Chapters 2 and 7 of the EIS, which include continued salmon and steelhead hatchery production. The Preferred Alternative has negligible effects to SRKWs as described in Section 7.7.7 in large part because hatchery production is consistent between the No Action Alternative and the Preferred Alternative.
6940	2	Valerie Yates	N/A	As we've heard on this call and I'm sure all the written comments, there are many reasons to breach the lower Snake River dams. Here, there are biological and economic reasons that I think are really important. The first is, endangered Snake River salmon and steelhead have not recovered since the 2002 EIS was implemented, and actually have gotten much worse over the last four years.	Based on the Preferred Alternative analysis, it will make a substantial contribution to recovery, but broad-sense recovery goals are beyond the scope of this EIS, which focuses on the effects associated with the operation and maintenance of the 14 CRS projects. The co-lead agencies used current high quality information in the analysis of the CRSO EIS. Specific to salmon and steelhead, the agencies used two primary modeling approaches which yielded a range of potential outcomes for the alternatives. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult (SAR) return rates would increase for both Snake River spring Chinook and steelhead and would average well above 2% (within the Northwest Power and Conservation Council's recovery targets for the region) as a result of the Preferred Alternative. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets most other EIS objectives including those for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS, the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams, because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system.
6940	3	Valerie Yates	N/A	Secondly, the economic benefits of the dams to the region have declined and operational costs have risen.	The EIS estimates the costs to operate the Columbia River System dams, and presents current and historical benefits information (e.g., hydropower production, tons of inland shipping) in both quantitative and qualitative ways. For capital and expense costs of the dams, see EIS Section 3.19, and for potential effects of dam breaching both beneficial and adverse, see Table 3-1 of the Draft EIS for the summary of effects by resource For hydropower, the average annual value of the four lower Snake River dams exceeds the average annual equivalent costs. The generation value at the four lower Snake River dams can be described by a range between the cost to replace the generation through new conventional resources or through a portfolio of zero-carbon resources. Although the costs of replacing the power with market purchases was analyzed, it is unlikely that short-term wholesale power markets could reliably replace the power for the long term. This range would put the annual value of power between $240 million and $500 million for the four lower Snake River dams combined. These numbers represent about 90 percent of the lost benefits cited in Table 3-171 of the Draft EIS because the four lower Snake River dams represent about 1,000 aMW of the 1,100 aMW of lost generation estimated in MO3. The average annual cost to operate and maintain all authorized purposes at the four lower Snake River dams is $75 million (Appendix Q, Table 5-1) and the annual-equivalent capital costs are $32 million (Appendix Q, Table 4-1). Hydropower costs funded by Bonneville represent about $50 million of the total annual operations and maintenance costs and nearly all of the annual capital costs, approximately $31 million. This puts the annual-equivalent power-specific costs at approximately $81 million a year. As a result, the net benefits from hydropower for the four lower Snake River dams are between $159 million and $419 million and the benefit-cost ratios are between 3.0 and 6.2. If the $34 million per year Lower Snake River Compensation Plan is added to the capital and expense costs, benefits still exceed costs under each replacement power scenario. Considering these costs, the net benefits range from $125 million to $385 million and the benefit-cost ratios range from 2.1 to 4.3. In the less-likely scenario that generation could be reliably replaced with short-term wholesale market purchases and assuming that the four lower Snake River dams represent 90% of the $150 million in market purchases required to replace the lost generation cited in MO3 (see Table 3-170), the lower bound for net benefits would fall to $54 million and the benefit-cost ratio would fall to 1.7. With the Lower Snake River Compensation Plan included, the lower bound for annual net benefits becomes $20 million and the benefit-cost ratio becomes 1.2. From a resource competitiveness perspective, the four lower Snake River dams are among the least costly generating resources in the Federal Columbia River Power System (FCRPS) and the planned investment strategy is expected to maintain that status. As shown in the Federal Hydropower presentation at the 2018 Integrated Program Review1/, the Headwater/Lower Snake Asset Class/2 is forecast to have a 50-year levelized cost of generation/3 of $11.41/MWh based on the direct funded capital and expense (O&M) programs outlined in that process. These costs remain competitive with volatile Mid-Columbia spot market energy prices, which averaged $37/MWh in 2019 and have averaged $21/MWh in 2020. 1/ The Integrated Program Review (IPR) allows interested parties to see and comment on all relevant FCRPS capital and expense spending level estimates in the same forum. The IPR occurs every two years, or just prior to each rate case, and is the public review for the costs that will be recovered through rates the following two-year rate period. Long-term forecasts for the next 50 years and major upcoming projects are also shared in this forum. This information is available here: https://www.bpa.gov/Finance/FinancialPublicProcesses/IPR/2018IPR/IPR%202018%20Fed%20Hydro%20Workshop.pdf and is incorporated by reference into this EIS. 2/ In the 2018 Integrated Program Review, the Headwater/Lower Snake Asset Class consisted of the four lower Snake River dams, Hungry Horse, Libby, and Dworshak dams. These projects were grouped together because they have similar cost characteristics. The Levelized Cost of Generation for the four lower Snake projects alone is slightly lower than that for the whole class including the headwater projects shown in the table. 3/ Levelized Cost of Generation is defined as the forecasted direct costs and administrative overheads of producing power at a plant annualized over a 50-year period. This cost includes direct funded operations, maintenance, administrative and capital costs as well as Columbia River Fish Mitigation (CRFM) costs. Bonneville systemwide mitigation costs, such as its Fish and Wildlife program, are not included in this metric.
6940	4	Valerie Yates	N/A	Third, the Army Corps of Engineers already spent seven years and $33 million of ratepayer and taxpayer money on the 2002 EIS, with a breach recommendation	Thank you for your comment.
6940	5	Valerie Yates	N/A	The Army Corps of Engineer has the fiduciary responsibility to cease operations and place a project into non-operational status when projects are losing money economically or causing nresolvable biological harm. Thus, the Corps of Engineers does not need specific authorization from Congress or anyone else to secure the project and breach the four lower Snake River dams. The federal agencies have a responsibility to comply to the Endangered Species Act and to take the necessary action.	Breaching the earthen embankment of the lower Snake River dams is a major Federal action that conflicts with the authority granted by Congress under which these projects were constructed and are operated. Therefore, de-authorization of the projects by Congress would be required prior to this action occurring. This action also would require expenditures from the Federal government to implement the action which have not been appropriated. The co-lead agencies do not have the authority to override Federal decisions of Congress, remove congressionally approved purposes, or appropriate Federal monies outside of the decisions outlined in annual congressional Federal appropriation bills. De-authorization and appropriation for the breaching of the earthen embankments are a requirement to implement MO3, which includes breaching the four lower Snake River dams. More information is available in the Corps Engineering Regulation (ER) 1165-2-119 Water Resources Policies and Authorities, Modifications to Completed Projects (Sept. 20, 1982) or ER 1105-2- 100, Appendix G, Section III Post Authorization Changes.
6941	1	Zorah Hesch	N/A	The agencies' preferred alternative perpetuates an approach that has pushed salmon, orca, and other wildlife population to the edge of extinction. No species should go extinct under our watch. There are option that allow us to co-exist. Policymakers, tribes, stakeholders, and communities need to work together on these complex problems to craft creative and sustainable solution that support the entire ecosystem. To come up with such an inclusive plan, the comment period must be extended. Here are some of the reasons why: All stakeholders need to have the opportunity to review the facts and scientist data available as well as consider best practices across the nation and the world. It is impossible to read the full draft EIS and validate its content n the given time period. The CRSO website offers to view the draft EIS electronically in various formats, including public libraries. Many public libraries are closed for weeks and will remain closed. Many people currently have either no or limited access to computers to read the draft EIS or to conduct research of its validity.	The co-lead agencies considered requests to extend the public comment period. This NEPA process included a wide array of cooperating agencies whose close involvement throughout the process allowed the co-lead agencies to incorporate feedback. Given the broad range of comments received and the extensive Federal and non-Federal participation in the overall process as well as the level of public engagement in the six virtual public meetings in the region, the co-lead agencies determined that an extension was not warranted and that the 45-day public comment period was adequate consistent with NEPA regulations. The CRSO EIS website notified the public on April 9, that they should plan to submit comments by the close of the comment period. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Recovery of ESA species is the purview of NMFS and the U.S. Fish and Wildlife Service. This EIS has been developed in consultation with NMFS and USFWS to find an acceptable balance that allows the co-leads to meet congressionally authorized purposes while minimizing impacts to affected ESA species and their habitats. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the CRS. That call, however, is ultimately the role of NMFS and the USFWS. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. The Preferred Alternative is nevertheless predicted to benefit salmon and steelhead. It also meets all the other objectives for resident fish, hydropower, water management, water supply and emissions, while minimizing adverse impacts to communities and the economy. The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differentially from hatchery and wild fish. Hatchery fish today likely make up most fish consumed by SRKW (NOAA BiOp 2020). The EIS analysis of the Preferred Alternative determined the overall effect to SRKW to be negligible in large part because hatchery production is consistent between the No Action Alternative and the Preferred Alternative. Because the impact from the Preferred Alternative was determined to be negligible, the agencies determined that existing hatchery production would be sufficient to address any potential impacts to prey availability for SRKWs. The co-lead agencies note the contribution to the prey of SRKW through the continued existence of their respective independent congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as the Lower Snake River Compensation Plan, which is administered by U.S. Fish and Wildlife Service. The Preferred Alternative and Proposed Action in the agencies' biological assessment carry forward certain mitigation measures described in Chapters 2 and 7 of the EIS, which include continued salmon and steelhead hatchery production. The Preferred Alternative has negligible effects to SRKWs as described in Section 7.7.8.

Letter No.	Comment No.	Commenter Name/Email	Affiliation	Comment	Response[1/]
6941	2	Zorah Hesch	N/A	There's a disconnect why native wildlife like the double-crested cormorant is still used as a scapegoat. Scientific data needs to be considered and the persecution of native predator species must be eliminated from this plan	The co-lead agencies utilized current high quality information and best available scientific data in its analysis in the CRSO EIS. The co-leads appreciate your concern for native predator species. However, the co-lead agencies are required to ensure operation of the CRS complies with the law. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. To comply with the ESA, the co-lead agencies have historically supported actions to mitigate adverse effects to listed species from CRS operations, through funding, direct implementation, and other means. Under the Preferred Alternative, those actions, including for the purpose of reducing pinniped and avian predation on listed species, would generally continue to ensure compliance with the ESA. Other entities in the region have authorities and obligations to mitigate the impacts from pinniped and avian predators and the co-lead agencies will continue to work closely with those entities to benefit ESA-listed salmonids. There are many factors that contribute to salmon and steelhead populations including changes to ocean conditions, predation, harvest, etc. The analysis in this study focus on the migratory impacts to salmon and steelhead from the operations, maintenance, and configuration of the Columbia River System projects. Research continues to evaluate the magnitude of these effects. For more information see the NMFS website at: https://www.nwfsc.noaa.gov/research/index.cfm
6942	1	Elizabeth Dunne	N/A	I have worked as an attorney for 20 years. I've worked for large law firms. I've worked as a clerk for federal judges. And now I have my own practice. And I want to speak to the congressional authority issue. As an earlier commenter noted, the congressional authority is a red herring. The Army Corps clearly has congressional authority -- clearly has authority without Congress to breach these dams by putting them in non-operational status. I've reviewed the applicable statues and regulations, and I have no doubt that that is the case. So that needs to stop. The perpetuation of that falsehood is destructive and continues to basically make the corps look like an agency that we can't have faith in, and we can't believe anything that the corps is saying. So that's my first point on the congressional authority. I also want to speak to the -- I guess I will add, too, that I'm actually surprised that the corps would even want to say that it doesn't have authority to take such an action, given that the corps obviously wants the flexibility as an executive agency that it would actually cede power to the congressional -- to Congress to act in such a manner. And I think that in this day and age what we're seeing happening here with executive authority, it's really absurd to even continue to perpetuate that falsehood. Secondly, as to the appropriations, no new appropriations are required. The current (indiscernible) mitigation money that's being used can be reallocated to breaching the dams, which is a much more cost-effective solution. Also, as an alternative, the corps can use the emergency provisions under NEPA because of the emergency that we're in with the extinction of the salmon and the orcas. And there are regulations that recognize that in emergency situations, a loss of a public resource, the dams can be breached, and an environmental assessment document can be prepared for NEPA coverage.	If MO3 were selected as the Preferred Alternative, the Corps could use the CRSO EIS as a basis for seeking congressional authority to breach the lower Snake River dams. After receiving both authority and appropriations from Congress, the Corps could initiate a detailed construction and design report for the breach measure, identification of disposal areas, real estate acquisition and disposal, permits, and mitigation requirements, including temporary fish hatchery production. Each of these actions are required prior to breaching, and the Corps does not have the authority or appropriations necessary to immediately breach the project's embankments. More information is available in the Corps Engineering Regulation (ER) 1165-2-119 Water Resources Policies and Authorities, Modifications to Completed Projects (Sept. 20, 1982) or ER 1105-2- 100, Appendix G, Section III Post Authorization Changes. Those contending that Bonneville has authority to fund the breach of dams typically suggest two statutory alternatives. The first is Bonneville's discretionary direct funding authority found at 16 U.S.C. 839d-l. Congress granted this authority as a means for Bonneville, the Corps, and Reclamation to proceed with funding additions, improvements, or replacements to the multiple purpose projects of the CRS without having to first wait for appropriations for the entire activity. Instead, Bonneville provides the power share directly so that the Corps and Reclamation need only seek appropriations to cover the non-power share; that is, the share attributed to the non-power purposes of the dam. Stated another way, Bonneville can provide direct funding to cover only hydropower costs, whereas costs attributable to or shared by other purposes of the dams would be joint projects and would require congressional appropriations to cover the non-hydropower share of the cost. The breach of a dam is not an addition, improvement, or replacement of a dams power features, so the direct funding authority does not apply to the breach of a dam. Moreover, even if for arguments sake it did, Bonneville could provide no more than the power share of the cost of breaching. Congress would still have to provide appropriations to the Corps for the non-power share. The use of Bonneville's discretionary direct funding authority therefore cannot provide a means of funding the breach of dams absent an act of Congress. The second statutory authority suggested for Bonneville to fund the breach of dams is the Northwest Power Act section 4(h)(10)(A) found at 16 U.S.C. 839(b)(h)(10)(A). The Bonneville Administrator must use the Bonneville Fund to protect, mitigate, and enhance fish and wildlife affected by the operation and development of the FCRPS in a manner consistent with the Northwest Power and Conservation Councils (Council) Fish and Wildlife Program, the Councils Power Plan, and the purposes of the Act. Currently, dam breaching is not part of the current Council Fish and Wildlife Program, the Seventh Power Plan, or evident within the purposes of Act. For example, dam breaching is inconsistent with the statutory purpose of Section 2(6) of the Act, which says in relevant part that anadromous fish are dependent on environmental conditions substantially obtainable from operations and management of the Columbia River System and other hydropower facilities in the basin. Additionally, as Section 3.7 (Power Generation and Transmission) demonstrates, dam breaching is also inconsistent with another purpose of the Northwest Power Act, Section 2(2), which provides for assuring the Pacific Northwest an adequate, efficient, economical, and reliable power supply. Section 4(h)(10)(A) therefore does not mandate or confer authority on the Administrator to fund the breach of a dam.
6944	1	Jonah Coffman	N/A	Since the listing of sockeye salmon as endangered in 1991 under the Endangered Species Act, we, the taxpayers and utility payers, have spent 16 to 17 billion dollars on fish ladders, dam modifications, hatcheries, barging smolts out to see, researching and monitoring, captive rearing of sockeye, and using irrigation water from the upper Snake River to flush smolt out to sea. Hatchery fish are not the solution. They were created for people to catch and for mitigation for destruction of habitats. But hatchery fish cannot do what wild salmon do and have not replaced wild fish. Low and worsening salmon and steelhead returns hurt commercial and tribal fishermen and fishing guides and the hurt communities throughout Idaho and the region. The current draft EIS only gives us more of the same failed solutions, which are not real solutions at all.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the Columbia River System. Recovery of ESA species is the purview of NMFS and the US Fish and Wildlife Service. This EIS has been developed in consultation with National Marine Fisheries Service and USFWS to minimize impacts to affected ESA species and their habitats. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the EIS objectives) as well as the EIS objectives for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. The Preferred Alternative is also more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% (the lower end of Northwest Power and Conservation Council's recovery targets for the region) as a result of the Preferred Alternative, as a result of the Preferred Alternative increasing SAR from 2.0% to 2.7% for Chinook, a 35% relative increase. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. To address uncertainty highlighted by the two models, the Preferred Alternative includes working with regional sovereigns to develop a study that assess the effectiveness of the increased spill regime on adult returns as well as assessment and management of adverse unintended consequences, such as long delays of adult migrants, or TDG-related mortality of juvenile migrants. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information. The Preferred Alternative will make a meaningful contribution towards recovery. Finally, management of commercial fisheries is outside the jurisdiction of the three co-lead agencies. Specific discussion pertaining to commercial fishing is discussed in Section 3.15, Fisheries and Passive Use. Actions taken by other agencies are described in Chapter 6, Cumulative Effects, and Section 7.9, Cumulative Effects of the Preferred Alternative. Alternatives to include changes to harvest are not within the scope of this EIS. A recent EIS addressing harvest was conducted by NMFS. We cited this study in Chapter 3.15 as we used it's results to determine abundance considerations. To see their conclusions and effects analyses please go to: https://www.fisheries.noaa.gov/resource/document/environmental-impact-statement-programmatic-review-harvest-actions-salmon-and Harvest certainly has an impact on salmon and steelhead populations. The three co-lead agencies do not manage fish stocks, and do not have the authority to do so. For harvest, fisheries in the Columbia River Basin and those that rely upon Columbia River fish stocks are managed by numerous entities, including Federal, state, and tribal governments. These entities are guided by a complex array of policies, laws, compacts, and agreements. The management of Pacific salmon fisheries in particular is complex, and involves numerous entities representing a variety of social, political, and conservation interests. Changes in allowable fishery harvest in the Columbia River Basin are a result of decisions made by state, Federal (i.e., NMFS), and tribal fishery managers based on a variety of environmental, biological, economic, and social factors.
6947	1	Keith Kutchins	N/A	This draft EIS fails because it doesn't develop alternatives that meet the needs of threatened and endangered fish protected by the Endangered Species Act, but, instead, only at best, it might improve fish, but no discernible level. The draft fails because the preferred alternative makes the needs of water supply, navigation, and electricity production the priority. Those needs are guaranteed to be met first and foremost. Then, and only then, does the preferred alternative work to, no, not meet, but, instead, only, at best, simply improve fish. Remember, the EIS -- the ESA is this EIS' mandate, and it's the floor we cannot go below, not a ceiling we can't exceed as this faulty draft is written.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the Columbia River System. Recovery of ESA species is the purview of NMFS and the US Fish and Wildlife Service. This EIS has been developed in consultation with National Marine Fisheries Service and USFWS to minimize impacts to affected ESA species and their habitats. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the EIS objectives) as well as the EIS objectives for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. The Preferred Alternative is also more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% (the lower end of Northwest Power and Conservation Council's recovery targets for the region) as a result of the Preferred Alternative, as a result of the Preferred Alternative increasing SAR from 2.0% to 2.7% for Chinook, a 35% relative increase. The NMFS COMPASS and Lifecycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. To address uncertainty highlighted by the two models, the Preferred Alternative includes working with regional sovereigns to develop a study that assess the effectiveness of the increased spill regime on adult returns as well as assessment and management of adverse unintended consequences, such as long delays of adult migrants, or TDG-related mortality of juvenile migrants. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information. The Preferred Alternative will make a meaningful contribution towards recovery.
6947	2	Keith Kutchins	N/A	This EIS needs to finally adopt a preferred alternative that, first and foremost, meets the needs of threatened and endangered fish. And then, tries to meet the needs of water supply, navigation, electricity production.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the Columbia River System. Recovery of ESA species is the purview of NMFS and the US Fish and Wildlife Service. This EIS has been developed in consultation with National Marine Fisheries Service and USFWS to minimize impacts to affected ESA species and their habitats. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the EIS objectives) as well as the EIS objectives for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. The Preferred Alternative is also more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% (the lower end of Northwest Power and Conservation Council's recovery targets for the region) as a result of the Preferred Alternative, as a result of the Preferred Alternative increasing SAR from 2.0% to 2.7% for Chinook, a 35% relative increase. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. To address uncertainty highlighted by the two models, the Preferred Alternative includes working with regional sovereigns to develop a study that assess the effectiveness of the increased spill regime on adult returns as well as assessment and management of adverse unintended consequences, such as long delays of adult migrants, or TDG-related mortality of juvenile migrants. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information. The Preferred Alternative will make a meaningful contribution towards recovery.
7542	1	Diane Foulds	N/A	I'm writing to beg you to prevent the orca whale from extinction. They are part of the delicate food chain that nature has created over thousands of years. We don't understand all of its intricacies, but we do know that every time a piece of that food chain breaks, the repercussions are extensive and irretrievable. Our own existence depends on its delicate balance, and right now, it's in severe danger. Orcas depend on salmon, but the salmon population is crashing in the Pacific Northwest. This decline started when the four lower Snake River dams were put into service, and it is those salmon -- the ones that these dams have cut off -- that orcas depend on for survival. At last count, only 72 are still alive. Starving females are losing their unborn calves, as was visible in a heartbreaking video that went public a few months ago showing a mourning orca mother refusing to abandon her dead newborn. Do something about this. You are in a unique position to do so. The U.S. Army Corps of Engineers can restore salmon populations by removing the earthen portions of the Snake River's four lower dams and replacing them with wind or solar. If you get busy on this quickly enough, we'll keep the food chain from collapsing, and our own future will look a great deal brighter. Once the orcas are gone, there will be no getting them back. Please act now! Respectfully,	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. The EIS analysis found that only a minor effect to the Southern Resident killer whale would result from implementing MO3 (which includes the dam breach measure). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall run (tules and brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s,

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					before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differentially from hatchery and wild fish. Hatchery fish today likely make up most fish consumed by SRKW (NOAA BiOp 2020). The EIS analysis of the Preferred Alternative determined the overall effect to SRKW to be negligible in large part because hatchery production is consistent between the No Action Alternative and the Preferred Alternative. Because the impact from the Preferred Alternative was determined to be negligible, the agencies determined that existing hatchery production would be sufficient to address any potential impacts to prey availability for SRKWs. The co-lead agencies note the contribution to the prey of SRKW through the continued existence of their respective independent congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as the Lower Snake River Compensation Plan, which is administered by U.S. Fish and Wildlife Service. The Preferred Alternative and Proposed Action in the agencies' biological assessment carry forward certain mitigation measures described in Chapters 2 and 7 of the EIS, which include continued salmon and steelhead hatchery production. The Preferred Alternative has negligible effects to SRKWs as described in Section 7.7.8. The co-lead agencies note the contribution to the prey of Southern Resident killer whales through the continued existence of their respective independent congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as Lower Snake River Compensation Plan (LSRCP), which is administered by USFWS.
7605	1	Amy Dessert	Natural Resources Defense Council	There are not enough salmon in the Columbia and Snake rivers to feed the Southern Resident orcas. The dams on the rivers have eliminated the ability of the salmon to spawn.	The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall run (tules and brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). The co-lead agencies agree that the quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults form the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differentially from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020). Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Additionally, Section 7.7.8 states impacts to Southern Resident killer whales would be negligible.
7615	1	Amy Hansen	Natural Resources Defense Council	Please, U.S. Army Corps of Engineers,We are so worried about the irreplaceable critically endangered orca whales. Please revise the Columbia River Systems Operations draft environmental impact statement (EIS) so that salmon are strongly protected, and the orcas that depend on them will survive. Our friends, the Native peoples', must be helped and their rights must be protected. It is so terrible that salmon populations in the Columbia Basin have so declined since the four lower Snake River dams were built. [Form And the at one time-abundant species such as chinook salmon, which make up 80 percent of an orca's diet, are only returning at a small fraction of historic levels.: 87.1%] Please take action before it is too late! There is something you can do, to help the people, the salmon and the whales - it is time to redraft the EIS so that you address the impact that dwindling salmon populations in the Columbia and Snake rivers have on Southern Resident orca survival. This is heartbreaking, and we ask you to act now to save the beauty of the world in this area!	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). The co-lead agencies agree that the quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults form the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differentially from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020). Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Additionally, Section 7.7.8 states impacts to Southern Resident killer whales would be negligible.
9031	1	Beth Jones, informed & thus outraged expat	N/A	Once-abundant species like the chinook salmon (which make up 80 percent of an orca's diet!) are only returning at a small fraction of historic levels. Your draft EIS unwisely fails to adequately account for the impact that dwindling salmon populations in the Columbia and Snake rivers have on Southern Resident orca survival.	SRKW analysis is described in the EIS including in the FEIS Chapter 3 (Vegetation, Wetlands, Wildlife, and Floodplains) which has been updated for SRKW (Section 3.6.2.6 and Table 3-102) and FEIS Chapter 7 (Preferred Alternative) with additional analysis information on SRKW and potential increase in forage fish, in particular, Chinook salmon in Section 7.7.8. The co-lead agencies utilized current high quality information and best available science in its analysis of the effects of the operation, maintenance, and configuration of the CRS projects. The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). The co-lead agencies agree that the quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults form the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differentially from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020). The co-lead agencies disagree that the EIS does not adequately account for impacts on SRKW. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Additionally, Section 7.7.8 states impacts to Southern Resident killer whales would be negligible.
12038	1	david holland	Natural Resources Defense Council	The Snake River dams were originally constructed to facilitate the shipment of grain and other bulk products to the coast through the Columbia River. The anticipated barge traffic did not materialize and the dams provide little economic benefit. Rather,they are a loss to the taxpayer. Accordingly, the best long term economic action is to remove the dams in a well considered fashion.	Access to barge transportation is the most cost effective means of accessing export markets for the many grain producers in the Pacific Northwest currently and removing that option will increase transportation costs for grain producers, as the EIS shows. It is true that barge movements on the Snake/Columbia river have declined somewhat over the past 20 years, but that decline is mostly attributed to investments in shuttle rail terminals. While the Snake River freight volume is certainly smaller than the volume of the other river systems, it is nonetheless an important transportation option for a large volume of freight, particularly for farm products, with the Columbia-Snake River system serving as one of the largest exporters of farm products in the U.S., and the largest exporter of wheat. The EIS analysis finds that transportation of freight that is currently barged on the lower Snake River could be accomplished via other transportation modes, but this change would not be without costs to farmers, would require public and private investment in infrastructure, and would result in some adverse regional economic effects, particularly in the short term. The EIS evaluates potential effects on farmers associated with increased transportation costs under MO3 in Section 3.10.3.5. Evaluating the impact of removing the lower Snake River locks and barge navigation above Pasco, Washington, is completed using a transportation optimization model that does not allow shipments on river terminals along the lower Snake River. The EIS finds that under a dam breach scenario, average transportation costs for wheat farmers would increase 10 to 33 percent, but that individual farmers could experience increases that are doubled. The cost increases to specific shippers would depend upon location and would vary throughout the region, depending on transportation options at each location. Generally, those grain shippers that are the farthest from alternate shipping locations (shuttle rail facilities or river ports on the Columbia River) would be the most adversely impacted. Note, cost scenarios for specific farmers are presented below in the Regional Economic Effects within Section 3.10.3.5.
13400	1	Dwight Johnson	N/A	Once-abundant species such as chinook salmon, which make up 80 percent of an orca's diet, are only returning at a small fraction of historic levels. Your draft EIS fails to adequately account for the impact that dwindling salmon populations in the Columbia and Snake rivers have on Southern Resident orca survival.	The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). The co-lead agencies agree that the quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults form the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differentially from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020).
16620	1	Janet Marx	N/A	Salmon populations in the Columbia Basin have dramatically declined since the four lower Snake River dams were built. This impacts the food source for Southern Resident Orcas. Your draft EIS fails to adequately account for the impact that dwindling salmon populations in the Columbia and Snake rivers have on Southern Resident orca survival.	The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon

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					both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). The co-lead agencies agree that the quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults form the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differentially from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020). The co-lead agencies disagree that the EIS does not adequately account for impacts on SRKW. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Additionally, Section 7.7.8 states impacts to Southern Resident killer whales would be negligible.
18523	1	Joyce Lynn Garrett	N/A	Salmon populations in the Columbia Basin have dramatically declined since four dams were built on the lower Snake River. Once abundant species such as Chinook salmon, which make up 80 percent of an orca's diet, are only returning at a small fraction of historic levels. This EIS draft fails to adequately account for the impact dwindling salmon populations in the Columbia and Snake Rivers have on Southern Resident orca survival.	The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). The co-lead agencies agree that the quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults form the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differentially from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020). The co-lead agencies analyzed the impacts of each of the alternatives on SRKW in Section 3.6. Based on the fish analysis in Section 7.7.4 of the Draft EIS, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Additionally, Section 7.7.8 states impacts to Southern Resident killer whales would be negligible.
19058	1	Karen Burtness Prak	N/A	Once-abundant species such as chinook salmon (a species which forms 80% of an orca's diet) are returning at an alarmingly small fraction of their historic levels. Your draft EIS doesn't really consider the impact that dwindling salmon populations in the Columbia and Snake rivers have on Southern Resident orca survival!	The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). The co-lead agencies agree that the quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults form the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differentially from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020). The co-lead agencies analyzed the impacts of each of the alternatives on SRKW in Section 3.6. Based on the fish analysis in Section 7.7.4 of the Draft EIS, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Additionally, Section 7.7.8 states impacts to Southern Resident killer whales would be negligible.
21663	1	Lisanne Freese	N/A	Once-abundant species such as chinook salmon, which make up 80 percent of an orca's diet, only return at a small fraction of historic levels. Your draft EIS fails to account for the impact dwindling salmon populations in the Columbia and Snake rivers have on Southern Resident orca survival.	The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). The co-lead agencies agree that the quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults form the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differentially from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020). The co-lead agencies analyzed the impacts of each of the alternatives on SRKW in Section 3.6. Based on the fish analysis in Section 7.7.4 of the Draft EIS, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Additionally, Section 7.7.8 states impacts to Southern Resident killer whales would be negligible.
22798	1	Marilyn Martin	N/A	Once-abundant species such as chinook salmon, which make up 80 percent of an orca's diet, are only returning at a small fraction of historic levels. Your draft environmental impact statement fails to adequately account for the impact that dwindling salmon populations in the Columbia and Snake rivers have on Southern Resident orca survival.	The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). The co-lead agencies agree that the quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults form the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differentially from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020). The co-lead agencies analyzed the impacts of each of the alternatives on SRKW in Section 3.6. Based on the fish analysis in Section 7.7.4 of the Draft EIS, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Additionally, Section 7.7.8 states impacts to Southern Resident killer whales would be negligible.
29657	1	Susan Donaldson	Natural Resources Defense Council	Is it possible to construct adjacent water "corridors" (my word) that salmon could pass through, on the order of underpasses beneath highways for land animals? Please seriously consider that or something similar.	A wide array of measures were considered and during the creation of alternatives for these analyses. Canal or pipe systems were discussed for fish transport but were determined as technically infeasible. Other passage technology was suggested such as fish cannons or similar devices, which has demonstrated some success on smaller scales, and their use will continue to be evaluated for future applications. The four lower Snake River and four lower Columbia River dams have fish ladders that safely and effectively pass millions of adult salmon upstream. Adult upstream passage success through these dams is relatively high, generally around 90% from Bonneville to Lower Granite dam. In addition to passing up to 60,000 salmon per day, some of these dams may pass upwards of 250,000 shad in a single day.
31744	1	Shelley Silbert	Great Old Broads for Wilderness	The public participation process for the CRSO DEIS is flawed, and has become almost insurmountable in this time of pandemic. We have spent significant time, effort and money in order to ensure our substantive comments have been filed. This has been accomplished by our team of lawyers, scientists, retired government employees, and other professionals. Others attempting to comment may not have the resources and time that we do. It is important to remember that the Draft Environmental Impact Statement is 315 mb and 7,620 pages long, including 22 Appendices. Yet you provided only 45 days to submit comments on these numerous voluminous documents. We first attempted to submit our comments on line at comments.crso.info. That website limits comments to 100 kb. Attachments are limited to five attachments of 2 mb each, so that our entire comments were essentially limited to a maximum of 10 mb. These limits are incredibly small, given that the DEIS is 315 mb. We believe that these limits are unprecedented in federal commenting procedures and inconsistent with the National Environmental Policy Act (NEPA). Your procedures limited public input in scope, size, content and filing procedures, had a very short and arbitrary deadline for such a large, complex document, and thus weakened both public and scientific review. Our comments were 6.3 mb including figures, graphs and data to support our remarks and explanations. Because of limitations imposed by your agency we had to break our comments into five separate parts to submit them, a process which should not have been necessary! Because of the limitations of the online process, we decided to take other measures to file the documents including mailing and hand	The co-lead agencies are sorry for any technical difficulty experienced. It is accurate that the website had file size limitations that were listed for a single entry. That was not to limit you in your comments, but to alert you to submit in multiple entries either contact the CRSO info helpline, or mail your materials to the P.O. Box listed on the CRSO website and on other news and informational releases. Hand delivery was not a provided option for public comments. It was fortunate you were able to access the building and hand deliver regardless. Unfortunately with the COVID-19 pandemic response, the co-lead agencies office buildings were closed and personnel were directed to work from home. As indicated in the NOA, all comments mailed with the post-marked dates prior and up to April 13, 2020, or delivered by a delivery service with access to the mail room by 5:00 pm on April 13, 2020, were accepted. The co-lead agencies considered requests to extend the public comment period. This NEPA process included a wide array of cooperating agencies whose close involvement throughout the process allowed the co-lead agencies to incorporate feedback. Given the broad range of comments received to date and the extensive Federal and non-Federal participation in the overall process as well as the level of public engagement in the six virtual public meetings in the region, the co-lead agencies determined that an extension was not warranted and that the 45-day public comment period was adequate consistent with NEPA regulations. The CRSO EIS website notified the public on April 9, that they should plan to submit comments by the close of the comment period.

Letter No.	Comment No.	Commenter Name/Email	Affiliation	Comment	Response[1/]
				delivery. This involved making color copies of the 82-page document which was expensive, and of course involved exposure to other persons and possibly to the Corona virus. There is only one place listed where comments to the CRSO DEIS can be hand delivered which is the USACOE office at 1201 NE Lloyd Blvd in Portland Oregon. The entire building was locked. There is no sign that indicates that the USACOE is located at that building and no instructions on hand delivery options. We attempted to find the USACOE on the callbox and did not see them listed. We called up the only name that was recognizable, the National Oceanic and Atmospheric Administration office. Someone answered and had no idea what to do in this situation. Apparently that person called security and a guard came up to let us in to the building. The security guard took us to the floor of the building where the USACOE is located, and both doors were locked with no one in sight. We waited outside the locked doors and a second security guard showed up who had access to the Corps office, but could not accept the envelope containing the comments. He opened the door, checked my identification and had me sign in. He then started calling a number of people but seemed to get no response. The guard then walked me around through the offices to a third reception area where there was someone dressed in Corps attire. He accepted my package which I told him contained our comments on the DEIS but no receipt was provided. We also mailed a copy at the post office, another expense and exposure to danger. As can be seen below, the public hearings were cancelled on March 13, and telephone hearings were provided. The last one was thirteen days before the end of the 45 day comment period. Participants at the telephone hearings were limited to a three minute comment. This process does not allow an ordinary person to make anything other than the briefest and most summary comments. If they try, they are met with frustrations, expense and exposure to the virus. These are not ordinary times, but even in ordinary times the process created by the Corps does not meet the most basic elements of due process and public participation, and violates both the spirit and the letter of the law.	
31750	1	Abagayle Shane	N/A	The Task Force failed to recommend the bold action, immediate breaching of the 4 Lower Snake River Dams (4LSRDs) necessary to save these endangered whales while disregarding public input. In its Summary of Public Comments on 9/24 Report, the Task Force notes that the most prevalent comment received, of the 994 total comments relating to hydropower, called for dam removal. Indeed, 36.7 percent- or 365 comments-said "breach the lower Snake River dams," while an additional 10.4 percent-or 103 comments-said to "prioritize and remove dams in general." I am gravely disappointed with some of the recommendations you released on November 16th, especially your support of Task Force Recommendation 9, for stakeholder process to further discuss the potential breaching or removal of the 4LSRDs. This only delays action that should be taken immediately. The government efforts to save the Chinook Salmon and Endangered Southern Resident Orcas are failing and costing billions in taxpayer dollars.There is no need to fund the CRSO/EIS process which would take too long. Army Corps of Engineers can supplement the 2002 Environmental Impact Statement promptly and use Alternative 4 to breach the lower 4 Snake River Dams starting in winter 2018/19. Waddell, Twa and others have demonstrated that the 2002 EIS can be used to breach these dams and they have created Appendix D that would reduce the cost of breaching by $600Million. No new authorities are needed to place these dams in "non-operational" status; the. Corps can do so immediately if they are asked. Please ask the Army Corps to begin breaching as follows: Army Corps of Engineers can supplement the 2002 Environmental Impact Statement promptly and use Alternative 4 to breach the lower 4 Snake River Dams by Fall 2019. 1. Prepare Supplemental EIS materials & Record of Decision. 2. Prepare/Solicit/Award Cost-Type Contract for Excavation 3. Lower Granite draw-down begins. 4. Controlled hydraulic breach of Lower Granite Little Goose drawdown begins. 5. Lower Granite & Little Goose breached. 70 miles of Free Snake River.	The CRSO EIS documents the assessment of benefits and impacts of changes to the operations of the 14 Federal projects of the Columbia River System. Using a multi-disciplinary approach and with the coordination and consideration of our cooperating agencies and Tribes, as well as public stakeholder input, and by using high quality information, the co-lead agencies developed the Preferred Alternative. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3, which includes breaching the four lower Snake River dams. The Preferred Alternative also meets the EIS objectives for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS, the co-lead agencies did not identify MO3 because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. Increasing flows as a potential measure was evaluated in the EIS. If MO3 were selected as the Preferred Alternative, the Corps could use the CRSO EIS as a basis for seeking congressional authority to breach the lower Snake River dams. After receiving both authority and appropriations from Congress, the Corps could initiate a detailed construction and design report for the breach measure, identification of disposal areas, real estate acquisition and disposal, permits, and mitigation requirements, including temporary fish hatchery production. Each of these actions are required prior to breaching, and the Corps does not have the authority or appropriations necessary to immediately breach the project's embankments. More information is available in the Corps Engineering Regulation (ER) 1165-2-119 Water Resources Policies and Authorities, Modifications to Completed Projects (Sept. 20, 1982) or ER 1105-2- 100, Appendix G, Section III Post Authorization Changes. The EIS acknowledges previous analyses of breaching the four lower Snake River dams. However, the EIS relies on current information to evaluate the tradeoffs associated with dam breach under MO3. This includes applying current models and data rather than relying on findings from studies conducted nearly 20 years ago. Further, please see Section 3.7.3.5, Social And Economic Effects Of Changes In Power And Transmission, for a discussion of the regional retail rate effects of dam breaching. As described in that section, the general impacts of breaching the four lower Snake River dams is to increase the rates of most consumers of energy in the region, which has the potential to have the highest impact on rural areas. Higher retail rates means less spending on production, which reduces job growth. See Table 3-175 for the regional economic effects from changes in household spending on electricity. The commenters suggestion that billions in fish and wildlife mitigation investment has been ineffective to recover ESA listed species is misplaced. Those investments delivered the intended results when considered in the appropriate statutory context of the Northwest Power Acts anadromous fish provisions which call for improved survival of such fish at FCRPS projects and sufficient flows between the projects to improve production, migration, and survival. For example, as of 2014 this investment had facilitated juvenile dam passage survival of 96% and 93% for spring and summer migrants respectively, see Endangered Species Act Federal Columbia River Power System 2016 Comprehensive Evaluation Section 1, at 17, t.2 (Jan. 2017), a marked improvement compared to when Congress passed the Northwest Power Act and the estimated average juvenile mortality at each mainstem dam and reservoir complex was 15-20% with losses recorded as high as 30%. See Nw. Res. Info. Ctr. v. Nw. Power Planning Council, 35 F.3d 1371, 1374 (9th Cir. 1994) (citing a Sept. 4, 1979 report by U.S. General Accounting Office describing the systems impacts on anadromous fish).
31754	1	Erika Lorrain	N/A	Please sir - breach the lower Monumental Dam and Little Goose Dam as soon as possible, this will save the salmon and our endangered Orcas from extinction. Each dam kills 2 million salmon every year and then just recently there was an oil spill, which harmed the Salmon and Snake river ecosystem. If only 2 of the 4 snake river dams were breached we would save 4 million salmon this year.	Without a specific reference, it was difficult for the co-lead agencies to assess the 2 million per dam loss claim made in this comment. The co-lead agencies used current high quality information and the best scientific information available in the analysis of the CRSO EIS. Specific to salmon and steelhead, the agencies used two primary modeling approaches which yielded a range of potential outcomes for the alternatives. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% (within the Northwest Power and Conservation Council's recovery targets for the region) as a result of the Preferred Alternative. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. Based on our analysis, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Recovery is a broader regional goal and is above and beyond the co-lead agencies' obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the Columbia River System. That call, however, is ultimately the role of NMFS and the USFWS. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. In compliance with ESA, the co-lead agencies submitted a Biological Assessment to NMFS and USFWS (Appendix V). In this Final EIS, the Biological Opinions from NMFS and USFWS can be found in Appendix V, completing this projects ESA consultation. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets most other EIS objectives including those for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS, the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams, because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system.
31761	1	timsalmonstate@gmail.com	N/A	Please accept the following comment letter from SalmonState regarding the Columbia River System Operations Draft Environmental Impact Statement (EIS). The Draft EIS falls far short of what is needed to protect and recover endangered salmon and steelhead populations in the Columbia Basin. The Draft EIS not only ignores well-documented science showing that dam removal on the Snake River is essential to restoring local fish populations, but it also fails to acknowledge that salmon know no boundaries and the economic health of Southeast Alaskas fisheries and coastal communities depends on the health of the Columbia River. A new approach is urgently needed with state and federal policymakers from both the Northwest and Alaska working closely with stakeholders, sovereigns and citizens to craft a lawful, science-based plan. SalmonState is an Alaska-based nonprofit initiative with the mission to ensure that Alaska remains a place where wild salmon and the people who depend on them thrive. It is not coincidence that Alaska is home to our countrys last great wild salmon fisheries. In Alaska, we still have healthy wild salmon populations because we still have intact free-flowing rivers and streams. While it may seem like Alaska is a world apart, it is closely linked in many ways to the health and abundance of Columbia-Snake Chinook. Salmon spend most of their lives in the ocean in mixed stock schools that range thousands of miles from their natal streams. In fact, for decades now, Southeast Alaska fishermen have been on the hook for much of what happens in the Columbia system. The fact is, just like Southern resident Orca, thousands of commercial, sport and subsistence fishermen in the region are inextricably linked to the health of the salmon runs on the Columbia and Snake Rivers.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, theoperation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. Different models predict different long-term survival benefits to ESA-listed species from dam breach, benefits that can contribute to recovery. Under the National Marine Fisheries Service (NMFS) COMPASS model, juvenile Snake River spring/summer Chinook in-river survival would improve by 9.6% due to dam breach, which is a 19% relative increase over the No Action Alternative. The NMFS Lifecycle model predicts an increase in adult returns of 13.6% for these same fish under MO3 (with no latent mortality assumed) relative to the No Action Alternative (from 0.88% to 1%). Results for Snake River steelhead are similar (10% absolute improvement, or 23% relative juvenile survival increase, Smolt-to-Adult return rates (SARs) for steelhead were not modeled). Under the CSS model, juvenile in-river survival for the Snake River spring/summer Chinook is predicted to improve by 10.4% due to dam breach, which is an 18% relative increase over the No Action Alternative, while SARs would increase by 115% (from 2% to 4.2%). The CSS model predicts that Snake River steelhead would see juvenile survival increase by 25.8%, which is a 46% relative increase over the No Action Alternative. The CSS model also predicts that SAR increase by 177% (from 1.8% to 5%). Though differing in predictions, both modeling groups predict dam breaching is the best CRSO EIS alternative for salmon and steelhead. One simply predicts adult return increases an order of magnitude higher than the other. Under the Preferred Alternative, the CSS model predicts that average SARs will increase for both Snake River spring Chinook and steelhead and will average well above 2% (the lower end of Northwest Power and Conservation Council's recovery targets for the region), increasing SARs from 2.0% to 2.7% for Chinook, a 35% relative increase. The NMFS COMPASS and Lifecycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. To address uncertainty highlighted by the two models, the Preferred Alternative includes working with regional sovereigns to develop a study that assess the effectiveness of the increased spill regime on adult returns as well as assessment and management of adverse unintended consequences, such as long delays of adult migrants, or Total Dissolved Gas-related mortality of juvenile migrants. See Appendix R, Part 2, Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS, for additional information. The Preferred Alternative will make a substantial contribution towards recovery.
31761	2	timsalmonstate@gmail.com	N/A	How to restore the Columbia Basins salmon populations is not a new discussion, which makes the Draft EIS worrisome and frustrating. Rather than embracing calls dating back to the 1990s for a major overhaul of hydrosystem operations to protect threatened and endangered salmon 1 and steelhead, this new report recommends only minor adjustments to a status quo plan that will perpetuate many serious mistakes from the past. The draft report does not offer a new approach; rather it recommends minor tweaks to a 25-year federal approach that has cost billions of dollars, brought salmon and steelhead today to some of their lowest levels on record, helped push orcas to the edge of extinction, increased uncertainty for communities across the region, and has been invalidated five times consecutively in federal court. Flexible spill is the centerpiece of the governments Preferred Alternative. While the science shows that increased levels of spill can buy some additional time to put in place more effective actions for imperiled fish populations, it is not, by itself, a long-term survival strategy, let alone a recovery strategy. Indeed the parties to the current, short-term Flexible Spill Agreement made this explicit and respected regional scientists have confirmed that the flexible spill included in the Preferred Alternative will not deliver salmon the survival benefits through the hydrosystem they need.	The spill operation for juvenile fish passage in the Preferred Alternative is a significant departure from previous operations, so much so that the Washington and Oregon state water quality waiver standards had to be changed to implement the new spill regime. The CSS model, which includes latent mortality effects, predicts that Smolt-to-Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% (the lower end of the Northwest Power and Conservation Council's recovery targets for the region) as a result of the Preferred Alternative.
31761	3	timsalmonstate@gmail.com	N/A	The changing climate will further erode any benefits of flexible spill as a long-term approach and only underscores the urgency for meaningful action. The draft plan includes little to address these intensifying impacts on the Columbia Rivers salmon populations.	Through on-going regional climate change studies and related work, the co-lead agencies evaluated potential shifts in precipitation and temperature patterns and resulting changes in unregulated Columbia Basin streamflow timing and volumes. The evaluation consisted of the full range of the latest climate change projections developed using multiple global climate models, emissions scenarios, downscaling techniques, and hydrologic models. Details of this evaluation are in Chapter 4 of the EIS. This information was used to describe the potential effects (both beneficial and adverse) on the river systems and resources due to potential changes in climate for all alternatives. Quantitative data that describes how climate change hydrology will affect reservoir operations in the Columbia Basin in still under development and was not available for use in this study. The climate science community is still developing quantitative models that can address possible effects in water temperature from climate change, and unfortunately, have not been fully applied and validated for use with climate affected regulated flow projections of large reservoir systems. This data is critical to analyzing potential effects to fish quantitatively. The same is true for projecting changes to TDG.

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					In lieu of this information, the climate analysis used the output from resource models, like water quality and fish, under historical conditions, available climate change data, and scientific literature to qualitative assess potential effects to resources (described in Chapter 4). These analyses are documented in Section 4.2.3 for the MO Alternatives and Section 7.8.4 for the Preferred Alternative. Overall, the Preferred Alternative is expected to result in benefits to anadromous salmon and steelhead. The analysis in Section 7.8.4 recognizes that some of the benefits to fish from the Preferred Alternative could be offset by the effects of climate change. Under a dam breach scenario, spring water temperatures will warm more quickly than No Action conditions. Similarly in the fall, under a dam breach scenario, fall water temperatures will cool more quickly than No Action conditions. These results make logical sense and are supported by results from CRSO numerical water quality modeling. What has surprised some stakeholders are the predicted summer water temperature effects under dam breaching. Many believe that removing the dams will result in colder water temperatures as compared to the No Action Alternative. While some cooler water temperatures may be observed in the summer under dam breaching, especially during cooler summer weather conditions and at night, water temperatures will remain warm and exceed the state water quality standard at times. This is because without the dams, the lower Snake River will be shallower and more susceptible to solar radiation and warming. Increases in water particle travel time are expected, but the lower Snake River has always been a warm system (USGS 1960, 1961, 1964; Corps 2002a) and breaching the dams will not change this fact. Regionally high air and water temperatures result in water quality standard exceedances and are beyond the ability of the CRS to cool; future climate change predictions will result in even more difficult challenges.
31761	4	timsalmonstate@gmail.com	N/A	Based on the approach recommended by this Draft EIS, recovery will not be an option and extinction becomes nearly certain for remaining endangered Snake River stocks: sockeye, spring/summer chinook, fall chinook and steelhead. SalmonState supports restoring a freely flowing lower Snake River as an essential cornerstone for any effective strategy to protect and recover its endangered wild salmon and steelhead. The scientific support for restoring the lower Snake River and native fishes that use this basin through dam removal is well established. For over two decades, Tribal, federal, state and independent research has repeatedly corroborated this determination. The just-released 2020 Draft EIS also acknowledges that restoring this river will deliver greater benefits to endangered Snake River fish populations than any other option considered or analyzed. Restoring the lower Snake River through dam removal should be included as a foundational element of the Preferred Alternative. A dramatically new approach is urgently needed in the Columbia Basin. The Draft EIS falls far short of what is needed to protect and recover endangered salmon populations, putting thousands of American fishing families and businesses at risk with them.	Based on the analysis of the Preferred Alternative, the co-lead agencies believe their actions will make a substantial contribution, but broad sense recovery goals are beyond the scope of this EIS, which contemplates the effects associated with the operation, maintenance, and configuration of the 14 CRS projects. The co-lead agencies used the best available science in the analysis of the CRSO EIS. Specific to salmon and steelhead, the agencies used both two primary modeling approaches which yielded a range of potential outcomes for the alternatives. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% (within the Northwest Power and Conservation Council's recovery targets for the region) as a result of the Preferred Alternative. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets most other EIS objectives including those for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS, the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams, because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system.
31762	1	wanda@portofclarkston.com	Port of Clarkston	The Port believes the public input process was appropriate and responsive to the circumstances in which we found ourselves (protecting people from COVID-19). 1. People did not have to travel to provide comments, making the opportunity available to a broader range of constituents (including those less affluent). 2. Some people would have been limited to attending a single meeting, had there been in-person public comment sessions. However, the Port of Clarkston was able to attend more than one, to gain a better understanding of the perspectives of others, and based on comments we heard, it was clear that others did as well. 3. At a time when large numbers of people were required to stay home, but were making connections through technologythereby increasing their physical (computer) connections as well as their personal technical skills--the crso.info website was clear, informative, accessible and user-friendly. For these reasons, the Port believes that the telephonic forum offered advantages over other in-person forums of outreach; we support the agencies determination that opportunities for comment were adequate. In addition, the action agencies public outreach during scoping was very favorable to informing people so they could make concrete, meaningful comments during that phase of the process. Inclusion of transcribers to help obtain comments during scoping resulted in a record amount of feedback during federal scoping processes. The Port understands that there has been push-back by special interest groups because individuals could not grandstand with an audience that offers applause whether it is discouraged or not. Such forums keep those with quiet opinions quiet and makes it appear that there is less of a balance of perspectives than actually existed. We offer our congratulations on successful approaches in both scoping and collecting comments on the draft document.	Thank you for your comment.
31762	2	wanda@portofclarkston.com	Port of Clarkston	2. The Port believes Judge Michael Simon ruled in error to mandate examination of Lower Snake River dam removal as one of the alternatives. a. This has actually led to a schizophrenic approach within the DEIS which must be corrected before it can be finalized. Please see Attachment 1 to this letter for detailed comments on contradictions identified by the Port especially the shift FROM the 2002 EIS that there will be no take of endangered and threatened species of fish for recreational fishing TO this DEIS in which increased recreational fishing is being touted to balance lost reservoir recreation under MO3. Both conclude that hatcheries and habitat improvements will disappear when mitigation requirements for the four LSRD is no longer required. But this DEIS leaves within fish models hatchery counts as if hatchery fish will continue to be produced.	The analysis of breaching the lower Snake River dams is evaluated as MO3 in the Draft EIS and compared to both the No Action Alternative as well as other multi-objective alternatives. The co-lead agencies used current high quality information regarding assumptions of recreational fishing in the region in response to predicted increases in anadromous and resident fish under MO3. This information is updated from that used in the 2002 EIS. The effects to populations as they transition from primarily hatchery production to an increased wild production of fish is qualitatively discussed in Section 3.5.3.6. As stated on page 3-548, the co-lead agencies recognize there would be transitional needs that would be addressed through mitigation and adaptive management. The fish models are based upon data collected from past fish runs and there is no data available to inform an quantitative analysis for wild fish in the absence of hatchery fish. The co-lead agencies took a qualitative approach to inform the reader of other factors that could affect salmon but acknowledged the magnitude of those effects is not known. The Draft EIS (page 3-550) objectively presents these factors and discusses the tradeoffs, including: 1) the predators that remain after dam breach would by mostly native fish adapted to riverine systems and there would be lower predation by non-native reservoir fish; 2) decreased travel time through the corridor would reduce avian and piscine predation; 3) the reduced predation risk may be offset by a reduction in hatchery fish and lower predator swamping effect. A summary of this qualitative discussion is provided for the reader for each Snake River species.
31762	3	wanda@portofclarkston.com	Port of Clarkston	b. Further, the Port concurs with PNWA that the finalized EIS should not simply discuss results (that are less than accurate because they presume continued release of hatchery smolts) from the two models which predict increases in smolt to adult returns. The final EIS should discuss the science behind the two models and choose one on which to rely in order to make a proper determination. In addition, if continued production of hatchery smolts will cease, this must be reflected in all analysis.	Given the inherent characteristics of the fish models, it would be challenging or infeasible to rerun scenarios of MO3 using NMFS COMPASS and CSS with Snake River hatchery production not included. NMFS COMPASS model relies on the record of hydrosystem survival data estimated with both hatchery and wild tagged Chinook and steelhead. The NMFS Lifecycle Model already reports only wild spawner abundance. Likewise, the CSS Chinook lifecycle model in the Grande Ronde/Imnaha also only included wild spawners. For both models, density related effects in downstream locations such as the mainstem, the Columbia River estuary and ocean could only be estimated with hatchery fish present. For this EIS process, the co-lead agencies have decided to report results from NMFS and from the CSS models. The science behind those models is discussed in Chapter 3.5 as well as in the modeling appendix.
31762	4	wanda@portofclarkston.com	Port of Clarkston	The Port of Clarkston incorporates the following comments, by reference, into its positions stated herein: 1. Letter by City of Asotin, WA, all parts, but in particular the discussion on its personal experience with land conveyance and the lack of ease in making that happen. Nearly six years has passed since authority under WRRDA was granted for the City to assume ownership of U.S. Army Corps of Engineers (hereinafter Corps) property and no measurable progress can be reported to date. Further, the City of Kennewick has been undergoing property ownership transfer for over two decades. Discussion within the DEIS of ownership transfers fails to take into account how that has not worked well for decades and how expensive it has been,	Real estate costs were included in the costs analysis under MO3 and described in Appendix Q Section 3.1.2.2. Under the dam breaching measures of MO3, it could be necessary to negotiate agreements with affected parties and property owners and enter into relocation contracts for the alteration or replacement of affected structures. Real estate administrative costs were developed for renegotiating contracts, leases, agreements, rights-of entry, etc. Given the uncertainty in the design and specifics of MO3 at this point, the real estate evaluation used the approach from the Lower Snake River Juvenile Salmon Migration Final Feasibility Report and Environmental Impact Statement (2002) and updated the data and costs as needed (Corps Walla Walla District Real Estate Division, 2019). If MO3 were selected, the Corps could use this EIS as a basis for seeking congressional authority to breach the lower Snake River dams. After receiving both authority and appropriations from Congress, the Corps could initiate a detailed construction and design report for the breach measure, identification of disposal areas, real estate acquisition and disposal, permits, and mitigation requirements, including temporary fish hatchery production. Each of these actions are required prior to breaching, and the Corps does not have the authority or appropriations necessary to immediately breach the project's embankments.
31762	5	wanda@portofclarkston.com	Port of Clarkston	2. The Port of Lewiston comments, specifically with regard to rail capacities and the loss of opportunity to reach Canada and middle parts of the U.S. States with dam removal. (The cargo did not simply stop or start with the navigation system; there are interconnections with roadways that are of importance.)	Comment seems incomplete. However, the EIS discusses many of the potential concerns raised in Navigation and Transportation, Section 3.11, including increased shuttle rail capacity.
31762	6	wanda@portofclarkston.com	Port of Clarkston	We also question the calculation in Chapter 3, p 1099 regarding 124,000 cy of dredge material per year. There was a gap of 9 years between dredging events; the volume of material removed needs to be divided by 9, for 41,400 cy per year or 1/3 the stated amount.	It is true that in recent years the average annual dredged volume of material has been much lower than the 124,000 CY/yr cited. This is because the number cited is an average from 1975 to 2015. Typically longer averaging periods are more representative. However, there has been a change in dredging patterns that should be acknowledged. The PSMP has a provision for dredging outside of the navigation channel for the sole purpose of increasing flow conveyance to maintain flood risk at Lewiston. This provision is in harmony with the Lower Granite Water Control Manual, which states that maintaining levee freeboard at Lewiston is a project function. The current requirements for conveyance dredging, which are outlined in the PSMP, are more stringent (i.e. several criteria need to be met before performing conveyance dredging) than conveyance requirements during the early years of the project. As such, conveyance dredging has not been performed in recent years. Since conveyance dredging has not been performed since the new requirements were put into place, data to determine annual conveyance dredging volumes, does not exist. While 124,000 CY/yr might be a high estimate, in the absence of data it was judged to be the most representative number, given that 41,000 CY/yr is a low estimate that does not include any conveyance dredging.
31762	7	wanda@portofclarkston.com	Port of Clarkston	3. The attached CRSO-EIS Hatchery & Transport comments which offers biological review and comments for increasing SARs for transport of fish and improved transport in river (TIR) ratios by better management of total dissolved gas levels in the Fish Collection and Transport Systems during high spill/high TDG events. We believe that transport will outperform spill even at higher TDG levels if critical degassing equipment is installed. Variable spill/TDG has been markedly increased, yet fish return numbers are decreasing.	Gas Bubble Trauma (GBT) disease is a combination of exposure level and duration during both the current condition as well as past exposure. Severity is also a function of overall health as well as availability of depth compensation. In general, for fish without the ability for depth compensation, TDG levels greater than 110% can lead to higher mortality and shorter response time at higher TDG levels. Past studies regarding TDG effects on survival have been of short duration thus high TDG exposure effects on Smolt-to-Adult survival remain unknown. In general, GBT disease tends to reduce overall fitness and thus can lead to reduced survivability. Over the past two years, the Corps has examined TDG exposure levels in the fish transport barge holds and collection raceways. Findings indicated transport barge aeration systems were successful at reducing TDG levels to less than 110% when the intake river water was 120% TDG. The results also indicated the raceway water supply at Little Goose Dam may need modifications to provide degassing when the water supply TDG is greater than 120%. Current adult returns are likely related to poor ocean conditions rather than passage conditions in the CRS, which have been improved in recent years. Adult return rates over the next few years will be considered through adaptive management to inform any necessary alterations of operations in order to better benefit to Snake River salmon and steelhead.
31762	8	wanda@portofclarkston.com	Port of Clarkston	6. Visit Lewis-Clark Valleys comments on a range of topics, but particularly including a change to the language in Chapter 3, page 1102 regarding the possibility of cruise ship ridership may increase. Documented ridership has shown an annual increase of 6.5% per year since 2014, and two additional cruise boats, owned by a single line, were planned for 2021 and 2022. Cruise boat business was exploding on the Columbia/Snake, exceeding that on the Mississippi.	Cruise ship visitation is described in Section 3.10, and is characterized as growing over time, and providing important regional economic effects. Section 3.10.3.5 describes the contribution of cruise ships as providing demand for approximately 230 jobs in the region, $6.2 million in labor income, and $17.8 million in annual output (sales).
31762	9	wanda@portofclarkston.com	Port of Clarkston	The preferred alternative appropriately reflects the purpose of the DEIS, which is to make sure that continued operation of CRSO does not reduce appreciably the likelihood of both the survival and recovery of a listed species. The DEIS cannot be a fish recovery plan, because so many elements relating to survival and a return to abundance are global; they are far outside the area of influence in the agencies management of 14 of 60 dams on a single river system. The factors are not within the purview of the government of the United States.	The co-lead agencies agree that both human-caused and natural actions that are outside the responsibility and control of the co-lead agencies also contribute to the decline and recovery of fish, and will continue to strongly influence fish and their habitat. Salmon and steelhead have been adversely affected in the Columbia River Basin over the last century by many activities including human population growth, urbanization, introduction of exotic species, overfishing, development of cities and other land uses in the floodplains, water diversions for all purposes, dams, mining, farming, ranching, logging, hatchery production, predation, ocean conditions, and loss of habitat. Operation, configuration and maintenance of the Columbia River System requires mitigation for its effects, and the EIS is not intended or required to serve as an overall salmon recovery plan for the region. All of the human-caused impacts that have contributed to the decline of fish, and how the region should properly and effectively address those impacts, should be part of the continued regional discussion. The co-lead agencies look forward to participating in that discussion.
31762	10	wanda@portofclarkston.com	Port of Clarkston	MO3 will have a very significant and damaging impact to people of the Pacific Northwest, but has a higher concentration of negative impacts on the residents of four counties in southeast Washington, and five counties in north central Idaho than elsewhere.	Based on public comments, the co-lead agencies revised the Environmental Justice analysis (Section 3.18) to provide additional discussion of the potential effects to low-income and minority populations. The Environmental Justice analysis of water supply effects on irrigated farmland in Region C (which includes counties along the lower Snake River in north central Idaho and southeast Washington) acknowledges the potential for moderate disproportionate and adverse effects on low-income and minority populations living in this area under MO3 due to expected changes in water supply and irrigated farmland.

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31762	11	wanda@portofclarkston.com	Port of Clarkston	MO3 cannot be entered into lightly. Science must be used properly to prove beyond a doubt that promised benefits for fish recovery exists before MO3 can be a considered a serious option. At present time, there is so much uncertainty, it should not even be on the table. Two significant areas are lacking in the analysis. Salmon survival benefits are uncertain, speculative, and subject to scientific dispute because models used for prediction have entirely different assumptions and put different weights on complicated combinations of environmental variables. The modeling is further flawed because both include a presumption of continued hatchery fish productionput in place as a mitigation measure when the four lower Snake River dams were built--when that it not the case. TWO MODELS OR EVEN ANOTHER MODEL FOR CONCLUSIVE, RELIABLE SCIENCE: Work needs to be done to determine which of the two models (COMPASS/Life Cycle Model or CSS) should be used to project fish returns, or whether a third model (yet to be identified) might provide greater scientific certainty with regard to the benefits associated with MO3. Assumptions and combinations of environmental variables feeding into these models result in very different predictions on smolt to adult (SAR) increases. The DEIS correctly notes that "currently, hatchery fish account for 80-90 percent of all juvenile Snake River fish passing CRS projects. COMPASS and CRS models do not account for this potential major reduction in juvenile fish production." (3-548, lines 16557-16558). This means that neither a 14% increase to SARs under the COMPASS/LCM nor the 170% increase under the CSS model predictions are of any value (see discussion immediately below).	The NMFS COMPASS/Life Cycle models and the CSS models use different statistical approaches and input variables. Both are able to provide a good fit to recent survival and travel time estimates, but the models do have substantially contrasting forecasts for these metrics under MO and Preferred Alternative scenarios of operations of the CRS projects with respect to flow and spill. The Fish Technical teams for the EIS made the decision to present results from both sets of models for the final evaluation, along with descriptions of methods. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. Appendix E contains results from all modeling efforts, including both CSS models. Section 3.5 will be updated based on IEPR and ISAB reviews and will address the elements of the two CSS models described in this comment. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. The framework for the adaptive management process is detailed in Appendix R, Part 2, Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS. It is the intention of the co-lead agencies to engage regional state, Tribal, and Federal fish managers in the development of an appropriate adaptive management process utilizing their respective salmonid management expertise. The goal of that adaptive management process would be to consider additional opportunities to further the effectiveness of the operation while maintaining the goals of the flexible spill operation: additional improvements for salmon and steelhead, maintain opportunities to operate the CRS for hydropower generation in a flexible manner that provides value to the Northwest, is implementable by the dam operators, and provides opportunity to reduce uncertainty and improve the learning opportunities around how operations of the CRS can influence the magnitude of latent mortality effects. The co-lead agencies have not made any determinations on what the preferred approach would be for a regionally developed study plan, and intend to develop that study jointly with regional experts. Unforeseen outcomes or unintended consequences will be monitored and adjusted using current in-season management teams, such as the Technical Management Team.
31762	12	wanda@portofclarkston.com	Port of Clarkston	MITIGATION OR NO MITIGATION IF FOUR LOWER DAMS ARE REMOVED: Page 29 of the Executive Summary states the following, under the MO3 model involving breaching of the four lower Snake River dams: . . . there would likely be major long-term beneficial effects to river-based recreation, and improved recreational and tribal fishing. This is an empty promise. As stated above, Chapter 3, p. 548, lines 16557 through 16558 state: Currently, hatchery fish account for 80-90 percent of all juvenile Snake River fish passing CRS projects. COMPASS and CSS models do not account for this potential major reduction in juvenile fish production. Nez Perce Tribal Fisheries expert David Johnson stated at the Washington Governors Stakeholders meeting in Clarkston, WA, on January 7, 2020 that without hatchery fish, there would be no fishing. Recreational fishing does not allow take of wild, endangered species of fish. At the same meeting Birgit Koehler, Policy Lead for Power on the Columbia River System Operations Environmental Impact Statement at the Bonneville Power Administration (BPA) stated that BPA, stated that with dams removed, there would be no line item in BPAs future budgets for hatcheries and habitat improvement. Essentially, mitigation funding goes away when the dams are removed. No additional sources of funding for continued hatchery production or habitat improvements are identified in the DEIS. Even if they were, such identification would be speculative. If that is the plan, --to find outside funding--MO3 needs a broader than the present description such it that would not only address breaching of the dams but involve a constant infusion of additional, confirmed resources, in order to meet stated objectives (increased Tribal and recreational fishing).	The lower Snake River projects currently support 2.6 million visitors and $24.5 million in social welfare value annually. Breaching the four lower Snake River dams would have both beneficial and adverse effects on recreation. Dam breach would preclude reservoir recreation during and shortly after the breach, eliminating reservoir recreation; over time, and as recreation areas and access are redeveloped by others, long-term beneficial effects to river recreation, including angling, are anticipated. Section 3.11 of the EIS describes that the visitation in the long-term in the lower Snake River would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting jobs, income, and tourism businesses. No Federal mitigation is anticipated under MO3 to maintain access to the river. Since the lower Snake River projects would be deauthorized, Federal agencies would no longer operate the project lands for recreation. After project lands have been transferred to other agencies and/or entities, recreational sites and associated facilities could be modified as determined by others. For the effects on recreational fishing under MO3 (Section 3.11.3.5) along the lower Snake River below Lewiston, the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River) as an indicator for fishing visitation in this reach. The EIS describes that the visitation in the long-term in the lower Snake River, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting outfitting and tourism businesses in the region. The social welfare values and regional economic effects associated with recreational fishing under the action alternatives as well as river recreation post dam breach under MO3 were not estimated because of the uncertainty and large range in visitation and consumer surplus values among users. Hatchery programs are included in the No Action Alternative and would be expected to continue under alternatives MO1, MO2, and MO4 and the Preferred Alternative, and certain hatcheries would continue under MO3. No new hatchery programs are considered as mitigation under any alternatives, but MO3 does include increased hatchery production due to short-term impacts from breaching the four lower Snake River dams. Long-term effects to regionally implemented hatchery programs are outside the scope of this EIS. Similarly, habitat restoration programs would continue under every alternative and levels of funding and numbers of projects would be determined during implementation.
31762	13	wanda@portofclarkston.com	Port of Clarkston	The no-investments-for-hatcheries concept is pretty consistent in the document. Chapter 3, p. 559 lines 16895 through 16902 state: . . . reductions in hatchery fish could reduce the numbers of juvenile Snake River Chinook by as much as 85%. This reduction in the number of hatchery fish would likely result in a reduction of these predicted survival rates of wild Chinook because of increased predation rates. "Closure of the hatcheries funded by BPA will result in a loss of 19 million salmon, steelhead and resident rainbow trout." (2-36, lines 1151-1164; 3-897, line 24727). Further, the "COMPASS and CSS modeling results indicate that survival rates would increase by as much as 25% and travel times would decrease by as much as 30% relative to the No Action Alternative. However, as reductions in hatchery fish could reduce the numbers of juvenile Snake River chinook by as much as 85%, this reduction in the number of hatchery fish would likely result in a reduction of these predicted survival rates of wild Chinook because of increased predation rates." (3-559, lines 16895-16902). (Emphasis added)	The Draft EIS acknowledges that with breaching of the Snake River dams in MO3, there would no longer be an obligation to fund the Lower Snake River Compensation Plan, which accounts for much of the hatchery production in the basin, other mitigation activities could be adjusted, and transportation of Snake River salmon and steelhead would no longer be possible. The effects to populations as they transition from primarily hatchery production to an increased wild production, as well as the abundance considering the cessation of transportation, is discussed in Section 3.5.3.6. Under all other alternatives, including the Preferred Alternative, hatchery support from the co-lead agencies would continue similar to the No Action Alternative (levels supported in September 2016, when the Notice of Intent to Prepare an EIS was filed).
31762	14	wanda@portofclarkston.com	Port of Clarkston	The 2002 EIS rightly recognized that increased fishing in the area could not be assured post-breaching: "recreational fishing visitation was not included in the 2002 study due to the uncertainty around it being an allowable activity, given the current measures to regulate, protect and support ESA-listed fish populations and habitat in the region."(3-1219, lines 1821-1824). Yet in the current DEIS, improved recreational fishing after dam breaching is touted, with no explanation for this reversal in logic. The DEIS needs to explain why the 2002 position was set aside in favor of allowing recreational fishing after dam removal, and what support there is for the conclusion that it will increase.	The 2002 EIS evaluates the potential for recreational fishing in Appendix I, Economics. The recreational fishing analysis presents two approaches: one based on projected higher salmon and steelhead catch rates leading to proportional increases in angler visitation; and the second based on higher salmon and steelhead catch rates leading to a higher value per day but no increase in angler trips. Page I3-73 summarizes and states "The IEAB recognized that the more accurate was likely a combination of the two [approaches], so it was decided to use the mid-point of these two approaches in this analysis." This EIS provides an evaluation of the social welfare and regional economic effects of the No Action Alternative and the multiple objective alternatives (MOs), including the effects on recreation (Section 3.11) and commercial fisheries (Section 3.15). The EIS described the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. NMFS estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which is described qualitatively. For the effects on recreational fishing under MO3 (Section 3.11.3.5) along the lower Snake River below Lewiston, the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River) as an indicator for fishing visitation in this reach. The EIS describes that the visitation in the long-term in the lower Snake River, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting outfitting and tourism businesses in the region. The social welfare values and regional economic effects associated with recreational fishing under the MOs, as well as river recreation post dam breach under MO3, were not estimated because of the uncertainty and large range in visitation and consumer surplus values among users. In addition, as described in Section 3.5, the co-lead agencies anticipate that changes in hatchery funding may occur as needs and obligations shift. The co-lead agencies do not anticipate that hatchery operations would be shuttered. Additionally, the Bonneville F&W Program funding for offsite mitigation projects in the Snake River Basin, implemented by local, state, Tribal, and Federal entities, would be reviewed, and potentially adjusted. Any changes of this nature would be implemented over time as the effectiveness of dam breaching is observed and would be done in consultation with fish and wildlife managers, regulatory agencies, and the Northwest Power and Conservation Council. Proposed project modifications would be coordinated with project sponsors and regional stakeholders to determine appropriate funding levels. Although Bonneville's funding of the Lower Snake River Compensation Plan hatcheries would no longer be authorized, remaining fish hatcheries would continue to produce fish and other Federal or state entities may continue funding the hatcheries.
31762	15	wanda@portofclarkston.com	Port of Clarkston	1 Attachment 2 Port of Clarkstons Comments on the CRSO DEIS TOURISM Chapter 3, p. 1463, Lines 9459 9466 describes the loss of visitors as costing the region $103 million, a decrease in 1,230 jobs and $39 million in labor income. We take exception to these numbers. That impact could be felt alone in the Lewis-Clark valley. The Idaho State Parks and Recreation commissioned a report by Boise State entitled Economic Impact and Importance of Power Boating in Idaho. The report was released in 2016 and reflects 2015 data for just Nez Perce County, Idaho. Power Boating generated 18,274 boating trips in Nez Perce County, generating $14,279,660 in direct spending for boats and moorage and an economic value of $22,810,512 annually (pages 10, 12 and 17). Cruise boat traffic was on an excellent growth trajectory and losses over the next decades will be greater than the DEIS calculation of losses. Visitation to golf courses and hotels are dependent upon the golf courses being green. The loss calculation does not factor in potential future lack of access to surface water for watering the Lewiston and Clarkston Golf and Country Clubs. Numbers touted above do not include stays for region track meets, fun runs and more. We request a re-examination of these numbers. Prior to revegation of the newly revealed shorelines, the communities of Lewiston, Clarkston, and Asotin will lose 100% of their visitors, due to terrible air quality and fugitive dust.	Section 3.11.2.2 describes gaps in the recreational visitation data. Data were not available for all sites, including along the Snake River below Hells Canyon Dam and above Lower Granite Lake. The 2016 report by Boise State entitled Economic Impact and Importance of Power Boating in Idaho was considered for the EIS, but not relied upon directly due to the limited types of visitation data in the report, so it does not appear in the references. In addition, this region was not anticipated to be affected by changes in water surface elevations. Estimates of power boating use from that study are broadly consistent with visitation data from Federal and state agencies used in the EIS where data are available. The expenditure data collected for that study cover power boating in Idaho, while the recreational expenditure data applied in the EIS cover the CRSO basin and the broader range of activities reflected in the Federal and state visitation data. Section 3.11.3.5 describes the decrease in visitation in the short-term as the four lower Snake River dams are breached. Cruise ship visitation is characterized in Section 3.10, including a description of its economic contribution to the region. Section 3.10.3.5 describes the contribution of cruise ships as supporting approximately 230 jobs in the region, $6.2 million in labor income, and $17.8 million in annual output (sales). Regarding the air quality and dust impacts, Section 5.4.3.4 describes the proposed Federal mitigation for vegetation, wildlife, wetlands, and floodplains, including proposed mitigation to replant approximately 13,000 acres of arid, upland native vegetation on newly exposed soils and approximately 1,500 acres of emergent and forested, scrub-shrub wetland habitat adjacent to the new surface elevations of the lower Snake River. These actions would reduce erosion and dust from the drawdown, improving air and water quality. This EIS discusses engineering solutions (pipeline extensions for example) in Section 3.12.3 Environmental Consequences - Specifically under Region C under the MO3 alternative (see page 3-1267, line 3244, in the Draft EIS) and in Appendix N. The report which this EIS draws upon, as discussed, concluded that modifying the existing pump system was cost prohibitive. In Region C under the MO3 alternative this analysis accordingly concludes that pumps are unable to deliver water to an estimated 48,000 acres.
31762	16	wanda@portofclarkston.com	Port of Clarkston	RECREATION Page 29 of the Executive Summary states the following, under the MO3 model involving breaching of the four lower Snake River dams: . . . there would likely be major long-term beneficial effects to river-based recreation. The Port of Clarkston respectfully disagrees. River-based recreation will require significant investment in access, something that is not in place presently, in terms of roadways or boat ramps for much of the lower Snake River. Resources for these investments are neither included in mitigation numbers nor identified by any other source of funding likely to be available. River-based recreation will be degraded by noxious weeds and invasive species as MO3 fails to adequately address resources needed for habitat and recreational management. (Chapter 3, p. 749, Lines 23057 through 23061). With the U.S. Army Corps of Engineers gone because the project is, 26 existing recreational amenities will be orphaned. Visitation counts at formal entry points for these recreational amenities were calculated at over 1.7 million visits in Fiscal Year 2018 by the U.S. Army Corps of Engineers (see POC cover letter for website where this document can be found). River-based recreation will be degraded by fugitive dust, as there is an inadequate plan for revegetation. Per the 1992 OA/EIS (Appendix 4-59), there are air quality concerns relating to drawdown of reservoirs, . . . fugitive dust generated by strong windows blowing across exposed sediments during dry conditions [which can] result in high dust loadings and nuisance conditions for nearby residents and recreational users 2 The promise of improved recreational and tribal fishing is exceedingly unlikely as discussed in Attachment 1. The DEIS touts the benefits of land-based recreation as if it was an alternative for reservoir-based recreation. This fails to account for the summertime temperatures, when temperatures exceed 100 degrees for days on end. (Theres no mystery as to why Hells Canyon refers to hell; it has to do with heat levels.) Survival for people who live in the region is water-based. Land-based recreation is not attractive many months of the year due to high temperatures. On the other hand, pleasure boating occurs regularly between March and December. Stand-up paddle-boarding, kayaking, jet skiing and swimming are from May to October. And youre lucky to find room to play on the	Chapter 5 in the EIS describes the proposed mitigation measures under each of the MOs. Section 5.4.3.6 describes the potential for mitigation measures for recreation under MO3. Mitigation by the co-lead agencies is not anticipated under MO3 to maintain access to the river. Since the lower Snake River projects would be deauthorized, it is anticipated that the co-lead agencies would no longer operate the project lands for recreation. After project lands have been transferred to other agencies and/or entities, recreational sites and associated facilities could be modified as determined by others. If breaching were to be selected as the Preferred Alternative, further evaluation, studies, and NEPA would be needed along with congressional authorization and appropriations to assess the requirements of the project and to potentially compensate for the changes in river conditions. Section 5.4.3.4 describes the proposed mitigation for vegetation, wildlife, wetlands, and floodplains, including proposed mitigation to replant approximately 13,000 acres of arid, upland native vegetation on newly exposed soils and approximately 1,500 acres of emergent and forested, scrub-shrub wetland habitat adjacent to the new surface elevations of the lower Snake River. These actions would reduce erosion and dust from the drawdown, improving air and water quality. The EIS provides an evaluation of the social welfare and regional economic effects of the No Action Alternative and the multiple objective alternatives (MOs), including the effects on recreation (Section 3.11) and commercial fisheries (Section 3.15). The EIS described the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. NMFS estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which is described qualitatively. For the effects on recreational fishing under MO3 (Section 3.11.3.5) along the lower Snake River below Lewiston, the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River) as an indicator for fishing visitation in this reach. The EIS describes that the visitation in the long-term in the lower Snake River, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No

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				reservoir on Labor Day weekend. The DEIS fails to adequately account for the number of cruise boat passengers and fails to mention Clarkston, WA as an important location in the debarkation of one set of passengers and embarkation of another. Cruising the Columbia and Snake Rivers is so popular that beginning 2018, cruise boat passenger numbers exceeded numbers of cruise boat passengers on the Mississippi River. The Columbia/Snake counts continue to be higher since then. The cruise boat industry goes away with MO3 (dam breaching alternative) in the draft EIS. All existing cruise lines with a week-long or longer itinerary call at the Port of Clarkston. The American Queen Steamboat Company spends 9 hours at its turnaround in Vancouver, WA (not Portland as stated in the DEIS), and spends 55 hours at its turnaround in Clarkston, WA. Thats why refueling in Clarkston is preferred; in addition, a fuel-laden boat can travel downriver more efficiently than upriver.1 Inadequate discussion exists with regard to nationally-designated recreation sites: 1. The Clearwater & Snake River National Recreation Trail was recognized in 1988. At that time, it was 19-miles of wheelchair accessible trail along the Clearwater and Snake Rivers. The connection to the river is the biggest contributor to the recreation experience. Today, it has expanded to well over 26 miles. Along with normal uses (walking, running, walking dogs, fun runs), the Trail serves as an important part of regional middle school, high school and college track meets, bringing thousands to our region to participate in or watch competitions in mild spring weather. (As stated above, this one just one of the amenities contributing 1.7 million visits in fiscal year 2018.) 2. The Hells Canyon National Recreation Area is accessible only by boat. Increases in visits, as recorded by the U.S. Forest Services, over the past 10 years directly correspond with increases in numbers of cruise boat passengers. There is no other easier way to experience N. Americas deepest gorge than via the tours arranged through cruise lines. Passenger surveys consistently identify this element as the highlight of their week-long cruise. Land-based recreation cannot take the place of reservoir recreation especially in hot summer months. In 2016, the Idaho Department of Parks and Recreation completed a study titled Economic Impact and Importance of Power Boating in Idaho (website location in POC cover letter). In this report, economists found spending in 2015 on power boating related products and services in Nez Perce County was over $14 million (p. 12). An additional $8.55 million was expended on other goods and services. This is a total impact of over $22.55 million in Nez Perce county in just 2015! The Lewis-Clark Valley is widely recognized as the Jet Boat Capital of the World. Produced here are more boat-building jobs than almost anywhere else in the United States. Not just jet boats are 1 Per the American Queen Steamboat Company, it purchased $900,000 in fuel in the Lewis-Clark Valley in 2017. It takes 8 hours and three tanker semis of fuel to fill the American Empress. 3 produced. Propeller boats produced here are designed for the reservoir that exist, not riverine conditions which means that many residents will have boats that sit idle or have to be trailered to other locations. The DEISs description of items of flat-water recreation limits the motor boating to only that in fiberglass boats. It fails to consider any propellered boat having problems. Smooth water kayaking preferred by older generations will be gone, as will stand-up paddleboarding and jet-skiing. These need to be included in the description.	Action Alternative, supporting outfitting and tourism businesses in the region. The social welfare values and regional economic effects associated with recreational fishing under the action alternatives as well as river recreation post dam breach under MO3 were not estimated because of the uncertainty and large range in visitation and consumer surplus values among users. The potential for visitation under MO3 in the lower Snake River in the long-term is predicated on that access would be developed for the resource. As described in Section 3.11.3.5, access to the river and its recreational opportunities will be paramount for the reestablishment of river visitation to the lower Snake River. For example, parking lots, boat launches, new trailheads, access roads, etc., would need to be developed to facilitate the drawing of visitors to the region. In addition, examples of the costs that would be incurred are provided. As described previously, further studies and NEPA would be conducted if MO3 were chosen for implementation. Regarding hatchery impacts associated with MO3, as described in Section 3.5, the co-lead agencies anticipate that changes in hatchery funding may occur as needs and obligations shift. The co-lead agencies do not anticipate that hatchery operations would be shuttered. As noted in Section 3.5, the co-lead agencies also recognize that there would be transitional needs that would be addressed in the additional mitigation measures for MO3 discussed in Chapter 5. Additionally, the Bonneville F&W Program funding for offsite mitigation projects in the Snake River Basin, implemented by local, state, Tribal, and Federal entities, would be reviewed, and potentially adjusted. Any changes of this nature would be implemented over time as the effectiveness of dam breaching is observed and would be done in consultation with fish and wildlife managers, regulatory agencies, and the Northwest Power and Conservation Council. Consistent with this, offsite mitigation projects for the other CRS dams would be reviewed and could be adjusted as operations change over time. Proposed project modifications would be coordinated with project sponsors and regional stakeholders to determine appropriate funding levels. Although Bonneville's funding of the Lower Snake River Compensation Plan hatcheries would no longer be authorized under MO3, remaining fish hatcheries would continue to produce fish and other Federal or state entities may continue funding the hatcheries. Cruise ship visitation is characterized in Section 3.10, including a description of its economic contribution to the region. Section 3.10.3.5 describes the contribution of cruise ships as supporting approximately 230 jobs in the region, $6.2 million in labor income, and $17.8 million in annual output (sales). Clarkston, Washington, and its role as a primary point of debarkation, is described in Section 3.10.3.2. Impacts on the industry, including Clarkston, are described in Section 3.10.3.5. Section 3.11.2.2 describes gaps in the recreational visitation data. Data are not available for all sites, including Hells Canyon National Recreation Area. The note under Table 3-256 in Section 3.11.2.2 states that visitation to National Forests and other USFS-managed lands is estimated for the entire unit, not specifically for recreation sites along rivers. The 2016 report by Boise State entitled Economic Impact and Importance of Power Boating in Idaho was considered for the EIS, but not relied upon directly due to the limited types of visitation data in the report. In addition, this region was not anticipated to be affected by changes in water surface elevations. Estimates of power boating use from that study are broadly consistent with visitation data from Federal and state agencies used in the EIS where data is available. The expenditure data collected for that study cover power boating in Idaho, while the recreational expenditure data applied in the EIS cover the CRS basin and the broader range of activities reflected in the Federal and state visitation data.
31764	1	JOHN.OGAN@JWOGANLAW.COM	Confederated Tribes of Warm Springs	Comment letter attached	The co-lead agencies confirmed the Warm Springs Tribe's comments were submitted by the Columbia River Inter-Tribal Fish Commission coded as Letter 31775. Please see responses to comments under Letter 31775.
31766	1	portdave@portoflewiston.com	Port of Lewiston	We believe a modified M02 provides the greatest opportunity to achieve abundant salmon and steelhead runs while reducing spill and greenhouse gases. The Port is 'concerned that Total Dissolved Gas (TDG) levels as described in the Preferred Altemative (PA) maybe harmful to smolts migrating downstream. TDG levels exceeding 125% have not been adequately studied and may cause gas bubble disease thereby contributing to delayed mortality. In-river TDG's exceeding 125% should only be implemented after it is . successfully proven that TDG at these levels do not cause Latent . Mortality.	TDG levels are regulated under the Federal Clean Water Act, and administered by the states. Both Oregon and Washington have reassessed the available data on effects of TDG levels up to 125% of saturation on fish and other aquatic organisms. Based on this reassessment Oregon issued a five-year "standard modification" and Washington issued a permanent rule change, supported by the Environmental Protection Agency (EPA), to allow TDG saturation up to 125%. However, as noted by the commenter, there is considerable uncertainty in the effects of free swimming fish; and therefore, monitoring was required by the states and EPA to ensure any negative effects are detected and allow for adaptive management. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. The framework for the adaptive management process is detailed in Appendix R, Part 2, Process for Adaptive Implementation of the Flexible Spill Operational Component, of the Columbia River System Operations EIS. It is the intention of the co-lead agencies to engage regional state, Tribal, and Federal biologists in the development of an appropriate adaptive management process utilizing their respective salmonid management expertise. The goal of that adaptive management process would be to consider additional opportunities to further the effectiveness of the operation while maintaining the goals of the flexible spill operation: additional improvements for salmon and steelhead, maintain opportunities to operate the CRS for hydropower generation in a flexible manner that provides value to the Northwest, is implementable by the dam operators, and provides opportunity to reduce uncertainty and improve the learning opportunities around how operations of the CRS can influence the magnitude of latent mortality effects. Unforeseen outcomes or unintended consequences will be monitored and adjusted using current in-season management teams such as the Technical Management Team.
31766	2	portdave@portoflewiston.com	Port of Lewiston	Page 3-1064, Line 31831: The Port of Lewiston has shipped numerous pieces of oversized equipment to Canada. Dam breaching would eliminate utilization of the Columbia/Snake River and U.S. Highways 12 and 95 as shipping routes to Canada and the interior of the U.S. Utilizing the Columbia Snake River and U.S. Highway 12 provides a unique transportation route because there are no height restrictions. U.S. Highway 12 has no overpasses and similarly, there are routes in Montana that have no height restrictions. There are no alternative west coast rail or highway routes that offer transport of cargo without height restrictions into the interior of U.S. When Highway 12 was initially constructed, U.S. defense considerations were a large factor in authorizing the construction of this highway. This is an exceptional transportation route that will no longer be available if dams are breached. The EIS should address the loss of this transportation option.	Section 3.10.3.5 includes a Section that discusses oversized load transit through the Port of Lewiston.
31766	3	portdave@portoflewiston.com	Port of Lewiston	Page 3-1087, Line 32284, Survey responses could be bias due to a 4-month extended lock closure during 2016. This bias may would be reflected in the modeling assumptions.	Although there was a planned shutdown of the Snake River at the end of 2016 for a few weeks, the freight tonnage on river was not significantly affected. Freight tonnage in 2016 was 4 percent lower than the 10-year average. This would not substantially affect the SCENT model results, and would not affect the modeling conducted for MO3 (dam breach). For additional information, please refer to L.2.2 in Appendix L.
31766	4	portdave@portoflewiston.com	Port of Lewiston	Page 3-1093, Line 32490: If 2016 is the base year for the analysis, does the 4-month extended lock closure impact the analysis?	Although there was a planned shutdown of the Snake River at the end of 2016 for a few weeks, the freight tonnage on river was not significantly affected. Freight tonnage in 2016 was four percent lower than the 10-year average. This would not substantially affect the SCENT model results, and would not affect the modeling conducted for MO3 (which includes the dam breach measure). For additional information, please refer to L.2.2 in Appendix L.
31766	5	portdave@portoflewiston.com	Port of Lewiston	Page 3-1095, Line 32518: Question the assumption that grain shipped down the river system will remain constant over time. For example, when the cost per barrel of oil increases to 2012 levels, Class A rail companies will dedicate equipment to oil shipments causing rail car shortages for other commodities. Furthermore, rail companies will institute rail car surcharge rates costing thousands of additional dollars to secure a rail car. The agriculture industry is unable to compete with the oil industry when high rail surcharge rates are instituted. We have seen this before and this scenario will undoubtedly occur again in the future. The river system will be needed to ship grain due to rail car shortage and pricing, however if dams are breached, river transportation will not be available.	The demand for waterway transportation is influenced by many factors, both related to the river operations and competing modes of transportation. In many cases, that demand is affected by private sector choices (investments by Class I railroads, construction of shuttle rail elevators by grain companies) that are largely difficult to predict into the future. The approach taken in the EIS is to utilize historical volumes as a barometer of what generally has been demanded and to provide impacts relative to that. In order to better characterize the level of uncertainty in which impacts should be considered, additional information has been added to the Navigation Appendix that puts the findings into context using recent historical highs and lows as a guide. How rail rates would change without lower Snake River shallow draft barging can not bet known with certainty. Therefore, in order to evaluate the impacts of potential rate increases, a range of rail rate increases are evaluated, from 0 to 50 percent. As the modeling effort shows, if rail rates are not increased freight volume would likely exceed current capacity, which would put upward pressure on rail rates. If rail rates increase by 50 percent, truck transport would be relatively attractive to shippers, which would put competitive pressure on rail companies not to increase rail rates much higher. As such, the modeled range of increased rates appears reasonable. The EIS acknowledges that depending on how rail rates respond to dam breach, shortline rail capacity could be exceeded. Under low rail rate increase scenarios, additional shortline rail capacity would be required that could cost $25 to $50 million. Under a scenario where rail rates increase by 50 percent, more shipping demand would be transferred to trucks, reducing the demands on rail infrastructure, but increasing demands on roads. Under this scenario, up to $10 million in additional road maintenance costs may occur. The EIS analysis finds that transportation of freight that is currently barged on the lower Snake River could be accomplished via other transportation modes, but this change would not be without costs to farmers, would require public and private investment in infrastructure, and would result in some adverse regional economic effects, particularly in the short term. Ultimately, rail infrastructure investments would be at the discretion of the railroads.
31766	6	portdave@portoflewiston.com	Port of Lewiston	Page 3-1099, Line 32567: Question 124,000 cy of dredge material per year. The confluence of the Clearwater and Snake River was dredged in 2006. The next dredging project was undertaken in 2015 - a period of 9-years between dredging projects. In the 2015-2016 dredging project 372,603 cy of sediment was removed. If we divide 372,603 by 9 years = 41,400 cy average per year sedimentation rate. The 124,000 cy of dredge material per year is a high estimate. Additional information on page 3-1081, Line 32108.	It is true that in recent years the average annual dredged volume of material has been much lower than the 124,000 CY/yr cited. This is because the number cited is an average from 1975 to 2015. Typically longer averaging periods are more representative. However, there has been a change in dredging patterns that should be acknowledged. The PSMP has a provision for dredging outside of the navigation channel for the sole purpose of increasing flow conveyance to maintain flood risk at Lewiston. This provision is in harmony with the Lower Granite Water Control Manual, which states that maintaining levee freeboard at Lewiston is a project function. The current requirements for conveyance dredging, which are outlined in the PSMP, are more stringent (i.e. several criteria need to be met before performing conveyance dredging) than conveyance requirements during the early years of the project. As such, conveyance dredging has not been performed in recent years. Since conveyance dredging has not been performed since the new requirements were put into place, data to determine annual conveyance dredging volumes, does not exist. While 124,000 CY/yr might be a high estimate, in the absence of data it was judged to be the most representative number, given that 41,000 CY/yr is a low estimate that does not include any conveyance dredging. This has been clarified in the FEIS in Section 3.10.3.2.
31766	7	portdave@portoflewiston.com	Port of Lewiston	Page 3-1102, Line 32697: Question the use of may - that cruise ship ridership may increase over time. On page 3-1099, line 32574 the EIS states that the Columbia River outsold the Mississippi River in 2018 for cruise ship passenger. Replace "may" with "will".	The language cited by the commenter relates to the No Action Alternative, which states that cruise ship ridership may increase. This language is consistent with other wording used in the EIS regarding future actions and has not been changed.
31766	8	portdave@portoflewiston.com	Port of Lewiston	Page 3-1118, Line 33058: The EIS states that "others" agree that a 50% increase is likely to be a reasonable upper limit. Who are "others"? Idaho Cooperating Agencies and meetings with agricultural representatives have stated that a 100% increase is reasonable to expect in a monopolistic transportation market. The EIS does not demonstrate that a 50% increase in rail rates would entice shipping volume back to barge movements at the Tri-Cities. Stating that a 50% increase is a reasonable upper limit is without foundation. The EIS does not provide empirical data to support this constraint. The cost of trucking is the only constraint to rail pricing. Current trucking rates are $3.81per mile. Realistically, rail companies would find the "sweet spot" for pricing at a rate that would be optimal for rail revenues, but not enough to support a truck/barge move to the Tri-Cities. Additional analysis is required to arrive at a valid upper end increase in rail rates.	How rail rates would change without lower Snake River shallow draft barging can not be known with certainty. Therefore, in order to evaluate the impacts of potential rate increases, a range of rail rate increases are evaluated, from 0 to 50 percent. As the modeling effort shows, if rail rates are not increased freight volume would likely exceed current capacity, which would put upward pressure on rail rates. If rail rates increase by 50 percent, truck transport would be relatively attractive to shippers, which would put competitive pressure on rail companies not to increase rail rates much higher. As such, the modeled range of increased rates appears reasonable. The FEIS includes an additional discussion of sensitivity to some parameters in Appendix L.
31766	9	portdave@portoflewiston.com	Port of Lewiston	Page 3-119, Line 33086: Question "with some limited expansion". Please see explanation for line 33092 below. Constructing facilities to handle an additional 39 M bushels of capacity is not "limited expansion".	The EIS states in Section 3.10.3.5 that in order for these shuttle rail facilities to accommodate that increased volume, in excess of the 3 million existing capacity, expansions and improvements would be necessary. Since the word "limited" is a judgment, this word has been removed from the referenced sentence in the FEIS.
31766	10	portdave@portoflewiston.com	Port of Lewiston	Page 3-1119, Line 33089: The EIS states that "shippers have reported that shuttle rail facilities can accommodate up to 25 million bushels per year with some storage adjustments ... " The shuttle storage facilities themselves MAY be able to handle the volume of grain, however the rail infrastructure serving the shuttle rail facilities is not adequate to handle the increased rail volume. Significant rail improvements would be necessary at Four Lakes and McCoy unit train facilities. Additionally, the unit train facility at Endicott (Lacrosse) is not capable of handling 25 million bushels per year. Rail construction	It is true that wheat shippers periodically are impacted by rail freight demand from other products or shipping demand that impacts rail service levels. The EIS provides the historical volumes moving down the river system and the economic rationale for why that volume produced would continue to be produced and marketed. The EIS states in Section 3.10.3.5 that in order for these shuttle rail facilities to accommodate that increased volume, in excess of the 3 million existing capacity, expansions and improvements would be necessary.

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				costs are approximately $1 million per mile. The cost to improve rail in order to reach a volume of 25 million bushels at the shuttle facilities is significant. The EIS must further define these costs.	The Navigation and Transportation Section 3.10 reflects the adverse effects of implementing MO3 including discussions of transportation mode capacity and cost of grain transport. The EIS also evaluates the additional transportation infrastructure investments and associated costs that would be required, as well as the increases in air emissions that would occur. There would need to be investments in infrastructure if dams are breached, both public and private sector investment in the absence of river navigation. These infrastructure improvements are discussed in section 3.10 of the EIS.
31766	11	portdave@portoflewiston.com	Port of Lewiston	Page 3-1119, Lane 33092: This sentence seems to imply that the 3M ton (99 M bushel) capacity of the four-unit train facilities is adequate to transport 138 M bushels of grain (71 M bushels (rail)+ 67 M bushels (barge). It appears that the capacity of the four-unit train facilities are 39 M bushels short. The first assumption under Scenario 1 would not be true without constructing 39 M bushels or 39.4% of additional handling capacity	The EIS states in Section 3.10.3.5 that in order for these shuttle rail facilities to accommodate that increased volume, in excess of the 3 million existing capacity, expansions and improvements would be necessary.
31766	12	portdave@portoflewiston.com	Port of Lewiston	Page 3-1119, Line 33110: Typo - Should be "Ritzville".	This is correct and will be changed in the Final EIS to state "Ritzville". It currently says "Ritzfield".
31766	13	portdave@portoflewiston.com	Port of Lewiston	Page 3-1119, Line 33108: There appears to be a disconnect between line 33108 and line 33121. In the first sentence, the EIS states that the four shuttle rail facilities can absorb the increased grain shipments. In Line 33121, the EIS states that "Due to this required increased in capacity, it would seem that this increase would be unlikely to occur without an associated increase in rail rates". Line 33108 is inaccurate.	There is not a disconnect in the text. The paragraph in Section 3.10.3.5 accurately explains that the ability for those shuttle rail facilities to accommodate that volume would be a stretch, given existing handling capabilities. Significant investments would be necessary for that to occur.
31766	14	portdave@portoflewiston.com	Port of Lewiston	Page 3-1120, Line 33157: As previously noted, should the number of unit trains increase by 94%, the rail infrastructure is unable to handle the increase. As stated in Page 3-1102, Line 32669: the cost to upgrade the entire PCC rail network to the 286,000-pound standard, WDOT would have to invest $150 million.	The Navigation and Transportation Section 3.10 reflects the adverse effects of implementing MO3 including discussions of transportation mode capacity and cost of grain transport. The EIS also evaluates the additional transportation infrastructure investments and associated costs that would be required, as well as the increases in air emissions that would occur. There would need to be investments in infrastructure if dams are breached, both public and private sector investment in the absence of river navigation. The existing WSDOT estimate to upgrade the rail system is described in Section 3.10.3.2. It is not certain that the entirety of the system would require upgrade solely as a result of MO3 (which includes the dam breach measure).
31766	15	portdave@portoflewiston.com	Port of Lewiston	Page 3-1123, Line 33193: The EIS notes that Pasco, WA would experience a large volume increase, mostly from shipments arriving via truck traveling longer distances to access river ports. What substantiates this statement? Current trucking rates are approx. $3. 81 per mile ($3.29 per mile+ fuel costs of $0.52/mi.). Pasco is 130 miles from Lewiston. The McCoy unit train facility is 72 miles from Lewiston. Hauling to Pasco adds approx. $0.44 per bushel in transportation costs. It is questionable whether Idaho grain would be transported to Pasco even if rail rates increased by 25%. Costs associated with Scenario 2 should be further researched. The NAA cents/ bushel appears low.	The estimate of transportation costs under the No Action Alternative are based on survey responses as well as published rates, where available.
31766	16	portdave@portoflewiston.com	Port of Lewiston	Page 3-1125 Line 33226 - 33233: Question the accuracy of 50% representing a reasonable high estimate. The EIS states that rail rates increased by 40% during periods of lock closure. Lock closures are temporary and grain transport is planned for months in advance. Grain is prepositioned at Lower Columbia River elevators ahead of lock closure. Overseas buyers are aware of lock closures and plan for scheduling grain purchases. Breaching dams is permanent. If rail companies increase rates by 40% under a temporary lock closure, then increasing rates by only 50% under a monopolistic transportation scenario is not reasonable. Rail companies will price their services just under trucking rates.	How rail rates would change without lower Snake River shallow draft barging can not be known with certainty. Therefore in order to evaluate the impacts of potential rate increases, a range of rail rate increases are evaluated, from 0 to 50 percent. As the modeling effort shows, if rail rates are not increased freight volume would likely exceed current capacity, which would put upward pressure on rail rates. If rail rates increase by 50 percent, truck transport would be relatively attractive to shippers, which would put competitive pressure on rail companies not to increase rail rates much higher. As such, the modeled range of increased rates appears reasonable. The FEIS includes an additional discussion of sensitivity to some parameters in Appendix L.
31766	17	portdave@portoflewiston.com	Port of Lewiston	Page 3-1126, Line 33242: Noted that Idaho farmers will experience rate increases double or triple a 24 cent per bushel increase in transportation costs.	This comment is consistent with the EIS. The EIS estimates under this scenario in Section 3.10.3.5 that average transportation costs would represent a 24 cent per bushel increase from the No Action Alternative (an increase of 33 percent when compared with the No Action Alternative). It also states that this increase would represent an increase of 33 percent on average, but that some individual shippers may experience increases that are more than double this amount, depending on their location.
31766	18	portdave@portoflewiston.com	Port of Lewiston	Page 3-1127, Table 3-246: The total change from NNA of 24 cents per bushel is low when considering the cost of trucking is $3.81 per mile. Additionally, it should be noted that 24 cents per bushel does not reflect how farmers will be impacted by the increased cost to improve rail lines (short line and class 1), unit train facilities, storage facilities, highways and additional handling costs.	The Navigation and Transportation Section 3.10 reflects the adverse effects of implementing MO3 including discussions of transportation mode capacity and cost of grain transport. The EIS explains in Section 3.10.3.5 that additional costs for investments in infrastructure would be required separate from the increases in transportation costs to farmers. There would need to be investments in infrastructure if dams are breached, both public and private sector investment in the absence of river navigation.
31766	19	portdave@portoflewiston.com	Port of Lewiston	Page 3-1132, Line 33414: For the cost comparison of a Colfax farmer versus a Grangeville farmer, the trucking cost component should reflect $3.81 per mile throughout the comparison.	The commenter seems to be confusing the discussion of the increases in costs with the total transportation costs that are presented in Section 3.10.3.5. The $0.07 and $0.24 metrics are measuring the changes in transportation costs that would be anticipated to occur.
31766	20	portdave@portoflewiston.com	Port of Lewiston	Page 3-1137, Line 33587: Typo - Scenario "3". Not Scenario 1. Page 3-1137, Line 33593: Clarification - Construction cost should be $25 million. Not $25 million per year.	Thank you for your comment. This has been corrected in the FEIS.
31766	21	portdave@portoflewiston.com	Port of Lewiston	Page 3-1140, Line 33605: Quoting the 2002 EIS, states ... " if rail carriers face effective competition in rail-served markets". The point being that there would not be serious competition to rail service other than trucking.	The commenters assertion is correct and is the reason that the scenarios include rail rate increases from 25 percent to 50 percent.
31766	22	portdave@portoflewiston.com	Port of Lewiston	Page 3-1140, Line 33613: Reference Page 3-1102, Line 32667. WSDOT estimated the cost just to upgrade the PCC network to handle 286,000-pound cars at $150 million.	The existing WSDOT estimate to upgrade the rail system is described in Section 3.10.3.2. It is not certain that the entirety of the system would require upgrade solely as a result of MO3 (which includes the dam breach measure).
31766	23	portdave@portoflewiston.com	Port of Lewiston	Page 3-1140, Line 33620 - 33626: Referencing the 2002 EIS concerning mainline rail capacity is not appropriate. The 2020 EIS should not rely on statements by a BNSF representative from 18 years ago. Additional research should be undertaken concerning mainline rail capacity issues.	Estimates were developed for these costs based on input from local stakeholders during this study period, as well as using published reports as information sources, including the 2002 Lower Snake River Feasibility Study/EIS (2002 EIS), and the 1999 Lund Report. To the extent possible, the CRSO EIS navigation and transportation model structure reflects the best available current information based upon input from both shortline and mainline rail representatives. As described in Section 3.10.3.5, increases in infrastructure demands could vary widely following dam breach, depending on factors such as the changes in rail rates, which influence the mix of alternative transportation modes that are utilized. In EIS scenarios, the largest demands on rail would occur under Scenario 1, when rail rates are assumed not to increase and rail transit would be relatively more attractive. In contrast, increased highway use would be highest under Scenario 3, when rail rates are assumed to increase by 50 percent. The EIS also notes that the high rail demand scenario and the high highway demand scenario would not both occur. In addition, infrastructure investments are transitional costs, and would primarily be borne by private entities, including rail lines and grain shippers. Over time, prices should adjust to cover these costs. Some highway costs would be transferred to the trucking industry through fees, though most costs would likely be borne by public entities. The EIS states in Section 3.10.3.5 that, due to the high level of uncertainty surrounding these costs, interpretation should be done with caution.
31766	24	portdave@portoflewiston.com	Port of Lewiston	Page 3-1142, Line 33697 - 33702: A study by FCS Group found that the average regional net farm cash income was only $42,825. Given the devastating increase in agricultural transportation costs, over 1, 100 farms may be at risk on bankruptcy.	The EIS evaluates potential effects on farmers associated with increased transportation costs under MO3 in Section 3.10.3.5. Evaluating the impact of removing the lower Snake River locks and barge navigation above Pasco, Washington, is completed using a transportation optimization model that does not allow shipments on river terminals along the lower Snake River. The EIS finds that under a dam breach scenario, average transportation costs for wheat farmers would increase 10 to 33 percent, but that individual farmers could experience increases that are much higher, depending on their specific location and other conditions. The cost increases to specific shippers would depend upon location and would vary throughout the region, depending on transportation options at each location. Generally, those grain shippers that are the furthest from alternate shipping locations (shuttle rail facilities or river ports on the Columbia River) would be the most negatively impacted. Note, more specific cost scenarios for farmers are presented in the Regional Economic Effects Section. The Section acknowledges that this would reduce the profitability of farming in Region C due to increased transportation costs.
31766	25	portdave@portoflewiston.com	Port of Lewiston	Page 3-1142, Line 33707 - 33715: This paragraph brings to mind several questions which the EIS should analyze: Will the U.S Government subsidize the increase in transportation costs to the agricultural industry, farmers, timber interests and other businesses negatively impacted by dam breaching? Adequate rail capacity could take decades to construct, if ever. Rail companies will have monopolistic pricing opportunities. What is the economic impact to rural Idaho communities due to the impact of higher transportation costs? For example, how many rural Idaho farmers are expected to go out of business? When the first barge departed from Lewiston in 1975, rail rates fell throughout Idaho and eastern Washington as railroads now had to compete with barge transportation. If dams are breached, rail rates will increase due to monopolistic pricing opportunities throughout Idaho and eastern Washington. The EIS should provide analysis on not just local increases in rail rates, but increases throughout the region.	The EIS evaluates potential effects on farmers associated with increased transportation costs under MO3 in Section 3.10.3.5. The EIS finds that under a dam breach scenario, average transportation costs for wheat farmers would increase 10 to 33 percent, but that individual farmers could experience increases that are doubled. The cost increases to specific shippers would depend upon location and would vary throughout the region, depending on transportation options at each location. Generally, those grain shippers that are the furthest from alternate shipping locations (shuttle rail facilities or river ports on the Columbia River) would be the most negatively impacted. The EIS recognizes that there is no guarantee wheat grown in the Northwest will be competitive now or in the future because there are many factors that influence international commodity markets (e.g., trade agreements, the U.S. dollar, global supply, etc.). However, the analysis finds that the cost to transport wheat to market would continue to be lower than costs paid by other wheat growers in the United States (e.g., the Dakotas and Midwest). Favorable conditions for Northwest wheat growers that help them stay competitive are: (1) the natural environment of the Palouse region (weather, soils) is ideal for growing this type of wheat, which leads to some of the highest yields per acre in the world, and (2) proximity of Northwest export ports.
31766	26	portdave@portoflewiston.com	Port of Lewiston	Page 1145, Line 33795: Question the increased transportation cost range of $0.07 to $0.24 per bushel. This analysis should be revised to reflect actual truck rates of $3. 81 per mile. Additionally, it should be noted in this section that the full impact of increased transportation costs is not captured within the $0.07 to $0,24 per bushel range. Costs associated with improvements to unit train loading facilities, storage capacity, rail lines (short line and class 1), highways and additional handling costs are not captured within the stated cost increase. These additional costs will be substantial and ultimately paid by the farmer.	The commenter seems to be confusing the discussion of the increases in costs with the total transportation costs that are presented in Section 3.10.3.5. The $0.07 and $0.24 metrics are measuring the changes in transportation costs that would be anticipated to occur under MO3.
31766	27	portdave@portoflewiston.com	Port of Lewiston	Appendix L Navigation and Transportation Content of Appendix L and Chapter 3 of the EIS shows that the content concerning navigation and transportation in the two document is very similar. Concerns express above for Chapter 3 of the EIS are similarly expressed for Appendix L.	Thank you for your comment. Please see the comment responses to your concerns about navigation and transportation for Chapter 3 of the EIS.
31766	28	portdave@portoflewiston.com	Port of Lewiston	A series of discussions from a broader Basin-wide focus resulted in the following concerns and opportunities to be included in Port's comments on the currently proposed Draft EIS: The lack of any degassing infrastructure in the Transport fish collection and holding raceways below the Lower Snake Dams to remove excess TDG' s. Hatchery and Wild fish spend up to 48 hours in this shallow environment where TDG's exceeded 115% in 2019 and may have approached 120% in years where Spill resulted in TDG levels exceeding 125%. The lack of any degassing infrastructure on the 2000-series barges to reduce TDG levels to those considered acceptable in a hatchery environment. Fish transported on the 2000- series barges spend up to 48 additional hours in transport on the barges. The lack of sufficient degassing infrastrncture on-board the 4000 & 8000-series Transport barges to reduce TDG levels to those considered acceptable in a hatchery environment. New evidence from the 2019 Fish Transport TDG Monitoring Report suggests Transport fish TDG exposure increases above levels considered safe in a hatchery environment even at Fore bay TDG levels of 110%. Prior to the 2019 Fish Transport TDG Monitoring Report the Transport System was viewed much like a Control Group where variables were considered minimized in Comparative Survival Studies (CSS) evaluating the survival of Transport fish (T) with respect to In River fish (IR). (The survival ratio of Transport vs In River fish is expressed as TIR. When TIR > 1 then Transport survival exceeded In River survival). The likelihood that Latent Mortality on Transport fish was higher than that of In River fish when TDG's increased above levels considered unacceptable in a hatchery environment due to the cumulative stress effects of: o Fish collection at high TDG levels o Fish enumeration at high TDG levels o Holding in raceways in a new environment for up to 48 hours at very high TDG levels o Fish loading stress from raceways to Barges at elevated TDG levels o Barge transport in a new environment for up to 48 hours at high TDG levels o Fish dumped below Bonneville Dam into a high-predation/high TDG level environment after 96+ hours of multiple stressor events at TDG levels That	Gas Bubble Trauma (GBT) disease is a combination of exposure level and duration during both the current condition as well as past exposure. Severity is also a function of overall health as well as availability of depth compensation. In general, for fish without the ability for depth compensation, TDG levels greater than 110% can lead to higher mortality and shorter response time at higher TDG levels. Past studies regarding TDG effects on survival have been of short duration, thus high TDG exposure effects on Smolt-to-Adult survival remain unknown. In general, GBT disease tends to reduce overall fitness and thus can lead to reduced survivability. Over the past two years, the Corps has examined TDG exposure levels in the fish transport barge holds and collection raceways. Findings indicated transport barge aeration systems were successful at reducing TDG levels: the 8000 series, with its packed columns, to less than 102%, and the 2000 series, with its spray bars, to less than 105% TDG when the intake river water was 120% TDG. However, the results also indicated the raceway water supply at Little Goose Dam may need modifications to provide degassing when the water supply TDG is greater than 120%. Therefore, direct loading into the barges is being maximized. TDG exposure at these levels, if the fish are deeper than a meter, is no risk of GBT. Every meter of depth compensates for 10% increased saturation. Two meters of depth has the same effect as 100% at the surface. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. The framework for the adaptive management process is detailed in Appendix R, Part 2, Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS. It is the intention of the co-lead agencies to engage regional state, Tribal, and Federal biologists in the development of an appropriate adaptive management process utilizing their respective salmonid management expertise. The goal of that adaptive management process would be to consider additional opportunities to further the effectiveness of the operation while maintaining the goals of the flexible spill operation: additional improvements for salmon and steelhead, maintain opportunities to operate the CRS for hydropower generation in a flexible manner that provides value to the Northwest, is implementable by the dam operators, and provides opportunity to reduce uncertainty and improve the learning opportunities around how operations of the CRS can influence the magnitude of latent mortality effects. Unforeseen outcomes or unintended consequences will be monitored and adjusted using current in-season management teams, such as the Technical Management Team.

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				existing data supports this potential connection of Latent Mortality in Transport fish due to high Transport system TDG's. The lack of any Latent Mortality studies for either Transport (barge) or In River (Spill) fish at the current gas cap of 110%. The lack of any Latent Mortality studies at the 120% and higher TDG's levels proposed under the Alternatives in the Draft EIS. Future TIR comparative survival studies should be performed with the improvements implemented to the Transport collection, holding, and barging systems to obtain TDG levels deemed safe in a hatchery environment prior to commencement.	
31766	29	portdave@portoflewiston.com	Port of Lewiston	The Draft EIS does not include any mention of improving the abundance of fish through optimization and standardization efforts of the existing BP A Direct and Indirect funded hatcheries. The hatcheries are considered by many to be one of the most important tools for meeting fish mitigation goals, yet they vary widely in their operations, infrastructure, efficiency, and in their effectiveness.	Hatchery programs have long been a part of the approach for salmon recovery. Based on our analysis of fish resources in Chapter 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Under this alternative, hatchery programs would continue as under the No Action Alternative, and a number of other mitigation measures would continue as well, but no new hatchery operations are proposed. Hatchery origin fish are very important to Tribal and sport harvest within the Columbia River Basin, and many hatchery programs are important supplementation to rebuilding natural populations. Further, the three co-lead agencies have legal requirement to produce hatchery fish as mitigation for components of the CRS. The effects of hatchery programs on ESA-listed fish are evaluated through individual consultations under the Endangered Species Act.
31766	30	portdave@portoflewiston.com	Port of Lewiston	The proposed decrease in hydroelectric production represents a certain path towards substantially increasing Greenhouse Gas emissions (GHG)	Section 3.8.3 of the EIS does demonstrate that a reduction in hydropower generation from the CRS projects would likely increase greenhouse gas (GHG) emissions. The Preferred Alternative is estimated to increase GHG emissions by 1.5%, or 0.54 million metric tons, compared to the No Action Alternative.
31766	31	portdave@portoflewiston.com	Port of Lewiston	The data for energy costs used in the Draft EIS is likely very outdated due to rapidly lowering energy storage costs and renewable energy pricing. The exclusion of more affordable energy storage opportunities in coordination with current hydroelectric production levels could increase the availability of clean, renewable energy on the Grid while reducing drafting and Cultural Concerns cited in the Draft EIS.	The EIS acknowledges that the energy sector is constantly undergoing transformation and that technological improvements will likely bring other options. To avoid speculation, the EIS analysis focuses on primary technologies identified by the Northwest Power and Conservation Council (Council) in their 7th Power Plan (7th Power Plan page 13-5) that are deemed proven, commercially available, and deployable on a large enough scale in the Northwest. See draft EIS, Section 3.7.3.1, Step 3: Determine Need for Potential Replacement Resources and Associated Costs at page 3-821 and Appendix H, Power and Transmission, Section 2.2. The use of storage technologies is considered a long-term resource of the Council's 7th Power Plan, not a primary resource; it has become more commercially available since the release of the 7th Power Plan and was examined in the EIS. Storage will likely be considered a primary resource in the Councils 8th Power Plan. To address concerns about potential reductions in resource costs, consistent with the comment, publicly released draft information, such as updated prices for solar and battery storage, from development of the 8th Power Plan is included as rate sensitivities in the Final EIS. The Final EIS also includes the de-escalating cost curves prepared by the National Renewable Energy Laboratory (NREL) that will be used by the Council in the 8th Power Plan. The EIS describes the effects on hydropower generation, drafting and cultural resources (see Section 3.16). The magnitude that hydropower operations shift generation and draw down due to new power generation from replacement resources is unlikely to substantially change the effects on cultural resources from drafting. Contrary to the implication in the comment, the inclusion of storage resources is similarly unlikely to substantially affect the drafting at CRS projects under each alternative evaluated (see draft EIS Section 3.8.3.1, Methodology, and Appendix J for additional details on the hydropower modeling). New renewable resources like wind and solar require dispatchable generation like hydropower to increase and decrease generation to balance the variability of wind and solar. This may exacerbate the concern raised in the comment, but is too speculative to analyze in the EIS at this time. See draft EIS, Section 3.7.3.2, Potential Replacement Resources and Associated Costs at page 3-849 and Section 3.7.3.1, Integration Services at page 3-832.
31766	32	portdave@portoflewiston.com	Port of Lewiston	It is the Port's position that a holistic Columbia River System Operators EIS cannot be considered complete unless included within the Multiple Objectives and Preferred Alternative is a sincere evaluation of the results for optimizing the performance of the hatchery and fish passage programs that BPA funds across the Columbia Basin. There is tremendous opportunity to improve the performance of the direct and indirect hatchery and fish passage facilities beyond the scope of anything discussed within the CRSO Draft EIS. These improvements provide a path for utilizing capital dollars for the improvement of our resources (fish, energy, water) and increase the number of adults returning to the Basin while ultimately lowering the long-term Fish and Wildlife program O&M costs. It will also lower the carbon footprint of these programs while decreasing the need for additional spill thereby lowering greenhouse gas (GHG) emissions. It is imperative that any strategic approach for improving the performance of the Columbia River System (CRS) for all Stakeholders ensures that the existing system is operating as efficiently and as effectively as possible. Data used to evaluate the performance of the existing system must be as accurate and as relevant as possible. Such a strategic approach would thus further minimize capital dollars necessary to make such improvements. It would also minimize any potentially negative effects from subsequent alterations to the existing operations and infrastructure. From this perspective, the Draft EIS failed to incorporate a number of opportunities to make improvements to the performance of the existing hatchery programs. The Draft EIS fails to identify critical infrastructure that is necessary to reduce excessively high total dissolved gas (TOG) levels in the Fish Collection and Transport Systems during high spill/high TOG events. The implementation of which would very likely result in increased SAR's for transport fish and improved transport in river (TIR) ratios under these conditions. As a result of this critical infrastructure exclusion, we strongly disagree with the EIS statement that "M02 is less effective than the other MO's at meeting the 'Improve Juvenile Salmon', 'Improve Adult Salmon', and 'Improve Resident Fish Objectives'". Past data has convincedly shown, that under reasonable TOG levels, in-river fish transport system has routinely outperformed spill year after year. We believe that transport will continue to outperform spill even at higher river TOG levels if critical degassing equipment is implemented. This information was previously been shared with LSRCP, USCOE, and BPA managers in the Spring of 2018.	The scope of the CRSO EIS is to evaluate alternatives to CRS operations, maintenance and configuration and not evaluate alternatives to Bonneville's Fish and Wildlife Program. Bonneville's Fish and Wildlife Program is appropriately described in Chapters 2, 3, 5 and 7. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-lead agencies numerous legal obligations. Hatcheries and the need for additional output was considered by the co-lead agencies and cooperating agencies during discussions of mitigation actions for each alternative, but were only proposed for MO3 due to the substantial short-term impacts to ESA-listed species during drawdown and breach of the four lower Snake River dams. Hatcheries are managed to meet individual hatchery objectives. Specific hatchery operations are separate actions from operation of the CRS and are outside the scope of this EIS. Under the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult return rates (SARs) will increase for both Snake River spring Chinook and steelhead and will average well above 2% (the lower end of Northwest Power and Conservation Council's recovery targets for the region), increasing SARs from 2.0% to 2.7% for Chinook, a 35% relative increase. The National Marine Fisheries Service (NMFS) COMPASS and Lifecycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. To address uncertainty highlighted by the two models, the Preferred Alternative includes working with regional sovereigns to develop a study that assesses the effectiveness of the increased spill regime on adult returns as well as assessment and management of adverse unintended consequences, such as long delays of adult migrants, or Total Dissolved Gas (TDG)-related mortality of juvenile migrants. See Appendix R, Part 2, Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS, for additional information. Additionally, the Preferred Alternative carries forward certain mitigation measures described in Chapters 2 and 7 of the EIS, which include continued salmon and steelhead hatchery production. and habitat measures that are described in Section 7.6.4.1 with examples listed in Table 7-5 in the Draft EIS. Finally, Sections 3.5 and 7.74 provide additional information on transport fish and improved transport in river for the alternatives.
31766	33	portdave@portoflewiston.com	Port of Lewiston	In recent years, evidence is mounting that additional spill which further elevated TDG levels negatively impacted Steelhead and Chinook returns to Idaho. TDG's measured below the John Day pool have increased annually since 2015, approaching 130% in both 2017 and 2018. The more recent returns for both Spring Chinook and Steelhead to the Clearwater River have been some of the worst on record. This is despite the fact that LSRCP chi nook production targets have increased by approximately 35% on the Clearwater System over the last two decades. Dworshak Hatchery alone increased Spring Chinook smolt production numbers from approximately 600,000 smolts in 2001 to around 1.6 Million smolts in 2019. If return numbers are decreasing despite increasing hatchery production numbers into a system where the variable of Spill/TDG has been markedly increased, shouldn't we be looking for what the CSS model may have overlooked? It is already well accepted that high TDG impacts Delayed Mortality in hatchery systems. The BPA F&W program, the USCOE, and the USFWS have all spent significant time, money, and effort to address TDG impacts on Delayed Mortality. We believe that Columbia River System operations resulting in 120% - 130% TDG levels in the river due to increased Spill is not reflective of what the TDG levels would be in an open flowing river system. Thus, how can we expect to use test results from a river flowing at-or-above 120% TDG levels to predict the outcome of breaching the dams if any part of the spill test might increase Latent Mortality effects? Especially when any Transport vs. In-River comparison at elevated TDG's is inaccurate due to the lack of adequate TDG degassing infrastructure in the Transport facilities? We have decades of evidence that TDG's at these levels contributes to Delayed Mortality in hatchery infrastructure similar to the fish collection system raceways. Fish returns to the Snake and Clearwater River Systems continue to decline despite large increases in hatchery production and with releases into higher Spill/higher TDG's. In the April 3rd, 2020 Lewiston Tribune Fish Forecast titled "Steelhead, chinook seasons look grim," IDF&G Fish Biologist Alan Byrne told the Tribune "if the (Steelhead) forecast is accurate it would be similar to the 2018 run and register as the seventh lowest on record. Last year was the second lowest recorded, and 2018 was the sixth lowest." Washington Department of Fish and Wildlife Fish Program Manager Chris Donley stated that "Last year's return of hatchery Brun steel head was so dismal that fishing was closed on the Clearwater and lower Snake rivers during the fall." These are returning runs of fish that were released as juveniles into already higher Spill/higher TDG conditions. The May 24th, 2019 issue of the Spokesman-Review article titled 'Chinook return "changing for the worse every day"' (a quote taken directly from the interview with IDF&G Regional Fisheries Manager Joe DuPont) stated "The gloomy run performance also includes some bad news for the 2020 run. Fisheries managers had hoped they would see a healthy return of jack chi nook because of improving ocean conditions. Jack chi nook spend just one year in the ocean before returning to spawn and often give managers a hint about future returns. But the latest projections indicate this year's jack return to Clearwater River hatcheries and Rapid River Hatchery will be the second lowest in the past 10 years." It must be noted that this 'second lowest return of jack chinook in the past 10 years' was released from the hatcheries in 2018 when Lower Snake River and Columbia River Spill levels were extremely high and the TDG levels in the system were recorded to have approached 130%. We do not know with any certainty that these high Spill/high TDG levels had a positive effect on this cohort of fish, however we could - and perhaps should infer from this very poor performance that the abnormally high Spill/TDG levels may have had a negative impact on this hatchery release group. And these were Spill/TDG levels reflective of those proposed in the Draft EIS 'Preferred Alternative'. The Port feels strongly that it cannot support a position that promotes increasing Spill/TDG's and subsequently increasing GHG's until further studies of the effect of TDG's on Delayed Mortality are performed and the necessary degassing equipment has been installed for the transport collection and barging systems. This is imperative because the transport SAR data can no longer be considered the 'control group' when high Spill/high TDG conditions exist in the river and in the shallow fish holding raceways. The result of any additional Latent Mortality in the transport population of fish from this exposure would result in an unfair comparison of TIR when the assumed high TDG controls are removed. Given the existing lack of any effective degassing infrastructure in the fish collection systems and the dismal returns of both Steelhead and Spring Chinook released into higher In River and Transport TDG levels, we believe there is a high probability that the TIR is not a fair analysis at elevated TDG levels.	Return rates of salmon can vary by two or more orders of magnitude among years. Most of this variability is to due the differing conditions in the ocean where they spend most of their life. Recent years, have resulted in very poor returns. However, returns in 2014 and 2015 were record highs. With the exception of 2015's very hot weather, conditions did not vary to such a degree. However, a number of indicators of ocean temperatures, food sources, and salmon predators do correlate well with the differing returns. With so many factors, it is very difficult to identify cause and effect relationships to salmon populations. Regarding TDG levels in the juvenile transportation system, Over the past 2- years the Corps has examined TDG exposure levels in the fish transport barge holds and collection raceways. Findings indicated transport barge aeration systems were successful at reducing TDG levels: the 8000 series, with its packed columns, to less than 102%, and the 2000 series, with its spray bars, to less than 105% TDG when the intake river water was 120% TDG. However, the results also indicated the raceway water supply at Little Goose Dam may need modifications to provide degassing when the water supply TDG is greater than 120%. Therefore, direct loading into the barges is being maximized. TDG exposure at these levels, if the fish are deeper than a meter there is no risk of GBT. Every meter of depth compensates for 10% increased saturation. Two meters of depth in 120% TDG has the same effect as 100% at the surface. This monitoring will continue with the increasing spill. Indeed, the Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty in how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. The framework for the adaptive management process is detailed in Appendix R, Part 2, Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System EIS. It is the intention of the co-lead agencies to engage regional state, Tribal, and Federal biologists in the development of an appropriate adaptive management process utilizing their respective salmonid management expertise. The goal of that adaptive management process would be to consider additional opportunities to further the effectiveness of the operation while maintaining the goals of the flexible spill operation: additional improvements for salmon and steelhead, maintain opportunities to operate the CRS for hydropower generation in a flexible manner that provides value to the Northwest, is implementable by the dam operators, and provides opportunity to reduce uncertainty and improve the learning opportunities around how operations of the CRS can influence the magnitude of latent mortality effects. Unforeseen outcomes or unintended consequences will be monitored and adjusted using current in-season management teams, such as the Technical Management Team.
31766	34	portdave@portoflewiston.com	Port of Lewiston	There have not yet been any successful studies focused on determining Latent Mortality effects on Transport (T) or In River (IR) at the current gas cap of 110% - even prior to a proposed jump to 120% or more. Nor have there been any Latent Mortality studies of the effects of holding the transport fish for up to 48 hours in shallow raceways without any degassing equipment under high Spill/high TDG conditions. This is despite the fact that hatcheries across the basin and across the country have gone to great lengths to avoid exposing their fish for even the briefest periods of time under such conditions. Furthermore, there have not yet been any studies evaluating Latent Mortality on the transported population of juvenile fish that looks closely at the effects of transport among the different 2000, 4000, and 8000 series barges once TDG levels become elevated above acceptable hatchery conditions.	Gas Bubble Trauma (GBT) disease is a combination of exposure level and duration during both the current condition as well as past exposure. Severity is also a function of overall health as well as availability of depth compensation. In general, for fish without the ability for depth compensation, TDG levels greater than 110% can lead to higher mortality and shorter response time at higher TDG levels. Past studies regarding TDG effects on survival have been of short duration thus high TDG exposure effects on Smolt-to-Adult survival remain unknown. In general, GBT disease tends to reduce overall fitness and thus can lead to reduced survivability. The duration of exposures between a hatchery fish (many months) and a transported fish (versus a maximum of 2 days in holding raceway or a maximum of 3 days in the barge if direct loaded) are enormous. These different exposure time frames and different gas levels are very different.

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				The 4000 and 8000 utilize degassing equipment that has been proven ineffective for elevated TDG conditions under high spill conditions from the Dworshak Dam resulting in only 115% TDG levels by the Dworshak Hatchery Operators, and the older 2000 series barges do not even have degassing equipment onboard to reduce TDG's. To summarize, transport fish populations spend up to 48 hours after fish are collected in a shallow raceway environment that would be deemed unacceptable at a hatchery facility under similar conditions because of the likelihood of Gas Bubble Disease Trauma and potential Delayed Mortality effects. Those fish are loaded into barges with degassing equipment that is also deemed unacceptable at a hatchery facility under similar conditions to spend the next 48+ hours in Transport down the Snake River and Columbia River. Despite all of these concerns of exposure to elevated TDG's, Transport Fish populations continue to see higher survival rates than the In-River fish in most years. To emphasize this point, BPA and the USCOE have spent millions of dollars across the Columbia Basin hatcheries to design and implement TDG removal systems on water supply systems to fish-holding infrastructure very similar to the Fish Collection and Holding Raceways below the dams at hatcheries. Perhaps most relevant is the massive vacuum degassing-style TDG removal systems that were designed and implemented by Dworshak Hatchery operators and the USCOE. This project was developed to address the concerns of TDG levels spiking above 104+% posttreatment with a goal of reducing gas levels at-or-below 102% for fish held in a similar environment. The previously used Packed Column system (similar to the systems currently in place on the 4000 and 8000 series barges) had been determined to be ineffective at preventing Gas Bubble Disease and Delayed Mortality TDG conditions from the Dworshak Dam with a gas cap of only 110%. Despite the significant upgrades to the degassing systems, managers of these projects became extremely concerned when Dworshak Dam was spilling water into the Dworshak Hatchery water intake structure with TDG levels of 115% as the result of turbine maintenance efforts. The USACE and Dworshak Hatchery operators monitored the TDG levels from the Degassing System very closely during this time. They were greatly concerned about increased Delayed Mortality in Spring Chinook and Steelhead populations within the hatchery. The improved degassing abilities of the new Vacuum Degassing Systems installed at the Dworshak Hatchery allowed the operators to successfully navigate the 115% TDG window during Dworshak Dam turbine maintenance. The staff were so relieved and so impressed, that they prepared a presentation which was given multiple times across the Columbia Basin. They shared their story to help other facilities reduce the likelihood of Delayed Mortality due to Gas Bubble Trauma experienced at TDG levels above approximately 102.5%. The slide below from Dworshak Hatchery 2018 LSRCP Power Point presentation identifies the successful performance of the vacuum degassing system at 115% TDG levels in the influent water supply, as well as the unsuccessful performance of the original packed column system to perform adequately at those same levels. The 4000 and 8000 series transport barges use packed column degassing systems similar to the ones that failed to perform adequately at 115% TDG levels, and the 2000 series barges and the fish collection system holding raceways do not have any degassing infrastructure for water treatment. [graph included in document: Dworshak NFH comparison of packed columns vs. vacuum degassers] In 2001 when hydro production was maximized to meet the challenges of the Enron crisis, River TDG levels were the lowest in the past 25 years, at approximately 110% during juvenile fish passage. In that year Transport SARs were almost 9-times higher than In River SAR's. Low flow conditions in 2015 once again resulted in relatively low TDG levels (closer to 115%) and Transport outperformed spill 4:1. Data from Table 4 of the 2019 Fish Transport TDG Monitoring Report suggests TDG exposure in the fish Transport holding raceways at Lower Monumental Dam and Little Goose Dam would have been at-or-below 104% and 107.9% TDG levels respectively in 2011. That same report also suggests that TDG levels throughout the rest of the Transport system would have been at-or-below TDG levels considered a concern at the Dworshak Hatchery and other Columbia Basin hatcheries for even short-term TDG exposure to salmon ids. Furthermore, when Spill levels were increased and TDG levels in the Transport fish system rose far above levels considered safe in a hatchery environment the exact opposite was the result. In 1997 and again in 2011 high flows/high Spill resulted in TDG levels exceeding 120% and approaching 130%. In these years Transport survival fell far below In River survival -to 0. 74 and 0.68 TIR respectively. In these years the data in Table 4 of the 2019 Fish Transport TDG Monitoring Report suggests that fish held up to 48 hours in the Lower Monumental Dam Raceways experienced TDG levels of approximately 110%, and the fish collected at Little Goose Dam were held for up to 48 hours in raceways that approached 120% TDG levels without any ability to compensate at depth because those raceways are only 3 feet deep. It is important to note that when the fish at Dworshak Hatchery held in raceways similar to the Transport raceways experienced TDG levels of only 105% in March, 2017, the Dworshak Managers reported fish showing signs of gas bubble trauma. When these fish were examined under a microscope the fish had bubbles in the gills, lateral lines, and eyes. Furthermore, the fish even stopped eating. These are conditions that increase Latent Mortality in a hatchery environment. The Port of Lewiston believes that there is clearly a significant opportunity to even further improve survival of the transport population of juvenile salmon and steel head. And improve TIR under elevated TDG conditions if the conditions and infrastructure in the holding raceways and on the barges were improved with the same focus that BPA, USCOE, and LSRCP has given to the hatchery facilities.	TDG levels are regulated under the Federal Clean Water Act, and administered by the states. Both Oregon and Washington have reassessed the available data on effects of TDG levels up to 125% of saturation on fish and other aquatic organisms. Based on this reassessment Oregon issued a five-year "standard modification" and Washington issued a permanent rule change, supported by the Environmental Protection Agency (EPA), to allow TDG saturation up to 125%. However, as noted by the commenter, there is considerable uncertainty in the effects of free swimming fish; and therefore, monitoring was required by the states and EPA to ensure any negative effects are detected and allow for adaptive management. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. The framework for the adaptive management process is detailed in Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS. It is the intention of the co-lead agencies to engage regional state, Tribal, and Federal biologists in the development of an appropriate adaptive management process utilizing their respective salmonid management expertise. The goal of that adaptive management process would be to consider additional opportunities to further the effectiveness of the operation while maintaining the goals of the flexible spill operation: additional improvements for salmon and steelhead, maintain opportunities to operate the CRS for hydropower generation in a flexible manner that provides value to the Northwest, is implementable by the dam operators, and provides opportunity to reduce uncertainty and improve the learning opportunities around how operations of the CRS can influence the magnitude of latent mortality effects. Unforeseen outcomes or unintended consequences will be monitored and adjusted using current in-season management teams, such as the Technical Management Team.
31766	35	portdave@portoflewiston.com	Port of Lewiston	Our concerns also include that the EIS Draft document has been developed using energy costs and GHG data that is now outdated as the result of rapidly lowering energy storage costs. These greatly reduced costs for commercial-scale energy storage solutions could further eliminate reliance on the natural gas peaker plants cited in the MO2 option. Energy storage solutions used in combination with the full suite of renewables available in the Columbia Basin (hydro, wind, and solar) could dramatically reduce reservoir drafting requirements and subsequent cultural concerns while even further reducing O&M costs on the grid. BPA has to look no further than to its colleagues at PG&E who are already underway with this approach on a very large scale to know that this is a feasible solution that would significantly reduce GHG levels beyond those stated in the Draft EIS.	The EIS evaluates two potential replacement portfolios for each MO to return the regional reliability (as measured by Loss of Load Probability [LOLP]) back to the No Action Alternative level. One is a conventional least cost portfolio that uses natural gas-fired resources and the other is a least cost carbon-free portfolio. See draft EIS, Section 3.7.3.5 at pages 3-904-910. For Multiple Objective (MO) Alternative 3, the carbon-free portfolio includes 1,275 MW of batteries in the draft EIS. In response to public comments, the final EIS uses a revised battery figure to account for what is needed to return MO3's LOLP to that of the No Action Alternative. The final EIS includes consideration of declining costs of storage and renewable resources. The EIS includes the de-escalating cost curves prepared by the National Renewable Energy Laboratory, which will likely be considered by the Northwest Power and Conservation Councils in their 8th Power Plan. The EIS acknowledges that the energy sector is constantly undergoing transformation and that technological improvements will likely bring other options. To avoid speculation, the EIS analysis focuses on primary technologies identified by the Council in their 7th Power Plan (7th Power Plan, page 13-5) that are deemed proven, commercially available, and deployable on a large enough scale in the Northwest. See draft EIS, Section 3.7.3.1, Step 3: Determine Need for Potential Replacement Resources and Associated Costs at page 3-821 and Appendix H, Power and Transmission at Section 2.2. The use of storage technologies was considered a long-term resource of the 7th Power Plan, but not a primary resource. It has become more commercially available since the release of the 7th Power Plan and was examined in the EIS. Storage will likely be considered a primary resource in the Councils 8th Power Plan. Contrary to the statement in the comment, the EIS finds that MO2 would not require replacement resources to maintain the same level of power system reliability as the No Action Alternative and does not require gas peakers as the comment suggests (see Section 3.7.3.4, Impacts to Power Reliability in the draft EIS). New renewable resources like wind and solar require dispatchable generation like hydropower to increase and decrease generation to balance the variability of wind and solar. This may exacerbate the concern raised in the comment. See draft EIS, Section 3.7.3.2, Potential Replacement Resources and Associated Costs at page 3-849.
31766	36	portdave@portoflewiston.com	Port of Lewiston	The Port is strongly in favor of expanding the juvenile fish transport season - particularly in the face of a changing climate, and believes the Columbia Snake System could benefit from starting and stopping on a fish trigger count, as suggested as a management tool approach in MOI Expanding the juvenile fish transport season with fish count triggers would create the opportunity to increase the number of transport trips performed by barge instead of by truck. The barge trips are more efficient with lower GHG emissions per smolt delivered below Bonneville while providing the opportunity to circulate imprinting water within the fish holds along the route. Barge transport may also improve SAR's over trucking as a result.	The juvenile salmon transportation program is managed by expected fish benefits as well as cost efficiency. SAR estimate for each week of the outmigrations, combined with other environmental and biological data, drive the decisions. Prior to these data being available, transportation began at the beginning of April; however, we learned that fish transported in early April performed very poorly. Transporting too early is not effective and does not justify the expense. Similarly, transport by truck beginning when the collection is small enough that they can be transported safely in a truck can be done at a much lower cost. A minitanker in a pickup is used when collections are very small.
31766	37	portdave@portoflewiston.com	Port of Lewiston	It is recommended that BPA explore opportunities to electrify the towboat fleet - similar to the electrification conversion efforts recently approved for the Washington State Ferry System in the Puget Sound. This would even further reduce GHG emissions from the transport effort.	Electrifying the towboat fleet is outside the scope of this EIS, which focuses on the operations, maintenance and configuration of the Columbia River System dam and reservoir projects.
31766	38	portdave@portoflewiston.com	Port of Lewiston	Install degassing equipment to remove excess TDG levels from the water entering the fish collection systems and fish holding raceways below the Lower Snake Dams. These systems must be able to remove excess TDG from levels as high as 120% to levels at-orbelow 102% TDG, as is targeted for hatchery degassing system designs for fish-rearing raceway systems which are very similar to those used in the fish collection & holding systems. This is imperative because fish collected in these systems are held for up to 48 hours in very shallow hatchery-style raceways, during this time they are exposed to unnecessarily high TDG levels. We believe that exposure to even 110% TDG for up to 2 full days in these shallow holding raceways would increase Latent Mortality in the Transport fish population. The USCOE could incorporate much of their existing degassing designs from the recent degassing projects at Dworshak Hatchery with a similar degree of success. Install adequate degassing systems on the 2000, 4000, and 8000 series transport barges. These systems must be able to remove TDG from levels as high as 120% to levels at-orbelow 102% TDG under ALL conditions. This should reduce Latent Mortality of Transport fish during any future high TDG/high Spill events. Install constant-monitoring TDG meters in the fish holding raceways below the Lower Snake River Dams. Install constant-monitoring TDG meters in the sea chest and in all fish holding chambers on all of the transport barges. This is necessary to provide both pre-and-post degassing data so that degassing efficiencies and system limits can be determined. Following the installation and successful testing of adequate transport fish system degassing and monitoring equipment, BPA should perform a comparative Latent Mortality study between In-River fish and Transport fish with real-time data that includes In-River and Transport TDG exposure levels (Transport data must include TDG levels in both the collection holding raceways and within the barge fish holds). Including this data, in combination with ensuring that transport fish are not exposed to harmful/lethal TDG levels when being held up to 48 hours in shallow raceways before Transport, would significantly improve the ability of the CSS to more accurately predict the effect of increased Spill/TDG on SAR's.	In response to discovering elevated TDG levels at the Little Goose raceways, currently direct loading onto the fish transport barges is being maximized rather than holding fish in the raceway. Nevertheless, degassing alternatives are being developed. As Gas Bubble Trauma (GBT) is a combination of exposure level and duration during both the current condition as well as past exposure. Severity is also a function of overall health as well as availability of depth compensation. In general, for fish without the ability for depth compensation, TDG levels greater than 110% can lead to higher mortality and shorter response time at higher TDG levels. However, a fish at 1 meter depth would be affected the same as though there were 100% TDG, saturation. Hatchery exposures can be over many months, while fish are held in the raceways for a maximum of 48 hours. The analysis of on barge TDG monitoring recommended has been ongoing over the past two years. The Corps has examined TDG exposure levels in the fish transport barge holds and collection raceways. Findings indicated transport barge aeration systems were successful at reducing TDG levels The 8000 series, with its packed columns, has reduced TDG levels to less than 102%, and the 2000 series, with its spray bars, has reduced TDG levels to less than 105% TDG when the intake river water was 120% TDG. Regarding the recommendation to conduct a latent mortality study, latent mortality cannot be directly measured due to a number of confounding variables. However, the Seasonal Effects study comparing SARs of in-river, bypassed, and transported fish, as well as the CSS study, will continue.
31766	39	portdave@portoflewiston.com	Port of Lewiston	Perform a high-level analysis of BPA's Direct and Indirect Funded Hatchery programs and infrastructure. It is typically not BPA's position to opine on Direct or Indirect Funded hatcheries, but to instead leave those decisions to the State, Federal, and Tribal Sponsors, their A/E teams and contracted	Thank you for your in depth suggestions. This EIS analyzes the effects of operation, maintenance, and configuration of the CRS projects. Analysis under NEPA for each individual hatchery and of how well hatcheries are run and any maintenance/operational issues is accomplished in other documents and beyond the scope of this EIS. This EIS compares the effects of the range of alternatives for operation, maintenance, and configuration of the CRS projects to one another and

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				support teams to determine "how to build and operate it" (hatcheries). As a result, there is much room for improving the performance of these facilities while reducing O&M and GHG's through standardization and modernization efforts based on adopting the highest performing designs and methods across the larger program. This will also free up monies in existing budgets to help fund improvement projects to implement newer technologies. To accomplish this, analysis should focus on: o Identify the highest performing hatchery programs and infrastructure from the perspective of SAR's and implement those successes at lower-performing hatchery facilities where practical to improve SAR's across the Columbia Basin o Identifying rearing infrastructure and size at release goals that minimize travel time of released smolts. o Implementing methods and policies that minimize unnecessary Capital and O&M costs. o Reducing Overhead costs between Funding Agencies and Sponsor Programs. o Minimizing the amount of energy used per adult salmon returned. o Minimizing the number of broodstock necessary to meet release and return goals at each hatchery. o Identifying and developing methods to reduce the Carbon Footprint of the Hatchery Programs (any hatchery facility that can reduce its biomass and/or its energy consumption and achieve a similar or higher SAR, is operating at a higher Carbon Footprint than necessary). o Implementing monthly reporting for energy consumption and fuel use from all hatchery facilities. o Standardizing the annual hatchery budget request forms and processes for all Direct and Indirect Hatcheries, so that improved opportunities for programmatic efficiencies can be identified. o Perform an analysis of basin-wide hatchery release size goals. The size of the smolts released was increased to compensate for the effects of the dams 25-30 years ago. This was done prior to the improvements made to turbines, barging, and fish bypass systems. Getting past dams gotten easier for smolts, but the size-at-release goals were never revisited for the more efficient system. There is thus significant potential to return hatchery fish released at closer to wild fish sizes, a concept that is receiving growing support for increasing fish survival. o Where hatchery programs can successfully reduce size at release goals without the need to increase hatchery production numbers, the overall reduction in hatchery biomass at those facilities will improve hatchery/wild density dependence interactions. And additionally reduce hatchery O&M, reduce the Carbon Footprint and GHG's of those facilities, and in some instances, may improve SAR's as supported by studies performed by Don Larson and Brian Beckman of NOAA and others. o SAR's for both the Steelhead and Spring Chinook programs at Dworshak and Clearwater Hatcheries are very similar. According to IDF&G, there is an opportunity to increase production numbers of these programs at the Clearwater Hatchery by as much as 33% without any additional infrastructure. This can be achieved with minimal additional O&M simply by reducing the size at release goals of the Clearwater Hatchery programs to match the smaller-sized goals of the Dworshak Hatchery program. o It has already been successfully proven that there is tremendous opportunity for additional flexibility and capacity between the two Hatchery programs. Following the catastrophic failure of the Dworshak Dam main pipeline that delivers water to the Clearwater Hatchery in 2012, most of the entire Clearwater Hatchery Spring Chinook program was moved into available rearing space and successfully raised at the Dworshak Hatchery (while all Dworshak programs were still on site). The Clearwater Hatchery Spring Chinook program successfully reached their size and release goals, and the Dworshak Hatchery was awarded the LSRCP Hatchery of the Year award for those efforts. This forced a closer look at what could really be achieved from a production perspective if both hatcheries would be willing to adopt similar management metrics to reach similar SAR's. o If the most efficient and effective hatchery rearing metrics were adopted between Dworshak and Clearwater Hatcheries, they could produce almost 500,000 additional Steelhead smolt collectively without any additional infrastructure modifications or any additional water to either hatchery (see table at end of comments). This literally represents the capacity of an entire new hatchery facility without any additional costs to electrical rate payers. o Finally, it is recommended that BPA revisit the EIS analysis to upgrade the energy storage costs to expand opportunities to further reduce GHG's by reducing dependency on natural gas peaker plants beyond the initial scope of MO2 through hydro, wind, and solar renewable sources while reducing reservoir drafting and cultural concerns.	to the No Action Alternative. Hatchery programs are discussed briefly in the Affected Environment to give the reader general information on hatchery programs that are a part of the ESU/DPS described. For the purposes of comparing alternatives, however, a more detailed description is not needed.
31768	1	humairaf@pacificpud.org	Pacific County Public Utility District No. 2	The Co-lead Agencies should be wary of any national interest group advancing specific outcomes that are single issue focused. MO3 and MO4 alternativesbreaching of the four Lower Snake River Dams (LSRD) or sustained high spill levels would hit our struggling communities the hardest. BPAs power costs rates would increase by 50% . The District purchases nearly 96% of wholesale power supply from Bonneville Power Administration (BPA). Anytime BPA increases its rates, we pass those costs onto our ratepayers. Wholesale power supply costs represent roughly half of total retail bills, that would equate to a 25% increase in monthly electric bills for our residential and business customers.	The statement in the comment regarding potential wholesale rate increases is consistent with the findings of the EIS. See EIS, Section 3.7.3.5, at 3-918-924 in the Draft EIS; see also Table 3-166 in the Draft EIS. The EIS also discusses that Bonneville customers, such as the utility district mentioned in the comment, may have larger increases in rate pressures than other regional utilities that do not purchase power directly from Bonneville. Section 3.7.3.5, Residential Effects, at 3-929 in the Draft EIS, and Chapter 5 of Appendix H, Power and Transmission in the Draft EIS. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-lead agencies numerous legal obligations. The Preferred Alternative is predicted to benefit ESA-juvenile and adult anadromous salmonids (two of the objectives) as well as the other EIS objectives including those for: resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. The co-lead agencies did not identify Multiple Objective alternative 3 or Multiple Objective alternative 4 as the Preferred Alternative because of the adverse effects to affected resources, including the effects mentioned by the commenter.
31768	2	humairaf@pacificpud.org	Pacific County Public Utility District No. 2	Blackouts are an existential threat: Northwest Power Pool and Northwest Power and Conservation Council have sounded the alarm that the region does not have enough resource adequacy by 2021 due to a number of coal plants retiring. The Loss of Load Probability (LOLP) for 2021 is 7.5% but by 2024 the LOLP increases to 12.8%, by 2026 the LOLP increases to 26% . The potential shortfall events are likely to occur in winter and are expected to last longer. Most importantly, these scenarios include the presence of LSRD as part of the regions resource mix. The LSRD provide more than 2,000 MW of sustained peaking capabilities in the winter and 25% of the federal power systems current reserves holding capability. LSRD play a significant role in maintaining grid reliability, and their flexibility and dispatchability are valuable to the operation of the Columbia River System. MO3 would more than double the regions risk of power shortages . To contemplate removing LSRD would be reckless and irresponsible. The Covid-19 pandemic demonstrates the importance of our reliance on electricity. It is a matter of national health and security to keep the lights on 24/7.	The statement that without resource replacement, regional power reliability would decline under MO3 is consistent with the findings of the EIS. In the Draft EIS, please see Section 3.7.3.5, Effects on Power System Reliability, at page 3-903; see also Appendix H, Table 2-1. The EIS analyzed two resource portfolios to replace the hydropower generation of the four lower Snake River dams, both of which maintain regional power system reliability at the No Action Alternative level. Please see in the Draft EIS, Section 3.7.3.5, at pages 3-904-910. Under these replacement portfolios, regional power rate pressure increases. See in the Draft EIS, Section 3.7.3.5, Table 3-166. The statement about the peaking capability of the four lower Snake River dams is also consistent with the findings of the EIS. See Section 3.7.3.5, Lower Snake River Full Replacement, pages 3-905-907 in the Draft EIS. While the EIS did not analyze the specific years and loss of load probability (LOLP) cited by the comment, the EIS also finds that increasing retirement of coal power plants would adversely affect regional power reliability. See Section 2.3 of Appendix H, Sensitivity of LOLP to Assumptions about Coal Capacity in the Draft EIS. The measure to breach the four lower Snake River dams that was evaluated in MO3, was not included in the Preferred Alternative identified in the Draft EIS. The effects of the Preferred Alternative (PA) on power are described in Section 7.7.9 of the Draft EIS. Overall, hydropower would decrease relative to the No Action Alternative under the PA. However, because of the shape of the remaining hydropower generation in the Preferred Alternative, the loss of load probability was essentially the same as that of the No Action Alternative.
31768	3	humairaf@pacificpud.org	Pacific County Public Utility District No. 2	Furthermore, the DEIS quantified the cost of replacing LSRD with carbon free resources. The analysis found that the closest replacement portfolio for the energy, sustained ramping, and balancing capability of the projects would be 3,306 MW of solar, 1,144 MW of wind, and 2,515 MW of battery storage. The annual cost of this portfolio to replace the full output of the LSRD with carbon free resources is nearly $1 billion a year.	The renewable resource capacities and costs cited by the comment are consistent with the findings of the EIS. See Draft EIS, Section 3.7.3.5, Potential Replacement Resources And Associated Costs, at 3-904-909; see also Table 3-162.
31768	4	humairaf@pacificpud.org	Pacific County Public Utility District No. 2	Extinction is not an option: Improving juvenile and adult salmon migration and survival rates is a key objective of the DEIS and it is also an important objective to the District. For purposes of context only, Pacific County is home to over four fish hatcheries including one that is the oldest in Washington StateSea Resources established in 1893. Columbia Land Trust owns over 1,165 acres of pristine habitat in Pacific County. Willapa Bay is the second largest estuary on the Pacific coast where five salmon species pass through the bay en route to natal rivers on the east side of the bay. Our local communities are stewards of the environment. Our commitment to the environment is evident in the fact that our rate payers are directly responsible for funding BPAs Fish and Wildlife programs. This includes: 1) funding fish and wildlife projects in the Columbia Basin, including habitat restoration, hatcheries, land acquisitions, predator control and research and evaluation; 2) funding Corps and Reclamation for the portion of the costs to operate and maintain the fish passage improvements at the dams and for O&M costs for certain hatcheries operated by the Corps, Reclamation and the U.S. Fish and Wildlife Service; 3) paying for fixed capital expenses related to fish and wildlife costs at federally owned hatcheries and fish passage improvements at the dams; 4) paying for power purchases associated with fish operations such as spill; and finally 5) forgoing revenues due to operations. Nearly 25% of our power rates help fund these efforts. We are committed to mitigations efforts for the impacts of the FCRPS. Concurrently, any mitigation must be science based and cost-effective. Should the preferred alternative result in additional cost to BPAs rate payers, the economic burden should be equitably shared with the public at large.	Based on the EIS analysis, the Preferred Alternative would make a substantial contribution to improving Snake River anadromous fish runs. Broad-sense recovery goals are beyond the scope of this EIS, which focuses on the effects associated with the operation and maintenance of the 14 CRS projects. With respect to the Preferred Alternative, fish analysis in Section 7.7.4 shows that it would provide substantial benefits to ESA-listed salmon and steelhead, which can help contribute to broader recovery goals. The statement that roughly a quarter of costs from Bonneville's power rates are due to fish and wildlife spending is consistent with information provided in the EIS. The EIS recognizes the concern voiced in the comment regarding increasing power rates. Under the Preferred Alternative the Bonneville wholesale power rate pressure is estimated to be 2.7 percent relative to the No Action Alternative. A portion of that rate pressure has already been incorporated into the BP-20 wholesale power rates; and, the remaining rate pressure likely falls within a level that Bonneville has historically been able to absorb through the costs over which it has significant control. See Draft EIS Section 3.7.3.1 at page 3-187. As described in Section 3.19 and Appendix Q of the EIS, funding to operate the system comes through multiple mechanisms, including federal tax dollars appropriated to cover system costs as well as revenue generated from the marketing and sale of hydropower. For power-specific costs, Bonneville typically provides direct funds to both the Corps and Reclamation. For joint related costs, including funding for fish and wildlife mitigation actions, the Corps and Reclamation receive annual congressional appropriations to fund most, if not all, capital investments. Bonneville reimburses the U.S. Treasury for the power share of these appropriations. Once the investment is in place, Bonneville will typically direct fund the power share of the operations and maintenance costs associated with the facility. In addition to congressional appropriations for fish and wildlife and costs directly funded to Corps and Reclamation by Bonneville, the Bonneville Fish and Wildlife Program (which is separate and distinct from direct funding described above) funds hundreds of projects each year to mitigate the impacts of the federal hydropower system on fish and wildlife. Bonneville began this program to fulfill mandates established by Congress in the Pacific Northwest Electric Power Planning and Conservation Act of 1980 to protect, mitigate, and enhance fish and wildlife affected by the development and operation of the FCRPS. Bonneville uses its authority under 16 U.S.C. 839b(h)(10)(A), to make expenditures to implement its Fish and Wildlife Program. These expenditures provide systemwide funding for actions that also mitigate for the non-power purposes of the CRS, so Bonneville recoups the non-power share of those expenditures from the U.S. Treasury as credit, as required under 16 U.S.C. 839b(h)(10)(C). Bonneville's Fish and Wildlife Program expenditures incurred mitigating the CRS operations identified in the Final EIS and adopted in Bonneville's Mitigation Action Plan would continue to be allocated and borne as provided by existing laws governing the Federal Columbia River Power System and the long-standing accounting procedures used to implement them. As described in Chapter 7 of the EIS, funding decisions for Bonneville's Fish and Wildlife Program are not being made as part of the CRSO EIS process. Future budget adjustments would be made in coordination with the regional entities that help Bonneville implement its Fish and Wildlife Program.
31768	5	humairaf@pacificpud.org	Pacific County Public Utility District No. 2	We are committed to science-based solutions that help hydropower and salmon coexist and thrive. CRS is clean power: The Columbia River System (CRS) is the source of economical, reliable, and clean power generation. It provides the region with some of the least greenhouse gas (GHG) intensive electricity in the United States. On average, the CRS produces 8,500 average megawatts of carbon-free power reducing the need to use other carbon-emitting resources, like gas and coal plants. The flexibility of the CRS also helps integrate variable renewable resources like wind and solar by stabilizing the system when these resources are unavailable. Hydropower is the most unique among generating fleets. It can provide nearly all the attributes necessary for a reliable and resilient electric grid from dependable capacity to black start capability and is GHG-free. As the grid integrates more variable energy resources such as wind and solar, hydropowers ability to provide firm capacity, frequency response, voltage support, load following, and long-term storage become increasingly critical.	The various characteristics of hydropower described in the comment are consistent with the findings and discussions in the EIS. The amount of carbon-free hydropower generation from the Columbia River System projects is also consistent with information presented in the EIS. See Section 3.7.3.5, Lower Snake River Full Replacement at pages 3-905-907 in the draft EIS.
31769	1	Aaron Lieberman	Idaho Outfitters & Guides Association	THE DEIS DISREGARDS THE ECONOMIC CONTRIBUTIONS AND IMPACT OF SALMON AND STEELHEAD FISHING, AND GUIDING, IN IDAHO AND THE NORTHWEST. 1 9450 W FAIRVIEW AVE., STE. 110 | BOISE, ID 83704 | 208.342.1438 | OFFICE@IOGA.ORG CONTACT Our goal has been to develop an approach to river management that balances these multiple perspectives and can serve as a springboard to continued progress in the region on recovery and mitigation for fish and wildlife, reliable and affordable clean electricity, and economic vitality for the many communities that depend on	The EIS evaluated benefits and adverse effects across an array of resource areas including potential effects at the national, regional and local level; effects are monetized and quantified, where possible, and also described qualitatively. The EIS provides an evaluation of the social welfare and regional economic effects of the No Action Alternative and the Multiple Objective alternatives, including the effects on recreation (Section 3.11) and commercial fisheries (Section 3.15). The EIS Section 3.5.3.6 describes the long-term effects to anadromous fish migration in the Snake River and tributaries as major and beneficial, although quantitative impacts from fish modeling results are limited. The EIS described the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the

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				the CRS for their livelihoods.2 Whereas the CRSO DEIS process acknowledges The Opinion and Order from US District Court for the District of Oregon, which states the EIS should evaluate how to ensure that the prospective management of the CRS is not likely to jeopardize the continued existence of any endangered or threatened species, the CRSO process, within the framework of the National Environmental Policy Act, also ostensibly identifies broad-based environmental and socio-economic impacts associated with the proposed alternatives. However, in its analysis of the [socio]economic impacts of the respective Multiple Objective Alternatives, the CRSO DEIS fails entirely to consider the Sportfishing economyits contributions and the anticipated impacts of the respective alternatives to it. Despite the dEISs utter and complete ommitance, the importance of these fish and the outfitting & guiding industry to these rural Idaho communities cannot be overstated. Ours is an industry that has long been negatively impacted by the decline in sportfishing opportunities for salmon and steelhead, in our businesses as well as their respective communities economically, culturally and socially. According to the Idaho Outfitters and Guides Licensing Board (IOGLB), there are currently between 1500 and 2000 guides in Idaho Licensed for, and reliant on, Salmon and Steelhead fishing. Approximately 80% of these resident Idaho Outfitters live in and contribute to the economies of communities with an average population of ~500. Idaho riverside towns, where these Salmon and Steelhead outfitters and guides reside and operate, are overwhelmingly rural and heavily dependent on natural resource and recreational based economies. According to the Idaho Department of Labor, the annual average earnings of steelhead guides is ~$23,000. Using the Income Multiplier generated for our industry by the Idaho Department of Labor, that represents and economic contribution of between $58,650,000 and $78,200,000 associated with Salmon and Steelhead guides alone. This figure, staggering in and of itself, does not include the broader impact and generated spending of the outfitters3 that employ those guides, not least the induced spending of those businesses and professionals nor that of their clients in their respective communities and Idaho as a whole. 4 The importance of salmon and steelhead fishing in rural Idaho communities and their economies is thrown into still sharper relief when framed in terms of the States Sportfishing economy on the whole (beyond outfitting and guiding specifically). On the whole, the sportfishing economy contributes an estimated $757 million dollars per year in Idaho alone.5 Based on estimates from the Idaho Department of Fish and Game regarding the proportionate angling effort for Salmon and Steelhead, that would extrapolate to a base contribution of between $151-189 million/year to the State for Salmon and Steelhead fishing. Table 1: Summary of Regional and Other Social Effects. [Text contains table that does not transfer to database.] The agencies analysis of regional and other social effects is shown in Table 1 above. Whereas the Action Agencies plan details the impacts on other industries/sectors, including agriculture, subsidized barging, and power generation, the dEIS relies solely on qualitative, rather than quantitative analyses to evaluate impacts of/on sportfishing (not to mention Idahos outfitters, guides, and rural fishing communities)despite the existence of several current studies on the economic contributions of outdoor recreation and sportfishing in states with anadromous fish runs. This contrasts with the analysis of water supply, irrigation, navigation, and hydropower generation, all of which were evaluated quantitatively. For all management alternatives and their Preferred Alternative, the economies of recreation and fishing (from guiding, outfitting, hotels, restaurants, gas stations, boat shops, license fees, etc.) were not even accounted for despite existing, publicly available data. At the March 5, 2020, Idaho Governors Salmon Recovery Workgroup meeting, an Army Corps of Engineers economist stated economic impacts of sportfishing were outside the scope of the EIS, despite all other resources evaluated in the analysis included quantified effects. In 2001, during the height of our modern day anadromous fish returns to Idaho, anglers fished 475,000 days for steelhead and 448,000 for salmon.6 The 2-4-month salmon seasons generated $46 million to 15 river communities and $43 million to the rest of the state.7 That year, the spring Chinook season brought $10 million to Riggins alone (estimated population 417), where the total spending that year was $44 million. That same year Lewiston saw $8.8 million and Orofino $8 million from the same salmon season. In 2003, the Idaho Department of Fish and Game calculated that sportfishing generated $438 million in direct spending, including $32 million on outfitters and guides. (Adjusted for inflation, that would amount to $598,197,213 statewide and $51,898,388 on outfitters and guides, again, without factoring in additional, standard multipliers.)8 Just as robust salmon and steelhead returns can provide an economic boom to these riverside towns, feeble returns can devastate them. During the four-month steelhead fishing closure on the Clearwater River in 2019, the Clearwater Region missed out on $8.6 million a month ($34.4 million total), with the majority of the loss in Clearwater County.9 The Idaho Fish and Game Commission then re-opened the fishing season in 2020 for only catch and release opportunity for hatcheryorigin steelhead. These losses can and will be felt for years following the 2019 steelhead fishing season closure for businesses directly and indirectly tied to steelhead fishing. A survey in 2001 concluded that if salmon fishing were not available in Idaho that 73% of Idaho salmon fishermen would go elsewhere.10 Fishing outfitters, guides, and their rural communities continue to helplessly watch the downward arc of Idahos anadromous fish. Their hardship is not hypothetical; it is real and immediate and longendured. That the dEIS neither quantified the economic potential of abundant fish returns nor the devastating financial impacts of declining salmon and steelhead populations on rural communities in Idaho and throughout the Pacific Northwest is unacceptable. The economic and cultural impacts of salmon and steelhead in Idaho must be given full consideration by the federal agencies that control this system. Previous EISs included such information, but this newest iteration does not.	middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. NMFS estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which is described qualitatively. For the effects on recreational fishing under MO3 (Section 3.11.3.5) along the lower Snake River below Lewiston, the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River) as an indicator for fishing visitation in this reach. The EIS describes that the visitation in the long-term in the lower Snake River, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting outfitting and tourism businesses in the region. The social welfare values and regional economic effects associated with recreational fishing under the MOs, as well as river recreation post dam break under MO3, were not estimated because of the uncertainty and large range in visitation and consumer surplus values among users. The contribution of Columbia River origin fish to ocean fisheries is described in Section 3.15.2.1. Because there is considerable uncertainty regarding the overall effects of the alternatives on regional fish populations, and how such changes may affect the management of the fisheries, the specific quantitative and monetized impacts associated with changes in commercial fisheries under the alternatives was limited. This analysis evaluates potential impacts on fisheries by referencing the potential effects on relevant fish populations, as described in Section 3.5.
31769	2	Aaron Lieberman	Idaho Outfitters & Guides Association	THE DEIS IS INADEQUATE TO RESTORE SALMON & STEELHEAD The dEIS Executive Summary acknowledges its impetus as being in response to the need to review and update management of the CRS, including evaluating impacts to resources in the context of new information and changed conditions in the Columbia River basin, and further, that the operation and maintenance of the Columbia River System affects threatened and endangered fish populations within the region, and the co-lead agencies are committed to mitigating these effects. Despite the Congressionally authorized and mandated objectives of the Columbia River Systems Operations, not least the calls from stakeholders across the region for actions that will lead to recovery of listed and endangered Snake River stocks of Salmon and Steelhead, the Preferred Alternative identified in this dEIS fails to put forward operational and structural measures/changes to improve smolt to adult rates (SARs) to levels identified and accepted by scientists as necessary for harvest or recovery. This failure has largely to do with the fact that the dEIS uses the legally discounted No Action Alternative (NAA) as its baseline for relative improvements vis-a-vis Smolt-to-Adult Return (SAR) metrics. To put it very simply, the approach is not dissimilar from a student receiving a failing grade of 50% on a test, then claiming to have rectified the shortfall by an improvement to 55% the next time around. Rather, the dEIS selects strategies already in use and makes small tweaks to reservoir releases in the higher tributaries. Both central approaches in the PA are already in use, and while each has utility in particular cases and in degrees, neither have yielded results approximating Federal obligations to conserve endangered fish populationeven just above extinction-trend levels. The Northwest Power and Conservation Council (NPCC) has identified SAR ranges from 2-6% as necessary for true recovery for anadromous stocks (this range provides a gauge of whether life cycle survival rates can both avoid extinction and make progress toward broad-scale salmon restoration). The NPCC 2%6% SAR objectives are consistent with analyses conducted by PATH, in support of the 2000 Biological Opinion of the Federal Columbia River Power System (FCRPS) found that median SARs of 4% were necessary to meet the National Marine Fisheries Service (NMFS) interim 48-year recovery standard for Snake River spring/summer Chinook; meeting the interim 100-year survival standard required a median SAR of at least 2%. Current SARs for Snake River sp/su chinook sit just under 1%, which is less than half of the minimum SAR range the Northwest Power and Conservation Council has affirmed for multiple years as necessary for maintenance of existing populations. The Comparative Survival Study (CSS) also notes in its 2017 annual report that 1% SAR is associated with population decline. This is a far reach from the mid-to-upper goals of 4-6% SAR identified as population abundance and recovery. 11 It is important to consider survival in all life stages and in certain areas of the Columbia River system when assessing SARs. Snake River sp/su chinook and steelhead consistently display some of the lowest SARs in the Columbia River Basin, despite enduring the same pinniped predation, ocean conditions, and downstream fishing pressure. Studies have displayed that survival rates of sp/su chinook is lower than similar downriver populations that experience fewer dams.12 Despite the dEIS claiming that juvenile survival is high through the lower Snake River, the 2019 CSS report estimates 48% juvenile survival from Lower Granite dam to Bonneville Dam for Snake River steelhead from 1994-2019. Snake River chinook survival is estimated only slightly better at 54% on average. The CSS Report noted that the risk of mortality increase by about 12% of each powerhouse encounter a juvenile salmon experiences.13 This CSS report does not even account for mortality in reservoirs. Additionally, there is evidence that Snake River chinook suffer substantial delayed mortality as a result of their outmigration experience in the smolt stage.14 Management actions taken in the Preferred Alternative estimate high-end SARs for Snake River sp/ su chinook to reach 2.7%. The anticipated SAR for Snake River Steelhead under the Preferred Alternative is worse still at 2.4%. The Life Cycle Model predicts a potential extinction trajectory under the PA with a SAR below 1%, with Snake River sp/su chinook SARs predicted at a troubling 0.81%. Beginning in 2013 the Comparative Survival Study (CSS) workgroup began developing life cycle models for the purpose of examining survival at specific life stages, which is a critical component of NOAAs Biological Opinion on the operation of the Federal Columbia River Hydrosystem. This modeling provides integrated assessments of tributary smolt production, main-stem passage survival, ocean survival, and smolt to adult return rates. At the request of the Federal Action Agencies, the CSS used the Grande Ronde Life Cycle Model and the cohort-specific model to analyze six federal operational alternatives for the Columbia River Systems Operations (CRSO) Environmental Impact Statement (EIS), using the 80-year water record. The Fish Passage Center conducted the analyses of the alternatives in this dEIS through the Comparative Survival Study (CSS). The analyses concluded that the Preferred Alternative results	It should be noted that the 2-6% Smolt-to-Adult return (SAR) target referenced in this comment refers to the Northwest Power and Conservation Council (Council) target for broad-sense recovery and is separate and distinct from the obligations of any single entity or in this case a requirement to be met solely by the co-lead agencies. Just as the Councils fish and wildlife program encompasses both federal and non-federal stakeholders in the Columbia Basin, the Councils recovery goals are shared by many parties. Based on the Preferred Alternative analysis, it will make a substantial contribution, but the Councils broad sense recovery goals are beyond the scope of this EIS, which focuses on the effects associated with the operation and maintenance of the 14 CRS projects. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species as that is a broader goal with shared responsibility. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. The effects of delayed mortality are discussed throughout the EIS analysis for each alternative and current high quality data and the best available scientific information was used for this analysis. Based on analysis by the CSS, SARs associated with population declines (SARs of less than 1%) have the potential to be greatly reduced under the Preferred Alternative, and on average, SARs are expected to be well above 2.0% for Snake River spring Chinook salmon and steelhead. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. The co-lead agencies conclude the expected outcomes for salmon and steelhead associated with MO3 are appropriately acknowledged and framed appropriately with impacts to other authorized purposes.

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				in a SAR that is less than one percent 36-39% of the time for yearling chinook and steelhead, while MO3 results in a SAR less than one percent only 12-19% of the time. The MO3 yields SARs greater than two percent up to 68% of the time compared to the PA of 37% of the time. CONCLUSION This dEIS demonstrates an immensely expensive exercise in marginal revisionism. It follows in the wake of five previous plans, all of which were invalidated by courts as inadequate for meeting fish & wildlife conservation objectives and hence illegal. in the most recent 2016 ruling, US District Judge Michael Simons writes Despite billions of dollars spent on these efforts, the listed species continue to be in a perilous state... The [Federal Columbia River Power System] remains a system that cries out for a new approach. Similarly, The Northwest Power and Conservation Council states that despite $16.3 billion spent on fish and wildlife restoration, all Snake River anadromous fish remain at high risk of extinction.15 Nevertheless, the dEIS stops short of making anything more than marginal changes to existent practices/operations/structures in its Preferred Alternative, in so doing ensuring at best marginal improvements, which will once again fall short of mandated obligations and the will of the people, not least Idahos Outfitters and Guides.	
31771	1	wwpinneys@gmail.com	N/A	The first 2 LSRds need immediate breaching this winter under Emergency policies of the Corps et al, whereas the supplemental EIS to 2002 FR/FEIS for the Snake River can be concurrently drafting for the supplementation, as policy allows under Emergencies. Then the Draft E CRSO can be much readily modified for the more significantly effective Columbia River dam salmon lifestage passage survivals over the pathetic COMPASS and CRS estimates in the 4- Tables of Appendix E, and most of past years' NOAA NWFSC PIT-tag detection modeling reach survival estimation.	If MO3 were selected as the Preferred Alternative, the Corps could use the CRSO EIS as a basis for seeking congressional authority to breach the lower Snake River dams. After receiving both authority and appropriations from Congress, the Corps could initiate a detailed construction and design report for the breach measure, identification of disposal areas, real estate acquisition and disposal, permits, and mitigation requirements, including temporary fish hatchery production. Each of these actions are required prior to breaching, and the Corps does not have the authority or appropriations necessary to immediately breach the project's embankments. More information is available in the Corps Engineering Regulation (ER) 1165-2-119 Water Resources Policies and Authorities, Modifications to Completed Projects (Sept. 20, 1982) or ER 1105-2- 100, Appendix G, Section III Post Authorization Changes.
31771	2	wwpinneys@gmail.com	N/A	Increasing spill is only increasing un-testable, hence un-document-able circulatory pollution of the salmon and steelhead lifestage proportions exposed, as well as eroding critical dam supporting infrastructure for which the Corps or BPA cannot and all-probable will not have capability to fund and repair in time to not substantially wipe out blocks of salmon runs.	There are potential issues related to water quality as a result of increasing spill, specifically the increase of total dissolved gas concentrations to 125% of saturation. The proposed operations and resulting TDG levels will be monitored, along with effects to juvenile and adult salmon. If unintended consequences occur, operations will be adaptively managed as proposed in Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS. The co-lead agencies will also monitor dam structures for erosion, and make any necessary adjustments in operations and repairs as needed.
31771	3	wwpinneys@gmail.com	N/A	Additional discussion v2 for Fatal Flaws of the CRSO DEIS: NAA is 2016 configuration and operation condition of the Federal Columbia River Power system. NAA is Jeopardy to the listed salmon stocks. Previous hydro management has extirpated those other native stock populations that were not listable, principally because they were already extinct, then some were attempted to be replaced through ineffective hatchery mitigation. NAA is grossly negative modified baseline (changing baseline ploy) that was designed in 2008 through 2014 BiOps to relieve salmon and steelhead populations from Jeopardy status. Failure once again through litigation. So, 2018 BiOp, not required by the judgement is just another attempt in following BPA-NOAA strategy model to not have Jeopardy. It is not even NAA, but 2016 with higher spill, which is a negative of at least 10% upon salmon production from NAA. This basically became the Preferred Alternative with more hydropower flex and irrigation contract satisfaction (BoR), all to further detriment of the salmon and steelhead for which it is mandated to protect under ESA. Following BPA-NOAA breaking process model, they will now use the 2018 BiOp they previously devised to apply to satisfy the pre-selected Preferred Alternative, for which that BiOp was really originally devised for. NAA is not the true basecase for Biology/Ecology evaluation to satisfy ESA, only another incremental step that fails ESA. Wild fish are just a mere secondary consideration whereas wild fish are the only basis for ESA compliance. The Action Agencies (I see they no longer prefer this long-held title) need to use the previous court-accepted baseline for comparing the environmental evaluations leading to the Final Preferred and Environmental Alternative decision. Using the legal baseline or basecase Environmental condition, only MO3 with Breaching is acceptable. BPA (who really does own this EIS in their usual bullying, and this one is not really a monies throw-out case because BPA admitted they did not have the monies or the experienced people to throw at this, so they and the Corps and BoR threw those staff that needed something to do and needed funding to continue their working (or at least showing up)), Corps (directed out of Division), BoR (after more irrigation contracts they were not allowed to grant to date, but was in their hopper for decades), AND NOAA (funded under BPA open contracting with usual Univ of WA data-streamers) continue to place themselves and their agencies in quite a quandary because they keep their changing baseline phenom hoaxing so often in flux from not stating or acceptably using the true baseline/basecase and alternative that would get salmon and SRKW out of Jeopardy. Judge ruled that 2016/NAA was/is Jeopardy and BiOp remanded. So, even though 2016 can be the NAA for this CRSO EIS, it cannot be the baseline for comparison toward a Preferred Alternative decision. All those required RPA actions (Reasonable and Prudent Actions) in the previous 2008-2014 base BiOps HAVE NOT been implemented and evaluated, especially the 2010 and post caveat under adaptive management programming that clearly states that if all else added into that BiOp does not perform to increased salmon and steelhead production, escapement numbers, etc to ease out of Jeopardy, then breaching dams starting with LSRds (the final and over delayed experiment in the Adaptive (defined as Experimental to determine what actually works) Management Implementation Plan of 2010 litigation outcome). All EISs and BiOps say this based on the biological data and models. MO4 is increase in spill to 125% Total Dissolved Gas systemwide. It does not state the new Injunction negotiation for flex spill, which was morphed into the Preferred Alternative pre-selection (since the AAs now feel they have some buy-in from litigants, and states and tribes that remain greatly limited in voice by their Accords funding requirements). MO4, just like all MOS and NAA and true baseline, needs to be compared to each other as well as to the spurious NAA. On a side track, the public and the judge should also require an all-H BiOp from an independent NOAA (outside of Pacific Northwest hands) and ISAB expert collaboration since the significance of this issue has grown even so more intensely dramatic. Maybe even Congress and Governors should demand for a long-overdue all-H BiOp simultaneously with calling the LSR an Emergency handled by breaching the 4 LSRds.	The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-lead agencies numerous legal obligations. The Preferred Alternative (PA) is predicted to benefit ESA-listed juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. The PA also meets the other EIS objectives including those for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS the co-lead agencies did not identify MO3 because the PA is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. Under the PA, the CSS model predicts that average Smolt-to-Adult return rates (SARs) will increase for both Snake River spring Chinook and steelhead and will average well above 2% (the lower end of Northwest Power and Conservation Council's recovery targets for the region), increasing SAR from 2.0% to 2.7% for Chinook, a 35% relative increase. The National Marine Fisheries Service (NMFS) COMPASS and Lifecycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. To address uncertainty highlighted by the two models, the PA includes working with regional sovereigns to develop a study that assesses the effectiveness of the increased spill regime on adult returns as well as assessment and management of adverse unintended consequences, such as long delays of adult migrants, or Total Dissolved Gas (TDG)-related mortality of juvenile migrants. See Appendix R, Part 2, Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS, for additional information. The Preferred Alternative will provide a substantial contribution to recovery targets. The co-lead agencies also recognize that there are many effects to salmon and steelhead populations outside the operation of the dams, including those you mention here. Research continues to evaluate the magnitude of these effects. For more information see the NMFS website at: https://www.nwfsc.noaa.gov/research/index.cfm.
31771	4	wwpinneys@gmail.com	N/A	I would also like them to entertain the Max Fish with Breach alternative that I submitted to the CRSO teams, and for which the Policy Team (at that time, all members retired or reassigned soon after my submission) said to Fish Leads they were scared of it, so immediately waste basket filed without any presentation to the Cooperating Agencies. That alt also included non-native piscine predator control through long-proven and established drawdowns over spawning beds and temperature cooling/ habitat restoration drawdowns to spillway crest of John Day and McNary reservoirs, only seasonal during hot climatic periods and spawning timeframes. This has always been a negotiating point of despair in the region. Vast research and evaluation, even accomplished by BPA funded PNNL-Battelle Labs (Department of Energy) and USGS-Cook (a couple PhD dissertations) and Univ of WA open-contractors, all with my collaboration, has scientifically proven up the significant benefits to salmon production, especially that which would feed SRKW and more recently expressed NRKW away from imminent extinction.	The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-lead agencies numerous legal obligations. The Preferred Alternative (PA) is predicted to benefit ESA-listed juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3, which includes breaching the four lower Snake River dams. The PA includes a measure that allows the Corps to manipulate the John Day reservoir elevation to decrease avian predation on ESA-listed juvenile salmon and steelhead in the lower Columbia River. Improving juvenile and adult anadromous salmonids were two of the eight objectives of the CRSO EIS. The co-lead agencies assume that the Max Fish with Breach Alternative you describe is a combination of measures in MO3 with measures in Multiple Objective alternative 4 (MO4). The agencies disagree, however, that an alternative that includes breaching the four lower Snake River dams and spring spill operations to 125% Total Dissolved Gas (TDG) at all four lower Columbia River dams is reasonable given the unacceptable risks to public safety from such an alternative. For power and transmission, MO3 and MO4 individually each caused large loss-of-load probability (LOLP) results (i.e., increased incidence of blackouts). Without major addition of new resources, MO3 would result in power shortages in about one in every seven years. MO4 would produce power shortages in about one in every four years. If MO4 were implemented, in addition to breaching the four lower Snake River projects as called for in MO3, then the LOLP would be even higher, with power shortages potentially occurring almost every year. Additionally, if these MOs were combined, in 5% of the years, the power shortages would average close to 1,000 MW in early August when the region might be experiencing a heatwave with particularly high demand for air conditioning. For perspective, 1,000 aMW is about the average amount of power consumed by Seattle City Light. As shown in Section 3.7, MO3 causes an increase in power reliability concerns in the winter and the summer. MO4 increases power reliability concerns in the summer. Thus, the combination has the largest impact during the summer. The cost of zero-carbon replacement resources for MO3 and MO4 individually are up to $1 billion/year. Resource replacements and associated transmission interconnections for the combination of MO3 and MO4 would be higher, though not likely as high as the sum of the two MOs individually. Assuming that the replacement resources consist largely of wind, solar, and batteries, this would require well over 50 square miles of solar power (more than two and a half times the size of Crater Lake), large areas of new wind generation, and unprecedented amounts of batteries (more batteries in the Northwest alone than the total projection of batteries expected in the entire U.S. by 2023, per the Energy Information Administration). In addition, the reduced generation capability under MO3, particularly throughout the summer, in combination with the impacts of the measures in MO4, and the uncertainty about the characteristics of replacement resources, would result in less capability to provide voltage support and dynamic stability for transmission system reliability than under MO3 or MO4 individually. Thus, combining MO4 with breaching the four lower Snake River projects would produce unreasonable power and transmission reliability impacts, and it is highly speculative that replacement resources could be sited, permitted and built soon enough to address these impacts. This potential alternative has not been evaluated for direct, indirect and cumulative effects to other resources. Thus, an alternative combining juvenile fish passage spill up to 125% and breaching the four lower Snake River dams is unreasonable, and thus was not proposed as an alternative.
31771	5	wwpinneys@gmail.com	N/A	NAA, MO1, MO2, MO4, and Preferred Alternative are all Jeopardy to SRKW. Only an adequate and true baseline using prior-capture conditions and productivity metrics for the LSR and Columbia River, and Salish Sea and Coastal chinook stocks would define the Jeopardy line/standard. ONLY MO3 would be substantially and significantly adequate enough to avoid Jeopardy. The need is management of wild or re-wild populations that produce 30, 40, 50, 60+ lb spawners up to their expanded carrying capacities due to vast miles of restored spawning and rearing habitats that result from Breaching dams and reservoirs. HAVE to get rid of those aging sewers we call reservoirs. Orca scientists/biologists have estimated/calculated how much chinook biomass is required for an individual orca per day, then calculated up to an existing population level and what a recovered population level should be. This metric is the chinook standard for all EISs and BiOps. This is based on the total footprint of chinook productive streams/rivers, including SR, CR, Salish Sea and coastal. Timeframes for overlapping encounter rates define the feeding regimes, as well. Considering all the biological and ecological facts this evaluation must be the baseline in which to compare Preferred alt selection capability for orca non-extinction (survival) and recovery, both required by the ESA. The Snake River chinook population productivity is clearly standing as the most probable and exacting boost to keep SRKW (and other orca populations) out of Jeopardy and significantly through reduced timeframes trending toward recovery. Even though the AAs contriving this CRSO EIS failed to address orca needs (somewhat based in their twisted justifications that the judge did not put his thumb done on their couple of paragraphs on SRKW, the region knows a significantly increased degree of orca data and population/individual starving and death spiraling since the last orca and salmon/steelhead BiOp (no AA EIS exists that addresses SRKW or any orca)). Mitigative (quite a loose term) and minimized hatcheries and their failures and studies cannot be scapegoated for a dreamed response. A full up-to-date truly scientific/biological, not technological, evaluation discussion has to be demanded for sufficient action toward rescue-ing SRKW demographics from extinction in the not-so-forseeable and near immediate future. Weitkamp LA. 2010. Marine Distributions of Chinook Salmon from the West Coast of North America Determined by Coded Wire Tag Recoveries. Transactions of	Regarding dam breach: the EIS analysis found only a minor effect to the Southern Resident killer whale (SRKW) would result from implementing MO3 (which includes the dam breach measure). The overall health and condition of the SRKW depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults form the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differentially from hatchery and wild fish. Hatchery fish today likely make up most fish consumed by SRKW (NOAA BiOp 2020). The EIS has analyzed spill as a measure in the Preferred Alternative and determined the overall effect to SRKW to be negligible in large part because hatchery production is consistent between the No Action Alternative and the Preferred Alternative. Because the impact from the Preferred Alternative was determined to be negligible, the agencies determined that existing hatchery production would be sufficient to address any potential impacts to prey availability for SRKWs. The co-lead agencies note the contribution to the prey of SRKW through the continued existence of their respective independent congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as the Lower Snake River Compensation Plan, which is administered by U.S. Fish and Wildlife Service. The Preferred Alternative and Proposed Action in the agencies' biological assessment carry forward certain mitigation measures described in Chapters 2 and 7 of the EIS, which include continued salmon and steelhead hatchery production. The Preferred Alternative has negligible effects to SRKWs as described in Section 7.7.8.

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				the American Fisheries Society 139:147170. Weitkamp L and D Teel. 2015. Hatchery production and marking rates of juvenile salmon stocks along the West Coast of North America. Presentation at the Salmon Ocean Ecology Meeting, March 24-26, 2015, Victoria, British Columbia. Weitkamp LA, DJ Teel, M Liermann, SA Hinton, DM Van Doornik, and PJ Bentley. 2015. Stock Specific Size and Timing at Ocean Entry of Columbia River Juvenile Salmon and Steelhead: Implications for Early Ocean Growth. Marine and Coastal Fisheries 7:370392. The proposed preferred alternative, as weakly presented, does not even address benefits toward non-Jeopardy for SRKW. Just the usual pooh-pooh jargon of NOAAs now-getting-ridiculously-old and ineffective not enough by itself (which is not a requirement to satisfy ESA), not necessary at this time (although it actually was necessary and required 20+ years ago for both orca and chinook salmon), and/or inconsequential or marginal language spouting. Such a thorough and honest evaluation, as critically reviewed by independent scientists, is legally required in not only the Cumulative Effects section but also its own decision-influencing section/chapter. No more treatment as a second-thought only because people ask in an attempt to satisfy at some minimal level NEPA requirements, as well as continue pressure for us AAs to actually perform our job with truth and honesty. The intent to address and satisfy NEPA and ESA, CWA, MMA, MBA, et al requirements remains at issue here, not the AAs interpretation of being privy to allowance to weaken the required documentation of inconveniences to them. NAA (2016 plan) does not meet/exceed the SR chinook biomass standard/criteria for non-Jeopardy. MO4 fails as well due to the increased spill regimes additive negative effects on SR chinook productivity. MO1 fails, small tweaks to status quo is disgraceful. MO2 fails most as the greatest money-wasting and fish-wasting scam. MO3 is the only passing alternative for enough chinook biomass produced across the foraging spectrum/footprint principally due to the vast extension of required hydraulics and spawning (84 miles of the 140 miles) and rearing habitat (140 miles bankwidth of the 140 miles) that results in only 2-5 years with breaching the 4 LSRds. Breaching needs (necessity) to be NOW, IMMEDIATE, this winter. The Proposed Preferred Alternative is the same old sham and shame full arrogant spit-in-the-face-of-the-judge attempt that has been tried 5 times already. Although the PPA does not even evaluate its implementation effects on SRKW, or even for chinook salmon effects and trends, the PPA will fail the SR chinook biomass standard for orca re-designation toward non-Jeopardy. The PPA is actually a step backward, throwing the usual more study for NOAA staff pet-peeve suggestions they have whined about for years, but not accepted by AAs due to ineffectiveness and minor inconsequential benefits and unrealistic/highly uncertain means of such operation even having the hydraulics and salmon cues to have any benefit. Until now, grasping at short straws. Sound familiar. PPA actually modifies MO4 spill to 125% TDG to flex spill and includes it. This manipulation is actually a reduction in the former bandaid placed on the same festering cancer. The litigation outcome should not only breach LSRDs, but also require what was imposed on the tobacco industry to break their 1970s-1990 strategy model paying for education of the truth across vast mediums, including a blatant and discriminating advertisement program of TV ads and billboards et al where they apologize for their mafia-ism, tell the truth graphically, and put a very large Warning to Health statement on all remaining dams and other electric power generating infrastructure. Admit that hydro is truly not clean or renewable energy source, but destroys ecosystem health, species health and existence, and public health. 20 years ago as a Corps Walla Walla District senior fishery biologist and population lifecycle modeler I wrote the scientifically robust justification for the selection of Alt 4 Breaching Lower Snake River dams in 2002 Feasibility Study/EIS. The Draft FS/EIS and the Draft Biological Opinion from NMFS selected to start the breaching process ASAP since enough wild salmon and steelhead remained to give a hint of hope for recovery. The vast acreage of restored spawning and rearing habitat function, hydraulic function, and productivity released from under those long-past aged reservoirs would ensure the only sustainable boosting required for recovery. After a rather emotional strong-arming of NMFS agency heads to switch to kicking-the-can-down the dead-end road by Corps officers (and BPA even though BPA was actually only a Cooperating Agency, soon to morph beyond their marketing mandate into the other 'sister' agency's puppetmaster). Three more lawsuit loses later addressing the same laws, acts, and regulations only evolved into worthless and costly (to taxpayer and ratepayer) mitigation of increasing spill bandages, structural passage bandages needing expensive repairs routinely, and the sneaking in of factory hatchery as 'naturals' to supplant wild production which serves as illegal practices to satisfy ESA; all leading to salmon and steelhead escapement (of which wild spawning component is near non-existent following this 20+ years of non-leadership for actually caring for both the salmon and fisher groups and the Federal and State environmental laws and acts for which NEPA requires. The CRSO EIS brings more of the same, but an even weaker and saddening farce. Breaching alt4 was moved to a weakened MO3 where lower Columbia River actions to benefit to salmon have been eliminated or reduced in their hopes of Poison Pilling the significant long-term recovery potential for salmon and steelhead for which the judge just simply "required" in the BPA and Corps interpretation. These agencies no longer fear the press and egging-of-their-red-faces from litigation for doing the wrong strategy because after nearly 6 marginalizations attempted at not losing in court they know they will just have to 'do it over again' with additional funding and years of time until they get their extinct salmon and steelhead for which they planned for. FIX MO3 NOW, implement MO3 this fall. Legally analyze >2 paragraphs for SRKW.	
31771	8	wwpinneys@gmail.com	N/A	Also, include statements that this cold snap peaking farce operations of breaking their own regulations for rapid peaking cannot physically be done for hot day periods in summer irregardless of fish passage requirements and the same low flows that limit such peaking (or any higher power gen) during the cold snap. In late summer, Reservoir Control negotiates emergency cut-offs for spill when inflows [greater than or] approaching 11 kcfs and need to go to station power single turbine. At/near this point the water is too hot (over 68 deg F and up to/exceeding 80 degrees F recorded recently) and water velocity too slow in forebays and reservoirs (instead of the ~1 fps in higher average flows, velocities can be only to of 1 fps = stagnant except in that single operating turbine of maybe 1-2 fps at most) for any fish exposure times leading to lethargy and mortality.	The co-lead agencies will only interrupt fish protection measures to avoid a power system emergency based on established protocols that have been developed and coordinated with regional fish experts through the Technical Management Team (TMT). Any additional available flexibility within fish protection measures is available for use as needed, but must often be coordinated through the TMT unless expressly provided for the annual Fish Passage Plan (FPP), including the annual Fish Operations Plan (FOP). Prior to any interruption of fish protection measures Bonneville will have taken all available options (see TMT Emergency Protocols, Appendix 1 of the annual Water Management Plan). Even with these restrictions in place, the CRS, including the lower Snake River projects, is generally available to respond in the event of a power system reliability event. Cold snap operations are typically outside of the fish passage season where sufficient flexibility exists to meet the power system needs and avoid interruption of fish protection measures. The co-lead agencies do not agree with the characterization that Reservoir Control negotiates emergency cut-offs for spill. The Corps follows the guidelines in the FOP and FPP for low flow operations. It should also be noted that water temperature below Lower Granite Dam did not exceed 72 degrees F in 2015, which was the lowest flow and highest water temperature year in recent years. Even with low flow and increased water temperatures that can occur in late summer, the reservoirs support sub-yearling fall Chinook that reside in the reservoirs in the summer and resume migration in the spring as yearlings.
31771	9	wwpinneys@gmail.com	N/A	In support of Fish Passage Centers write-up on the new turbine design at Ice harbor unit 2 only being worst not better than the original (and existing other 5 turbine units)Wrong and unscientific when survival testing is based on 1) sensor fish of PNNL-Battelle (Daniel Deng lab) due to known/proven/well established to have problems once they are in a turbulent environments, especially where there is drop and following the first hit/strike of hardness, resulting in self-induced tumbling, spinning, end-over-end flipping, etc giving spurious garbage data (proven in the raised spillbay weir tests and actually suspended after fight for throwing that data out of the first attempted test (maybe tags only good for pressure changes); 2) ERDC physical turbine models based on released beads strike numbers/proportions and where along blades and gaps that the beads strike; 3) balloon tag tests (and extrapolations from other tests of traditional designs, etc) for which these tags only give trauma and physical damage (ripped operculum, etc, broken spines, etc) as recollected immediately at turbine exit opening4) differential in pressure (atm) spiking distribution, magnitude, etc between old 5 blade and new 6 blade turbine; and 5) or which no one ever addresses except Martin Amman and me, is that each sample must enter and pass through the same wicket gate adjustments and draft tubes whether its a new or old turbine design. This concentrated and highly turbulent unstable velocity forced-circling determines location and speed each fish intersects the blades and hub and has been found to be likely the most influential parameter for fish conditioning. FPC is correct that even the Corps best guess on survival due new bladed unit would not be any better and highly probable worst than old units, and the next move would be pulling diversion screens so the high proportion of fish would remain through the turbine instead of the bypass, and multiplying higher proportion against a same or lesser survival term would equal less survival. AND this is why Division and BPA strongly fought against District doing a direct fish survival study Drawdown Comparative Analysis: 1) At MOP there is 52 feet of water vertically to the spillway crest elevation of 681 ft. 1992 DD Test lowest fsml was 697 ft, about 16 feet of water above the spillway crest ogee resulting in free-flow through the bays. This would actually not be that bad for smolt passage, free-flow nap and immediate tailwater was pretty laminar green water, not air filled white water (LGR was constructed with flip-lips). Your Scenario (Sc) 1 is only 3 feet above spillway crest ogee and Sc2 after 5 days of peaking operation the forebay elev is 10 ft above spillway crest ogee elev (msl). Conclusion: peaking operation is even quite a bit more dramatic than the 1992 DD Test operation and peaking would be yo-yo-ing daily to a eroding degree where 1992 DD was held for about a week then refilled, resulting in a one-time excursion. Damage due to evacuating groundwater to roads, turbidity, etc is greater during a yo-yo-ing operation, thus requiring more expensive and beefier repairs/avoidance means. This is precisely one of the engineering reasons why the Corps design team always moved toward permanent breaching to natural river channel and ecological/hydraulic function. You may want/need to adjust for Full Pool operating point of reference, as in your modeling?	Sensor fish successfully identified and played a significant role in solving spillway passage injuries at both The Dalles and Ice Harbor dams. Although certainly not a perfect analogue for a fish, their motions are controlled by the hydraulics of the water and structure impact and therefore do provide a measure of the physical environment fish are passing through. Less violent sheer and turbulence is obviously a benefit for fish. Balloon tags best represent the potential for trauma to passing fish and not total mortality. Certainly, fewer traumatic injuries would lead to a lower mortality rate. The commenter incorrectly states the wicket gate assembly and draft tubes are the same as the old turbines. The stay vanes have been modified to decrease the probability of fish strike and for fish to pass through the gap between the stay vanes and wicket gates. The draft tube was modified to decrease turbulence, and eliminate recirculation within the draft tube that could bring fish back to the turbine blades after passing most of the turbine. Again, these modifications will be positive for passing fish. The magnitude of the survival rate increase for naturally passing fish is unknown. Relying on the best available science, the co-lead agencies assumed mortality would be halved. The opinion that mortality would be increased relies on an assumption that more fish would pass the turbine because of the increased hydraulic capacity. It should be noted that only the turbines planned for McNary dam have increased hydraulic capacity. In any event, the amount of water passing through the powerhouse is actually controlled by operation decisions on spill levels, and is not solely dependent on the hydraulic capacity of the turbines. Turbine intake screens would not be removed unless a telemetry based survival study demonstrates survival would not be decreased.
31771	10	wwpinneys@gmail.com	N/A	The CRSO EIS Draft Proposed Alternative is proposing some winter spill in lost ability hopes for overshooting adult pre-spawning steelhead and fall chinook that need winter return vector back to their downriver natal tributaries, all the way to John Day. 3) If Corps operated at drawing down with spilling at near spillway crest, it would result in a substantial benefit to salmon and steelhead production towards recovery over what has occurred as wasteful practices in operational adjustments tweaking the old status quo for a near same new status quo. It would also eliminate the ridiculous smolt transport welfare-to-nmfs program that for over 40 years in development has not proven any sustained benefit to Snake River salmonid production (SARs are or + <1% in a small moving range highly dependent on how bad the river conditions are, or higher spill TDG supersaturation/reservoir passage temperatures near lethality maybe can pull out an inconsequential gain in transport SAR. All has resulted in meaningless arguments to avoid spill and breaching. My point here is that the 1992 DD test was purposely performed in March when the least number of juvenile salmonids would be present, and actually migrating smolts were not present. Dworshak was entraining/emitting/passing from its reservoir winter held kokanee that got counted as	While drawdown to MOP was considered as part of MO4, drawdown to spillway crest was not. The co-lead agencies are required to evaluate a reasonable range of alternatives in the EIS. However, when there are potentially a very large number of alternatives, only a reasonable number of examples, covering the full spectrum of alternatives, must be analyzed and compared in the EIS. Alternatives for this EIS were developed from measures identified during public scoping, regional forums with scientists and technical experts from cooperating agencies, and expert opinion from within the co-lead agencies and in relevant literature. These alternatives represent a reasonable range of alternatives for the maintenance, configuration, and operation of the CRS.

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				mortalities stranded on exposed shorelines downstream, as well as some emerging fall chinook and rearing spring chinook parr out of the subbasins. The cold snaps contrived peaking periods in the CRSO EIS for which this (max peak ability not realistic little ramp up ability) scam has been developed are now occurring in early- to mid-March (2017, 2019)So, same overlap in time, so, similar effects reasonably expected on anadromous fish between peak and 1992 DD scenarios, EXCEPT the rate and duration and magnitude of reservoir evacuation as alluded to earlier, AND the CRSO peaking operation would have NO spill to move fish out of the turbines for those low number of early migrators (most likely still in some rearing form and if moved by forced hydraulics they would end up in a worse rearing environment in the next manipulated reservoir downriver. For fish and ecology--Once you draw down to spillway crest elevation drawdown it is best to just operate there and not raise the pools, avoid surging/pulsing as the flex spill would also do. Remember 1992 DD Test was a very short-term effect (with little to no anad fish present) for a significant long-term benefit to anad fish production if it became seasonal or permanent. Yo-yo-ing to an ultimate spillway crest water surface elevation would only result in a higher degree of false cues and conditions for which pre-smolts would have to over-stress to until they are eaten. In such conditions many studies have documented pre-smolts and smolts trying to swim upriver within the reservoirs in order to locate that positive rheotaxis hydraulic condition cue for which they evolved to discover.	
31771	11	wwpinneys@gmail.com	N/A	Review of peaking power capability analysis: Average rate of drawdown for each 10 day peaking sequence would in 9.4 ft/day for Sc1 and 6.6 ft/day for Sc2. For 10 hour long draws at a rate of <1 ft/hr to ~.7 ft/hr, both less than the established 2 ft/day of the 1992 DD Test that was estimated as most comfortable to result in the least degree of erosion and bank/water table dependent damage and failure. So, your model used the .7-1 ft/hr draws on the reservoir? With 5 hrs of refill to some less-than-target pool elevation. Even with the realization that the BPA contrived a worst case scenario operation utilizing an unrealistic and feasible peaking scenario just to generate some politician ignorant swaying in their economics of chicken-little-ing, would the expected erosion/damage be comparable to the relatively minor (and easily fixable) damage due to the 1992 DD Test at/throughout Lower Granite dam and pool, where 1992 scenario was a more steadily paced draw that was both binned and continuous for a period of hours each day at less than 1/2 the rate, then held a little higher in elevation for about 2 weeks? BPA just needs a little come-to-Jesus confession that they are contriving to get to that enormous economic modifying figure, and they have never and would never do this peaking because it would never be needed using the Snake River dams alone, and would be easily sucked up in the existing power gridding. Why else have a grid? Forced to face the facts of increments (possibly?) of what the 2017 and 2019 operations truly were. This is the same old bluff similarly used for their longstanding foregone power revenue loss due the spill for fish negotiated operations, for which they include in their dreamed-up over-inflated mitigation costs even though they never actually needed or intended to generate that lost power, but used as leverage in their economic analysis.	The commenter may be conflating two different issues. Drawdown for dam breaching in MO3 would occur at a rate of 2 feet/day to minimize erosion (see Section 2.4.5.1 in the Draft EIS). This drawdown rate is not determined for power generation. In fact, power generation would cease at these projects within in the first day or two of drawdown when the water levels would no longer be high enough to operate the turbines. For the MO3 (based on the 2002 EIS), draw down would start in August with subsequent breach occurring in October (see Section 2.4.5.1.). The typical rate of reservoir draw down averaged 2 feet per day down to a minimum flow passage elevation with a total draw down range of 80 to 110 feet at each of the four lower Snake River dam sites over a period of ten weeks. The pool would hold at this elevation for a period of days to allow for removal of the earthen portion of the dam and construction of the bypass channels before a final dam breaching action would occur. In other alternatives, the lower Snake River projects operate within a 3- to 5-foot elevation range in the fall and winter, and within a 1-or 1.5-foot elevation range during the fish passage season. Bonneville does use this small operating range to peak, i.e. to increase generation for brief periods of high demand when conditions permit.
31775	1	golc@critfc.org	Columbia River Inter-Tribal Fish Commission	CRITFC was created by and provides technical and policy coordination services to the Confederated Tribes of the Warm Springs Reservation of Oregon, the Confederated Tribes of the Umatilla Indian Reservation, the Confederated Tribes and Bands of the Yakama Nation, and the Nez Perce Tribe. These four tribes possess rights they reserved by treaties with the federal government to take a fair share of those fish destined to pass their usual and accustomed fishing places in the Interior Columbia River Basin. Inherent in the right to take fish is the conservation and protection of the fishery resource. Under their Treaties of June 1855, the tribes reserved for themselves and their members the right to take fish at all usual and accustomed areas. Tribal members have fished on the Columbia River for subsistence, ceremonial and commercial purposes since time immemorial. The Supreme Court of the United States has repeatedly recognized the significance of the treaty reserved right to fish at off-reservation usual and accustomed places, holding that the right is not much less necessary to the existence of the Indians than the atmosphere they breathed. Washington v. Washington State Comml Pass. Fishing Vessel, 443 U.S. 658, 680, 99 S. Ct. 3055, 3071-3072 (1978), quoting United States v. Winans, 198 U.S. 371, 380 (1905). This treaty right to fish is a property right, protected by the Fifth Amendment to the Constitution of the United States. See Muckleshoot Indian Tribe v. United Sates Corps of Engineers, 698 F.Supp. 1504, 1510 (W.D. Wash. 1988), citing Menominee Tribe of Indians v. United States, 391 U.S 404, 411-412, 88 S.Ct. 1705, 1710-1711 (1968). The treaties also create a federal trust responsibility under which the federal government maintains an affirmative obligation to safeguard the subject matter of federal treaties. Thus, federal agencies must use their authorities in a manner that will protect and enhance-- not degrade – the fish species that underlie treaty fishing rights. Further, [i]n carrying out its fiduciary duty, it is the government's, and subsequently the Corps', responsibility to ensure that Indian treaty rights are given full effect. NW Seafarms v. US Army Corps, 931 F.Supp. 1515, CRITFC DEIS Comments April 13, 2020 Page 2 of 59 1520 (W.D.Wash. 1996), citing, Seminole Nation v. United States, 316 U.S. 286, 296-97, 62 S. Ct. 1049, 1054-55, 86 L. Ed. 1480, 86 L. Ed. 1777 (1942) (finding that the United States owes the highest fiduciary duty to protect Indian contract rights as embodied by treaties). This duty does not cease once a fish run becomes viable. Tribal members must be allowed to achieve their "moderate living," even if this living standard may only be achieved by allowing the tribes to enjoy the "same level of exclusive use and exploitation" they had at the time the treaty was signed. United States v. Adair, 723 F.2d 1394 (9th Cir. 1984) cert. denied, 467 U.S. 1252 (1984). In short, the Tribe has an absolute right to a fair share of the fish destined to pass tribal fishing places. U.S. v. Oregon (Sohappy v. Smith), 302 F. Supp. 899 911 (D.Or. 1969). These fish include those artificially propagated for rebuilding, mitigation and enhancement purposes. United States v. Washington, 759 F.2d 1353 (9th Cir. 1985)(en banc) (holding that hatchery-reared fish are fish within meaning of treaty fishing clause and subject to allocation thereunder). CRITFC worked with and supported the CTUIRs participation as a Cooperating Agency in the CRSO EIS study. As a Cooperating Agency the CTUIR submitted comments to the co-lead agencies on draft products as they were produced, including but not limited to draft EIS chapters, the December 2019 Administrative Draft EIS, and the January 2020 draft Preferred Alternative. All of the CRITFC and CTUIR comments submitted on those products, and throughout the CRSO EIS study process, are incorporated as if restated in these comments on the DEIS.	The co-lead agencies acknowledge that the four Native American Tribes identified in the comment have protected treaty rights, including the right to fish at usual and accustomed (U&A) fishing sites, and the federal government has certain trust responsibilities concerning those treaty rights/resources. The co-lead agencies do not believe the Preferred Alternative identified in the CRSO Draft EIS would impair reserved tribal treaty rights, including the right to fish at U&A sites. Additionally, the co-lead agencies are using their authorities and available resources in a manner intended to conserve and enhance fish species.
31775	2	golc@critfc.org	Columbia River Inter-Tribal Fish Commission	II. Executive Summary The DEIS is a product of a failed process. It suffers from structural flaws. These structural flaws include, but are not limited to, overly narrow purpose and goal statement, overly narrow Affected Environment, inconsistent and improper modeling analyses, and the absence of fishery impacts analyses. The DEIS is also in inadequate due to incomplete and improper cultural resources analyses, poor analyses of mitigation and questionable assumptions.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA listed species. The co-lead agencies disagree that the Purpose and Need Statement is too narrow given the wide breadth of resource and legal and institutional purposes it encompasses. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-lead agencies numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives) as well as the EIS objectives for: resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. The Preferred Alternative is also more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. The co-lead agencies relied on current, high quality information in the evaluation of effects to resources affected by CRS operations, maintenance and configuration. Alternatives to include changes to harvest are not within the scope of this EIS. The assumptions regarding harvest are taken from the 2018 EIS from NOAA and reflect current harvest management guidelines. To see their conclusions and effects analyses please go to: https://www.fisheries.noaa.gov/resource/document/environmental-impact-statement-programmatic-review-harvest-actions-salmon-and. For harvest, fisheries in the Columbia River Basin and those that rely upon Columbia River fish stocks are managed by numerous entities, including Federal, state, and tribal governments. These entities are guided by a complex array of policies, laws, compacts, and agreements. The management of Pacific salmon fisheries in particular is complex, and involves numerous entities representing a variety of social, political, and conservation interests. Changes in allowable fishery harvest in the Columbia River Basin are a result of decisions made by state, Federal (i.e., NMFS), and tribal fishery managers based on a variety of environmental, biological, economic, and social factors. The three co-lead agencies (Corps, Reclamation, and Bonneville) do not manage fish stocks, and do not have the authority to do so. The EIS does analyze, however, impacts to fisheries are analyzed in Section 3.15 and 7.7.17. In the Draft EIS, the co-lead agencies used a property-based definition of "cultural resources" as this is consistent with Federal laws and regulations, which focus on specific bounded properties. The co-lead agencies also view the cultural resources study area as adequate to conduct a comparative impact analysis on cultural resources across the No Action Alternatives and the Multiple Objective alternatives (MOs). Tribal interests and holistic perspectives on the integration of Native American culture with the environment were addressed throughout the EIS and by inclusion of statements from the Tribes. The co-lead agencies note that many of the traditional cultural properties (TCPs) analyzed in the Draft EIS incorporate elements of the natural environment. Please see Section 3.16.2.6 for the traditional cultural resource types, many of which explicitly include hunting, fishing, and gathering areas, Section 3.17.2 for Tribal Perspectives Summaries, and Section 3.17.3 for Tribal Interests. Additionally, the EIS evaluates social and economic effects as well as effects to the natural and physical environment consistent with 40 C.F.R. 1508.14 and 1508.8. For additional information on mitigation, see Chapters 5 and 7.
31775	3	golc@critfc.org	Columbia River Inter-Tribal Fish Commission	The DEIS also does not appropriately incorporate tribal sovereign perspectives.	Tribal input, concerns, interests, and especially treaty rights were considered throughout the development of the Draft EIS analyses and in the formulation of the Preferred Alternative. Please see the Tribal discussion in the Executive Summary, the Tribal Perspectives Section of 3.17 and submittals from Tribes in full in Appendix P. Effects to resources are discussed in Section 3.17.2, Tribal Perspectives Summaries.
31775	4	golc@critfc.org	Columbia River Inter-Tribal Fish Commission	The DEIS also fails to adequately address Indian Trust Assets.	The co-lead agencies have analyzed Indian Trust Assets consistent with applicable statutes, regulations, and guidance.
31775	5	golc@critfc.org	Columbia River Inter-	The DEIS further suffers from a bias in favor of power generation and flood control throughout. In sum, the DEIS fails to disclose and analyze significant considerations that are part of the fabric of laws and policies that address the protection mitigation and enhancement of fish affected by the development and continued operation of the CRSO A.	The EIS evaluated beneficial and adverse effects across an array of resource areas including potential effects at the national, regional and local level; effects are monetized and quantified, where possible, and also described qualitatively. As is common in NEPA analyses, the beneficial and adverse effects of the alternatives are expressed as a variety of qualitative and quantitative environmental and economic metrics throughout the EIS to inform decision-making, including the effects of the alternatives on fish as detailed in Section 3.5. That the effects of the alternatives on fish are not expressed as monetized economic values does not mean that they were not considered in the context of the analysis. The EIS does not employ a cost-

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			Tribal Fish Commission		benefit framework for decision-making (see 40 C.F.R. 1502.23). Instead, the EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives) as well as meets the EIS objectives for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy.
31775	6	golc@critfc.org	Columbia River Inter-Tribal Fish Commission	Failed Cooperation and Collaboration Limited the Disclosure and Analyses of Significant Issues The process for assembling and analyzing the alternatives failed to distinguish truly significant issues from non-significant issues. There was also a failure of cooperative consultation, which should be emphasized in a NEPA process. 40 CFR 1501.1(b). Tribal Cooperating Agencies were expected to raise questions about the environmental reviews and information gaps. 40 CRITFC DEIS Comments April 13, 2020 Page 3 of 59 CFR 1503.3 (c). Questions tribal cooperating agencies raised throughout the process, and comments submitted, were often disregarded or ignored by the staff of the co-lead agencies (US Army Corps of Engineers, Bureau of reclamation and Bonneville Power Administration) leading the EIS process. In the end, the co-leads provided virtually no feedback to cooperating agencies whether our comments and suggestions were incorporated in the analysis or not, and why or why not.1 The timeline for the CRSO EIS also precluded transparent and meaningful analysis, review, dialogue and collaboration. The Trump administrations October 2018 Executive Memorandum on Promoting the Reliable Supply and Delivery of Water in the West, arbitrarily imposed an inadequate timeline on the development of the CRSO EIS, shortening the timeline established by the United States District Court for the District of Oregon. The current comment deadline fell during spring First Foods ceremonies, the day after Easter, and during Passover. Moreover, the tribes and other sovereigns in Pacific Northwest are prioritizing the health and safety of the people in responding to the COVID-19 emergency. Since February 28, more than 20,000 people within the United States have died as a result of COVID-19 infections. https://www.cdc.gov/coronavirus/2019-ncov/cases-updates/cases-in-us.html (last visited April 12, 2020). Adherence to the CRSO timeline and associated comment deadlines during the COVID-19 pandemic further compounded the flaws of the DEIS. As a result of the COVID-19 pandemic, elected officials have little time for policy consideration of the DEIS. Mandated social distancing measures prevent meaningful government-to-government consultation on the DEIS. The broad disruption caused by the COVID-19 emergency frustrated the ability of the tribes and the public to provide input on the DEIS. Despite these complications, the federal government refused to suspend the CRSO EIS process or extend the public comment deadline, despite repeated requests by multiple sovereigns.	The co-lead agencies invited a number of entities (including Tribes, states, and agencies) from across the region to participate in the EIS process as cooperating agencies, and over 30 of those invited agreed to participate. Staff from the cooperating agencies joined the technical teams and provided their expertise and review of the development and analysis of the alternatives. Leaders from the co-lead agencies met with Tribal leaders for formal consultation, and with other organizations and stakeholders to have dialogue and receive feedback as the EIS progressed. The co-lead agencies selected senior staff from across the country with expertise in their fields to serve on the EIS team. The Draft EIS was subject to two internal agency reviews by the Corps of Engineers experts not involved in the development of the document. Additionally, the entire document, analysis, and modeling were reviewed following an Independent External Peer Review (IEPR) process that meets OMB circular on peer review requirements under the "Information Quality Act" and the Final Information Quality Bulletin for Peer Review by the Office of Management and Budget (referred to as the "OMB Peer Review Bulletin). It also meets guidance for the implementation of both Sections 2034 and 2035 of the Water Resources Development Act (WRDA) of 2007 (Public Law (P.L.) 110-114) and standards of the National Academy of Sciences independent peer review. The final IEPR report will be publicly available. The co-lead agencies considered requests to extend the public comment period. This NEPA process included a wide array of cooperating agencies whose close involvement throughout the process allowed the co-lead agencies to incorporate feedback. Given the broad range of comments received and the extensive Federal and non-Federal participation in the overall process as well as the level of public engagement in the six virtual public hearings in the region, the co-lead agencies determined that an extension was not warranted and that the 45-day public comment period was adequate consistent with NEPA regulations. On April 9, the CRSO EIS website was updated to inform the public that they should plan to submit comments by the close of the comment period.
31775	7	golc@critfc.org	Columbia River Inter-Tribal Fish Commission	B. Structural Flaws Obscured Meaningful Review of Alternatives, Impacts and Benefits Many of the structural flaws in the DEIS are broad and are programmatic or policy in nature. These flaws typically affect more than one chapter of the DEIS. These flaws include a narrow purpose and need statement, a failure to study all reasonable or viable alternatives, and a lack of rational explanations for alternatives not studied. Further, much of the DEIS suffers from a preference for technical detail over analysis of the programmatic issues, including but not limited to the Columbia River Fish Mitigation (CRFM) program, lamprey restoration program, and the analysis for Upper Columbia salmon and steelhead stocks. Another structural flaw is that the co-lead agencies incomplete or inaccurate understanding of 1 A draft matrix responding to tribal comments on the administrative draft EIS was provided to the tribes on Friday afternoon, April 10, less than one business day before tribal comments were due on the DEIS.	Chapter 2 describes the process of developing measures and alternatives for the EIS, based on input from public on the EIS scoping process, co-lead agencies' and cooperating agencies' expertise. Each alternative was based on the framework of meeting eight objectives and the EIS Purpose and Need Statement. As is common in NEPA analyses, the beneficial and adverse effects of the alternatives are expressed as a variety of qualitative and quantitative environmental and economic metrics throughout the EIS to inform decision-making, including the effects of the alternatives is detailed in Chapters 3, 4, 5, 6, and 7. The EIS was drafted to address specific operations, configurations, and maintenance of 14 projects in the CRS and make a recommendation for future operations to be implemented in the Record of Decision. It is not a programmatic EIS. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-lead agencies numerous legal obligations. The Preferred Alternative is predicted to benefit ESA-listed juvenile and adult anadromous salmonids (two of the objectives) as well as the objectives for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. Table 7-1 in Chapter 7 in the Draft EIS provides a summary of the beneficial and adverse effects of the alternatives, including the quantified social welfare costs and benefits for a number of the resource areas as well as the implementation costs of the alternatives. To achieve a broad range of alternatives, the co-lead agencies collaborated with cooperating agencies in teams of technical experts through several iterations to create 12 alternatives that could meet the CRSO EIS Purpose and Need Statement: first, the eight single objective alternatives (SOs), and then four Multiple Objective alternatives (MOs). After completing the effort to develop the SOs and MOs, the co-lead agencies evaluated all 12 alternatives against screening criteria of completeness and efficiency. Completeness was used to evaluate the extent to which a given alternative provides and accounts for all actions to meet most or all objectives, and thereby satisfying the Purpose and Need Statement. Efficiency was considered as how well (without duplication of effort) an alternative would meet objectives. Usually, cost effectiveness is part of this consideration, but costs were not available at the early screening of alternatives. In this case, efficiency was based on efficiency of analysis of measures and the elimination of duplication of effort. A detailed descriptions of the single objective alternatives and their measures are located in Appendix A, Alternatives Development. A description of the alternatives removed from further consideration is in Section 2.4. The co-lead agencies recognize the importance of Pacific lamprey and will continue to work with CRITFC, CRITFC member tribes, and regional entities through existing frameworks such as the Corps-Tribal Lamprey Work Group, the Pacific Lamprey Conservation Initiative and the Corps Regional Forum workgroups (e.g., FFDRWG) to implement ongoing programs, as well as the lamprey measures described in the Preferred Alternative. The analyses completed and described in this Draft EIS were for the purposes of comparing the effects of the multiple objective alternatives for operation, maintenance, and configuration of the CRS projects to one another and to the No Action Alternative. The measures in the Draft EIS to meet the objective of improving conditions for Pacific lamprey were developed to address issues described in the Affected Environment and Effects of the No Action Alternative. These measures were designed to work in concert with the ongoing mitigation programs related to lamprey, such as habitat restoration, reintroduction and translocation, and other efforts. Measures identified in the Draft EIS do not include all lamprey passage improvements that could be potentially implemented at the lower Columbia and lower Snake River dams, but the Corps believes that potential actions contemplated in preliminary lamprey program planning discussions with CRITFC staff and others related to the 2018 Accords Extensions are consistent with the measures and analyses included in the Draft EIS. CRITFC is correct that actions beyond the scope of the measures included in the Draft EIS or ongoing activities would potentially require further NEPA analysis. Lamprey measures identified in the Draft EIS (and similar operational or structural measures) do not include research, monitoring or evaluation actions that may be needed to refine passage designs, inform operations, or address critical uncertainties. This includes the juvenile lamprey and adult lamprey migration behavior and fate studies identified in the 2018 Accords Extensions and in subsequent program planning and coordination discussions with CRITFC and others. For the purposes of the Draft EIS, measures must address known operational and structural issues, but this does not preclude development and implementation of future juvenile and adult lamprey studies. For Columbia River System dams, it is accurate to note that CRFM annual appropriations have declined over the past couple years and are projected to remain lower into the near future. However, a reduced reliance on the CRFM program into the future is a result of significant investments in construction of components of the dams for the benefit of improved salmon passage. The Corps CRS fish program is now transitioning to a program that is expected to be primarily sustained through long-term Operations and Maintenance funding. For future construction requirements aimed at improving anadromous fish passage throughout the CRS, the Corps will continue to express capability in the annual budgeting process. Implementation of all measures including lamprey measures is dependent on funding availability. In 2020, the Corps did receive $20M in funding to implement actions contemplated in the 2018 Accords Extensions. As noted by CRITFC, and in similar comments from CTUIR, the Corps is currently refining cost estimates and developing a preliminary implementation plan for this $20M program. The Corps will continue to coordinate closely with CRITFC and other Accords tribes on prioritization of actions within this program and will continue to ensure consistency with measures identified and analyzed in the Draft EIS. Additional information on CRFM is included in Chapters 2, 5 and 7 of the EIS.
31775	8	golc@critfc.org	Columbia River Inter-Tribal Fish Commission	CRITFC DEIS Comments April 13, 2020 Page 4 of 59 the CSS, COMPASS and HEC-WAT analytical models resulted in a confusing, albeit detailed, assemblage of model results without clear analysis of their implications, limitations and relevance to the objectives of each alternative.	The co-lead agencies followed standard NEPA practices when laying out the various components of their analysis. Fish modeling results are presented in chapter 3.5, which HEC-WAT results are presented under the water quality sections. Effects of the No Action Alternative, the MOs, as well as the Preferred Alternative are summarized in Chapter 7.
31775	9	golc@critfc.org	Columbia River Inter-Tribal Fish Commission	Additionally, the DEIS fails to analyze impacts to fishery management or harvest opportunity. The tribal harvest should be included in the baseline. The lack of harvest opportunity analysis runs counter to the Tribal Perspectives of the Columbia River Treaty Tribes, as well as the goals for non-Indian fisheries (and the corresponding economic effects of the non-Indian fisheries).	The EIS recognizes the value of commercial as well as recreational fishing to the region. Section 3.15 describes the values associated with fisheries in the Pacific Northwest. Section 3.11 characterizes recreational fishing activities in the region. However, the uncertainty regarding the overall effects of the alternatives on regional fish populations, and how such changes may affect the management of the fisheries, limits a quantitative analysis of the specific impacts of each alternative on these values. The effects are therefore discussed qualitatively.
31775	10	golc@critfc.org	Columbia River Inter-Tribal Fish Commission	The discussions in the Affected Environment sections do not meaningfully depict the nature and extent of the impacts that the Basins hydro system has had on the Columbia Basins anadromous fish. Meaningfully depicting these impacts cannot be avoided. Under NEPA, regardless of the selection of the baseline, all cumulative effects must be revealed.	Consistent with the Council on Environmental Quality's (CEQ) June 24, 2005 guidance and interpretation of CEQ Regulations for Implementing the Procedural Provisions of NEPA, 40 C.F.R parts 1500-1508, "Agencies are not required to list or analyze the effects of individual past actions unless such information is necessary to describe the cumulative effect of all past actions combined. Generally agencies can conduct an adequate cumulative effects analysis by focusing on the current aggregate effects of past actions without delving into the historical details of individual past actions." The cumulative effects analysis in the EIS adequately considers the ongoing effects of the existence of the system to anadromous fish and other resources affected by the CRS.
31775	11	golc@critfc.org	Columbia River Inter-Tribal Fish Commission	C. Poor Analysis of Mitigation The CEQ regulations concerning mitigation describe several types of mitigation actions at 40 CFR 1508.20. As pointed out in the DEIS, these include rectifying the affected environment and compensating for the impacts to resources of concern. The omission of ongoing mitigation from the DEIS and the limited scope of proposed mitigation are major issues that need to be rectified. Further, there is no alignment of identified impacts with proposed mitigation. Specific impacts are identified in Affected Environment, but there is no reference to those impacts in Mitigation chapter. The mitigation chapter does not reflect the significant input requested of, and provided by, the Cooperating Agencies. Finally, the DEIS uses the No Action Alternative (NAA) as a baseline for mitigation obligations. This NAA was already deemed inadequate by the District of Oregon. The DEIS fails to present any alternative with adequate mitigation measures.	NEPA requires that all relevant, reasonable mitigation measures that could diminish the adverse impacts of the project be identified in the document, even if they are outside the jurisdiction of the lead agency or the cooperating agencies. See 40 C.F.R. 1502.16(h) and 1505.2(c); 46 Fed. Reg. 18026. The inclusion of mitigation measures in Chapter 5 is not intended to indicate that the co-lead agencies, or the Federal government as a whole, have the authority to perform all of the measures listed. If the measures are outside the jurisdiction of the co-lead agencies, those measures will not be included in the Preferred Alternative or Record of Decision (ROD). Their inclusion in Chapter 5 serves to alert other agencies, officials, and the public who can implement the measures to the potential benefits of the measure. Moreover, ongoing mitigation actions, such as the Bonneville's Fish and Wildlife Program, are included in Chapters 2, 5 and 7, and all additional mitigation proposed in Chapters 5 and 7 relates to the effects analysis in Chapters 3, 4, 6, and 7. NEPA does not require identification of mitigation for the continuation of the No Action Alternative. The co-lead agencies, in coordination with technical teams, including the cooperating agencies, compiled lists of all potential suites of mitigation measures. Then, in comparison of the effects of each alternative to the No Action Alternative, highlighted where there were minor, moderate, and major adverse effects. If adverse effects were negligible or minor but otherwise not measurable, and the resource did not otherwise have institutional or legal significance (i.e. wetlands), then mitigation was not proposed. If, when compared to the No Action Alternative, there were moderate or adverse effects, the teams proposed mitigation measures of appropriate scale and effect. The suite of potential mitigation measures the team used were in the mitigation tool box (Appendix R, Part 3), which also presents rationales for not carrying forward mitigation measures.
31775	12	golc@critfc.org	Columbia River Inter-Tribal Fish Commission	D. Bias in Language and Model Results Improperly Influenced Results As noted above, the DEIS fails to adequately explain the differences between COMPASS and the CSS data and complexity, and what those differences mean for the model results. Further, the description of model effects is biased and inconsistent, in favor of uses and objectives other than fish and wildlife. This is also apparent in the level of detail given to various impacts. For example, the Executive Summary goes into great detail on impacts to power rates from the measures, but only gives a general discussion for other affected purposes.	The Comparative Survival Study model was run by the Fish Passage Center; and the COMPASS and Life Cycle models were run by the National Marine Fisheries Service's Northwest Fisheries Science Center for the co-lead agencies. Regarding the SARS model, the hatchery fish are one of many components that are aggregated into the forecasts from historically-observed SARS. The models do not have inputs for the hatchery or harvest rates. Different models predict different long-term survival benefits to ESA listed species from dam breach, benefits that can contribute to recovery. Under the NMFS COMPASS model, juvenile Snake River Spring/Summer Chinook in-river survival would improve by 9.6% due to dam breach, which is a 19% relative increase over the No Action Alternative. The NMFS Lifecycle Model predicts an increase in adult returns of 13.6% for these same fish under MO3 (no latent mortality assumed) relative to the No Action Alternative (from 0.88% to 1%). Results for Snake River steelhead are similar (10% absolute improvement, or 23% relative juvenile survival increase - Smolt-to-Adult returns (SARs) for steelhead were not modeled). Under the CSS model, juvenile in-river survival for the Snake River Spring/Summer Chinook is predicted to improve by 10.4% due to dam breach, which is an 18% relative increase over the No Action Alternative, while SARs would increase by 115% (from 2% to 4.2% 0.02 to 0.042). The CSS model predicts that Snake River steelhead would see juvenile survival increase by 25.8% which is a 46% relative increase over the No Action Alternative. The CSS model also predicts that SAR increase by 177% (from 1.8% to 5%). Though differing in predictions, both modeling groups predict dam breaching is the best CRSO EIS alternative for salmon and steelhead. One simply predicts adult return increases an order of magnitude higher than the other.

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					The EIS concluded MO3 would have greater improvement to certain salmon species in the lower Snake River. It did not conclude there was greater certainty of that result in MO3 over any other alternative. The conclusions were based on the ranges predicted in two independent models that have different parameters and limitations in their predictive capabilities. Because of delayed response time in MO3, and the potential severity of the short term effects, MO3 would likely have the most substantial uncertainty in terms of beneficial effects. The EIS evaluated beneficial and adverse effects across an array of resource areas including potential effects at the national, regional and local level; effects are monetized and quantified, where possible, and also described qualitatively. As is common in NEPA analyses, the beneficial and adverse effects of the alternatives are expressed as a variety of qualitative and quantitative environmental and economic metrics throughout the EIS to inform decision-making, including the effects of the alternatives on fish as detailed in Section 3.5.
31775	13	golc@critfc.org	Columbia River Inter-Tribal Fish Commission	E. Other Flaws Other flaws noted in the body of these comments include, but are not limited to inadequate definitions and analyses of cultural resources, sacred sites and Indian Trust Assets; inadequate and illogical water temperature model results that are inconsistent with other federal agency models; inconsistent comparisons of effects to objectives, and inconsistent time and geographic scope analyses between objectives.	In the Draft EIS, the co-lead agencies used a property-based definition of "cultural resources" as this is consistent with Federal laws and regulations, which focus on specific bounded properties. The co-lead agencies also view the cultural resources study area as adequate to conduct a comparative impact analysis on cultural resources across the No Action Alternatives and the Multiple Objective alternatives (MOs). Tribal interests and holistic perspectives on the integration of Native American culture with the environment were addressed throughout the EIS and by inclusion of statements from the Tribes. The co-lead agencies note that many of the traditional cultural properties (TCPs) analyzed in the Draft EIS incorporate elements of the natural environment. Please see Section 3.16.2.6 for the traditional cultural resource types, many of which explicitly include hunting, fishing, and gathering areas, Section 3.17.2 for Tribal Perspectives Summaries, and Section 3.17.3 for Tribal Interests. Additionally, the EIS evaluates social and economic effects as well as effects to the natural and physical environment consistent with 40 C.F.R. 1508.14 and 1508.8. Indian Trust Assets are analyzed in Section 3.17.1. Given the importance to the Tribes of these resources, which do not meet the Department of Interior's definition of an Indian Trust Asset, effects to those resources are discussed in Section 3.17.2, Tribal Perspectives Summaries. The co-lead agencies disagree with your statement that the water temperature analysis is inadequate or illogical, but the co-lead agencies agree with your concern relating to water temperatures in the Columbia and Snake rivers and that is why the agencies have used the highest quality information and resources available to model and evaluate impacts from operations described in each of the alternatives on water temperatures. The EIS analysis indicates that the operations of the CRS do effect water temperature, but the CRS has limited ability to reduce temperatures in the lower Snake and Columbia rivers outside of Dworshak operations. Regionally, high air and water temperatures result in water quality standard exceedances that are beyond the ability of the CRS to cool. Temperature in the Snake River upstream of the confluence with the Clearwater River often exceeds state water quality standards. Drier and warmer years such as 2015, as summarized in National Marine Fisheries Services 2015 Adult Sockeye Salmon Passage Report (September 2016, National Marine Fisheries Service document) point out that tributary temperatures in the Okanogan and Salmon rivers were above 25C. The EPA is the lead agency on developing the temperature TMDL, and in doing so will evaluate the impact of all anthropogenic and natural sources of heat in the Columbia and Snake rivers. In contrast, the Draft EIS evaluated the impact of several actions the co-lead agencies could take and their impact on river temperatures as they relate to current and historic river temperatures. Thus the Draft EIS did realistically and clearly analyze, to the extent practicable, whether operation of the CRS is contributing to compliance with the water quality standards as compared to historic river temperatures. In addition to investigating the operational impacts on water temperature, the co-lead agencies have taken other actions to address water temperature impacts on fish passage. Cooling water pumps have been installed at Lower Granite and Little Goose adult passage ladders to reduce temperature differentials between ladder and river and to reduce thermal stress during upstream passage. Additional considerations at other locations are included in the Draft EIS. In addition, the co-lead agencies are actively working on implementing the recommendations identified in NMFS' 2015 Adult Sockeye Salmon Passage Report (September 2016, National Marine Fisheries Service document) to improve management decision-making and reduce, to the extent practicable, the adverse impacts of high summer temperatures on migrating salmon, including adult sockeye salmon. Finally, the temporal scope of the EIS is assumed to be 25 years from the signing of the Record of Decision (ROD) in order to have a similar period of analysis for comparison of effects across resources for all multiple objective alternatives (with the exception of the socioeconomic-related resource analysis - 50 years). The accuracy and reliability of climate change information was also a consideration for determining the temporal scope. The co-lead agencies would continue to re-asses the operations and maintenance of the CRS at regular intervals to ensure that accurate and high quality information is considered in managing the CRS.
31775	14	golc@critfc.org	Columbia River Inter-Tribal Fish Commission	In addition, the DEIS omits analysis of compliance with other environmental statutes, such as the Endangered Species Act and Northwest Power Act. CRITFC DEIS Comments April 13, 2020 Page 5 of 59	Chapter 8 describes how the project is complying with all appliable laws including the Endangered Species Act and Northwest Power Act.
31775	15	golc@critfc.org	Columbia River Inter-Tribal Fish Commission	The Preferred Alternative (PA) and Biological Assessment (BA) do little for fish survival as compared to the No Action Alternative (NAA). Model runs from NOAA models do not demonstrate a benefit from the NAA and the Proposed Action. When compared against the flex spill that is currently in place, the Preferred Alternative appears to be a step backward for fish survival. These shortcomings, and others are discussed below. CRITFC DEIS Comments April 13, 2020 Page 6 of 59	The Preferred Alternative is analyzed in comparison to the No Action Alternative, not to the 2019 /2020 flex spill operation, but nevertheless, the co-lead agencies do not agree that the Preferred Alternative is a step backward in terms of survival. Based on our analysis of the Preferred Alternative, it will make a substantial contribution to improving Snake River anadromous fish runs, but broad sense recovery goals are beyond the scope of this EIS which focuses on the effects associated with the operation, maintenance, and configuration of the 14 CRS projects. The co-lead agencies used current high-quality information in the analysis of the CRSO EIS. Specific to salmon and steelhead, the agencies used two primary modeling approaches which yielded a range of potential outcomes for the alternatives. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% (within the Northwest Power and Conservation Council recovery targets for the region) as a result of the Preferred Alternative. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality.
31775	16	golc@critfc.org	Columbia River Inter-Tribal Fish Commission	III. Failed Cooperation and Collaboration with Cooperating Agencies NEPA implementation should emphasize cooperative consultation among agencies. 40 CFR 1501.1(b). At a minimum, consultation is a dialogue where information is shared. As cooperating agencies, we were expected to raise questions about needing additional information to fulfill our environmental reviews. 40 CFR 1503.3 (c). Our cooperative agency experience was far from what these NEPA regulations envision. Exploration of issues during scoping, regardless of significance, were typically allocated five minutes for discussion on a conference call convened with more than 40 participants. There was little opportunity for collaborative dialogue among subject matter experts from the cooperating agencies and co-lead federal agencies.	The co-lead agencies invited a number of entities (including Tribes, states, and agencies) from across the region to participate in the EIS process as cooperating agencies, and over 30 of those invited agreed to participate. Staff from the Cooperating Agencies joined the technical teams and provided their expertise and review of the development and analysis of the alternatives. Leaders from the co-lead agencies met with Tribal leaders for formal consultation, and with other organizations and stakeholders to have dialogue and receive feedback as the EIS progressed. However, only the co-lead agencies have authority to make decisions regarding future operation, maintenance and configuration of the dams in the CRS system. The co-lead agencies selected senior staff from across the country with expertise in their fields to serve on the EIS team. The draft EIS was subjected to two internal agency reviews by the Corps of Engineers experts not involved in the development of the document. Additionally, the entire document, analysis, and modeling were reviewed following an Independent External Peer Review (IEPR) process that meets OMB circular on peer review requirements under the "Information Quality Act" and the Final Information Quality Bulletin for Peer Review by the Office of Management and Budget (referred to as the "OMB Peer Review Bulletin). It also meets guidance for the implementation of both Sections 2034 and 2035 of the Water Resources Development Act (WRDA) of 2007 (Public Law (P.L.) 110-114) and standards of the National Academy of Sciences independent peer review. The final IEPR report will be publicly available.
31775	17	golc@critfc.org	Columbia River Inter-Tribal Fish Commission	The process for assembling and analyzing the alternatives seems to have failed to discern truly significant issues from non-significant issues. This was due to the nature by which information was collected by the co-lead federal agencies, which seemed to have be based on accumulating detail for minor actions, rather than collaboratively developing a shared understanding of the programmatically integrated suite of measures that have already been implemented and using these as a departure point for future plans. Multi-Objective Alternatives were developed and reworked when Single Objective Alternatives were unilaterally dropped by the co-lead agencies with no input from the cooperating agencies.	The EIS was developed to allow the co-lead agencies to operate the CRS to meet congressionally-authorized purposes for the next 25 years. The co-lead agencies conducted a robust scoping effort, and included regional agencies and Tribes in the development and analysis of alternatives. There were numerous opportunities for stakeholders to identify issues that they believe to be significant, and the co-lead agencies considered all comments submitted during scoping. Fundamentally, the EIS was developed to analyze options for future operation of the system to meet authorized purposes, and the Purpose and Need Statement and the range of alternatives reflect that requirement.
31775	18	golc@critfc.org	Columbia River Inter-Tribal Fish Commission	Questions throughout the process could not be asked in technical workgroups, but needed to be directed to the NEPA policy team. We eventually came to understand that this team was comprised of the designated NEPA leads for the co-lead federal agencies. When the cooperating agencies convened their own meetings for collaborative scientific discussion, the co-lead agencies issued a written admonishment directing that no cooperating agency should provide information, or collect, assemble, or analyze data related to the CSRO EIS unless specifically requested by the co-lead agencies. The co-lead agencies opined instead that, if we needed assistance identifying and developing specific applicable information, collecting or assembling relevant data, and analyzing data related to these areas, we knew which cooperating agency to contact.2 Technical input from individual cooperating agencies was directed to continue to be formatted into cells in an Excel spreadsheet, which aided input-tracking but did not create any dialogue with the cooperating agencies. 2 Undated letter from Frances E. Coffey, Director of Programs USACE to Cooperating Agency distributed by email on July 11, 2019. CRITFC DEIS Comments April 13, 2020 Page 7 of 59	The co-lead agencies selected senior staff from across the country with expertise in their fields to serve on the EIS team. The CRSO EIS technical teams included experts from across over 30 cooperating agencies. Ultimately, the co-lead agencies are responsible for selecting and implementing an alternative. The rationale for doing so is presented throughout Chapter 7, which identifies a Preferred Alternative based on weighing the benefits in achieving the Purpose and Need Statement and EIS objectives while considering the potential adverse effects to the human and natural environment. With such large co-lead agency and cooperating agency teams, the co-lead agencies used spreadsheets to ensure the cooperating agency comments were captured accurately, so the co-lead agencies could respond, appropriately. As for analysis conducted outside of the CRSO EIS process, any use of predecisional information developed as part of the CRSO EIS process is inappropriate and a violation of the MOU signed by cooperating agencies, as discussed in the letter sent to the cooperating agencies at the time.
31775	19	golc@critfc.org	Columbia River Inter-Tribal Fish Commission	IV. Scope and Foundation of the EIS A. The Purpose and Need Statement and Objectives are Improperly Narrow The co-lead agencies constructed improperly narrow Purpose and Need Statement and Objectives for the DEIS. As written, these essentially prescribe a status quo outcome. In doing so, the co-lead agencies effectively ignored the May 4, 2016, District of Oregon Order where Judge Simon specifically charged the action agencies with preparing an EIS to take a hard look at the programmatic plan to offset the adverse effects of the FCRPS on native fish species and affirmed that the CRS cries out for a major overhaul in terms of fish survival rates. Instead, the Objectives of the DEIS, or the statements of the desired outcome of the EIS, merely strive for actions considered in the EIS to improve listed salmonids within the CRS: Improve ESA-listed anadromous salmonid juvenile fish rearing, passage, and survival within the CRS through actions including but not limited to project configuration, flow management, spill operations, and water quality management. (Improve Juvenile Salmon) Improve ESA-listed anadromous salmonid adult fish migration within the CRS through actions including but not limited to project configuration, flow management, spill operations, and water quality management. (Improve Adult Salmon) These objectives, by their explicit terms, do not include ESA, NWPA or treaty rights compliance. As a result of these narrow objectives, probabilities of survival and recovery of listed salmonids (ESA compliance) were not analyzed in the DEIS. Its noteworthy that they are not analyzed in the draft BA either. Similarly, alternative "offsite mitigation" measures (a term of art under the Northwest Power Act in 16 USC 839b(h)(8)(A)) were not analyzed in the DEIS.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA listed species. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-lead agencies numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. The Preferred Alternative also meets the EIS objectives for: resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS the co-lead agencies did not identify MO3 because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. The EIS concluded MO3, which includes breaching the four lower Snake River dams would have greater improvement to certain salmon species in the lower Snake River. It did not, however, conclude there was greater certainty of that result in MO3 over any other alternative. Because of delayed response time in MO3, and the potential severity of the short term effects, MO3 would likely have the most substantial uncertainty in terms of beneficial effects. Regarding the Preferred Alternative, this alternative is not simply a minor change to operations and maintenance of the CRS. The spill operation for juvenile fish passage in the Preferred Alternative is a significant departure from previous operations, so much so that the Washington and Oregon state water quality standards had to be changed to implement the new spill regime. The CSS model predicts that average Smolt-to-Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% (the lower end of Northwest Power and Conservation Council's recovery targets for the region) as a result of the Preferred Alternative, as a result of the Preferred Alternative increasing SAR from 2.0% to 2.7% for Chinook, a 35% relative increase. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. To address uncertainty highlighted by the two models, the Preferred Alternative includes working with regional sovereigns to develop a study that assess the effectiveness of the increased spill regime on adult returns as well as assessment and management of adverse unintended consequences, such as long delays of adult migrants, or TDG-related mortality of juvenile migrants. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information. Based on the analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the CRS. This EIS has been developed in consultation with National Marine Fisheries Service (NMFS) and U.S. Fish and Wildlife Service (USFWS) to find an acceptable balance that allows the co-lead agencies to meet the Purpose and Need Statement while minimizing impacts to affected ESA-listed species and their habitats. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. The comment suggests that alternative offsite mitigation measures were not analyzed in the Draft EIS. Many of the mitigation programs funded by the co-lead agencies consist of offsite mitigation. Bonneville's Fish and Wildlife Program is primarily an off-site mitigation or enhancement program. See 16 U.S.C. 839b(h)(8)(A). In other words, Bonneville funds off-site enhancement, not mitigation at the dams. Bonneville's Fish and Wildlife Program is first described in section 2.4.2 as an existing program under the No Action Alternative that will continue. This section provides a high-level overview of Bonneville's Fish and Wildlife Program, many of its major subprograms and their benefits, including habitat actions, hatchery actions, predator management, lamprey research and mitigation, and wildlife mitigation. Section 2.4.2 also describes some of the many CRS improvements and the associated

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					benefits for fish. In addition to this overview of Bonneville's Fish and Wildlife Program, the description of the affected environment throughout the relevant sections in Chapter 3 of the EIS, by definition, reflects the effects of past and ongoing mitigation efforts, even if they are not itemized or highlighted as being the results of a specific mitigation effort. NEPA does not require the agencies to distinguish the past and ongoing effects of all the mitigation projects Bonneville has funded over the 40-year history of the Northwest Power Act, particularly given that Bonneville now uses over 600 contracts annually to implement its Fish and Wildlife Program. In addition, the Agencies 2020 CRS Biological Assessment includes analysis of the implementation and effectiveness of both tributary habitat restoration actions and the CRS overhaul. Tribal input, concerns, interests, and especially treaty rights were considered throughout the Draft EIS analyses and in the formulation of the Preferred Alternative. Treaty specific information is included in Section 3.17 as well as Chapter 7. The treaties bind all parties and are the supreme law of the land. The co-lead agencies recognize and respect that supremacy. In terms of honoring our treaty obligations, the co-lead agencies included "Protecting Native American treaty and reserved rights and fulfilling trust obligations for natural and cultural resources throughout the environment affected by the Columbia River System operations" as a purpose in the Purpose and Need Statement in Chapter 1 to ensure treaty obligations were a key consideration of decision making. Chapter 8 demonstrates the co-lead agencies' compliance with applicable laws, including the ESA and the Northwest Power Act.
31775	20	golc@critfc.org	Columbia River Inter-Tribal Fish Commission	B. The Current Conditions and Programs under the NAA are not Adequately Described or Analyzed The DEIS fails to disclose that AMIP Safe-Guards Under the current Biological Opinion had been triggered. Late in 2019, NOAA notified the region that Adaptive Management Implementation Plan (AMIP) safe-guards (low adult returns had been meet for Snake River steelhead and were likely to be met for Upper Columbia River Steelhead. Yet, the DEIS fails to meaningfully disclose and analyze this underlying biological condition. Moreover, the PA and BA should ensure that additional measures and safe-guards to improve and protect adult returns be implemented, but they do not. The tribes are working with NOAA to identify further AMIP actions, such as more kelt collection and reconditioning, and avian hazing at Miller Rocks. We have also asked the co-lead agencies to accelerate actions for which they have authority to do CRITFC DEIS Comments April 13, 2020 Page 8 of 59 (now) to reduce avian predation on listed Upper Columbia and Snake River stock, e.g., implementing the John Day reservoir operation this year, 2020. Again, the co-lead agencies have failed to move-out on any of these actions, nor have they included new actions in the DEIS Proposed Action. Notably, the DEIS PA identifies only two actions (the flex spill operation, and the John Day reservoir operations to reduce nesting at the Blalock Island) to improve the survival of all ESA listed species, including those that have already triggered the AMIP safe-guards	The co-lead agencies discussed current status of AMIP triggers on lines 7236-7243 in the Draft EIS. The co-lead agencies reviewed the Rapid Response Actions identified in the AMIP and note that several actions were implemented in recent years that are likely to increase abundance and productivity. In particular, the co-lead agencies implemented spring juvenile fish passage spill operations that exceeded the performance standard spill operations developed in coordination with NMFS. These operations are part of the 2019-2021 Spill Operation Agreement with the states of Oregon and Washington and the Nez Perce Tribe to increase spill levels with the intention to benefit juvenile salmonids, while offsetting impacts to power generation and operational feasibility. Increased levels of spill were also implemented in 2020. The co-lead agencies have also started transport in 2018 and 2019 earlier than in the past, with the intended benefit of increasing the rates of Snake River steelhead transportation. Moreover, the co-lead agencies are also taking many steps to curtail predation of ESA-listed salmonids by a variety of predators, including pinnipeds, avian predators, and Northern pikeminnow. The co-lead agencies worked with regional stakeholders and enabled additional collection of Snake River steelhead kelts for subsequent reconditioning at Little Goose Dam. That operation was subsequently affected by access restrictions due to COVID-19 response but is expected to resume. The co-lead agencies did not implement modifications to John Day pool operations as those are the focus of this Draft EIS review and are proposed for inclusion in the Preferred Alternative. If warranted, additional kelt collection may continue to be implemented after current ESA consultation and NEPA consultation have completed. Adaptive management to address these types of issues will continue to be a point of emphasis for the co-lead agencies. Finally, the agencies are continuing their efforts in funding hatchery programs to preserve and rebuild the genetic resources of ESA-listed salmon and steelhead in the Columbia and Snake River basins. The BA includes similar safe-guards that were identified under the amended 2008 NMFS BiOp Adaptive Management Implementation Plan (AMIP; refer to Section 2.6.4, Adaptive Management and Contingency Actions). Actions such as spill, bypass, and transport operations at mainstem Snake and Columbia River projects will continue to be adaptively managed based on results of biological studies and monitoring information. These results will be discussed, and operations modified in collaboration with Federal, state, and Tribal sovereigns through the Regional Forum, to ensure expected benefits to salmon and steelhead are being met based on the best available scientific information. One example of this commitment is to continue kelt reconditioning in years of low steelhead returns. Additionally, the Preferred Alternative does call for actions that are different from those that have been implemented in the past: Flexible spill. One major change that the Preferred Alternative represents is a new spill operation (flexible spill), which would test an innovative approach to balancing fish benefits and energy goals by spilling more water in the spring for juvenile fish passage. The intent of flexible spill is to increase spill when the projected value of power is relatively low, pass higher proportions of fish through the spillway, and spill less water for limited durations when the projected value of power is relatively higher (e.g., during peak power demand). The flexible spill operation creates an opportunity for a major potential benefit to salmon and steelhead through increased spill, as indicated by the CSS model, while avoiding many of the adverse effects to power generation and reliability associated with juvenile spill operations analyzed in MO4. The flexible spill operation in the Preferred Alternative would be implemented through an adaptive framework that allows the co-lead agencies to adjust operations as new information emerges as detailed in Appendix R. While the flexible spill operation was originally initiated under the 2019-2021 Spill Operation Agreement, this type of operation is a major change from the No Action Alternative and how the co-lead agencies have operated the system historically. Increased spill. As part of the flexible spill operation, we would increase planned spill up to 125% total dissolved gas levels at some projects, which is the new state water quality standard for the maximum allowable total dissolved gas limit. Previous state water quality standards limited juvenile fish passage spill to lower amounts of spill. The goal of higher spill is to increase the number of juvenile fish passing through the spillways, in lieu of the powerhouse bypass systems and turbines, which is predicted to result in increased adult fish returns. Extensive regional collaboration. The flexible spill operation included as part of the Preferred Alternative is a result of extensive regional collaboration. Negotiations for the 2019-2021 Spill Operation Agreement began in the summer of 2018. The parties to the original agreement included the co-lead agencies, the states of Oregon and Washington, and the Nez Perce Tribe. The Preferred Alternative intended to build off of the collaboration fostered through the agreement and apply that to the existing regional coordination processes (Regional Forum). Other changes. The Preferred Alternative also contains measures to benefit resident fish, as well as lamprey, while providing reliable flood risk management, water supply for irrigation, and flexibility in hydropower generation that would be valuable for integrating wind and solar energy. Specific details of the Federal obligation: The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the Columbia River System. That call, however, is ultimately the role of NMFS and the USFWS. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. The Preferred Alternative is nevertheless predicted to benefit salmon and steelhead. It also meets all the other objectives of the CRSO EIS for resident fish, hydropower, water management, and water supply, while minimizing adverse impacts to communities and the economy.
31775	21	golc@critfc.org	Columbia River Inter-Tribal Fish Commission	C. The Alternative Selection Process was Flawed and Omitted Important Measures and Considerations from Disclosure and Analysis Section 2.3 of the DEIS suggests that cooperating agencies were collaborated with during the alternative selection process. This was not the case. While cooperating agencies were invited to suggest discrete measures that could be included in alternatives, strategic decisions about the content of the single and multiple-objective alternatives (MOs) were made by processes completely internal to the co-lead agencies; in no way was the process collaborative. Likewise, the decision to remove single-objective alternatives (SOs) and revamp the multi-objective alternatives was completed solely within the co-lead agencies own internal processes. The slight exception was MO4, which was presented for consideration by the Nez Perce Tribe. However, here the co-lead agencies significantly amended MO4 from what the Nez Perce submitted without coordination with the tribe. The co-lead agencies built their alternatives out of various narrow measures upon the theory that the alternatives would then provide (1) bookends of impacts i.e., the extremes; and (2) modularity the ability to decipher which measures were driving various impacts. This approach assumed that ultimately, a preferred alternative could be built out of the various measures with known impacts. However, this effort failed for multiple reasons: The focus on specific actions, or measures, failed to consider important programmatic efforts relevant to the CRSO (discussed more below). Due to the condensed schedule for completing the EIS, the Single Objective alternatives (SOs) were eventually dropped from the analyses. These SOs would have presented a better bookend review. Multi-Objective (MO) combinations obfuscated useful conclusions. All the MOs were formulated in a way that produced similar results from the biological modeling. For instance, MO3 negates the benefits of breach by reducing spill in the lower river; MO4 takes away from the fish benefits of 125% TDG by reducing spring and summer flows through changed reservoir operation. This obfuscation runs counter to the public disclosure requirements of NEPA. The effects analysis of the MOs did not evaluate the component measures within each of the MOs, making it difficult to identify which components of an MO provide benefits for fish versus which are a detriment. Additionally, some measures within MOs, especially MO4, were written with biases that preclude a thorough comparison of the alternatives. CRITFC DEIS Comments April 13, 2020 Page 9 of 59 MO4 uses a hard constraint for flow augmentation as measured at McNary Dam versus the target constraint used in NAA and MO1 and analyzed in previous biological opinions. Inclusion of the hard constraint exaggerated the power impacts of the alternative, masking the power effects of max spill. This makes MO4 look unreasonable due to significant cost, extensive reservoir drainage and increased impacts to resident fish. The description of the McNary flow target measure in MO4 is insufficient to disclose the significant impact of the hard flow constraint on the alternative as a whole. MO4 also failed to limit spill at Bonneville to 150Kcfs. Such is a structural limitation of the facility and it is unrealistic to assume that the Corps would exceed this spill level, and capricious then to include such in hydro and fish modeling. The tail-race erosion concerns at Bonneville Dam are well-known and limit spill to below 150 Kcfs. 3 Without this limit, the alternatives appear to spill more than is realistic, this makes the results for both the power cost analyses and smolt to adult returns (SAR) effects artificially high. In this way, the alternatives are not reasonable, and the results biased. Moreover, the EISs reliance on bookends and modularity precluded evaluation of several reasonable alternatives: A true breach or natural river alternative was not analyzed. MO3 the breaching alternative negates the fish benefits of breaching of the Snake River Dams by, among other actions, decreasing spill in the lower river, thus precluding a true analysis of the potential benefits of breaching on Snake River stocks. A true breach/ natural river alternative would include lower river spill supportive of juvenile fish passage, adequate spring flows, and optimize Dworshak flow release schedules to regulate water temperature as was included in MO1. The DEIS does not explain why these measures were omitted from MO3, particularly in light of the District Courts order. Realistically implementable operations were not analyzed. As formulated, none of the four MOs provide a balanced, standalone operation or were ever intended to be considered as the final action as written. An optimized spill operation was not considered in the DEIS. Such operation was requested during scoping and would have looked dam-by-dam at optimal and balanced spill operations that provide the best passage for fish while considering power needs. The current Flex Spill operation. While the proposed alternative eventually incorporated the 2020 Flex Spill operation (with significant unilateral changes), a reasonable analysis 3 The 150 kcfs spill limitation has been implemented to safe-guard the spillway to reduce erosion and reduce the risk of	Section 2.2 of the Executive Summary of the EIS specifically states that the cooperating agencies contributed to the EIS by providing information, participating on technical teams, and reviewing draft documents. It does not state that the cooperating agencies collaborated in the alternative selection process. However, they did participate in the review and prioritization of measures within them. The MOU signed by cooperators specifically states that the co-lead agencies maintain responsibility for decisions. Regarding alternatives, the preliminary analysis of the Single-Objective (SO) alternatives informed the development of the Multiple-Objective (MO) alternatives. However, the SO alternatives were not developed as viable, complete solutions, as they were focused on only one resource and would not provide the comprehensive management strategy needed for the multi-purpose CRS or would the SOs meet the Purpose and Need Statement. The SOs did provide bookends, as you noted, for example regarding effects of various spill regimes, and the team used them in that way. Ultimately, the range of alternatives needed to provide realistic options for meeting competing project purposes and congressional authorities. See Appendix A for more information. Finally, the co-lead agencies adequately evaluated breaching the four lower Snake River dams with 120% fish passage spill at the lower Columbia River Projects. The measure to adjust Dworshak releases under MO1 was ineffective as discussed in Section 3.4, and that was why it was not carried forward into the Preferred Alternative.

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				dam failure, yet the DEIS disregards this limitation and models spill in excess of 150 kcfs. In a response to comments we received from the co-lead agencies DEIS team (late Friday, April 10, less than 3 days until our comments are due) the comments acknowledged that this was not a mistake and that the DEIS wanted this damaging level of spill as bookend. This is counter to the co-lead agencies own Fish Passage Plan which limits volunteer spill to 150 kcfs to safe guard the spillway. So, it is illogical and a waste valuable time modeling an operation that is that could severely damage power operations at Bonneville, The Dalles and John Day dams. Worst yet, this misleading operation baises the results and makes each alternative where the 150 Kcfs limitation disappears worst from an economic standpoint. It seems that the co-lead agencies were gaming the process to manipulate the outcome. CRITFC DEIS Comments April 13, 2020 Page 10 of 59 of alternatives would have included the flex spill operation as an MO so the results were available for consideration in developing a preferred alternative. The EIS analysis was a chance to take a hard look at a new approach to CRS management and the opportunity to evaluate a practical suite of measures or reasonable alternatives for achieving the DEIS objectives. The DEIS does not provide a rational explanation for its failure to do so.	
31775	22	golc@critfc.org	Columbia River Inter-Tribal Fish Commission	D. The DEIS Fails to Disclose and Analyze Important Operational and Structural Modifications to the Hydrosystem Proposed During Scoping. In the tribes initial scoping comments, we indicated that the EIS should consider a range of system operations and improvements with the goal of improving fish passage and whole system survival, including: An optimized spill program under existing water quality waivers based on individual project characteristics and designed to maximize juvenile survival. Permanent drawdown or seasonal drawdown at specific projects. Altered flood control operations in low and mid-range water years to better support spring flow for migrating juveniles. Replacing the drum gates at Grand Coulee Dam or change the way the work is done on them to eliminate or reduce the need for maintenance and associated reservoir draw down. Additional turbines at certain reservoir projects to increase system and flood management flexibility and ensure delivery of flow augmentation when needed for migrating juvenile fish. Additional predation control measures, such as additional bird wires and pinniped control measures. Additional analysis to determine what additional options, either structural or operational, could be implemented to reduce thermal issues now and in the future. Additional lamprey measures. See lamprey discussion below. None of these measures were analyzed in the DEIS.	Alternatives for the Columbia River System Operations EIS were developed from measures identified during public scoping, regional forums with scientists and technical experts from cooperating agencies (including Washington), and expert opinion from within the co-lead agencies and in the literature. Section 2.2.1 of the EIS outlines eight objectives. Objective 8 is, "Improve conditions for lamprey within the CRSO project area through actions potentially including but not limited to project configurations, flow management, spill operations, and water quality management." The Preferred Alternative includes the following measures for the benefit of lamprey: Lower Granite Trap Modification (Section 7.6.2.5); Bonneville Ladder Serpentine Weir Modifications (Section 7.6.2.17); Closeable Floating Orifice Gates (Section 7.6.2.18); Bypass Screen Modifications for Lamprey (Section 7.6.2.19); Lamprey Passage Ladder Modifications (Section 7.6.2.20); Turbine Strainer Lamprey Exclusion (Section 7.6.2.21). The Columbia River Fish Mitigation Program and the Columbia Tributary Habitat Program are ongoing programs that provide benefits to lamprey. The Preferred Alternative meets the lamprey objective. 7.6.3.15 describes the Predator Disruption Operations measure which has been incorporated into the preferred alternative.
31775	23	golc@critfc.org	Columbia River Inter-Tribal Fish Commission	E. Significant Programmatic Issues Are Obscured from Review by Measure-Based Alternatives The focus on specific actions, called measures, in the DEIS has overshadowed important programmatic issues of significance to the tribes. NEPA documents must concentrate on the issues that are truly significant to the action in question and the DEIS fails to do so. CRITFC DEIS Comments April 13, 2020 Page 11 of 59 The following examples highlight that the DEIS appears to be a harbinger of the elimination of certain ongoing Corps programmatic efforts. Since the DEIS is intended to have a 25-year duration, the focus on specific measures to the exclusion of programmatic needs is troubling. - The DEIS does not meaningfully disclose and analyze the reductions in the CRFM program The Corps Columbia River Fish Mitigation program (CRFM) has been a decades long endeavor supported by the tribes, Pacific Northwest states and congressional delegation. The history, accomplishments and lessons learned from the CRFM are not described in the DEIS. Presumably one would expect to find a discussion of the CRFM in section 1.7 of the DEIS. Over $2 billion dollars has been appropriated by Congress to support this program and institutions such as the System Configuration Team (SCT) have developed around this program.4 While the NAA and MOs assume some continuing level of structural improvements at the CRS dams, the pace of CRFM activity is only revealed by Table 6.1 in Appendix Q (Costs), which identifies that CRFM funding will be reduced to $2 million per year. At its peak, CRFM funding was two orders of magnitude greater, sustained at between $80 million and $100 million per year. There are two broad consequences related to the scope change of CRFM that the DEIS fails to disclose. First the CRFM program is more than just a collection of construction projects at the Corps dams. It represents the Corps ongoing programmatic support, including personnel, for Columbia River anadromous fish passage. The loss of staff capability represented by this budget contraction will impact ongoing working relationships between the Corps and CRITFCs member tribes. While providing repetitive detail about a limited list of structural measures in the NAA and MOs, the DEIS fails to address the programmatic consequences of the loss of the CRFM and the Corps ability to participate in regional decision making concerning its CRS dams. The DEIS should describe the effects of eliminating or drastically modifying the CRFM program. Second, the breadth of configuration measures for the CRS dams is limited and non-representative of ongoing and planning actions. If the DEIS is intended to represent future structural measures for a 25-year period, the measures are far too narrow and too specific to portray a realistic range of activities currently envisioned by co-managers. For example, collection and reconditioning of steelhead kelts has shown significant benefits in the Yakima and Snake river systems. The discussion of steelhead kelts in the DEIS does not reveal either the scope of efforts now ongoing or planned actions such as expanded kelt trapping operations at CRS dams.5 The only kelt measures in the DEISs MOs are spill passage related. The DEIS fails 4 System Configuration Team (SCT). The SCT reviews the physical make-up of the hydroelectric system in the Basindams, fish screens and ladders, spill deflectors (flip lips), and other structuresto determine what the optimal system would look like that incorporates all the needs of the system. It meets regularly to prioritize capital expenditures on system configuration facilities for improving fish passage. https://www.bpa.gov/p/Generation/Hydro/hydro/columbia_river_inside_story.pdf 5 See NPTH Hatchery Operations and Snake River Steelhead Kelt Reconditioning Environmental Assessment at pages 11-14 discussing trapping kelts at Little Goose Dam, in addition to current trapping operations at Lower Granite Dam. CRITFC DEIS Comments April 13, 2020 Page 12 of 59 to address current knowledge concerning kelts and current and planned trapping at Corps dams and reconditioning actions be undertaken by the tribes.6 Similarly, other measures in the full suite of potential salmon and steelhead measures should be examined. Even in the near term, questions about the SCT project priority lists for 2018 and 2019 have been repeatedly addressed to the co-lead federal agencies by the Tribes. We have asked that the DEISs range of alternatives at least examine the full range of measures in the SCT project prioritization lists so as not to preclude their future management consideration and implementation. These actions are at least reasonably foreseeable, yet many of them are not disclosed or analyzed at all in the DEIS. The measures in the NAA and MOs fail to fully include the SCT actions under active consideration by state, federal and tribal experts who participate in SCT.7	For Columbia River System dams, it is accurate to note that CRFM annual appropriations have declined over the past couple years and are projected to remain lower into the near future. However, a reduced reliance on the CRFM program into the future is a result of significant investments in construction of components of the dams for the benefit of improved salmon passage. The Corps CRS fish program is now transitioning to a program that is expected to be primarily sustained through long-term Operations and Maintenance funding, including funding to operate and maintain the many improvements that were constructed under CRFM. For future construction requirements aimed at improving anadromous fish passage throughout the CRS, the Corps would continue to express capability in the annual budgeting process and continue to coordinate these actions in the Regional Forum (e.g. SCT, FPOM, TMT, SRWG, and FFDRWG). The CRSO EIS includes a description of the CRFM program in Chapters 2, 5, and 7; kelts are also addressed in the EIS (see Section 3.5).
31775	24	golc@critfc.org	Columbia River Inter-Tribal Fish Commission	- Lamprey measures are incomplete in the alternatives Following the 2008 Accords Agreement, the Corps developed a detailed programmatic approach to address the needs of Pacific Lamprey at CRS dams.8 Attached is the Corps Lamprey Program Prioritization Matrix (spreadsheet) identifying priority fixes for adult and juvenile lamprey at mainstem dams. See Attachment B. The spreadsheet identifies relative costs and Corps and CRITFC Lamprey Tribal Task Force (comprised of representatives from CRITFC member treaty tribes) priorities as of March 2020. The priority actions matrix developed by the Corps is not a comprehensive list of ALL the needed fixes for adult and juvenile lamprey at mainstem dams. It should be regarded as a starting point of known and immediate needs to be addressed in the near-term. From this list, the Lamprey Tribal Task Force identified a subset of high priority actions at recent meetings. Those included (1) a. Improving juvenile downstream passage and survival through Columbia and Snake river dams; b. Monitoring and evaluation of juvenile survival and passage success through mainstem Columbia and Snake river dams using juvenile lamprey acoustic tags, (2) Structural modifications to fishways at Columbia and Snake River dams to improve upstream adult passage efficiency and success, (3) Enhancement of the tribal translocation program through improvements to adult trapping systems, and improvements to existing and development of new adult holding facilities at Bonneville, The Dalles and John Day dams, and (4) Assessing the fate of adult lamprey in the lower Columbia River between Bonneville and John Day dams through acoustic telemetry. The Corps is currently working on developing revised cost estimates and timelines for the projects identified in the spreadsheet, which could alter priority rankings. https://www.bpa.gov/efw/Analysis/NEPADocuments/nepa/Nez_Perce_Hatchery/NPTH_Final%20EA_01_30_2019.pdf 6 https://www.critfc.org/wp-content/uploads/2019/01/19-01.pdf. This report contains and excellent summation of lessons learned and extensive references. 7 Email from Ian Chane, USACE CENWP to multiple recipients concerning SCT July Meeting including prioritization spreadsheets, dated July 17, 2018. See Attachment A. 8http://pweb.crohms.org/tmt/documents/FPOM/2010/Task%20Groups/Task%20Group%20Lamprey/10%20Year%20Lamprey%20Plan%20update%20final%202015.pdf CRITFC DEIS Comments April 13, 2020 Page 13 of 59 These lamprey actions have been funded through the CRFM. If the CRFM is dismantled as indicated by the cost assumptions in Appendix Q and discussed above, the DEIS fails to disclose how the Corps participation in the lamprey passage program be accomplished. The Corps recently allocated $20 Million of workplan funding towards lamprey, which is great news, but that money in only available and will only fund lamprey efforts through about 2022. With a proposed 25-year term for the EIS, and the CRFM budget dwindling, the continuation of and support for needed lamprey effort is highly uncertain and is not disclosed or analyzed in the DEIS Each of the MOs contains the same partial list of lamprey measures, which only address a portion of the lamprey priority list identified above. The EIS should include the whole priority list as possible actions for the 25-year term of the EIS. The lamprey measures seem to be focused at dams within the Portland District and not the Walla Walla Districts projects (McNary Dam upstream to Lower Granite Dam). For instance, with regard to adult passage modifications, the action list for McNary Dam and the Snake River dams upstream is limited to rounding 90-degree corners at fish ladders. Rounding ladder features is an inexpensive and short-term process, yet the scope of the DEIS, without further NEPA analysis, could preclude other adult passage measures at the Walla	The co-lead agencies recognize the importance of Pacific lamprey and will continue to work with CRITFC, CRITFC member tribes, and regional entities through existing frameworks such as the Corps-Tribal Lamprey Work Group, the Pacific Lamprey Conservation Initiative and the Corps Regional Forum workgroups (e.g., FFDRWG) to implement ongoing programs, as well as the lamprey measures described in the Preferred Alternative. The analyses completed and described in this Draft EIS were for the purposes of comparing the effects of the multiple objective alternatives for operation, maintenance, and configuration of the CRS projects to one another and to the No Action Alternative. The measures in the Draft EIS to meet the objective of improving conditions for Pacific lamprey were developed to address issues described in the Affected Environment and Effects of the No Action Alternative. These measures were designed to work in concert with the ongoing mitigation programs related to lamprey, such as habitat restoration, reintroduction and translocation, and other efforts. Measures identified in the Draft EIS do not include all lamprey passage improvements that could be potentially implemented at the lower Columbia and lower Snake River dams, but the Corps believes that potential actions contemplated in preliminary lamprey program planning discussions with CRITFC staff and others related to the 2018 Accords Extensions are consistent with the measures and analyses included in the Draft EIS. CRITFC is correct that actions beyond the scope of the measures included in the Draft EIS or ongoing activities would potentially require further NEPA analysis. Lamprey measures identified in the Draft EIS (and similar operational or structural measures) do not include research, monitoring or evaluation actions that may be needed to refine passage designs, inform operations, or address critical uncertainties. This includes the juvenile lamprey and adult lamprey migration behavior and fate studies identified in the 2018 Accords Extensions and in subsequent program planning and coordination discussions with CRITFC and others. For the purposes of the Draft EIS, measures must address known operational and structural issues, but this does not preclude development and implementation of future juvenile and adult lamprey studies. For Columbia River System dams, it is accurate to note that CRFM annual appropriations have declined over the past couple years and are projected to remain lower into the near future. However, a reduced reliance on the CRFM program into the future is a result of significant investments in construction of components of the dams for the benefit of improved salmon passage. The Corps CRS fish program is now transitioning to a program that is expected to be primarily sustained through long-term Operations and Maintenance funding. For future construction requirements aimed at improving anadromous fish passage throughout the CRS, the Corps will continue to express capability in the annual budgeting process. Implementation of all measures including lamprey measures is dependent on funding availability. In 2020, the Corps did receive $20M in funding to implement actions contemplated in the 2018 Accords Extensions. As noted by CRITFC, and in similar comments from CTUIR, the Corps is currently refining cost estimates and developing a preliminary implementation plan for this $20M program. The Corps will continue to coordinate closely with CRITFC and other Accords tribes on prioritization of actions within this program and will continue to ensure consistency with measures identified and analyzed in the Draft EIS.

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				Walla District projects during the following 20-year period. Failure to return Pacific Lamprey to the Snake River Basin is unacceptable. The DEIS fails to disclose and analyze the effects of its alternatives on Snake River lamprey populations.	
31775	25	golc@critfc.org	Columbia River Inter-Tribal Fish Commission	- The DEIS Fails to disclose and analyze the need for a comprehensive predator control program Both the Northwest Power and Conservation Council and Columbia River Treaty Tribes visions for predator management recognize the value of a coordinated and systematic approach to predator management which are described below: Wy-Kan-Ush-Mi Wa-Kish-Wit Since the publication of the tribes Spirit of the Salmon Plan in 1995 (Wy-Kan-Ush-Mi Wa-Kish-Wit) an alarming increase in predation of salmon, lamprey, and juvenile sturgeon by birds, marine mammals, and other fish has occurred (Rieman et al. 1991; Collis et al. 2002; Evans et al. 2012; Stansell et al . 2010). In the basin, newly created habitat from navigation dredge spoils increased predacious bird populations; a lack of historical primary food sources brought more hungry sea lions upriver who congregated at Bonneville Dam to feed on Spring Chinook; and changes in the CRS flow regime and the explosion of exotic species in CRS reservoirs gradually expanded predacious fish populations. These negative changes in avian, mammalian, and fish species population dynamics have tipped the predator/prey balance to the point that active management is required to rebalance predator populations and reduce salmon, lamprey, and sturgeon losses.	The co-lead agencies have historically supported actions to mitigate adverse effects to listed species from CRS operations, through funding, direct implementation, and other means. Under the Preferred Alternative, those actions, including implementation of actions for the purpose of reducing predation on ESA-listed species, would generally continue to ensure compliance with the ESA. Other entities in the region have authorities and obligations to mitigate the impacts from fish, pinniped and avian predators and the co-lead agencies will continue to work closely with those entities to benefit ESA-listed salmonids. The co-lead agencies recognize the value of a comprehensive predator control program throughout the Columbia River basin. However, the co-lead agencies are limited to implementing measures that are within the authorities of the agencies. The co-lead agencies' legal authorities relate to operating and maintaining the CRS to meet multiple statutory purposes and to comply with all pertinent laws. Under the ESA, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Ultimately, recovery is a broader regional goal that is the role of NMFS and the USFWS and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the Columbia River System. Based on our analysis in the fish resources section of Chapter 7, the co-lead agencies anticipate that the Preferred Alternative, which includes measures to reduce predation, would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. It also meets the other objectives of the study for resident fish, hydropower, water management, and water supply, while minimizing adverse impacts to communities and the economy."
31775	26	golc@critfc.org	Columbia River Inter-Tribal Fish Commission	Active management will keep predators at a level that is more in balance with the environment and reduce losses of Columbia River salmon and other native fish populations. Responding to these observations the tribes recommended the following actions in 2014: CRITFC DEIS Comments April 13, 2020 Page 14 of 59 Develop a common metric for fish, bird, and marine mammal predation (i.e ., adult equivalents) so that comparisons and impacts can be properly assessed . Investigate, monitor, evaluate, and propose solutions to habitat changes at Columbia River tributary confluences where hydro- logic modifications have resulted in increased sediment deposition and potentially attracted predator responses. Investigate indirect food web effects of predation. Apply active, adaptive management practices to predation sources. Pursue legislative solutions to barriers preventing active management. Persuade co-managers to prioritize salmon management in anadromous waters and remove barriers to harvest non-native fish species. Focus public outreach on benefits of native fish communities and balanced ecosystems. Develop greater cross-agency cooperation and investigation opportunities.	The co-lead agencies have historically supported actions to mitigate adverse effects to listed species from CRS operations, through funding, direct implementation, and other means. Under the Preferred Alternative, those actions, including implementation and adaptive management of actions for the purpose of reducing predation on ESA-listed species, would generally continue to ensure compliance with the ESA. Other entities in the region have authorities and obligations to mitigate the impacts from pinniped and avian predators and the co-lead agencies will continue to work closely with those entities to benefit ESA-listed salmonids. The co-lead agencies recognize the value of developing common metrics, identifying measures, and implementation of measures that will aid in the reduction of predation impacts and increase survival of Columbia River salmon and other native fish populations. However, the co-lead agencies are limited to implementing measures that are within the authorities of the agencies, many of the items listed are outside the co-lead agencies' authorities. The Preferred Alternative includes a large suite of predation mitigation measures. Some of which include maintaining avian wires in the tailrace of lower Columbia and Snake River dams, active hazing of gulls at the dams, and the pattern of operating the spillway gates all mitigate for predation at the dams by birds and fish. The Predator Disruption Operations will mitigate Caspian Tern predation on juvenile salmon and steelhead in the lower Columbia Rivers. Management efforts are ongoing to reduce salmonid consumption by terns in the lower Columbia River, and similar efforts are in progress to reduce the nesting population of Double-crested cormorants in the estuary.
31775	27	golc@critfc.org	Columbia River Inter-Tribal Fish Commission	https://plan.critfc.org/assets/wy-kan-update.pdf A recent presentation by CRITFC to the NW Council is attached to these comments. See Attachment C. The DEIS fails to disclose and analyze the tribes proposals for comprehensive predator management.	The co-lead agencies have historically supported actions to mitigate adverse effects to ESA-listed species from CRS operations, through funding, direct implementation, and other means. Under the Preferred Alternative, those actions, including implementation of actions for the purpose of reducing predation on ESA-listed species, would generally continue to ensure compliance with the ESA. Other entities in the region have authorities and obligations to mitigate the impacts from fish, pinniped and avian predators and the co-lead agencies will continue to work closely with those entities to benefit ESA-listed salmonids. The co-lead agencies recognize the value in a comprehensive predator control program throughout the Columbia River basin. However, the co-lead agencies are limited to implementing measures that are within the authorities of the agencies. The co-lead agencies legal authorities relate to operating and maintaining the CRS to meet multiple statutory purposes and complies with all pertinent laws. Under the ESA, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Ultimately, recovery is a broader regional goal that is the role of NMFS and the USFWS and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the Columbia River System. Based on our analysis in the fish resources section of Chapter 7, the co-lead agencies anticipate that the Preferred Alternative, which includes measures to reduce predation, would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. It also meets the other objectives of the study for resident fish, hydropower, water management, and water supply, while minimizing adverse impacts to communities and the economy.
31775	28	golc@critfc.org	Columbia River Inter-Tribal Fish Commission	NPCC Fish and Wildlife Program In its most recent Fish and Wildlife Program, the Northwest Power and Conservation Council also recognized the growing impacts of predators on the anadromous fish of the Columbia River Basin. Predator management is requiring more program resources and efforts year by year. Everyone involved in the program, including the Council, Bonneville, the Corps of Engineers, the fish and wildlife agencies and tribes, and others, must work together to continue developing a more effective systemwide, ecosystem-based approach for assessing and addressing the impacts of fish, avian, and pinniped predation on salmon and steelhead and other fish species important to the program. It is imperative to scientifically advance the understanding of predation impacts. It is important to understand which predator management actions have the greatest effect on adult returns and SARs and retarget efforts on those actions for cost-effective predation management. https://www.nwcouncil.org/sites/default/files/2020-1.pdf. The Program contains systemwide measures for predator control that are directed to Bonneville, the Corps, Bureau of Reclamation and others for their implementation. For example, the Program provides: Predation by double-crested cormorants, Caspian terns, and several other bird species continues to have a significant impact on ESA-listed juvenile salmon and steelhead in the Columbia and Snake rivers. A recent trend has been reduced support for this effort. The action agencies (Bonneville, Corps of Engineers, Bureau of Reclamation) working with state and tribal partners, should continue to provide adequate funding to implement activities, both in the estuary and inland, to reduce avian predation on listed juvenile salmon and steelhead. CRITFC DEIS Comments April 13, 2020 Page 15 of 59 In contrast, the CRSO DEIS contains parsimonious mitigation measures for predators, which are non-responsive to the broader guidance from the tribes and the Council. Thoughtful analyses of the Northwest Power Act requirements and the obligations to implement Councils Program regarding predator management are not to be found in the DEIS. We would have expected a more programmatic responses from the co-lead agencies, for instance committing to fund a Regional Predator Management Forum, with additional monitoring, that includes all funding and implementation partners to collaboratively and comprehensively evaluate and address predation (including piscivorous, avian, and pinniped predation) on salmon and steelhead from the river mouth to the spawning grounds. CRITFC DEIS Comments April 13, 2020 Page 16 of 59	The co-lead agencies have historically supported actions to mitigate adverse effects to listed species from CRS operations, through funding, direct implementation, and other means. Under the Preferred Alternative, those actions, including implementation of actions for the purpose of reducing predation on ESA-listed species, would generally continue to ensure compliance with the ESA. Other entities in the region have authorities and obligations to mitigate the impacts from pinniped and avian predators and the co-lead agencies will continue to work closely with those entities to benefit ESA-listed salmonids. The co-lead agencies recognize the value of developing regional management forums, common metrics, and implementation of measures that will aid in the reduction of predation impacts and increase survival of Columbia River salmon and other native fish populations. However, the co-lead agencies are limited to implementing measures that are within the authorities of the agencies. The co-lead agencies legal authorities relate to operating and maintaining the CRS to meet multiple statutory purposes and complies with all pertinent laws. Ultimately, it is beyond the co-lead agencies authorities and responsibilities to fund a Regional Predator Management Forum, with additional monitoring, that includes all funding and implementation partners to collaboratively and comprehensively evaluate and address predation (including piscivorous, avian, and pinniped predation) on salmon and steelhead from the river mouth to the spawning grounds. Specifically, under the ESA, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species such as addressing all predation (including piscivorous, avian, and pinniped predation) on salmon and steelhead from the river mouth to the spawning grounds. Ultimately, recovery, including any predation management actions that are need to achieve recovery, is a broader regional goal that is the role of NMFS and the USFWS and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the Columbia River System. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. Based on our analysis in the fish resources section of Chapter 7, the co-lead agencies anticipate that the Preferred Alternative, which includes measures to reduce predation, would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. It also meets the other objectives of the study for resident fish, hydropower, water management, and water supply, while minimizing adverse impacts to communities and the economy. The Preferred Alternative includes a large suite of predation mitigation measures, some of which include maintaining avian wires in the tailrace of lower Columbia and Snake River dams, active hazing of gulls at the dams, and the pattern of operating the spillway gates all mitigate for predation at the dams by birds and fish. The Predator Disruption Operations will mitigate Caspian Tern predation on juvenile salmon and steelhead in the lower Columbia Rivers. Management efforts are ongoing to reduce salmonid consumption by terns in the lower Columbia River, and similar efforts are in progress to reduce the nesting population of Double-crested cormorants in the estuary. The co-lead agencies currently implement a Northern Pikeminnow Management Program which includes an ongoing base program and general increase in northern pikeminnow sport-reward fishery reward structure to reduce predation by these fish. This measure would continue under the Preferred Alternative. Management of gamefish such as walleye typically falls within the authority of state fish and wildlife agencies.
31775	29	golc@critfc.org	Columbia River Inter-Tribal Fish Commission	V. Proposed Alternative The Draft Proposed Alternative (PA) is based on 2021 operations under the Flex Spill Agreement, although it unilaterally incorporates significant modifications. While increasing spill to a 125 TDG flex spill operation, the numerous changes from the Flex Spill Agreement threaten to make the PA operation worse for salmon and steelhead than the 2020 operations under the Flex Spill Agreement a change in the wrong direction. Below are further detailed comments on individual measures presented in the Draft PA, however the following summary of our concerns paints a composite picture. In short, the benefits of a 125 Flex Spill Operation are systematically eroded by one power measure after another such that fish benefits are degraded to an unknown degree. In the end, the PA presents only slightly improved fish survival (if any) compared to the NAA, and those conclusions are based upon multiple layers of uncertainty. The charts below describe these effects in more detail. Among other things, the PA reduces spring flows through altered water management operations at Libby, Coulee and Dworshak. This means less spring flow for Upper Columbia stocks, and this would occur in all years, not just high flow years. At Dworshak, the additional winter drawdown would be based on unreliable and uncertain early season runoff forecasts, which could similarly reduce spring flows in the Snake to the detriment of Snake River salmon and steelhead stocks. The impacts to the Upper Columbia stocks are especially troubling due to their current condition and the limited benefits provided to them from Flex Spill operations.	In its analysis of effects, the Draft EIS used current high quality information and best science, including models and studies published in peer review science journals. Specific to salmon and steelhead, the agencies used two primary modeling approaches which yielded a range of potential outcomes for the alternatives. Modifications to the No Action Alternative, such as changes in flows, were incorporated into the fish modeling. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% as a result of the Preferred Alternative. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. To address uncertainty highlighted by the two models, the Preferred Alternative includes working with regional sovereigns to develop a study that will assess the effectiveness of the increased spill regime on adult returns as well as assessment and management of negative unintended consequences, such as long delays of adult migrants, or TDG-related impacts on juvenile migrants. The framework for the adaptive management process is detailed in Appendix R, Part 2, Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS. It was the intention of the co-lead agencies to engage regional state, Tribal, and Federal fish managers in the development of an appropriate adaptive management process utilizing their respective salmonid management expertise. Chapter 7, Section 7.7. in the Draft EIS analyzes the effect of the Preferred Alternative on flow, relative to the No Action Alternative. While the comment is correct in that the new water management measures will result in less spring flow, the reductions are relatively minor. For example, flows at McNary Dam (Table 7-17) show relatively minor decreases, the largest being 2% (4.4 kcfs) in May at the 99% exceedance probability. Other spring flows are within 1% of the No Action Alternative.
31775	30	golc@critfc.org	Columbia River Inter-Tribal Fish Commission	In addition to the spring flow changes, the PA includes several other measures with detrimental or unknown effects on anadromous salmonids: - Options for unrestricted turbine flexibility operations outside of peak efficiency with unknown levels of impact and no mitigation proposed;	The co-lead agencies are coordinating guidelines and limitations for operations outside the 1% operating range with the National Marine Fisheries Service and the US Fish and Wildlife Service (Services). During the fish passage season, the co-lead agencies will meet all required fish passage spill operations before operating above the 1% operating range. The proposed action in the Endangered Species Act consultation associated with the CRSO EIS includes monthly summaries of operations above the 1% operating range and an annual report on operations outside of the 1% peak efficiency range. After three years, the Services and the co-lead agencies will analyze data related to this operations and determine future operations.
31775	31	golc@critfc.org	Columbia River Inter-Tribal Fish Commission	- Fall-time zero generation (zero flow) in the Snake (effects unknown on adult fall chinook, steelhead, and coho, and on juvenile fall chinook) with no mitigation proposed;	Extending the zero generation operation measure would not affect juvenile salmon or steelhead because they are not migrating in the late fall/winter timeframe when this measure occurs. However, impacts to adult passage (especially for Snake River steelhead) may be anticipated due to this operation. Because of the short overlap with the adult fish migration period, and limiting the operation to nighttime hours, this effect was considered to be minor. As with other operational measures in the Preferred Alternative, the impacts of the zero generation operation measure will be evaluated through the Regional Forum and adaptively managed as needed. In this EIS process, the co-lead agencies only develop mitigation for measures that result in moderate to major effects as compared to the No Action Alternative.
31775	32	golc@critfc.org	Columbia River Inter-Tribal Fish Commission	- Reliance on already implemented or phased out actions (structural and avian) with no commitment to ensure benefits of those efforts are implemented and maintained over time;	The Preferred Alternative includes the actions in the No Action Alternative, unless specified otherwise. Structural improvements made over the past decades will continue to operate in the Preferred Alternative. The Preferred Alternative includes a large suite of predation mitigation measures, maybe of which are ongoing from the No Action Alternative. These include: maintaining avian wires in the tailrace of lower Columbia and Snake River dams, active hazing of gulls at the dams, and the pattern of operating the spillway gates all mitigate for predation at the dams by birds and fish. The Predator Disruption Operations will mitigate Caspian Tern predation on juvenile salmon and steelhead in the lower Columbia Rivers. Management efforts are ongoing to reduce salmonid consumption by terns in the lower Columbia River, and similar efforts are in progress to reduce the nesting population of Double-crested cormorants in the estuary.
31775	33	golc@critfc.org	Columbia River Inter-Tribal Fish Commission	- Options to reduce Fish and Wildlife Program with no metric or decision framework identified for evaluating that option;	Funding decisions for the Fish and Wildlife Program are not being made as a part of the CRSO EIS process. However, a range of potential Fish and Wildlife Program costs are included to inform the broader cost analysis for each alternative in the EIS. By analyzing a range of costs, Bonneville reflects the year-to-year fluctuations related to managing its program and also acknowledges the uncertainty around both the magnitude of biological benefits and the potential impacts on funding, including the timing of funding decisions. Future budget adjustments to the Fish and Wildlife Program would be made in consultation with the region through Bonneville's budget-making processes and other appropriate forums and consistent with existing agreements.
31775	34	golc@critfc.org	Columbia River Inter-Tribal Fish Commission	and - No additional fish mitigation, other than JDA operations for birds; almost all mitigation measures are for power flexibility that will result in negative impacts to fish.	The Preferred Alternative includes actions that benefit fish species and habitat through additional measures, ongoing programs, mitigation measures, and ESA consultation. As described in Section 7.6.1, a number of measures that are carried forward, modified, or added from the alternatives in Chapter 2 are intended to improve survival of anadromous salmon and steelhead, lamprey, and resident fish. Some examples are structural measures for lamprey passage, juvenile fish passage spill operations, and predator disruption operations. Section 7.6.4.1 provides summaries of the ongoing programs that would be carried forwarded in the Preferred Alternative. The majority of those ongoing programs are mitigation currently being implemented. Additional mitigation measures identified to offset effects from measures in Section 7.6.1 are presented in Section 7.6.4.2 that include mitigation measures for fish effects (Plant Cottonwood Trees (Up to 100 Acres) Near Bonners Ferry

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					for resident fish and Temporary Extension of Performance Standards Spill Operation for adult salmonid passage delays). Section 7.6.4.3 describes the measures incorporated into the Preferred Alternative as a result of informal and formal ESA consultation. The Bull Trout Access to Perched Tributaries in the Kootenai River measure includes both completing an assessment and two projects for upstream passage. The Surface Spill to Reduce Take of Overshooting Adult Steelhead measure would provide an operational method to address the overshooting steelhead.
31775	35	golc@critfc.org	Columbia River Inter-Tribal Fish Commission	The PA action is then only fixed for one year, so all out year operations are highly uncertain. The PA points to the Adaptive Management Appendix for future year operations. This Adaptive Management Framework adds in significant additional uncertainty for fish benefits: - While written in the form of changes needed for fish, the appendix would allow for decreases in spill and other unknown actions that could have detrimental fish effects, with no real assurances that tribal or regional input would be adopted. Based on experience, it CRITFC DEIS Comments April 13, 2020 Page 17 of 59 is likely that the co-lead agencies will act in the interest of their primary agency missions (power, flood control, irrigation and navigation) without providing fish and wildlife equitable treatment in decision making.	The framework for the adaptive management process is detailed in Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS. It is the intention of the co-lead agencies to engage regional state, Tribal, and Federal fish managers in the development of an appropriate adaptive management process utilizing their respective salmonid management expertise. The goal of that adaptive management process would be to consider additional opportunities to further the effectiveness of the operation while maintaining the goals of the flexible spill operation: additional improvements for salmon and steelhead, maintain opportunities to operate the CRS for hydropower generation in a flexible manner that provides value to the Northwest, is implementable by the dam operators, and provides opportunity to reduce uncertainty and improve the learning opportunities around how operations of the CRS can influence the magnitude of latent mortality effects. The co-lead agencies have not made any determinations on what the preferred approach would be for a regionally developed study plan, and intend to develop that study jointly with regional experts. Unforeseen outcomes or unintended consequences will be monitored and adjusted using current in-season management teams, such as the Technical Management Team. The co-lead agencies do not feel that the short-term nature of this operation is an accurate interpretation of the Preferred Alternative. If no adaptive management needs are identified, the operation would continue through the duration of the ESA consultation period. The co-lead agencies will provide additional clarifying text in Appendix R to make these points more clearly.
31775	36	golc@critfc.org	Columbia River Inter-Tribal Fish Commission	#NAME?	The framework for the adaptive management process is detailed in Appendix R, Part 2, Process for Adaptive Implementation of the Flexible Spill Operational Component, of the Columbia River System Operations EIS. It was the intention of the co-lead agencies to engage regional state, Tribal, and Federal fish managers in the development of an appropriate adaptive management process utilizing their respective salmonid management expertise. Appendix R, Part 2 also contains the following principle to guide evaluation of the spill operations in relation to impacts on fish: Provide fish benefits, with the understanding that (i) in 2019, overall juvenile fish benefits associated with dam and reservoir passage through the lower Snake and Columbia rivers during the spring fish passage season must be at least equal to 2018 spring fish passage spill operations ordered by the Court, and (ii) in 2020 and 2021 , these fish benefits are improved further (as estimated through indices of improved smolt-to-adult returns, e.g., PITPH, reservoir reach survival, fish travel time)....
31775	37	golc@critfc.org	Columbia River Inter-Tribal Fish Commission	Moreover, the minimal fish benefits attributed to the PA rely on unknown benefits from reductions in latent mortality and are otherwise biased high. First, the base COMPASS model does not account for latent mortality and only shows benefit of the PA above the NAA when an its arbitrary range of latent mortality rates are employed in the model. Second , the CSS model results are biased high due to the selected model inputs, (i.e.; daily time steps in operations data rather than hourly time steps consistent with Flex Spill operations, operations data sets did not include fully loaded powerhouse operations like we see in reality, so spill proportion is weighted higher than reality). The PA fails to mention these important factors or take them into consideration.	The co-lead agencies do not agree that predicted fish benefits are minimal. Predictions vary by model and range from moderately negative to major beneficial. The Draft EIS acknowledges that the NMFS models incorporate latent mortality effects through a sensitivity analysis rather than direct estimation. The co-lead agencies do not agree that results are biased high due to hourly vs. daily time steps. These models will be used to assess relative changes so minor bias if present would not be enough to change relative magnitude of the effect. The co-lead agencies do not agree that powerhouse operations were modeled incorrectly. Powerhouse estimates reflect historic availability and known future outages. In practice, it is rare for all units at a project to be available simultaneously for long durations. Powerhouse units undergo planned and unplanned outages at a frequency that is reflected in the models.
31775	38	golc@critfc.org	Columbia River Inter-Tribal Fish Commission	Based on the above, additional elements will be needed for the PA to cushion or otherwise address the inherent uncertainty in the action. These may include: - More mitigation to offset measures for hydro flexibility and unknown benefit of Flex Spill; - Maintained or increased Fish and Wildlife Program spending in order to improve from 2016/NAA baseline and not just maintain status quo survival statistics; - A charter identifying side boards on the Appendix Flex Spill Workgroup and clear definition for decision making framework within it; and - Check-ins and/or off-ramps. The PA rests on significant uncertainty and degrading fish populations; the availability of immediate and significant action is required. The DEIS does not disclose or analyze these additional measures.	The framework for the adaptive management process is detailed in Appendix R, Part 2, Process for Adaptive Implementation of the Flexible Spill Operational Component, of the CRSO EIS. The co-lead agencies intend to develop this more fully with regional experts to more clearly define the decision-making process, including those items that trigger the need for a decision to be made. Additionally, the Preferred Alternative includes the mitigation measure, "Temporary Extension of Performance Standard Spill Levels" to address to address potential adverse impacts to from increased juvenile fish passage spill operations.
31775	39	golc@critfc.org	Columbia River Inter-Tribal Fish Commission	A. The PAs Assertions of Consideration of Tribal Interest in Fisheries and Tribal Resources is Unfounded The statements regarding respecting treaty rights are unsupported by the PA. There are numerous references to respecting treaty rights and tribal culture; yet, the PA is a deceptive approach to salmon and steelhead protection saying one thing and doing another by reducing current actions and suggesting future reductions to offsite mitigation based on results we will not see for 20 years. We find little or no evidence that our input has been incorporated within most sections of the DEIS. As discussed below, the PA fails to improve salmon survival, and fails to address whether conditions will meet the tribal goals described in the Tribal Perspectives document.	Tribal input, concerns, interests, and especially treaty rights were considered throughout the Draft EIS analyses and in the formulation of the Preferred Alternative. Treaty specific information is included in Section 3.17 as well as Chapter 7. The co-lead agencies recognize and respect the legal obligations imposed by treaties. The co-lead agencies accordingly included Protecting Native American treaty and reserved rights and fulfilling trust obligations for natural and cultural resources throughout the environment affected by the Columbia River System operations as a purpose in the Purpose and Need Statement in Chapter 1 to ensure treaty obligations were a key consideration of decision making. The co-lead agencies are engaging in government-to-government consultation with the tribes, and several tribes are cooperating agencies on the CRSO EIS. The EIS recognizes the economic and cultural importance of salmon to Tribes in a number of sections throughout the document. The cultural significance and impacts of salmon and steelhead fisheries are described in the Ceremonial and Subsistence Fisheries sub-section and the Social Importance of Commercial, Ceremonial and Subsistence Fisheries sub-section of Section 3.15.2.1. Fisheries tribal interests are provided in Section 3.15.4 additional details regarding the economic significance of salmon and steelhead fisheries have been added to the recreation analysis (Section 3.11) including tribal interests (Section 3.11.3.7). Treaty rights are discussed in the Executive Summary, Section 3.16 Cultural Resources, and Section 3.17 Indian Trust Assets, Tribal Perspectives, and Tribal Interests. Appendix P includes copies of tribal perspectives that were submitted by tribes. Tribal consultation is described in Sections 1.5, 3.5, and 3.15; and Chapter 9. Most sub-sections within Chapter 3 include a Tribal Interests section at the end of the sub-section that attempts to summarize tribal issues by resource.
31775	40	golc@critfc.org	Columbia River Inter-Tribal Fish Commission	B. Water Management Measures Make PA Worse for Fish Than The 2020 Flex Operation The PA proposes to move water from spring into January at Coulee, Libby and Dworshak, creating a worse situation for many salmon and steelhead stocks than we currently have with the 2020 Flex Spill Agreement. While different rationales are given, primarily, these operations provide for more power flexibility. This additional power flexibility was not part of the 2020 Flex Spill operations under the Flex Spill Agreement. The new drafting operations are not limited to high flow years but would also occur in average and low flow years and would occur in 75% of all water years. Incredibly, at Libby, the operation states that they will draft deeper in January when inflow forecasts are less than 6.9 MAF, which is most years. From a fish perspective, this is backwards thinking. These new power flexibility operations will result in less spring flows for both Upper Columbia and Snake River stocks, likely resulting in higher water temperatures as well. Flow timing and volume have been proven to be two of the most important factors for juvenile migration, travel times and survival.	Chapter 7, Section 7.7. in the Draft EIS analyzes the effect of the Preferred Alternative on flow, relative to the No Action Alternative. While the commenter is correct in that the new water management measures will result in less spring flow, the reductions are minor. For example, flows at McNary Dam (Table 7-17) generally show minor decreases, the largest being 2% (4.4 kcfs) in May at the 99% exceedance probability. Other spring flows are within 1% of the No Action Alternative.
31775	41	golc@critfc.org	Columbia River Inter-Tribal Fish Commission	Deeper drafts at Dworshak (DWR) are included as a measure to help Total Dissolved Gas (TDG) issues at nearby hatcheries. However, TDG issues are only a concern during high flow events when large volumes of water need to be moved and turbine units are not available, as was witnessed in 2017. A deeper draft would not have helped in 2017 since turbine units were unavailable to move the water. The DWR drawdown is really another operation to increase power flexibility, but at the risk of not refilling the reservoir and/or decreasing spring flows both of which have salmon impacts. Failure to reach full pool reduces summer flow augmentation and lower Snake water temperature management capacity. Moreover, the decision timeframe of December/January for determining whether to drawdown DWR is not implementable; adequate information is not available at that time.	The comment is partially correct. The deeper early draft in high water years simply moves some of the draft into January and February, thus spreading it out and reducing TDG. It does result in increased power generation. In high water years that start building early, there is information to base the deeper draft on. It can potentially have a negative impact on refill, but the implementation rules would minimize that impact. 2017 is not a reasonable year to base analysis on since Unit 3 was not available. In most years, we have three turbines available but are only running one small unit instead of full power house. The current drawdown approach moves most of the flood risk management water in March and April when we have little additional capacity, resulting in more spill which elevates TDG. The deeper draft would really be best described as an earlier draft since it moves part of the flood risk management draft into January and February. Before the operation could be implemented, additional analysis, rule curves, and forecasting procedures would need to be approved for the reservoir. The comment is potentially is correct in that a information for a decision of December/January for determining whether to drawdown DWR may not be available at that time each year.
31775	42	golc@critfc.org	Columbia River Inter-Tribal Fish Commission	While the flow changes from each of the above measures may not be large, their combined effects could add up to significant flow reductions in the river. Moreover, the actions are changes from the power flexibility operations agreed to for 2020 under the Flex Spill Agreement, therefore representing power benefits and fish detriments from the 2020 operations that fulfilled the Agreement. The DEIS failure to provide explanations, limitations, and mitigation are unacceptable.	Flows at McNary Dam should capture the combined effects of the changes to upstream reservoir releases. For the preferred alternative, flows at McNary Dam (Table 7-17) show minor decreases, the largest being 2% (4.4 kcfs) in May at the 99% exceedance probability. Other spring flows are within 1% of the no action alternative. The Flexible Spill operation measure is guided by the Fish Benefit Principle: provide fish benefits, with the understanding that (i) in 2019, overall juvenile fish benefits associated with dam and reservoir passage through the lower Snake and Columbia rivers during the spring fish passage season must be at least equal to 2018 spring fish passage spill operations ordered by the Court, and (ii) in 2020 and 2021, these fish benefits are improved further (as estimated through indices of improved smolt-to-adult returns, e.g., PITPH, reservoir reach survival, fish travel time). As with other operational measures, the Flexible Spill operation will be adaptively managed as needed through the Regional Forum. In this EIS process, the co-lead agencies only developed mitigation for moderate to major effects of action alternatives as compared to the No Action Alternative.
31775	43	golc@critfc.org	Columbia River Inter-Tribal Fish Commission	C. Increased Turbine Pperation Flexibility Lacks Sideboards on Implementation The PA includes operation of turbines outside of the long-established 1% range. While some excursion is acceptable, the current way it is written is too broad and would allow excursions anywhere and for any reason. At some projects, operating outside of 1% have almost no impact since the turbines do not have capacity beyond 1%. However, other projects such as McNary could be operated 4-6 kcfs higher per turbine which equates to over 50 kcfs swing in flow moved from spill to the turbines. These matters are not disclosed in the DEIS. Meanwhile, the effects analysis assumes operation within the 1% bound. Specific alternative sideboards were not CRITFC DEIS Comments April 13, 2020 Page 19 of 59 disclosed or analyzed in the DEIS. The PA fails to demonstrate how the co-lead agencies will work with regional managers to come up with a mutually acceptable plan that considers individual project data and operations to create sideboards on turbine operations outside of 1% efficiency.	Operations that impact fish are reviewed and discussed within the Regional Forum groups and adaptively managed as needed. These groups will be utilized to review the impacts of operations above 1% peak efficiency.
31775	44	golc@critfc.org	Columbia River Inter-Tribal Fish Commission	D. Structural Fish Measures Provide Little Benefit to Anadromous Salmonids Many of the PAs structural measures have little to no benefit for salmon and steelhead and should not be listed as beneficial to fish. Most of these fish measures appear to provide a hydro-power benefit instead, which is a step back from the Flex Spill Agreement. Those included in the PA are less than what was proposed in the multi-objective alternatives. For example, the Lower Granite Trap modifications and the Bonneville Serpentine Weir both have reduced scope providing almost no benefit above the NAA. In addition, most of the structural measures listed in the PA are already completed. Although they are additions to the NAA, their status towards completion should be clarified. The Columbia River Fish Management (CFRM) Program is characterized as being complete in 10 years since few new actions have been identified. The PA fails to accurately portray the minimal fish benefits associated with limited structural measures included in the PA and clearly identify that most have already been completed. Additional structural measures were not disclosed or analyzed in the mitigation toolbox to ensure NEPA coverage and to support appropriate commitments in the CRFM budget. The BA and DEIS fail include (but not be limited to) all actions currently on the SCT list. The scope of the DEIS must be sufficiently broad to provide NEPA coverage for all structural measures in the current Systems Configuration Team (SCT) spreadsheet analyses. The PA fails to provide for continued implementation of high priority measures from the SCTs analyses.	The co-lead agencies agree that the structural measures proposed in the Draft EIS provide small incremental benefits to fish survival when compared to increased spill or dam breach as modeled by CSS. There are two explanations for this: 1. Latent mortality, as modeled by CSS assigns a large survival benefit (Smolt-to-Adult return rates) associated with large reductions in powerhouse passage and 2. the overhaul of the four lower Snake and Columbia River dams is near completion. All the big structural fixes, such as surface flow bypass, juvenile bypass systems and improvements, spillway improvements, avian predation deterrence, adult ladder improvements, have been constructed. What remains in the CRFM budget and SCT spreadsheet is completion of that construction effort. Funding for operating and maintaining the facilities that were constructed under this overhaul will continue into the future. The remaining actions on the SCT list are almost exclusively recommendations from past BiOps, and as such are being carried into the Preferred Alternative from the No Action Alternative. Unless otherwise noted, all other actions that were planned or part of ongoing CRS operations and maintenance in 2016 when the EIS was initiated are included as part of the Preferred Alternative. Therefore, the items in the SCT sheet will have continued NEPA coverage.
31775	45	golc@critfc.org	Columbia River Inter-Tribal Fish Commission	E. The DEIS Fails to Meaningfully Disclose and Analyze That Corps Reliance on O&M Funding to Meet its Fish Obligations Will Be Increasing but the Current Corps O&M Funding Trajectory is Negative. The PA indicates that most of the Corps actions will shift to an O&M (Operations and Maintenance) funding source, however Corps commitments to O&M funding are declining (per Ian Chaine, U.S. Corps of Engineers. See surpa FN7). Actions included in the PA that would rely on O&M funding include replacement and upgrades to existing system, continued implementation of existing management plans (e.g., avian predation plans), and multiple lines of research, among others. Most of these items are presumably subsumed as continuing actions	The Corps' operation and management budget has long been relatively flat, and in the past two decades the number and complexity of the fish passage facilities to maintain has grown, yet the Corps has managed to adequately operate and maintain those facilities. Much of the major overhaul of the CRS for the benefit of improved fish passage has already been constructed and turned over to our O&M budget. So we dont expect new growth to our O&M costs relative to what we had historically. We will request funding for the required actions, including funds to operate and maintain the CRS, however funding is never guaranteed and therefore all actions are contingent on funds being available.

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				under the NAA, but they are not disclosed or analyzed, with continuing implementation assumed. The lack of certainty surrounding full implementation of these actions due to lack of funding is not disclosed or factored into the DEISs analysis	
31775	46	golc@critfc.org	Columbia River Inter-Tribal Fish Commission	F. Fish Effects Analysis Depicts Minimal Improvements Based on High Levels of Uncertainty CRITFC DEIS Comments April 13, 2020 Page 20 of 59 The analysis in the PA does not determine what benefits to salmon and steelhead are expected or needed, nor does disclose a goal. The regional SAR goals are not discussed in the DEIS; the stated goals are merely any improvement without a quantitative goal. The analysis depicts almost little to no benefit for many of the stocks and when one considers confidence intervals (not shown in the summary chapters of the DEIS only in the appendix) there is not a statistical difference between the PA and NAA (base case). The following charts help to visual this point. Notably, the analyses do not indicate whether the measures result in increasing abundance trends towards the NPCC goal of 5 million salmon and increasing steelhead and SARs between 2 and 6 percent? The DEIS fails to disclose that progress towards achieving the NPCC goal should be one of the metrics to determine success of FCRPS hydro operations and mitigation measures. - Predicted survival benefits are minimal The following charts are used to compare the Preferred Alternative to the other Multiple Objective Alternatives and the NAA (Base Case) operation. The comparisions are based on SARs and juvnile reach survival generated from the fish models used in the DEIS. Figure 1 CSS SARs for yearling Snake River Chinook Comparison between DEIS Alternatives CRITFC DEIS Comments April 13, 2020 Page 21 of 59 Figure 2 CSS Yearling Snake River Chinook Juvenile Reach Survival from LGR to BON (Top Chart) and relative performance (Bottom Chart) compared to NAA (base case operation) using the cohort-specific model. CRITFC DEIS Comments April 13, 2020 Page 22 of 59 Figure 3 Snake River Steelhead SARs (top) and relative performance (bottom) using the cohort-specific model. The red dashed line in the upper panel represents NPCC average SAR goal of 4%. Figure 4 CSS Snake River Steelhead Juvenile Reach Survival from LGR to BON (Top Chart) and relative performance (Bottom Chart) compared to NAA (base case operation) using the cohort-specific model	Based on our analysis of the Preferred Alternative, it will make a substantial contribution to improving Snake River anadromous fish runs, but broad-sense recovery goals like those mentioned in this comment are beyond the scope of this EIS, which focuses on the effects associated with the operation and maintenance of the 14 CRS projects. The co-lead agencies used high-quality information in the analysis of the CRSO EIS. Specific to salmon and steelhead, the agencies used two primary modeling approaches which yielded a range of potential outcomes for the alternatives. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult (SAR) return rates will increase for both Snake River spring Chinook and steelhead and will average above 2% (the lower end of Northwest Power and Conservation Council (Council) recovery targets for the region) as a result of the Preferred Alternative. The NMFS COMPASS and Lifecycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. It should be noted that the 4% average SAR target referenced refers to the Councils target for broad-sense recovery and is separate and distinct from the obligations of any single entity or in this case a requirement to be met solely by the co-lead agencies. Just as the Councils fish and wildlife program encompasses both Federal and non-Federal stakeholders in the Columbia Basin, the Councils recovery goals are shared by many parties.
31775	47	golc@critfc.org	Columbia River Inter-Tribal Fish Commission	- The DEIS fails to disclose that the PAs Flex Spill operation relies on latent mortality assumptions to show fish benefits The NOAA life cycle model analysis performed for the PA analysis relies heavily on assumptions regarding improvements in Latent Mortality to achieve any benefit when compared to the NAA (base case). Latent mortality is associated with powerhouse passage. Analyses have shown that juvenile fish that pass-through powerhouses experience a decrease in survival at later life stages compared to their spillway passed cohorts. Latent and delayed mortality refers to subsequent mortality at later life stages after the initial powerhouse passage experience. The CSS model is based on relationships built on SARs calculated from different passage routes from the long data time series of past years of adult returns (empirically based). CSS model analyses of CRSO EIS do not require any assumptions regarding delayed mortality. Delayed/latent mortality that occurs is captured in the SAR metric. NOAAs life cycle model (including its COMPASS component) does not include delayed/ latent mortality. Arrival time of juvenile salmon and steelhead to below Bonneville is the primary metric in COMPASS analyses used to access operational alternatives (including the PA). CRITFC DEIS Comments April 13, 2020 Page 23 of 59 The CSS model does show a slight improvement in SARs for the PA when compared to NAA (base case) since the PA reduces Pit-PH (powerhouse passages). Pit-PH is an index to estimate the number of fish passing powerhouses. However, the improvement described in the DEIS of 35% is a relative improvement however the resulting absolute SAR with the PA, is still small and below the regional 4% SAR goal. Conversely, the NOAA life cycle model does not show an improvement in the PA and actually shows it can be worse than the NAA (base case). NOAA modelers add a latent mortality adjustment factor into their model and arbitrarily used a range of values (0 50%). Once the latent mortality adjustment was used NOAAs Life Cycle Model did show a benefit when a 25% latent mortality reduction factor was added to the modeling, see appendix E. We agree that latent mortality is an important factor that needs to be considered, but the PAs use of the NOAA modeling relies solely on this assumed improvement to achieve even the modest improvements when compared to the NAA (base case). Any benefits of the PA in the NOAA analysis are questionable, because the NOAA latent mortality assumption lacks an empirical basis. If latent mortality improvements are less than this 25% threshold this could result in no benefit from the PA. The CSS analyses of the PA estimate that at low flow and poor ocean conditions, the predicted SAR with the PA is less than 1% which is less than population replacement levels. CSS analyses show that with implementation of the PA, predicted SARs are below the 1% SAR population replacement level, 36% to 39% of the time. For these reasons we believe that additional mitigation actions are needed to ensure benefits are realized. Furthermore, additional monitoring and research should be conducted to evaluate how the PA operation is performing. See recommended addition mitigation and actions below.	The model results presented in Section 3.5 and Chapter 7 address latent mortality and reservoir mortality. Multiple mechanisms of delayed mortality or 'carryover effects' between experiences in one lifestage influencing survival or physiology in subsequent lifestages (Gosselin et al. 2018). These include transportation related delayed mortality, injuries caused by passing multiple dams via any route, delays caused by reservoir and dam passage, and exposure to toxins. Latent mortality is captured directly in the CSS model for SARs and abundances. NOAA approached latent mortality as a sensitivity analysis, exploring the level of effect by latent mortality occurring via any mechanism - results of the Lifecycle Model are overlaid with several assumed values (10%, 25% and 50%) of reduction in latent mortality. Reservoir mortality is captured in the juvenile survival metrics presented in Chapter 3. Delayed mortality in the ocean due to CRS dam passage is discussed throughout the Draft EIS. In their 2007 report the ISAB stated, "The ISAB concludes that the hydrosystem causes some fish to experience latent mortality, but strongly advises against continuing to try to measure absolute latent mortality. Latent mortality relative to a damless reference is not measurable. Instead, the focus should be on the total mortality of in-river migrants and transported fish, which is the critical issue for recovery of listed salmonids. Efforts would be better expended on estimation of processes, such as in-river versus transport mortality that can be measured directly." Gosselin, J. L., Zabel, R. W., Anderson, J. J., Faulkner, J. R., Baptista, A. M., & Sandford, B. P. (2018). Conservation planning for freshwater-marine carryover effects on Chinook salmon survival. Ecology and evolution, 8(1), 319-332. The results of third-party review, both the Corps' Independent Expert Peer Review as well as a recently released ISAB review of the CSS results have been included in the Final EIS. Initial review of the results of the peer review do not indicate fundamental flaws in either the CSS or NMFS approach and both models will continue to frame the potential outcomes associated with all MOs and the Preferred Alternative. Survival estimates from the University of Washington TDG model were not relied on for decision-making purposes but will be used to assess relative exposure indices. As noted by the ISAB in their review of the CSS model results generated for this EIS (ISAB 2020-1), changing climate conditions should be carefully assessed when considering potential impacts to salmon and steelhead, but the co-lead agencies note the concerns raised by the ISAB regarding the CSS's quartile range analysis and the likelihood or probabilities of SARs falling below 1 percent or above 2 percent. The co-lead agencies will evaluate that analysis as it evolves but are not relying on the probability analysis at this time.
31775	48	golc@critfc.org	Columbia River Inter-Tribal Fish Commission	- Due to erroneous operating assumptions provided by the Co-Lead Agencies, the modeling analysis of fish benefits is biased high All analyses by NOAA and the CSS were based on 80-year water record model generated data sets from the USACOE. The PA represents an operation that is based on an hourly operation, but the data sets provided to analyze the PA were based on daily average operations. The anomalies in the PA data sets were identified in a memorandum to the federal co-lead agencies (discussed below). The discussion of the benefits of the PA does not address the effect of the disparity of the data sets relative to the proposed operations. Specifically, the implications of analyzing an hourly operation (the PA) on the basis of a daily average operation (the PA data set), is not discussed in the DEIS. The PA fails to account for the fact that the data sets provided to the CSS project were in daily average time steps, yet the proposed operation occurs on an hourly time step therefore raising doubts regarding the results. The CSS (memo January 24, 2020) highlighted their concern that the CSS predicted benefits are overestimates of predicted SARs. This creates a CSS analysis which shows more benefit to survival than is likely to occur (biased high). In addition, the hydraulic data sets have powerhouse operations that do not represent reality. Instead of fully loading the powerhouse when possible as is common practice, flow through the powerhouse reduced which results in more spill occurring then would actually occur. CRITFC DEIS Comments April 13, 2020 Page 24 of 59 This would bias the fish models into to predicting better survival then what would occur. The DEIS PA fails to mention this or take the biological effect into consideration.	The co-lead agencies do not agree that results are biased high due to hourly vs. daily time steps. These models will be used to assess relative changes so minor bias if present would not be enough to change relative magnitude of the effect. In practice, model estimates may not overestimate PITPH due to day vs. night passage differences because limitations on nighttime spill reductions are already in place through the adaptive management process and lessons learned from the 2019 flexible spill operation. These adjustments in the amount of nighttime spill were informed by state, Tribal, and Federal biologists with expertise in dam operations and their effects to fish passage. These examples of adaptive management will continue during implementation of selected operations. Regarding the statement that powerhouse operations were modeled incorrectly: powerhouse estimates reflect historic availability and known future outages. In practice, it is rare for all units at a project to be available simultaneously for long durations. Powerhouse units undergo planned and unplanned outages at a frequency that is reflected in the models.
31775	49	golc@critfc.org	Columbia River Inter-Tribal Fish Commission	- The level of improvement (50% increase in survival) for new turbines at Ice Harbor, McNary, and John Day are unfounded and not supported by past data and research. The PA assumes installation of new turbines at John Day, Ice Harbor, and McNary dams. However, these actions are already planned to occur in the base case so it is misleading that they are identified as new fish benefit in the PA. Furthermore, the DEIS arbitrarily assumed that these turbines would have a 50% improvement in juvenile migrant survival. This assumption is not supported by any available studies. See detailed comments below in our comments on Effects Analysis modeling. Moreover, the PA indicates that generation capacity at John Day and McNary will increase hydraulic capacity. This increase in generation capacity was not included in the hydraulic modeling that was provided to the fish model or the economic models and would impact the results from both models. With more water going through the turbines, economic impacts would be reduced. More importantly, juvenile survival would be decreased (see detailed discussion below). This information needs to be considered against the unsubstantiated survival improvement accredited to the new turbines, something the analysis fails to do.	The measures for Ice Harbor and McNary IFP turbines were included in the No Action Alternative based on the progress made in design, environmental compliance, and implementation. These measures were carried forward in the Preferred Alternative along with the John Day IFP turbine measure. Sensor fish have successfully identified and played a significant role in solving spillway passage injuries at both The Dalles and Ice Harbor. Although certainly not a perfect analogue for a fish, their motions are controlled by the hydraulics of the water and structure impact and do provide a measure of the physical environment fish are passing through. Less violent sheer and turbulence is obviously a benefit for fish. Balloon tags do best represent the potential for trauma to passing fish and not total mortality. Certainly, fewer traumatic injuries would lead to a lower mortality rate. The magnitude of the survival rate increase for naturally passing fish is unknown. Relying on the best available science, the co-lead agencies assumed mortality would be halved. The assumption used in the COMPASS model was a 50% reduction in mortality, which translates into about 6% increase in survival rates. The actual magnitude that will be achieved is, of course, uncertain. However, given the extensive modifications throughout the turbine including the stay vanes, runner, and draft tube that create a passage environment with less violent sheer, significantly reduced chance of passing through gaps, elimination of very low pressures and great reduction of recirculation within the draft tube that would bring fish back to the turbine blades after passing most of the turbine an increased probability of both direct and indirect survival is reasonable. Again, the magnitude is uncertain. Turbine intake screens would not be removed, unless a telemetry based survival study demonstrates survival would not be decreased. The opinion that more fish would pass the turbine because of the increase hydraulic capacity is not accurate. The amount of water passing through the powerhouse is actually controlled by operation decisions on spill levels, and is not solely dependent on the hydraulic capacity of the turbines. It should be noted that only turbines at McNary would have increased hydraulic capacity.
31775	50	golc@critfc.org	Columbia River Inter-Tribal Fish Commission	- Additional bias or uncertainty in the PA analysis did not account for: Zero Generation in the Snake (as proposed for in the fall in the PA) has not been analyzed Avian losses are not accounted for (see below) Significant uncertainty from the Adaptive Management Appendix is not considered and all risk is on the fish side of the equation while minimizing risk on the hydro-power system. Looking at the PA data set in detail, spill plus powerhouse flows does not always equal daily average flow, by a lot. Sometimes water disappears and sometimes there is a lot of extra water (more than fishway flows for instance). Due to the uncertainties and modeling biases, significantly more fish mitigation measures should be considered to counter these uncertainties and allow the PA to be consistent with the NPCC goals of 5 million fish and 2-6% SARs. This was not disclosed or analyzed in the DEIS.	Zero generation operations will be constrained to periods of time when co-lead agencies expect fish impacts to be negligible. Additional analysis on the effects of this operation will be conducted by NMFS during the development of the 2020 Biological Opinion, which will be appended to the FEIS. Outflow through the dams are divided into multiple different types, mainly comprised of the powerhouse turbine flow and the spill. The spill flow has several different components. There is fish spill, powerhouse bypass channel, attraction spill, lack of market spill and forced spill due to lack of turbine capacity. In addition there is also miscellaneous flow, which includes lockages, leakage and other flows. For more information see Appendix B, Part 2: Spill Analysis. Contrary to statements in this comment, the Adaptive Management framework is not designed to increase risk for fish species, in contrast, it is anticipated to reduce overall risk and increase the region's knowledge of the effects of the Preferred Alternative and any reductions in latent mortality associated with passage through the CRS. Appendix R will be revised in the FEIS to clarify that point. Neither of the topics listed above require additional mitigation. In the event that model predictions from either model vary significantly, the co-lead agencies will coordinate with regional parties and consider modifying the associated mitigation package as appropriate. As noted the Northwest Power and Conservation Council's goals of 5 million fish and 2-6% SARs represent targets for broad-sense recovery and are separate and distinct from the obligations of any single entity or in this case a requirement to be met solely by the co-lead agencies. Just as the Councils fish and wildlife program encompasses both Federal and non-Federal stakeholders in the Columbia Basin, the Councils recovery goals are shared by many parties. Even so, and with respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% (within the Northwest Power and Conservation Council recovery targets for the region) as a result of the Preferred Alternative. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin.
31775	51	golc@critfc.org	Columbia River Inter-Tribal Fish Commission	G. The DEIS fails to Disclose the Regional Importance of the Northwest Power Acts Fish and Wildlife Program or Analyze Whether the Actions Proposed in the DEIS are Consistent with the Program The DEIS discussion of the Northwest Power Acts Fish and Wildlife Program focuses on the cost of the program, fails to note its benefits, and does not disclose or analyze the individual measures within the Program for which the co-lead agencies have statutory obligations to take into account and implement. In various iterations the Program has been in existence since 1982. The region invests hundreds of millions of dollars in its implementation annually, but here is the thrust of the DEIS discussion. CRITFC DEIS Comments April 13, 2020 Page	Bonneville's Fish and Wildlife Program is first described in Section 2.4.2 as an existing program under the No Action Alternative that will continue. This section provides a high-level overview of Bonneville's Fish and Wildlife Program, many of its major subprograms and their benefits, including habitat actions, hatchery actions, predator management, lamprey research and mitigation, and wildlife mitigation. Section 2.4.2 also describes some of the many CRS improvements and the associated benefits for fish. The fish and wildlife mitigation projects that Bonneville funds have been recommended by the Northwest Power and Conservation Council (Council) and either derive from, or have been incorporated into, the Councils Columbia River Basin Fish and Wildlife Program. Further, the Independent Scientific Review Panel periodically reviews the mitigation projects under certain statutory criteria. And for fish and wildlife managers that implement Northwest Power Act mitigation through Fish Accord agreements with the co-lead agencies, the managers and co-lead agencies have agreed that such mitigation projects are consistent with the Councils Fish and Wildlife Program.

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				25 of 59 Each year Bonneville funds projects with many local, state, tribal, and Federal entities to fulfill its Northwest Power Act fish and wildlife responsibilities and to implement offsite mitigation actions listed in various Biological Opinions for ESA-listed species. Offsite protection and mitigation actions, called enhancement, typically address impacts to fish and wildlife not caused directly by the CRS, but there are actions that can improve the overall conditions for fish to help address uncertainty related to any residual adverse effects of CRS management and climate variability on fish and wildlife	Funding decisions for the Fish and Wildlife Program are not being made as a part of the CRSO EIS process. However, a range of potential Fish and Wildlife Program costs are included with the alternative to inform the broader cost analysis for each alternative in the EIS. By analyzing a range of costs, Bonneville reflects the year-to-year fluctuations related to managing its program and also acknowledges the uncertainty around both the magnitude of biological benefits and the potential impacts on funding, including the timing of funding decisions. Future budget adjustments to the Fish and Wildlife Program would be made in consultation with the region through Bonneville's budget-making processes and other appropriate forums and consistent with existing agreements.
31775	52	golc@critfc.org	Columbia River Inter-Tribal Fish Commission	DEIS 7-39. The benefits of the Fish and Wildlife Program are not adequately disclosed or analyzed. Offsite mitigation is intended to replace survival benefits that cannot be fully addressed through modifying operations of the hydropower system alone 16 USC 839b(h)(8)(A). Offsite protection and mitigation compensate for losses arising from the development and operation of the CRS hydroelectric facilities.	Many of the mitigation programs funded by the co-lead agencies consist of offsite mitigation. Bonneville's Fish and Wildlife Program is primarily an off-site mitigation or enhancement program. See, 16 U.S.C. 839b(h)(8)(A). The co-lead agencies consider actions not at the CRS dam and reservoir projects to improve conditions for fish affected by the CRS to be offsite mitigation actions. This is consistent with the co-lead obligations under various applicable Federal laws, including the ESA and the Northwest Power Act. Bonneville's Fish and Wildlife Program is first described in section 2.4.2 as an existing program under the No Action Alternative that will continue. This section provides a high-level overview of Bonneville's Fish and Wildlife Program, many of its major subprograms and their benefits, including habitat actions, hatchery actions, predator management, lamprey research and mitigation, and wildlife mitigation. Section 2.4.2 also describes some of the many CRS improvements and the associated benefits for fish. In addition to this overview of Bonneville's Fish and Wildlife Program, the description of the affected environment throughout the relevant sections in Chapter 3 of the EIS, by definition, reflects the effects of past and ongoing mitigation efforts, even if they are not itemized or highlighted as being the results of a specific mitigation effort. NEPA does not require the agencies to distinguish the past and ongoing effects of all the mitigation projects Bonneville has funded over the 40-year history of the Northwest Power Act, particularly given that Bonneville now uses over 600 contracts annually to implement its Fish and Wildlife Program. In addition, the Agencies 2020 CRS Biological Assessment includes analysis of the implementation and effectiveness of both tributary habitat restoration actions and the CRS overhaul. The Northwest Power Act requires Bonneville to fund mitigation consistent with the Northwest Power and Conservation Councils (Council) Columbia River Basin Fish and Wildlife Program (Program) and the purposes of the Act. The Council develops its Program based largely on the recommendations and expertise of fish and wildlife managers. The mitigation projects that the Council recommends to Bonneville for funding derive from their Program. Further, the Independent Scientific Review Panel periodically reviews the mitigation projects under to certain statutory criteria that, for example, include examining whether projects are based on sound scientific principles and benefit fish and wildlife. 16 U.S.C. 839b(h)(10((D)(iv). These statutory processes for vetting and reviewing implementation of mitigation projects provide a reasonable basis for the co-lead agencies to rely on these projects being effective. In addition, for fish and wildlife managers that implement Northwest Power Act mitigation through Fish Accord agreements with the co-lead agencies, the managers and co-lead agencies have agreed that such mitigation projects are consistent with the Councils Program, the underlying assumption being that the mitigation projects address appropriate obligations under the Council Program, and do so effectively. Further information about the policies and mandates of the Northwest Power Act and other statutes is in Chapter 5.1.2, and Chapter 8 discusses how the co-lead agencies complied with various laws, including the ESA and Northwest Power Act.
31775	53	golc@critfc.org	Columbia River Inter-Tribal Fish Commission	The NAA alternative assumes the 2016 Program. However, the DEIS fails to disclose and analyze the fact that BPA has reduced Fish and Wildlife Program funding since 2016, cutting the budget by $30M in 2018 due to spill surcharge and negotiated reductions. This reduction in mitigation spending is not accounted for in the PA analysis and creates bias in cost analysis as well as assumptions about the benefits of current mitigation actions. In addition, the co-lead agencies discuss reducing the off-site fish and wildlife mitigation funding if the benefits to fish are as anticipated. The DEIS fails to disclose or analyze what level of benefit (abundance, SARs, etc.) that will drive that discussion and decision. Nor does the DEIS disclose or analyze the process or timeline for consideration of that discussion and decision.	Funding decisions for the Bonneville F&W Program are not being made as a part of the CRSO EIS process. However, a range of potential F&W Program costs are included to inform the broader cost analysis for each alternative in the EIS. In the case of the Preferred Alternative, Bonneville included a range of potential F&W Program costs to acknowledge the possibility that the Preferred Alternative could provide biological benefits to anadromous fish species (see Chapter 7 of the EIS, Preferred Alternative) and that this could, in turn, reduce the need for some offsite mitigation funded through the Bonneville F&W Program. By analyzing a range of costs, Bonneville reflects the year-to-year fluctuations related to managing its program and also acknowledges the uncertainty around both the magnitude of biological benefits and the potential impacts on funding, including the timing of funding decisions. Future budget adjustments would be made in consultation with the region through Bonneville's budget-making processes and other appropriate forums and consistent with existing agreements. In 2016, Bonneville's F&W Program budget was $267,000,000, and the LSRCP budget was $32,303,000. When these budgets are adjusted to represent 2019 dollars, they become $281,536,000 and $34,062,000, respectively, which are the budgets used under the No Action Alternative. For the Preferred Alternative, Bonneville would continue funding the operations and maintenance of the LSRCP facilities, consistent with the No Action Alternative. Bonneville's F&W Program costs under the Preferred Alternative are estimated to range from no change from the No Action Alternative to a decrease of approximately 17 percent, or approximately $47 million, annually. Bonneville's fiscal year 2020 decisions to adjust the F&W Program budget to $249 million and the LSRCP budget to $30.5 million (BP-18 Rate Case) are consistent with the range of costs analyzed for the Preferred Alternative. see Appendix Q, Chapter 7 Summary of All Costs. Additional details concerning decision-making with regard to adaptive management for juvenile fish passage spill operations have been added to Appendix R.
31775	54	golc@critfc.org	Columbia River Inter-Tribal Fish Commission	H. The Mitigation Package Contained in the DEIS is Lacking There is very little offered in the PA in terms of fish mitigation. Most fish mitigation is ongoing, and the discussions regarding this ongoing mitigation do not disclose its extent or effects on listed and non-listed species. (see Fish and Wildlife Program and Avian Predation discussions). With respect to new fish mitigation measures proposed in the DEIS: - The only new operational measure with fish benefit is JDA pool operations to aid with predation dissuasion. - The off-season surface spill study for Steelhead overshoots (and bull trout migration) has been reduced to studies only. This is an important mitigation action that needs to occur as soon as possible under any alternative and not wait for additional studies. - Tributary habitat restoration at a slower implementation pace than the NAA, due to budget cuts.	The Preferred Alternative includes actions that benefit fish species and habitat through additional measures, ongoing programs, mitigation measures, and ESA consultation. As described in Section 7.6.1, a number of measures that are carried forward, modified, or added from the alternatives in Chapter 2 are intended to improve survival of anadromous salmon and steelhead, lamprey, and resident fish. Some examples are structural measures for lamprey passage, juvenile fish passage spill operations, and predator disruption operations. Section 7.6.4.1 provides summaries of the ongoing programs that would be carried forwarded in the Preferred Alternative. The majority of those ongoing programs are mitigation currently being implemented. Additional mitigation measures identified to offset effects from measures in Section 7.6.1 are presented in Section 7.6.4.2 that include mitigation measures for fish effects (Plant Cottonwood Trees (Up to 100 Acres) Near Bonners Ferry for resident fish and Temporary Extension of Performance Standards Spill Operation for adult salmonid passage delays). Section 7.6.4.3 describes the measures incorporated into the Preferred Alternative as a result of informal and formal ESA consultation. The Bull Trout Access to Perched Tributaries in the Kootenai River measure includes both completing an assessment and two projects for upstream passage. The Surface Spill to Reduce Take of Overshooting Adult Steelhead measure would provide an operational method to address the overshooting steelhead. The Preferred Alternative is anticipated to benefit anadromous fish compared to the No Action Alternative, and therefore no additional mitigation is proposed. Chapters 2, 5, and 7 discuss the co-lead agencies' ongoing mitigation programs, and the co-lead agencies are unaware of the concern from the commenter that tributary habitat restoration is occurring at a slower pace currently.
31775	55	golc@critfc.org	Columbia River Inter-Tribal Fish Commission	I. The DEIS Fails to Adequately Analyze the Current Avian/Predator Measures or Add New Measures CRITFC DEIS Comments April 13, 2020 Page 26 of 59 Predator management actions identified for the PA, while continuing, are actually at a lower level than the NAA due to budget cuts and lack of commitment by COE. Recent avian predation rates indicate that avian predation continues to be a major source of fish loss in both CRS reaches and the estuary. The extent of this fish loss is not adequately portrayed or accounted for in the EIS analysis. The DEIS proposes to continue current actions regarding avian predation, with the only new mitigation action identified being the John Day Pool operation. However, two of the three current plans have been declared complete and none of the plans have met their biological goals. More specifically, the DEIS discusses the continued implementation of three active management plans for avian predators: 1) the Double-Crested Cormorant Management Plan to Reduce Predation of Juvenile Salmonids in the Columbia River Estuary, 2) the Caspian Tern Management Plan to Reduce Predation of Juvenile Salmonids in the Columbia River Estuary, and 3) Inland Avian Predation Management Plan (IAPMP). Without specificity, the Corps also points to site specific management actions at many CRS dams. We support the Corps commitment to the existing plans, though each plan is fraught with problems, in their own ways.	The co-lead agencies have historically supported actions to mitigate adverse effects to listed species from CRS operations, through funding, direct implementation, and other means. Under the Preferred Alternative, those actions, including implementation of actions for the purpose of reducing predation on ESA-listed species, would generally continue to ensure compliance with the ESA. This includes continued implementation of (1) dissuasion measures at the Corps hydropower facilities as described in the annual Fish Passage Plan and coordinated with the FPOM, (2) the Inland Avian Predation Management Plan (IAPMP), (3) CATE management plan for reduction in habitat at East Sand Island, and (4) the Double-crested cormorant (DCCO) management plan at East Sand Island. The goal of the CATE management plan was to reduce habitat at East Sand Island to a minimum of 1.0 acre following the creation/enhancement of habitat at alternative sites outside of the Columbia River basin. Habitat creation/enhancement was completed and habitat at East Sand Island reduced to 1.0 acre preceding the 2015 breeding season. The number of breeding pairs nesting on East Sand Island was used as a proxy to assess predation rates, but the stated goal of the plan was defined as an acreage of habitat and not the number of pairs in the estuary which has been met. The one acre of habitat will continue to be maintained through the Corps Operations and Maintenance group and coordinated with the FPOM. As described in the DCCO management plan, an average 3-year peak estimate of the breeding colony would be used to assess management objectives after implementation of Phase II activities (i.e. habitat modification). Actions would be considered successful when the average 3-year peak colony size estimate does not exceed 5,380 5,939 breeding pairs while no management activities are conducted. In coordination with USFWS, the Corps defines no management activities to mean non-lethal activities described in Chapter 5 of the FEIS. Specifically, Phase II activities are intended to consist of lower maintenance, non-lethal hazing and dissuasion actions that reduce the amount of human presence needs on East Sand Island to ensure colony size objectives are not exceeded. Hazing and dissuasion activities would be implemented as needed, and would continually transition to methods that are most effective, least impactful to non-target species, and require the least management effort and cost. Pending evaluation of the peak colony size during the 2020 breeding season, if the average three-year breeding colony is less than 5,939 breeding pairs, management objectives will be met and actions will transition long-term operation and maintenance of the colony. The Inland Avian Predation Management Plan (IAPMP) for the Corps and Bureau of Reclamation managed land on the Columbia Plateau has been focused on reducing predation by Caspian terns with initial efforts being implemented at Goose Island (Potholes Reservoir near Othello, WA) and Crescent Island (McNary Reservoir near Burbank, WA). The objectives of the IAPMP have been met at these two locations in recent years and as of 2019, there has been a 49% reduction in the total number of Caspian terns nesting on the Columbia plateau region since implementation of the IAPMP begun (Collis et al. 2020; http://www.birdresearchnw.org/2019%20GPUD%20Final%20Report.pdf). Adaptive management efforts to dissuade incipient colonies that have formed following implementation of the IAPMP have been implemented in Potholes Reservoir including at the NW Rocks starting in 2014 and at small islands in the northern portions of Potholes Reservoir starting in 2015. The co-lead agencies continue to monitor and adaptively manage all of Potholes Reservoir to dissuade terns from nesting on agency-managed lands in the area. However, the co-lead agencies recognize that some Caspian terns have moved to other locations and that some of these locations are managed by other entities where the AAs do not have authority and/or management responsibility. While it is recognized that the IAPMP goal of less than 2% predation at all Caspian tern nesting colonies within the Columbia River plateau has not been met to date, primarily due to the incipient colony within the Blalock Islands complex, the co-lead agencies will continue to work closely with these other entities in the region who have authorities and obligations to mitigate the impacts from avian predators to benefit ESA-listed salmonids.
31775	56	golc@critfc.org	Columbia River Inter-Tribal Fish Commission	- Inland Avian Predation Management The co-lead agencies execution of the IAPMP has failed to keep colony specific avian predation rates less than 2% per ESU or to maintain breeding colonies at less than 40 pairs of nesting terns (e.g. Blalock Island). However, the greatest deficiency of the IAPMP is not in the execution of the plan, but the biological scope of the plan. At the time the IAPMP was written and implemented, we knew very little about other avian predator species and their impacts on ESA salmon and steelhead. The co-lead agencies have funded research and continues fund research that has added to our understanding of the impacts of avian predation and must be reflected in the IAPMP. For example, recent research has estimated Upper Columbia steelhead mortality by all species of avian predators to be as high as 53%. Gulls in the plateau region (e.g. Miller Island) are now known to contribute, largely, to the high steelhead and sockeye mortality estimates (Figure 5). For Miller Rocks the 2007 to 2019 average Gull predation on Snake River Sockeye has been 6.2%, Snake River Steelhead 7.2% and Upper Columbia Steelhead 8.2%. Hence, the IAPMP must be broadened to include all predatory avian species, not just Caspian terns. This predation is occurring in the affected area of the DEIS. The majority of this predation takes place in the tailrace of the dams and is directly related to presences and operation of the dams. CRITFC DEIS Comments April 13, 2020 Page 27 of 59 Figure 5 Upper Columbia River steelhead mortality from Rock Island to Bonneville, reprinted from System-wide Effects of Avian Predation on the Survival of Upper Columbia River Steelhead: Implications for Predator Management, Evans, A., 2019. Note, green bars with suffix LAXX refers to gull species (MRI LAXX refers to the gull colony on Miller Rocks). CATE is Caspian tern and DCCO is double-crested cormorant. 2020 marks the first year that the Bureau of Reclamation (BOR) has funded dissuasion efforts on Goose Island. In 2019, the Priest Rapids Coordinating Committee funded all of the dissuasion and vegetation effort. It is our understanding that BORs work represents a 50% reduction in effort from 2019. Were skeptical that BOR will produce the same results as the PRCC with only half the effort. Furthermore, the DEIS states, Reclamation will continue passive and active dissuasion efforts on Goose Island. There are dozens of islands in the Potholes reservoir area. All of the islands are in BORs jurisdictional authority and any of them could host the next colony of Caspian tern or another avian predator. BORs avian predation responsibility to all the areas in their jurisdiction, not only Goose Island, should be clearly stated in the DEIS.	The co-lead agencies legal authorities relate to operating and maintaining the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. To comply with the ESA, the co-lead agencies have historically supported actions to mitigate adverse effects to listed species from CRS operations, through funding, direct implementation, and other means. Under the Preferred Alternative, those actions, including for the purpose of reducing pinniped and avian predation on listed species, would generally continue to ensure compliance with the ESA. Other entities in the region have authorities and obligations to mitigate the impacts from pinniped and avian predators and the co-lead agencies will continue to work closely with those entities to benefit ESA-listed salmonids. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative, which includes measures to reduce predation by avian predators, would provide benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. The primary driver for these benefits to anadromous fish is increased spill during the juvenile fish migration. The Inland Avian Predation Management Plan (IAPMP) has been focused on reducing predation by Caspian terns with initial efforts being implemented at Goose Island (Potholes Reservoir near Othello, WA) and Crescent Island (McNary Reservoir near Burbank, WA). The objectives of the IAPMP have been met at these two locations in recent years and as of 2019, there has been a 49% reduction in the total number of Caspian terns nesting on the Columbia plateau region since implementation of the IAPMP begun (Collis et al. 2020; http://www.birdresearchnw.org/2019%20GPUD%20Final%20Report.pdf). Adaptive management efforts to dissuade incipient colonies that have formed following implementation of the IAPMP have been implemented where the co-lead agencies have authority and management responsibilities which includes Potholes Reservoir including at the NW Rocks starting in 2014 and at small islands in the northern portions of Potholes Reservoir starting in 2015. The co-lead agencies continue to monitor and adaptively manage all of Potholes Reservoir to dissuade terns from nesting on co-lead agency managed lands in the area and this is anticipated to continue as described in the Draft EIS. However, the co-lead agencies recognize that some Caspian terns have moved to other locations and that some of these locations are managed by other entities outside of the co-lead agencies current management abilities. The co-lead agencies will continue to work closely with these other entities in the region who have authorities and obligations to mitigate the impacts from avian predators to benefit ESA-listed salmonids as well as implement a new reservoir management operation for the John Day reservoir to dissuade nesting Caspian tern as described in the Draft EIS. The IAPMP was developed with the best information available at the time and gulls were not identified as warranting directed management efforts at nesting colony locations by the co-lead agencies at agency-managed properties at that time. The co-lead agencies propose to continue, under the Preferred Alternative, predation reduction measures such as hazing at the agencies' CRS facilities as described in the Draft EIS to ensure the operation of the CRS does not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat. The co-lead agencies can only address certain types of predation by gulls, such as when they are foraging within the direct footprint of the co-lead agencies' CRS facilities where the agencies have management abilities. Other entities in the region have authorities and obligations to mitigate the impacts from avian predators as well and the co-lead agencies will continue to work closely with those entities to benefit ESA-listed salmonids. Management of gulls at Miller Rocks just upstream of Miller Island is not feasible by the co-lead agencies as they do not own or manage this property and therefore do not have the authority or abilities to manage avian predation at this location.

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					The Bureau of Reclamation has been engaged with and funding actions associated with management of piscivorous waterbirds on the Columbia River plateau including at Potholes Reservoir since 2010. Starting in 2014 when the implementation of the IAPMP begun, BOR began funding their respective commitments associated with implementation of the IAPMP in coordination with the other co-lead agencies. While the Priest Rapids Coordinating Committee has funded additional avian predation efforts in the region, and agreed to fund all 2019 activities at Potholes Reservoir, the Bureau of Reclamation intends to continue implementing and funding future actions necessary to implement the IAPMP where they are the responsible agency.
31775	57	golc@critfc.org	Columbia River Inter-Tribal Fish Commission	- Caspian Tern (CATE) Predation Management at East Sand Island The USFWS has not (e.g. will not) issued egg taken permits for non-managed satellite colonies on ESI. This means that if an egg is laid outside the managed colony, the nest becomes protected under the auspices of the migratory bird treaty act. Terns are colonial nesters and if one nest becomes protected, it will likely result in a new colony. At a minimum, egg take permits must be issued. Until 2019, the AAs, researchers and the adaptive management team targeted 3,125 nesting pairs on terns on the managed colony. That target was a widely accepted but never achieved. In 2019, CRITFC DEIS Comments April 13, 2020 Page 28 of 59 USFWS began citing the upper number in the range as the target (4,375) without explaining its rationale. This was a departure from the widely accepted management goal of 3,125. The CATE Predation Plan has not met its biological goals for nesting numbers in most years nor has it met its original biological goals, as stated in previous BiOps, of reducing CATE predation on steelhead to less than 6%. The COE has not moved to further reduce habitat at ESI to achieve the nesting pair goal and has moved funding away from this program to Operation and Maintenance, which has a negative funding trajectory. This calls into question the certainty of the future support and funding of these management operations.	The co-lead agencies legal authorities relate to operating and maintaining the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. To comply with the ESA, the co-lead agencies have historically supported actions to mitigate adverse effects to listed species from CRS operations, through funding, direct implementation, and other means. Under the Preferred Alternative, those actions, including for the purpose of reducing pinniped and avian predation on listed species, would generally continue to ensure compliance with the ESA. Other entities in the region have authorities and obligations to mitigate the impacts from pinniped and avian predators and the co-lead agencies will continue to work closely with those entities to benefit ESA-listed salmonids. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative, which includes measures to reduce predation by avian predators, would provide benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. The primary driver for these benefits to anadromous fish is increased spill during the juvenile fish migration. The Corps Caspian Tern Management to Reduce Predation of Juvenile Salmonids in the Columbia River Estuary Final Environmental Impact Statement (FEIS) (2005) and Record of Decision (2006) (the Management Plan identified a Caspian tern population level goal of approximately 3,125 - 4,375 pairs at East Sand Island. This goal has been met in 2017 and 2019 respectively. The Management Plan stated tern nesting habitat could be reduced to (but not less than) 1.0 acre. Tern nesting habitat has been managed at 1.0 acre since 2015, and the nesting pair goal was met in 2017 and 2019. The co-lead agencies responsibilities under the Record of Decision will continue to be funded and implemented. At the conclusion of a 2020 Synthesis Report, and preliminary information from the 2020 season, the co-lead agencies will work with the Services through the appropriate Regional Forum workgroup(s) (e.g., FPOM) to determine need for and scope of future co-lead agency-sponsored Caspian tern management and monitoring
31775	58	golc@critfc.org	Columbia River Inter-Tribal Fish Commission	- Double-crested Cormorant Predation Management at East Sand Island The DEIS predation section essentially restates the Corps responsibility to the DCCO ESI management plan. After modifying the terrain on ESI in a way that was consistent with the management plan, the COE stated that they have met the management objectives of this plan and are phasing this program out. However, the COE did not meet its biological goals of nesting pairs on ESI prior to making terrain modification. This has caused a majority of the colony to move further upstream and enhance and create new incipient colonies at such sites as Astoria-Megler Bridge (Figure 6), a location known as The Towers, various Navigation Markers, and the Longview Bridge. The COE can say they are closing out their management plan, but their actions to date have not meet the biological goals of reducing DCCO predation. Rather, they have moved the birds further upstream which will likely increase their predation impacts on listed salmon and steelhead stocks. Like the tern management plan, future funding for this program has been moved to the Corps of Engineers Operation and Maintenance budget which has a negative funding trajectory. This calls into question the certainty of the future support and funding of these management operations. CRITFC DEIS Comments April 13, 2020 Page 29 of 59 Figure 6. Double-crested cormorant breeding pair colony growth on Astoria-megler Bridge. Reprinted from data collected by Lawon, J. (ODFW), 2019.	The co-lead agencies legal authorities relate to operating and maintaining the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. To comply with the ESA, the co-lead agencies have historically supported actions to mitigate adverse effects to listed species from CRS operations, through funding, direct implementation, and other means. Under the Preferred Alternative, those actions, including for the purpose of reducing pinniped and avian predation on listed species, would generally continue to ensure compliance with the ESA. Other entities in the region have authorities and obligations to mitigate the impacts from pinniped and avian predators and the co-lead agencies will continue to work closely with those entities to benefit ESA-listed salmonids. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative, which includes measures to reduce predation by avian predators, would provide benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. The primary driver for these benefits to anadromous fish is increased spill during the juvenile fish migration. Although the goal of the Double-crested Cormorant Management Plan to reduce the number of DCCOs nesting on ESI has been met in the last few years, avian predation on migrating salmon and steelhead in the lower Columbia River likely persists. The size of the DCCO colony on the Astoria-Megler Bridge has increased in every year since monitoring began in 2004 (with the exception of 2010), with the largest numerical increase in colony size [prior to 2020] occurring in 2018, when the colony more than doubled as compared to the size of the colony in 2017 (834 nests) (Turecek et al. 2018). The co-lead agencies authority to manage avian predators away from the CRS projects is limited to dredged material islands in the Columbia River estuary. Management of avian predators in the locations specified in the comment are beyond the authority of the co-lead agencies and therefore outside the scope of the Double-crested Cormorant Management Plan, and outside the scope of this EIS. Other entities in the region have authorities and obligations to mitigate the impacts from avian predators as well and the co-lead agencies will continue to work closely with those entities to benefit ESA-listed salmonids. The implementation of all measures is dependent on funding availability. The co-lead agencies responsibilities under the Double-crested Cormorant Management Plan will continue to be funded and implemented. At the conclusion of a 2020 Synthesis Report, and preliminary information from the 2020 season, the co-lead agencies will work with the Services through the appropriate Regional Forum workgroup(s) (e.g., FPOM) to determine need for and scope of future co-lead agency-sponsored Caspian tern management and monitoring
31775	59	golc@critfc.org	Columbia River Inter-Tribal Fish Commission	- Sea Lions While the California Sea Lion program has been successful (and presumedly continues), it is limited geographically to the Bonneville tailrace, and it is unclear if a Stellar Sea Lion program is included in the EIS.	Section 3.6 does consider the effects of the alternatives, including the No Action Alternative, on Steller Sea Lions. The co-lead agencies legal authorities relate to operating and maintaining the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. To comply with the ESA, the co-lead agencies have historically supported actions to mitigate adverse effects to listed species from CRS operations, through funding, direct implementation, and other means. Under the Preferred Alternative, those actions, including for the purpose of reducing pinniped (California and Steller sea lions) and avian predation on listed species, would generally continue to ensure compliance with the ESA. Other entities in the region have authorities and obligations to mitigate the impacts from pinniped (both California and Steller sea lions) and avian predators and the co-lead agencies will continue to work closely with those entities to benefit ESA-listed salmonids.
31775	60	golc@critfc.org	Columbia River Inter-Tribal Fish Commission	J. Lamprey Measures Are Incomplete in the DEIS and Their Funding is Uncertain The lamprey measures listed in the have been identified since 2016. They have not been implemented due to lack of funding commitment by the co-lead agencies. The lamprey measures disclosed in the DEIS represent only a portion of the list of needed lamprey actions even as identified in the Corps Lamprey Priority Matrix, which is itself just a start, and does not cover all lamprey needs. Recent funding commitments only provide funding through about 2022, and it unclear how that funding relates to this EIS and implementation of the lamprey measures identified for the DEIS. Future lamprey actions through the 25-year term of CRS EIS have not been identified, nor has their funding. With the reduction/phase out of the CRFM budget (also discussed above), funding for additional and future lamprey measures is uncertain. Including all actions in the matrix would demonstrate the importance of the actions, provide NEPA coverage, and assist with future funding requests.	The co-lead agencies recognize the importance of Pacific lamprey and will continue to work with CRITFC, CRITFC member tribes, and regional entities through existing frameworks such as the Corps-Tribal Lamprey Work Group, the Pacific Lamprey Conservation Initiative and the Corps Regional Forum workgroups (e.g., FFDRWG) to implement ongoing programs, as well as the lamprey measures described in the Preferred Alternative. The analyses completed and described in this Draft EIS were for the purposes of comparing the effects of the multiple objective alternatives for operation, maintenance, and configuration of the CRS projects to one another and to the No Action Alternative. The measures in the Draft EIS to meet the objective of improving conditions for Pacific lamprey were developed to address issues described in the Affected Environment and Effects of the No Action Alternative. These measures were designed to work in concert with the ongoing mitigation programs related to lamprey, such as habitat restoration, reintroduction and translocation, and other efforts. Measures identified in the Draft EIS do not include all lamprey passage improvements that could be potentially implemented at the lower Columbia and lower Snake River dams, but the Corps believes that potential actions contemplated in preliminary lamprey program planning discussions with CRITFC staff and others related to the 2018 Accords Extensions are consistent with the measures and analyses included in the Draft EIS. CRITFC is correct that actions beyond the scope of the measures included in the Draft EIS or ongoing activities would potentially require further NEPA analysis. Lamprey measures identified in the Draft EIS (and similar operational or structural measures) do not include research, monitoring or evaluation actions that may be needed to refine passage designs, inform operations, or address critical uncertainties. This includes the juvenile lamprey and adult lamprey migration behavior and fate studies identified in the 2018 Accords Extensions and in subsequent program planning and coordination discussions with CRITFC and others. For the purposes of the Draft EIS, measures must address known operational and structural issues, but this does not preclude development and implementation of future juvenile and adult lamprey studies. For Columbia River System dams, it is accurate to note that CRFM annual appropriations have declined over the past couple years and are projected to remain lower into the near future. However, a reduced reliance on the CRFM program into the future is a result of significant investments in construction of components of the dams for the benefit of improved salmon passage. The Corps CRS fish program is now transitioning to a program that is expected to be primarily sustained through long-term Operations and Maintenance funding. For future construction requirements aimed at improving anadromous fish passage throughout the CRS, the Corps will continue to express capability in the annual budgeting process. However, implementation of all measures including lamprey measures is dependent on funding availability. In 2020, the Corps did receive $20M in funding to implement actions contemplated in the 2018 Accords Extensions. As noted by CRITFC, and in similar comments from CTUIR, the Corps is currently refining cost estimates and developing a preliminary implementation plan for this $20M program. The Corps will continue to coordinate closely with CRITFC and other Accords tribes on prioritization of actions within this program and will continue to ensure consistency with measures identified and analyzed in the Draft EIS.
31775	61	golc@critfc.org	Columbia River Inter-Tribal Fish Commission	K. Additional Measures Could be Added to the Mitigation Package in the DEIS The following list includes potential mitigation actions that could be implemented to mitigate for fish impacts. These actions were identified and suggested during the development of the mitigation toolbox but are not currently identified in the Draft EIS as potential mitigation. We were never told the disposition of our recommendation to add these items to the toolbox. With the uncertainty of the action moving forward, and the reliance on an adaptive management framework as identified in the Adaptive Management Appendix, it is important that these actions be included somewhere in the EIS analysis to provide the NEPA coverage for quick implementation and to assist with identifying funding. As noted above, these should be disclosed and analyzed in the PA, but were not as currently drafted. - Predation actions noted above; - Adult ladder temperature cooling pumps for McNary and John Day; - Vertical slot weir gates for adult steelhead fallback post spill make operation more cost effective; - Evaluate options to increase the number of RSW/TSW at dams to create the best possible surface passage attraction flow and increase the number of surface passage routes. (This alternative would require modifications of existing spill patterns and would need to be modeled); - Evaluate potential options to increase Kelt collection at projects in both Snake and lower Columbia; - Replace/place Cells at Little Goose Dam North Shore adult entrance; - Replace trunnion pin and wire ropes at The Dalles spillway; - Install additional Spillway Pit Detection (Ice Harbor, work collaboratively with Mid-Col to get detection there, possibly Wannapum, and location in lower Columbia); - Increase Pit Barges and other detection arrays below and at Bonneville Dam; - Implement shad reduction measures; - Look at ways to fund/implement 10-year Lamprey Plan (Strong need to get juvenile active tag study going); - During times when no adult ladders in operation, (ie LWG and LGS) run the RSW to assist overshot steelhead; - Work to increase funding through CRFM and O&M to ensure actions and maintenance will be completed; and - Continue to address measures under consideration in SCT analyses.	Appendix R, Part 3 presents the mitigation toolbox including rationales for not carrying forward mitigation measures. Potential actions as listed in this comment, especially the structural actions, may require further refinement for site-specific analysis under NEPA and other applicable laws. The commenter's proposed mitigation measures do not appear to offset impacts associated with implementing the Multiple Objective alternatives (MOs), including the Preferred Alternative. These mitigation measures were proposed in the workshop process and not selected because they did not offset identified effects of the MOs, and were not carried forward into the Preferred Alternative.
31775	62	golc@critfc.org	Columbia River Inter-Tribal Fish Commission	L. The Adaptive Management Appendix Lacks Sideboards and Injects Significant Layers of Uncertainty Without Analysis - Flex Spill is only for one year, making outyear operations highly uncertain CRITFC DEIS Comments April 13, 2020 Page 31 of 59 The Adaptive Management Appendix essentially reduces the proposed action to a single year, with uncertainty of operation for the rest of the term of the EIS. The DEIS fails to analyze the single year commitment to Flex Spill and instead assumes a long-term commitment without regard to any consensus from all parties to deviate from that fixed operation.	The framework for the adaptive management process is detailed in Appendix R, Part 2, Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS. It is the intention of the co-lead agencies to engage regional state, Tribal, and Federal fish managers in the development of an appropriate adaptive management process utilizing their respective salmonid management expertise. The goal of that adaptive management process would be to consider additional opportunities to further the effectiveness of the operation while maintaining the goals of the flexible spill operation: additional improvements for salmon and steelhead, maintain opportunities to operate the CRS for hydropower generation in a flexible manner that provides value to the Northwest, is implementable by the dam operators, and provides opportunity to reduce uncertainty and improve the learning opportunities around how operations of the CRS can influence the magnitude of latent mortality effects. The co-lead agencies have not made any determinations on what the preferred approach would be for a regionally developed study plan, and intend to develop that study jointly with regional experts. Unforeseen outcomes or unintended consequences will be monitored and adjusted using current in-season management teams, such as the Technical Management Team. The co-lead agencies do not feel that the short-term nature of this operation is an accurate interpretation of the Preferred Alternative. If no adaptive management needs are identified, the operation would continue through the duration of the ESA consultation period. The co-lead agencies will provide additional clarifying text in Appendix R to make these points more clearly.
31775	63	golc@critfc.org	Columbia River Inter-Tribal Fish Commission	#NAME?	The co-lead agencies are currently in discussions with other federal agencies, the states, and Tribes on the structure of this forum. While the intent is to keep the spirit of the FSWG as previously utilized, there will be some modifications to the Draft EIS in this area based on our current discussions with these entities.

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31775	64	golc@critfc.org	Columbia River Inter-Tribal Fish Commission	- Fourth Pillar to test latent mortality opens wide uncertainty Appendix X unilaterally adds a Fourth Pillar to the Flex Spill Agreement pillars to require testing for latent mortality. Previous discussions have looked at a block study as this test. A block would decrease the PAs spill operation and constitute unanalyzed fish effects. Other potential tests could do the same. This was not disclosed in the DEIS. -	The framework for the adaptive management process is detailed in Appendix R, Part 2, Process for Adaptive Implementation of the Flexible Spill Operational Component, of the Columbia River System Operations EIS. The latent mortality test is not specifically defined in the Draft EIS because it was the intention of the co-lead agencies to engage regional state, Tribal, and Federal fish managers in the development of an appropriate adaptive management process including development of a test to ensure effectiveness of the measure, utilizing their respective salmonid management and science expertise.
31775	65	golc@critfc.org	Columbia River Inter-Tribal Fish Commission	#NAME?	The spill surcharge was removed from power rates in BP-20. See BP-20-E-Bonneville-19 Power and Transmission Rate Policy Testimony. Fredrickson et. al, page 15-17. The spill surcharge was included in BP-18 power rates due to the substantial cost recovery risk the court-ordered spill injunction created with little ability for Bonneville to model the impact without speculation. In BP-20, the circumstances surrounding the spill assumptions changed and allowed Bonneville to model planned spill in its rates, removing the need for the spill surcharge for cost recovery in the same way it did for BP-18 power rates. Future spending level decisions for Bonneville's Fish and Wildlife Program and rate provisions would be made in consultation with the region through Bonneville's processes and other appropriate forums.
31775	66	golc@critfc.org	Columbia River Inter-Tribal Fish Commission	Affected Environment and Effects Analysis A. Affected Environment is Not Meaningfully Depicted The discussions in the Affected Environment sections do not meaningfully depict the nature and extent of the impacts that the Basins hydro system has had on the Columbia Basins anadromous fish. Meaningfully depicting these impacts cannot be avoided. Under NEPA, regardless of the selection of the baseline, all cumulative effects must be revealed. The Affected Environment chapter fails to mention that the NPCC, consistent with the Northwest Power Acts statutory requirements, has identified a regional goal of 5 million salmon and steelhead with SARs in the 2-6% range. These are important benchmarks that the DEIS does not disclose or analyze.	The description of the affected environment and the effects analysis include the ongoing effects from the existence of the CRS and the continuing Federal action of the operation of the CRS. The focus of the EIS is system operations, not the existence of the system. To the extent the analysis considers the existence of the system, e.g., breach, the effects analysis captures the cumulative effect of project existence. The direct, indirect and cumulative effects to affected resources from CRS operations, maintenance and configuration are included in Chapters 3, 4, 6 and 7. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the Endangered Species Act (ESA), in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Similarly, the Northwest Power Act does not obligate the co-lead agencies to recover ESA-listed species or to ensure restoration of other fish and wildlife. Instead, the co-lead agencies fish and wildlife mitigation responsibilities under Northwest Power Act are more limited primarily, managing and operating FCRPS projects, which includes the CRS, to protect, mitigate, and enhance (as opposed to recover) fish and wildlife affected by such projects in a manner that provides equitable treatment with the projects other authorized purposes and consistent with the purposes of the Act and applicable laws. In addition, Bonneville has a specific responsibility to fund protection, mitigation, and enhancement of fish and wildlife to the extent affected by development and operation of FCRPS projects consistent with the Northwest Power and Conservation Councils (Council) fish and wildlife program, the Councils power plan, and the purposes of the Act, which includes assurance of an adequate, efficient, economical, and reliable power supply. Therefore, contrary to the comments broad assertion, the Northwest Power Act does not make Bonneville responsible for funding the regional effort to recover wild salmon and steelhead. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% (the lower end of Northwest Power and Conservation Council's recovery targets for the region) as a result of the Preferred Alternative, as a result of the Preferred Alternative increasing SAR from 2.0% to 2.7% for Chinook, a 35% relative increase. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. To address uncertainty highlighted by the two models, the Preferred Alternative includes working with regional sovereigns to develop a study that assess the effectiveness of the increased spill regime on adult returns as well as assessment and management of adverse unintended consequences, such as long delays of adult migrants, or TDG-related mortality of juvenile migrants. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information. The Preferred Alternative will make a meaningful contribution towards recovery.
31775	67	golc@critfc.org	Columbia River Inter-Tribal Fish Commission	B. The DEIS Fails to Adequately Consider Tribal Cultural Resources The tribes continue to have fundamental disagreements with the co-lead agencies regarding the scope of the analysis of the CRSO DEIS for impacts to cultural resources. By selecting an arbitrary distance of one mile from the reservoirs, the agencies are taking an impermissibly narrow view of the human environment under NEPA, and failing to interpret it comprehensively to include the natural and physical environment and the relationship of people with that environment. 40 CFR 1508.14. As noted, this is a fundamental flaw in the analysis, a concern the tribes raised in scoping comments and in comments and emails to the draft Cultural Resources Chapter, such as the email of Catherine Dickson (CTUIR) on March 27, 2019. In conference calls and comments the tribes raised this concern again and again and yet the agencies retained the one-mile limitation on the analysis and even refused to acknowledge in the DEIS that there was a disagreement on this issue among the cooperating agencies. To quote the National Preservation Institute: - NEPA's concern is with the "human environment," defined as including the natural and physical (e.g., built) environment and the relationships of people to that environment. A thorough environmental analysis under NEPA should systematically address the "human" social and cultural aspects of the environment as well as those that are more "natural," and should address the relationships between natural and cultural. Culturally valued aspects of the environment generally include historic properties, other culturally valued pieces of real property, cultural use of the biophysical environment, and such "intangible" sociocultural attributes as social cohesion, social institutions, lifeways, religious practices, and other cultural institutions. These impacts are usually analyzed either as impacts on "cultural resources," or as "social impacts," or as both but many such impacts actually fall into the cracks between the "cultural resource" and "social impact" categories as usually defined.9 9 https://www.npi.org/what-are-cultural-resources CRITFC DEIS Comments April 13, 2020 Page 33 of 59 As noted in our comments, the easiest way to address cultural resource impacts is to use the whole basin as the study area. If the agencies will not do that, the agencies will need a carefully crafted argument as to why the study area selected meets each of the project purposes/changes proposed in the alternatives. The study area for irrigation and environmental justice are both much larger than the cultural resources study area, accounting for job losses for irrigation changes and impacts to communities distant from the projects themselves. Because changes to river operations affect cultural resources (farming practices impact native plants and animals for example), the study area should be broad as well. Similarly, the EIS suffers from insufficient analysis when certain study areas are broad if that furthers certain goals (such as keeping the dams because of importance to local farmers/shippers), but other study areas are small when it seems a larger area might highlight other goals. Fish are a cultural resource (in and of themselves, under NEPA, as opposed to fishing sites which are considered under the NHPA) and from Judge Simon's perspective, the primary point of this NEPA study is to determine impacts to the fish populations. Those fish migrate well beyond one mile from the edge of the reservoirs. The study area for aquatic habitat is virtually the whole basin. Figure 3-109, page 3-287, lines 6767-6768.	In the Draft EIS, the co-lead agencies used a property-based definition of "cultural resources," as this is consistent with Federal laws and regulations, which focus on specific bounded properties. The co-lead agencies selected the size of the study area based on the area where the impacts from the proposed structural and operational measures are expected to occur. This study area is sufficient for the agencies to understand the effects of the different alternatives and to enable the agencies to make an informed evaluation of the alternatives. The co-lead agencies focused the evaluation on the locations where there were understandable direct and indirect effects that are reasonably able to be predicted as required by NEPA regulations. Tribal interests and holistic perspectives on the integration of Native American culture with the environment were addressed throughout the EIS and by inclusion of statements from the Tribes. The co-lead agencies note that many of the traditional cultural properties (TCPs) analyzed in the Draft EIS incorporate elements of the natural environment. Please see: Section 3.16.2.6 for the traditional cultural resource types, many of which explicitly include hunting, fishing, and gathering areas; Section 3.17.2 for Tribal Perspectives Summaries; and, Section 3.17.3 for Tribal Interests. Additionally, the EIS evaluates the impacts of the social and economic effects as well as effects to the natural and physical environment consistent with 40 C.F.R. 1508.14 and 1508.8.
31775	68	golc@critfc.org	Columbia River Inter-Tribal Fish Commission	The narrow scope of the CRSO DEIS study area is further impaired by a focus on archaeological resources while ignoring cultural resources (in the NEPA sense rather than archaeological resources under ARPA and the NHPA). From our participation as a cooperating agency in the teams reviewing drafts of the documents, it appears that the agencies were thinking only about archaeological sites (cultural resources team), TCPs (cultural resources team), Sacred Sites (likely cultural resources team, but possibly tribal liaison team), and Trust Assets (tribal liaison team). The other types of cultural resources we brought up in our scoping comments, such as cultural values (identity, traditional practices, first foods), social resources (community), and economic activity of tribal importance (by resource or geographic area) appear to have been relegated to the socioeconomics team. From our position on the socioeconomics team, we know that they exclusively focused on economic impacts, did not do work specific to tribes, and failed to consider social impacts at all. We feared that separating cultural resources into three different teams increased the likelihood that some concerns would be lost altogether, and further that all cultural resources would not get the thorough consideration they need and deserve. This is exactly what happened. The tribes believe that this is in part because the co-lead agencies cultural resources team consisted exclusively of archaeologists; the agencies representatives should have had the benefit of additional expertise in other types of cultural resources.	In the Draft EIS, the co-lead agencies used a property-based definition of "cultural resources," as this is consistent with Federal laws and regulations, which focus on specific bounded properties. Tribal input, concerns, interests, and especially treaty rights were considered throughout the Draft EIS analyses and in the formulation of the Preferred Alternative. Appendix P includes copies of tribal perspectives that were submitted by tribes and considered by the co-lead agencies. Tribal consultation is described in Sections 1.5, 3.5, and 3.15; and Chapter 9. Most sub-sections within Chapter 3 include a Tribal Interests section at the end of the sub-section to summarize tribal issues by topic. The co-lead agencies are engaging in government-to-government consultation with the tribes, and several tribes are cooperating agencies on the CRSO EIS. The co-lead agencies note that many of the Traditional Cultural Properties analyzed in the Draft EIS include aspects of the natural and social environment. Please see Section 3.16.2.6 for the traditional cultural resource types, many of which explicitly include hunting, fishing, and gathering areas, Section 3.17.2 for Tribal Perspectives Summaries and Section 3.17.3 for Tribal Interests in the Draft EIS. The EIS evaluates the impacts of the social and economic effects as well as effects to the natural and physical environment consistent with 40 C.F.R. 1508.14 and 1508.8. The EIS recognizes the economic and cultural importance of salmon to Tribes in a number of sections throughout the document. Section 3.15, Fisheries and Passive Use Section and, in particular, Section 3.17, Indian Trust Assets, Tribal Perspectives, and Tribal Interests, include discussions of reductions in anadromous species catch and associated adverse social effects that have occurred in Tribal communities. The cultural significance and impacts of salmon and steelhead fisheries are described in Section 3.15.2.1, Fisheries and Passive Use, which includes subsections that describe ceremonial and subsistence fisheries as well as the social importance of commercial, ceremonial and subsistence fisheries.
31775	69	golc@critfc.org	Columbia River Inter-Tribal Fish Commission	The analysis in the DEIS of sacred sites focuses exclusively on Executive Order 13007 and does not address the obligation to examine these sites under NEPA or other laws as cultural resources. Significantly, the DEIS does not address sacred sites under the NHPA as historic properties of religious and cultural significance to tribes, or under ARPA as sites of religious and cultural importance to tribes. By focusing narrowly on the authority of EO 13007, the agencies precluded open and honest discussions about sacred sites with tribes because information sent to agencies under EO 13007 does not have specific statutory protections from release under the Freedom of Information Act as does information sent under the NHPA or ARPA. The CTUIR specifically raised this concern about confidentiality of sacred site info in a December 6, 2018 call with the agencies. The CRSO addressed the concern by stating [w]here appropriate, agencies will CRITFC DEIS Comments April 13, 2020 Page 34 of 59 maintain the confidentiality of sacred sites. CRSO DEIS page 3-1355, lines 6098-6099. Tribes will not share sensitive sacred sites information if the agency will only commit to protect the confidentiality of that information as appropriate. For instance, when the CTUIR identified the Columbia River as a sacred site, the agencies made no response. We learned in the DEIS [t]he co-lead agencies believe this does not meet the definition in the Executive Order as it is not discrete or narrowly delineated. CRSO DEIS page 3-1355, lines 6116-6117. No discussion with the CTUIR on this subject was held. The CTUIR believes the site we identified meets the definition in the Executive Order. The agencies position also ignores the potential for analysis of this designation under either the NHPA or ARPA, both of which authorize the designation of lands of significance to the tribe. The tribes incorporate by reference all comments we have previously provided to the agencies.	The co-lead agencies requested information from the Tribes to identify sacred sites consistent with Executive Order (EO) 13007. While data collected to identify historic properties under the National Historic Preservation Act (NHPA) may be similar in nature to the data or information related to sacred sites, Federal agencies cannot make the assumption that this information can be used interchangeably without specific information provided by Tribes. The Traditional Cultural Property (TCP) information and data used to conduct the impact analysis described in the cultural resources Section 3.16.2.6 was largely derived from co-lead agencies efforts to comply with Section 106 of the NHPA through the ongoing efforts of the Federal Columbia River Power System (FCRPS) Cultural Resources Program. This information was gathered by the co-lead agencies in part to identify historic properties of importance to Tribes. Because of the requirements of EO 13007 the co-lead agencies could not make the assumption that any of the TCPs used in the Draft EIS analysis were also sacred sites and instead relied on information requested from the Tribes regarding sacred sites during the CRSO EIS process. The co-lead agencies determined that all Federal land within 1 mile of the lower Snake River and lower Columbia River Projects is neither discrete nor narrowly delineated, as required to meet the definition in EO 13007.
31775	70	golc@critfc.org	Columbia River Inter-Tribal Fish Commission	C. Harvest, Hatcheries and Habitat - DEIS Fails to Analyze Harvest Opportunities for Treaty and Non-Indian Fisheries The DEIS repeatedly states that [d]ue to the complexity of fishery management, it is not possible to predict changes in fishery management that may result from changes in fish abundance. This statement is simply false. Coastwide, harvest managers in the United States and Canada regulate salmon fisheries based on abundance predictions. West coast ocean fisheries are for the most part managed based on one of two approaches, either aggregate abundance-based management or Individual stock-based management. Both approaches manage harvest based on anticipated salmon abundance.10 In the Columbia Basin, harvest is managed in accordance with the US v. OR 2018-2027 Management Agreement that sets forth harvest schedules from which changes in fisheries harvest regulations are regularly predicted and adopted.11 These harvest schedules have been analyzed for the effects on abundance, productivity,	The EIS recognizes the value of commercial as well as recreational fishing to the region. Section 3.15 describes the values associated with fisheries in the Pacific Northwest. Section 3.11 characterizes recreational fishing activities in the region. However, the uncertainty regarding the overall effects of the alternatives on regional fish populations, and how such changes may affect the management of the fisheries, limits a quantitative analysis of the specific effects of each alternative on these values. The effects are therefore discussed qualitatively. Fish harvest management is not within the scope and the co-lead agencies have no role or authority over fishing limitations or quotas. Fishing and harvest are subject to separate actions by federal, state, and tribal agencies outside the scope of this EIS.

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				spatial structure and diversity of affected salmon and steelhead populations. The lack of harvest opportunity analysis runs counter to the Tribal Perspectives of the Columbia River Treaty Tribes. The lack of harvest opportunity analysis also runs counter to the goals for non-Indian fisheries and the corresponding economic effects of these fisheries. There is no mention of Columbia River Chinook contributions to Canadian fisheries. The harvest rights and federal fiduciary obligations properly cabin any consideration of the Treaty right to harvest to the environmental baseline. Including Treaty harvest in the baseline is consistent with the purpose of the CRSO EIS, which is to examine different hydrosystem operation configurations. All alternatives studied in the CRSO EIS should have been analyzed for their effect on Columbia River fisheries and their ability to contribute to the recovery of stocks to harvestable levels that support tribal fisheries and communities. 10 https://archive.fisheries.noaa.gov/wcr/publications/fishery_management/salmon_steelhead/s7-_usvoregon_2018-2027_mgmagmnt__final_signed.pdf 11 https://wdfw.wa.gov/sites/default/files/publications/02085/wdfw02085.pdf CRITFC DEIS Comments April 13, 2020 Page 35 of 59	
31775	71	golc@critfc.org	Columbia River Inter-Tribal Fish Commission	- DEIS Analysis of Hatchery Effects is Incomplete The co-lead agencies fund hatchery programs that have the primary purpose to mitigate for impacts to fish from construction/operation of hydropower dams. Above Bonneville Dam, the AAs fund annual target releases of ~66 million salmon and steelhead. Regardless of how individual hatchery programs are managed (i.e., for harvest, supplementation, and/or reintroduction), every single program funded by the AAs serves the purpose of mitigation including the programs identified in table 2-18 (which only add up to a target release of 3.35 million). See Attachment D for an overview of Columbia River Basin Hatchery Programs. The DEIS baldly assumes that that termination of Lower Snake River Compensation Plan hatchery production will occur with the breaching of the Snake River Dams. The DEIS discloses no legal or factual analyses to support this position. The effects of the Snake River dams will persist in future populations of Snake River lamprey, sturgeon, salmon and steelhead. Tribal analyses indicated that hatchery production must continue until the impact of the dams has been mitigated, well beyond the 25-year scope of this EIS. The DEIS failure to disclose the facts regarding hatchery mitigation generally and the LSRCP specifically leaves the tribes with no reasonable analysis or factual basis to consider the veracity of the DEIS statements. We have provided additional comments regarding hatcheries in the sections of this document addressing the Proposed Action.	The Draft EIS acknowledges that with breaching of the Snake River dams in MO3, there would no longer be an obligation to fund the Lower Snake River Compensation Plan, which accounts for much of the hatchery production in the basin, other mitigation activities could be adjusted, and transportation of Snake River salmon and steelhead would no longer be possible. The rationale for this, as stated in the Draft EIS, is that Bonneville's funding is directly tied to the operation of the LSR dams. The effects to populations as they transition from primarily hatchery production to an increased wild production of fish is qualitatively discussed in Section 3.5.3.6. As stated on page 3-548, the co-lead agencies recognize there would be transitional needs that would be addressed through mitigation and adaptive management. The fish models are based upon data collected from past fish runs and there is no data available to inform an quantitative analysis for wild fish in the absence of hatchery fish. The co-lead agencies took a qualitative approach to inform the reader of other factors that could affect salmon but acknowledged the magnitude of those effects is not known. A summary of this qualitative discussion is provided for the reader for each Snake River species. The analyses used in this Draft EIS were for the purposes of comparing the effects of the action alternatives for operation, maintenance, and configuration of the CRS projects to one another and to the No Action Alternative. Hatchery programs are discussed briefly in the Affected Environment to give the reader the general information on hatchery programs that are a part of the ESU/DPS described. For the purposes of comparing alternatives, however, a more detailed description is not needed. A complete analysis of all hatchery programs and the status of maintenance/operations of each one is beyond the scope of this EIS.
31775	72	golc@critfc.org	Columbia River Inter-Tribal Fish Commission	- Habitat Measures are Not Fully Analyzed in the DEIS The co-lead agencies do not state the anticipated level of funding for existing mitigation programs under the Preferred Alternative relative to the No Action Alternative. Accordingly, it is impossible to evaluate the potential biological benefit of proposed mitigation programs. A reader must infer the size and scale of mitigation programs based on the measures presented in the BA and assume that current fiscal year 2020 funding levels will persist to support these measures. Such inference and assumption are contrary to NEPAs requirement of informed public participation. We herein incorporate by reference the habitat comments of the Yakama Nation. They demonstrate the failure of the DEIS meaningfully disclose and analyze the extensive habitat mitigation measures that are ongoing as offsite mitigation for the impacts of the development and operation of the CRS.	This EIS analyzes the effects of operation, maintenance, and configuration of the CRS projects. The analyses used in this EIS were for the purposes of comparing the effects of the Multiple Objective alternatives for operation, maintenance, and configuration of the CRS projects to one another and to the No Action Alternative. Habitat mitigation program descriptions are discussed briefly in the No Action Alternative in Section 3.5.3.3 to give the reader the general information on these programs. For the purposes of comparing alternatives, however, a more detailed description is not needed. Chapter 7 describes programs that would continue as well as new mitigation under the Preferred Alternative. The scope of this Draft EIS is the operation and configuration of CRS projects; a complete analysis of all habitat programs and the development to the specificity suggested in this comment is beyond this scope.
31775	73	golc@critfc.org	Columbia River Inter-Tribal Fish Commission	D. Significant Errors Exist in the Biological Effects of Hydro Operations Analysis The following errors, omissions and inadequacies relate to modeling and underlying analysis of biological effects and apply to all MOs and the PA: - Third-party review of models is not yet available for consideration by the public during review of the DEIS CRITFC DEIS Comments April 13, 2020 Page 36 of 59 All models used in the DEIS are required to have a third-party review. We understand that this is ongoing as of the time of DEIS release, but the public will not be given a chance to see the third-party review for consideration in our comments.	The results of third-party review, both the Corps' Independent Expert Peer Review as well as a recently released ISAB review of the CSS results will be included in the Final EIS. Initial review of the results of the peer review do not indicate fundamental flaws in either the CSS or NMFS approach and both models will continue to frame the potential outcomes associated with all MOs and the Preferred Alternative. Survival estimates from the University of Washington TDG model were not relied on for decision-making purposes but will be used to assess relative exposure indices. Section 3.5 has been updated based on IEPR and ISAB reviews.
31775	74	golc@critfc.org	Columbia River Inter-Tribal Fish Commission	- The DEIS fails to adequately explain or consider significant errors relating to the CSS and Compass modeling The DEIS fails to adequately explain the differences between COMPASS and the CSS data and complexity. Broadly, COMPASS makes a large number of predictions that are not directly observed, and breaks survival into multiple individual route of passage survivals for each reach (spill, bypass, turbine, and other configuration routes for each dam), whereas the CSS models treat the entire hydrosystem as an aggregate of 2 routes of passage (number of powerhouses passed vs spilled on average). The CSS models are thus "cumulative effects" sensitive, whereas COMPASS looks for effects that may not be noticeable incrementally unless they are added up to full "accumulation".	While this is a fair description of distinctions between the two modeling approach, rather than calling this "error," the co-lead agencies consider this to simply be distinctions due to differences in model construction. All models must make assumptions; these assumptions led us to use both modeling approaches. The NMFS COMPASS/Life Cycle models and the CSS models use different statistical approaches and input variables. Both are able to provide a good fit to recent survival numbers and travel time estimates, but the models do have substantially contrasting forecasts for these metrics under hypothetical scenarios of operation of the CRS with respect to flow and spill. The Fish Technical Teams for the EIS made the decision to present results from both sets of models for the final evaluation, along with descriptions of methods. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin.
31775	75	golc@critfc.org	Columbia River Inter-Tribal Fish Commission	When comparing the predictions of the CSS models and the COMPASS model, the EIS draws attention to the fact that CSS models and COMPASS predict similar hydrosystem survivals, but do not predict similar SARs. This is misleading for two reasons. First there are two CSS models, which are different in nature, yet those two predict similar hydrosystem survivals and SARs. Secondly, both CSS models predict more variability in hydrosystem survival than the COMPASS model. See DEIS Sec. 3.5.	The NMFS COMPASS/Life Cycle models and the CSS models use different statistical approaches and input variables. Both are able to provide a good fit to recent survival and travel time estimates, but the models do have substantially contrasting forecasts for these metrics under MO and Preferred Alternative scenarios of operations of the CRS projects with respect to flow and spill. The Fish Technical teams for the EIS made the decision to present results from both sets of models for the final evaluation, along with descriptions of methods. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. Appendix E contains results from all modeling efforts, including both CSS models. Section 3.5 will be updated based on IEPR and ISAB reviews and will address the elements of the two CSS models described in this comment.
31775	76	golc@critfc.org	Columbia River Inter-Tribal Fish Commission	In the COMPASS (NOAA) model, NOAA used data from one Upper Columbia River (UCR) Spring Chinook population, as a surrogate to model UCR sockeye. However, they did not then use these data to model the actual, larger UCR Spring Chinook population, chosing to use McNary to Bonneville data for the UCR Chinook population. This begs the question: If this one population is not adequate to represent the entire UCR Spring Chinook how can it be used as a surrogate for UCR Sockeye. The selection of data appears arbitrary, and no explanation for the discrepancy is provided in the DEIS.	Rock Island to Bonneville survival rates are reported in Appendix E for NMFS COMPASS model results from the Upper Columbia Chinook ESU. When comparing levels of change in major metrics between the multiple objective alternatives vs. the No Action Alternative, adding the Rock Island to McNary segment does not significantly change the level of effect that one would interpret from spill operations or dam breach measures.
31775	77	golc@critfc.org	Columbia River Inter-Tribal Fish Commission	Water Temperature in COMPASS. The DEIS notes that the water temperature models that use flow relationships in COMPASS were not used for the CRSO scenario runs. Instead water temperature predicted by the Corps was used in COMPASS. No rationale was given for this change or any analyses or validation as to whether not this change to the COMPASS model runs decreased or reduced the efficacy or reliability of the COMPASS evaluations. (Appendix E, Section 1.2.1.4).	An 80-year historical water record with flows and water quality variables was generated with the Hydsim and ResSim models for use in the CRSO EIS. The models were able to simulate the effects of hypothetical operations included as measures in the multiple objective alternatives, such as monthly irrigation diversions, reservoir elevation changes, spill operations, etc. Climate change was also included as an additional trend. The co-lead agencies used temperature data sets that were developed by the water quality team as part of this EIS development.
31775	78	golc@critfc.org	Columbia River Inter-Tribal Fish Commission	Under COMPASS, mean and average survivals, migration, travel time, gas exposure, powerhouse passage, temperature and flow experience, number of bypasses, etc. appear to be used in modeling analyses. This homogenizes results and does not allow for examination of maximum and minimum ranges that fish might experience which can CRITFC DEIS Comments April 13, 2020 Page 37 of 59 have important consequences on overall stock viability. For example, low flows from poor runoff in 2001 caused single digit survivals for juvenile chinook from the Snake River to Bonneville Dam. This can cause a serious depression in that year class that echoed through several succeeding year classes. This is a serious limitation of the analysis and needs to be addressed in the PA and BA. See Appendix E, Tables 1-6; 1-7; 1-8, and 1-9 COMPASS Inputs and Data Fields	The COMPASS model was calibrated with mean and variance of observed PIT-based survival, travel time during two-week periods around the passage date, with temperature, flow, spill, day of passage, and travel time as input variables. FGE derived by studies, along with spill, was used to estimate number of bypass probabilities. The model does not use TDG effects, and this is left as a separate factor of secondary mortality, after survival through the CRS is calculated. Variations of spill, temperature and flow do capture the observed variation of PIT-based survival rates in the model fit. It is true that the travel time equations for NMFS' COMPASS model may not include very low flow years such as 2001 where nearly all smolts were diverted for transport and predation rates may have been anomalous. This is a suitable approach as more recent low flow years such as 2010 are more representative under most low flow/non-power emergency situations..
31775	79	golc@critfc.org	Columbia River Inter-Tribal Fish Commission	- The DEIS fails to adequately explain the role of latent mortality in CSS and COMPASS or the uncertainty it creates in the analysis The Executive Summary page 13 describes delayed or latent mortality as a key in explaining different predictions between the models. While this is true, the DEIS fails to explain the differences between the two models when it comes to latent mortality. The DEIS fails to mention that the two CSS models make statistical estimations of the effect of the freshwater hydrosystem on latent ocean mortality. The COMPASS life cycle model was expanded/revised to include latent mortality effects in the 2018 CRSO Biological Opinion and in this DEIS. This revision has not undergone extensive peer review and was the subject of debate within the CRSO anadromous technical team. The COMPASS modeling results include four arbitrary levels of assumed latent morality reductions (0, 10, 25, and 50%), which result in increased adult abundance, if true. The exploration of potential latent mortality impacts, in the COMPASS modeling, is positive; however, the COMPASS modeling does not link these latent mortality effects to specific CRS operations or fish powerhouse passage experience and is aspect open for criticism. There is ample research that fish that pass powerhouse experience some level of latent mortality.	The model results presented in Section 3.5 and Chapter 7 address latent mortality and reservoir mortality. Multiple mechanisms of delayed mortality or "carryover effects" between experiences in one lifestage influencing survival or physiology in subsequent lifestages. These include transportation related delayed mortality, injuries caused by passing multiple dams via any route, delays caused by reservoir and dam passage, and exposure to toxins. Latent mortality is captured directly in the CSS model for SARs and abundances. NOAA approached latent mortality as a sensitivity analysis, exploring the level of effect by latent mortality occurring via any mechanism – results of the Lifecycle Model are overlaid with several assumed values (10%, 25% and 50%) of reduction in latent mortality. Reservoir mortality is captured in the juvenile survival metrics presented in Chapter 3. Delayed mortality in the ocean due to CRS dam passage is discussed throughout the EIS.
31775	80	golc@critfc.org	Columbia River Inter-Tribal Fish Commission	Significant bias exists and is unaccounted for in the modeling Following are examples of bias in the modeling which are due to the inputs used in the modeling COMPASS SAR results need further explanation for MO3 and MO4 alternatives. COMPASS SARs are similar for MO3-4 compared to MO1-2 because fish migrate in-river at a more natural rate of migration. The method COMPASS used for calculating SARs is heavily reliant on date of ocean entry. Therefore, in-river fish in MO3-4 enter the ocean a few days later than transported fish in MO1-2, so they are assumed to have poorer ocean survival. This caveat needs explaining in the text of the document since it is not obvious that transported fish would survive better in the ocean than in-river fish migrating at a more natural rate, based entirely on entry date into the ocean.	The co-lead agencies feel that the tradeoff between in-river survival and transportation are covered in the description of both the CSS and NMFS COMPASS models. Travel time and ocean entry time are both acknowledged as important variables in the COMPASS and NMFS Life Cycle models. The intent of the Preferred Alternative is to determine if salmon returns can be substantially enhanced as increased spill leads to higher survival, faster travel times and higher ocean survival due to reduced latent mortality as predicted by the CSS models, or whether changing the ratio of in-river migrating fish and transported fish has offsetting impacts as predicted by the NMFS models.
31775	81	golc@critfc.org	Columbia River Inter-Tribal Fish Commission	There is CSS data available that was not incorporated in this report. Even though it was not generated specifically for this EIS, it represents the NAA and should be used as a reference. For example, CSS has calculated system survival for Upper Columbia stocks and could be used qualitatively to demonstrate potential impacts under each of the MOs.	The CRSO EIS analyzed the effects of operation, maintenance, and configuration of the CRS using current high quality information. CSS material generated for other purposes reflecting recent data trends was referenced in the CRSO EIS, but because CSS data that reflected the No Action Alternative, the multiple objective alternatives, and the Preferred Alternative were not available during the time this EIS was being developed, the co-lead agencies could not use that information to compare directly with the NMFS model predictions.
31775	82	golc@critfc.org	Columbia River Inter-Tribal Fish Commission	The H&H modeling did not include the proposed/necessary spill cap of 150 kcfs at Bonneville unless hydraulic capacity has been exceeded for MO4. This impacts analysis CRITFC DEIS Comments April 13, 2020 Page 38 of 59 of MO4, erroneously increasing the economic costs for this MO. This inaccuracy in datasets will result in overestimates of SARS and underestimates of power generation. Furthermore, the models were informed by	The detailed description of the measures for MO4 included spill to 125%, but a spill cap at Bonneville Dam to limit spillway erosion was not included. The perspective used in designing the alternatives was that these should serve as "bookend" scenarios. MO4 was intended to capture the high-end range of spill. The co-lead agencies can then interpret that a real world operation with a modified set of measures or limits such as the Bonneville 150 kcfs spill cap would modify economic costs or survival rates from the modeled bookend scenario.

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				common hydrological datasets provided by the co-lead agencies. These datasets were not open to cooperating agency review and appear to have received insufficient validation.	
31775	83	golc@critfc.org	Columbia River Inter-Tribal Fish Commission	The DEIS states (Appx E Sec. 1.4.2) that summary statistics for SARs and return abundances for the CRSO were calculated differently that under the CSS modelers (McCann et al. 2017). For the CRSO, the co-lead agencies picked somehow (not stated how) random averages over the 80-year historical flow period for the two metrics, while the CSS modelers used the average of the last 10 flow years in the historical period. The CRSO authors do not provide a rationale for this change, however, given the overall reduction in flows over the last 10 years, the CRSO appears to bias for higher flows and thus higher survival rates. In any case, the CSS flow choice methodology should have remained for CRSO analyses for consistency.	The co-lead agencies do not agree with the claim that summary statistics were "picked somehow." Summary statistics were reported based solely on the data provided by the modeling teams. The co-lead agencies did not make any choices regarding which years of data to present or summarize. One should be cautious about interpreting the most recent 10 years as best representing the climate future. The actual climate trend in the future will not necessarily increase at the same rate as the past. The historical record could include periods of acceleration compared to 80 years ago. A similar issue was raised by the ISAB in its review of Chapter 2 of the 2019 CSS report and will be noted in the CRSO FEIS Section 3.5.
31775	84	golc@critfc.org	Columbia River Inter-Tribal Fish Commission	- The level of improvement (50% increase in survival) for new turbines at Ice Harbor, McNary, and John Day are unfounded and not supported by past data and research. High Capacity turbines are included as a measure in several of the DEIS alternatives. However, the data sets provided by BPA did not include increases in flow through the powerhouses due to the installation of high capacity turbines. The assumptions of increased survival through new turbines at John Day dam, McNary and Ice Harbor (fish friendly turbines) are not supported by any available studies. Survival estimates are, at best, equal to those of older turbine units (Skalski and Townsend 2005, Deng et al. 2019, Heisey et al. 2019). However, the higher flow through these turbines will cause higher absolute turbine passage, leading to lower overall dam survival and larger impacts of latent mortality.	The assumption used in the COMPASS model was a 50% reduction in mortality, which translates into about 6% increase in survival rates. The actual magnitude that will be achieved is, of course, uncertain. However, given the extensive modifications throughout the turbine including the stay vanes, runner, and draft tube that create a passage environment with less violent sheer, significantly reduced chance of passing through gaps, elimination of very low pressures and great reduction of recirculation within the draft tube that would bring fish back to the turbine blades after passing most of the turbine an increased probability of both direct and indirect survival is reasonable. Again, the magnitude is uncertain. The IFP turbines at John Day and Ice Harbor are not higher turbine capacity than those they are replacing. McNary turbines will have the ability to pass more flow, but will only do so based on the operation management decisions for spill levels.
31775	85	golc@critfc.org	Columbia River Inter-Tribal Fish Commission	In Turbine Improvement Assumptions Final, the document used to justify increased survivals in the DEIS modelling based on bead strike studies, the underlying assumption is that 50% of fish would experience mortality due to both low pressures and strike/shear. While this number is useful for design it is not based on any biological study, data, or other form of evidence and should not be used in any survival estimates. The same document assumes equal improvements in direct and indirect turbine mortality. There is also no evidence provided for this assumption and it seems to be an example of optimistic estimate not based in reality.	The assumption used in the COMPASS model was a 50% reduction in mortality, which translates into about 6% increase in survival rates. The actual magnitude that will be achieved is, of course, uncertain. However, given the extensive modifications throughout the turbine including the stay vanes, runner, and draft tube that create a passage environment with less violent sheer, significantly reduced chance of passing through gaps, elimination of very low pressures and great reduction of recirculation within the draft tube that would bring fish back to the turbine blades after passing most of the turbine an increased probability of both direct and indirect survival is reasonable. Again, the magnitude is uncertain.
31775	86	golc@critfc.org	Columbia River Inter-Tribal Fish Commission	The interpretation of bead strike studies has resulted in an assumption of a 50% decrease in turbine mortality. This assumption has not been backed up by increased survival in studies with live fish at Wanapum or Ice Harbor Dams, both of which showed no detectable increase in survival.	The direct injury study of the IFP turbine at Ice Harbor in October 2019 did actually result in average of 48 hour survival of 98%, where the previous test of the original design unit was 95%. The comment is correct that this difference was not statistically significant. The assumption used in the COMPASS model was a 50% reduction in mortality, which translates into about 6% increase in survival rates. The actual magnitude that will be achieved is, of course, uncertain. However, given the extensive modifications throughout the turbine including the stay vanes, runner, and draft tube that create a passage environment with less violent sheer, significantly reduced chance of passing through gaps, elimination of very low pressures and great reduction of recirculation within the draft tube that would bring fish back to the turbine blades after passing most of the turbine an increased probability of both direct and indirect survival is reasonable. Again, the magnitude is uncertain.
31775	87	golc@critfc.org	Columbia River Inter-Tribal Fish Commission	Any increase in turbine capacity will increase the total number of smolts passing via the powerhouse. This will have impacts not only on concrete survival, but cumulative negative impacts throughout the hydrosystem.	The new John Day and Ice Harbor turbines will be designed to operate within the existing turbine operating range. McNary turbines will be designed with an increased range. Once installed, the new turbines will be tested and validated for fish survival. Although only the McNary turbines will be designed for an increased operating range, the overall level of spill at any given project is determined not by the individual turbine unit capacity but by overall project operations management decisions. These decisions will occur through the Regional Forum and guided by the Adaptive Management Plan. Adaptive management strategies will be used to assure no detrimental impact.
31775	88	golc@critfc.org	Columbia River Inter-Tribal Fish Commission	The PA assumes reduced turbine mortality with the installation of new turbines. The DEIS stated that these new turbines will improve fish passage conditions, lower TDG, and improve turbine efficiency and capacity. Turbine passage can directly cause fish mortality through blade strikes, rapid pressure changes, and other physical stresses. Turbine and powerhouse passage is also associated with delayed mortality, manifesting in the estuary or first year of ocean life. While direct mortality due to turbine passage has been studied primarily with models, sensor fish, and bead strike studies, tests with live smolts are relatively uncommon. Indirect and delayed mortality have been associated with powerhouse and turbine passage in a wide range of work demonstrating reduced estuary and first-year ocean survival for individuals who passed via one or more powerhouses during their outmigration (Haeseker et al. 2012, Petrosky and Schaller 2010, Tuomikoski et al. 2010, FPC 2010, FPC 2011a, FPC 2011b). Studies indicate delayed mortality from turbine passage can be substantial. For example, Ferguson et al. (2006) found that while direct mortality ranged from delayed mortality for juvenile chinook salmon that had passed through McNary Dam turbines operated within 1% peak efficiency ranged from 6.4-7%, delayed mortality ranged from 46-70%.	Survival estimates are based on the best available data. Once installed, the new turbines will be tested and validated for fish survival. Survival studies of the new Ice Harbor Turbine support the reduction in mortality estimates. Adaptive management strategies will be used to assure no detrimental impact. We concur that telemetry estimates such as Ferguson et al. (2006) capture both direct and delayed mortality component, and therefore are the inputs used for turbine survival estimates in the COMPASS model.
31775	89	golc@critfc.org	Columbia River Inter-Tribal Fish Commission	There are few studies available to test the assumptions of increased turbine survival. In 2005, a comparison of turbine survival was done at Wanapum Dam, comparing one high-capacity turbine to single turbine of the old design (Skalski and Townsend 2005). In this study, balloon and radio-tagged smolts were released into the turbines under a range of conditions, making it difficult to interpret the results of the tests. Both balloon and radio tags have a number of methodological problems, including: a) requiring a minimum size that does not represent the run-at-large, b) releasing fish via tubes into turbines that cause large pressure differences that do not approximate actual passage conditions, and c) tag burdens that significantly impede swimming ability and, therefore, affect the probability of blade strikes and other injuries. For extensive comments on the difficulties of interpreting the results of balloon tag studies, see FPC (2004), FPC (2012), JTS (2004), and JTS (2005). Additionally, a complicated study design makes determining a biologically significant difference between turbines virtually impossible to detect. A significant three-way interaction effect between turbine type, flow, and entry depth means that any difference in survival between the turbines cannot be separated from the other factors in the study. Although the study results have been described as showing equal survival between the turbines, the study design makes it impossible to determine if this result is a product of study design or if direct mortality is equal between the two turbine designs. In 2019, sensor and balloon fish were deployed through the new turbine in Unit 2 of Ice Harbor Dam. The reports from these studies have not yet been made available, so a full review of their ability to address assumptions and interpretation of the results is not possible. However, the presentations at AFEP 2019 showed that severe shear or strike events were reduced only in two of four tested flows, and a reduction of 50% was only observed under one tested flow (Deng et CRITFC DEIS Comments April 13, 2020 Page 40 of 59 al. 2019). Survivals of balloon-tagged fish were not significantly different under any of the tested conditions (Heisey et al. 2019). These studies indicate the increases in survival developed from bead strike studies and physical modelling efforts are overstated.	The survival rates of juvenile salmon naturally passing through the IFP turbines is unknown; however, when taking into account the characteristics of the IFP turbines that eliminate very low pressures, decrease sheer and recirculation in the turbine, as well as physical model analysis of bead strikes, the co-lead agencies assumed mortality would be halved. Balloon tag methods do not measure all mortality. As the fish are not depth acclimated they suffer none of the barotrauma from low pressures, and they do not include predation in the tailrace which is the largest component of passage mortality (Ferguson et al. 2006). Therefore, only controlled telemetry estimates are used to represent turbine passage survival rates as inputs to the NMFS COMPASS model.
31775	90	golc@critfc.org	Columbia River Inter-Tribal Fish Commission	Modifications to the hydrosystem must be thought of in the context of the entire salmonid lifecycle, not just the concrete survival at each project. Even if the direct mortality of high-capacity turbines is shown to be no higher than that of the existing turbines, the increased turbine flow will lead to increase powerhouse passage of the run-at-large. This effect, compounded over multiple dams, will have a net negative impact on the smolt-to-adult returns. If the increased powerhouse flows are not included in the modeled datasets provided to the fish modelers, the increase in powerhouse passage will be lost.	Although only the McNary turbines will be designed for an increased operating range, the overall level of spill at any given project is determined not by the individual turbine unit capacity but by overall project operations management decisions. These decisions will occur through the Regional Forum and guided by the Adaptive Management Plan.
31775	91	golc@critfc.org	Columbia River Inter-Tribal Fish Commission	Not only is this additional TDG model redundant, but it has been developed and released without any chance for review by regional partners let alone peer reviewed. It is our understanding that the co-lead agencies will have an independent review of the models used in the DEIS but to date we have not seen any review thus we cannot review or comment on its findings. It appears by the time this review is complete there will be little to no opportunity to review nor incorporate any of its findings. What happens if they find a significant flaw, how will they be addressed?	The IEPR process involves addressing all of the IEPR panel comments and all the comments and their resolutions will be made public in the Final IEPR Report. The co-lead agencies consider all the IEPR comments and will determine if any further action is needed based on those comments.
31775	92	golc@critfc.org	Columbia River Inter-Tribal Fish Commission	There is a wealth of empirical evidence from TDG levels and gas bubble trauma on juvenile and adult salmonids data collected at dams for many years from the Smolt Monitoring Program (SMP). The SMP is a requirement for fish spill under state water quality variances. In addition there is data from river field studies that captured juvenile and adult salmonids in reservoirs at depth that showed that any indication of gas bubble trauma in fish (if any) was less in the reservoirs where fish can compensate for TDG by migrating at depths then fish sampled in bypass systems which have no ability to depth compensate (see Backman and Evans 2002 and Backman et al. 2002 in McGrath et al. 2006). The co-lead agencies failed to use any of this data in estimating total dissolved gas effects on migrating fish, but instead relied on dated laboratory literature and numerical theoretical relationships to provide dissolved gas and model inputs. The CRSO incorrectly uses the term, gas bubble disease where the correct term is gas bubble trauma (see Weitkamp 2008 cited in CRSO). The CRSO failed to cite the important summary report on TDG that updates the existing CRITFC DEIS Comments April 13, 2020 Page 41 of 59 data and science on the relationship between TDG and gas bubble trauma in migrating fish (McGrath et al. 2006). This is surprising since the Corps funded the Pacific Northwest Laboratory to produce this report. The key point in the report: Review of recent work determined that newer research supports previous research indicating that exposure to up to 120% TDGS does not produce significant effects on migratory juvenile or adult salmonids when compensating depths are available.	The co-lead agencies are aware of the Smolt Monitoring Program gas bubble trauma monitoring and recognize that it will be valuable tool for adaptive management as we implement the Preferred Alternative. While we have seen 125% or even greater TDG in the river in past years, it has been due to high flow events that forced spill due to limited powerhouse capacity. The river conditions will be different in the Preferred Alternative with higher TDG levels over much longer periods of time and a smaller volumes of water in the river and higher portions of water being gassed. As there is no empirical data for the 125% TDG spill targets, we felt the need to model this and shed some light on possible effects. The UWs TDG model was already built, so we used that. This model does incorporate empirical data on fish behavior and survival, but the TDG-survival relationships are (necessarily) based on laboratory relationships. Because of the limitations of current models related to TDG and survival, those outputs from the TDG model were not used for decision making purposes. Experiments with confined fish will not accurately represent free swimming fish, which we know from telemetry studies of both adults and juveniles change depth regularly and can spend significant time at compensating depths, which reduce gas loading.
31775	93	golc@critfc.org	Columbia River Inter-Tribal Fish Commission	E. The DEIS Fails to Adequately Consider its Water Temperature Effects Analysis High summer water temperatures in the Columbia River System are known to have detrimental outcomes on fish survival and recovery. These losses will only be intensified by a warming climate. It is essential to project how each EIS alternative will impact water temperature and thus fish survival in the Columbia system. Numerical modeling was used by the co-lead agencies to simulate the impacts of each EIS alternatives on water temperature and quality. The modeling results for MO3 show significant cooling in the river and correlated increases in SARs, but the DEIS fails to adequately consider this effect in its selection of a Preferred Alternative. The DEIS Executive Summary summarizes findings from the modeling efforts and recognizes that MO3 would have major benefits for anadromous fish survival: Model estimates for MO3 showed the highest predicted potential smolt-to-adult returns (SARs) for Snake River salmon and steelhead among the	The Draft EIS acknowledges and describes the temperature sensitivities of salmon and steelhead, as well as the many other factors that affect these fish. Water quality and hydrology modeling data were inputs into the fish survival models used to analyze effects of the measures in each alternative on Snake River stocks, so temperature effects to survival have been incorporated into the overall analyses of each alternative. For species where qualitative analyses was used, such as sockeye salmon, the fish team developed metrics to look specifically at important parameters of the model results to evaluate specific effects to the relationships between these parameters and life history success of fish using Conceptual Ecological Models. For example, the percentage of days greater than 18 degrees Celsius during adult migration (June 21 to July 31) was used to evaluate upstream migration effects by looking at those exact parameters in the water quality modeling results for each alternative.

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				alternatives.12 In addition, DEIS Chapter 3 on Affected Environment and Environmental Consequences details results of the extensive modeling effort and analyses done to evaluate MO3 and reports significant improvements in water quality: Water temperature differences (up to 8.8 degrees Fahrenheit) between impounded (No Action Alternative) and non-impounded (MO3) river conditions would be greatest in the fall.Over the long term, MO3 would have moderate to major beneficial effects on water quality in Region C through the restoration of natural, river, and water quality processes; a substantial cooling effect in the fall; greater nighttime cooling and respite from warm water temperature conditions in the summer; and a reduction in overall system TDG.13 DEIS Chapter 3 presents the framework that was used to define the overall level of impact of water temperature outcomes for each CRSO EIS alternative. For water temperatures, the level of impact (negligible, minor, moderate, or major) was defined based on the absolute change in the maximum and minimum water temperatures as averaged over the 5-year simulation period (2011-2015)14. Taking a 5-year averaged approach to determine a single impact of each alternative fails the public by obscuring predictions of the numerical modeling effort which predicted hourly temperature changes for a wide range of hydrologic (wet, dry, average) and weather conditions (hot, cold, average). Appendix D presents more detailed predictions of MO3 actions on water temperature in graphics that clearly show between 2-10 F water temperatures 12 Executive Summary: Columbia River System Operations Draft Environmental Impact Statement, pg 24-25. 13 Columbia River System Operations Environmental Impact Statement Chapter 3, Affected Environment and Environmental Consequences, lines 6334 -6336, 6350-6353. 14 Chapter 3, 3.4.3.2 lines 5341-5345, Figure 3-108. CRITFC DEIS Comments April 13, 2020 Page 42 of 59 improvements for the Snake River during the critical summer and fall seasons for a wide range of hydrologic and weather conditions (Appendix D, Figures 6-23 to 6-27). In their decision framework, the DEIS defines water temperature changes of >2 degrees Fahrenheit to be a major impact15.	Regarding climate change, the climate science community is still developing models at the resolution necessary to analyze possible effects to water temperature from climate change, and unfortunately, there are not reliable models at this time. Therefore it was not possible to reliably model water temperature changes under climate change for this EIS. In lieu of this information, the climate analysis used the output from the water quality models under historical conditions, climate change data, and scientific literature to qualitatively assess potential effects to water temperature to the Multiple Object alternatives (Section 4.2.3) and the Preferred Alternative (Section 7.8.4). Regarding water temperatures under dam breach scenarios, the analysis of MO3, which includes the measure to breach the four lower Snake River dams, indicates that nighttime summer water temperatures, as well as fall water temperatures, would be cooler than No Action Alternative conditions in the Snake River. However, even with the dams breached, maximum summer water temperatures would exceed state water quality standards (20C) at times, especially during high air temperature events. The models showed minor changes in the Columbia River under this alternative. There are many ways to look at water temperature impacts from the proposed EIS Alternatives. The co-lead agencies chose to use the daily maximum water temperature metric in our analysis since most state water quality standards for water temperature are based on this metric. The water temperature analysis specific to MO3 utilized the Dworshak CE-QUAL W2 (2-dimensional model) and the lower Snake River HEC-RAS (1-dimensional models) to predict water temperatures under a dam breach scenario, while incorporating operations at Dworshak Dam for downstream water temperature management, for 5 selected years (2011-2015). From these results, the co-lead agencies organized the EIS water temperature and TDG data using one methodology, but the agencies recognize that other techniques could be used. The methodology the agencies chose was used to bin results into negligible, minor, moderate or major categories based on the absolute change in water temperature, number of days that water temperatures exceeded state water quality standards and seasonality of change (based on whether anadromous fish are present or not). This methodology was reviewed by the EIS Fish Team and NMFS. In general, metrics were chosen based on: (1) absolute change in water temperature that the team considered to be a measurable; (2) change in the days that water temperature standards were exceeded that was determined to be more related to the EIS Alternative than seasonal/climatic variability. Hourly water temperature results for each five-year simulation are also provided in Appendix D. Overall the conclusion in the Draft EIS is that MO3 would be beneficial to anadromous fish for a number of reasons, but other objectives must also be considered in the selection of a Preferred Alternative. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3. However, the Preferred Alternative also meets all the other objectives of the study for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse impacts to communities and the economy. The dam breaching alternative, by contrast, has significant regional economic impacts and community effects, and meet only a small subset of the EIS objectives. Thus, the co-lead agencies did not recommend MO3 because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system.
31775	94	golc@critfc.org	Columbia River Inter-Tribal Fish Commission	In addition to the predicted cooling, diel temperature conditions predicted by the numerical models. The DEIS reports Average diel temperature differences seldom exceed 1 degree Fahrenheit under the no Action Alternative.Average differences would range from 2.5 to 3.5 degrees Fahrenheit for the same time period if MOE was implemented (Figure 6-29).16 Diel temperature fluctuation could provide thermal refuge for migrating adults even in the lower river. It is difficult to understand why the thermal benefits predicted by the numerical modeling for a free-flowing river were not part of the preferred alternative solution.	The Draft EIS acknowledges and describes the temperature sensitivities of salmon and steelhead, as well as the many other factors that affect these fish. Diel cooling was reflected in the models as well as discussed and considered qualitatively. Overall, the conclusion in the Draft EIS is that MO3 would be beneficial to anadromous fish for a number of reasons, but other objectives must also be considered in the selection of a Preferred Alternative. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets most other EIS objectives including those for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS, the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams, because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system.
31775	95	golc@critfc.org	Columbia River Inter-Tribal Fish Commission	EPAs used an alternative one-dimension model, RBM10, to evaluate the Columbia River system as part of the temperature TMDL process and also developed a model of a free-flowing river scenario. The DEIS reports EPA modeling results in Appendix D, Annex A that detail daily average temperature predictions with no Lower Snake River dams17. EPA also presented modeling results using RBM10 during the TMDL process18. The DEIS and EPA water quality models overlap geographically and temporally, and although the results may not be directly comparable, EPAs analysis offers comparison between a free flowing and impounded scenario that offers insights that supports the benefits of MO3. The free-flowing scenario results in a significantly cooler Lower Snake River by 1-2C during the period when the Snake River currently typically exceeds 20C (mid-July mid September). The free-flowing scenario significantly reduces the number of days that exceed a daily average of 20C. The cooler daily average temperatures in the summer and fall under the free-flowing scenario as noted above will result in cooler temperatures for a few migrating adult sockeye in July, for a significant number of adult steelhead in July, August, and September , and for a significant number of adult Fall Chinook in August and September19. Currently, in July and August the Snake River is warmer than the Columbia River by 2-3C at a time when Snake River temperatures exceed 20C. Adult steelhead may delay migration up the Snake and hold in the cooler Columbia River. In the MO3 scenario, the predicted cooling and 15 DEIS Chapter 3, line 5353, Figure 3-108. 16 DEIS Appendix D, line 4950-4954, Figure 6-29. 17 DEIS, Appendix D, Annex A, Figure 1-22, Table 1-22, line 481 18 EPA. 2019. Assessment of Impacts to Columbia and Snake River Temperatures using the RBM10 Model. Scenario Report. Phase 1. EPA Region 10. December 2019. 19 DART Adult Passage Fish Counts for All Species http://www.cbr.washington.edu/dart/query/adult_daily CRITFC DEIS Comments April 13, 2020 Page 43 of 59 diel fluctuations during this time could reduce or eliminate this potential thermal impediment to migration. The cooler summer and fall temperatures would provide less stressful migration conditions for adult steelhead and fall Chinook salmon migrating up the Lower Snake River. The DEIS process should have also included an alternative that combined optimized Dworshak releases to regulate water temperature with a free free-flowing Lower Snake River. The options that were only evaluated in MO1 which proposed releasing more Dworshak water in June/July, less in August, and more again in September/October. This schedule would release cold water during the peak of the sockeye and S/S Chinook migrations in June/July and again during the peak of fall Chinook and steelhead migrations in September and October. This option should have been combined with an evaluation of a free-flowing lower Snake River to fully evaluate the best options for fish survival.	There are a few key differences between EPA's RBM-10 model and the models used in the development of this EIS that should be made clear. First, the RBM-10 (TMDL) model predicts a daily average water temperature, while the CE-QUAL W2/RAS (EIS) model predicts a daily maximum value. The co-lead agencies chose the daily maximum water temperature metric since most water quality standards are based on this metric. Second, the RBM-10 model uses weather data from airport weather stations with the longest records, whereas the co-lead agencies used weather stations with the most spatial coverage and spatial representation (airport and AgriMet weather stations). Lastly, RBM-10 was utilized for a free-flowing scenario. The free-flowing scenario includes the absence of Grand Coulee, Chief Joseph, the five mid-Columbia PUD dams, the lower four Columbia River and the lower four Snake River dams. Dworshak Dam, however, was included in EPA's "free-flowing" scenario as a boundary condition and uses observed flows and temperatures. 2010 channel bathymetry is utilized throughout the system. The TMDL assessment focused on quantifying the thermal load of the dams by comparing existing conditions to a "free-flowing" scenario where Dworshak Dam is still in place. The co-lead agencies used HEC-RAS (1-dimensional model)for MO3 for the lower Snake River; CE-QUAL W2 (2-dimensional model) was used for the other mainstem CRS dams. MO3 includes breaching the four lower Snake River dams in which the earthen embankments of each dam are removed, leaving the concrete sections in place. All other CRS dams remain in place. Dworshak Dam uses modeled flows and temperature. 1934 (pre-dam) channel bathymetry is utilized throughout the lower Snake River; 2010 geomorphology used for elsewhere in the system. The CRSO EIS assessment focused on predicting water temperature and TDG conditions under MO3 . Given the differences between efforts, direct comparisons between the two assessments are not appropriate. Both models have been reviewed extensively by the agencies and concluded that both temperature models provide useful and technically appropriate analyses of the Columbia and lower Snake River water temperatures. As stated in EPA's review letter (#16-0059), EPA agrees with the co-lead agencies that the CE-QUAL W2 and HEC RAS models are appropriate to use in developing the Draft EIS. The co-lead agencies agree with your concern relating to water temperatures in the Columbia and Snake rivers and that is why the agencies have used current high quality information and best resources available to model and evaluate impacts from operations described in each of the alternatives on water temperatures. The study results indicate that the operations of the CRS do impact water temperature but the CRS has limited ability to reduce temperatures in the lower Snake and Columbia rivers outside of Dworshak operations. Regionally high air and water temperatures result in water quality standard exceedances and are beyond the ability of the CRS to cool. The water temperature analysis specific to MO3 utilized the Dworshak CE-QUAL W2 (2-dimensional model) and the lower Snake River HEC-RAS (1-dimensional models) to predict water temperatures under a dam breach scenario, while incorporating operations at Dworshak Dam for downstream water temperature management. Specifically, 2016 No Action Alternative Dworshak operations were used in the MO3 analysis. The alternatives are evaluated in terms of change from the No Action Alternative, which is the baseline condition of 2016 when the development of the EIS began. The co-lead agencies defined the No Action Alternative consistent with NEPA and implementing regulations. In the case of an ongoing action, such as operation of the CRS, the no action alternative represents no change in current management direction or level of management intensity. The No Action Alternative thus assumes the existence of the CRS projects and does not attempt to hypothesize the direct and indirect costs of each of Congress's decisions to construct CRS projects. The EIS analyzing the effects of the No Action Alternative on resources, environmental and socioeconomic, at present and into the future. However, the EIS evaluated the impact of several actions the co-lead agencies could take and their impact on river temperatures as they relate to current and historic river temperatures. Thus the EIS did realistically and clearly analyze, to the extent practicable, whether the hydrosystem is causing or contributing to compliance with the water quality standards as compared to historic river temperatures.
31775	96	golc@critfc.org	Columbia River Inter-Tribal Fish Commission	F. Power/Economics: The DEIS Power and Economics Analyses Are Deeply Flawed and Fail to Incorporate and Analyze Important Information Sources. Early in the DEIS development process, tribal staff urged the co-lead agencies to adapt their power analyses to recognize the rapid evolution of western energy markets and the role of the CRS in this setting. The ever-increasing integration of the Western electricity grid creates opportunities and threats for both fish and power. Independently from the DEIS process the co-lead agencies, state and tribal parties entered into a Flex Spill Agreement for an interim period of three years. Unlike the DEIS, the process for developing the Flex Spill agreement was forward-looking, innovative and collaborative. It was not and is not a comprehensive agreement and its limits are clearly described within the Agreement itself. Nevertheless, the Agreement was founded on innovations in analytical methods that assisted the parties collaborative dialogue. For instance, the Flex Spill Agreement is based on hourly spill operations in attempt to accommodate time-of-day pricing that occurs in Western energy markets.	The comment suggests that the EIS should have adapted its power analysis to recognize the rapid changes occurring in the western energy markets. The comment is not clear, though, as to what aspect of the western energy market the EIS omitted. The EIS recognizes that the energy market is constantly changing. To that end, the EIS included updated information concerning coal retirements, demand response, resource integration, and other factors that could affect the power analysis. Section 3.7.3.1, Additional Power Rate Sensitivity Analysis and Other Regional Cost Pressure Analysis, pages 3-829-841 in the Draft EIS. In addition, in response to comments, the Final EIS includes the data used in estimating replacement resources costs for solar and batteries using publicly released draft information from development of the Northwest Power and Conservation Council's 8th Power Plan. This is included as rate sensitivities in the Final EIS. The Final EIS also includes the de-escalating cost curves prepared by National Renewable Energy Laboratory (NREL) that will likely be used by the Council in the 8th Power plan. The EIS analysis also considers emerging technologies in the resources analysis, though it recognizes that most of these new resource options have not reached the scale needed in the EIS to be cost-effective. Section 3.7.3.5, Replacement Resource Options, pages 3-907-910 in the Draft EIS. The co-lead agencies are proposing an adaptive implementation framework for juvenile fish passage spill operations, which builds off the lessons learned from the 2019-2021 Spill Operation Agreement. The framework for the adaptive management process is detailed in Appendix R, Part 2, Process for Adaptive Implementation of the Flexible Spill Operational Component of the CRSO EIS. The co-lead agencies intend to engage regional, state, Tribal, and Federal biologists in the development of an appropriate adaptive management process utilizing their respective salmonid management expertise. The goal of that adaptive management process would be to consider additional opportunities to further the effectiveness of the operation while maintaining the goals of the flexible spill operation: additional improvements for salmon and steelhead, maintain opportunities to operate the CRS for hydropower generation in a flexible manner that provides value to the Northwest, is implementable by the dam operators, and provides opportunity to reduce uncertainty and improve the learning opportunities around how operations of the CRS can influence the magnitude of latent mortality effects.
31775	97	golc@critfc.org	Columbia River Inter-Tribal Fish Commission	The selection of analytical methods was carried out solely by the co-lead agencies, despite offers of assistance from the tribes. As an example, CRITFC has extensive capability to perform analyses with a HYDSIM based analytical tool it developed for just this kind of setting. Called CIS, the analytical tool is capable of modeling and comparing multiple operation scenarios for CRS projects, quickly and easily. It has been used by the 15 tribes in the U.S. portion of the Columbia Basin to analyze the potential effects of modernizing the Columbia River Treaty. An explanation of CIS provided to the co-lead agencies is attached. CRITFCs offer went into a void. In the case of anadromous fish, the development of future system scenarios were not iterative. Rather it was based on a one-way information flow.	The cooperating agency assistance is very much appreciated throughout the NEPA process. As for the modeling of system operations the co-lead agencies have existing capabilities to represent complex operations of the system that allow feed-back and coordination between various resource areas. Hydroregulation (regulating water) is the process planners and operators use to make decisions about routing water through a series of dams in a river system. Computer hydroregulation modeling is used to simulate operations for the system of dams that operate for multiple purposes, including flood risk management, hydropower, irrigation, navigation, recreation, water supply, and fish and wildlife purposes. Two hydroregulation models were used to simulate operations in the basin in support of the Hydraulics and Hydrology (H&H) analysis: Hydro System Simulator (HYDSIM) and Hydrologic Engineering Center Reservoir System Simulation (ResSim) software. The models mesh together through multiple steps to simulate operations in the Columbia River Basin. More information on these models is available in Section 3.2 and in Appendix B of the Draft EIS.
31775	98	golc@critfc.org	Columbia River Inter-Tribal Fish Commission	Energy is important to certain economic sectors in the region, but overall the economy of the region is highly dependent on the natural capital provided by the Columbia River and its tributaries and other factors that is far larger than CRS energy outputs and which the DEIS failed to disclose or analyze. The DEIS should have disclosed to the public the broader natural capital values of the Columbia River Basin, which are described in The Value of Natural Capital in the Columbia River Basin: A Comprehensive Analysis by Earth Economics. https://ucut.org/wp- CRITFC DEIS Comments April 13, 2020 Page 44 of 59 content/uploads/2017/12/ValueNaturalCapitalColumbiaRiverBasinDec2017.pdf. This broader context of natural capital management is important economic context for changes in CRS configuration and operations, which are minor in comparison. The DEIS also fails to consider the effects of built capital resources on the natural capital of the Basin. In many cases, such as the CRS, the built capital has degraded the natural capital of the basin. This degradation is described in the Earth Economics report, the 1999 Tribal Circumstances report and the 2019 Tribal Perspectives document. The loss of the Basins natural capital has profoundly damaged the tribes cultures and economies. Restoring the natural capital lost to the tribes is not disclosed or analyzed in the DEIS. Moreover, future sustainability of the natural capital of the Columbia River Basin is not analyzed in the DEIS.	The EIS recognizes the environmental, social, and economic values of the natural resources of the Columbia River Basin and the focus of the EIS is on how the CRSO EIS Alternatives affect these resources. For example, Section 3.5 evaluates effects of the alternatives on fish and Section 3.15 describes the values that people hold for salmon, including for commercial fishing, ceremonial and subsistence purposes, and passive use (e.g., existence values); Section 3.11 describes the effects on recreation, including fishing and other types of recreation; and Section 3.17 provides information on the cultural significance of the salmon to regional Tribes. Beyond the effects on fish, the EIS additionally evaluates potential effects on wildlife species and habitats (Section 3.6), agricultural productivity (Section 3.12), and air quality (Section 3.8). The EIS also recognizes the economic and cultural importance of salmon to Tribes in a number of sections throughout the document. The Fisheries section (Section 3.15) as well as Section 3.17, in particular, include discussion of reductions in anadromous species catch and associated adverse social effects that have occurred in Tribal communities. The cultural significance and impacts of salmon and steelhead fisheries are described in the Fisheries analysis (Section 3.15.2.1), which includes sections that describe ceremonial and subsistence fisheries as well as the social importance of commercial, ceremonial and subsistence fisheries. The Draft EIS acknowledges the information in the Earth Economics. In particular in Section 3.15 the EIS states, "[a] report by Earth Economics applied the mathematical model provided by Richardson and Loomis (2009) to estimate the existence values for salmon under present and hypothetical future conditions in the Columbia River (Flores et al. 2017). This study estimates an aggregate existence value across all 2.8 million households in the Columbia River Basin of $38.4 million annually for the current scenario versus $1.1 billion annually for a scenario where salmon populations increase by 51 percent. There is some uncertainty about the method used to estimate the 51 percent increase salmon population levels for the future scenario. Moreover, the study describes these estimates as existence values (i.e., synonymous with passive use values) that are additive with other types of values quantified and described in their report, including commercial fishing, recreational fishing, and cultural values. Based on the method employed to quantify these values, however, they are more likely reflective of a TEV estimate and should not be summed with other types of values."
31775	99	golc@critfc.org	Columbia River Inter-Tribal Fish Commission	. Our prior comments urged the co-lead agencies to consider the Tribes Energy Vision for the Columbia River. It was originally published in response to the energy crisis of 2001, when the federal dams violated their ESA operation requirements.20 These violations were the result of regional utilities assumptions that spot market power supplies would be adequate to address the regions needs. These faulty assumptions cost BPA hundreds of millions of dollars.	Bonneville is aware of the Draft Energy Vision for the Columbia River cited by the commenter. This document was developed by external parties, and based on discussions with the Yakama Nation. It has not been finalized. The Tribes Draft Energy Vision document is discussed in more detail in other comments from the Yakama Nation (6299 and from CRITFC (31775). Many of the elements of this draft document are incorporated in the EIS. As described in Appendix H, Power and Transmission and Section 3.7.3.1, Base Case Methodology, the EIS employs a variety of industry standard models such as GENESYS, HYDSIM, AURORAxmp, GridView and powerflow modeling to assess the potential power and transmission effects of the alternatives and the replacement resource portfolios.

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31775	100	golc@critfc.org	Columbia River Inter-Tribal Fish Commission	The 2003 Energy Vision for the Columbia River described solutions to address conflicts between peak power production and Columbia Basin salmon. Against the backdrop of fish problems associated with serving loads, the plan identified less harmful and less expensive ways to provide electricity for peak loads. A win-win combination. The CRITFC 2013 Energy Vision for the Columbia River builds on the recommendations made in 2003. Like its predecessor, the 2013 plan recommended measures to reduce the pressures of the regions energy demands on the Columbia River and its ecosystem. The Vision included the following recommendations: Reduce peak demands on the system. - Implement time-of-use pricing of power to reflect the full cost of generating and distributing power at different times of the day and year. - Implement programs to store power off peak to serve on-peak loads. - In water heaters; - In existing and added mass in buildings; and - In electric vehicles controlled to use off-peak power. - Implement fuel switching where appropriate Expand programs to improve energy efficiency. - Secure all cost-effective conservation - Ensure that utilities meet the Northwest Power and Conservation Councils energy-efficiency targets. - Expand low-income programs. - Expand commercial building programs. Meet the renewable performance standards established by states. - Develop wind energy. - Develop solar energy. - Develop a comprehensive plan to site renewable resources 20 Notably, FERC licensed dams on the Columbia River did not violate their fish operating requirements in 2001. CRITFC DEIS Comments April 13, 2020 Page 45 of 59 Site strategically located resources. Take additional actions to address emergencies and dry year strategies. Improve ecological function for fish and wildlife and reduce flood control costs as part of the review of the Columbia River Treaty.	The comment lists a variety of potential energy technologies and conservation efforts as well as other objectives recommended for the EIS and co-lead agencies to consider. Regarding conservation and other technologies to reduce peak demand, the EIS included all cost-effective conservation identified by the Northwest Power and Conservation Council and included demand response in the renewable energy portfolios to address peak demand. See Appendix H, Power and Transmission, Section 2.2, H-2-3; Section 3.7.3.1, Demand Response Analysis for CRSO, at 3-837 in the draft EIS. The EIS analysis considers that all energy efficiency assumed in the Councils 7th Plan is appropriate and, likely, aggressive. The Councils recent State of the Columbia River System, Fiscal Year 2019 Annual Report, February 2020, p. 11 (https://www.nwcouncil.org/sites/default/files/2020-3.pdf), states While the region currently is on track to meet Seventh Plan goals, there are some areas to watch including forecasts of declining savings from efficiency programs. And whether the region will identify new savings opportunities to replace those of residential lighting. Utilities achievements in energy efficiency have been on an annual decline since 2016. Forecasts from utilities show that this trend is expected to continue, despite relatively stable funding levels. Given this trend, there is some uncertainty as to whether there will be enough savings from other mechanisms to reach the 1,400 average megawatt goal by the end of Fiscal Year 2021. This information indicates that it would be difficult to increase the energy efficiency goals beyond the Councils Plan. Based on this information, it is not likely that substantial amounts of additional energy efficiency would be available as prices increase, as is forecast in MO3. The EIS also considered wind and solar energy as replacement resources. Section 3.7.3.5, Potential Replacement Resources And Associated Costs, at 3-904-910; see also Table 3-160 in the draft EIS. Many of the other recommendations are broad regional goals, which while not exclusively analyzed in the EIS are discussed in the EIS power analysis in Sections 3.7.2, Affected Environment and 3.7.3, Environmental Consequences as well as in the greenhouse gas analysis (Section 3.8) of the Draft EIS (for example, the importance of renewable energy for state clean energy goals, see Section 3.8.2.2 State Renewable Energy Targets). The EIS identifies the Preferred Alternative as striking a balance as suggested by the comment. As described in Chapter 7, the Preferred Alternative met the objectives of improving survival for ESA-listed fish species by including measures designed to benefit ESA-listed fish species, including structural measures (Section 7.6.2), operational measures (Section 7.6.3), and mitigation measures (Section 7.6.4). The Preferred Alternative also met the objective of ensuring an adequate, reliable, and economic supply of power. Overall, the Preferred Alternative results in a small power rate increase to power customers of Bonneville compared to the No Action Alternative. See Section 7.7.9, Table 7-32 of the Draft EIS.
31775	101	golc@critfc.org	Columbia River Inter-Tribal Fish Commission	The DEIS fails to disclose and analyze the tribes concerns and recommendations to evolving nature of the regions energy demands and the pressures they place on the Columbia Rivers ecosystem, including its anadromous fish. We are pleased that the DEIS recognizes the NW Councils regional energy plan, but the tribes Vision goes beyond the Councils regional energy planning. We specifically incorporate by reference herein the power and economics comments of the Yakama Nation. The analyses reported by the Yakama Nation were developed with input and support from the technical staff of CRITFC. Rather than repeat this content in CRITFCs comments, we are specifically incorporating the Yakama Nations power and economics analyses by reference.	Bonneville is aware of the Draft Energy Vision for the Columbia River cited by the commenter. This document was developed by external parties, and based on discussions with the Yakama Nation. It has not been finalized. The Tribes Draft Energy Vision document is discussed in more detail in other comments from the Yakama Nation (6299 and from CRITFC (31775). Many of the elements of this draft document are incorporated in the EIS.
31775	102	golc@critfc.org	Columbia River Inter-Tribal Fish Commission	G. The DEIS Fails to Consider Additional Related and Important Effects - Effects of the Mid-Columbia PUDs were not adequately considered The DEIS generally ignores the Mid-C PUD dams in description of the Upper Columbia salmon and steelhead stocks. These dams are important, particularly for cumulative effects, but also because upriver CRS operations directly impact survival through the mid-Columbia reach (flow timing and volume, temperature and TDG). It is important to observe how upriver operations affect system survival and system travel time for Upper Columbia stocks for each MO.	Impacts from Mid-Columbia Public Utility District (Mid-C PUD) projects are acknowledged. Mid-C passage effects were considered in Smolt-to-Adult return rates (SARs) and PIT tag powerhouse passage (PITPH). A quick analysis of relative change in survival between the No Action Alternative and Multiple Objective alternatives (MOs) shows that nearly all of the change occurs in the lower Columbia River projects. Upstream operations in the MOs compared to the No Action do not appear to be changing the PUD passage response. Rock Island to Bonneville survival rates are reported in Appendix E for National Marine Fisheries Service COMPASS model results from the Upper Columbia Chinook ESU. When comparing levels of change in major metrics between the MOs and the No Action Alternative, adding the Rock Island-to-McNary segment does not significantly change the level of effect that one would interpret from spill or dam breach. Moreover, the EIS analyzes generation changes for the Mid-C PUD projects in Appendix J, Exhibits 3 through 6.
31775	103	golc@critfc.org	Columbia River Inter-Tribal Fish Commission	- Alternative flood risk management regimes and the Columbia River Treaty should have been considered in the DEIS analysis The tribes envision the need for new flood risk infrastructure in the U.S. to minimize the consequences of high flows. A domestic regional flood risk management review for the Columbia Basin was recommended in the U.S. Entity Regional Recommendation on the Future of the Columbia River Treaty after 2024. A regional flood risk study is needed to determine what levee system upgrades, lower value floodplain reconnections, and floodplain management changes are needed to minimize the risk of damaging floods while providing greater flexibility in operations of U.S. and Canadian reservoirs to integrate ecosystem-based function into Columbia River flow regimes. The DEIS fails to disclose or analyze the tribes recommendations.	The current operations of the Columbia River System, including current Treaty-related operations, are included in the EIS analysis. If Treaty-related operations change after 2024 in a manner that presents new information or circumstances resulting in significant changes that were not previously addressed, those changes will be addressed by this NEPA process if they are identified in time or subsequently in another NEPA process, if necessary. Section 2.5.10 of the Draft EIS explains why re-evaluating system flood risk management was screened out from further consideration in this EIS. Section 2.5.10 also explains that while the U.S. Entity Regional Recommendation stated support the pursuit of Congressional authorization and appropriations for a region-wide public process to assess potential changes to the current level of flood risk protection, no such authorization or appropriation was provided. As such, a study for this purpose was determined to be outside of the scope of this EIS.
31775	104	golc@critfc.org	Columbia River Inter-Tribal Fish Commission	The effects of the Columbia River Treaty are briefly described in Chapter 3, but much more could have been disclosed to the public. The Columbia Rivers ecosystem functions and values were not considered in shaping and implementing the Treaty. This lack of consideration caused serious degradation of the ecosystem and undermined historical tribal economic and social resources that depend on it. Goth the U.S. and Canada recognize that a modernized Treaty needs to be adaptable to climate change and the corresponding changes in basin meteorology and hydrology. The tribes believe a comprehensive CRITFC DEIS Comments April 13, 2020 Page 46 of 59 study should be undertaken pursuant to a modernized Treaty to investigate water management options and structural changes at dams that could mitigate the anticipated changes in hydrology and water quality that are already problematic with the current system of dams. https://www.critfc.org/wp-content/uploads/2014/12/ecosystem-booklet-single-page.pdf	The current operations of the Columbia River System, including current Treaty-related operations, are included in the EIS analysis. If Treaty-related operations change after 2024 in a manner that presents new information or circumstances resulting in significant changes that were not previously addressed, those changes will be addressed by this NEPA process if they are identified in time or subsequently in another NEPA process, if necessary.
31775	105	golc@critfc.org	Columbia River Inter-Tribal Fish Commission	The cumulative effects of the Columbia River Treaty merited mention in Chapter 6 in three brief sentences. Likewise, the adequacy and health of existing regional coordination, alignment, and planning actions will not be assessed for the purposed of this EIS, but nonetheless merits mention for context. The United States and Canada began negotiations in 2018 to modernize the Columbia River Treaty regime. The negotiations are currently ongoing, therefore any potential effects on the environment that may result from that effort are not reasonably foreseeable. The co-lead agencies chose not to disclose Canadian reservoir operations, which has frustrated systemwide comprehensive evaluations. In the context of the Columbia River Treaty, the tribes have evaluated total U.S. and Canadian system operations using the CIS modeling tool that incorporates HYDSIM logic and functions. These have been presented in widely distributed publications, including in a publication entitled: Ecosystem-Based Function Integration Into the Columbia River Treaty. Unfortunately, the DEIS does not disclose or analyze this information. https://www.critfc.org/wp-content/uploads/2014/12/ecosystem-booklet-single-page.pdf.	The comment appears to be asking for Canadian reservoir operations to be in the Draft EIS as well as inclusion of ecosystem analysis completed by the Tribes on the U.S. and Canadian System operations. The HEC-WAT and HEC-ResSim model documentation appendix (Appendix B, Part 3) and the Hydroregulation appendix (Appendix I) provide an overview of the operating assumptions used to represent Canadian operations. Because operational changes to Canadian reservoirs were not considered in the EIS, the description of No Action operating assumptions include ecosystem analysis of current Canadian operations. The current operations of the Columbia River System, including current Treaty-related operations, are included in the EIS analysis. If Treaty-related operations change after 2024 in a manner that presents new information or circumstances resulting in significant changes that were not previously addressed, those changes will be addressed by this NEPA process if they are identified in time or subsequently in another NEPA process, if necessary.
31775	106	golc@critfc.org	Columbia River Inter-Tribal Fish Commission	- Analysis of reservoir ecology should be included in the DEIS. There are important extant regional models to assist in defining anadromous salmonid mainstem and estuary habitat that were not utilized but should have been in the CRSO DEIS. This is surprising because the co-lead agencies and basin tribal and state sovereigns used them to assist in better defining ecosystem function attributes during the 2012-2014 Columbia River Treaty Sovereign Review process. These include the USGS chinook and sturgeon spawning habitat models. References below: - Hatten, J.R., Parsley, M.J., 2009. A spatial model of white sturgeon rearing habitat in the lower Columbia River, USA. Ecological Modelling 220:36383646. - Hatten, J.R., K.F. Tiffan, D.R. Anglin, S.L. Haeseker, J.J. Skalicky, and H. Schaller. 2009. A spatial model to assess the effects of hydropower operations on Columbia River Fall Chinook salmon spawning habitat. North American Journal of Fisheries Management 29:13791405. - Tiffan, K.F., Garland, R.D., Rondorf, D.W., 2002. Quantifying flow-dependent changes in subyearling fall chinook salmon rearing habitat using two dimensional spatially explicit modeling. N. Am. J. Fish. Manag. 22, 713e726. CRITFC DEIS Comments April 13, 2020 Page 47 of 59 - Parsley, M., Beckman, L., McCabe, G., 1993. Spawning and rearing habitat use by white sturgeons in the Columbia River downstream from McNary Dam. T. Am. Fish. Soc. 122, 217e227. - Parsley, M.J., Beckman, L.G., 1994. White sturgeon spawning and rearing habitat in the Lower Columbia River. N. Am. J. Fish. Manag. 14, 812e827. - And the Coastal Zone Margin and Prediction estuary salmon habitat preference model sand near ocean plume relationships: Buria et al. 2010. The influence of the Columbia River plume on the survival of steelhead (O. mykiss) and Chinook salmon (O. tshawytscha) a numerical exploration. Canadian Journal of Fisheries and Aquatic Sciences, 2010, 67(10): 1671-1684, https://doi.org/10.1139/F10-083.	Given the time constraints on developing the EIS, the co-lead agencies had to rely on existing models that were ready to be utilized for the analysis. In the case of the USGS reservoir model, it was not in the right format for evaluating the measures the multi-objective alternatives in this EIS and needed substantial further development to be utilized.
31775	107	golc@critfc.org	Columbia River Inter-Tribal Fish Commission	H. The Effects of Climate Change Are Not Adequately Evaluated The DEIS lack of quantitative regulated flow and river operations modeling based on the RMJOC II 160 climate change projections is a significant flaw. The DEIS states that the approach BPA used to examine four of the RMJOC II climate change scenarios does not meet the policies or technical guidance of the Corps or Reclamation under the time frame of the EIS. This is a significant failing of the DEIS to adequately evaluate the DEIS alternatives for climate change impacts as required by ESA and NEPA. We anticipate that Phase II of the RMJOC II project will contain the Phase I climate change scenarios with regulated flows and river operations based on updated flood risk and irrigation data is necessary to fill this inadequacy. The DEIS notes that having quantifiable understanding how future climate may impact EIS alternatives is important to BPAs understanding of impacts to generation and revenue in the future. It is no less important and is vital to understanding the other metrics examined in this EIS such as flood risk, ecosystem function with respect to anadromous and resident fish, water quality, recreation and water supply. In this section, the DEIS notes that the four climate change scenarios BPA chose to evaluate for power generation provide a general spread of future climate scenarios, but they are not adequate considering the full suite of 160 climate scenarios in the RMJOC II study.	Through on-going regional climate change studies and work, the co-lead agencies evaluated potential shifts in precipitation and temperature patterns and resulting changes in unregulated Columbia Basin streamflow timing and volumes. The evaluation consisted of the full range of the latest climate change projections developed using multiple global climate models, emissions scenarios, downscaling techniques, and hydrologic models. Details of this evaluation are in Chapter 4 of the EIS. This information was used to describe the potential effects (both beneficial and adverse) on the river systems and resources due to potential changes in climate for all alternatives. The climate science community is still developing quantitative models that can address possible effects in water temperature from climate change, and unfortunately, have not been fully applied and validated for use with climate affected regulated flow projections of large reservoir systems. This data is critical to analyzing potential effects to fish quantitatively. In lieu of this information, the climate analysis used the output from resource models, like water quality and fish, under historical conditions, available climate change data, and scientific literature to qualitative assess potential effects to resources (described in Chapter 4). The RMJOC-II Part 2 study was still in review at the time of the draft publication and final EIS development. Though the quantitative data from the Part 2 study was not included in this study, the qualitative conclusions were verified with the draft conclusions of the RMJOC-II Part 2 study for the final EIS.
31775	108	golc@critfc.org	Columbia River Inter-Tribal Fish Commission	The approach used to estimate and compare power generation and review four RMJOC I unregulated climate change scenarios by regulating them through HYDSIM runs is an interesting preliminary first look but lacks adequate daily flood risk rule curves and appears to lack validated modified flows. The details of how the DEIS established data sets used to replace the 80-year modified flow data set and the volume forecast data sets used in all of the alternatives are not provided. Assumptions are provided as to how BPA established URCs for the four climate change scenarios, but they are not the approach that is required for robust flood risk evaluations. The revised URCs are based on the HYDSIM 14 period time step and do not have the precision of the daily time steps that the Corps uses when generating flood risk curves and URCs. In addition, the four climate scenarios chosen were based on the spread of 160 scenarios, culled down to 19 scenarios and based on annual runoff. It would much more informative to examine a fuller suite of scenarios culled by seasonal volumes for each metric considered (i.e. spring and early summer volume forecasts for fish; winter volume forecasts for flood risk).	Thank you for these comments and observations. Technical details on how the climate change streamflows compare to historical datasets and water supply forecasts developed for the hydroregulation studies will be available in the forthcoming RMJOC-II, Part 2 publication. The commenters correctly state that HYDSIM runs on a 14-period time step. While this temporal resolution is adequate for longer-term hydropower analyses, and intercomparisons between the alternatives with respect to the selected climate change scenarios, the temporal resolution of HYDSIM is too coarse for robust flood risk and biological assessments, which typically require reliable daily flow and temperature inputs. For the purposes of this Draft EIS, the four climate change scenarios examined, which capture a wide range of possible climate change outcomes, were informative vis-a-vis the alternates, as described in Appendices I and J.

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31775	109	golc@critfc.org	Columbia River Inter-Tribal Fish Commission	In Appendix J Hydrogeneration, the summary section that provides the results of the model comparisons between historical climate (80-year historical record) and the four RMJOC II climate scenarios for all of the DEIS alternatives. These results indicate there were negligible differences between historical climate and future climate change scenarios for all DEIS alternatives with respect to power generation and revenue. Dynamic changes to potential load demand and market shifts from winter generation to summer generation, new generation resources and conservation technologies are all important uncertainties under current examination by BPA and the Northwest Power and Conservation Council. These uncertainties need to be assessed, weighed and accounted for in revised EIS modeling to establish a more robust approach to examining climate change effects on future power needs.	Section 4.2.5.2 in the Draft EIS describes the projected effects of increasing temperatures on demand (load) and projected effects on reliability (e.g., if climate change is expected to exacerbate or ameliorate reliability issues) for each alternative. This analysis relies on current, best available studies by the Northwest Power and Conservation Council and PNNL. Issues surrounding shifts in loads and markets, resource development, and reliability are, as the commenter points out, uncertain and under ongoing evaluation by multiple entities in the region. Further analysis would be speculative and highly uncertain at this time, so was not included in this EIS.
31775	110	golc@critfc.org	Columbia River Inter-Tribal Fish Commission	VII. Mitigation The CEQ regulations concerning mitigation describe several types of mitigation actions at 40 CFR 1508.20. As pointed out in the DEIS, these include rectifying the affected environment and compensating for the impacts to resources of concern. The DEIS fails to adequately consider ongoing mitigation programs and irrationally limits the scope of proposed mitigation.	NEPA requires that all relevant, reasonable mitigation measures that could diminish the adverse impacts of the project be identified in the document, even if they are outside the jurisdiction of the lead agency or the cooperating agencies. See 40 C.F.R. 1502.16(h) and 1505.2(c); 46 Fed. Reg. 18026. The inclusion of mitigation measures in Chapter 5 is not intended to indicate that the co-lead agencies, or the Federal government as a whole, have the authority to perform all of the measures listed. If the measures are outside the jurisdiction of the co-lead agencies, those measures will not be included in the Preferred Alternative or Record of Decision (ROD). Their inclusion in Chapter 5 serves to alert other agencies, officials, and the public who can implement the measures to the potential benefits of the measure.
31775	111	golc@critfc.org	Columbia River Inter-Tribal Fish Commission	A. Continuing Mitigation Actions Are Not Adequately Described or Considered Within the Affected Environment and Analytical Framework While the DEIS NAA assumes a 2016 Baseline, the discussions in the Affected Environment sections do not meaningfully depict the nature and extent of the cumulative impacts that the Basins hydrosystem has had on the Columbia Basins anadromous fish. The NAA carries with it substantial unmitigated salmon and steelhead losses due to the CRSO dams configurations and operations. The broad scope of these impacts is described in multiple sources, including the Tribal Perspectives submitted by Warm Springs, Umatilla, Nez Perce and Yakama tribes in June 2019. In an effort spanning multiple years with numerous public hearings in a notice and comment style, the NW Power Planning Council considered the extent of hydropower related salmon and steelhead losses and concluded by adopting Program goals in 1987. The effort is described in multiple volumes. https://www.nwcouncil.org/reports/2014-columbia-river-basin-fish-and-wildlife-program/appendix-b-estimates-hydropower-related-losses. Costs for Implementing the Fish and Wildlife Program are approximately $300 million annually, recently reduced to $282M. Program implementation is a key factor in the overall balance of activities that fulfills the equitable treatment mandates that apply to the co-lead agencies pursuant to 16 USC 839b(h)(11). The cost analysis in Appendix Q suggests reducing Fish and Wildlife Program funding and proposes funding cuts that are so substantial that they represent major shifts in regional governmental activities and policies. Appendix Q describes a $105 million/year (37%) reduction of Program spending associated with MO3 and MO4. Appendix Q describes a metric, benefits, that would evidently justify this 37% reduction in Program funding. There is, however, no actual appraisal in the DEIS of the biological benefits of the BPA actions implementing the Fish and Wildlife Program, let alone an analysis placing such benefits in the context of the full extent of the CRS dams effects. Without more, it is simply irrational to assume that co-lead agencies statutory obligations under the Northwest Power Act can be met using such gross assumptions. Unless the DEIS contains a thorough, accurate and meaningful discussion of the Fish and Wildlife Programs implementation, including progress toward its goals and mitigation objectives, there is no basis to assume a 37% funding reduction in Program implementation should accompany MO3 and CRITFC DEIS Comments April 13, 2020 Page 50 of 59 MO4 While federal agencies are given latitude in establishing their objectives in a NEPA analysis, that latitude does not relieve the agencies from considering cumulative actions, cumulative impacts as well as direct and indirect effects. In this regard, the DEIS fails to accurately consider the context and intensity of the dams historic and long-term effects as well as this context for establishing appropriate mitigation measures. This situation is again symptomatic of the structural flaws that flow from an inadequate analysis of the CRSO dams cumulative baseline effects and a DEIS scope that only seeks improvement in juvenile and adult passage. Since reductions in Fish and Wildlife Program funding are beyond the stated scope of the DEIS objectives, the DEIS should not purport to analyze such measures.	The co-lead agencies disagree with the supporting documentation for the statement regarding substantial unmitigated salmon and steelhead losses. The Northwest Power and Conservation Councils (Council) anadromous fish loss assessments are often mischaracterized. The mischaracterization is in that the assessments were for the impacts of all the hydroelectric projects in the Columbia River basin, all 137 dams existing at the time, not just the 14 CRS projects considered in the EIS. 1/ Moreover, the assessments state that, [i]n several parts of the discussion, there are references to the approximate contributions of groups of projects to salmon and steelhead losses. These are included only for the purpose of estimating system hydropower-related losses, not to determine particular responsibilities within that system for mitigating the losses. 2/ Thus, the Councils anadromous fish loss assessments do not provide a reliable basis for establishing the CRS contribution for those losses, which also makes it impractical to track the degree to which the co-lead agencies mitigation efforts have addressed the goals and objectives that incorporate these broader losses. The loss assessments also use a baseline that predates the effects of commercial fishing, industrial pollution, mining, logging, irrigation withdrawals, and other development. The effects of those sources drastically reduced anadromous fish runs well before construction of the first CRS dams began. In considering appropriate mitigation baselines under the Federal Power Act, with mitigation provisions for non-Federal dams similar to those for the Federal projects under the Northwest Power Act, courts have rejected pre-project baselines. For example, in a licensing proceeding for a mid-Columbia dam, FERC found that because the extent of losses to fish and wildlife due to project development [was] virtually undocumented . . . fish and wildlife mitigation based on pre-project resource levels [was] unrealistic and unwarranted. Pub. Util. Dist. No. 1 of Chelan County., Wash., 15 FERC 62,168, 63,280 (1981); see also City of Tacoma, Wash., 98 FERC 61,274,62,095 (2002) (we do not attempt to recreate pre-project conditions or to hypothesize an environmental baseline that assumes that the project does not exist. Thus, our starting point must be the Cowlitz Project as it is currently configured . . .). Similarly, the Ninth Circuit has found that it defies common sense and notions of pragmatism to develop a 50-year-old baseline in an attempt to guide present day decision making. American Rivers v. FERC, 187 F.3d 1007, 1018 (9th Cir. 1999). Another court rejected pre-project baselines, stating: The statutory words fish and wildlife . . . affected by the project seems to refer to the fish and wildlife currently existing [and . . .] surely cannot refer to the animals inhabiting the area in 1899, when the project came into being. Conservation Law Foundation v. FERC, 216 F.3d 41, 46 (D.C. Cir. 2000). The Councils anadromous fish loss assessment and the goals based upon it do not consider the status of fish resources when the CRS dams were first built or distinguish the effects of the CRS from over 100 non-federal hydroelectric projects or other causes of fish mortality such as fishing, pollution, or water withdrawals. Therefore, the assessment and goals provide little useful guidance to the co-lead agencies efforts to manage the CRS in a manner that fulfills their Northwest Power Act mandates. The comment also raises concerns about equitable treatment stating that the statutory mandate applies to Bonneville's off-site mitigation program implemented to fulfill its Northwest Power Act section 4(h)(10)(A) responsibilities. As discussed in Section 5.1.2, the section 4(h)(11) equitable treatment standard applies to Federal Columbia River Power System (FCRPS) management and operation only, and it does not apply to Bonneville's section 4(h)(10)(A) mitigation funding responsibilities. Next, the comment questions the adequacy of the analysis in the EIS because it does not include a comprehensive review demonstrating the efficacy of Bonneville's Fish and Wildlife Program. The description of the affected environment throughout the relevant sections in Chapter 3 of the EIS by definition reflects the effects of past and ongoing mitigation efforts, even if they are not itemized or highlighted as being the results of a specific mitigation effort. NEPA does not require the agencies to distinguish the past and ongoing effects of all the mitigation projects Bonneville has funded over the 40-year history of the Northwest Power Act, particularly given that Bonneville now uses over 600 contracts annually to implement its Fish and Wildlife Program. In addition, the Agencies 2020 CRS Biological Assessment includes analysis of the implementation and effectiveness of both tributary habitat restoration actions and the CRS overhaul. 3/ The comment also questions the analysis of reduced Fish and Wildlife Program funding under MO3 and Multiple Objective alternative 4 (MO4). Funding decisions for the Fish and Wildlife Program are not being made as a part of the CRSO EIS process. However, a range of potential Fish and Wildlife Program costs are included to inform the broader cost analysis for each alternative in the EIS. By analyzing a range of costs, Bonneville reflects the year-to-year fluctuations related to managing its program and also acknowledges the uncertainty around both the magnitude of biological benefits and the potential impacts on funding, including the timing of funding decisions. In the case of MO3 and MO4, Bonneville included a range of potential Fish and Wildlife Program costs to acknowledge the possibility that the alternatives could provide biological benefits to anadromous fish species and that this could, in turn, reduce the need for some offsite mitigation funded through the Bonneville Fish and Wildlife Program. With respect to anadromous fish, the Northwest Power Act calls for improved survival at the dams and flows of sufficient quality and quantity . . . to improve [their] production, migration, and survival. The co-lead agencies demonstrate throughout the EIS how they meet these statutory objectives. The Columbia River Basin Fish Accord Extensions (Fish Accords) and Bonneville's comments to the Council on its 2020 amendment process also highlight the actions the Agencies have taken to fulfill this anadromous fish mandates of the Act.5/ Under MO3 or MO4, operational, structural and mitigation measures would substantially benefit anadromous fish. This would allow, if not necessitate, reductions in off-site mitigation funding. Future budget adjustments to the Fish and Wildlife Program would be made in consultation with the region through Bonneville's budget-making processes and other appropriate forums and consistent with existing agreements. Moreover, the co-lead agencies note that through the 2008 Fish Accords and the 2018 Accords Extensions, six tribes, one tribal association, and two states voluntarily affirmed the legal and biological adequacy of CRS operations as well as the off-site mitigation done through Bonneville's Fish and Wildlife Program. Several of the Accord partners published a 10-year review of its Accord-related mitigation accomplishments and the biological benefits obtained. In that report, the entity found Bonneville's $261 million annual funding level during the Accords and mitigation effort was consistent with the Northwest Power Act. 1/The Council says there are now 274 dams in the basin (with 19 of those in Canada). See https://www.nwcouncil.org/reports/columbia-river-history/damshistory) versus 136 (with 10 in Canada) that were considered in hydrosystem impacts of 1986 loss assessments (see Council, 2014 COLUMBIA BASIN FISH AND WILDLIFE PROGRAM, App. D at 137). 2/Council, 2014 COLUMBIA RIVER BASIN FISH AND WILDLIFE PROGRAM App. E at 1, Numerical Estimates of Hydropower-Related Losses. 3/Draft EIS, Appendix V, 2020 CRS Biological Assessment, Appendices D and E. 4/See 16 U.S.C. 839b(h)(6)(E). 5/ See Bonneville, Recommendations to the Council on Amending the 2014 Fish and Wildlife Program (Dec. 13, 2018) https://app.nwcouncil.org/uploads/2018amend/recs/765/Bonneville%20Recomendations%20to%20Council%20FW%20Program%20Amendment%2012.13.2018.pdf; Final Comments on Draft Addendum Part II (Oct. 18, 2019) https://app.nwcouncil.org/uploads/2018amend/comments/1341/Final%20Bonneville%20Comments%20on%20Draft%20Council%20Addendum%202019.10.18.pdf 6/Columbia River Inter-Tribal Fish Commission, COLUMBIA BASIN FISH ACCORDS 10-YEAR REPORT (Aug. 2018) https://www.critfc.org/wp-content/uploads/2018/08/accords-10yr-summary_spread.pdf. 7/ Id. at 5.
31775	112	golc@critfc.org	Columbia River Inter-Tribal Fish Commission	B. Proposed Mitigation Measures Fail to Mitigate for Identified Impacts The mitigation chapter does not reflect the significant input requested of, and provided by, the Cooperating Agencies. The mitigation measures were intended to be a toolbox approach where numerous measures could be identified and then applied as needed to the Preferred Action. The approach taken in the DEIS was to only apply limited to no mitigation to the MOs, thereby limiting the mitigation available to the PA. The DEIS fails to identify adequate mitigation for affected resources. Specific impacts are identified in Affected Environment, but there is no reference to those impacts in Mitigation chapter. There are several affected environments where a significant impact is identified, yet no mitigation action is recommended. For example, adult impacts are identified in MO1 and MO4, yet there are little and not mitigation for this impact identified by the alternatives. Another example, the DEIS notes a likely increase in Northern Pike predation but the mitigation section only calls for continuation of the current predation programs and not looking at enhancing the program to deal with the predation issue.	NEPA requires that all relevant, reasonable mitigation measures that could diminish the adverse impacts of the project be identified in the document, even if they are outside the jurisdiction of the lead agency or the cooperating agencies. See 40 C.F.R. 1502.16(h) and 1505.2(c); 46 Fed. Reg. 18026. The inclusion of mitigation measures in Chapter 5 is not intended to indicate that the co-lead agencies, or the Federal government as a whole, have the authority to perform all of the measures listed. If the measures are outside the jurisdiction of the co-lead agencies, those measures will not be included in the Preferred Alternative or Record of Decision (ROD). Their inclusion in Chapter 5 serves to alert other agencies, officials, and the public who can implement the measures to the potential benefits of the measure. Regarding northern pike, the co-lead agencies recognize and appreciate the importance of northern pike invasion as a regional issue, and did include analysis where alternative operation, maintenance, and configuration of CRS projects could affect them. An analysis of northern pike invasion in Region B, resident fish noted minor effects to northern pike in the Lake Roosevelt/Chief Joseph Dam area due to a minor change in boat ramp access for ongoing suppression efforts in wet years. In this EIS process the co-lead agencies only develop mitigation for moderate to major effects of the multiple objective alternatives as compared to the No Action Alternative. The assertion that no mitigation is included for resident fish is inaccurate. In most cases, effects to resident fish were either beneficial or minor. Mitigation for the resident fish effects is included in the Preferred Alternative as follows: Line 1263: Plant native wetland and riparian vegetation (up to 100 acres) on the Kootenai River downstream of Libby. Line 1281: Spawning habitat augmentation at Lake Roosevelt Line 1330: Bull trout access to perched tributaries in Kootenai River Line 1344: Study offseason surface spill for downstream passage of adult steelhead (and bull trout)
31775	113	golc@critfc.org	Columbia River Inter-Tribal Fish Commission	For salmon and steelhead, the mitigation section is wholly inadequate and does not appear to make sense. The DEIS uses the NAA as the baseline for mitigation responsibility, but the NAA was determined to be inadequate to avoid jeopardy by the court.21 It would follow that any alternative that does not produce a moderate improvement to the NAA should therefore carry significant mitigation actions to demonstrate a cumulative benefit that exceeds historic survival values. The DEIS does the opposite it provides little to no fish mitigation in all alternatives, 21 Under the No Action Alternative, COMPASS predicts that in-river survival of juvenile Snake River Chinook and steelhead from the Lower Granite to Bonneville Dams would be 50 and 43 percent, respectively. These values are lower than historic values of 53 and 56 percent from recent years (Widener et al. 2018). Similarly, COMPASS modeling predicts survival of upper Columbia River Chinook salmon and steelhead for the No Action Alternative would be 70 and 66 percent, respectively. These values are also below the historic values of 84 and 74 percent. CRITFC DEIS Comments April 13, 2020 Page 51 of 59 and if fact, no mitigation is provided for upper Columbia stocks where every alternative provides a worse condition than the NAA: For MO1, the summary tables of anadromous fish effect in Table 6-20 indicate that MO1 would be similar to the base case which was found to not be sufficient to meet jeopardy standards. However, MO1 has little to no additional mitigation actions. The mitigation proposed for salmon and steelhead is to revert backwards to the operation proposed in the NAA for Little Goose Dam and continue existing predator management programs. No other mitigation is proposed. As discussed with the PA, continuing existing predator management programs at NAA funding levels is not an improvement over the NAA. Rather than reverting to NAA spill levels to encourage adult migration, at the expense of juvenile migrants, the co-lead agencies should propose improvement of the	The mitigation identified in the EIS is to offset impacts of each Multiple Objective alternative compared to the No Action Alternative, which was the scope of analysis for this EIS. NEPA does not require identification of mitigation for the continuation of the No Action Alternative. Each alternative, including the Preferred Alternative, has a number of proposed measures intended to benefit fish. Multiple Objective alternative 1, Multiple Objective alternative 3, Multiple Objective alternative 4 and the Preferred Alternative all meet the objectives for adult and juvenile ESA-listed fish, as well as resident fish, with an overall beneficial effect over the No Action Alternative, and did not have an overall adverse effect to fish; therefore additional mitigation was not warranted. Additionally, Chapter 5 in the final EIS has been updated to include information previously included in the draft EIS in Sections 3.7 and 3.19 that Bonneville's Fish and Wildlife Program would increase under MO2 to address potential additional impacts to fish and wildlife.

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				adult fish ladder at Little Goose Dam or construction of a second ladder. This mitigation action was recommended by the tribes for the mitigation toolbox. For MO2, the co-lead agencies propose no mitigation actions for salmon and steelhead because even though the alternative is stated to decrease survival for both juveniles and adult abundance. If the NAA poses jeopardy for salmon and steelhead, there should be a significant mitigation package attached to this alternative. For MO3, the co-lead agencies propose short term mitigation to offset short term impacts caused by breaching the lower Snake dams. They propose constructing or improving trap and haul facilities to get fish out of the river and transport them around the zone of breaching. They also propose to rear more hatchery fish during the construction phase of breaching to replace two lost year classes of salmon and steelhead. The effect of this mitigation action does not offset the impact but reduces the number of fish impacted. No other mitigation is proposed. For MO4, again the co-lead agencies propose to revert backwards to the operation proposed in the NAA for Little Goose Dam and rely on existing predator management programs as described under MO1. No other mitigation is proposed. As with MO1, with adult passage identified as a concern, a second fish ladder at Little Goose (and possibly Lower Granite) should be considered as an appropriate mitigation action. For All MOs and the PA, the DEIS proposes continuation of current (NAA) predator control measures without addition or enhancement, however this fails to recognize: avian predation measures are not meeting biological goals or have been deemed complete without meeting such goals. See discussion under PA comments. likely increase in Northern Pike Minnow predation, which the DEIS does recognize but keeps the program at current levels. increases in pinniped predations, which the DEIS also recognizes as likely or uncertain, but fails to mitigate. CRITFC DEIS Comments April 13, 2020 Page 52 of 59 Many examples exist for additional Affected Environments (e.g.; Water supply, Navigation, etc.) but due to time constraints we have limited our comments to salmon and steelhead. The Draft fails to present a single plausible MO alternative that would meet judicial muster.	
31775	114	golc@critfc.org	Columbia River Inter-Tribal Fish Commission	C. Offsite Mitigation is Lacking The Offsite Mitigation Package (DEIS 5-29, 5-33) is lacking in several areas: - Habitat Research Monitoring &Evaluation. This section is woefully inadequate with regards to habitat condition, implementation of habitat restoration, and evaluation of biological responses. Tributary habitat restoration projects are implemented to reduce the impacts of limiting factors and increase the survival and productivity of focal species of interest. There should be a strong commitment to protecting and improving tributary habitat and implementing monitoring programs for assessing the impacts of limiting factors and effectiveness restoration actions. This will help to inform critical additional habitat improvement needs. The DEIS does not discuss significant regional habitat strategies in progress: the Habitat RM&E Strategy and the Habitat Implementation Strategy. Both strategies are attempting to synthesize standardized metrics (or indicators) of habitat conditions, habitat implementation and the impact on biological response. In addition, the DEIS fails to discuss the Northwest Power Planning Councils Research Plan regarding tributary habitat uncertainty research (2017-4). The following are key RM&E questions or uncertainties from this document. The EIS fails to disclose or analyze these important habitat questions. Question 1. Do investments in tributary habitat restoration mitigate for degraded mainstem habitat and passage conditions? 1.1. To what extent do tributary habitat restoration actions improve the survival, productivity, distribution and abundance of native fish populations? 1.2. How much does improving habitat and eliminating barriers (removing dams and culverts, or transporting migrating fish above dams) increase carrying capacity and contribute to recovering important fish populations? 1.3. To what extent is an increase in carrying capacity usurped by non-native invasive species, preventing recovery of native fish and wildlife populations? 1.4. To what extent do restoration efforts provide resilience to buffer against climate events and recover native species of interest? Question 2. What additional habitat restoration projects should be implemented to benefit fish and wildlife? 2.1. Are the cumulative suites of restoration actions benefiting populations of fish and wildlife in tributary watersheds? 2.2. How can habitat restoration actions support or enhance cold water habitat to provide thermal refuges?	Please see the response to Comment 6894-55 from the Confederated Tribes of the Umatilla Indian Reservation.
31775	115	golc@critfc.org	Columbia River Inter-Tribal Fish Commission	- Habitat Restoration. Offsite mitigation should include increased floodplain restoration actions in tributaries. CRITFC member tribes and others are aggressively assessing and addressing primary limiting factors which are causing significant juvenile fish loss in tributaries. The degree of stream channelization in some Columbia Basin tributaries exceeds 75 percent therefore floodplain restoration must be aggressively embraced as offsite mitigation in the DEIS. Recent Columbia Basin Partnership Task Force modeling determined that tributary juvenile fish mortality in the mid- Columbia sub-region accounts for the highest level of fish mortality in all salmon and steelhead life history phases. The DEIS should recognize and be informed from this effort. For instance, CTUIR is implementing a science-based approach to restore floodplains to naturally functioning and sustaining ecosystems. It is paramount that this work be maintained or increased to continue address the most limited fish life history stages.	This EIS analyzes the effects of operation, maintenance, and configuration of the CRS projects. The analyses used in this EIS were for the purposes of comparing the effects of the Multiple Objective alternatives for operation, maintenance, and configuration of the CRS projects to one another and to the No Action Alternative. Habitat mitigation program descriptions are discussed briefly in the No Action Alternative in Section 3.5.3.3 to give the reader the general information on these programs. For the purposes of comparing alternatives, however, a more detailed description is not needed. Chapter 7 describes programs that would continue as well as new mitigation under the Preferred Alternative. The scope of this Draft EIS is the operation and configuration of CRS projects; a complete analysis of all habitat programs and the development to the specificity suggested in this comment is beyond this scope.
31775	116	golc@critfc.org	Columbia River Inter-Tribal Fish Commission	- Lamprey Restoration Since at least 1995, the tribes have worked hard to develop and implement tributary lamprey restoration projects. Beginning in 2000, tribal efforts focused on translocation of adult lamprey as a means to re-establish extirpated segments to the lamprey population of which we are just now beginning to see lamprey benefits. The CRITFC member tribes have collectively developed and implemented the Tribal Pacific Lamprey Restoration Plan (CRITFC 2011) and more recently the Master Plan: Pacific Lamprey Artificial Propagation, Translocation, Restoration, and Research (CRITFC 2018). These guiding documents provide the pathway for recovery actions in the mid to upper Columbia River and Snake River basins. These plans have had review and support from our federal and state partners and provide significant detail regarding needs, schedule and funding for lamprey recovery. The DEIS should recognize and embrace these efforts. Additionally, the USFWS Lamprey Conservation Agreement has over 140 signatories in support of lamprey recovery throughout their historical range. Off-site mitigation for lamprey will need to occur to ensure that recovery actions are able to be fully funded and implemented, without it would be unacceptable and would not be aligned with tribal recovery goals and efforts.	Under the No Action Alternative (Page 3-400) the Draft EIS recognizes these efforts in summary with There are numerous actions to benefit Pacific lamprey, including projects like the Pacific Lamprey Conservation Initiative and the Tribal Pacific Lamprey Restoration Plan. These plans improve understanding of Pacific Lamprey status and limiting factors, implement high-priority habitat restoration actions, increase populations through reintroduction and translocation efforts, and conduct artificial propagation research with plans to release hatchery juveniles in select areas pending an environmental assessment. These actions are expected to continue under each of the multi-objective alternatives, so for the purpose of this Draft EIS were not described in further detail. This does not at all diminish the co-lead agencies' intention to continue recognizing and embracing the efforts of the Tribes as future activities are coordinated within the frameworks established in the Region under these plans and the USFWS Pacific Lamprey Conservation Initiative. The measures in the Preferred Alternative to meet the objective of improving conditions for Pacific lamprey were designed to work in concert with the ongoing mitigation programs such as the habitat restoration, reintroduction and translocation, and other efforts in full collaboration with these forums.
31775	117	golc@critfc.org	Columbia River Inter-Tribal Fish Commission	#NAME?	The scope of this Draft EIS is the operation, maintenance, and configuration of fourteen CRS projects. The analyses used in this Draft EIS were for the purposes of comparing the effects of the action alternatives for operation and configuration of the CRS projects to one another and to the No Action Alternative. Hatchery mitigation program descriptions are discussed briefly in the No Action Alternative in Section 3.5.3.3 to give the reader the general information on these programs that are a part of the ESU/DPS described. For the purposes of comparing alternatives, however, a more detailed description is not needed. Chapter 7 describes programs that would continue as well as new mitigation under the Preferred Alternative. A complete analysis of all hatchery programs and the status of maintenance/operations of each one is beyond the scope of this EIS.
31775	118	golc@critfc.org	Columbia River Inter-Tribal Fish Commission	The introduction to the Mitigation chapter of the DEIS describes the NEPA framework of the DEIS, including the mitigation requirements specific to NEPA. Throughout the DEIS development process the foregoing objectives framed the analysis conducted by the co-lead agencies as well as the mitigation considered in the DEIS. NEPA and the case law interpreting it do not require this constrained analysis. As part of the NEPA process, Federal agencies consider appropriate mitigation measures to avoid, minimize, rectify, reduce or eliminate, and/or compensate for specific impacts (CEQ 2011). The mitigation measures summarized in this chapter are intended to reduce the duration and severity of impacts from implementing a specific action. DEIS Page 5-1. Importantly, mitigation measures are only proposed in the DEIS in those instances where the proposed alternative worsens or impacts juvenile survival or adult migration in the CRSO from where it was estimated to be under the No Action Alternative. E.g. DEIS, page 5-24, section 5.4.2.2. As a related matter, effects are categorized to include minor, moderate and major effects for NEPA purposes. As a result, the analyses segmented conditions and effects occurring before and existing in 2016 from those that would occur as a result of the actions contained in the DEIS alternatives. This segmentation is akin to the existence versus operations segmentation that was contained in NOAAs 2004 BiOp for the FCRPS and that was struck down by Judge Redden in May 2005.	Mitigation in NEPA is intended to address environmental effects of the proposed action if that alternative is implemented. Here, the proposed action is the continued operation and maintenance of the CRS. However, mitigation for the identified alternative would include actions that are within the co-lead agencies' authorities that address the effects of the selected alternative, as compared to the No Action Alternative. New mitigation is not proposed to mitigate for the existence of the system, but rather to ameliorate the effects of the operations and maintenance of the CRS as identified in the alternative. NEPA does not require identification of mitigation for the No Action Alternative.
31775	119	golc@critfc.org	Columbia River Inter-Tribal Fish Commission	Appendix V, which is the Biological Assessment for ESA compliance is framed somewhat differently, but it acknowledges the different statutory frameworks as follows: It is important to note that NEPA and the ESA establish different standards for legal compliance and have different approaches to the analysis of the effects of the action. Because of these differences, the analyses performed in the draft EIS and in the BA are tailored to the requirements of each regulatory process. The mitigation chapter of the DEIS includes conclusory discussions of Bonnevilles Fish and Wildlife Program funding commitments under the Northwest Power Act in subsection 5.2.1.1 as well as a similar conclusory statement of the Northwest Power Acts equitable treatment requirements in section 5.2.1. The mitigation discussion fails to disclose and analyze the effectiveness of the ongoing mitigation actions required by the Northwest Power Act, Endangered Species Act or other federal laws. Compared to the narrow improvement and mitigation framework of the DESI, the June 2019 Tribal Perspective document describes a much different set of objectives that should have framed at least some of the analyses in the DEIS. It includes discussion of tribal plans to effectuate treaty reserved fishing rights as well as the Northwest Power Acts fish and wildlife obligations. Its frame of reference is based on tribal well-being, as opposed to improvement from the status quo. The DEIS fails to disclose and analyze whether the alternatives would achieve those objectives described in the tribal Perspectives report. The EIS omitted analysis of ESA and NWPA compliance and other plans. Contrary to the assertions in the DEIS, there is no evidence that the co-lead agencies considered the NPCCs Fish and Wildlife Programs specific goals, objectives and measures with regard to anadromous fish. While some disclosure and analysis of wildlife Program obligations is set forth in the DEIS, such disclosure and analysis does not occur for anadromous fish. Without that disclosure and analysis there is no evidence in the DEIS that the co-lead agencies have provided equitable treatment for fish and wildlife. Similarly, neither the DEIS nor the Biological Assessment in Appendix V contain a holistic analysis of whether any of the alternatives would meet ESA requirements. Many federal ESA jeopardy analyses on the CRS (or FCRPS) have preceded the DEIS. They are the subject of many technical and legal publications, but this history not disclosed in the DEIS. There is also no disclosure and analysis of survival metrics or recovery metrics from previous BiOps. Nor does the DEIS contain a discussion of	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the Columbia River System. Recovery of ESA species is the purview of NMFS and the US Fish and Wildlife Service. This EIS has been developed in consultation with National Marine Fisheries Service and USFWS to minimize impacts to affected ESA species and their habitats. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the EIS objectives) as well as the EIS objectives for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. The Preferred Alternative is also more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. The co-lead agencies used high quality information in the analysis of the CRSO EIS. Specific to salmon and steelhead, the agencies used two primary modeling approaches which yielded a range of potential outcomes for the alternatives. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult (SAR) return rates will increase for both Snake River spring Chinook and steelhead and will average above 2% (the lower end of Northwest Power and Conservation Council's (Council's) recovery targets for the region) as a result of the Preferred Alternative increasing SAR from 2.0% to 2.7% for Chinook, a 35% relative increase. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information. Based on the EIS analysis of the Preferred Alternative, it will make a substantial contribution towards recovery targets. Regarding Northwest Power Act compliance, the comment asserts inadequate analysis in the EIS as to the efficacy of mitigation funded through Bonneville's Fish and Wildlife Program. Bonneville's Fish and Wildlife Program is first described in section 2.4.2 as an existing program under the No Action Alternative that would continue. This section provides a high-level overview of Bonneville's Fish and Wildlife Program, many of its major subprograms and their benefits, including habitat actions, hatchery actions, predator management, lamprey research and mitigation, and wildlife mitigation. Section 2.4.2 also describes some of the many CRS improvements and the associated benefits for fish. In addition to this overview of Bonneville's Fish and Wildlife Program, the description of the affected environment throughout the relevant sections in Chapter 3 of the EIS, by definition, reflects the effects of past and present, ongoing mitigation efforts, even if they are not itemized or highlighted as being the results of a specific mitigation effort. NEPA does not require the agencies to distinguish the past and ongoing effects of all the mitigation projects Bonneville has funded over the 40-year history of the Northwest

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				the survival and recovery metrics from NOAA Recovery Plans or the Interior Columbia Technical Review Team. Perhaps the most salient disclosure is contained in a paragraph in Chapter 3 and it does not bode well for future salmon and steelhead returns: On February 4, 2020, the co-lead agencies viewed a presentation prepared by NMFS regarding returns for the 2019 fish passage season and the Adaptive Management Implementation Plan. Although not all returns occurred prior to the presentation, NMFS utilized current return numbers to project return numbers if current return rates continued in 2020 and 2021. These projections signaled that returns are low, especially for Snake CRITFC DEIS Comments April 13, 2020 Page 56 of 59 River steelhead. The co-lead agencies are currently evaluating the information provided by NMFS and will have a more detailed discussion of this information in the final EIS, including any updates that NMFS may provide once all returns have occurred, if appropriate. DEIS Page 3-301. Notably, the information disclosed by NMFS to the co-lead agencies on February 4, 2020 is not disclosed in the DEIS. The discussion of recovery plans in the Biological Assessment (Appendix V) is only aimed at ensuring the consistency of tributary habitat programs and safety net hatcheries with recovery plans. There is no analysis of recovery per se or its likelihood under any of the alternatives. The absence of such analysis frustrates public consideration of the alternatives and their consequences	Power Act, particularly given that Bonneville now uses over 600 contracts annually to implement its Fish and Wildlife Program. In addition, the Agencies 2020 CRS Biological Assessment includes analysis of the implementation and effectiveness of both tributary habitat restoration actions and the CRS overhaul. Although the Northwest Power Act requires Bonneville to fund mitigation consistent with the Northwest Power and Conservation Councils (Council) Columbia River Basin Fish and Wildlife Program (Program) and the purposes of the Act, no statutory provision requires the co-lead agencies to undertake separate analyses regarding the efficacy of such mitigation. Rather, the structure and processes of the Act create a presumption that mitigation measures and projects recommended for implementation by the Council are indeed an effective means for addressing mitigation under the Act. First, the Council develops its Program based largely on the recommendations and expertise of fish and wildlife managers. The mitigation projects that the Council recommends to Bonneville for funding derive from their Program. Further, the Independent Scientific Review Panel periodically reviews the mitigation projects under certain statutory criteria that, for example, include examining whether projects are based on sound scientific principles and benefit fish and wildlife. 16 U.S.C. 839b(h)(10((D)(iv). These statutory processes for vetting and reviewing implementation of mitigation projects provide a reasonable basis for the co-lead agencies to rely on these projects being effective. In addition, for fish and wildlife managers that implement Northwest Power Act mitigation through Fish Accord agreements with the co-lead agencies, the managers and co-lead agencies have agreed that such mitigation projects are consistent with the Councils Program, the underlying assumption being that the mitigation projects address appropriate obligations under the Council Program, and do so effectively. The comment also asserts that the agencies did not consider the Councils Program goals, objectives, and measures for anadromous fish. First, the co-lead agencies note that the Councils Program goals, objectives, and measures have been under a revision process for a substantial portion of this EIS analysis, and that revision remains ongoing. Bonneville submitted comments in the Councils amendment process, including fundamental questions about the legal basis of many of the Programs goals and objectives. 1/ However, even under the Councils prior 2014 Program, the overarching anadromous fish goal includes a smolt-to-adult return of 2-6%. The EIS analyzed SAR implications of the various alternatives. In addition, the CSS model predicts that certain smolt-to-adult return rates under the Preferred Alternative would increase from 2.0% to 2.7%, within the range included in the Council Program goal for anadromous fish. The comment further claims that there is no evidence in the EIS of the agencies adherence to the equitable treatment mandate of the Act. The equitable treatment provision of the Act directs the agencies management and operation of the Columbia River System provide equitable treatment for fish and wildlife with the other authorized purposes for which the system is managed, such as flood risk management, hydropower generation, irrigation, navigation, and recreation. See 16 U.S.C. 839b(h)(11)(A)(i). The co-lead agencies provide fish and wildlife with equitable treatment on a system-wide basis. See NW. Envtl. Def. Ctr. v. Bonneville Power Admin., 117 F.3d 1520, 1533-34 (9th Cir. 1997) (While each power marketing action that affects the system implicates the equitable treatment provisions, Bonneville may properly exercise its obligation by insuring equitable treatment for fish on a systemwide basis.); Confederated Tribes of the Umatilla Indian Reservation v. Bonneville Power Admin., 342 F.3d 924, 931 (9th Cir. 2003) (The equitable mandate of [the Northwest Power Act] does not require every Bonneville decision to treat fish and wildlife equitably. For example, Bonneville may make some decisions that place power above fish, so long as on the while, it treats fish on par with power.). Through this EIS process, the co-lead agencies have considered management and operation of the Columbia River System for its multiple authorized purposes. And, as noted above, CSS analysis of the Preferred Alternative predicts an increase in smolt-to-adult return rates as compared to the no action alternative. The co-lead agencies inclusion of alternatives MO3 and MO4 which are focused on benefiting fish, plus the incorporation of measures specifically designed for improved benefits to fish and wildlife, as balanced against other purposes, reflects equitable treatment of fish and wildlife consistent with the Northwest Power Act. 1/ See Bonneville Power Administration Comments on Draft 2020 Addendum to the Columbia River Basin Fish and Wildlife Program (Oct. 18, 2019), available at https://app.nwcouncil.org/uploads/2018amend/recs/765/Bonneville%20Recomendations%20to%20Council%20FW%20Program%20Amendment%2012.13.2018.pdf; Bonneville Power Administration Comments on Revised Part One of the 2020 Addendum to the Columbia River Basin Fish and Wildlife Program (Jun. 22, 2020) available at https://app.nwcouncil.org/uploads/2018amend/comments/1392/Final%20Council%20Addendum%20Pt%201%20Cover%20Ltr%20and%20Comments%202020.06.22.pdf. See also response to 6844-56 and 6929-8. Chapter 8 demonstrates the co-lead agencies' compliance with applicable laws, including the ESA and the Northwest Power Act.
31775	120	golc@critfc.org	Columbia River Inter-Tribal Fish Commission	I. Biological Assessment/ Attachment V The Preferred Alternative (PA) was used as a foundation to construct the Biological Assessment (BA) contained in Appendix V of the DEIS. The BA attached to the DEIS in Appendix V while providing more detail compared to the PA, does not introduce any new actions towards improving survival for listed species. Our prior comments on the PA apply with equal force to BA. As previous noted in our comments, the PA provides little to no improvement for many of the ESA stocks. The PA relies solely on improvements in Latent Mortality and John Day dam reservoir operations to reduce nesting of avian predators to gain any improvement over the NAA (base case). Nor does the BA include any sort of check-in to verify that the current actions are producing the anticipated results. If these latent mortality assumptions are wrong, which the agencies admit may be the case since the adaptive management plan outlines a fourth pillar that would require some evaluation to better understand how operations affect latent mortality, then additional actions are needed to provide a safety net for this unknown. As written, if the latent mortality assumptions are over stated as the NOAA Life cycle model latent mortality alludes to, then the Proposed Action would be worse for fish than the No Action Alternative due to all the tradeoffs in the BA intended to offset the power costs incurred by the proposed action.	Thank you for your comment. Please refer to our response to comment ID 31775-20.
31775	121	golc@critfc.org	Columbia River Inter-Tribal Fish Commission	Similar to the PA, the BA relies on the smallest improvement in projected juvenile survival to meet an Improve Juvenile Survival objective. For some species, this is less than 1% improvement. Furthermore, the BA fails to acknowledge that the AMIP Safe-Guards under the current Biological Opinion have been triggered for several of the ESA species (Upper Columbia Steelhead and Chinook, and Snake River wild steelhead). In spite of this no major additional mitigation actions have been sought. The BA mentions that avian deterrent programs (including upgrades to existing facilities such as bird wires at McNary Dam and sprinklers at Ice Harbor Dam) will be coordinated through the FPOM and included in the Fish Passage Plan. Due to a negative trajectory of funding in the Fish Passage Operation and Maintenance program budget, however, it is highly uncertain if even these modest improvements could occur.	With respect to the comment on AMIP safeguards, please refer to our response to Comment ID 31775-20. The increased levels of spring spill included in the Preferred Alternative are intended to provide a more effective passage method to avoid direct injury from turbine or bypass passage and an indirect benefit to reductions in latent mortality that is modeled to increase adult returns. Funding of operations and maintenance has been a challenge with decreasing budgets; however, the co-lead agencies will annually review critical failures that have interrupted operations from adhering to FPP criteria, and make recommendations to the prioritized non-routine fish needs by project prior to the next budget request.
31775	122	golc@critfc.org	Columbia River Inter-Tribal Fish Commission	The DEIS fails to analyze or provide a safety net until there is certainty that the assumptions about latent mortality are indeed being realized. As discussed previously, the DEIS fails to consider actions such as: - An expanded predation program that would include management of avian, piscivorous fish and sea lions - Expanded Kelt collection and reconditioning - Fund mainstem habitat actions at tributary river mouths to create transition zones and coldwater refuges for migrating fish - Evaluate options to increase the number of RSW/TSW at dams to create the best possible surface passage attraction flow and increase the number of surface passage routes thus CRITFC DEIS Comments April 13, 2020 Page 58 of 59 decreasing Pit PH and further reducing Latent Mortality (LM) effects. The larger the reductions in LM the easier it is to detect them. - Increases in the Hatchery Safety Net Program - Additional Habitat Measures and funding	Analysis shows that the Preferred Alternative would meet the objectives for improving juvenile salmon, adult salmon, resident fish and lamprey. The analysis found ranges in potential effects due to different assumptions included in each of the fish models used in the CRSO EIS. Using the Comparative Survival Study (CSS), Snake River Chinook salmon and steelhead are expected to see relative improvements in smolt-to-adult returns (SAR) of 35% and 28%, respectively. The SAR ratio is the rate at which of a group of fish survive from their smolt life stage to a defined ending point where they return as adult. While achieving long-term recovery targets will require more than just the efforts of Federal agencies, the CSS models indicate the potential for SARs of Snake River Chinook salmon and steelhead to increase to levels that are within the recovery targets set by the Northwest Power and Conservation Council. If latent mortality effects are reduced by passing more juvenile fish through the spillway, the Life Cycle model (LCM) also shows that levels of SARs would increase. However, if latent mortality effects are not reduced, or are different than modeled, the LCM predicts that SARs for Snake River spring Chinook salmon may be lower than the No Action Alternative (a range of -7.5 percent to +28 percent change relative to the No Action Alternative) due to reduced opportunities for fish transportation. Results for upper Columbia River stocks are beneficial based on LCM estimates. In-river survival and SARs are anticipated to increase. The CSS model does not currently model upper Columbia fish. With respect to some of the areas highlighted in the comment, such as AMIP safe-guards and kelt reconditioning, please refer to our response to Comment ID 31775-20. The predation management measures proposed to carry forward were shown in the Draft EIS (Chapter 7, Table 7-5), which included avian, piscivorous fish and pinniped predation management, as well as habitat, operational, and hatchery measures. The BA also includes proposed and continued non-operational actions that include predation management of avian, piscivorous fish and pinniped species (refer to Section 2.6.1.3, Predation Management).
31775	123	golc@critfc.org	Columbia River Inter-Tribal Fish Commission	The BA does include additional information on Hatcheries and Tributary Habitat Actions. We provide the following initial comments on these sections: - Non-operational Conservation Measures for ESA-listed Salmon and Steelhead Hatcheries This section highlights a small sub-set of co-lead agency funded hatchery programs in the Columbia Basin, of which there are more than 170. By not accounting for all of the hatchery programs in the Basin, the future of the hatchery programs that have not been identified herein is opaque and should be elucidated. The six programs identified in table 2-18 represent only ~5% of the hatchery production funded by the AAs (above Bonneville Dam). The AA-funded hatchery programs include both ESA-listed and non-listed salmon and steelhead. Of only ESA-listed production that the AAs fund (~17 million annually), table 2-18 represents only 20% of those programs that are managed to supplement natural populations and use local broodstock (do these not count as conservation and safety net hatchery actions?). If the purpose of this section and table 2-18 is to identify only the ESA-listed programs that are managed as supplementation programs (i.e., conservation/safety net), then the table does not come close to capturing the number of existing programs that should be listed.	The co-lead agencies note the continued existence of their respective independent, congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee Dam mitigation, John Day Dam mitigation, Dworshak Dam mitigation, and programs funded and administered by other entities, such as the Lower Snake River Compensation Plan, which is administered by USFWS. All of the hatchery programs funded by the co-lead agencies for both conservation or harvest mitigation purposes have completed Section 7 consultations, so their effects will be captured in the environmental baseline of the biological opinion. The conservation and safety-net hatcheries that are listed in Table 2-18 are hatchery programs that the co-lead agencies specifically wanted to highlight where the primary objective is to reduce short-term extinction risk and promote recovery of ESA-listed stocks. These programs are a component of and/or in addition to other congressionally authorized hatchery mitigation actions included in the baseline
31775	124	golc@critfc.org	Columbia River Inter-Tribal Fish Commission	- Habitat (Appendix D) There needs to be a clear distinction among habitat implementation, habitat condition, and biological response metrics. Furthermore, the relationship between the three types of metrics needs to be explicit (i.e., what habitat condition will implemented actions affect, and how will [or how do we expect] the new conditions to impact focal populations?). Currently the Appendix mixes several of these together in various tables, excludes them from others, and does not resolve the linkages between them. An example of a habitat implementation metric is miles (or acres) of riparian vegetation planted or protected. This describes the work that was done by implementors regardless of the works impact. Examples of associated habitat conditions include the height or density of riparian vegetation, stream temperature response, or change in effective shade. This information comes from research, monitoring, and evaluation conducted at various spatial and temporal scales (sites, tributaries, and watersheds on a 5- or 10-year basis depending on the type of metric). An example of associated biological response includes the focal populations response to the (presumably) improved habitat condition, such as increase in productivity survival rates or abundance of summer parr to fall emigrant life stage. We recognize that biological responses cannot be measured everywhere for each habitat treatment, but the expected causal pathways among habitat implementation, habitat condition, and biological response should be articulated. This has already been accomplished in several research CRITFC DEIS Comments April 13, 2020 Page 59 of 59 programs and restoration prioritization frameworks in the region. This could be accomplished here by presenting a table of the three types of metrics showing the linkages.	The co-lead agencies acknowledge the commenters perspective on the distinction between metrics resulting from implementation, status and trends and action effectiveness, with the latter two categories extending to both habitat-environmental variables and fish response. The co-lead agencies will report ESA progress based on the presented implementation metrics with the understanding that the second two categories will be further evaluated through the Columbia Basin RME strategy in collaboration with basin stakeholders.
31779	1	Karl Dye	Tri-City Development Council	Energy Both Benton PUD and Energy Northwest have recently completed studies which indicated that the Pacific Northwest region will need gigawatts of additional power generation in the next decade. The region will be facing a significant challenge in providing enough electricity to meet the demand, and to do so without significantly increasing costs or carbon emissions. Removing the four lower Snake River dams non-carbon-emitting electrical generation from the grid at this critical time will make that task much more difficult. The Tri-City community is committed to leveraging the capabilities of the Pacific Northwest National Laboratory (PNNL), the highly skilled local workforce, and local business expertise to grow the Tri-Cities presence as the Energy Hub of the Pacific Northwest. As part of that effort, there is a desire to develop, demonstrate and install a variety of new energy generation technologies, some of which are likely to be intermittent. Without the baseload capacity and load balancing capabilities of the four lower Snake River	The statements in the comment are consistent with the findings and discussion in the EIS. See Section 3.7.3.5, Lower Snake River Full Replacement, 3-905-907 in the draft EIS. Section 2.3 of Appendix H, Sensitivity of LOLP to Assumptions about Coal Capacity in the draft EIS also provides additional details on the effects of coal retirements on required replacement resources.

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				dams it would be much more difficult, if not impossible, to fully pursue and deploy these emerging technologies. With the Clean Energy Transformation Act (CETA), the State of Washington has set very aggressive clean energy goals. Even with CETA, there is a strong possibility that new natural gas power plants will have to be built in order to meet regional energy needs. Without the dams, new carbon-emitting generation in the region would be a near certainty, which runs counter to the goals of the legislation	
31779	2	Karl Dye	Tri-City Development Council	A key element of successful economic growth in the Tri-Cities is the reliability of the communitys power supply. Breaching the four lower Snake River dams could double the loss of load probability in the region, making it significantly more challenging to recruit and retain companies and industries that require a reliable power supply. Notably, many of these industries provide higher-than-average wages to their employees. Therefore, the loss of these jobs, or the inability to recruit similar companies to the community in the future, would have an outsized negative economic impact on the Tri-City area.	The statement that regional power reliability would decline under MO3 is consistent with the findings of the EIS, without resource replacement. See Section 3.7.3.5, Effects on Power System Reliability, at 3-903 in the Draft EIS; see also Appendix H, Table 2-1. However, the EIS analyzed two resource portfolios to replace the hydropower generation of the four lower Snake River dams, both of which maintain regional power system reliability. See Section 3.7.3.5, at 3-904-910 in the Draft EIS. Under these replacement portfolios, regional power rate pressure increases. In addition, consistent with the statements in the comment, the EIS discusses the importance of lower power costs for the regional economy in Section 3.7.2.11, Regional Electricity Rates.
31779	3	Karl Dye	Tri-City Development Council	Environment The Tri-City community, along with many other stakeholders, share the goal of increasing the salmon, steelhead and lamprey population throughout the Columbia and Snake river system. There is significant concern, however, that breaching the dams would not have the desired effect of restoring the populations of these species. There are numerous other factors that likely impact fish numbers, including predation below Bonneville Dam, ocean conditions, harvest, and the lack of fish passage into tributaries in Oregon and Idaho. Moreover, salmon populations worldwide are struggling, including in undammed rivers such as the Fraser River in British Columbia. This data suggests that simply breaching the four lower Snake River dams is not the appropriate solution. Before releasing the final EIS, TRIDEC encourages the federal agencies to perform a more in-depth analysis of salmon population changes in the Columbia-Snake river system compared with other river systems in order to provide important context regarding the impact (or lack thereof) of the four lower Snake River dams.	The co-lead agencies also recognize that there are many effects to salmon and steelhead populations outside the operation of the dams; including those you mention here. Research continues to evaluate the magnitude of these effects. For more information see the NMFS website at: https://www.nwfsc.noaa.gov/research/index.cfm. This EIS analyzes the effects of operation, maintenance, and configuration of the CRS projects. Predation management efforts are ongoing to reduce salmonid consumption by terns in the lower Columbia River, and similar efforts are in progress to reduce the nesting population of Double-crested cormorants in the estuary. The other items listed in this comment are beyond the scope of this EIS. While none of the alternatives would affect ocean conditions, the co-lead agencies recognize that these conditions are a major driver for adult returns and that numerous studies have shown the importance of ocean conditions in the return of adult salmon and steelhead (Peterson et al. 2019). The co-lead agencies analyzed the effects of the operation, maintenance, and configuration of the CRS projects on resources affected by the CRS, including the potential to improve conditions for ESA-listed species. The co-lead agencies also looked at the cumulative effects of other actions, including harvest in Chapters 6 and 7 of the EIS. Recognizing ocean conditions are a major driver in juvenile survival and adult returns. As such two of the models used in these analyses, NMFS and CSS Lifecycle Models, use metrics of ocean productivity to predict adult returns.
31779	4	Karl Dye	Tri-City Development Council	In addition to healthy fish populations, orca survival is a top priority for people throughout the Pacific Northwest. The connection between the struggles of the orca population and the four lower Snake River dams, however, is tenuous at best. Addressing pollution in the Puget Sound and in the ocean, restoring fish passage and fish habitat in Puget Sound tributaries, and increasing hatchery fish production are far more likely to increase the orcas food supply than breaching the four lower Snake River dams.	The co-lead agencies conclude there could be a negligible to minor beneficial effects to SRKW from implementing MO3. CSS and NMFS Lifecycle models predict that lower Snake River Chinook salmon smolt-to-adult returns would have a moderate to major increase under MO3. Operation of Lower Snake River Compensation Plan fish hatcheries under MO3 is uncertain and therefore, production of Snake River hatchery fish is assumed to decline over the long term, while returning adult wild salmon are anticipated to increase. However, the co-leads do not anticipate a lack of hatchery fish in the short term based on the proposed fish hatchery mitigation described in Chapter 5. These additional hatchery fish should mitigate short-term construction effects to Snake River populations. Additionally, to address short-term effects to ESA-listed species, the co-lead agencies propose constructing a new trap and haul facility at McNary and conducting at least two years of trap and haul operations for Snake River fish (Chinook, sockeye, and steelhead). The co-lead agencies agree that the quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differently from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020). Regarding Puget Sound, the effects mentioned in the comment involve a variety of issues beyond the scope of the analysis in the CRSO EIS, which analyzes the effects of the operation, maintenance, and configuration of the CRS projects. However, water quality effects for the Columbia River Basin were considered in the EIS analysis and are described in Chapter 1, 2, and Section 7.8.3 of the EIS. Additionally, the U.S. Army Corps of Engineers is in partnership with other Federal, state and non-governmental organizations and have been implementing habitat projects for salmon, orcas, and wildlife all around the Puget Sound as part of the Puget Sound Nearshore Ecosystem Restoration Project.
31779	5	Karl Dye	Tri-City Development Council	All options for replacing the electricity produced by the four lower Snake River dams would have substantial negative environmental impacts. For example, it is estimated that replacing the power with natural gas generation would result in 3.3 million metric tons of carbon emissions. Alternatively, building out the necessary renewable energy generation (primarily wind and solar) would require the development of tens of thousands of acres of land, which could create environmental impacts which should also be identified in the final EIS.	The statement that replacing hydropower from the four lower Snake River dams with natural gas would increase carbon dioxide emissions by 3.3 million metric tons is consistent with the findings of the draft EIS. The EIS acknowledges the potential effects of land development needed to replace lost hydropower capacity from the four lower Snake River dams with solar energy; however, given the uncertainty of where these resources may be built, the specific impacts to natural and cultural resources are currently unknown, and thus, too speculative to identify in the final EIS. See Section 3.7.3.5, Zero-Carbon Replacement in the draft EIS. If an alternative is selected that requires replacement resources, whether solar, wind, or other resource, additional environmental review would be required. Appendix H, Section 2.2.4 in the Final EIS discusses the process for potentially acquiring new resources.
31779	6	Karl Dye	Tri-City Development Council	Navigation It is well known that there would be a significant increase in carbon emissions if the four lower Snake River dams were breached and rail or trucks replaced barging. Importantly, the dramatic increase in trucking could also have a significant negative impact on the Tri-Cities and other communities. For example, if barging were to be replaced by trucks, it would result in an estimated 435 additional trucks per day coming through the Tri-Cities. This would have a substantial negative impact on traffic and the quality of life in the community. It would also result in additional road maintenance costs for local municipalities. Switching from barge to rail would also have significant negative impacts on small towns in the Columbia River Gorge, many of which already struggle with the impact of existing rail traffic through their communities.	Environmental and human health impacts associated with increased emissions to shipping goods by rail and/or truck are evaluated and described in the Air Quality Section (3.8), and increase health and safety concerns due to increased truck traffic on roadways and potential for increased accidents, as well as other social effects, are described in the Navigation and Transportation Section (Section 3.10.3.5). Potential increases in road maintenance cost are provided in the "Regional Economic Effects" subsection of Section 3.10.3.5.
31779	7	Karl Dye	Tri-City Development Council	Economy Low-cost power has been critical to economic development in the Tri-Cities for decades. In highly competitive efforts to attract companies to the community, or to expand existing operations, it is often the deciding factor. This competitive advantage has already decreased significantly with the prevalence of low-cost natural gas generation, but the potential of 50% higher electricity costs if the dams were breached would be extremely detrimental to the Tri-City economy. It would be much more difficult to attract large energy users (which often provide family-wage jobs) to the community, and existing businesses may relocate to regions with more affordable power. The resulting residential rate increases would also reduce discretionary spending, impacting families and businesses alike. The local agricultural industry, which already operates with minimal margins and uses substantial amounts of power for irrigation would face significant challenges because of the rate increase as well.	The EIS did not identify Multiple Objective 3, which includes breaching the four lower Snake River dams, as the Preferred Alternative. Consistent with the concerns voiced by the comment, the EIS finds that increased power costs would have adverse regional economic effects, including reduced employment and income under MO3. The EIS used the IMPLAN model to examine effects on regional sales and employment. The EIS did not directly analyze the competitive advantage of low-cost electricity; however, the EIS acknowledges its importance for the regional economy in Section 3.7.2.11 - Regional Retail Electricity Rates.
31779	8	Karl Dye	Tri-City Development Council	The DEIS estimates that approximately 48,000 acres of irrigated agriculture land would be lost if the four lower Snake River dams were to be breached. This land is some of the most productive agricultural land in the world and leads to the direct employment of thousands of people in the Tri-City area. There are thousands of other regional jobs in ancillary industries such as food processing, agriculture equipment suppliers, vendors, and more that also rely on the irrigated agriculture the dams provide. Without the dams some farmland would likely move to dryland wheat production (with a much smaller economic impact), but much more would likely not be viable at all. The resulting impact would be very harmful to the economy of the Tri-Cities and smaller communities in Central and Eastern Washington. It would also be devastating to families that have farmed the land for generations, along with the people they employ.	In Region C (lower Snake River), and potentially Region D (mainstem Columbia River) around the confluence of the lower Snake River, MO3 alternative, which includes breaching the earthen embankment of the four lower Snake River dams, would have adverse effects to farmers and irrigation. Currently and in the No Action Alternative, water is available from the pools of these facilities and from groundwater that results from the pools. Removing the earthen embankment portion of the dams will reduce pool elevations by up to 100 feet, which would make surface pumps inoperable. Groundwater pumps in the wells may also be affected due to decreased groundwater elevations depending on the connectivity of the aquifer to the pools. Municipal and industrial water pumps in the Lewiston area would also likely be adversely effected. Additionally, transportation of farming goods would expect to move off river and on to rail or trucks, as there would be a complete loss of commercial navigation on the lower Snake River and could not be feasibly mitigated. All ports along the Snake River would lose access to the navigation channel. Some ports at the confluence or the Snake and Columbia River could dredge new channels to the Federal channel in the confluence (McNary reservoir) to maintain access. Private or public entities or businesses could take actions and/or build infrastructure to extend pumps or water supply access for water. Ports and farmers can likewise change their transportation modes or connect to the navigation system at a different point on the river. The federal co-lead agencies would not mitigate for these impacts to water users or ports, as it is not within their current authorities. See Chapter 3 for analysis of the social and economic effects of implementing a dam breaching alternative (MO3) and Chapter 5 for mitigation discussion. This EIS discusses engineering solutions, including pipeline extensions, in Section 3.12.3. MO3, Region C discussion begins on page 3-1267 line 3244 in the Draft EIS and is also found in Appendix N. The EIS draws upon the 2002 Lower Snake River Juvenile Salmon Migration Feasibility Report and Environmental Impact Statement which concluded that modifying the existing pump system was cost prohibitive. As discussed in Section 3.12.3, for MO3, in Region C this analysis assumes that pumps are unable to deliver water to an estimated 47,926 acres.
31779	9	Karl Dye	Tri-City Development Council	Tourism and recreation would also be negatively impacted by breaching the four lower Snake River dams. The Port of Clarkston estimates that approximately 25,000 passengers participate in river cruises annually, with many of those cruises stopping in the Tri-Cities. (This number is substantially higher than the one used in the DEIS, and the federal agencies are encouraged to reassess their estimate.) When river cruises stop in the Tri-Cities, passengers visit local retailers, eat at local restaurants, and travel to local tourist attractions, resulting in a substantial economic benefit that would not exist without the dams.	The EIS includes a discussion of community concerns about the potential impacts of MO3 in the navigation section in Section 3.10.3.5, in the subsection under Regional Economic Effects called "City/Local Effects Associated with Changes in Commercial Navigation, Cruise Lines, and Ferry Operations," as well as under the Other Social Effects subsections. The most recently available data was used to characterize cruise line passengers when the analysis was undertaken. These sections describe potential regional economic as well as social and community impacts associated with dam breach. The EIS recognizes the short-term adverse effects to recreation visitation and values, including cruise and tour boats, and the associated impacts to the regional economy under MO3, which includes breaching the four lower Snake River dams, which are described in Sections 3.10.3.5 and 3.11.3.5.
31781	1	Jay Inslee	State of Washington, Office of the Governor	As noted in my recent letter requesting an extension to the public comment period on this DEIS, it is unconscionable, in the midst of the COVID-19 emergency, to hold to the original 45-day public comment period. Even if there had been no emergency, this truncated comment period would have been insufficient to provide for adequate public review and comment of such a voluminous and complex document.	The co-lead agencies considered requests to extend the public comment period. This NEPA process included a wide array of cooperating agencies whose close involvement throughout the process allowed the co-lead agencies to incorporate feedback. Given the broad range of comments received to date and the extensive Federal and non-Federal participation in the overall process as well as the level of public engagement in the six virtual public meetings in the region, the co-lead agencies determined that an extension was not warranted and that the 45-day public comment period was adequate consistent with NEPA regulations. The CRSO EIS website reminded the public on April 9 that they should plan to submit comments by the close of the comment period.
31781	2	Jay Inslee	State of Washington, Office of the Governor	I reserve the right to provide more specific recommendations on this issue at the appropriate time, when we are no longer in the middle of an active public health emergency. Thank you again for considering the enclosed comments. Very truly yours, Jay Inslee Governor	Thank you for your comment.
31781	3	Jay Inslee	State of Washington, Office of the Governor	As noted in our February 2017 scoping comments, Washington envisioned a CRSO EIS that is more visionary and provides more context for informed policy making than is afforded by the draft EIS. We have the following concerns, which build on concerns Washingtons cooperating agencies have conveyed throughout the CRSO NEPA process: The draft EIS does not contain a restoration bookend alternative that optimizes salmon and steelhead survival. Multiple Objective Alternative 3 (MO3) and Multiple Objective Alternative 4 (MO4) include powerful new fish recovery actions (breaching and higher spill, respectively), but they also include new actions that may harm salmon survival. The lack of a bookend fish-friendly alternative compromises the ability of the region to place the Preferred Alternative in context. The draft EIS does not furnish a basis that allows the reader to analyze the effect of various individual components of the multiple objective alternatives, which makes it impossible to determine how much an individual action helps or hinders achieving the documents various goals. The goal the draft EIS is working to meet for salmon and steelhead recovery is vague. It appears to be aiming for improvement well short of the State of Washingtons healthy, harvestable goal (see Washington scoping comments, footnote 1 for more background), which is compatible with the Northwest Power and Conservation Councils goal of a 2-6% smolt-to-adult return ratio, with an average of	The co-lead Agencies are required to evaluate a reasonable range of alternatives in the EIS. However, when there are potentially a very large number of alternatives, only a reasonable number of examples, covering the full spectrum of alternatives, must be analyzed and compared in the EIS. Alternatives for this EIS were developed from measures identified during public scoping, regional forums with scientists and technical experts from cooperating agencies (including Washington), and expert opinion from within the co-lead agencies and in the literature. These alternatives represent a reasonable range of alternatives for the maintenance and operation of the CRS. It should be noted that the 2-6% Smolt-to-Adult return (SAR) target referenced in this comment refers to the Northwest Power and Conservation Council (Council) target for broad-sense recovery and is separate and distinct from the obligations of any single entity or in this case a requirement to be met solely by the co-lead agencies. Just as the Councils fish and wildlife program encompasses both federal and non-federal stakeholders in the Columbia Basin, the Councils recovery goals are shared by many parties. Based on the Preferred Alternative analysis, it will make a substantial contribution, but the Councils broad sense recovery goals are beyond the scope of this EIS, which focuses on the effects associated with the operation and maintenance of the 14 CRS projects. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species as that is a broader goal with shared responsibility. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. The effects of delayed mortality are discussed throughout the EIS analysis for each alternative and current high quality data and the best available scientific information was

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				4%, and provisional population goals developed by the collaborative Columbia Basin Partnership. As noted above, NEPA affords a much-needed opportunity to consider a full range of federal laws and policy goals. As touched on above, in important respects the draft EIS does not represent adequately, or adequately accommodate, a long-term vision for the basin. There is no attempt to incorporate or recognize ongoing tribal and Northwest Power and Conservation Council 3 efforts to pursue phased reintroduction of salmon and steelhead above Chief Joseph and Grand Coulee dams, no strategy proposed for tying in the outcome of the current Columbia River Treaty negotiation, and there are only hints of how fishery and dam managers might work together to optimize the system for energy, transportation, and agriculture along with environmental concerns including salmon and southern resident orca recovery. Washingtons Lower Snake River Stakeholder Report1and associated panel discussions highlighted a hunger to better understand what it will take to optimize the system, and now is the time to convene a dialogue around how the region can achieve this goal. Flexible spill can be a first step, but not if it is largely locked in place for fifteen years as proposed. The multiple objective alternative (MOA or MO) concept is useful in theory (especially if accompanied by the bookend alternatives urged above), but in practice the MOAs in this draft are not all serious policy alternatives. For instance, rather than explaining the impact of spring spill and summer spill as part of a menu of discrete operational choices with different costs and benefits for fish and power during the different seasons, MO4 seeks to maximize spill for the entire salmon migration season. The result is that a more affordable fish-friendly alternative that focuses spill to 125% TDG in the spring only is not analyzed for its effectiveness for fish or its impact on Bonneville Power Administration revenue. In addition, generally fish friendly MOAs, including MO3 and MO4, include large new irrigation withdrawals from Lake Roosevelt and other measures to incrementally improve hydropower production that partially counteract their fish benefits.	used for this analysis. Based on analysis by the CSS, SARs associated with population declines (SARs of less than 1%) have the potential to be greatly reduced under the Preferred Alternative, and on average, SARs are expected to be well above 2.0% for Snake River spring Chinook salmon and steelhead. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. Additionally as stated in the CRSO Draft EIS, the information about CRT-related operations available in 2016 is applied in the Draft EIS analysis as the best-available information. The CRSO Draft EIS evaluated the implications of the CRS alternatives using the Treaty coordinated operations, including their relationship to hydropower, ecosystem, and flood risk management, with the best available information. As is also noted in the Draft EIS, if CRT-related operations change after 2024 in a manner that presents new information or circumstances resulting in significant changes that were not previously addressed, those changes will be addressed by this NEPA process if they are identified in time or subsequently in another NEPA process, if necessary. Moreover, measures to reintroduce salmon above Grand Coulee and Chief Joseph were evaluated early in the alternative development process but eliminated from further consideration. Reintroduction is an important and complex, large-scale concept. Its consideration, evaluation, and implementation should involve multiple tribal, federal, state, and other entities. A coordinated approach among water users, tribes, states, multiple federal agencies, and others would be necessary. To allow so many differing interests to coordinate on such a complex topic, which may include international considerations, a decision-making framework and a series of regional workshops would be necessary just to approach the first step of defining reintroduction objectives. Given the incompatibility of such a wildlife management decision-making framework with an analysis of the operation of the CRS, it is not feasible to proceed with a detailed consideration of reintroduction in this EIS. Moreover, to meaningfully analyze reintroduction as a measure, the details of the proposal would need to be understood well enough to include in hydrologic, water quality, and fish models. That information is not presently available, and development of those details was not possible in the timeframe of this NEPA process. Nevertheless, the agencies and interested regional sovereigns are developing a framework to address critical information gaps. This effort was initiated on June 23, 2020, the co-lead agencies participated in a discussion with regional sovereigns concerning fish management in blocked areas. Regarding Southern Resident Killer Whales (SRKW), the population dynamics of the SRKW are complicated, and there is no one factor that contributes to the overall success of this species; however, the co-lead agencies agree that the quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Additionally, Section 7.7.8 states impacts to Southern Resident killer whales would be negligible. Thus, the co-lead agencies expect salmon and steelhead increases would come from operational measures and existing hatchery production carried forward into the Preferred Alternative. These hatcheries include conservation and safety net hatcheries, as well as through the continued existence of certain independent Congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as the Lower Snake River Compensation Plan, which is administered by USFWS. Moreover, NMFS concluded in its 2020 CRS BiOp that operations, maintenance and configuration of the CRS is not likely to adversely affect SRKW. Finally, the co-lead agencies analyzed spill to 125% in the spring only in the Preferred Alternative.
31781	4	Jay Inslee	State of Washington, Office of the Governor	The cumulative impacts of Lake Roosevelt withdrawals and other upper river water management changes are not adequately analyzed, especially in terms of how those changes may affect juvenile fish survival past the non-federal dams on the mid-Columbia and rearing flows for the natural fall Chinook population in the Hanford Reach.	The cumulative action analysis methods are based on the policy guidance and methodology originally developed by CEQ.(1997a). This method includes identifying affected resources and associated direct/indirect effects; establishing the geographic and temporal boundaries of the analysis; identifying the cumulative action scenario; and analyzing the cumulative effects. The Environmental Consequences sections in Chapter 3 of the EIS present the direct and indirect effects of the Columbia River System Operations (CRSO) Environmental Impact Statement (EIS) No Action Alternative and Multiple Objective Alternatives 1, 2, 3, and 4 and Chapter 7 for the Preferred Alternative on each resources affected environment as presented in the Affected Environment sections of Chapter 3. The resource conditions described in those sections account for the effects to resources related to past and present actions. In these sections, the resources mentioned in the comment were analyzed. Juvenile fish survival metrics such as SARS and PITPH past the non-Federal dams on the Mid-Columbia (Mid-Columbia PUD projects) were included in the NMFS COMPASS and Lifecycle Model outputs. The relative change in survival between the No Action Alternative and MOs, including the Preferred Alternative shows that nearly all of that change occurs in the lower Columbia projects; upstream impacts do not appear to be changing the Mid-Columbia PUD projects response. Results were summarized in the EIS as survival from McNary to Bonneville, but full results are available in Appendix E. Likewise, rearing flows for the natural fall Chinook population in the Hanford Reach were analyzed qualitatively using hydrology model results for each alternative that incorporated all upstream effects. On the mainstem Columbia and Snake Rivers, the vast majority of water diversions for irrigation and municipal and industrial water supply are captured in the direct and indirect effects section of Sections 3.12 and 7.7.14. Chapters 6 and 7 further consider the cumulative effects of each alternative combined with reasonably foreseeable future actions (RFFAs) and conditions for all resources. RFFAs with the potential to impact water supply are listed in Table 6-37 and 7-54, along with a description of the effects of these actions. RFFAs are considered in the cumulative effects analysis for each resource in Chapters 6 and Section 7.9.
31781	5	Jay Inslee	State of Washington, Office of the Governor	Little consideration is given to finishing the job when it comes to fish stocks like mid-Columbia steelhead which are positioned for de-listing if there is a focused effort to address a limited number of limiting factors to recovery (e.g., implementation, not testing, of surface flow bypass routes at all projects during non-spills for pre-spawn steelhead adults).	Section 7.6.4.3 describes preliminary measures agreed to by the co-lead agencies during informal ESA consultation with NMFS and USFWS on the Preferred Alternative. Due to the fact that the consultation is ongoing, the measures in this Section may be modified or expanded prior to the Final EIS. In the case of steelhead overshoots (and kelts), this Section includes the following: To reduce the take of overshooting adult Middle Columbia River and Snake River Basin steelhead, the co-lead agencies, beginning in 2020, would implement offseason surface spill as a means of providing safe and effective downstream passage for adult steelhead that overshoot and then migrate back downstream through McNary Dam and the Snake River dams during months when there is no scheduled spill for juvenile passage. The co-lead agencies would implement this measure within the October 1 to November 15 and March 1 to March 30 timeframes based on the analysis already included in this EIS for MO4. The commenter is correct that the model analyses do not accurately or fully capture the effect of the dams on the escapement of adult steelhead overshoots and kelts. These effects of dams on escapement of adult steelhead overshoots and kelts are discussed qualitatively in the Draft EIS.
31781	6	Jay Inslee	State of Washington, Office of the Governor	The comment period on the draft EIS was too short considering the burden placed on the public due to the COVID-19 pandemic. This will significantly compromise the quality and quantity of feedback you receive on this important document.	See response to Comment 31781-1.
31781	7	Jay Inslee	State of Washington, Office of the Governor	In spite of the concerns voiced above and below, the general thrust of the Preferred Alternative represents a potential pathway for progress over past dam operations and can provide a path to additional future progress if the final EIS calls for a flexible spill operation that adaptively builds on salmon survival improvements from the 2019-21 Flexible Spill Agreement to be in place for three to five years rather than 15. This shorter timeline can enable the region to move forward, while pivoting toward additional actions that increase the probability of achieving Northwest Power and Conservation Council recovery goals and metrics. During this three-to-five period, an adaptive management framework must in place to optimize the flexible spill approach and to respond quickly to fish returns that are below science-based adaptive management thresholds, such as the region is currently experiencing with low upper Columbia and Snake river steelhead returns. While the juvenile salmon and life cycle survival improvements attainable through the flexible spill are, according the draft EIS, less than those that could be obtained through MO3 or MO4, flexible spill to 125% total dissolved gas can be expected to provide significant (over 50% according to the Comparative Survival Study model) improvements to Snake River spring/summer Chinook and steelhead SARs. However, it appears doubtful that even the improvements from flexible spill can bring about the SARs necessary to consistently achieve the Councils long-term recovery goals for either Snake River or upper Columbia River stocks. Near-term flexible spill operations must continue to build and improve upon the 2019-2021 Flexible Spill Agreement, which is evidence of the potential for collaboration among different regional entities. Momentum from the flexible spill collaboration will have the best chance to endure and strengthen if the final EIS provides the necessary space for discussion and agreement on a strategy to move toward stronger salmon recovery actions as feasible. Washington urges that the final EIS call for a continuation of a full tributary, estuary, and hatchery mitigation program and an enhanced predation control program, updated as needed according to the most recent Fish and Wildlife Program from the Northwest Power and Conservation Council. The final EIS and its PA should directly reference the reintroduction efforts in the blocked areas upstream of Chief Joseph and Grand Coulee dams and the Columbia River Treaty negotiations as key processes associated with salmon recovery efforts. The final EIS and its PA should not endorse or include new power-friendly actions that could harm salmon and steelhead, such as installation of high capacity turbines that could increase powerhouse encounters for juvenile migrants and removal of fish screens from turbine intakes, at least absent solid new scientific evidence that these actions would not counteract some of the benefits and assumptions of the flexible spill operation or more aggressive salmon recovery measures. Flexible spill must also be adaptively managed toward increasing its power to improve fish survival; retreating from the 2020 flex spill operation to a block spill operation or a weaker flex spill operation would be going backwards.	The Draft EIS Preferred Alternative includes an adaptive management plan (Appendix R, Part 2). This plan involves working with regional sovereigns to develop a study to assess the effectiveness of the flexible spill measure on adult returns as well as assessment and management of negative unintended consequences, such as long delays of adult migrants, or TDG-related impacts on juvenile migrants. Since the adaptive part of this framework would enable changes as warranted (i.e., via information from the frameworks monitoring plan), it is not clear to us how reducing the timeframe from 15 years to 3-5 years would provide a better path to additional future progress. We think the adaptive management part of the plan already allows this, regardless of the timeframe. In reference to your request to continue habitat, tributary, and hatchery actions, the co-lead agencies intend to carry forward habitat restoration and predation actions from the No Action Alternative and continue meeting our hatchery obligations (see Table 7.5 in the Draft EIS). Reintroduction in blocked areas and the Columbia River Treaty review are both discussed in Chapter 1 of the Draft EIS. Measures related to these ongoing efforts were considered, but eliminated from further consideration in the EIS. Regarding your comment on not including new actions that could harm salmon and steelhead, the co-lead agencies generally concur. In the case of fewer fish screens and new turbines, the Biological Assessment in the Draft EIS states that the co-lead agencies propose consideration of cessation of deployment of turbine intake bypass screens at Ice Harbor, McNary, and John Day dams following replacement of existing turbine unit runners with new IFP designs (see Section 2.3.3.4). In addition to further coordination with NMFS, USFWS, and other regional sovereigns, the co-lead agencies anticipate that any proposed changes in the configurations or operations at these dams will require biological monitoring and evaluations. If the study results demonstrate a neutral or beneficial effect, the co-lead agencies will consider cessation of turbine intake bypass screen installation. The Improved Fish Passage turbines at Ice Harbor and John Day dams will be designed to operate within the existing turbine operating range. McNary turbines will be designed with an increased range. Although only the McNary turbines will be designed for an increased operating range, the overall level of spill at any given project is determined not by the individual turbine unit capacity, but by overall project operations management decisions.
31781	8	Jay Inslee	State of Washington, Office of the Governor	Energy In Washingtons comments to the Action Agencies on the power and transmission analysis during the cooperating agency process, including the review of the administrative draft of the PA, we expressed concern about the draft EISs analysis of replacement resources. Of particular concern was the lack of inclusion of energy efficiency (EE) resources beyond those identified in the Northwest Power and Conservation Councils Seventh Power Plan. If the replacement resource options had included additional EE, as would be expected in an optimized analysis, the cost impacts would be lower for alternatives requiring replacement resources such as MO3 and MO4. The Action Agencies should incorporate relevant analytical tools and assumptions, such as those used by the Northwest Power and Conservation Council in resource planning, to inform the analysis of replacement resource options. Action Agencies should also incorporate, when available, an updated reliability analysis from the Council.	The EIS uses the Northwest Power and Conservation Councils (Council) GENESYS model for LOLP modeling and to identify potential replacement resources as suggested by the comment. The EIS power analysis included all cost-effective conservation identified by the Council in the load forecasts analyzed in the power analysis (See Section 3.7.3.1 Methodology and Appendix H, Power and Transmission, Section 2.2, H-2-3 in the draft EIS). The comment suggests that additional energy efficiency should be assumed in the EIS, beyond what is achieved in the Councils Plan. The EIS analysis considers that all energy efficiency assumed in the Councils 7th Plan is appropriate and, likely, aggressive. The Councils recent State of the Columbia River System, Fiscal Year 2019 Annual Report, February 2020, p. 11 (https://www.nwcouncil.org/sites/default/files/2020-3.pdf), states While the region currently is on track to meet Seventh Plan goals, there are some areas to watch including forecasts of declining savings from efficiency programs. And whether the region will identify new savings opportunities to replace those of residential lighting. Utilities achievements in energy efficiency have been on an annual decline since 2016. Forecasts from utilities show that this trend is expected to continue, despite relatively stable funding levels. Given this trend, there is some uncertainty as to whether there will be enough savings from other mechanisms to reach the 1,400 average megawatt goal by the end of Fiscal Year 2021. This information indicates that it would be difficult to increase the energy efficiency goals beyond the Councils Plan. Based on this information, it is not likely that substantial amounts of additional energy efficiency would be available as prices increase, such as in MO3. All cost effective conservation in the region is assumed to be acquired consistent with existing law and mandates regardless of the status of the four lower Snake River dams. Based on responses to public comments, the final EIS contains an expanded description of how the potential replacement resource portfolios were selected for the EIS.
31781	9	Jay Inslee	State of Washington, Office of the Governor	Additional resource retirements and changes in state level energy policy since the initial scoping of the CRSO EIS has changed the context in which the draft EIS and its analyses of the alternatives were conducted. During the CRSO cooperating agency meetings the resource adequacy analysis of the alternatives illustrated the potentially large Loss of Load Probabilities (LOLPs) that could occur, especially when coupled with accelerated retirements of coal resources around the region. While the PA satisfies the criterion set within the NEPA process for defining an adequate system, and while the associated LOLP was not severely out of alignment with the Northwest Power and Conservation Councils resource adequacy standard of five percent LOLP or less, additional resource retirements outside the Federal Columbia River Power System have been announced and state standards requiring the phase-out of coal resources were adopted after the CRSO NEPA process formed its baseline assumptions. An updated regional analysis is needed as part of the ongoing adaptive management plan for implementing the final DEISs PA as well as the regional conversation Washington is requesting.	Consistent with the comment, the EIS acknowledges that the regional resource mix is changing rapidly. As the EIS power analysis was underway, new announcements about coal-plant retirements and announcements about accelerated timelines for previously announced coal-plant retirements were made. And in May 2019, Washington State passed the Clean Energy Transformation Act. To assess the impact of these additional and accelerated coal-plant retirements, the EIS analysis included an assessment of the Loss of Load Probability (LOLP) with the coal plant retirements. See draft EIS, Section 3.7.3.1, Base Case Methodology and Cost Sensitivity Analysis at page 3-816; see also Id. at page 3-823. Specifically, accelerated coal retirements were taken into consideration in development of the Rate Sensitivity Analysis for each Multiple Objective (MO) Alternative. See draft EIS, Section 3.7.3.1, Additional Power Rate Sensitivity Analysis and Other Regional Cost Pressure Analysis at pages 3-829-830 and Section 3.7.3.1, Availability of Coal Resources at pages 3-841-842. Through this analysis, the EIS identifies the incremental impact of accelerated coal retirements on each regional reliability under each MO. For the Preferred Alternative, the EIS analysis shows that the LOLP rises slightly more slowly than that of the No Action Alternative when more coal plants are removed in the analysis discussed above. See draft EIS, Section 7.7.9.1, Table 7-30. In this study, the amount of resources needed for regional reliability for the Preferred Alternative was about the same as the need for the No Action Alternative. Consequently, while the region will need to continuously evaluate the need for new resources due to coal-plant retirements, changes in Columbia River System operations under the Preferred Alternative would not affect that need substantially.

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31781	10	Jay Inslee	State of Washington, Office of the Governor	Climate Change Washington appreciates the draft EISs analysis of the different alternatives impacts on carbon-free energy production, with the caveats raised in Section D of these comments. We also appreciate the documentation of likely climate change impacts in the Columbia Basin and the analysis of how each alternative will perform under climate stressors. However, it would be useful to see, integrated into the bookend fish-friendly alternative Washington asked for in our scoping comments, more work to identify and package a set of operations that will be most resilient to climate change. Without such an alternative, it is difficult to clearly understand how the PA, for instance, stacks up against other alternatives from a climate adaptation and resilience perspective.	Through on-going regional climate change studies and work, the co-lead agencies evaluated potential shifts in precipitation and temperature patterns and resulting changes in unregulated Columbia Basin streamflow timing and volumes. The evaluation consisted of the full range of the latest climate change projections developed using multiple global climate models, emissions scenarios, downscaling techniques, and hydrologic models. Details of this evaluation are in Chapter 4 of the EIS.
31781	11	Jay Inslee	State of Washington, Office of the Governor	Transportation Please see the attached spreadsheet (Attachment A) from the Washington State Department of Transportation. WSDOT points out that the analysis for MO3 (the only alternative with significant implications for transportation) appears to rely on outdated information, and thus it may not accurately reflect the costs and benefits of upgrading rail, highway, grain elevator, and lower Columbia shipping infrastructure to adapt to an alternative that includes breaching the lower Snake River dams.	Individual comments from the spreadsheet are addressed in the appropriate comment response. The demand for waterway transportation is influenced by many factors, both related to the river operations and competing modes of transportation. In many cases, that demand is affected by private sector choices (investments by Class I railroads, construction of shuttle rail elevators by grain companies) that are largely difficult to predict into the future. This EIS combined existing information with a new survey of shippers to create an updated transportation optimization model that was as up to date and accurate as possible within the constraints of the study. The study addresses all of the costs and benefits described in this comment.
31781	12	Jay Inslee	State of Washington, Office of the Governor	Water Quality/Temperature The draft EIS illuminates some issues and opportunities related to controlling warm water temperatures to create better conditions for migrating salmon in the summer (and even late spring in years like 2015). At D-3-36, the draft notes that there is mild stratification of water temperature behind McNary and John Day dams on the lower Columbia. Temperatures at both projects can increase mortality for adult and juvenile salmon, and even set up thermal barriers to upstream migration, as occurred with sockeye in 2015. Washington requests that the action agencies analyze with regional fish managers, and recommend in the final EIS if appropriate, installation of pumps, similar to those at Lower Granite Dam, to cool the fish ladders at John Day and/or McNary dams. For MO3, it is important for the region to understand the water temperature effects of lower Snake River dam breaching on existing temperature issues as well as how breaching would perform under future climate scenarios. To this end, it would be helpful if the final EIS used both the Corps HEC River Analysis System and the Environmental Protection Agencys temperature model, as the draft EIS does on the fishery side by using the competing Comparative Survival Study model and the NOAA COMPASS lifecycle model. EPA has been studying temperature in the Columbia-Snake system for years, and the region will depend on EPAs analysis in other upcoming regulatory processes, so it only makes sense that the EPA model should be relied upon in this EIS as well. Also relevant to the potential effects of breaching, and missing from the MO3 analysis, is how Dworshak Dam releases might be optimized under this alternative. We urge that the final EIS explore in detail how Dworshak releases might be reshaped from status quo releases to maximize the occurrence of healthy water temperatures in a free-flowing lower Snake River, how far downstream effects would extend, and what quantitative impact that operation might have on salmon and steelhead returns. Finally, the fish-friendly bookend alternative we have consistently requested since our scoping comments should explore what if any changes to federal storage dam operations would be capable of cooling the mid- and lower Columbia River. It would also explore how changes in the shape and quantity of releases might benefit water quality in the estuary. We continue to 7 believe a fish-friendly bookend alternative is necessary for analytical purposes and to complement the power-friendly MO2.	The co-lead agencies agree with your concern relating to water temperatures in the Columbia and Snake rivers and that is why the agencies have used the best information and resources available to model and evaluate impacts from operations described in each of the alternatives on water temperatures. The study results indicate that the operations of the CRS do impact water temperature but the CRS has limited ability to reduce temperatures in the lower Snake and Columbia rivers outside of Dworshak operations. Regionally, high air and water temperatures result in water quality standard exceedances and are beyond the ability of the CRS to cool. Drier and warmer years such as 2015, as summarized in NOAAs 2015 Adult Sockeye Salmon Passage Report (September 2016, National Marine Fisheries Service document) point out that tributary temperatures in the Okanogan and Salmon rivers were above 25C. Cooling water pumps have been installed at Lower Granite and Little Goose adult passage ladders to reduce temperature differentials between ladder and river and to reduce thermal stress during upstream passage. Additional considerations at other locations are included in the EIS. In addition, the co-lead agencies are actively working on implementing the recommendations identified in NMFS's 2015 Adult Sockeye Salmon Passage Report (September 2016, National Marine Fisheries Service document) to improve management decision making and reduce, to the extent practicable, the negative impacts of high summer temperatures on migrating salmon, including adult sockeye salmon. The water temperature analysis specific to MO3 (the dam breaching scenario) utilized the Dworshak CE-QUAL W2 (2-dimensional model) and the lower Snake River HEC-RAS (1-demesional models) to predict water temperatures under a dam breach scenario, while incorporating operations at Dworshak Dam for downstream water temperature management. No Action Dworshak operations were used in the MO3 analysis. Results were provided to the fish team for incorporation into COMPASS and CSS modeling and other analysis to evaluate the impacts to anadromous fish. Future dam breaching analysis may provide an opportunity to investigate Dworshak Dam operations further, but this would need to occur outside of the EIS process and under a more appropriate study framework. However, even with the dams breached, maximum summer water temperatures would exceed state water quality standards (20C) at times, especially during hot weather events. The co-lead agencies chose to develop a 2-dimensional model of the mainstem CRS reservoirs rather than use the 1-dimensional RBM-10 model. The co-lead agencies felt it important to capture hourly, rather than daily average water temperature data, as well as the thermal stratification that is observed in some of the CRS reservoirs. Both models used in the EIS analysis - CE-QUAL W2 and HEC-RAS - have been calibrated and peer-reviewed by respected scientists from Portland State University, EPA and the USGS, as well as many cooperating agencies. In addition, the USEPA and co-lead agencies worked together to compare the co-lead agencies' CE-QUAL W2/RAS model (used for EIS analysis) and the EPA's RBM-10 model (used for the draft TMDL assessment). Efforts included identifying and comparing similarities and differences in the two models and assessments, and concluded that both models provide useful and technically appropriate analyses of the Columbia and lower Snake River water temperatures. As such, the EPA agrees with the co-lead agencies that the CE-QUAL W2 and HEC RAS models are appropriate to use in developing the Draft EIS (see EPA review comment letter # 16-0059). Please note that model calibration reports were developed for all water quality models and are available by request. In regards to HEC-RAS, this model does have a way to adjust the wind-sheltering coefficients but uses different terminology: wind coefficients a, b, and c. HEC-RAS does change evaporation rates seasonally because evaporation rates depend on temperature and wind speed, similar to the approach used in CE-QUAL-W2. The EIS evaluated the impact of several actions the co-lead agencies could take and their impact on river temperatures as they relate to current and historic river temperatures. Thus the EIS did realistically and clearly analyze, to the extent practicable, whether the hydrosystem is causing or contributing to compliance with the water quality standards as compared to historic river temperatures. In addition to investigating the operational impacts on water temperature, the co-lead agencies have taken other actions to address water temperature impacts on fish passage.
31781	13	Jay Inslee	State of Washington, Office of the Governor	The Washington Department of Ecologys Office of Columbia Rivers (OCR) has been working since its inception in 2006 to carefully balance development of new out-of-stream water supplies with protection and enhancement of instream flows in the Columbia River and its Washington tributaries. The full build out of the Columbia Basin Project proposed in several of the draft EIS MOAs, absent significant new water storage releases to augment instream flow, would be inconsistent with the balance Washington has sought to achieve through the OCR. We urge the action agencies to ensure that even the smaller withdrawals proposed in the PA from Lake Roosevelt and Lake Rufus Woods should they be adopted in the final EIS are subject to OCRs rules and full environmental review on a project level.	Early in the EIS process, the co-lead agencies evaluated Washington's RCW 90.90.020(1)(a) and determined that ,in developing the Water Supply measures, the statutory provision for instream flow allocation does not apply because the water is not to be obtained through the development of new storage facilities, nor is it being funded through the State. Nevertheless, the co-lead agencies respect OCR's role and will continue to coordinate with OCR to ensure compliance with applicable laws.
31781	14	Jay Inslee	State of Washington, Office of the Governor	Regarding lower Snake River irrigation affected by lower Snake River dam breaching, Washington suggests including more information in the final EIS on the cost of replacing irrigation from the reservoir behind Ice Harbor Dam and/or compensating landowners for diminished value of dryland acreage or acreage that would require deeper wells. That is more realistic and desirable than simply assuming, as does the draft EIS, that irrigated agriculture in that area will simply vanish.	This EIS discusses engineering solutions, including pipeline extensions, in Section 3.12.3. The MO3, Region C discussion begins on page 3-1267, line 3244 in the Draft EIS and is also found in Appendix N. The EIS draws upon the 2002 Lower Snake River Juvenile Salmon Migration Feasibility Report and Environmental Impact Statement which concluded that modifying the existing pump system was cost prohibitive. As discussed in Section 3.12.3, for MO3, in Region C this analysis assumes that pumps are unable to deliver water to an estimated 47,926 acres. Replacing irrigation infrastructure is discussed in Chapter 5 as potential mitigation as NEPA requires that all relevant, reasonable mitigation measures that could diminish the adverse impacts of the project be identified in the document, even if they are outside the jurisdiction of the lead agency or the cooperating agencies. See 40 C.F.R. 1502.16(h) and 1505.2(c); 46 Fed. Reg. 18026. However, the mitigation requested is not within the co-lead agencies' current authorities.
31781	15	Jay Inslee	State of Washington, Office of the Governor	The draft EIS provides insufficient analysis of economics of commercial, tribal, and recreational fishing in terms of geographic scope and quantitative analysis. Future management of the Columbia River will have profound impact on the West Coast and Alaskas commercial fishing economy (much of which uses Washington as a home base), and recreational and tribal fishing well inland into eastern Washington, eastern Oregon and central Idaho. More information on the impact of the more restorative alternatives on inland recreational fishing economies and tribal economies would be helpful to informed decision-making, as would be more information on the benefits for commercial fisheries of the additional Snake River fall Chinook habitat that would be made available through dam breaching.	The co-lead agencies utilized up-to-date, high-quality information to analyze effects to fisheries. The EIS recognizes the value of recreational and commercial fishing to the region. Section 3.15 describes the values associated with fisheries in the Northwest. Section 3.11 characterizes the sportfishing economy in the region. However, the uncertainty regarding the overall effects of the alternatives on regional fish populations, and how such changes may affect the management of the fisheries, limits a quantitative analysis of the specific effects of each alternative on these values. The effects are therefore discussed qualitatively. The social welfare effects on fisheries under MO3 are described as major and beneficial in the long-term, with increases in regional economic effects if commercial fish catch rates increase. For the effects on recreational fishing under MO3 (Section 3.11.3.5), the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River). Recovery goals set under ESA Section 4(f) are separate and distinct from goals associated with the analysis of alternatives under NEPA. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide meaningful benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the CRS. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. The Preferred Alternative is predicted to benefit ESA-listed juvenile and adult anadromous salmonids. It also meets the EIS objectives for resident fish, lamprey, hydropower, water management, and water supply, while minimizing adverse impacts to communities and the economy.
31781	16	Jay Inslee	State of Washington, Office of the Governor	Appendix L Chapter 3 Section MODEL OVERVIEW Line number(s) Figure 3-1 and Table 3-1 Both the Figure and Table indicate there are 5 shuttle rail elevators, when actually only four (4) were used in the model. Is this a typo or were five used?	There are five shuttle rail facilities, but only four of them are included in the model as a shipment alternative. One of the shuttle facilities located near Plymouth, WA, is utilized to bring corn/soybean shuttle trains from the Midwest.
31781	17	Jay Inslee	State of Washington, Office of the Governor	Appendix L Chapter 3 Section MO3 Scenarios discussion Line number(s) Figures 3-8 through 3-10 These figures are used to indicate utilization of the highways for shipping, however there is no way of telling which highways are seeing the increased use. The figures could be improved by labeling the main highways or indicate in the text which highways are seeing the increased use.	The density of highway flows are indicated by colors and size of the highway lines. Given the size of the area it is difficult to label the highways and show the volumes at the same time. Figure 3-2 is more useful for identifying highways as it does not include volumes..
31781	18	Jay Inslee	State of Washington, Office of the Governor	Appendix L Chapter 3 Section SCENARIO 1 Line number(s) 439-440 The "Endicott Facility" is not located in LaCrosse as indicated here and throughout this Chapter. It is located in Endicott.	This was an error that has been corrected in the FEIS.
31781	19	Jay Inslee	State of Washington, Office of the Governor	Appendix L Chapter 3 Section COSTS TO AGRICULTURAL OPERATIONS Line number(s) 663-685 The Endicott facility is closer to Colfax than McCoy. It seems logical the Colfax area farmer would utilize Endicott before McCoy. Consider reexamining the data and revising as necessary.	The choice of facility is based on total transportation costs rather than distance alone. In this particular situation, given that the McCoy facility is a circular/loop track facility and the Endicott facility in not, the pricing is slightly better at the McCoy facility.
31781	20	Jay Inslee	State of Washington, Office of the Governor	Appendix L Chapter 3 Section COSTS TO AGRICULTURAL OPERATIONS Line number(s) Figures 3-11 through 3-16 The rail shuttle facility is located in Endicott not LaCrosse	This was an error in the figures that has been corrected in Appendix L in the FEIS.
31781	21	Jay Inslee	State of Washington, Office of the Governor	Appendix L Chapter 3 Section INFRASTRUCTURE COSTS Line number(s) 755-759 The 2002 Lower Snake River Feasibility Study/EIS (2002 EIS), and the 1999 Lund Report were completed so long ago that they should not be considered as a guide for estimating the present-day costs of necessary infrastructure upgrades, even when corrected for inflation. Modeling and analysis may need to be redone if updated costs vary significantly from original estimates.	Estimates were developed for these costs based on input from local stakeholders during this study period, as well as using published reports as information sources, including the 2002 Lower Snake River Feasibility Study/EIS (2002 EIS), and the 1999 Lund Report. To the extent possible, the CRSO EIS navigation and transportation model structure reflects the best available current information based upon input from both shortline and mainline rail representatives. The model deals with current transportation rates to determine the expected flows and impact on shipper costs. Infrastructure needs are discussed outside of the model, and are based on the most recent estimates, updated for inflation.
31781	22	Jay Inslee	State of Washington,	Appendix L Chapter 3 Section INFRASTRUCTURE COSTS Line number(s) 804-805 The author references Figure 3-16 as illustrating increased traffic on Highways 12 and 395, however the graphic doesn't show any highways.	Figure 3-8 provides traffic for the highway system. Figure 3-16 indicates the relevant highway segments for comparison with other scenarios. This has been clarified in the FEIS.

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31781	23	Jay Inslee	State of Washington, Office of the Governor	Appendix L Chapter 3 Section INFRASTRUCTURE COSTS Line number(s) 803-804 The author mentions potential highway congeston, but does not elaborate or discuss associated costs. Increases in truck traffic and shifts in traffic patterns could warrant significant capacity and safety improvements in addition to the maintenance costs mentioned. State and local agencies would bear most of the costs for these improvements. These costs should be calculated and incorporated into the transportation analysis.	Potential increases in congestion and re-routing responses, increased risk to safety, and increased road maintenance costs are provided in the "Regional Economic Effects" subsection of Section 3.10.3.5.
31781	24	Jay Inslee	State of Washington, Office of the Governor	Appendix L Chapter 3 Section INFRASTRUCTURE COSTS Line number(s) 808 Per ton-mile estimates for road resurfacing costs in Eastern Washington were based on literature from 1998 and inflated to 2019 dollars. The author assumes this is a linear correlation, however regulations, requirements, and materials can change greatly in 22 years that can effect base estimates. More up-to-date estimates should be obtained from WSDOT and local agencies.	The co-lead agencies had discussions with WSDOT colleagues during this preparation of the EIS. WSDOT's input was received, and they agreed with the estimates produced by extrapolating for inflation.
31781	25	Jay Inslee	State of Washington, Office of the Governor	Appendix L Chapter 3 Section INFRASTRUCTURE COSTS Line number(s) 850 Cost estimates for port and terminal expansions and decommissions should be included in the analysis.	Port and terminal capacity needs and decommission costs are described in the subsection "Regional Economic Effects" in Section 3.10.3.5.
31781	26	Jay Inslee	State of Washington, Office of the Governor	Appendix L Chapter 3 Section INFRASTRUCTURE COSTS Line number(s) 851-854 The cost to construct a new shuttle facility is $25 million per year? This statement doesn't make sensedo you mean the cost to operate? Also, please cite your source.	As described in Appendix L, "[b]ased upon input from local shuttle rail facility operators the cost to construct a new shuttle rail facility with the ability to move 25 million bushels of wheat/barley per year is approximately $25 million (personal communications with shuttle rail manager). Based upon this its estimated that 1 to 2 shuttle rail facilities could be needed at a cost of $25 to $50 million." The estimate of $25 to $50 million is a one time cost for constructing additional rail facilities.
31781	27	Jay Inslee	State of Washington, Office of the Governor	Appendix L Chapter 3 Section INFRASTRUCTURE COSTS Line number(s) 868 Please cite WSDOT source used here.	A citation has been added in response to this comment in Appendix L.
31781	28	Jay Inslee	State of Washington, Office of the Governor	Appendix L Chapter 3 Section INFRASTRUCTURE COSTS Line number(s) 874 Costs of maintaining and upgrading rail infrastructure have likely changed significantly since the 2002 EIS, even if inflation is accounted for. A new analysis of rail infrastructure costs should be conducted to reflect these changes and the methodology for estimating these costs should be included in the appendix.	Estimates were developed for these costs based on input from local stakeholders during this study period, as well as using published reports as information sources, including the 2002 Lower Snake River Feasibility Study/EIS (2002 EIS), and the 1999 Lund Report. To the extent possible, the CRSO EIS navigation and transportation model structure reflects the best available current information based upon input from both shortline and mainline rail representatives. The EIS analysis finds that transportation of freight that is currently barged on the lower Snake River could be accomplished via other transportation modes, but this change would not be without costs to farmers, would require public and private investment in infrastructure, and would result in some adverse regional economic effects, particularly in the short term. As described in Section 3.10.3.5, increases in infrastructure demands could vary widely following dam breach, depending on factors such as the changes in rail rates, which influence the mix of alternative transportation modes that are utilized. In the EIS scenarios, the largest demands on rail would occur under Scenario 1, when rail rates are assumed not to increase and rail transit would be relatively more attractive. In contrast, increased highway use would be highest under Scenario 3, when rail rates are assumed to increase by 50 percent. The EIS also notes that the high rail demand scenario and the high highway demand scenario would not both occur. The EIS also acknowledges that depending on how rail rates respond to dam breach, shortline rail capacity could be exceeded. Under low rail rate increase scenarios, additional shortline rail capacity would be required that could cost $25 to $50 million. Under a scenario where rail rates increase by 50 percent, more shipping demand would be transferred to trucks, reducing the demands on rail infrastructure, but increasing demands on roads. Under this scenario, up to $10 million in additional road maintenance costs may occur. In addition, infrastructure investments are transitional costs, and would primarily be borne by private entities, including rail lines and grain shippers. Ultimately, rail infrastructure investments would be at the discretion of the railroads. Over time, prices should adjust to cover these costs. Some highway costs would be transferred to the trucking industry through fees, though most costs would likely be borne by public entities. The EIS states in Section 3.10.3.5 that, due to the high level of uncertainty surrounding these costs, interpretation should be done with caution.
31781	29	Jay Inslee	State of Washington, Office of the Governor	Appendix L Chapter 3 Section INFRASTRUCTURE COSTS Line number(s) 874-877 Private short lines often rely on government funds for necessary improvements. It is more accurate to state that necessary improvements would likely require both public and private investment. The analysis should include a more detailed and accurate projection of what these costs would be and what would happen if funding was not available.	The EIS analysis finds that transportation of freight that is currently barged on the lower Snake River could be accomplished via other transportation modes, but this change would not be without costs to farmers, would require public and private investment in infrastructure, and would result in some adverse regional economic effects, particularly in the short term. As described in Section 3.10.3.5, increases in infrastructure demands could vary widely following dam breach, depending on factors such as the changes in rail rates, which influence the mix of alternative transportation modes that are utilized. In the EIS scenarios, the largest demands on rail would occur under Scenario 1, when rail rates are assumed not to increase and rail transit would be relatively more attractive. In contrast, increased highway use would be highest under Scenario 3, when rail rates are assumed to increase by 50 percent. The EIS also notes that the high rail demand scenario and the high highway demand scenario would not both occur. The EIS also acknowledges that depending on how rail rates respond to dam breach, shortline rail capacity could be exceeded. Under low rail rate increase scenarios, additional shortline rail capacity would be required that could cost $25 to $50 million. Under a scenario where rail rates increase by 50 percent, more shipping demand would be transferred to trucks, reducing the demands on rail infrastructure, but increasing demands on roads. Under this scenario, up to $10 million in additional road maintenance costs may occur. In addition, infrastructure investments are transitional costs, and would primarily be borne by private entities, including rail lines and grain shippers. Ultimately, rail infrastructure investments would be at the discretion of the railroads. Over time, prices should adjust to cover these costs. Some highway costs would be transferred to the trucking industry through fees, though most costs would likely be borne by public entities. The EIS states in Section 3.10.3.5 that, due to the high level of uncertainty surrounding these costs, interpretation should be done with caution.
31781	30	Jay Inslee	State of Washington, Office of the Governor	Appendix L Chapter 3 Section INFRASTRUCTURE COSTS Line number(s) 881-887 The author is using data and information from a study conducted in 2002 to reach their conclusions. It is safe to assume that much has changed between then and now. For example, WSDOTs data shows that the BNSF mainline operated at Level-of-Service E in 2016, and rail traffic is expected to increase regardless of any changes to barge traffic on the Lower Snake River (2019 State Rail Plan). The analysis should include information attained from more current interviews with the mainline as well as the shortline operators.	Estimates were developed for these costs based on input from local stakeholders during this study period, as well as using published reports as information sources, including the 2002 Lower Snake River Feasibility Study/EIS (2002 EIS), and the 1999 Lund Report. To the extent possible, the CRSO EIS navigation and transportation model structure reflects the best available current information based upon input from both shortline and mainline rail representatives.
31781	31	Jay Inslee	State of Washington, Office of the Governor	The draft CRSO EIS contains the seeds for meeting this purpose, but it lacks analytical clarity and falls short in setting forth an ambitious vision for advancing salmon recovery in a manner that optimizes the value of the Columbia River System for the region as a whole. The draft EISs Preferred Alternative (PA) flexible spill operation represents progress for salmon survival compared to past dam operations, but additional actions on top of those proposed by the PA will likely be needed to achieve regional salmon recovery goals. For example, the draft EIS does not lay out a clear pathway toward regionally discussing, vetting, and adopting additional measures. Instead, it endorses an unspecified degree of improvement for Endangered Species Act (ESA)-listed salmon and steelhead only. This falls short of Washingtons expectations for the NEPA process, which provides an opportunity to restore salmon and steelhead consistent with regional goals and that meets other applicable federal laws such as the Northwest Power Act (not only the ESA jeopardy standard). In addition, the range of NEPA alternatives considered may be broad, but does not present a full range of options thanks to complex multiple objective alternatives that all have a mix of new positive and new negative impacts on salmon. The document calls for adaptive management, but the scope of that adaptive management lacks a road map for adopting stronger measures as needed. To succeed in the mid- to long-term, flexible spill must be accompanied, starting as soon as possible, by an active, collaborative, and visionary regional conversation. That conversation should seek to optimize, beyond that achieved in the draft EIS, system operations with a high likelihood of restoring salmon and steelhead to healthy, harvestable populations that also contribute toward a reliable prey base for southern resident orcas; provide clean, reliable, and affordable energy to support achievement of the regions climate and clean energy goals; and a healthy agricultural sector including a reliable water supply and transportation network. To show support for, and faith in, this conversation, the action agencies should maintain the preferred alternative as currently envisioned (with adaptive management) in place for three to five years, at which point the region should assess the feasibility of implementing more aggressive salmon restoration measures, including direct and off-site mitigation. The issues the CRSO EIS is intended to address are too dynamic for a 15-year plan of action to be appropriate, 2 especially without built-in check-ins that anticipate substantial changes in direction as necessary and as supported by a collaborative management process.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species or plan for additional actions needed to achieve regional recovery goals.. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the EIS objectives) as well as the EIS objectives for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. The Preferred Alternative is also more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% (the lower end of Northwest Power and Conservation Council's recovery targets for the region) as a result of the Preferred Alternative, as a result of the Preferred Alternative increasing SAR from 2.0% to 2.7% for Chinook, a 35% relative increase. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. To address uncertainty highlighted by the two models, the Preferred Alternative includes working with regional sovereigns to develop a study that assess the effectiveness of the increased spill regime on adult returns as well as assessment and management of adverse unintended consequences, such as long delays of adult migrants, or TDG-related mortality of juvenile migrants. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information. Based on the analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the CRS. This EIS has been developed in consultation with National Marine Fisheries Service (NMFS) and U.S. Fish and Wildlife Service (USFWS) to find an acceptable balance that allows the co-lead agencies to meet the Purpose and Need Statement while minimizing impacts to affected ESA-listed species and their habitats. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. Chapter 8 of the EIS demonstrates the co-lead agencies' compliance with applicable laws, including the ESA and Northwest Power Act.
31786	1	csimpson@ecbid.org	East Columbia Basin Irrigation District	Page 2-73, Line 2231; Authorization is for the Columbia Basin Project, not Basin, I believe. - Page 2-73, Line 2237; The 256,475 acres and 1,154, 138 AF mentioned does not sync with the 336,300 acres and 4.1 AF/AC water duty (1,378,830 AF) mentioned in Appendix A, Line 453, Table 1-8. Page 2-73, Line 2238; The CBP has not developed 772,572 acres, the number is closer to 675,000. CBP is authorized for 1,029,000 acres, if 336,300 are left then 692,700 acres are developed which is much closer to the 675,000 acres commonly referred to. - Page 2-7 4, Line 2249; As Alternatives are reviewed further the statement that " ... diversion flow from Lake Roosevelt would be reshaped to prevent substantial drafting of Banks Lake ... " causes concern if this new focus has the potential to adversely impact the CB P's ability to draft Banks Lake for O&M purposes.	The analysis does not contemplate the operations of Banks Lake and does not address concerns with operations and maintenance (O&M). The Columbia Basin Project has four water rights and developed acres associated with conserved or groundwater pumping, for a total of 772,525 acres supported with water from existing water rights; of this, 693,863 have been developed. However, this number changes annually as new acres are developed under the existing water rights. The additional acres were calculated using the total number of acres supported with existing water rights since they already have "authorization" to divert water from the Columbia, regardless of if they have done so to date.
31786	2	csimpson@ecbid.org	East Columbia Basin	- Page 3-1243, Line 2490; ECBID comprises over 10% of the land irrigated from the Columbia River. We participated in some open houses but were not contacted, as appears to have occurred for other, smaller irrigation entities (page 7-2) which, if done with us, could have lead to better initial information	The co-lead agencies implemented a robust public scoping process to provide an opportunity for the public to help identify significant issues that should be evaluated in the EIS. The public scoping period extended from September 30, 2016, through February 7, 2017. During this time, the co-lead agencies conducted 16 public meetings across the region and two webinars.

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			Irrigation District	for this draft. - Page 3-1244, Line 2509; Lincoln County lands can also receive CBP water. - Page 3-1248, Line 2614; Change "these" to "this", only Lake Roosevelt is mentioned. - Page 3-1248, Line 2627; Change Region "D" to" B". - Page 3-1248, Line 2628; 16,860 not equal to Table 3-269's total of 16,100.	Thank you for your review and suggested edits. We implemented most of these suggested changes. Table 3-271 includes acre-feet from surface, 760 acre-feet, and groundwater, 16,100 acre-feet, consistent with the the total 16,860 acre-feet presented in the text.
31786	3	csimpson@ecbid.org	East Columbia Basin Irrigation District	- Page 7-32, Line 954; Maintaining an elevation of 1222. 7 not only increases pumping efficiency but may allow more flexibility for the operation of Pumps 1-6 of the Keys Plant, which is beneficial to the CBP as it continues to develop. - Page 7-32, Line 976; ECBID supports the additional water supply above the No Action Alternative as described. - Page 7-32, Line 979; As written, 15,000 AF of M&I water appears connected to the OSSS which is not included in the OSSS water supply. If associated with the Lake Roosevelt Incremental Releases Program (LRIRP) then the 30,000 AF of additional supplies, for OGWRP should be noted also. - Page 7-77, Line 1933; Lower Lake Roosevelt elevations increase concern for Banks Lake pumping as we continue to complete development of the CBP. With increased acreage to be served the need for more water supply, earlier in the irrigation season, should be expected and not negatively impacted by reservoir operations. Let's not lose sight that Grand Coulee Dam and Lake Roosevelt are primarily constructed as the diversion dam and reservoir for the Columba Basin Project.	Evaluations for this EIS included consideration of pump efficiency given the elevations of Lake Roosevelt and Banks Lake. Though pump efficiency decreases as Lake Roosevelt decreases, analysis confirmed that the total demand as currently supported by water rights can be delivered to Banks Lake without decreasing the elevation of Banks Lake beyond elevations that have been considered in Odessa Subarea Special Study NEPA analysis. Appendix N provides more detail information on the irrigation and water supply analysis.
31786	4	csimpson@ecbid.org	East Columbia Basin Irrigation District	- Page A-1-11 , Line 453; Please refer to earlier comments regarding discrepancies in acreage, water diversion totals and CBP drawdown of Banks Lake for OM&R needs.	Columbia Basin Project has four water rights and developed acres associated with conserved or groundwater pumping for a total of 772,525 acres supported with water from existing water rights; of this, 693,863 have been developed. However, this number changes annually as new acres are developed under the existing water rights. The additional acres were calculated using the total number of acres supported with existing water rights since they already have "authorization" to divert water from the Columbia, regardless of if they have done so to date.
31786	5	csimpson@ecbid.org	East Columbia Basin Irrigation District	- Page N-1-11, Line 222-226; This should mention how much from the CBP is returned to the river,~ 116th of the amount diverted to the CBP annually(~ 500KAF). - Page N-1-2, Line 240; Same as previous comment about including Lincoln County. - Page N-3-2; Line 546; Change "countries" to "counties". - Page N-3-18; Line 81 O; "Lake Roosevelt Water Supply effect", note that with future CBP development will come increased early season diversions by the Keys Plant. Availability of pumps decrease as elevations decrease toward elevation 1208. The need for more pump availability in the future is probable. - Page N-5-23, Line 1442; Note that below a certain Lake Roosevelt elevation, maybe 1222', Pumps 1-6 cannot be started, they need to be running before the elevation drops. This becomes a critical issue as longer drawdowns occur and CBP development requires larger spring deliveries.	The alternative analysis utilizes hydrologic data and studies to compare operational impacts to flows and water quality. As part of these evaluations, return flows from current irrigation practices are captured through the use of 2010 Modified Flows. Evaluations for this EIS included consideration of pump efficiency given the elevations of Lake Roosevelt and Banks Lake. Though pump efficiency decreases as Lake Roosevelt decreases, analysis confirmed that the total demand as currently supported by water rights can be delivered to Banks Lake without decreasing the elevation of Banks Lake beyond elevations that have been considered in Odessa Subarea Special Study NEPA analysis.
31795	1	kimmyweerts@gmail.com	N/A	The Columbia and Snake River dams contribute 90% of renewable energy produced in the Pacific Northwest. Removal would produce additional pollution by increasing carbon emissions from truck and rail traffic, defeating the work that has been done to lower carbon emissions and lowering Washingtons reputation as an energy steward as well as increasing the cost of electricity.	The EIS does find that MO3 would increase carbon emissions from the power sector while increasing the cost of electricity, and by shifting barge-based shipping through the lower Snake River dams to road and rail transportation. While MO3 is estimated to increase greenhouse gas emissions by 3.5%-8.9% or 1.3-3.3 million metric tons (depending if replacement generation resources are gas or zero-carbon); the Preferred Alternative is estimated to increase greenhouse gas emissions by 1.5% or 0.54 million metric tons.
31795	2	kimmyweerts@gmail.com	N/A	Barging is the cleanest, safest method of transportation of goods from eastern Washington to the rest of the world. The sheer number of trucks on the roads that would be needed to replace water transportation would cause ever-increasing dangers on roads traveled by our local population, students, faculty, and families from both Washington State University and the University of Idaho. Roads would need continual and higher priority maintenance and repair increasing the tax burden on our local and state population.	Section 3.10 of the Draft EIS provides an evaluation of the Columbia Snake River Navigation System, assessing its relative efficiency, low costs for shippers, safety considerations, and low air emissions relative to other transportation modes. The EIS acknowledges that depending on how rail rates respond to dam breach, shortline rail capacity could be exceeded. The EIS also evaluates the additional transportation infrastructure investments and associated costs that would be required, as well as the increases in air emissions that would occur. The EIS finds that truck ton-miles may experience an increase of 19 percent to 84 percent under MO3 when compared to the No Action Alternative, depending on the rail rate increases that occur. The EIS analysis found that truck trips would increase between 14,000 to 79,000 truck trips per year, which would increase air pollutant and greenhouse gas emissions in the region and add to traffic and congestion in the region. Rail ton-miles would increase by as much as 86 percent (when rail rates are not assumed to increase) or decrease by 2 percent (when rail rates increase by 50 percent). Under low rail rate increase scenarios, additional shortline rail capacity would be required that could cost $25 to $50 million. Under a scenario where rail rates increase by 50 percent, more shipping demand would be transferred to trucks, reducing the demands on rail infrastructure, but increasing demands on roads. Under this scenario, up to $10 million in additional road wear-and-tear costs may occur. Safety concerns with the increase in truck trips under MO3 is discussed in Section 3.10.
31795	3	kimmyweerts@gmail.com	N/A	Research has been constant over the years and data-driven studies show that dam breaching does little for the fish. Resources have been and continue to be funded for already successful projects that demonstrate ever-increasing success rates for juveniles. Fish are declining for other real reasons such as mandated increased spills and higher TDGs, along with oceanic conditions which are the two most highly correlated factors to tanked endangered salmonid SARs (smolt to adult returns), increasing out migrating smolt delayed mortality, and increased smolt physiological maladies associated with high river TDG levels.	The co-lead agencies also recognize that there are many effects to salmon and steelhead populations outside the operation of the dams; including those you mention here. Research continues to evaluate the magnitude of these effects. For more information see the NMFS website at: https://www.nwfsc.noaa.gov/research/index.cfm. Specifically, TDG levels are regulated under the Federal Clean Water Act, and administered by the states. Both Oregon and Washington have reassessed the available data on effects of TDG levels up to 125% of saturation on fish and other aquatic organisms. Based on this reassessment, Oregon issued a five-year "standard modification" and Washington issued a permanent rule change, supported by the Environmental Protection Agency (EPA), to allow TDG saturation up to 125%. However, as noted by the commenter, there is considerable uncertainty in the effects; and therefore, monitoring is required by the states and EPA to ensure any negative effects are detected and allow for adaptive management. Further, the Preferred Alternative includes a robust monitoring plan to help narrow the uncertainty between the biological models and will help determine how effective increased spill can be in increasing salmon and steelhead returns to the Columbia Basin. The effectiveness of the spill program will be monitored. Regarding ocean conditions, the co-lead agencies recognize that ocean conditions are a major driver in juvenile survival and adult returns. As such two of the models used in these analyses, NOAA and CSS Life Cycle models, use metrics of ocean productivity to predict adult returns. A number of metrics that monitor ocean temperature and productivity are reported annually and are used to predict salmon returns. These metrics can be seen at: https://www.nwfsc.noaa.gov/research/divisions/fe/estuarine/oeip/g-forecast.cfm.
31799	1	Gary Frommelt	American Queen Steamboat Company	In 2019, the American Empress brought over 12,000 passengers to the Clarkston and the surrounding area by way of the Snake River and the associated lock and dam systems that make these trips possible. Industry statistics show that this translates into an economic contribution of over $4 million dollars. This contribution results in close to 150 jobs for local citizens based on the variety of services used. These include but are not limited to local shops, museums, tourist attractions, supplies for the vessel such as food and beverage, fuel and all items required to support a floating city of over 300 people. Many small shops and tourism venues owe their livelihood to the continued stream of visitors brought in by the American Queen and other passenger carrying riverboats. 222 PEARL STREET, NEW ALBANY, IN 47150 I TEL (901) 654-2600 I FAX (901) 654-2541 I WWW.AQSC.COM ~ AMERICAN QUEEN 9 STEAMBOAT COMPANY Uniquely American River Cruises American Queen Steamboat Company strongly agrees with the DEIS Preferred Alternative which avoids dam breaching and aims to improve fish habitat through continued programmatic actions. Removal of the Snake River dams would prevent us from sailing on the Snake River and eliminate the economic benefits and jobs stated above; we are clearly against removal of any dams in the system. We also believe that the environmental benefits of hydro-electric power and commercial shipping by barge far outweigh the alternatives. Loss of hydro power and losing grain and other cargo shipments by barge would have a major negative impact on the environment in the entire region.	Cruise ship visitation is characterized in Section 3.10, Navigation and Transportation. Section 3.10.3.5 describes the contribution of cruise ships as providing demand for approximately 230 jobs in the region, which would include employment in the industry itself as well as increased demand for services at ports of call. The statement in the comment that the loss of capacity and energy would negatively affect regional electricity costs and Bonneville customers is consistent with the findings of the EIS. Regarding the funding of the fish and wildlife program, funding decisions for the Bonneville Fish and Wildlife program are not being made as part of the CRSO Draft EIS. A range of costs are included to inform the broader cost analysis and any future budget adjustments would be made in consultation with the region through Bonneville's budget-making processes and other appropriate forums.
31808	1	tjones@rmecon.net	N/A	As an economist I anticipated the DEIS and was prepared to discuss and submit comments on the merits of BPAs economic arguments. Sadly, in this case, that is a trivial exercise because BPA did not do a legitimate analysis. A legitimate analysis would have presented one or more potential alternatives that restored the fish to agreed upon population levels. The best alternative, the ultimately Preferred Alternative (PA) in BPA jargon, would presumably be the one that was least disruptive, produced recovery levels of fish in the least costly fashion. But, BPA did not do that. The judge ordered the Breach Alternative to be investigated because that is the alternative that all legitimate non-BPA parties have historically deemed the most likely to succeed at restoring the fish. The breach option is the only option historically viewed as capable of achieving Idaho Fish and Game Commission and the Northwest Power and Conservation Councils SARs in the range of 2-6% with an average of 4%. In fact, the breach alternative, MO3 in the executive summary, is the only alternative that the BPA unarbitrarily says, … would meet the objectives of Improve Juvenile Salmon, Improve Adult Salmon, Improve Resident Fish, and Improve Lamprey. All other alternatives, including the preferred alternative, equivocate on that subject. BPAs best other alternative, the preferred alternative, looks to increase SARs to about 1% for spring/summer chinook from the current 0.8% and to about 2.1% from the current 1.6% for steelhead. It is the equivocation on that subject that renders the DEIS fatally flawed. The judges order to BPA was to provide an alternative, or a list of alternatives that result in restored fisheries. Faced with that order the rules of economic analysis, and simple reasoning, mandate that it is not acceptable to choose an alternative that fails to achieve the objective, regardless of how difficult or personally undesirable that might be for BPA management. In laymans terms, BPA was ordered to investigate alternatives that restore fish and to do so in apples to apples fashion. Instead BPA made a mockery of the process by comparing apples, to oranges, to tomatoes. In summary, the Breach alternative is the only alternative in the DEIS that complies the judges order. Therefor, the breach alternative, by standard economic protocol, must be the chosen option.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA listed species. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-lead agencies numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3, which includes breaching the four lower Snake River dams. The Preferred Alternative also meets the EIS objectives including those for: resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS the co-lead agencies did not identify MO3 because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. The EIS concluded MO3, which includes breaching the four lower Snake River dams would have greater improvement to certain salmon species in the lower Snake River. It did not, however, conclude there was greater certainty of that result in MO3 over any other alternative. Because of delayed response time in MO3, and the potential severity of the short term effects, MO3 would likely have the most substantial uncertainty in terms of beneficial effects. It should be noted that the 2-6% Smolt-to-Adult return (SAR) target referenced in this comment refers to the Northwest Power and Conservation Council (Council) target for broad-sense recovery and is separate and distinct from the obligations of any single entity or in this case a requirement to be met solely by the co-lead agencies. Just as the Councils fish and wildlife program encompasses both federal and non-federal stakeholders in the Columbia Basin, the Councils recovery goals are shared by many parties. Based on the Preferred Alternative analysis, it will make a substantial contribution, but the Councils broad sense recovery goals are beyond the scope of this EIS, which focuses on the effects associated with the operation and maintenance of the 14 CRS projects. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species as that is a broader goal with shared responsibility. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. The effects of delayed mortality are discussed throughout the EIS analysis for each alternative and current high quality data and the best available scientific information was used for this analysis. Based on analysis by the CSS, SARs associated with population declines (SARs of less than 1%) have the potential to be greatly reduced under the Preferred Alternative, and on average, SARs are expected to be well above 2.0% for Snake River spring Chinook salmon and steelhead. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. The co-lead agencies conclude the expected outcomes for salmon and steelhead associated with MO3 are appropriately acknowledged and framed appropriately with impacts to other authorized purposes. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information. Based on the analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the CRS. This EIS has been developed in consultation with National Marine Fisheries Service (NMFS) and U.S. Fish and Wildlife Service (USFWS) to find an acceptable balance that allows the co-lead agencies to meet the Purpose and Need Statement while minimizing impacts to affected ESA-listed species and their habitats. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. The rationale for not selecting MO3 is discussed in Chapter 7.
31812	1	N/A	N/A	1. Benefits from dam breachings multiplication of wild fish returns are poorly estimated or excluded entirely: The dam breaching option (Mixed Objective Alternative 3, or MO3) would deliver substantial improvement of wild fish survival, passage and productivity, regardless of which of two fish forecasting models used in the DEIS produces the estimates. Yet the multitude of benefits from dam breachings multiplication of wild fish returns are poorly estimated or excluded entirely.	Under the NMFS COMPASS model, juvenile Snake River spring/summer Chinook in-river survival would improve by 9.6% due to dam breach, which is a 19% relative increase over the No Action Alternative. The NMFS Lifecycle Model predicts an increase in adult returns of 13.6% for these same fish under MO3 (no latent mortality assumed) relative to the No Action Alternative (from 0.88% to 1%). Results for Snake River steelhead are similar (10% absolute improvement, or 23% relative juvenile survival increase (Smolt-to-Adult returns (SARs) for steelhead were not modeled). SAR is the rate at which of a group of fish survive from their smolt life stage to a defined ending point where they return as adult. Under the Comparative Survival Study (CSS) model, juvenile in-river survival for the Snake River spring/summer Chinook is predicted to improve by 10.4% due to dam breach, which is an 18% relative increase over the No Action Alternative, while SARs would increase by

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					115% (from 2% to 4.2% 0.02 to 0.042). The CSS model predicts that Snake River steelhead would see juvenile survival increase by 25.8% which is a 46% relative increase over the No Action Alternative. The CSS model also predicts that SAR increase by 177% (from 1.8% to 5%). Though differing in predictions, both modeling groups predict dam breaching is the best CRSO EIS alternative for salmon and steelhead. One simply predicts adult return increases an order of magnitude higher than the other. Specific details of the Federal obligation: The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. With respect to the Preferred Alternative, the fish analysis in Section 7.7.4 shows that it will provide substantial benefits to ESA-listed salmon and steelhead, which can help contribute to broader recovery goals.
31812	2	N/A	N/A	2. The DEIS excludes available data from prior studies showing substantial economic benefits of dam breaching. The DEIS analysis states that its economic analysis approach is worse than other available methods but fails to utilize more the accurate estimating techniques and excludes available data from prior studies showing substantial economic benefits of dam breaching.	It is important to note that the EIS has undergone a third party neutral Independent Expert Peer Review on the tools used (including economic models), as well as the assumptions and conclusions in the EIS. The EIS Recreation Section 3.11 describes the methodology under MO3: "Potential increases in visitation associated with the new river recreational opportunities in the long-term (e.g., fishing, rafting, paddling, as well as land-based activities) are evaluated through a review of previous studies and similar river reaches." The recreation evaluation uses the Unit Day Value method to apply consumer surplus values to recreation visitor days, which is a USACE-approved approach. The procedures described in the Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies (Water Resources Council 1983) (Principals and Guidelines) outline three generally accepted methods for measuring recreational benefits: the unit day value (UDV), the travel cost method, and contingent valuation. Although a current site specific travel cost or contingent value approach would be a preferred method, a more detailed analysis at this geographic scale was not possible under the timeline of the study. The EIS does not indicate that the UDV method is worse; it is an approved approach that relies on expert and informed opinion to assign relative values to recreational visits based on the quality of recreational opportunities supported by individual recreation areas. The UDV approach provides a consistent approach across all sites in the evaluation. The post dam breach effects on visitation uses a potential range in non-fishing visitation from the 2002 Lower Snake River Juvenile Salmon Migration Feasibility Study and EIS to estimate long-term visitation along the lower Snake River, including rafting and kayaking. The EIS describes that the visitation in the long-term in the lower Snake River, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting jobs, income, and tourism businesses. The social welfare values associated with river recreation post dam breach were not estimated because of the uncertainty (and large range) in visitation and consumer surplus values among users.
31812	3	N/A	N/A	The DEIS fails to assign an economic value to wild fish recovery and increased angling activity that dam breaching and wild fish recovery would bring. The analysis vaguely suggests that new opportunities for angling and recreation may offset other changes, then wrongly concludes that dam breaching, the most robust strategy for fish recovery, does not deliver economic benefits.	The EIS evaluated beneficial and adverse effects across an array of resource areas including potential effects at the national, regional and local level; effects are monetized and quantified, where possible, and also described qualitatively. As is common in NEPA analyses, the beneficial and adverse effects of the alternatives are expressed as a variety of qualitative and quantitative environmental and economic metrics throughout the EIS to inform decision-making, including the effects of the alternatives on fish as detailed in Section 3.5. That the effects of the alternatives on fish are not expressed as monetized economic values does not mean that they were not considered in the context of the analysis. The EIS does not employ a cost-benefit framework for decision-making. Instead, the EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The EIS Section 3.15.3.5 describes the potential for economic benefits under MO3 associated with recreation in the long-term. The EIS provides an evaluation of the social welfare and regional economic effects of the No Action Alternative and the Multiple Objective alternatives, including the effects on recreation (Section 3.11) and commercial fisheries (Section 3.15). The EIS Section 3.5.3.6 describes the long-term effects to anadromous fish migration in the Snake River and tributaries that would occur under a dam breach scenario as major and beneficial, although quantitative impacts from fish modeling results are limited. The impacts to anadromous fish in other locations would have negligible to minor changes from the No Action Alternative. The EIS described the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. NMFS estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which is described qualitatively. For the effects on recreational fishing under MO3 (Section 3.11.3.5) along the lower Snake River below Lewiston, the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River) as an indicator for fishing visitation in this reach. Again, there is uncertainty around recreational and commercial fishing visitation in the long-term given the current measures to regulate, protect, and support ESA-listed fish populations and habitat in the region. However, the EIS describes that the visitation in the long-term in the lower Snake River, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting jobs, income, and tourism businesses. The contribution of Columbia River origin fish to ocean fisheries is described in Section 3.15.2.1. Because there is considerable uncertainty regarding the overall effects of the alternatives on regional fish populations, and how such changes may affect the management of the fisheries, the specific quantitative and monetized impacts associated with changes in commercial fisheries under the alternatives was limited. This analysis evaluates potential impacts on fisheries by referencing the potential effects on relevant fish populations, as described in Section 3.5.
31812	4	N/A	N/A	The DEIS also minimizes benefits from increased post-dam breaching fishing activity by using comparisons with existing activity from two other rivers, the Clearwater and Hanford Reach of the Columbia, but then admits that those comparisons may considerably under-estimate future recreation activity on a restored natural river and the major tributaries (e.g., Salmon River, Middle Fork Salmon River, Grand Ronde River, etc.) that flow into it. For example, the DEIS notes that rafting is a popular activity on other undammed river reaches, including Hells Canyon and the Salmon River, but fails to account for the high economic value of rafting and related recreational activities. The DEIS entirely omits discussion or valuation of the 63 historically named rapids that breaching the lower Snake River dams would reveal. The DEIS also does not recognize the higher per-trip value of non-motorized boaters who would make up the bulk of recreational users on a restored river. A 2019 report by ECONorthwest, Lower Snake River Dams Economic Tradeoffs of Removal, cites 15-115% greater per trip for whitewater recreation compared to reservoir-based recreation, and a higher ($228 per day) recreational user value. Restoring 140 miles of free-flowing river and revealing 14,000 acres of currently inundated riparian and riverside land, would provide an amazing recreation resource to the region. Today, Washington state does not have a multiple day destination whitewater river. A restored lower Snake River would provide such a resource benefitting Lewiston, the Tri-Cities, and small communities all along the river. Breaching the four lower Snake River dams would create new long-term jobs in the outdoor recreation and tourism sectors, and other types of businesses would inevitably move to the area due to an increased quality of life associated with a restored river and restored fisheries. Salmon recovery would benefit commercial, sport and tribal fisheries, thereby benefitting local communities. Salmon recovery would benefit the Southern 4 Resident orca population and associated tourism economies in Puget Sound and along the west coast.	The EIS provides an evaluation of the social welfare and regional economic effects of the No Action Alternative and the Multiple Objective alternatives, including the effects on recreation (Section 3.11) and commercial fisheries (Section 3.15). The EIS Section 3.5.3.6 describes the long-term effects to anadromous fish migration in the Snake River and tributaries as major and beneficial. The EIS described the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. NMFS estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which is described qualitatively. For the effects on recreational fishing under MO3 (Section 3.11.3.5) along the lower Snake River below Lewiston, the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River) as an indicator for fishing visitation in this reach. Again, there is uncertainty around recreational and commercial fishing visitation in the long-term given the current measures to regulate, protect, and support ESA-listed fish populations and habitat in the region. The evaluation uses a potential range in non-fishing visitation from the 2002 Lower Snake River Juvenile Salmon Migration Feasibility Study and EIS to estimate long-term visitation along the lower Snake River, including rafting and kayaking. The EIS describes that the visitation in the long-term in the lower Snake River, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting jobs, income, and tourism businesses. The social welfare values associated with river recreation post dam breach were not estimated because of the uncertainty (and large range) in visitation and consumer surplus values among users. In addition, the timeline of the EIS precluded an extensive survey of post dam breach recreation. The contribution of Columbia River origin fish to ocean fisheries is described in Section 3.15.2.1. Because there is considerable uncertainty regarding the overall effects of the alternatives on regional fish populations, and how such changes may affect the management of the fisheries, the specific quantitative and monetized impacts associated with changes in commercial fisheries under the alternatives was limited. This analysis evaluates potential impacts on fisheries by referencing the potential effects on relevant fish populations, as described in Section 3.5. The cultural significance and impacts of salmon and steelhead fisheries are described in the Ceremonial and Subsistence Fisheries subsection and the Social Importance of Commercial, Ceremonial and Subsistence Fisheries subsection of Section 3.15.2.1. Fisheries Tribal interests are described in Section 3.15.4 additional details regarding the economic significance of salmon and steelhead fisheries have been added to the recreation analysis (Section 3.11) including Tribal interests (Section 3.11.3.7). Most Section of chapter 3 include a Tribal Interests Section at the end that attempts to summarize issues by topic. Moreover, the EIS analysis found only a minor effect to the Southern Resident killer whale would result from implementing MO3 (which includes the dam breach measure). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). The co-lead agencies agree that the quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults form the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differentially from hatchery and wild fish. Hatchery fish today likely make up most fish consumed by SRKW (NOAA BiOp 2020).
31812	5	N/A	N/A	In its analysis of cultural impacts, the DEIS downplays benefits of a restored natural river associated with public and tribal access, and instead emphasizes the potential threats to cultural resources from increased erosion and possible looting. A responsible plan for river restoration must include broad riparian restoration, along with careful management of access and use of restored riparian areas to ensure improvement of habitat and protection of cultural sites and resources. The analysis does acknowledge the preference for dam breaching among tribal communities, an evaluation that comes as close as any in the DEIS to an accurate assessment and one we wholeheartedly support: Most tribes support breaching the four lower Snake River dams…as it represents the only alternative that substantially attempts to restore the river to a more natural environment (emphasis added) and some could interpret dam breaching as a meaningful milestone in salmon restoration efforts (p. 3-1414).	The co-lead agencies agree with the commenter that many tribes may support MO3, which includes the measure to breach the four lower Snake River dams. The co-lead agencies disagree with the commenter's assessment that the Draft EIS downplays the benefits of a more normative river and emphasizes threats to cultural resources from increased erosion and possible looting. The Draft EIS Multiple Objective alternatives were evaluated in accordance with the National Environmental Policy Act and effects are discussed in Chapters 3, 4, 5, 6, and 7, including effects to Cultural Resources. The Draft and Final EIS include information about mitigation for MO3 in Chapter 5 Mitigation. Section 5.4.3, includes riparian mitigation measures for planting in the areas affected by breaching the four lower Snake River dams.

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31812	6	N/A	N/A	In contrast, the Preferred Alternative (PA) offers an uncertain range of impacts for wild fish, ranging between negative or possible positive benefits, with the positive only occurring with optimistic assumptions in one of the two fish population models. The PA analysis also admits that its approach is experimental, that its aim would be to collect data on effectiveness rather than offering a proven effective solution. The PA emphasizes structural measures at dams that were part of other alternatives, spill and adaptive changes to fish transport, while leaving power operations largely unchanged. From that mixture of impacts, it appears the PA is intended to protect the status quo of operations, rather than actually achieve a significant improvement in wild fish survival through the hydrosystem. The PA is a patchwork of half measures, relies on experimentation and contingencies in modeling, fails to invest in significant changes to the dams or dam operations to benefit wild fish survival, and will fail to achieve the goal of restoring self-sustaining runs of salmon, steelhead and other imperiled fish species in the Snake and Columbia basins.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The Preferred Alternative complies with the ESA (see Chapter 8, Compliance with Environmental Laws, Regulations and Executive Orders, for more information). The co-lead disagree with the the comment that power generation was elevated over our legal obligations. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the EIS objectives) as well as the EIS objectives for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. The Preferred Alternative is also more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. The co-lead agencies used current, high quality scientific information the in the analysis of the CRSO EIS. Specific to salmon and steelhead, the agencies used two primary modeling approaches which yielded a range of potential outcomes for the alternatives. With respect to the Preferred Alternative, the CSS model predicts that average Smolt to Adult return rates will increase for both Snake River spring Chinook and steelhead and will average above 2% (the lower end of Northwest Power and Conservation Council's recovery targets for the region) as a result of the Preferred Alternative (increasing from 2.0% to 2.7% for Chinook, a 35% relative increase). The NMFS COMPASS and Lifecycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Recovery is a broader regional goal and is above and beyond the co-lead agencies' obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the Columbia River System. Finally, the co-lead agencies disagree the Preferred Alternative is a continuation of the status quo. The spill operation for juvenile fish passage is a significant departure from previous operations, so much so that the Washington and Oregon state water quality standards had to be changed to implement the new spill regime. The Preferred Alternative also includes other operational, structural and mitigation measures to improve conditions for ESA-listed salmon and steelhead.
31812	7	N/A	N/A	Detailed Comments on the DEIS 1) Wild Fish Recovery: The DEIS fails to recognize that only breaching the lower Snake River dams would deliver significant benefits in wild fish survival, returns and recovery. The DEIS concludes that based on its model results, breaching of the lower Snake River projects is expected to have major beneficial effects on juvenile outmigration and upstream migration of wild salmon and steelhead, particularly those fish that originate in the Snake River (p. 3-593). Operational changes in the dam breaching option would increase Snake River spring/summer Chinook juvenile survival between 19-25.9% compared to the no-action alternative, decrease travel times (up to 31% vs no action), and decrease turbine passage (-71-4%) and associated mortality (Table 3-88, p. 3-559). The analysis assumes that hatchery releases that are mitigation for the lower Snake River dams would end, and cautions that reduction of hatchery fish could reduce numbers of juvenile Snake River Chinook salmon by as much as 85 percent and that the reduction in hatchery fish could increase predation of wild juveniles and reduce juvenile survival. For adult spring/summer Chinook, improvements compared to the No-Action Alternative would also be dramatic: 14-170% Smolt-to-Adult-Return (SAR) improvement from Lower Granite Dam and to Lower Granite Dam. Abundance would improve between 9-107% from the No-Action Alternative (Table 3-89, p. 3-560). For Snake River steelhead, juvenile survival would improve 23-46% compared to the No-Action Alternative, travel time would decrease 32-45%, and powerhouse passage would decline by 76-77%, with a 178% increase in SAR, from the current return rate of 1.8% to 5% (p. 3-562-3). The other MOs tend to have negative or mixed impacts on wild salmon and steelhead. Those that would deliver improvements still fall far short of achieving meaningful recovery for threatened fish. MO2 reduces spill, resulting in more turbine mortality and increased migration time for juvenile fish. Most alternatives include the same improvements to lamprey passage and survival, so suggest they could benefit lamprey. MO2 could reduce Snake River Chinook survival up to 7%, reduce juvenile steelhead survival by up to 22%, and cause a 30% reduction in SAR for Chinook and steelhead (pp. 3-515 to 3-517). MO4 results vary widely by model, from negative to positive depending on the model and assumptions. It predicts 1-10% juvenile survival improvement for Snake River spring/summer Chinook, 8-14% reduction in travel time, and 64-81% reduction in transported fish because of additional spill, but increased risk from Total Dissolved Gas (Table 3-96, p. 3-610). SAR and abundance changes vary widely by model, from -12% to +75%, but with the higher rate only achieving 3.5% SAR, far less (almost 50%) than the SAR under the dam breaching alternative. Abundance could range from -32% to + 99% vs. the no-action alternative (Table 3-97, p. 3-612). For Snake River steelhead, MO4 could increase juvenile survival 1-30%, decrease travel time up to 10%, reduce transported fish by 82%, and reduce powerhouse passage 80-86% (Table 3-98, p. 3-614). SAR could improve by 72% to a rate of 3.1% (Table 3-99, p. 3-616).	The co-lead agencies agree with the summarization of the model predictions from Chapter 3, but emphasize that these are model-based predictions of change relative to the No Action Alternative, not guaranteed outcomes. The co-lead agencies do not agree with the characterization that the CRSO EIS failed to recognize the predicted effects to salmon and steelhead that would result from each Multiple Objective alternative, as well as the Preferred Alternative. The co-lead agencies acknowledge in the Draft EIS that implementation of MO3 would have benefits to salmon and steelhead. However, the co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets most other EIS objectives including those for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS, the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams, because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system.
31812	8	N/A	N/A	Most of the structural improvements targeting lamprey should be implemented regardless and could be included with the dam breaching alternative. MO2 could increase risk of injury or impingement for lamprey because of increased powerhouse flow and passage. MO3 would 6 improve lamprey survival and production substantially by easing upstream and downstream migration without the lower Snake River dams.	The structural improvements for lamprey are included in every alternative, including MO3 (the alternative that includes the measure to breach the lower Snake River dams), and the Preferred Alternative. The increased risk of injury or impingement for lamprey due to increased powerhouse flow and passage is included in the sentence However, most of the water management and water supply operational measures have no benefit and might make migration conditions worse for juvenile lamprey compared to the No Action Alternative. This sentence was intended as a summary statement and was inadvertently placed at the end of the Adult Migration/Survival Section in MO2. The substantial benefits to lamprey under MO3 are described starting on page 3-572.
31812	9	N/A	N/A	In contrast, the Preferred Alternative offers uncertain anadromous fish impacts, and relies upon unproven practices unlikely to actually achieve recovery. The PA suggests it may have some positive fish benefits, but also declares that its spill strategy is essentially experimental and would prioritize the value of power sales to determine when spill would occur (p. 7-21). The PA fish benefits range from negative to somewhat positive, with the possible increased fish returns predicated on unreliable model assumptions of reduced delayed mortality, so are highly contingent. The DEIS acknowledges the range of potential outcomes predicted by the models used to estimate impacts to anadromous fish, including a study to evaluate the potential benefits and unintended consequences of a flexible spill operation. Survival rates of juvenile spring/summer Chinook under the PA would be very similar to the No-Action Alternative, between 1-5% higher, decreasing travel time 7 percent (Table 7-24, p. 7-100). SAR impact would range from a decrease of 7.5% to an increase of 35% compared to the No-Action Alternative, with adult abundance ranging from -24 to +58% (Table 7-25, p. 7-102). For Snake River steelhead, juvenile survival and travel time would not change from the no-action alternative, with SAR increasing 28% but to a rate of only 2.3%, far below the level produced by dam breaching.	See response to Comment 31812-7.
31812	10	N/A	N/A	2) Implementation Costs: Breaching the four Lower Snake River dams represents a cost-effective investment, given that the implementation costs of MO3/Breach are comparable or less than other alternatives, including No Action and PA. MO3, the dam breaching alternative, competes favorably in cost with the other MOs and preferred alternative, with lower costs for structural measures, operational actions, and fish and wildlife mitigation programs compared to the MOs and PA. Annual equivalent costs for MO3 would range between $896M and $1.001B, a reduction of between $159M with low fish and wildlife costs to $54M with high fish and wildlife costs, compared to the No-Action Alternatives annual cost of $1.055B, a reduction of between 5-15% (Table 3-308 and 3-309, p. 3-1481). The Preferred Alternative would cost between $1.014-1.063B, between a 3.9% reduction to a 0.6% increase compared to the No-Action Alternative (Table 7-51, p. 7-199).	Considering hydropower costs and values, the average annual value of the four lower Snake River dams exceeds the average annual equivalent costs. The generation value at the four lower Snake River dams can be described by a range between the cost to replace the generation through new conventional resources or through a portfolio of zero-carbon resources. Although the costs of replacing the power with market purchases was analyzed, it is unlikely that short-term wholesale power markets could reliably replace the power for the long term. This range would put the annual value of power between $240 million and $500 million for the four dams combined. These numbers represent about 90 percent of the lost benefits cited in Table 3-171 of the Draft EIS because the four dams represent about 1,000 aMW of the 1,100 aMW of lost generation estimated in MO3. The average annual cost to operate and maintain all authorized purposes at the four lower Snake River dams is $75 million (Appendix Q, Table 5-1) and the annual-equivalent capital costs are $32 million (Appendix Q, Table 4-1). Hydropower costs funded by Bonneville represent about $50 million of the total annual operations and maintenance costs and nearly all of the annual capital costs, approximately $31 million. This puts the annual-equivalent power-specific costs at approximately $81 million a year. As a result, the net benefits from hydropower for the four lower Snake River dams are between $159 million and $419 million and the benefit-cost ratios are between 3.0 and 6.2. If the $34 million per year for the Lower Snake River Compensation Plan is added to the capital and expense costs, benefits still exceed costs under each replacement power scenario. Considering these costs, the net benefits range from $125 million to $385 million and the benefit-cost ratios range from 2.1 to 4.3. In the less-likely scenario that generation could be reliably replaced with short-term wholesale market purchases and assuming that the four dams represent 90% of the $150 million in market purchases required to replace the lost generation cited in MO3 (see Table 3-170), the lower bound for net benefits would fall to $54 million and the benefit-cost ratio would fall to 1.7. With the Lower Snake River Compensation Plan included, the lower bound for annual net benefits becomes $20 million and the benefit-cost ratio becomes 1.2. From a resource competitiveness perspective, the four lower Snake River dams are among the least costly generating resources in the Federal Columbia River Power System (FCRPS) and the planned investment strategy is expected to maintain that status. As shown in the Federal Hydropower presentation at the 2018 Integrated Program Review , the Headwater/Lower Snake Asset Class is forecast to have a 50-year levelized cost of generation of $11.41/MWh based on the direct funded capital and expense (O&M) programs outlined in that process. These costs remain competitive with volatile Mid-Columbia spot market energy prices which averaged $37/MWh in 2019 and have averaged $21/MWh in 2020. 1/The Integrated Program Review (IPR) allows interested parties to see and comment on all relevant Federal Columbia River Power System (FCRPS) capital and expense (O&M) spending level estimates in the same forum. The IPR occurs every two years, or just prior to each rate case, and is the public review for the costs that will be recovered through rates the following two-year rate period. Long-term forecasts for the next 50 years and major upcoming projects are also shared in this forum. This information is available here: https://www.bpa.gov/Finance/FinancialPublicProcesses/IPR/2018IPR/IPR%202018%20Fed%20Hydro%20Workshop.pdf and is incorporated by reference into this EIS. 2/In the 2018 Integrated Program Review, the Headwater/Lower Snake Asset Class consisted of the four lower Snake River dams, Hungry Horse, Libby, and Dworshak dams. These projects were grouped together because they have similar cost characteristics. The Levelized Cost of Generation for the four lower Snake projects alone is slightly lower than that for the whole class including the headwater projects shown in the table. 3/Levelized Cost of Generation is defined as the forecasted direct costs and administrative overheads of producing power at a plant annualized over a 50-year period. This cost includes direct funded operations, maintenance, administrative and capital costs as well as Columbia River Fish Mitigation (CRFM) costs. Bonneville systemwide mitigation costs, such as its Fish and Wildlife program, are not included in this metric.
31812	11	N/A	N/A	3) Economic Benefits: The DEIS does not fully capture the benefits of dam breaching, nor does it reasonably count the economic benefits of wild fish recovery, associated recreation and economic activity that LSR dam breaching would deliver. In particular, the DEIS recreation impact analysis: a) Declares that the unit day value method used was less accurate than preferred site-specific travel cost or contingent value approaches (p. 3-1880) but that the more detailed analysis was not possible under the timeline of the study.	Section 3.11.3.5 describes the potential for visitation in the lower Snake River post dam breach in the long-term. The EIS describes that the visitation in the lower Snake River, including rafting, kayaking, and recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting jobs, income, and tourism businesses. The social welfare values associated with this visitation were not estimated because of the uncertainty (and large range) in visitation and consumer surplus values among users. In addition, the timeline of the EIS precluded an extensive survey of post dam breach recreation.
31812	12	N/A	N/A	b) Emphasizes the loss of existing activity based on boat ramp data (p. 3-1177) quantitatively at reservoirs only and are described qualitatively for river reaches where dam breaching would improve recreational access and quality.	Visitation data included both reservoir and river locations, although the commenter is correct, that most of the existing conditions visitation data was associated with reservoirs. Section 3.11.2.2 describes gaps in the recreational visitation data. Data were not available for all sites, notably along river reaches. A quantitative analysis was undertaken to estimate the range in river-based visitation post dam breach in the long-term, based on previous analysis conduced for the 2002 Lower Snake River Juvenile Salmon Migration Feasibility Study and EIS and fishing visitation in similar river reaches.

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31812	13	N/A	N/A	c) Assigns monetary values to short-term lost recreation activity (p. 3-1222) amounting to 83% of visitor spending under the No-Action Alternative.	Losses in reservoir recreation, visitation, consumer surplus, and regional economic effects were estimated because data was readily available for the evaluation. The EIS Section 3.11.3.5 describes the potential for river-based visitation in the lower Snake River post dam breach in the long-term. The EIS describes that the visitation in the lower Snake River, including rafting, kayaking, and recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting jobs, income, and tourism businesses. The social welfare values associated with this visitation were not estimated because of the uncertainty (and large range) in visitation and consumer surplus values among users. In addition, the timeline of the EIS precluded an extensive survey of post dam breach recreation.
31812	14	N/A	N/A	d) Contains only qualitative estimates of fishing benefits, with no assigned monetary value: Fishing Activities, as well as other recreation types, would be considerably reduced in the short term during and immediately following breach, but could rebound in the long-term as anadromous fish populations improve. The largest increases in the number of Snake River salmon and steelhead are projected under MO3. Therefore, fishing for these anadromous species could increase in the long term relative to the No Action Alternative. The value of trips could also increase due to the increased abundance and diversity of wild fish. (p. 3-1214) The DEIS also notes new opportunities for land and water-based river recreation and possibly anadromous recreational fishing may offset visitation lossesand recreational opportunities may even increase in the long-term relative to the No-Action Alternative (pp. 3-1222 3-1223). But because the DEIS fails to assign monetary value estimates, the dam breach option does not have an assigned economic benefit.	The EIS evaluated beneficial and adverse effects across an array of resource areas including potential effects at the national, regional and local level; effects are monetized and quantified, where possible, and also described qualitatively. As is common in NEPA analyses, the beneficial and adverse effects of the alternatives are expressed as a variety of qualitative and quantitative environmental and economic metrics throughout the EIS to inform decision-making, including the effects of the alternatives on fish as detailed in Section 3.5. That the effects of the alternatives on fish are not expressed as monetized economic values does not mean that they were not considered in the context of the analysis. The EIS does not employ a cost-benefit framework for decision-making. Instead, the EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The EIS provides an evaluation of the social welfare and regional economic effects of the No Action Alternative and the multi-objectives alternatives, including the effects on recreation (Section 3.11) and fisheries (Section 3.15). The EIS described the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. NMFS estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which is described qualitatively. The potential for changes in recreational fishing of anadromous fish under MO3 in the Region C is described in Section 3.11. Increases in recreational fishing could support jobs, income, and social benefits in Tribal and rural river communities. For the effects on recreational fishing under MO3 (Section 3.11.3.5) along the Lower Snake River below Lewiston, the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River) as an indicator for fishing visitation in this reach. The EIS describes that the visitation in the long-term in the lower Snake River, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting outfitting and tourism businesses in the region. However, there is uncertainty around recreational fishing visitation in the long-term given the current measures to regulate, protect, and support ESA-listed fish populations and habitat in the region. The contribution of Columbia River origin fish to ocean fisheries is described in Section 3.15.2.1. Because there is considerable uncertainty regarding the overall effects of the alternatives on regional fish populations, and how such changes may affect the management of the fisheries, effects associated with changes in commercial and recreational fisheries under the alternatives were described qualitatively. This analysis evaluates potential effects on fisheries by referencing the potential effects on relevant fish populations, as described in Section 3.5.
31812	15	N/A	N/A	e) Entirely excludes the monetary value of post-dam breach salmon and steelhead fishing, based on claims that fishing value is limited by uncertainties related to Endangered Species Act restrictions, and because those estimates were excluded from the 2002 Final Lower Snake River Juvenile Salmon Migration Feasibility Report/Environmental Impact Statement by the Walla Walla District US Army Corps of Engineers (2002 FEIS) analysis that was used as the primary basis of this economic impact estimate for the breach option (p. 3-1219).	The EIS evaluated beneficial and adverse effects across an array of resource areas including potential effects at the national, regional and local level; effects are monetized and quantified, where possible, and also described qualitatively. As is common in NEPA analyses, the beneficial and adverse effects of the alternatives are expressed as a variety of qualitative and quantitative environmental and economic metrics throughout the EIS to inform decision-making, including the effects of the alternatives on fish as detailed in Section 3.5. That the effects of the alternatives on fish are not expressed as monetized economic values does not mean that they were not considered in the context of the analysis. The EIS does not employ a cost-benefit framework for decision-making. Instead, the EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The EIS provides an evaluation of the social welfare and regional economic effects of the No Action Alternative and the multi-objectives alternatives, including the effects on recreation (Section 3.11) and fisheries (Section 3.15). The EIS described the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. NMFS estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which is described qualitatively. The potential for changes in recreational fishing of anadromous fish under MO3 in the Region C is described in Section 3.11. Increases in recreational fishing could support jobs, income, and social benefits in Tribal and rural river communities. For the effects on recreational fishing under MO3 (Section 3.11.3.5) along the Lower Snake River below Lewiston, the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River) as an indicator for fishing visitation in this reach. The EIS describes that the visitation in the long-term in the lower Snake River, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting outfitting and tourism businesses in the region. However, there is uncertainty around recreational fishing visitation in the long-term given the current measures to regulate, protect, and support ESA-listed fish populations and habitat in the region. The contribution of Columbia River origin fish to ocean fisheries is described in Section 3.15.2.1. Because there is considerable uncertainty regarding the overall effects of the alternatives on regional fish populations, and how such changes may affect the management of the fisheries, effects associated with changes in commercial and recreational fisheries under the alternatives were described qualitatively. This analysis evaluates potential effects on fisheries by referencing the potential effects on relevant fish populations, as described in Section 3.5.
31812	16	N/A	N/A	f) Declares that the methods to estimate potential fishing visitors (comparing with fishing visits to Hanford Reach and Clearwater data) may considerably underestimate future recreation activity in the Lower Snake River.	For the effects on recreational fishing under MO3 (Section 3.11.3.5) along the lower Snake River below Lewiston, the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River) as an indicator for fishing visitation in this reach. The evaluation uses a potential range in non-fishing visitation from the 2002 Lower Snake River Juvenile Salmon Migration Feasibility Study and EIS. The EIS describes that the visitation in the long-term in the lower Snake River, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting jobs, income, and tourism businesses. The EIS Section 3.5.3.6 describes the long-term effects to anadromous fish migration in the Snake River and tributaries as major and beneficial. The EIS described the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. NMFS estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which is described qualitatively.
31812	17	N/A	N/A	g) Notes that rafting is a primary recreation interest in upstream reaches including Hells Canyon and Salmon River, but includes no discussion or valuation of the 63 historically named rapids that breaching the lower Snake River Dams would reveal. The DEIS also does not recognize the higher per-trip value of non-motorized boaters who would make up the bulk of post breach recreation. A 2019 report by ECONorthwest, Lower Snake River Dams Economic Tradeoffs of Removal, cites 15-115% greater per trip for whitewater recreation (p. 97) and a $228 per day recreational user value (p. 99).	Section 3.11.3.5 describes the potential for visitation in the lower Snake River post dam breach in the long-term. The EIS describes that the visitation in the lower Snake River, including rafting, kayaking, and recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting jobs, income, and tourism businesses. The social welfare values associated with this visitation were not estimated because of the uncertainty (and large range) in visitation and consumer surplus values among users. It is true that rafting would likely have a much higher consumer surplus value per day compared to other types of activities.
31812	18	N/A	N/A	h) Other than referencing the 2002 FEIS, the DEIS fails to evaluate or incorporate numerous published analyses of economic impacts related to dam breaching. Several studies by the Idaho Department of Fish and Game and others between 1996-2005 estimated the value of 8 a recovered fishery could be worth $148M for a single species to $342M for recovered populations of salmon and steelhead, up to $734M if direct and indirect benefits are included (summarized in Laughy, Linwood. The Economic Impact in Idaho of Snake River Salmon and Steelhead Fisheries, March 2020).	The EIS evaluated beneficial and adverse effects across an array of resource areas including potential effects at the national, regional and local level; effects are monetized and quantified, where possible, and also described qualitatively. As is common in NEPA analyses, the beneficial and adverse effects of the alternatives are expressed as a variety of qualitative and quantitative environmental and economic metrics throughout the EIS to inform decision-making, including the effects of the alternatives on fish as detailed in Section 3.5. That the effects of the alternatives on fish are not expressed as monetized economic values does not mean that they were not considered in the context of the analysis. The EIS does not employ a cost-benefit framework for decision-making. The EIS provides an evaluation of the social welfare and regional economic effects of the No Action Alternative and the multi-objectives alternatives, including the effects on recreation (Section 3.11) and fisheries (Section 3.15). The EIS described the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. NMFS estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which is described qualitatively. The potential for changes in recreational fishing of anadromous fish under MO3 in the Region C is described in Section 3.11. Increases in recreational fishing could support jobs, income, and social benefits in Tribal and rural river communities. For the effects on recreational fishing under MO3 (Section 3.11.3.5) along the Lower Snake River below Lewiston, the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River) as an indicator for fishing visitation in this reach. The EIS describes that the visitation in the long-term in the lower Snake River, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting outfitting and tourism businesses in the region. However, there is uncertainty around recreational fishing visitation in the long-term given the current measures to regulate, protect, and support ESA-listed fish populations and habitat in the region.
31812	19	N/A	N/A	The DEIS also considers, but then declines to assess non-use, also known as passive use values, of restored salmon and steelhead runs in the Columbia Basin. Other economic studies have shown strong passive use values associated with salmon recovery exist among Pacific Northwest residents. A 1999 study by John Loomis, Passive use values of wild salmon and free-flowing rivers, assigned non-use value of increased anadromous salmon and steelhead related to Snake River dam breaching between $66M and $879M, with an additional $420M in passive use related to the return of the lower	The EIS evaluated beneficial and adverse effects across an array of resource areas including potential effects at the national, regional and local level; effects are monetized and quantified, where possible, and also described qualitatively. As is common in NEPA analyses, the beneficial and adverse effects of the alternatives are expressed as a variety of qualitative and quantitative environmental and economic metrics throughout the EIS to inform decision-making, including the effects of the alternatives on fish as detailed in Section 3.5. That the effects of the alternatives on fish are not expressed as monetized economic values does not mean that they were not considered in the context of the analysis. The EIS does not employ a cost-benefit framework for decision-making. As described in the EIS, Section 3.15.2.2, "Best practices for benefit transfer identified in OMB Circular A-4 describe that meeting all criteria is difficult and that professional judgment is required in determining

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				Snake River to a natural condition. While acknowledging that passive use values could be considered, the DEIS instead summarily excluded these values, even though some passive use values were included in 2002 FEIS and they are commonly used elsewhere to benchmark economic estimates. The DEIS vaguely concludes instead that Given the limitations of the existing literature, this EIS does not include a quantitative benefit transfer of passive use values (DEIS p. 3-1322).	whether a particular transfer is too speculative (OMB 2003, 26). Given the limitations of the existing literature, this EIS does not include a quantitative benefit transfer of passive use values. This analysis acknowledges that the general public holds passive use values, and that the population that may experience social welfare benefits from increased salmon populations may be geographically far-reaching.
31812	20	N/A	N/A	A 2019 evaluation by ECONorthwest, Lower Snake River Dams Economic Tradeoffs of Removal, suggests a potential value of $1.04B in recreation benefits and an additional $10.97B non-use. Removing the Lower Snake River Dams will result in a net increase of $505 million in output, $492 million in value added, $408 million in labor income, and 317 average annual job-years. Within those totals, Spending from visitors in the area results in an increase of $179 million in total output, an increase of $104 million in total value added, an increase of $56 million in total labor income, and an increase of 49 average annual job-years (ECONorthwest p. 124). Since the DEIS assigns no dollar values to its qualitative analysis of fishing and recreation benefits, dollar values from Idaho Fish and Game studies, the ECONorthwest report and others should be considered as offsets against estimated negative financial impacts.	There are benefits and costs associated with operating the lower Snake River projects. The EIS evaluated beneficial and adverse effects across an array of resource areas including potential effects at the national, regional and local level; effects are monetized and quantified, where possible, and also described qualitatively. The EIS does not employ a cost-benefit framework for decision-making. This is consistent with NEPA guidance, which describes that the EIS should not be a cost-benefit analysis if there are important tradeoffs that are not quantified. Instead, the EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as the dam breaching alternative. However, the Preferred Alternative also meets most of the other objectives of the study for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. The EIS has a different charge than the ECONorthwest study. The ECONorthwest analysis and the EIS employ different analytical frameworks and rely on different findings with respect to the outcomes of breaching the four lower Snake River dams. The study used a very limited sample of 20 trips to the region. First, the ECONorthwest report applies a cost-benefit analysis framework, emphasizing monetization of all categories of impacts. Consistent with NEPA analysis frameworks, the EIS expresses beneficial and adverse effects across a variety of qualitative and quantitative environmental and economic metrics. That the effects of the alternatives on fish are not quantified as monetized economic values does not mean that they were not considered in the context of the analysis. Second, the findings of the ECONorthwest report that the benefits outweigh the costs of breaching the dams rely on the implicit assumption that breaching would result in restoration of salmon populations. The fish effects analysis in Section 3.5 of the EIS does not find that Multiple Objective alternative 3 would result in recovery of salmon or steelhead populations or in restoring the populations to historical levels. Thus, the values presented in the ECONorthwest report should not be considered as representative of the benefits of MO3. However, the results from the ECONorthwest study contribute to the overarching conclusion of Section 3.15.2.2 that describes that the literature consistently demonstrates that people hold passive use values for salmon.
31812	21	N/A	N/A	4) Energy and Power Impacts: The investments in energy conservation and carbon neutral replacement generation that could accompany LSR breaching would make the regions energy system stronger, more climate resilient, and contribute to broader sustainability in ways that the PA will not. As with other segments of the DEIS, the analysis of power replacement costs and ratepayer impacts associated with dam breaching are inaccurate and incomplete. The DEIS exaggerates the costs of replacement power, given the ongoing evolution of power markets and declining cost of emerging renewable and storage technologies, and omits additional available efficiency and demand side energy resources in the analysis of MO3s power replacement scenarios. Based on an unnecessarily narrow evaluation of energy replacement options and scenarios, excluding wind, solar-storage hybrids, and additional energy efficiency, the DEIS assigns a significant range of additional cost to power replacement related to lower Snake River dam breaching, from about $380M - $1.1B. Potential wind, energy efficiency, and storage resources are currently available and have steadily declined in cost. Studies by the Northwest Energy Coalition (NWEC) and others indicate that a realistic, forward projection of solar costs would allow replacement of generation from the lower Snake River dams at 15-30% less than the DEIS estimates. NWEC estimates that using a more accurate cost estimate for solar, storage, and other distributed energy resources would reduce the capital cost of replacement power by a quarter or more (NWEC DEIS comments p. 31). Incorporating an optimized and realistic, cost-effective replacement portfolio that includes more accurate cost assumptions for wind, solar, energy efficiency and storage investments would reduce projected replacement cost and rate impacts associated with lower Snake River dam breaching. Consequently, because the DEIS fails to provide accurate information needed to make an informed decision, a new and more rigorous study is warranted.	The EIS analyzed the effects on regional reliability if the four lower Snake River dams are breached as discussed under Multiple Objective Alternative 3 (MO3). To maintain regional power reliability at the No Action Alternative levels, the EIS found that additional replacement resources would be necessary. The EIS considered a range of resource portfolios to replace the output of the four lower Snake River dams. That range is reflected in two portfolios used to describe the potential resource options: a least-cost conventional portfolio (natural gas) and a zero-carbon portfolio (primarily solar). See Section 3.7.3.5, at 3-904-910 in the draft EIS. The costs of these resource portfolios were developed from the Northwest Power and Conservation Councils (Council) 7th Power Plan and Mid-Term Update. The purpose of providing the range of replacement resource options is to present a reasonable range in potential costs. See draft EIS Section 3.7.3.1, Step 3: Determine Need for Potential Replacement Resources and Associated Costs, at page 3-821 and Appendix H, Power and Transmission, at Section 2.2. The basis for developing these portfolios may be found in Section 3.7.3.1, Methodology, and for MO3 specifically, Section 3.7.3.5, Potential Replacement Resources and Associated Costs in the draft EIS. All cost effective conservation identified by the Councils 7th Power Plan is included in the load forecast. See Appendix H, Power and Transmission, Section 2.2, H-2-3 in the draft EIS. The comment mentions various renewable power resources and incorrectly states the EIS excluded these. The EIS acknowledges that the energy sector is constantly undergoing transformation and that technological improvements will likely bring other options; however, to avoid speculation, the EIS analysis focuses on primary technologies identified by the Council in their 7th Power Plan (7th Power Plan page 13-5) that are deemed proven, commercially available, and deployable on a large enough scale in the Northwest. See Section 3.7.3.1, Step 3: Determine Need for Potential Replacement Resources and Associated Costs, at 3-821 and Appendix H, Power and Transmission, at Section 2.2 in the draft EIS. The EIS also examined the use of storage technologies considered a long-term resource of the 7th Power Plan, but has become more commercially available since the release of the 7th Power Plan, and will likely now be considered a primary resource in the Councils 8th Power Plan. Wind generation was considered, but the EIS analysis found that solar was more cost-effective for lowering the LOLP. The MO3 potential replacement resource portfolio did include a combination of solar and storage. Regarding the potential for additional efficiency, the EIS included all cost-effective conservation identified by the Council in their 7th Power Plan, which is the current power plan. Cost effective conservation in the region would be acquired under Washington and Oregon law regardless of the status of the four lower Snake River dams. In addition, demand response was included in the renewables portfolio as a demand-side resource, consistent with the 7th Power Plan target. See Section 3.7.3.1, Demand Response Analysis for CRSO, at page 3-837 in the draft EIS. Conservation was not considered a potential resource replacement to avoid double-counting. As described in the draft EIS in Appendix H, Power and Transmission, and Section 3.7.3.5, the EIS considered the Northwest Energy Coalition study cited in the comment, but it is not directly comparable with the EIS for several reasons, including that the EIS has a broader scope and relies on more recent regional load and resource availability and costs data. See Section 3.7.3.1, Step 3, at 3-820; Section 3.7.3.5, Related Study, at 3-913; Appendix H, Power and Transmission, Section 2.4 in the draft EIS.
31812	22	N/A	N/A	These smart, available infrastructure investments would lead to a modernized, sustainable, net zero carbon energy system that doesnt drive wild salmon and steelhead to extinction. A revised system that integrates additional conservation and renewables with post-dam breach hydropower is healthier in the long run for its climate/carbon impacts, wild fish and natural river recovery, so that the investment in a more resilient system is worth it for a sustainable future. The DEIS omits maintenance and upgrade costs associated with leaving the lower Snake River dams in place. Based on typical 50-year maintenance cycles, 21 of 24 turbines would need upgrade or replacement; yet the cost of doing this maintenance/upgrade cycle, which could cost $1 billion or more, is omitted from both the No Action and Preferred Alternatives (NWEC DEIS comments, p. 55). Inclusion of these costs would also expand the differential between the breaching alternative, which would avoid upgrade and maintenance costs for lower Snake River dam turbines, and NA/PA in which those costs would be necessary.	All cost effective conservation identified by the Northwest Power and Conservation Councils Seventh Power Plan is included in the load forecast. Appendix H, Power and Transmission, Section 2.2, H-2-3 in the Draft EIS and more detail in the Final EIS. Under existing law, all cost effective conservation must be acquired regardless of the status of the Federal Columbia River Power System (FCRPS). Therefore, conservation was not considered a potential resource replacement to avoid double-counting. All capital and expense (operations and maintenance, O&M) costs for the four lower Snake River dams are included in the Draft EIS analysis. Under the Draft EIS analysis, Bonneville expects to fund approximately $47 million per year in capital and $53 million per year in expense totaling approximately $100 million per year for the four lower Snake River dams combined. Under MO3, the four lower Snake River dams O&M and capital investments were removed from Bonneville's costs before calculating rates. In the Draft EIS, please see Section 3.7.3.5, Table 3-166, and pages 3-920-924. These costs were also removed from MO3 under the Net Present Value analysis. For hydropower, the average annual value of the four lower Snake River dams exceeds the average annual equivalent costs. The generation value at the four lower Snake River dams can be described by a range between the cost to replace the generation through new conventional resources or through a portfolio of zero-carbon resources. Although the costs of replacing the power with market purchases was analyzed, it is unlikely that short-term wholesale power markets could reliably replace the power for the long term. This range would put the annual value of power between $240 million and $500 million for the four dams combined. These numbers represent about 90 percent of the lost benefits cited in Table 3-171 of the Draft EIS because the four dams represent about 1,000 aMW of the 1,100 aMW of lost generation estimated in MO3. The average annual cost to operate and maintain all authorized purposes at the four lower Snake River dams is $75 million (Appendix Q, Table 5-1 in the Draft EIS) and the annual-equivalent capital costs are $32 million (Appendix Q, Table 4-1 in the Draft EIS). Hydropower costs funded by Bonneville represent about $50 million of the total annual operations and maintenance costs and nearly all of the annual capital costs, approximately $31 million. This puts the annual-equivalent power-specific costs at approximately $81 million a year. As a result, the net benefits from hydropower for the four lower Snake River dams are between $159 million and $419 million and the benefit-cost ratios are between 3.0 and 6.2. If the $34 million per year for the Lower Snake River Compensation Plan is added to the capital and expense costs, benefits still exceed costs under each replacement power scenario. Considering these costs, the net benefits range from $125 million to $385 million and the benefit-cost ratios range from 2.1 to 4.3. In the less-likely scenario that generation could be reliably replaced with short-term wholesale market purchases and assuming that the four dams represent 90% of the $150 million in market purchases required to replace the lost generation cited in MO3 (see Table 3-170), the lower bound for net benefits would fall to $54 million and the benefit-cost ratio would fall to 1.7. With the Lower Snake River Compensation Plan included, the lower bound for annual net benefits becomes $20 million and the benefit-cost ratio becomes 1.2. From a resource competitiveness perspective, the four lower Snake River dams are among the least costly generating resources in the Federal Columbia River Power System (FCRPS) and the planned investment strategy is expected to maintain that status. As shown in the Federal Hydropower presentation at the 2018 Integrated Program Review1/, the Headwater/Lower Snake Asset Class/2 is forecast to have a 50-year levelized cost of generation/3 of $11.41/MWh based on the direct funded capital and expense (O&M) programs outlined in that process. These costs remain competitive with volatile Mid-Columbia spot market energy prices which averaged $37/MWh in 2019 and have averaged $21/MWh in 2020. 1/ The Integrated Program Review (IPR) allows interested parties to see and comment on all relevant FCRPS capital and expense (O&M) spending level estimates in the same forum. The IPR occurs every two years, or just prior to each rate case, and is the public review for the costs that will be recovered through rates the following two-year rate period. Long-term forecasts for the next 50 years and major upcoming projects are also shared in this forum. This information is available here: https://www.bpa.gov/Finance/FinancialPublicProcesses/IPR/2018IPR/IPR%202018%20Fed%20Hydro%20Workshop.pdf and is incorporated by reference into this EIS. 2/ In the 2018 Integrated Program Review, the Headwater/Lower Snake Asset Class consisted of the four lower Snake River dams, Hungry Horse, Libby, and Dworshak dams. These projects were grouped together because they have similar cost characteristics. The Levelized Cost of Generation for the four lower Snake projects alone is slightly lower than that for the whole class including the headwater projects shown in the table. 3/ Levelized Cost of Generation is defined as the forecasted direct costs and administrative overhead of producing power at a plant annualized over a 50-year period. This cost includes direct funded operations, maintenance, administrative and capital costs as well as Columbia River Fish Mitigation (CRFM) costs. Bonneville system-wide mitigation costs, such as its Fish and Wildlife program, are not included in this metric. Although the turbines at the four lower Snake River dams are between 41 and 50 years old and nearing their design lives, there are no plans for any immediate replacements. Investment decisions are driven by equipment condition, probability and consequence of failure and, as such, it is common for equipment to be in service well past its design life. For example, some turbine runners at McNary Dam will be over 70 years old by the time the replacement project is complete. Long-term planning analyses that calculate the optimal economic time to replace equipment based on current and expected equipment condition, probability of failure and outage consequence, point to the late 2030s as the earliest replacement dates for major powertrain equipment at the four lower Snake River dams. Most turbine replacements are forecast between the 2040s and 2060s, which would put the turbines at the four lower Snake River dams at about the same age at replacement as McNary. As described in Appendix H, Power and Transmission and Section 3.7.3.5, in the Draft EIS considered the Northwest Energy Coalition study cited by the commenter, but that study is not directly comparable with the EIS for several reasons, including that the EIS has a broader scope and relies on more recent regional load and resource availability and costs data.
31812	23	N/A	N/A	The DEIS also fails to properly evaluate power customers willingness to pay additional costs in order to recover salmon and steelhead. Studies of regional willingness-to-pay related to wild salmon recovery indicate a range that would support potential increases from dam removal ranging from $3.42-$7 per month (ECONorthwest p. 111). Although we believe the DEIS over-estimates potential rate increases, if necessary, the likely rate increases would fall within regional willingness-to-pay ranges, so represents a strength rather than a weakness of the dam breaching option.	Section 3.15.2.2 of the Draft EIS summarizes existing research regarding the publics willingness-to-pay for salmon conservation and restoration. This section specifically describes the ECONorthwest study referenced in this comment, highlighting the objective of the study and the approach to surveying rate payers to estimate willingness-to-pay for salmon restoration. The ECONorthwest analysis and the EIS employ different analytical frameworks and rely on different findings with respect to the outcomes of breaching the four lower Snake River dams. The findings of the ECONorthwest report that the benefits of salmon restoration outweigh the costs (increased power rates) of breaching the dams rely on the implicit assumption that breaching would result in restoration of salmon populations. However, the anadromous fish effects analysis in Section 3.5 of the Draft EIS does not find that MO3 would result in recovery of salmon or steelhead populations or restoring the populations to historical levels. Thus, the values presented in the ECONorthwest report should not be considered as representative of the benefits of MO3.
31812	24	N/A	N/A	5) Irrigation: Irrigation costs and impacts associated with dam breaching are inaccurate, because the DEIS ignores prior analysis from the 2002 FEIS, which concluded that irrigated agriculture could continue along the Snake River. One of the key points that underpins the approach taken in the DEIS regarding irrigated agriculture is that if the dams are breached (MO3), there will be no more agriculture on the 10 lands adjacent to the Snake River. However, the 2002 FEIS 1 by the same agency clearly found a viable path for continuing to irrigate these same lands. In 2002, the analysis found that an alternative, Option 32, could technically work and met the criteria desired by the analyst: operational prior to breaching of the Ice Harbor reservoir function through a full range of river stages without interruption able to handle a potentially large quantity of suspended sediment No reason is provided as to why something that was true in 2002 fails to be true in 2020. The only source given is conversations with several extension agents in Washington and Oregon. These conversations are without other reference such as date or even information regarding what was said. So, we are left to	In Region C (lower Snake River) and potentially Region D (mainstem Columbia River) around the confluence of the lower Snake River, the MO3 alternative, which includes breaching the earthen embankment of the four lower Snake River dams, would have adverse effects to farmers and irrigation. Currently and in the No Action Alternative, water is available from the pools of these facilities and from groundwater that results from the pools. Removing the earthen embankment portion of the dams will reduce pool elevations by up to 100 feet, which would make surface pumps inoperable. Groundwater pumps in the wells may also be affected due to decreased groundwater elevations depending on the connectivity of the aquifer to the pools. Municipal and industrial water pumps in the Lewiston area would also likely be adversely effected. Additionally, transportation of farming goods would expect to move off river and on to rail or trucks, as there would be a complete loss of commercial navigation on the lower Snake River and could not be feasibly mitigated. All ports along the Snake River would lose access to the navigation channel. Some ports at the confluence or the Snake and Columbia River could dredge new channels to the Federal channel in the confluence (McNary reservoir) to maintain access. Private or public entities or businesses could take actions and/or build infrastructure to extend pumps or water supply access for water. Ports and farmers can likewise change their transportation modes or connect to the navigation system at a different point on the river. The federal co-lead agencies would not mitigate for these impacts to water users or ports. See Chapter 3 analyzes the social and economic effects of implementing a dam breaching alternative (MO3) and Chapter 5 for mitigation discussion.

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				assume that these may be the same conversations mentioned in the 2002 FEIS where, under Farmland Value in Section 5.11, it states: This analysis based the determination of economic effects to irrigators under Alternative 4 Dam Breaching on a change in farmland values that would occur with elimination of the current water supply. Typical land values for farm properties near Ice Harbor were used. This information was compiled through discussions with farm managers, cooperative extension agents, farmland appraisers, agricultural economics professors, and the use of published enterprise budget sheets for a number of crops. In 2002 Appendix I, Economics, estimated that modifying the irrigation pumps in 1998 (Option 3) cost $291,481,000 and also estimated the land value at $127,940,000. The conclusion was that private landowners would not pay for modifications. American Rivers supports the continued irrigation of these lands and will support including the costs to modify the irrigation systems while the lower Snake River is restored. We believe solutions can be found that meet the need for salmon and people for a restored river, and for farms to continue to irrigate their land from that same river.	This EIS discusses engineering solutions, including pipeline extensions, in Section 3.12.3. MO3, Region C discussion begins on page 3-1267 line 3244 in the Draft EIS and is also found in Appendix N. The EIS draws upon the 2002 Lower Snake River Juvenile Salmon Migration Feasibility Report and Environmental Impact Statement which concluded that modifying the existing pump system was cost prohibitive. In Region C, under the MO3 alternative this analysis accordingly concludes that pumps are unable to deliver water to an estimated 48,000 acres.
31812	25	N/A	N/A	6) Transportation: The DEIS analysis of transportation impacts from dam breaching is incomplete and overestimates costs to replace current barge-based agricultural commodity shipping. Throughout the DEIS the analysis is limited. Key points and prior analysis by the USACE and others are missing. Overall, there is not adequate consideration of the benefits of dam breaching to the region, nor a close look at solutions and mitigation measures that can cost 1 Lower Snake River Juvenile Salmon Migration Feasibility Study, Final Feasibility Report and Environmental Impact Statement, 2002. US Army Corps of Engineers, Walla Walla District. 2 2002 FEIS, Appendix D, Natural River Drawdown Engineering and Technical Appendix D, Existing Systems and Major System Improvements Engineering. effectively replace services provided by the four lower Snake River dams. Similar deficiencies are present throughout the DEISs transportation analysis.	The EIS evaluated beneficial and adverse effects across an array of resource areas including potential effects at the national, regional and local level; effects are monetized and quantified, where possible, and also described qualitatively. As is common in NEPA analyses, the beneficial and adverse effects of the alternatives are expressed as a variety of qualitative and quantitative environmental and economic metrics throughout the EIS to inform decision-making. The EIS does not employ a cost-benefit framework for decision-making. Instead, the EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. Under MO3, construction of new infrastructure to replace the lost purposes of the existing infrastructure or to mitigate for the loss of Federal benefits was considered where there are existing Federal authorities. However, in order to regain the full benefits of these lost Federal services, the co-lead agencies identified mitigation measures that are outside the authority of the co-lead agencies that would need to be taken by other entities to alleviate the loss associated with de-authorization of Federal projects.
31812	26	N/A	N/A	The analysis of the impacts under MO3 in Appendix L, Navigation and Transportation, appears to rely on a belief that there are not significant opportunities for additional investments in rail infrastructure which could increase rail capacity.	The navigation analysis does not provide a position on investment opportunities, but attempts to describe when infrastructure investments may be needed. Ultimately, rail infrastructure investments would be at the discretion of the railroads.
31812	27	N/A	N/A	The DEIS focuses on the present and on limitations. But what is limited in 2019 where commenters have further stated it is difficult to secure a unit train on short notice (L-3-14, comments of Idaho Cooperating Agencies, December, 2019) becomes possible when public investment shifts from maintaining an aging system of locks and barges, and towards further investment in rail infrastructure. Wheat farming existed in the Inland Northwest prior to the construction of the four lower Snake River dams, and farming will continue to thrive after the dams are breached. When the four lower Snake River dams and their barge transport system were put in place between 1962 and 1981, farmers moved from shipping via rail to using either rail or barge, based largely on price and location. The existing rail system in the region declined, grain elevators were abandoned or removed, tracks were either left to degrade or were removed. Those are investments that can be made again. We support transportation improvements that give farmers options for shipping.	The EIS finds that transportation of freight that is currently barged on the lower Snake River could be accomplished via other transportation modes, but this change would not be without costs to farmers, would require public and private investment in infrastructure, and would result in some adverse regional economic effects, particularly in the short term.
31812	28	N/A	N/A	In the area of transportation, the DEIS falls short in key ways: The DEIS ignores a rail line, the WATCO-Union Pacific line from Lewiston to Lyons Ferry. This is a primary alternative for grain shipping. This, and the lack of information regarding Washington States Grain Train and transportation plans, is a surprising oversight.	The choice to limit those types of movements in modelling assumptions was after consultation with grain shippers and WATCO. The Great Northwest Railroad, owned by WATCO, is a short-line railroad that runs along the Snake River from Lewiston, ID, to Ayer Junction, WA. Research conducted as part of the EIS suggested that elevator to river port movements via short line rail are not currently occurring because in order for them to ship grain to river terminals on the Columbia, they must operate on part of Union Pacific's rail line and WATCO's operating agreement with Union Pacific does not allow for these shipments. The effect of including this assumption and allowing movements on these short lines during a breach scenario would be to somewhat reduce the anticipated increases in shipping costs to shippers. Information has been added to Appendix L that describes the impacts of modifying this assumption on quantified costs to shippers. The EIS also discusses the potential for rail car shortages. The Washington State's Grain Train was not mentioned in the EIS but could be used to partially address these potential rail car shortages.
31812	29	N/A	N/A	The DEIS should have included data and information from relevant reports on transportation, among them: Washington State Department of Transportation (WSDOT)s 2019 Draft Rail Plan 2019 2040 WSDOTs 2017 2017 2027 Grain Train Strategic Plan WSDOTs 2015 Palouse River and Coulee City Rail System Strategic Plan WSDOTs 2015 Short Rail Line Rail Inventory and Needs Assessment	Assumptions made in the EIS and within the transportation optimization model are informed by plans released by WSDOT. In particular, a discussion with several experts at WSDOT is cited in Section 3.10.3.2 in which WSDOT provided input on the future of the Palouse River and Coulee City Rail (PCC), which are also presented in the WSDOT 2019 Draft Rail Plan. Additional insights into the capacity of Eastern Washington's short line capacity were also provided by WSDOT that informed the EIS.
31812	30	N/A	N/A	The DEIS assumption that barge volume will decrease substantially on the Columbia River is faulty. It would make sense to consider expansion at the Port of Pasco with barge transport originating there. The 2002 FEIS assumed that this would happen and that grain transport would shift to the Tri-Cities. This would reduce rail miles and shipping costs. Expanding rail to the Port of Pasco for grain shipment should be fully explored, starting by updating the earlier analysis in the 2002 FEIS by the Corps.	The EIS does not assume that all freight will cease to travel on the Columbia-Snake Navigation system under MO3. As described in the Summary of Effects Section for MO3 under Section 3.10.3.5, navigation operations would continue for the Columbia Shallow and Deep Draft portions of the Columbia Navigation Channel. The river ports still operating on the Columbia River will likely experience a large volume increase from commodities arriving via rail and/or truck. The outcomes of the flows that end up on the Columbia River terminals are the product of all shippers in the area minimizing transportation costs. Expansion of rail facilities is outside of the authorities of the co-lead agencies, and such an effort would need to be undertaken by others.
31812	31	N/A	N/A	The DEIS measures truck trips not by miles but by each trip leaving the farm. The most immediate and noticeable impact comparing the No-Action Alternative to MO3 is that the number of truck trips going to the river ports decreases by 80,086 trucks as farmers now choose the next least cost option, which would be shuttle rail under Scenario 1. 12 That would result in an additional 46,638 trucks going from the farm to elevators with rail access instead and an additional 32,495 trucks to elevators with rail access and an additional 892 trucks going from the farm to elevators without rail access. Also, under Scenario 1, an additional 498 truck trips would occur for trans-shipments between elevators without rail to those with rail that didnt occur under the no-action scenario. The net additional trips under Scenario 1 is 13,515 truck trips compared to the No Action Alternative. Given the distance of many farms to the river ports, and the location of rail elevators, and the potential to add elevators with an expanded rail system, we recommend an analysis that looks at miles driven rather than truck trips so decision makers and the public have an accurate understanding of impacts.	Both truck trips and miles are calculated and reported in Section 3.10.3.5. The Commercial Navigation and Transportation subsection provides a total estimate ton-miles by transportation mode, and the Highways and Highway Congestion section under the Regional Economic Effects provides additional information about number of truck trips by origin and destination.
31812	32	N/A	N/A	Changes to the current rail infrastructure seem likely to occur and that this be analyzed to understand the true benefits, costs and impacts: more elevators will be built, connected by rail lines, especially in places that once had more rail and more grain elevators. This is happening today and the trend is likely to continue. Such upgrades of elevator and rail infrastructure may mean that fewer truck miles are driven, and that rail options become increasingly available for transportation of agricultural commodities to market. If public investments are shifted from maintaining an aging barge/lock system and to rail that includes public or farmer-cooperative owned rail, the result may be good options at fewer miles driven.	The EIS finds that transportation of freight that is currently barged on the lower Snake River could be accomplished via other transportation modes, but this change would not be without costs to farmers, would require public and private investment in infrastructure, and would result in some adverse regional economic effects, particularly in the short term.
31812	33	N/A	N/A	An assumption is made that grain shipped on the Columbia will drop from 65% to 32% of all grain shipped with no explanation why. It seems reasonable to assume, just as the 2002 FEIS did, that under MO3 grain would arrive at the Tri-Cities via rail or truck and loaded onto barges from there, and that grain that originates farther from the river is likely to continue on via rail to lower Columbia ports.	The figures cited by the commenter are the results of the modeling effort, rather than any assumption. As such, this is what is predicted to happen when grain shippers choose the least cost of moving grain to market under each alternative.
31812	34	N/A	N/A	The DEIS assumes that all grain shipped on the river arrives via truck but this conflicts with assumptions in the 2002 FEIS. It seems reasonable to analyze how much grain can also arrive via train to the Tri-Cities. This impacts the costs and the overall truck miles and if it was deemed viable in 2002 it should be considered. The 2020 model assumed that all grain loaded onto a rail car would continue to Portland via rail yet in 2002 it was assumed that grain would also be shipped from the Tri-Cities.	The regulations on Class I railroads related to Positive Train Control are different today than they were in 2002, which prevents shortlines from operating on the Class I lines.
31812	35	N/A	N/A	The transportation model assumes that there will be no expansion of rail lines (and in fact, overlooks a rail line.) In the years since the publication of the 2002 FEIS there has been public and private investment in short rail and increased options and shuttle facilities. It is reasonable to assume that this trend will continue and that rail will be more available, especially if the removal of barge past Pasco makes investment in rail for grain transport more appealing.	Given that it is the Class I railroads that decide where they will invest in their infrastructure and when, there was no reasonable process for predicting how and where they choose to invest to maximize profits on a national rail network that moves far more products than wheat from the northwest. Research conducted as part of the EIS suggested that elevator to river port movements via short line rail are not currently occurring because in order for them to ship grain to river terminals on the Columbia, they must operate on part of Union Pacific's rail line and WATCO's operating agreement with Union Pacific does not allow for these shipments. The effect of including this assumption and allowing movements on these short lines during a breach scenario would be to somewhat reduce the anticipated increases in shipping costs to shippers. Information has been added to Appendix L that describes the impacts of modifying this assumption on quantified costs to shippers.
31812	36	N/A	N/A	The 2002 Final Lower Snake River Juvenile Salmon Migration Feasibility Report/Environmental Impact Statement by the Walla Walla District US Army Corps of Engineers (2002 FEIS) stated that It is judged possible that additional transportation capacity could be made available with no significant increase in unit cost 3 yet the 2020 DEIS failed to fully consider or update this analysis. It also failed to analyze a surprising finding of the 2002 FEIS, that the current transportation is NOT the least cost option. Transportation was analyzed in the 2002 FEIS and the USACE found solutions that would allow grain transportation once the four lower Snake River dams were breached. Their solution was a mix of improved rail capacity and expanded grain storage at the Tri-Cities.	The general findings of the 2002 and current EIS are consistent. The current EIS reviews likely transportation scenarios under MO3, which includes breaching the four lower Snake River dams, using a transportation optimization model, and finds that a mix of transportation options, including rail, truck, as well as barge below Ice Harbor Dam, are likely.
31812	37	N/A	N/A	The 2002 FEIS discovered while modeling transportation costs that the existing system wasnt the least cost. They stated there wasnt enough time to analyze that further but this should have been looked at in the DEIS: A fundamental assumption made for this analysis is that the existing transportation of grain represents the least-cost condition. Therefore, it was assumed that the cost of all movements of grain with dam breaching should be at least as costly as under the base condition. Actual operation of the model, however, showed that this was not the case. The model results showed that a number of grain movements were found to be less costly with dam breaching than with the existing transportation system. (Emphasis added.)4	This EIS relies on more up to date information regarding shipping rates and conditions than were included in the 2002 EIS. Going shipping rates were estimated using a new survey of shippers, and used as the basis of the transportation optimization model.
31812	38	N/A	N/A	The 2002 analysis should have been the starting point for the DEIS in order to build on the earlier work, particularly the sections we provide below: If dam breaching were to occur, the Tri-Cities area would become the alternate port area.5 The FEIS goes on to estimate the costs to range from $58.7-million to about $335.4 million depending on the type of facility and capacity added at Pasco. These estimates included rail and access roads. The 2002 FEIS also estimated that there were sufficient country elevators to shift grain from the Snake River but that improvements to loading facilities and railcar handling tracks would be needed. (Appendix I, I3-109) The 2002 FEIS considered whether it made sense to maintain the river ports, and add rail from them to the Tri-Cities, It would be appropriate to consider converting some of the existing 12 river elevators (which handled over 100-million bushels of grain in 1998) to railroad loading facilities that would then ship grain by rail to the Tri-Cities.6 They believed this had the potential of being less costly than other approaches. The 2002 FEIS found that while there may need to be some rail upgrades, they also found that concerns about railroad pricing may	The general findings of the 2002 and the current EIS are consistent. Infrastructure costs were developed based on input from local stakeholders, as well as published reports including the 2002 Lower Snake River Feasibility Study/EIS (2002 EIS), and the 1999 Lund Report. Please refer to Section 3.10.3.5 and that sections discussion of infrastructure costs.

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				not be accurate. While some specific route segments might require substantial incremental expenditures to accommodate additional traffic, the adverse rate effects of these expenditures would be largely offset by the efficiencies gained through expanding the capacity of related route segments. At 3 2002 FEIS, Appendix I, I3-88 4 2002 FEIS, Appendix I, I3-90 5 2002 FEIS, Appendix I, I3-89 6 2002 FEIS, Appendix I, I3-89 14 least in the case of the diversion of lower Snake River traffic, concerns regarding terminal congestion and the adverse effects this congestion may have on railroad pricing are unfounded. 7	
31812	39	N/A	N/A	7) Sediment: Sediment related impacts from dam breaching are overstated in the DEIS and could be reduced through potential mitigation strategies. a) The DEIS suggests sediment from breaching would degrade conditions between 2-7 years following the deconstruction. However, the study does not adequately contextualize the volume of sediment that would potentially mobilize in comparison to the receiving waters of both the Snake and Columbia rivers and their capacity for handling a short-term increased sediment load. In their guidelines for assessing sediment for dam removal consideration, the Federal Interagency Advisory Committee on Water Information Subcommittee on Sedimentation, led by the U.S. Bureau of Reclamation, acknowledges that the probability of sediment impact is based on the relative reservoir sediment volume (small, medium, or large). The relative reservoir sediment volume is based on the ratio Ts, which represents the years of upstream sediment supply trapped within the reservoir. The years of trapped sediment is representative of the reservoir sediment volume and the rivers capacity to transport it. Additionally, studies analyzing sediment transport following the removal of dams like the Marmot Dam on Oregons Sandy River indicate sediment transport and distribution can happen much more quickly, with sediment redistributed in the first year the river recovering its pre-dam conditions and most sediment redistributed in 2-3 years. Sediment quality and chemical components may be more of a concern than in the Sandy River, but the distribution time could be far less than estimated. The Condit Dam on the White Salmon River in Washington impounded 2.3 million cubic yards of sediment. When considering sediment management alternatives, the project investigators weighed the long-term gains against short-term impacts to aquatic species, as well as the capacity of the receiving waters to transport the sediment. The final 401 water quality certification indicated that the project would cause brief exceedances of water quality criteria in the White Salmon River and the Columbia RiverHowever, dam removal will provide permanent benefits to fish, other aquatic life, and recreational uses. The U.S. Fish and Wildlife Service found salmon redds upstream of the Condit Dam within one year of the dams demolition. The DEIS also assumes passive transport of all sediment available behind the dams. It does not acknowledge that moving forward with a dam breach alternative would analyze a number of sediment management and mitigation alternatives, including but not limited to mobilizing sediment behind the dams in consideration. The discussion of sediment in MO3 focuses almost exclusively on impacts to aquatic species if sediment were released and does not consider the current impacts of sedimentation to 7 2002 FEIS, Appendix I, I3-105 habitat within the dam impoundments and the flood risk associated with the reservoir sediment deposit behind Lower Granite Dam under the other alternatives. Full consideration of the dam breach alternative should account for the benefits associated with re-establishing a more natural sediment transport regime, including the restoration of habitat within the former impoundments that would result from the clearing of fine sediment from those impoundments	The formulation of the MO3 measure for drawdown and embankment removal plan for the four lower Snake River dams mirrored that developed in the 2002 Lower Snake River FR/EIS. This plan includes incremental reservoir drawdowns prior to breaching combined with the stepped approach of embankment breaching which are specific best management practices intended to reduce suspended sediment and turbidity in the lower Snake River under MO3. There is approximately 180 million cubic yards (Mcy) of sediment retained behind the four lower Snake River dams, that has accumulated over the last 59 years since Ice Harbor Dam was completed in 1961. This is nearly 80 times greater than the sediment behind Condit Dam on the White Salmon River in Washington. Sediment-related impacts for the MO3 Breach Snake Embankments plan were estimated using numerical modeling to simulate erosion, transport, and deposition in the Snake and Clearwater Rivers, as well as the McNary reservoir pool as detailed in Appendix C.3.4. Similar to the 2002 FR/EIS, this analysis approach was utilized to estimate reservoir erosion rates, downstream concentrations, and deposition-induced flood risk in response to drawdown and bypass of the four lower Snake River dams. Modeling predictions of dam breach sediment processes are inherently probabilistic due to the rapidly varied hydraulics and complex interactions that effect both sediment supply and sediment transport capacity. If MO3 is identified as the selected alternative in the ROD, the co-lead agencies would further study the potential impacts and refine the elements of the removal plan (means, methods, and timing) as well as implementation measures to insure that suspended sediment and turbidity were appropriately mitigated in accordance with applicable laws and regulations. Immediately following removal of the four lower Snake River embankments, rapid scouring of sediments within the active Snake River channel was predicted to result in an annual deposition rate in McNary reservoir between 8.6 and 12.0 Mcy/year depending on watershed hydrology for the near-term response period with an approximate gradation of 4/5 fines (silt and clay) and 1/5 sands. The McNary reservoir trap efficiency for the legacy dam deposit loading averages 40% for clay, 82% for silts, and 100% for sands. In the following long-term period, the average annual deposition rate in McNary reservoir is predicted to equilibrate and average 2.3 Mcy/year, as watershed sediment yield that had previously been retained in Lower Granite reservoir would now be routed downstream. The approximate gradation of this material is 2/3 silts and 1/3 sands. The McNary reservoir trap efficiency for the long-term watershed sediment load averages 4% for clay, 64% for silts, and 100% for sands. Total depositional volume of these sediments was compared with the McNary reservoir volume to determine the percentage of infill due to increased sediment loading under the MO3 Breach Snake Embankments measure. Sediment loading associated with the initial removal and near-term response period was estimated to reduce the McNary reservoir volume less than 2%; over the following years, the long-term sediment loading was estimated to incrementally reduce the reservoir volume an additional 0.2% per year. Regarding sedimentation impacts to flood risk upstream of Lower Granite Reservoir. The four lower Snake River dams are not authorized for flood risk mitigation and there is no elevated risk to flooding in the lower Snake River reach for any of the EIS Alternatives. Furthermore, the Walla Walla District (Corps) constructed eight miles of levees around Lewiston as part of the Lower Granite project to help protect lives and property from potentially destructive high-water conditions after the dams were built. Unlike freely flowing channels, in Lower Granite Reservoir the forebay elevation at the dam controls the energy grade-line of the water surface, and the reservoir is drawn down during high water events to ensure water levels remain low. The most recent dredging in the Lewiston area, has been to maintain a 14-foot depth in the navigation channel, as discussed in the 2014 Programmatic Sediment Management Plan. Dredging outside of the navigation channel limits to maintain conveyance capacity has not been conducted since 1992. Dredging for channel conveyance capacity would only occur in the future if there were an observed accelerated rate of sediment accumulation and a heightened risk of levee overtopping, which does not appear to be the current trend.
31812	40	N/A	N/A	b) The DEIS provides little discussion on the fact that MO3 is the only alternative that would result in marked improvements to lethally warm water temperatures. Unimpounded flowing water is better able to maintain cooler water temperatures necessary for increased survival of native riverine aquatic life. Water quality improvements need to be considered as part of the alternatives analysis.	All EIS alternatives were analyzed using the same methodology. Water temperature results can be found throughout Section 3.4, Chapter 7, and the Water Quality Appendix D. Regarding water temperatures in the lower Snake River, it is well known that reservoirs create a lag in the thermal response to environmental conditions, leading to colder conditions in the spring and warmer conditions in the fall as compared to unregulated systems. Breaching the dams would reverse these effects. Under a dam breach scenario, spring water temperatures will warm more quickly than No Action conditions. Similarly in the fall, under a dam breach scenario, fall water temperatures will cool more quickly than No Action conditions. These results make logical sense and are supported by results from CRSO EIS numerical water quality modeling. What has surprised some stakeholders are the predicted summer water temperature effects under dam breaching. Many believe that removing the dams will result in colder water temperatures as compared to the No Action Alternative. While some cooler water temperatures may be observed in the summer under dam breaching, especially during cooler summer weather conditions and at night, water temperatures will remain warm and exceed the state water quality standard at times. This is because without the dams, the lower Snake River will be shallower and more susceptible to solar radiation and warming. Increases in water particle travel time are expected, but the lower Snake River has always been a warm system (USGS 1960, 1961, 1964; Corps 2002a) and breaching the dams will not change this fact.
31812	41	N/A	N/A	8) Cultural Resources: The DEIS emphasizes risk and potential degradation to cultural resources in the dam breaching alternative and fails to recognize significant cultural benefits that a natural river would restore. Functioning natural rivers are and have always been at the heart of Pacific Northwests culture. The restoration of natural conditions in the lower Snake River through dam breaching represents an unparalleled opportunity to expand cultural opportunities, for both tribal and non-tribal communities, yet the DEIS fails to recognize or give sufficient value to the cultural value of lower Snake River restoration.	The co-lead agencies have defined cultural resources as property-based and composed of three sub-categories: archaeological sites, traditional cultural properties (TCPs), and the historic built environment. In regards to these cultural resource property types, the co-lead agencies disagree the Draft EIS omits the positive or beneficial effects of breaching the four lower Snake River dams to cultural resources. Section 3.16.3.6 discusses impacts from the MO3 to the cultural resources property types, to include TCPs. In the Draft EIS, lines 7054-7060 describe the benefits of the alternative on TCPs, such as increased access to the river and the ability to experience the river in a pre-inundation condition. The co-lead agencies state in the Draft EIS on page 3-1388, "In the long term, this would be expected to have a beneficial effect to TCPs." Within many of the resource analysis areas in Chapter 3, a specific section is provided to explicitly consider tribal interests, including the effects of MO3. Please see in the Draft EIS Sections 3.3.4, 3.4.4, 3.5.4, 3.6.4, 3.7.4, 3.8.4, 3.9.5, 3.10.4, 3.11.3.7, 3.15.4 and lines 3911-12 in Section 3.13.3.4.
31812	42	N/A	N/A	The DEIS emphasizes risk, primarily in the exposure and erosion potential of various alternatives on archeological sites and Traditional Cultural Properties, the latter encompassing both historic and modern features in the built environment, including the dams themselves. It downplays or omits the benefits of restored natural river conditions that would result from breaching.	The co-lead agencies have defined cultural resources as property-based and composed of three sub-categories: archaeological sites, traditional cultural properties (TCPs), and the historic built environment. The co-lead agencies do not consider Traditional Cultural Properties as encompassing historic and modern features in the built environment. The co-lead agencies disagree the Draft EIS omits the positive or beneficial effects of breaching the four lower Snake River dams to cultural resources. Section 3.16.3.6 discusses impacts from MO3 to the cultural resources property types, to include TCPs. In the Draft EIS, lines 7054-7060 describe the benefits of MO3 on TCPs, such as increased access to the river and the ability to experience the river in a pre-inundation condition. The co-lead agencies state in the Draft EIS, on page 3-1388, "In the long term, this would be expected to have a beneficial effect to TCPs." The cultural resources impact analysis does not compare impacts or benefits from the alternatives on the other resources analyzed in this EIS. Within many of the resource analysis areas in Chapter 3, a specific section is provided to explicitly consider tribal interests, including the effects of MO3. Please see in the Draft EIS Sections 3.3.4, 3.4.4, 3.5.4, 3.6.4, 3.7.4, 3.8.4, 3.9.5, 3.10.4, 3.11.3.7, 3.15.4 and lines 3911-12 in Section 3.13.3.4.
31812	43	N/A	N/A	MO3 analysis assigns potential major adverse impacts to dam breaching associated with exposure of 14,000 acres now covered by lower Snake River reservoirs, citing the example of a 2014 drawdown at Wanapum Dam as an example. The DEIS suggests the major impacts would be potential erosion damage, threats of looting and casual collection of artifacts (p. 3-1386), and a 915% increase in acre-days of exposure, using the spatial extent of Lower Granite dams reservoir as a proxy for the lower Snake River area (pp. 3-164-5, 3-1383).	The co-lead agencies acknowledge this comment is an accurate reflection of the cultural resources impact analysis of Multiple Objective alternative 3 as provided in Section 3.16.3.6 in the Draft EIS.
31812	44	N/A	N/A	The benefits of additional tribal access and restored cultural use are referenced, but given little weight as benefits. The notion of tribal use is mentioned in a footnote in analysis of exposure, (p. 3-1378) stating that short term risk is expected to shift to beneficial effects in the period after (breaching) due to increased access to these properties by tribal communities. And later, Restoration of a natural river would allow tribal communities that attach importance to those areas to access them and, in the long term, experience the river as it was prior to inundation (p. 3-1388). The analysis notes that 293 archeological sites encompassing 2,125 acres exist within the lower Snake reservoirs (p. 3-1383), and that 16 based on improved survey techniques would likely expand to over 500 sites after breaching (p. 3-1387).	The co-lead agencies have described the effects of the alternatives using the best available information. The co-lead agencies did not conduct a comparative analysis of impacts and benefits between cultural resource types, nor did they attempt to impose values on different resource types or effects for weighting purposes. Instead, the cultural resources impact analysis compared the impacts between the alternatives on the three different types of cultural resources: archaeological sites, Traditional Cultural Properties, and the historic built environment. The summary of effects for each Multiple Objective in Sections 3.16.3.3 through 3.16.3.7 addresses impacts to each property type equally.
31812	45	N/A	N/A	The summary of effects acknowledges that exposure of Traditional Cultural Properties would allow resumption of some traditional uses that have not been possible since the dams were built, and this is viewed as a beneficial effect but continues to note that the partial removal of dams would be major effects to these built resources and would reduce their historic value (p. 3-1391). The DEIS acknowledges that MO3 was specifically identified by several tribes as preferable and Most tribes support breaching the four lower Snake River dams...as it represents the only alternative that substantially attempts to restore the river to a more natural environment and some could interpret dam breaching as a meaningful milestone in salmon restoration efforts (p. 3-1414). Exposure of the currently inundated area represents an extraordinary opportunity for people to reconnect with the land and river, one in which public agencies would need to play a significant management role. Any serious strategy to restore natural river conditions in the lower Snake River would include plans for ecological restoration, as well as management of access and measures to protect significant cultural sites and resources. The DEIS fails to consider such restoration plans and protection as elements of its mitigation strategies, and in doing so fails to recognize both federal agencies responsibility in post-breaching land management and the significant cultural value that breaching would offer.	The co-lead agencies disagree the Draft EIS omits the positive or beneficial effects of breaching the four lower Snake River dams to cultural resources. Section 3.16.3.6 describes effects from MO3 to the cultural resources property types, including Traditional Cultural Properties (TCPs). In the Draft EIS, lines 7054-7060 describe the benefits of the alternative on TCPs, such as increased access to the river and the ability to experience the river in a pre-inundation condition. The co-lead agencies state on page 3-1388 in the Draft EIS, "In the long term, this would be expected to have a beneficial effect to TCPs." The co-lead agencies also respectfully disagree the Draft EIS fails to consider protection as part of mitigation strategies for impacts to cultural resources. Section 5.4.3.8 in the Draft EIS describes activities the co-lead agencies would undertake for cultural resources under MO3. These activities include: increased law enforcement patrols, reservoir bank stabilization, data recovery, protective signage, reseeding of exposed areas, and a public outreach campaign to deter looting. The measure to breach the four lower Snake River dams was not included in the Preferred Alternative identified in the Draft EIS.
31812	46	N/A	N/A	9) Environmental Justice: The DEIS downplays or dismisses the significant, disproportionate negative Environmental Justice impact that continued operation of lower Snake River dams and reservoirs imposes upon tribes and downplays the restorative justice value of a natural river. In its analysis of Environmental Justice (EJ) impacts, the DEIS claims that changes to vegetation and wildlife associated with dam breaching would be adverse, including the potential to adversely affect plants used for ceremonial and subsistence gathering activities by tribal communities although in the long term, following re-establishment of vegetation, target species are expected to return and be available be available for traditional hunting and trapping activities. Still, the DEIS considers the EJ effect related to vegetation to be minor with no disproportionately high and adverse effects on minority, low income or tribal people (p. 3-1428).	The commenter is concerned that the Environmental Justice analysis downplays the restorative impacts and value of a naturally flowing Lower Snake River. In particular the commenter is concerned that the Draft EIS finds no disproportionate impact to minority, low income, or tribal people as a result of adverse effects of the alternatives on vegetation including plants used for ceremonial and subsistence gathering activities, The commenter is correct that the Draft EIS (Section 3.18.3.2) finds that effects on minority, low-income and tribal populations related to vegetation, wildlife, wetlands and floodplains would be minor under MO3 after reestablishment of vegetation; this is due to the expected magnitude of the effects of the Alternatives relative to the No Action Alternative.
31812	47	N/A	N/A	On fish, the EJ analysis emphasizes short term adverse effects to most species but then acknowledges that long-term increases in abundance in anadromous species due to dam breach are expected to occur, particularly Snake River runs of Chinook salmon and steelhead. And that All species of salmon and steelhead are culturally important to Indian tribes and increased salmon and steelhead returns could result in a major beneficial change. It notes potential adverse impact to resident fish harvest that would adversely impact opportunities for tribes, low income and minority subsistence fishers (p. 3-1460)	The comment is consistent with the Environmental Justice analysis presented in the Draft EIS.

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31812	48	N/A	N/A	The EJ section acknowledges that return of this portion of the Snake River to riverine conditions would allow practitioners of traditional lifeways the chance to return to locations that have been inaccessible for decades, a benefit most recognized in tribal communities (p. 3-1463).	The comment is consistent with the EIS, which identifies a cultural resource benefit that would be most recognized by tribal communities under MO3.
31812	49	N/A	N/A	We strongly recommend that your agencies integrate additional investment and mitigation actions, based on comprehensive analysis that utilizes existing methods, studies, data and strategies that were excluded from the DEIS, to develop a recovery plan that restores natural river conditions in the lower Snake River. A well-developed dam breaching and investment plan can recover federally endangered salmon and steelhead runs, and also initiate a transition to modernized sustainable infrastructure for power conservation and generation, transportation, irrigation and water supply, as well as diversified recreation and cultural resource preservation. The DEIS and especially the Preferred Alternative fail to recognize or comprehensively analyze impacts to wild fish populations, implementation costs, economic values, energy, irrigation, transportation, sediment, cultural, and environmental justice aspects of the alternatives, consistently diminishing or excluding benefits associated with dam breaching and a restored natural lower Snake River. Consequently, we do not believe the analysis in the DEIS meets the standard for a hard look at all reasonable alternatives as required by the National Environmental Policy Act. Improved, comprehensive analysis and mitigation planning would produce a cost-effective strategy for lower Snake River dam breaching, natural river restoration, and infrastructure modernization. Capturing the opportunity to restore the lower Snake River and the thousands of miles of salmon-bearing tributaries that flow into it represents a unique path to ecological recovery that will bolster the future of the Pacific Northwest economy, its cultural integrity, climate resilience and sustainability	The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-lead agencies numerous legal obligations. The Preferred Alternative is predicted to benefit ESA-listed juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3, which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets the EIS objectives for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS the co-lead agencies did not identify MO3 because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. The EIS concluded MO3, which includes breaching the four lower Snake River dams would have greater improvement to certain salmon species in the lower Snake River. It did not, however, conclude there was greater certainty of that result in MO3 over any other alternative. Because of delayed response time in MO3, and the potential severity of the short term effects, MO3 would likely have the most substantial uncertainty in terms of beneficial effects. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% (the lower end of Northwest Power and Conservation Council's recovery targets for the region) as a result of the Preferred Alternative, as a result of the Preferred Alternative increasing SAR from 2.0% to 2.7% for Chinook, a 35% relative increase. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. To address uncertainty highlighted by the two models, the Preferred Alternative includes working with regional sovereigns to develop a study that assess the effectiveness of the increased spill regime on adult returns as well as assessment and management of adverse unintended consequences, such as long delays of adult migrants, or TDG-related mortality of juvenile migrants. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information. Based on the analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the CRS. This EIS has been developed in consultation with National Marine Fisheries Service (NMFS) and U.S. Fish and Wildlife Service (USFWS) to find an acceptable balance that allows the co-lead agencies to meet the Purpose and Need Statement while minimizing impacts to affected ESA-listed species and their habitats. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. Moreover, in Region C (lower Snake River), and potentially Region D (mainstem Columbia River) around the confluence of the lower Snake River, MO3, which includes the measure to breach the four lower Snake River dams, would have adverse effects to farmers and irrigation. Currently and in the No Action Alternative, water is available from the pools of these facilities and from groundwater that results from the pools. Removing the earthen embankment portion of the dams will reduce pool elevations by up to 100 feet, which would make surface pumps inoperable. Groundwater pumps in the wells may also be affected due to decreased groundwater elevations depending on the connectivity of the aquifer to the pools. Municipal and industrial water pumps in the Lewiston area would also likely be adversely effected. Additionally, transportation of farming goods would expect to move off river and on to rail or trucks, as there would be a complete loss of commercial navigation on the lower Snake River that could not be feasibly mitigated. All ports along the Snake River would lose access to the navigation channel. Some ports at the confluence or the Snake and Columbia rivers could dredge new channels within the Federal channel in the confluence (McNary reservoir) to maintain access. Private or public entities or businesses could take actions or build infrastructure to extend pumps or water supply access. Ports and farmers can likewise change their transportation modes or connect to the navigation system at a different point on the river. The Federal co-lead agencies would not mitigate for these impacts to water users or ports. Chapter 3 analyzes the social and economic effects of implementing MO3 and Chapter 5 discusses mitigation.
31818	1	portdave@portoflewiston.com	Port of Lewiston	See Attached Documents	While no attachments were received with this submission, the Port of Lewiston also submitted comments that are listed as letter 31766 with attachments. Please refer to comments and responses that are listed under 31766. The co-lead agencies requested the commenter resubmit via e-mail on June 25, 2020; however, the co-lead agencies did not receive a response to this request.
31819	1	N/A	N/A	While the Action Agencies briefly discuss the Southern Resident orcas in the DEISs review of Alternatives, the DEIS vastly underestimates the impacts of the CRSO on this endangered population due to limited prey availability and fails to take a hard look at the science and impacts on Southern Resident orcas and the importance of Columbia Basin Chinook salmon to the orcas. In the DEIS, the Action Agencies provided, at best, a cursory examination of the direct, indirect, and cumulative impacts of the Preferred Alternative selected, and largely ignored indirect effects on Southern Residents and key cumulative impacts from climate change. Additionally, the DEIS fails to respond to contrary scientific publications that do not support the selection of the Action Agencies Preferred Alternative.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Moreover, the EIS analysis found only a negligible to minor effect to the Southern Resident killer whale would result from implementing MO3 (which includes the dam breach measure). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). The co-lead agencies agree that the quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults form the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differentially from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020). Additional details on the most crucial prey stocks for Southern Resident killer whales, as well as their population and range, is available from several fact sheets and videos available here: https://www.fisheries.noaa.gov/species/killer-whale#spotlight. For more information, visit this NMFS StoryMap on Southern Resident killer whales: https://noaa.maps.arcgis.com/apps/Cascade/index.html?appid=3405e6637bf74e998d4ebe992c54f613. The co-lead agencies note the contribution to the prey of Southern Resident killer whales through the continued existence of their respective independent congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as Lower Snake River Compensation Plan (LSRCP), which is administered by USFWS. The co-lead agencies analyzed the direct and indirect impacts of each of the alternatives on SRKW in Section 3.6, cumulative effects in Chapter 6, and climate change in Chapter 4. Based on the fish analysis in Section 7.7.4 of the Draft EIS, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Additionally, Section 7.7.8 states impacts to Southern Resident killer whales would be negligible. The co-lead agencies utilized current high quality information to analyze the impacts of operation, maintenance, and configuration of the CRS projects even that information that is contrary to the findings for the Preferred Alternative.
31819	2	N/A	N/A	(iv) Agencies must respond to contrary expert comments. NEPA also requires agencies to address responsible opposing viewpoints and explain their rationale for choosing one viewpoint over the other.16 Federal courts have set aside NEPA analyses where an agency failed to respond to scientific analysis that called into question the agencys assumptions or conclusions. Indeed, the DEIS is invalid because the Action Agencies have failed to respond to opposing scientific viewpoints objectively and in good faith, including those of the governments own experts like the Fish Passage Center.17	The Draft EIS uses current, high quality information and modeling in order to evaluate both the benefits and adverse effects of the range of alternatives. In doing so, the CRSO EIS teams present opposing scientific information. For example in Section 3.5 and Chapter 7, results from both anadromous fish models from the NMFS and Fish Passage Center are used to determine a potential range of results based on opposing viewpoints. Ultimately, the co-lead agencies are responsible for selecting and implementing an alternative. The rationale for doing so is presented throughout Chapter 7, which identifies a Preferred Alternative based on weighing the benefits in achieving the Purpose and Need Statement and EIS objectives while considering the potential adverse effects to the human and natural environment. The co-lead agencies selected senior staff from across the country with expertise in their fields to serve on the EIS team. The CRSO EIS technical teams included experts from across over 30 cooperating agencies. The draft EIS was subjected to two internal agency reviews by the Corps of Engineers from other experts not involved in the development of the document. Additionally, the entire document, analysis, and modeling were reviewed following an Independent External Peer Review (IEPR) process that meets OMB circular on peer review requirements under the "Information Quality Act" and the Final Information Quality Bulletin for Peer Review by the Office of Management and Budget (referred to as the "OMB Peer Review Bulletin). It also meets guidance for the implementation of Sections 2034 and 2035 of the Water Resources Development Act of 2007 (Public Law (P.L.) 110-114) and standards of the National Academy of Sciences independent peer review. The final IEPR report will be publicly available.
31819	3	N/A	N/A	B. The Endangered Species Act NEPAs implementing regulations require that, to the fullest extent possible, agencies must prepare draft environmental impact statements concurrently with and integrated with environmental impact analyses and related surveys and studies that are required by the Endangered Species Act, 16 U.S.C. 1531 et seq. (ESA).18 The ESA aims to conserve species of 10 See, e.g., Robertson v. Methow Valley Citizens Council, 490 U.S. at 350-51. 11 See NRDC v. Evans, 168 F. Supp.2d 1149 (N.D. Cal. 2001). 12 Navajo Nation v. U.S. Forest Serv., 479 F.3d 1024, 1056 (9th Cir. 2007). 13 40 C.F.R. 1508.25(c); Colo. Envtl. Coal., 185 F.3d at 1176. 14 40 C.F.R. 1508.8; see also Utahns for Better Transp., 305 F.3d at 1174. 15 40 C.F.R. 1508.7. 16 40 C.F.R. 1502.9(b). 17 W. Watersheds Project, 632 F.3d at 492-93 (agency violated NEPA by giving short shrift to a deluge of concerns from its own experts and other federal and state agencies). 18 40 C.F.R. 1502.25. fish, wildlife, and plants facing extinction as well as the ecosystems upon which endangered and threatened species depend.19 The ESA also requires each agency to use the best scientific and commercial data available.20 Under section 7 of the ESA, federal agencies must consult with the U.S. Fish and Wildlife Service or the National Marine Fisheries Service (NMFS) (collectively, the Services) on the impacts of any action that may affect listed species or their critical habitat.21 Specifically, section 7 requires federal agencies to insure that any action authorized, funded, or carried out by such agency . . . is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of designed critical habitat.22 To jeopardize the continued existence of a species means to engage in an action that reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species.23 At its essence, the ESA prohibits federal action that is likely to result in harm of listed species or critical habitat. The ESA defines critical habitat as the physical and biological features that are essential to the conservation of listed species.24 For example, in the Columbia Basin, migratory corridors are considered critical habitat defined by several primary constituent elements such as water temperature, water quantity, water quality, and safe passage.25 Along with the other alternatives analyzed in the DEIS, the Preferred Alternative certainly may affect several ESA-listed species, including salmon and orcas, as well as the critical habitat for these species, triggering the ESAs requirements. The Action Agencies operation and maintenance of the CRSO directly impacts 13 distinct salmon and steelhead evolutionarily significant units (ESUs) listed under the ESA within the Columbia-Snake watersheds. ESA-protected salmon and steelhead species that the Preferred Alternative will affect include: 1) Snake River fall Chinook salmon; 2) Snake River spring/summer Chinook salmon; 3) Snake River steelhead (Oncorhynchus mykiss); 4) Upper Columbia River spring Chinook salmon; 5) Upper Columbia River steelhead; 6) Middle Columbia River steelhead; 7) Snake River sockeye salmon (Oncorhynchus nerka); 8) Columbia River chum salmon (Oncorhynchus keta); 9)	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the Columbia River System. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. Chapter 8 describes how the co-lead agencies complied with the ESA, among other laws. As stated in Chapter 8, a biological assessment (Appendix V) was submitted to both NMFS and USFWS dated December 20, 2019, to support development of biological opinions. The NMFSs and USFWSs biological opinions are completed to coincide. The biological opinions will be addressed in the Record of Decision and, if adopted by the co-lead agencies, would supersede previous biological opinions. The population dynamics of the SRKW are complicated, and there is no one factor that contributes to the overall success of this species; however, the co-lead agencies agree that the quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Additionally, Section 7.7.8 states impacts to Southern Resident killer whales would be minor. Thus, the co-lead agencies expect salmon and steelhead increases would come from operational measures and existing hatchery production carried forward into the Preferred Alternative. These hatcheries include conservation and safety net hatcheries, as well as through the continued existence of certain independent Congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as the Lower Snake River Compensation Plan, which is administered by USFWS. Moreover, NMFS concluded in its 2020 CRS BiOp that operations, maintenance and configuration of the CRS is not likely to adversely affect SRKW.

Letter No.	Comment No.	Commenter Name/Email	Affiliation	Comment	Response[1/]
				Lower Columbia River Chinook salmon; 10) Lower Columbia River coho salmon (Oncorhynchus kisutch); 11) Lower Columbia River steelhead; 12) Upper Willamette River Chinook salmon; and 13) Upper Willamette River steelhead.26 NOAA Fisheries has designated critical habitat for 12 of these 13 19 16 U.S.C. 1531(a)(4), 1531(b). 20 16 U.S.C. 1536(a)(2). 21 Id. 22 Id. 23 50 C.F.R. 402.02. 24 16 U.S.C 1532(5)(A). 25 Critical Habitat for 15 Distinct Population Segments (DPSs) of salmon and steelhead (Oncorhynchus spp.) in Washington, Oregon and Idaho, 50 C.F.R. 226.212. 26 Washington Dept of Fish and Wildlife, ESA Listed Washington Salmonids, available at: http://wdfw.wa.gov/conservation/endangered/esa/wa_esa_listed_map.pdf. salmonid species. In addition, the CRSO indirectly impacts the endangered Southern Resident orca Distinct Population Segment (DPS) that depends on the Basins salmon populations as a vital prey source.27 In consultation over the DEIS under section 7 of the ESA, NMFS must rely on the best available scientific information and data about salmon or orcas.28 Because the DEIS does not present or analyze the most comprehensive scientific information on these species, consultation will be impaired. Because the CRSO may affect ESA-listed species and their critical habitat, both directly and indirectly, the Action Agencies must consult with NMFS on the Preferred Alternative. After consultation, investigation, and analysis, NMFS must prepare a new biological opinion to evaluate the effects of the proposed actions on the survival and recovery of listed species and designed critical habitat. Under the ESA, recovery means improvement in the status of listed species to the point at which listing is no longer appropriate.29 NMFSs biological opinion should include a summary of the science-based information upon which the opinion is based, an analysis of the effects of the agency actions on listed species and critical habitat, and whether the actions are likely to jeopardize the continued existence of a listed species or result in the destruction or adverse modification of critical habitat30 Minor changes to the current maintenance, operation, and configuration of the CRSO will certainly continue to appreciably reduce the likelihood of both the survival and recovery of these listed species. Indeed, because current management efforts have hastened the decline of salmon populations, thus contributing to the alarmingly low number of Southern Resident orcas, the Preferred Alternative that does little more than perpetuate the status quo approach of managing the CRSO will likely cause jeopardy to both Snake River salmonids and Southern Resident orcas. If NMFS determines that the Preferred Alternative may jeopardize the survival of ESA-listed species or adversely modify a species critical habitat, the action must be modified or eliminated. Therefore, NMFSs biological opinion must specify all reasonable and prudent alternatives that avoid jeopardy and make recommendations that promote the conservation of the listed species or species critical habitat.31 27 NOAA Fisheries, Killer whale (Orcinus orca), https://www.fisheries.noaa.gov/species/killer-whale. 28 16 U.S.C. 1536(a)(2). 29 50 C.F.R. 402.02. 30 50 C.F.R. 402.14(h)(3). 31 16 U.S.C. 1536(b)(3)(A).	
31819	4	N/A	N/A	Analysis I. The DEIS does not take a hard look at the impacts and science on Southern Resident orcas. The Southern Resident orca DPS has been listed as endangered under the ESA since 2005 and under Canadas Species at Risk Act (SARA) since 2003.32 This community of orcas is genetically distinct from all other orca populations, does not interbreed and rarely interacts with other orcas, and is the only ESA-listed orca population.33 They are part of the fish-obligate Resident ecotype, and rely almost exclusively on salmon as their primary prey.34 As the only Resident population to inhabit the California Current ecosystem and frequent the outer coasts of Washington, Oregon, and Northern California, the Southern Resident orcas spend over half the year in coastal waters.35 Despite the research and conservation efforts initiated after their ESA listing, the Southern Residents have continued to decline and now number just 73 individuals, their lowest population abundance in over 40 years, and have likely lost at least one additional orca since the most recent census at the end of 2019.36 NMFS has recognized them as one of nine marine species most at risk of extinction, and considers them a recovery priority #1: a species whose extinction is almost certain in the immediate future because of a rapid population decline or habitat destruction.37 Throughout their range, the Southern Residents face significant threats to their survival, including prey depletion, high toxicant loads, anthropogenic noise, vessel impacts, and oil spill risk.38 A lack of their preferred prey, Chinook salmon, is widely recognized as the primary limiting factor to their immediate survival and future recovery, with increased mortality and decreased fecundity shown to be correlated with coastwide indices of Chinook salmon abundance.39 For their immediate survival and future recovery, the Southern Resident orcas need abundant, diverse, and accessible Chinook salmon prey throughout their range.40 32 National Marine Fisheries Service, Endangered Status for Southern Resident killer whales. 70 FR 69903; DFO (Fisheries and Oceans Canada). 2017. Action Plan for the Northern and Southern Resident Killer Whale (Orcinus orca) in Canada. Species at Risk Act Action Plan Series. (Fisheries and Oceans Canada, Ottawa). 33 Hoelzel, A.R. et al. 2007. Evolution of population structure in a highly social top predator, the killer whale. Molecular Biology and Evolution 24: 1407-1415. 34 Ibid.; Foote, A. D.et al. 2016. Genome-culture coevolution promotes rapid divergence of killer whale ecotypes.Nat. Commun.7:11693 doi: 10.1038/ncomms11693. 35 Krahn, M.M. et al. 2004. 2004 status review of southern resident killer whales (Orcinus orca) under the Endangered Species Act. NOAA Technical Memorandum NMFS-NWFSC-62, U.S. Department of Commerce, Seattle, Washington; Reynolds, J.E. H. Marsh & T.J. Ragen. 2009. Marine Mammal Conservation. Endangered Species Research. 7:23-28. 36 Population data from Center for Whale Research, www.whaleresearch.com; Mapes, L.V. Another southern resident orca feared dead The Seattle Times, January 28, 2020. https://www.seattletimes.com/seattle-news/environment/another-southern-resident-orca-feared-dead/. 37 NOAA Fisheries. 2016. Species in the Spotlight: Southern Resident Killer Whale DPS. 38 National Marine Fisheries Service. 2008. Recovery Plan for Southern Resident Killer Whales (Orcinus orca). 39 Ford, J.K.B, G.M. Ellis, and P.F. Olesiuk. 2005. Linking prey and population dynamics: Did food limitation cause recent declines of 'resident' killer whales (Orcinus orca) in British Columbia. Fisheries and Oceans; Ford J.K.B et al. 2010. Linking killer whale survival and prey abundance: food limitation in the oceans apex predator? Biology Despite the wealth of information available on Southern Resident orcas and updated information available since the scoping period, the DEIS only includes three referenced sources of information on the Southern Residents, does not include the most recent population estimate of 73 orcas from the Center for Whale Research and NMFS (as of December 31, 2019), and does not include any peer-reviewed studies from independent scientists or data from NMFS regarding the orcas presence in coastal habitat or the importance of Chinook salmon to the orcas survival.41	The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). The co-lead agencies agree that the quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults form the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differentially from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020). The co-lead agencies utilized current high quality data and best available science in order to analyze the effects of operation, maintenance, and configuration of the CRS projects in the CRSO EIS. Recovery of ESA-listed salmon and SRKW is outside of the authority of the co-lead agencies, and was not an objective of this EIS. Recovery of ESA species is the purview of NMFS and the US Fish and Wildlife Service. This EIS has been developed in consultation with NMFS and USFWS to find an acceptable balance that allows the co-leads to meet congressionally authorized purposes while minimizing impacts to affected ESA species and their designated critical habitats. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Additionally, Section 7.7.8 states impacts to Southern Resident killer whales would be negligible. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the CRS. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species.
31819	5	N/A	N/A	During the initial scoping period for this review, OSA and many other commenters provided the Action Agencies with scientific information regarding the presence of the Southern Resident orca population off the mouth of the Columbia River and their reliance on Columbia Basin Chinook. The Action Agencies failed to include any of this information in the DEIS. OSA provided extensive studies by NMFS of the Southern Residents movements in coastal waters, which highlight the mouth of the Columbia River as a high-use area;42 studies indicating the orcas preference for Chinook even when other species (e.g. sockeye and pink salmon) are present in greater abundance;43 and information on the correlation of coastwide Chinook abundance to Southern Resident mortality and fecundity rates.44	The Final EIS has been updated based on the National Marine Fisheries Service (NMFS) 2020 Biological Opinion and the information cited by the commenter. The co-lead agencies agree that the quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs. The revised information on Southern Resident killer whales can be found in Section 3.6 (Wildlife) in the final EIS. Additional details on the most crucial Chinook salmon prey stocks for SRKW, as well as their population and range, is available from several fact sheets and videos available here: https://www.fisheries.noaa.gov/species/killer-whale#spotlight. For more information, visit this NMFS StoryMap on SRKW: https://noaa.maps.arcgis.com/apps/Cascade/index.html?appid=3405e6637bf74e998d4ebe992c54f613.
31819	6	N/A	N/A	Since the scoping period, additional science has been published that further substantiates the importance of Columbia Basin Chinook to Southern Resident orcas, including a comprehensive review of available data from NMFS, published with the agencys draft critical habitat revision for Southern Resident orcas (which would provide federal protection to their coastal habitat).45 Although the DEIS recognizes and mentions this proposed critical habitat revision and the Letters, 6:139142; Ward E.J, E.E. Holmes, and K.C. Balcomb. 2009. Quantifying the effects of prey abundance on killer whale reproduction. Journal of Applied Ecology, 46: 632640; National Marine Fisheries Service 2008. Recovery Plan for Southern Resident Killer Whales (Orcinus orca).; Proposed Revision of the Critical Habitat Designation for Southern Resident Killer Whales: Draft Biological Report. National Marine Fisheries Service, September 2019. Available: https://www.fisheries.noaa.gov/action/critical-habitat-southern-resident-killer-whale. 40 Washington State Southern Resident Orca Task Force. 2019. Final Report and Recommendations. Available: Final Report and Recommendations. 41 National Marine Fisheries Service. Killer Whale: In the Spotlight. Accessed 4/3/2020.https://www.fisheries.noaa.gov/species/killer-whale#spotlight. 42 Hanson, M.B., C.K. Emmons, and E.J. Ward. 2013. Assessing the coastal occurrence of endangered killer whales using autonomous passive acoustic recorders. J. Acoustic Soc. Am. 134(5) 3486-3495; NMFS. 2014. Southern Resident Killer Whales: 10 Years of Research and Conservation; See also National Marine Fisheries Science Center data and reports on Southern Resident tagging project, https://tinyurl.com/vj4dcbs. 43 Ford, J. K. B., & Ellis, G. M. 2006. Selective foraging by fish-eating killer whales Orcinus orca in British Columbia. Marine Ecology Progress Series 316, 185-199. 44 Ford, J.K.B. et al. 2010. Linking killer whale survival and prey abundance: food limitation in the oceans' apex predator? Biol Lett. 2010; 6(1):13942. doi: 10.1098/rsbl.2009.0468 ISI:000273501700038. PMID: 19755531; Ward, E.J., E.E. Holmes, and K.C. Balcomb. 2009. Quantifying the effects of prey abundance on killer whale reproduction. 2009. Journal of Applied Ecology, 46: 632-640. 45 Proposed Revision of the Critical Habitat Designation for Southern Resident Killer Whales: Draft Biological Report. National Marine Fisheries Service, September 2019. Available: https://www.fisheries.noaa.gov/action/critical-habitat-southern-resident-killer-whale. Federal Register publication (page 3-685), none of the considerable information provided in the proposed rule and accompanying Biological Report were included in the DEIS, nor does the DEIS note that prey species of sufficient quantity, quality, and availability to support individual growth, reproduction and development, overall population growth is an established essential feature for current and proposed critical habitat.46 This recent review of research from NMFS presents a new summary of information regarding the Southern Resident orcas diet and habitat use during the non-summer months.47 As mentioned above, Southern Resident orcas frequent the outer coasts of Washington, Oregon, and Northern California, spending more than half the year in coastal waters, with highest use of this habitat occurring in the winter and early spring.48 The	The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). The co-lead agencies agree that the quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults form the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differentially from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020). The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. The co-lead agencies utilized current high quality information and best available science in analyzing the effects of operation, maintenance, and configuration of the CRS projects. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Moreover, the EIS analysis found only a minor effect to the Southern Resident killer whale would result from implementing MO3 (which includes the dam breach measure). Changes to this portion of the whales food availability on the magnitudes predicted for MO3 may change the whales foraging behavior patterns slightly, but will not change their overall condition or population dynamics. Additional details on the most crucial prey stocks for Southern Resident killer whales, as well as their population and range, is available from several fact sheets and videos available here: https://www.fisheries.noaa.gov/species/killer-whale#spotlight. For more information, visit this NMFS StoryMap on Southern Resident killer whales: https://noaa.maps.arcgis.com/apps/Cascade/index.html?appid=3405e6637bf74e998d4ebe992c54f613. The co-lead agencies note the contribution to the prey of Southern Resident killer whales through the continued existence of their respective independent congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as Lower Snake River Compensation Plan (LSRCP), which is administered by USFWS.

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				data compiled by NMFS from dedicated surveys, satellite-tagging, and passive acoustic monitoring indicate that the timing of the Southern Residents presence near the mouth of the Columbia River coincides with peak spring Chinook salmon returns.49 NMFS itself has noted this area to be a high use foraging area, and approximately 50% of the time spent by the orcas in coastal waters is between Grays Harbor and the Columbia River.50	
31819	7	N/A	N/A	The DEIS misuses and misinterprets the Priority Stock Report developed by NMFS and the Washington Department of Fish and Wildlife. The DEIS also does not fully consider the caveats and assumptions built into the model, described in the Report itself.51 First, the list of stocks and prioritization reflects the observed diet of Southern Resident orcas.52 Second, the Priority Stock Report states the caveat that there was no spatial correction factor for sample collection (stocks originating from near the sample locations are more likely to be collected), and no correction factor for abundance (more abundant stocks are more likely to be identified in the 46 National Marine Fisheries Service: Proposed Rulemaking to Revise Critical Habitat for Southern Resident Killer Whale Distinct Population Segment. 84 FR 49214. 47 Proposed Revision of the Critical Habitat Designation for Southern Resident Killer Whales: Draft Biological Report. National Marine Fisheries Service, September 2019. Available: https://www.fisheries.noaa.gov/action/critical-habitat-southern-resident-killer-whale; 48 Ibid and NOAA Fisheries. 2014. Southern Resident Killer Whales: 10 Years of Research and Conservation. 49 Ibid. and Hanson, M.B., C.K. Emmons, and E.J. Ward. 2013. Assessing the coastal occurrence of endangered killer whales using autonomous passive acoustic recorders. J. Acoustic Soc. Am. 134(5) 3486-3495; See also National Marine Fisheries Science Center data and reports on Southern Resident tagging project, https://tinyurl.com/vj4dcbs. 50 Hanson, M.B., E.J. Ward, C.K. Emmons, and M.M. Holt. 2018. Modeling the occurrence of endangered killer whales near a U.S. Navy Training Range in Washington State using satellitetag locations to improve acoustic detection data. Prepared for: U.S. Navy, U.S. Pacific Fleet, Pearl Harbor, HI. Prepared by: National Oceanic and Atmospheric Administration, Northwest Fisheries Science Center under MIPR N0007017MP4C419. 8 January 2018; Proposed Revision of the Critical Habitat Designation for Southern Resident Killer Whales: Draft Biological Report. National Marine Fisheries Service, September 2019. Available: https://www.fisheries.noaa.gov/action/critical-habitat-southern-resident-killer-whale. 51 NOAA Fisheries West Coast Region and WDFW Southern Resident Killer Whale Priority Chinook Stocks Report. June 22, 2018. Available: https://archive.fisheries.noaa.gov/wcr/publications/protected_species/marine_mammals/killer_whales/recovery/srkw_priority_chinook_stocks_conceptual_model_report___list_22june2018.pdf; See NOAA Fisheries Chinook Salmon https://www.fisheries.noaa.gov/species/chinook-salmon-protected. 52 Ibid. diet).53 Sampling effort in Puget Sound and other inland waters of Washington State is much greater than on the outer coast due to logistical constraints for researchers.54	Without specifically identifying how the CRSO EIS misuses and misinterprets the Priority Stock Report and its modeling, the co-lead agencies cannot respond to this comment. The CRSO EIS considered the caveats and assumptions in its analysis. Pursuant to NMFS and WDFW's prioritized list of Chinook salmon within their range that are important to SRKW, the CRSO EIS considered that list in assisting to prioritize actions to increase prey availability for the whales. This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall-run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall-run, and Snake River spring/summer-run. (NOAA and WDFW 2018). Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). The Draft EIS meets the requirements of NEPA, as outlined in 42 U.S.C. 4331, et seq., 40 C.F.R. Parts 1500 1508 (CEQs regulations for implementing NEPA), and co-lead agency specific NEPA regulations. The Draft EIS' effects analysis of each resource is based on current high quality information and the best available science as stated in Section 3.1.1. There are gaps and assumptions in the SRKW diet that are still not understood and the co-lead agencies considered the two most important Chinook stocks of the Lower Snake River system in their assessment: the Spring and Fall Chinook. The diet of the SRKW is varied depending on available fish stocks and consists of chum as well as Fall Chinook in the Fall. SR Fall Chinook population is increasing and has been considered for delisting.
31819	8	N/A	N/A	The DEIS and Priority Stock Report also do not take into account restoration potential of these stocks. This critical step would provide better direction as to which stocks to focus restoration efforts. NOAAs own recovery plan for Southern Resident orcas states, [p]erhaps the single greatest change in food availability for resident killer whales since the late 1800s has been the decline of salmon in the Columbia River basin.55 Finally, the Priority Stock list reflects the full range of Chinook consumed by the Southern Resident orcas throughout the year. While Puget Sound Chinook are high-priority during the summer and fall, Columbia and Snake River Chinook are high-priority during the winter and early spring. The DEIS does not consider the seasonal importance of the different stocks presented in the Priority Stock Report.56 Ignoring key findings and scientific reports, the DEIS does not fully take into account these factors when drawing conclusions on their Preferred Alternative, improperly diminishing the importance of Columbia/Snake River salmon as a prey resource for Southern Resident orcas.	The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. As mentioned in the comment, NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). The co-lead agencies agree that the quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults form the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differentially from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020). "Restoration" or recovery of ESA-listed species is outside of the authority of the co-lead agencies, and was not an objective of this EIS. Recovery of ESA species is the purview of NMFS and the US Fish and Wildlife Service. This EIS has been developed in consultation with NMFS and USFWS to find an acceptable balance that allows the co-leads to meet congressionally authorized purposes while minimizing impacts to affected ESA species and their designated critical habitats. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Additionally, Section 7.7.8 states impacts to Southern Resident killer whales would be negligible. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the CRS. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species.
31819	9	N/A	N/A	II. The DEIS fails to address the direct effects on salmon and indirect effects of CRSO to Southern Resident orcas. The Action Agencies consistently disregard both the direct effects of system operations to ESA-listed salmonids and the subsequent reduction in quantity and quality of available prey for Southern Resident orcas. By failing to include sources that clearly show the crucial relationship between Columbia Basin Chinook salmon and Southern Resident orcas in the DEIS, the Action Agencies do not adequately assess the indirect effects of prey depletion as a result of CRSO on the Southern Resident orcas.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not require the co-lead agencies to take affirmative actions to recover ESA listed species. The population dynamics of the SRKW are complicated and there are multiple factors that contribute to the overall success of this species. The quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differently from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for the whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall-run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall-run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). Details on the most crucial prey stocks for Southern Resident killer whales, as well as their population and range, is available from several fact sheets and videos available here: https://www.fisheries.noaa.gov/species/killer-whale#spotlight. For more information, visit this NMFS StoryMap on Southern Resident killer whales: https://noaa.maps.arcgis.com/apps/Cascade/index.html?appid=3405e6637bf74e998d4ebe992c54f613. According to NMFS and the EPA, the estimated SRKW population has fluctuated between 67 and 98 whales between 1960 and 2015. The Snake River dams were constructed between 1962 and 1975. The SRKW population increased from a record low in 1970 to its highest population numbers in 1995. Those years were not high years for Snake or Columbia River Chinook Salmon. Ocean conditions between 2011 and 2013 were good years for salmon. At the same time, 2010 and 2013 were good outmigration years. Particularly, 2011 and 2012 were above normal in water supply, which would mean more cooler water was available and there was better survival of salmon, and 2011 through 2014 were higher than normal spill years as well. The combination of outmigration and ocean conditions created improved adult salmon returns. The EIS has analyzed spill as a measure in the Preferred Alternative and determined the overall effect to SRKW to be negligible in large part because hatchery production is consistent between the No Action Alternative and the Preferred Alternative. Because the impact from the Preferred Alternative was determined to be negligible, the agencies determined that existing hatchery production would be sufficient to address any potential impacts to prey availability for SRKWs. The co-lead agencies note the contribution to the prey of SRKW through the continued existence of their respective independent Congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as the Lower Snake River Compensation Plan (other than under MO3), which is administered by USFWS. The Preferred Alternative and Proposed Action in the agencies' biological assessment carry forward certain measures described in Chapters 2 and 7 of the EIS, which include continued salmon and steelhead hatchery production. The Preferred Alternative has negligible effects to SRKWs as described in Section 7.7.8. The Biological Assessment (BA) describes the effect of the Proposed Action on the SRKW forage species (see BA Section 3.5.1.2, Southern Resident Killer Whale). The proposed changes in operation of the Columbia River System include increased spring spill during the downstream migration of juvenile spring and summer run Chinook salmon. The result of this action includes potential increases of juvenile fish passing through the spillways, reductions in juvenile fish direct and indirect mortality associated with downstream passage, and the Comparative Survival Study (CSS) model predicts increases in numbers of returning adults, which will benefit SRKWs foraging in and around the mouth of the Columbia River in winter and spring (See EIS Section 7.7.8). The CSS model results predicts Snake River Chinook salmon would have relative improvements in smolt-to-adult returns of 35 percent (see EIS Section 7.7.4). The smolt-to-adult return ratio (SAR) is the rate at which of a group of fish survive from their smolt life stage to a defined ending point where they return as adults. While recovery targets will require more than just the efforts of federal agencies, the CSS models indicate the potential for SARs of Snake River Chinook salmon and steelhead to increase to levels that could approach recovery targets set by the Northwest Power and Conservation Council. The BA, also consistent with the EIS, acknowledges past improvements to the configuration and operation of the Columbia River System, additional improvements to the environmental baseline as a result of completed estuary and tributary habitat actions, and the prospective non-operational conservation measures proposed in Chapter 2 of the Draft EIS, all contribute towards maintaining and improving Chinook abundance. Relevant conservation measures include, among other things, a commitment to continue funding the conservation and safety net hatchery programs listed in Chapter 2 of the Draft EIS. As discussed above, the agencies will fulfill congressionally authorized hatchery mitigation objectives through the funding of hatchery programs that are operated consistent with their independent hatchery program consultations during the term covered by this consultation. Based on those hatchery program consultations, the production levels associated with congressionally authorized hatchery mitigation objectives will continue, at minimum, to be consistent with levels previously analyzed by NOAA in the system consultations in 2008, 2014, and 2019. For the 2020 ESA consultations, therefore, the agencies expect that collectively, all of the actions described above (substantial modifications to migration conditions designed to benefit key prey species, combined with improvements to Chinook spawning and rearing habitat in the tributaries and Columbia River estuary, and continued hatchery production) ensure that remaining Chinook mortality from all sources in the mainstem migratory corridor will continue to be more than offset, resulting in a net gain in Chinook salmon abundance available as a prey source for SRKW.

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					Finally, the 2019 NMFS Fisheries BiOp included increased spring spill operations that are similar to operations evaluated in CRSO EIS, and NOAA validated that the hatchery production of Chinook salmon mitigates for the impacts of operating the Columbia River System and total mortality through the mainstem migratory corridor from all sources. FEIS Chapter 3 (Vegetation, Wetlands, Wildlife ,and Floodplains) has been updated for SRKW (Section 3..6.2.6 and Table 3-102). FEIS Chapter 7 (Preferred Alternative), has been updated with additional analysis information on SRKW and potential increase in forage fish, in particular, Chinook salmon (Section 7.7.8).
31819	10	N/A	N/A	Columbia River Basin hydropower development and ongoing operations have significantly altered and destroyed salmon habitat, and this has resulted in widespread impacts to salmon populations.57 Dams have greatly reduced or eliminated historically accessible habitat, reduced 53 Ibid. 54 Proposed Revision of the Critical Habitat Designation for Southern Resident Killer Whales: Draft Biological Report. National Marine Fisheries Service, September 2019. Available: https://www.fisheries.noaa.gov/action/critical-habitat-southern-resident-killer-whale. 55 National Marine Fisheries Service 2008. Recovery Plan for Southern Resident Killer Whales (Orcinus orca). 56 Proposed Revision of the Critical Habitat Designation for Southern Resident Killer Whales: Draft Biological Report. National Marine Fisheries Service, September 2019. Available: https://www.fisheries.noaa.gov/action/critical-habitat-southern-resident-killer-whale. 57 Budy, P et al. 2002. Evidence linking delayed mortality of Snake River Salmon to their earlier hydrosystem experience. N. Am. Journal of Fisheries Management 22:3551; NMFS. 2013. ESA Recovery Plan for Lower Columbia River Coho Salmon, Lower Columbia River Chinook Salmon, Columbia River Chum Salmon, and Lower Columbia River Steelhead; UCSRB (Upper Columbia Salmon Recovery Board). 2007. Upper Columbia Spring Chinook Salmon and Steelhead Recovery Plan; NMFS. 2017. Recovery Plan for Snake River Spring/Summer Chinook Salmon and Snake River Basin Steelhead. natural river flow important for out-migrating smolts, increased water temperatures, altered sediment flow, and changed the composition of fish communities, resulting in increased predation on salmon.58 Additionally, the physical features of dams such as turbines, bypass systems, and sluiceways directly kill both adult and juvenile salmon.59 Survival of spring/summer Chinook in the Snake River is lower compared to salmon returning to tributaries lower in the river system that travel past fewer dams.60 Out-migrating smolts not directly killed by the hydropower system may succumb to delayed mortality in the estuary and ocean due to hydropower system-related impacts.61 Decreased water velocities prolong the in-river experience of out-migrating juvenile fish and decrease the survival of Snake River Chinook in multiple life stages, including smolt to adult returns.62 These impacts to salmon survival result in fewer spring Chinook returning to the Columbia Basin as adults, decreasing the available prey for Southern Resident orcas. As previously noted, the orcas continue to target Chinook salmon even when other species are more abundant, and regardless of the overall Chinook salmon abundance.63 The orcas rely on multiple stocks of Chinook, depending on availability at different times of the year and in different parts of their range.64 Prey and fecal samples indicate that Chinook still comprise the majority of the orcas diet in coastal waters, and over half of the Chinook consumed by Southern Residents in this part of their range originate in the Columbia Basin.65 Studies analyzing the health and nutritional status of these orcas indicate that these spring Chinook runs are particularly important for the Southern Residents.66 The Southern Resident orcas need to maintain a 58 Ibid. 59 Ibid. 60 Schaller, H. A. et al. 2014. Evaluating river management during seaward migration to recover Columbia River stream-type Chinook salmon considering the variation in marine conditions. Canadian Journal of Fisheries & Aquatic Sciences, 71, 259-271. 61 Budy, P et al. 2002. Evidence linking delayed mortality of Snake River Salmon to their earlier hydrosystem experience. N. Am. Journal of Fisheries Management 22:3551. 62 Schaller, H. A. et al. 2014. Evaluating river management during seaward migration to recover Columbia River stream-type Chinook salmon considering the variation in marine conditions. Canadian Journal of Fisheries & Aquatic Sciences, 71, 259-271. 63 Ford, J. K. B., & Ellis, G. M. 2006. Selective foraging by fish-eating killer whales Orcinus orca in British Columbia. Marine Ecology Progress Series 316, 185-199; Ford, J.K.B. et al. 2009. Chinook salmon predation by resident killer whales: seasonal and regional selectivity, stock identity of prey, and consumption rates. Fisheries and Oceans Canada (DFO), Nanaimo, BC. 64 NMFS. 2019. Endangered Species Act (ESA) Section 7(a)(2) Biological Opinion and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Response. Consultation on the Delegation of Management Authority for Specified Salmon Fisheries to the State of Alaska. NMFS Consultation Number: WCR-2018-10660. April 5, 2019. 443 p. 65 Ward, E. et al, NWFSC Science to Inform SRKW Distribution and Diet, Presentation to Pacific Fisheries Management Council SRKW Working Group, May 2019: available at https://www.fisheries.noaa.gov/webdam/download/92840008. 66 Ayres KL, et al., 2012. Distinguishing the Impacts of Inadequate Prey and Vessel Traffic on an Endangered Killer Whale (Orcinus orca) Population. PLoS One 7: e36842, http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0036842; Wasser S.K. et al. 2017. Population growth is limited by nutritional impacts on pregnancy success in endangered Southern Resident killer whales (Orcinus orca). PLoS ONE 12(6): e0179824, https://doi.org/10.1371/journal.pone.0179824. balance of energy year-round to support daily activities, as well as gestation, lactation, and growth.67 The size of individual salmon and their caloric content vary by species, geographic area, season, and year, and therefore have different value to Southern Resident orcas.68	The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). The co-lead agencies agree that the quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults form the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differentially from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020). This EIS analyzes the effects of operation, maintenance, and configuration of the CRS projects. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Additionally, Section 7.7.8 states impacts to Southern Resident killer whales would be negligible. The co-lead agencies have existing mitigation commitments to address the impacts that occurred to habitat from the construction of the dams. Where adverse effects to habitat are anticipated as a result of implementing an alternative, habitat restoration was proposed. For instance, the Preferred Alternative added habitat mitigation along wetlands and riparian areas in the John Day reservoir and around Lake Roosevelt. The Preferred Alternative also carries forward certain ongoing actions including habitat measures that are described in Section 7.6.4.1 with examples listed in Table 7-5 in the Draft EIS. Additionally, the U.S. Army Corps of Engineers is in partnership with other Federal, state and non-governmental organizations and have been implementing habitat projects for salmon, orcas, and wildlife all around the Puget Sound as part of the Puget Sound Nearshore Ecosystem Restoration Project.
31819	11	N/A	N/A	Early spring Chinook returning to the Snake and Columbia Rivers provide a unique nutritional value to the orcas in the late winter and early spring. These salmon are known to be large and have a high fat content, and can deliver extra nutritional benefit to endangered orcas.69 Upon their return to historic summer habitat (Salish Sea) in the early spring, elevated triiodothyronine (T3) values indicate the orcas were recently foraging on especially rich, fatty food spring Chinook returning to the Columbia Basin.70 Research assessing the changing nutritional status of the orcas indicates that the conservation of these early spring runs may be especially important to recovery efforts for the Southern Residents.71 The 2016 NMFS Status Review for the Southern Resident orcas one of the only three references included in the DEIS for orcas agrees with this point, clearly stating that these elevated T3 levels in early spring indicate that the whales are foraging on prey with high nutritional value before returning to inland summer habitat, suggesting the importance of coastal early spring run salmon.72	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Moreover, the EIS analysis found only a negligible to minor effect to the Southern Resident killer whale would result from implementing MO3 (which includes the dam breach measure). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. 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The co-lead agencies note the contribution to the prey of Southern Resident killer whales through the continued existence of their respective independent congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as Lower Snake River Compensation Plan (LSRCP), which is administered by USFWS.
31819	12	N/A	N/A	A lack of sufficient prey causes nutritional stress for Southern Resident orcas, which has been linked to negative health metrics including reductions in growth rates, adult length, and social cohesion.73 Photogrammetry analysis on the body condition of individuals, along with fecal 67 Proposed Revision of the Critical Habitat Designation for Southern Resident Killer Whales: Draft Biological Report. National Marine Fisheries Service, September 2019. Available: https://www.fisheries.noaa.gov/action/critical-habitat-southern-resident-killer-whale. 68 Mesa, M., & Magie, C. 2006. Evaluation of energy expenditure in adult spring chinook salmon migrating upstream in the Columbia River Basin: An assessment based on sequential proximate analysis. River Research and Applications, 22(October), 10851095. http://doi.org/10.1002/rra; O'Neill, S. M. et al. 2014. Energy content of Pacific salmon as prey of northern and Southern Resident Killer Whales. Endangered Species Research. 25: 265281. 69 Ibid. 70 Wasser S.K. et al. 2017. Population growth is limited by nutritional impacts on pregnancy success in endangered Southern Resident killer whales (Orcinus orca). PLoS ONE 12(6): e0179824, https://doi.org/10.1371/journal.pone.0179824. 71 Ayres KL, et al., 2012. Distinguishing the Impacts of Inadequate Prey and Vessel Traffic on an Endangered Killer Whale (Orcinus orca) Population. PLoS One 7: e36842, http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0036842 . 72 National Marine Fisheries Service. 2016. Southern Resident Killer Whales (Orcinus orca). 5-Year Review: Summary and Evaluation: page 20. 73 Fearnbach, H. et al. 2018. Using aerial photogrammetry to detect changes in body condition of endangered southern resident killer whales. Endang Species Res 35:175-180. https://doi.org/10.3354/esr00883; Ford, J.K.B. et al. 2005. Linking prey and population dynamics: Did food limitation cause recent declines of 'resident' killer whales (Orcinus orca) in British Columbia. Fisheries and Oceans; Ford J.K.B et al. 2010. Linking killer whale survival and prey abundance: food limitation in the oceans apex predator? Biology Letters, 6:139142; Groskreutz et al. 2019. Decadal changes in adult size of salmon-eating killer whales in the eastern North Pacific. Endang. Species Res. (40):183-188. https://doi.org/10.3354/esr00993; Ward E.J et al. 2009. Quantifying the effects of prey abundance on killer whale reproduction. Journal of Applied Ecology, 46: 632640; Proposed Revision of the Critical Habitat Designation for Southern Resident Killer Whales: Draft Biological Report. National hormone analysis on nutritional and reproductive status, provides additional insight into the impacts of prey depletion: the orcas exhibit a decline in body condition between October and May, when they are more likely to be in coastal waters; in recent years, 69% of detected pregnancies have failed, a loss that has been linked to nutritional stress from variations in inland and	The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for whales (NOAA and WDFW 2018). 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These hatcheries include conservation and safety net hatcheries, as well as through the continued existence of certain independent Congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as the Lower Snake River Compensation Plan, which is administered by USFWS. Moreover, NMFS concluded in its 2020 CRS BiOp that operations, maintenance and configuration of the CRS is not likely to adversely affect SRKW.

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				coastal salmon abundance, particularly from the Columbia Basin.74 It is evident that the current abundance of Columbia Basin Chinook is not sufficient to meet the nutritional needs of the Southern Resident orcas and any failure to increase salmon availability above a modest or negligible increase, i.e. under the No Action or Preferred Alternative, during the late winter and early spring season when they are most reliant on these stocks would lead to further declines and the potential extinction of the orca population.	
31819	13	N/A	N/A	By incorrectly asserting that Snake River and Columbia Chinook constitute a small portion of their overall diet and failing to include any scientific studies on the impacts of prey depletion, particularly of Columbia Basin salmon, on Southern Resident orcas, the Action Agencies vastly under-represent the indirect effects of CRSO on Southern Residents.75 The Action Agencies also contradict themselves in the DEIS: it notes that a change in operations (MO3) may result in a moderate to major increase in smolt-to-adult returns and overall abundances of adult salmon and steelhead over the long term with an increase in prey availability from the Columbia Basin, subsequently changing the short- and long-term behavior of the orcas, but also consistently asserts that the change in prey availability would have a negligible impact on the orcas.76 Not only do actions that change the orcas behavior have impacts that are far more significant than negligible, but the Action Agencies do not fully analyze these indirect effects - i.e. changes in behavior of the orcas - that they themselves note in the DEIS. III	The key to the co-lead agencies' usage of differing levels of "effects" is provided in Chapter 2 of the Draft EIS and includes "no effect", "negligible effect", "minor effect", "moderate effect", and "major effect." As indicated in this chapter, the No Action Alternative describes the baseline condition at the time the Notice of Intent to prepare the EIS was issued (September 2016). This baseline condition serves for comparison of the level of effects of the other alternatives. For MO3 the overall effect to SRKW would be minor. Changes to this portion of the whales food availability on the magnitudes predicted for MO3 may change the whales foraging behavior patterns slightly, but will not change their overall condition or population dynamics. The effects are further described in Table 3-106 under Southern Resident killer whale DPS. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Moreover, the EIS analysis found only a minor effect to the Southern Resident killer whale would result from implementing MO3 (which includes the dam breach measure). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. 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31819	14	N/A	N/A	III. The DEIS fails to assess the cumulative impacts of region-wide declines in salmon abundance. Southern Residents need available, accessible, and abundant food sources throughout their range to sustain them year-round and support individual and population growth. While the Southern Residents have some seasonality in their movement throughout their range, historically using the inland waters of the Salish Sea during the summer and fall and moving into coastal waters in the winter and spring, their habitat use is dynamic, with foraging, breeding, calving, traveling, and resting occurring throughout their range.77 Marine Fisheries Service, September 2019. Available: https://www.fisheries.noaa.gov/action/critical-habitat-southern-resident-killer-whale. 74 Fearnbach, H. et al. 2018. Using aerial photogrammetry to detect changes in body condition of endangered southern resident killer whales. Endang Species Res 35:175-180. https://doi.org/10.3354/esr00883; Wasser S.K. et al. 2017. Population growth is limited by nutritional impacts on pregnancy success in endangered Southern Resident killer whales (Orcinus orca). PLoS ONE 12(6): e0179824, https://doi.org/10.1371/journal.pone.0179824 75 Columbia River System Operations Draft Environmental Impact Statement at 7-151. 76 Columbia River System Operations Draft Environmental Impact Statement at 3-758 and 3-759. 77 National Marine Fisheries Service. 2008. Recovery Plan for Southern Resident Killer Whales (Orcinus orca). National Marine Fisheries Service, Northwest Region, Seattle, Washington; Proposed Revision of the Critical Habitat Designation for Southern Resident Killer Whales: Draft Biological Report. National Marine Fisheries As previously noted, the orcas movement is tied to seasonal returns of salmon runs to rivers in the Pacific Northwest and California, and they depend on different runs of salmon in different seasons.78 The Action Agencies incorrectly assume that Columbia Basin Chinook salmon is a minor part of Southern Resident orcas diet because they are comparing it to year-round diet information. The Action Agencies must consider that salmon from all rivers within the orcas range are not available to the orcas on a year-round basis, but instead are critical to the orcas survival in specific seasons.79 The spatiotemporal distribution of Chinook runs within the orcas range means that different runs are more available, and therefore more important, to the Southern Residents at different times of the year.80 Columbia Basin Chinook are important not only for immediate survival in the late winter and early spring, but for supporting pregnancies and population growth, and sustaining the orcas as they shift into summer foraging grounds.81 The Action Agencies fail to consider the seasonal role of Columbia Basin Chinook in providing the Southern Residents with a key source of food and nutrition during the late winter and early spring.	The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. 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The cumulative effects analysis associated with SRKW has been added to the cumulative effects section (Chapter 6 for the MOs and Chapter 7) for the Preferred Alternative. A portion of the Chinook population throughout their foraging range, as well as other fish (halibut, lingcod, and big skate), contribute to the overall diet of the SRKW.
31819	15	N/A	N/A	The Action Agencies also fail to assess the cumulative effects of region-wide reductions in salmon abundance on the Southern Resident orcas, and the further reductions in prey availability from the expected impacts of climate change. Pacific salmon have been extirpated from at least 40% of their historic habitat, and populations return at less than 3% of their historic numbers each year.82 This decline and failure to recover salmon directly impacts Southern Resident orcas: according to NMFS, existing management and recovery actions for Service, September 2019. Available: https://www.fisheries.noaa.gov/action/critical-habitat-southern-resident-killer-whale. 78 Ibid; NMFS. 2014. Southern Resident Killer Whales: 10 Years of Research and Conservation; Ward, E. et al, NWFSC Science to Inform SRKW Distribution and Diet, Presentation to Pacific Fisheries Management Council SRKW Working Group, May 2019: available at https://www.fisheries.noaa.gov/webdam/download/92840008. 79 Ford M.J. et al. 2016. Estimation of a Killer Whale (Orcinus orca) Populations Diet Using Sequencing Analysis of DNA from Feces. PLoS ONE 11(1): e0144956. https://doi.org/10.1371/journal.pone.0144956; Hanson M.B. et al. 2010. Species and stock identification of prey consumed by endangered southern resident killer whales in their summer range. Endang Species Res 11:69-82. https://doi.org/10.3354/esr00263. 80 Ayres KL, et al. 2012. Distinguishing the Impacts of Inadequate Prey and Vessel Traffic on an Endangered Killer Whale (Orcinus orca) Population. PLoS One 7: e36842, http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0036842; Shelton, A.O. et al 2019. Using hierarchical models to estimate stock-specific and seasonal variation in ocean distribution, survivorship, and aggregate abundance of fall run Chinook salmon. Can. J. Fish. Aquat. Sci. 76(1): 95-108. doi:10.1139/cjfas-2017-0204; Weitkamp, L.A. 2010. Marine Distributions of Chinook Salmon from the West Coast of North America Determined by Coded Wire Tag Recoveries, Transactions of the American Fisheries Society, 139:1, 147-170. 81 Ayres KL, et al. 2012. Distinguishing the Impacts of Inadequate Prey and Vessel Traffic on an Endangered Killer Whale (Orcinus orca) Population. PLoS One 7: e36842, http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0036842; Wasser S.K. et al. 2017. Population growth is limited by nutritional impacts on pregnancy success in endangered Southern Resident killer whales (Orcinus orca). PLoS ONE 12(6): e0179824, https://doi.org/10.1371/journal.pone.0179824. 82 Lackey, R.T. 2000. Restoring Wild Salmon to the Pacific Northwest: chasing an illusion? pp. 91-145 in What We Dont Know about Pacific Northwest Fish Runs? An Inquiry into Decision-Making. P. Koss and M. Katz, editors. Portland State University, Portland, Oregon; Levin, P. and M. Schiewe. 2001. Preserving salmon biodiversity. Am. Sci. 89, 220-227. salmon has not been sufficient to increase availability to support Southern Resident population growth.83 The development and alteration of watersheds, estuaries, and nearshore environments is one of the primary causes of salmon decline, and increasing ocean warming and acidification compound stressors on salmon and can impede their survival.84 Climate change impacts are expected to cause an additional 22% loss of current salmon habitat.85 Increasing ocean warming and acidification compound stressors on salmon and can limit their survival. The Cascade Mountains have had a 25% decrease in snowpack since 1950 due to increasing global temperatures, and summer streamflow has decreased up to 15%.86 Lower streamflow in the summer can increase water temperatures to levels deadly for salmon, decrease suitable habitat, and impede migration.87 For example, drought conditions in 2015 were amplified by changes to river flows caused by dams, resulting in a massive die-off of sockeye salmon in the Columbia River, and the marine heat wave of 2015/2016 increased water temperatures in inland Washington, causing the loss of an estimated 1.5 million juvenile fish in overheated streams and rivers.88	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory project purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA listed species. The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for the whales (NOAA and WDFW 2018). 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Climate change, for example, is described in Chapters 4 and 7.8, but can also be considered an effect of past, present, and future actions that may have a cumulative effect on certain resources in the analysis area. Based on the cumulative effects analysis, the co-lead Agencies determined that implementing the Preferred Alternative would result in a negligible effect to SRKW. See Section 7.7.8. The EIS acknowledges, however, that climate change could exacerbate the effects from the Preferred Alternative on wildlife, such as SRKW. See Section 7.9.9. However, the effect would likely remain negligible.
31819	16	N/A	N/A	8 Despite these projected climate change impacts on salmon, the DEIS does not provide any information about efforts to mitigate lethal water temperatures on salmon, and the models used to predict climate impacts on water temperatures and salmon do not accurately assess how water temperatures will differ under the Preferred Alternative. In addition, the DEIS does not consider that current and continued declines of Chinook salmon stocks in the Columbia Basin and throughout the range of the Southern Resident orcas increases year-round nutritional stress on the orcas and impedes	Regarding climate change, the climate science community is still developing models at the resolution necessary to analyze possible effects to water temperature from climate change, and unfortunately, there are not reliable models at this time. Therefore, it was not possible to reliably model water temperature changes under climate change for this EIS. In lieu of this information, the climate analysis used the output from the water quality models under historical conditions, climate change data, and scientific literature to qualitatively assess potential effects to water temperature to the Multiple Objective alternatives (Section 4.2.3) and the Preferred Alternative (Section 7.8.4).

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				immediate survival and future recovery of the population. In 83 Endangered Species Act (ESA) Section 7(a)(2) Biological Opinion and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Response, Consultation on the Delegation of Management Authority for Specified Salmon Fisheries to the State of Alaska, NMFS Consultation Number: WCR-2018-10660, p. 84 (April 5, 2019). 84 NOAA Fisheries. Chinook salmon: https://www.fisheries.noaa.gov/species/chinook-salmon-protected. 85 USGCRP, 2018: Impacts, Risks, and Adaptation in the United States: Fourth National Climate Assessment, Volume II [Reidmiller, D.R., C.W. Avery, D.R. Easterling, K.E. Kunkel, K.L.M. Lewis, T.K. Maycock, and B.C. Stewart (eds.)]. U.S. Global Change Research Program, Washington, DC, USA, 1515 pp. doi: 10.7930/NCA4.2018. See Chapter 24: Northwest. 86 Governor's Salmon Recovery Office, "State of Salmon in Watersheds 2019," Governor's Salmon Recovery Office, Olympia, WA, 2019; G. M. a. J. Casola, "State of Knowledge, Climate Change in Puget Sound," Climate Impacts Group. 87 Budy, P et al. 2002. Evidence linking delayed mortality of Snake River Salmon to their earlier hydrosystem experience. N. Am. Journal of Fisheries Management 22:3551; Gustafson, R.S. et al. 2007. Pacific salmon extinctions: Quantifying lost and remaining diversity. Conserv. Biol. 21, 1009-1020; Levin, P. and M. Schiewe. 2001. Preserving salmon biodiversity. Am. Sci. 89, 220-227; Schaller, H. A. et al. 2014. Evaluating river management during seaward migration to recover Columbia River stream-type Chinook salmon considering the variation in marine conditions. Canadian Journal of Fisheries & Aquatic Sciences, 71, 259-271. 88 Snover, A.K. et al. 2019. "No Time to Waste. The Intergovernment Panel on Climate Change's Special Report on Global Warming of 1.5C and Implications for Washington State." University of Washington Climate Impacts Group, Seattle, WA;Washington State Southern Resident Orca Task Force. 2019. Final Report and Recommendations. Available: https://www.governor.wa.gov/sites/default/files/OrcaTaskForce_FinalReportandRecommendations_11.07.19.pdf. similar analyses on the impacts of hydrosystem operations on prey availability for Southern Resident orcas, NMFS concluded that the loss of a single individual, or the decrease in reproductive capacity of a single individual, is likely to reduce the likelihood of survival and recovery of the species.89 The current low abundance of Columbia Basin Chinook, and the minor increase projected for the Preferred Alternative, directly reduces the likelihood of survival and recovery for Southern Resident orcas.	The co-lead agencies conclude there could be a negligible to minor beneficial effects to SRKW from implementing MO3. CSS and NMFS Life cycle models predict that lower Snake River Chinook salmon smolt-to-adult returns would have a moderate to major increase under MO3. Operation of Lower Snake River Compensation Plan fish hatcheries under MO3 is uncertain and therefore, production of Snake River hatchery fish is assumed to decline over the long term, while returning adult wild salmon are anticipated to increase. However, the co-leads do not anticipate a lack of hatchery fish in the short term based on the proposed fish hatchery mitigation described in Chapter 5. These additional hatchery fish should mitigate short-term construction effects to Snake River populations. Additionally, to address short-term effects to ESA-listed species, the co-lead agencies propose constructing a new trap and haul facility at McNary and conducting at least two years of trap and haul operations for Snake River fish (Chinook, sockeye, and steelhead). The co-lead agencies agree that the quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differently from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for the whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall-run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall-run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). The co-lead agencies note the contribution to the prey of Southern Resident killer whales through the continued existence of their respective independent congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as Lower Snake River Compensation Plan, which is administered by USFWS. Additional details on the most crucial prey stocks for Southern Resident killer whales, as well as their population and range, is available from several fact sheets and videos available here: https://www.fisheries.noaa.gov/species/killer-whale#spotlight. For more information, visit this NMFS StoryMap on Southern Resident killer whales: https://noaa.maps.arcgis.com/apps/Cascade/index.html?appid=3405e6637bf74e998d4ebe992c54f613.
31819	17	N/A	N/A	Many Chinook salmon runs identified as priority stocks for Southern Resident orcas are also listed as endangered under the ESA;90 spring-run salmon appear to be disproportionately impacted by human use and development of river systems because of the extended time juveniles and adults spend in river systems.91 Assessing changes in prey availability for Southern Resident orcas on a river-by-river basis disregards the effects of declining salmon abundance throughout their range and the subsequent year-round nutritional stress, which further limits their immediate survival and future recovery. NMFS has identified [p]rey species of sufficient quantity, quality, and availability as an essential habitat feature in both current and proposed critical habitat areas including Salish Sea and coastal habitat and noted that the availability of key prey stocks is essential for the orcas survival.92 The DEIS does not consider that restoring Columbia and Snake River spring Chinook runs could greatly increase a critical seasonal food source for Southern Resident orcas and therefore increase their chances of survival and recovery.	The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). The co-lead agencies agree that the quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults form the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differentially from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020). Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Additionally, Section 7.7.8 states impacts to Southern Resident killer whales would be negligible. Thus, the co-lead agencies expect salmon and steelhead increases would come from operational measures and existing hatchery production carried forward into the Preferred Alternative. These hatcheries include conservation and safety net hatcheries, as well as through the continued existence of certain independent Congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as the Lower Snake River Compensation Plan, which is administered by USFWS. Moreover, NMFS concluded in its 2020 CRS BiOp that operations, maintenance and configuration of the CRS is not likely to adversely affect SRKW.
31819	18	N/A	N/A	IV. The Preferred Alternative is environmentally inadequate and offers only a minor change to status quo conditions for Chinook salmon and Southern Resident orcas. The Preferred Alternative offers only a minor change to status quo conditions, which have been inadequate for salmon and orca recovery. According to a review by the Fish Passage Center, the Preferred Alternative does not meet the regional recovery goal for Chinook salmon, and has only slightly better fish survival metrics compared to the No Action Alternative.93 The DEIS 89 NMFS. 2009. Biological Opinion and Conference Opinion on the Long-Term Operations of the Central Valley Project and State Water Project, at 573. 90 NOAA Fisheries West Coast Region and WDFW Southern Resident Killer Whale Priority Chinook Stocks Report. June 22, 2018. Available: https://archive.fisheries.noaa.gov/wcr/publications/protected_species/marine_mammals/killer_whales/recovery/srkw_priority_chinook_stocks_conceptual_model_report___list_22june2018.pdf; See NOAA Fisheries Chinook Salmon https://www.fisheries.noaa.gov/species/chinook-salmon-protected. 91 Gustafson, R.S. et al. 2007. Pacific salmon extinctions: Quantifying lost and remaining diversity. Conserv. Biol. 21,1009-1020; Levin, P. and M. Schiewe. 2001. Preserving salmon biodiversity. Am. Sci. 89, 220-227. 1009-1020. 92 Proposed Rulemaking To Revise Critical Habitat for the Southern Resident Killer Whale Distinct Population Segment, 84 FR 49214. 93 Fish Passage Center. 2019. Comparative Survival Study of PIT-tagged Spring/Summer/Fall Chinook, Summer Steelhead, and Sockeye. 2019 Annual Report, Chapter 2. Available: https://www.fpc.org/documents/CSS/CRSO/CRSO-84.pdf. neglected to even mention this report, let alone respond to its conclusions, which were contrary to those of the DEIS.94 The DEIS itself, as well as additional independent studies and reviews have concluded that the most effective and quickest action to recover ESA-listed salmon populations in the Columbia Basin and increase prey availability for Southern Resident orcas is to restore unobstructed passage through this area.95 Restoring salmon productivity to the Snake River Basin in particular is vital due to the recovery potential for spring/summer Chinook salmon in the remaining high-quality habitat.96	The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). The co-lead agencies agree that the quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults form the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differentially from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020). The co-lead agencies conclude there could be a minor beneficial effect to SRKW from implementing MO3. CSS and NMFS Lifecycle models predict that lower Snake River Chinook salmon smolt-to-adult returns would have a moderate to major increase under MO3. But, the overall impact of MO3, including the fact that the operation of Lower Snake River Compensation Plan fish hatcheries under MO3 is uncertain and therefore, production of Snake River hatchery fish is assumed to decline over the long term, while returning adult wild salmon are anticipated to increase. However, the co-leads do not anticipate a lack of hatchery fish in the short term based on the proposed fish hatchery mitigation described in Chapter 5. These additional hatchery fish should mitigate short-term construction effects to Snake River populations. Additionally, to address short-term effects to ESA-listed species, the co-lead agencies propose constructing a new trap and haul facility at McNary and conducting at least two years of trap and haul operations for Snake River fish (Chinook, sockeye, and steelhead). Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Additionally, Section 7.7.8 states impacts to Southern Resident killer whales would be negligible. Thus, the co-lead agencies expect salmon and steelhead increases would come from operational measures and existing hatchery production carried forward into the Preferred Alternative. These hatcheries include conservation and safety net hatcheries, as well as through the continued existence of certain independent Congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as the Lower Snake River Compensation Plan, which is administered by USFWS. Moreover, NMFS concluded in its 2020 CRS BiOp that operations, maintenance and configuration of the CRS is not likely to adversely affect SRKW. There are many factors that effect salmonid populations that are outside the authority of the co-lead agencies. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple legal responsibilities, including compliance with Section 7 of the Endangered Species Act. Under Section 7(a)(2) of the ESA, the co-lead agencies must insure that any action authorized, funded, or carried out is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of habitat of such species. Section 7(a)(2) does not require the co-lead agencies to recover ESA-listed species. However, the co-lead agencies included objectives in the EIS to benefit ESA-listed species. The Preferred Alternative meets the requirements of Section 7(a)(2) and meets the objectives of the CRSO EIS.
31819	19	N/A	N/A	While the DEIS wrongly asserts that any change in prey availability resulting from the Preferred Alternative would have a negligible impact on Southern Resident orcas, it also notes that Alternative MO3 would lead to an increase in prey base available to marine mammals foraging in the Columbia River or offshore from the mouth of the Columbia River, such as the killer whale and that changes in prey availability could impact the behavior of the population in both the short and long term.97 If Columbia Basin Chinook continue to decline, the orcas may be forced to spend more time and energy searching for other sources of food. In either case - searching for other food sources or responding to improved prey availability near the mouth of the Columbia actions that change the orcas behavior have impacts that are far more significant than negligible. With the continued coastwide decline of Chinook salmon and the historically low numbers returning to the Columbia Basin in recent years, status quo conditions or the very minor changes of the Preferred Alternative will continue to negatively impact Southern Resident orcas by reducing a vital seasonal source of available prey.98 94 See W. Watersheds Project, 632 F.3d at 492-93. 95 Columbia River System Operations Draft Environmental Impact Statement Executive Summary, page 24; see also: Budy, P. et al. 2002. Evidence linking delayed mortality of Snake River Salmon to their earlier hydrosystem experience. N. Am. Journal of Fisheries Management 22:3551; Budy, P. 2001. Analytical approaches to assessing recovery options for Snake River chinook salmon. UTCFWRU(1): 1-86. Available at: http://www.fws.gov/columbiariver/publications/recopt.pdf; Haeseker, S.L. et al. 2012. Assessing Freshwater and Marine Environmental Influences on Life-Stage-Specific Survival Rates of Snake River SpringSummer Chinook Salmon and Steelhead, Transactions of the American Fisheries Society, 141:1, 121-138, DOI: 10.1080/00028487.2011.652009; Schaller, H. A. et al. 2014. Evaluating river management during seaward migration to recover Columbia River stream-type Chinook salmon considering the variation in marine conditions. Canadian Journal of Fisheries & Aquatic Sciences, 71, 259-271; Wilson, P.H. 2003. Using population projection matrices to evaluate recovery strategies for Snake River spring and summer Chinook salmon. Conservation Biology 17:782-794. 96 Ibid. and Bonar, Scott (American Fisheries Society Western Division). Letter to Dr. Jane Lubchenco (NOAA). May 4, 2009. Available at: https://s3-us-west-2.amazonaws.com/fisheries/website+pdfs/AFS+POLICY+LETTER+-	The CRSO EIS analyzes the effects of each alternative approach to operation, maintenance, and configuration of the CRS projects in comparison to the No Action Alternative. Under the No Action Alternative, or baseline condition, SRKW are opportunists and follow the Chinook runs along the Pacific Northwest coast. As defined in Chapter 2, the effect of an alternative is "negligible" when the effect as compared to the No Action Alternative is not able to be detected. The Preferred Alternative would result in negligible (undetectable) effects to SRKW because changes to the SRKW's behavior would be undetectable compared to the No Action Alternative. SRKW's range is large making effects of operations of the CRS lesser in comparison to other species, such as sea lions. Effects to sea lions are greater because sea lions have a behavioral predatory advantage by concentrating their fishing efforts at the dams. The co-lead agencies agree that the quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differentially from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020). The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets most other EIS objectives including those for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS, the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams, because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system.

Letter No.	Comment No.	Commenter Name/Email	Affiliation	Comment	Response[1/]
				+Lubchenco+Letter+on+Hydro+Projects+and+Dams+(pdf).pdf. 97 Columbia River System Operations Draft Environmental Impact Statement at 3-758 and 3-759. 98 See: Fish Passage Center. Adult Chinook Returns to Bonneville Dam: https://www.fpc.org/webapps/adultsalmon/R_dailyadultcountsgraph_resultsV6.php; See: Washington Department of Fish and Wildlife 2020 Salmon Forecast. Presented February 28, 2020: https://wdfw.wa.gov/sites/default/files/2020-02/2020_north_of_falcon_forecast_presentation_22820_reduced_file_size.pdf. The DEIS did not consider the high recovery potential of Columbia Basin Chinook and the potential for selecting any other alternatives that maximize salmon survival for a significant positive impact on prey availability for Southern Resident orcas.99 Instead, the Preferred Alternative fails to fully achieve the Action Agencies environmental objectives to improve juvenile and adult salmon survival, and fails to fulfil the Purpose and Need Statement to ensure conservation of fish and wildlife resources, including threatened, endangered, sensitive species such as Southern Resident orcas.	
31819	20	N/A	N/A	V. The Action Agencies must consult with NMFS under section 7 of the ESA to ensure that their actions and the conclusions of the DEIS do not jeopardize listed species or adversely modify critical habitat. The Action Agencies have an independent duty under the ESA to ensure that their selection of the Preferred Alternative does not jeopardize listed species or adversely modify critical habitat.100 To accomplish this, the Action Agencies must consult with NMFS, and the agencies conclusions must be based on the best scientific information available.101 As explained above, to the extent the Action Agencies intend to rely on the limited information and incomplete science presented in the DEIS, the information is inadequate to meet the ESAs high standard. OSA expects the Action Agencies to revisit these inadequacies before releasing the final EIS for the Columbia River System Operations, which will inform consultation with NMFS under section 7 of the ESA.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The co-lead agencies understand their responsibilities under the ESA and documented this compliance in Chapter 8.
31819	21	N/A	N/A	Conclusion The EIS and the Action Agencies Preferred Alternative must support salmon and Southern Resident orca recovery and present a comprehensive, ecosystem-based recovery strategy to improve river flow, temperature, and habitat conditions through all system operations. By failing to take a hard look at the best available scientific information about Southern Resident orcas, which clearly shows the connection between orcas and Columbia Basin salmon, the direct impacts of CRSO on salmon, the reduction in available seasonal prey and other indirect impacts on Southern Resident orcas, and the cumulative impacts of climate change and insufficient prey throughout the orcas range, the DEIS is incomplete and legally insufficient. Thus, OSA expects the Action Agencies to revise this analysis to take a hard look at these impacts, present the best available science, and address contrary scientific information that supports the selection of an alternative that will recover Southern Resident orca and Columbia Basin salmon populations.	The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). The co-lead agencies agree that the quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults form the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. 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Recovery of ESA species is the purview of NMFS and the US Fish and Wildlife Service. This EIS has been developed in consultation with NMFS and USFWS to find an acceptable balance that allows the co-leads to meet congressionally authorized purposes while minimizing impacts to affected ESA species and their designated critical habitats. Based on the fish analysis in Section 7.7.4, the co-lead agencies utilized current high quality information and best available science to reach the conclusion that the Preferred Alternative is expected to provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Additionally, Section 7.7.8 states impacts to Southern Resident killer whales would be negligible. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species.
31821	1	colleen.weiler@whales.org	Whale and Dolphin Conservation	I. The DEIS fails to satisfy National Environmental Policy Act requirements. The National Environmental Policy Act (NEPA) requires that to the fullest extent possible all federal agencies must complete a comprehensive environmental impact statement in connection with actions that significantly affect the environment. 2 In enacting NEPA, Congress recognized the profound impact of human activities, including resource exploitation, on the environment and declared a national policy to create and maintain conditions under which man and nature can exist in productive harmony. 3 NEPA has two fundamental goals: (1) to ensure that the agency will have detailed information on significant environmental impacts when it makes decisions; and (2) to guarantee that this information will be available to a larger audience. 4 To advance its clear policy objectives, NEPA establishes action-forcing procedures that require agencies to take a hard look at environmental consequences. 5 A hard look requires a 1 Nat'l Wildlife Fedn v. Nat'l Marine Fisheries Serv., 184 F. Supp. 3d 861, 876 (D. Or. 2016). 2 42 U.S.C 4332. 3 42 U.S.C. 4331(a). 4 Envtl. Prot. Info. Ctr. v. Blackwell, 389 F. Supp. 2d 1174, 1184 (N.D. Cal. 2004) (quoting Neighbors of Cuddy Mt. v. Alexander, 303 F.3d 1059, 1063 (9th Cir. 2002)); see also Earth Island v. U.S. Forest Serv., 351 F.3d 1291, 1300 (9th Cir. 2003) (NEPA requires that a federal agency consider every significant aspect of the environmental impact of a proposed action . . . [and] inform the public that it has indeed considered environmental concerns in its decision-making process.). 5 Metcalf v. Daley, 214 F.3d 1135, 1141 (9th Cir. 2000) (quoting Robertson v. Methow Valley Citizens Council, 490 U.S. 332, 348 (1989)). WDC, 7 Nelson Street, Plymouth, MA, 02360 T +(508) 746-2522 F +(508)746-2537 E contact@whales.org W whales.org WDC is a registered 501(c)3 non-profit organization. A world where every whale and dolphin is safe and free meaningful comparison of the environmental consequences of all alternatives, including the proposed alternative. 6 A hard look does not allow the agency to take a soft touch or brush-off of negative effects. 7 To have taken the required hard look, the Action Agencies must utilize public comment and the best available scientific information. 8 By focusing agency attention in this way, NEPA ensures that the agency will not act on incomplete information. 9 In analyzing the Preferred Alternative, the No Action Alternative, and all other reasonable alternatives, the Action Agencies failed to take a hard look at the environmental consequences and properly consider the three types of impacts: direct, indirect, and cumulative. 10 Direct effects are caused by the action and occur at the same time and place, such as those to salmon; while indirect effects are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable, 11 such as reduction in prey availability for Southern Resident orcas. Cumulative impacts include impacts on the environment resulting from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions, by any person or agency, and impacts resulting from individually minor but collectively significant actions taking place over a period of time. 12	The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-lead agencies numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), as well as meets the EIS objectives for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. The Preferred Alternative is most likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. The agencies evaluated the direct, indirect and cumulative effects to resources affected by CRS operations, maintenance and configuration in Chapters 3, 4, 6, and 7. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA listed species. The quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of Southern Resident killer whales (SRKWs), along with vessel traffic and noise, and toxic contaminants. The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differentially from hatchery and wild fish. Hatchery fish today likely make up most fish consumed by SRKW (NOAA BiOp 2020). The co-lead agencies note the contribution to the prey of SRKW through the continued existence of their respective independent congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as the Lower Snake River Compensation Plan, which is administered by U.S. Fish and Wildlife Service. The Preferred Alternative and Proposed Action in the agencies' biological assessment carry forward certain mitigation measures described in Chapters 2 and 7 of the EIS, which include continued salmon and steelhead hatchery production. The Preferred Alternative has negligible effects to SRKWs as described in Section 7.7.8.
31821	2	colleen.weiler@whales.org	Whale and Dolphin Conservation	NEPA also requires agencies to address responsible opposing viewpoints and explain their rationale for choosing one viewpoint over the other.13 Federal courts have set aside NEPA analyses where an agency failed to respond to scientific analysis that called into question the agencys assumptions or conclusions. Indeed, the DEIS is invalid because the Action Agencies have failed to respond to opposing scientific viewpoints objectively and in good faith, including those of the governments own experts like the Fish Passage Center.14	The Draft EIS uses current, high quality information and modeling in order to evaluate both the benefits and adverse effects of the range of alternatives. In doing so, the CRSO EIS teams present opposing scientific information. For example in Section 3.5 and Chapter 7, results from both anadromous fish models from the NMFS and Fish Passage Center are used to determine a potential range of results based on opposing viewpoints. Ultimately, the co-lead agencies are responsible for selecting and implementing an alternative. The rationale for doing so is presented throughout Chapter 7, which identifies a Preferred Alternative based on weighing the benefits in achieving the Purpose and Need Statement and EIS objectives while considering the potential adverse effects to the human and natural environment. The co-lead agencies selected senior staff from across the country with expertise in their fields to serve on the EIS team. The CRSO EIS technical teams included experts from across over 30 cooperating agencies. The draft EIS was subjected to two internal agency reviews by the Corps of Engineers from other experts not involved in the development of the document. Additionally, the entire document, analysis, and modeling were reviewed following an Independent External Peer Review (IEPR) process that meets OMB circular on peer review requirements under the "Information Quality Act" and the Final Information Quality Bulletin for Peer Review by the Office of Management and Budget (referred to as the "OMB Peer Review Bulletin). It also meets guidance for the implementation of Sections 2034 and 2035 of the Water Resources Development Act of 2007 (Public Law (P.L.) 110-114) and standards of the National Academy of Sciences independent peer review. The final IEPR report will be publicly available..
31821	3	colleen.weiler@whales.org	Whale and Dolphin Conservation	While the Action Agencies briefly discuss the Southern Resident orcas in the DEISs review of Alternatives, the analysis does not include the best available scientific information, not does it meaningfully compare the environmental consequences of the Alternatives. Thus, the DEIS fails to take a hard look at the science and impacts on Southern Resident orcas and the importance of Columbia Basin Chinook salmon to the orcas, and therefore vastly underestimates the impacts of the CROS on this endangered orca population. In the DEIS, the Action Agencies provided, at best, a cursory examination of the direct, indirect, and cumulative impacts of the Preferred Alternative selected, and largely ignored indirect effects on Southern Residents and key cumulative impacts from climate change. Additionally, the DEIS fails to respond to contrary scientific publications that do not support the selection of the Action Agencies Preferred Alternative. WDC cannot support the DEIS or the Preferred Alternative selected by the Action Agencies, as it is not the environmentally-preferable alternative and is not supported by the best scientific information and data available.	The co-lead agencies relied on high quality, current information in the development of the CRS. The quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of Southern Resident killer whales (SRKWs), along with vessel traffic and noise, and toxic contaminants. The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differentially from hatchery and wild fish. Hatchery fish today likely make up most fish consumed by SRKW (NOAA BiOp 2020). The co-lead agencies note the contribution to the prey of SRKW through the continued existence of their respective independent congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as the Lower Snake River Compensation Plan, which is administered by U.S. Fish and Wildlife Service. The Preferred Alternative carries forward certain mitigation measures described in Chapters 2 and 7 of the EIS, which include continued salmon and steelhead hatchery production. The Preferred Alternative has negligible effects to SRKWs as described in Section 7.7.8 in large part because hatchery production is consistent between the No Action Alternative and the Preferred Alternative. The FEIS includes additional information on SRKWs in Section 3.6 and 7.7.8.

Letter No.	Comment No.	Commenter Name/Email	Affiliation	Comment	Response[1/]
31821	4	colleen.weiler@whales.org	Whale and Dolphin Conservation	II. The DEIS does not take a hard look at the impacts and available science on Southern Resident orcas. The Southern Resident orca DPS has been listed as endangered under the ESA since 2005 and under Canadas Species at Risk Act (SARA) since 2003.15 This community of orcas is genetically distinct from all other orca populations, does not interbreed and rarely interacts with other orcas, and is the only ESA-listed orca population.16 They are part of the fish-obligate Resident ecotype, and rely almost exclusively on salmon as their primary prey.17 As the only Resident population to inhabit the California Current ecosystem and frequent the outer coasts of Washington, Oregon, and Northern California, the Southern Resident orcas spend over half the year in coastal 6 Ctr. for Biological Diversity v. U.S. Dept of Interior, 623 F.3d 633, 646 (9th Cir. 2010). 7 Native Ecosystems Council v. U.S. Forest Serv., 428 F.3d 1233, 1241 (9th Cir. 2005); 8 Biodiversity Cons. Alliance v. Jiron, 762 F.3d 1036, 1086 (10th Cir. 2014) (internal citation omitted). 9 Marsh v. Or. Natural Res. Council, 490 U.S. 360, 371 (1989) (citation omitted). 10 40 C.F.R. 1508.25(c); Colo. Envtl. Coal., 185 F.3d at 1176. 11 40 C.F.R. 1508.8; see also Utahns for Better Transp., 305 F.3d at 1174. 12 40 C.F.R. 1508.7. 13 40 C.F.R. 1502.9(b). 14 W. Watersheds Project, 632 F.3d at 492-93 (agency violated NEPA by giving short shrift to a deluge of concerns from its own experts and other federal and state agencies). 15 National Marine Fisheries Service, Endangered Status for Southern Resident killer whales. 70 FR 69903; DFO (Fisheries and Oceans Canada). 2017. Action Plan for the Northern and Southern Resident Killer Whale (Orcinus orca) in Canada. Species at Risk Act Action Plan Series. (Fisheries and Oceans Canada, Ottawa). 16 Hoelzel, A.R. et al. 2007. Evolution of population structure in a highly social top predator, the killer whale. Molecular Biology and Evolution 24: 1407-1415. 17 Ibid.; Foote, A. D.et al. 2016. Genome-culture coevolution promotes rapid divergence of killer whale ecotypes.Nat. Commun.7:11693 doi: 10.1038/ncomms11693. WDC, 7 Nelson Street, Plymouth, MA, 02360 T +(508) 746-2522 F +(508)746-2537 E contact@whales.org W whales.org WDC is a registered 501(c)3 non-profit organization. A world where every whale and dolphin is safe and free waters.18 Despite the research and conservation efforts initiated after their ESA listing, the Southern Residents have continued to decline and now number just 73 individuals, their lowest population abundance in over 40 years, and have likely lost at least one additional orca since the most recent census at the end of 2019.19 The National Marine Fisheries Service has recognized them as one of nine marine species most at risk of extinction, and considers them a recovery priority #1: a species whose extinction is almost certain in the immediate future because of a rapid population decline or habitat destruction.20 Throughout their range, the Southern Residents face significant threats to their survival, including prey depletion, high toxicant loads, anthropogenic noise, vessel impacts, and oil spill risk.21 A lack of their preferred prey, Chinook salmon, is widely recognized as the primary limiting factor to their immediate survival and future recovery, with increased mortality and decreased fecundity shown to be correlated with coastwide indices of Chinook salmon abundance.22 For their immediate survival and future recovery, the Southern Resident orcas need abundant, diverse, and accessible Chinook salmon prey throughout their range.23	The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). The co-lead agencies agree that the quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults form the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differentially from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020). The co-lead agencies utilized current high quality data and best available science in order to analyze the effects of operation, maintenance, and configuration of the CRS projects in the CRSO EIS. Recovery of ESA-listed salmon and SRKW is outside of the authority of the co-lead agencies, and was not an objective of this EIS. Recovery of ESA species is the purview of NMFS and the US Fish and Wildlife Service. This EIS has been developed in consultation with NMFS and USFWS to find an acceptable balance that allows the co-leads to meet congressionally authorized purposes while minimizing impacts to affected ESA species and their designated critical habitats. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Additionally, Section 7.7.8 states impacts to Southern Resident killer whales would be negligible. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the CRS. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species.
31821	5	colleen.weiler@whales.org	Whale and Dolphin Conservation	Despite the wealth of information available on Southern Resident orcas and updated information available since the scoping period, the DEIS only includes three referenced sources of information on the Southern Residents, does not include the most recent population estimate of 73 orcas from the Center for Whale Research and NMFS (as of December 31, 2019), and does not include any peer-reviewed studies from independent scientists or data from NMFS regarding the orcas presence in coastal habitat, the importance of Chinook salmon to the orcas survival, or the seasonal significance of Columbia Basin Chinook.24 WDC, along with multiple other concerned organizations and individuals, submitted substantial scientific information regarding the presence of the Southern Resident orca population off the mouth of the Columbia River and their reliance on Columbia Basin Chinook during the initial scoping period for the DEIS. However, the Action Agencies failed to include any of this information: NMFS research on the presence of the Southern Residents in coastal waters, which highlights the mouth of the Columbia River as a high-use area;25 studies indicating the orcas preference for Chinook even when other species (e.g. sockeye and pink salmon) are present in greater abundance;26 and information on the correlation of coastwide Chinook abundance to Southern Resident mortality and fecundity rates.27	The Final EIS has been updated based on the National Marine Fisheries Service (NMFS) 2020 Biological Opinion and the information cited by the commenter. The co-lead agencies agree that the quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs. The revised information on Southern Resident killer whales can be found in Section 3.6 (Wildlife) in the final EIS. Additional details on the most crucial Chinook salmon prey stocks for SRKW, as well as their population and range, is available from several fact sheets and videos available here: https://www.fisheries.noaa.gov/species/killer-whale#spotlight. For more information, visit this NMFS StoryMap on SRKW: https://noaa.maps.arcgis.com/apps/Cascade/index.html?appid=3405e6637bf74e998d4ebe992c54f613.
31821	6	colleen.weiler@whales.org	Whale and Dolphin Conservation	Since the scoping period, additional science has been published that further substantiates the importance of Columbia Basin Chinook to Southern Resident orcas, including a comprehensive review of available data from NMFS published 18 Krahn, M.M. et al. 2004. 2004 status review of southern resident killer whales (Orcinus orca) under the Endangered Species Act. NOAA Technical Memorandum NMFS-NWFSC-62, U.S. Department of Commerce, Seattle, Washington; Reynolds, J.E. H. Marsh & T.J. Ragen. 2009. Marine Mammal Conservation. Endangered Species Research. 7:23-28. 19 Population data from Center for Whale Research, www.whaleresearch.com; Mapes, L.V. Another southern resident orca feared dead The Seattle Times, January 28, 2020. https://www.seattletimes.com/seattle-news/environment/another-southern-resident-orca-feared-dead/. 20 NOAA Fisheries. 2016. Species in the Spotlight: Southern Resident Killer Whale DPS. 21 National Marine Fisheries Service. 2008. Recovery Plan for Southern Resident Killer Whales (Orcinus orca). 22 Ford, J.K.B, G.M. Ellis, and P.F. Olesiuk. 2005. Linking prey and population dynamics: Did food limitation cause recent declines of 'resident' killer whales (Orcinus orca) in British Columbia. Fisheries and Oceans; Ford J.K.B et al. 2010. Linking killer whale survival and prey abundance: food limitation in the oceans apex predator? Biology Letters, 6:139142; Ward E.J, E.E. Holmes, and K.C. Balcomb. 2009. Quantifying the effects of prey abundance on killer whale reproduction. Journal of Applied Ecology, 46: 632640; National Marine Fisheries Service 2008. Recovery Plan for Southern Resident Killer Whales (Orcinus orca).; Proposed Revision of the Critical Habitat Designation for Southern Resident Killer Whales: Draft Biological Report. National Marine Fisheries Service, September 2019. Available: https://www.fisheries.noaa.gov/action/critical-habitat-southern-resident-killer-whale . 23 Washington State Southern Resident Orca Task Force. 2019. Final Report and Recommendations. Available: Final Report and Recommendations. 24 National Marine Fisheries Service. Killer Whale: In the Spotlight. Accessed 4/3/2020. https://www.fisheries.noaa.gov/species/killer-whale#spotlight; Proposed Revision of the Critical Habitat Designation for Southern Resident Killer Whales: Draft Biological Report. National Marine Fisheries Service, September 2019. Available: https://www.fisheries.noaa.gov/action/critical-habitat-southern-resident-killer-whale. 25 Hanson, M.B., C.K. Emmons, and E.J. Ward. 2013. Assessing the coastal occurrence of endangered killer whales using autonomous passive acoustic recorders. J. Acoustic Soc. Am. 134(5) 3486-3495; NMFS. 2014. Southern Resident Killer Whales: 10 Years of Research and Conservation; See also National Marine Fisheries Science Center data and reports on Southern Resident tagging project, https://tinyurl.com/vj4dcbs. 26 Ford, J. K. B., & Ellis, G. M. 2006. Selective foraging by fish-eating killer whales Orcinus orca in British Columbia. Marine Ecology Progress Series 316, 185-199. 27 Ford, J.K.B. et al. 2010. Linking killer whale survival and prey abundance: food limitation in the oceans' apex predator? Biol Lett. 2010; 6(1):13942. doi: 10.1098/rsbl.2009.0468 ISI:000273501700038. PMID: 19755531; Ward, E.J., E.E. Holmes, and K.C. Balcomb. 2009. Quantifying the effects of prey abundance on killer whale reproduction. 2009. Journal of Applied Ecology, 46: 632-640. WDC, 7 Nelson Street, Plymouth, MA, 02360 T +(508) 746-2522 F +(508)746-2537 E contact@whales.org W whales.org WDC is a registered 501(c)3 non-profit organization. A world where every whale and dolphin is safe and free with the agencys draft critical habitat revision for Southern Resident orcas (which would provide federal protection to their coastal habitat).28 Although the DEIS refers to the proposed critical habitat revision and the Federal Register publication (page 3-685), none of the considerable information provided in the proposed rule and accompanying Biological Report were included in the DEIS, nor does the DEIS acknowledge that prey species of sufficient quantity, quality, and availability to support individual growth, reproduction and development, overall population growth is an established essential feature for current and proposed critical habitat.29 By failing to include this information, the DEIS underrepresents the importance of Chinook salmon to Southern Resident orcas throughout their range, including the coastal waters off the mouth of the Columbia. This recent collection of research from NMFS summarizes information available regarding the Southern Resident orcas diet and habitat use during the non-summer months (although we also note the information has been with NMFS well before the scoping period and available in publications and presentations from the Agency).30 As noted, Southern Resident orcas frequent the outer coasts of Washington, Oregon, and Northern California, spending more than half the year in coastal waters, with highest use of this habitat occurring in the winter and early spring.31 The data compiled by NMFS from dedicated surveys, satellite-tagging, and passive acoustic monitoring indicate that the timing of the Southern Residents presence near the mouth of the Columbia River coincides with peak spring Chinook salmon returns.32 NMFS itself has noted this area to be a high use foraging area, and approximately 50% of the time spent by the orcas in coastal waters is between Grays Harbor and the Columbia River.33	The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall-run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. 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The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. The co-lead agencies utilized current high quality information and best available science in analyzing the effects of operation, maintenance, and configuration of the CRS projects. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Moreover, the EIS analysis found only a minor effect to the Southern Resident killer whale would result from implementing MO3 (which includes the dam breach measure). Changes to this portion of the whales food availability on the magnitudes predicted for MO3 may change the whales foraging behavior patterns slightly, but will not change their overall condition or population dynamics. Additional details on the most crucial prey stocks for Southern Resident killer whales, as well as their population and range, is available from several fact sheets and videos available here: https://www.fisheries.noaa.gov/species/killer-whale#spotlight. For more information, visit this NMFS StoryMap on Southern Resident killer whales: https://noaa.maps.arcgis.com/apps/Cascade/index.html?appid=3405e6637bf74e998d4ebe992c54f613. The co-lead agencies note the contribution to the prey of Southern Resident killer whales through the continued existence of their respective independent congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as Lower Snake River Compensation Plan (LSRCP), which is administered by USFWS.
31821	7	colleen.weiler@whales.org	Whale and Dolphin Conservation	While the DEIS does include one recent publication regarding Southern Resident orcas the Priority Chinook Stock Report developed by NMFS and the Washington Department of Fish and Wildlife the DEIS does not account for the assumptions and caveats noted in the report itself. 34 The Priority Stock list reflects the full extent of different salmon stocks available to Southern Resident orcas throughout the year. While stocks available during seasons the orcas are food-limited (October-May) are weighted higher and correlation factors are applied for the degree of spatiotemporal overlap, the Priority List does not otherwise differentiate the seasonal availability of different stocks not all stocks are available at all times. We do not dispute the DEIS statement that Puget Sound Chinook stocks are one of the most important salmon stocks for the orcas, but the DEIS must also note that these stocks are not available year-round.35 Other sources of food are critical in different seasons, including Chinook salmon returning to the Columbia Basin in the late winter and early spring. Orcas need to maintain a balance of energy year-round to support daily activities, as well as gestation, lactation, and growth. 36 They need food on a regular basis, and rely on seasonally available prey to 28 Proposed Revision of the Critical Habitat Designation for Southern Resident Killer Whales: Draft Biological Report. National Marine Fisheries Service, September 2019. Available:	Without specifically identifying how the CRSO EIS misuses and misinterprets the Priority Stock Report and its modeling, the co-lead agencies cannot respond to this comment. The CRSO EIS considered the caveats and assumptions in its analysis. Pursuant to NMFS and WDFW's prioritized list of Chinook salmon within their range that are important to SRKW, the CRSO EIS considered that list in assisting to prioritize actions to increase prey availability for the whales. This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall-run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall-run, and Snake River spring/summer-run. (NOAA and WDFW 2018). Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). The Draft EIS meets the requirements of NEPA, as outlined in 42 U.S.C. 4331, et seq., 40 C.F.R. Parts 1500 1508 (CEQs regulations for implementing NEPA), and co-lead agency specific NEPA regulations. The Draft EIS' effects analysis of each resource is based on current high quality information and the best available science as stated in Section 3.1.1. There are gaps and assumptions in the SRKW diet that are still not understood and the co-lead agencies considered the two most important

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				https://www.fisheries.noaa.gov/action/critical-habitat-southern-resident-killer-whale 29 National Marine Fisheries Service: Proposed Rulemaking to Revise Critical Habitat for Southern Resident Killer Whale Distinct Population Segment. 84 FR 49214. 30 Proposed Revision of the Critical Habitat Designation for Southern Resident Killer Whales: Draft Biological Report. National Marine Fisheries Service, September 2019. Available: https://www.fisheries.noaa.gov/action/critical-habitat-southern-resident-killer-whale; for previously available information, see NOAA Fisheries. 2014. Southern Resident Killer Whales: 10 Years of Research and Conservation and NOAA Fisheries Northwest Fisheries Science Center. Distribution and Diet of Southern Resident Killer Whales. Presentation by Brad Hanson, July 2015 Program Review. 31 Ibid and NOAA Fisheries. 2014. Southern Resident Killer Whales: 10 Years of Research and Conservation 32 Ibid. and Hanson, M.B., C.K. Emmons, and E.J. Ward. 2013. Assessing the coastal occurrence of endangered killer whales using autonomous passive acoustic recorders. J. Acoustic Soc. Am. 134(5) 3486-3495; See also National Marine Fisheries Science Center data and reports on Southern Resident tagging project, https://tinyurl.com/vj4dcbs. 33 Hanson, M.B., E.J. Ward, C.K. Emmons, and M.M. Holt. 2018. Modeling the occurrence of endangered killer whales near a U.S. Navy Training Range in Washington State using satellitetag locations to improve acoustic detection data. Prepared for: U.S. Navy, U.S. Pacific Fleet, Pearl Harbor, HI. Prepared by: National Oceanic and Atmospheric Administration, Northwest Fisheries Science Center under MIPR N0007017MP4C419. 8 January 2018; Proposed Revision of the Critical Habitat Designation for Southern Resident Killer Whales: Draft Biological Report. National Marine Fisheries Service, September 2019. Available: https://www.fisheries.noaa.gov/action/critical-habitat-southern-resident-killer-whale. 34 NOAA Fisheries West Coast Region and WDFW Southern Resident Killer Whale Priority Chinook Stocks Report. June 22, 2018. Available: https://archive.fisheries.noaa.gov/wcr/publications/protected_species/marine_mammals/killer_whales/recovery/srkw_priority_chinook_stocks_conceptual_model_report___list_22june2018.pdf; See NOAA Fisheries Chinook Salmon https://www.fisheries.noaa.gov/species/chinook-salmon-protected. 35 Columbia River Systems Operation DEIS at 3-685. 36 Proposed Revision of the Critical Habitat Designation for Southern Resident Killer Whales: Draft Biological Report. National Marine Fisheries Service, September 2019. Available: https://www.fisheries.noaa.gov/action/critical-habitat-southern-resident-killer-whale WDC, 7 Nelson Street, Plymouth, MA, 02360 T +(508) 746-2522 F +(508)746-2537 E contact@whales.org W whales.org WDC is a registered 501(c)3 non-profit organization. A world where every whale and dolphin is safe and free fulfill that need. 37 The DEIS wrongly assumes that only the top-rated salmon stock in the Priority List significantly impact Southern Resident survival and recovery, thus underrepresenting the effects of the CRSO on a critical, seasonal source of food.	Chinook stocks of the Lower Snake River system in their assessment: the Spring and Fall Chinook. The diet of the SRKW is varied depending on available fish stocks and consists of chum as well as Fall Chinook in the Fall. SR Fall Chinook population is increasing and has been considered for delisting. FEIS Chapter 3 (Vegetation, Wetlands, Wildlife, and Floodplains) has been updated for SRKW (Section 3..6.2.6 and Table 3-102). FEIS Chapter 7 (Preferred Alternative), has been updated with additional analysis information on SRKW and potential increase in forage fish, in particular, Chinook salmon (Section 7.7.8). Also, see response to Comment 6110-16.
31821	8	colleen.weiler@whales.org	Whale and Dolphin Conservation	The Priority Stock Report and the DEIS also do not consider the restoration potential of Columbia Basin Chinook. This critical step would provide a better understanding of how changes in abundance could impact seasonal prey availability for the orcas, particularly during seasons they are currently food-limited. NOAAs own recovery plan for Southern Resident orcas states, [p]erhaps the single greatest change in food availability for resident killer whales since the late 1800s has been the decline of salmon in the Columbia River basin.38 In the same plan, NMFS went on to note that the Columbia-Snake River Basin had the largest potential for increasing Chinook salmon abundance throughout the Southern Residents range.39 If the decline of Columbia Basin Chinook has caused the greatest change in food availability, an increase in abundance would have a similar, beneficial, effect. Ignoring key findings and scientific reports, the DEIS does not fully take into account these factors when drawing conclusions to support their Preferred Alternative, improperly diminishing the importance of Columbia and Snake River salmon as a prey resource for Southern Resident orcas.	The co-lead agencies utilized current high quality information and best available science in its analysis of the effects of the operation, maintenance, and configuration of the CRS projects. The co-lead agencies agree that the quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differently from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for the whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall-run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall-run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). FEIS Chapter 3 (Vegetation, Wetlands, Wildlife, and Floodplains) has been updated for SRKW (Section 3..6.2.6 and Table 3-102). FEIS Chapter 7 (Preferred Alternative), has been updated with additional analysis information on SRKW and potential increase in forage fish, in particular, Chinook salmon (Section 7.7.8). Also, see response to Comment 6110-16.
31821	9	colleen.weiler@whales.org	Whale and Dolphin Conservation	III. The DEIS fails to address the direct effects on salmon and the indirect effects on Southern Resident orcas of the CRSO. The Action Agencies consistently disregard both the direct effects of system operations to ESA-listed salmonids and the subsequent reduction in quantity and quality of available prey for Southern Resident orcas. By failing to include sources that clearly show the crucial relationship between Columbia Basin Chinook salmon and Southern Resident orcas in the DEIS, the Action Agencies do not adequately assess the indirect effects of prey depletion as a result of the CRSO on the Southern Resident orcas.	The co-lead agencies utilized current high quality information and best available science in its analysis of the effects (direct, indirect, and cumulative) of the operation, maintenance, and configuration of the CRS projects.The co-lead agencies agree that the quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differently from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for the whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall-run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall-run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). FEIS Chapter 3 (Vegetation, Wetlands, Wildlife, and Floodplains) has been updated for SRKW (Section 3..6.2.6 and Table 3-102). FEIS Chapter 7 (Preferred Alternative), has been updated with additional analysis information on SRKW and potential increase in forage fish, in particular, Chinook salmon (Section 7.7.8). Also, see response to Comment 6110-16.
31821	10	colleen.weiler@whales.org	Whale and Dolphin Conservation	The CRSO has substantially impacted the natural ecology and function of the Columbia River Basin, one of the largest watersheds in North America. 40 Hydropower development and ongoing operations have significantly altered and destroyed salmon habitat and watershed health, resulting in widespread impacts to salmon populations.41 Dams have greatly reduced or eliminated historically accessible habitat, reduced natural river flows vital for out-migrating smolts, increased water temperatures, altered sediment flow, and changed the composition of fish communities, resulting in increased predation on salmon.42 In addition, the physical features of dams such as turbines, bypass systems, and sluiceways have direct and indirect impacts to both adult and juvenile salmon.43 Survival of spring/summer Chinook in the Snake River is lower compared to salmon returning to tributaries lower in the river system that travel past fewer dams.44 Out-migrating smolts not directly killed by the hydropower system may succumb to delayed mortality in the estuary and ocean due to hydropower system-related impacts.45 Decreased water velocities prolong the in-river 37 Proposed Revision of the Critical Habitat Designation for Southern Resident Killer Whales: Draft Biological Report. National Marine Fisheries Service, September 2019. Available: https://www.fisheries.noaa.gov/action/critical-habitat-southern-resident-killer-whale. 38 National Marine Fisheries Service 2008. Recovery Plan for Southern Resident Killer Whales (Orcinus orca). 39 Ibid. 40 Caudill, C. C. et al. 2007. Slow dam passage in adult Columbia River salmonids associated with unsuccessful migration: delayed negative effects of passage obstacles or condition-dependent mortality? Canadian Journal of Fisheries and Aquatic Sciences 64:979995; Harnish, R. A. et al. 2014. Effect of hydroelectric dam operations on the freshwater productivity of a Columbia River fall Chinook salmon population. Canadian Journal of Fisheries and Aquatic Sciences 71:602615; Sheer, M. B., and E. A. Steel. 2006. Lost watersheds: barriers, aquatic habitat connectivity, and salmon persistence in the Willamette and Lower Columbia River basins. Transactions of the American Fisheries Society 135:16541669; Rechisky, E. L. et al. 2013. Influence of multiple dam passage on survival of juvenile Chinook salmon in the Columbia River estuary and coastal ocean. Proceedings of the National Academy of Sciences 110:68836888. 41 Budy, P et al. 2002. Evidence linking delayed mortality of Snake River Salmon to their earlier hydrosystem experience. N. Am. Journal of Fisheries Management 22:3551; NMFS. 2013. ESA Recovery Plan for Lower Columbia River Coho Salmon, Lower Columbia River Chinook Salmon, Columbia River Chum Salmon, and Lower Columbia River Steelhead; UCSRB (Upper Columbia Salmon Recovery Board). 2007. Upper Columbia Spring Chinook Salmon and Steelhead Recovery Plan; NMFS. 2017. Recovery Plan for Snake River Spring/Summer Chinook Salmon and Snake River Basin Steelhead. 42 Ibid. 43 Ibid. 44 Schaller, H. A. et al. 2014. Evaluating river management during seaward migration to recover Columbia River stream-type Chinook salmon considering the variation in marine conditions. Canadian Journal of Fisheries & Aquatic Sciences, 71, 259-271. 45 Budy, P et al. 2002. Evidence linking delayed mortality of Snake River Salmon to their earlier hydrosystem experience. N. Am. Journal of Fisheries Management 22:3551. WDC, 7 Nelson Street, Plymouth, MA, 02360 T +(508) 746-2522 F +(508)746-2537 E contact@whales.org W whales.org WDC is a registered 501(c)3 non-profit organization. A world where every whale and dolphin is safe and free experience of out-migrating juvenile fish and decrease the survival of Snake River Chinook in multiple life stages including smolt to adult returns.46 Despite decades of protection and management, most ESA-listed salmon stocks in the Columbia Basin remain in poor condition and at high risk of extinction. 47 NMFS has recognized that dam presence and operations in the Columbia Basin directly and indirectly contribute to the majority of mortalities of juvenile and adult salmonids migrating through the system.48 These impacts to salmon survival result in	The co-lead agencies utilized current high quality information and best available science to analyze the effects of operation, maintenance, and configuration of the CRS projects in the CRSO EIS, including for its Southern Resident Killer Whale (SRKW) analysis. The overall health and condition of the SRKW depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). The co-lead agencies agree that the quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults form the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differentially from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020). Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Additionally, Section 7.7.8 states impacts to Southern Resident killer whales would be negligible. Thus, the co-lead agencies expect salmon and steelhead increases would come from operational measures and existing hatchery production carried forward into the Preferred Alternative. These hatcheries include conservation and safety net hatcheries, as well as through the continued existence of certain independent Congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as the Lower Snake River Compensation Plan, which is administered by USFWS. Moreover, NMFS concluded in its 2020 CRS BiOp that operations, maintenance and configuration of the CRS is not likely to adversely affect SRKW. There are many effects to salmon and steelhead populations outside the operation and maintenance of the dams (see Chapters 6 and 7 for more information). Salmon and steelhead have been adversely affected in the Columbia River Basin over the last century by many activities including human population growth, urbanization, introduction of exotic species, overfishing, development of cities and other land uses in the floodplains, water diversions for all purposes, dams, mining, farming, ranching, logging, hatchery production, predation, ocean conditions, and loss of habitat (see Chapters 6 and 7 for additional information). While none of the alternatives would affect ocean conditions, the co-lead agencies recognize that these conditions are a major driver for adult returns and that numerous studies have shown the importance of ocean conditions in the return of adult salmon and steelhead (Peterson et al. 2019). The co-lead agencies analyzed the effects of the operation, maintenance, and configuration of the CRS projects on resources affected by the CRS, including the potential to improve conditions for ESA-listed species. The co-lead agencies also looked at the cumulative effects of other actions, including harvest in Chapters 6 and 7 of the EIS. Research continues to evaluate the magnitude of these effects. For more information see the NMFS website at: https://www.nwfsc.noaa.gov/research/index.cfm.

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				fewer spring Chinook returning to the Columbia Basin as adults, decreasing the available prey for Southern Resident orcas. A lack of sufficient prey causes nutritional stress for Southern Resident orcas, which has been linked to negative health metrics including reductions in growth rates, adult length, and social cohesion.49 Photogrammetry analysis on the body condition of individuals, along with fecal hormone analysis on nutritional and reproductive status, provides additional insight into the impacts of prey depletion: the orcas exhibit a decline in body condition between October and May, when they are more likely to be in coastal waters; in recent years, 69% of detected pregnancies have failed, a loss that has been linked to nutritional stress from variations in inland and coastal salmon abundance, particularly from the Columbia Basin.50 Up to a third (33%) failed relatively late in gestation or immediately postpartum, when the energetic cost to the mother orca is especially high, putting her at increased risk.51 It is evident that the current abundance of Columbia Basin Chinook is not sufficient to meet the nutritional needs of the Southern Resident orcas and any failure to increase salmon availability above a modest or negligible increase, i.e. under the No Action or Preferred Alternative, during the late winter and early spring season when they are most reliant on these stocks would lead to further declines and the potential extinction of the orca population. As previously noted, the orcas continue to target Chinook salmon even when other species are more abundant and regardless of the overall Chinook salmon abundance.52 The orcas rely on multiple stocks of Chinook, depending on availability at different times of the year and in different parts of their range.53 Prey and fecal samples indicate that Chinook salmon still comprises the majority of the orcas diet in coastal waters, and over half of the Chinook 46 Schaller, H. A. et al. 2014. Evaluating river management during seaward migration to recover Columbia River stream-type Chinook salmon considering the variation in marine conditions. Canadian Journal of Fisheries & Aquatic Sciences, 71, 259-271. 47 BiOp. 2014. Endangered Species Act Section 7(a)(2) Supplemental Biological Opinion. Consultation on Remand for Operation of the Federal Columbia River power System., NWFSC 2015; West Coast Salmon and Steelhead Listings http://www.westcoast.fisheries.noaa.gov/protected_species/salmon_steelhead/salmon_and_steelhead_listings/salmon_and_steelhead_listings.html . 48 Ibid. 49 Fearnbach, H. et al. 2018. Using aerial photogrammetry to detect changes in body condition of endangered southern resident killer whales. Endang Species Res 35:175-180. https://doi.org/10.3354/esr00883; Ford, J.K.B. et al. 2005. Linking prey and population dynamics: Did food limitation cause recent declines of 'resident' killer whales (Orcinus orca) in British Columbia. Fisheries and Oceans; Ford J.K.B et al. 2010. Linking killer whale survival and prey abundance: food limitation in the oceans apex predator? Biology Letters, 6:139142; Groskreutz et al. 2019. Decadal changes in adult size of salmon-eating killer whales in the eastern North Pacific. Endang. Species Res. (40):183-188. https://doi.org/10.3354/esr00993; Ward E.J et al. 2009. Quantifying the effects of prey abundance on killer whale reproduction. Journal of Applied Ecology, 46: 632640; Proposed Revision of the Critical Habitat Designation for Southern Resident Killer Whales: Draft Biological Report. National Marine Fisheries Service, September 2019. Available: https://www.fisheries.noaa.gov/action/critical-habitat-southern-resident-killer-whale. 50 Fearnbach, H. et al. 2018. Using aerial photogrammetry to detect changes in body condition of endangered southern resident killer whales. Endang Species Res 35:175-180. https://doi.org/10.3354/esr00883; Wasser S.K. et al. 2017. Population growth is limited by nutritional impacts on pregnancy success in endangered Southern Resident killer whales (Orcinus orca). PLoS ONE 12(6): e0179824, https://doi.org/10.1371/journal.pone.0179824 51 Wasser S.K. et al. 2017. Population growth is limited by nutritional impacts on pregnancy success in endangered Southern Resident killer whales (Orcinus orca). PLoS ONE 12(6): e0179824, https://doi.org/10.1371/journal.pone.0179824 52 Ford, J. K. B., & Ellis, G. M. 2006. Selective foraging by fish-eating killer whales Orcinus orca in British Columbia. Marine Ecology Progress Series 316, 185-199; Ford, J.K.B. et al. 2009. Chinook salmon predation by resident killer whales: seasonal and regional selectivity, stock identity of prey, and consumption rates. Fisheries and Oceans Canada (DFO), Nanaimo, BC. 53 NMFS. 2019. Endangered Species Act (ESA) Section 7(a)(2) Biological Opinion and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Response. Consultation on the Delegation of Management Authority for Specified Salmon Fisheries to the State of Alaska. NMFS Consultation Number: WCR-2018-10660. April 5, 2019. 443 p. WDC, 7 Nelson Street, Plymouth, MA, 02360 T +(508) 746-2522 F +(508)746-2537 E contact@whales.org W whales.org WDC is a registered 501(c)3 non-profit organization. A world where every whale and dolphin is safe and free consumed by Southern Residents in this part of their range originate in the Columbia Basin.54 Studies analyzing the health and nutritional status of these orcas indicate that these spring Chinook runs are particularly important for the Southern Residents.55 The Southern Resident orcas need to maintain a balance of energy year-round to support daily activities, as well as gestation, lactation, and growth.56 The size of individual salmon and their caloric content vary by species, geographic area, season, and year, and therefore have different value to Southern Resident orcas.57 Early spring Chinook returning to the Snake and Columbia Rivers provide a unique nutritional value to the orcas in the late winter and early spring. These salmon are known to be large and have a high fat content, and can deliver extra nutritional benefit to endangered orcas.58 Upon their return to historic summer habitat (Salish Sea) in the early spring, elevated triiodothyronine (T3) values indicate the orcas were recently foraging on especially rich, fatty food spring Chinook returning to the Columbia Basin.59 Research assessing the changing nutritional status of the orcas indicates that the conservation of these early spring runs may be especially important to recovery efforts for the Southern Residents.60 The 2016 NMFS Status Review for the Southern Resident orcas one of the only three references included in the DEIS for orcas supports this point, clearly stating that the elevated T3 levels detected in the orcas in early spring indicate that the whales are foraging on prey with high nutritional value before returning to inland summer habitat, suggesting the importance of coastal early spring run salmon.61 By incorrectly asserting that Snake River and Columbia Chinook constitute a small portion of their overall diet and failing to include any scientific studies on the impacts of prey depletion, particularly of Columbia Basin salmon, on Southern Resident orcas, the Action Agencies vastly under-represent the indirect effects of CRSO on Southern Residents.62 The Action Agencies also contradict themselves in the DEIS: it notes that a change in operations (MO3 breaching the Snake River dams) may result in a moderate to major increase in smolt-to-adult returns and overall abundances of adult salmon and steelhead over the long term with an increase in prey availability from the Columbia Basin, subsequently changing the short- and long-term behavior of the orcas, but also consistently asserts that the change in prey availability would have a negligible impact on the orcas.63 Not only do actions that change the orcas behavior have impacts that are far more significant than negligible, but the Action Agencies do not fully analyze these indirect effects changes in behavior of the orcas that they themselves note in the DEIS.	
31821	11	colleen.weiler@whales.org	Whale and Dolphin Conservation	IV. The DEIS fails to assess the cumulative impacts of region-wide declines in salmon abundance. Southern Residents need available, accessible, and abundant food sources throughout their range to sustain them year-round and support individual and population growth. While the Southern Residents have some seasonality in their movement throughout their range, historically using the inland waters of the Salish Sea during the summer and fall and moving into coastal waters in the winter and spring, their habitat use is dynamic, with foraging, breeding, calving, traveling, and resting occurring throughout their range.64 54 Ward, E. et al, NWFSC Science to Inform SRKW Distribution and Diet, Presentation to Pacific Fisheries Management Council SRKW Working Group, May 2019: available at https://www.fisheries.noaa.gov/webdam/download/92840008. 55 Ayres KL, et al., 2012. Distinguishing the Impacts of Inadequate Prey and Vessel Traffic on an Endangered Killer Whale (Orcinus orca) Population. PLoS One 7: e36842, http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0036842; Wasser S.K. et al. 2017. Population growth is limited by nutritional impacts on pregnancy success in endangered Southern Resident killer whales (Orcinus orca). PLoS ONE 12(6): e0179824, https://doi.org/10.1371/journal.pone.0179824. 56 Proposed Revision of the Critical Habitat Designation for Southern Resident Killer Whales: Draft Biological Report. National Marine Fisheries Service, September 2019. Available: https://www.fisheries.noaa.gov/action/critical-habitat-southern-resident-killer-whale. 57 Mesa, M., & Magie, C. 2006. Evaluation of energy expenditure in adult spring chinook salmon migrating upstream in the Columbia River Basin: An assessment based on sequential proximate analysis. River Research and Applications, 22(October), 10851095. http://doi.org/10.1002/rra; O'Neill, S. M. et al. 2014. Energy content of Pacific salmon as prey of northern and Southern Resident Killer Whales. Endangered Species Research. 25: 265281. 58 Ibid. 59 Wasser S.K. et al. 2017. Population growth is limited by nutritional impacts on pregnancy success in endangered Southern Resident killer whales (Orcinus orca). PLoS ONE 12(6): e0179824, https://doi.org/10.1371/journal.pone.0179824. 60 Ayres KL, et al., 2012. Distinguishing the Impacts of Inadequate Prey and Vessel Traffic on an Endangered Killer Whale (Orcinus orca) Population. PLoS One 7: e36842, http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0036842. 61 National Marine Fisheries Service. 2016. Southern Resident Killer Whales (Orcinus orca). 5-Year Review: Summary and Evaluation: page 20. 62 Columbia River System Operations Draft Environmental Impact Statement at 7-151. 63 Columbia River System Operations Draft Environmental Impact Statement at 3-758 and 3-759. 64 National Marine Fisheries Service. 2008. Recovery Plan for Southern Resident Killer Whales (Orcinus orca). National Marine Fisheries Service, Northwest Region, Seattle, Washington; Proposed Revision of the Critical Habitat WDC, 7 Nelson Street, Plymouth, MA, 02360 T +(508) 746-2522 F +(508)746-2537 E contact@whales.org W whales.org WDC is a registered 501(c)3 non-profit organization. A world where every whale and dolphin is safe and free As previously noted, the orcas movement is tied to seasonal returns of salmon runs to rivers in the Pacific Northwest and California, and they depend on different runs of salmon in different seasons.65 The Action Agencies incorrectly assume that Columbia Basin Chinook salmon is a minor part of Southern Resident orcas diet because they are comparing it to year-round diet information. The Action Agencies must consider that salmon from all rivers within	The cumulative effects associated with SRKW has been added to the cumulative effects section. A portion of the Chinook population throughout their foraging range, as well as other fish (halibut, lingcod, and big skate), contribute to the overall diet of the SRKW. The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). The co-lead agencies agree that the quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults form the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differentially from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020).

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				the orcas range are not available to the orcas on a year-round basis, but instead are critical to the orcas survival in specific seasons.66 The spatiotemporal distribution of Chinook runs within the orcas range means that different runs are more available, and therefore more important, to the Southern Residents at different times of the year.67 Columbia Basin Chinook are important not only for immediate survival in the late winter and early spring, but for supporting pregnancies and population growth, and sustaining the orcas as they shift into summer foraging grounds.68 The Action Agencies fail to consider the seasonal role of Columbia Basin Chinook in providing the Southern Residents with a key source of food and nutrition during the late winter and early spring.	
31821	12	colleen.weiler@whales.org	Whale and Dolphin Conservation	The Action Agencies also fail to assess the cumulative effects of region-wide reductions in salmon abundance on the Southern Resident orcas, and the further reductions in prey availability from the expected impacts of climate change. Pacific salmon have been extirpated from at least 40% of their historic habitat, and populations return at less than 3% of their historic numbers each year.69 Many Chinook salmon runs identified as priority stocks for Southern Resident orcas are also listed as endangered under the ESA;70 spring-run salmon appear to be disproportionately impacted by human use and development of river systems because of the extended time juveniles and adults spend in river systems.71 Assessing changes in prey availability for Southern Resident orcas on a river-by-river basis disregards the effects of declining salmon abundance throughout their range and the subsequent year-round nutritional stress, which further limits their immediate survival and future recovery. NMFS has identified [p]rey species of sufficient quantity, quality, and availability as an essential habitat feature in both current and proposed critical habitat areas including Salish Sea and coastal habitat and noted that the availability of key prey stocks is essential for the orcas survival.72 The myopic approach of only considering salmon abundance from one watershed ignores both the region-wide decline of salmon and the orcas need for abundant and available prey resources throughout their range. Designation for Southern Resident Killer Whales: Draft Biological Report. National Marine Fisheries Service, September 2019. Available: https://www.fisheries.noaa.gov/action/critical-habitat-southern-resident-killer-whale. 65 Ibid; NMFS. 2014. Southern Resident Killer Whales: 10 Years of Research and Conservation; Ward, E. et al, NWFSC Science to Inform SRKW Distribution and Diet, Presentation to Pacific Fisheries Management Council SRKW Working Group, May 2019: available at https://www.fisheries.noaa.gov/webdam/download/92840008. 66 Ford M.J. et al. 2016. Estimation of a Killer Whale (Orcinus orca) Populations Diet Using Sequencing Analysis of DNA from Feces. PLoS ONE 11(1): e0144956. https://doi.org/10.1371/journal.pone.0144956; Hanson M.B. et al. 2010. Species and stock identification of prey consumed by endangered southern resident killer whales in their summer range. Endang Species Res 11:69-82. https://doi.org/10.3354/esr00263. 67 Ayres KL, et al. 2012. Distinguishing the Impacts of Inadequate Prey and Vessel Traffic on an Endangered Killer Whale (Orcinus orca) Population. PLoS One 7: e36842, http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0036842; Shelton, A.O. et al 2019. Using hierarchical models to estimate stock-specific and seasonal variation in ocean distribution, survivorship, and aggregate abundance of fall run Chinook salmon. Can. J. Fish. Aquat. Sci. 76(1): 95-108. doi:10.1139/cjfas-2017-0204; Weitkamp, L.A. 2010. Marine Distributions of Chinook Salmon from the West Coast of North America Determined by Coded Wire Tag Recoveries, Transactions of the American Fisheries Society, 139:1, 147-170. 68 Ayres KL, et al. 2012. Distinguishing the Impacts of Inadequate Prey and Vessel Traffic on an Endangered Killer Whale (Orcinus orca) Population. PLoS One 7: e36842, http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0036842; Wasser S.K. et al. 2017. Population growth is limited by nutritional impacts on pregnancy success in endangered Southern Resident killer whales (Orcinus orca). PLoS ONE 12(6): e0179824, https://doi.org/10.1371/journal.pone.0179824. 69 Lackey, R.T. 2000. Restoring Wild Salmon to the Pacific Northwest: chasing an illusion? pp. 91-145 in What We Dont Know about Pacific Northwest Fish Runs? An Inquiry into Decision-Making. P. Koss and M. Katz, editors. Portland State University, Portland, Oregon; Levin, P. and M. Schiewe. 2001. Preserving salmon biodiversity. Am. Sci. 89, 220-227. 70 NOAA Fisheries West Coast Region and WDFW Southern Resident Killer Whale Priority Chinook Stocks Report. June 22, 2018. Available: https://archive.fisheries.noaa.gov/wcr/publications/protected_species/marine_mammals/killer_whales/recovery/srkw_priority_chinook_stocks_conceptual_model_report___list_22june2018.pdf; See NOAA Fisheries Chinook Salmon https://www.fisheries.noaa.gov/species/chinook-salmon-protected. 71 Gustafson, R.S. et al. 2007. Pacific salmon extinctions: Quantifying lost and remaining diversity. Conserv. Biol. 21,1009-1020; Levin, P. and M. Schiewe. 2001. Preserving salmon biodiversity. Am. Sci. 89, 220-227. 1009-1020. 72 Proposed Rulemaking To Revise Critical Habitat for the Southern Resident Killer Whale Distinct Population Segment, 84 FR 49214.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Moreover, the EIS analysis found only a minor effect to the Southern Resident killer whale would result from implementing MO3 (which includes the dam breach measure). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). The co-lead agencies agree that the quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults form the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differentially from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020). Changes to this portion of the whales food availability on the magnitudes predicted for MO3 may change the whales foraging behavior patterns slightly, but will not change their overall condition or population dynamics. Additional details on the most crucial prey stocks for Southern Resident killer whales, as well as their population and range, is available from several fact sheets and videos available here: https://www.fisheries.noaa.gov/species/killer-whale#spotlight. For more information, visit this NMFS StoryMap on Southern Resident killer whales: https://noaa.maps.arcgis.com/apps/Cascade/index.html?appid=3405e6637bf74e998d4ebe992c54f613. The co-lead agencies note the contribution to the prey of Southern Resident killer whales through the continued existence of their respective independent congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as Lower Snake River Compensation Plan (LSRCP), which is administered by USFWS. The cumulative effects associated with SRKW have been added to the cumulative effects section. A portion of the Chinook population throughout their foraging range, as well as other fish (halibut, lingcod, and big skate), contribute to the overall diet of the SRKW. The impacts to SRKW from food sources from other areas aside from the area impacted by the operation, maintenance, and configuration of the CRS projects are outside of the scope of what the federal action can address in this EIS. However, the U.S. Army Corps of Engineers is in partnership with other Federal, state and non-governmental organizations and have been implementing habitat projects for salmon, orcas, and wildlife all around the Puget Sound as part of the Puget Sound Nearshore Ecosystem Restoration Project.
31821	13	colleen.weiler@whales.org	Whale and Dolphin Conservation	The development and alteration of watersheds, estuaries, and nearshore environments is one of the primary causes of salmon decline, and increasing ocean warming and acidification compound stressors on salmon and can impede their survival.73 Climate change impacts are expected to cause an additional 22% loss of current salmon habitat.74 Increasing ocean warming and acidification compound stressors on salmon and can limit their survival. The Cascade Mountains have had a 25% decrease in snowpack since 1950 due to increasing global temperatures, and summer streamflow has decreased up to 15%.75 Lower streamflow in the summer can increase water temperatures to levels deadly for salmon, decrease suitable habitat, and impede migration.76 For example, drought conditions in 2015 were amplified by changes to river flows caused by dams, resulting in a massive die-off of sockeye salmon in the Columbia River, and the marine heat wave of 2015/2016 increased water temperatures in inland Washington, causing the loss of an estimated 1.5 million juvenile fish in overheated streams and rivers.77 Despite these projected climate change impacts on salmon, the DEIS does not provide any information about efforts to mitigate lethal water temperatures on salmon, and the models used to predict climate impacts on water temperatures and salmon do not accurately assess how water temperatures will differ under the Preferred Alternative. In addition, the DEIS does not consider that current and continued declines of Chinook salmon stocks in the Columbia Basin and throughout the range of the Southern Resident orcas increases year-round nutritional stress on the orcas and impedes immediate survival and future recovery of the population. In a similar analysis on the impacts of hydrosystem operations on prey availability for Southern Resident orcas, NMFS concluded that the loss of a single individual, or the decrease in reproductive capacity of a single individual, is likely to reduce the likelihood of survival and recovery of the species.78 The current low abundance of Columbia Basin Chinook, and the minor increase projected under the Preferred Alternative, continues to directly reduce the likelihood of survival and recovery for Southern Resident orcas.	A full assessment of considerations of climate change and water temperatures are in section 3.4 Water Quality, Chapter 4 Climate, and Chapter 7 of the Preferred Alternative of the analysis. Regarding effects on killer whales, the agencies have considered the effects of each of the alternatives on the Southern Resident Killer Whale in their wildlife analysis, which is summarized in Chapter 3.6 and Chapter 7 the EIS and described in greater detail in Appendix F and Appendix V. While the largest change to Snake River Salmon may result from implementation of alternative MO3, the co-lead agencies conclude there could be a negligible to minor beneficial effects to SRKW. CSS and NMFS Life Cycle models predict that lower Snake River Chinook salmon smolt-to-adult returns would have a moderate to major increase under MO3. Operation of Lower Snake River Compensation Plan fish hatcheries under MO3 is uncertain and therefore, production of Snake River hatchery fish is assumed to decline over the long term, while returning adult wild salmon are anticipated to increase. However, the co-leads do not anticipate a lack of hatchery fish in the short term based on the proposed fish hatchery mitigation described in Chapter 5. These additional hatchery fish should mitigate short-term construction effects to Snake River populations. Additionally, to address short-term effects to ESA-listed species, the co-lead agencies propose constructing a new trap and haul facility at McNary and conducting at least two years of trap and haul operations for Snake River fish (Chinook, sockeye, and steelhead). The quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differently from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020). The EIS analysis found only a minor effect to the Southern Resident killer whale would result from implementing MO3 (which includes the dam breach measure). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. 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31821	14	colleen.weiler@whales.org	Whale and Dolphin Conservation	V. The Preferred Alternative is environmentally inadequate and offers only a minor change to status quo conditions for Chinook salmon and Southern Resident orcas. According to NMFS, existing management and recovery actions for salmon have not been sufficient to increase availability to support Southern Resident population growth.79 Status quo conditions are inadequate for salmon and orca recovery, and the Preferred Alternative has only slightly better fish survival metrics compared to the No Action Alternative, according to a review by the Fish Passage Center.80 Although this expert review was requested by the Action Agencies, the DEIS does not mention this report or respond to its conclusions, which were contrary to those of the DEIS.81 73 NOAA Fisheries. Chinook salmon: https://www.fisheries.noaa.gov/species/chinook-salmon-protected. 74 USGCRP, 2018: Impacts, Risks, and Adaptation in the United States: Fourth National Climate Assessment, Volume II [Reidmiller, D.R., C.W. Avery, D.R. Easterling, K.E. Kunkel, K.L.M. Lewis, T.K. Maycock, and B.C. Stewart (eds.)]. U.S. Global Change Research Program, Washington, DC, USA, 1515 pp. doi: 10.7930/NCA4.2018. See Chapter 24: Northwest. 75 Governor's Salmon Recovery Office, "State of Salmon in Watersheds 2019," Governor's Salmon Recovery Office, Olympia, WA, 2019; G. M. a. J. Casola, "State of Knowledge, Climate Change in Puget Sound," Climate Impacts Group. 76 Budy, P et al. 2002. Evidence linking delayed mortality of Snake River Salmon to their earlier hydrosystem experience. N. Am. Journal of Fisheries Management 22:3551; Gustafson, R.S. et al. 2007. Pacific salmon extinctions: Quantifying lost and remaining diversity. Conserv. Biol. 21, 1009-1020; Levin, P. and M. Schiewe. 2001. Preserving salmon biodiversity. Am. Sci. 89, 220-227; Schaller, H. A. et al. 2014. Evaluating river management during seaward migration to recover Columbia River stream-type Chinook salmon considering the variation in marine conditions. Canadian Journal of Fisheries & Aquatic Sciences, 71, 259-271. 77 Snover, A.K. et al. 2019. "No Time to Waste. The Intergovernment Panel on Climate Change's Special Report on Global Warming of 1.5C and Implications for Washington State." University of Washington Climate Impacts Group, Seattle, WA;Washington State Southern Resident Orca Task Force. 2019. Final Report and Recommendations. Available: https://www.governor.wa.gov/sites/default/files/OrcaTaskForce_FinalReportandRecommendations_11.07.19.pdf. 78 NMFS. 2009. Biological Opinion and Conference Opinion on the Long-Term Operations of the Central Valley Project and State Water Project, at 573. 79 Endangered Species Act (ESA)	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. The co-lead agencies utilized current high quality information and best available science in its analysis of the impacts of operations, maintenance, and configuration of the CRS projects. The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. 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Additional details on the most crucial prey stocks for Southern Resident killer whales, as well as their population and range, is available from several fact sheets and videos available here: https://www.fisheries.noaa.gov/species/killer-whale#spotlight. For more information, visit this NMFS StoryMap on Southern Resident killer whales: https://noaa.maps.arcgis.com/apps/Cascade/index.html?appid=3405e6637bf74e998d4ebe992c54f613. The co-lead agencies note the contribution to the prey of Southern Resident killer whales through the continued existence of their respective independent congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as Lower Snake River Compensation Plan (LSRCP), which is administered by USFWS.

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				Section 7(a)(2) Biological Opinion and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Response, Consultation on the Delegation of Management Authority for Specified Salmon Fisheries to the State of Alaska, NMFS Consultation Number: WCR-2018-10660, p. 84 (April 5, 2019). 80 Fish Passage Center. 2019. Comparative Survival Study of PIT-tagged Spring/Summer/Fall Chinook, Summer Steelhead, and Sockeye. 2019 Annual Report, Chapter 2. Available: https://www.fpc.org/documents/CSS/CRSO/CRSO-84.pdf. 81 See W. Watersheds Project, 632 F.3d at 492-93.	
31821	15	colleen.weiler@whales.org	Whale and Dolphin Conservation	The Action Agencies failed to adequately evaluate all reasonable alternatives to reduce the impacts of the CRSO to avoid jeopardy on ESA-listed species. More effective actions, including breaching dams and/or modifying operations, are necessary to eliminate or reduce the adverse impacts to listed species and change the status quo. The dam breaching Alternative, MO3, would result in significant increases in salmon populations and aide in the long-term restoration of the Columbia watershed. Instead, the DEIS wrongly asserts that any change in prey availability resulting from the Preferred Alternative would have a negligible impact on Southern Resident orcas, yet also notes that Alternative MO3 would lead to an increase in prey base available to marine mammals foraging in the Columbia River or offshore from the mouth of the Columbia River, such as the killer whale and that changes in prey availability could impact the behavior of the population in both the short and long term.82 If Columbia Basin Chinook continue to decline, the orcas may be forced to spend more time and energy searching for other sources of food. In either case - searching for other food sources or responding to improved prey availability near the mouth of the Columbia actions that change the orcas behavior have impacts that are far more significant than negligible. Indeed, the Action Agencies conclude without citation or analysis that the effect for the prey-limited orcas would be only minor. 83 We agree that MO3 would result in the greatest increase in overall abundance of adult salmon over the longer term; however, we cannot agree that the impact on the Southern Residents that a moderate to major increase in adult salmon returns over the long term would be minor. The DEIS did not consider the high recovery potential of Columbia Basin Chinook and the potential for selecting any other alternatives that maximize salmon survival for a significant positive impact on prey availability for Southern Resident orcas.84 Instead, the Preferred Alternative fails to fully achieve the Action Agencies environmental objectives to improve juvenile and adult salmon survival, and fails to fulfil the Purpose and Need Statement to ensure conservation of fish and wildlife resources, including threatened, endangered, sensitive species such as Southern Resident orcas. With the continued coastwide decline of Chinook salmon and the historically low numbers returning to the Columbia Basin in recent years, status quo conditions or the very minor changes of the Preferred Alternative will continue to negatively impact Southern Resident orcas by continuing to impact a vital seasonal source of available prey.85	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA listed species. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-lead agencies numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3, which includes breaching the four lower Snake River dams. The Preferred Alternative also meets the EIS objectives including those for: resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS the co-lead agencies did not identify MO3 because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. The EIS concluded MO3, which includes breaching the four lower Snake River dams would have greater improvement to certain salmon species in the lower Snake River. It did not, however, conclude there was greater certainty of that result in MO3 over any other alternative. Because of delayed response time in MO3, and the potential severity of the short term effects, MO3 would likely have the most substantial uncertainty in terms of beneficial effects. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. The effects of delayed mortality are discussed throughout the EIS analysis for each alternative and current high quality data and the best available scientific information was used for this analysis. Based on analysis by the CSS, SARs associated with population declines (SARs of less than 1%) have the potential to be greatly reduced under the Preferred Alternative, and on average, SARs are expected to be well above 2.0% for Snake River spring Chinook salmon and steelhead. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. The co-lead agencies conclude the expected outcomes for salmon and steelhead associated with MO3 are appropriately acknowledged and framed appropriately with impacts to other authorized purposes. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information. Based on the analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the CRS. This EIS has been developed in consultation with National Marine Fisheries Service (NMFS) and U.S. Fish and Wildlife Service (USFWS) to find an acceptable balance that allows the co-lead agencies to meet the Purpose and Need Statement while minimizing impacts to affected ESA-listed species and their habitats. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. The quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of Southern Resident killer whales (SRKWs), along with vessel traffic and noise, toxic contaminants, and other health risks (e.g., inbreeding). The operation of the Columbia River System directly affects Snake River and Columbia River Chinook salmon, both wild and hatchery origin fish, which migrate past these Federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of abundance of Chinook salmon available to SRKW for prey, populations of some Snake River adult Chinook salmon stocks are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS scientists maintain that recovering Chinook salmon stocks for SRKW goes beyond the Columbia River Basin, and that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW. (NMFS BiOp 2020). The EIS analysis found only a minor effect to the Southern Resident killer whale would result from implementing MO3 (which includes the dam breach measure). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit deferentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults form the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differentially from hatchery and wild fish. Hatchery fish today likely make up most fish consumed by SRKW (NOAA BiOp 2020). The EIS has analyzed spill as a measure in the Preferred Alternative and determined the overall effect to SRKW to be negligible in large part because hatchery production is consistent between the No Action Alternative and the Preferred Alternative. Because the impact from the Preferred Alternative was determined to be negligible, the agencies determined that existing hatchery production would be sufficient to address any potential impacts to prey availability for SRKWs. The co-lead agencies note the contribution to the prey of SRKW through the continued existence of their respective independent congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as the Lower Snake River Compensation Plan, which is administered by U.S. Fish and Wildlife Service. The Preferred Alternative and Proposed Action in the agencies' biological assessment carry forward certain mitigation measures described in Chapters 2 and 7 of the EIS, which include continued salmon and steelhead hatchery production. The Preferred Alternative has negligible effects to SRKWs as described in Section 7.7.8.
31821	16	colleen.weiler@whales.org	Whale and Dolphin Conservation	VI. The DEIS does not adequately assess the Alternative of breaching the four Lower Snake River dams While there are many actions necessary in different parts of their range to support Southern Residents orcas, leading orca scientists agree that if the four Lower Snake River dams are not breached, recovering this iconic and unique population may not be possible. 86 Under status quo conditions, the orcas and the salmon they depend on will continue to decline. The Preferred Alternative does not provide the comprehensive plan needed to transition the region to a free-flowing Snake River. It offers only a minor change to status quo conditions, and is projected to result in half as many salmon returning to the Columbia Basin as there would be under MO3. 87 The DEIS itself, as well as additional independent studies and reviews, have concluded that the most effective and quickest action to recover ESA-listed salmon populations in the Columbia Basin and increase prey availability for Southern Resident orcas is to restore unobstructed passage through this area.88 Restoring salmon productivity in the 82 Columbia River System Operations Draft Environmental Impact Statement at 3-758 and 3-759 83 Columbia River System Operations DEIS at 3-758. 84 Fish Passage Center. 2019. Comparative Survival Study of PIT-tagged Spring/Summer/Fall Chinook, Summer Steelhead, and Sockeye. 2019 Annual Report, Chapter 2. Available: https://www.fpc.org/documents/CSS/CRSO/CRSO-84.pdf. 85 See: Fish Passage Center. Adult Chinook Returns to Bonneville Dam: https://www.fpc.org/webapps/adultsalmon/R_dailyadultcountsgraph_resultsV6.php; See: Washington Department of Fish and Wildlife 2020 Salmon Forecast. Presented February 28, 2020: https://wdfw.wa.gov/sites/default/files/2020-02/2020_north_of_falcon_forecast_presentation_22820_reduced_file_size.pdf. 86 Giles, D.A. et al. 2018. Letter to Governor Jay Inslee and Southern Resident Orca Recovery Task Force Members. October 15, 2018. Available at: https://www.documentcloud.org/documents/5002547-Orca-Scientists-Letter-10-15-18-Final.html. 87 Estimated salmon returns under each scenario were based on CSS smolt-to-adult-ratios and quantified by Dr. Michelle Dehart of the Fish Passage Center during a webinar to the Southern Resident Orca Recovery Task Force on September 27th, 2018. Webinar is available at: https://pspwa.app.box.com/s/l0je55acwx7hjcxqfrc9uys72c4eg1dz/file/322691991990. 88 Columbia River System Operations Draft Environmental Impact Statement Executive Summary, page 24; see also: Budy, P. et al. 2002. Evidence linking delayed mortality of Snake River Salmon to their earlier hydrosystem experience. N. Am. Journal of Fisheries Management 22:3551; Budy, P. 2001. Analytical approaches to assessing recovery options for Snake River chinook salmon. UTCFWRU(1): 1-86. Available at: WDC, 7 Nelson Street, Plymouth, MA, 02360 T +(508) 746-2522 F +(508)746-2537 E contact@whales.org W whales.org WDC is a registered 501(c)3 non-profit organization. A world where every whale and dolphin is safe and free Snake River Basin in particular is vital due to the recovery potential for spring/summer Chinook salmon in the remaining high-quality habitat.89 The Action Agencies did not fully assess the environmental benefits of MO3, breaching the four Lower Snake River dams, or take a meaningful look at the environmental consequences of the other Alternatives. Removing dams is an increasingly common management strategy for watershed restoration throughout the U.S.90 The DEIS should analyze the potential ecosystem benefits that occur under MO3, including salmon recovery, habitat and estuarine restoration, improved water quality and temperature, and improved physical conditions of tributaries and mainstem habitat.91 The DEIS also does not consider that restoring Columbia and Snake River spring Chinook runs could greatly increase a critical seasonal food source for Southern Resident orcas and therefore increase their chances of survival and recovery. We urge the Action Agencies to conduct a more extensive and accurate assessment of breaching the four Lower Snake River dams and a management alternative that maximizes salmon survival through the CRSO. The Action Agencies must consider the direct, indirect, and cumulative impacts that management actions have on salmon, Southern Resident orcas, and other wildlife. As written, the DEIS does not completely or accurately assess the feasible alternatives for restoring the Lower Snake River, and the assessment of investments needed to accompany dam breaching and meet additional management objects is limited and does not include key findings in energy sector reports. 92 The Pacific Northwest region is in need of an innovative plan that takes bold action to identify long-term, inclusive solutions to support healthy ecosystems, wildlife, and communities.	The CRSO EIS focuses on alternatives to CRS operations, maintenance and configuration and not on restoring the lower Snake River. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA listed species. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-lead agencies numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3, which includes breaching the four lower Snake River dams. The Preferred Alternative also meets the EIS objectives including those for: resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. 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The effects of delayed mortality are discussed throughout the EIS analysis for each alternative and current high quality data and the best available scientific information was used for this analysis. Based on analysis by the CSS, SARs associated with population declines (SARs of less than 1%) have the potential to be greatly reduced under the Preferred Alternative, and on average, SARs are expected to be well above 2.0% for Snake River spring Chinook salmon and steelhead. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. The co-lead agencies conclude the expected outcomes for salmon and steelhead associated with MO3 are appropriately acknowledged and framed appropriately with impacts to other authorized purposes. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information. Based on the analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the CRS. This EIS has been developed in consultation with National Marine Fisheries Service (NMFS) and U.S. Fish and Wildlife Service (USFWS) to find an acceptable balance that allows the co-lead agencies to meet the Purpose and Need Statement while minimizing impacts to affected ESA-listed species and their habitats. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. The EIS analysis found that only a minor effect to the Southern Resident killer whale would result from implementing MO3 (which includes the dam breach measure). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. 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Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults form the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. 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The co-lead agencies note the contribution to the prey of SRKW through the continued existence of their respective independent congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as the Lower Snake River Compensation Plan, which is administered by U.S. Fish and Wildlife Service. The Preferred Alternative and Proposed Action in the agencies' biological assessment carry forward certain mitigation measures described in Chapters 2 and 7 of the EIS, which include continued salmon and steelhead hatchery production. The Preferred Alternative has negligible effects to SRKWs as described in Section 7.7.8.

Letter No.	Comment No.	Commenter Name/Email	Affiliation	Comment	Response[1/]
					See response to Comment 31821-15
31831	1	nanm3@yahoo.com	N/A	I feel that the removal of the Snake River dams would be detrimental to the Pacific Northwest. Barge travel hauling farm products to port cities would not be possible. This add many,many trucks to our roads and increase wear and tear. The barges also carry fuel for cars and trucks which would be added to the traffic load, a very potential hazard to the roadways.	Section 3.10 of the Draft EIS provides an evaluation of the Columbia Snake River Navigation System, assessing its relative efficiency, low costs for shippers, safety considerations, and low air emissions relative to other transportation modes. Under MO3, barge navigation would not be possible on the lower Snake River. The EIS acknowledges that depending on how rail rates respond to dam breach, shortline rail capacity could be exceeded. The EIS also evaluates the additional transportation infrastructure investments and associated costs that would be required, as well as the increases in air emissions that would occur. Under low rail rate increase scenarios, additional shortline rail capacity would be required that could cost $25 to $50 million. Under a scenario where rail rates increase by 50 percent, more shipping demand would be transferred to trucks, reducing the demands on rail infrastructure, but increasing demands on roads. Under this scenario, up to $10 million in additional road wear and tear costs may occur. The EIS finds that truck ton-miles may experience an increase of 19 percent to 84 percent under MO3 when compared to the No Action Alternative, depending on the rail rate increases that occur. The EIS analysis found that truck trips would increase between 14,000 to 79,000 truck trips per year, which would increase air pollutant and greenhouse gas emissions in the region and add to traffic and congestion in the region. Similarly, Section 3.10 also describes increased safety concerns from the additional truck traffic resulting from MO3.
31831	2	nanm3@yahoo.com	N/A	The loss of cheap hydro power would open the door for expensive wind and solar, which are not as reliable as the energy provided by these dams. Also the installer of the wind machines would benefit from tax credits while the consumers foot the actual bill. Consumes would probably see their energy bills increase. Wind energy is very unreliable.	The comment that replacing lost hydropower capacity with new, variable renewable resources would increase system costs is consistent with the findings of the EIS. See Section 3.7.3.5, Table 3-166 in the draft EIS. However, it should be noted that the EIS did not identify wind as a cost-effective replacement in any alternative, though in Multiple Objective Alternative 2 wind in Montana was identified for the avoided build relative to the No Action Alternative. See EIS, Section 3.7.3.5, at pages 3-904-910 and Appendix H, Chapter 2 in the draft EIS for additional detail.
31834	1	rarusnak62@gmail.com	N/A	All billions in restoration efforts have failed, recline is accelerating, while agencies keep trying the same failed techniques. Specifically, here is how I support my critiques against this political unscientific un economically valid DEIS: 1. The plan ignores avoided costs and future savings by restoring the lower Snake River: The DEIS ignores the anticipated savings of more than $1 billion by eliminating the rising capital, operations and maintenance costs for the four Snake River dams. The cost of maintaining the dams, and replacing turbines is significant.	The cost analysis, described in Section 3.19, Chapter 7, and Appendix Q, describes the implementation and system operations costs under the MOs and compared to the No Action Alternative. The cost analysis estimates the capital and O&M costs savings that would occur under MO3 (see Tables 4-1 and 5-1 in Appendix Q). The capital costs include additional construction and capital requirements that would be needed in the future to maintain the lower Snake River dams. The cost analysis shows that MO3 would result in cost savings between $53 and $158 million as compared to the No Action Alternative.
31834	2	rarusnak62@gmail.com	N/A	2. This DEIS presents a false choice between maintaining affordable utility bills and restoring healthy salmon and steelhead. It overstates the cost of replacing power from the Snake River dams with clean energy, and suggests replacing their power with fossil fuels, a step we know is unnecessary.	The EIS analyzed the effects on regional reliability if the four lower Snake River dams are breached as part of Multiple Objective Alternative 3 (MO3). To maintain regional power reliability at the No Action Alternative levels, the EIS found that additional replacement resources would be necessary. The EIS considered a range of resource portfolios to replace the output of the four lower Snake River dams. That range is reflected in two portfolios used to describe the potential resource options: a least-cost conventional portfolio (natural gas) and a zero-carbon portfolio (primarily solar). See Section 3.7.3.5, at pages 3-904-910 in the draft EIS. The costs of these resource portfolios were developed from the Northwest Power and Conservation Councils (Council) 7th Power Plan and Mid-term Update. The purpose of providing the range of replacement resource options is to present a reasonable range in potential costs. See Section 3.7.3.1, Step 3: Determine Need for Potential Replacement Resources and Associated Costs, at 3-821 and Appendix H, Power and Transmission, at Section 2.2 in the draft EIS. The basis for developing these portfolios may be found in Section 3.7.3.1, Methodology, and for MO3 specifically, Section 3.7.3.5, Potential Replacement Resources and Associated Costs in the draft EIS. All cost effective conservation identified by the Councils 7th Power Plan is included in the load forecast. See Appendix H, Power and Transmission, Section 2.2, at H-2-3 in the draft EIS. Under Washington and Oregon law, all cost effective conservation must be acquired regardless of the status of the Federal Columbia River Power System. Therefore, conservation was not considered a potential resource replacement to avoid double-counting. To address concerns about potential reductions in resource costs, publicly released draft information, such as updated prices for solar and battery storage, from development of the 8th Power Plan is included as rate sensitivities in the Final EIS. The Final EIS will include the de-escalating cost curves prepared by the National Renewable Energy Laboratory (NREL) that will be used by the Council in the 8th Power Plan.
31834	3	rarusnak62@gmail.com	N/A	3. Science must be a foreign language to this plan. The DEIS deems irrelevant and outright dismisses the volumes of peer reviewed scientific research across multiple fields, that restoring the lower Snake River will provide salmon and steelhead with their best chance to recover. It ignores the benefits of increasing those runs for critically endangered orcas and struggling fishing communities.	The co-lead agencies used the best available science and current high-quality information in the analysis of the CRSO EIS. Specific to salmon and steelhead, the agencies used two primary modeling approaches which yielded a range of potential outcomes for the alternatives. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% (within the Northwest Power and Conservation Council's recovery targets for the region) as a result of the Preferred Alternative. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. Based on our analysis, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Recovery is a broader regional goal and is above and beyond the co-lead agencies' obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the CRS. That call, however, is ultimately the role of NMFS and the USFWS. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. In compliance with ESA, the co-lead agencies submitted Biological Assessments to NMFS and USFWS (Appendix V). In this Final EIS, the Biological Opinions from NMFS and USFWS can be found in Appendix V, completing this projects ESA consultation. The CRSO EIS analyzes the effects of operations, maintenance, and configuration on orcas (Section 3.6 and 7.7.8) and on fishing communities (Section 3.15 and 7.7.17).
31834	4	rarusnak62@gmail.com	N/A	4. The DEIS fails to acknowledge the impacts of climate science, absent conciderations for dwindling snowpack. Epic fail is the plans recommendations including w/I the flexible spill at the federal dams will not deliver sufficient survival benefits for endangered salmon and steelhead, and ignores the fact that any potential benefits will be eroded by climate impactssomething river restoration can help mitigate.	Chapter 4 describes the latest projections of climate change for the region. These include projections of weather, snowpack, streamflow, and sea level rise. The amount that an alternative may exacerbate or ameliorate the effects of climate change is discussed in Section 4.2. As discussed in Section 7.6.4 the ongoing Columbia River Tributary Habitat Program will continue under the Preferred Alternative, this program funds, designs, and implements tributary habitat improvements for anadromous fish, including lamprey, in specified Columbia River sub-basins.
31834	5	rarusnak62@gmail.com	N/A	5. Yet again the DEIS ignores another major factor, the tribal populations and historic treaty rights, as it ignores the economic impact that has already been made on Native peoples: The DEIS focuses on the financial costs of salmon recovery and ignores the enormous sacrifices already made by Tribes and rural communities in terms of lost fishing opportunity, reduced jobs and incomes, impacts on Tribal cultures and diets, and other socio-economic effects.	Tribal input was received throughout development of this EIS and those concerns, rights and interests, including treaty rights, were considered and incorporated throughout this EIS. Please see the Tribal discussion in the Executive Summary, the Tribal Perspectives Section of 3.17 and their submittals in full in Appendix P. The alternatives are evaluated in terms of change from the No Action Alternative, which is the baseline condition of 2016 when the development of the EIS began. The co-lead agencies defined the No Action Alternative consistent with NEPA and implementing regulations. In the case of an ongoing action, such as operation of the CRS, the no action alternative represents no change in current management direction or level of management intensity. The No Action Alternative thus assumes the existence of the CRS projects and does not attempt to hypothesize the direct and indirect costs of each of Congress's decisions to construct CRS projects. The EIS analyzing the effects of the No Action Alternative on resources, environmental and socioeconomic, at present and into the future. Analysis shows that the Preferred Alternative would meet the objectives for improving juvenile salmon, adult salmon, resident fish and lamprey. The analysis found ranges in potential effects due to different assumptions included in each of the fish models used in the study. Using the Comparative Survival Study (CSS), Snake River Chinook salmon and steelhead are expected to see relative improvements in smolt-to-adult returns of 35 percent and 28 percent, respectively. The Smolt-to-Adult return ratio (SAR) is the rate at which of a group of fish survive from their smolt life stage to a defined ending point where they return as adult. While achieving long-term recovery targets will require more than just the efforts of Federal agencies, the CSS models indicate the potential for SARs of Snake River Chinook salmon and steelhead to increase to levels that could approach recovery targets set by the Northwest Power and Conservation Council. If latent mortality effects are reduced by passing more juvenile fish through the spillway, the NMFS Lifecycle Model (LCM) also shows that levels of SARs would increase. However, if latent mortality effects are not reduced, or are different than modeled, the LCM predicts that SARs for Snake River spring Chinook salmon may be lower than the No Action Alternative (a range of -7.5 percent to +28 percent change relative to the No Action Alternative) due to reduced opportunities for fish transportation. Results for upper Columbia River stocks are beneficial based on LCM estimates. In-river survival and SARs are anticipated to increase. The CSS model does not currently model upper Columbia fish. The Preferred Alternative also has measures intended to increase upstream passage success and reduce injury and mortality for Pacific lamprey. These measures are proposed structural improvements that include converting extended-length submersible bar screen material to screen material that would not impinge or entangle juvenile lamprey, expanding the network of lamprey passage structures to bypass impediments in fish ladders, changing the design for turbine cooling water strainers, and replacing turbines for safer fish passage. The Preferred Alternative would also meet the objective to improve resident fish. Effects to resident fish vary by region and species, but are generally minor relative to the No Action Alternative. The Preferred Alternative also meets most of the other objectives of the study for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy.
31834	6	rarusnak62@gmail.com	N/A	Basically and overwhelmingly this DEIS ignores the economic and community benefits of salmon recovery and the investments and jobs that river restoration activities will generate. Many new jobs would be created with a free-flowing river. Fishing and recreation opportunities would improve, and about 4,000 acres of land currently flooded by the dams would become available for farming, recreation and would improve habitat.	The EIS provides an evaluation of the social welfare and regional economic effects of the No Action Alternative and the multi-objectives alternatives, including the effects on recreation (Section 3.11) and fisheries (Section 3.15). The EIS described the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. NMFS estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which is described qualitatively. The potential for changes in recreational fishing of anadromous fish under MO3 in the Region C is described in Section 3.11. Increases in recreational fishing could support jobs, income, and social benefits in Tribal and rural river communities. For the effects on recreational fishing under MO3 (Section 3.11.3.5) along the Lower Snake River below Lewiston, the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River) as an indicator for fishing visitation in this reach. The EIS describes that the visitation in the long-term in the lower Snake River, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting outfitting and tourism businesses in the region. However, there is uncertainty around recreational fishing visitation in the long-term given the current measures to regulate, protect, and support ESA-listed fish populations and habitat in the region. Regarding the potential for agricultural development on currently inundated lands under MO3, the co-lead agencies would no longer operate project lands after the projects are deauthorized. Under MO3, it is anticipated that the Corps would retain jurisdiction over the land holdings throughout the implementation period and biological evaluation process and that public control of a portion of public lands would be necessary to protect the environmental and natural benefits to salmon associated with dam breaching. Post dam breaching, the lands may be disposed to another Federal or state agency, or even a private entity. It is uncertain if lands would be available for agriculture. If MO3 were to be selected as the Preferred Alternative, further evaluation, studies, and NEPA would be needed along with congressional authorization and appropriations to implement the alternative.
31838	1	lauren.druash@gmail.com	N/A	As an Idahoan, sportsman, and passionate conservationist, I have several concerns regarding the preferred alternative in the DEIS. This DEIS directly impacts our economy, culture, and ecosystem. Here are some of the key issues identified: 1. MO3, the dam beaching alternative, is the only option that adequately eliminates the risk of extinction for endangered Snake River species of salmon. It is the only proposed alternative that achieves meaningful recovery and reverses the extinction trend by improving SAR to an average of 4%. To achieve recovery, smolt-to-adult ratios must achieve a 4% average. (1) The preferred alternative does not achieve a high enough SAR to meet the regional recovery goals of the species. Research from the Fish Passage Center(FPC) has consistently demonstrated that removal of the Lower Four Snake River Dams is the most effective strategy for improving SAR and	The co-lead agencies used the best available science and current high quality information in the analysis of the CRSO EIS. Specific to salmon and steelhead, the agencies used two primary modeling approaches which yielded a range of potential outcomes for the alternatives. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% (within the Northwest Power and Conservation Council's recovery targets for the region) as a result of the Preferred Alternative. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. Based on our analysis, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Recovery is a broader regional goal and is above and beyond the co-lead agencies' obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the CRS. That call, however, is ultimately the role of NMFS and the USFWS. Recovery efforts will need to continue to

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				survival of ESA listed Snake River salmon and steelhead.(2) Based on FPC research and the DEIS itself, MO3 alternative is the only alternative that adequately achieves the recovery of ESA-protect salmon.	involve parties across the region that have an influence and impact on ESA-listed species. In compliance with ESA, the co-lead agencies submitted Biological Assessments to NMFS and USFWS (Appendix V). In this Final EIS, the Biological Opinions from NMFS and USFWS can be found in Appendix V, completing this projects ESA consultation. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets most other EIS objectives including those for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS, the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams, because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. It should be noted that the 4% average SAR target referenced refers to the Northwest Power and Conservation Councils target for broad-sense recovery and is separate and distinct from the obligations of any single entity or in this case a requirement to be met solely by the co-lead agencies. Just as the Councils fish and wildlife program encompasses both federal and non-federal stakeholders in the Columbia Basin, the Councils recovery goals are shared by many parties.
31838	2	lauren.druash@gmail.com	N/A	2. The preferred alternative, as with previous management plans, is likely in violation of the Endangered Species Act: The preferred alternative within the DEIS recycles 20 years of plans and management strategies, which have been consistently deemed illegal and in violation of the Endangered Species Act. Section 9 of the ESA dictates that it is illegal to take (defined also as kill within Section 3) endangered species. Section 7 is clear that federal agencies may not jeopardize the existence of endangered species, and that agencies must use their authority to conserve both endangered and threatened species. The preferred alternative in the DEIS is only a slight deviation from previous illegal management plans and does not achieve meaningful recovery of Snake River salmon. Therefore, it should be considered that the preferred alternative is likely also in violation of the Endangered Species Act.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The Preferred Alternative complies with the ESA (see Chapter 8, Compliance with Environmental Laws, Regulations and Executive Orders, for more information). The co-lead agencies used current, high quality scientific information the in the analysis of the CRSO EIS. Specific to salmon and steelhead, the agencies used two primary modeling approaches which yielded a range of potential outcomes for the alternatives. With respect to the Preferred Alternative, the CSS model predicts that average Smolt to Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% (the lower end of Northwest Power and Conservation Council's recovery targets for the region) as a result of the Preferred Alternative (increasing from 2.0% to 2.7% for Chinook, a 35% relative increase). The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Recovery is a broader regional goal and is above and beyond the co-lead agencies' obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the Columbia River System. Finally, the co-lead agencies disagree the Preferred Alternative is a slight deviation from previous operations. The spill operation for juvenile fish passage is a significant departure from previous operations, so much so that the Washington and Oregon state water quality standards had to be changed to implement the new spill regime. The Preferred Alternative also includes other operational, structural and mitigation measures to improve conditions for ESA-listed salmon and steelhead.
31838	3	lauren.druash@gmail.com	N/A	3. The DEIS lacks an appropriate and thorough cost-benefit analysis of dam removal, salmon and steelhead recovery, and loss of salmon and steelhead fisheries due to the continued decline of the species due to low SAR. The analysis contains an inaccurate representation of a.) Lower 4 Snake River Dams operations and maintenance, and b.) economic impacts of the coastal and inland fishing industry. In Idaho alone, outdoor recreation - including fishing - is a $2.3 billion dollar industry. In a year of high salmon and steelhead returns, steelhead anglers have spent $8.6 million a month engaging in sportfishing. Placing no monetary value on an industry directly impacted by the Lower Snake River Dams and failure to recover salmon and steelhead to abundant numbers while including the monetary value and impacts of other industries - such as energy and shipping- is deeply concerning. This demonstrates a total and complete disregard for the recreation, angling, and coastal commercial fishing industries, which are directly impacted by the Lower Four Snake River dams. Juvenile and adult salmon survival is directly impacted by these dams, as has been demonstrated by analysis of juvenile salmon survival and salmon and steelhead returns both before and after the construction of the dams (3), as well as evaluations of juvenile salmon survival through each of the dams in the hydrosystem. It is a flawed assessment and inaccurate representation of the full range of impacts of the hydrosystem. Additionally, the study severely underestimates the cost of continued repair and maintenance of the Lower Snake River dams. A full cost-benefit analysis on each of the Lower Four Snake River Dams has yet to be produced, despite the financial state of BPA and cost of BPA-sourced power (which far exceeds the cost of power on the open market), impacts on both inland and coastal fishing industries, and impacts on endangered species. This is long overdue, and should be included in the DEIS. It is deeply concerning that this plan, once again, fails to stop the decline of salmon and steelhead in Idaho. Salmon are central to Idahos ecosystem and economy, and carry deep cultural and economic value. By ignoring the fishing industry entirely while discussing the impacts on other industries of dam breaching, this plan is alarming in its failure to adequately address the needs of our communities.	The EIS evaluated beneficial and adverse effects across an array of resource areas including potential effects at the national, regional and local level; effects are monetized and quantified, where possible, and also described qualitatively. As is common in NEPA analyses, the beneficial and adverse effects of the alternatives are expressed as a variety of qualitative and quantitative environmental and economic metrics throughout the EIS to inform decision-making, including the effects of the alternatives on fish as detailed in Section 3.5. That the effects of the alternatives on fish are not expressed as monetized economic values does not mean that they were not considered in the context of the analysis. The EIS does not employ a cost-benefit framework for decision-making. Instead, the EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The EIS provides an evaluation of the social welfare and regional economic effects of the No Action Alternative and the Multiple Objective alternatives, including the effects on recreation (Section 3.11) and commercial fisheries (Section 3.15). The EIS Section 3.5.3.6 describes the long-term effects to anadromous fish migration in the Snake River and tributaries that would occur under a dam breach scenario as major and beneficial, although quantitative impacts from fish modeling results are limited. The impacts to anadromous fish in other locations would have negligible to minor changes from the No Action Alternative. The EIS described the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. NMFS estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which is described qualitatively. The contribution of Columbia River origin fish to ocean fisheries is described in Section 3.15.2.1. Because there is considerable uncertainty regarding the overall effects of the alternatives on regional fish populations, and how such changes may affect the management of the fisheries, the specific quantitative and monetized impacts associated with changes in commercial fisheries under the alternatives was limited. This analysis evaluates potential impacts on fisheries by referencing the potential effects on relevant fish populations, as described in Section 3.5. Considering the costs and benefits of hydropower, the average annual value of the four lower Snake River dams exceeds the average annual equivalent costs. The generation value at the four lower Snake River dams can be described by a range between the cost to replace the generation through new conventional resources or through a portfolio of zero-carbon resources. Although the costs of replacing the power with market purchases was analyzed, it is unlikely that short-term wholesale power markets could reliably replace the power for the long term. This range would put the annual value of power between $240 million and $500 million for the four dams combined. These numbers represent about 90 percent of the lost benefits cited in Table 3-171 of the Draft EIS because the four dams represent about 1,000 aMW of the 1,100 aMW of lost generation estimated in MO3. The average annual cost to operate and maintain all authorized purposes at the four lower Snake River dams is $75 million (Appendix Q, Table 5-1) and the annual-equivalent capital costs are $32 million (Appendix Q, Table 4-1). Hydropower costs funded by Bonneville represent about $50 million of the total annual operations and maintenance costs and nearly all of the annual capital costs, approximately $31 million. This puts the annual-equivalent power-specific costs at approximately $81 million a year. As a result, the net benefits from hydropower for the four lower Snake River dams are between $156 million and $417 million and the benefit-cost ratios are between 2.9 and 6.1. If the generation could be reliably replaced with short-term wholesale market purchases (see Table 3-170 of the Draft EIS), the lower bound for net benefits would fall to $57 million and the benefit-cost ratio would fall to 1.7. From a resource competitiveness perspective, the four lower Snake River dams are among the least costly generating resources in the Federal Columbia River Power System (FCRPS) and the planned investment strategy is expected to maintain that status. As shown in the Federal Hydropower presentation at the 2018 Integrated Program Review, the Headwater/Lower Snake Asset Class is forecast to have a 50-year levelized cost of generation of $11.41/MWh based on the direct funded capital and expense (O&M) programs outlined in that process. These costs remain competitive with volatile Mid-Columbia spot market energy prices which averaged $37/MWh in 2019 and have averaged $21/MWh in 2020. 1/The Integrated Program Review (IPR) allows interested parties to see and comment on all relevant Federal Columbia River Power System (FCRPS) capital and expense (O&M) spending level estimates in the same forum. The IPR occurs every two years, or just prior to each rate case, and is the public review for the costs that will be recovered through rates the following two-year rate period. Long-term forecasts for the next 50 years and major upcoming projects are also shared in this forum. This information is available here: https://www.bpa.gov/Finance/FinancialPublicProcesses/IPR/2018IPR/IPR%202018%20Fed%20Hydro%20Workshop.pdf and is incorporated by reference into this EIS. 2/In the 2018 Integrated Program Review, the Headwater/Lower Snake Asset Class consisted of the four lower Snake River dams, Hungry Horse, Libby, and Dworshak dams. These projects were grouped together because they have similar cost characteristics. The Levelized Cost of Generation for the four lower Snake projects alone is slightly lower than that for the whole class including the headwater projects shown in the table. 3/Levelized Cost of Generation is defined as the forecasted direct costs and administrative overheads of producing power at a plant annualized over a 50-year period. This cost includes directed funded operations, maintenance, administrative and capital costs as well as Columbia River Fish Mitigation (CRFM) costs. Bonneville systemwide mitigation costs, such as its Fish and Wildlife program, are not included in this metric.
31839	1	N/A	N/A	I appreciate the efforts made and am concerned about breaching any of these dams or increasing the spill. Certainly we want to continue to produce clean energy. Removing this clean form of energy could not only increase our power costs, but require harmful alternatives to avoid shortages. These dams have already helped us avoid blackouts in my area - the Tri-Cities. Why would we want to do either of breach or increase the spill, especially in the times we now live in?	The comment about implications of Multiple Objective (MO) Alternative 3, which includes breaching the four lower Snake River dams and MO4, which includes spill up to 125% TDG 24 hours per day during spring and summer on regional power reliability and rates are consistent with findings of the EIS. See Section 3.7.3.5, Effects on Power System Reliability, at 3-903 and Appendix H, Table 2-1 in the draft EIS. The EIS also describes the importance of the four lower Snake River dams, particularly Ice Harbor, for stability in the Tri-Cities area. See Section 3.7.3.5, Bonneville Transmission System Reliability and Operations in the draft EIS.
31839	2	N/A	N/A	These dams are just one factor in salmon and orca survival. Given that survival rates through the dams are as high as 97%, it seems like a better use of time and effort would be to protect the environment of the Puget Sound Chinook salmon. I support the preferred alternative of the draft EIS. I also hope the majority of the effort will be placed where the majority of the fish survival problems occurin the ocean and Puget Sound.	We agree that there are many effects to salmon and steelhead populations outside the operation of the dams. Research continues to evaluate the magnitude of these effects. For more information see the NMFS website at: https://www.nwfsc.noaa.gov/research/index.cfm The quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differently from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for the whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall-run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall-run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). The co-lead agencies legal authorities relate to operating and maintaining the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. To comply with the ESA, the co-lead agencies have historically supported actions to mitigate adverse effects to listed species from CRS operations, through funding, direct implementation, and other means. Under the Preferred Alternative, those actions would generally continue to ensure compliance with the ESA. Regarding Puget Sound, the effects mentioned in the comment involve a variety of issues beyond the scope of the CRS project. However, water quality effects for the Columbia River Basin were considered in the EIS analysis and are described in Chapter 1, 2, and Section 7.8.3 of the EIS. Additionally, the U.S. Army Corps of Engineers is in partnership with other Federal, state and non-governmental organizations and have been implementing habitat projects for salmon, orcas, and wildlife all around the Puget Sound as part of the Puget Sound Nearshore Ecosystem Restoration Project.

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31840	1	NOPVoices@att.net	N/A	Attached is a document to help with determining what to do other that sticking to the status quo. http://www.klamathrenewal.org/definite-plan/	Thank you for your input. The co-lead agencies do not believe we are sticking to the status quo. The Preferred Alternatives spill operation for juvenile fish passage is a significant departure from previous operations, so much so that the Washington and Oregon state water quality standards had to be changed to implement the new spill regime. In our analysis of effects, the co-lead agencies used current high quality data and best available science, including models and studies published in peer review science journals. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. The CSS model predicts that average Smolt-to-Adult return rates will increase for both Snake River spring Chinook and steelhead and will average above 2% as a result of the Preferred Alternative.
31843	1	nbelsby42@gmail.com	N/A	Water Quality:. This section states that there are elevated water temperatures in the Columbia River Basin due to regular climatic events and climatic variability. It also states that there is regional controversy regarding the role that the federal agencies may play in higher water temperatures. Any conclusion regarding causation for water temperatures must be based upon scientifically proven, evidence based science, not blanket statements of fault.	The co-lead agencies are complying with NEPA, and using current, high quality information in which to make conclusions. Water temperature results can be found throughout Section 3.4, Chapter 7, and the Water Quality Appendix D.
31855	1	N/A	N/A	In the face of climate change, it is no small thing to remove hydroelectric dams. But the Lower Snake dams supply a fraction of the regions power, at the cost of a culturally, economically, and ecologically essential species. Further, removing these dams will allow more migratory fish to access some of the most pristine stream habitat that remains. The EIS takes too narrow a scope on the impacts of the dams. Salmon and other native fish are integral to ecosystems and communities from the Pacific to inland forests. The report fails to account for the impact of dwindling populations on orcas, forest health, and rural and indigenous communities.	The agencies evaluated the direct, indirect and cumulative effects to resources affected by CRS operations, maintenance and configuration in Chapters 3, 4, 6, and 7. Through on-going regional climate change studies and related work, the co-lead agencies evaluated potential shifts in precipitation and temperature patterns and resulting changes in unregulated Columbia Basin streamflow timing and volumes. The evaluation consisted of the full range of the latest climate change projections developed using multiple global climate models, emissions scenarios, downscaling techniques, and hydrologic models. Details of this evaluation are in Chapter 4 of the EIS. This information was used to describe the potential effects (both beneficial and adverse) on the river systems and resources due to potential changes in climate for all alternatives. Quantitative data that describes how climate change hydrology will affect reservoir operations in the Columbia Basin in still under development and was not available for use in this study. The climate science community is still developing quantitative models that can address possible effects in water temperature from climate change at the appropriate resolution (river-scale vs. regional- or global-scale), and unfortunately, have not been fully applied and validated for use with climate affected regulated flow projections of large reservoir systems. This data is critical to analyzing potential effects to fish quantitatively. The same is true for projecting changes to TDG. In lieu of this information, the climate analysis used the output from resource models, like water quality and fish, under historical conditions, available climate change data, and scientific literature to qualitative assess potential effects to resources (described in Chapter 4). These analyses are documented in Section 4.2.3 for the MO Alternatives and Section 7.8.4 for the Preferred Alternative. Overall, the Preferred Alternative is expected to result in benefits to anadromous salmon and steelhead. The analysis in Section 7.8.4 recognizes that some of the benefits to fish from the Preferred Alternative could be offset by the effects of climate change. Under a dam breach scenario, spring water temperatures would warm more quickly than No Action conditions. Similarly in the fall, under a dam breach scenario, fall water temperatures will cool more quickly than No Action conditions. These results make logical sense and are supported by results from CRSO numerical water quality modeling. What has surprised some stakeholders are the predicted summer water temperature effects under dam breaching. Many believe that removing the dams would result in colder water temperatures as compared to the No Action Alternative. While some cooler water temperatures may be observed in the summer under dam breaching, especially during cooler summer weather conditions and at night, water temperatures would remain warm and exceed the state water quality standard at times. This is because without the dams, the lower Snake River would be shallower and more susceptible to solar radiation and warming. Increases in water particle travel time are expected, but the lower Snake River has always been a warm system (USGS 1960, 1961, 1964; Corps 2002a) and breaching the dams will not change this fact. Regionally high air and water temperatures result in water quality standard exceedances and are beyond the ability of the CRS to cool; future climate change predictions would result in even more difficult challenges. The co-lead agencies relied on high quality, current information in the development of the CRS. The quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of Southern Resident killer whales (SRKWs), along with vessel traffic and noise, and toxic contaminants. The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differentially from hatchery and wild fish. Hatchery fish today likely make up most fish consumed by SRKW (NOAA BiOp 2020). The co-lead agencies note the contribution to the prey of SRKW through the continued existence of their respective independent congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as the Lower Snake River Compensation Plan, which is administered by U.S. Fish and Wildlife Service. The Preferred Alternative carries forward certain mitigation measures described in Chapters 2 and 7 of the EIS, which include continued salmon and steelhead hatchery production. The Preferred Alternative has negligible effects to SRKWs as described in Section 7.7.8 in large part because hatchery production is consistent between the No Action Alternative and the Preferred Alternative. The FEIS includes additional information on SRKWs in Section 3.6 and 7.7.8. The average annual costs to operate and maintain the four lower Snake River projects is $75M (Appendix Q, Table 5-1) and the annual-equivalent capital costs are $32M (Appendix Q, Table 4-1). The annual hydropower (Table 3-171) and navigation (Table 3-244 & Table 3-246) benefits alone for these projects are estimated at $284M to $588M in the base case analysis for MO3. These hydropower values include the effect of other measures in MO3, but the majority of this value stems from generation at the four lower Snake River dams. This estimate is derived from what the hydropower analysis called the base case and does not account for the full characteristics of the lower Snake River projects generation such as sustained peaking capability and fast ramping ability to integrate variable renewable energy sources. Fully replacing the generation capabilities of the four lower Snake River dams could roughly double estimated replacement resource costs (see Section 3.7.3.5). As explained in Section 3.7.3.5 of the EIS, Potential Replacement Resources and Associated Costs, breaching the four lower Snake River dams would have a direct and substantial impact on the supply of Federal power to meet regional load requirements. These impacts would impact both actual energy to meet regional load requirements and generating capacity (peaking capacity) to meet variability in loads. The four lower Snake River dams are among the most valuable projects in FCRPS. These dams provide over 1,000 MW of carbon-free energy and up to 2,000 MW of sustained peaking capacity at certain times of the year. The dams also have unparalleled ramping capability the ability to quickly generate energy to match spikes in energy usage with over 2,000 to approximately 2,300 MW of capability in certain months of the year. While the increase in solar and wind generation is consistent with the EIS discussion in 3.7.2.1 Power Generation, the EIS still finds that the regional power system requires replacement power resources to maintain reliability under MO3. For hydropower, the average annual value of the four lower Snake River dams exceeds the average annual equivalent costs. The generation value at the four lower Snake River dams can be described by a range between the cost to replace the generation through new conventional resources or through a portfolio of zero-carbon resources. Although the costs of replacing the power with market purchases was analyzed, it is unlikely that short-term wholesale power markets could reliably replace the power for the long term. This range would put the annual value of power between $240 million and $500 million for the four dams combined. These numbers represent about 90 percent of the lost benefits cited in Table 3-171 of the Draft EIS because the four dams represent about 1,000 aMW of the 1,100 aMW of lost generation estimated in MO3. The average annual cost to operate and maintain all authorized purposes at the four lower Snake River dams is $75 million (Appendix Q, Table 5-1) and the annual-equivalent capital costs are $32 million (Appendix Q, Table 4-1). Hydropower costs funded by Bonneville represent about $50 million of the total annual operations and maintenance costs and nearly all of the annual capital costs, approximately $31 million. This puts the annual-equivalent power-specific costs at approximately $81 million a year. As a result, the net benefits from hydropower for the four lower Snake River dams are between $159 million and $419 million and the benefit-cost ratios are between 3.0 and 6.2. If the $34 million per year for the Lower Snake River Compensation Plan is added to the capital and expense costs, benefits still exceed costs under each replacement power scenario. Considering these costs, the net benefits range from $125 million to $385 million and the benefit-cost ratios range from 2.1 to 4.3. In the less-likely scenario that generation could be reliably replaced with short-term wholesale market purchases and assuming that the four dams represent 90% of the $150 million in market purchases required to replace the lost generation cited in MO3 (see Table 3-170), the lower bound for net benefits would fall to $54 million and the benefit-cost ratio would fall to 1.7. With the Lower Snake River Compensation Plan included, the lower bound for annual net benefits becomes $20 million and the benefit-cost ratio becomes 1.2. From a resource competitiveness perspective, the four lower Snake River dams are among the least costly generating resources in the Federal Columbia River Power System (FCRPS) and the planned investment strategy is expected to maintain that status. As shown in the Federal Hydropower presentation at the 2018 Integrated Program Review (see Footnote 1 below), the Headwater/Lower Snake Asset Class (see Footnote 2 below) is forecast to have a 50-year levelized cost of generation (see Footnote 3 below) of $11.41/MWh based on the direct funded capital and expense (O&M) programs outlined in that process. These costs remain competitive with volatile Mid-Columbia spot market energy prices which averaged $37/MWh in 2019 and have averaged $21/MWh in 2020. Footnotes: 1. The Integrated Program Review (IPR) allows interested parties to see and comment on all relevant Federal Columbia River Power System (FCRPS) capital and expense (O&M) spending level estimates in the same forum. The IPR occurs every two years, or just prior to each rate case, and is the public review for the costs that will be recovered through rates the following two-year rate period. Long-term forecasts for the next 50 years and major upcoming projects are also shared in this forum. This information is available here: https://www.bpa.gov/Finance/FinancialPublicProcesses/IPR/2018IPR/IPR%202018%20Fed%20Hydro%20Workshop.pdf and is incorporated by reference into this EIS. 2. In the 2018 Integrated Program Review, the Headwater/Lower Snake Asset Class consisted of the four lower Snake River dams, Hungry Horse, Libby, and Dworshak dams. These projects were grouped together because they have similar cost characteristics. The Levelized Cost of Generation for the four lower Snake projects alone is slightly lower than that for the whole class including the headwater projects shown in the table. 3. Levelized Cost of Generation is defined as the forecasted direct costs and administrative overheads of producing power at a plant annualized over a 50-year period. This cost includes direct funded operations, maintenance, administrative and capital costs as well as Columbia River Fish Mitigation (CRFM) costs. Bonneville system-wide mitigation costs, such as its Fish and Wildlife program, are not included in this metric. Finally, tribal input, concerns, interests, and especially treaty rights were considered throughout the Draft EIS analyses and in the formulation of the Preferred Alternative. Treaty specific information is included in Section 3.17 as well as Chapter 7. The treaties bind all parties and are the supreme law of the land. The co-lead agencies recognize and respect that supremacy. In terms of honoring our treaty obligations, the co-lead agencies included "Protecting Native American treaty and reserved rights and fulfilling trust obligations for natural and cultural resources throughout the environment affected by the Columbia River System operations" as a purpose in the Purpose and Need Statement in Chapter 1 to ensure treaty obligations were a key consideration of decision making.
31858	1	baca.andrew@epa.gov	Environmental Protection Agency	The EPA appreciates the continued cooperation that has occurred, and continues to occur, between the Co-Lead agencies and the EPA, concerning the different watershed-scale models used by the agencies. As you know, the EPA used its RBM-10 model in the development of a Draft Total Maximum Daily Load for the Columbia and lower Snake Rivers and the Co-Lead agencies used their CE-QUAL W2 and HEC RAS models to develop the Draft EIS. Agency discussions on these models have involved a team of individuals from the EPA and each of the Co-Lead agencies who were involved in the development, use, and application of the agencies respective models. The participants from each agency identified and evaluated similarities and differences in the modeling assessments and concluded that both temperature model predictions provide useful and technically appropriate analyses of the Columbia and lower Snake River water temperatures. As such, the EPA agrees with the Co-Lead agencies that the CE-QUAL W2 and HEC RAS models are appropriate to use in developing the Draft EIS.	Thank you for your comment. The co-lead agencies appreciated the collaboration between their staff and EPA staff to compare the similarities and differences of each model, and the different purposes of each.

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31858	2	baca.andrew@epa.gov	Environmental Protection Agency	The Draft EIS identifies and evaluates a No Action Alternative and five alternatives for operations, maintenance, and configuration of the 14 Federal dam and reservoir projects in Idaho, Montana, Oregon, and Washington, called the Columbia River System. The alternatives include different system operations and additional structural modifications to existing projects such as breaching the embankments at the Lower Granite, Little Goose, Lower Monumental, and Ice Harbor Projects; modifying fish ladders; or adjusting storage operations to affect the timing of flows for various purposes. The alternatives explore a range of spill levels to support juvenile fish passage, varying levels of hydropower generation by seasonal changes in flows, and differing actions to support the needs of Endangered Species Act-listed anadromous and resident fish. After evaluating the potential effects of the five alternatives on resources, such as flood risk management, water supply, hydropower generation, fish, vegetation, wildlife, wetlands, floodplains, climate, navigation, cultural resources, tribal interests, recreation, and other environmental, social, and economic resources, the EPA believes that the Co-Lead agencies identified a Preferred Alternative that balances multiple, sometimes competing, river resource needs and Co-Lead agency mission requirements.	Thank you for your comment.
31858	3	baca.andrew@epa.gov	Environmental Protection Agency	The EPA offers that the discussion of the Preferred Alternative could benefit from building a more robust analysis of several issues that we would be happy to discuss with the Co-Lead agencies in greater detail. For example, we recommend discussing measures or additional analysis of measures that could help address temperatures, including evaluating whether there are feasible operational measures to cool the John Day and Ice Harbor reservoirs. In addition, the Co-Lead agencies may want to consider providing additional discussion on the fate and transport of other water quality parameters that may be affected by the alternatives. In this regard, the Draft EIS could be strengthened by referencing available data on the cycling of nutrients, primary production, mercury methylation, methane production, and on dissolved oxygen and pH.	Thank you for your comment. The co-lead agencies look forward to continued collaboration with the USEPA. Additional information was added to portions of the EIS based on the collaboration between the co-lead agencies and USEPA. The EPA is the lead agency on developing a water temperature TMDL for the Columbia and Snake Rivers, and in doing so will evaluate the impact of all anthropogenic and natural sources of heat in the Columbia and Snake rivers. The EIS, in contrast, analyzed, to the extent practicable, whether the hydrosystem is causing or contributing to compliance with the water quality standards as compared to historic river temperatures. While there is little opportunity to change bulk river water temperatures through operational or structural technologies at run-of-river dams, passageways within the structures such as fish bypass channels and fish ladders can be influenced by project operations when the river is thermally stratified. The development of such structures were analyzed under the CRSO EIS and on-going evaluations continue. In addition, other ideas have been suggested, including the construction of off-channel cold water refuge in the John Day or The Dalles reservoirs (EPA 2019). While the feasibility of this specific idea is unknown, the Corps encourages continued dialogue with the EPA, States and other federal partners to brainstorm water temperature improvement opportunities that exist in the basin, and document such initiatives as we move into the implementation phase of the TMDL. Available data regarding cycling of nutrients, primary production, mercury methylation, methane production, etc. can be found in supporting documents on the CRSO website. These are referenced throughout Chapter 3-4 and Appendix D.
31858	4	baca.andrew@epa.gov	Environmental Protection Agency	In addition, the EPA appreciates that the Co-Lead agencies incorporated our recommendations in the environmental justice analysis. However, within the main report, the finding of no disproportionately high and adverse impacts to tribal populations in the various action alternatives appears inconsistent with other statements throughout the Draft EIS and does not fully explain whether cumulative effects were considered in its conclusions for this population. The EPA recommends that the Co-Lead agencies provide additional discussion to clarify these statements in the Final EIS.	Based on public comments, the co-lead agencies revised the Environmental Justice analysis (Section 3.18.3) to provide additional discussion and support for the characterization of the potential effects to environmental justice populations. Section 3.18.1.2 also acknowledges, "...determinations of effects to environmental justice communities have been organized differently in response to public comments to clarify how the different resource analyses preceding this section are synthesized with consideration of climate, mitigation components, and cumulative effects to holistically discuss effects to people."
31858	5	baca.andrew@epa.gov	Environmental Protection Agency	Consistent with our cooperating agency status and the productive engagement that we have had to date with the Co-Lead Agencies, the EPA would like to engage at your earliest convenience to discuss our review in greater detail and offer specific data and information that could strengthen the EIS. Please contact me at (206) 553-6387 or by email at baca.andrew@epa.gov to arrange that discussion.	The co-lead agencies appreciate EPA's participation as a cooperating agency. The co-lead agencies met with EPA throughout the NEPA process and on June 9, 2020, in response to this comment. We will continue to work with EPA staff throughout the CRSO EIS process and into implementation.
31861	1	rslynch@rslynchaty.com	N/A	Hydropower in the Southwest is not as plentiful as it is in the Northwest but that scarcity makes it even a more operationally valuable asset. However, one thing people have to get over is that hydropower is cheap and all manner costs can be stuck in power rates because of that assumption. Increasing environmental costs being added to hydropower rates plus competition from natural gas-fires generation and other factors have destroyed what was left of any credibility that assumption previously had.	The comment that environmental costs being added to the hydropower system puts upward pressure on electricity rates is consistent with the framework of Bonneville's power rates, as discussed in Section 3.7.2.7, Power Revenue Requirement, at 3-804 in the Draft EIS, and in the rate calculations for the various MOs in Section 3.7.3.2-6. Bonneville buys and sells power on the wholesale power market (see Sections 3.7.2.2 and 3.7.2.5), and public power utilities do the same, which does impact the competitiveness of Bonneville's hydropower. See Competitive Pressure on Bonneville's Power Sales, in Section 3.7.2.5.
31865	1	kutchk46@gmail.com	N/A	Comments to the 2020 CRSO DEIS Alternative MO3 is the only alt that might restore fish. Chapter 2 of the 2019 Comparative Smolt Survival Report contains the operations and configuration required for the Columbia River Power System and should have been the starting point for this Draft EIS (DEIS).	The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets most other EIS objectives including those for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS, the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams, because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. The co-lead agencies contracted with the Fish Passage Center (FPC) to produce the CSS modeling results presented in the Draft EIS and is the current high quality information. Any additional modeling that was not presented in the Draft EIS is not part of the CRSO EIS and was not developed by the co-lead and cooperating agencies.
31865	2	kutchk46@gmail.com	N/A	ECONOMICS: The DEIS states This EIS will provide for the operating agenciesand the regionto evaluate the costs and benefits of the four lower Snake River dams. Its not clear who the region is, and how it was involved with the co-lead agencies (CLA) evaluation. The majority testimony at all six public hearings stated that the four lower Snake River dams (LSRD) cost more to keep in place than they earn; and, the 2002 Snake River Juvenile Salmon Migration Feasibility Study (SRJSMFS) economic analysis and Tribal Circumstances paper previously and reliably concluded this fact (i.e., the region has known this for two decades); and further, current reputable, and robust economic analyses conclude that the four LSRD have a cost:benefit ratio of <0.2 (they make 20 cents for every dollar that we (rate-payers and tax-payers - the region) spend on them). Therefore it is the federal governments fiduciary responsibility to shut them down to save the hundreds of millions of dollars the waste each year. It is obvious that the CLA did not equitably, accurately, effectively, and efficiently use the region and its expertise to calculate the costs for MO3. The region must be provided the opportunity to evaluate the costs and benefits of the four LSRD - as is promised in the DEIS. The DEIS fails procedurally and substantively if this discrepancy is not resolved. MO3: Appendix Q, Annex A) calculates an additional $75M for hatchery fish during breaching (false, bypassing would occur during Dec-Mar when theres little or no fish migration). Annex B) calculates $203M for bridge and structure maintenance/ upgrading costs; however, these structures were in place before the dams (the pictures in the Executive Summary of the rail bridge near Celilo show the exact same supports then as now) and much needed maintenance costs can not be applied only to MO3. And, Annex B) - calculates sediment deposits at the mouth of the Snake River would cost $108M to dredge, which is false, if true it wouldve been included in the 2002 SRJSMFS; and, because Ice Harbor Dam is seven miles upriver it would take decades to become an issue. Thus, there are hundreds of millions of dollars falsely applied to increase the cost of MO3.	A benefit cost ratio was not calculated for the CRSO EIS. It is not a requirement of NEPA nor is it the basis of alternative selection under NEPA (see 40 C.F.R. 1502.23). Instead, the direct and indirect effects to the natural and human environment were evaluated, including some effects that were evaluated quantitatively and monetized, while others were evaluated qualitatively. As explained in Section 3.7.3.5 of the EIS, Potential Replacement Resources and Associated Costs, the four lower Snake River dams are among the most valuable projects in the Federal Columbia River Power System (FCRPS). These dams provide over 1000 MW of carbon-free energy and up to 2000 MW of peaking capacity at certain times of the year. The dams also have unparalleled ramping capability the ability to quickly generate energy to match spikes in energy usage with over 2200 MW of capability in certain months of the year. Regarding costs, the four lower Snake River dams are some of the most reliable and lowest-cost electricity sources of the 31 Federal dams from which Bonneville markets power. Bonneville also has sufficient funds to support these, and all, FCRPS projects. Bonneville sets its power rates to recover its total system costs, including the costs of the four lower Snake River dams, and therefore, does not sell power from these projects at a loss. (See Draft EIS Section 3.7.2.7, Power Rate Determination). Rather, Bonneville recovers its costs and maintains sufficient funds to support the FCRPS consistent with its statutory mandates. Finally, Bonneville sells power from the FCRPS as a unified system, not from specific projects. In this regard, the power generated from the four lower Snake River dams are not exclusively sold as surplus, but rather is used to meet Bonneville's collective power obligation, most of which is sold to meet the loads of publicly owned utilities, such as municipalities, rural utilities, and public utility districts. (See Draft EIS Section 3.7.2.5, Bonneville Power and Transmission Customers). As noted in the comment, the cost analysis estimates the capital and O&M costs savings that would occur under MO3 (see Table 4-1 and 5-1 in Appendix Q). The capital costs include additional construction and capital requirements that would be needed in the future to maintain the lower Snake River dams. Tables 4-1 and 5-1 in Appendix Q show the costs and cost savings under MO3. There would be approximately $107 million in annual capital and O&M cost savings under MO3 compared to the No Action Alternative for the four lower Snake River projects over the 50-year period of analysis. Costs for stabilizing bridges and roads was included as mitigation for ensuring that the infrastructure is not harmed by the act of breaching the dams. Sediment loads to the Snake and Columbia rivers that could occur under the MO3 Breach Snake Embankments measure were analyzed using sediment transport models as described in Appendix C, Section 3.4. The sediment impounded behind the four lower Snake River dams is predominately fine grained and readily transported in suspension. Analysis results for the MO3 Breach Snake Embankments measure indicate that increased sediment concentrations could occur during the construction season with impacts to dissolved oxygen as described in Section 3.4.1 of Appendix C. Mitigation actions to address these potential impacts are described in Section 5.4.3, including transport of some listed fish. These short term major adverse impacts can only partially be mitigated. A specific discussion of mitigation for effects to anadromous fish from MO3 is included in Section 5.4.3.2. Sediment transport modeling suggests that impounded sediments within the historical river channel extents would scour back to the historical river bed elevations over the near-term (2-7 years) depending on the magnitude and duration of watershed hydrology. Impounded margin sediments remaining on higher elevation floodplain terraces would be expected to incrementally erode over a longer time (>10 years) as seasonal floods access those surfaces. Regarding fisheries, the EIS provides an evaluation of the social welfare and regional economic effects of the No Action Alternative and the Multiple Objective alternatives, including the effects on recreation (Section 3.11) and commercial fisheries (Section 3.15). The EIS Section 3.5.3.6 describes the long-term effects to anadromous fish migration in the Snake River and tributaries as major and beneficial, although quantitative impacts from fish modeling results are limited. The impacts to anadromous fish in other areas, including the Upper, Middle, and Lower Columbia rivers, would have minor changes from the No Action Alternative. The EIS described the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. NMFS estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which is described qualitatively. For the effects on recreational fishing under MO3 (Section 3.11.3.5) along the lower Snake River below Lewiston, the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River) as an indicator for fishing visitation in this reach. The EIS describes that the visitation in the long-term in the lower Snake River, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting outfitting and tourism businesses in the region. The social welfare values and regional economic effects associated with recreational fishing under the MOs, as well as river recreation post dam breach under MO3, were not estimated because of the uncertainty and large range in visitation and consumer surplus values among users. The contribution of Columbia River origin fish to ocean fisheries is described in Section 3.15.2.1. Because there is considerable uncertainty regarding the overall effects of the alternatives on regional fish populations, and how such changes may affect the management of the fisheries, effects associated with changes in commercial and recreational fisheries under the alternatives were described qualitatively. This analysis evaluates potential effects on fisheries by referencing the potential effects on relevant fish populations, as described in Section 3.5. The Draft EIS acknowledges that with breaching of the Snake River dams in MO3, there would no longer be an obligation to fund the Lower Snake River Compensation Plan, which accounts for much of the hatchery production in the basin, other mitigation activities could be adjusted, and transportation of Snake River salmon and steelhead would no longer be possible. The rationale for this, as stated in the Draft EIS, is that Bonneville's funding is directly tied to the operation of the LSR dams. The effects to populations as they transition from primarily hatchery production to an increased wild production of fish is qualitatively discussed in Section 3.5.3.6. As stated on page 3-548, the co-lead agencies recognize there would be transitional needs that would be addressed through mitigation and adaptive management. The fish models are based upon data collected from past fish runs and there is no data available to inform an quantitative analysis for wild fish in the absence of hatchery fish. The co-lead agencies took a qualitative approach to inform the reader of other factors that could affect salmon but acknowledged the magnitude of those effects is not known. A summary of this qualitative discussion is provided for the reader for each Snake River species. The analyses used in this Draft EIS were for the purposes of comparing the effects of the action alternatives for operation, maintenance, and configuration of the CRS projects to one another and to the No Action Alternative. Hatchery programs are discussed briefly in the Affected Environment to give the reader the general information on hatchery programs that are a part of the ESU/DPS described. For the purposes of comparing alternatives, however, a more detailed description is not needed. A complete analysis of all hatchery programs and the status of maintenance/operations of each one is beyond the scope of this EIS.
31865	3	kutchk46@gmail.com	N/A	BARGING VS. ELECTRICITY PRODUCTION, IRRIGATION, RECREATION: The justification that the four LSRD areessential- because of their flexibility in producing electricity for peaking and filling gaps in load demands - contradicts the congressionally-mandated purpose of the dams. Only 5% of their	The EIS evaluated beneficial and adverse effects across an array of resource areas including potential effects at the national, regional and local level; effects are monetized and quantified, where possible, and also described qualitatively. As is common in NEPA analyses, the beneficial and adverse effects of the alternatives are expressed as a variety of qualitative and quantitative environmental and economic metrics throughout the EIS to inform decision-making, including the effects of the

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				purpose is mandated for electricity production. Conversely, 80% of their purpose is to provide commodities transportation via barging - a heavily skewed unilateral congressional purpose that was rare by the standards of the late 1960s and early-70s. This 80% of the mandated purpose can be converted ecologically, economically, and reliably to truck and rail - and the fact that barges and fish both need water (barges shipped to Lewiston before the dams). Only 20% of the congressional mandate for the four LSRD is for recreation (7%), irrigation (8%),and electricity production (5%). Existing irrigation for 35,000 acres is pumped water that can still be provided by extending the pumps into the restored natural river levels. Bypassing the four FSRD will provide recreation opportunities that would exceed current levels. The combined four LSRD generation capacity is 1.8 to 2.6% of the Columbia River Power System and the ramping and peak load efficiency flexibility can reliably, efficiently, and economically be replaced with conservation and alternative production. The four LSRD generate an average 770 Mw (vs the 2-2,500 Mw claimed in the DEIS as one of the justifications for not choosing MO3). Where is the congressional authority for the CLA to operate outside the congressional mandate? Congress authorized only 5% of the dams mandate is electricity production so how can they operate so far outside that mandate? BYPASSING THE FOUR LSRD ALLOWS STORAGE RESERVOIR ELEVATIONS TO REMAIN RELATIVELY FULL AND STABLE THUS MAXIMIZING IRRIGATION, FLOOD RISK MANAGEMENT, AND ELECTRICITY PRODUCTION OBJECTIVES.	alternatives on fish as detailed in Section 3.5. The EIS does not employ a cost-benefit framework for decision-making. Instead, the EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. Table 7-1 in Chapter 7 provides a summary of the beneficial and adverse effects of the alternatives, including the quantified social welfare costs and benefits for a subset of the resource areas (specifically, hydropower, navigation, and irrigation) as well as the implementation costs of the alternatives. Further, the commenter has misconstrued how the projects are authorized and operated for the congressionally authorized purposes. The purposes are balanced as some operations can be performed at the same time for multiple purposes and are not based on a percentage.
31865	4	kutchk46@gmail.com	N/A	THE EIS IS FATALLY FLAWED UNLESS ALT MO3 INCLUDES THIS ANALYSIS: The impacts to storage reservoir elevations of alternative MO3 is not complete. In the mid 1990s the Watershed Equity Team, under the Columbia Basin Fish And Wildlife Authority, comprised of the Columbia Basin tribes, four state fish and wildlife agencies, and the US Fish and Wildlife Service and National Marine Fisheries Service, including modeling from the Northwest Power and Planning Council (Jim Ruff and James Fodrea) concluded that water velocity travel times met the needs of migrating spring salmon, without needing additional flow augmentation from the storage reservoirs (Grand Coulee, Dowarshak, Hungry Horse, Libby, and Brownlee) - allowing those storage reservoirs to remain relatively full and stable - benefitting other needs such as resident fish and wildlife, lamprey, recreation, irrigation, power production and flood risk management. The DEIS is fatally flawed unless alternative MO3 includes this analysis and modeling. These analyses need to try to meet both the upper river and lower river needs; they must treat the entire Columbia River system as one, combining opportunities in the Snake and the Columbia to find win-win solutions for all.	MO3 does not change flow augmentation as compared to the No Action Alternative.
31865	5	kutchk46@gmail.com	N/A	THE DEIS LOSES SIGHT OF ITS ENVIRONMENTAL MANDATE AND ENDANGERED SPECIES ACT RESPONSIBILITIES: The purpose of and need for is the District Court Opinion and Order, and over twenty-five years of failed ESA Biological Opinions. This EIS needs to FINALLY adopt a Preferred Alternative that first and foremost meets the needs of preventing jeopardy to threatened and endangered fish, and then aims at harvestable surplus as required by the 1980 Pacific Northwest Electric Power Planning and Conservation Act (NPA), tribal rights, and US v Oregon. Then once those needs are met, the objectives should aim to meet the reliable, efficient and economical electricity production, water supply and irrigation needs and navigation. The PA needs to require bypassing the four LSRD (MO3) and provide the spill and other actions and operations called for in the drafted PA that aim for the numeric goals/objectives required by tribal rights, US v Oregon and the NPA.	The co-lead agencies acknowledge there are many factors that affect salmonid populations that are outside the authority of the co-lead agencies. Both human-caused and natural factors that are outside the responsibility and control of the co-lead federal agencies, also contribute to the decline and recovery of fish, and will continue to strongly influence fish and their habitat. Salmon and steelhead have been adversely affected in the Columbia River Basin over the last century by many activities including human population growth, urbanization, introduction of exotic species, overfishing, development of cities and other land uses in the floodplains, water diversions for all purposes, dams, mining, farming, ranching, logging, hatchery production, predation, ocean conditions, and loss of habitat. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple legal responsibilities, including compliance with Section 7 of the Endangered Species Act. Under Section 7(a)(2) of the ESA, the co-lead agencies must insure that any action authorized, funded, or carried out is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of habitat of such species. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the EIS objectives) as well as the EIS objectives for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. The Preferred Alternative is also more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. The co-lead agencies used high quality information in the analysis of the CRSO EIS. Specific to salmon and steelhead, the agencies used two primary modeling approaches which yielded a range of potential outcomes for the alternatives. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult (SAR) return rates will increase for both Snake River spring Chinook and steelhead and will average above 2% (the lower end of Northwest Power and Conservation Council's (Council's) recovery targets for the region) as a result of the Preferred Alternative increasing SAR from 2.0% to 2.7% for Chinook, a 35% relative increase. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information. Based on the EIS analysis of the Preferred Alternative, it will make a substantial contribution towards recovery targets, but the Councils broad sense recovery goals are beyond the scope of this EIS which focuses on the effects associated with the operation and maintenance of the 14 CRS projects. Chapter 8 demonstrates the co-lead agencies' compliance with applicable laws, including the ESA and the Northwest Power Act. Moreover, Chapter 7 identifies the reasons that MO3 was not identified as the Preferred Alternative. These reasons are summarized in the Executive Summary and described in more detail in Sections 7.2, 7.3, and 7.4 of the CRSO EIS. Tribal input, concerns, interests, and especially treaty rights were considered throughout the Draft EIS analyses and in the formulation of the Preferred Alternative. Treaty specific information is included in Section 3.17 as well as Chapter 7. The treaties bind all parties and are the supreme law of the land. The co-lead agencies recognize and respect that supremacy. In terms of honoring our treaty obligations, the co-lead agencies included "Protecting Native American treaty and reserved rights and fulfilling trust obligations for natural and cultural resources throughout the environment affected by the Columbia River System operations" as a purpose in the Purpose and Need Statement in Chapter 1 to ensure treaty obligations were a key consideration of decision making. Finally, alternatives to include changes to harvest are not within the scope of this EIS. The assumptions regarding harvest are taken from the 2018 EIS from NOAA and reflect current harvest management guidelines. To see their conclusions and effects analyses please go to: https://www.fisheries.noaa.gov/resource/document/environmental-impact-statement-programmatic-review-harvest-actions-salmon-and. For harvest, fisheries in the Columbia River Basin and those that rely upon Columbia River fish stocks are managed by numerous entities, including Federal, state, and tribal govemments. These entities are guided by a complex array of policies, laws, compacts, and agreements. The management of Pacific salmon fisheries in particular is complex, and involves numerous entities representing a variety of social, political, and conservation interests. Changes in allowable fishery harvest in the Columbia River Basin are a result of decisions made by state, Federal (i.e., NMFS), and tribal fishery managers based on a variety of environmental, biological, economic, and social factors. The three co-lead agencies (Corps, Reclamation, and Bonneville) do not manage fish stocks, and do not have the authority to do so.
31865	6	kutchk46@gmail.com	N/A	Caution is required in setting spill at 120-125% N supersaturation. Theres a reason why state and federal water quality standards are limited to 115%. At 125% we can definitely see significant levels of dissolved gas trauma and gas bubble disease.	TDG levels are regulated under the Federal Clean Water Act, and administered by the states. Both Oregon and Washington have reassessed the available data on effects of TDG levels up to 125% of saturation on fish and other aquatic organisms. Based on this reassessment Oregon issued a five-year "standard modification" and Washington issued a permanent rule change, supported by the Environmental Protection Agency (EPA), to allow TDG saturation up to 125%. However, as noted by the commenter, there is considerable uncertainty in the effects of free swimming fish; and therefore, monitoring was required by the states and EPA to ensure any negative effects are detected and allow for adaptive management. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. The framework for the adaptive management process is detailed in Appendix R, Part 2, Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS. It is the intention of the co-lead agencies to engage regional state, Tribal, and Federal biologists in the development of an appropriate adaptive management process utilizing their respective salmonid management expertise. The goal of that adaptive management process would be to consider additional opportunities to further the effectiveness of the operation while maintaining the goals of the flexible spill operation: additional improvements for salmon and steelhead, maintain opportunities to operate the CRS for hydropower generation in a flexible manner that provides value to the Northwest, is implementable by the dam operators, and provides opportunity to reduce uncertainty and improve the learning opportunities around how operations of the CRS can influence the magnitude of latent mortality effects. Unforeseen outcomes or unintended consequences will be monitored and adjusted using current in-season management teams, such as the Technical Management Team.
31865	7	kutchk46@gmail.com	N/A	Also, actions to meet fish objectives need to utilize Artificial Production to rebuild naturally-producing (wild) runs. THE OBJECTIVES NEED TO PROVIDE CONDITIONS FOR THE ANADROMOUS FISH, RESIDENT FISH, AND LAMPREY THAT ARE FLOORS THAT WE CANNOT GO BELOW RATHER THAN CEILINGS THAT WE DO NOT HAVE TO EXCEED. Objectives to ... meet existing and assure future water supply while vaguely ... improving ... fish is 180 backwards. Instead the objective (and we are not fooled into thinking there are four separate fish objectives, they should be lumped in into one objective to prevent conflict between species) should be to stated as - ... meet ESA survival criteria to prevent jeopardy and meets juvenile and adult salmon, resident fish, and lamprey numeric goals for harvestable surplus as mandated by the NPA, tribal rights, and US v Oregon	Recovery efforts referenced in this comment and references to the Northwest Power and Conservation Councils (Council's)fish and wildlife program with associated target for broad-sense recovery are separate and distinct from the obligations of any single entity or in this case a requirement to be met solely by the co-lead agencies. Just as the Councils fish and wildlife program encompasses both Federal and non-Federal stakeholders in the Columbia Basin, the Councils recovery goals are shared by many parties. Based on the analysis of the Preferred Alternative, the co-lead agencies believe their actions will make a substantial contribution, but the Councils broad-sense recovery goals are beyond the scope of this EIS, which contemplates the effects associated with the operation and maintenance of the 14 CRS projects. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species as that is a broader goal with shared responsibility. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the CRS. That call, however, is ultimately the role of NMFS and the USFWS. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species.
31865	8	kutchk46@gmail.com	N/A	This is an ENVIRONMENTAL IMPACT STATEMENT under the NATIONAL ENVIRONMENTAL POLICY ACT: it is Not a water supply impact statement; Not an electricity production impact statement; and Not a barging impact statement. The EIS Needs to be aimed at the most good for the environment, Yet those actions receive short-shrift (MO3 is not the PA; and its costs are falsely exagerated). The DEIS admits fish have been adversely impacted, yet the Alternatives are intent on minimizing adverse impacts to project purposes other than fish. The EIS instead should develop a PA that first meets the needs of the fish, then meets the other multiple objectives of the built capacity. THE ONLY ALTERNATIVES SHOULD BE ABOUT BYPASSING THE FOUR LSRD: This EIS should not have evaluated any option other than the various decommissioning alternatives regarding what to do with the concrete spillway, navigation locks, and powerhouse once the earthen portion of the dams are removed. Should the structures be moth-balled and maintained enough so that they can be put back into service if the natural river alternative proves to be a failure after 50 years (the number of years the dams existed). Or, should the concrete portions just be walked away from and left to fall into disrepair. Or, should one or several be maintained as museums.Etc. The objective to Minimize greenhouse gas emissions is admirable; and that type of language is needed for the fish objectives e.g., Minimize fish mortality caused by man-made river operations. Maximize adaptable water management is a great, very much needed objective! Likewise there should be an objective to ... Maximize actions that prevent jeopardy to and recover fish species.	The Draft EIS contains a range of alternatives intended to emphasize trade-offs required to balance competing needs in a complex system. The goal of the EIS is not salmon recovery. That is outside of the authority of any of the co-lead agencies, and falls under the purview of NMFS and USFWS. Rather, the intent of the EIS, as stated in the Purpose and Need Statement, is to provide a plan for operations and configuration of the CRS for the next 25 years, which meets congressionally authorized purposes. An EIS that presented alternatives focused only on breaching the four lower Snake River dams, as you suggest, would not provide a reasonable range of alternatives, as required by NEPA.
31866	1	moiralightmann@gmail.com	N/A	I am writing to strongly support restoring the lower Snake River via breaching the four lower dams. Ecologists, marine biologists, and even former USFW members have concluded that this is the single most vital requirement to feed and support the Pacific Northwest's most iconic wildlife: orcas. The lower four Snake River dams currently serve as a geographical guillotine for wild salmon and steelhead. Thesedams prevent fish from both reaching the ocean	The EIS analysis found only a minor effect to the Southern Resident killer whale would result from implementing MO3 (which includes the dam breach measure). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall run, and Snake River spring/summer-run. Southern

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				and returning to their spawning ground to propagate--this is evident in low salmon return rate (~1%) and in the dwindling population of the Southern Resident orcas.	Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults form the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differentially from hatchery and wild fish. Hatchery fish today likely make up most fish consumed by SRKW (NOAA BiOp 2020). The EIS analyzed spill as a measure in the Preferred Alternative and determined the overall effect to SRKW to be negligible in large part because hatchery production is consistent between the No Action Alternative and the Preferred Alternative. Because the impact from the Preferred Alternative was determined to be negligible, the agencies determined that existing hatchery production would be sufficient to address any potential impacts to prey availability for SRKWs. The co-lead agencies note the contribution to the prey of SRKW through the continued existence of their respective independent congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as the Lower Snake River Compensation Plan, which is administered by U.S. Fish and Wildlife Service. The Preferred Alternative and Proposed Action in the agencies' biological assessment carry forward certain mitigation measures described in Chapters 2 and 7 of the EIS, which include continued salmon and steelhead hatchery production. The Preferred Alternative has negligible effects to SRKWs as described in Section 7.7.8.
31866	2	moiralightmann@gmail.com	N/A	Marine biologists have unquestionably implicated insufficient food as the cause of orca's lack of reproductive success; salmon is the historically staple diet for these orcas. Breaching the lower four would increase the salmon return rate to an estimated 4%, which would support and expand fish populations. A comprehensive review article concerning these orca's chances of survival can be found at: https://damsense.org/wp-content/uploads/2020/02/Feb-2020-Review-paper.pdf	The co-lead agencies agree that the quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differently from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for the whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall-run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall-run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). FEIS Chapter 3 (Vegetation, Wetlands, Wildlife, and Floodplains) has been updated for SRKW (Section 3..6.2.6 and Table 3-102). FEIS Chapter 7 (Preferred Alternative), has been updated with additional analysis information on SRKW and potential increase in forage fish, in particular, Chinook salmon (Section 7.7.8). Also, see response to Comment 6110-16. The co-lead agencies conclude there could be a minor beneficial effect to SRKW from implementing MO3. CSS and NMFS Lifecycle models predict that lower Snake River Chinook salmon smolt-to-adult returns would have a moderate to major increase under MO3. Operation of Lower Snake River Compensation Plan fish hatcheries under MO3 is uncertain and therefore, production of Snake River hatchery fish is assumed to decline over the long term, while returning adult wild salmon are anticipated to increase. However, the co-leads do not anticipate a lack of hatchery fish in the short term based on the proposed fish hatchery mitigation described in Chapter 5. These additional hatchery fish should mitigate short-term construction effects to Snake River populations. Additionally, to address short-term effects to ESA-listed species, the co-lead agencies propose constructing a new trap and haul facility at McNary and conducting at least two years of trap and haul operations for Snake River fish (Chinook, sockeye, and steelhead). Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Additionally, Section 7.7.8 states impacts to Southern Resident killer whales would be negligible. Thus, the co-lead agencies expect salmon and steelhead increases would come from operational measures and existing hatchery production carried forward into the Preferred Alternative. These hatcheries include conservation and safety net hatcheries, as well as through the continued existence of certain independent Congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as the Lower Snake River Compensation Plan, which is administered by USFWS. Moreover, NMFS concluded in its 2020 CRS BiOp that operations, maintenance and configuration of the CRS is not likely to adversely affect SRKW. It should be noted that the 4% average SAR target referenced refers to the Northwest Power and Conservation Councils target for broad-sense recovery and is separate and distinct from the obligations of any single entity or in this case a requirement to be met solely by the co-lead agencies. Just as the Councils fish and wildlife program encompasses both federal and non-federal stakeholders in the Columbia Basin, the Councils recovery goals are shared by many parties.
31866	3	moiralightmann@gmail.com	N/A	Additionally, we have treaty promises to uphold. We must honor commitments made with the Nez Perce, Shoshone-Bannock, Umatilla, Warm Springs, and Yakama Tribes. These Peoples gave up thousands of acres of their land for the right to hunt and fish in their "usual and accustomed places," a promise which has not been kept by our government. This is an injustice. Restoring the vitality of the Snake River by breaching the lower four dams is a first step to bolstering salmon runs and to honor our nation's agreements with native tribes.It is simply a moral action here.	Tribal input, concerns, interests, and especially treaty rights were considered throughout the Draft EIS analyses and in the formulation of the Preferred Alternative. Treaty specific information is included in Section 3.17 as well as Chapter 7. Congressionally ratified treaties bind all parties and have the force and effect of federal law. The co-lead agencies recognize and respect that fact. Indeed, the co-lead agencies included Protecting Native American treaty and reserved rights and fulfilling trust obligations for natural and cultural resources throughout the environment affected by the Columbia River System operations as a purpose in the Purpose and Need Statement in Chapter 1 to ensure treaty obligations were a key consideration of decision making. The co-lead agencies are also engaging in government-to-government consultation with the tribes, and several tribes are cooperating agencies on the CRSO EIS. The EIS recognizes the economic and cultural importance of salmon to Tribes in a number of sections throughout the document. The cultural significance and impacts of salmon and steelhead fisheries are described in the Ceremonial and Subsistence Fisheries sub-section and the Social Importance of Commercial, Ceremonial and Subsistence Fisheries sub-section of Section 3.15.2.1. Fisheries tribal interests are provided in Section 3.15.4, and additional details regarding the economic significance of salmon and steelhead fisheries have been added to the recreation analysis (Section 3.11) including tribal interests (Section 3.11.3.7). Treaty rights are discussed in the Executive Summary, Section 3.16 Cultural Resources, and Section 3.17 Indian Trust Assets, Tribal Perspectives, and Tribal Interests. Appendix P includes copies of tribal perspectives that were submitted by tribes. Tribal consultation is described in Sections 1.5, 3.5, and 3.15; and Chapter 9. Most sub-sections within Chapter 3 include a Tribal Interests section at the end of the sub-section that attempts to summarize tribal issues by topic. Analysis shows that the Preferred Alternative would meet the objectives for improving juvenile salmon, adult salmon, resident fish and lamprey. The analysis found ranges in potential effects due to different assumptions included in each of the fish models used in the study. Using the Comparative Survival Study (CSS), Snake River Chinook salmon and steelhead are expected to see relative improvements in smolt-to-adult returns of 35 percent and 28 percent, respectively. The Smolt-to-Adult return ratio (SAR) is the rate at which of a group of fish survive from their smolt life stage to a defined ending point where they return as adult. While achieving long-term recovery targets will require more than just the efforts of Federal agencies, the CSS models indicate the potential for SARs of Snake River Chinook salmon and steelhead to increase to levels that could approach recovery targets set by the Northwest Power and Conservation Council. If latent mortality effects are reduced by passing more juvenile fish through the spillway, the NMFS Lifecycle Model (LCM) also shows that levels of SARs would increase. However, if latent mortality effects are not reduced, or are different than modeled, the LCM predicts that SARs for Snake River spring Chinook salmon may be lower than the No Action Alternative (a range of -7.5 percent to +28 percent change relative to the No Action Alternative) due to reduced opportunities for fish transportation. Results for upper Columbia River stocks are beneficial based on LCM estimates. In-river survival and SARs are anticipated to increase. The CSS model does not currently model upper Columbia fish. The Preferred Alternative also has measures intended to increase upstream passage success and reduce injury and mortality for Pacific lamprey. These measures are proposed structural improvements that include converting extended-length submersible bar screen material to screen material that would not impinge or entangle juvenile lamprey, expanding the network of lamprey passage structures to bypass impediments in fish ladders, changing the design for turbine cooling water strainers, and replacing turbines for safer fish passage. The Preferred Alternative would also meet the objective to improve resident fish. Effects to resident fish vary by region and species, but are generally minor relative to the No Action Alternative.
31880	1	Carol.Savonen@oregonstate.edu	N/A	First, the DEIS fails to follow the direction of courts dating back decades for a major overhaul of hydrosystem operations to protect threatened and endangered salmon and steelhead. The Preferred Alternative (PA) represents only minor changes to status quo, which has led to continued declines in the populations of wild salmon and steelhead, and has resulted in loss of critical prey (Chinook salmon) for the southern resident orcas leaving them close to extinction. The approach proposed in the DEIS has already been rejected in federal court five consecutive times. It is time for a new approach that will recover salmon and steelhead populations, provide benefits for the Northwest, particularly in the rural communities of Idaho and Northeast Oregon.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species as that is a broader goal with shared responsibility. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the EIS objectives) as well as the EIS objectives for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. The Preferred Alternative is also more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. The co-lead agencies used high quality information in the analysis of the CRSO EIS. Specific to salmon and steelhead, the agencies used two primary modeling approaches which yielded a range of potential outcomes for the alternatives. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult (SAR) return rates will increase for both Snake River spring Chinook and steelhead and will average above 2% (the lower end of Northwest Power and Conservation Council's (Council's) recovery targets for the region) as a result of the Preferred Alternative increasing SAR from 2.0% to 2.7% for Chinook, a 35% relative increase. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information. Based on the EIS analysis of the Preferred Alternative, it will make a substantial contribution towards recovery targets. Regarding Southern Resident Killer Whales (SRKW), the population dynamics of the SRKW are complicated, and there is no one factor that contributes to the overall success of this species; however, the co-lead agencies agree that the quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Additionally, Section 7.7.8 states impacts to Southern Resident killer whales would be negligible. Thus, the co-lead agencies expect salmon and steelhead increases would come from operational measures and existing hatchery production carried forward into the Preferred Alternative. These hatcheries include conservation and safety net hatcheries, as well as through the continued existence of certain independent Congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as the Lower Snake River Compensation Plan, which is administered by USFWS. Moreover, NMFS concluded in its 2020 CRS BiOp that operations, maintenance and configuration of the CRS is not likely to adversely affect SRKW. Finally, the co-lead agencies disagree the Preferred Alternative is a slight deviation from previous operations. The spill operation for juvenile fish passage is a significant departure from previous operations, so much so that the Washington and Oregon state water quality standards had to be changed to implement the new spill regime. The Preferred Alternative also includes other operational, structural and mitigation measures to improve conditions for ESA-listed salmon and steelhead.
31880	2	Carol.Savonen@oregonstate.edu	N/A	The PA is built around the concept of flexible spill that was implemented as a temporary measure to stave legal challenges while the DEIS was being developed. Although increased spill can lower mortality for juvenile fish at dams, it is not a long-term strategy to prevent extinction of salmon and steelhead populations, much less to provide for recovery. Because flexible spill allows operations to prioritize hydropower generation, it provided little	The spill operation for juvenile fish passage is a significant departure from previous operations, so much so that the Washington and Oregon state water quality waivers had to be changed to implement the new spill regime. The co-lead agencies used current high quality information in the analysis of the CRSO EIS. Specific to salmon and steelhead, the agencies used two primary modeling approaches which yielded a range of potential outcomes for the alternatives. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% as a result of the Preferred Alternative. The NMFS COMPASS and

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				benefit in 2019 because spill was often provided during the day and not in the evening or at night when most of the juvenile fish migrate. In fact, survival for some populations were lower under flexible spill than under the 2018 Biological Opinion.	Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. It will likely take years to understand the true effect because adult returns are needed to measure the key effect, SARs, not in-river survival. The Flexible spill operations measure does not prioritize hydropower generation, but rather intends to meet the Fish Benefit, Hydropower Generation, and Operational Feasibility principles with specific performance targets to evaluate whether the principles have been met. Regarding the performance of 2019 flexible spill operations, which was planned for a 120% TDG level: one year of in-river data to assess the benefits of flex spill is not adequate because the primary metrics will be SARs, so the co-lead agencies will have to wait for generations of adult returns to assess the effectiveness of the action. Regarding your comment on recovery: the co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA listed species. Based on our analysis in the Fish resources section of Chapter 7.5, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the Columbia River System. That call however is ultimately the role of NMFS and the USFWS. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species.
31880	3	Carol.Savonen@oregonstate.edu	N/A	Analysis in the DESI shows that implementation of the PA would result in survival (smolt to adult ratio or SAR) at levels that would result in a continued decline in the populations and put them at increased risk of extinction. Additionally, changing flow and water temperature conditions due to climate change will make implementation of the PA difficult and negate any benefits of flexible spill as a long-term strategy. The only action identified in the DEIS with a reasonable chance of success for wild salmon and steelhead is to breach the four lower Snake River dams. This action coupled with increased spill at the lower Columbia River dams would prevent extinction and has a high probability of recovering salmon and steelhead populations. The dam breaching alternative was shown in the DEIS to be the one option with the highest SAR for salmon and steelhead, at levels that would meet the regional goal of an average SAR of 4% (2-6%) to provide for recovery of populations.	The co-lead agencies used the current high quality information and the best available science in the analysis of the CRSO EIS. Specific to salmon and steelhead, the agencies used two primary modeling approaches which yielded a range of potential outcomes for the alternatives. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% (within the Northwest Power and Conservation Council's recovery targets for the region) as a result of the Preferred Alternative. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets most other EIS objectives including those for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS, the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams, because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. It should be noted that the 4% average SAR target referenced refers to the Northwest Power and Conservation Councils target for broad-sense recovery and is separate and distinct from the obligations of any single entity or in this case a requirement to be met solely by the co-lead agencies. Just as the Councils fish and wildlife program encompasses both federal and non-federal stakeholders in the Columbia Basin, the Councils recovery goals are shared by many parties.
31880	4	Carol.Savonen@oregonstate.edu	N/A	The DEIS failed to take a long-term perspective when analyzing costs and benefits. For example, total costs of operating the four lower Snake River dams did not fully account for the long-term costs of maintenance that should have included the inevitable replacement costs of aging turbines; recent turbine replacement at McNary Dam cost $48 million). The DEIS also overstated the hydropower production of the dams and their relatively small regional contribution to power (4% by some estimates). Because power production of the dams is highest during spring, alternative sources such as wind and solar are available and their costs have steadily declined. Barging traffic has declined over the last 20 years by 45% for grain and by 70% for freight, with shifts to rail transportation. Benefits of restoring the lower Snake River were undervalued in the DEIS. For example, the contribution of restoring salmon and steelhead to the sportfishing economy were not addressed although it generates over $2 billion regionally. In addition, the DEIS did not include intrinsic values of a free-flowing river or recovered salmon and steelhead populations even though those values are widely accepted in economic analysis and were used by U.S Bureau of Reclamation in evaluating the removal of dams on the Klamath River.	The EIS evaluated beneficial and adverse effects across an array of resource areas including potential effects at the national, regional and local level; effects are monetized and quantified, where possible, and also described qualitatively. As is common in NEPA analyses, the beneficial and adverse effects of the alternatives are expressed as a variety of qualitative and quantitative environmental and economic metrics throughout the EIS to inform decision-making. The EIS does not employ a cost-benefit framework for decision-making. Instead, the EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as the dam breaching alternative. However, the Preferred Alternative also meets most of the other objectives of the study for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. A table added to Section 7.4 provides a summary of the beneficial and adverse effects of the alternatives, including the quantified social welfare costs and benefits for a number of the resource areas as well as the implementation costs of the alternatives. It is true that barge movements on the Snake/Columbia River have declined somewhat over the past 20 years. The EIS finds that transportation of freight that is currently barged on the Lower Snake River could be accomplished via other transportation modes, but this change would not be without costs to farmers, would require public and private investment in infrastructure, and would result in some adverse regional economic effects, particularly in the short term. The EIS provides an evaluation of the social welfare and regional economic effects of the No Action Alternative and the Multiple Objective alternatives, including the effects on recreation (Section 3.11) and commercial fisheries (Section 3.15). The EIS Section 3.5.3.6 describes the long-term effects to anadromous fish migration in the Snake River and tributaries as major and beneficial. The EIS described the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. NMFS estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which is described qualitatively. For the effects on recreational fishing under MO3 (Section 3.11.3.5) along the lower Snake River below Lewiston, the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River) as an indicator for fishing visitation in this reach. The EIS describes that the visitation in the long-term in the lower Snake River, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting outfitting and tourism businesses in the region. The social welfare values and regional economic effects associated with recreational fishing under the MOs, as well as river recreation post dam breach under MO3, were not estimated because of the uncertainty and large range in visitation and consumer surplus values among users. In regards to intrinsic values Section 3.15.2.2 describes the literature considered on this topic (passive use values) for this EIS. As described in the EIS, Section 3.15.2.2, "Best practices for benefit transfer identified in OMB Circular A-4 describe that meeting all criteria is difficult and that professional judgment is required in determining whether a particular transfer is too speculative (OMB 2003, 26). Given the limitations of the existing literature, this EIS does not include a quantitative benefit transfer of passive use values. This analysis acknowledges that the general public holds passive use values, and that the population that may experience social welfare benefits from increased salmon populations may be geographically far-reaching."
31880	5	Carol.Savonen@oregonstate.edu	N/A	In summary, the PA fails to provide an approach that is needed to protect and recover the federally listed salmon and steelhead populations in the Columbia River Basin. Scientific analyses have shown that restoring the lower Snake River by breaching the four dams will protect these populations from extinction and have a high probability of recovering them to harvestable levels, providing for sport, commercial, and tribal fisheries as well as other ecological benefits such as critical prey for orcas. It is time to change course from the decades of failed strategies that have resulted in continual decline of these iconic species.	There are many factors that effect salmonid populations that are outside the authority of the co-lead agencies. Both human-caused and natural factors that are outside the responsibility and control of the co-lead federal agencies, also contribute to the decline and recovery of fish, and will continue to strongly influence fish and their habitat. Salmon and steelhead have been adversely affected in the Columbia River Basin over the last century by many activities including human population growth, urbanization, introduction of exotic species, overfishing, development of cities and other land uses in the floodplains, water diversions for all purposes, dams, mining, farming, ranching, logging, hatchery production, predation, ocean conditions, and loss of habitat. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple legal responsibilities, including compliance with Section 7 of the Endangered Species Act. Under Section 7(a)(2) of the ESA, the co-lead agencies must insure that any action authorized, funded, or carried out is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of habitat of such species. Section 7(a)(2) does not require the co-lead agencies to recover ESA-listed species. Recovery of ESA species is the purview of NMFS and the US Fish and Wildlife Service. This EIS has been developed in consultation with National Marine Fisheries Service and USFWS to minimize impacts to affected ESA species and their habitats. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the EIS objectives) as well as the EIS objectives for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. The Preferred Alternative is also more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. The co-lead agencies used high quality information in the analysis of the CRSO EIS. Specific to salmon and steelhead, the agencies used two primary modeling approaches which yielded a range of potential outcomes for the alternatives. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult (SAR) return rates will increase for both Snake River spring Chinook and steelhead and will average above 2% (the lower end of Northwest Power and Conservation Council's (Council's) recovery targets for the region) as a result of the Preferred Alternative increasing SAR from 2.0% to 2.7% for Chinook, a 35% relative increase. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information. Based on the EIS analysis of the Preferred Alternative, it will make a substantial contribution to recovery targets. Regarding Southern Resident Killer Whales (SRKW), the population dynamics of the SRKW are complicated, and there is no one factor that contributes to the overall success of this species; however, the co-lead agencies agree that the quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Additionally, Section 7.7.8 states impacts to Southern Resident killer whales would be negligible. Thus, the co-lead agencies expect salmon and steelhead increases would come from operational measures and existing hatchery production carried forward into the Preferred Alternative. These hatcheries include conservation and safety net hatcheries, as well as through the continued existence of certain independent Congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as the Lower Snake River Compensation Plan, which is administered by USFWS. Moreover, NMFS concluded in its 2020 CRS BiOp that operations, maintenance and configuration of the CRS is not likely to adversely affect SRKW. Finally, the co-lead agencies disagree the Preferred Alternative is a slight deviation from previous operations. The spill operation for juvenile fish passage is a significant departure from previous operations, so much so that the Washington and Oregon state water quality standards had to be changed to implement the new spill regime. The Preferred Alternative also includes other operational, structural and mitigation measures to improve conditions for ESA-listed salmon and steelhead.
31881	1	jayo@uidaho.edu	N/A	The preferred alternative (PA) in the February 28, 2020, Draft Environmental Impact Statement (DEIS) for Columbia River System Operations (CRSO) attempts to balance eight objectives. This approach fails to recognize that because salmon and steelhead species protected by the Endangered Species Act (ESA) are involved, their conservation and survival needs should take precedence over other objectives. In short, passage in the migration corridor from salmon/steelhead spawning and rearing habitat in Idaho to the coastal estuaries and marine habitat needs to be improved to reduce risk to the surviving members of these threatened fish populations. If Idaho salmon and steelhead were given the priority they should receive because of ESA mandates, then the multiple objective alternative MO3 would be the preferred alternative choice in the CRSO. The DEIS (p.24) states that MO3 predicts the highest benefits for several of the ESA-listed juvenile and adult salmon and provides additional riverine type recreational opportunities. It also returns access and opportunities to some of the traditional cultural resources and properties for tribal purposes. This conclusion is based on the smolt-to-adult ratio (SAR), a metric accepted in the DEIS, and elsewhere, as an appropriate benchmark for CRSO conservation. On the same day that the DEIS was	The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations and the multiple congressionally authorized purposes of the CRS projects. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets most other EIS objectives including those for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS, the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams, because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. Recovery efforts referenced in this comment and references to the Northwest Power and Conservation Council (Council)fish and wildlife program with associated target for broad-sense recovery are separate and distinct from the obligations of any single entity or in this case a requirement to be met solely by the co-lead agencies. Just as the Councils fish and wildlife program encompasses both Federal and non-Federal stakeholders in the Columbia Basin, the Councils recovery goals are shared by many parties. Based on the analysis of the Preferred Alternative, the co-lead agencies believe their actions will make a substantial contribution, but the Councils broad-sense recovery goals are beyond the scope of this EIS, which contemplates the effects associated with the operation and maintenance of the 14 CRS projects.

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				released to the public (February 28, 2020) The Fish Passage Center released a memorandum to the Northwest Power and Conservation Council regarding SARs potentially attainable under the six CRSO alternatives in the DEIS: Among the federal alternatives, MO3 (the four dam breach alternative with spill to the 120% tailrace TDG in the Middle Columbia River) resulted in the highest SARs and in-river survivals, followed by MO4 (the spill to the 125% tailrace TDG alternative). These two alternatives, among the federal alternatives, resulted in the highest likelihood of meeting the 4% average SAR regional goal. The lower end of the predicted SAR range for MO3 was also above 1% for both Chinook and steelhead but for MO4, the lower end of the predicted SAR was slightly below 1%, indicating greater risk of further population decline. The other federal alternatives (NAA, MO1, MO2, and the PA) did not meet the regional 4% SAR goal and the lower end of the predicted SAR ranges were well below 1%, indicating greater risk of further population decline under each of these alternatives. For all fish survival metrics, the PA resulted in only slightly better performance than the NAA and MO1, and had lower performance than both MO3 and MO4.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species as that is a broader goal with shared responsibility. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the CRS. That call, however, is ultimately the role of NMFS and the USFWS. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. The co-lead agencies contracted with the Fish Passage Center (FPC) to produce the CSS modeling results presented in the draft CRSO EIS. Any modeling not presented in the EIS was not developed by the co-lead and cooperating agencies.
31881	2	jayo@uidaho.edu	N/A	Because the modeled datasets provided by the federal agencies used daily averages, the CSS results for the PA are likely overestimates. (Document is available online at https://www.wildsalmon.org/images/factsheets-and-reports/2020.FPC.Report.DEIS.Alternatives.pdf)	In practice, model estimates may not overestimate PITPH due to day vs. night passage differences because limitations on nighttime spill reductions are already in place through the adaptive management process and lessons learned from the 2019 flexible spill operation. These adjustments in the amount of night time spill were informed by state, Tribal, and Federal biologists with expertise in dam operations and their estimates of effects to fish passage. These examples of adaptive management operations would continue during implementation of the Preferred Alternative. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty from the models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin.
31883	1	nsarmie2@gmail.com	N/A	The fate of the Southern Resident Killer Whales are at stake and the available scientific evidence is insufficient in the DEIS to make conclusions about the importance of snake river salmon to their diet. It angers me that you have ignored NOAAs own data, or have chosen to omit it, for a reason that I hope is not to make dam breaching not seem as necessary. This is the opportunity to communicate what scientists have been discovering the past few years, Colombia River basin salmon stocks are one of the most important for Southern Resident Killer Whale survival and recovery! The laws of nature say, eat and you will live, do not eat and you will die. This is overwhelmingly clear for the Southern Residents, who, can be helped by other measures but will ultimately perish (SOON) without available food, chinook salmon. Denying this highly intelligent and ancient species their right to eat, and right to live, is power that should make you very, very, uncomfortable. The rhetoric currently used does not show this consideration.	The co-lead agencies agree that the quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differently from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for the whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall-run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall-run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). FEIS Chapter 3 (Vegetation, Wetlands, Wildlife, and Floodplains) has been updated for SRKW (Section 3..6.2.6 and Table 3-102). FEIS Chapter 7 (Preferred Alternative), has been updated with additional analysis information on SRKW and potential increase in forage fish, in particular, Chinook salmon (Section 7.7.8). Also, see response to Comment 6110-16.
31883	2	nsarmie2@gmail.com	N/A	The DEIS does not weigh economic effects of the Southern Residents going extinct, let alone the social effects. All associated tourism will be lost. Every business, utility company, bank, & individual who uses the Orca as an emblem or name will have to change it, or deal with the fact that they no longer exist thanks to human carelessness. How many millions of dollars will be lost? This is critical information needed to compare alternatives and come to a conclusive decision about CRSO.	The EIS analysis found only a minor effect to the Southern Resident killer whale would result from implementing MO3 (which includes the dam breach measure). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults form the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differentially from hatchery and wild fish. Hatchery fish today likely make up most fish consumed by SRKW (NOAA BiOp 2020).
31889	1	kfaeustle@gmail.com	N/A	On the DEIS process so far, First of all, I appreciate the extended call time and available times to hear the comments of the public. As for the DEIS itself, I urge you to choose the MO3 alternative to breach the lower snake river dams. It is the alternative that addresses the factors that have no alternatives - salmon spawning and river conditions and cultural sites for the local tribes. There is no other place where these salmon can spawn.	The co-lead agencies appreciate the acknowledgement of the time and energy invested in the process. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets most other EIS objectives including those for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS, the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams, because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system.
31889	2	kfaeustle@gmail.com	N/A	They have spent thousands of years undergoing evolution for a flowing river and these dams inhibit that. As for the cultural sites of the local tribes - they cannot be replaced. There is no other place where they can create cultural sites all of a sudden, at least not like the ones that are culturally significant and culture building. Removing the dams would return the existence and access to these sites. Its says it all in the report.	The co-lead agencies acknowledge that removal of the Lower Snake River dams would likely result in greater access to Traditional Cultural Properties. Please see Section 3.16.3.6 for additional details.
31889	3	kfaeustle@gmail.com	N/A	Transportation can be done by trains and trucks, recreation will increase in the long term, and the dams do not provide a significant amount of power, though they doubtlessly do provide power for the region. This power can be produced others ways, and in itself, is not vital to the region. Salmon are vital to the health of these ecosystems.	While the four lower Snake River dams account for a small portion of the total power of the region, they represent a larger portion of the Federal Columbia River Power System (FCRPS) from which Bonneville markets power. As described in Section 3.7.3.5 of the draft EIS, Potential Replacement Resources and Associated Costs, the four lower Snake River dams are among the most valuable projects in the FCRPS. Further, the seasonality of the power supply is important. The region often has surplus power in the spring when the weather is mild and flows are high. The LOLP analysis of Multiple Objective Alternative 3 showed that the region would have an annual risk of power shortages of around 14 percent stemming from shortages in the winter and summer. See Appendix J, Hydropower, Section 4.1.2.4 in the draft EIS. As suggested by the comment, the EIS does identify ways of replacing the power from these dams, and the resulting costs impose substantial upward pressure on regional power rates.
31889	4	kfaeustle@gmail.com	N/A	Recreation increases due to the dam removal in MO3 could also provide economic benefit for the region through tourism and recreation.	The Recreation Section 3.11.3.5 describes the potential economic benefits in the long-term under MO3, which includes the dam breach measure.
31889	5	kfaeustle@gmail.com	N/A	The preferred alternative would increase salmon runs by about 75%, but that is with the already greatly reduced runs of salmon that have come since the dams implementation. Up another 75% maybe, still without the natural river conditions surely is worse than the thousands of percent decrease in salmon and steelhead runs that have come since the dams removal. The salmon, once gone, cannot return. Power can still be created, grain can still be transported. Cultural sites are nonexistant and cannot still be created.	The co-lead agencies used the best available science and high-quality information in the analysis of the CRSO EIS. Specific to salmon and steelhead, the agencies used two primary modeling approaches which yielded a range of potential outcomes for the alternatives. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% (within the Northwest Power and Conservation Council's recovery targets for the region) as a result of the Preferred Alternative. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin.
31892	1	davidsolomonriverman@gmail.com	N/A	Unfortunately, the DEIS is incomplete inadequate and inaccurate in terms of its analysis of the benefits of removing these dams on salmon, steelhead and for the wildlife that depend on the salmon food chain. Furthermore, the negative economic and energy impacts of removing the dams are relatively small given the worsening economic cost of producing power, subsidizing barge transportation and billions of dollars thrown at attempts at fish habitat mitigation. I will elaborate the 6 interconnected issues below that should be addressed by finding new pragmatic solutions, and allow the removal of these four dams: 1. The Cause of Salmon Collapse: Loss of Free Access to and From Spawning Habitat: There is no question in the scientific literature that the plight of the aquatic wildlife in the Snake and Columbia began with the loss of habitat, and that dams have made it difficult for mature migratory fish to swim upstream to spawn and impossible for their fry to return to the sea. Fewer dams will result in higher percentage of successful spawning runs. These dams have the lowest economic benefit and the largest negative impact on fish runs, would open up over 5,000 miles of continuous habitat in the Snake, and therefore are the highest priority to remove. 32 salmon biologists and 6 whale scientists signed letters in 2018 to Washington governor Inslee advocating for removal of these four dams in order to re-establish productive access for Chinook, other salmon and steelhead and to support species that rely on these populations.	Historical review of salmon populations in the Columbia Basin was addressed in the Affected Environment section of Chapter 3 (Section 5). Effects of the Multiple Objective alternatives were also considered in Section 3.5. See also response to this comment under 31892-3 (3rd element of this comment letter).
31892	2	davidsolomonriverman@gmail.com	N/A	2. Salmon Food Chain: The DEIS ignores the critical importance of increasing salmon runs for critically endangered Southern Resident orcas.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not require the co-lead agencies to take affirmative actions to recover ESA listed species. The co-lead agencies agree that the quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differently from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for the

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					whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall-run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall-run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). FEIS Chapter 3 (Vegetation, Wetlands, Wildlife, and Floodplains) has been updated for SRKW (Section 3..6.2.6 and Table 3-102). FEIS Chapter 7 (Preferred Alternative), has been updated with additional analysis information on SRKW and potential increase in forage fish, in particular, Chinook salmon (Section 7.7.8). Also, see response to Comment 6110-16.
31892	3	davidsolomonriverman@gmail.com	N/A	Solar and wind at utility scale are the lowest cost of energy $/MWh on a fully-burdened, non-subsidized basis, as documented in Lazard's Levelized Cost of Energy Report (www.lazard.com/perspective/lcoe2019). The BPA, on the other hand, is producing energy at a higher cost than the market, and the only benefit of hydro from these dams is to solve for intermittency. The grid in Washington has plenty of hydro to use for balancing solar intermittency.	Contrary to the statement that the only benefit of hydropower is to solve for intermittency, the EIS finds that decreasing hydropower generation decreases regional power system reliability and increases costs under three Multiple Objective (MO) alternatives, including MO1, MO3 (which includes breaching the four lower Snake River dams) and MO4. See Table 1-1 in Chapter 1 of Appendix H, Power and Transmission in the draft EIS for the full summary of effects on hydropower generation, reliability, and costs. Wind and solar power are declining in cost; however, to provide the same amount of value in terms of both energy and capacity, 1 MW of hydropower would need to be replaced with more than 1 MW of wind or solar and coupled with batteries or some other storage technology due to the variable nature of these resources. See draft EIS, Section 3.7.3.5, Potential Replacement Resources And Associated Costs at pages 3-904-905 and Table 3-160. As for the cost of generation of the Columbia River System projects, many commenters are interested in the cost of generation at the four lower Snake River dams. The average annual value of the four lower Snake River dams exceeds the average annual equivalent costs. The generation value at the four lower Snake River dams can be described by a range between the cost to replace the generation through new conventional resources or through a portfolio of zero-carbon resources. Although the costs of replacing the power with market purchases was analyzed, it is unlikely that short-term wholesale power markets could reliably replace the power for the long term. This range would put the annual value of power between $240 million and $500 million for the four dams combined. These numbers represent about 90 percent of the lost benefits cited in Table 3-171 of the draft EIS because the four dams represent about 1,000 aMW of the 1,100 aMW of lost generation estimated in MO3. The average annual cost to operate and maintain all authorized purposes at the four lower Snake River dams is $75 million (Appendix Q, Table 5-1) and the annual-equivalent capital costs are $32 million (Appendix Q, Table 4-1). Hydropower costs funded by Bonneville represent about $50 million of the total annual operations and maintenance costs and nearly all of the annual capital costs, approximately $31 million. This puts the annual-equivalent power-specific costs at approximately $81 million a year. As a result, the net benefits from hydropower for the four lower Snake River dams are between $159 million and $419 million and the benefit-cost ratios are between 3.0 and 6.2. If the $34 million per year for the Lower Snake River Compensation Plan is added to the capital and expense costs, benefits still exceed costs under each replacement power scenario. Considering these costs, the net benefits range from $125 million to $385 million and the benefit-cost ratios range from 2.1 to 4.3. In the less-likely scenario that generation could be reliably replaced with short-term wholesale market purchases and assuming that the four dams represent 90% of the $150 million in market purchases required to replace the lost generation cited in MO3 (see Table 3-170), the lower bound for net benefits would fall to $54 million and the benefit-cost ratio would fall to 1.7. With the Lower Snake River Compensation Plan included, the lower bound for annual net benefits becomes $20 million and the benefit-cost ratio becomes 1.2. From a resource competitiveness perspective, the four lower Snake River dams are among the least costly generating resources in the Federal Columbia River Power System (FCRPS) and the planned investment strategy is expected to maintain that status. As shown in the Federal Hydropower presentation at the 2018 Integrated Program Review1/, the Headwater/Lower Snake Asset Class/2 is forecast to have a 50-year levelized cost of generation/3 of $11.41/MWh based on the direct funded capital and expense (O&M) programs outlined in that process. These costs remain competitive with volatile Mid-Columbia spot market energy prices which averaged $37/MWh in 2019 and have averaged $21/MWh in 2020. 1/ The Integrated Program Review (IPR) allows interested parties to see and comment on all relevant FCRPS capital and expense spending level estimates in the same forum. The IPR occurs every two years, or just prior to each rate case, and is the public review for the costs that will be recovered through rates the following two-year rate period. Long-term forecasts for the next 50 years and major upcoming projects are also shared in this forum. This information is available here: https://www.bpa.gov/Finance/FinancialPublicProcesses/IPR/2018IPR/IPR%202018%20Fed%20Hydro%20Workshop.pdf and is incorporated by reference into this EIS. 2/ In the 2018 Integrated Program Review, the Headwater/Lower Snake Asset Class consisted of the four lower Snake River dams, Hungry Horse, Libby, and Dworshak dams. These projects were grouped together because they have similar cost characteristics. The Levelized Cost of Generation for the four lower Snake projects alone is slightly lower than that for the whole class including the headwater projects shown in the table. 3/ Levelized Cost of Generation is defined as the forecasted direct costs and administrative overheads of producing power at a plant annualized over a 50-year period. This cost includes direct funded operations, maintenance, administrative and capital costs as well as Columbia River Fish Mitigation (CRFM) costs. Bonneville systemwide mitigation costs, such as its Fish and Wildlife program, are not included in this metric.
31892	4	davidsolomonriverman@gmail.com	N/A	It is time to shift to the future of clean, lower-cost solar instead of forcing rate payers to subsidize above-market electricity from the BPA, by some estimates $5/MWh over the market. Over the life of new solar infrastructure, the cost per megawatt hour would go down.	The comment incorrectly suggests that the wholesale spot-market price for power is equivalent in value to the firm power provided under Bonneville's long-term power sales contracts. The spot market is for wholesale power market purchases of surplus energy. It does not ensure availability nor deliverability, and is not suitable for load service, i.e., service to a load in any amount at all times. It is suitable only for buying and selling around firm load and resource forecast error, and for reducing system and fuel costs where and when more optimal and lower cost dispatch of energy resources is possible. Bonneville's long-term power sales are sold at a rate that is designed for firm load service; it ensures that what is needed is provided regardless of weather, hydrology, load, wind, market depth, or solar variability. For additional details on the Bonneville rate-making procedure, see Section 3.7.2.5, Bonneville Power and Transmission Customers, and Section 3.7.2.7, Power Rate Determination in the draft EIS.
31892	5	davidsolomonriverman@gmail.com	N/A	Agricultural Transport: There are other solutions for grain transport for the 130 miles from Lewiston to the Columbia, including rail (which would admittedly require some capital to upgrade capacity) and truck. In fact, freight volume on the Snake corridor has declined by 70% in the last 20 years as rail and truck are taking share. The transport cost of the existing barge system is currently subsidized (the farmers are not paying the fully-burdened cost of the lock system, dam maintenance, etc), so their higher-cost to use alternatives is a false choice. As part of a grand bargain, the farmers could be protected for several years through a declining subsidy of rail.	Section 3.10 of the EIS recognizes that access to barge transportation is the most cost effective means of accessing export markets for the majority of grain producers in the Northwest currently and removing that option would increase transportation costs for grain producers. It is true that barge movements on the Snake/Columbia river have declined somewhat over the past 20 years, but not by 70% and the decline has stabilized over the past 10 years. That decline is mostly attributed to investments in shuttle rail terminals. The EIS utilizes the most recent 10-year average as a basis for its forecast volume of freight that would transit on the lower Snake River. The EIS evaluates potential effects on farmers associated with increased transportation costs under MO3 in Section 3.10.3.5. The EIS finds that under MO3, average transportation costs for wheat farmers would increase 10 to 33 percent, but that individual farmers could experience increases that are doubled. The cost increases to specific shippers would depend upon location and would vary throughout the region, depending on transportation options at each location. Generally, those grain shippers that are the farthest from alternate shipping locations (shuttle rail facilities or river ports on the Columbia River) would be the most adversely impacted.
31896	1	grussing@nezpercesystems.com	N/A	Given the immense interest in the subject, it is truly unfortunate that the comment period has not been extended, especially with the Coronavirus pandemic raging to the point of forcing cancellation of scheduled public hearings. The teleconference hearings were a complete failure, leaving many potential participants unable to participate in the process.	The co-lead agencies considered requests to extend the public comment period. This NEPA process included a wide array of cooperating agencies whose close involvement throughout the process allowed the co-lead agencies to incorporate feedback. Given the broad range of comments received and the extensive Federal and non-Federal participation in the overall process as well as the level of public engagement in the six virtual public meetings in the region, the co-lead agencies determined that an extension was not warranted and that the 45-day public comment period was adequate consistent with NEPA regulations. The CRSO EIS website reminded the public on April 9, that they should plan to submit comments by the close of the comment period. In response to COVID-19 concerns and public health requirements within the comment period, the agencies converted the six planned in-person regional public comment meetings to conference calls that provided an approach consistent with the format of the planned in-person comment meetings. To ensure adequate opportunity for the public to provide comments on the Draft EIS, the agencies hosted an online comment platform, providing mailing addresses for written comments, and hosted a series of public comment meetings by telephone. The co-lead agencies offered these public comment meetings by telephone to maintain our commitment to accepting verbal comments in accordance with current public health guidelines. These teleconference meetings were structured similarly to the previously scheduled in-person public comment meetings and provided speakers with the same amount of time to submit a verbal comment. Due to the format of these meetings, they were accessible to any public commenter, regardless of location. Participation in these meetings was robust.
31896	2	grussing@nezpercesystems.com	N/A	First of all, throughout the document, the co-agencies speak of theColumbia-Snake System as single unit. In reality, the analyses in the document focus primarily (only?) on actions and impacts that occur on the Snake River.	The specific geographic scope of the CRS Multiple Objective alternatives (MOs) encompasses the 14 Federal projects on the Columbia River and its major tributaries. The 14 Federal projects are operated as a coordinated system within the interior Columbia River Basin in the states of Idaho, Montana, Oregon, and Washington. The 14 CRS projects are: Libby, Hungry Horse, Albeni Falls, Grand Coulee, Chief Joseph, Dworshak, Lower Granite, Little Goose, Lower Monumental, Ice Harbor, McNary, John Day, The Dalles, and Bonneville. The effects analysis is divided into Regions A (Libby, Hungry Horse, and Albeni Falls), B (Grand Coulee, and Chief Joseph), C (Dworshak, Lower Granite, Little Goose, Lower Monumental, and Ice Harbor), and D (McNary, John Day, The Dalles, and Bonneville) and does not focus primarily on the Snake River.
31896	3	grussing@nezpercesystems.com	N/A	Since freight transportation on the Columbia River would be unaffected by any of the proposed actions and alternatives, only the impacts to shipping on the Snake should be considered.	The commenter is generally correct that the findings of the EIS are that the alternatives other than dam breach would not have substantial effects on freight transportation on the Columbia River. Freight volume by mode to the Columbia River ports for export may change under MO3 as more tonnage may arrive via rail as opposed to barge. This area is referred to as Region D in the document. Navigation and transportation-related impacts to Region D are described for each alternative in Section 3.10.
31896	4	grussing@nezpercesystems.com	N/A	Inadequacy of the Preferred Alternative The Preferred Alternative is completely inadequate, and fails to make significant improvements for Snake River salmon and steelhead populations Neither the Preferred Alternative or other operation alternatives include any specific numerical identification of benefit to ESA-listed salmon and steelhead (CRSO-DEIS Executive Summary, p.32). The goal is only generally described as improving juvenile salmon and improving adult salmon. What about steelhead? The Northwest Power and Conservation Council (NWPCC) established regional smolt to adult return ratio goals of 4% (on average) for recovery of listed populations, but none of the DEISs alternatives achieve that goal except for MO3 (dam removal). The Preferred Alternative is worse than adherence and continuation of the status quo because it only mandates flex spill for one year, the last year of the Flex Spill Agreement (CRSO-DEIS p.7-15, Section 7.4 Summary). After the completion of the spill agreement there is only a process. The Preferred Alternative is inadequate because it makes no substantive changes to restore Snake River salmon and steelhead. There are only vague references to adaptive management processes which are a continuation of the failed history to restore Snake River anadromous fish. The Preferred Alternative carries significant risk for ESA-listed salmon and steelhead, not only that they will not recover but that they will go extinct.	The alternatives in the EIS examined a range of spill options identified to benefit ESA-listed fish, including steelhead. The Juvenile Fish Passage Operation measure with adaptive management was determined to provide flexibility in the spill operations for ESA-listed fish, while adaptive management would allow the co-lead agencies, in consultation with regional fisheries managers, to adjust the spill regime as more information is learned about the effects of flex spill. The Juvenile Fish Passage Operation measure provides flexibility to adjust operations to benefit fish, while also limiting impacts to other project purposes such as hydropower generation.
31896	5	grussing@nezpercesystems.com	N/A	Social Welfare Analysis is Imbalanced and Incomplete To develop the PA, the co-lead agencies selected a combination of suites of measuresbased on how well the measures met the Purpose and Need Statement and EIS objectives, with consideration of environmental, economic and social effects. (ES, p..32) Yet, the co-agencies ask the public to favor, even sanction, the needs of fewer than two dozen irrigators all located on just one of the four reservoirs, the Ice Harbor Reservoir. The Executive Summary (p. 28) assumes, that if the dams were breached, that 47,926 acres would no longer be irrigated at a social welfare cost of $458 million. That assumption is false on the face of it, since the river itself would remain available for irrigation. A one-time expense of aid to farmers to upgrade pumps and lengthen water lines could ensure sections of the 47,926 acres could be irrigated post breaching. At the same time that it expresses concern about the social welfare costs for irrigators, the CRSO-DEIS essentially ignores or disregards the needs of fishing communities in Oregon, Washington and north central Idaho which right now are suffering a severe social welfare cost due to the loss of thriving salmon and steelhead runs. The CRSO-DEIS disregards the individuals and businesses that create jobs in those communities and the significant positive impact of fishing on the overall economies of Washington, Oregon and Idaho. In 2019, the Idaho Department of Labors economist for Region 2 (north central Idaho) reported that salmon and steelhead fishing contribute an estimated $8.61 million per month to the region.	Section 3.12.3.4 discusses the assumptions related to the loss of irrigated acreage under the MO3 alternative. This section also discusses the Regional Economic Effects analysis which estimates how the decreased agricultural production will effect employment, labor income and output (sales) in this region. The EIS Section 3.5.3.6 describes the long-term effects to anadromous fish migration in the Snake River and tributaries as major and beneficial although quantitative impacts from fish modeling results are limited. The EIS described the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. NMFS estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which is described qualitatively.

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					For the effects on recreational fishing under MO3 (Section 3.11.3.5) along the lower Snake River below Lewiston, the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River) as an indicator for fishing visitation in this reach. The EIS describes that the visitation in the long-term in the lower Snake River, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting outfitting and tourism businesses in the region. The social welfare values and regional economic effects associated with recreational fishing under the MOs, as well as river recreation post dam breach under MO3, were not estimated because of the uncertainty and large range in visitation and consumer surplus values among users.
31896	6	grussing@nezpercesystems.com	N/A	Analysis of Cost/Benefit of Shipping Freight and Grain Doesn't Add Up In 2000, the Port of Lewiston barged 17,590 TEUs of containerized freight. In 2017, container-on-barge shipping stood at zero. This steep decline began long before the Port of Portland closed its container operations in 2015 and was driven by the regions producers themselves. In 1995, the Port of Lewiston shipped 952,599 tons of wheat via the lower Snake River. By 2018, wheat volume had decreased by 332,013 tons, a drop of 35%. Today all wheat at the Lewiston port is shipped by the private corporation Lewis-Clark Terminal over its own docks, not by the taxpayer-supported Port of Lewiston. Total lower Snake River freight volume 2015-2018 averaged 2.64 million tons, a 40% decline since 2000. Paper, pulp, petroleum, pulse, logs and lumber are no longer shipped on the lower Snake either by choice of the producers or, in the case of pulse, because containers are no longer shipped out of Port of Lewiston by barge. Grain shipping, too, has dropped as increasing numbers of grain growers shift to rail transport. Of all freight shipped on the lower Snake today, 90% of it is grain, but volume of grain shipped has been in steady decline. All waterborne freight to and from Lewiston, Idaho, passes through the lock at Lower Granite Dam. In 1994, 1,233 loaded barges were locked through Lower Granite. In 2017, just 314 were locked through. The lower Snake River dams and reservoirs transport the next to the lowest freight volume among seventeen rivers in the Inland Waterways System. In 2014-2016, the annual average freight volume on the lower Snake totaled 0.28 billion ton-miles. If that volume tripled, the river would still be classified as a low use river. The truth is that compared to waterways throughout the United States, the lower Snakes importance as a transportation waterway is negligible. The Snake River transportation waterway, to take this reality further, does not compare in any meaningful way to the importance of thriving anadromous fish populations to people, to rural economies, and to natural environments throughout the Snake River Basin. Thus, using lower Snake freight transportation as an excuse for allowing salmon and steelhead to go extinct is a false, unjustifiably expensive conclusion, making no economic sense.	Access to barge transportation is the most cost effective means of accessing export markets for many grain producers in the Pacific Northwest currently and removing that option will increase transportation costs for grain producers, as the EIS shows. This is different than container shipping, which we agree is not currently occurring on the Snake River. It is true that barge movements on the Snake/Columbia river have declined somewhat over the past 20 years, but not by 70 percent. While it is true that the Snake River freight volume is certainly smaller than the volume of the Mississippi and Ohio River systems, it is nonetheless an important transportation option for a large volume of freight, particularly for farm products, with the Columbia-Snake River system serving as one of the largest exporters of farm products in the U.S., and the largest exporter of wheat. The EIS finds that transportation of freight that is currently barged on the Lower Snake River could be accomplished via other transportation modes, but this change would not be without costs to farmers, would require public and private investments in infrastructure, and would result in some adverse regional economic effects, particularly in the short term. These effects are considered in the context of the overall objectives of the EIS.
31896	7	grussing@nezpercesystems.com	N/A	Benefits of Snake River Dams Power Production Are Overstated The four lower Snake dams, combined, produce 3.3% of the Pacific Northwest's power supply. If the 4 lower Snake dams were breached, the PNW regional power surplus would still be 13.7%. For 2020, the projected regional load is 23,906 average Megawatts (aMW). Under critical water conditions, the projected generation in 2020 is 28,820 aMW, which leaves a surplus of 3,950 aMW, four times the average lower Snake production. In other words, were all four lower Snake dams breached, the PNW region would still have an energy surplus. Historically, BPAs revenue stream relied in part upon the sale of surplus energy. Today, however, due to fast-paced development of other energy sources in places such as California to which BPA previously sold surplus at a profit, BPAs surplus power is no longer in high demand. BPA now is, in fact, compelled at times to sell the Northwests surplus power at negative prices. There are times today, too, such as during spring run-off, when surplus power significantly increases, and that increase causes BPA to reduce or shut down wind and other power sources as per its Oversupply Management Protocol. Weve taken huge hits in the secondary revenues market, with cheap gas, low load growth, and the oversupply conditions. Its been a bloodbath for folks in the wholesale market. Elliot Mainzer, Administrator, Bonneville Power Admin. I take Mr. Mainzer at his word, and believe its time to eliminate the lower Snake dams from BPAs wholesale market.	While the four lower Snake River dams account for a small portion of the total power of the region, they represent a larger portion of the Federal Columbia River Power System (FCRPS) from which Bonneville supplies firm load. The comment also appears to be considering the regional power system, not the FCRPS. The comment also suggests that the region could absorb this loss because on average the region has surplus energy. To determine resource replacement amounts, the EIS uses a more robust measure of power system reliability and resilience than the average MWs approach suggested by the commenter. Specifically, the EIS uses the loss-of-load probability (LOLP) metric utilized by the Northwest Power and Conservation Council. See EIS Section 3.7.2.2; Appendix H Power and Transmission, at Section 2.1; Appendix I Hydroregulation, Section 2.4.4 in the draft EIS. The LOLP metric evaluates the adequacy of power supply in the region to meet firm power needs under various conditions. It is measured in terms of a percentage, and represents the likelihood of a year having one or more blackouts. See Appendix H Power and Transmission at Section 2.1 in the draft EIS. The current LOLP under the No Action Alternative is 6.6 percent; this is equivalent to one year with blackouts every 15 years. The EIS uses this LOLP level as the benchmark from which to compare the other Multiple Objective (MO) Alternatives. As the commenter notes, under MO3, on average, the region has surplus generation leading to export sales during certain periods and water years. Nevertheless, to maintain regional reliability at the LOLP levels of the No Action Alternative, replacement resources would be needed. This is driven by the timing and magnitude of changes in hydropower generation analyzed in the EIS. As shown by the analysis of the LOLP, in some years and times of the year, particularly winter and later in the summer of drier years, without the four lower Snake River dams there would be insufficient power supply in the region leading to power emergencies and blackouts. Specifically, without replacing the power from the four lower Snake River dams, the LOLP of the region would more than double to 14 percent, which is equivalent to one year with blackouts every seven years. See page 3-903 and Appendix H, Power and Transmission, at Table 2-1 in the draft EIS. The statement that Bonneville's revenues include the sale of surplus energy is accurate; however, Bonneville's surplus power is still in demand and sold regionally and exported beyond the region, when available. If the output of the four lower Snake River dams is removed, then Bonneville would have less firm power (used to serve regional utilities) and less surplus power to sell. The rate pressure impacts of this outcome are described in Section 3.7.3.5, Table 3-166. The comment notes that Bonneville sells surplus power during certain months of the year. However, Bonneville's firm power obligations are determined by the load placed on Bonneville throughout the year. These loads tend to be winter peaking, meaning the extra surplus produced in spring does not assist in meeting these firm obligations. Regarding oversupply management protocol and negative prices, it is Bonneville's policy not to bid on negative market prices.
31896	8	grussing@nezpercesystems.com	N/A	From 2008 to 2017, BPAs cost for fish and wildlife mitigation in the Columbia Basin averaged $727 million per year, or about 24% of BPAs annual budget. Since 2001, the Corps of Engineers has spent at least $1.8 billion on structural improvements to lower Snake and lower Columbia dams in an attempt to increase juvenile fish survival. After 20-plus years and a cost of over $15 billion, no Columbia or Snake River threatened or endangered salmon or steelhead species is on a path to recovery.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Similarly, the Northwest Power Act does not obligate the co-lead agencies to recover ESA-listed species or to ensure restoration of other fish and wildlife. Instead, the co-lead agencies fish and wildlife mitigation responsibilities under Northwest Power Act are more limited primarily, managing and operating FCRPS projects, which includes the CRS, to protect, mitigate, and enhance (as opposed to recover) fish and wildlife affected by such projects in a manner that provides equitable treatment with the projects other authorized purposes and consistent with the purposes of the Act and applicable laws. In addition, Bonneville has a specific responsibility to fund protection, mitigation, and enhancement of fish and wildlife to the extent affected by development and operation of FCRPS projects consistent with the Northwest Power and Conservation Councils fish and wildlife program, the Councils power plan, and the purposes of the Act, which includes assurance of an adequate, efficient, economical, and reliable power supply. Therefore, contrary to the comments broad assertion, the Northwest Power Act does not make Bonneville responsible for funding the regional effort to recover wild salmon and steelhead. Moreover, the comments suggestion that approximately $15 billion in fish and wildlife mitigation investment has been ineffective to recover ESA-listed species is misplaced. Those investments delivered the intended results when considered in the appropriate statutory context of the Northwest Power Acts anadromous fish provisions which call for improved survival of such fish at FCRPS projects and sufficient flows between the projects to improve production, migration, and survival. For example, as of 2014 this investment had facilitated juvenile dam passage survival of 96% and 93% for spring and summer migrants respectively, see Endangered Species Act Federal Columbia River Power System 2016 Comprehensive Evaluation Section 1, at 17, t.2 (Jan. 2017), a marked improvement compared to when Congress passed the Northwest Power Act and the estimated average juvenile mortality at each mainstem dam and reservoir complex was 15-20% with losses recorded as high as 30%. See Nw. Res. Info. Ctr. v. Nw. Power Planning Council, 35 F.3d 1371, 1374 (9th Cir. 1994) (citing a Sept. 4, 1979 report by U.S. General Accounting Office describing the systems impacts on anadromous fish).
31896	9	grussing@nezpercesystems.com	N/A	Summary The 2020 DEIS Preferred Alternative is, quite simply, unacceptable. The PA fails to ensure an average 4% smolt-to-adult return ratio of threatened and endangered salmon and/or steelhead, which means that the co-agencies have, with the PA, failed to meet the mandate of the court order that precipitated the drafting of the 2020 CRSO-DEIS and failed to establish justification for the courts acceptance of the PA. Conversely, Alternative 3 (MO3) would ensure the needed SARS and would enable the court to accept the results of the CRSO DEIS. The Opinion and Order from the U.S. District Court for the District of Oregon, states that the EIS should evaluate how to ensure that the prospective management of the CRS is not likely to jeopardize the continued existence of any endangered or threatened species, or result in the destruction or adverse modification of designated critical habitat. The 2020 CRSO DEIS Preferred Alternative is inadequate to the task; whereas the 2020 CRSO DEIS Alternative 3 (MO3), including breach, is adequate to the task and must become the preferred alternative. A TDG level of 125% saturation at the 4 lower Columbia dam tailraces should be added to MO3 as a component of what should become the preferred alternative. Conclusion Scientific analyses in the CRSO-EIS leads to the conclusion that breach of the four lower Snake River Dams is the only option that has potential for recovery of Snake River salmon and steelhead. Based upon the data and analyses used to develop the CRSO-DEIS, I recommend that the Final EIS establish the objective to balance hydropower generation with substantive and meaningful restoration of anadromous fish. This is clearly not the objective of the Preferred Alternative, which places greater emphasis on power production while anadromous fish survival is relegated to tweaks of the existing hydro system. Meaningful restoration of salmon and steelhead must include breaching the four lower Snake River dams (MO3 alternative), with plans and a schedule to accomplish that goal. In the meantime, until the dams are breached, the analyses of alternatives clearly demonstrate that spill to the 125% tailrace gas cap (MO4 alternative) at all of the projects, 24 hours per day, must be implemented as an interim measure. Analyses in the CRSO-DEIS show this is the best available option for salmon and steelhead recovery, while still providing sufficient regional energy.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA listed species. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-lead agencies numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. The Preferred Alternative also meets the EIS objectives for: resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS the co-lead agencies did not identify MO3 because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. Improving anadromous fish conditions was included in the EIS objectives. The agencies disagree that an alternative that includes breaching the four lower Snake River dams and spring spill operations to 125% TDG at all four lower Columbia River dams is reasonable given the unacceptable risks to public safety from such an alternative for the reasons described below. The agencies also disagree that an interim "Preferred Alternative" should be MO4 given the reasons outlined in Chapter 7. MO3 and MO4, individually each caused large loss-of-load probability (LOLP) results (e.g. increased incidence of blackouts). Without major additional of new resources, MO3 would result in power shortages in about one in seven years. MO4 would produce power shortages in about one in every four years. Combining breaching the four lower Snake River dams with spill up to 125% at the lower Columbia River projects is not a reasonable alternative under NEPA. For power and transmission, MO3 and MO4, individually each caused large loss-of-load probability (LOLP) results (e.g. increased incidence of blackouts). Without major additional new resources, MO3 would result in power shortages in about one in seven years. MO4 would produce power shortages in about one in every four years. If MO4 were implemented, in addition to breaching the four lower Snake River projects as called for in MO3, then the LOLP would be even higher, with power shortages potentially occurring almost every year. Additionally, if these MOs were combined, in 5% of the years, the power shortages would average close to 1,000 MW in early August when the region might be experiencing a heatwave with particularly high demand for air conditioning. 1,000 aMW is about the average amount of power consumed by Seattle City Light. As shown in Section 3.7, MO3 causes an increase in power reliability concerns in the winter and the summer. MO4 increases power reliability concerns in the summer. Thus, the combination has the largest impact during the summer. The cost of zero-carbon replacement resources for MO3 and MO4 individually are up to $1 billion/year. Resource replacements and associated transmission interconnections for the combination of MO3 and MO4 would be higher, though not likely as high as the sum of the two MOs individually. Assuming that the replacement resources consist largely of wind, solar, and batteries, this would require well over 50 square miles of solar power (more than two and a half times the size of Crater Lake), large areas of new wind generation, and unprecedented amounts of batteries (more batteries in the Northwest alone than the total projection of batteries expected in the entire US by 2023 per the Energy Information Administration). In addition, the reduced generation capability under MO3, particularly throughout the summer, in combination with the impacts of the measures in MO4 and the uncertainty about the characteristics of replacement resources, would result in less capability to provide voltage support and dynamic stability for transmission system reliability than under MO3 or MO4 individually. Thus, combining MO4 with breaching the four lower Snake River projects, would produce unreasonable power and transmission reliability impacts, and it is highly speculative that replacement resources could be sited, permitted and built to address these impacts. Thus, an alternative combining juvenile fish passage spill up to 125% and breaching the four lower Snake River dams is unreasonable, and thus was not proposed as an alternative. It should be noted that the 4% Smolt-to-Adult return (SAR) target referenced in this comment refers to the Northwest Power and Conservation Council (Council) target for broad-sense recovery and is separate and distinct from the obligations of any single entity or in this case a requirement to be met solely by the co-lead agencies. Just as the Councils fish and wildlife program encompasses both federal and non-federal stakeholders in the Columbia Basin, the Councils recovery goals are shared by many parties. Based on the Preferred Alternative analysis, it will make a substantial contribution, but the Councils broad sense recovery goals are beyond the scope of this EIS, which focuses on the effects associated with the operation and maintenance of the 14 CRS projects. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species as that is a broader goal with shared responsibility. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. The effects of delayed mortality are discussed throughout the EIS analysis for each alternative and current high quality data and the best available scientific information was used for this analysis. Based on analysis by the CSS, SARs associated with population declines (SARs of less than 1%) have the potential to be greatly reduced under the Preferred Alternative, and on average, SARs are expected to be well above 2.0% for Snake River spring Chinook salmon and steelhead. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information. The co-lead agencies conclude the expected outcomes for salmon and steelhead associated with MO3 are appropriately acknowledged and framed appropriately with impacts to other authorized purposes.

Letter No.	Comment No.	Commenter Name/Email	Affiliation	Comment	Response[1/]
31905	1	abellaphotography@ymail.com	N/A	Due to the extra weight put on our postal system we did not get this until April 13th. Please allow comments for at least another week as many others may not have gotten their notices in time either. Thank you.	The co-lead agencies considered requests to extend the public comment period. This NEPA process included a wide array of cooperating agencies whose close involvement throughout the process allowed the co-lead agencies to incorporate feedback. Given the broad range of comments received to date and the extensive Federal and non-Federal participation in the overall process as well as the level of public engagement in the six virtual public meetings in the region, the co-lead agencies determined that an extension was not warranted and that the 45-day public comment period was adequate consistent with NEPA regulations. The CRSO EIS website notified the public on April 9, that they should plan to submit comments by the close of the comment period.
31907	1	N/A	N/A	During the life span on the dams, we have had some very good Salmon and Steelhead runs which suggests that there are other factors involved in the reduced runs of the past few years. Those other factors may be difficult to measure or control but removing the dams will not change those conditions.	The co-lead agencies also recognize that there are many effects to salmon and steelhead populations outside the operation of the dams. Research continues to evaluate the magnitude of these effects. For more information see the NMFS website at: https://www.nwfsc.noaa.gov/research/index.cfm.
31910	1	davegoodhart@msn.com	N/A	As a fishing guide on the Grande Ronde River in Washington, I have watched as the steelhead runs have declined to such an extent that it was almost impossible to guide a customer to a steelhead last year, and business is therefore collapsing. Dam removal is the most impactful action to help the salmon and steelhead survive. These dams are not essential. I think preserving salmon and steelhead runs is essential. Does anyone at the agencies care about the future of these fish? Once the fish are gone, they are gone forever. We need to get serious and make sure the fish survive. We can't just keep treading water and let them dwindle away. It is absurd that we value non-essential dams over the future of wild fish. The Snake River Basin has the best salmon and steelhead habitat in the entire Columbia drainage. We need to commit to making sure its native fish survive. It should be our number one priority. Once their future is assured, there are many options to work out the rest. Step one is to remove the dams. The EIS needs that option and it should be not just preferred, it should be compulsory.	The EIS evaluated beneficial and adverse effects across an array of resource areas including potential effects at the national, regional and local level; effects are monetized and quantified, where possible, and also described qualitatively. As is common in NEPA analyses, the beneficial and adverse effects of the alternatives are expressed as a variety of qualitative and quantitative environmental and economic metrics throughout the EIS to inform decision-making, including the effects of the alternatives on fish as detailed in Section 3.5. That the effects of the alternatives on fish are not expressed as monetized economic values does not mean that they were not considered in the context of the analysis. The EIS does not employ a cost-benefit framework for decision-making. Instead, the EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as the dam breaching alternative. However, the Preferred Alternative also meets most of the other objectives of the study for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Based on the EIS analysis of the fish resources in Section 7.7.5, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Similarly, the Northwest Power Act does not obligate the co-lead agencies to recover ESA-listed species or to ensure restoration of other fish and wildlife. Instead, the co-lead agencies fish and wildlife mitigation responsibilities under Northwest Power Act are more limited primarily, managing and operating FCRPS projects, which includes the CRS, to protect, mitigate, and enhance (as opposed to recover) fish and wildlife affected by such projects in a manner that provides equitable treatment with the projects other authorized purposes and consistent with the purposes of the Act and applicable laws. In addition, Bonneville has a specific responsibility to fund protection, mitigation, and enhancement of fish and wildlife to the extent affected by development and operation of FCRPS projects consistent with the Northwest Power and Conservation Councils (Council) fish and wildlife program, the Councils power plan, and the purposes of the Act, which includes assurance of an adequate, efficient, economical, and reliable power supply. Additionally, the EIS provides an evaluation of the social welfare and regional economic effects of the No Action Alternative and the Multiple Objective alternatives, including the effects on recreation (Section 3.11) and commercial fisheries (Section 3.15).
31910	2	davegoodhart@msn.com	N/A	As a fishing guide on the Grande Ronde River in Washington, I have watched as the steelhead runs have declined to such an extent that it was almost impossible to guide a customer to a steelhead last year, and business is therefore collapsing. Dam removal is the most impactful action to help the salmon and steelhead survive. These dams are not essential. I think preserving salmon and steelhead runs is essential. Does anyone at the agencies care about the future of these fish? Once the fish are gone, they are gone forever. We need to get serious and make sure the fish survive. We can't just keep treading water and let them dwindle away. It is absurd that we value non-essential dams over the future of wild fish. The Snake River Basin has the best salmon and steelhead habitat in the entire Columbia drainage. We need to commit to making sure its native fish survive. It should be our number one priority. Once their future is assured, there are many options to work out the rest. Step one is to remove the dams. The EIS needs that option and it should be not just preferred, it should be compulsory.	The EIS evaluates the performance of the CRSO alternatives with respect to multiple stated objectives, for example related to improving fish passage and survival, reliable power generation, and minimizing greenhouse gas emissions. The Preferred Alternative was chosen to meet the purpose and need to operate the system for the congressionally authorized multiple purposes, including fish, hydropower, and water supply, while minimizing adverse effect to biological and socioeconomic resources. The EIS evaluated benefits and adverse effects across an array of resource areas including potential effects at the national, regional and local level. Consistent with NEPA analysis framework, the beneficial and adverse effects are expressed as a variety of qualitative and quantitative environmental and economic metrics. That the effects of the alternatives on fish are not expressed as monetized economic values does not mean that they were not considered in the context of the analysis. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Similarly, the Northwest Power Act does not obligate the co-lead agencies to recover ESA-listed species or to ensure restoration of other fish and wildlife. Instead, the co-lead agencies fish and wildlife mitigation responsibilities under Northwest Power Act are more limited primarily, managing and operating FCRPS projects, which includes the CRS, to protect, mitigate, and enhance (as opposed to recover) fish and wildlife affected by such projects in a manner that provides equitable treatment with the projects other authorized purposes and consistent with the purposes of the Act and applicable laws. In addition, Bonneville has a specific responsibility to fund protection, mitigation, and enhancement of fish and wildlife to the extent affected by development and operation of FCRPS projects consistent with the Northwest Power and Conservation Councils (Council) fish and wildlife program, the Councils power plan, and the purposes of the Act, which includes assurance of an adequate, efficient, economical, and reliable power supply. Therefore, contrary to the comments broad assertion, the Northwest Power Act does not make Bonneville responsible for funding the regional effort to recover wild salmon and steelhead. In addition, the EIS provides an evaluation of the social welfare and regional economic effects of the No Action Alternative and the Multiple Objective alternatives, including the effects on recreation (Section 3.11) and commercial fisheries (Section 3.15).
31916	1	beaman.jeff@gmail.com	N/A	Although I am empathetic to the salmon's plight and believer in the importance of protecting biodiversity, I believe removing the dams at this time is unwise. The bigger, more pervasive environmental, economic and human survival threat we face today is global warming. Taking 1,000 MW of renewable energy with load following capability and baseload serving attributes offline makes no sense in light of this greater threat. The salmon need help and it's clear that we are at best holding the line at this point. However, dam removal has become a matter of orthodoxy easily spread among members of environmental organizations. This was made clear by the effort to ID Snake River runs as critical to the Puget Sound orcas. The NOAA findings show this population contributes only a small percentage to the whales' food supply. The criticality claim makes it clear dam removal advocates will exaggerate greatly to bolster their case. Renewable, emission-free energy takes a higher priority at this time while maintaining current efforts to restore the fish runs.	Thank you for your comment.
31917	1	N/A	N/A	Salmon define us as a region. Obsolete lower Snake dams block fish from ancestral breeding grounds. Wild fish not hatchery clones need those miles of rivers and streams now. Starving orcas need wild chinook.	The lower Snake dams were constructed with fish ladders, and do not block tributary spawning grounds. There are upstream barriers, including the Hells canyon complex in the middle Snake River, Dworshak Dam, and additional barriers in streams that do not have fish ladders and do block a significant amount of historic habitat for spring/summer/fall Chinook and steelhead.
31924	1	loo@ida.net	N/A	The Preferred Alternative should minimize the increases to the wholesale power rates as indicated in the study which is important to me and others live in the region.	In developing a Preferred Alternative, the co-lead agencies considered the need for an adequate, efficient, economical and reliable power supply, combined with the need to meet other authorized CRS purposes. The agencies additionally committed to mitigating for impacts to fish and wildlife impacted by CRS operations. For Bonneville's wholesale power rates, the Preferred Alternative places additional rate pressure of 2.7 percent relative to the No Action Alternative consistent with the statement in the comment regarding increased rates. These estimates compare the Preferred Alternative to the No Action Alternative, which is not the same as comparing the Preferred Alternative to current operations. Consequently, the estimates are not a comparison to the BP-20 wholesale power rates, which were set assuming the financial impact of the 2019-2021 Spill Operation Agreement and therefore already include a substantial portion of the cost pressures found in the Preferred Alternative. The remaining rate pressure associated with the Preferred Alternative falls within a level that Bonneville has historically been able to mitigate through the costs over which it has significant control.
31929	1	N/A	N/A	To my understanding, the controversial issues are the salmon and hydropower. Between these two, the salmon is more important. Salmon is a part of the natives culture being included in their traditions. Also, fishers rely on the salmon to become the substances for them and their families and as a resource to sell to others for income. The hydropower surely can be replaced with more environmental-friendly power sources. However, salmon are not replaceable because they are one of the keystone species, which feed various predators, including bears and orcas. If the salmon becomes extinct, few other species that rely on the salmon might become endangered or, worse, extinct.	Tribal partners also provided valuable input and expertise throughout the development of the EIS, and tribal interests and perspectives played an important role in how the co-lead agencies shaped the Preferred Alternative. The importance of healthy salmon and steelhead populations to tribal cultures and economies are a central part of the rationale for selecting juvenile fish passage spill measures that have the potential to provide major improvements in smolt-to-adult returns. The EIS set forth eight objectives which, in tandem with the purpose and need statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The preferred alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as the MO3, the alternative that includes the measure to breach the lower Snake River dams. However, the preferred alternative also meets the other objectives of the study for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse impacts to communities and the economy. Multiple Objective 3, by contrast, has significant regional economic impacts and community effects, and meet only a small subset of the EIS objectives. Thus, the co-lead agencies did not recommend dam breaching because the preferred alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system.
31931	1	nsarmie2@gmail.com	N/A	My comment below addresses one of the fatal flaws in the DEIS, rendering it unusable, and supporting my demand for immediate breaching of the Lower Snake River dams, if salmon, orca and ratepayers are to be saved. In the draft environmental impact statement, I found the claim of hydroelectric generation to be carbon free incorrect. The scientific community may have believed that decades ago, however it is now clear that all hydroelectric projects produce significant methane emissions from the algal growth in the adjacent reservoirs (depending on factors like temperature, latitude and bathymetry). The DEIS ignored this information, but I have attached a research paper from the Department of Energy to make sure you it is presented to you. Since one of the objectives of the study is to minimize green-house gasses (GHG), it is important to distinguish hydroelectricity from wind and solar, that to date have no methane or other greenhouse gas emitting impacts. In the multiple objective analysis, knowledge of methane emissions from reservoirs would be important to assess the reduction in GHG emissions given a breach alternative. Replacement with wind and solar for MO3 would significantly reduce GHG that is annually emitted from the decaying algal blooms and contributing to global climate change.	Appendix G, Chapter 5 of the Draft EIS details the assessment of reservoir methane emissions from the CRS projects. The findings are summarized in Section 3.8 in the Draft EIS. Section 3.8 and Appendix G include references to and discussion of Amtzen et al. (2013), research supported by the U.S. Department of Energy referenced in this comment. In the case of the four lower Snake River dams, recent research concluded that data were insufficient to estimate the reservoir methane emissions specifically for the CRS projects, but that methane emissions at high levels are not likely due to the lower organic and nutrient loads to the system, and higher dissolved oxygen content. The Draft EIS describes that emerging technologies would allow for better measuring and understanding the effects of reservoir methane emissions from CRS projects, including the four lower Snake River dams. While the commenter references that using renewable power generation sources would reduce GHGs for MO3, however, the Draft EIS analysis estimates that Multiple Objective alternative 3 would increase greenhouse gas emissions by 3.5% or 1.3 million metric tons if replacement generation resources were solely renewables.
31935	1	kristin@middleforklodge.com	N/A	It is time for a reckoning and recognition that this plan will not save our fish from extinction and additionally serves to insult Idahos outfitter and guiding community by not considering the crushing negative economic impact that eventuality will cause our industry.	The EIS provides an evaluation of the social welfare and regional economic effects of the No Action Alternative and the multi-objectives alternatives, including the effects on recreation (Section 3.11) and fisheries (Section 3.15). The EIS described the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. NMFS estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which is described qualitatively. The potential for changes in recreational fishing of anadromous fish under MO3 in the Region C is described in Section 3.11. Increases in recreational fishing could support jobs, income, and social benefits in Tribal and rural river communities. For the effects on recreational fishing under MO3 (Section 3.11.3.5) along the Lower Snake River below Lewiston, the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River) as an indicator for fishing visitation in this reach. The EIS describes that the visitation in the long-term in the lower Snake River, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No

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					Action Alternative, supporting outfitting and tourism businesses in the region. However, there is uncertainty around recreational fishing visitation in the long-term given the current measures to regulate, protect, and support ESA-listed fish populations and habitat in the region.
31935	2	kristin@middleforklodge.com	N/A	The plan equally and further disregards and disrespects the unsung heroes living deep inside of Central Idaho along the Lemhi, Pahsimeroi and Salmon Rivers who have been working innovatively and collaboratively for decades on their private lands to improve critical spawning habitat for salmon and steelhead - in an anticipation of salmon and steelhead recovery and abundance. In addition to my recreation background, I have a 12 year history as the founding Executive Director of Lemhi Regional Land Trust that was formed by local ranchers in 2005, in Salmon, Idaho. Our primary and initial challenge was to keep ranching a viable industry in the face of sky rocketing land prices in Central Idaho. During those early years we quickly began to understand that we had a pragmatic nexus consisting of ranchers who wished to stay whole and operating, who valued the namesake fish species of our region, and that financial resources were available to find new, creative ways for ranching and quality fish habitat to co-exist. Despite how the rest of the world viewed the term conservation, this savvy group of ranchers defined it for themselves in an unlikely landscape and embraced unimaginable change. Over time, we made significant strides addressing and solving wildly complex resource issues such as re-connecting de-watered tributaries, re-plumbing irrigation systems and completely re-thinking how to graze cattle in sensitive riparian areas. In most cases, it was the ranchers themselves who came up with the smartest and most innovative ideas. When they recognized there was an authentic desire from partners in the community with both financial and human resources to help, they were willing to do hard things. They gave up water rights and other property rights to do what they could to keep both our fish populations and their own operations viable. Ranchers did this repeatedly in our region with an early and notable effort to add water to re-connect the mouth of Lemhi River to the Salmon River in the 1990s. All of this work has been done to ready ourselves for recovery in Central Idaho. We know what fish need; they need natural river systems and processes to thrive. How is it that your EIS team is not asking themselves how to re-imagine the system in a way that re-establishes salmon and steelhead abundance while also finding ways to keep the folks and industries dependent the Lower Snake River hydro system whole? The Idaho outfitters and guides in our industry who have been shamefully and embarrassingly left out of any such considerations of being kept whole are the very people imploring that such an option is embraced for our downriver neighbors. The ranchers in our community have done their part. Outfitters and guides have endured the economic impacts of declining runs. Our communities struggle to find the words to describe the social and cultural impacts in a place like Salmon, Idaho on the Salmon River. We will not be spectators to this willful demise of our treasured, iconic, and still-mysterious ocean running fish. It is time to find solutions that are not carried on the backs of Central Idahoans, but by our region as a whole.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not require the co-lead agencies to take affirmative actions to recover ESA listed species. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery.
31942	1	N/A	N/A	This DEIS isn't good enough. It fails us as Idahoans and it fails the salmon and it fails the river system. There is no long-term strategy here. A Lower Snake River restoration plan would come with innumerable benefits, and yet it was given no real attention in this DEIS. Without such a plan, it is increasingly unlikely that our endangered salmon populations will ever recover to healthy and abundant numbers. How good can a DEIS be if it fails to consider the salmon, which are such a huge part of what Idahoans consider part of their river identity?	The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets most other EIS objectives including those for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS, the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams, because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system.
31949	1	20aquigley@students.cdaschools.org	N/A	Having salmon and wildlife in rivers is something that a lot of people worry about and are passionate about when they live next to or fish at rivers where this topic is an issue. I think that this growing problem is dealing with the growing population in general. Having enough power for people to have a sustainable amount for homes and businesses, and I think in this growing economy this will take precedence over salmon. After reading all of the information, I see that there is a big need for hydropower and this is a need in the areas provided. Although salmon are a big part of the community, having no power to supply the city can become a problem. Some concerns that may come with the dam will be the cost, the fish loss, the overall water quality, etc. These are all issues that have to be faced if we want to solve the problem at hand.	The EIS recognizes the various concerns mentioned in the comment and the statement that hydropower is important for the regional power system is consistent with the findings of the EIS. Consistent with the comment, the co-lead agencies developed a Preferred Alternative that seeks to balance across the multiple purposes of the federal projects including ensuring reliable and affordable power. See Section 7.7.9.1, Rate Sensitivity Analysis, Table 7-32 of the Draft EIS.
31950	1	bsallinger@audubonportland.org	Portland Audubon Society	Comment is attached (see PDF from Audubon Society of Portland et al	Unfortunately, an attachment was not received from the commenter. The co-lead agencies requested the commenter resubmit via e-mail on June 25, 2020; however, the co-lead agencies did not receive a response to this request.
31951	1	jnpaglieri@gmail.com	N/A	The removal of the Snake River dams would significantly harm both the economy and the environment. I agree with the conclusions of the consultants report (FCS Group). The EIS needs to address in more depth and detail the number of deaths and injuries that would result from leaving the dams in place compared with their removal. For example, the potential number of injuries (and possible) deaths that would result from industrial accidents in physical removal of the the dams. Also, the number of injuries that would result from manufacture, installation, maintenance, and end of life removal of wind mills (and solar panels). Another very significant concern is the long term energy shortage even with the dams left intact.	The method proposed for breaching the four lower Snake River dams is based on extensive analysis completed for the 2002 Feasibility Study, which also considered dam breaching. The methodology developed is intended to minimize impacts to ESA-listed fish runs, other aquatic organisms and the built environment, while providing maximum protection to human health and safety. The CRSO EIS uses the same assumptions. For the purposes of this EIS, the 2002 cost estimates were inflated to 2019 price levels. The co-lead agencies will continue to adhere to Federal standards for dam and levee safety and human life safety considerations. In the event that breaching of the four lower Snake River dams is implemented, additional analysis will be conducted to refine methods and costs. The commenter's concern with potential long term energy losses is consistent with the EIS, particularly in light of the planned retirement of many regional coal-plants even without loss of generation from the four lower Snake River dams. The EIS did not analyze detail the number of deaths and injuries that would result from leaving the dams in place compared with their removal or industrial injuries associated with wind power. These were outside the scope of addressing effects of changes to system operations. However, any implemented alternative will develop an on-site safety plan for the projects, including construction and maintenance activities. Safety concerns due to increases in truck and rail traffic from MO3 are discussed qualitatively in Section 3.10.
31952	1	pbaigas@yahoo.com	N/A	For decades, salmon recovery efforts in the Columbia river system have unsuccessfully tried to balance fish recovery with Hydro power operation and barge transport, among other competing interests. The preferred alternative clearly, although implicitly, abandons The federally listed wild spring chinook salmon and steelhead as a lost cause. Is therefore illegal and will be subject to costly litigation. The preferred alternative ignores the consensus of fishery scientist Who overwhelmingly agree that breaching the four dams on the lower snake river is the only option to restore wild fish in the lower Snake and Salmon rivers. Wild snake River salmon and steelhead are less than 2% of pre-project numbers and the preferred alternative will drive wild spring chinook and still head towards extinction not recovery.	The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets most other EIS objectives including those for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS, the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams, because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. Recovery efforts referenced in this comment associated with broad-sense recovery are separate and distinct from the obligations of any single entity or in this case a requirement to be met solely by the co-lead agencies. Just as the Northwest Power and Conservation Council (Council) fish and wildlife program encompasses both Federal and non-Federal stakeholders in the Columbia Basin, the Councils recovery goals are shared by many parties. Based on the analysis of the Preferred Alternative, the co-lead agencies believe their actions will make a substantial contribution, but the Councils broad-sense recovery goals are beyond the scope of this EIS, which contemplates the effects associated with the operation and maintenance of the 14 CRS projects. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species as that is a broader goal with shared responsibility. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the CRS. That call, however, is ultimately the role of NMFS and the USFWS. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species.
31953	1	N/A	N/A	Scientists from the Fish Passage Center have stated that breaching all four of these dams would result in roughly 1 million adult Chinook salmon returning to the mouth of the Columbia River, providing significant relief for endangered Southern Resident orcas. As you know Chinook salmon are the orcas' primary food source from central California to the Salish Sea. And the Columbia Basin supports salmon runs that the orcas have relied on for centuries. Historically half of all the salmon returning to the Columbia Basin were bound for the Snake River. But after the river was dammed more than half a century ago, the wild salmon runs plummeted and left the orcas with fewer fish to eat. Despite the fish ladders and our current interim spill measures, dams continue to cause serious salmon declines by directly killing and preventing their migration. Breaching these dams will cut dam-caused mortality by at least 50%.	The co-lead agencies evaluated the effects of alternatives to operating, configuring and maintaining the CRS projects, including an alternative that included a measure of breaching the four lower Snake River dams. Consistent with existing caselaw on ongoing actions, the co-lead agencies used the year in which the Notice of Intent to Prepare the EIS was issued (2016) as the No Action Alternative as the basis for comparison against the action alternatives. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not require the co-lead agencies to take affirmative actions to recover ESA listed species. Also, see responses to Comment 6110-16 and 6110-25 and updated language of effects on SRKWs in Chapter 3.6 and Chapter 7. The co-lead agencies contracted with the Fish Passage Center (FPC) to produce the CSS modeling results presented in the Draft EIS. The results are presented in Section 3.5 tables for each species as a percent change from the No Action Alternative (NAA) in the Draft EIS. Also presented are the median and average values for other metrics modeled, such as in-river system survival, proportion of powerhouse passage, total dissolved gas (TDG) exposure, etc. The co-lead agencies highlighted the more relevant metrics in the Executive Summary: median Smolt-to-Adult return rates (SARs) and their percent change from the NAA. When referencing these Preferred Alternative fish results the co-lead agencies are using language similar to this to help clarify any potential misunderstandings: The Preferred Alternative increases SARs from 2.0% to 2.7% for Chinook, a 35% relative increase. Moreover, the 4% average SARs target referenced refers to the Northwest Power and Conservation Councils target for broad-sense recovery and is separate and distinct from the obligations of any single entity or in this case a requirement to be met solely by the co-lead agencies. Just as the Councils fish and wildlife program encompasses both Federal and non-Federal stakeholders in the Columbia Basin, the Councils recovery goals are shared by many parties. Based on the anadromous fish analysis in Section 7.7.4, the Preferred Alternative would make a substantial contribution, but the Councils broad sense recovery goals are beyond the scope of this EIS, which contemplates the effects associated with the operation and maintenance of the 14 CRS projects. The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016).

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					The co-lead agencies agree that the quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults form the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differentially from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020). The co-lead agencies note the contribution to the prey of Southern Resident killer whales through the continued existence of their respective independent congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as Lower Snake River Compensation Plan (LSRCP), which is administered by USFWS.
31953	2	N/A	N/A	What's more, these dams have flooded miles of spawning habitat, destroyed healthy riparian forests, and created lethal warm-water reservoirs. With climate change, the number of days where temperatures will reach deadly levels are expected to increase. Independent research has stated that removing these four dams will help cool the river. By removing these dams, we'll also be increasing salmon access to more than 5,500 miles of free-flowing, climate-resilient, federally protected spawning habitat in northwest Oregon, southeast Washington and central Idaho. And doing so will deliver tremendous economic, ecological and cultural benefits to the region and nation.	It is well understood that the CRS dams have an impact on natural riverine processes as well as anadromous fish migration. This is discussed throughout the EIS document. A system water quality model was developed to look at water temperature and TDG effects throughout the Columbia and Snake River system for this EIS. Breaching the four lower Snake River dams would result in long-term benefits including improvements to fall water temperatures and the restoration of the river to more normative riverine processes; this is stated in Chapter 3, pages 3-271 through 3-272 and Appendix D, Section 6.2.3. Under a dam breach scenario, spring water temperatures will warm more quickly than No Action conditions. Similarly in the fall, under a dam breach scenario, fall water temperatures will cool more quickly than No Action conditions. What has surprised some stakeholders are the predicted summer water temperature effects under dam breaching. Many believe that removing the dams will result in colder water temperatures as compared to the No Action Alternative. While some cooler water temperatures may be observed in the summer under dam breaching, especially during cooler summer weather conditions and at night, water temperatures will remain warm and exceed the state water quality standard at times. This is because without the dams, the lower Snake River will be shallower and more susceptible to solar radiation and warming. Increases in water particle travel time are expected, but the lower Snake River has always been a warm system (USGS 1960, 1961, 1964; Corps 2002a) and breaching the dams will not change this fact. Regionally high air and water temperatures result in water quality standard exceedances and are beyond the ability of the CRS to cool; future climate change predictions will result in even more difficult challenges. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets most other EIS objectives including those for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS, the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams, because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system.
31953	3	N/A	N/A	Removing the dams, of course, will require both state and federal governments to invest in infrastructure that eases the transition for farmers and communities that rely on these dams. But it's an essential endeavor. Investments in rail infrastructure, irrigation pipes and renewable energy will ensure a just transition for the region and help support salmon and orca recovery.	Thank you for your comment. As noted in the EIS, if MO3 were the selected alternative, implementation would require public and private investment in infrastructure, and would result in some adverse regional economic effects, particularly in the short term.
31953	4	N/A	N/A	Southern Resident orcas are among the most endangered mammals on the planet, and they're starving to death with only 72 individuals left in the wild. While the orcas also face threats from vessel noise and contamination, breaching the four lower Snake River dams is the most significant action the federal government can take right now to restore salmon runs and orcas' most valuable food source.	The co-lead agencies evaluated alternatives to operating, configuring and maintaining the CRS projects, including an alternative that evaluated the effects of breaching the four lower Snake River dams. Consistent with existing caselaw on ongoing actions, the co-lead agencies used the year in which the Notice of Intent to Prepare the EIS was issued (2016) as the No Action Alternative as the basis for comparison against the action alternatives. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not require the co-lead agencies to take affirmative actions to recover ESA listed species. Also, see responses to Comment 6110-16 and 6110-25 and updated language of effects on SRKWs in Chapter 3.6 and Chapter 7. The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). The co-lead agencies agree that the quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults form the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differentially from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020). The co-lead agencies note the contribution to the prey of Southern Resident killer whales through the continued existence of their respective independent congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as Lower Snake River Compensation Plan (LSRCP), which is administered by USFWS. The co-lead agencies conclude there could be a minor effect to SRKW from implementing MO3. CSS and NMFS Lifecycle models predict that lower Snake River Chinook salmon smolt-to-adult returns would have a moderate to major increase under MO3. Operation of Lower Snake River Compensation Plan fish hatcheries under MO3 is uncertain and therefore, production of Snake River hatchery fish is assumed to decline over the long term, while returning adult wild salmon are anticipated to increase. However, the co-leads do not anticipate a lack of hatchery fish in the short term based on the proposed fish hatchery mitigation described in Chapter 5. These additional hatchery fish should mitigate short-term construction effects to Snake River populations. Additionally, to address short-term effects to ESA-listed species, the co-lead agencies propose constructing a new trap and haul facility at McNary and conducting at least two years of trap and haul operations for Snake River fish (Chinook, sockeye, and steelhead).
31956	1	kairos42@earthlink.net	N/A	The DEIS formulation of MO3 is fatally flawed because it took the single action breach alternative and without explanation, added costly work on lower Columbia dams along with more spill. Additional spill has shown little evidence to support its biological benefit thus far and also ties additional loss of power to breaching. This effectively creates the poison pill scenario for breaching. Even with additional cost loaded onto breaching to formulate MO3, Table 7-2 of Appendix Q displaying the change in Annual Equivalent Cost from the NAA shows that MO3 saves $93 million over the current conditions and $97 million over the Preferred Alternative. In addition, the PA is stripped of many features found in the other non-breach alternatives without explanation as a means, apparently, to make it look like a lost cost option. Note that none of these comments attempt to address Fish and Wildlife costs that very significantly and as the DEIS states are dependent on further analysis, especially in regards to a breach. In terms of assessing an overall benefit to cost ratio for the MOs, NAA and PA, no single table does this, although such a table may have been briefed to the Public Power Council by Jim Frederick for the Crops NW division. Lacking such a table, it appears that the DEIS provides costs in three different categories: Implementation costs, Hydro power impact costs, and mitigation costs for MOs, the NAA and PA. When costs based on the more detailed analysis for the lower Snake River Dams (LSRDs) in the 2002 EIS are corrected, mostly be correcting faulty assumptions, brought forward and then properly accounted for as implementation, power, and mitigation costs, the cost/economic benefits of a poisoned MO3 become more evident. For a stand alone breaching alternative, even more effective in terms of short term costs and life cycle economic benefit over ALL non breach MOs and alternatives. Specifically, Tables 3-308 and 3-309 in Chapter 3 and Tables 7-1 and 7-2 in Appendix Q are changed by using corrected breaching, mitigation and implementation costs (see attachments) they will show that a poisoned MO3 even after adding in mitigation costs for bridge pier armoring, channel work, hatcheries, RR embankment protection, dredging, gas line protection, cultural resource protection, irrigation modification, $80 million in RR siding, grain conveyance mods at elevators and upgrading the Port of Columbias short line from Prescott to Dayton WA, has an annualized implementation costs of $57 million and $61 million dollars less than the NAA and PA respectively! These same tables would show an annualized savings of $100 and $104 million over the NAA and PA respectively for a breach only alternative! In terms of power impacts among the MOs and PA, the DEIS states unsupported claims totaling, it is hard to tell without a B/C table, something over $1 billion annually in terms of benefits by keeping the dams or conversely a $1 billion cost to ratepayers to replace the capabilities of the LSRDs if breached. However, the DEIS is rather vague about how absolute the estimates are and often notes that further analysis is needed if breaching were implemented. Indeed, given the amount of power surpluses, BPAs most recent resource estimates, and how much money they actually generate from secondary sales, the need for replacing the power is in question and evident in the DEIS. But by using these high benefit claims as another reason to develop a Preferred Alternative, the agencies have not only ignored their own data but have fatally biased the PA and breaching in positive and negative manners, respectively. As such the process will never get to an answer any more than the 2002 EIS did because of the inherent pro dam biases of the the Corps and BPA. These errors in assumptions from the 2002 EIS and expanded upon in the DEIS show the effects of attempting to perjure any form of breach alternative. These fatal flaws are so egregious as to render the DEIS process invalid. As such the Corps and BPA should immediately implement breaching of the LSRDs this year as the only way left to reduce costs to ratepayers, saving BPA, salmon and SRKW.	The EIS evaluated beneficial and adverse effects across an array of resource areas including potential effects at the national, regional and local level; effects are monetized and quantified, where possible, and also described qualitatively. As is common in NEPA analyses, the beneficial and adverse effects of the alternatives are expressed as a variety of qualitative and quantitative environmental and economic metrics throughout the EIS to inform decision-making, including the effects of the alternatives on fish as detailed in Section 3.5. That the effects of the alternatives on fish are not expressed as monetized economic values does not mean that they were not considered in the context of the analysis. The EIS does not employ a cost-benefit framework for decision-making. Instead, the EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as the dam breaching alternative. However, the Preferred Alternative also meets most of the other objectives of the study for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. A table added to Section 7.4 provides a summary of the beneficial and adverse effects of the alternatives, including the quantified social welfare costs and benefits for a number of the resource areas as well as the implementation costs of the alternatives. The commenter is correct when describing that the EIS provides costs across different categories. There are costs estimated for implementing and operating and maintaining the system under each alternative - these costs also include fish & wildlife program costs along with mitigation measure costs. For example, when compared to the No Action Alternative, MO3 would reduce system costs between $53 and $158 million annually. Compared to the No Action Alternative, the Preferred Alternative would range from a decrease in costs of $40 million to an increase in costs of $7 million annually. However, these figures do not consider the benefits provided by the lower Snake River dams, including hydropower, navigation, water supply, and recreation. As the commenter points out, hydropower impacts can be described as costs or lost generation, as well as benefits or increased generation. When considering hydropower only, the average annual value of the four lower Snake River dams exceeds the average annual equivalent costs. The generation value at the four lower Snake River dams can be described by a range between the cost to replace the generation through new conventional resources or through a portfolio of zero-carbon resources. Although the costs of replacing the power with market purchases was analyzed, it is unlikely that short-term wholesale power markets could reliably replace the power for the long term. This range would put the annual value of power between $240 million and $500 million for the four dams combined. These numbers represent about 90 percent of the lost benefits cited in Table 3-171 of the Draft EIS because the four dams represent about 1,000 aMW of the 1,100 aMW of lost generation estimated in MO3. The average annual cost to operate and maintain all authorized purposes at the four lower Snake River dams is $75 million (Appendix Q, Table 5-1) and the annual-equivalent capital costs are $32 million (Appendix Q, Table 4-1). Hydropower costs funded by Bonneville represent about $50 million of the total annual operations and maintenance costs and nearly all of the annual capital costs, approximately $31 million. This puts the annual-equivalent power-specific costs at approximately $81 million a year. As a result, the net benefits from hydropower for the four lower Snake River dams are between $156 million and $417 million and the benefit-cost ratios are between 2.9 and 6.1. If the generation could be reliably replaced with short-term wholesale market purchases (see Table 3-170 of the Draft EIS), the lower bound for net benefits would fall to $57 million and the benefit-cost ratio would fall to 1.7. From a resource competitiveness perspective, the four lower Snake River dams are among the least costly generating resources in the Federal Columbia River Power System (FCRPS) and the planned investment strategy is expected to maintain that status. As shown in the Federal Hydropower presentation at the 2018 Integrated Program Review , the Headwater/Lower Snake Asset Class is forecast to have a 50-year levelized cost of generation of $11.41/MWh based on the direct funded capital and expense (O&M) programs outlined in that process. These costs remain competitive with volatile Mid-Columbia spot market energy prices which averaged $37/MWh in 2019 and have averaged $21/MWh in 2020.
31958	1	N/A	N/A	Considering ALL 4 stocks of Idahos precious, native salmon and steelhead are still threatened or endangered, the only legitimate way forward is the option most likely to increase native salmon numbers. Furthermore, other species listed under the Endangered Species Act (ESA) such as critically endangered Southern resident Orca and threatened grizzly bear are dependent on or would benefit from nutrients derived from salmon. Salmon and steelhead are incredibly important keystone species that support ecosystem health in the entire Pacific Northwest. No place more so than the rugged, Salmon -Selway Ecosystem (SSE). Comprised of the Frank Church-River of No Return, Selway-Bitterroot and Gospel Hump wilderness areas and adjacent roadless areas, the SSE is one of the last intact ecosystems in the continental US and it is missing a keystone species that brings nutrients from	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Grizzly bear reintroduction is beyond the scope of this EIS as well as authority. The USFWS has the authority and responsibility for Grizzly Bear recovery program. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as the dam breaching alternative. However, the Preferred Alternative also meets most of the other objectives of the study for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy.

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				the Pacific far into the depths of the inland northwest. I consider the proposed option to be a direct afront to salmon recovery but also reestablishment of Grizzly Bear in the SSE, a critical link in the Yellowstone to Yukon corridor system. It is indeed shortsighted to sacrifice a thriving hotspot of biological diversity, an ecosystem that would support even more diversity, cultural practices and recreational opportunities if nutrients brought inland from the Pacific Ocean via salmon were replenished. These issues were not adequately taken into account in the EIS. While I understand there are competing interests over control of the Snake River, the desire to appease stakeholders such as power brokers and the Port of Lewiston should not take precedence over the primary issue of salmon and steelhead recovery. The proposed option does not provide native salmon with the best chance at survival, therefore, it is inadequate.	
31958	2	N/A	N/A	Page 13 of the report states NMFSs LCM attributes the majority of recent declines to the arrival time of juveniles entering the ocean (e.g., fish that enter the ocean later in their migration run-timing tend to have lower survival), and deteriorating ocean conditions (decadal scale cycles in ocean productivity and warming water in the Northeast Pacific). These issues are not adequately addressed by the unproven Juvenile Fish Passage Spill in the Preferred Alternative. Potential benefits are not enough.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA listed species. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the Columbia River System. That call however is ultimately the role of NMFS and the USFWS. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. The co-lead agencies used current high quality information and the best available science in the analysis of the CRSO EIS. Specific to salmon and steelhead, the agencies used two primary modeling approaches which yielded a range of potential outcomes for the alternatives. With respect to the Preferred Alternative, the CSS model predicts that average Smolt to Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% as a result of the Preferred Alternative. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be increasing salmon and steelhead returns to the Columbia Basin. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets most other EIS objectives including those for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS, the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams, because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system.
31958	3	N/A	N/A	Clean reliable power should certainly be a national priority, however, there are multiple ways to Provide a Reliable and Economic Power Supply. The Columbia River Gorge has a high capacity for wind power, vast areas of the Columbia Basin are suitable to solar and coastal areas could utilize wave energy. Furthermore, Idaho, Oregon and Washington all have high capacity for geothermal energy due to hydrothermal activity in the Snake River plain in Idaho and the Cascade Range in Oregon and Washington. This reliable, economic source of clean energy was not a focus of the long but deficient EIS. Energy conservation and efficiency are also viable avenues to reduce demand.	The EIS acknowledges that the energy sector is constantly undergoing transformation and that technological improvements will likely bring other options. Regarding the range of renewable technologies considered, the source of resource information used in the EIS is from the Northwest Power and Conservation Council's (Council) 7th Power Plan and Mid-term update. See draft EIS, Section 3.7.3.1, Step 3: Determine Need for Potential Replacement Resources and Associated Costs at page 3-821 and Appendix H, Power and Transmission, Section 2.2. The EIS analysis focuses on primary technologies identified by the Council in their 7th Power Plan (7th Power Plan page 13-5) that are deemed proven, commercially available, and deployable on a large enough scale in the Northwest. Geothermal energy was not considered a primary technology and thus, was not included as a replacement resource. The replacement resource analysis modeled potential wind power replacement for both the Columbia River Gorge and Montana; however, the analysis did not identify wind energy as cost-effective relative to solar power (see draft EIS, Chapter 2 of Appendix H for additional details). The conventional least-cost and the zero-carbon resource portfolios were intended to provide a range for the cost and emissions impacts of the Multiple Objective Alternatives assuming current technologies could be scaled to replace the four lower Snake River dams' capabilities. See draft EIS, Section 3.7.3.5, Potential Replacement Resources And Associated Costs at pages 3-904-909 and Table 3-162. All cost effective conservation identified by the Councils 7th Power Plan is included in the load forecast. See draft EIS, Appendix H, Power and Transmission, Section 2.2 at page H-2-3. Under Washington and Oregon law, all cost effective conservation must be acquired regardless of the status of the Federal Columbia River Power System. Therefore, conservation was not considered as a potential resource replacement.
31958	4	N/A	N/A	Just as there are alternatives for clean energy, there are also several alternatives for transporting wheat for export, rail lines run right next to the Columbia River and the United States has a first-class interstate system.	The EIS finds that transportation of freight that is currently barged on the Lower Snake River could be accomplished via other transportation modes, but this change would not be without costs to farmers, would require public and private investments in infrastructure, and would result in some adverse regional economic effects, particularly in the short term. The Navigation and Transportation Section 3.10 reflects the adverse effects of implementing MO3 including discussions of transportation mode capacity and cost of grain transport. The EIS also evaluates the additional transportation infrastructure investments and associated costs that would be required, as well as the increases in air emissions that would occur. Under low rail rate increase scenarios, additional shortline rail capacity would be required that could cost $25 to $50 million. Under a scenario where rail rates increase by 50 percent, more shipping demand would be transferred to trucks, reducing the demands on rail infrastructure, but increasing demands on roads. Under this scenario, up to $10 million in additional road wear and tear costs may occur. The EIS finds that truck ton-miles may experience an increase of 19 percent to 84 percent under MO3 when compared to the No Action Alternative, depending on the rail rate increases that occur. The EIS analysis found that truck trips would increase between 14,000 to 79,000 truck trips per year, which would increase air pollutant and greenhouse gas emissions in the region and add to traffic and congestion in the region. Rail ton-miles would increase by as much as 86 percent (when rail rates are not assumed to increase) or decrease by 2 percent (when rail rates increase by 50 percent). The EIS finds that average transportation costs for wheat farmers would increase 10 to 33 percent, but that individual farmers could experience increases that are much higher, depending on their specific location and other conditions.
31958	5	N/A	N/A	Page 8 of the EIS report states The October 19, 2018 Presidential Memorandum on Promoting the Reliable Supply and Delivery of Water in the West directed the co-lead agencies to shorten the timeline to prepare the EIS a year ahead of the original schedule adopted in the Opinion and Order. Compression of the schedule between the completion of the Draft EIS and signing the records of decision and a predisposition of the current administration against the Endangered Species Act is indeed contrary to the protection of salmon and steelhead. I support a new, regionally-led, scientifically-based approach to salmon and steelhead recovery in the Columbia River Basin.	The co-lead agencies recognize the desire to continue the conversation across the region about the future of salmon recovery, affordable and reliable clean electricity, tribal perspectives, and economic vitality for the many people who depend on the CRS for their way of life. The co-lead agencies will be active participants in regional discussions on the effects of the CRS and achieving broader recovery objectives. The Preferred Alternative for long-term system operations, maintenance and configuration of the CRS presented in the Draft EIS is based on current conditions and environment. Its also important to note that technology is quickly changing, as is the regions dynamic environment and energy market, and the region needs to consider new information and adaptively manage resources. The co-lead agencies recognize that no matter which alternative in the CRSO Draft EIS is identified as the Preferred Alternative, the identification would likely draw criticism from some stakeholders or sovereigns. The region includes stakeholders, sovereigns, and other interested parties with diverse and varied opinions on these very important topics, and many are strong in the belief that their perspective is the best path forward. It is important to keep in mind that factors, both human-caused and natural, that are outside the responsibility and control of the co-lead Federal agencies also contribute to the decline and recovery of fish, and will continue to strongly influence fish and their habitat. Salmon and steelhead have been adversely affected in the Columbia River Basin over the last century by many activities including human population growth, urbanization, introduction of exotic species, overfishing, development of cities and other land uses in the floodplains, water diversions for all purposes, dams, mining, farming, ranching, logging, hatchery production, predation, ocean conditions, and loss of habitat. Operation, configuration and maintenance of the Columbia River System requires mitigation for its effects, and the EIS is not intended or required to serve as an overall salmon recovery plan for the region. All of the human-caused impacts that have contributed to the decline of fish, and how the region should properly and effectively address those impacts, should be part of the continued regional discussion. The co-lead agencies look forward to participating in that discussion.
31958	6	N/A	N/A	Lastly, it is unjust that only a 45 days comment period was issued for such a long technical report and that no extension was granted during this time of national emergency dealing with the coronavirus. I would very much have liked to share my comments in person. I did submit comments via a phone conference but, it was not conducive to listening to comments by various stakeholders and in my opinion was ineffective. Also, I think more cities in Idaho should be included in the public comment roster as these issues disproportionately affect Idaho citizens.	The co-lead agencies considered requests to extend the public comment period. This NEPA process included a wide array of cooperating agencies whose close involvement throughout the process allowed the co-lead agencies to incorporate feedback. Given the broad range of comments received and the extensive Federal and non-Federal participation in the overall process as well as the level of public engagement in the six virtual public meetings in the region, the co-lead agencies determined that an extension was not warranted and that the 45-day public comment period was adequate consistent with NEPA regulations. The CRSO EIS website notified the public on April 9, that they should plan to submit comments by the close of the comment period. In response to COVID-19 concerns and public health requirements within the comment period, the agencies converted the six planned in-person regional public comment meetings to conference calls that provided an approach consistent with the format of the planned in-person comment meetings. To ensure adequate opportunity for the public to provide comments on the Draft EIS, the agencies hosted an online comment platform, providing mailing addresses for written comments, and hosted a series of public comment meetings by telephone. The co-lead agencies offered these public comment meetings by telephone to maintain our commitment to accepting verbal comments in accordance with current public health guidelines. These teleconference meetings were structured similarly to the previously scheduled in-person public comment meetings and provided speakers with the same amount of time to submit a verbal comment. Due to the format of these meetings, they were accessible to any public commenter, regardless of location. Participation in these meetings was robust.
31962	1	MarjyL@charter.net	N/A	The Snake River dams are crucial to the entire state of Washington. The clean energy and low cost of electricity provided by the dams encourages companies to choose Washington when seeking a place to locate. Farms which feed all of Washington and beyond depend on the water for irrigation and for barge transportation of grains and other goods, as well as electricity. Without the barges delivering tons of goods, cargo would be forced to use trucks for transportation, resulting in increased traffic, more damage to roads, greater pollution, more carbon in the air, and greater fuel usage.	The potential economic impacts from breaching of the lower Snake River dams are described throughout the EIS organized by resource area including Power and Transmission (Section 3.7), Navigation and Transportation (Section 3.10) , Water Supply (Section 3.12), and Recreation (Section 3.11). Effects to livelihoods are captured to the extent possible in the regional economic effects and other social effects sections that follow. Please see Section 3.10, Section 3.12, and Appendix N for additional information.
31963	1	finnegd@wwu.edu	N/A	As a young biologist who grew up recreating on nearby Idaho rivers, it is my strong opinion that the 4 lower Snake River (LSR) dams should be breached to comply with the Endangered Species Act, which will enhance migratory habitat for listed salmon and steelhead.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets most other EIS objectives including those for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS, the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams, because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system.
31963	2	finnegd@wwu.edu	N/A	Limited commodity transport and hydro-power potential differentiates the LSR from the mainstem CRSO and continued maintenance and operation of the LSR dams can no longer be economically justified. A free flowing Snake River will provide countless ecological benefits throughout the Northwest, as well as enhance the economy through the creation of new jobs surrounding the recreational and commercial fishing industry.	There are benefits and costs associated with operating the lower Snake River projects. The EIS evaluated beneficial and adverse effects across an array of resource areas including potential effects at the national, regional and local level; effects are monetized and quantified, where possible, and also described qualitatively. As is common in NEPA analyses, the beneficial and adverse effects of the alternatives are expressed as a variety of qualitative and quantitative environmental and economic metrics throughout the EIS to inform decision-making, including the effects of the alternatives on fish as detailed in Section 3.5. The EIS does not employ a cost-benefit framework for decision-making. Instead, the EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as the MO3, which includes the dam breaching measure. However, the Preferred Alternative also meets most of the other objectives of the study for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy.
31963	3	finnegd@wwu.edu	N/A	Fish and Wildlife Scientists estimate the Snake River basin holds approximately 70% of the wild salmon and steelhead recovery potential for the entire Columbia River basin due to high habitat quality, but smolt to adult ratios (SAR) and return rates for wild fish remain well below population maintenance thresholds with SARs averaging < 2% for Snake River Sockeye, Snake River Spring/Summer Chinook and Snake River Steelhead (3 of 4 listed stocks). Fish mortality related to migration through the LSR dams is increased by longer migration times, diminished rearing habitat that provides reduced nutrition, slower growth and higher vulnerability to predators.	The co-lead agencies used the best available science and high-quality information in the analysis of the CRSO EIS. Specific to salmon and steelhead, the agencies used two primary modeling approaches which yielded a range of potential outcomes for the alternatives. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% (within the Northwest Power and Conservation Council's recovery targets for the region) as a result of the Preferred Alternative. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin.

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					The Preferred Alternative will improve fish migration times, which will reduce vulnerability to predators. The Preferred Alternative also includes a large suite of predation mitigation measures, some of which include maintaining avian wires in the tailrace of lower Columbia and Snake River dams, active hazing of gulls at the dams, and the pattern of operating the spillway gates all mitigate for predation at the dams by birds and fish. The Predator Disruption Operations will mitigate Caspian Tern predation on juvenile salmon and steelhead in the lower Columbia Rivers. Management efforts are ongoing to reduce salmonid consumption by terns in the lower Columbia River, and similar efforts are in progress to reduce the nesting population of Double-crested cormorants in the estuary. The co-lead agencies currently implement a Northern Pikeminnow Management Program which includes an ongoing base program and general increase in northern pikeminnow sport-reward fishery reward structure to reduce predation by these fish. This measure would continue under the Preferred Alternative. Management of gamefish such as walleye typically falls within the authority of state fish and wildlife agencies. Likewise, continued habitat improvement actions such as those included in the proposed action to NMFS and the U.S. Fish and Wildlife Service will continue to improve rearing habitat.
31963	4	finnegd@wwu.edu	N/A	Mortality is compounded by warming temperatures due to global climate change. Scientists agree that reservoirs impounded by dams absorb and retain more heat than free flowing rivers. Record high temperatures during 2015 diminished adult salmon and steelhead return success and continued warming is expected for years to come.	Through on-going regional climate change studies and work, the co-lead agencies evaluated potential shifts in precipitation and temperature patterns and resulting changes in unregulated Columbia Basin streamflow timing and volumes. The evaluation consisted of the full range of the latest climate change projections developed using multiple global climate models, emissions scenarios, downscaling techniques, and hydrologic models. Details of this evaluation are in Chapter 4 of the EIS. This information was used to describe the potential effects (both beneficial and adverse) on the river systems and resources due to potential changes in climate for all alternatives. Quantitative data that describes how climate change hydrology will affect reservoir operations in the Columbia Basin in still under development and was not available for use in this study. The climate science community is still developing quantitative models that can address possible effects in water temperature from climate change, and unfortunately, have not been fully applied and validated for use with climate affected regulated flow projections of large reservoir systems. This data is critical to analyzing potential effects to fish quantitatively. The same is true for projecting changes to TDG. In lieu of this information, the climate analysis used the output from resource models, like water quality and fish, under historical conditions, available climate change data, and scientific literature to qualitative assess potential effects to resources (described in Chapter 4). Regarding water temperatures under dam breach scenarios, a system water quality model was developed to look water temperature and TDG effects throughout the Columbia and Snake River system for this EIS. Breaching the four lower Snake River dams would result in long-term benefits including improvements to fall water temperatures and the restoration of the river to more normative riverine processes; this is stated in Chapter 3, pages 3-271 through 3-272 and Appendix D, Section 6.2.3. Under a dam breach scenario, spring water temperatures will warm more quickly than No Action conditions. Similarly in the fall, under a dam breach scenario, fall water temperatures will cool more quickly than No Action conditions. These results make logical sense and are supported by results from CRSO numerical water quality modeling. What has surprised some stakeholders are the predicted summer water temperature effects under dam breaching. Many believe that removing the dams will result in colder water temperatures as compared to the No Action Alternative. While some cooler water temperatures may be observed in the summer under dam breaching, especially during cooler summer weather conditions and at night, water temperatures will remain warm and exceed the state water quality standard at times. This is because without the dams, the lower Snake River will be shallower and more susceptible to solar radiation and warming. Increases in water particle travel time are expected, but the lower Snake River has always been a warm system (USGS 1960, 1961, 1964; Corps 2002a) and breaching the dams will not change this fact. Regionally high air and water temperatures result in water quality standard exceedances and are beyond the ability of the CRS to cool; future climate change predictions will result in even more difficult challenges. Further, the models showed minor changes in the Columbia River under this alternative, indicating that the operations of the CRS dams have a limited ability to reduce temperatures in the lower Columbia River, where much of the mortality took place during the record hot temperatures of 2015.
31963	5	finnegd@wwu.edu	N/A	Science does not indicate increased spill over the LSR dams will recover Snake River salmon and steelhead. Spill increases sufficient to aid salmon and steelhead migration without dam removal would reduce hydropower output while failing to provide cost savings due to the expense of continued dam maintenance and operation. Increased spill could not be implemented during low flow years and the benefits of reduced water temperatures and improved habitat created by a free flowing Snake River would not be realized.	The co-lead agencies used current high quality information in the analysis of the CRSO EIS. Specific to salmon and steelhead, the agencies used two primary modeling approaches which yielded a range of potential outcomes for the alternatives. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% as a result of the Preferred Alternative. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective flex spill can be at increasing salmon and steelhead returns to the Columbia Basin. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the Columbia River System. That call, however, is ultimately the role of NMFS and the USFWS. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets most other EIS objectives including those for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS, the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams, because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system.
31963	6	finnegd@wwu.edu	N/A	The economic benefits provided by fishing to river communities in Idaho that depend on salmon and steelhead returns, such as Salmon, Challis, McCall, Riggins, White Bird, Grangeville, Orofino and Kamiah were not sufficiently evaluated in the draft EIS. While fishing is only one of many benefits of a free flowing Snake River, a 2005 study determined that salmon and steelhead fishing could bring Idaho over $544 million dollars annually.	The EIS provides an evaluation of the social welfare and regional economic effects of the No Action Alternative and the Multiple Objective alternatives, including the effects on recreation (Section 3.11) and commercial fisheries (Section 3.15). The EIS Section 3.5.3.6 describes the long-term effects to anadromous fish migration in the Snake River and tributaries as major and beneficial although quantitative impacts from fish modeling results are limited. The EIS described the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. NMFS estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which is described qualitatively. For the effects on recreational fishing under MO3 (Section 3.11.3.5) along the lower Snake River below Lewiston, the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River) as an indicator for fishing visitation in this reach. The EIS describes that the visitation in the long-term in the lower Snake River, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting outfitting and tourism businesses in the region. The social welfare values and regional economic effects associated with recreational fishing under the MOs, as well as river recreation post dam breach under MO3, were not estimated because of the uncertainty and large range in visitation and consumer surplus values among users.
31963	7	finnegd@wwu.edu	N/A	Other threatened and endangered species affected by the LSR dams include the West Coasts Southern Resident Killer Whales, which feed on Chinook salmon, and bull trout, which feed on salmon eggs. In addition, an estimated 95% of Pacific lamprey have disappeared from the lower Snake River and its tributaries. Also worth considering, the LSR dams flooded approximately 30,000 acres, much of it once highly productive riverine habitat. As written by Idaho Historian Keith Peterson in his book River of Life, Channel of Death, Washington Department of Fish and Game noted that in 1972 this habitat was home to an estimated 22,000 pheasants, 57,000 quail, 20,000 partridge, and 120,000 mourning dovesall game birds. By 1987 the total game bird population supported along the river was just 2,000, a 99% decline. Furbearing animals dropped from 13,000 to 500. Songbirds that wintered in the area dropped from 95,000 to 3,000.	Effects from the alternatives to Southern Resident killer whale, other threatened and endangered species, and wildlife are included in Section 3.6 and additional information is included in Chapters 4, 5, 6, and 7. Effects to habitat and wildlife populations due to the construction of the CRS projects and inundation are not included in this analysis, although the co-lead agencies do have mitigation agreements across the basin due to losses from construction and those are discussed in the CRSO EIS in the No Action Alternative and Chapter 5.
31963	8	finnegd@wwu.edu	N/A	Power Generation The four LSR dams provide just 4-5% of the Northwests power supply. By 2013, wind energy in the Pacific Northwest produced 3.4 times as much electricity as all four LSR dams. Wind energy alone has thus already replaced the power generated by all four LSR dams more than three times over. The Pacific Northwest presently enjoys a 16% surplus of electricity. If the 4 LSR dams were removed today we would still enjoy an 11% electricity surplus. By relying on available hydropower from other dams in the Columbia River basin, grid stability at any point in time can readily be achieved. Analysis by the NW Energy Coalition and the RAND Corp. found that power from the LSR dams can be affordably replaced with proven carbon-free energy sources and efficiency upgrades. Like wind, hydropower output varies greatly. These two energy sources share similar efficiency ratings (production vs. nameplate capacity) on an annual basis. Further, hydropower produces its greatest volume of power during the spring, when the demand and price for that power are at their lowest levels.	The comment makes multiple claims comparing regional wind power and the hydropower generation of four lower Snake River dams. The EIS analysis considers both the increase in wind power generation in the region (see Figure 3-160 and Table 3-108 in the draft EIS) and the balancing potential of other hydropower dams, and, contrary to the comment, still finds that Multiple Objective (MO) Alternative 3 (which includes breaching the four lower Snake River dams) substantially reduces the power system reliability. To determine resource replacement amounts, the EIS uses a more robust measure of power system reliability and resilience than the average MWs approach suggested by the commenter. Specifically, the EIS uses the loss-of-load probability (LOLP) metric utilized by the Northwest Power and Conservation Council. See draft EIS, Section 3.7.2.2; Appendix H Power and Transmission, Section 2.1; Appendix I Hydroregulation, Section 2.4.4. The LOLP metric evaluates the adequacy of power supply in the region to meet firm power needs under various conditions. It is measured in terms of a percentage, and represents the likelihood of a year with one or more blackouts. See Appendix H Power and Transmission at Section 2.1 in the draft EIS. The current LOLP under the No Action Alternative is 6.6 percent; this is equivalent to one year with blackouts in every 15 years. The EIS uses this LOLP level as the benchmark from which to gauge the other MOs. Under MO3, on average, the region has surplus generation leading to export sales during certain periods and water years. Nevertheless, to maintain regional reliability at the LOLP levels of the No Action Alternative, replacement resources would be needed. This is driven by the timing and magnitude of changes in hydropower generation analyzed in the EIS. As shown by the analysis of the LOLP, in some years and times of the year, particularly winter and later in the summer of drier years, without the four lower Snake River dams, there would be insufficient power supply in the region leading to power emergencies and blackouts. Specifically, without replacing the power from the four lower Snake River dams, the LOLP of the region would more than double to 14 percent, which is equivalent to one year with blackouts every seven years. See draft EIS, Section 3.7.5.3, at page 3-903 and Appendix H, Power and Transmission, Table 2-1. Regarding surplus, while the four lower Snake River dams account for a small portion of the total power of the region, they represent a larger portion of the Federal Columbia River Power System (FCRPS) from which Bonneville markets power. Bonneville sells power from the FCRPS as a unified system, not from specific projects. In this regard, the power generated from the four lower Snake River dams are not exclusively sold as surplus as implied by the comment, but rather is used to meet Bonneville's collective power obligation, most of which is sold to meet the loads of publicly owned utilities, such as municipalities, rural utilities, and public utility districts. See Section 3.7.2.5, Bonneville Power and Transmission Customers in the draft EIS. The comment notes that Bonneville sells surplus power during certain months of the year. However, Bonneville's firm power obligations are determined by the load placed on Bonneville throughout the year. These loads tend to be winter peaking, meaning the extra surplus produced in spring does not assist in meeting these firm obligations. The EIS acknowledges previous analyses of breaching the four lower Snake River dams. Regarding the Northwest Energy Coalition (NWEC) study, as described in the draft EIS in Appendix H, Power and Transmission, and Section 3.7.3.5, the EIS considered the NWEC study cited in the comment, but it is not directly comparable with the EIS. This is for several reasons, including that the EIS has a broader scope and relies on more recent regional load and resource availability and costs data. Regarding the RAND study, the EIS relies on current information to evaluate the tradeoffs associated with dam breach under MO3. This includes applying current models and data rather than relying on findings from studies conducted nearly 20 years ago.
31963	9	finnegd@wwu.edu	N/A	According to an analysis published by the NW Energy Coalition during 2015, power costs to Northwest ratepayers would increase by about $1 dollar per month if the LSR dams are breached.	The EIS considered the NW Energy Coalition study cited by the commenter, but that study is not directly comparable with the EIS for several reasons, including that the EIS has a broader scope and relies on more recent regional load and resource availability and costs data. See Section 3.7.3.1, Step 3, at page 3-820 in the Draft EIS; Section 3.7.3.5, Related Study, at page 3-913 in the Draft EIS; Appendix H, Power and Transmission, Section 2.4. To maintain regional reliability at the No Action Alternative levels, replacement resources would be needed under MO3, which includes breaching the four lower Snake River dams. The cost of replacing the capability of the four lower Snake River dams is described in detail in the Draft EIS in Section 3.7.3.5, Potential Replacement Resources and Associated Costs. The Draft EIS takes into account the cost savings from the breaching of the four lower Snake River dams. Even with these savings, base rates paid by customers of Bonneville (local public and community owned utilities) would likely increase. Using natural gas as the replacement resource (the least-cost resource portfolio) Bonneville's wholesale power rates could increase 4 percent to 10 percent. See Table 3-166 in the Draft EIS. Using zero-carbon resources to replace lost capability from the four lower Snake River dams capability, Bonneville's wholesale power rate could increase 13 percent to 50 percent. See Table 3-166 in the Draft EIS.

Letter No.	Comment No.	Commenter Name/Email	Affiliation	Comment	Response[1/]
31963	10	finnegd@wwu.edu	N/A	Irrigation Of the 4 LSR dams, only the Ice Harbor dam provides irrigation for farms. The relatively small amount of irrigated farmland along the LSR could be maintained by extending intake pipes to the free flowing river. Removal or breaching of the 4 LSR dams may actually take pressure off irrigators who otherwise would have to leave more water in the river to mitigate the effects of the dams.	This EIS discusses engineering solutions, including pipeline extensions, in Section 3.12.3. MO3, Region C discussion begins on page 3-1267 line 3244 in the Draft EIS and is also found in Appendix N. The EIS draws upon the 2002 Lower Snake River Juvenile Salmon Migration Feasibility Report and Environmental Impact Statement which concluded that modifying the existing pump system was cost prohibitive. As discussed in Section 3.12.3, for MO3, in Region C this analysis assumes that pumps are unable to deliver water to an estimated 47,926 acres.
31963	11	finnegd@wwu.edu	N/A	Commercial Freight Transportation The LSR is no longer necessary or viable for commercial freight. During the past fifteen years freight transport on the LSR has declined 69%, from a peak of 9.14 million tons in 1998 to 2.83 million tons in 2014. Freight volume in 2015 trended downward and has averaged over the past seven years 2.6 million tons per year. Of the twenty-one largest employers in the quad-cities of Lewiston, Clarkston, Moscow and Pullman, only one ships anything by water. That company is located about two miles from the Port of Lewiston (POL), produced 50% more tonnage of product than all the grain shipped through the POL, and yet in 2014 transported 99.5% of its product by truck and rail. A 2015 study conducted by Anthony M. Jones of the Boise economic consulting firm Rocky Mountain Econometrics found that farmers who use the river instead of rail save about 2.4 cents per ton, or about $7.6 million annually. But he said the Army Corps of Engineers spends $17.8 million per year to maintain the river transportation system and hundreds of millions each year to mitigate the harm dams cause to fish. He calculated that the dams provide a benefit of 21 cents for every dollar the Corps spends. Container shipping on the LSR has ceased, and the waterway has been all but abandoned by the lumber industry, along with paper, pulp, and petroleum. The LSR waterway is categorized by the Corps of Engineers as a waterway of negligible use. Removal of the LSR dams will reduce the river barge corridor by only 140 miles. Freight transportation can be accommodated by rail and truck. Investments in a modern rail system and improved highways is not only affordable, it will provide more benefits to the regions farmers, businesses and communities than the LSR barge system does.	Section 3.10 of the EIS recognizes that access to barge transportation is the most cost effective means of accessing export markets for many grain producers in the Northwest currently and removing that option would increase transportation costs for grain producers. It is true that barge movements on the Snake/Columbia river have declined somewhat over the past 20 years, but not by 70% and the decline has stabilized over the past 10 years. That decline is mostly attributed to investments in shuttle rail terminals. The EIS utilizes the most recent 10-year average as a basis for its forecast volume of freight that would transit on the lower Snake River. The EIS evaluates potential effects on farmers associated with increased transportation costs under MO3 in Section 3.10.3.5. The EIS finds that under MO3, average transportation costs for wheat farmers would increase 10 to 33 percent, but that individual farmers could experience increases that are doubled. The cost increases to specific shippers would depend upon location and would vary throughout the region, depending on transportation options at each location. Generally, those grain shippers that are the farthest from alternate shipping locations (shuttle rail facilities or river ports on the Columbia River) would be the most adversely impacted.
31963	12	finnegd@wwu.edu	N/A	Flood Control The LSR dams do not provide flood control. Instead, they create a flood risk. They are run-of-river dams, that dont store significant water volume. A growing flood threat exists to the cities of Clarkston and Lewiston because naturally occurring sediment accumulating at the confluence of the Clearwater and Snake Rivers is raising respective river levels. Proposed remedies, such as raising levees, dredging, and other measures will cost millions of dollars over the long term and pose threats to fish, wildlife and recreation opportunities. Lewiston community leaders are opposed to raising levees, which will cut the town off further from its rivers and disrupt popular biking and walking paths. The Corps admits that the volume of sediment is too vast for dredging to solve the problem.	The commenter is correct that the breaching measure in MO3 would eliminate sediment buildup and reduce flood risk at the confluence area of the Snake and Clearwater rivers (clarifying information has been added to Appendix K.1.7.3.). Furthermore, the Walla Walla District constructed eight miles of levees around Lewiston as mitigation to help protect lives and property from potentially destructive high-water conditions after the dams were built. The lower Snake River dams are not authorized for flood risk management and this is clearly stated in the EIS in Chapter 1, Section 1.2. As indicated in Section 3.9 and Chapter 7, and as shown in Table 7-1, there is no elevated risk to flooding in the lower Snake River reach for any of the EIS alternatives. Unlike freely flowing channels, in Lower Granite Reservoir, the forebay elevation at the dam controls the energy grade-line of the water surface. Under current operations or as modeled under the No Action Alternative, during high flows Lower Granite Reservoir is operated at a lower stage to increase conveyance and manage water surface elevations within the Lewiston vicinity. The most recent dredging in the Lewiston area was to maintain a 14-foot depth in the Federal navigation channel, as discussed in the 2014 Programmatic Sediment Management Plan (PSMP). Dredging outside of the navigation channel limits to maintain conveyance capacity has not been conducted since 1992.
31963	13	finnegd@wwu.edu	N/A	Operating Cost The 2015 study by Rocky Mountain Econometrics determined that the cost of maintaining the LSR dams and mitigating their impacts has been soaring while benefits are in steep decline. The economic benefit of shipping by barge out of the LSR Basin has plummeted from about $19.4 million per year to about $7.6 million in 2014. Meanwhile, direct costs for LSR dam operation and maintenance are at about $227 million per year and increasing about 4.5% annually. In addition to direct costs, fish related mitigation significantly increases the expense of LSR dam and navigation system operation and maintenance. In 2014 the Bonneville Power Administration (BPA) reported $782 million in mitigation costs for Columbia River Salmon and Steelhead. After subtracting hatchery operation costs of $35 million, if even one-fourth of annual mitigation costs are spent on the LSR dams, mitigation expenditures related to the lower Snake River total $187 million per year. Despite spending more than $1 billion for fish passage improvements on the LSR dams, survival of threatened and endangered salmon and steelhead has not improved since the 2002 LSR EIS was implemented.	The EIS evaluated benefits and adverse effects across an array of resource areas including potential effects at the national, regional and local level. The EIS does not employ a cost-benefit framework for decision-making. This is because, consistent with NEPA analysis framework (see 40 C.F.R. 1502.23), the beneficial and adverse effects are expressed as a variety of qualitative and quantitative environmental and economic metrics. Furthermore, the EIS evaluates the performance of the CRSO EIS alternatives with respect to multiple stated objectives, for example related to improving fish passage and survival, reliable power generation, and minimizing greenhouse gas emissions. Regarding the comment related to barge shipments, navigation benefits are estimated to range from $14 to $48 million annually (see Table 3-244 & Table 3-246). These benefits are estimated as increased transportation costs (decreased social welfare benefits) under MO3, based on barge traffic going away on the four lower Snake River dams and shifting to truck or rail transportation. For hydropower, the average annual value of the four lower Snake River dams exceeds the average annual equivalent costs. The generation value at the four lower Snake River dams can be described by a range between the cost to replace the generation through new conventional resources or through a portfolio of zero-carbon resources. Although the costs of replacing the power with market purchases was analyzed, it is unlikely that short-term wholesale power markets could reliably replace the power for the long term. This range would put the annual value of power between $240 million and $500 million for the four dams combined. These numbers represent about 90 percent of the lost benefits cited in Table 3-171 of the Draft EIS because the four dams represent about 1,000 aMW of the 1,100 aMW of lost generation estimated in MO3. The average annual cost to operate and maintain all authorized purposes at the four lower Snake River dams is $75 million (Appendix Q, Table 5-1) and the annual-equivalent capital costs are $32 million (Appendix Q, Table 4-1); these costs include costs to maintain the navigation channel. Hydropower costs funded by Bonneville represent about $50 million of the total annual operations and maintenance costs and nearly all of the annual capital costs, approximately $31 million. This puts the annual-equivalent power-specific costs at approximately $81 million a year. As a result, the net benefits from hydropower for the four lower Snake River dams are between $159 million and $419 million and the benefit-cost ratios are between 3.0 and 6.2. If the $34 million per year for the Lower Snake River Compensation Plan is added to the capital and expense costs, benefits still exceed costs under each replacement power scenario. Considering these costs, the net benefits range from $125 million to $385 million and the benefit-cost ratios range from 2.1 to 4.3. In the less-likely scenario that generation could be reliably replaced with short-term wholesale market purchases and assuming that the four dams represent 90% of the $150 million in market purchases required to replace the lost generation cited in MO3 (see Table 3-170), the lower bound for net benefits would fall to $54 million and the benefit-cost ratio would fall to 1.7. With the Lower Snake River Compensation Plan included, the lower bound for annual net benefits becomes $20 million and the benefit-cost ratio becomes 1.2. As described in Chapter 6 of Appendix Q, Bonneville currently pays USFWS approximately $34 million annually to operate fish facilities associated with the Lower Snake River Compensation Plan (LSRCP). Bonneville's funding authority for the LSRCP is directly tied to the operation of the lower Snake River dams. In addition, approximately, $1 million annually is expended on the Columbia River Fish Mitigation associated with the four lower Snake River projects. Under MO3, Bonneville would no longer have an obligation to fund USFWS for O&M of the LSRCP facilities because Bonneville's funding authority is directly tied to the operation of these dams. Bonneville's Fish and Wildlife Program is estimated to cost $282 million annually, and includes fish mitigation projects and studies across the Basin. To assess the potential costs associated with the four lower Snake River projects only, the potential costs savings associated with MO3 are considered. As stated in the CRSO EIS, funding decisions for Bonneville's Fish and Wildlife Program are not being made through the CRSO EIS process. Future Fish and Wildlife funding decisions would be made in consultation with the region, through Bonneville's budget-making processes and other appropriate forums and consistent with existing agreements. Based on the inherent uncertainty of Bonneville's F&W Program funding requirements, with lower Snake River dam breaching, Bonneville's Fish and Wildlife costs were provided as a range, from current levels ($282 million annually) to $177 million annually, a reduction of $105 million. From a resource competitiveness perspective, the four lower Snake River dams are among the least costly generating resources in the Federal Columbia River Power System (FCRPS) and the planned investment strategy is expected to maintain that status. As shown in the Federal Hydropower presentation at the 2018 Integrated Program Review , the Headwater/Lower Snake Asset Class is forecast to have a 50-year levelized cost of generation of $11.41/MWh based on the direct funded capital and expense (O&M) programs outlined in that process. These costs remain competitive with volatile Mid-Columbia spot market energy prices which averaged $37/MWh in 2019 and have averaged $21/MWh in 2020. 1/The Integrated Program Review (IPR) allows interested parties to see and comment on all relevant FCRPS capital and expense spending level estimates in the same forum. The IPR occurs every two years, or just prior to each rate case, and is the public review for the costs that will be recovered through rates the following two-year rate period. Long-term forecasts for the next 50 years and major upcoming projects are also shared in this forum. This information is available here: https://www.bpa.gov/Finance/FinancialPublicProcesses/IPR/2018IPR/IPR%202018%20Fed%20Hydro%20Workshop.pdf and is incorporated by reference into this EIS. 2/In the 2018 Integrated Program Review, the Headwater/Lower Snake Asset Class consisted of the four lower Snake River dams, Hungry Horse, Libby, and Dworshak dams. These projects were grouped together because they have similar cost characteristics. The Levelized Cost of Generation for the four lower Snake projects alone is slightly lower than that for the whole class including the headwater projects shown in the table. 3/Levelized Cost of Generation is defined as the forecasted direct costs and administrative overheads of producing power at a plant annualized over a 50-year period. This cost includes direct funded operations, maintenance, administrative and capital costs as well as Columbia River Fish Mitigation (CRFM) costs. Bonneville systemwide mitigation costs, such as its Fish and Wildlife program, are not included in this metric.
31963	14	finnegd@wwu.edu	N/A	The economic benefits of dam breaching have been illustrated. In developing the 2002 LSR EIS, the Corps hired noted recreational economist John Loomis. Loomis pegged the economic gain via dam breaching at over $300 million. Temporary job growth to facilitate dam breaching, infrastructure modifications and restoration ecology would be significant. Improved commercial fisheries and recreation opportunities would generate long term economic growth. Improved aesthetics and quality of life associated with the enjoyment of a free flowing LSR would attract business and industry to the region. In spite of over $1 billion spent on fish passage improvements on the LSR dams, survival rates of endangered salmon and steelhead have not improved since the 2002 EIS was implemented.	The EIS provides an evaluation of the social welfare and regional economic effects of the No Action Alternative and the Multiple Objective alternatives, including the effects on recreation (Section 3.11); commercial fisheries (Section 3.15); and visual resource (3.13). The EIS evaluated benefits and adverse effects across an array of resource areas including potential effects at the national, regional and local level; effects are monetized and quantified, where possible, and also described qualitatively. The evaluations generally include social welfare effects, regional economic effects, and other social effects The EIS described the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. NMFS estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which is described qualitatively. The potential for changes in recreational fishing of anadromous fish under MO3 in the Region C is described in Section 3.11. Increases in recreational fishing could support jobs, income, and social benefits in Tribal and rural river communities. For the effects on recreational fishing under MO3 (Section 3.11.3.5) along the Lower Snake River below Lewiston, the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River) as an indicator for fishing visitation in this reach. The EIS describes that the visitation in the long-term in the lower Snake River, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting outfitting and tourism businesses in the region. However, there is uncertainty around recreational fishing visitation in the long-term given the current measures to regulate, protect, and support ESA-listed fish populations and habitat in the region. The contribution of Columbia River origin fish to ocean fisheries is described in Section 3.15.2.1. Because there is considerable uncertainty regarding the overall effects of the alternatives on regional fish populations, and how such changes may affect the management of the fisheries, the specific quantitative and monetized impacts associated with changes in commercial fisheries under the alternatives was limited. This analysis evaluates potential impacts on fisheries by referencing the potential effects on relevant fish populations, as described in Section 3.5. Moreover, the comments suggestion that approximately $1 billion in fish and wildlife mitigation investment has been ineffective to recover ESA-listed species is misplaced. Those investments delivered the intended results when considered in the appropriate statutory context of the Northwest Power Acts anadromous fish provisions which call for improved survival of such fish at FCRPS projects and sufficient flows between the projects to improve production, migration, and survival. For example, as of 2014 this investment had facilitated juvenile dam passage survival of 96% and 93% for spring and summer migrants respectively, see Endangered Species Act Federal Columbia River Power System 2016 Comprehensive Evaluation Section 1, at 17, t.2 (Jan. 2017), a marked improvement compared to when Congress passed the Northwest Power Act and the estimated average juvenile mortality at each mainstem dam and reservoir complex was 15-20% with losses recorded as high as 30%. See Nw. Res. Info. Ctr. v. Nw. Power Planning Council, 35 F.3d 1371, 1374 (9th Cir. 1994) (citing a Sept. 4, 1979 report by U.S. General Accounting Office describing the systems impacts on anadromous fish).
31963	15	finnegd@wwu.edu	N/A	The final EIS should include a preferred alternative that includes removal of the lower Snake River dams. Recovery of abundant, healthy and harvestable levels of Snake River salmon and steelhead is not achievable with the dams in place, as several decades of failed recovery efforts and billions of dollars	The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets most other EIS objectives including those for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets

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				have revealed. The agencies should call on Congress to make the necessary investments to replace the dams benefits so we can both recover the fish and maintain a vibrant regional economy.	fewer of the EIS objectives. Thus, in the Draft EIS, the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams, because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. Recovery efforts referenced in this comment associated with broad-sense recovery are separate and distinct from the obligations of any single entity or in this case a requirement to be met solely by the co-lead agencies. Just as the Northwest Power and Conservation Council (Council) fish and wildlife program encompasses both Federal and non-Federal stakeholders in the Columbia Basin, the Councils recovery goals are shared by many parties. Based on the analysis of the Preferred Alternative, the co-lead agencies believe their actions will make a substantial contribution, but the Councils broad-sense recovery goals are beyond the scope of this EIS, which contemplates the effects associated with the operation and maintenance of the 14 CRS projects. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species as that is a broader goal with shared responsibility. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the CRS. That call, however, is ultimately the role of NMFS and the USFWS. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species.
31963	16	finnegd@wwu.edu	N/A	Cultural Importance to Indigenous Tribes Lastly, the recovery of salmon and steelhead runs is of the utmost importance to indigenous tribes who sustainably fished the Northwest rivers for hundreds of years. They reserve the right to fish for sustenance and preservation of culture, and restoring a free flowing Snake River will help to ensure this for years to come.	Tribal input, concerns, interests, and especially treaty rights were considered throughout the Draft EIS analyses and in the formulation of the Preferred Alternative. Treaty specific information is included in Section 3.17 as well as Chapter 7. The co-lead agencies recognize and respect the legal obligations imposed by treaties. The co-lead agencies accordingly included Protecting Native American treaty and reserved rights and fulfilling trust obligations for natural and cultural resources throughout the environment affected by the Columbia River System operations as a purpose in the Purpose and Need Statement in Chapter 1 to ensure treaty obligations were a key consideration of decision making. The co-lead agencies are also engaging in government-to-government consultation with the tribes, and several tribes are cooperating agencies on the CRSO EIS. The EIS recognizes the economic and cultural importance of salmon to Tribes in a number of sections throughout the document. The cultural significance and impacts of salmon and steelhead fisheries are described in the Ceremonial and Subsistence Fisheries sub-section and the Social Importance of Commercial, Ceremonial and Subsistence Fisheries sub-section of Section 3.15.2.1. Fisheries tribal interests are provided in Section 3.15.4 additional details regarding the economic significance of salmon and steelhead fisheries have been added to the recreation analysis (Section 3.11) including tribal interests (Section 3.11.3.7). Treaty rights are discussed in the Executive Summary, Section 3.16 Cultural Resources, and Section 3.17 Indian Trust Assets, Tribal Perspectives, and Tribal Interests. Appendix P includes copies of tribal perspectives that were submitted by tribes. Tribal consultation is described in Sections 1.5, 3.5, and 3.15; and Chapter 9. Most sub-sections within Chapter 3 include a Tribal Interests section at the end of the sub-section that attempts to summarize tribal issues by topic. Analysis shows that the Preferred Alternative would meet the objectives for improving juvenile salmon, adult salmon, resident fish and lamprey. The analysis found ranges in potential effects due to different assumptions included in each of the fish models used in the study.Using the Comparative Survival Study (CSS), Snake River Chinook salmon and steelhead are expected to see relative improvements in smolt-to-adult returns of 35 percent and 28 percent, respectively. The Smolt-to-Adult return ratio (SAR) is the rate at which of a group of fish survive from their smolt life stage to a defined ending point where they return as adult. While achieving long-term recovery targets will require more than just the efforts of Federal agencies, the CSS models indicate the potential for SARs of Snake River Chinook salmon and steelhead to increase to levels that could approach recovery targets set by the Northwest Power and Conservation Council.If latent mortality effects are reduced by passing more juvenile fish through the spillway, the NMFS Lifecycle Model (LCM) also shows that levels of SARs would increase. However, if latent mortality effects are not reduced, or are different than modeled, the LCM predicts that SARs for Snake River spring Chinook salmon may be lower than the No Action Alternative (a range of -7.5 percent to +28 percent change relative to the No Action Alternative) due to reduced opportunities for fish transportation. Results for upper Columbia River stocks are beneficial based on LCM estimates. In-river survival and SARs are anticipated to increase. The CSS model does not currently model upper Columbia fish. The Preferred Alternative also has measures intended to increase upstream passage success and reduce injury and mortality for Pacific lamprey. These measures are proposed structural improvements that include converting extended-length submersible bar screen material to screen material that would not impinge or entangle juvenile lamprey, expanding the network of lamprey passage structures to bypass impediments in fish ladders, changing the design for turbine cooling water strainers, and replacing turbines for safer fish passage. The Preferred Alternative would also meet the objective to improve resident fish. Effects to resident fish vary by region and species, but are generally minor relative to the No Action Alternative.
31968	1	kairos42@earthlink.net	N/A	14 Fatal Flaws that render the DEIS pointless, necessitating immediate breach in 2020. 1. Peaking, Ramping, Balancing, & Reserve hydropower benefits of the Lower Snake River Dams (LSRDs). - Claimed over 2,000 MW with a value of $966 million for replacement cost. - Inconsistent with claimed 15 MW in 2002 EIS, Waddell et al. 2020 Claims of Sustained Peaking, Ramping, Reserve, Flexibility and Balancing Power from the lower Snake River Dams, What Is Feasible?	The EIS power analysis relies on historical data on the ramping and flexibility of the four lower Snake River dams. Table 3-160 (in the draft EIS) in Section 3.7.3.5 presents the historical sustained ramping capability of the four lower Snake River dams. Contrary to the statement in the comment, the 2002 FREIS identified the lower Snake River dams as 15 percent, rather than 15 MW, of the Federal Columbia River Power System ramping capacity, which is higher than the amount discussed in the EIS.
31968	2	kairos42@earthlink.net	N/A	2. Recreation Visitation Estimated at 2.4 million non-local visitors/year for LSRDs. - 2.4 million visitors is more than those going to Mt Rainier, 6,575 visitors every day. - Data from 2002 EIS since corrected to 53,000 visitors/year by Earth Economics 2016 National Economic Analysis of Four LSRDs. - Used to extrapolate Multiple Objective 3 (MO3) losses of 1,420 jobs, $59 million in labor income, and $189 million in annual sales. No benefits quantified, though 3-4,000 jobs would be created (Earth Economics 2016).	As described in Table 3-256, visitation at Lower Granite accounts for over 60 percent of visitation at the four lower Snake River projects. The Corps counts visits as recreation visitor days for all non-campers. For example, 2 people boating on a reservoir for 2 days would count as 4 visits. For campers, consistent with NPS visits, campers are counted per night. That is a party of two stay for two nights is counted as 4 visits. This may account for relatively higher number of visits as each day that a person visits is counted as a "visit." The visitation data comes from Corps sources, including traffic counters and visitor use surveys and includes the most up to date visitation data available at the time of the analysis. It should be noted that project visitation data (at each reservoir) includes recreation areas on the reservoirs as well as recreation areas located above the lake or below the dam in the river reaches. Section 3.11.3.5 describes the impacts under MO3 in the long term when the transition to river conditions is complete. The EIS describes that the visitation in the long-term in the lower Snake River, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting jobs, income, and tourism businesses. This visitation in the long-term is predicated on the need to developed access to the river resource. However, a specific estimate of river-based visitation was not provided because of the uncertainty and the large range in potential visitation. The EIS described the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. NMFS estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which is described qualitatively. For the effects on recreational fishing under MO3 (Section 3.11.3.5) along the lower Snake River below Lewiston, the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River) as an indicator for fishing visitation in this reach. The EIS describes that the visitation in the long-term in the lower Snake River, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting outfitting and tourism businesses in the region. The social welfare values and regional economic effects associated with recreational fishing under the MOs, as well as river recreation post dam breach under MO3, were not estimated because of the uncertainty and large range in visitation and consumer surplus values among users.
31968	3	kairos42@earthlink.net	N/A	3. MO3 anadromous fish mitigation with additional hatchery salmon, cost of 78.1 million. - Absent in the 2002 EIS breach alternative because appropriate timing is in winter, when almost no fish are in the river. Breaching is the mitigation, preventing the death of ~8 million chinook smolts per year.	The breaching would be timed as well as can be controlled to take place outside of the migration period. However, the hatchery fish mitigation is to provide fish during the short-term to address impacts associated not with the demolition, but the flushing of stagnant water and sediments as the reservoir elevation drops substantially. This is anticipated to drop dissolved oxygen levels in the water column significantly, and potentially cause 2-7 years of no biological productivity and aquatic losses. Description of these impacts are in the Multiple Objective alternative 3 analysis for water quality and fish in Chapter 3.
31968	4	kairos42@earthlink.net	N/A	4. Salmon survival/mortality data insufficient. - Does not assess latent and reservoir mortality, SAR values, and recovery standards for each multiple objective even though the Biological Opinion says the PA adversely affects all stocks.	Latent mortality, reservoir mortality and SAR values are assessed extensively throughout Section 3.5 and Chapter 7. Recovery efforts referenced in this comment and references to the Northwest Power and Conservation Council (Council) fish and wildlife program with associated target for broad-sense recovery are separate and distinct from the obligations of any single entity or in this case a requirement to be met solely by the co-lead agencies. Just as the Councils fish and wildlife program encompasses both Federal and non-Federal stakeholders in the Columbia Basin, the Councils recovery goals are shared by many parties. Based on our analysis of the Preferred Alternative, the co-lead agencies believe their actions will make a substantial contribution, but the Councils broad-sense recovery goals are beyond the scope of this EIS, which contemplates the effects associated with the operation and maintenance of the 14 CRS projects. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species as that is a broader goal with shared responsibility. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the Columbia River System. That call, however, is ultimately the role of NMFS and the USFWS. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species.
31968	5	kairos42@earthlink.net	N/A	5. Snake Chinook deemed insignificant prey source for Southern Resident Killer Whales (SRKW). - Ignores NOAA data on SRKW diet.	The co-lead agencies agree that the quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of Southern Resident Killer Whale (SRKW), along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differently from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020). The overall health and condition of the SRKW depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for the whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall-run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall-run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). The MO3 analysis for SRKW will be revised in the FEIS to reflect this clarifying information on the overall importance of Snake River Chinook to SRKW.
31968	6	kairos42@earthlink.net	N/A	6. Irrigation mitigation of MO3 based on devaluing irrigated land, 47,840 acres at cost of $313.7 million. - Mitigation method justifies loss of 4,800 jobs, $232 million in labor income and 460.5 million in sales. - Pipe extension and pump installation mitigation overlooked, estimated at $20 million from Sampson, Rob 2018 A brief review of the impacts to irrigated farmland from breaching the four dams on Lower Snake River.	NEPA requires that all relevant, reasonable mitigation measures that could diminish the adverse impacts of the project be identified in the document, even if they are outside the jurisdiction of the lead agency or the cooperating agencies. See 40 C.F.R. 1502.16(h) and 1505.2(c); 46 Fed. Reg. 18026. The inclusion of mitigation measures in Chapter 5 is not intended to indicate that the co-lead agencies, or the Federal government as a whole, have the authority to perform all of the measures listed. If the measures are outside the jurisdiction of the co-lead agencies, those measures will not be included in the Preferred Alternative or Record of Decision (ROD). Their inclusion in Chapter 5 serves to alert other agencies, officials, and the public

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					who can implement the measures to the potential benefits of the measure. The mitigation requested, while identified in the Draft EIS, is not within the co-lead agencies' current authorities. The co-lead agencies do not have the authority to provide mitigation for the effects to private infrastructure such as irrigation pumps, wells, or private docks. This EIS discusses engineering solutions, including pipeline extensions, in Section 3.12.3. MO3, Region C discussion begins on page 3-1267 line 3244 in the Draft EIS and is also found in Appendix N. The EIS draws upon the 2002 Lower Snake River Juvenile Salmon Migration Feasibility Report and Environmental Impact Statement which concluded that modifying the existing pump system was cost prohibitive. As discussed in Section 3.12.3, for MO3, in Region C this analysis assumes that pumps are unable to deliver water to an estimated 47,926 acres.
31968	7	kairos42@earthlink.net	N/A	7. MO3 navigation rate increase based solely on opinion of some stakeholders. - 25 to 50% increase in rail shipment costs cannot be justified without cost estimate modeling and supporting data. - Use of recently upgraded rail line along the snake that can move all grain to market is not mentioned.	How rail rates would change without lower Snake River shallow draft barging can not be known with certainty. Therefore, in order to evaluate the impacts of potential rate increases, a range of rail rate increases were evaluated, from 0 to 50 percent. As the modeling effort shows, if rail rates are not increased, freight volume would likely exceed current capacity, which would put upward pressure on rail rates. If rail rates increase by 50 percent, truck transport would be relatively attractive to shippers, which would put competitive pressure on rail companies not to increase rail rates much higher. As such, the modeled range of increased rates appears reasonable. The Great Northwest Railroad, owned by WATCO, is a short-line railroad that runs along the Snake River from Lewiston, ID to Ayer Junction, WA. Our research suggests that elevator to river port movements via short line rail are not currently occurring because in order for them to ship grain to river terminals on the Columbia, they must operate on part of Union Pacific's rail line and WATCO's operating agreement with Union Pacific does not allow for these shipments. The effect of including this assumption and allowing movements on these short lines during a breach scenario would be to somewhat reduce the anticipated increases in shipping costs to shippers. Information has been added to Appendix L that describes the impacts of modifying this assumption on quantified costs to shippers.
31968	8	kairos42@earthlink.net	N/A	8. Navigation dredging of Lake Wallula/Lower Snake in MO3 with cost of $76 million. - 2002 EIS did not include this cost because no dredging is required in this location, breaching sediment drops out above Ice Harbor. 9. Flood conveyance dredging at Lewiston absent in multiple objective costs. - Should increase cost by approx. $12 million/year for NA, MO1, MO2, MO4 & PA.	Updated estimates of dredging costs were done for Lake Wallula / Lower Snake. In regards to conveyance dredging near Lewiston, dredging costs were developed based upon historic dredging quantities and costs. Although these costs may generally be referred to as simply dredging costs or navigation dredging costs, dredging outside of the federal navigation channel could still occur in the future if needed and are captured within the historic quantities. Dredging costs were included for all alternatives, and it is recognized that dredging would no longer be needed on the lower Snake near Lewiston, ID under MO3.
31968	9	kairos42@earthlink.net	N/A	10. LSRD breach cost from 2002 EIS without mitigation uncorrected and escalated to $994 million. - Error of approx. $600 million, from Waddell et al. 2016 Reevaluation of The Lower Snake River Juvenile Salmon Migration Feasibility Report And Supplemental Environmental Impact Statement Appendix D Natural River Drawdown Engineering. - Stated as $994 million in chapter 3, inconsistent with appendix Q that says it is $955 million.	Engineers and cost estimators at the USACE reached out to dam-breaching experts at the Bureau of Reclamation and considered techniques used at other facilities. Approaches and constraints associated with those techniques were compared to those used in the 2002 EIS and determined that the approach used in the 2002 EIS was still appropriate. The USACE engineering and cost estimators then double checked engineering requirements, quantities, and reestablished cost estimates based on current prices. Breaching costs are estimated to be $994 million in project first costs (no discounting), $953 million discounted and presented in 2019 dollars, or $36 million in annual-equivalent costs over the 50-year period (using a discount rate of 2.875%).
31968	10	kairos42@earthlink.net	N/A	11. Congressional authorization assumption for MO3 incorrect.	Breaching the earthen embankment of the lower Snake River dams is a major Federal action that conflicts with the authority granted by Congress under which these projects were constructed and are operated. Therefore, de-authorization of the projects by Congress would be required prior to breaching. Breaching would require expenditures from the Federal government to implement the action which have not been appropriated. The co-lead agencies do not have the authority to override Federal decisions of Congress, remove congressionally-approved purposes, or appropriate Federal monies outside of the decisions outlined in annual Congressional Federal appropriation bills. De-authorization and appropriation for the breaching of the earthen embankments are a requirement to implement MO3. More information is available in the Corps Engineering Regulation (ER) 1165-2-119 Water Resources Policies and Authorities, Modifications to Completed Projects (Sept. 20, 1982) or ER 1105-2- 100, Appendix G, Section III Post Authorization Changes.
31968	11	kairos42@earthlink.net	N/A	12. Breach alternative MO3 conflated with construction and mitigation costs on other dams.	The EIS considers the costs to implement the structural and operational measures under each of the alternatives across the CRS of 14 dams. As a result, costs are assessed across the CRS. In Appendix Q, the costs are identified by project, including capital (Table 4-1), and operations and maintenance costs (Table 5-1). Mitigation costs include fish and wildlife mitigation as well as addition mitigation to reduce the adverse effects of the alternatives. These costs are described in Chapter 6 of Appendix Q.
31968	12	kairos42@earthlink.net	N/A	13. Power Replacement Costs & Loss of Load Probability overstated for 1,000 MW. - Least-cost power resource acquisition strategy not modeled, most up-to-date costs of wind and solar not used for cost replacement, if needed.	The EIS presents a range of replacement resource costs that would be needed to maintain regional reliability at the No Action Alternative levels based on two resource portfolios: one that is based on renewable resources and another that is based on natural gas resources, which are generally the least-cost means to maintain reliability (see draft EIS at Section 3.7.3.5, Potential Replacement Resources and Associated Costs). The EIS uses the best available resource cost information from the Northwest Power and Conservation Council to estimate the potential range in costs of these replacement resources available at the time of the analysis, the 7th Power Plan and Mid-term updates. See Section 3.7.3.1, Step 3: Determine Need for Potential Replacement Resources and Associated Costs, at page 3-821 and Appendix H, Power and Transmission, at Section 2.2 in the draft EIS. The basis for developing these portfolios may be found in Section 3.7.3.1, Methodology, and for MO3 specifically, Section 3.7.3.5, Potential Replacement Resources and Associated Costs in the draft EIS. To further address concerns about potential reductions in resource costs, consistent with the comment, publicly released draft information, such as updated prices for solar and battery storage, from development of the 8th Power Plan is included as rate sensitivities in the Final EIS. The Final EIS will include the de-escalating cost curves prepared by the National Renewable Energy Laboratory (NREL) that will be used by the Council in the 8th Power Plan.
31968	13	kairos42@earthlink.net	N/A	14. Greenhouse gas emissions from LSRDs ignored in MO3. - From US Department of Energy 2013 Evaluating greenhouse gas emissions from hydropower complexes on large rivers in Eastern Washington.	Appendix G, Chapter 5 of the Draft EIS details the assessment of reservoir methane emissions from the CRS projects. The findings are summarized in Section 3.8 in the Draft EIS. Section 3.8 and Appendix G include references to and discussion of Amtzen et al. (2013), research supported by the U.S. Department of Energy referenced in this comment. In the case of the four lower Snake River dams, recent research concluded that data were insufficient to estimate the reservoir methane emissions specifically for the CRS projects, but that methane emissions at high levels are not likely due to the lower organic and nutrient loads to the system, and higher dissolved oxygen content. The Draft EIS describes that emerging technologies would allow for better measuring and understanding the effects of reservoir methane emissions from CRS projects, including the four lower Snake River dams.
31971	1	arlynnh@hotmail.com	N/A	I am against this document. A significant percentage of Idaho's economy is based on tourism. Recreation & fishing on Idaho's waterways are essential to Idaho's economy & heritage. This document does not provide for improving our native fish to recover to numbers that will allow the healthy harvest necessary for our economy	The EIS provides an evaluation of the social welfare and regional economic effects of the No Action Alternative and the multi-objectives alternatives, including the effects on recreation (Section 3.11) and fisheries (Section 3.15). The EIS described the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. NMFS estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which is described qualitatively. The potential for changes in recreational fishing of anadromous fish under MO3 in the Region C is described in Section 3.11. Increases in recreational fishing could support jobs, income, and social benefits in Tribal and rural river communities. For the effects on recreational fishing under MO3 (Section 3.11.3.5) along the Lower Snake River below Lewiston, the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River) as an indicator for fishing visitation in this reach. The EIS describes that the visitation in the long-term in the lower Snake River, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting outfitting and tourism businesses in the region. However, there is uncertainty around recreational fishing visitation in the long-term given the current measures to regulate, protect, and support ESA-listed fish populations and habitat in the region.
31973	1	rmerriman4600@gmail.com	N/A	I am very concerned that "Breaching 'the 4 Dams would result in a major economic economic impact to the Northwest. Any change ;to an area (people-highways-dams-etc.) has positive and negative values; the existing dams positive values far outweigh the negative. Fish survival numbers are negatively impacted by many issues - not just dams; compare fish survival changes to the non-dam rives in the NW. Does "Breaching" dams include all dam structures and foundations, back to pre-dam conditions; ? Is this included in the cost estimates?	The co-lead agencies acknowledge there are many factors that affect salmonid populations that are outside the authority of the co-lead agencies. Both human-caused and natural factors that are outside the responsibility and control of the co-lead federal agencies, also contribute to the decline and recovery of fish, and will continue to strongly influence fish and their habitat. Salmon and steelhead have been adversely affected in the Columbia River Basin over the last century by many activities including human population growth, urbanization, introduction of exotic species, overfishing, development of cities and other land uses in the floodplains, water diversions for all purposes, dams, mining, farming, ranching, logging, hatchery production, predation, ocean conditions, and loss of habitat. Additionally, the co-lead agencies did not evaluate an alternative that would breach all dams because of the unreasonable impacts to public health and safety from reduced reliability and flood risk management. Finally, there are benefits and costs associated with operating the lower Snake River projects. The EIS evaluated benefits and adverse effects across an array of resource areas including potential effects at the national, regional and local level. MO3, includes removal of the earthen embankments and adjacent structures also known as Breach Snake Embankments throughout the EIS. The demolition would remove the earthen embankments, abutments, and portions of existing structures at the dams to eliminate the reservoirs behind the Lower Granite, Little Goose, Lower Monumental, and Ice Harbor Projects. In addition, equipment and infrastructure would be modified to adjust to drawdown conditions at each lower Snake River dam, known as Lower Snake Infrastructure Drawdown throughout the EIS. In order to implement breaching, the reservoirs would be drawn down to spillway elevations. In order to evacuate the reservoirs below this level, three turbines at each of the four lower Snake River dams would be modified so that they could be used as low-level water outlets to support a controlled drawdown of the reservoirs. The post-breaching condition would not be established to "pre-dam conditions" as some of the infrastructure would remain in place. The cost analysis in Section 3.19 and Appendix Q describes the CRSO EIS implementation and system costs. The costs associated with the breaching the Snake embankments and infrastructure drawdown are included as part of the "construction costs of the structural measures" (see Chapter 3 and Annex A of Appendix Q), with a construction first cost of $994 million or an annual equivalent cost of $36.2 million.
31979	1	cberven@moscow.com	N/A	I am writing to express my strong displeasure with the Preferred Alternative for the Draft EIS. I have two major issues with it. First it does not sufficiently ensure a return rate for 4% or more for the smolt-to-adult return rate. A sufficiently high return rate is of absolute necessity if the native wild salmon and steelhead stocks are to be self-sustaining. No amount of mitigation using hatcheries will sufficient to help the wild stocks.	The 4% average SAR target referenced in this comment and references to the Northwest Power and Conservation Council (Council) fish and wildlife program with associated targets for broad-sense recovery are separate and distinct from the obligations of any single entity or, in this case, a requirement to be met solely by the co-lead agencies. Just as the Councils fish and wildlife program encompasses both Federal and non-Federal stakeholders in the Columbia Basin, the Councils recovery goals are shared by many parties. Based on the analysis of the Preferred Alternative, the co-lead agencies believe their actions will make a substantial contribution, but the Councils broad sense recovery goals are beyond the scope of this EIS, which contemplates the effects associated with the operation and maintenance of the 14 CRS projects. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species as that is a broader goal with shared responsibility. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the CRS. That call, however, is ultimately the role of NMFS and the USFWS. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species.
31979	2	cberven@moscow.com	N/A	Second, the Preferred Alternative Draft EIS ignored the positive economic impact of having healthy salmon and steelhead stocks for the communities that rely on them; specifically sport-fishing. These communities are much more than just the local ones as healthy populations of salmon and steelhead have an impact up and down the coast of the the Pacific Northwest. It is amazing to me that information that was available that could have been use to show the very positive economic impact of sport-fishing and other benefits to have healthy salmon and steelhead populations was ignored in favor of only qualitative analysis when all other economic impacts were quantified.	The EIS evaluated beneficial and adverse effects across an array of resource areas including potential effects at the national, regional and local level; effects are monetized and quantified, where possible, and also described qualitatively. As is common in NEPA analyses, the beneficial and adverse effects of the alternatives are expressed as a variety of qualitative and quantitative environmental and economic metrics throughout the EIS to inform decision-making, including the effects of the alternatives on fish as detailed in Section 3.5. That the effects of the alternatives on fish are not expressed as monetized economic values does not mean that they were not considered in the context of the analysis. The EIS does not employ a cost-benefit framework for decision-making. Instead, the EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as the dam breaching alternative. However, the Preferred Alternative also meets most of the other objectives of the study for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. The EIS provides an evaluation of the social welfare and regional economic effects of the No Action Alternative and the Multiple Objective alternatives, including the effects on recreation (Section 3.11) and commercial fisheries (Section 3.15). The EIS Section 3.5.3.6 describes the long-term effects to anadromous fish migration in the Snake River and tributaries that would occur under a dam breach scenario as major and beneficial, although quantitative impacts from fish modeling results are

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					limited. The impacts to anadromous fish in other locations would have negligible to minor changes from the No Action Alternative. The EIS described the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. NMFS estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which is described qualitatively. For the effects on recreational fishing under MO3 (Section 3.11.3.5) along the lower Snake River below Lewiston, the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River) as an indicator for fishing visitation in this reach. The EIS describes that the visitation in the long-term in the lower Snake River, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting outfitting and tourism businesses in the region. The social welfare values and regional economic effects associated with recreational fishing under the MOs, as well as river recreation post dam breach under MO3, were not estimated because of the uncertainty and large range in visitation and consumer surplus values among users. The contribution of Columbia River origin fish to ocean fisheries is described in Section 3.15.2.1. Because there is considerable uncertainty regarding the overall effects of the alternatives on regional fish populations, and how such changes may affect the management of the fisheries, the specific quantitative and monetized impacts associated with changes in commercial fisheries under the alternatives was limited. This analysis evaluates potential impacts on fisheries by referencing the potential effects on relevant fish populations, as described in Section 3.5.
31981	1	tmyrum@wswra.org	Washington State Water Resources Association	See attached letter	Unfortunately, an attachment was not received from the commenter. The co-lead agencies requested the commenter resubmit via e-mail on June 25, 2020; however, the co-lead agencies did not receive a response to this request.
31995	1	N/A	N/A	Thank you for the opportunity to comment on the 2020 CRS Draft EIS. While the DEIS is extremely long and detailed, I find the report and the preferred alternative along with the cancelled public meetings exceedingly insufficient and completely unsatisfactory. In fact, Im shocked that such a minor effort would even be suggested as a solution to such a major disaster. It is primarily due to the extensive system of dams on the CRS that two iconic NW species salmon and resident orcas - are on the brink of extinction, while salmon-dependent Native American Tribes on the rivers experience extreme poverty and the solution is to allow a little more spill over a handful of dams? The minor improvement of allowing more spill is an operational tweak that should have happened decades ago in response to the growing emergency, and it should have been accomplished with an internal memo. All evidence points to the removal of the four lower dams on the Snake River as the salmon and orcas best chance of survival, and the only way to restore Native American fishing treaty rights. While this solution is accompanied by some expense and requires certain sacrifices, the financial costs can be recovered by decreased dam maintenance and salmon management expenses, while the devastating prior sacrifices of the few would be more equitably shared by the many.	The co-lead agencies considered requests to extend the public comment period. This NEPA process included a wide array of cooperating agencies whose close involvement throughout the process allowed the co-lead agencies to incorporate feedback. Given the broad range of comments received and the extensive Federal and non-Federal participation in the overall process as well as the level of public engagement in the six virtual public hearings in the region, the co-lead agencies determined that an extension was not warranted and that the 45-day public comment period was adequate consistent with NEPA regulations. On April 9, the CRSO EIS website was updated to inform the public that they should plan to submit comments by the close of the comment period. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA listed species. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-lead agencies numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets most other EIS objectives including those for: resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams, because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. Additionally, the co-lead agencies evaluated many different flow and spill levels and as well as seasonal patterns for when flows are enhanced or reduced. The Preferred Alternative represents an operation that provides a balanced approach between spring and summer flow and spill levels to benefit salmon and steelhead, while also providing benefits to resident fish in the upper portion of the Columbia Basin. The EIS analysis in Section 3.6 (Wildlife section) found only a potential for negligible to minor beneficial effect to the Southern Resident killer whale (SRKW) would result from implementing MO3. Operation of Lower Snake River Compensation Plan fish hatcheries under MO3 is uncertain and therefore, production of Snake River hatchery fish is assumed to decline over the long term, while returning adult wild salmon are anticipated to increase. CSS and NMFS Lifecycle models predict that lower Snake River Chinook salmon smolt-to-adult returns would have a moderate to major increase under MO3, with long-term increases in wild prey. The co-lead agencies do not anticipate a lack of hatchery fish in the short term based on the proposed fish hatchery mitigation and trap and haul facilities described in Chapter 5 and the fact that these additional hatchery fish should mitigate short-term construction effects to Snake River populations.
31995	2	N/A	N/A	The DEIS Preferred Alternative does very little to improve the outlook for salmon and the orcas who depend on them. It does almost nothing for the Tribes who have been promised access to salmon by treaty, and whose traditional lands and fishing sites necessary for the continuance of culture have been flooded. It will do very little for recreational fishermen and women, as well as guides upstream and down; and it does nothing to address climate change and the warming waters behind the dams that are killing young fish heading to sea. The preferred solution clearly privileges and props-up the status-quo at all costs. But the status-quo is a crime against nature: the CRS has a near-death strangle-hold on the Columbia River and its tributaries with dozens of dams: not satisfied with more than sufficient hydropower and water, the powers-that-be (especially and historically non-Indians) had to have it all and want to keep it all. I would argue the next CRS Management Plan must be measured against the status-quo of the majestic Columbia River System that once was not the strangled and subdued current version. I offer the following specific observations about the report to support my conclusions: 1.The lead agencies essentially ignored what the US District Court ordered, and the preferred solution comes nowhere near preserving - much less restoring - native salmon and steelhead. This DEIS is the result of the Opinion and Order from the U.S. District Court of Oregon, which as quoted in the report, states the EIS should evaluate how to ensure that the prospective management of the CRS is not likely to jeopardize the continued existence of any endangered or threatened species, or result in the destruction or adverse modification of designated critical habitat. The Preferred Alternative of increased spill is, thankfully, already in-place, but according to reliable independent science will not reverse the decline of endangered species. The report suggests increased spill could improve juvenile fish survival by, at most, about 30%. According to the DEIS, up to 16 million fish migrated up the Columbia River before the late 1800s, but now the numbers are reduced to about 1.5 million, 40% of which are hatchery-born and managed at great expense - including being literally vacuumed up and trucked around dams! This approach has been a great failure at great expense, yet it remains a part of the Preferred Alternative. Quoting again from the report: Tremendous effort and billions of dollars have been invested in infrastructure, hatcheries, and other projects to improve passage and habitat for fish in the basin over the last 50 years. So, in conclusion, the Preferred Alternative appears to be to 1) continue spending billions of dollars to maintain current, artificially propped-up and dangerously low fish populations, and then 2) supplement those extremely expensive and insufficient populations with a 30% increased spill at most - of currently depleted juvenile fish populations over the dams, and 3) asserting that this modest improvement solved the problem and averted extinction! The world watched in horror as a mother resident killer whale pushed her dead newborn along the surface of the Salish Sea for 18 days, desperately willing the baby to survive: the whales are starving to death. What happens to the CRS impacts Puget Sound, and the public will no longer tolerate these half-hearted, dis-ingenuine solutions.	The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets most other EIS objectives including those for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. The co-lead agencies used the best available science and current high quality information in the analysis of the CRSO EIS. Specific to salmon and steelhead, the agencies used two primary modeling approaches which yielded a range of potential outcomes for the alternatives. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% (within the Northwest Power and Conservation Council's recovery targets for the region) as a result of the Preferred Alternative. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. The Preferred Alternative will improve fish migration times which reduce vulnerability to predators. Likewise, continued habitat improvement actions such as those submitted in the proposed action to NMFS and the U.S. Fish and Wildlife Service will continue to improve rearing habitat. Based on our analysis, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Recovery is a broader regional goal and is above and beyond the co-lead agencies' obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the CRS. That call, however, is ultimately the role of NMFS and the USFWS. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. In compliance with ESA, the co-lead agencies submitted Biological Assessments to NMFS and USFWS (Appendix V). In this Final EIS, the Biological Opinions from NMFS and USFWS can be found in Appendix V, completing this projects ESA consultation. Both Biological Opinions concluded that the proposed action will not jeopardize the continued existence of or destroy or adversely modify the designated critical habitat of ESA-listed species. The comment incorrectly implies that hatchery fish are not relevant to the CRSO EIS. However, hatchery origin fish are very important to Tribal and sport harvest within the Columbia River Basin, and many hatchery programs are important supplementation to rebuilding natural populations. Further, the three co-lead agencies have a legal requirement to produce hatchery fish as mitigation for components of the CRS. The co-lead agencies do not agree that all statistics claimed in this comment are accurate (e.g., hatchery percentages, percent spill increase associated with Preferred Alternative, associated salmon/steelhead response to Preferred Alternative spill, and characterizations of the transportation program) and refer the commenter to Chapter 3, Section 5, and Chapter 7 for a more precise representation of those topic areas. The population dynamics of the SRKW are complicated, and there is no one factor that contributes to overall success of this species; however, the co-lead agencies agree that the quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Additionally, Section 7.7.8 states impacts to SRKW would be minor. Thus, the co-lead agencies expect salmon and steelhead increases would come from operational measures and existing hatchery production carried forward into the Preferred Alternative. These hatcheries include conservation and safety net hatcheries, as well as through the continued existence of certain independent Congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as the Lower Snake River Compensation Plan, which is administered by USFWS. Moreover, NMFS concluded in its 2020 CRS BiOp that operations, maintenance and configuration of the CRS is not likely to adversely affect SRKW.
31995	3	N/A	N/A	2. Even though the report goes to great lengths to include extensive description of the pain and suffering the dams have caused Native Americans, there is NO MENTION of even attempting to right some of these wrongs in the Preferred Alternative. Quoting from different sections of the report, It is difficult to overstate the effects the CRS has had on tribal culture, way of life, and traditions Many of the tribes have not only lost access to traditional places, but have lost access to the one thing that all these places on the river had in common, which bound them together - the salmon Present tribal suffering stems, in large part, from the cumulative stripping away of tribal Treaty-protected resources to create wealth for non-Indians of the region; bureaucrats [at the time dams were built] asserted that uncertainty regarding impacts on salmon could be managed. And yet, nothing in the Preferred Alternative addresses these historic wrongs, when this would have been the perfect opportunity. Removing the 4 lower Snake River dams restores the salmon and treaty-guaranteed tribal fishing rights. But according to the report, Many of the facilities and much of the infrastructure that make up the CRS were put in place before legislation or enactment of executive orders that required the U.S. government to consider the effects these actions would have on the natural and cultural environment, and tribes. When the tribes did raise their concerns, they were often ignored or minimized: The report appears to conclude that since there were no laws preventing these abuses in the past, the co-lead agencies are not responsible for fixing or even addressing them in the present. This was a golden opportunity lost.	Tribal input, concerns, interests, and especially treaty rights were considered throughout the Draft EIS analyses and in the formulation of the Preferred Alternative. Treaty specific information is included in Section 3.17 as well as Chapter 7. The co-lead agencies recognize and respect the legal obligations imposed by treaties. The co-lead agencies accordingly included Protecting Native American treaty and reserved rights and fulfilling trust obligations for natural and cultural resources throughout the environment affected by the Columbia River System operations as a purpose in the Purpose and Need Statement in Chapter 1 to ensure treaty obligations were a key consideration of decision making. The co-lead agencies are engaging in government-to-government consultation with the tribes, and several tribes are cooperating agencies on the CRSO EIS. The EIS recognizes the economic and cultural importance of salmon to Tribes in a number of sections throughout the document. The cultural significance and impacts of salmon and steelhead fisheries are described in the Ceremonial and Subsistence Fisheries sub-section and the Social Importance of Commercial, Ceremonial and Subsistence Fisheries sub-section of Section 3.15.2.1. Fisheries tribal interests are provided in Section 3.15.4 additional details regarding the economic significance of salmon and steelhead fisheries have been added to the recreation analysis (Section 3.11) including tribal interests (Section 3.11.3.7). Treaty rights are discussed in the Executive Summary, Section 3.16 Cultural Resources, and Section 3.17 Indian Trust Assets, Tribal Perspectives, and Tribal Interests. Appendix P includes copies of tribal perspectives that were submitted by tribes. Tribal consultation is described in Sections 1.5, 3.5, and 3.15; and Chapter 9. Most sub-sections within Chapter 3 include a Tribal Interests section at the end of the sub-section that attempts to summarize tribal issues by topic. The scope of the EIS focuses on the area affected by the alternatives presented for operation, maintenance, and configuration of Columbia River System Projects. The alternatives are evaluated in terms of change from the No Action Alternative, which is the baseline condition of 2016 when the development of the EIS began. The co-lead agencies defined the No Action Alternative consistent with NEPA and implementing regulations. In the case of an ongoing action, such as operation of the CRS, the no action alternative represents no change in current management direction or level of management intensity. The no action alternative thus assumes the existence of the CRS projects and does not attempt to hypothesize the direct and indirect costs of each of Congress's decisions to construct CRS projects. Under NEPA, the co-lead agencies are required to analyze a range of alternatives, including the No Action Alternative, to meet the purpose and need of the Project. The EIS analyzing the effects of the No Action Alternative on resources, environmental and socioeconomic, at present and into the future. These effects are summarized in Section 3 of the Executive Summary, fully described by resource and alternative in Chapters 3, 4, 5, 6 and 7; summarized by resource and alternative in Table 3-1, and once again presented for comparison in Tables 7-1 and 7-55. Analysis shows that the Preferred Alternative would meet the objectives for improving juvenile salmon, adult salmon, resident fish and lamprey. The analysis found ranges in potential effects due to different assumptions included in each of the fish models used in the study. Using the Comparative Survival Study (CSS), Snake River Chinook salmon and steelhead are expected to see relative improvements in smolt-to-adult returns of 35 percent and 28 percent, respectively. The Smolt-to-Adult return ratio (SAR) is the rate at which of a group of fish survive from their smolt life stage to a defined ending point where they return as adult. While achieving long-term recovery targets will require more than just the efforts of Federal agencies, the CSS models indicate the potential for SARs of Snake River Chinook salmon and steelhead to increase to levels that could approach recovery targets set by the Northwest Power and Conservation Council.If latent mortality effects are reduced by passing more juvenile fish through the spillway, the NMFS Lifecycle Model (LCM) also shows that levels of SARs would increase. However, if latent mortality effects are not reduced, or are different than modeled, the LCM predicts that SARs for

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					Snake River spring Chinook salmon may be lower than the No Action Alternative (a range of -7.5 percent to +28 percent change relative to the No Action Alternative) due to reduced opportunities for fish transportation. Results for upper Columbia River stocks are beneficial based on LCM estimates. In-river survival and SARs are anticipated to increase. The CSS model does not currently model upper Columbia fish. The Preferred Alternative also has measures intended to increase upstream passage success and reduce injury and mortality for Pacific lamprey. These measures are proposed structural improvements that include converting extended-length submersible bar screen material to screen material that would not impinge or entangle juvenile lamprey, expanding the network of lamprey passage structures to bypass impediments in fish ladders, changing the design for turbine cooling water strainers, and replacing turbines for safer fish passage. The Preferred Alternative would also meet the objective to improve resident fish. Effects to resident fish vary by region and species, but are generally minor relative to the No Action Alternative.
31995	4	N/A	N/A	3. The Preferred Alternative clearly prioritizes all other Congressionally-authorized purposes of the CRS including flood risk management, navigation, hydropower generation, irrigation and water supply over fish and wildlife conservation. This is especially true since the four lower Snake River dams are not needed for flood control; they currently produce surplus power (which could be replaced with efficiencies in other dams and renewable energy); irrigation/water supply is possible without dams; and rail transportation could replace barges. This is not to discount or minimize the impact removing barge transport would have on farmers it would require careful, joint planning and likely compensation in the process, but the barges are government-subsidized transportation inasmuch as their costs are absorbed in dam maintenance. Farming and fishing communities both deserve opportunities thrive. While the above congressionally-authorized purposes are essentially the agencies missions, the mission is fundamentally flawed as it completely overlooks sustainability of the river ecosystem for future generations.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA listed species. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-lead agencies numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3, which includes breaching the four lower Snake River dams. The Preferred Alternative also meets the EIS objectives for: resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS the co-lead agencies did not identify MO3 because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. Access to barge transportation is the most cost effective means of accessing export markets for many grain producers in the Pacific Northwest currently and removing that option will increase transportation costs for grain producers, as the EIS shows. The EIS finds that transportation of freight that is currently barged on the lower Snake River could be accomplished via other transportation modes, but this change would not be without costs to farmers, would require public and private investments in infrastructure, and would result in some adverse regional economic effects, particularly in the short term. The EIS finds that under MO3, average transportation costs for wheat farmers would increase 10 to 33 percent, but that individual farmers could experience increases that are doubled. The cost increases to specific shippers would depend upon location and would vary throughout the region, depending on transportation options at each location. Generally, those grain shippers that are the farthest from alternate shipping locations (shuttle rail facilities or river ports on the Columbia River) would be the most adversely impacted. The EIS recognizes that there is no guarantee wheat grown in the Northwest would be competitive now or in the future because there are many factors that influence international commodity markets (e.g., trade agreements, the U.S. dollar, global supply, etc.).
31995	5	N/A	N/A	4) Loss of hydropower by removal of the 4 lower dams on the Snake River could be readily replaced by a combination of increased efficiencies for the many remaining dams plus new, renewable energy sources, and would pay for itself in the long run. The cost of the new, renewable energy sources would be offset by significant savings realized when decommissioned dams no longer require upgrades and maintenance and increasing fish populations require decreasing amounts of expensive human intervention.	The comment suggests that additional energy efficiency should be assumed in the EIS, beyond what is achieved in the Northwest Power and Conservation Councils (Council) 7th Power Plan. The EIS analysis considered that all energy efficiency assumed in the Councils 7th Plan is appropriate and, likely, aggressive. The Councils recent State of the Columbia River System, Fiscal Year 2019 Annual Report, February 2020, p. 11 (https://www.nwcouncil.org/sites/default/files/2020-3.pdf), states While the region currently is on track to meet Seventh Plan goals, there are some areas to watch including forecasts of declining savings from efficiency programs. And whether the region will identify new savings opportunities to replace those of residential lighting. Utilities achievements in energy efficiency have been on an annual decline since 2016. Forecasts from utilities show that this trend is expected to continue, despite relatively stable funding levels. Given this trend, there is some uncertainty as to whether there will be enough savings from other mechanisms to reach the 1,400 average megawatt goal by the end of Fiscal Year 2021. This information indicates that it would be difficult to increase the energy efficiency goals beyond the Councils Plan. Based on this information, it is not likely that substantial amounts of additional energy efficiency would be available as prices increase, such as under Multiple Objective Alternative 3. The EIS power analysis included all cost-effective conservation identified by the Council in the load forecasts analyzed in the power analysis (See Section 3.7.3.1 Methodology in the draft EIS). All cost effective conservation in the region is assumed to be acquired consistent with existing law and mandates regardless of the status of the four lower Snake River dams. The EIS did look at potential carbon-free resource replacements. Contrary to the claim in the comment, the EIS considered the avoided operations and maintenance (expense) and capital costs associated with dam breaching in the cost analysis and included these cost savings in the power rates analysis finding that costs increase, and there is upward power rate pressure under Multiple Objective Alternative 3. See Section 3.7.3.5, Bonneville's Fish and Wildlife Program and Lower Snake River Compensation Plan Costs, at page 3-913 and Section 3.7.3.5, Table 3-166 in the draft EIS.
31995	6	N/A	N/A	5) The warm water accumulating behind the dams is killing young fish before they can out-migrate, and the Preferred Alternative (as well as the No Action Alternative) would have no impact on water temperature, so it is simply unacceptable. The Preferred Alternative does not address climate change, whereas dam removal would.	The co-lead agencies' analysis of MO3, which includes breaching the four Snake River dams, indicates that nighttime summer water temperatures, as well as fall water temperatures, would be cooler than conditions in the No Action Alternative in the lower Snake River. However, even with the dams breached, maximum summer water temperatures would exceed state water quality standards (20C) at times, especially during high air temperature events. Overall the conclusion in the Draft EIS is that MO3 would be beneficial to anadromous fish for a number of reasons, but other objectives must also be considered in the selection of a Preferred Alternative. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3. However, the Preferred Alternative also meets all the other objectives of the study for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse impacts to communities and the economy. The dam breaching alternative, by contrast, has significant regional economic impacts and community effects, and meet only a small subset of the EIS objectives. Thus, the co-lead agencies did not recommend MO3 because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. Regarding climate change, the climate science community is still developing models at the resolution necessary to analyze possible effects to water temperature from climate change, and unfortunately, there are not reliable models at this time. Therefore, it was not possible to reliably model water temperature changes under climate change for this EIS. In lieu of this information, the climate analysis used the output from the water quality models under historical conditions, climate change data, and scientific literature to qualitatively assess potential effects to water temperature to the Multiple Objective alternatives (Section 4.2.3) and the Preferred Alternative (Section 7.8.4).
31995	7	N/A	N/A	6) The DEIS erroneously suggests anything but the No Action Alternative would degrade air quality. Air quality can be maintained or improved with increased efficiencies and clean energy, whether were talking about replacing hydroelectricity or transportation.	The EIS considers renewable energy resources for replacing losses from breaching the four lower Snake River dams. As described in Section 3.8.3.5 of the Draft EIS, the analysis finds that, especially in the short-term, some level of fossil fuel generation would be required to maintain reliability in the electric system, and as described in Section 3.7.3.5 in the Draft EIS, the reliance on renewable resources would result in some tradeoffs due to the relatively high financial costs.
31995	8	N/A	N/A	7) The DEIS fails to acknowledge that, of all the alternatives considered, Snake River dam removal provides the greatest potential benefit for orcas and their survival.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets most other EIS objectives including those for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives and only minor effects to SRKW. Thus, in the Draft EIS, the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams, because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). The co-lead agencies agree that the quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults form the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differentially from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020). The co-lead agencies note the contribution to the prey of Southern Resident killer whales through the continued existence of their respective independent congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as Lower Snake River Compensation Plan (LSRCP), which is administered by USFWS.
31995	9	N/A	N/A	8) Because numerous public meetings for public comment on the DEIS were canceled due to the Covid-19 pandemic, the public comment period needs to be extended. There is a great deal of public interest in this subject, but the teleconferences replacing the public meetings were not well-advertised, and teleconferences are far less appealing and democratic than meeting in person.	The co-lead agencies considered requests to extend the public comment period. This NEPA process included a wide array of cooperating agencies whose close involvement throughout the process allowed the co-lead agencies to incorporate feedback. Given the broad range of comments received to date and the extensive Federal and non-Federal participation in the overall process as well as the level of public engagement in the six virtual public meetings in the region, the co-lead agencies determined that an extension was not warranted and that the 45-day public comment period was adequate consistent with NEPA regulations. The CRSO EIS website notified the public on April 9, that they should plan to submit comments by the close of the comment period.
32000	1	jameswarren58@hotmail.com	N/A	The life cycle of the Salmon is complex and fraught with problems. Some are man made and others occur as part of life in the natural world. I believe these very beneficial dams be left in place and operated as they were originally intended. That is, for example, no drastic drawdowns, minimize spilling, etc. With the dams in place we study and emphasize the following: * Expand barging of juvenile fish. If problems are found that can be mitigated reasonably we should move to support needed change. * The upstream bound adults must: 1. Return in numbers after completing the major part of their life cycle at sea. Man can monitor and somewhat control harvest. Most of the survival criteria at sea is at the mercy of nature. 2. Once the adults are in the system the main predator, the sea lion, must be controlled. 3. Access to spawning grounds must be available and as appealing to the spawning fish as possible. 4. If access to spawning grounds is not available it should be considered based on the estimated success of such efforts. This includes employing new techniques such as the pneumatic tube whoosh approach. All of these possible positive contributing factors are known to positively affect the Salmon. They should be given a chance to demonstrate their efficacy. In any case, removal of the subject dams and the possible inclusion of the removal of others, should be eliminated as an impediment to the cooperation of all involved for developing acceptable solution(s).	The co-lead agencies also recognize that there are many effects to salmon and steelhead populations outside the operation of the dams; including those you mention here. Research continues to evaluate the magnitude of these effects. For more information see the NMFS website at: https://www.nwfsc.noaa.gov/research/index.cfm. The co-lead agencies received additional comments related to use of water cannons, or similar proprietary adult fish passage devices. The current configurations of the CRS dams that have fish ladders already have effective upstream adult passage. Many of the considerations for structural changes proposed in the EIS would be to address downstream juvenile passage and survival, as well as habitat concerns. The technology of fish cannons or similar devices will continue to be evaluated for future applications. Varying levels of transportation were included in all MOs with the exception of MO3 (dam breach). MO2 considered much higher levels of transportation that are currently implemented under the NAA. Transportation effects were also analyzed in the Preferred Alternative. The juvenile salmon transportation program is managed by expected fish benefits as well as cost efficiency. SAR estimate for each week of the outmigrations, combined with other environmental and biological data, drive the decisions. Prior to these data being available, transportation began at the beginning of April; however, we learned that fish transported in early April performed very poorly. Transporting too early is not effective and does not justify the expense.
32002	1	N/A	N/A	I am concerned about the ecological impact, cultural heritage, and state tourism associated with the health of the Southern Resident Killer Whales. I am writing to strongly support restoring the lower Snake River via breaching the four lower dams. Ecologists, marine biologists, and even former USFW members have concluded that this is the single most vital requirement to feed and support the Pacific Northwest's most iconic wildlife: orcas. The lower four Snake River dams currently serve as a geographical guillotine for wild salmon and steelhead. These dams prevent fish from both reaching the ocean and returning to their spawning ground to propagate--this is evident in low salmon return rate (~1%) and in the dwindling population of the Southern	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not require the co-lead agencies to take affirmative actions to recover ESA listed species. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets most other EIS objectives including those for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets

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				Resident orcas. Marine biologists have unquestionably implicated insufficient food as the cause of orca's lack of reproductive success; salmon is the historically staple diet for these orcas. Breaching the lower four would increase the salmon return rate to an estimated 4%, which would support and expand fish populations. A comprehensive review article concerning these orca's chances of survival can be found at: https://damsense.org/wp-content/uploads/2020/02/Feb-2020-Review-paper.pdf Additionally, we have treaty promises to uphold.	fewer of the EIS objectives. Thus, in the Draft EIS, the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams, because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. The co-lead agencies conclude there could be a minor beneficial effect to SRKW from implementing MO3. CSS and NMFS Lifecycle models predict that lower Snake River Chinook salmon smolt-to-adult returns would have a moderate to major increase under MO3. Operation of Lower Snake River Compensation Plan fish hatcheries under MO3 is uncertain and therefore, production of Snake River hatchery fish is assumed to decline over the long term, while returning adult wild salmon are anticipated to increase. However, the co-leads do not anticipate a lack of hatchery fish in the short term based on the proposed fish hatchery mitigation described in Chapter 5. These additional hatchery fish should mitigate short-term construction effects to Snake River populations. Additionally, to address short-term effects to ESA-listed species, the co-lead agencies propose constructing a new trap and haul facility at McNary and conducting at least two years of trap and haul operations for Snake River fish (Chinook, sockeye, and steelhead). The co-lead agencies agree that the quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differently from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for the whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall-run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall-run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). FEIS Chapter 3 (Vegetation, Wetlands, Wildlife, and Floodplains) has been updated for SRKW (Section 3..6.2.6 and Table 3-102). FEIS Chapter 7 (Preferred Alternative), has been updated with additional analysis information on SRKW and potential increase in forage fish, in particular, Chinook salmon (Section 7.7.8). It should be noted that the 4% average SAR target referenced refers to the Northwest Power and Conservation Councils target for broad-sense recovery and is separate and distinct from the obligations of any single entity or in this case a requirement to be met solely by the co-lead agencies. Just as the Councils fish and wildlife program encompasses both federal and non-federal stakeholders in the Columbia Basin, the Councils recovery goals are shared by many parties. Also, see response to Comment 6110-16.
32002	2	N/A	N/A	We must honor commitments made with the Nez Perce, Shoshone-Bannock, Umatilla, Warm Springs, and Yakama Tribes. These Peoples gave up thousands of acres of their land for the right to hunt and fish in their "usual and accustomed places," a promise which has not been kept by our government. This is an injustice. Restoring the vitality of the Snake River by breaching the lower four dams is a first step to bolstering salmon runs and to honor our nation's agreements with native tribes. It is simply a moral action here.	Tribal input, concerns, interests, and especially treaty rights were considered throughout the Draft EIS analyses and in the formulation of the Preferred Alternative. Treaty specific information is included in Section 3.17 as well as Chapter 7. The co-lead agencies recognize and respect the legal obligations imposed by treaties. The co-lead agencies accordingly included Protecting Native American treaty and reserved rights and fulfilling trust obligations for natural and cultural resources throughout the environment affected by the Columbia River System operations as a purpose in the Purpose and Need Statement in Chapter 1 to ensure treaty obligations were a key consideration of decision making. The co-lead agencies are engaging in government-to-government consultation with the tribes, and several tribes are cooperating agencies on the CRSO EIS. The EIS recognizes the economic and cultural importance of salmon to Tribes in a number of sections throughout the document. The cultural significance and impacts of salmon and steelhead fisheries are described in the Ceremonial and Subsistence Fisheries sub-section and the Social Importance of Commercial, Ceremonial and Subsistence Fisheries sub-section of Section 3.15.2.1. Fisheries tribal interests are provided in Section 3.15.4 additional details regarding the economic significance of salmon and steelhead fisheries have been added to the recreation analysis (Section 3.11) including tribal interests (Section 3.11.3.7). Treaty rights are discussed in the Executive Summary, Section 3.16 Cultural Resources, and Section 3.17 Indian Trust Assets, Tribal Perspectives, and Tribal Interests. Appendix P includes copies of tribal perspectives that were submitted by tribes. Tribal consultation is described in Sections 1.5, 3.5, and 3.15; and Chapter 9. Most sub-sections within Chapter 3 include a Tribal Interests section at the end of the sub-section that attempts to summarize tribal issues by topic. Analysis shows that the Preferred Alternative would meet the objectives for improving juvenile salmon, adult salmon, resident fish and lamprey. The analysis found ranges in potential effects due to different assumptions included in each of the fish models used in the study.Using the Comparative Survival Study (CSS), Snake River Chinook salmon and steelhead are expected to see relative improvements in smolt-to-adult returns of 35 percent and 28 percent, respectively. The Smolt-to-Adult return ratio (SAR) is the rate at which of a group of fish survive from their smolt life stage to a defined ending point where they return as adult. While achieving long-term recovery targets will require more than just the efforts of Federal agencies, the CSS models indicate the potential for SARs of Snake River Chinook salmon and steelhead to increase to levels that could approach recovery targets set by the Northwest Power and Conservation Council. If latent mortality effects are reduced by passing more juvenile fish through the spillway, the NMFS Lifecycle Model (LCM) also shows that levels of SARs would increase. However, if latent mortality effects are not reduced, or are different than modeled, the LCM predicts that SARs for Snake River spring Chinook salmon may be lower than the No Action Alternative (a range of -7.5 percent to +28 percent change relative to the No Action Alternative) due to reduced opportunities for fish transportation. Results for upper Columbia River stocks are beneficial based on LCM estimates. In-river survival and SARs are anticipated to increase. The CSS model does not currently model upper Columbia fish. The Preferred Alternative also has measures intended to increase upstream passage success and reduce injury and mortality for Pacific lamprey. These measures are proposed structural improvements that include converting extended-length submersible bar screen material to screen material that would not impinge or entangle juvenile lamprey, expanding the network of lamprey passage structures to bypass impediments in fish ladders, changing the design for turbine cooling water strainers, and replacing turbines for safer fish passage. The Preferred Alternative would also meet the objective to improve resident fish. Effects to resident fish vary by region and species, but are generally minor relative to the No Action Alternative.
32007	1	N/A	N/A	Salmon need one thing, they need a river and after reviewing the EIS and comparing MO3 to the preferred alternative, Im definitely on the side of the MO3 plan. For just a moment, put all these figures aside and look at the basic needs for survival, food and water. There are alternatives to hydro-power and we need to lead the charge in clean and sustainable energyfor all, not just humans. Salmon is a huge food source for human consumption along with food sources for land and aquatic animals. Those animals are suffering due to human interference's and we will suffer when another food source of our own disappears. The preferred alternative is just a band-aid, the river needs to be restored to its original structure if we are going to see any massive increases to the population of salmon and steel-head fish. There are alternatives to hydro-power that do not rely on coal or other natural gases and the burning of fossil fuels as energy resources that would add CO 2 into the atmosphere i.e. solar, wind. I came across this article while researching alternatives to the use of dams for hydro-power, https://www.businessinsider.com/wastewater-sewage-heat-recovery-energy-2016-6 . I understand that for a quick fix that returning to a resource that is already known to work like the use of natural gases would be the easy solution, but easy doesnt mean that it is the best decision. The dams produce about 3k megawatts of power, that is not an astronomical amount that couldnt be replaced. Energy isnt going to feed you like salmon would.	To maintain regional power reliability at the No Action Alternative level, the EIS found that additional replacement resources would be necessary. The EIS considered a range of resource portfolios to replace the power output of the four lower Snake River dams. That range is reflected in two portfolios used to outline the potential resource options: a least-cost conventional portfolio (natural gas) and a zero-carbon portfolio (primarily solar). See draft EIS, Section 3.7.3.5 at pages 3-904-910. These portfolios represent a range of potential portfolios that could be used to return the regional power system to the reliability level of the No Action Alternative. Under both of these replacement portfolios, however, regional power rate pressure increases considerably. The rate impacts of these replacement resources, which includes cost savings from breaching the four lower Snake River dams, is described in Section 3.7.3.5, Table 3-166 and pages 3-920-924. As described in the EIS, even with the cost savings associated with reductions in dam maintenance and other costs, the net impact on power rates is in the range of between 13-50 percent (for zero carbon resources replacements) and 4-10 percent (for natural gas/least cost replacements). The region has also announced plans to retire most of the existing coal-fired power plants, and the combination of replacing the lost hydropower and the coal plants would require a very large investment in new zero-carbon resources. See e.g., draft EIS, Section 3.7.3.5, Coal Retirement Considerations at page 3-911 and Table 3-166. The EIS acknowledges that the energy sector is constantly undergoing transformation and that technological improvements will likely bring other options; however, to avoid speculation, the EIS analysis focuses on primary technologies identified by the Northwest Power and Conservation Council in their 7th Power Plan (7th Power Plan, page 13-5) that are deemed proven, commercially available, and deployable on a large enough scale in the Northwest.
32007	2	N/A	N/A	Restoring the fish will also honor the federal treaties with the local tribal communities that entered into these treaties with the understanding that their food and water sources would not be diminished or destroyed and unfortunately that is exactly what the dams are doing.	Tribal input, concerns, interests, and especially treaty rights were considered throughout the Draft EIS analyses and in the formulation of the Preferred Alternative. Treaty specific information is included in Section 3.17 as well as Chapter 7. The co-lead agencies recognize and respect the legal obligations imposed by treaties. The co-lead agencies accordingly included Protecting Native American treaty and reserved rights and fulfilling trust obligations for natural and cultural resources throughout the environment affected by the Columbia River System operations as a purpose in the Purpose and Need Statement in Chapter 1 to ensure treaty obligations were a key consideration of decision making. The co-lead agencies are engaging in government-to-government consultation with the tribes, and several tribes are cooperating agencies on the CRSO EIS. The EIS recognizes the economic and cultural importance of salmon to Tribes in a number of sections throughout the document. The cultural significance and impacts of salmon and steelhead fisheries are described in the Ceremonial and Subsistence Fisheries sub-section and the Social Importance of Commercial, Ceremonial and Subsistence Fisheries sub-section of Section 3.15.2.1. Fisheries tribal interests are provided in Section 3.15.4 additional details regarding the economic significance of salmon and steelhead fisheries have been added to the recreation analysis (Section 3.11) including tribal interests (Section 3.11.3.7). Treaty rights are discussed in the Executive Summary, Section 3.16 Cultural Resources, and Section 3.17 Indian Trust Assets, Tribal Perspectives, and Tribal Interests. Appendix P includes copies of tribal perspectives that were submitted by tribes. Tribal consultation is described in Sections 1.5, 3.5, and 3.15; and Chapter 9. Most sub-sections within Chapter 3 include a Tribal Interests section at the end of the sub-section that attempts to summarize tribal issues by topic. Analysis shows that the Preferred Alternative would meet the objectives for improving juvenile salmon, adult salmon, resident fish and lamprey. The analysis found ranges in potential effects due to different assumptions included in each of the fish models used in the study. Using the Comparative Survival Study (CSS), Snake River Chinook salmon and steelhead are expected to see relative improvements in smolt-to-adult returns of 35 percent and 28 percent, respectively. The Smolt-to-Adult return ratio (SAR) is the rate at which of a group of fish survive from their smolt life stage to a defined ending point where they return as adult. While achieving long-term recovery targets will require more than just the efforts of Federal agencies, the CSS models indicate the potential for SARs of Snake River Chinook salmon and steelhead to increase to levels that could approach recovery targets set by the Northwest Power and Conservation Council. If latent mortality effects are reduced by passing more juvenile fish through the spillway, the NMFS Lifecycle Model (LCM) also shows that levels of SARs would increase. However, if latent mortality effects are not reduced, or are different than modeled, the LCM predicts that SARs for Snake River spring Chinook salmon may be lower than the No Action Alternative (a range of -7.5 percent to +28 percent change relative to the No Action Alternative) due to reduced opportunities for fish transportation. Results for upper Columbia River stocks are beneficial based on LCM estimates. In-river survival and SARs are anticipated to increase. The CSS model does not currently model upper Columbia fish. The Preferred Alternative also has measures intended to increase upstream passage success and reduce injury and mortality for Pacific lamprey. These measures are proposed structural improvements that include converting extended-length submersible bar screen material to screen material that would not impinge or entangle juvenile lamprey, expanding the network of lamprey passage structures to bypass impediments in fish ladders, changing the design for turbine cooling water strainers, and replacing turbines for safer fish passage. The Preferred Alternative would also meet the objective to improve resident fish. Effects to resident fish vary by region and species, but are generally minor relative to the No Action Alternative.
32013	1	N/A	N/A	Hydropower is one of the most reliable forms of energy and Idaho's rivers provide immense amounts of power. Hydropower can alter environments along with the species around it. Since all species work together, if we lost Salmon, it obviously could alter the environment greatly. Salmon sort nutrients throughout the rivers when they migrate, which helps the trees live and grow. This can also alter the food chain and other species in that environment.	The Corps considered several actions that could balance power and ecological needs: Flexible spill. One major change that the Preferred Alternative represents is a new spill operation (flexible spill), which would test an innovative approach to balancing fish benefits and energy goals by spilling more water in the spring for juvenile fish passage. The intent of flexible spill is to increase spill when the projected value of power is relatively low, pass higher proportions of fish through the spillway, and spill less water for limited durations when the projected value of power is relatively higher (e.g., during peak power demand). The flexible spill operation creates an opportunity for a major potential benefit to salmon and steelhead through increased spill, as indicated by the CSS model, while avoiding many of the adverse effects to power generation and reliability associated with juvenile spill operations analyzed in MO4. The flexible spill operation in the Preferred Alternative would be implemented through an adaptive framework that allows the co-lead agencies to adjust operations as new information emerges. While the flexible spill operation was originally initiated under the flexible spill agreement, this type of operation is a major change from the No Action Alternative and how the co-lead agencies have operated the system historically.

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					Increased spill. As part of the flexible spill operation, we would increase planned spill up to 125 percent total dissolved gas levels at some projects, which is the new state water quality standard for maximum allowable total dissolved gas. Previous state water quality standards limited juvenile fish passage spill to lower amounts of spill. The goal of higher spill is to increase the number of juvenile fish passing through the spillways, in lieu of the powerhouse bypass systems and turbines, which is predicted to result in increased adult fish returns. Extensive regional collaboration. The flexible spill operation included as part of the Preferred Alternative is a result of extensive regional collaboration. Negotiations for the 2019-2021 Spill Operation Agreement began in the summer of 2018. The parties to the original agreement included Bonneville, the Corps, Reclamation, the states of Oregon and Washington, and the Nez Perce Tribe. The Preferred Alternative intended to build off of the collaboration fostered through the agreement and apply that to the existing regional coordination processes (Regional Forum). Other changes. The Preferred Alternative also contains measures to benefit resident fish, as well as lamprey, while providing reliable flood risk management, water supply for irrigation, and flexibility in hydropower generation that would be valuable for integrating wind and solar energy.
32016	1	N/A	N/A	This document was, as I read it, written to convey the agencies objectives and considerations. It is not apparent how the relative weighting of the various objectives compare. Overall, I am disappointed that greater seriousness isnt attached to the long term viability of anadromous fish. The agencies preferred alternative relies on tweaking the operational parameters, more than anything else, to satisfy all the competing objectives, perhaps better, perhaps only marginally, and perhaps no better. I write perhaps no better because in an era of climate change and increasing frequency of extreme events, such as warm ocean waters, hot water in the Snake or Columbia, or drought or anomalously high precipitation could further degrade the salmon and steelhead stocks, and their gene pool. And flexibly and adaptably tweaking operational parameters will probably not be adequate to improve Smolt to Adult Ratios enough to overcome the impacts of such climate change heterogeneity in ocean and weather events.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets most other EIS objectives including those for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS, the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams, because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. The co-lead agencies acknowledge that the ocean environment is a contributor to the decline in salmon populations that is beyond the scope of the CRSO EIS. While none of the alternatives would affect ocean conditions, we recognize that these conditions are a major driver for adult returns and that numerous studies have shown the importance of this environment in the return of adult salmon and steelhead (Peterson et al. 2019). As such two of the models used in these analyses, NMFS Lifecycle and CSS models, use metrics of ocean productivity to predict adult returns. The carbon-free attributes of the Federal hydropower system are described in the Air Quality Section of the Draft EIS (Section 3.8). The analysis includes the effects to GHG emissions resulting from changes in hydropower generation for each alternative, including breaching the Lower Snake River dams in MO3.
32016	2	N/A	N/A	Furthermore, there is to me another large concern that is entirely unaddressed in the draft EIS, based on all Ive been able to read. Forest health in the Pacific and Inland Northwest is linked to the nutrient pump that the anadromous fish runs provide. Fish go to sea, collect nutrients and climb up the rivers to spawn. Via predation and scavenging by myriad creatures of the forest ecosystem, these fish distribute these nutrients widely in the terrestrial ecosystem, and release their nutrients in the streams themselves, where the also and die and rot, nurturing both stream life and trees. In this era, with forests threatened by climate change, drought, bark beetles and other pests, it would seem important to reestablish the only significant nutrient import mechanism available to forests, anadromous fish runs. But the vision these agencies bring to these fish runs is pretty much business as usual, with little tweaks, to muddle by. It is a bad business to run an administrative process that has the potential, perhaps, to secure a future for these one magnificent fish runs, but that through balancing too many competing claims, fails.	The Draft EIS analyzes the effects of the alternative approaches to the operation, maintenance, and configuration of the CRS on anadromous fish abundance, which is the driving mechanism of oceanic derived nutrient cycling. The commenter is correct, there are broad ecological effects. However, the actual mechanisms, effects, magnitudes, and process are very complex and that uncertainty is reflected in the EIS. The co-lead agencies disagree that the Draft EIS preferred alternative is "business as usual." The spill operation for juvenile fish passage is a significant departure from previous operations, so much so that the Washington and Oregon state water quality waivers and standards had to be changed to implement the new spill regime. The CSS model predicts that average Smolt to Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% (within the NPCC recovery targets for the region) as a result of the Preferred Alternative.
32016	3	N/A	N/A	It seems that in the agencies analysis, a great weight is attached to the economic aspects of power production, associated power rates, and river transportation as primarily benefits the agricultural sector. There is already a significant well established subsidy of agriculture through federal price support for major commodity crops. Maintaining navigability for barges seems like another major federal subsidy. Cheap electricity for irrigation seems like a subsidy as well. In the current context of a federal US trade war driving off buyers for US grain, and damaging trade relationships for a indeterminate future, it seems imprudent to base decisions on a model of maximizing agricultural exports of previous years. It is also ecologically foolish to trade the future of anadromous fish for s few more years of agricultural earnings, which may indeed not eventuate, as grain is a global commodity and the profit margins are frequently marginal, and the full impacts of climate change are still to be experienced by our farmers. In summary, I cannot help but suspect that this process was constructed to arrive at conclusions acceptable to the agencies concerned. I think too little weight has been given to the value of restored runs of anadromous fish species, to the cultural importance of these runs to native American tribes, to the importance of these runs to forest health. I think the agencies ought to start over again, and think more deeply about this matter.	The EIS evaluated beneficial and adverse effects across an array of resource areas including potential effects at the national, regional and local level; effects are monetized and quantified, where possible, and also described qualitatively. As is common in NEPA analyses, the beneficial and adverse effects of the alternatives are expressed as a variety of qualitative and quantitative environmental and economic metrics throughout the EIS to inform decision-making, including the effects of the alternatives on fish as detailed in Section 3.5. That the effects of the alternatives on fish are not expressed as monetized economic values does not mean that they were not considered in the context of the analysis. The EIS does not employ a cost-benefit framework for decision-making. Instead, the EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as the dam breaching alternative. However, the Preferred Alternative also meets most of the other objectives of the study for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy.
32031	1	N/A	N/A	The dams are destroying our ecosystem. We need the rivers to flow freely in order for salmon to spawn and orcas to survive. It is all interconnected and our lives depend on it because this plays into our water filtration system we benefit from as humans.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide meaningful benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. The co-lead agencies conclude there could be a negligible to minor beneficial effects to SRKW from implementing MO3. CSS and NMFS Lifecycle models predict that lower Snake River Chinook salmon smolt-to-adult returns would have a moderate to major increase under MO3. Operation of Lower Snake River Compensation Plan fish hatcheries under MO3 is uncertain and therefore, production of Snake River hatchery fish is assumed to decline over the long term, while returning adult wild salmon are anticipated to increase. However, the co-leads do not anticipate a lack of hatchery fish in the short term based on the proposed fish hatchery mitigation described in Chapter 5. These additional hatchery fish should mitigate short-term construction effects to Snake River populations. Additionally, to address short-term effects to ESA-listed species, the co-lead agencies propose constructing a new trap and haul facility at McNary and conducting at least two years of trap and haul operations for Snake River fish (Chinook, sockeye, and steelhead). The co-lead agencies agree that the quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differently from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020).
32032	1	mattrudolf@hotmail.com	N/A	I believe the time has come to eliminate the Snake River Dams and open up the habitat for enhanced spawning grounds. I disagree with my local wheat association that these dams are imperative for transportation and power production. Both of these have alternatives that will be cost effective for farmers and helpful to our environment for the future. The time is now. Remove the dams. Change is hard on people, but we farmers can adjust to rail and truck and downstream barging. The facts are that the Snake River dams help a small percentage of the wheat that moves on the Columbia. Most of the Columbia wheat is loaded downstream of the lower 4 dams on the Snake River.	Access to barge transportation is the most cost effective means of accessing export markets for many grain producers in the Pacific Northwest currently and removing that option will increase transportation costs for grain producers, as the EIS shows. The EIS finds that transportation of freight that is currently barged on the lower Snake River could be accomplished via other transportation modes, but this change would not be without costs to farmers, would require public and private investments in infrastructure, and would result in some adverse regional economic effects, particularly in the short term. The EIS finds that under MO3, average transportation costs for wheat farmers would increase 10 to 33 percent, but that individual farmers could experience increases that are doubled. The cost increases to specific shippers would depend upon location and would vary throughout the region, depending on transportation options at each location. Generally, those grain shippers that are the farthest from alternate shipping locations (shuttle rail facilities or river ports on the Columbia River) would be the most adversely impacted. The EIS recognizes that there is no guarantee wheat grown in the Northwest would be competitive now or in the future because there are many factors that influence international commodity markets (e.g., trade agreements, the U.S. dollar, global supply, etc.). However, the analysis finds that the cost to transport wheat to market would continue to be lower than costs paid by other wheat growers in the United States (e.g., the Dakotas and Midwest).
32033	1	willowrose2@gmail.com	N/A	I strongly favor removal of the four Lower Snake River dams. Abundant research and documentation show that their removal will produce negligible, if any, economic losses to any parties. Barging of grain and other commodities can be transferred to train; energy production, already losing money, is being replaced by other more sustainable sources such as solar and wind. Cities such as Lewiston in the upper reaches of the river at risk of flooding, and subject to extremely costly remediation, will no longer be under threat, and while they may see some loss in sectors such as boating and lakeside businesses, other economic impacts will be positive. Above all, the dams' removal will restore one of the great inland waterways of the world and enhance the prospects for a return of salmon, whose numbers have fallen precipitously since the dams were built – almost to the point of no return. Renewed salmon runs up the Columbia and Snake rivers and their tributaries are a linchpin in a wider, long-term restoration and preservation of the inland waters, coastal salmon runs, orca and other predators in the food chain, and biospheres from the Oregon coast all the way to Alaska and back. Sports fishers, tourism entrepreneurs, riverside home and property owners will all benefit from a free-flowing Snake River. It's a no-brainer.	The EIS analysis finds that transportation of freight that is currently barged on the lower Snake River could be accomplished via other transportation modes, but this change would not be without costs to farmers, would require public and private investment in infrastructure, and would result in some adverse regional economic effects, particularly in the short term. The EIS evaluates potential effects on farmers associated with increased transportation costs under MO3 in Section 3.10.3.5. The EIS finds that under a dam breach scenario, average transportation costs for wheat farmers would increase 10 to 33 percent, but that individual farmers could experience increases that are doubled. The cost increases to specific shippers would depend upon location and would vary throughout the region, depending on transportation options at each location. Generally, those grain shippers that are the farthest from alternate shipping locations (shuttle rail facilities or river ports on the Columbia River) would be the most adversely impacted. Note, cost scenarios for specific farmers are presented below in the Regional Economic Effects within Section 3.10.3.5. The EIS provides an evaluation of the social welfare and regional economic effects of the No Action Alternative and the Multiple Objective alternatives, including the effects on recreation (Section 3.11) and commercial fisheries (Section 3.15). An evaluation of flood risk management is provided in Section 3.9. It should be noted that the lower Snake dams are not authorized for flood risk management and this is clearly stated in the EIS in Chapter 1, Section 1.2. Chapter 7, Table 7-1, also indicates that there is no elevated risk to flooding in the lower Snake River reach for any of the EIS Alternatives, although flood risk would be reduced with breaching of the lower Snake River projects. The EIS Section 3.5.3.6 describes the long-term effects to anadromous fish migration in the Snake River and tributaries that would occur under a dam breach scenario as major and beneficial, although quantitative impacts from fish modeling results are limited. The impacts to anadromous fish in other locations would have negligible to minor changes from the No Action Alternative. The impacts to anadromous fish in other locations would have negligible to minor changes from the No Action Alternative. AThe EIS described the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. NMFS estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which is described qualitatively. For the effects on recreational fishing under MO3 (Section 3.11.3.5) along the lower Snake River below Lewiston, the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River) as an indicator for fishing visitation in this reach. The EIS describes that the visitation in the long-term in the lower Snake River, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting outfitting and tourism businesses in the region. The social welfare values and regional economic effects associated with recreational fishing under the MOs, as well as river recreation post dam breach under MO3, were not estimated because of the uncertainty and large range in visitation and consumer surplus values among users.
32036	1	jon123ochi@gmail.com	N/A	Objectives #1 and #2: To Improve Juvenile Salmon (Objective #1) and to Improve Adult Salmon (Objective #2) could be thought of as a single objective. Intuitively, all else being equal, one can say the more adults returning to spawn, the more eggs, the more smelts, the more adults returning to repeat the cycle. Removal of the Lower Snake Hydroelectric Dams would benefit Juvenile and Adult Salmon. If we assume figure 5-4 Overall Dam Passage Survival	Regarding your comment on objectives 1 and 2, the commenter is correct that Smolt-to-Adult returns (SAR) and adult abundance changes reflect improvements to both juvenile and adult fish survival. Both in-river system survival estimates and SAR estimates modeled by the CSS and NMFS Life Cycle models include the cumulative effect of passing the four lower Snake River and four lower Columbia River dams. Additionally, the CSS model incorporates predictions of reductions in latent mortality effects of passing the dams.

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				survival rates accurately portray the rate of fish survival in passing through the four Lower Snake River Dams (LSRDs) followed by fish survival rates in passing through the four Lower Columbia River Dams (LCRDs), the cumulative effects are noteworthy. By the data given in figure ES-4 one can see a loss of about one to seven percent of the fish at each dam. The uppermost dam, Lower Granite Dam, could result in losses of one to seven percent, followed by losses of one to seven percent repeated seven more times. Furthermore, the general weakening of the fish with prolonged stretches of flatwater at each of the eight dams degrades the health of the fish more both in downstream travel for smelts and for upstream travel of adults. The action of channeling the smelts to go around dams or through dams in certain locations means even the fish that survive the dam still are in weakened condition to survive the avaian, other fish, or mammal predators that await near the fish channels that spew out the smelts or the fish ladders that more precisely locate the adults salmonids, allowing predator attacks. And when the smelts reach the mouth of the Columbia the totality of damage comes from longer travel time, physical trauma at the dams from spill, trauma from predators, and combined with the warming effects of slackwater behind dams means the smelts must transition to salt water in a much weaker condition than had there been fewer cumulative effects.	
32036	2	jon123ochi@gmail.com	N/A	Objective #3: Restoring a free flowing Lower Snake River would Improve Resident Fish (Objective #3) by bringing the Lower Snake River to the status that resident fish evolved to fit into.	The commenter is correct. Increasing riverine habitat and reducing reservoir area would probably increase carrying capacity for some species of resident fish such as white sturgeon. There would likely be less habitat area for native and nonnative resident species that favor lakes and reservoirs including smallmouth bass, northern pikeminnow, and walleye. However, the co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide meaningful benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. The Preferred Alternative also meets the other objectives for the EIS, for juvenile and adult salmon and steelhead, hydropower generation, water management, and water supply, while also minimizing adverse impacts to communities and the economy.
32036	3	jon123ochi@gmail.com	N/A	Objective #4: Removal of the four Lower Snake River Dams while keeping the Lower Columbia River Dams would allow the majority of hydropower generation to continue to occur since the Lower Columbia Dams produce much more power and more reliable power (Objective #4) than the Lower Snake River dams. One economic benefit of the using only the Lower Columbia River Dams would be that the large and increasing cost of salmonid mitigation measures measured in the billions of dollars, would make the cost of the power generated at the Lower Columbia River Dams more economical (Objective #4). Simply put, lowered costs for salmon mitigation would lower hydropower costs for the entire Columbia River System of hydropower. The lower Columbia River Dams were built earlier than the lower Snake River Dams. One can correlate the dramatic salmonid declines in Snake River populations to the installation of Ice Harbor, lower Monumental, little Goose, and lower Granite Dams. So we already know that removing the Lower Snake River Dams would further enhance Objective #1 and #2. The power from loss of the four Lower Snake River dams could be generated from a source as reliable as the lower Snake River Dams. The potential for alternative energy sources will be noted later in this paper.	The Preferred Alternative meets Objectives 1, 2 and 4, as documented in Chapter 7 of the EIS, including Table 7-1 in the Draft EIS. While there would likely be some long-term reduction in mitigation expenditures if the four lower Snake River dams were breached; those savings would be exceeded by the costs associated with development of replacement resources needed to bring the region back to current reliability levels. The reduced dam operating and fish and wildlife mitigation costs are discussed for MO3 in Section 3.19 and Appendix Q. For MO3, Bonneville's Fish and Wildlife (F&W) Program is estimated to cost $282 million annually and includes mitigation projects and studies across the Columbia River Basin. As stated in the CRSO Draft EIS, funding decisions for Bonneville's F&W Program are not being made through the CRSO EIS process. Future F&W Program funding decisions would be made in consultation with the region, through Bonneville's budget-making processes and other appropriate forums and consistent with existing agreements. Based on the inherent uncertainty of Bonneville's F&W Program funding requirements, with breaching the four lower Snake River dams, a range was provided for MO3, from current levels ($282 million annually) to $177 million annually, a reduction of $105 million. Bonneville currently pays US Fish & Wildlife Service approximately $34 million annually to operate fish facilities associated with the Lower Snake River Compensation Plan (LSRCP). Bonneville's funding authority for the LSRCP is directly tied to the operation of the four lower Snake River dams. In addition to LSRCP, approximately, $1 million annually is expended on the Columbia River Fish Mitigation associated with the four lower Snake River projects. Total F&W Program costs for the four lower Snake River projects could range from a low of $35 million ($34 million for LSRCP plus $1 million for Columbia River Fish Mitigation) to $140 million ($35 million plus $105 million in F&W Program funding). The range in potential reductions in these costs under MO3 is captured in the Power Rate Pressure Analysis, Appendix H Section 4.1. Appendix H, Section 4.1.1.3 describes the F&W Program costs and reduction in these costs under MO3. Annual equivalent capital, operations and maintenance costs would also be reduced by $107 million per year under MO3. Table 4-3 for capital and Table 5-4 for operations and maintenance. These savings, ranging from $142 million to $212 million per year are offset by the cost to replace the power of the four lower Snake River dams ranging from $270 million to $540 million as shown in Table 3-171, Table 3-171. Average Annual Social Welfare Effect of Multiple Objective 3 Based on the Increased Cost of Producing Power to Meet Demand (2019 U.S. Dollars) in the Draft EIS. Therefore, it is not expected that breaching the four lower Snake River dams would result in lower hydropower costs for the entire Federal Columbia River Power System.
32036	4	jon123ochi@gmail.com	N/A	Objective #5: The salmonid have no option other than to move through the Columbia and Snake River systems as part of their life cycle. But as human beings we do have some alternative sources of energy that could minimize greenhouse gases (Objective #5). On need only look at the world class wind surfing at Hood River to know there is tremendous potential for wind energy in the Columbia River system that could generate reliable and increasingly economical energy. Wind energy needs greater exploration. like it or not, the development of new, smaller, modular nuclear energy reactors is being developed. Nuclear energy technology has stagnated since it was first developed in the 1950s. The issues of waste recycling and safe shutdown would and should be addressed. Modular designs could be repeated in different locations without having to go through the entire National Environmental Policy Act (NEPA) process each time, a process that was necessary when every reactor was different. Nuclear energy also offers the benefit to minimize greenhouse gases (Objective #5).	In the zero-carbon replacement portfolio of the power analysis, the EIS considered wind energy as a potential replacement resource, but did not find wind cost-effective at improving power system reliability compared to solar for Multiple Objective (MO) Alternative 1, MO3, and MO4. The EIS acknowledges that the energy sector is constantly undergoing transformation and that technological improvements will likely bring other options. To avoid speculation, the EIS analysis focuses on primary technologies identified by the Northwest Power and Conservation Council (Council) in their 7th Power Plan (7th Power Plan page 13-5) that are deemed proven, commercially available, and deployable on a large enough scale in the Northwest. Small modular nuclear reactors (SMRs) are not considered primary technologies by the Council and were not included in this step. See Section 3.7.3.1, Step 3: Determine Need for Potential Replacement Resources and Associated Costs, at 3-821 and Appendix H, Power and Transmission, Section 2.2 in the draft EIS. For MO3, under the full replacement sensitivity, consistent with the suggestion in the comment, the EIS did consider SMRs as a potential replacement for some of the attributes of the four lower Snake River dams and costs estimates are provided in Section 3.7.3.5. See draft EIS at page 3-909. However, as noted in the EIS, the ramping capability of SMRs is unknown. Thus it is unknown if an SMR would be able to provide ramping capability similar to the four lower Snake River projects at this time. See Section 3.7.3.5, at page 3-910 in the draft EIS. Appendix H, Section 2.2 in the Final EIS provides further discussion on the selection of replacement power resources.
32036	5	jon123ochi@gmail.com	N/A	Objective #6: Removing the four lower Snake River Dams would reduce some adaptable water management possibilities. Obviously, one could not have the same degree of flood control without the four lower Snake River Dams. But is flood control really a major issue in the lower Snake River? Moving water more quickly through the reaches of the lower Snake River would have some water management (Objective #6) benefits. Specifically, without the miles of slackwater pools behind the dams, water would have less heating as the world warms.	The lower Snake River dams are not authorized for flood risk management; see Chapter 1, Section 1.2. Chapter 7, Table 7-1, also indicates that there is no elevated risk to flooding in the lower Snake River reach for any of the EIS Alternatives. Regarding water temperatures in the lower Snake River, it is well known that reservoirs create a lag in the thermal response to environmental conditions, leading to colder conditions in the spring and warmer conditions in the fall as compared to unregulated systems. Breaching the dams would reverse these effects. Under a dam breach scenario, spring water temperatures will warm more quickly than No Action conditions. Similarly in the fall, under a dam breach scenario, fall water temperatures will cool more quickly than No Action conditions. These results make logical sense and are supported by results from CRSO EIS numerical water quality modeling. What has surprised some stakeholders are the predicted summer water temperature effects under dam breaching. Many believe that removing the dams will result in colder water temperatures as compared to the No Action Alternative. While some cooler water temperatures may be observed in the summer under dam breaching, especially during cooler summer weather conditions and at night, water temperatures will remain warm and exceed the state water quality standard at times. This is because without the dams, the lower Snake River will be shallower and more susceptible to solar radiation and warming. Increases in water particle travel time are expected, but the lower Snake River has always been a warm system (USGS 1960, 1961, 1964; Corps 2002a) and breaching the dams will not change this fact.
32036	6	jon123ochi@gmail.com	N/A	Objective #7: Use of wind energy or nuclear energy could provide a source of electricity for irrigators who do pump water should the irrigators' pumps need to be altered in order to pump water from the Lower Snake River so that contractual obligations to provide water supply (Objective #7) could be met. It can also be argued there are contractual obligations to provide water supply (Objective #7) so that Tribes can continue to hunt and fish "in their normal manner." If our federal government fails to protect anadromous fish by letting them die off, it could well be considered a breach of treaty obligations that the Tribes would always be able to hunt and fish in their normal places.	To replace lost power generation in the alternatives such as MO3, the EIS analysis focuses on primary technologies identified by the Council in their 7th Power Plan (7th Power Plan page 13-5) that are deemed proven, commercially available, and deployable on a large enough scale in the Northwest. See Section 3.7.3.1 Methodology and Chapter 2 of Appendix H for additional details. Wind generation is a primary resource, but wind was less cost-effective for this alternative than the combination of solar, demand response, and storage technologies. See Section 3.7.3.5, at 3-904-910. Nuclear energy was not considered primary technologies and thus were not included as a replacement resource. The specific resources that would be acquired will be determined through formal resource acquisition processes, and any appropriate technology would likely be considered. Analysis shows that the Preferred Alternative would meet the objectives for improving juvenile salmon, adult salmon, resident fish and lamprey. The analysis found ranges in potential effects due to different assumptions included in each of the fish models used in the study. Using the Comparative Survival Study (CSS), Snake River Chinook salmon and steelhead are expected to see relative improvements in smolt-to-adult returns of 35 percent and 28 percent, respectively. The Smolt-to-Adult return ratio (SAR) is the rate at which of a group of fish survive from their smolt life stage to a defined ending point where they return as adult. While achieving long-term recovery targets will require more than just the efforts of Federal agencies, the CSS models indicate the potential for SARs of Snake River Chinook salmon and steelhead to increase to levels that could approach recovery targets set by the Northwest Power and Conservation Council. If latent mortality effects are reduced by passing more juvenile fish through the spillway, the NMFS Lifecycle Model (LCM) also shows that levels of SARs would increase. However, if latent mortality effects are not reduced, or are different than modeled, the LCM predicts that SARs for Snake River spring Chinook salmon may be lower than the No Action Alternative (a range of -7.5 percent to +28 percent change relative to the No Action Alternative) due to reduced opportunities for fish transportation. Results for upper Columbia River stocks are beneficial based on LCM estimates. In-river survival and SARs are anticipated to increase. The CSS model does not currently model upper Columbia fish. The Preferred Alternative also has measures intended to increase upstream passage success and reduce injury and mortality for Pacific lamprey. These measures are proposed structural improvements that include converting extended-length submersible bar screen material to screen material that would not impinge or entangle juvenile lamprey, expanding the network of lamprey passage structures to bypass impediments in fish ladders, changing the design for turbine cooling water strainers, and replacing turbines for safer fish passage. The Preferred Alternative would also meet the objective to improve resident fish. Effects to resident fish vary by region and species, but are generally minor relative to the No Action Alternative.
32036	7	jon123ochi@gmail.com	N/A	Objective #8: The benefits of dam removal on the Lower Snake River would improve lamprey (Objective #8). Without Lower Snake Dam removal the lamprey, like the sockeye salmon are headed towards extinction. In sum, all eight objectives are enhanced by removal of the Lower Snake River dams. Why is not dam removal the Preferred Alternative or even given serious consideration as a reasonable alternative?	The substantial benefits to lamprey under MO3 are recognized and described starting on page 3-572, and benefits to sockeye salmon and other Snake River salmonids are also described in those respective Sections. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), as well as Pacific lamprey, but not as much as MO3, the alternative that includes the measure to breach the lower Snake River dams. However, the Preferred Alternative also meets the objectives of the study for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse impacts to communities and the economy. MO3, the alternative that includes the measure to breach the lower Snake River dams, by contrast, has significant regional economic impacts and community effects, and meets only a small subset of the EIS objectives. Thus, the co-lead agencies did not recommend MO3 because the Preferred Alternative is more likely to satisfy the multiple, complex and, at times, conflicting legal requirements that apply to the CRS.
32042	1	jpaul7@q.com	N/A	Since the first Columbia River EIS in 2002, there has been little change in the structure the US Army Corps of Engineers (COE) uses to evaluate projects. Unlike other government agencies, the COE cost benefits analysis does not include consideration of non-use values such as improving the economy of small rural communities due to the increase of tourism, recreation and supporting businesses. Economic increases in small towns along the river corridor would help keep and/or increase the local populations. If non-use values and resulting environmental benefits are ignored, then removal of the dams is not justified. The non-use values are the key to measuring the true benefits of dam removal. Granted, some sectors of the regional economy will experience a shift, however dam removal is fundamentally a massive public works project that will increase regional net jobs and income. Non-use values are valid and must be considered because of the overwhelming rationalization they provide for removing the lower Snake River dams. The EIS makes clear that not removing the lower Snake River dams is the best option for Snake River salmon and steelhead, but substantially underestimates the level of benefit. The final EIS should include a preferred alternative that addresses the removal of the lower Snake River dams. Agencies should call on Congress to make the necessary investments to replace the dams current benefits so we can both recover the fish and maintain a vibrant regional economy.	There are benefits and costs associated with operating the lower Snake River projects. The EIS evaluated beneficial and adverse effects across an array of resource areas including potential effects at the national, regional and local level; effects are monetized and quantified, where possible, and also described qualitatively. As is common in NEPA analyses, the beneficial and adverse effects of the alternatives are expressed as a variety of qualitative and quantitative environmental and economic metrics throughout the EIS to inform decision-making, including the effects of the alternatives on fish as detailed in Section 3.5. That the effects of the alternatives on fish are not expressed as monetized economic values does not mean that they were not considered in the context of the analysis. The EIS does not employ a cost-benefit framework for decision-making. Instead, the EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as the dam breaching alternative. However, the Preferred Alternative also meets most of the other objectives of the study for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. As described in the EIS, Section 3.15.2.2, "Best practices for benefit transfer identified in OMB Circular A-4 describe that meeting all criteria is difficult and that professional judgment is required in determining whether a particular transfer is too speculative (OMB 2003, 26). Given the limitations of the existing literature, this EIS does not include a quantitative benefit transfer of passive use values. This analysis acknowledges that the general public holds passive use values, and that the population that may experience social welfare benefits from increased salmon populations may be geographically far-reaching."
32043	1	tomh@fhsupply.com	N/A	The thought of REMOVING THE FOUR LOWER SNAKE RIVER DAMS is A HUGH STEP BACK IN TIME. There is MORE FISHING AND RECREATION GOING ON NOW, THEN THERE EVER WAS WHEN THERE WERE NO DAMS. Have lived here all my LIFE, 75 years and have seen a lot happen on the River system. It is at a Record setting time for Fishing & recreational Activities, Beside the HYDRO DAMS AND THE SHIPPING, WHICH IS HUGH... Have lots of water for Recreation, and Irrigation.. Many Jobs would be lost if the Dams were removed, in all sectors of life.	The EIS evaluated beneficial and adverse effects across an array of resource areas including potential effects at the national, regional and local level; effects are monetized and quantified, where possible, and also described qualitatively. As is common in NEPA analyses, the beneficial and adverse effects of the alternatives are expressed as a variety of qualitative and quantitative environmental and economic metrics throughout the EIS to inform decision-making. The EIS does not employ a cost-benefit framework for decision-making. Instead, the EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as the dam breaching alternative. However, the Preferred Alternative also meets most of the other objectives of the study for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. The social welfare and regional economic effects to navigation and recreation under MO3 are described in Sections 3.10.3.5 and 3.11.3.4, respectively.

Letter No.	Comment No.	Commenter Name/Email	Affiliation	Comment	Response[1/]
32045	1	oebuisness@yahoo.com	N/A	Until a source of power which equals hydro, the dams have to stay. To remove is to remove human lives due to hardship financially, lack of energy for food production and heat would not be affordable for many.	Multiple Objective 3, which includes breaching the four lower Snake River dams, was not identified as the Preferred Alternative in the EIS. The EIS acknowledges the importance of ensuring affordable electricity costs. Consistent with the comment, the EIS finds that replacing lost hydropower generation from the four lower Snake River dams increases electricity costs. See Section 3.7.3.5 Electricity Rate Pressure; see also Table 3-166 in the Draft EIS.
32052	1	fchorst1@gmail.com	N/A	This change requires that we consider not only our triumphs but our shortcomings and adapt accordingly. The chain of dams on the Columbia and lower Snake have created something impressive as a human feat, we have an inland seaport in Lewiston, Idaho, a landlocked state. That said, barging has decreasing economic benefit and farmers in the Palouse increasingly use road and rail transportation as its costs appear more competitive and attractive compared to barging	The EIS includes extensive analysis of the impacts of changes in navigation and transportation in Section 3.10. Access to barge transportation is the most cost effective means of accessing export markets for many grain producers in the Northwest currently, and removing that option would increase transportation costs for grain producers, as the EIS shows. The EIS evaluates potential effects on farmers associated with increased transportation costs under MO3 in Section 3.10.3.5. Evaluating the impact of removing the lower Snake River locks and barge navigation above Pasco, Washington, is completed using a transportation optimization model that does not allow shipments on river terminals along the lower Snake River. The EIS finds that under a dam breach scenario, average transportation costs for wheat farmers would increase 10 to 33 percent, but that individual farmers could experience increases that are doubled. The cost increases to specific shippers would depend upon location and would vary throughout the region, depending on transportation options at each location. Generally, those grain shippers that are the farthest from alternate shipping locations (shuttle rail facilities or river ports on the Columbia River) would be the most negatively impacted.
32052	2	fchorst1@gmail.com	N/A	The other side of the economic equation that must be considered is not what are we gaining, but what are we losing by maintaining the status quo with this system of dams and reservoirs. Anyone who lives in the Pacific Northwest can attest to the fact the outdoor recreation in an essential part of not only our lifestyle but also our culture in this region. In addition to recreational sports like skiing, kayaking, biking, and hiking there are many outdoorsmen and women who are avid hunters and fisherman and tourism is a big industry for many of our communities. As our runs of steelhead and salmon diminish to nearing extinction these individuals, as well as the dollars that they would pump into the local, regional and state economies through the pursuit of these outdoor activities must be considered. Take the town of Riggins, Idaho for example. In good fish return years in the early 2000's their local economy benefited from an increase of dollars spent in the community of near $10 million. These fishermen and women not only buy licenses and supplies, but also shop at local businesses, eat at local restaurants and bars, and stay at local hotels. It is clear that the dams on the lower Snake river have served a positive roll economically for local communities in this area. Job creation of course is a big one, as well as the opening of supply channels through barging and power generation, but lets be real with ourselves and our community members.	The EIS evaluated benefits and adverse effects across an array of resource areas including potential effects at the national, regional and local level; effects are monetized and quantified, where possible, and also described qualitatively. The EIS provides an evaluation of the social welfare and regional economic effects of the No Action Alternative and the Multiple Objective alternatives, including the effects on recreation (Section 3.11) and commercial fisheries (Section 3.15). The EIS Section 3.5.3.6 describes the long-term effects to anadromous fish migration in the Snake River and tributaries as major and beneficial. The EIS described the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. NMFS estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which is described qualitatively. For the effects on recreational fishing under MO3 (Section 3.11.3.5) along the lower Snake River below Lewiston, the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River) as an indicator for fishing visitation in this reach. The social welfare effects under MO3 on commercial fisheries are described as major and beneficial in the long-term in this reach, with increases in regional economic effects if commercial fish catch rates increase. Again, there is uncertainty around recreational and commercial fishing visitation in the long-term given the current measures to regulate, protect, and support ESA-listed fish populations and habitat in the region. However, the EIS describes that the visitation in the long-term in the lower Snake River, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting jobs, income, and tourism businesses.
32052	3	fchorst1@gmail.com	N/A	Barging, as noted earlier, is losing its edge economically in the northwest as farmers are finding it more affordable to ship via road and rail. Those in these local communities who are employed through the operation of these dams are important people and members of their communities. They should not fall through the cracks, and it is our responsibility locally and as a region to support these people. That said, supporting them does not mean maintaining the status quo if it does not otherwise make sense. As with any issue, is it right to put a special interest group, any special interest group over the greater good? I would argue it is not, but that does not mean we leave that group behind. Dam breach does not mean we forget these people. It means we value the service they've provided and we train and educate them to occupy new positions moving forward and enable them to continue to provide for their families and be positive and contributing members of their communities.	Access to barge transportation is the most cost effective means of accessing export markets for many grain producers in the Northwest currently and removing that option will increase transportation costs for grain producers, as the EIS shows. As to the commenter's suggestion that employees be trained and educated in other positions, the co-lead agencies do not have the authority to provide this type of mitigation due to the effects of MO3. For Federal employees affected by MO3, if MO3 were the selected alternative, further discussion and planning would occur within the Corps to determine needs and placement of current employees.
32052	4	fchorst1@gmail.com	N/A	In the end what we have now, on the 900 plus mile journey from the upper reaches of the Salmon river to the Pacific through the Columbia River drainage is over 300 miles of what was once river now classified as reservoir. As we know the major killer of salmon is the fact that these reservoirs aren't salmons habitat and an overwhelming majority of smolts never even make it to the pacific.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets most other EIS objectives including those for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS, the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams, because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system.
32066	2	jkallstrom@snopud.com	Snohomish County Public Utility District No. 1	Snohomish POD supports the Draft EIS Preferred Alternative as the favored outcome of the NEPA process and recommends it adopted in the Final EIS. Snohomish PUD recognizes the great difficulty facing the Co-Lead Agencies in balancing and managing a set of objectives for the system that are not only diverse, but in many cases compete with one another. The Preferred Alternative satisfies the Co-Lead Agencies' obligations under the Endangered Species Act and represents a blend and balance of operational and structural measures that satisfies both the multiple objectives and the authorized purposes of the CRS. The Preferred Alternative also recognizes the importance of mitigating any adverse impacts to the delivery of electric service and stability of the region's power grid.	Thank you for your comment. In developing the Preferred Alternative, one of the objectives was ensuring reliable and affordable power. The Preferred Alternative allows the co-lead agencies to continue to operate the facilities for their congressionally authorized multiple purposes, including fish and wildlife, water supply, navigation, flood risk management, and recreation.
32066	3	jkallstrom@snopud.com	Snohomish County Public Utility District No. 1	Support for the Preferred Alternative in the Draft EIS Snohomish PUD developed a set of guiding principles that served as the basis and lens through which staff considered, reviewed and interpreted findings of the CRS Draft EIS. At the conclusion of its own review, Snohomish PUD supports adoption of the Preferred Alternative in the Final EIS. The CRS Draft EIS represents an extraordinary challenge given the fact that the Co-Lead Agencies have such a variety of, and sometimes competing purposes to be balanced. The Preferred Alternative satisfies the Co-Lead Agencies obligations under the Endangered Species Act, while continuing to provide a reliable, cost-effective, and renewable source of power for the Northwest region. The Draft EIS scope and analyses have resulted in an informed alternative required by the EIS and the National Environmental Policy Act (NEPA) process.	Thank you for your comment. In developing the Preferred Alternative, one of the objectives was ensuring reliable and affordable power. The Preferred Alternative allows the co-lead agencies to continue to operate the facilities for their congressionally authorized multiple purposes, including fish and wildlife, water supply, navigation, flood risk management, and recreation.
32066	4	jkallstrom@snopud.com	Snohomish County Public Utility District No. 1	Snohomish PUD advocates that the Preferred Alternative be adopted in the Final EIS. The Preferred Alternative, as drafted, demonstrates that it is the more favored approach in aggregate for CRS operations in the near term. It also recognizes the importance of mitigating any adverse impacts to the delivery of electric service and to the stability of the regions power grid; critical elements for Snohomish PUD and the customers its serves. Adoption of the Preferred Alternative in the Final EIS will not preclude discussions among regional stakeholder forums and groups outside this EIS process. Snohomish PUD is committed to working with other regional stakeholders to explore what would be needed to arrive at a long-term, enduring solution that could benefit salmon and other endangered species while meeting the authorized purposes and needs of other users of the Columbia and Snake river systems whether inside or outside of this EIS process.	Thank you for your comment. In developing the Preferred Alternative, one of the objectives was ensuring reliable and affordable power. The Preferred Alternative allows the co-lead agencies to continue to operate the facilities for their congressionally authorized multiple purposes, including fish and wildlife, water supply, navigation, flood risk management, and recreation.
32066	5	jkallstrom@snopud.com	Snohomish County Public Utility District No. 1	Socioeconomic Considerations Socioeconomic outcomes associated with the alternatives studied in the Draft EIS vary in both the type of and the location of the impacts. The types of socioeconomic impacts described in the Draft EIS were principally noted as: Power and Transmission changes, Fisheries changes, Navigation and Transportation changes, Water Supply changes, Recreation changes, and Flood Risk Management changes. There was limited analysis of the distribution of such impacts across communities in the Draft EIS. As such, there should be recognition given that the distribution of socioeconomic impacts associated with the alternatives both positive and negative would likely not be equally distributed across sub-regions, communities, and customers. From Snohomish PUDs review of the Draft EIS, it appears many of the above listed socio-economic impact types will be borne by communities located closest to the CRS. For Snohomish PUDs customers, who are not as closely located to the CRS as other communities, the primary socioeconomic impacts come from Power and Transmission changes. While Snohomish PUDs comments focus on impacts most direct and relevant to its own customer-owners, it is important to acknowledge that in order to be an acceptable alternative for all communities, any identified alternative must also be generally equitable in its distribution of anticipated socioeconomic costs and benefits across sub-regions, communities, and customers served by CRS operations. The Preferred Alternative appears to represent the most equitable distribution of costs and benefits in that it balances regional Power and Transmission and Fisheries outcomes with more localized Water Supply, Navigation & Transportation, Recreation and Flood Risk Management impacts.	The statement in the comment that the analysis of socioeconomic effects differed across resources based on the location and magnitude of effects is consistent with findings in the EIS. For each resource, there is a discussion of the scope and scale of the respective socioeconomic analysis. For some resources, these effects are likely limited to the direct vicinity of the Columbia River Basin or even more narrowly to the region around the Columbia River System projects (e.g. the four lower Snake River dams for certain effects in MO3.Consistent with the comment, however, other effects like the power analysis have the potential to affect areas outside the Columbia River Basin and thus, had a larger area of analysis. Regarding the comment about distribution of effects from power outside the basin, the EIS power analysis considers effects at the county level and acknowledges that socio-economic effects are not evenly distributed across the region. Chapter 5 and Exhibit 1 of Appendix H, Power and Transmission, provides additional details on potential rate increases by county as well as maps for the distribution of effects by county for each alternative. As suggested in the comment, the Preferred Alternative includes a combination of measures from the alternatives, and seeks to balance across environmental, economic, and social objectives, one of which is ensuring reliable and affordable power. The effectiveness of the spill program will be monitored, as will the effects to generating resources around the basin. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information.
32066	6	jkallstrom@snopud.com	Snohomish County Public Utility District No. 1	Impacts to Snohomish PUD Associated with BPA Rates Increases As BPAs largest customer who receives over 85% of its carbon free energy from the Federal System, Snohomish PUD and its customers are profoundly impacted by Power and Transmission Rate changes expressed in the Draft EIS. Table 1-1 provides estimates of the forecast BPA rate pressure associated with MO1, MO3, MO4, and the Preferred Alternative when compared to the No Action Alternative.1 The pressure on BPAs average Priority Firm (PF) power rate for the alternatives ranges from .4% to 2.7% for the Preferred Alternative, to highs of 40.8% and 50.3% for MO4 and MO3 respectively.2 Any rate increase can have detrimental effects on households and businesses within Snohomish PUDs service territory, but increases of the magnitude at the larger end of the spectrum could prove disastrous for communities. It is Snohomish PUDs perspective that the analysis likely underestimates the financial impacts of MO3 and MO4, and that the actual costs are likely to be both higher in total, and could also be proportionally higher for Snohomish PUD specifically.3 The anticipated increased cost, and increased cost share that could be potentially borne by Snohomish PUDs customers raises concerns about MO3 and MO4, and increases confidence that the Preferred Alternative is a more favored outcome for Snohomish PUD and for the region. Increases to retail electric rates create economic hardships not only for low-income residents, but also for fixed-income residents, housing-cost burdened residents, and businesses that may not be eligible for income-based	The statements in the comment that the Preferred Alternative would result in an increase of wholesale power rates (up to 2.7% including rate sensitivities) and that costs in the region would increase under Multiple Objective (MO) Alternative 3 (which includes breaching the four lower Snake River dams) and MO4 are consistent with EIS findings. See draft EIS, Section 7.7.9.1, Rate Sensitivity Analysis, Table 7-32; Section 3.7.3.5 at pages 3-918-924;and Table 3-166 and page 3-182. Consistent with the concerns voiced in the comment, MO3 and MO4 did not meet the EIS objective of providing an adequate, economical, efficient and reliable power supply, among others, and were thus, not selected as the Preferred Alternative. See Draft EIS, Section 7.3.4, Multiple Objective 3 and 7.3.5, Multiple Objective Alternative 4 at pages 7-8 to 7-15. The comment that increases in utility costs can adversely affect vulnerable groups is consistent with discussions in the EIS. The EIS recognizes concerns around the affordability of electricity, and the Environmental Justice analysis (Section 3.18.3 and Section 7.7.20 of the EIS) provides further detail on this as well as the potential disproportionate effects to tribal, low-income and minority populations. The EIS also discusses that Bonneville customers, such as public utility districts, may have larger increases in rate pressures than other regional utilities that do not purchase power directly from Bonneville. Chapter 5 and Exhibit 1 of Appendix H, Power and Transmission, provides additional details on potential rate increases by county as well as for urban and rural utility customers mentioned in the comment.

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				rate relief. The following reflectperspectives on the diversity of Snohomish PUD customers who would be particularly hard hit by large increases in BPAs rates: Snohomish PUD works to aid its lower-income households by offering year-round, income-qualified rate discounts for electric service customers based on their total household income. In 2019, an average of 12,000 customers per month or ~5% of its residential customers were enrolled in this rate discount program. This percentage reflects enrollment during favorable economic times and no overall Snohomish PUD rate increases the past three years. County information and demographics suggest many more customers may be eligible for Snohomish PUDs discount program but are not enrolled today. Increases in electric service rates, with or without challenging economic cycles, would greatly increase the percentage of customers needing this income-qualified rate assistance. Communities with lower median incomes are more impacted by rate pressures, and in Snohomish County, these communities tend to be more rural and agricultural. The rate impacts of MO3 and MO4 would increase household costs, and increase costs for local schools, hospitals, and public amenities in these communities. For example, utility expenditures currently account for around $220,000 annually for the Darrington School District located in rural Snohomish County. This amount exceeds what is available annually for vocational training.4 A 50% increase in BPA power rates indicated as a high range estimate under MO3 would nearly double this rural school districts utility costs compared to what is budgeted annually for vocational training. Working households across Snohomish County face affordable housing challenges as median housing costs in Snohomish County continue to outpace wage growth. Between 2013 and 2016 housing costs increased by 30% in Snohomish County, while wages stagnated. By 2018 a family needed to make $26 an hour in wages in order to afford the average two-bedroom apartment in the county. In total, it is estimated that Snohomish County is currently short roughly 50,000 affordable housing units to meet residents needs.5 Snohomish County working families simply do not have the financial resources to absorb new utility rate pressures, especially if reasonable alternatives can be considered. Lastly, Snohomish County is home to over 18,000 business of various sizes that provide the economic fabric of the community, and account for a large share of the jobs for more than 800,000 residents. While these businesses are eligible for targeted energy efficiency incentives, they are not eligible for income-based rate-relief. As such, these businesses are also vulnerable to rate increases associated with some of the Draft EIS alternatives. About 20.8% of Snohomish Countys non-farm employment is in the energy-intensive manufacturing sector, the highest in the State of Washington, and higher than the national average. Snohomish County relies on its skilled labor force, aerospace niche, proximity to trade transportation AND relatively low energy costs to maintain its economic viability.	
32066	7	jkallstrom@snopud.com	Snohomish County Public Utility District No. 1	The Draft EIS Underestimates the Financial Impacts of New Energy Policies As noted above, Snohomish PUD respectfully posits that the vintage of the Draft EIS analysis likely underestimates the financial impacts, particularly of MO3 and MO4. This underestimation stems from the vintage of the alternatives analysis in that it underappreciates the impact of recent state policy changes and omits functions provided by the CRS in the form of non-power benefits to the region. In May 2019, Washington State adopted the Clean Energy Transformation Act (CETA), eliminating coal-fired electricity from utility portfolios by 2025, 100% greenhouse gas neutral portfolios by 2030, and serving retail customers with 100% clean power by 2045. This transformation has expedited removal of a significant amount of baseload, firm capacity from the regions portfolios, with an influx of new renewable resources and demand-side measures from utilities expected in order to meet the 100% clean power goals. While the Draft EIS evaluated the expedited removal of coal from the region, it did not simultaneously consider the availability of replacement resources to make up that capacity. One reasonable expectation is that regional renewable supply will increase along with demand-side measures including demand response. While the lowest cost replacement resource option in MO3 references 600 MW of demand response. Given recent energy regulatory policy changes, it is likely that only a portion of this demand response would be available. Much of the potential will have already been used or identified by utilities as a future resource to meet their own replacement and policy compliance needs. Another important cost consideration is the value of the CRS in providing reserves and renewable integration services. Assumptions for MO3 and MO4 note that other regional resources would be available to meet the peaking, storage, and dispatchable capacity attributes of the CRS lost under these alternatives. This assumption is not reasonable given the adoption of state energy policies like CETA and the forecast of regional capacity deficits in the near and mid-term. These recent regulatory changes underestimates the value of the CRS providing these services, and therefore significantly under represents the loss of value noted under the MO3 and MO4 alternatives.	The comment discusses changes in the regional power system and state energy policy and that these changes result in underestimated power system costs. Since the start of the CRSO EIS process in 2016, additional coal retirements have been announced as well as new energy policy such as Clean Energy Transformation Act in Washington. To address this concern, the EIS considered various sensitivity analyses as well as examining two potential coal retirement scenarios. See draft EIS, Section 3.7.3.1, Availability of Coal Resources at pages 3-841-842 and Section 3.7.3.2, Table 3-123. The EIS acknowledges that assumptions regarding coal capacity have changed since the base case was developed in 2017, and the EIS presents base case analysis first before discussions of information resulting from additional sensitivities and potential cost pressures. These rate sensitivities are largely consistent with the concerns voiced in the comment. Specifically, the sensitivities estimate the costs of potential carbon compliance, and the effect of coal retirements on the replacement resources needed for each alternative. Table 4-10 in Appendix I of the draft EIS acknowledges specifically the 600 MW of demand response, as well as wind from Montana over transmission made available by the coal retirements, would likely be used to replace generation from retiring coal plants and may not be available to replace lost generation from reductions in Columbia River System hydropower. (For a description of all sensitivities see Section 3.7.3.1 Additional Power Rate Sensitivity Analysis and Other Regional Cost Pressure Analysis). In addition, Appendix H, Section 2.2 in the Final EIS includes a more comprehensive discussion of the steps involved in acquiring new resources. The EIS acknowledges that there would be more demand for generation flexibility and the ability to carry reserves in the power system as coal plants retire and flexible resources are needed to integrate new variable renewable resources. As a consequence of the increase in demand for flexibility to provide reserves, the value of this capability is likely to increase. The EIS partially reflects the costs of acquiring this additional flexibility in the rate sensitivity analysis. Please see the Integration Services sensitivity (reflecting the cost of additional balancing reserves needed to integrate replacement renewable resources) and the Ramping and Flexibility sensitivity (reflecting the cost of additional ramping and sustained peaking capacity needed in Multiple Objective Alternative 3). See EIS, Section 3.7.3.1.
32066	8	jkallstrom@snopud.com	Snohomish County Public Utility District No. 1	Replacement Resource Costs are Likely Larger The Draft EIS states that replacement power resources identified under MO3 or MO4 could be replaced either by BPA or its customers. Snohomish PUDs estimate of its share of replacement resource attributable under MO3 to its BPA Slice product ranges from 50 average megawatts (aMW) of energy each year, to a total of 90 aMW of on peak capability which Snohomish PUD regularly uses to help meet its customers peak winter needs, and to balance the renewable generation in its portfolio. The estimated annual cost for this portion of Snohomish PUDs long-term BPA power contract could result in as much as approximately $40 million dollars of new costs annually. This equates to approximately an 8% rate increase per year for just half of Snohomish PUDs long-term BPA power contract. Any BPA replacement resource costs or rate increases would be additive to these new costs.	The EIS recognizes concerns around the affordability of electricity, and the Environmental Justice analysis (Section 3.18.3 and Section 7.7.20 of the EIS) provides further detail on this as well as the potential disproportionate effects to tribal, low-income and minority populations. The EIS also discusses that Bonneville customers, such as public utility districts, may have larger increases in rate pressures than other regional utilities that do not purchase power directly from Bonneville. See draft EIS, Section 3.7.3.5, Residential Effects at page 3-929. Chapter 5 and Exhibit 1 of Appendix H, Power and Transmission, provides additional details on potential rate increases by county as well as for urban and rural utility customers mentioned in the comment. The EIS does consider two financing options, Bonneville or Region Financed, consistent with the statement in the comment. The comment is also consistent with the EIS that these replacement costs in the Region Financed scenario are additive with any Bonneville rate increases. It should be noted that even under the Region Finances scenario, there would still be an increase in Bonneville's rates resulting from the loss of firm power and the resulting redistribution of Bonneville's fixed costs over a smaller amount Tier-1 power sales. However, in contrast to the comment, the analysis assumed that Bonneville or the region would replace resources, not both, so any replacement opted for by regional utilities would not be in addition to Bonneville replacement resources.
32066	9	jkallstrom@snopud.com	Snohomish County Public Utility District No. 1	Costs and Benefits of the Lower Snake River Dams Should be Further Explained Snohomish PUD recommends that the Co-Lead Agencies include within the Final EIS a clear, easy-to-follow summary that illustrates the relative costs and benefits of the lower Snake River dams, with a specific focus on electricity generation and transportation. Comments at the virtual public meetings brought to light a common misinterpretation of the economic value of the lower Snake River dams to the Co-Lead Agencies. This misinterpretation primarily involves the value of the electricity generated by these projects and the navigable waters and transportation services they provide. While these costs are already contained in the Draft EIS, they are not collected in a single location. A clear summary of these costs and benefits would assist in the evaluation of the alternatives in the Draft EIS and aid with future conversations around these issues. With respect to transportation services and navigation, this summary should show the costs involved in operating and maintaining the locks and other transportation facilities and services, and any revenues associated with lock operations and associated transportation facilities. The summary should also detail local and regional costs and benefits associated with providing irrigation and transportation access. It also would be helpful for the Co-Lead agencies to clarify for all categories whether such costs are inclusive, or exclusive, of fish and wildlife mitigation expenses.	Regarding the presentation of all the effects of the alternatives, Table 3-1 and Table 7-55 in the Draft EIS provide a summary of the effects for all the alternatives and resources, which includes many of the recommendations from the comment. Chapters 3, 4, 6 and 7 detail this effects analysis, and denote adverse and beneficial impacts, where appropriate. Moreover, Table 7-1 in Chapter 7 provides a summary of the beneficial and adverse effects of the alternatives, including the quantified social welfare costs and benefits for a subset of the resource areas (specifically, hydropower, navigation, and irrigation) as well as the implementation costs of the alternatives. Note that a benefit cost analysis is not a requirement of NEPA or the basis of alternative selection under NEPA (40 C.F.R. 1502.23). Instead the direct and indirect effects to the natural and human environment were evaluated, including some effects that were evaluated quantitatively and monetized, while others were evaluated qualitatively. The comment noting the economic benefits and adverse effects of losing hydropower are consistent with the findings of the EIS. In response to this and other public comments, Chapter 7 of the Final EIS includes a table summarizing all socioeconomic effects at the end of the chapter (see Table 7-56).
32066	10	jkallstrom@snopud.com	Snohomish County Public Utility District No. 1	NEPA Process is Sufficient Snohomish PUD is confident that the Co-Lead Agencies approach and analysis meets the requirements of NEPA in that an EIS [r]igorously explore and objectively evaluate all reasonable alternatives to the proposed action, including alternatives not within the jurisdiction of the lead agency.6 The touchstone for courts reviewing challenges to an EIS under NEPA is whether an EIS's selection and discussion of alternatives fosters informed decision-making and informed public participation.7 The choice of alternatives is bounded by some notion of feasibility and an agency is not required to consider remote and speculative alternatives.8 The courts review an agency's range of alternatives under a rule of reason standard that requires an agency to set forth only those alternatives necessary to permit a reasoned choice.9 An agency need not consider alternatives that extend beyond those reasonably related to the purposes of the project.10 Finally, an EIS only needs to briefly discuss the reasons for eliminating an alternative not selected for detailed examination. The Draft EIS includes and analyzes six alternativesthe four multi-objective action alternatives, the Preferred Alternative, and a No Action Alternative. The scope of measures included in these six alternatives ensures informed consideration of a broad range of CRS operational actions, including: those that benefit ESA-listed fish species; increase hydropower generation; provide water management flexibility and water supply; and breach the four lower Snake River dams.12 Therefore, the NEPA process conducted by the Co-Lead Agencies is sufficient.	The co-lead agencies presented a range of alternatives for the continued operation and management of the CRS and evaluated the alternatives to inform decision making and the public. As described in Chapter 2, many alternatives were considered and then eliminated from further consideration for the reasons described therein. The co-lead agencies agree that the EIS followed the required NEPA process, fulfills the intent of NEPA in terms of sufficiency, and that the Preferred Alternative meets the Purpose and Need Statement. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the EIS objectives) as well as the EIS objectives for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. The Preferred Alternative is also more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system.
32066	11	jkallstrom@snopud.com	Snohomish County Public Utility District No. 1	Clarify the Purpose and Need Statement Snohomish PUD recommends that the Co-Lead Agencies clarify the statement of the purpose and need for the proposed action. Under NEPA, this statement, shall briefly specify the underlying purpose and need to which the agency is responding in proposing the alternatives including the proposed action.13 Accordingly, the statement should focus on the purpose and need for the continued operation of the CRS, and not simply the purpose and need of the environmental review being undertaken in the Draft EIS. In specifying the need to which they are responding, the Co-Lead Agencies state that it is to review and update the management of the CRS, including evaluating measures to avoid, offset, or minimize impacts to resources affected by managing the CRS in the context of new information and changed conditions in the Columbia River Basin since the SOR EIS was released, and to respond to the decision from the U.S. District Court for the District of Oregon regarding the evaluation of certain measure to address impacts to ESA-listed species and their critical habitat.14 While we recognize that these needs are focused on, and are the motivation for, the scope of the updated environmental review, Snohomish PUD encourages the Co-Lead Agencies to revise the statement further to explain the need for the continued operation of the CRS, which is the action that is being evaluated in the Draft EIS. The Co-Lead Agencies also identify a suite of resource, legal, and institutional purposes of the action.15 In part, the Co-Lead Agencies state that they must act within the authorities granted to the agencies under existing statutes and comply with environmental laws and regulations and all other applicable Federal statutory and regulatory requirements.16 While these purposes relate to the general legal framework under which the Co-Lead Agencies operate, the Co-Lead Agencies should	The co-lead agencies drafted the Purpose and Need Statement to focus the analysis of the EIS, to frame the alternatives, and to convey to the public the overarching reasons for undertaking the EIS. The Purpose and Need Statement conveys the need for a long-term coordinated operation and management of the CRS projects for the multiple purposes for which the projects are authorized. The congressionally authorized purposes for the projects are briefly described in section 1.1 Background and more fully described in Chapter 3 under the specific resources. The co-lead agencies responded to the Order of Remand from the U.S. District Court for the District of Oregon and public comments to analyze breaching the four lower Snake River dams.

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				revise these general statements to better correspond to the specific purposes for the action being reviewed in the Draft EIS. For example, this should include specifying the Congressional authorizations for the construction and continued operation of the 14 Federal projects.	
32066	12	jkallstrom@snopud.com	Snohomish County Public Utility District No. 1	Ensure Objectives are Aligned with the Corresponding Purposes and Needs Snohomish PUD recommends that the Co-Lead Agencies provide additional explanation regarding the linkage between the identified objectives and the statement of the purpose and need for the proposed action, to ensure they are consistent. Under NEPA, the purpose and need statement establishes the range of alternatives that are considered.17 The Co-Lead Agencies explain that they first identified eight objectives for future management of the CRS in order to develop the alternatives. The objectives are described as statements of the desired outcome of various resource conditions that are expected to result by taking Federal action(s).18 In turn, the Co-Lead Agencies state that the alternatives reflect a combination of one or more measures that, together, would address one or more of the objectives.19 However, it is not clear that the scope of the identified objectives is consistent or aligned with all of the stated purposes and needs for the proposed action. Because the purpose and need statement dictates the range of alternatives considered, the Co-Lead Agencies should further explain the relationship between the stated purpose and need, their identified objectives, and the proposed alternatives. When specific statutes drive a proposed action, the Courts have explained that the statutory objectives of the project serve as a guide by which to determine the reasonableness of objectives outlined in an EIS.20 The Co-Lead Agencies should broaden and provide additional elaboration regarding how the identified objectives meet the corresponding purpose and need.21 By further describing the relevant objectives, and clarifying the relationship between the objectives and the purposes and needs for the proposed action, the Co-Lead Agencies would provide additional support for the scope of the identified alternatives and the selection of the Preferred Alternative.	The co-lead agencies provide an overview of objectives, the role of objectives in the study, and how they relate to the alternatives, in section 2.2 and in the Executive Summary of the EIS. Objectives are simply what the co-leads want to accomplish - the "why". They are the stated desired outcomes for operations and management of the CRS. Chapter 7 includes an evaluation of how well the alternatives, including the Preferred Alternative, meet not only the Purpose and Need Statement, but also the eight EIS objectives. At this time, the information and explanation of the objectives are sufficient to inform the public about the desired outcomes and to inform the decision makers.
32066	13	jkallstrom@snopud.com	Snohomish County Public Utility District No. 1	Clarify Authority to Modify Congressionally Authorized Projects Snohomish PUD recommends that the Co-Lead Agencies clarify and further explain the scope of their authority to remove the lower Snake River dams (MO3). During the public comment period, there appeared to be confusion regarding the ability of the Army Corps to place the dams in non-operational status and breach the embankments without first obtaining Congressional approval. To address this uncertainty, the Final EIS should clearly describe the Congressional authorization for the construction and continued operation of the lower Snake River dams for their specified purposes.22 In addition, the Final EIS should explain the scope of the Army Corps existing authority to make modifications to completed projects.23 Finally, the Final EIS should explain whether, and to what extent, additional Congressional authorization and appropriations would be necessary in order to bypass one or more lower Snake River dam, and if authorization is required, the process by which the Army Corps would recommend and receive this authorization before potential action of this nature could be implemented.	If MO3 were selected as the Preferred Alternative, the Corps could use the CRSO EIS as a basis for seeking congressional authority to breach the lower Snake River dams. After receiving both authority and appropriations from Congress, the Corps could initiate a detailed construction and design report for the breach measure, identification of disposal areas, real estate acquisition and disposal, permits, and mitigation requirements, including temporary fish hatchery production. Each of these actions are required prior to breaching, and the Corps does not have the authority or appropriations necessary to immediately breach the project's embankments. More information is available in the Corps Engineering Regulation (ER) 1165-2-119 Water Resources Policies and Authorities, Modifications to Completed Projects (Sept. 20, 1982) or ER 1105-2- 100, Appendix G, Section III Post Authorization Changes.
32066	14	jkallstrom@snopud.com	Snohomish County Public Utility District No. 1	Conclusion Snohomish PUD and its customers are profoundly impacted by the Power and Transmission Rate changes and any change in CRS coordinated operations that may adversely impact the reliability of electric service for the region. It is Snohomish PUDs view that: The cost impacts and rate pressures identified specifically for MO3 and MO4 have been underestimated; The severe impacts to reliability and increased likelihood of blackouts under MO3 and MO4 are wholly unacceptable for the region and for Snohomish PUD given its reliance on BPA; The actual availability of identified replacement resources is likely overestimated; and The value of the non-power benefits for the region from CRS operations is likely under-estimated given recent changes in state energy policy to shift away from fossil-fueled resources, specifically in Washington State. For these reasons, Snohomish PUD supports the Draft EISs Preferred Alternative as the more favored outcome for its customer-owners, businesses and communities.	The EIS recognizes the concern voiced in the comment regarding the impacts of increasing power rates and decreases in regional power reliability. The EIS acknowledges that assumptions regarding coal capacity have changed since the base case was developed in 2017 and that the energy sector is undergoing transformation. To address this concern, the EIS considered various sensitivity analyses as well as examining two potential coal retirement scenarios. See Draft EIS, Section 3.7.3.1, Availability of Coal Resources pages 3-841-842 and Section 3.7.3.2, Table 3-123. The EIS presents the base case analysis first before discussions of information resulting from additional sensitivities and potential cost pressures. These rate sensitivities are largely consistent with the concerns voiced in the comment. Specifically, the sensitivities estimate the costs of potential carbon policy compliance and coal retirements (for a description of all sensitivities see Section 3.7.3.1 Additional Power Rate Sensitivity Analysis and Other Regional Cost Pressure Analysis). Although the focus of the EIS is not on replacing coal generation, these scenarios highlighted the large regional need for replacement resources that would be competing with the need to replace any lost hydropower generation. While the EIS finds that MO3 and Multiple Objective alternative 4 (MO4) would lead to large increases in the risk of blackouts above the No Action Alternative, the potential replacement resources identified in the EIS are designed to return regional reliability to the level of the No Action Alternative once these resources are built and in service. As suggested by the comment, the Preferred Alternative includes a combination of measures from all the alternatives with consideration of environmental, economic, and social effects. Under the Preferred Alternative regional power reliability is the same as the No Action Alternative. Under the Preferred Alternative the Bonneville wholesale power rate pressure is estimated to be 2.7 percent relative to the No Action Alternative. A portion of that rate pressure has already been incorporated into the BP-20 wholesale power rates; and, the remaining rate pressure likely falls within a level that Bonneville has historically been able to absorb through the costs over which it has significant control.
32073	1	d_cbaldwin@msn.com	N/A	The prefered way to handle this problem is to have fish bypass options.	In terms of bypassing fish upstream: The current configurations of the CRS dams that have fish ladders already have effective upstream adult passage. The 4 lower Snake and 4 lower Columbia River dams also have systems for bypassing fish around turbines and powerhouses. Additional surface passage systems were considered but not carried into the Preferred Alternative. The Preferred Alternative uses increased spill to bypass more juvenile fish away from powerhouses.
32075	1	melissahallas@gmail.com	N/A	One of the ways the analysis could have addressed costs is by looking at the so-called savings that cheap hydroelectricity has provided for all these years and subtracted those from realistic energy sources that reflect limited hydropower (I'm acknowledging that a limited number of dams could be justified). Frankly, the cheap hydropower can be considered a form of blood money. Rampant greed and with it, the drive for development, caused a tiny segment of the population to make damaging decisions decades ago. The report states that two coal-powered plants would be used to make up for the loss to the electric grid should the lower Snake River dams be breached. But Bonneville already lost a major customer in California (https://www.eenews.net/stories/1061110823), so why is so much power needed? And if it truly is, why can't natural gas be used until renewables and batteries are more cost-effective?	There is nothing in the EIS that suggest that two coal-powered plants would be used to make up for the loss to the electric grid should the four lower Snake River dams be breached. All of the alternatives in the Draft EIS included two potential replacement portfolios: a least-cost conventional portfolio (natural gas) and a zero-carbon portfolio (primarily solar). See Section 3.7.3.5, at pages 3-904-910 in the Draft EIS. In the zero-carbon replacement portfolio of the power analysis, the EIS considered wind energy as a potential replacement resource, but did not find wind cost-effective at improving power system reliability compared to solar. Until replacement resources are constructed, existing natural gas plants would likely increase generation to help meet demand in the Northwest. However, the region would have roughly double the risk of power shortages until new resources are on-line. The EIS acknowledges that the energy sector is constantly undergoing transformation and that technological improvements would likely bring other options. To avoid speculation, the EIS analysis focuses on primary technologies identified by the Northwest Power and Conservation Council in their 7th Power Plan (page 13-5) that are deemed proven, commercially available, and deployable on a large enough scale in the Northwest. See Section 3.7.3.1, Step 3: Determine Need for Potential Replacement Resources and Associated Costs, at page 3-821 in the Draft EIS; see also Appendix H, Power and Transmission, at Section 2.2. While it is true that California is developing large amounts of wind and solar power, sales to California on the wholesale spot market are only a small fraction of Bonneville's sales, and California continues to purchase power from Bonneville and other Northwest utilities on the wholesale spot market.
32080	1	N/A	N/A	The proposals are limited and have great bearing to the preservation of salmon and steelhead for future generations. We are in agreement with the former commissioners statement: Recommended Alternative Approach Although a regional solution will be required to recover Idaho's salmon and steelhead, these fish are first and foremost the heritage of the citizens and tribes within Idaho.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the Columbia River System. That call, however, is ultimately the role of NMFS and the USFWS. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. The Preferred Alternative is nevertheless predicted to benefit salmon and steelhead. It also meets all the other objectives of the study for resident fish, hydropower, water management, and water supply, while minimizing adverse impacts to communities and the economy.
32080	2	N/A	N/A	In order to move toward achieving the mandates of the Endangered Species Act regarding listed salmon and steelhead, a much more aggressive approach will be required than the DEIS Preferred Alternative. Efforts should strive to recreate, as closely as possible, the natural migration conditions under which salmon and steelhead evolved. With the prospect of challenging ocean conditions becoming the norm while climate change is addressed, aggressive actions must be taken now and not delayed by waiting for yet another biological opinion cycle.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide meaningful benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. The Co-Lead Agencies recognize that there are many effects to salmon and steelhead populations outside those associated with the maintenance and operation of the dams, including ocean conditions. While none of the alternatives would affect ocean conditions, we recognize that these conditions are a major driver for adult returns and that numerous studies have shown the importance of this environment in the return of adult salmon and steelhead (Peterson et al. 2019). As such all of the models used in these analyses use metrics of ocean productivity to predict adult returns. An example of the important ocean metrics can be seen at: https://www.nwfsc.noaa.gov/research/divisions/fe/estuarine/oeip/g-forecast.cfm.
32080	3	N/A	N/A	Multiple Objective Alternative 3 calls for breaching the four Lower Snake River (LSR) dams, this alternative clearly provides the best choice to attain the objectives for the salmon and steelhead. The breaching of the four LSR dams must be approved as the final objective. Both the CSS and the LCM models show that this is what is best for the fish. It is recognized that the approval of MOA 3 will require time to implement as congressional approval and appropriations are required for both dam removal and the many programs that will be necessary to make whole those adversely effected by this action. It is imperative that we recognize the fish may not have the time to wait for implementation of this MOA. There are alternatives to power and transportation issues, however, once extinct, the wild fish cannot be brought back. Any continuation of the status quo in any form, including the tinkering with the status quo represented by the Preferred Alternative, is essentially a decision leading to eventual extinction of wild anadromous fish in Idaho. Therefore, it is recommended that commencing in 2021, Multiple Objective Alternative 4 be implemented in the interim while Multiple Objective Alternative 3 is authorized, funded, commenced and completed. CSS modeling clearly shows positive results from a program of 24 hour/7 day per week spills over all eight Columbia River system dams. The LCM is less definitive but shows that improvements in SARs are likely. Please consider MOA 4 as our recommendation for immediate implementation, with study and consideration for MOA3 in the future.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA listed species. The EIS set forth eight objectives which, in tandem with the purpose and need statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as the dam breaching alternative. However, the Preferred Alternative also meets all the other objectives of the study for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse impacts to communities and the economy. The alternative that includes a measure to breach the lower Snake River dams (MO3), by contrast, has significant regional economic impacts and community effects, and meet only a small subset of the EIS objectives. Thus, the co-lead agencies did not recommend dam breaching because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. Based on the analysis in Fish section of Chapter 7.7.4, the co-lead agencies anticipate that the Preferred Alternative will provide benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the Columbia River System. That call however is ultimately the role of NMFS and the USFWS. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. The Preferred Alternative is nevertheless predicted to benefit salmon and steelhead. It also meets the other objectives of the study for resident fish, hydropower, water management, and water supply, while minimizing adverse impacts to communities and the economy.
32084	1	N/A	N/A	To make up for the loss of barge traffic, plenty of land exists in between the Tri-Cities and Idaho on which additional railroad tracks could be built.	Access to barge transportation is the most cost effective means of accessing export markets for many grain producers in the Northwest currently and removing that option will increase transportation costs for grain producers, as the EIS described in Section 3.10.3.5. The co-lead agencies' analysis finds that transportation of freight that is currently barged on the Lower Snake River could be accomplished via other transportation modes, but this change would not be without costs to farmers, would require public and private investment in infrastructure, and would result in some adverse regional economic effects, particularly in the short term.
32091	1	heatherfold@yahoo.com	N/A	A better option that must be considered is to breach the four LSRDs and implement 125% TDG spill at Columbia River dams.	Combining the dam breach measures from MO3 and 125% spill contemplated for the lower Columbia River projects under MO4 would not be a reasonable alternative to meet the multiple and complex objectives of the EIS and the multiple purposes of the CRS projects. From a power perspective, MO3 and MO4, individually each caused large loss-of-load probability (LOLP) results (e.g., increased incidence of blackouts). Without major additional of new resources, MO3 would result in power shortages in about one in seven years. MO4 would produce power shortages in about one in every four years. If MO4 were implemented, in addition to breaching the four lower Snake River projects as called for in MO3, then the LOLP would be even higher, with power shortages potentially occurring almost every year. Additionally, if these MOs were combined, in 5% of the years, the power shortages would average close to 1,000 MW in early August when the region might be experiencing a heatwave with particularly high demand for air conditioning. 1,000 aMW is about the average amount of power consumed by Seattle City Light. As shown in Section 3.7, MO3 causes an increase in power reliability concerns in the winter and the summer. MO4 increases power reliability concerns in the summer. Thus, the combination has the largest impact during the summer.

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					The cost of zero-carbon replacement resources for MO3 and MO4 individually are up to $1 billion/year. Resource replacements and associated transmission interconnections for the combination of MO3 and MO4 would be higher, though not likely as high as the sum of the two MOs individually. Assuming that the replacement resources consist largely of wind, solar, and batteries, this would require well over 50 square miles of solar power (more than two and a half times the size of Crater Lake), large areas of new wind generation, and unprecedented amounts of batteries (more batteries in the Northwest alone than the total projection of batteries expected in the entire US by 2023 per the Energy Information Administration). In addition, the reduced generation capability under MO3, particularly throughout the summer, in combination with the impacts of the measures in MO4 and the uncertainty about the characteristics of replacement resources, would result in less capability to provide voltage support and dynamic stability for transmission system reliability than under MO3 or MO4 individually. Thus, combining MO4 with breaching the four lower Snake River projects, would produce unreasonable power and transmission reliability impacts, and it is highly speculative that replacement resources could be sited, permitted and built to address these impacts.
32091	2	heatherfold@yahoo.com	N/A	Inadequate consideration for SRKW, they are not even mentioned in the 36 page executive summary. Inadequate representation of how important Columbia basin salmon are for SRKW survival. Salmon in other rivers cannot substitue for salmon in the Columbia basin. Like humans, SRKW must have ample food all year long, not just sometimes. Over half SRKW diet when theyre at the outer coast are from Columbia basin with spring Chinook particularly important. SRKW co-evolved with massive wild Chinook from Snake. They need wild salmon back. NOAAs long standing 2000 BiOp shows breacing the LSRD is the best option for these species recovery.	The Executive Summary is a high level summary of the CRSO EIS and is not intended to represent the importance of species and issues related to the CRS. SRKW analysis has been done and described in the EIS, including in the FEIS Chapter 3 (Vegetation, Wetlands, Wildlife, and Floodplains) has been updated for SRKW (Section 3..6.2.6 and Table 3-102) and FEIS Chapter 7 (Preferred Alternative) with additional analysis information on SRKW and potential increase in forage fish, in particular, Chinook salmon in Section 7.7.8. The co-lead agencies utilized current high quality information and best available science in its analysis of the effects of the operation, maintenance, and configuration of the CRS projects. The 2000 NMFS BiOp does not currently meet this standard because it is over 20 years old and does not consider current operations and configuration. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not require the co-lead agencies to take affirmative actions to recover ESA listed species. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets most other EIS objectives including those for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS, the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams, because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. The co-lead agencies conclude there could be a minor beneficial effect to SRKW from implementing MO3. CSS and NMFS Lifecycle models predict that lower Snake River Chinook salmon smolt-to-adult returns would have a moderate to major increase under MO3. Operation of Lower Snake River Compensation Plan fish hatcheries under MO3 is uncertain and therefore, production of Snake River hatchery fish is assumed to decline over the long term, while returning adult wild salmon are anticipated to increase. However, the co-leads do not anticipate a lack of hatchery fish in the short term based on the proposed fish hatchery mitigation described in Chapter 5. These additional hatchery fish should mitigate short-term construction effects to Snake River populations. Additionally, to address short-term effects to ESA-listed species, the co-lead agencies propose constructing a new trap and haul facility at McNary and conducting at least two years of trap and haul operations for Snake River fish (Chinook, sockeye, and steelhead). The population dynamics of the SRKW are complicated and there are multiple factors that contribute to the overall success of this species. The quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differently from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for the whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall-run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall-run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). Details on the most crucial prey stocks for Southern Resident killer whales, as well as their population and range, is available from several fact sheets and videos available here: https://www.fisheries.noaa.gov/species/killer-whale#spotlight. For more information, visit this NMFS StoryMap on Southern Resident killer whales: https://noaa.maps.arcgis.com/apps/Cascade/index.html?appid=3405e6637bf74e998d4ebe992c54f613. According to NMFS and the EPA, the estimated SRKW population has fluctuated between 67 and 98 whales between 1960 and 2015. The Snake River dams were constructed between 1962 and 1975. The SRKW population increased from a record low in 1970 to its highest population numbers in 1995. Those years were not high years for Snake or Columbia River Chinook Salmon. Ocean conditions between 2011 and 2013 were good years for salmon. At the same time, 2010 and 2013 were good outmigration years. Particularly, 2011 and 2012 were above normal in water supply, which would mean more cooler water was available and there was better survival of salmon, and 2011 through 2014 were higher than normal spill years as well. The combination of outmigration and ocean conditions created improved adult salmon returns. The EIS has analyzed spill as a measure in the Preferred Alternative and determined the overall effect to SRKW to be negligible in large part because hatchery production is consistent between the No Action Alternative and the Preferred Alternative. Because the impact from the Preferred Alternative was determined to be negligible, the agencies determined that existing hatchery production would be sufficient to address any potential impacts to prey availability for SRKWs. The co-lead agencies note the contribution to the prey of SRKW through the continued existence of their respective independent Congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as the Lower Snake River Compensation Plan (other than under MO3), which is administered by USFWS. The Preferred Alternative and Proposed Action in the agencies' biological assessment carry forward certain mitigation measures described in Chapters 2 and 7 of the EIS, which include continued salmon and steelhead hatchery production. The Preferred Alternative has negligible effects to SRKWs as described in Section 7.7.8. The Biological Assessment (BA) describes the effect of the Proposed Action on the SRKW forage species (see BA Section 3.5.1.2, Southern Resident Killer Whale). The proposed changes in operation of the Columbia River System include increased spring spill during the downstream migration of juvenile spring and summer run Chinook salmon. The result of this action includes potential increases of juvenile fish passing through the spillways, reductions in juvenile fish direct and indirect mortality associated with downstream passage, and the Comparative Survival Study (CSS) model predicts increases in numbers of returning adults, which will benefit SRKWs foraging in and around the mouth of the Columbia River in winter and spring (See EIS Section 7.7.8). The CSS model results predicts Snake River Chinook salmon would have relative improvements in smolt-to-adult returns of 35 percent (see EIS Section 7.7.4). The smolt-to-adult return ratio (SAR) is the rate at which of a group of fish survive from their smolt life stage to a defined ending point where they return as adults. While recovery targets will require more than just the efforts of federal agencies, the CSS models indicate the potential for SARs of Snake River Chinook salmon and steelhead to increase to levels that could approach recovery targets set by the Northwest Power and Conservation Council. The BA, also consistent with the EIS, acknowledges past improvements to the configuration and operation of the Columbia River System, additional improvements to the environmental baseline as a result of completed estuary and tributary habitat actions, and the prospective non-operational conservation measures proposed in Chapter 2 of the Draft EIS, all contribute towards maintaining and improving Chinook abundance. Relevant conservation measures include, among other things, a commitment to continue funding the conservation and safety net hatchery programs listed in Chapter 2 of the Draft EIS. As discussed above, the agencies will fulfill congressionally authorized hatchery mitigation objectives through the funding of hatchery programs that are operated consistent with their independent hatchery program consultations during the term covered by this consultation. Based on those hatchery program consultations, the production levels associated with congressionally authorized hatchery mitigation objectives will continue, at minimum, to be consistent with levels previously analyzed by NOAA in the system consultations in 2008, 2014, and 2019. For the 2020 ESA consultations, therefore, the agencies expect that collectively, all of the actions described above (substantial modifications to migration conditions designed to benefit key prey species, combined with improvements to Chinook spawning and rearing habitat in the tributaries and Columbia River estuary, and continued hatchery production) ensure that remaining Chinook mortality from all sources in the mainstem migratory corridor will continue to be more than offset, resulting in a net gain in Chinook salmon abundance available as a prey source for SRKW. Finally, the 2019 NMFS Fisheries BiOp included increased spring spill operations that are similar to operations evaluated in CRSO EIS, and NOAA validated that the hatchery production of Chinook salmon mitigates for the impacts of operating the Columbia River System and total mortality through the mainstem migratory corridor from all sources.
32091	3	heatherfold@yahoo.com	N/A	Temperate reservoirs emit, even long after built. The 2012 PNNL study found methane in a Snake River reservoir. Findings are even very conservative. USACE cannot claim Snake River reservoirs dont emit.	Appendix G, Chapter 5 of the Draft EIS details the assessment of reservoir methane emissions from the CRS projects. The findings are summarized in Section 3.8 in the Draft EIS. Section 3.8 and Appendix G include references to and discussion of Arntzen et al. (2013), research supported by the U.S. Department of Energy referenced in this comment. In the case of the four lower Snake River dams, recent research concluded that data were insufficient to estimate the reservoir methane emissions specifically for the CRS projects, but that methane emissions at high levels are not likely due to the lower organic and nutrient loads to the system, and higher dissolved oxygen content. The Draft EIS describes that emerging technologies would allow for better measuring and understanding the effects of reservoir methane emissions from CRS projects, including the four lower Snake River dams.
32108	1	suesander1@gmail.com	N/A	Did you look at those studies and assess if fish passage options would be possible at each of the Dams? Also, I prepared several studies for those Districts to access the possiblity of revegetating both rivers and determine what types of vegetation could be planted and could survive even during drought conditions and if the water levels in the rivers were lower than average. This should be reassessed, since vegetation helped to create habitat for birds, mammals, fish, etc. It was amazing at the number of faunal species that started to move and live in those areas. The key sites were on the Hanford Reach.	The dams within the CRS project area were assessed for structural and operational measures that would improve existing fish passage. Impacts on vegetation as a result of operations, maintenance, and configuration of the dam were analyzed in the EIS, specifically in Sections 3.6 and 7.7.7. Those analyses utilized current high quality information. Measures to address vegetation for areas that would be replanted are discussed in Chapter 5, Mitigation.
32108	2	suesander1@gmail.com	N/A	Another issues, that my Team worked on was an Integrated Water Resource study for the Yakima/Columbia River Region. It was apparent that the water levels in all of the rivers and streams in Eastern Washington are dramatically reduced during the late spring, summer, and early fall time periods due to irrigation requirements in the region. These water levels reduce fish passage and in addition, the temperature of the water increases dramatically as the water levels are reduced.	The Draft EIS describes and acknowledges the multitude of factors that affect salmon and steelhead throughout their life cycle, including depletions from irrigation requirements, in the Affected Environment description. This EIS analyzes the effects of the operation, maintenance, and configuration of the CRS projects as described in Chapter 3.4. The analyses used in this Draft EIS were for the purposes of comparing the effects of the action alternatives for operation, maintenance, and configuration of the CRS projects to one another and to the No Action Alternative. To the extent that alternatives included additional depletions for irrigation, these would come from the mainstem Columbia River diversion point and were included in the hydrology analyses, which were then used to evaluate the effects on fish resources.
32108	3	suesander1@gmail.com	N/A	According to numerous Washington State Departments, the water levels in all of the rivers and the water temperatures were monitored in the past to ensure that the rivers and all fauna/flora were protected. This process ensured that the fish were able to migrate from Canada and Eastern Washington would be able to eventually get to the Pacific Ocean. We repeatedly evaluated this issue and currently, this is not an issue that is addressed, the fsh number in the rivers are reducing due to the increased water temperature and lack of fish passage systems at each dams, which then prevent the fish from migrating to the Pacific Ocean.	Historically, water temperatures in the lower Snake River were warm (USGS 1960, 1961, 1964; Corps 2002a). Observed historic water temperatures show that average monthly water temperatures during July and August, in the 1950s, averaged 7 to 8 degrees Fahrenheit higher than today's conditions, while maximum daily differences were 10 to 12 degrees Fahrenheit higher. The differences observed in the lower Snake River today, as compared to historical conditions, are a result of the middle and upper Snake River reservoirs combined with the influence from Dworshak Dam operations. The co-lead agencies' analysis shows that under a dam breaching scenario, nighttime summer water temperatures, as well as fall water temperatures, would be cooler than the conditions in the No Action Alternative in the lower Snake River. However, even with the dams breached, maximum summer water temperatures would exceed state water quality standards (20C) at times, especially during hot weather events. The models showed minor changes in the Columbia River under MO3, indicating that the operations of the CRS dams have a limited ability to reduce temperatures in the lower Columbia River.

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					The co-lead agencies refer the commenter to chapter 3, section 5 for a discussion of fish passage improvements and current survival levels at each CRS dam as well as cumulative survival through the CRS system. Latent mortality associated with passage at CRS dams will remain a focus of the Preferred Alternative, but the co-lead agencies do not agree that there is a lack of fish passage facilities at the CRS dams.
32108	4	suesander1@gmail.com	N/A	In addition another environmental issue, King County and other jurisdiction in the region transport their untreated sewage sludge to eastern washington, as well as manuer from cow and other animals that is used as "clean fertilizer". This hazardous and toxic substance is used throughout Washington State and across the US/World to fertilize our vegetable and fruit. Unfortunately, although it is "free" to use, it contributes to significant diseases. Currently, the Coronavirus is contained in the sewage sludge and it is contributing to the spread of this disease. In addition, if you evaluated key cities/regions in Eastern, it will be discovered that this is contributing to MLS, CANCER, ALS, etc in the region. My Team would be pleased to provide you with information on these issues, etc., to support you with the preparation of this EIS ,and ways to increase environmental protection and prevention. Please contact me if you would like to discuss this and obtain additional information.	Thank you for your comment. Although important, these issues are well outside of the scope of this EIS that is evaluating the operations and maintenance of the Columbia River System.
32123	1	pass2sue@yahoo.com	N/A	There is no evidence that the removal of the dams will increase fish populations, so rather than destroy the economics of our region, how about we figure a way to improve the fish ladders and bypass systems.	Currently, fish ladders are proven effective at moving adult fish upstream at the dams that have them. In terms of bypassing fish upstream, the current configurations of the CRS dams that have fish ladders already have effective upstream adult passage. The 4 lower Snake and 4 lower Columbia River dams also have systems for bypassing fish around turbines and powerhouses. Additional surface passage systems were considered but not carried into the Preferred Alternative. The Preferred Alternative uses increased spill to bypass more juvenile fish away from powerhouses.
32128	1	kathystangl@gmail.com	N/A	A TDG level of 125% saturation at the 4 lower Columbia dam tailraces must be added to MO3 as a component of what must become the preferred alternative".	The agencies disagree that an alternative that includes breaching the four lower Snake River dams and spring spill operations to 125% TDG at all four lower Columbia River dams is reasonable given the unacceptable risks to public safety from such an alternative. For Power and Transmission, MO3 and MO4, individually each caused large loss-of-load probability (LOLP) results (e.g. increased incidence of blackouts). Without major addition of new resources, MO3 would result in power shortages in about one in seven years. MO4 would produce power shortages in about one in every four years. If MO4 were implemented, in addition to breaching the four lower Snake River projects as called for in MO3, then the LOLP would be even higher, with power shortages potentially occurring almost every year. Additionally, if these MOs were combined, in 5% of the years, the power shortages would average close to 1,000 MW in early August when the region might be experiencing a heatwave with particularly high demand for air conditioning. 1,000 aMW is about the average amount of power consumed by Seattle City Light. As shown in Section 3.7, MO3 causes an increase in power reliability concerns in the winter and the summer. MO4 increases power reliability concerns in the summer. Thus, the combination has the largest impact during the summer. The cost of zero-carbon replacement resources for MO3 and MO4 individually are up to $1 billion/year. Resource replacements and associated transmission interconnections for the combination of MO3 and MO4 would be higher, though not likely as high as the sum of the two MOs individually. Assuming that the replacement resources consist largely of wind, solar, and batteries, this would require well over 50 square miles of solar power (more than two and a half times the size of Crater Lake), large areas of new wind generation, and unprecedented amounts of batteries (more batteries in the Northwest alone than the total projection of batteries expected in the entire US by 2023 per the Energy Information Administration). In addition, the reduced generation capability under MO3, particularly throughout the summer, in combination with the impacts of the measures in MO4, and the uncertainty about the characteristics of replacement resources, would result in less capability to provide voltage support and dynamic stability for transmission system reliability than under MO3 or MO4 individually. Thus, combining MO4 with breaching the four lower Snake River projects, would produce unreasonable power and transmission reliability impacts, and it is highly speculative that replacement resources could be sited, permitted and built to address these impacts. Thus, an alternative combining juvenile fish passage spill up to 125% and breaching the four lower Snake River dams is unreasonable, and thus was not proposed as an alternative. The agencies disagree that an alternative combining juvenile fish passage spill up to 125% and breaching the four lower Snake River dams is reasonable, and thus was not proposed as an alternative given the unacceptable risks to public safety from such an alternative.
32128	2	kathystangl@gmail.com	N/A	Until the dams are breached, the EIS analyses clearly demonstrate that spill to the 125% tailrace gas cap (MO4 alternative) at all of the projects, 24 hours per day, must be implemented as an interim measure. Analyses in the CRSO-DEIS show this is the only available alternative for salmon and steelhead recovery, while still providing sufficient regional energy and irrigation potential.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species as that is a broader goal with shared responsibility. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the Columbia River System. That call, however, is ultimately the role of NMFS and the USFWS. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets most other EIS objectives including those for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS, the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams, because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system.
32137	1	carlbevis@yahoo.com	N/A	elative to the improvement of salmon and steelhead habitat, I believe that the realistic evaluation should include "removal" or breaching of the snake river dams. By this I mean inclusion of equivalent alternatives for current economic contributions of the dams (i.e. power production, irrigation, transportation, recreation, etc.) to the state and local communities should be detailed. Another aspect that should be included is that of the recreation attractiveness of a "free flowing river" with specific reference to the river prior to the installation of the dams	The EIS evaluated beneficial and adverse effects across an array of resource areas including potential effects at the national, regional and local level; effects are monetized and quantified, where possible, and also described qualitatively. As is common in NEPA analyses, the beneficial and adverse effects of the alternatives are expressed as a variety of qualitative and quantitative environmental and economic metrics throughout the EIS to inform decision-making, including the effects of the alternatives on fish as detailed in Section 3.5. That the effects of the alternatives on fish are not expressed as monetized economic values does not mean that they were not considered in the context of the analysis. The EIS does not employ a cost-benefit framework for decision-making. Instead, the EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as the dam breaching alternative. However, the Preferred Alternative also meets most of the other objectives of the study for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. For MO3, hydropower effects are described in Section 3.7.3.5; water supply and irrigation in Section 3.12.3.4; and recreation in Section 3.11.3.5. Section 3.11.3.5 describes the potential for increased fishing and river-based recreation in the long-term under MO3, as compared to the No Action Alternative.
32160	1	N/A	N/A	Do not remove the dams. Instead increase the spillage when the salmon are traveling or improve the fish ladders.	The co-lead agencies analyzed a reasonable range of alternatives in the EIS to address current and anticipated operations, maintenance and configuration including different levels of fish passage spill. For example, the Preferred Alternative includes the following measures: Increased spill. As part of the juvenile fish passage spill measure, the co-lead agencies would increase planned spill up to 125 percent total dissolved gas levels at some projects, which is the maximum allowable total dissolved gas limit in Oregon and Washington. Previous state water quality standards limited juvenile fish passage spill to lower amounts of spill. The goal of higher spill is to increase the number of juvenile fish passing through the spillways, in lieu of the powerhouse bypass systems and turbines, which is predicted to result in increased adult fish returns. Extensive regional collaboration. The juvenile fish passage spill operation included as part of the Preferred Alternative is a result of extensive regional collaboration. Negotiations for the 2019-2021 Spill Operation Agreement began in the summer of 2018. Other changes. The Preferred Alternative also contains measures to improve fish ladders, however the fish ladders at the 4 lower Snake and Columbia river dams have been improved over time, and already perform well in terms of passing adult salmon and steelhead upstream.
32169	1	N/A	N/A	Now, this is were we reach the true culprits of the salmon's measly survival rates to adulthood. Birds love to eat those young and more vulnerable salmon just cruising the river, ocean-bound. Seals can be seen gorging at the base of river outlets as salmon jump into their mouths unknowingly in their quest to land in the ocean. Killer whales require 200 to 390 pounds of Chinook salmon in their 20-80 diet, 20% other, 80% salmon, to eat well and remain healthy. Successful fishers and tribal ceremonies often enough whittle the survival numbers lower. But when the buffet is chipped away and there are slim pickings left, you still can fill your plate and stomach. However, all the high numbers that successfully bypass the dams are eroded by the birds, fat seals, fishers, tribes and killer whales. Then, the fish ladders see little traffic and the dams become the scapegoat. So, lets focus on whittling down predators, especially the seals and birds and then turn to the dams.	The co-lead agencies legal authorities relate to operating and maintaining the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. To comply with the ESA, the co-lead agencies have historically supported actions to mitigate adverse effects to listed species from CRS operations, through funding, direct implementation, and other means. Under the Preferred Alternative, those actions, including for the purpose of reducing pinniped and avian predation on listed species, would generally continue to ensure compliance with the ESA. Other entities in the region have authorities and obligations to mitigate the impacts from pinniped and avian predators and the co-lead agencies will continue to work closely with those entities to benefit ESA-listed salmonids. Harvest certainly has an impact on salmon and steelhead populations. The three co-lead agencies do not manage fish stocks, and do not have the authority to do so. For harvest, fisheries in the Columbia River Basin and those that rely upon Columbia River fish stocks are managed by numerous entities, including Federal, state, and tribal governments. These entities are guided by a complex array of policies, laws, compacts, and agreements. The management of Pacific salmon fisheries in particular is complex, and involves numerous entities representing a variety of social, political, and conservation interests. Changes in allowable fishery harvest in the Columbia River Basin are a result of decisions made by state, Federal (i.e., NMFS), and tribal fishery managers based on a variety of environmental, biological, economic, and social factors. Alternatives to include changes to harvest are not within the scope of this EIS. The assumptions regarding harvest are taken from the NOAA 2018 EIS and reflect current harvest management guidelines. To see their conclusions and effects analyses please go to: https://www.fisheries.noaa.gov/resource/document/environmental-impact-statement-programmatic-review-harvest-actions-salmon-and. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differently from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020).
32174	1	okeefe@americanwhitewater.org	American Whitewater	See attached PDF for comments of American Whitewater.	Unfortunately, an attachment was not received from the commenter. The co-lead agencies requested the commenter resubmit via e-mail on June 25, 2020; however, the co-lead agencies did not receive a response to this request.
32179	1	billbstallion@yahoo.com	N/A	I have also seen the immense fisheries potential the Salmon River provides. With my educational background in fisheries and my knowledge of the economy of the area I firmly believe that all impediments to the Salmon and Steelhead recovery should be removed. Dam removal is one of the primary impediments and remains one of main impediments to the fish recovery while any new mining will threaten their survival	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the Columbia River System. That call, however, is ultimately the role of NMFS and the USFWS. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. The Preferred Alternative is nevertheless predicted to benefit salmon and steelhead. It also meets the other objectives of the study for resident fish, hydropower, water management, and water supply, while minimizing adverse impacts to communities and the economy.
32179	2	billbstallion@yahoo.com	N/A	The technology exists that will allow the grains to be shipped and the power to be produced that will alleviate any problems that result from the dam removal. Federal government subsidies should be used to implement said technology in future infrastructure.	As described in Section 5.1.1., Overview of Mitigation, mitigation measures developed as part of a NEPA process are not intended to indicate the co-lead agencies, or the Federal government as a whole, have the authority to perform all of the measures described. But, rather it provides a list of potential mitigation needs which could potentially include some infrastructure items, some of which could be implemented by other agencies, officials or the public who would potentially benefit from the mitigation measure.

Letter No.	Comment No.	Commenter Name/Email	Affiliation	Comment	Response[1/]
32180	1	redfish@bluefish.org	N/A	Most people in the Pacific Northwest don't think a lot about the rivers flowing through the hearts of our communities and states, but farmers certainly do. The Columbia and Snake rivers in particular are an incredibly generous waterway system. Hydropower from their dams is one of the most reliable and environmentally friendly sources of power available, and contributes 90% of the renewable energy produced in the Pacific Northwest. This low-carbon energy heats our homes, powers our equipment, and never quits. Its the major factor in achieving our goal of being carbon-neutral by 2040. (Kristin Meira, Pacific Northwest Waterways Association) - Conservation - (Appendix H 2-6) According to the Seventh Power Plan, by 2022 there is 1,871 aMW of conservation available to the region at $80 per MWh or below. [Text includes figure that does not transfer to database.] My best guess is that this "Conservation below $80 per MWh" refers to Year 7 in the NW Council's graphic above. The full 20-year curve of increasing conservation should be incorporated in all CRSO analysis of the power system. By Year 7 the region has acquired 900 aMW of Conservation below $20 per MWh, which is surprisingly similar to the "Average Market Price" (Appendix H Table 4-8) of Bonneville's surplus power. (Appendix H page 4-9) 1937 was a relatively dry year with a very early runoff of winter snowpack. This year is used to compute what is considered "firm" generation. Average water years produce more – and a better shape of – generation, such that if loads are met with 1937 water conditions, more generation will be available to sell. This excess (is) then sold into the market producing secondary revenue credits, which are credited to the PF rate, reducing the net revenue requirement collected from Bonneville's long-term firm power customers. In some periods, under certain weather or water conditions, Bonneville makes balancing purchases to meet load (bluefish: while taking a sizable credit from the US Treasury called 4(h)(10)(A)). These (purchases) are netted from total secondary sales before the secondary credit is applied against the cost base collected in rates.	This comment is consistent with the findings of this EIS. Conservation expectations are included in the load forecast used to establish Loss of Load Probability (LOLP) under the No Action Alternative and are included similarly in all of the other alternatives. See Appendix H, Power and Transmission, Section 2.2, H-2-3 in the Draft EIS. Therefore, the full curve of expected conservation acquisitions is considered before accounting for additional resource acquisitions necessary to meet regional reliability metrics. The EIS analysis assumed that all energy efficiency assumed in the Northwest Power and Conservation Councils (Council) Seventh Plan is appropriate and, likely aggressive. The Councils recent State of the Columbia River System, Fiscal Year 2019 Annual Report, February 2020, p. 11 (https://www.nwcouncil.org/sites/default/files/2020-3.pdf), states While the region currently is on track to meet Seventh Plan goals, there are some areas to watch including forecasts of declining savings from efficiency programs. And whether the region will identify new savings opportunities to replace those of residential lighting. Utilities achievements in energy efficiency have been on an annual decline since 2016. Forecasts from utilities show that this trend is expected to continue, despite relatively stable funding levels. Given this trend, there is some uncertainty as to whether there will be enough savings from other mechanisms to reach the 1,400 average megawatt goal by the end of Fiscal Year 2021. This information indicates that it would be difficult to increase the energy efficiency goals beyond the Councils Seventh Plan. Based on this information, it is not likely that substantial amounts of additional energy efficiency would be available as prices increase, such as in MO3.
32180	2	redfish@bluefish.org	N/A	The choice of an economically preferable alternative hinges on the "loss of exports". That was the case in the 2002 EIS in overruling Alternative 4-LSR Dam Breach for its loss of $250 million worth of power, and it continues to be the case in this CRSO Draft. This fact of the matter needs to be clearly stated, and the analysis must be transparent and repeatable. Importantly, Bonneville has yet to share the appropriate data that has been requested by NW Council to provide informed comment on this Draft. (Appendix H, 2-6) The CRSO Draft draws on the NW Council for expertise in determining the amount of "conservation available in the region", "energy storage costs", and the cost of the Battery Storage Reference Plants for 2021 Power Plan. The NW Council is charged by statute, with exactly the task of balancing the needs of fish with the objective of maintaining an "adequate, efficient, economical, and reliable power supply". The NW Council staff are the most respected experts on this very subject. Looking at details of the CRSO power analysis, one sees that Bonneville is seeking to usurp that authority, leaving the NW Council completely out of the process.	The load forecast included in the reliability modeling only includes regional loads netted for all cost effective conservation. The model runs all generating resources to meet that net load. This comment mischaracterizes the Northwest Power and Conservation Councils (Council) involvement in the development of this EIS. The Council is directed by the Northwest Power Act to establish and amend a regional fish and wildlife program and a power plan every five years. The power plan takes into account the fish and wildlife program and forecasts, based on the Administrators long term firm power supply contracts to meet demand, and the type and amount of resources (conservation, renewables, high fuel efficient generation, etc.) available for acquisition by the Administrator if they determine a need to acquire. The CRSO EIS is conducted pursuant to different Federal statutes and regulations including, but not limited to the National Environmental Policy Act (NEPA) and the Endangered Species Act. This is not a usurpation of the Councils authority to review and amend either the fish and wildlife program or the power plan. Since the Council is not a Federal, Tribal, state or local agency, it could not serve as a cooperating agency under NEPA. The Council received the Draft EIS when it was available for public review. The Council received periodic updates on the CRSO EIS NEPA process similar to the general public. While the Council does not play a formal role in the EIS, the Councils 7th Power Plan was foundational to the resource cost and resource availability data provided by the plan. See Section 3.7.3.1, Step 3: Determine Need for Potential Replacement Resources and Associated Costs, at page 3-821 in the Draft EIS; see also Appendix H, Power and Transmission, at Section 2.2. Bonneville is the Federal agency charged with marketing the power from the Columbia River System. It is Bonneville's duty under NEPA to analyze the effects of its power marketing actions on affected resources. Bonneville must also ensure it is complying with other laws, including the Northwest Power Act. The EIS discusses this in more detail in Chapter 8.
32180	3	redfish@bluefish.org	N/A	Coal - Executive Summary The second issue concerning the base case zero-carbon replacement portfolio is that the composition of the regional power system is undergoing rapid change, and will continue to do so over the coming years with increased coal plant retirements and restrictions on the use of natural gas generation. The base case portfolio implicitly assumes that other regional resources would be used to make up for any deficiencies in the power system's sustained peaking, storage, and dispatchable capability caused by the loss of generation from the lower Snake River dams. As a result, given the expected coal plant retirements and restrictions on natural gas generation, replacing the full flexibility and capability of the lower Snake River dams with zero-carbon resources would require substantially more resources, such as additional dispatchable battery technology, than estimate in the base case analysis. To reflect these additional costs, a rate sensitivity analysis was performed for MO3 to estimate the rate pressure effect of an expanded zero-carbon resource portfolio on Bonneville's wholesale power rate. This expanded zero-carbon resource portfolio would include power capabilities similar to those lost with the breaching of the lower Snake River projects. (Appendix J page 4-18) The CRSO is concerned more with a decision on selection of the future preferred operation of the CRS and not directly with the retirement of coalfired plants owned by investor-owned utilities in the region. However, regional reliability depends on all utilities, and the loss of baseload generation in the region affects the value of the hydropower produced by the CRS. A legitimate NEPA document does not move away from the baseline established after the Scope is set. Doing otherwise would make the NEPA analysis intractable. Looking at "future coal retirements" at a late stage in the game, after most all of the analysis is completed (as frequently stated in the Appendices) is disingenuous.	As described in the comment, the focus of the EIS is to evaluate the impacts of the alternatives on resources affected by Columbia River System operations, maintenance and configuration. The co-lead agencies developed a reasonable range of alternatives, including Multiple Objective (MO) Alternative 3, which identifies the impacts of breaching the four lower Snake River dams. The co-lead agencies also agree with the statement [h]owever, regional reliability depends on all utilities, and the loss of baseload generation in the region affects the value of the hydropower produced by the CRS. Thus, the CRSO EIS analyzed the value of the lost power generation associated with MO3 in the context of the regional power system. The comment takes issue with the EISs discussion of future coal retirements and its impact on the scope of the EIS analysis. The Base Case analysis which was started in 2017 included high-quality information on the availability of resources. Coal generation that was online or expected to remain online was presumed to continue to operate in the Base Case. See Section 3.7.3.1, Base Case Methodology in the draft EIS. Since 2017, additional coal retirements were announced, along with other changes in the energy industry. The comment suggests that the co-lead agencies should have ignored these changes and limited the EIS to the information available in the Base Case. The co-lead agencies, however, are not permitted under NEPA to ignore reasonably foreseeable future actions (e.g., coal retirements). More importantly, based on current information, the agencies could not legally ignore these coal retirements because this information squarely falls under significant information relevant to environmental concerns and bearing on the proposed action or its impacts. This language is the test for whether an agency would need to supplement an EIS. 40 C.F.R. 1502.9. Thus, consistent with NEPA, the agencies decided to acknowledge significant changes in the energy landscape in the EIS to avoid the need to supplement the EIS at a later date. To account for these changes, the EIS included a Rates Sensitivity Analysis and Regional Cost Pressure Analysis. See Section 3.7.3.1, Rate Sensitivity Analysis in the draft EIS. The Rate Sensitivity Analysis and Regional Cost Pressure Analysis capture the effects of new or updated information on regional reliability. Specifically, the Regional Cost Pressure Analysis, described in the draft EIS in Section 3.7.3.1, addresses the impacts on regional reliability and regional resource costs if coal retirements were to accelerate. See Section 3.7.3.1, Availability of Coal Resources at pages 3-841-842 in the draft EIS. This analysis is presented as a sensitivity above the Base Case because the full extent of future coal remains uncertain. To reflect this uncertainty, the EIS developed two coal availability scenarios: limited coal and no coal. See Appendix H, Power and Transmission, Section 2.3 at pages H-2-8 15. The effect of the limited coal and no coal scenarios on regional reliability under each MO is described in the EIS. See Section 3.7.3.2, No Action Alternative at pages 3-845-84, Table 3-123 in the draft EIS. Describing the MOs in light of known or likely additional coal retirements provides a more complete picture of the regional impacts of the MOs on regional reliability and costs.
32180	4	redfish@bluefish.org	N/A	- Carbon Sequestration - CRSO Objective: Minimize GHG Emissions Minimize greenhouse gas (GHG) emissions from power production in the Pacific Northwest by generating carbon-free power through a combination of hydropower and integration of other renewable energy sources. (Chapter 7, p.12) MO3 would result in shipping activities shifting from barge to road and rail transport as described below. As barge transportation is a relatively low source of GHG emissions per ton-mile of freight, compared with truck or train transportation, MO3 would also increase transportation-related emissions for what is currently transported along the lower Snake River by up to 53 percent (an increase of 0.056 MMT of CO2). By mentioning the transportation sector GHG emissions, the CRSO Draft is expanding the Scope of the Objective beyond "emissions from power production in the Pacific Northwest... I agree that this expansion of that Objective's scope is appropriate. GHG emissions are worldwide, and to limit the conversation to merely the Northwest Power System is to look at a small part of a much bigger picture. An ever growing (pun intended) amount of carbon sequestration will arrive, if we let Idaho's salmonids bring marine-derived nutrients to Idaho's forests, as Mother Nature intended.	With respect to the influence of salmon on carbon sequestration, Section 3.5 identifies that fish migration through the lower Snake River corridor would improve under MO3. Section 3.5.2.3 recognizes that anadromous fish deliver resources that affect food web productivity and influence flora and fauna across the Columbia River Basin. This indicates that, in some areas, MO3 would likely improve landscape carbon sequestration. However, in other areas, MO3 may reduce landscape carbon sequestration. As described in Section 3.6.3.5, lower water levels in the spring and early summer in some areas under MO3 would reduce productivity in some existing emergent herbaceous and forested and scrub-shrub wetlands. The overall effect of MO3 on landscape level carbon sequestration across the Basin is uncertain.
32180	5	redfish@bluefish.org	N/A	The mathematics is straightforward (see Question17). The CRSO Draft documented this benefit of salmon; therefore, the accounting should, too. There are a several well respected groups tallying and verifying carbon credits. They should be employed now, to establish a baseline, and then monitor the sequestration, soon to accrue in Idaho's forest. The CRSO accounting should estimate the ecological benefits financially. (Chapter 3, page 299) Aquatic Habitat Connectivity Migratory salmonids are important vectors of energy and nutrients between marine and freshwater ecosystems. For example, anadromous fish carry nutrients across habitat boundaries, and they influence community and food web structure in aquatic as well as terrestrial ecosystems. Spawning salmon contribute an estimate 5 to 95% of the nitrogen and phosphorous in salmon-bearing streams. Anadromous fish deliver resources that affect food web productivity and influence a diverse array of flora and fauna across vast landscapes in the Columbia River Basin.	Breaching the four lower Snake River dams would result in long-term benefits including improvements to fall water temperatures and the restoration of the river to more normative riverine processes. In addition, as described in Section 3.5, fish migration through the lower Snake River corridor would improve. As highlighted in this comment, Section 3.5.2.3 does describe that anadromous fish deliver resources that affect food web productivity and influence flora and fauna across the Columbia River Basin. However, the extent to which the fish benefits described under MO3 affects productivity in Idaho forests is uncertain and, as described in Section 3.6.3.5, lower water levels in the spring and early summer in some areas under MO3 would reduce productivity in some existing emergent herbaceous and forested and scrub-shrub wetlands.
32180	6	redfish@bluefish.org	N/A	Irrigation - Executive Summary MO3 would meet the objective to Maximize Adaptable Water Management and Provide Water Supply, but there would be adverse impacts to irrigation in the lower Snake River borne by other public and private entities, due to dam breaching. Assuming 47,926 acres were no longer irrigated, the present value of the lost social welfare benefit, under the MO3 alternative is $458 million (annual equivalent value is $17 million). (Appendix N, 4-1) The Corps 2002 report analyzed dam removal and the impact on water supply. Several system modifications were considered that would allow for the continuation of water deliveries to existing farmlands. The report concluded that modifying the existing pump system was cost prohibitive. For the regional analysis the report assumed that most of the irrigate acres receiving water form the current pumps would no longer be irrigated. The report assumed that 21% of the irrigated land might support the development of alternative water supplies to replace lost irrigation water and the replacement water would be used to irrigate some of the fruit orchards and vineyards. The development cost for replacement water would need to be included as part of the alternative to assess the net benefits of irrigation under this scenario. ... This analysis assumed that all irrigated acres receiving water from the current pumps would no longer be irrigated. This assumption was based on "conversations with several extension agents in Washington and Oregon" and on this basis, "the analysis assumed that "there isn't a suitable substitute water source". To a great fault, the CRSO Draft takes for certain that the 2002 Corps report was correct in concluding that the cost prohibitive modifications to existing pumps, necessarily precludes consideration of other, more economic, mitigation solutions. Importantly, NEPA requires that "all relevant, reasonable mitigations" be considered and "identified in the document" regardless of who might eventually pay for it.	The comment is correct that, in Region C under the MO3 alternative, the analysis concludes that pumps are unable to deliver water to an estimated 48,000 acres. This EIS discusses engineering solutions (pipeline extensions for example) in Section 3.12.3 Environmental Consequences, specifically under Region C under the MO3 alternative (see page 3-1267, line 3244, in the Draft EIS) and in Appendix N. The report which this EIS draws upon, as discussed, concluded that modifying the existing pump system was cost prohibitive. This report remains the most current information on these impacts. There is a physical limitation to delivering water to these lands in the absence of the dams. Breach of the dams has the potential to drop surface and groundwater levels up to 100 feet and it is not possible from an engineering or cost standpoint to replace the delivery mechanisms. Please see Section 3.12 and Appendix N for additional information. NEPA requires that all relevant, reasonable mitigation measures that could diminish the adverse impacts of the project be identified in the document, even if they are outside the jurisdiction of the lead agency or the cooperating agencies. See 40 C.F.R. 1502.16(h) and 1505.2(c); 46 Fed. Reg. 18026. The inclusion of mitigation measures in this chapter is not intended to indicate that the co-lead agencies, or the Federal government as a whole, has the authority to perform all of the measures listed. If the measures are outside the jurisdiction of the co-lead agencies, those measures will not be included in the Preferred Alternative or Record of Decision (ROD). Their inclusion in this chapter serves to alert other agencies, officials, and the public who can implement the measures to the potential benefits of the measure. The mitigation requested, while identified in the Draft EIS, is not within the co-lead agencies' current authorities. The co-lead agencies do not have the authority to provide mitigation for the effects to private infrastructure such as irrigation pumps, wells, or private docks.
32180	7	redfish@bluefish.org	N/A	CRSO Draft Chapter 5 - Mitigation (page 5-2) NEPA requires that all relevant, reasonable mitigation measures that could diminish the adverse impacts of the project be identified in the document, even if they are outside the jurisdiction of the lead agency or the cooperating agencies. Included in my previous comment to the CRSO process, a 30-mile pipeline upon an abandoned railway grade – now owned by Washington State Parks' Columbia Plateau Trail State Park – could gravity feed irrigation to the existing pumps. It is odd that the CRSO Draft ignored this affordable mitigation, the CRSO Final Report should include. There are many miles of large diameter irrigation pipes in Central Washington and Southern Idaho. This web page calculator tool is a useful way to determine the various dimensions worth considering. Failing to consider and "identify" this mitigation is a fatal flaw of the Draft document. The abandoned railway is sitting there, scattered with 2-4 inch basalt rocks, waiting for better use. Could things be much easier?	With exception of MO3, the alternatives including the Preferred Alternative are not expected to have an effect on water delivery in the Columbia River Basin. MO3 could affect delivery of current water supply in Region C, and is expected to result in major effects to the Ice Harbor private, municipal, and industrial pumps located near Ice Harbor dam. As mentioned in Section 5.4.3.7, Water Supply, private and public entities could extend intake pumps, ground water wells, or other infrastructure to offset any potential effect as a result of MO3. The co-lead agencies would not prescribe how those entities would implement their actions.
32180	8	redfish@bluefish.org	N/A	Barging Wheat - Executive Summary MO3 would result in shipping activities shifting from barge to road and rail transport as described below. As barge transportation is a relatively low source of GHG emissions per ton-mile of freight compared with truck or train transportation, MO3 would also increase transportation-related emissions for wheat that is currently transported along the lower Snake River by up to 53% (an increase of 0.056 MMT of CO2).	The statement in the comment that emissions from shipping would increase under MO3 by up to 53 percent is consistent with the findings of the EIS (see Section 3.8.3.5 in the Draft EIS). The EIS finds that barge freight transportation is more efficient (i.e., has a lower energy intensity) per ton-mile than trucks or rail (see Section 3.8.2.2, Transportation Sector Greenhouse Gas Emissions in the Draft EIS). The most recent version of the Transportation Energy Data Book, cited by the comment, is consistent with this finding and with respect to the emissions factors used in the EIS.

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				Contrary to what PNWA & NWRP would have us believe (and the CRSO Draft Executive Summary as well), shipping by Rail has been more efficient than by Barge for over a quarter century (see 29th ed. Transportation Energy Data Book below). After I brought this important and relevant fact (see bluefish.org/freight0.htm) to the attention of BPA Administrator Stephen Wright during a meeting in his executive suite, the Department of Energy (DOE) worked to rewrite the facts. Strange as it may seem, the 30th Edition Transportation Energy Data Book excluded Waterborne Commerce from Table 2.16. Then in their 31st Edition, the Waterborne Commerce reappeared but with a different methodology in its computation. No explanation was given for this new methodology. Moreover, the newly tabulated data was only available for a third as many years that were previously available, in the 29th edition. Could BPA's Stephen Wright really be that dishonest? One only needs to ask the current Administrator about his findings and his concerted efforts to rebuild trust at Bonneville following the Veteran's Hiring Scandal that took place under Wright's leadership. The facts in this case are straightforward. The Transportation Energy Data Book methodology for Waterborne Commerce changed in the years shortly following my bringing it to the attention of Mr. Wright. This fraudulence is appalling and Orwellian. Is Mainzer's Bonneville to be considered as being more trustworthy? Time will tell. 29th Edition Transportation Energy Data Book Department of Energy, Center for Transportation Analysis [Text contains figure that doe not transfer to database.] In 2011, the Columbia-Snake Waterways experienced an extended closure. To boost the economy, President Obama's America Recovery Act provided funding to anything shovel ready: Previously shelved, uneconomic projects were given go ahead funding. Following this closure, Ken Casavant, Director Freight Policy Transportation Institute, Professor Economics Washington State University, concluded in his "Economic and Environmental Impacts of the Columbia-Snake River Extended Lock Outage": The overall result in energy intensity during the year of the lock outage was an increase of 10 percent more Btu's consumed. This increase in energy use is logical as more tonnage was shipped from August 2010 to July 2011 than during a typical year and truck was mostly used to replace barge during the lock outage, which is more energy intense. However, energy consumed per ton decreased 4.8 percent due to heavy use of rail, which is more energy efficient than barge or truck, and the increased use of barge prior to and after the lock outage. The CRSO Final Report must consider more than PNWA documents. It must consider "all relevant, publicly available documents". Casavant's report is certainly relevant. Executive Summary: Areas of Controversy, Lower Snake River Dam Breach: Breaching the four lower Snake River dams has been a topic of public discourse for decades. This EIS provides an updated analysis of the many biological and sociological variables and the costs and benefits of retaining or breaching the lower Snake River dams. In combination with other sources of information and analysis available in the public domain, this document can help inform the regional conversation on this complex and often polarizing issue. A NEPA process must be honest, if decision makers are to make well-informed decisions. Asking the public and decision makers to believe that shipping by Barge is more efficient than by Rail is preposterous, unfounded and deceitful. BPA Administrator Elliot Mainzer should know better, especially because he led the development of the Northwest Wind Integration Action. Harnessing energy from wind is much the same as powering a boat: the fluid medium slips away from the propeller or turbine and a great amount of energy is lost. Compare that to a steel wheel on a steel rail with no slipping whatsoever. The physics is simple, so lets be honest	Dr. Casavant of Washington State University, referenced in this comment, was an advisor and analyst for the navigation and transportation analysis in the CRSO EIS. Thus, this Section is consistent with Dr. Casavant's research and models. The EIS considers all relevant literature on the topic of the efficiency of shipping modes, as opposed to relying solely on information from the PNWA as stated in this comment. The EIS relies on current, high quality information and applies current models and data rather than relying on findings from previous studies.
32180	9	redfish@bluefish.org	N/A	Barging Salmon and Steelhead - While on the topic of barging, did you know that salmon are barged downstream? Decades ago, when the federal hydrosystem was very deadly for Idaho's salmon and steelhead heading downstream to the grow strong in the ocean, their full life-cycle survival was a little better for juveniles that took a boat ride -- transported by barge -- to the estuary. They thereby avoided the more injurious and hazardous hydrosystem. With billions of dollars spent to improve that migration, and with further improvements difficult to imagine, it is now close to a tie as to which is a safer route to the ocean. (Chapter 3, page 383) Overall, transported Snake River spring/summer-run Chinook salmon tend to have relatively low rates of straying. Wild yearling Chinook salmon tend to have the lowest transport benefit, and hatchery yearling Chinook salmon and hatchery steelhead tend to have higher benefits from transport. In addition, fish transported later in the year generally show greater benefits from being transported late. ... For example, in most years, beginning in May, adult returns are higher for transported spring summer Chinook than for in river fish. Under Northwest Fish Science Center's Life-Cycle Module (NWFSC LCM) in the Draft Preferred Alternative, barging is oftentimes safer than leaving the juveniles in the river. Barging Salmon and Steelhead - While on the topic of barging, did you know that salmon are barged downstream? Decades ago, when the federal hydrosystem was very deadly for Idaho's salmon and steelhead heading downstream to the grow strong in the ocean, their full life-cycle survival was a little better for juveniles that took a boat ride -- transported by barge -- to the estuary. They thereby avoided the more injurious and hazardous hydrosystem. With billions of dollars spent to improve that migration, and with further improvements difficult to imagine, it is now close to a tie as to which is a safer route to the ocean. (Chapter 3, page 383) Overall, transported Snake River spring/summer-run Chinook salmon tend to have relatively low rates of straying. Wild yearling Chinook salmon tend to have the lowest transport benefit, and hatchery yearling Chinook salmon and hatchery steelhead tend to have higher benefits from transport. In addition, fish transported later in the year generally show greater benefits from being transported late. ... For example, in most years, beginning in May, adult returns are higher for transported spring summer Chinook than for in river fish. Under Northwest Fish Science Center's Life-Cycle Module (NWFSC LCM) in the Draft Preferred Alternative, barging is oftentimes safer than leaving the juveniles in the river.	Varying levels of transportation were included in all MOs with the exception of MO3 (dam breach). MO2 considered much higher levels of transportation that are currently implemented under the NAA. In the Preferred Alternative, the co-lead agencies have proposed to continue the use of barge and truck transportation, albeit at lower rates than under previous spill operations. However, the majority of juvenile fish will migrate in-river. As the comment notes, transportation by barge or truck has been shown to provide a benefit that varies by species, by time of year, and by water condition. The juvenile salmon transportation program is managed by expected fish benefits as well as cost efficiency. SAR estimate for each week of the outmigrations, combined with other environmental and biological data, drive the decisions. Prior to these data being available, transportation began at the beginning of April; however, we learned that fish transported in early April performed very poorly. Transporting too early is not effective and does not justify the expense.
32180	10	redfish@bluefish.org	N/A	(Chapter 7, page 104) Snake River Steelhead: While a Preferred Alternative Transport to In-River Survival Ratio (TIR) of 1.1 represents a reduction in TIR relative to the No Action Alternative, the TIR still represents a season-wide benefit to transport relative to in-river migration, measured in terms of relative SARs (Smolt-to-Adult ratio). In contrast to the Preferred Alternative, restoring the Lower Snake River to a riverine system would completely end barging of juveniles, and SARs triple! Both of the CRSO models unequivocally show that MO3 is the "environmentally preferred" MO. Importantly, MO3 is the only MO alternative that leads to the recovery of ESA-listed salmonids (see graphic next page). With that in hand, the CRSO process should now consider MO3 without increasing spill to 120%TDG. The science remains undecided as to whether or not spill is beneficial. CRSO models agree with the 2002 Juvenile Migration FS/EIS: MO3's essential part is Breach Lower Snake River Embankments.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the Columbia River System. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. The EIS concluded MO3, which includes breaching the four lower Snake River dams would have greater improvement to certain salmon species in the lower Snake River. It did not, however, conclude there was greater certainty of that result in MO3 over any other alternative. Because of delayed response time in MO3, and the potential severity of the short term effects, MO3 would likely have the most substantial uncertainty in terms of beneficial effects. Section 3.5 provides a summary of the fish analysis for the No Action Alternative and four of the multiple objective alternatives. Chapter 7 provides a summary of the fish analysis for the Preferred Alternative. With respect to the Preferred Alternative, the fish analysis in Section 7.7.4 states the Preferred Alternative would have substantial benefits to salmon and steelhead. The CSS model, which includes latent mortality effects, predicts that median Smolt-to-Adult return rates would increase for both Snake River spring Chinook and steelhead and would average well above 2% (the lower end of the Northwest Power and Conservation Council's recovery targets for the region) as a result of the Preferred Alternative, increasing SAR from 2.0% to 2.7% for Chinook, a 35% relative increase. The NMFS COMPASS and Lifecycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. To address uncertainty highlighted by the two models, the Preferred Alternative includes working with regional sovereigns to develop a study that assesses the effectiveness of the increased spill regime on adult returns as well as assessment and management of adverse unintended consequences, such as long delays of adult migrants, or TDG-related mortality of juvenile migrants. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information. Based on the EIS analysis of the Preferred Alternative, it will make a substantial contribution towards recovery goals.
32180	11	redfish@bluefish.org	N/A	CRSO Caveat: Difficulty Calibrating NWFSC LCM Model (Chapter 3 page 560) The NWFSC LCM results generally indicate high variability in potential fish response to dam breach depending on the breach scenario input dataset used for calibration. The CSS LCM results generally indicate that MO3 adult abundance over time would show substantial increases from the No Action Alternative.	For the 2000 Biological Opinion, NOAA proposed estimating free-flowing Snake River survival rates by estimating survival rates of PIT-tagged smolts from both the Salmon River trap to the Lower Granite bypass and from the Snake River trap (at the head of Lower Granite Reservoir) to the Lower Granite bypass. The per-kilometer survival rate of the free-flowing portion of the Snake River could be inferred from these differences between these two trap-to-dam estimates (Ferguson et al (2004). For the CRSO Draft EIS, NMFS used a similar method of estimating free-flowing survivals and travel times with their COMPASS model. PIT-based monitoring efforts have been added at a variety of additional hatchery and wild trap locations in the Snake and upper Columbia since the 2000 BiOp. The Salmon trap to Lower Granite reservoir free-flowing survival rate is used as representative of yearling Chinook populations for the main text of the MO3 analysis. In the appendix, NMFS carries out a sensitivity analysis for the choice of upstream trap location by comparing free-flowing survival rate estimates from the Grande Ronde, Salmon, and Imnaha traps to Lower Granite Dam to represent dam breach conditions under MO3. There is a wide variance in per-kilometer travel times and survival rates to Lower Granite Dam among all the hatchery and wild trap locations. The three locations were selected by NMFS to represent spatial variation in stream conditions such as natural predation rates. Most juveniles at these sites are tagged as outgoing smolts and few display signs of continued tributary rearing. Ferguson J. (2004) Memorandum to FCRPS Biological Opinion Remand Administrative Record RE: Updated estimates of free-flowing river survival. NW Fisheries Science Center.
32180	12	redfish@bluefish.org	N/A	(Appendix E 1-11) The dam breach in alternative MO3 will change the river environment to conditions well outside the range of the calibration dataset with water velocities 5-8 times faster under MO3 than in the calibration data. The model responds to this change in water velocity and there are no numerical issues with using the model in MO3. However, it is unknown if the behavioral patterns fitted by the model will hold or if they will change at higher velocities. ... It appears that both assumptions for the MO3-GRNIMN calibration are being violated to some extent. However, after detailed examination of the calibration process, no errors were found in calibration. While it seems unlikely that the Grande Ronde and Imnaha dataset is representative of the Snake River as a whole, it is an important component of the basin-wide population, and it is valuable to include this calibration for comparison to the other models and as a measure of the uncertainty associated with the MO3 alternative.	For the 2000 Biological Opinion, NMFS proposed estimating free-flowing Snake River survival rates by estimating survival rates of PIT-tagged smolts from both the Salmon River trap, and from the Snake River trap (at the head of Lower Granite Reservoir) to the Lower Granite bypass. The per-kilometer survival rate of the free-flowing portion of the Snake River could be inferred from the difference between these two trap-to-dam estimates (Ferguson et al (2004). For the CRSO EIS, NMFS used a similar method of estimating free-flowing survivals and travel times with their COMPASS model. PIT-based monitoring efforts have occurred at 20-plus additional hatchery and wild trap locations in the Snake and upper Columbia since the 2000 BiOp. In Appendix E, NMFS carried out a sensitivity analysis for the choice of upstream trap location by comparing free-flowing survival rates estimates from the Grande Ronde, Salmon, and Imnaha traps to Lower Granite Dam to represent dam breach conditions under alternative MO3. There is a wide variance in per-kilometer travel times and survival rates to Lower Granite Dam among all of the possible hatchery release sites and screw trap locations upstream of Lower Granite Dam. The river conditions and migration behavior of fish in tributaries to the Snake River is much less representative of river conditions we expect in the lower Snake River following dam breaching than are the river conditions in the free-flowing Snake River between the confluence of the Clearwater River and the confluence of the Salmon River. NMFS selected the three locations because each trap location was low in the tributary and are very close to the mainstem Snake River; we expect that reach of the free-flowing Snake to be very similar to what the breached lower Snake would look like in MO3. Traps further up in the tributaries are likely to tag more parr while these three traps tend to intercept mostly smolt-aged fish that arrive at Lower Granite without further rearing behavior. Yet it does appear that some fish in the Lower Granite and Imnaha (GRN-IMN) data exhibit parr-like behavior, especially in early April. This is a major contributor to why the GRN-IMN model predicts slower migration and lower survival in MO3 than the other calibrations, and the reason for why it was placed into the appendix. The Salmon trap-to-Lower Granite reservoir free-flowing survival rate is used as a representative yearling Chinook population for the main text of the MO3 analysis. In response to the comment "outside the range of the data so the model is useless," this criticism can only apply to the SNK calibration. Yes, MO3 is outside the range of the calibration data for the SNK calibration, as is noted in the CRSO EIS text. The calibration between the Snake River Trap and Lower Granite Dam was just a calibration used to get at the GRN-IMN and SAL calibrations, and was not used in any prospective model runs for the Draft EIS. However, the SAL and GRN-IMN calibrations

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					are NOT outside the range of the calibration data when used for MO3. Flow, water velocity and temperature are all comparable between the free-flowing reaches of the Snake River used for calibration and the breached Lower Snake in MO3. Ferguson J. (2004) Memorandum to FCRPS Biological Opinion Remand Administrative Record RE: Updated estimates of free-flowing river survival. NW Fisheries Science Center.
32180	13	redfish@bluefish.org	N/A	Upward of $80M has been spent on this CRSO and the model from Bonneville (i.e. Department of Energy) doesnt work out quite right. It is likely due to NOAA Fisheries refusal to accept that latent mortality runs around 75% of Direct Mortality (see graphic above). The survey of science literature (Table 6 of Schaller et al.) Evaluating river management during seaward migration to recover Columbia River stream-type Chinook salmon considering the variation of marine conditions has been available to the region for half dozen years, and pointed to regularly by bluefish.org.	The model results presented in Section 3.5 and Chapter 7 address latent mortality and reservoir mortality. Latent mortality is captured directly in the CSS model for SARs and abundance levels, and is overlaid with several assumed values (10%, 25% and 50% reductions in latent mortality) in the NMFS Life Cycle model results because the level of latent mortality is uncertain. In fact, the ISAB in their 2007 report stated, "The ISAB concludes that the hydrosystem causes some fish to experience latent mortality, but strongly advises against continuing to try to measure absolute latent mortality. Latent mortality relative to a damless reference is not measurable. Instead, the focus should be on the total mortality of in-river migrants and transported fish, which is the critical issue for recovery of listed salmonids. Efforts would be better expended on estimation of processes, such as in-river versus transport mortality that can be measured directly." There are additional scientific uncertainties regarding mechanisms and magnitude of delayed mortality or carryover effects resulting from migration through the CRS. Several studies using acoustic or active tags have monitored the survival of smolts through the estuary and coastal ocean below Bonneville Dam after barging vs. migrating in river (Eder et al. 2009, Dietrich et al. 2016, Rechisky et al. 2012), and following passage through eight dams vs. four dams (Rechisky et al. 2013). While there were short-term indications showing effects of barging, there was little evidence for delayed survival effects of multiple dam passage in the estuary below Bonneville. This remains an active area of research. Eder, K., Thompson, D., Buchanan, R., Hublein, J., Groff, J., Dietrich, J., ... & Loge, F. J. (2009). Survival and travel times of in-river and transported yearling Chinook salmon in the lower Columbia River and estuary with investigation into causes of differential mortality. Final Report submitted to the USACE, Walla Walla District, Walla Walla, Washington. Dietrich, J., Eder, K., Thompson, D., Buchanan, R., Skalski, J., McMichael, G., ... & Loge, F. (2016). Survival and transit of in-river and transported yearling Chinook salmon in the lower Columbia River and estuary. Fisheries Research, 183, 435-446. Rechisky, E. L., Welch, D. W., Porter, A. D., Jacobs-Scott, M. C., & Winchell, P. M. (2013). Influence of multiple dam passage on survival of juvenile Chinook salmon in the Columbia River estuary and coastal ocean. Proceedings of the National Academy of Sciences, 110(17), 6883-6888. The Preferred Alternative includes an adaptive management process that would consider additional opportunities to further the effectiveness of the operation while maintaining the goals of the flexible spill operation: additional improvements for salmon and steelhead, maintain opportunities to operate the CRS for hydropower generation in a flexible manner that provides value to the Northwest, is implementable by the dam operators, and provides opportunity to reduce uncertainty and improve the learning opportunities around how operations of the CRS can influence the magnitude of latent mortality effects. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin.
32180	14	redfish@bluefish.org	N/A	Chapter 7 Preferred Alternative - 7.7.4.1 Salmon and Steelhead The CSS model predicts the Preferred Alternative would result in a relative increase of 35 percent for Snake River Spring/Summer Chinook compared to the No Action Alternative. In contrast, NMFS' Life Cycle Model (LCM) shows a reduction in SARs of -7.5 percent for Snake River Spring/Summer Chinook relative to the No Action Alternative. This predicted reduction in SARs by NMFS LCM is primarily a function of reduced (barge) transportation rates. (Appendix E, 3-189) Lower Snake River Juvenile Migration Feasibility Report estimates that spawning substrate for Chinook salmon (gravel and cobble similar to NPM needs) would increase from 226 to 3,521 acres under a breach scenario.	Thank you for your comment, the co-lead agencies concur with this comment.
32180	15	redfish@bluefish.org	N/A	That 2002 EIS found that LSR dam breaching was the "environmentally preferred alternative", easily providing the most benefit to Idaho's salmon and steelhead of all measures that were imaginable at the time. In the twenty years since, billions of dollars have been spent to no avail, with populations now worse than before that EIS. Idaho's steelhead recently triggered the Early Warning Indicator, to which the Regional Implementation Oversight Group (RIOG) has yet to respond. This lapse is in spite of the Adaptive Management Implementation Plan having set a 120-day deadline for decisions as to what actions to take now. Much to the RIOG's trepidation, the only action to now prudently recommend is to Breach Lower Snake River Embankments. This is why they have failed to act. The forces within this CRSO process are the same forces within the 2002 EIS process, within that RIOG process, and within NOAA Fisheries. With five remanded Biological Opinions regarding Idaho's salmonids, the so-called Action Agencies have fought long and hard to maintain the status quo. They shudder at the realization that Idaho's salmon populations cannot recover with the Lower Snake River dams in place. Quis custodiet ipsos custodes? The 2002 EIS found economics to be the deciding factor in maintaining the status quo. "Additional annual power costs of $271 million per year" were deemed too important and the (Alternative 4) Breaching Lower Snake River Embankments was set aside, yet to be proven as "necessary at this time". That time has come. It is time to get it done. As the keystone species now dwindles, the ecosystem shows more signs of cracks. The CRSO should ask again, if this time Breaching Lower Snake River Embankments is now necessary? Avoiding that all-important question, set in stone by the 2002 EIS, would be a fatal mistake. A legitimate NEPA document must consider the ecosystem collapse that is now taking place: Salish Sea Orcas need more of Idaho's Chinook. The very few humans that benefit from the status quo, the subsidized wheat shippers and Bonneville's subsidized ratepayers, have infiltrated every imaginable government position that will give them the necessary force to protect their status quo benefits. Please ask yourself, "How did Dan James, former lobbyist for Kristin Meira's Pacific Northwest Waterways Association, come to be a primary author of this CRSO Draft?" To get to that position, Dan James was somehow appointed to become the Deputy Administrator of Bonneville Power Administration. How did a lobbyist from a waterway association, qualify for that position? Many highly qualified personnel from the energy industry were passed over so that a lobbyist could take this powerful post. Is this reminiscent of Bonneville's former hiring scandal under the leadership of Stephen Wright? Yes, there has been corruption at the DOE for a long time now. Former Administrator Bill Drummond attested to that when he was asked to come back to Bonneville's helm, "No, I would not work with a deputy secretary that I do not trust or respect."	The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-lead agencies numerous legal obligations. The Preferred Alternative meets the objectives of the EIS for ESA-listed juvenile and adult anadromous salmonids, resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. The EIS concluded MO3, which includes breaching the four lower Snake River dams would have greater improvement to certain salmon species in the lower Snake River. It did not, however, conclude there was greater certainty of that result in MO3 over any other alternative. Because of delayed response time in MO3, and the potential severity of the short term effects, MO3 would likely have the most substantial uncertainty in terms of beneficial effects. Regarding the Preferred Alternative, this alternative is not simply a minor change to operations and maintenance of the CRS. The spill operation for juvenile fish passage in the Preferred Alternative is a significant departure from previous operations, so much so that the Washington and Oregon state water quality standards had to be changed to implement the new spill regime. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as the MO3 which includes the dam breaching measure. The Preferred Alternative also meets the EIS objectives for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% (the lower end of Northwest Power and Conservation Council's recovery targets for the region) as a result of the Preferred Alternative, as a result of the Preferred Alternative increasing SAR from 2.0% to 2.7% for Chinook, a 35% relative increase. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. To address uncertainty highlighted by the two models, the Preferred Alternative includes working with regional sovereigns to develop a study that assess the effectiveness of the increased spill regime on adult returns as well as assessment and management of adverse unintended consequences, such as long delays of adult migrants, or TDG-related mortality of juvenile migrants. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information. The Preferred Alternative will make a meaningful contribution towards recovery. The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. National Marine Fisheries Service (NMFS) and the Washington Department of Fish and Wildlife (WDFW) have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for the whales (NMFS and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including lower Columbia fall run (Tules and Brights), Upper Columbia and Snake fall run (Upriver Brights), Lower Columbia River spring run, Middle Columbia River fall run, and Snake River spring/summer run. SRKW also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKW are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). NMFS CSS and Lifecycle models predict that lower Snake River Chinook salmon Smolt-to-Adult return rates (SARs) would have a moderate to major increase under MO3. Operation of Lower Snake River Compensation Plan fish hatcheries under MO3 is uncertain and therefore, production of Snake River hatchery fish is assumed to decline over the long-term, while returning adult wild salmon are anticipated to increase. However, the co-leads do not anticipate a lack of hatchery fish in the short-term based on the proposed fish hatchery mitigation described in Chapter 5. These additional hatchery fish should mitigate short-term construction effects to Snake River populations. Additionally, to address short-term effects to ESA-listed species, the co-lead agencies propose constructing a new trap and haul facility at McNary and conducting at least two years of trap and haul operations for Snake River fish (Chinook, sockeye, and steelhead). Therefore, there may be short-term adverse effects to the SRKW population as the lower Snake River wild salmon populations adjust to changes associated with dam breaching. The co-lead agencies agree that the quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKW, along with vessel traffic and noise, and toxic contaminants. The operation of the CRS directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these Federal dam and reservoir projects, and the associated effects would indirectly affect SRKW. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differently from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NMFS BiOp 2020). The co-lead agencies conclude there could be a negligible to minor beneficial effects to SRKW from implementing MO3. Additionally, MO3 is not likely to adversely affect the SRKW distinct population segment in the short-term analysis because increased hatchery production and the new trap and haul facility at McNary proposed for MO3 in Chapter 5 would address any potential short-term impacts. Additional details on the most crucial prey stocks for SRKW, as well as their population and range, is available from several fact sheets and videos available here: https://www.fisheries.noaa.gov/species/killer-whale#spotlight. For more information, visit this NMFS StoryMap on SRKW: https://noaa.maps.arcgis.com/apps/Cascade/index.html?appid=3405e6637bf74e998d4ebe992c54f613.
32180	16	redfish@bluefish.org	N/A	MO3: the Environmentally Preferred Alternative Breach LSR Embankments, Spill to 120%TDG (Chapter 3, p.560) Snake River Spring/Summer-run Chinook Salmon Several structural measures in MO3 are anticipated to benefit adult Snake River spring/summer-run Chinook passage upstream and these include modifying the upper ladder serpentine sections at Bonneville dam. Overall, as with the other MOs, neither CSS nor the LCM indicates that powerhouse surface passage structures in MO3 would have a substantial effect on adult abundance over a 30-year period. Fallback rates of Snake River spring/summer-run Chinook at the lower Columbia dams may increase under MO3 since fallback for this ESU has been associated with higher flow and higher spill levels at many dams. In those studies, fish that fell back were less likely to reach their spawning areas compared to fish that never fell back. For example, of the 11% of Snake River spring-summer Chinook that fell back at Bonneville dam nearly 14% failed to re-ascend. Thus, the MO3 higher spill operation may result in a small increase in the fallback of Snake River spring/summer-run Chinook salmon adults as they migrate upstream. ...	The commenter is correct regarding projected effects on adult upstream migrants under MO3. Fallback may increase under conditions of higher flow and spill. Powerhouse surface passage structures were not anticipated to have a large effect on juvenile passage or adult fallback in the CSS and NMFS COMPASS models but were primarily discussed qualitatively. As real world operations are implemented, increased evidence of fallback would be managed through in-season adaptive management as part of the Regional Forum teams like TMT.
32180	17	redfish@bluefish.org	N/A	Snake River Steelhead For Snake River steelhead, the COMPASS and CSS models estimate that MO3 would increase juvenile survival and reduce travel time (-45%, -32%), elevated TDG (-5%), and powerhouse encounters (-76%, -77%). ... The COMPASS and CSS modeling results indicate that survival rates would increase between 23 and 46% relative to the No Action Alternative. ... For Snake River steelhead, the CSS cohort model estimates that MO3 would produce a substantial increase (178%) in SAR relative to the No Action Alternative. The CSS model estimated an absolute SAR of 5.0%. There are no LCM model estimates available for this DPS. ...	The NMFS COMPASS model forecasted a 23% improvement in in-river survival, and 45% decrease in travel time, and the CSS model predicted a 46% increase in survival and 32% decrease in travel time for Snake River steelhead. The substantial (178%) increase in SAR under MO3 relative to the No Action Alternative in the CSS model results both from the improvement in in-river survival and a decline in delayed mortality.
32180	18	redfish@bluefish.org	N/A	Snake River Sockeye Key long-term effects of MO3 would improve downstream and upstream migration survival through the lower Snake River due to breaching the four dams. Benefits would accrue through faster downstream travel time, fewer powerhouse encounters, lower predation, and reduced TDG effects.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Based on the fish analysis in Section Chapter 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the CRS. That call, however, is ultimately the role of NMFS and the USFWS. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. The Preferred Alternative is nevertheless predicted to benefit salmon and steelhead. It also meets the other objectives of the study for resident fish, hydropower, water management, and water supply, while minimizing adverse impacts to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS, the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams, because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system.
32180	19	redfish@bluefish.org	N/A	Snake River Fall-run Chinook Salmon Key long-term effects of MO3 for fall-run Chinook would be the major increase in available spawning habitat. Other major improvements would include the downstream migration survival through the lower Snake River due to breaching the four dams. Benefits would accrue through faster downstream travel time, fewer powerhouse encounters, substantially less predation, and reduced TDG. ... Breaching the	Thank you for the summary of the environmental consequences analysis of the Draft EIS for Snake River fall-run Chinook, under MO3.

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				four lower Snake River dams is estimated to increase the available spawning habitat for fall-run Chinook from 226 acres to 3,521 acres, an increase of 15 times the area available today. ... MO3 would lead to large increase in spawning habitat and improved conditions for spawning. Under MO3, juvenile fall-run Chinook may move downstream to use McNary and John Day reservoirs for rearing. One of the long-term effects is that the portion of the fish that overwinter in reservoirs for their first year is expected to be smaller in MO3 compared to the No Action Alternative. ... Temperatures at Ice Harbor would experience a moderate decrease with only 29.2% of all adult migration days over 20C compared to 54.3% in the No Action Alternative. Straying and migration delays, as well as susceptibility to disease, would be reduced in MO3. All of these effects would improve survival and spawning success.	
32180	20	redfish@bluefish.org	N/A	Draft PA: Flex Spill to 125%TDG, Protect the Status Quo (Chapter 7, p.99) No Breach of Lower Snake River Embankments, Flex Spill increases to 125% TDG, Snake River Spring/Summer-Run Chinook Salmon Depending on the model used and assumptions regarding latent mortality, CSS and LCM modeling indicate that the Preferred Alternative would result in lower (-7%) to substantially higher (35%) SARs for Snake River spring/summer Chinook salmon. Juvenile survival would be very similar to the No Action Alternative (about 0.6% higher). ... Snake River Steelhead For Snake River steelhead, the CSS cohort model estimates that SARs would increase from 1.8% under the No Action Alternative to 2.3% under the Preferred Alternative which is a 28% increase from the No Action Alternative. ... There is no NMFS LCM model for Snake River steelhead. Snake River Sockeye Salmon Juvenile survival would be very similar to the No Action Alternative (about 0.6% higher). Travel time would be faster and powerhouse encounters substantially fewer. Fewer juvenile Snake River sockeye would be transported. Adults could see benefits to upriver migration with some structural measures, but may experience potentially higher fallback. Both adults and juveniles would be exposed to higher levels of TDG.	Thank you for your comment, the co-lead agencies concur with this comment.
32180	21	redfish@bluefish.org	N/A	Understatements (Appendix Q, 2-3) Over the last decade, the Co-lead Agencies have spent tens of millions of dollars to improve the quantity and quality of fish habitat in the estuary and tributaries as "off-site mitigation" for the residual adverse effects of system water management on migrating salmon and steelheads. ("Bonneville budget specialists" should know better). "Tens of millions of dollars... is an understatement, and needs to be updated.	Current and anticipated future fish and wildlife mitigation measures and operations are described under the No Action Alternative, Section 2.4.2.Many of the structural and operation measures are carried forward and proposed to be implemented or expanded under the Preferred Alternative (See Section 7.6). Funding of fish and wildlife mitigation actions and programs is described in Appendix Q, Section 6.1 and Table 6-1. Additionally, Section 5.2.1 describes the existing mitigation programs under the No Action Alternative and provides a high-level summary of some of the accomplishments stemming from the significant Federal investment to date. Since the 1990s, the Federal agencies have overhauled system operations and infrastructure, achieving juvenile dam passage survival that meets or exceeds performance standards of 96% and 93% for spring and summer migrants respectively, a marked improvement as compared to when Congress passed the Act and the estimated average juvenile mortality at each mainstem dam and reservoir project was 15%20% with losses recorded as high as 30%. Travel time improved for yearling Chinook and juvenile steelhead through the system, even in low flow years such as 2015, and total In-River survival has improved for migrating juvenile salmon and steelhead. Comparing two time periods reported in NOAAs reach study (19972007 and 20082016), there has been a 10% survival increase for hatchery and wild sockeye salmon, a 2% increase in hatchery and wild Chinook (4% for wild), and a 25% survival increase for hatchery and wild steelhead (13% for wild). Regarding the statement in the Cost Appendix Q, the phrase " tens of millions of dollars" has been removed and replaced with updated language in the final EIS.
32180	22	redfish@bluefish.org	N/A	Inconsistencies (Chapter 7 page 10) Model estimates for MO3 showed the highest predicted potential smolt-to-adult returns (SARs) for Snake River salmon and steelhead amongst the alternatives. ... 140 percent relative to the No Action Alternative. ... (Chapter 3 page 560) For Snake River spring/summer Chinook salmon, the NMFS LCMs and CSS LCM indicate that MO3 may result in a wide range of predicted increases to SAR rates. CSS predicts SARs from Lower Granite to Lower Granite would increase by about 170% relative to the No Action Alternative. The NMFS Life Cycle Model predicts relative increase in Lower Granite to Bonneville SARs that range from 14% to 70% depending on the magnitude of reductions in latent mortality. Which comparison to the No Action Alternative will the Final CRSO document choose to use? The best choice would be to make MO comparisons when Latent Mortality is assumed to be 75% of Direct Mortality. This would conform to the best available science, documented in detail in Table 6 of Schaller's survey of literature. [Text contains figure that does not transfer to database.]	For MO3, Chapter 3 incorrectly presented CSS SAR results as "LGR-LGR". These should be LGR-BON, and will be corrected in the final. As such, they are comparable across all the multiple objective alternatives and the No Action Alternative. The model results presented in Sections 3.5 and 7.7.4 address latent mortality and reservoir mortality. Latent mortality is captured directly in the CSS model for SARs and abundances, and is overlaid with several assumed values (10%, 25% and 50% reductions in latent mortality) in the NMFS Life Cycle model results. Moreover, the value of latent mortality is uncertain. In fact, the Independent Scientific Advisory Board (ISAB) in their 2007 report stated, "The ISAB concludes that the hydrosystem causes some fish to experience latent mortality, but strongly advices against continuing to try to measure absolute latent mortality. Latent mortality relative to a damless reference is not measurable. Instead, the focus should be on the total mortality of in-river migrants and transported fish, which is the critical issue for recovery of listed salmonids. Efforts would be better expended on estimation of processes, such as in-river versus transport mortality that can be measured directly." Under the Preferred Alternative, the inclusion of the adaptive management process would provide additional opportunities to further the effectiveness of the operation while maintaining the goals of the flexible spill operation: additional improvements for salmon and steelhead, maintain opportunities to operate the CRS for hydropower generation in a flexible manner that provides value to the Northwest, is implementable by the dam operators, and provides opportunity to reduce uncertainty and improve the learning opportunities around how operations of the CRS can influence the magnitude of latent mortality effects. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin.
32180	23	redfish@bluefish.org	N/A	There are many factors that contribute to the survival of fish, and most would not be improved by a free-flowing Lower Snake River. Juvenile fish survival rates currently range from 95% to 98% past each of the eight federal dams on the Columbia and Snake rivers, with continued investment in additional fish passage improvements. (Kristin Meira, Executive Director Pacific Northwest Waterways Association) - Juvenile Survival through the Hydrosystem- [Text contains figure that does not transfer to database.] (Chapter 5, 5-6) Since the 1990s, the federal agencies have overhauled system operations and infrastructure, achieving juvenile dam passage survival that meets or exceeds performance standards of 96% and 93% for spring and summer migrants respectively, a marked improvement as compared to when Congress passed the Act and the estimated average juvenile mortality at each mainstem dam and reservoir project was 15%20% with losses recorded as high as 30%. Travel time improved for yearling Chinook and juvenile steelhead through the system, even in low flow years such as 2015, and total In-River survival has improved for migrating juvenile salmon and steelhead. Comparing two time periods reported in NOAAs reach study, (1997 2007 and 20082016), there has been a 10% survival increase for hatchery and wild sockeye salmon, a 2% increase in hatchery and wild Chinook (4% for wild), and a 25% survival increase for hatchery and wild steelhead (13% for wild).	Thank you for your comment.
32180	24	redfish@bluefish.org	N/A	Water Temperature - Executive Summary There is regional controversy over the role the federal projects may play in contributing to higher water temperatures. The only "controversy" to speak of is that the federal agencies are steadfastly refusing to listen to the science: The LSR dams impound a slow-moving thermal reservoir. We should acknowledge that under MO3 there would be fewer high water temperature days than under any of the other MOs. It is troubling to find the CRSO Draft being so reticent to state the benefits of Breach Lower Snake River Embankments. Data is scattered in various tables, but nary a word is said about cooling the Columbia River.	The EIS acknowledges and describes the temperature sensitivities of salmon and steelhead, as well as the many other factors that affect these fish. Water quality and hydrology modeling data were inputs into the fish survival models used to analyze the alternatives effects on salmon and steelhead, so temperature effects to survival have been incorporated into the overall analyses of each alternative. Water temperatures under MO3, which includes breaching the four Snake River dams, indicates that nighttime summer water temperatures, as well as fall water temperatures, would be cooler than No Action conditions in the Snake River. However, even with the lower Snake River dams breached, maximum summer water temperatures would exceed state water quality standards (20C) at times, especially during hot weather events. The models showed minor changes in the Columbia River under this alternative.
32180	25	redfish@bluefish.org	N/A	(Chapter 4, p.34) Warming Water Temperatures Projected changes in stream and river temperatures may cause direct mortality due to heat stress and greater disease susceptibility, if the range of physiological tolerance is exceeded. For example, in the Columbia Basin, Snake River sockeye salmon are at high risk from heat waves during their mid-summer adult migration. Historical water temperatures have already approached lethal limits for adult steelhead in the upper Snake and middle Columbia Rivers. Thus, even minor increases in thermal exposure put some of these populations above lethal limits. In MO3, consideration could be given to ending the current management of "the available storage to augment summer (July and August) flows in the lower Columbia River and lower Snake River in an attempt to meet flow objectives and minimize increases in water temperatures." Some of these measures' "attempt to" cool has seen no biological benefit whatsoever. For instance, the cool water releases from Dworshak Dam slip underneath the warm Snake River (see map two pages below).	The co-lead agencies agree with the commenter's concern relating to water temperatures in the Columbia and Snake rivers and that is why the agencies have used current high quality information and resources available to model and evaluate impacts from operations described in each of the alternatives on water temperatures. Historically, water temperatures in the lower Snake River were warm (USGS 1960, 1961, 1964; Corps 2002a). Observed historic water temperatures show that average monthly water temperatures during July and August, in the 1950s, averaged 7 to 8 degrees Fahrenheit higher than today's conditions, while maximum daily differences were 10 to 12 degrees Fahrenheit higher. The differences observed in the lower Snake River today, as compared to historical conditions, are a result of the middle and upper Snake River reservoirs combined with the influence from Dworshak Dam operations. The study results indicate that the operations of the CRS do impact water temperature, but the CRS has limited ability to reduce temperatures in the lower Snake and Columbia rivers outside of Dworshak operations. Regionally high air and water temperatures result in water quality standard exceedances and are beyond the ability of the CRS to cool. The co-lead agencies agree life history patterns are driven significantly by the high air temperature in the summer. However, although the cooler water slips beneath the warm Snake River water, it does provide benefits. Telemetry studies with depth sensitive transmitters show that migrating adult salmon indeed migrated deeper in the Lower Granite reservoirs than the same fish has in the downstream reservoirs, and juvenile condition and health improved since temperature management began. The warm and cold waters mix going through Lower Granite Dam, although the surface waters do warm due to air temperatures and solar input.
32180	26	redfish@bluefish.org	N/A	Strikingly, the CRSO authors completely avoided a well-document warm water tragedy when 99% of Idaho's Sockeye Salmon perished in warm reservoir waters of July 2015. But the CRSO Draft was unable to hide this tragic event entirely from the readers' view: The region's sturgeon die-off was also noteworthy. But to say the death of engorged sturgeon was due to "temperatures interacting" with the large sockeye run, is a deceptive understatement: "Interacting" is a very poor choice of words.	The effects of the No Action Alternative (Page 3-389) discusses the recent survival rates of Snake River sockeye salmon that range from 0%-70% to Redfish Lake, the Sawtooth hatchery weir, or other locations. The conditions affecting survival are also discussed, with water temperatures receiving the most attention. This range of survivals in differing conditions under the No Action Alternative is the baseline to which the multiple objective alternatives are compared. In years such as 2015, with low flows and high air temperatures, survival would continue to be compromised under all alternatives. The models showed minor changes in the Columbia River even under MO3 (the alternative with the dam breaching measure), indicating that the operations of the CRS dams have a limited ability to reduce temperatures in the lower Columbia River. Regarding white sturgeon, this language came from our workshop with fish managers to describe the interaction between high temperatures limiting metabolism coinciding with the abundance of salmon carcasses.
32180	27	redfish@bluefish.org	N/A	(Chapter 3 page 493) White Sturgeon: Mass mortality events and increased single mortalities are observed more frequently during high temperature events, often coupled with sockeye mortality events. Elevated water temperatures can have adverse effects on white sturgeon. Temperatures over 20C can limit egg survival, and in some years, a combination of low flows, elevated summer temperatures, and low DO levels have led to white sturgeon mortality (IDFG 2008). During 2015, elevated water temperatures interacted with large sockeye runs to increase white sturgeon mortality. Sturgeon gorged on decomposing sockeye while water temperatures were near 22C and were unable to metabolize these fish. Under current conditions, mean high temperatures greater than 21C would occur nearly 10 percent of the year at McNary Dam and only about 1 percent of the year at Priest Rapids Dam.Under the No Action Alternative, extreme low-flow or high-temperature years would continue to result in white sturgeon mortality events. [Text contains figure that does not transfer to database.]	Thank you for your comment; this entire comment is a direct quote from Chapter 3, page 430 (No Action Alternative) of the Draft EIS, although the commenter references page 493 (MO1). The co-lead agencies continue to support the material referenced in this comment.
32180	28	redfish@bluefish.org	N/A	Under MO3, cooler un-impounded water will contribute to cooling the Columbia River, but by how much? The CRSO should "attempt to minimize increase in water temperature" with Breach Lower Snake River Embankments and notice the heat exchange differences that would lower Columbia River water temperatures. Recreating riverine conditions on the Lower Snake River greatly improves water temperature on those 140 miles, impounded and heated by warm air temperatures and the near-daily summertime sun. A free-flowing river will be much cooler.	Reservoirs create a lag in the thermal response to environmental conditions, leading to colder conditions in the spring and warmer conditions in the fall as compared to unregulated systems. Breaching the dams would reverse these effects. Under a dam breach scenario, spring water temperatures will warm more quickly than No Action conditions. Similarly in the fall, under a dam breach scenario, fall water temperatures will cool more quickly than No Action conditions. These results make logical sense and are supported by results from CRSO EIS numerical water quality modeling. What has surprised some stakeholders are the predicted summer water temperature effects under dam breaching. Many believe that removing the dams will result in colder water temperatures as compared to the No Action Alternative. While some cooler water temperatures may be observed in the summer under dam breaching, especially during cooler summer weather conditions and at night, water temperatures will remain warm and exceed the state water quality standard at times. This is because without the dams, the lower Snake River will be shallower and more susceptible to solar radiation and warming. Increases in water particle travel time are expected, but the lower Snake River has always been a warm system (USGS 1960, 1961, 1964; Corps 2002a) and breaching the dams will not change this fact.
32180	29	redfish@bluefish.org	N/A	Additionally, Dworshak flows that "attempt to cool" the impounded Lower Snake River, (currently without effect, see map above) may provide benefit on the Columbia River where thermal blockages regularly occur. Potential survival benefit of adults should be thoroughly studied by analysts familiar with heat transfers thermostatics. Additionally, the adequacy of the power system under MO3 without Dworshak flows should be given full consideration: An updated GENESYS run will likely show a reduced LOLP. Adult Migration/Survival The percent of days over 18C between June 21 and July 31 would be 87.3 percent, which is three additional days over 18C compared to the No Action Alternative. This means Snake River sockeye might	Historically, water temperatures in the lower Snake River were warm (USGS 1960, 1961, 1964; Corps 2002a). Observed historic water temperatures in show that average monthly water temperatures during July and August, in the 1950s, averaged 7 to 8 degrees Fahrenheit higher than today's conditions, while maximum daily differences were 10 to 12 degrees Fahrenheit higher. The differences observed in the lower Snake River today, as compared to historical conditions, are a result of the middle and upper Snake River reservoirs combined with the influence of Dworshak Dam operations. The co-lead agencies' analysis of MO3, which includes breaching the four Snake River dams, indicates that nighttime summer water temperatures, as well as fall water temperatures, would be cooler than conditions in the No Action Alternative in the lower Snake River. However, even with the dams breached, maximum summer water temperatures would exceed state water quality standards (20C) at times, especially during high air temperature events. Overall the conclusion in the Draft EIS is that MO3 would be beneficial to anadromous fish for a number of reasons, but other objectives must also be considered in the selection of a

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				have slightly greater thermal stress than under the No Action Alternative. However, breaching of the four lower Snake River dams is expected to reduce delays in upstream migration and decrease the time fish are exposed to the slightly warmer water temperatures. Additionally, sockeye would not have the transportation effects that can increase straying and fallback and prolong their exposure to thermal stress.	Preferred Alternative. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3. However, the Preferred Alternative also meets all the other objectives of the study for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse impacts to communities and the economy. The dam breaching alternative, by contrast, has significant regional economic impacts and community effects, and meet only a small subset of the EIS objectives. Thus, the co-lead agencies did not recommend MO3 because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. The models showed minor changes in the Columbia River under this alternative, indicating that the operations of the CRS dams have a limited ability to reduce temperatures in the lower Columbia River. Summer water temperatures exiting the Snake River are typically 1 to 3 degrees Fahrenheit warmer than the receiving Columbia River temperatures. Even though the cold water released from Dworshak during the summer is less than 50 degrees Fahrenheit, the volume of water released is less than one tenth of the flow in the Columbia River. Since the distance between the confluence of the Snake and Columbia Rivers is about 180 miles downstream from Dworshak, the impact on water temperatures is negligible. Regionally high air and water temperatures result in water quality standard exceedances that are beyond the ability of the CRS to cool.
32180	30	redfish@bluefish.org	N/A	(Appendix I, Chapter 4-14) During the spring snowmelt runoff (April-May or June) Dworshak is operated to maximize the probability of re-filling the reservoir for summer flow augmentation while providing flows to meet spring objectives in the lower Snake River during the downstream migration of juvenile salmon and steelhead. Summer flow augmentation (July-September) is provided from Dworshak to increase survival of ESA-listed adult fish by moderating river temperature and increasing water velocities in the lower Snake River. (Appendix R, Annex A 1-4) April Mitigation Toolbox - Water Quality: Operate run-ofriver projects that stratify (e.g. LSR projects) to pass cooler water from deeper in the forebay to cool downstream temperatures during warm/flow conditions. [Text contains figure that does not transfer to database.]	The study results indicate that the operations of the CRS do impact water temperature but the CRS has limited ability to reduce temperatures in the lower Snake and Columbia rivers outside of Dworshak operations. Regionally, high air and water temperatures result in water quality standard exceedances and are beyond the ability of the CRS to cool. Drier and warmer years such as 2015, as summarized in NOAAs 2015 Adult Sockeye Salmon Passage Report (September 2016, National Marine Fisheries Service document) point out that tributary temperatures in the Okanogan and Salmon rivers were above 25C. Cooling water pumps have been installed at Lower Granite and Little Goose adult passage ladders to reduce temperature differentials between ladder and river and to reduce thermal stress during upstream passage. Additional considerations at other locations are included in the EIS. In addition, the co-lead agencies are actively working on implementing the recommendations identified in NMFS's 2015 Adult Sockeye Salmon Passage Report (September 2016, National Marine Fisheries Service document) to improve management decision making and reduce, to the extent practicable, the negative impacts of high summer temperatures on migrating salmon, including adult sockeye salmon. Future analysis, particularly for real-time water temperature management, should focus on optimizing spill versus passing the water through the turbine units to maximize benefits to migrating salmonids.
32180	31	redfish@bluefish.org	N/A	Predation by Birds - Removing flow and pool elevation restrictions at John Day alongside Breach Lower Snake River Embankments, could provide the twin benefits--economic and ecologic-- of reducing nesting habitat on Blalock Island while increasing the reliability of the grid. Hydropower efficiency is improved by higher pool elevations (Energy = mass x gravity x height), and being able to ramp at a wider variety of rates for greater amounts of time will improve the GENESYS modeled adequacy of the hydropower system. The CRSO process should seriously consider these benefits of both MO2 and MO3.	Predator disruption and breaching the lower Snake River Dams were analyzed as part of MO2 and MO3. The Preferred Alternative includes the predator disruption measure at the John Day reservoir. A version of the John Day pool operation was carried into the Preferred Alternative, however, the breaching measure was not included in the Preferred Alternative. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets most other EIS objectives including those for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS, the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams, because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system.
32180	32	redfish@bluefish.org	N/A	Salmon populations around the world are struggling due to climate change, rising carbon levels, pollution and more. Eliminating the clean power and efficient transportation provided by the Lower Snake River dams would add to climate change and pollution by increasing carbon from truck traffic and other sources of power, such as natural gas. This would lead to a cumulative increase in carbon emissions equivalent to building a coal-fired power plant like the one in Boardman, Ore., every 5 or 6 years. (Kristin Meira, Pacific Northwest Waterways Association) - Greenhouse Gases - (Chapter 3, 3-977) Based on various GHG inventories, emissions in the Pacific Northwest are generally low compared to other states and national averages. This is in large part because of the abundance of hydropower in the region, which does not create GHG emissions when generating power. As such, electric power generation is not the largest GHG-emitting sector in the region as it is nationally. [Text contains figure that does not transfer to database.] Notably, the 3MMT of GHG emissions that is estimated to result from MO3 is tiny by comparison with the Total U.S. Emissions from Power Generation (graphic above) where 3MMT is less than the thickness of the black line depicting Total Emissions.	The findings of the EIS emissions analysis for Multiple Objective Alternative 3 are consistent with this comment. The EIS does compare regional emissions to national levels in the Affected Environment discussion, finding relatively low levels of power sector emissions in the Northwest compared to national averages (see Draft EIS 3.8.2.2 pages 3-945 to 3-978). However, despite being small on a national scale, the increase in CO2 emissions that are anticipated under MO3, (even assuming reliance on renewable resources to replace power from the four lower Snake River Dams) makes regional emissions policies and goals more difficult to achieve.
32180	33	redfish@bluefish.org	N/A	Executive Summary MO3 would not meet the objective to Minimize GHG Emissions. GHG emissions were analyzed for the base case hydropower impacts without the effect of the additional coal-plant retirements. GHG emissions would increase the most if the hydropower were replaced with natural gas. This would lead to an additional 3.3 million metric tons (MMT) of CO2, a 10 percent increase in power-related emissions across the Northwest (needs correction). ... This increased reliance on fossil-fuel-based resources is estimated to increase power-related emissions by 2.7 percent (1MMT of CO2) across the region even assuming the new replacement resources are other renewables. In the future, technical advances in storage and other low-carbon options may become increasingly viable to help integrate variable renewable generation.	The findings of the emissions analysis for MO3 are consistent with this comment. The EIS acknowledges that the renewable power resource portfolio may better reflect future trends (see EIS Section 3.8.3.1 page 3-987 in the Draft EIS). In addition, regarding the potential benefits of future clean energy technology, the EIS acknowledges that the energy sector is constantly undergoing transformation and that technological improvements will likely bring other options. To avoid speculation, the EIS analysis focuses on primary technologies identified by the Northwest Power and Conservation Council in their Seventh Power Plan (page 13-5) that are deemed proven, commercially available, and deployable on a large enough scale in the Northwest. The basis for developing the power portfolios may be found in Section 3.7.3.1, Methodology, and Section 3.7.3.5, Potential Replacement Resources and Associated Costs for MO3 specifically in the Draft EIS.
32180	34	redfish@bluefish.org	N/A	A large part of the Executive Summary was dedicated to Coal Plant closures that were announced after the CRSO process began. The Base Case is all that is pertinent, otherwise a NEPA analysis would become unnecessarily complex and intractable by adding ever changing future conditions: trends in solar plus battery and wind plus battery installations, 15-minute Energy Imbalance Markets, changes in load and conservation forecasts due to Covid-19, a newly announced loss of a Tier 1 customer from Bonneville's ever shortening list of Direct Service Industries, construction of a 1,150 mile Gateway West transmission line connecting Wyoming's burgeoning fleet of wind farms to the Pacific Northwest, development of flow batteries, and on and on. Under MO3, the CRSO considers that ensuring "an adequate, efficient, economical and reliable power supply" would necessarily require a natural gas backup, promoting a need for "Conventional Replacement Portfolio" alongside Breach Lower Snake River Dam Embankments. Notably, the Seventh Power Plan, which the CRSO Draft frequently references, found that NW Council's "Least Cost Replacement Portfolio" would simply reduce the export of the Bonneville's omnipresent surplus of electricity. Consequently, under the Seventh Power Plan's analysis, natural gas backup would be provided almost entirely by existing natural gas power plants (Figure 3-13 next page).	The comment suggests the EIS should have ignored information relevant to environmental concerns and bearing on the proposed action or its impacts, which is inconsistent with the co-lead agencies obligations under NEPA. See 40 C.F.R. 1502.9. As described in a previous response, the analytical approach used in this EIS which included more recent information - provides a more complete picture of the Multiple Objective (MO) Alternatives impacts on regional reliability and costs and is consistent with what NEPA requires. The comment incorrectly suggests that MO3 only considered a natural gas resource replacement portfolio. The EIS considered a range of resource portfolios to replace the power output of the four lower Snake River dams. That range is reflected in two portfolios used to outline the potential resource options: a least-cost conventional portfolio (natural gas) and a zero-carbon portfolio (primarily solar). See Section 3.7.3.5, at pages 3-904-910 in the draft EIS. These portfolios represent a range of potential portfolios that could be used to return the regional power system to the reliability level of the No Action Alternative. The commenter is presumably referring to the Councils removal study in mentioning the Councils Least-Cost Conventional Portfolio. That analysis is not comparable to the analysis performed in the EIS. The Councils study removed a generic 1000 aMW carbon-free resource in the 7th Power Plan, rather than removing the four lower Snake River dams, with their particular generation, shape, and characteristics. Further, it is not clear if this study was modeled using the GENESYS model, which is the model relied upon in the EIS. See Section 3.7.3.1, Step 2: Analyze Effects on Power System Reliability at page 3-819 in the draft EIS. Further, the Councils study had an approximately 2,000 aMW lower load forecast than the forecast used in the EIS, which is more current. The comment suggests that the lost capability from the four lower Snake River dams could be supplied through reduced exports of electricity from Bonneville. This is incorrect. The four lower Snake River dams are not used exclusively to support power sales out of the region. Rather, Bonneville sells power from the Federal projects on a coordinated, system basis. Loss of the capability from the four lower Snake River dams would increase the regions risk of a blackout. Under average water conditions and 80-year water data, the four lower Snake River dams produce between 460 aMW to upwards of 1400 aMW of power during the winter months of December through February, which are typically the most energy intensive months for Bonneville. See Section 3.7.3.5, Changes in Power Generation, Table 3-159 in the draft EIS. Without replacing the power from the four lower Snake River dams, the Loss of Load Probability (i.e., risk of blackouts) for the region would more than double to 14 percent, which is equivalent to one blackout every seven years. See draft EIS, Section 3.7, page 3-903 and Appendix H-Power and Transmission at Table 2-1.
32180	35	redfish@bluefish.org	N/A	The NW Council staff specifically designed Seventh Power Plan's "Planned Loss of a Major non-GHG Emitting Resource" to be very similar to the removal of Lower Snake River dams, one removal every other year over eight years. Oddly, NW Council's extensive computer modeling results are completely absent from the CRSO Draft. [Text contains figures that do not transfer to database.] The CRSO process did not include the NW Council "reasonable mitigation" of simply reducing exports, and pressed forward with an unfound need for "Replacement Portfolios" alongside Breach of Lower Snake River Embankments. Importantly, the NW Council found that under the "Planned Loss" scenario, reducing exports is not cost prohibitive (Figure 3-20, previous page). Undeterred, the CRSO repeatedly insists that Replacement Portfolios are needed for an "adequate, efficient, economical, and reliable power supply that supports the integrated Columbia River Power System." As an aside, shouldn't that sentence structure be reversed? Is it not the Columbia River Power System that is providing that support? After all, the CRSO Draft highlights the benefit of hydropower as a means to balance intermittent renewables.	There are notable differences between the Northwest Power and Conservation Councils (Council) analysis of Planned Loss of a Major non-GHG Emitting Resource and the Multiple Objective Alternative 3 analysis in the EIS that included breaching of the four lower Snake River dams. The Council modeled the loss of generic non-GHG emitting resources. If the Council had analyzed the timed removal of the four lower Snake River dams, resource strategies would have had to also account for the 1,700 to 2,000 megawatts of sustained peaking loss and not just the loss of 1,000 average megawatts of energy generating capability. This would have likely increased the magnitude of the requirement for replacement resources. (Council 7th Power Plan, page 3-13). Specifically, In the Planned Loss of a Major Resource scenario, it was assumed that a total of 1,000 megawatts nameplate capacity producing 855 average megawatts of energy resources that do not emit carbon dioxide were retired by 2030. (Council 7th Power Plan, page 15-37). This is a resource that is not only slightly smaller in energy, but significantly smaller in capacity than the combination of the four lower Snake River dams. In the EIS LOLP analysis, surplus/export loads are not included. Even without this load, the LOLP for MO3 at 14 percent was more than double that of the No Action Alternative at 6.6 percent and nearly three times the Councils target of 5 percent. The Council used their Resource Portfolio Model for the 7th Power Plan analysis of this study. The EIS used the Councils GENESYS model, Council data (including that of the 2022 Resource Adequacy Assessment), and the Councils resource adequacy metric and standard and only proposed replacement resource portfolios if that standard was not met.
32180	36	redfish@bluefish.org	N/A	The CRSO Draft suggests that MO3 requires a need for more natural gas combustion; apparently Bonneville needs to sell surplus power for Secondary Revenue Credits (see Table 4-9, next page). Consider that even if all of the Lower Snake hydropower output were replaced (half of which is surplus, see Table 3-111, next page), only 3.2 MMT of CO2 would be added to the entire West Coast. With that in mind, recall that the recovery of Idaho's Salmon and Steelhead would provide ever growing amounts of carbon sequestration in Idaho's forests, with marine-derived nutrients arriving for free. The result of MO3 would surely be a net benefit for sequestering Greenhouse Gases. (Chapter 3, p.1015) Across the wider Western Interconnection, excluding regions outside of the United States, average emissions from AURORA in MO3 with the conventional least-cost replacement portfolio would be 166 MMT CO2, approximately 2% greater than No Action Alternative.	The findings of the emissions analysis for Multiple Objective Alternative 3 (MO3) are consistent with this comment. The EIS analyzed two resource portfolios to replace the hydropower generation of the four lower Snake River dams, one that included natural gas and one that included all renewable resources, both of which maintain regional power system reliability. The EIS does find an increase in fossil fuel generation even assuming all renewable replacement resources are built to meet demand. This increase results when renewables are not generating power because some level of fossil fuel generation would be required to maintain reliability in the electric system. Given that policy and legislative decisions in Oregon and Washington are targeting large reductions in greenhouse gas emissions, even a 2.7 percent increase in CO2 emissions, even with the renewable replacement resources, makes these goals more difficult to achieve. The basis for developing both of these power portfolios may be found in Section 3.7.3.1, Methodology, and Section 3.7.3.5, Potential Replacement Resources and Associated Costs for MO3 specifically of the Draft EIS. With respect to the influence of salmon on carbon sequestration, Section 3.5 identifies that fish migration through the lower Snake River corridor would improve under MO3. Section 3.5.2.3 recognizes that anadromous fish deliver resources that affect food web productivity and influence flora and fauna across the Columbia River Basin. This indicates that, in some areas, MO3 would likely improve landscape carbon sequestration. However, in other areas, MO3 may reduce landscape carbon sequestration. As described in Section 3.6.3.5, lower water levels in the spring and early summer in some areas under MO3 would reduce productivity in some existing emergent herbaceous and forested and scrub-shrub wetlands. The overall effect of MO3 on landscape level carbon sequestration across the Basin is uncertain.
32180	37	redfish@bluefish.org	N/A	Lastly, while referencing NW Council's "Achievable Conservation Potentials" (Figure 12-6, next page), consider that Climate Change projections see a decrease in electricity demands in warmer winters, but an increase in demand during warmer summers. These forecasted changes will change the LOLP modeled for MO3. (Appendix J 6-15 Climate Change) The power shortages in December through February under the NAA and MO alternatives could be reduced into the 2030s as loads in those months decrease. Conversely, the summer shortages that increase in MO1, MO3, and MO4 as compared to the NAA are likely to be further exacerbated as temperatures and load in those months increase. [Text contains figures that do not transfer to database.]	The comments in this statement regarding changes in power generation due to climate change are consistent with discussions in Section 4.2.5, Power Generation and Transmissions, and Appendix J, Hydropower in the Draft EIS. Specifically, the EIS examined four future climate scenarios to assess potential changes in hydrology, and thus, how climate change may impact generation. Section 4.2.5.2 in the Draft EIS discusses the change in loads and impacts to reliability in relation to climate change.
32180	38	redfish@bluefish.org	N/A	An Adequate Power Supply - . (Appendix H, 2-4) The specific resources that would be developed to maintain a sufficient and reliable supply of power are uncertain. Costs, technical feasibility, and regional greenhouse gas emissions policies and targets, among other factors, all influence resource availability in the future. ... This analysis considers two potential replacement portfolios. ... To maintain power system reliability in the Northwest with MO3, additional generation resources would be needed. For the previous analysis, Bonneville considered two scenarios for replacement portfolios. The first scenario adds resources to restore the LOLP to the same level as the No Action Alternative for the base scenario without additional coal-plant	This comment identifies a complexity in the EIS analysis that is described in the body of the EIS and in the Appendix H. Section 3.7.3.5, Lower Snake River Full Replacement, pages 3-905-907 in the Draft EIS. The language in Appendix H is attempting to describe the Base Case assumptions of including sufficient zero-carbon resources to return regional reliability to the No Action Alternative, while also replacing a portion of the lost capability of the four lower Snake River dams. See Appendix H, Power and Transmission, Section 2.2.1, at H-2-5 in the Draft EIS.

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				retirements. This approach replaces only the generation produced in dry water conditions (in the water years when power shortages are most likely), but does not replace the full capability that would be lost in MO3. It also relies more on generation from non-CRSO projects (i.e. leans on the rest of the regional power system) to meet load in the region, primarily by operating thermal resources. In the future condition with additional coal-plant retirements, this option would not be sufficient to return the LOLP to the No Action level, because without coal, more of the capability or replacement capability of the Lower Snake River (LSR) projects would be needed for power system reliability. The third scenario developed (bluefish: before mention of a second) designed a portfolio of replacement resources that replaces all of the generation capabilities currently supplied by the LSR projects. In the short-term, this portfolio may replace some of the generation capability that may be considered surplus. However, as more coal plants retire, replacing the full capability of the LSR projects becomes more essential to maintain the reliability of the power system. For example, the ability of the projects to ramp generation up and down quickly is very valuable to integrating new renewable generation. It is in this third scenario that employs the newly created energy metric the CRSO refers to as "Historical Sustained Ramping" which in February amounts to over 2,000 MW of something or another. I asked NW Power & Conservation Council staff about this metric, I learned that they too had never heard of it before, and were unable able to parse "Historical Sustained Ramping" into anything meaningfully or useful. Notice second paragraph H-2-5 Bonneville considers two scenarios then discusses a first scenario adds resources The next paragraph then introduces us to a third scenario. which "replace some of the generation capability that may be considered surplus. The reader is told to expect only two scenarios, but suddenly there are three. That is curious. It seems that someone late in the game added a third to look at the power system needs when future coal plants are retired. What happened to the second? Continuing further, we learn that for the cost analysis, scenario 2 is used. For the rate analysis (scenario 2), Bonneville chose to design a portfolio that is inbetween the two scenarios described above, in other words, more than replacing the minimum generation needed just for power system reliability under the current system before coal plants retire but less than a full replacement of all capabilities. Finally the mystery is solved. This is why Bonneville did not ask NW Council to run the GENESYS model. This is why Bonneville did not share their input data with the NW Council. The CRSO generates inflated costs that are far more than are necessary for "replacing the minimum generation needed just for power system reliability". Thank goodness this sleight of hand was documented in Appendix H. In order to show an increase in rates under Breach Lower Snake River Embankments, the CRSO added LOLP in MO3 by including an increase in spill to 120% TDG. Not only did the CRSO ignore the Seventh Power Plan's findings of a Least Cost Resource Portfolio under a "Planned Loss" scenario, Bonneville sought to inflate the needs of its two replacement portfolios beyond what is necessary. This is shocking and underhanded. [Text contains table that does not transfer to database.] In addition to more carbon emissions, losing the Snake River dams puts us at risk for higher electricity prices and doubles the risk of blackouts from lack of power during peak demand periods. (Kristin Meira, Pacific Northwest Waterways Association)	For the Base Case, the EIS assumed that half of the installed solar (2,550 MW in the Draft EIS) in MO3 would need to be accompanied by battery storage to provide sustained power during longer events without sufficient solar generation without leaning on or overloading existing regional capacity to integrate these renewables. The value was used as a proxy for the estimated amount of capacity needed to support new renewable integration in light of the loss of the four lower Snake River dams and potential future restrictions of available capacity due to increased retirement of coal capacity. The commenter appears to question the need for this additional capacity in MO3 if the objective is to only return regional reliability to the No Action Alternative level. The need for resource capacity to integrate renewable resources is well established and discussed at length in the EIS. In the Draft EIS please see Section 3.7.3.5, Potential Replacement Resources And Associated Costs, at pages 3-904-905; Table 3-160; and, Section 3.7.3.1, Integration Services, page 3-832. Solar resources are not dispatchable, and demand response resources hold promise, but are arguably not mature enough within the Northwest to replace the lost flexibility of the Federal Columbia River Power System (FCRPS) under a dam breach scenario. Therefore, additional resource costs associated with additional storage which might be necessary to meet load and resource variability at time steps smaller than monthly-diurnal increments, was included as a proxy for the value of lost flexibility, such as sustained peaking and ramping capability. While the EIS use of this proxy is an accurate reflection of true missing costs under this scenario, the co-lead agencies, in response to public comments, updated the amount of the solar plus batteries replacement under the MO3 scenario framework in the analysis in the Final EIS in Section 3.7.3.5. Additional spill to 120% Total Dissolved Gas at the lower Columbia projects was included in MO3 in response to the desire expressed by cooperating agencies to increase spill to aid migrating anadromous fish.
32180	39	redfish@bluefish.org	N/A	An Economic Power Supply - Executive Summary MO3 would not meet the objective to Provide a Reliable and Economic Power Supply. Under MO3, hydropower generation would decrease by 1,100 aMW under average water conditions, and 730 aMW under low water conditions compared to the No Action Alternative. A surprise to those that have only read the Executive Summary and missed the hidden details of the Draft CRSO, BPA is NOT forecasting an increase in rates under MO3, but foresees a decrease in electricity rates across the region (see Figure 5-4 below). [Text contains figures that donot transfer to database.] In stark contrast to rates under MO3, the Draft Preferred Alternative sees an increase in regional electrical rates throughout the region (see Chapter 7 Figure 7-22 above). In the previous section, we learned that "Bonneville chose to design" a rate effect analysis employing two portfolios that exceed the Loss of Load Probability (LOLP) needs. Following that, Bonneville then considered how the region might replace the many purported hydropower benefits of the LSR dams and designed two Replacement Portfolios that might be beneficial when coal-plant retirements someday occurs. Both of these portfolios, by design, bring about an increase in power rates across the region. But no such replacement portfolio is needed, nor will it every actually occur. Note that the Draft CRSO adds a caveat to their "conventional" and "zero-carbon" portfolios: (SOMEWHERE in CRSO Draft) Before making such an investment, Bonneville and its regional partners would need to collaborate on identifying other viable options that could maintain reliability and meet regional carbon objectives, while also ensuring federal power remains competitively priced for Bonneville's power customers. The graphic below is derived from Bonnevilles similar graphic, which Bonneville presents to erroneously suggest that LSR Dams are among their low cost producers. In actuality, as the CRSO Draft has also shown (see Figure 5-4 above), Bonneville's "Total Cost" of Lower Snake River hydropower and Compensation Plan Hatcheries is above the Secondary Energy price of $16.10/MWh (or $19.10 by AURORA, below). [Text contains figures that do not transfer to database.] Figure 5-4 at the end of Appendix H, aligns with and confirms what I have been saying for years now: Removing the four LSR Dams, (with half their power being surplus, Table 3-111 above) and shuttering LSR Compensation Plan hatcheries, is not only the best biologic choice, it is the most economic choice as well. [Text contains figures that do not transfer to database.]	The average annual value of the four lower Snake River dams exceeds the average annual equivalent costs. The generation value at the four lower Snake River dams can be described by a range between the cost to replace the generation through new conventional resources or through a portfolio of zero-carbon resources. Although the costs of replacing the power with market purchases was analyzed, it is unlikely that short-term wholesale power markets could reliably replace the power for the long term. This range would put the annual value of power between $240 million and $500 million for the four dams combined. These numbers represent about 90 percent of the lost benefits cited in Table 3-171 of the Draft EIS because the four dams represent about 1,000 aMW of the 1,100 aMW of lost generation estimated in MO3. The average annual cost to operate and maintain all authorized purposes at the four lower Snake River dams is $75 million (Appendix Q, Table 5-1) and the annual-equivalent capital costs are $32 million (Appendix Q, Table 4-1). Hydropower costs funded by Bonneville represent about $50 million of the total annual operations and maintenance costs and nearly all of the annual capital costs, approximately $31 million. This puts the annual-equivalent power-specific costs at approximately $81 million a year. As a result, the net benefits from hydropower for the four lower Snake River dams are between $159 million and $419 million and the benefit-cost ratios are between 3.0 and 6.2. If the $34 million per year for the Lower Snake River Compensation Plan is added to the capital and expense costs, benefits still exceed costs under each replacement power scenario. Considering these costs, the net benefits range from $125 million to $385 million and the benefit-cost ratios range from 2.1 to 4.3. In the less-likely scenario that generation could be reliably replaced with short-term wholesale market purchases and assuming that the four dams represent 90% of the $150 million in market purchases required to replace the lost generation cited in MO3 (see Table 3-170), the lower bound for net benefits would fall to $54 million and the benefit-cost ratio would fall to 1.7. With the Lower Snake River Compensation Plan included, the lower bound for annual net benefits becomes $20 million and the benefit-cost ratio becomes 1.2. From a resource competitiveness perspective, the four lower Snake River dams are among the least costly generating resources in the Federal Columbia River Power System (FCRPS) and the planned investment strategy is expected to maintain that status. As shown in the Federal Hydropower presentation at the 2018 Integrated Program Review1/, the Headwater/Lower Snake Asset Class/2 is forecast to have a 50-year levelized cost of generation/3 of $11.41/MWh based on the direct funded capital and expense (O&M) programs outlined in that process. These costs remain competitive with volatile Mid-Columbia spot market energy prices which averaged $37/MWh in 2019 and have averaged $21/MWh in 2020. 1/ The Integrated Program Review (IPR) allows interested parties to see and comment on all relevant FCRPS capital and expense spending level estimates in the same forum. The IPR occurs every two years, or just prior to each rate case, and is the public review for the costs that will be recovered through rates the following two-year rate period. Long-term forecasts for the next 50 years and major upcoming projects are also shared in this forum. This information is available here: https://www.bpa.gov/Finance/FinancialPublicProcesses/IPR/2018IPR/IPR%202018%20Fed%20Hydro%20Workshop.pdf and is incorporated by reference into this EIS. 2/ In the 2018 Integrated Program Review, the Headwater/Lower Snake Asset Class consisted of the four lower Snake River dams, Hungry Horse, Libby, and Dworshak dams. These projects were grouped together because they have similar cost characteristics. The Levelized Cost of Generation for the four lower Snake projects alone is slightly lower than that for the whole class including the headwater projects shown in the table. 3/ Levelized Cost of Generation is defined as the forecasted direct costs and administrative overheads of producing power at a plant annualized over a 50-year period. This cost includes direct funded operations, maintenance, administrative and capital costs as well as Columbia River Fish Mitigation (CRFM) costs. Bonneville systemwide mitigation costs, such as its Fish and Wildlife program, are not included in this metric. Finally, the reduced dam operating and fish and wildlife mitigation costs are discussed for MO3 in Section 3.19 and Appendix Q. For MO3, Bonneville's Fish and Wildlife (F&W) Program is estimated to cost $282 million annually and includes fish mitigation projects and studies across the Basin. As stated in the CRSO Draft EIS, funding decisions for Bonneville's Fish and Wildlife Program are not being made through the CRSO EIS process. Future Fish and Wildlife funding decisions would be made in consultation with the region, through Bonneville's budget-making processes and other appropriate forums and consistent with existing agreements. Based on the inherent uncertainty of Bonneville's F&W Program funding requirements, with lower Snake River dam breaching, Bonneville's Fish and Wildlife costs were provided as a range for MO3, from current levels ($282 million annually) to $177 million annually, a reduction of $105 million. Bonneville currently pays USFWS approximately $34 million annually to operate fish facilities associated with the Lower Snake River Compensation Plan (LSRCP). Bonneville's funding authority for the LSRCP is directly tied to the operation of the four lower Snake River dams. In addition, approximately, $1 million annually is expended on the Columbia River Fish Mitigation associated with the four lower Snake River projects. Therefore, total fish and wildlife funding (or costs) for the four lower Snake River projects could range from a low of $35 million ($34 million for LSRCP plus $1 million for Columbia River Fish Mitigation) to $140 million ($35 million plus $105 million in F&W Program funding). The range in potential reductions in salmonid mitigation costs under MO3 is captured in the Power Rate Pressure Analysis, Appendix H Section 4.1. Section 4.1.1.3 describes the Fish and Wildlife program costs and reduction in these costs under MO3. Annual equivalent capital, operations and maintenance costs would also be reduced by $107 million per year under MO3 (Table 4-3 for capital and Table 5-4 for operations and maintenance). These savings, ranging from $142 million to $212 million per year are offset by the cost to replace the power of the four lower Snake River dams ranging from $270 million to $540 million (Table 3-171). Therefore, it is not expected that breaching the four lower Snake River dams would result in lower hydropower costs for the entire Federal Columbia River Power System.
32180	40	redfish@bluefish.org	N/A	- A Reliable Power Supply - (Chapter 7, p.10) - MO3 would only partially meet the objective for an adequate, efficient, economical, and reliable power supply due to the loss of hydropower generation, system flexibility and peaking capabilities at the four lower Snake River projects. As discussed in more detail below, without adequate and timely resource replacement, including battery storage (at utility level scales), MO3 would not meet the objective for hydropower due to the loss of 1,100 average megawatts (aMW) of hydropower generation, more than 2,000 megawatts (MW) of sustained peaking capabilities during the winter, and a quarter of Bonneville's current reserves holding capability provided by the four lower Snake River projects. (Appendix I page 4-6 footnote 13) There is little capacity to hold reserves at the Lower Snake River dams when the forebays are maintained within a narrow operating range at MOP. This operating range restriction constrains reservoir storage capability and therefore limits the ability to hold many reserves. Which of the above excerpts concerning Bonneville reserves are you going to believe? (Appendix I, 4-6 footnote) Hydropower is dispatchable as long as there is flexibility to increase or decrease generation, which sometimes means having ability to increase or decrease flow coming from an upstream reservoir. For example, there is little capacity to hold reserves at the Lower Snake River dams when the forebays are maintained within a narrow operating range at MOP. This operating range restriction constrains reservoir storage capability and therefore limits the ability to hold many reserves. [Text contains figures that do not transfer to database.] (Appendix J. 2-8, and see flowchart of previous page) For the CRSO DEIS alternatives, the GENESYS model was run by Bonneville staff. Datasets containing hydropower generation plant parameters and constraints (inputs similar to HYDSIM and ResSim) thermal generation plant parameters and constraints, and other generation sources and constraints were input into the model. Not only did Bonneville design replacement portfolios in excess of LOLP needs, but inputs to the GENESYS model were input by Bonneville staff. Why were the experts at the NW Council not asked to oversee, or at least validate, this CRSO process? Why has the NW Council not been involved in all of this analysis? They are the region's experts. Statute dictates that it is for the NW Council to "assure a reliable, economic, adequate power supply". The CRSO has used disinformation to yield calibration difficulties, caveats, and incomplete results. Instead, why not seek out the NW Council expertise, critiques and reviews vetted by an Independent Science Advisory Board. The best way that I see for the CRSO to proceed, is to run NW Council's Redeveloped GENESYS with Bonneville "first scenario" which "adds resources to restore the LOLP to the same level as the No Action Alternative for the base scenario without additional coal-plant retirements. This approach replaces only the generation produced in dry water conditions (in the water years when power shortages are most likely)". (Appendix H) Regional Power Supply Loss of Load Probability (LOLP) Under the No Action Alternative, regional LOLP is currently 6.6 percent. Without replacement resources, regional LOLP would increase under MO1 (+4.6 percentage points), MO3 (+7.3 percentage points) and MO4 (+23 percentage points). LOLP would decrease under MO2 (-1.6 percentage points) and the Preferred Alternative (-0.1	The four lower Snake River projects provide over 2,000 MW of sustained peaking capacity when there is sufficient flexibility in the forebay operating range. See Section 3.7.3.5, Lower Snake River Full Replacement, pages 3-905-907, Table 3-160 in the Draft EIS. Outside the fish passage season, the projects have 3-5 feet of operating range. The dams provide important ramping capability the ability to quickly generate energy to match spikes in energy usage with over 2,000 to 2,300 MW of capability in certain months of the year. See draft EIS, Section 3.7.3.5, Lower Snake River Full Replacement at pages 3-905-907 and Table 3-160. Within the fish-passage season, the four lower Snake River projects are restricted in their operating range. (1-foot range in the No Action Alternative expanded to 1.5 feet under the Preferred Alternative.) The projects can increase generation for a brief period (1 to a few hours if flows are not so low that the project is restricted to minimum generation). The travel time for flows to reach the next project is about an hour. So if Lower Granite increases generation and outflow in one hour, then Little Goose would have higher inflows the next hour. Consequently, the projects are typically able to provide some reserves even with a restricted forebay range, but not the full amount they provide in the fall and winter. Bonneville staff have the expertise to run the GENESYS model and describe its outputs for the CRSO EIS. Bonneville has worked with the Northwest Power and Conservation Council (Council) on developing the model for many years. For areas of the CRSO EIS power analysis where Bonneville staff did not have expertise, Bonneville hired consultants; however for the GENESYS model, this expertise is housed within Bonneville. The Council received periodic updates on the CRSO EIS process similar to the general public. Since it is not a Federal, Tribal, state or local agency, the Council could not serve as a cooperating agency under NEPA. The Council received the Draft EIS when it was available for public review. The Councils redeveloped GENESYS is still in the testing phase, and was not available for use in the CRSO EIS. The comment accurately cites to the EIS, which describes the need for additional resources to maintain regional reliability at the No Action Alternative level. While the EIS use of this proxy is an accurate reflection of true missing costs under this scenario, the co-lead agencies, in response to public comments, updated the amount of the solar plus batteries replacement under the MO3 scenario framework in the analysis in the Final EIS.

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				percent) relative to the No Action Alternative. If Bonneville and/or its power customers did not acquire additional resources to replace the reduction in hydropower generation under MO1, MO3, MO4, then there would be an increased risk of power shortages. Replacement resources would be required not only to replace the energy lost but also to replace some peaking capability of the hydropower system. ... Replacing lost peaking capability would result in a need for replacement resources. Under MO3, 1,120 MW of natural gas or 3,150 MW of zero-carbon resources would be required. Our decision makers need an honest report if they are to make well-informed decisions regarding the plight of Idaho's salmon and critically endangered Orcas. Let's get it right in the Final CRSO EIS. A collapsing ecosystem depends on it	
32180	41	redfish@bluefish.org	N/A	- An Efficient Power Supply - Oversupply - Transmission Congestion (Appendix H, 3-4) In this analysis, transmission interfaces experiencing flows within 0.1% of its current transfer limit are said to be "congested." The change in the number of congested hours is one measure of the impact that the alternatives and their resource replacement portfolios have on the regional transmission system. Transmission interfaces that are congested can, therefore, restrict the dispatch of lower cost generating plants and instead require the dispatch of higher cost generating plants, which increase the overall cost of serving customer loads. Appendix H 3.1.1 Transmission Interface Utilization Results Given the hydropower generation levels under each CRSO alternative, the gas-fueled replacement generation resources added for the conventional least-cost resource replacement portfolio were regularly called on as part of GridView's hourly least-cost generation dispatch process. .... The changes in the patterns of generation under the MO alternatives and their resource replacement portfolios would have measurable impacts on loading and congestion for many regional transmission interfaces. Results show that MO3 with "Conventional" Replacement Portfolio increases oversupply in many cases, whereas congestion decreases under MO3 during median and high runoff conditions. This is further evidence that Bonneville's "scenario 2" Replacement Portfolios are an overbuild beyond what is necessary for the system. Oregon-California: with multiple interties increases 47 congestion hours (Table 3-14), "For the three run-off scenarios, all lines in this interface would experience the greatest number of congested hours under MO3 in higher run-off conditions." Congestion also Increases: PO8 Northwest to Montana: increases by 44 congestion hours (Table 3-8) P14 Northwest to Idaho: increases by 125 congestion hours (Table 3-9) P65 Pacific DC Intertie: increases by 100 to 365 congestion hours (Table 3-10) South of Custer: increases by 87 congestion hours under High run off (Table 3-13) Notably, these increases in transmission line congestion hours are in flows out of the region. The market has been in surplus for many decades now, with Bonneville reporting on their ever-present surplus in their annual reports going back to the 1980s. Congestion Decreases on the transmission path to Idaho: P75 Hemingway-Summer Lake: decreases by 159 to 528 congestion hours (Table 3- 11) "Relative to the No Action Alternative, the number of congestion hours in the west to east direction decrease under MO4 and MO3 for median and high run-off when there would be less hydropower generation to send in an easterly direction under those alternatives." Under high run-off conditions, in which Canada is also exporting excess hydropower: MO3 under High run-off power from Canada adds congestion. Raver-Paul: decreases by 10 to 57 congestion hours (Table 3-12) "Congestion would decrease under the median and high run-off scenarios under MO3 and MO4, particularly under high run off conditions." Powerflow (Appendix H)	A change in transmission congestion does not inherently reflect an overbuild of resources when these resources are needed to meet resource adequacy or power system reliability objectives. The power system reliability analysis described under Step 2 of Section 3.7.3.1, Methods, estimated the effect of the alternatives on power system reliability (i.e., Loss of Load Probability) and Step 3 describes the identification of replacement resource portfolios, including the use of zero-carbon resources (e.g. solar) with lower capacity factors and variable output. As discussed under Step 4 of Section 3.7.3.1, Methods, the transmission congestion modeling evaluated the dispatch of resources and transmission use on an hourly-basis for a year under different hydro runoff conditions. Transmission flows with each alternatives resource replacement portfolios were compared against flows for the No Action Alternative. While there may be an increase in transmission congestion hours or exports under certain flow regimes with replacement resource portfolios, the power reliability attributes of those portfolios and the ability to meet unserved load should be considered as well. Resources may be needed to meet power system reliability adequacy during a certain portion of the year. Transmission congestion modeling may reflect some congestion hours during other portions of the year when the resources may not be needed for power reliability purposes, but are available to displace resources with higher variable costs in different locations. Increases in transmission congestion hours reflect a potential increased cost to serve customer loads relative to an uncongested system.
32180	42	redfish@bluefish.org	N/A	The Powerflow analysis focused on the lower CRS hydropower generation variation by alternative (note to editors, a repeat of this sentence then follows in Draft): 1) The transmission system generally evolved with high generation output from the various Columbia River System resources. Operation of the transmission system with reduced generation at the CRS projects generally results in reduced stress to the transmission system. 2) Since reduced peak output from the CRS resources was central to all of the MO alternatives, result would be a system that has less capacity or ability to reliably serve peak load typical in July and August (see graphic of conservation before "An Adequate Power Supply") when there is a reduced availability of hydropower generation. 3) The third consideration was the location of the replacement resources. For the conventional least-cost and zero-carbon portfolios, it was important to see how the reduced output from the CRS hydropower projects would interact with the addition of the replacement resources. Again, it is the times when the CRS resources are at their lowest output that are critical to determining whether the transmission system, in concert with the replacement resources, will still be able to reliably serve load within the Region. While the CRS resources would be at a reduced output, the replacement resources would be at or near their expected full output to serve the required load. For each of the MOs and the Preferred Alternative, the No Action Alternative was adjusted by modifying the generation at the Lower Snake and Lower Columbia River projects to the minimum levels specified in each of the alternatives. The replacement resources were then added to preserve service to loads within the region and to support exports on the Southern Interties.	The co-lead agencies evaluated a range of spill levels to determine the various impacts across resources affected by CRS operations, maintenance and configuration. This included spill levels near 110% Total Dissolved Gas (TDG) up to 125% TDG. It is true that spill is typically lower in July and August than earlier in the juvenile fish passage season (April June). In MO3, spill for juvenile salmon passage reduces to surface passage (significantly lower spill levels) in August. In the Draft EIS, please see Exhibit 3 of Appendix J, Hydropower, top figure on page J-E3-3, which shows that generation at most lower Columbia River projects is slightly lower in MO3 than in the No Action Alternative (-90 to +40 aMW) in July; but, is 300-400 aMW higher in August.
32180	43	redfish@bluefish.org	N/A	Table 3-15 (Appendix H) is interesting, as it seems to show the effect of increased spill, while at their lowest outputs, typically July and August. Notably, the interface Flows change very little from NAA under MO3 without replacement portfolios (HydSim). The only exception is for Interface Flows West of Lower Monumental: 1,659 down to 1,504. This is yet another reason for running a complete analysis of MO3 without increased spill for the CRSO Final Report, changes due to Spill to 120% TDG are significant. [Text contains figures that do not transfer to database]	The co-lead agencies evaluated a range of spill levels to determine the various impacts across resources affected by CRS operations, maintenance and configuration. This included spill levels near 110% Total Dissolved Gas (TDG) up to 125% TDG. It is true that spill is typically lower in July and August than earlier in the juvenile fish passage season (April June). In MO3, spill for juvenile salmon passage reduces to surface passage (significantly lower spill levels) in August. In the Draft EIS, please see Exhibit 3 of Appendix J, Hydropower, top figure on page J-E3-3, which shows that generation at most lower Columbia River projects is slightly lower in MO3 than in the No Action Alternative (-90 to +40 aMW) in July; but, is 300-400 aMW higher in August. Finally, the agencies that an alternative that includes breaching the four lower Snake River dams and spring spill operations to 125% TDG at all four lower Columbia River dams is reasonable given the unacceptable risks to public safety from such an alternative. For power and transmission, MO3 and MO4, individually each caused large loss-of-load probability (LOLP) results (e.g. increased incidence of blackouts). Without major addition of new resources, MO3 would result in power shortages in about one in seven years. MO4 would produce power shortages in about one in every four years. If MO4 were implemented, in addition to breaching the four lower Snake River projects as called for in MO3, then the LOLP would be even higher, with power shortages potentially occurring almost every year. Additionally, if these MOs were combined, in 5% of the years, the power shortages would average close to 1,000 MW in early August when the region might be experiencing a heatwave with particularly high demand for air conditioning. 1,000 aMW is about the average amount of power consumed by Seattle City Light. As shown in Section 3.7, MO3 causes an increase in power reliability concerns in the winter and the summer. MO4 increases power reliability concerns in the summer. Thus, the combination has the largest impact during the summer. The cost of zero-carbon replacement resources for MO3 and MO4 individually are up to $1 billion/year. Resource replacements and associated transmission interconnections for the combination of MO3 and MO4 would be higher, though not likely as high as the sum of the two MOs individually. Assuming that the replacement resources consist largely of wind, solar, and batteries, this would require well over 50 square miles of solar power (more than two and a half times the size of Crater Lake), large areas of new wind generation, and unprecedented amounts of batteries (more batteries in the Northwest alone than the total projection of batteries expected in the entire US by 2023 per the Energy Information Administration). In addition, the reduced generation capability under MO3, particularly throughout the summer, in combination with the impacts of the measures in MO4, and the uncertainty about the characteristics of replacement resources, would result in less capability to provide voltage support and dynamic stability for transmission system reliability than under MO3 or MO4 individually. Thus, combining MO4 with breaching the four lower Snake River projects, would produce unreasonable power and transmission reliability impacts, and it is highly speculative that replacement resources could be sited, permitted and built to address these impacts. This potential alternative has not been evaluated for direct, indirect and cumulative effects to other resources. Thus, an alternative combining juvenile fish passage spill up to 125% and breaching the four lower Snake River dams is unreasonable, and thus was not proposed as an alternative. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), and also meets most of all the other objectives of the study for resident fish, lamprey, hydropower generation, water management, and water supply and greenhouse gas emissions. It minimizing adverse impacts to communities and the economy. The Preferred Alternative is likely to satisfy multiple complex and at times conflicting legal requirements for a complex system.
32180	44	redfish@bluefish.org	N/A	(Appendix J-iv) NW-US and CRS MO3 generation is reduced year-round from the loss of CRS generation at the four lower Snake River dams, although this reduction from NAA generation is offset in August by lower Columbia River projects' generation increases. The greatest reductions from the NAA occur in spring and summer due to increase fish passage spill at the lower Columbia projects. The August NW-US and CRS generation increase results from terminating CRS fish passage spill earlier than the NAA. Small changes were observed for the Mid-Columbia and Canadian systems. Critical Year graphic (Figure 3-5) reveals that it is MO3 increased spill that increases LOLP in January, and May and June LOLP is half due to the increase in spill. [Text contains figures that do not transfer to database]	Appendix J, Figure 3-5 in the Draft EIS, shows the critical-year generation for MO1. The comparable graph showing monthly generation changes under critical water conditions (1937 water) for MO3 is Figure 3-9. In Figure 3-9, there is a slight net increase in generation in January as the increase in generation at Grand Coulee, the lower Columbia River, and other projects exceeds the lost generation from the four lower Snake River dams. However, the generation change for all three winter months on average is a loss. The commenter is correct that the generation loss in May and June from losing generation at the four lower Snake River dams is roughly comparable to the loss in generation due to increased spill and small changes in flows at the four lower Columbia River projects.
32180	45	redfish@bluefish.org	N/A	3.2.1 Powerflow Results (Appendix H) Given seasonal demand for power in the Pacific Northwest and seasonal differences in transmission system capacity, winter and spring/fall demand scenarios were determined not to produce conditions that were limiting. During the summer, however, many areas experience substantial peak loads at the same time that the capability of the transmission system is reduced. The capability of the transmission system is reduced in the summer because higher ambient temperatures limit the ability of the system to transmit energy. Additionally, due to low streamflow conditions and spill requirements generation and flexibility allowed under the various alternatives for the Columbia and Lower Snake hydropower projects is at the lowest levels, which results in a higher reliance on the replacement resources. Reduction in allowed generation also limits the flexibility of the CRS projects during the limiting summer season. ... MO3, which includes the breach of LSR dams, would be the only alternative where the studies indicated a need for system reinforcement. Generation at Ice Harbor provides load service to the Tri-Cities during peak summer load conditions and during emergencies (e.g., loss of the main grid connection at Sacajawea). An outage of one of the transmission lines connecting the Tri-Cities area to the main transmission grid limits the amount of power that can be delivered to the Tri-Cities load. During such outages, having generation from the Ice Harbor project supports reliable service to the Tri-Cities load. The generation at Ice Harbor also provides support for transmission operations and maintenance in the Tri-Cities area. In MO3, the inability to take lines out of service for maintenance and to respond to operational constraints, such as the loss of a transmission line, could result in loss of load within the Tri-Cities area. Prior to evaluating the impacts of potential breach of Ice Harbor Dam, Bonneville had identified the need for a transmission reinforcement project just beyond the 10- year planning horizon to maintain	As discussed in the Bonneville Transmission System Reliability and Operations subsection in Section 3.7.3.5 of the Draft EIS and Section 3.2.2 of Appendix H, prior to evaluating the impacts of potential breach of Ice Harbor Dam, Bonneville had identified the need for a transmission reinforcement project just beyond the 10-year planning horizon (2018-2028) to maintain reliable load service to accommodate load growth, to the Tri-Cities area and to support transmission operations and maintenance. From a transmission rates perspective, this means that Bonneville would not expect to see the impact of such a project within the 10-year planning horizon. The base need for the project would arise independent of removal of the generation at Ice Harbor. However, the timing of the reinforcement is very dependent on when Ice Harbor might be breached and would be needed immediately. As such, the transmission analysis considered the speed up of the timing for the need for the reinforcement project as a result of breaching the four lower Snake River dams evaluated under MO3, by including the costs of the project starting at the time the generation from Ice Harbor would be removed from the system. This would allow time for environmental compliance, permitting and construction to occur. The EIS analyzed the cumulative transmission rate pressure changes relative to the No Action Alternative through 2028 for all of the alternatives. Under the No Action Alternative, the Tri-Cities area reinforcement would not be needed within this 10-year time frame and was, therefore, not reflected in the baseline for this time period. The transmission rate pressure relative to the No Action Alternative for MO3 did reflect these reinforcement costs as MO3 would require the reinforcement project under both resource replacement portfolios during the 10-year transmission rate pressure analysis timeframe. Section 4.2.1.1, Revenue Requirement, of Appendix H contains a discussion of the transmission capital cost assumptions, including the timing and direct costs. As discussed in Section 3.7.3.5, Potential Replacement Resources and Associated Costs, under the least-cost replacement generation portfolio, returning Loss of Load Probability to the No Action Alternative level could be accomplished with approximately 1,120 MW of combined cycle natural gas turbines located in northeastern Oregon in a base case without additional coal closures. As a result, the transmission analysis identified interconnection costs associated with the identified resource replacement, which was assumed to be located in northeastern Oregon near McNary due to the location of existing infrastructure.

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				reliable load service to the Tri-cities area and to support transmission operations and maintenance. The base need for the project would arise independent of removal of the generation at Ice Harbor. The timing of the reinforcement, however, is very dependent upon when Ice Harbor generation might be removed.	The Northwest Power and Conservation Council (Council) ran a study of the loss of a major non-carbon producing resource, but this study did not look at breaching the four lower Snake River dams, in the Seventh Power Plan using their resource portfolio model. The lost-resource in the Councils study had a smaller energy and much smaller capacity attribute compared to the four lower Snake River dams. Further, the Councils load forecast at the time of the Seventh Power Plan was lower than the more recent load forecast used in the EIS. The EIS did not use the Councils resource portfolio model. The EIS instead used the Councils GENESYS model, Council data including that of the 2022 Resource Adequacy Assessment, and the Councils resource adequacy metric and standard and only proposed replacement resource portfolios if that standard was not met. See Section 3.7.3.1, Step 3: Determine Need for Potential Replacement Resources and Associated Costs, at page 3-821; and Appendix H, Power and Transmission, at Section 2.2 in the Draft EIS.
32180	46	redfish@bluefish.org	N/A	(Appendix H, 3-26) The system study identified the need for network reinforcement sooner than currently planned to maintain reliable load service to the Tri-Cities area under MO3. The cost associated with implementing this project on an accelerated timeline would be about $94.5 million under both the conventional least-cost and the zero-carbon resource replacement portfolios. The system study did not identify additional network reinforcements under any of the MO alternatives based on the assumed replacement resource portfolios. The CRSO accounting should consider that this "approximately $94 million in capital costs to construct" is needed regardless, only the timing of implementation is changed. Accounting should also consider that the $72 million to interconnect more Gas Generation at McNary assumes that this new gas is actually needed. The Seventh Power Plan analysis of LSR Breaching found that existing turbine facilities would provide sufficient power to "assure a reliable, economic and adequate power system". Only when looking far out in time, did the 7th Power Plan foresee a need for more natural gas power plants, and this need arose to a large degree, whether or not LSR Breaching were to occur (Fig 3-12 next page, purple bar between orange and pink). (Appendix H 3.2.5)	As discussed in the Bonneville Transmission System Reliability and Operations subsection in Section 3.7.3.5 of the Draft EIS and Section 3.2.2 of Appendix H, prior to evaluating the impacts of potential breach of Ice Harbor Dam, Bonneville had identified the need for a transmission reinforcement project just beyond the 10-year planning horizon (2018-2028) to maintain reliable load service to accommodate load growth to the Tri-Cities area and to support transmission operations and maintenance. From a transmission rates perspective, this means that Bonneville would not expect to see the impact of such a project within the 10-year planning horizon. The base need for the project would arise independent of removal of the generation at Ice Harbor. However, the timing of the reinforcement is very dependent on when Ice Harbor might be breached and would be needed immediately. As such, the transmission analysis considered the speed up of the timing for the need for the reinforcement project as a result of breaching the four lower Snake River dams evaluated under MO3, by including the costs of the project starting at the time the generation from Ice Harbor would be removed from the system. This would allow time for environmental compliance, permitting and construction to occur. The EIS analyzed the cumulative transmission rate pressure changes relative to the No Action Alternative through 2028 for all of the alternatives. Under the No Action Alternative, the Tri-Cities area reinforcement would not be needed within this 10-year time frame and was, therefore, not reflected in the baseline for this time period. The transmission rate pressure relative to the No Action Alternative for MO3 did reflect these reinforcement costs as MO3 would require the reinforcement project under both resource replacement portfolios during the 10-year transmission rate pressure analysis timeframe. Section 4.2.1.1, Revenue Requirement, of Appendix H contains a discussion of the transmission capital cost assumptions, including the timing and direct costs. As discussed in Section 3.7.3.5, Potential Replacement Resources and Associated Costs, under the least-cost replacement generation portfolio, returning Loss of Load Probability to the No Action Alternative level could be accomplished with approximately 1,120 MW of combined cycle natural gas turbines located in northeastern Oregon in a base case without additional coal closures. As a result, the transmission analysis identified interconnection costs associated with the identified resource replacement, which was assumed to be located in northeastern Oregon near McNary due to the location of existing infrastructure. The Northwest Power and Conservation Council (Council) ran a study of the loss of a major non-carbon producing resource, but this study did not look at breaching the four lower Snake River dams, in the Seventh Power Plan using their resource portfolio model. The lost-resource in the Councils study had a smaller energy and much smaller capacity attribute compared to the four lower Snake River dams. Further, the Councils load forecast at the time of the Seventh Power Plan was lower than the more recent load forecast used in the EIS. The EIS did not use the Councils resource portfolio model. The EIS instead used the Councils GENESYS model, Council data including that of the 2022 Resource Adequacy Assessment, and the Councils resource adequacy metric and standard and only proposed replacement resource portfolios if that standard was not met. See Section 3.7.3.1, Step 3: Determine Need for Potential Replacement Resources and Associated Costs, at page 3-821; and Appendix H, Power and Transmission, at Section 2.2 in the Draft EIS.
32180	47	redfish@bluefish.org	N/A	Summary of Transmission Infrastructure Costs Under MO3, replacement costs under the conventional least-cost resource replacement scenario would be about $166.9 million. [Trxt contains figure that does not transfer to database.] (Appendix H 3.2.4) Lost hydropower generation under MO1, MO3, and MO4 may affect voltage and dynamic stability on the transmission system due to a reduction of generators that are online during certain times of the year. Without sufficient voltage support, inertia, and frequency response capability, the power system will not be stable. This, in turn, can lead to equipment damage and potentially widespread uncontrolled loss of load. ... The "conventional" least-cost replacement portfolios assume the location of replacement resources would be in close proximity to the CRS projects where hydropower generation is being displaced and would provide similar voltage and dynamic support for the transmission system.	The statements in this comment regarding transmission system reliability and operations and the location of natural gas resources is consistent with the Bonneville Transmission System Reliability and Operations subsections of Section 3.7.3.3, Section 3.7.3.5, and Section 3.7.3.6 of the Draft EIS and Section 3.2.4 of Appendix H.
32180	48	redfish@bluefish.org	N/A	If no replacement resources were added, as bluefish is suggesting in this comment, synchronous condensers could be added to several substations to improve system reliability via voltage control. This additional cost should be added into the accounting. Regardless of that consideration, my previous comment to the CRSO pointed out that LSR turbine bays could be converted into synchronous condensers, as was suggested by electrical engineers at Idaho Power. This mitigation is missing from the NEPA document, which is yet another fatal flaw.	As explained in the draft EIS, Section 3.7.3.1, Base Case Methodology and Cost Sensitivities Analysis, the analysis evaluates the power impacts of the Multiple Objective (MO) Alternatives on regional power system reliability, as measured through loss of load probability (LOLP). The ensuing assessment of the transmission system evaluated the feasibility of whether the identified portfolio of replacement resources might reasonably be able to reliably integrate into the transmission system. As such, the impacts to the transmission system and any associated mitigation was based on the preceding power system reliability steps. MO3 includes the removal of generation from the four lower Snake River projects. Bonneville is aware of the suggestions that the existing stations that currently integrate the output from the four lower Snake River projects could be used to accommodate synchronous condensers. The EIS analysis and modeling considered that additional static devices, such as reactors or capacitors, might be added or be used to modify the existing reactive equipment at these sites. The assessment found that removal of generation from these points on the transmission system would negate the need for supplemental voltage support from devices such as synchronous condensers at these locations. The analysis concluded that such modification would not be needed at these sites in the event of complete removal of the generation from the four lower Snake River projects.
32180	49	redfish@bluefish.org	N/A	(A footnote somewhere in CRSO) Examples of requirements could include: increased synchronous condensing capability (i.e., free-spinning motor that adjusts to conditions on the power grid to provide voltage support) at the Lower Columbia projects; Addition of static reactive power devices (electrical devices that provide quick response to maintain voltage stability) at strategic points of the transmission system (voltage support only); An increased requirement for generating units at the Lower Columbia projects to be online in order to provide voltage and dynamic support for requirements of the transmission system. In other words, voltage support needs are best when placed near the export to California lines, where the big congestion is, and near loads. Far away from that, Ice Harbor doesn't really do much by comparison. But admitting this frankly, would diminish the importance of Ice Harbor as being important for the electricity grid.	The commenter suggests that the EIS inappropriately cites Ice Harbor as being critical to main grid stability and voltage support. The EIS did not assert that the transmission system need for the Ice Harbor resource was to support the transmission system in general for the export to California lines. Rather the EIS cites that Ice Harbor is uniquely situated in the transmission network to provide active load support to loads within the Tri-Cities area, in Washington (see Draft EIS Section 3.7.3.5, Bonneville Transmission System Reliability and Operations). As such Ice Harbor is a critical resource to the transmission system. The EIS also considers that if Ice Harbor is breached and generation is completely removed under MO3 there would be an additional need to provide another transmission source to serve Tri-Cities load immediately.
32180	50	redfish@bluefish.org	N/A	(Appendix H) Chapter 4-Wholesale Power and Transmission Rates Interesting that both Tier 1 and Public Utility Loads drop under MO3 (Table 4-1). It would be informative if this drop was explained in the Final CRSO document. Also worth noting is that the reduction in surplus decreases the cost of Power Division using the Transmission System (Table 4-6). This is yet another indication as to how Breach Lower Snake River Embankments reduces exports. Following this substantial critique, the CRSO process should run this same analysis without replacement portfolio, aligning itself with the Seventh Power Plan finding that reducing exports is the Least Cost Resource Portfolio. This is done in (Figure 5-4).	The draft EIS describes, in the referenced table in Section 4.1.1.1 of Appendix H, that customer loads were calculated after updating Tier 1 resource generation under each alternative. If the amount of firm generation available from the Federal Columbia River Power System decreases, then the amount of Tier 1 power that customers are entitled to purchase from Bonneville must decrease. Customers then have the choice of either purchasing Tier 2 power from Bonneville or acquiring power elsewhere. Thus, the level of loads presented in the table are driven by the changes in hydropower generation and generation from replacement resources. If the replacement resources are not financed by Bonneville (i.e., the region finances scenarios) then no replacement resource generation was included, reducing the loads relative to the No Action Alternative. When Bonneville finances the portfolio, the power analysis finds that the zero-carbon portfolio does not replace all of the hydropower generation lost under Multiple Objective (MO) Alternative 3 (which includes breaching of the four lower Snake River dams); therefore, Tier 1 loads decrease relative to the No Action Alternative. However, with a least-cost portfolio of natural gas, public customer loads increased relative to the No Action Alternative due to the increase in natural gas generation needed to maintain power system reliability. Comment 32180-34 (by the same commenter) discusses the Northwest Power and Conservation Councils (Council) study of the Planned Loss of a Major non-GHG Emitting Resource. This study is different in that the attributes of the Councils generic lost resource are not comparable to those of the four lower Snake River dams. For more discussion on this topic, please refer to that comment and response. The comment suggests that Bonneville run an analysis of whether loads can be met by reducing exports and not purchasing replacement resources. The LOLP modeling does not include export loads, and all regional resources are used to meet regional loads. In the EIS, the LOLP was first assessed without replacement resources. The results are presented in Section 3.7.3.5,Effects on Power System Reliability at page 3-905 in the draft EIS. Without replacement resources, the LOLP level more than doubles to 14%. See Section 3.7.3.5, Effects on Power System Reliability, at 3-903 and Appendix H, Table 2-1 in the draft EIS. The Councils 7th Power Plan had an older load forecast and other differences from the EIS. The findings of the EIS regarding surplus sales under MO3 are consistent with the statement in the comment. Due to the reduction in hydropower, secondary sales decrease, this in turn decreases revenue (Table 4-9 of Appendix H in the draft EIS).
32180	51	redfish@bluefish.org	N/A	Corrections: The graphics at end of Appendix H, Table 6-1 (why the MO2/1 and not just MO2?). Based on tables at end of the appendix, Figure 5-2 is MO1 (and notice that the zero-carbon is better in many counties, than is "conventional") Figure 5-3 seems to be MO3 with Replacement Portfolios, Figure 5-4 is MO3 w/o Replacement Portfolios, [Text contains figures that do not transfer to database.]	The figure that the commenter cites, Appendix H Figure 5-4, displays the data for Multiple Objective (MO) Alternative 2, but was inadvertently mislabeled in the draft EIS. Figure 5-2 is MO1 and Figure 5-3 is MO3 and Figure 5-4 is MO2, not MO3 without replacement resources as suggested in the comment. Figure 3-186 in Section 3.7 of the draft EIS, shows the correct figure for MO3. The Tables in Appendix H, Chapter 5 correctly show rate increases for MO3 as noted in the comment. The error in the graphs in Appendix H will be corrected in the final EIS. Regarding Table 6-1, "/1" is a table note and should be superscript. This is corrected in the Final EIS where it is Exhibit 1.
32180	52	redfish@bluefish.org	N/A	Potatoes, Apples & Grapes- [Text contains figures that do not transfer to database.] Errors in moving data from Table 4-14 to 4-15: Alfalfa 175.20/ton to $201.20/ton, and Corn $4.56/bushel to $4.65/bushel = $0.09 /bushel, which seems small at first glance. Notably, CRSO Draft differs from 2002 Report by not removing 21% in calculations. Revising Table 4-15 w/o Apples & Grapes because they will continue to be irrigated. $315.6 - $230 (apples) - $16.2 (grapes) = $69 million Gross Value of Irrigated Crops.	The price of hay was an all-hay price rather than the alfalfa price. This was corrected and the regional economic effects analysis was corrected in the final EIS. The corn price was also corrected in the table. This change did not effect the analysis.
32180	53	redfish@bluefish.org	N/A	Accounting MO3 has an increase in diversions for irrigation, Hungry Horse, Lake Roosevelt, Chief Joseph Additional Water Supply. Being that this new irrigated acreage is not included in the No Action Alternative, the accounting should include that new acreage of irrigation benefit in the MOs that receive this new irrigated acreage. Hungry Horse: 90,000 acre-feet of water for (~20,000 acres). Lake Roosevelt: 1,154,000 acre-feet of water for 255,000 acres Chief Joseph: ~9,600 acre-feet of water for 2,800 acres	You are correct that as part of MO3 there are operations to provide additional water supply at Hungry Horse, Grand Coulee, and for the Chief Joseph Dam project. Socioeconomic effects resulting from the use of this water after withdrawal were not evaluated, because the details of how and where this water would be used is subject to as-yet undefined future Federal and other actions. As a result, additional NEPA analysis would be needed prior to implementing any such action. The MO3 analysis on existing water supply concludes that in Region C that pumps are unable to deliver water to estimated at 48,000 acres. Please see Section 3.12 and Appendix N for additional information.
32180	54	redfish@bluefish.org	N/A	Petroleum to Pasco - It is misleading to include petroleum as a major commodity shipped on the Lower Snake River (LSR). It may be somewhat true, but it confuses the issue as to what is shipped through the LSR dams. Suggesting that petroleum shipments may end due to sediment released in MO3 further disorients the reader. After all, dredging costs in McNary pool are included in MO3. The CRSO should be straightforward and honest. (Appendix L, page 3-1) Primarily an upriver movement that ends above McNary Dam, petroleum products travel via barge in the shallow system and comprise the primary upbound commodity on the lower Snake River segment (100 million tons in 2018). Because these shipments terminate below Ice Harbor Dam and do not utilize the river channel, they would not be directly affected by dam removal. However, barge companies report that these shippers are very sensitive to increased risk and are concerned that potential needs for dredging facilities in McNary pool would discourage those shippers from utilizing the system even if it continues to be made available by periodic dredging (Personal communication Shaver Transportation, January 2020). (Appendix L, page 3-12) Fuel comprises the majority of upbound tonnage on the lower Snake River (91% in 2018), most of which terminated river passage above Pasco, WA. ... However, given the safety concerns associated with fuel movements it is unclear if fuel companies would continue movements in the McNary Pool to Pasco. Surprisingly, the CRSO transportation analysis determined that the existing unit train terminals could handle the 2.4 million tons of wheat now shipped on the Lower Snake River. I was expecting that one more well-located rail terminal would have been recommended at Lewiston,	In 2018, 72 percent of overall freight volume on the Lower Snake system traveled downriver, the majority of which (87 percent) was wheat and barley. As discussed in Section 3.10.2.1 of the Draft EIS, 28 percent of overall freight traveled upriver. In 2018, 25 percent of overall freight on the Lower Snake River was petroleum products that terminated below Ice Harbor Dam. These shipments do not utilize the Snake River locks and would not be directly affected by dam removal under MO3. This was unclear in some instances in the Draft EIS, and has been corrected and clarified in Section 3.10 and Appendix L. Other commodities that utilized the Snake River system included pulp and paper products (4 percent) as well as chemicals and iron/steel commodities (8.5 percent), some of which also terminate below Ice Harbor Dam. To the extent that these shipments utilize the Snake River locks and dams, they would be affected under MO3 by increased transportation costs. These potential effects are discussed qualitatively in Section 3.10.3.5.

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				Wilma or Central Ferry. Additionally, Costs to improve condition of shortline rail should include rehabilitation of the short line to Grangeville. It would also be interesting to see how the economics of the "Grangeville farmer" would be affected with one more, well-located train terminal. A few more runs of the transportation analysis could help us select one more train terminal that could minimize the price disparity between the "Colfax farmer" and "Grangeville Farmer".	
32180	55	redfish@bluefish.org	N/A	(Appendix L, page 3-16) Assuming constant rail rates, railroad ton-miles would ... increase in volume at each of the four shuttle rail facilities, particularly for the Lacrosse facility given its close proximity to the river and the fact that it would be the most likely alternative for production impacted by river closure. This increase would represent an increase in the number of unit trains (with ~110 cars per train) from approximately 4 trains to approximately 8 trains per month at each shuttle rail facility. Washington State's Grain Train is a "relevant and reasonable mitigation" that should be included within the NEPA document. Continuing to add cars, under the current capital building program, assures cars are available to meet inconsistent demand. Appendix L, page 3-14) Commenters have further stated it is difficult to secure a unit train on short notice to take advantages of season demand (comments of Idaho Cooperating Agencies, December 2019).	Section 3.10 of the Draft EIS provides an evaluation of the Columbia Snake River Navigation System, assessing its relative efficiency, low costs for shippers, safety considerations, low air emissions relative to other transportation modes, potential regional economic, and other social effects that could occur under MO3. Section 3.10 of the EIS recognizes that access to barge transportation is the most cost effective means of accessing export markets for many grain producers in the Pacific Northwest currently and removing that option would increase transportation costs for grain producers. The EIS evaluates potential effects on farmers associated with increased transportation costs under MO3 in Section 3.10.3.5. The EIS finds that under MO3, average transportation costs for wheat farmers would increase 10 to 33 percent, but that individual farmers could experience increases that are doubled. The cost increases to specific shippers would depend upon location and would vary throughout the region, depending on transportation options at each location. Generally, those grain shippers that are the farthest from alternate shipping locations (shuttle rail facilities or river ports on the Columbia River) would be the most adversely impacted. The EIS recognizes that there is no guarantee wheat grown in the Northwest would be competitive now or in the future because there are many factors that influence international commodity markets (e.g., trade agreements, the U.S. dollar, global supply, etc.). However, the analysis finds that the cost to transport wheat to market would continue to be lower than costs paid by other wheat growers in the United States (e.g., the Dakotas and Midwest). NEPA requires that all relevant, reasonable mitigation measures that could diminish the adverse impacts of the project be identified in the document, even if they are outside the jurisdiction of the lead agency or the cooperating agencies. See 40 C.F.R. 1502.16(h) and 1505.2(c); 46 Fed. Reg. 18026. The inclusion of mitigation measures in this Chapter 5 is not intended to indicate that the co-lead agencies, or the Federal government as a whole, has the authority to perform all of the measures listed. Their inclusion in Chapter 5 serves to alert other agencies, officials, and the public who can implement the measures to the potential benefits of the measure. The mitigation requested is not within the co-lead agencies' current authorities. The co-lead agencies do not have the authority to provide payments or provide infrastructure for rail lines.
32180	56	redfish@bluefish.org	N/A	Moreover, it is inappropriate for the transportation optimization model to disallow "shipments on river terminals along the lower Snake River". (Appendix L, page 3-13) It is likely that the facilities with rail access would continue to be used to some extent for storage and transport via rail or truck; however, these facilities are assumed to be closed for purposes of this analysis. To the extent that some terminals on the lower Snake River could continue to be used, the effects to shippers would be lower than model results suggest.	The Great Northwest Railroad, owned by WATCO, is a short-line railroad that runs along the Snake River from Lewiston, ID to Ayer Junction, WA. Research completed for the EIS suggests that elevator to river port movements via short line rail are not currently occurring because in order for them to ship grain to river terminals on the Columbia, they must operate on part of Union Pacific's rail line and WATCO's operating agreement with Union Pacific does not allow for these shipments. The commenter is correct that the effect of including this assumption and allowing movements on these short lines during a dam breach scenario would be to somewhat reduce the anticipated increases in shipping costs to shippers. A statement has been added to Section 3.10.3.5 to this effect, along with a reference to Appendix L that provides additional discussion of the impacts of modifying this assumption on quantified costs to shippers.
32180	57	redfish@bluefish.org	N/A	If the final CRSO document wishes to include "Shipments of Oversized Objects" then mention should also be made to the Nez Perce opposition and strong resistance to those shipments. (e.g. "Megaload Decision a Blow to Business at Port of Lewiston", "Nez Perce Tribe Stands Up for Treaty Rights in Megaload Case", "Nez Perce Arrested Protesting Megaloads", "Nez Perce Leaders Stand Firm on Frontlines of Mega-Load Transport", "U.S. Forest Service Shuts Down Highway 12 to Megaloads"). (Appendix L, page 3-1) Shipments of Oversized Objects The Columbia-Snake Navigation System provides a unique water route to transport oversized cargo into the interior of the U.S. Cargo transported upriver to the Port of Lewiston can then be transported on U.S. Highway 12, which has no cargo height restrictions. ... While the system transports shipment of this type infrequently, it is a unique service that could not be replaced by road or rail alone. (Oh, really?)	A clarification has been added to the EIS that describes oversized loads in Section 3.10.3.5 to address the settlement agreement in that litigation.
32180	58	redfish@bluefish.org	N/A	Orca and Idaho's Chinook - Executive Summary In addition, the co-lead agencies are responding to the Opinion and Order issued by the U.S. District Court for the District of Oregon such that this EIS will evaluate how to insure that the prospective management of the System is not likely to jeopardize the continued existence of any endangered species or threatened species. Chapter 7, Table 7-28 Sensitive Species Effects for Preferred Alternative Southern Resident killer whale (SRKW) - Orcinus orca Prey Availability: Negligible effect. Smolt-to-Adult survivorship varies between the two fish models. These models predict a negligible decrease to major increase in Chinook salmon returns. This would result in a minor change in prey availability in comparison from No Action Alternative conditions. Conclusion: Negligible effect. The southern resident killer whale population would remain similar to the No Action Alternative based on the fact that the Columbia and Snake River Chinook salmon are a small percentage of the overall diet for the SRKW populations. Some prey may be more available or there may be a slight decrease in available fish. The fish hatchery production will continue at similar rates into the future. The Preferred Alternative is not likely to adversely affect the southern resident killer whale population. The CRSO Draft inexplicably selected a preferred alternative that admittedly has negligible effect on a critically endangered species. Somehow, the CRSO authors found untold reason to set aside MO3, which they see as having a minor effect on the Southern Resident populations, whose diet is 90% comprised by Chinook Salmon.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species as that is a broader goal with shared responsibility. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed anadromous fish species and is not expected to diminish the likelihood of recovery. Recovery is a broader regional goal and is above and beyond the co-lead agencies' obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the Columbia River System. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. The EIS concluded MO3, which includes breaching the four lower Snake River dams would have greater improvement to certain salmon species in the lower Snake River. It did not, however, conclude there was greater certainty of that result in MO3 over any other alternative. Because of delayed response time in MO3, and the potential severity of the short term effects, MO3 would likely have the most substantial uncertainty in terms of beneficial effects. Section 3.5 provides a summary of the fish analysis for the No Action Alternative and four of the multiple objective alternatives. Chapter 7 provides a summary of the fish analysis for the Preferred Alternative. With respect to the Preferred Alternative, the CSS model predicts that average Smolt to Adult return rates would increase for both Snake River spring Chinook and steelhead and will average above 2% (the lower end of the Northwest Power and Conservation Councils recovery targets for the region) as a result of the Preferred Alternative, increasing from 2.0% to 2.7% for Chinook, a 35% relative increase. The NMFS COMPASS and Life Cycle Models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information. The population dynamics of the SRKW are complicated and there are multiple factors that contribute to the overall success of this species. The quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differently from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for the whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall-run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall-run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). Details on the most crucial prey stocks for Southern Resident killer whales, as well as their population and range, is available from several fact sheets and videos available here: https://www.fisheries.noaa.gov/species/killer-whale#spotlight. For more information, visit this NMFS StoryMap on Southern Resident killer whales: https://noaa.maps.arcgis.com/apps/Cascade/index.html?appid=3405e6637bf74e998d4ebe992c54f613. According to NOAA and the EPA, the estimated SRKW population has fluctuated between 67 and 98 whales between 1960 and 2015. The Snake River dams were constructed between 1962 and 1975. The SRKW population increased from a record low in 1970 to its highest population numbers in 1995. Those years were not high years for Snake or Columbia River Chinook Salmon. Ocean conditions between 2011 and 2013 were good years for salmon. At the same time, 2010 and 2013 were good outmigration years. Particularly, 2011 and 2012 were above normal in water supply, which would mean more cooler water was available and there was better survival of salmon, and 2011 through 2014 were higher than normal spill years as well. The combination of outmigration and ocean conditions created improved adult salmon returns. The EIS has analyzed spill as a measure in the Preferred Alternative and determined the overall effect to SRKW to be negligible. Because the impact from the Preferred Alternative was determined to be negligible, the agencies determined that existing hatchery production would be sufficient to address any potential impacts to prey availability for SRKWs. The co-lead agencies note the contribution to the prey of SRKW through the continued existence of their respective independent Congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as the Lower Snake River Compensation Plan (other than under MO3), which is administered by USFWS. The final EIS in Vegetation, Wetlands, Wildlife,and Floodplains (Section 3..6.2.6 and Table 3-102), and Chapter 7 (Preferred Alternative), has been updated with additional analysis information on SRKW and the potential increase in forage fish, in particular, Chinook salmon (Section 7.7.8). Moreover, NMFS concluded in its 2020 CRS BiOp that operations, maintenance and configuration of the CRS is not likely to adversely affect SRKW.
32180	59	redfish@bluefish.org	N/A	Collaboratively, NOAA Fisheries and Washington Department of Fish & Wildlife (WDFW) developed a list of Priority Chinook Stock List to feed the starving Southern Resident Orcas (see next page). From that list, Guy Norman, NW Council's Fish and Wildlife Chairman and former Regional Director at WDFW, emphatically highlighted that seven of the top fifteen Priority Stocks are from the Columbia and Snake Rivers. He further argued that Snake River stocks should rank higher on the Priority List. Other task force members (including Washington Farm Bureau's Tom Davis and Association of Washington Businesses' Gary Chandler) minimized the importance of the Columbia and Snake River Chinook stocks. Coincidentally, the CRSO Draft also shuns respected biologists expertise by agreeing with these latter voices, suggesting that MO3 has only a minor effect on the critically endangered ESA-listed Orcas. (Chapter 3, Table 3-106) Sensitive Species Analysis for MO3 Common Name: Southern Resident Killer Whale (SRKW), Orcinus orca Prey Availability: Minor effect. The Snake River spring/summer Chinook salmon is a negligible portion of their overall diet. Fish models do predict that lower Snake River Chinook salmon smolt-to-adult returns would increase under MO3. There may be short-term negative effects to the SRKW population as the lower Snake River fish population recovers from effects associated with dam breaching. Overall, prey should increase beyond NAA over the long term. This overall effect could change behavior over the short and long term as whales react to the changes in prey availability. Conclusion: Minor effect. The food available to the SRKW from the lower Snake River population is only a small percentage of their overall diet. Changes to food availability may change the whale's foraging behavior patterns slightly but will not change their overall conditions or population dynamics. MO3 is not likely to adversely affect the SRKW distinct population segment. How is it possible that the greatly diminished Chinook runs, from the Snake River, cause a "negative effect" following dam breaching, but only a "minor effect" once these runs are recovered? Snake River runs once comprised half of Columbia River Chinook runs. Restoring these runs to that former level is most certainly a Major Effect that should not be so quickly dismissed by the CRSO analysts, especially since they have presented no argument to the contrary. Expert opinion is greatly needed. The world's leading expert on these Orca,	SRKW analysis is described in the EIS including in the FEIS Chapter 3 (Vegetation, Wetlands, Wildlife, and Floodplains) which has been updated for SRKW (Section 3.6.2.6 and Table 3-102) and FEIS Chapter 7 (Preferred Alternative) with additional analysis information on SRKW and potential increase in forage fish, in particular, Chinook salmon in Section 7.7.8. The co-lead agencies utilized current high quality information and best available science in its analysis of the effects of the operation, maintenance, and configuration of the CRS projects. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not require the co-lead agencies to take affirmative actions to recover ESA listed species. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets most other EIS objectives including those for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS, the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams, because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. The co-lead agencies conclude there could be a minor beneficial effect to SRKW from implementing MO3. CSS and NMFS Lifecycle models predict that lower Snake River Chinook salmon smolt-to-adult returns would have a moderate to major increase under MO3. Operation of Lower Snake River Compensation Plan fish hatcheries under MO3 is uncertain and therefore, production of Snake River hatchery fish is assumed to decline over the long term, while returning adult wild salmon are anticipated to increase. However, the co-leads do not anticipate a lack of hatchery fish in the short term based on the proposed fish hatchery mitigation described in Chapter 5. These additional hatchery fish should mitigate short-term construction effects to Snake River populations. Additionally, to address short-term effects to ESA-listed species, the co-lead agencies propose constructing a new trap and haul facility at McNary and conducting at least two years of trap and haul operations for Snake River fish (Chinook, sockeye, and steelhead). The population dynamics of the SRKW are complicated and there are multiple factors that contribute to the overall success of this species. The quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differently from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020).

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					The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for the whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall-run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall-run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). Details on the most crucial prey stocks for Southern Resident killer whales, as well as their population and range, is available from several fact sheets and videos available here: https://www.fisheries.noaa.gov/species/killer-whale#spotlight. For more information, visit this NMFS StoryMap on Southern Resident killer whales: https://noaa.maps.arcgis.com/apps/Cascade/index.html?appid=3405e6637bf74e998d4ebe992c54f613. According to NMFS and the EPA, the estimated SRKW population has fluctuated between 67 and 98 whales between 1960 and 2015. The Snake River dams were constructed between 1962 and 1975. The SRKW population increased from a record low in 1970 to its highest population numbers in 1995. Those years were not high years for Snake or Columbia River Chinook Salmon. Ocean conditions between 2011 and 2013 were good years for salmon. At the same time, 2010 and 2013 were good outmigration years. Particularly, 2011 and 2012 were above normal in water supply, which would mean more cooler water was available and there was better survival of salmon, and 2011 through 2014 were higher than normal spill years as well. The combination of outmigration and ocean conditions created improved adult salmon returns. The EIS has analyzed spill as a measure in the Preferred Alternative and determined the overall effect to SRKW to be negligible in large part because hatchery production is consistent between the No Action Alternative and the Preferred Alternative. Because the impact from the Preferred Alternative was determined to be negligible, the agencies determined that existing hatchery production would be sufficient to address any potential impacts to prey availability for SRKWs. The co-lead agencies note the contribution to the prey of SRKW through the continued existence of their respective independent Congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as the Lower Snake River Compensation Plan (other than under MO3), which is administered by USFWS. The Preferred Alternative and Proposed Action in the agencies' biological assessment carry forward certain mitigation measures described in Chapters 2 and 7 of the EIS, which include continued salmon and steelhead hatchery production. The Preferred Alternative has negligible effects to SRKWs as described in Section 7.7.8. The Biological Assessment (BA) describes the effect of the Proposed Action on the SRKW forage species (see BA Section 3.5.1.2, Southern Resident Killer Whale). The proposed changes in operation of the Columbia River System include increased spring spill during the downstream migration of juvenile spring and summer run Chinook salmon. The result of this action includes potential increases of juvenile fish passing through the spillways, reductions in juvenile fish direct and indirect mortality associated with downstream passage, and the Comparative Survival Study (CSS) model predicts increases in numbers of returning adults, which will benefit SRKWs foraging in and around the mouth of the Columbia River in winter and spring (See EIS Section 7.7.8). The CSS model results predicts Snake River Chinook salmon would have relative improvements in smolt-to-adult returns of 35 percent (see EIS Section 7.7.4). The smolt-to-adult return ratio (SAR) is the rate at which of a group of fish survive from their smolt life stage to a defined ending point where they return as adults. While recovery targets will require more than just the efforts of federal agencies, the CSS models indicate the potential for SARs of Snake River Chinook salmon and steelhead to increase to levels that could approach recovery targets set by the Northwest Power and Conservation Council. The BA, also consistent with the EIS, acknowledges past improvements to the configuration and operation of the Columbia River System, additional improvements to the environmental baseline as a result of completed estuary and tributary habitat actions, and the prospective non-operational conservation measures proposed in Chapter 2 of the Draft EIS, all contribute towards maintaining and improving Chinook abundance. Relevant conservation measures include, among other things, a commitment to continue funding the conservation and safety net hatchery programs listed in Chapter 2 of the Draft EIS. As discussed above, the agencies will fulfill congressionally authorized hatchery mitigation objectives through the funding of hatchery programs that are operated consistent with their independent hatchery program consultations during the term covered by this consultation. Based on those hatchery program consultations, the production levels associated with congressionally authorized hatchery mitigation objectives will continue, at minimum, to be consistent with levels previously analyzed by NOAA in the system consultations in 2008, 2014, and 2019. For the 2020 ESA consultations, therefore, the agencies expect that collectively, all of the actions described above (substantial modifications to migration conditions designed to benefit key prey species, combined with improvements to Chinook spawning and rearing habitat in the tributaries and Columbia River estuary, and continued hatchery production) ensure that remaining Chinook mortality from all sources in the mainstem migratory corridor will continue to be more than offset, resulting in a net gain in Chinook salmon abundance available as a prey source for SRKW. Finally, the 2019 NMFS Fisheries BiOp included increased spring spill operations that are similar to operations evaluated in CRSO EIS, and NOAA validated that the hatchery production of Chinook salmon mitigates for the impacts of operating the Columbia River System and total mortality through the mainstem migratory corridor from all sources.
32180	60	redfish@bluefish.org	N/A	Ken Balcomb strongly criticized the Priority Chinook Stock List for placing Snake River Chinook far too low on the priority list. This he says, even though Idaho's Chinook were placed fairly high in the ranking: Snake River Fall Chinook at fifth position and Snake River Spring/Summer Chinook at ninth. (Appendix F, 3-12) In the Columbia River basin, different stocks vary in overall importance for the diet of SRKW. For example, Snake River spring-summer Chinook salmon are mainly available to SRKW when the fish gather off the mouth of the Columbia, whereas Snake River fall Chinook remain closer to the coast and would be available for a longer period. Center for Whale Research Balcomb notes that samples behind the Priority Chinook Stock List were all taken long after the Snake River Chinook runs became greatly diminished. Historic levels would show these Chinook to be of far greater importance. Balcomb adds that very few samples have been obtained from the rough seas at the Columbia Rivers mouth. By contrast, most all samples being collected were from the relatively tranquil waters of the Salish Sea. Statistical significance is paramount [Text contains figures that do not transfer to database.]	The co-lead agencies recognize that data is being developed and refined in an ongoing manner. The agencies believe that the Priority Stock List is current high quality information and best available science as utilized in the CRSO EIS analysis, recognizing the caveats and assumptions made in the compilation of that list. NMFS and other regional experts are collaborating with scientists to answer the unknowns, fill in the gaps in data, and lowering the assumptions regarding SRKW diet. Currently, current high quality information and best available science indicates that the diet of the SRKWs includes a variety of food sources based on the most available runs. The co-lead agencies agree that the quantity, quality and timing of prey availability is important in health of SRKWs. Also, see response to Comment 6110-16 and updated language of effects on SRKWs in Chapter 3.6 and Chapter 7. The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). The co-lead agencies agree that the quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults form the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differentially from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020).
32180	61	redfish@bluefish.org	N/A	Flex Spill to 125% TDG - Executive Summary: Co-lead agencies developed a Preferred Alternative designed to achieve a reasonable balance of competing river resource needs and co-lead agency mission requirements. Executive Summary Through the EIS, the co-lead agencies are creating an additional opportunity to test the assumptions about the potential for significantly increased salmon survival embedded in the CSS model through the adaptive implementation of a flexible spill operation. This adaptive implementation framework includes careful monitoring and evaluation to ensure there are not adverse impacts on aquatic species or other unintended consequences. (Appendix R, 7-1) By following this adaptive implementation and monitoring framework, the Action Agencies will be able to collaborate with the regional experts, while maintaining the ability to adapt to new information and respond to unanticipated outcomes or challenges that may arise as a result of testing the magnitude of latent mortality. (Chapter 4 p.39) Adult upstream migrations would be challenged by MO4 flow and spill conditions and may be further complicated by the effects of climate change. The additional flow augmentation (McNary Flow Target measure) delivery would increase flows in spring but then reduce them later in summer, resulting in increased water temperature in the Columbia River from Chief Joseph downstream. These temperatures could be further elevated with climate change and could increase delays and fallback. Temperatures would be elevated in MO4, which could make Upper Columbia River sockeye more frequently encounter conditions in the lower Columbia River where it is too warm to migrate, and where there is a thermal block downstream of spawning habitat in the Wenatchee or Okanogan Rivers. Similarly, Pacific lamprey could experience even more days over their thermal stress threshold (temperature above which the fish experience stress) in the Columbia River from Chief Joseph Dam to McNary Dam, where temperatures would be elevated in MO4. The "thermal block" is at the Columbia's confluence with the Snake River. Why is that? [TExt contains figure that does not transfer to database.] CRSO Objective: Provide an adequate, efficient, economical and reliable power supply that supports the integrated Columbia River Power system. MO3 does all of the above, as demonstrated above. The Columbia River Power System is completely adequate under Breach Lower Snake River Embankments (the environmentally preferred ingredient of MO3) while spill and flex spill are speculative and awaiting further testing in the Draft PA. Breach Lower Snake River Embankments is efficient and economic (see Draft Figure 7-22 and Appendix H Figure 5-4, above). The only regional controversy is whether or not MO3 provides a reliable power system. To prove this one way or another, Bonnevilles "first scenario" needs to be modeled, rather than the inflated Replacement Portfolios that were detailed herein. Importantly, last year's Flex Spill Experiment was a disaster for Idaho's juvenile migrants. In mid-September 2019, Rich Zabel reported to Ritchie Graves the official estimates of Juvenile Survival by Reach. The fish kill was unprecedented and tragic. (Appendix R, 5-1) To build off the success of and momentum achieved through the 2019-2021 Spill Operations Agreement, the Action Agencies plan to formally continue the efforts of Flexible Spill Work Group (FSWG). This group would be complementary with the existing Regional Forum. ... Evaluating the effectiveness of these operations will require multiple years of data given the lifecycle of salmon and the potential changes in regional energy markets. ... Spill levels implemented would be adapted or modified based on the framework in this document to account for unanticipated outcomes that affect the ability of the Action Agencies to maintain their individual federal mandates. ... * Ensure the implementation of CRS spill operations is responsive to dynamic conditions experienced during implementation of this novel operation, new scientific information and regional input... * Conduct a transparent adaptive implementation process that keeps stakeholders informed of and involved in annual operation decisions on timing, design, and monitoring... * Conduct monitoring activities, interpret and share results, adapt implementation practices to improve results and better meet project objectives; and * Evaluate the value of flex spill for fish and power over a range of environmental and economic conditions. (Appendix R, 3-3) The Flex Spill Fish Principle: Provide fish benefits, with the understanding that (i) in 2019,	Regarding MO4 and summer temperatures: Under MO4 and as with the No Action Alternative, the four lower Columbia River reservoirs (McNary, John Day, The Dalles, and Bonneville) would continue to show weak to no stratification during the summer months, largely due to the short residence time, wind and flow-induced turbulent diffusion, and convective mixing that occurs in the reservoirs. Maximum tailwater water temperatures and the frequency of water temperature standard exceedances would be similar for MO4 and the No Action Alternative over a range of river and weather conditions. Minor effects to water temperature are anticipated downstream of McNary Dam, while negligible effects are expected downstream of John Day, The Dalles, and Bonneville Dams. Regarding the Preferred Alternative vs. MO3: The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species as that is a broader goal with shared responsibility. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species as that is a broader goal with shared responsibility. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the Columbia River System. That call, however, is ultimately the role of NMFS and the USFWS. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets most other EIS objectives including those for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS, the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams, because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. Regarding the FSWG comment: the co-lead agencies are currently in discussions with federal agencies, states, and Tribes on the structure of this forum. While the intent is to keep the spirit of the FSWG, there will be some modifications to the Draft EIS in this area based on our current discussions.

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				overall juvenile fish benefits associated with dam and reservoir passage through the lower Snake and Columbia rivers during the spring fish passage season must be at least equal to 2018 spring fish passage spill operations ordered by the court, and (ii) in 2020 and 2021, these fish benefits are improved further (as estimated through indices of improved smolt-to-adult returns, e.g., PITPH, reservoir reach survival, fish travel time); is directly related to Objectives 1, and 2 of the CRSO EIS: * Improve ESA-listed anadromous salmonid juvenile fish rearing, passage, and survival... The Action Agencies are planning to add a fourth principle to the flex spill decision framework: Principle 4: Evaluate the Effectiveness of the Spill Operation by: * Evaluate the extent to which further increase in spill lead to improved adult returns by reducing latent mortality * Monitoring other interim metrics to evaluate progress and avoid unintended consequences. * Evaluating the impacts to power revenues and rates. (NW Fishletter recent F&W costs at $781 million) For Principle 4 to be achieved, the operation will need to be accompanied by a robust study design that can provide statistically meaningful results within a reasonable management timeframe. The analysis of future scenarios and the adaptive implementation of future operations will need to consider and achieve all four principles to provide an optimized outcome that supports improved SARs for fish, affordable and reliable power, feasible implementation, and the ability to discern if the operation is having a measurable benefit. ... Power, fish, and operation metrics will be evaluated to ensure that spill operations are meeting the four principles and that operations are not resulting in negative impacts. The last decade of monitoring the effects of operations under the current configuration of the projects (since approximately 2010) will provide a reference point for evaluation. ... Biological performance metrics will be managed for annual targets (e.g., survival, travel time and gas bubble trauma) of migrating salmonids through the CRS... (Appendix R, 3-1) Lessons Learned from the 2019-2021 Spill Operation Agreement ... After the 2019 spring spill operation concluded, the FSWG met again to discuss whether or not the three pillars of the Agreement were satisfied under the first and only year of flex spill operation, and to finalize details of the 2020 operation based on the lessons learned from 2019. ... (Appendix R, 5-1) The RIOG is a forum for interagency coordination and does not supplant existing federal, state or tribal decision making authorities. All decisions under the authority of the federal government continue to be made by the appropriate federal agency with the statutory authority to make such decisions. As it applies to the flexible spill operations contemplated in this framework, the federal Action Agencies retain final decision making authority related to operations of the dams while taking into account the perspectives of members of the FSWG. The FSWG shall, at a minimum, include a representative from each signatory to the agreement. If carried forward for implementation beyond the terms of the Agreement, other regional sovereigns would also be invited to participate in efforts to resolve an objection. If the FSWG cannot resolve the issue without objection, the issue shall be elevated to RIOG for resolution. Given that this framework will be applied after the expiration of the Agreement, the FSWG would be open to any interested CRS sovereign that requests to be included. The RIOG has failed to meet their deadline of 120 days to determine what actions to take following the triggering of the Early Warning Indicator by Snake River Steelhead population declines to 1990 levels. Should they be trusted? The FSWG and RIOG should be aware of the failure to live up to "three pillars" in the 2019 Flex Spill Agreement. Bonneville and USACE have been informed of the tragedy, by bluefish. -	
32180	62	redfish@bluefish.org	N/A	- Environmental Justice - Executive Summary - Tribal Coordination and Perspective Since time immemorial, the Columbia River Basin has been inhabited by Native American peoples, who successfully subsisted on the abundant natural resources of the region. They built thriving communities that relied on the lands to sustain their way of life. Through treaties, executive orders, judicial decisions, and legislation, the tribes ceded most of their territory to the United States while retaining smaller portions of land for their reservations. Some tribes, through treaties, retained the right to hunt, fish, and gather in their usual and accustomed locations, including areas outside of their reservations. The potentially affected area of the CRS includes portions of tribal reservations, trust lands, and ceded lands of 19 federally recognized tribes. ... In its relations with tribes, the United States has charged itself with moral obligations of the highest responsibility and trust (Seminole Nation v. United States, 1942). These trust responsibilities derive from the historical relationship between the federal government and tribes as expressed in Treaties, Statutes, Executive Orders, and Federal Indian case law. ... The tribes of the Columbia River basin represent diverse and distinct cultures, each different from the next. There is one theme, however, that the tribes all have in common: Their association with the natural resources of the region permeates every aspect of their cultures. This association results in a strong sense of stewardship for the land. It is difficult to overstate the effects the CRS has had on tribal culture, way of life, and traditions. ... The losses of these areas have adversely affected how tribal communities define themselves, interact with each other, and live full spiritual lives; and in the process has undermined the processes through which living cultures are nourished, maintained, and perpetuated. Then immediately following is Tribal Coordination and Perspective	Tribal input, concerns, interests, and especially treaty rights were considered throughout the Draft EIS analyses and in the formulation of the Preferred Alternative. Treaty specific information is included in Section 3.17 as well as Chapter 7. The treaties bind all parties and are the supreme law of the land. In terms of honoring our treaty obligations, the co-lead agencies included Protecting Native American treaty and reserved rights and fulfilling trust obligations for natural and cultural resources throughout the environment affected by the Columbia River System operations as a purpose in the Purpose and Need Statement in Chapter 1 to ensure treaty obligations were a key consideration of decision making. The co-lead agencies are engaging in government-to-government consultation with the tribes, and several tribes are cooperating agencies on the CRSO EIS. The EIS recognizes the economic and cultural importance of salmon to Tribes in a number of sections throughout the document. The cultural significance and impacts of salmon and steelhead fisheries are described in the Ceremonial and Subsistence Fisheries sub-section and the Social Importance of Commercial, Ceremonial and Subsistence Fisheries sub-section of Section 3.15.2.1. Fisheries tribal interests are provided in Section 3.15.4 additional details regarding the economic significance of salmon and steelhead fisheries have been added to the recreation analysis (Section 3.11) including tribal interests (Section 3.11.3.7). Treaty rights are discussed in the Executive Summary, Section 3.16 Cultural Resources, and Section 3.17 Indian Trust Assets, Tribal Perspectives, and Tribal Interests. Appendix P includes copies of tribal perspectives that were submitted by tribes. Tribal consultation is described in Sections 1.5, 3.5, and 3.15; and Chapter 9. Most sub-sections within Chapter 3 include a Tribal Interests section at the end of the sub-section that attempts to summarize tribal issues by topic. Section 3.18, Environmental Justice, describes the unique conditions of minority populations, low-income populations, and tribes that may heighten their vulnerability to effects from the alternatives.
32180	63	redfish@bluefish.org	N/A	Where did the HYDSIM and ResSim results go? A legitimate NEPA document would either describe why those outputs were insufficient, or just plain use them. It is very odd to me that Bonneville staff intervened to provide "inputs similar to HYDSIM and ResSim" into the model. What was the point of discussing the AURORA feedback loop "in a second pass of HYDSIM"? No reason is given for Bonneville staff to enter into GENESYS "inputs similar to HYDSIM and ResSim". If there is some legitimate reason, the NEPA document should clearly explain that justification.	Hydroregulation (regulating water) is the process planners and operators use to make decisions about routing water through a series of dams in a river system. Computer hydroregulation modeling is used to simulate operations for the system of dams that operate for multiple purposes, including flood risk management, hydropower, irrigation, navigation, recreation, water supply, and fish and wildlife purposes. Two hydroregulation models were used to simulate operations in the basin in support of the Hydraulics and Hydrology (H&H) analysis: Hydro System Simulator (HYDSIM) and Hydrologic Engineering Center Reservoir System Simulation (ResSim) software. The models mesh together through multiple steps to simulate operations in the Columbia River Basin. More information on these models is available in Section 3.2 and in Appendix B of the Draft EIS. AURORA is a production cost model that uses loads and resource projections to calculate wholesale markets for the West. The model estimates how much power can be sold into the wholesale market and estimates the related prices. Appendix I, Hydroregulation, and Appendix J, Hydropower, provide detailed information on this model. This analysis relies on the hydroregulation modeling. To analyze the power system reliability Bonneville uses the GENeration Evaluation SYStem (GENESYS) model, which simulates regional power generation and demand.
32180	64	redfish@bluefish.org	N/A	Moreover, NW Power & Conservation Council staff have been denied access to this "inputs similar to" data. You will note that The Council is not providing any comments to the Draft. The staff desired to do the work, but Bonneville did not share information for them to review. In light of this absence of cooperation, explicitly dictated by the Northwest Power Act, NW Council staff provided me access to GENESYS and some training so that I might see what the GENESYS, with current data, finds for a LOLP with and without the four LSR dams. Markedly, the politically appointed members from four states could not arrive at a consensus vote to run this simple analysis. Therefore, staff allowed me to run GENESYS in their absence from the process.	Bonneville staff have the expertise to run the GENESYS model and describe its outputs for the CRSO EIS. Bonneville has worked with the Northwest Power and Conservation Council (Council) on developing the model for many years. For areas of the CRSO EIS power analysis where Bonneville staff did not have expertise, Bonneville hired consultants; however, for the GENESYS model, this expertise is housed within Bonneville. The Council received periodic updates on the CRSO EIS NEPA process similar to the general public. Since the Council is not a Federal, Tribal, state or local agency, it could not serve as a cooperating agency under NEPA. The Council received the Draft EIS when it was available for public review.
32181	1	ejkimber@gmail.com	N/A	I also feel the need to point out that the importance of the Columbia salmon as it pertains to the diet of the SRKW Orcas is severely underrepresented. This is not mentioned in the entire 36 pages of the DEIS. This is unacceptable and does not provide a complete picture of the impact. It's also naive and incorrect to label Puget Sound Chinook salmon as "more important" to the diet of the SRKW due to their NEED for a continuous supply throughout ALL seasons in order to maintain healthy body weight, survive longer or harder winters, and lower their already extremely high miscarriage and infant mortality rate.	The co-lead agencies agree that the quantity, quality and timing of prey availability is important in health of SRKWs. Also, see response to Comment 6110-16 and updated language of effects on SRKWs in Chapter 3.6 and Chapter 7. The Draft EIS is much longer than 36 pages and we invite you to read the rest of the Draft EIS in order to acquire the information for which you are looking. The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall run (tules and brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). The co-lead agencies agree that the quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults form the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differentially from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020).
32181	2	ejkimber@gmail.com	N/A	Due to the COVID-19 issues, I also ask that you please consider extending the comment period.	The co-lead agencies considered requests to extend the public comment period. This NEPA process included a wide array of cooperating agencies whose close involvement throughout the process allowed the co-lead agencies to incorporate feedback. Given the broad range of comments received to date and the extensive Federal and non-Federal participation in the overall process as well as the level of public engagement in the six virtual public meetings in the region, the co-lead agencies determined that an extension was not warranted and that the 45-day public comment period was adequate consistent with NEPA regulations. The CRSO EIS website notified the public on April 9, that they should plan to submit comments by the close of the comment period.
32184	1	hlbrb88@gmail.com	N/A	During my career as an electrical engineer for power companies, I bought Dump Power from BPA during spring runoff. At that time utilities on the west Coast had more water than they could use for the generation required to carry their loads. They would be spilling water from dams that did not have storage, like the run-of-the-river dams on the Lower Snake River. BPA would run the generators in those dams so that some of the water would not be "wasted" and sell the energy at extremely low prices to companies, like mine, that did not have generation. Now, in the Northwest, hydro generation that can follow the load is valuable . The run-of-the-river Lower Snake River dams do not have this capability. All dams were not created equal. The Lower Snake River dams are almost 50 years old and generating equipment has a limited life.	The statement that hydropower can follow load and that spill reduces generation is consistent with the EIS. Regarding the four lower Snake River dams, the EIS describes the operational characteristics of these dams in Section 3.7.3.5 - Lower Snake River Full Replacement (Used in Rate Sensitivity Analysis). As described in that section, while the four lower Snake River dams are indeed run-of-river projects, there is flow in the lower Snake River year-round. These are not strictly run-of-river projects in the narrowest sense; they have pondage (some flexibility in the forebay elevation) and can provide sustained peaking capability. Upstream storage is used to increase their firm capacity, and they provide up to 2,000 MW of sustained peaking capacity at certain times of the year. See draft EIS, Section 3.7.3.5, Changes in Power Generation, Table 3-159. The dams also provide important ramping capability the ability to quickly generate energy to match spikes in energy usage with over 2,000 to 2,300 MW of capability in certain months of the year. See draft EIS, Section 3.7.3.5, Lower Snake River Full Replacement at pages 3-905-907 and Table 3-160. Upstream storage projects (Dworshak and Brownlee), regulate some of the water flowing into the lower Snake River. In particular, the four lower Snake River dams produce a substantial amount of power in the winter, which is currently the region's highest demand period. See EIS, Section 3.7.3.5, Changes in Power Generation, Table 3-159 in the Draft EIS.
32184	2	hlbrb88@gmail.com	N/A	The Lower Snake River dams are almost 50 years old and generating equipment has a limited life. The company I worked for before retiring has a continuing program to replace turbines and generators of this vintage. Often the gates that control the water to the turbines also have to be replaced. It is very expensive and difficult engineering. Picture replacing an engine on an airplane while it is flying. These costs should be considered in the DEIS.	Bonneville, the Corps and Reclamation develop long-term strategies and plans that identify the optimal time to replace equipment based on equipment condition, criticality and risk. Age, although a factor in equipment condition, is not the determining factor when equipment is replaced or rehabbed. Existing strategies place the earliest optimal turbine replacement date in the 2030s, with the majority of the remaining 21 turbines falling in the 2040s and 2050s.

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				When they are, this expense and the low value of the dams' power compared to other resources, it does not appear to be cost effective to replace the worn out turbine generators.	Additionally, it has not been determined if all six units at each plant will be replaced at those times. Replacement costs for turbine runners and components are expected to be closer to $600 million in 2020 dollars, if all turbines are replaced. Generator windings would likely be replaced at the same time, which would add another $200 million. The EIS analyzed the avoided capital, operations and maintenance (O&M) costs of breaching the four lower Snake River dams under MO3 in Section 3.19 and Appendix Q of the Draft EIS. The costs for replacement resources, integration costs and transmission reinforcement were greater than the savings realized from the avoided capital, operations and maintenance costs if the dams were breached. Contrary to the implications of the comment, this means breaching the four lower Snake River dams is less cost effective than reinvesting in the equipment at the optimal time based on equipment condition, criticality and risk. For MO3, the costs of replacing the lost generating capability of the four lower Snake River dams is discussed in Section 3.7.3.5, Lower Snake River Replacement, on page 3-905 in the Draft EIS. The rate impacts of these replacement resources, which includes O&M cost savings from breaching the four lower Snake River dams, is described in Section 3.7.3.5, Table 3-166, and pages 3-920-924 in the Draft EIS. As described in the EIS, even with the cost savings associated with reductions in dam operating and fish and wildlife mitigation costs, the net impact on power rates could be substantial. The EIS estimates the costs to operate the CRS dams, as well as the costs to the power system that would occur if the four lower Snake River dams are breached under MO3. Section 3.19, Table 3-307 in the Draft EIS describes the cost components that the EIS considered and analyzed including non-routine maintenance and operations and maintenance, among others. See EIS Section 3.19 for additional detail. Regarding the cost effectiveness of maintenance, the EIS considered the avoided O&M and capital costs associated with dam breaching in the cost analysis and included these reduced costs in power rates analysis. See Section 3.7.3.5, Bonneville's Fish And Wildlife Program And Lower Snake River Compensation Plan Costs, page 3-913 in the Draft EIS. See also Section 3.7.3.5, Table 3-166 in the Draft EIS.
32185	1	ggoodstefani@nrdc.org	Natural Resources Defense Council	The Natural Resources Defense Council joins the Nez Perce Tribe, Shoshone Bannock Tribe, the Upper Snake River Tribes, State of Oregon, and the thousands of people and organizations from across the Pacific Northwest and the United States in calling for the restoration of the lower Snake River. The Fish Passage Centers modeling of Snake River steelhead and spring Chinook survival shows that the action agencies preferred alternative would not meet the criteria for salmon recoverybut dam removal will.1 NOAA Fisheries own survival model also shows that dam removal and replacement with clean energy resources would have the most significant benefit to Snake River salmon and steelhead.2 The only demonstrated path to salmon and steelhead recovery, a climate-change resilient river, continued survival of the Southern Resident killer whales, and abundant salmon and steelhead for tribal sovereigns, fishing businesses, river communities, and all fish and wildlife beneficiaries and appreciators includes breaching the earthen portions of the lower Snake River dams and replacing their energy with clean alternatives.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA listed species. Based on the analysis in Fish section of Chapter 7.7.4, the co-lead agencies anticipate that the Preferred Alternative may provide benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the Columbia River System. That call however is ultimately the role of NMFS and the USFWS. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. The EIS set forth eight objectives which, in tandem with the purpose and need statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as the alternative that includes breaching the lower Snake River dams (MO3). However, the Preferred Alternative also meets the other objectives of the study for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse impacts to communities and the economy. MO3, by contrast, has significant regional economic impacts and community effects, and meet only a small subset of the EIS objectives. Thus, the co-lead agencies did not recommend dam breaching because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system.
32185	2	ggoodstefani@nrdc.org	Natural Resources Defense Council	I. THE NEPA PROCESS IS RUSHED, INADEQUATE, AND PRECLUDES PUBLIC PARTICIPATION The CRSO DEIS public comment period of just 45 days, which ends today, April 13, 2020, is arbitrary and inadequate to allow the public, interested individuals, institutions and governments an adequate opportunity to review, analyze, consider and comment on a document that runs to almost 3,000 pages plus another nearly 5,000 pages of technical appendices. The failure to extend the comment period without explanation in light of numerous requests from elected leaders, sovereigns, organizations, businesses, and individuals during a global health pandemic was arbitrary and capricious. We wrote and requested that you allow at least as much time for comment on the DEIS as you allowed for the much simpler preliminary step of scoping for the CRSO EIS, i.e., 120 days or more. The failure to extend the comment deadline materially impacted individuals review of the document, hindered public engagement and exchange of information, diminished scientific oversight, and limited the impacted publics ability to inform the decisionmaking process. 1 See Fish Passage Center, Comparative Survival Study of PIT-tagged Spring/Summer/Fall Chinook, Summer Steelhead, and Sockeye: 2019 Annual Report, Chapter 2 (December 2019). 2 DEIS, Executive Summary, p. 25. The requested 120 day or more comment timeline would have been consistent with sworn statements from the Action Agencies to the Court in NWF v. NMFS, No. 01-640-SI (D. Or.), when the Court was setting a schedule for preparation of this EIS and a new management plan. At that time, agency managers told the Court that a minimum of five years would be needed to prepare the CRSO EIS. In support of this schedule, the Corps of Engineers explained that for a prior EIS that focused only on the lower Snake River, the agencies provided a five-month comment period on the Draft EIS and then explained that the CRSO EIS would be more complicated and draw greater public interest and therefore would require more time than the earlier lower Snake River study. The Corps also explained that it would take at least a year to analyze the number and depth of comments it expected to receive on the CRSO Draft EIS. Likewise, the Bureau of Reclamation pointed the Court to an EIS in the Klamath Basin where it provided a 100-day comment period on the Draft EIS and again indicated that the CRSO EIS was more complex and would require even more time. To truncate public participation under current conditions without a pressing reason is an act of politics and not solid policy, and it defeats the stated purpose of NEPA.	The co-lead agencies considered requests to extend the public comment period. This NEPA process included a wide array of cooperating agencies whose close involvement throughout the process allowed the co-lead agencies to incorporate feedback. Given the broad range of comments received to date and the extensive Federal and non-Federal participation in the overall process as well as the level of public engagement in the six virtual public meetings in the region, the co-lead agencies determined that an extension was not warranted and that the 45-day public comment period was adequate consistent with NEPA regulations. The CRSO EIS website notified the public on April 9 that they should plan to submit comments by the close of the comment period.
32185	3	ggoodstefani@nrdc.org	Natural Resources Defense Council	II. THE DEIS FAILS TO ANALYZE REASONABLE ALTERNATIVES The CRSO DEIS failed to analyze all available and reasonable alternatives. In particular, the CRSO DEIS failed to consider the alternative of breaching the lower Snake Dams and spilling to 125% at the lower Columbia Projects. The alternative of combining the breaching of the lower Snake River Dams with spill to the 125% gas cap was also presented to the CRSO-EIS Fish Technical Team on September 21, 2017. Although initial CSS analyses indicated that the combination of breach and spill at the lower Columbia River projects to 125% produced the highest Smolt-to-Adult Returns (SARs), the federal agencies did not consider in the CRSO DEIS an alternative that incorporated this operation. Consequently, the range of alternatives considered in the DEIS does not examine a reasonable and available alternative for dam operations that would actually produce the highest survival rates for Snake River salmon and steelhead (and other species given the higher spill levels at the lower Columbia River dams).	The co-lead agencies presented a range of alternatives for the continued operation and maintenance of the CRS and evaluated the alternatives to inform decision making and the public. As described in Chapter 2, many alternatives were considered and then eliminated from further consideration for the reasons described therein. Improving anadromous fish conditions was part of the EIS objectives. The agencies disagree that an alternative that includes breaching the four lower Snake River dams and spring spill operations to 125% TDG at all four lower Columbia River dams is reasonable given the unacceptable risks to public safety from such an alternative. MO3 and MO4, individually each caused large loss-of-load probability (LOLP) results (e.g. increased incidence of blackouts). Without major additional of new resources, MO3 would result in power shortages in about one in seven years. MO4 would produce power shortages in about one in every four years. Combining breaching the four lower Snake River dams with spill up to 125% at the lower Columbia River projects is not a reasonable alternative under NEPA. For power and transmission, MO3 and MO4, individually each caused large loss-of-load probability (LOLP) results (e.g. increased incidence of blackouts). Without major additional new resources, MO3 would result in power shortages in about one in seven years. MO4 would produce power shortages in about one in every four years. If MO4 were implemented, in addition to breaching the four lower Snake River projects as called for in MO3, then the LOLP would be even higher, with power shortages potentially occurring almost every year. Additionally, if these MOs were combined, in 5% of the years, the power shortages would average close to 1,000 MW in early August when the region might be experiencing a heatwave with particularly high demand for air conditioning. 1,000 aMW is about the average amount of power consumed by Seattle City Light. As shown in Section 3.7, MO3 causes an increase in power reliability concerns in the winter and the summer. MO4 increases power reliability concerns in the summer. Thus, the combination has the largest impact during the summer. The cost of zero-carbon replacement resources for MO3 and MO4 individually are up to $1 billion/year. Resource replacements and associated transmission interconnections for the combination of MO3 and MO4 would be higher, though not likely as high as the sum of the two MOs individually. Assuming that the replacement resources consist largely of wind, solar, and batteries, this would require well over 50 square miles of solar power (more than two and a half times the size of Crater Lake), large areas of new wind generation, and unprecedented amounts of batteries (more batteries in the Northwest alone than the total projection of batteries expected in the entire US by 2023 per the Energy Information Administration). In addition, the reduced generation capability under MO3, particularly throughout the summer, in combination with the impacts of the measures in MO4 and the uncertainty about the characteristics of replacement resources, would result in less capability to provide voltage support and dynamic stability for transmission system reliability than under MO3 or MO4 individually. Thus, combining MO4 with breaching the four lower Snake River projects, would produce unreasonable power and transmission reliability impacts, and it is highly speculative that replacement resources could be sited, permitted and built to address these impacts. Thus, an alternative combining juvenile fish passage spill up to 125% and breaching the four lower Snake River dams is unreasonable, and thus was not proposed as an alternative.
32185	4	ggoodstefani@nrdc.org	Natural Resources Defense Council	The CSS 2019 Annual Report analyzed an alternative they termed MO34. The MO34 option included breach of the four lower Snake River dams with spring spill operation at all four lower Columbia River dams was spill to the 125% TDG levels. The MO34 option also includes the addition of fish friendly turbines at John Day Dam and the installation of Powerhouse Surface Passage routes (PSPs) at McNary and John Day dams. The MO34 alternative demonstrated the greatest expected improvements across all biological response metrics, compared to all of the federal CRSO DEIS alternatives. On average, the MO34 alternative exceeded the 4% average SAR regional goal. The predicted SARs for MO34 were above 1% for both Chinook (SAR>1% for 85% of simulations) and steelhead (SAR>1% for 92% of simulations) indicating that MO34 had the highest likelihood of avoiding further population declines and supporting population rebuilding. The CSS alternative MO34 performed better than any of the alternatives analyzed in the DEIS and is built from actions considered in these alternatives and so would be reasonable to consider but, was not developed or considered by the federal agencies in the CRSO DEIS. The MO34 alternative had the lowest probability of producing SARs less than 1% and the greatest probability of SARs greater than 2%. Therefore, MO34 had the best probability of successful restoration of healthy salmon populations and recovery with the lowest risk to extinction of all the alternatives.	The co-lead agencies presented a range of alternatives for the continued operation and management of the CRS and evaluated the alternatives to inform decision making and the public. As described in Chapter 2, many alternatives were considered and then eliminated from further consideration for the reasons described therein. Improving anadromous fish conditions was part of the objectives of the CRSO EIS. The agencies disagree that an alternative that includes breaching the four lower Snake River dams and spring spill operations to 125% TDG at all four lower Columbia River dams is reasonable given the unacceptable risks to public safety from such an alternative. MO3 and MO4, individually each caused large loss-of-load probability (LOLP) results (e.g. increased incidence of blackouts). Without major additional of new resources, MO3 would result in power shortages in about one in seven years. MO4 would produce power shortages in about one in every four years. Combining breaching the four lower Snake River dams with spill up to 125% at the lower Columbia River projects is not a reasonable alternative under NEPA. For power and transmission, MO3 and MO4, individually each caused large loss-of-load probability (LOLP) results (e.g. increased incidence of blackouts). Without major additional new resources, MO3 would result in power shortages in about one in seven years. MO4 would produce power shortages in about one in every four years. If MO4 were implemented, in addition to breaching the four lower Snake River projects as called for in MO3, then the LOLP would be even higher, with power shortages potentially occurring almost every year. Additionally, if these MOs were combined, in 5% of the years, the power shortages would average close to 1,000 MW in early August when the region might be experiencing a heatwave with particularly high demand for air conditioning. 1,000 aMW is about the average amount of power consumed by Seattle City Light. As shown in Section 3.7, MO3 causes an increase in power reliability concerns in the winter and the summer. MO4 increases power reliability concerns in the summer. Thus, the combination has the largest impact during the summer. The cost of zero-carbon replacement resources for MO3 and MO4 individually are up to $1 billion/year. Resource replacements and associated transmission interconnections for the combination of MO3 and MO4 would be higher, though not likely as high as the sum of the two MOs individually. Assuming that the replacement resources consist largely of wind, solar, and batteries, this would require well over 50 square miles of solar power (more than two and a half times the size of Crater Lake), large areas of new wind generation, and unprecedented amounts of batteries (more batteries in the Northwest alone than the total projection of batteries expected in the entire US by 2023 per the Energy Information Administration). In addition, the reduced generation capability under MO3, particularly throughout the summer, in combination with the impacts of the measures in MO4 and the uncertainty about the characteristics of replacement resources, would result in less capability to provide voltage support and dynamic stability for transmission system reliability than under MO3 or MO4 individually. Thus, combining MO4 with breaching the four lower Snake River projects, would produce unreasonable power and transmission reliability impacts, and it is highly speculative that replacement resources could be sited, permitted and built to address these impacts. Thus, an alternative combining juvenile fish passage spill up to 125% and breaching the four lower Snake River dams is unreasonable, and thus was not proposed as an alternative.

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32185	5	ggoodstefani@nrdc.org	Natural Resources Defense Council	The CRSO DEIS also should have investigated how to optimize Dworshak releases to regulate water temperature and improve fish survival in a free-flowing lower Snake. For instance, MO1 proposes releasing more Dworshak water in June/July, less in August, and more again in September/October. This schedule would release cold water during the peak of the sockeye and S/S Chinook migrations in June/July and again during the peak of fall Chinook and steelhead migrations in September and October. Because MO1 does not include lower Snake dam removal, temperature modeling showed (unsurprisingly) that this early summer/early fall Dworshak release schedule would have little to no impact on water temperatures or fish survival in the lower Snake River. A much more informative inquiry, one that would assist the public and decision-makers alike, would be to model how the Dworshak release schedule influence temperature and fish migration success in a free-flowing Snake River. The CRSO DEIS should have investigated how the combination of Snake River dam removal and different Dworshak dam release patterns could provide the most benefit for fish survival.	Each Multiple Objective alternative (MO) was evaluated against the No Action Alternative. The Preferred Alternative includes a combination of measures that meet the Purpose and Need Statement and objectives of the CRSO EIS, while balancing the authorized purposes of the 14 Federal dam and reservoir projects that make up the CRS. In some instances, measures were modified to improve their ability to meet the Purpose and Need Statement or objectives, as well as to avoid, reduce, or minimize environmental, economic, and social effects. It is expected that the Preferred Alternative would allow the co-lead agencies to meet the Purpose and Need Statement and objectives of the EIS, including those to benefit ESA-listed species. As part of the development process for the Preferred Alternative, the co-lead agencies met with and considered input from cooperating agencies, members of the congressional delegation, state governors and other officials, Tribes, the National Marine Fisheries Service (NMFS), the U.S. Fish and Wildlife Service (USFWS), and other groups with a vested interest in system operations, including utility customers, irrigators, environmental organizations, and representatives from the navigation sector. During the formulation of the Preferred Alternative, Multiple Objective alternative 3, which includes the measure to breach the four lower Snake River dams, was not selected due to the inability to meet other objectives (e.g., irrigation, recreation, transportation), and therefore was not evaluated in combination with the Dworshak releases. Finally, as described in Section 3.4, adjusting the timing of Dworshak releases did not provide water temperature benefits, and thus, was not included in the Preferred Alternative.
32185	6	ggoodstefani@nrdc.org	Natural Resources Defense Council	II. THE DEIS FAILS TO TAKE A HARD LOOK AT WATER QUALITY (TEMPERATURE) High summer water temperatures already limit the survival of some salmon runs and significantly threaten the future of many Columbia and Snake river salmon fisheries. In 2015, for instance, more than 250,000 adult sockeye died in the Columbia and Snake Rivers because warm water prevented them from successfully migrating upstream. In response to temperature-driven fish kills, the Environmental Protection Agency noted that [t]he need to lower water temperatures becomes more critical as the Pacific Northwest Region continues to address and mitigate climate change.3 The Fish Passage Center similarly concluded that under a climate change scenario, the long-recognized and largely unaddressed problem of high water temperatures in the [Columbia and Snake rivers] becomes an ever-increasing threat to the survival of salmon . . . .4 Unfortunately, the CRSO DEIS consideration of water temperature, dams and dam removal, and climate change is incomplete, occasionally misleading, and lacks consideration in the context of salmon migration, survival, and recovery. Overall, the CRSO DEIS gives the incorrect impression that dam removal would cause the lower Snake River to warm earlier in the spring, have no effect on temperature in the summer, and cool earlier in the falland that the spring and fall effects are equivalent in magnitude and counterbalance each other in terms of benefits to fish. 5 This is misleading and incorrect. 3 EPA, Comments on NOAA Fisheries 2015 Adult Sockeye Salmon Passage Draft Report (May, 2016). 4 Fish Passage Center, Review of Draft of NOAA Fisheries2015 Sockeye Salmon Passage Report (May, 2016). 5 DEIS, p. 4-32; see also DEIS at pp. 1-45, 3-551, 6-42, 7-19, D-6-25, D-6-71.	Reservoirs create a lag in the thermal response to environmental conditions, leading to colder conditions in the spring and warmer conditions in the fall as compared to unregulated systems. Breaching the dams would reverse these effects. Under a dam breach scenario, spring water temperatures will warm more quickly than No Action conditions. Similarly in the fall, under a dam breach scenario, fall water temperatures will cool more quickly than No Action conditions. These results make logical sense and are supported by results from CRSO EIS numerical water quality modeling. What has surprised some stakeholders are the predicted summer water temperature effects under dam breaching. Many believe that removing the dams will result in colder water temperatures as compared to the No Action Alternative. While some cooler water temperatures may be observed in the summer under dam breaching, especially during cooler summer weather conditions and at night, water temperatures will remain warm and exceed the state water quality standard at times. This is because without the dams, the lower Snake River will be shallower and more susceptible to solar radiation and warming. Increases in water particle travel time are expected, but the lower Snake River has always been a warm system (USGS 1960, 1961, 1964; Corps 2002a) and breaching the dams will not change this fact. The EIS uses CE-QUAL W2 and HEC-RAS to model temperatures in the CRS. Both CE-QUAL W2 and HEC-RAS have been calibrated and peer-reviewed by respected scientists from Portland State University, EPA and the USGS, as well as many cooperating agencies. In addition, the USEPA and co-lead agencies worked together to compare the co-lead agencies' CE-QUAL W2/RAS model (used for EIS analysis) and the EPA's RBM-10 model (used for the draft TMDL assessment). Efforts included identifying and comparing similarities and differences in the two models and assessments, and concluded that both models provide useful and technically appropriate analyses of the Columbia and lower Snake River water temperatures. As such, the EPA agrees with the co-lead agencies that the CE-QUAL W2 and HEC RAS models are appropriate to use in developing the Draft EIS (see EPA review comment letter # 16-0059). Please note that model calibration reports were developed for all water quality models and are available by request. As stated above, the co-lead agencies and USEPA worked collaboratively to compare RBM-10 and the CRSO EIS water temperature models and concluded that the temperature predictions by both models are within a reasonable estimate of the uncertainty bounds. Differences between model estimates should be viewed as a reflection of the uncertainty in the predictive accuracy of the available tools.
32185	7	ggoodstefani@nrdc.org	Natural Resources Defense Council	The CRSO DEIS data show that the free-flowing lower Snake would not be meaningfully warmer in the spring (e.g. March, April, and May) than the dammed river. When ranges of uncertainty are incorporated into the models results, springtime temperatures in the free-flowing river almost never exceed the dammed river.6 And in May, the DEIS actually predicts that snowmelt runoff would cause the free-flowing Lower Snake to be colder than the dammed river.7 The CRSO DEIS repeated claim that water temperatures in June, July, and August would be similar8 with or without the dams is also misleading and incorrect. This claim appears to be based exclusively on the Corps projections of daily maximum temperatures in the dammed and free-flowing lower Snake River. Daily maximum temperature is just one of several water temperature parameters that influence how well adult salmon and steelhead migrate and survive. Other temperature parameters and metricsincluding average temperature, diel cooling, and inter-day variabilitywould all be different, and more favorable to salmon and steelhead, in the free-flowing river.9 Accordingly, dam removal would meaningfully improve the temperature profile of the lower Snake in the summertime in ways that benefit salmon and steelhead, even if daily maximum temperatures were sometimes similar to those in the reservoirs. The DEIS blanket assertion that summer temperatures in the Lower Snake would be similar after dam removal is therefore misleading and incorrect.	The reviewer has not provided evidence that our analysis of predicted water temperature under the MO3 alternative is misleading or incorrect. The co-lead agencies chose to use the daily maximum water temperature metric in our analysis because most state water quality standards for water temperature are based on this metric. Fish appropriate water quality metrics were provided for incorporation into COMPASS and CSS modeling and other analysis to evaluate the impacts to anadromous fish. The fish team also used water quality outputs to qualitatively examine effects to fish species based upon known relationships between water temperatures and fish responses where quantitative models were not available. In this way, the team was able to discuss effects on time and locality scales that may not be detected by the models. The EIS uses CE-QUAL W2 and HEC-RAS to model temperatures in the CRS. Both CE-QUAL W2 and HEC-RAS have been calibrated and peer-reviewed by respected scientists from Portland State University, EPA and the USGS, as well as many cooperating agencies. In addition, the USEPA and co-lead agencies worked together to compare the co-lead agencies' CE-QUAL W2/RAS model (used for EIS analysis) and the EPA's RBM-10 model (used for the draft TMDL assessment). Efforts included identifying and comparing similarities and differences in the two models and assessments, and concluded that both models provide useful and technically appropriate analyses of the Columbia and lower Snake River water temperatures. As such, the EPA agrees with the co-lead agencies that the CE-QUAL W2 and HEC RAS models are appropriate to use in developing the Draft EIS (see EPA review comment letter # 16-0059). Please note that model calibration reports were developed for all water quality models and are available by request. As stated above, the co-lead agencies and USEPA worked collaboratively to compare RBM-10 and the CRSO EIS water temperature models and concluded that the temperature predictions by both models are within a reasonable estimate of the uncertainty bounds. Differences between model estimates should be viewed as a reflection of the uncertainty in the predictive accuracy of the available tools.
32185	8	ggoodstefani@nrdc.org	Natural Resources Defense Council	The DEIS narrative incorrectly implies that predicted fall cooling in the free-flowing Snake River would roughly mirror, and offset, spring warming. The magnitude, duration, and ecological impact of predicted cooling in September, October, and November is far greater than for any warming that might occur in March or April. In contrast to the spring months, when ranges of uncertainty are incorporated into the models results, fall temperatures in the freeflowing river are almost always lower than the dammed river.10 Furthermore, in contrast to the minor differences between the dammed and free-flowing lower Snake predicted for March and 6 DEIS, D-A-2-5 7 DEIS, p. D-6-25 (Explaining that During [May], total river flows are highest due to snowmelt (i.e. spring freshet), resulting in overall cooler water temperatures throughout the [free-flowing] lower Snake River as compared to the No Action Alternative.); see also Id. at D-6-31. 8 DEIS, p. 4-32; see also DEIS at pp. 1-45, 3-551, 6-42, 7-19, D-6-25, D-6-71. 9 See Comments from Columbia Riverkeeper, section V. 10 DEIS, D-A-2-5 April, the significant differences in water temperature predicted in September and October would occur when the dammed river would be warm enough to cause migrating salmon and steelhead thermal stress. Steelhead and fall Chinook attempt to migrate through the lower Snake mostly in September and October. According to EPA migration temperatures for adult steelhead and fall Chinook are 1013 C and 10.619.4 C, respectively.11 Temperatures in the dammed Lower Snake are often above, or at the high end, of these ranges in September and October. Therefore, significant temperature reductions in September and October provided by dam removal would meaningfully improve migration conditions for steelhead and fall Chinook. Dam removal would also improve spawning temperatures, and success, for fall Chinook in the lower Snake, especially in October and early November when the dammed river is often significantly warmer than the 10 degree C optimum spawning temperature or even the 15 C level considered stressful for spawning.12 In sum, the fall cooling predicted in a free-flowing lower Snake River significantly exceeds the magnitude, and benefit to salmonids, of any spring warming that might occur due to dam removal.	It is well known that reservoirs create a lag in the thermal response to environmental conditions, leading to colder conditions in the spring and warmer conditions in the fall as compared to unregulated systems. Breaching the dams would reverse these effects. Under a dam breach scenario, spring water temperatures will warm more quickly than No Action conditions. Similarly in the fall, under a dam breach scenario, fall water temperatures will cool more quickly than No Action conditions. The co-lead agencies agree that reductions in fall water temperatures under MO3 would be beneficial and more significant than any early spring warming that would occur. Water temperature reductions in September and October would meaningfully improve migration conditions for steelhead and fall Chinook in the lower Snake River. These considerations are reflected in the modeling results for steelhead and are discussed qualitatively for Snake River fall Chinook salmon. The CRSO EIS (page 3-567) concludes that the temperature differences under MO3 would reduce straying and migration delays and disease susceptibility that would improve survival and spawning success of fall Chinook and coho salmon. Likewise, the analysis for sockeye salmon (page 3-565) discusses the trade-offs between increased stress potential with warmer spring/summer daytime temperatures and the potential benefits from reduced delays, decreased thermal exposure, reduced straying and fallback due to not being transported as adults, and reduced fallback due to fish ladder temperature differentials. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets most other EIS objectives including those for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS, the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams, because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system.
32185	9	ggoodstefani@nrdc.org	Natural Resources Defense Council	IV. THE DEIS FAILS TO TAKE A HARD LOOK AT ENERGY IMPACTS As explained more completely in comments on the CRSO DEIS submitted by the Northwest Energy Coalition, the CRSO DEIS fails to describe and disclose the effects of the alternatives, especially MO3, on energy generation and system reliability, among other energy related issues, and hence presents an incomplete and misleading picture of the effects of MO3 both energy generation and ratepayers. In particular, the CRSO DEIS overstates the cost of lower Snake River dam removal and replacement with clean energy resources and alternatives. NRDC joined in these comments and refers the agencies to them for a more complete description of the failures of the CRSO DEIS with respect to energy issues. 11 EPA, Summary of Temperature Preference Ranges and Effects for Life Stages of Seven Species of Salmon and Trout, pp. A-3, A-4 (1998). 12 EPA, Issue Paper 1: Salmonid Behavior and Water Temperature, p. 17 (2001).	The EIS presents the effects of the alternatives, including on power generation and system reliability, in Section 3.7.3.5 Environmental Consequences under MO3 in the draft EIS. As a result, the EIS does not fail to describe or disclose this information, as claimed in the comment. Regarding the costs of lower Snake River dam breach, the EIS presents a range of replacement resource costs that would be needed to maintain regional reliability at the No Action Alternative levels based on two resource portfolios: one that is based on renewable resources and another that is based on natural gas resources, which are generally the least cost means to maintain reliability (see Section 3.7.3.5 - Potential Replacement Resources and Associated Costs in the Draft EIS). The EIS uses the best available resource cost information from the Northwest Power and Conservation Council (Council) to estimate the potential range in costs of these replacement resources. See Section 3.7.3.1, Step 3: Determine Need for Potential Replacement Resources and Associated Costs, at page 3-821; and also Appendix H, Power and Transmission, at Section 2.2 in the Draft EIS. The EIS does not suggest fossil fuels should be used to replace the power; the purpose of providing the range of replacement resource options is to present a reasonable range in potential costs. The basis for developing these portfolios may be found in Section 3.7.3.1, Methodology, and for MO3 specifically, Section 3.7.3.5, Potential Replacement Resources and Associated Costs in the Draft EIS.
32185	10	ggoodstefani@nrdc.org	Natural Resources Defense Council	V. THE DEIS FAILS TO TAKE A HARD LOOK AT CULTURAL AND SOCIOECONOMIC IMPACTS Pursuant to NEPAs hard look requirement, the agency must ensure that the adverse environmental effects of the proposed action are adequately identified and evaluated.13 The EIS must contain sufficient discussion of the relevant issues and opposing viewpoints to ensure the agencys decision is fully informed and wellconsidered. The EIS must also contain a reasonably complete discussion of possible mitigation measures, and these measures must be discussed in sufficient detail to ensure that environmental consequences have been fairly evaluated. The DEIS lacks a rigorous assessment and opportunity to comment on the public health, economic, and environmental justice implications of the Columbia Basin Operating System on tribes. Columbia Basin Native communities fishing and hunting lifestyle and diet are critical to their health, wellbeing, and livelihood. The Preferred Alternative fails to ensure the restoration of salmon, and other threatened or endangered fish and wildlife and does not provide an environmentally just result for tribes. The failure of the Preferred Alternative to restore salmon, lamprey, steelhead, sturgeon and other fish and wildlifeor even ensure survival of the several of these speciesdisrespects and directly impacts the Columbia River tribes culture, food, economies, and ways of life.	The CRSO EIS evaluates alternatives to the operations, maintenance and configuration of the CRS. The EIS includes a discussion on mitigation in Section 3.18 (Environmental Justice), Chapter 5 (Mitigation), Chapter 6 (Cumulative Effects) and Chapter 7 (Preferred Alternative), but is not a species restoration document. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA listed species. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-lead agencies numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), as well as meets the EIS objectives for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. The Preferred Alternative is most likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. NEPA requires that all relevant, reasonable mitigation measures that could diminish the adverse impacts of the project be identified in the document, even if they are outside the jurisdiction of the lead agency or the cooperating agencies. See 40 C.F.R. 1502.16(h) and 1505.2(c); 46 Fed. Reg. 18026. The inclusion of mitigation measures in Chapter 5 is not intended to indicate that the co-lead agencies, or the Federal government as a whole, have the authority to perform all of the measures listed. If the measures are outside the jurisdiction of the co-lead agencies, those measures will not be included in the Preferred Alternative or Record of Decision (ROD). Their inclusion in Chapter 5 serves to alert other agencies, officials, and the public who can implement the measures to the potential benefits of the measure. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Both human-caused and natural factors that are outside the responsibility and control of the co-lead Federal agencies, also contribute to the decline and recovery of ESA-listed species, and would continue to strongly influence fish and their habitat. Salmon and steelhead have been adversely affected in the Columbia River Basin over the last century by many activities including human population growth, urbanization, introduction of exotic species, overfishing, development of cities and other land uses in the floodplains, water diversions for all purposes, dams, mining, farming, ranching, logging, hatchery production, predation, ocean conditions, and loss of habitat. Operation, configuration and maintenance of the CRS requires mitigation for its effects, and the EIS is not intended or required to serve as an overall salmon recovery plan for the region. Recovery of ESA-listed salmon is outside of the authority of the co-lead agencies, and was not an objective of this EIS. Recovery of ESA species is the purview of NMFS and the US Fish and Wildlife Service. This EIS has been developed in consultation with NMFS and USFWS to find an acceptable balance that allows the co-leads to meet congressionally authorized purposes while minimizing impacts to affected ESA species and their habitats. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. The effects of delayed mortality are discussed throughout the EIS analysis for each alternative and current high quality data and the best available scientific information was used for this analysis. Based on analysis by the CSS, SARs associated with population declines (SARs of less than 1%) have the potential to be greatly reduced under the Preferred Alternative, and on average, SARs are expected to be well above 2.0% for Snake River spring Chinook salmon and steelhead. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information.

Letter No.	Comment No.	Commenter Name/Email	Affiliation	Comment	Response[1/]
32185	11	ggoodstefani@nrdc.org	Natural Resources Defense Council	As the Shoshone Bannock explain in their letter to the Action Agencies, based on a review of an early version of the DEIS: Historically, the Shoshone and Bannock peoples harvested salmon and trout throughout the Basin for subsistence across an almost year-round timeline. Annual salmon and steelhead runs in what are now Oregon, Washington, Idaho and Nevada provided harvest 13 Robertson v. Methow Valley Citizens Council, 490 U.S. at 350. opportunities throughout the year for our people. Anthropogenic impacts to the Basin severely constrained runs of anadromous fish over the next century, in particular System development and operations. Current salmon abundance in the Upper Salmon River subbasin is estimated at about 0.5% of historical runs and the Hells Canyon Complex completely eliminated upstream migration into the Middle Snake Province in Idaho, Nevada, and Oregon. Recent harvest opportunities for Tribal members have only provided 1.2 pounds of salmon per Tribal member compared to historical use of about 700 pounds per person annually. The Columbia River Treaty Tribes (i.e. Nez Perce Tribe, Confederated Tribes of the Umatilla Indian Reservation, Confederated Tribes of the Warm Springs Reservation of Oregon, and the Confederated Tribes and Bands of the Yakama Nation) also submitted comments on an early version of the DEIS. These comments incorporate their assessment, largely based on the Meyer Report, of the linkage between the availability of traditional foods, including especially salmon, and tribal health. The Meyer Report described the importance of salmon to the cultural wellbeing of tribal people as well as their selfesteem as members of their tribes. The Report used tribal poverty, tribal unemployment, tribal per capita income, tribal health and tribal assets as well as more traditional indicators of tribal wellbeing. The Columbia River Treaty Tribe letter explains that the Meyer Report concluded that the impacts of the Snake River dams to the productivity of the Snake River Basins salmon and steelhead had severely impacted the tribes wellbeing.	Thank you for your comment. Appendix P of the EIS includes Tribal Perspectives that were provided to the co-lead agencies. We appreciate the Shoshone Bannock Tribes providing a tribal perspective for inclusion.
32185	12	ggoodstefani@nrdc.org	Natural Resources Defense Council	The DEIS fails to address or take a hard look at the impacts of the Snake River dams and loss of salmon, sturgeon, lamprey, and other fish and wildlife on impacted tribal communities. Adult salmon, sturgeon and lamprey abundance, and tribal harvest, are still far less than historical levels. The DEIS also fails to address inequities in mitigation. Columbia River Treaty Tribes members often prefer fishingrelated economic means of support, which preserve their cultural ties to prior generations, the tribes traditions and the fisheries resources themselves. The proposed mitigation under the Preferred Alternative fails to secure a return of abundant fish populations, and it also discriminates between tribes by failing to employ an in place, inkind practice for loss of traditional tribal natural resources. The DEIS fails to take a hard look at the intertribal justice implications of its mitigation and to match mitigation and harm, so that mitigation benefits the communities most harmed.	Chapter 3 of the EIS provides the analysis of effects to resources from each of the Multiple Objective alternatives (MO), including MO3. MO3 includes the measure to breach the four lower Snake River dams. Chapter 4 considers the effects of climate; Chapter 5 identified mitigation for each MO, while Chapter 6 discusses cumulative effects. Tribal input, concerns, interests, and treaty rights were considered throughout the Draft EIS analyses and in the formulation of the Preferred Alternative. Treaty specific information is included in Section 3.17 as well as Chapter 7. The co-lead agencies recognize and respect the legal obligations imposed by treaties. The co-lead agencies accordingly included Protecting Native American treaty and reserved rights and fulfilling trust obligations for natural and cultural resources throughout the environment affected by the Columbia River System operations as a purpose in the Purpose and Need Statement in Chapter 1 to ensure treaty obligations were a key consideration of decision making. The co-lead agencies are engaging in government-to-government consultation with the tribes, and several tribes are cooperating agencies on the CRSO EIS. The EIS recognizes the economic and cultural importance of salmon to Tribes in a number of sections throughout the document. The cultural significance and impacts of salmon and steelhead fisheries are described in the Ceremonial and Subsistence Fisheries sub-section and the Social Importance of Commercial, Ceremonial and Subsistence Fisheries sub-section of Section 3.15.2.1. Fisheries tribal interests are provided in Section 3.15.4 additional details regarding the economic significance of salmon and steelhead fisheries have been added to the recreation analysis (Section 3.11) including tribal interests (Section 3.11.3.7). Treaty rights are discussed in the Executive Summary, Section 3.16 Cultural Resources, and Section 3.17 Indian Trust Assets, Tribal Perspectives, and Tribal Interests. Appendix P includes copies of tribal perspectives that were submitted by tribes. Tribal consultation is described in Sections 1.5, 3.5, and 3.15; and Chapter 9. Most sub-sections within Chapter 3 include a Tribal Interests section at the end of the sub-section that attempts to summarize tribal issues by resource. NEPA requires that all relevant, reasonable mitigation measures that could diminish the adverse effects of the project be identified in the document, even if they are outside the jurisdiction of the lead agency or the cooperating agencies. See 40 C.F.R. 1502.16(h) and 1505.2(c); 46 Fed. Reg. 18026. Mitigation for Multiple Objective alternatives 1, 2, 3 and 4 is included in Chapter 5, while Chapter 7 includes mitigation for the Preferred Alternative. Based on the EIS analysis the Preferred Alternative will make a substantial contribution to improving Snake River anadromous fish runs. Broad-sense recovery goals are beyond the scope of this EIS which focuses on the effects associated with the operation and maintenance of the 14 CRS projects. With respect to the Preferred Alternative, fish analysis in Section 7.7.4 shows that it will provide substantial benefits to ESA-listed salmon and steelhead, which can help contribute to broader recovery goals.
32185	13	ggoodstefani@nrdc.org	Natural Resources Defense Council	VI. THE DEIS FAILS TO TAKE A HARD LOOK AT THE IMPACT ON SOUTHERN RESIDENT ORCAS AND CONTRADICTS NOAA FISHERIES OWN FINDINGS The Southern Residents are some of the most well-studied killer whales on the planet.14 Despite the wealth of scientific literature available on Southern Residents, and the numerous studies that were submitted to the Action Agencies by these authors and others during scoping of the DEIS, the DEIS only includes three referenced sources of information on the Southern Residents.15 The DEIS does not address or consider any peer-reviewed studies from independent scientists about the Southern Residents or the most recent NOAA Fisheries conclusions, including scientific analysis and review of the Southern Residents presence in coastal habitat and the importance of Columbia River Basin salmon in particular to SRKW survival.	The co-lead agencies agree that the quantity, quality and timing of prey availability is important in health of SRKWs. Despite statements in this comment, information on SRKW diet is still evolving and being gathered. The co-lead agencies utilized current high quality information and best available science in its analysis of the effects of the operation, maintenance, and configuration of the CRS projects. Also, see response to Comment 6110-16 and updated language of effects on SRKWs in Chapter 3.6 and Chapter 7. The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). The co-lead agencies agree that the quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults form the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differentially from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020).
32185	14	ggoodstefani@nrdc.org	Natural Resources Defense Council	By NOAA Fisheries own assessment, the Southern Resident orca population must increase by an average 2.3 percent per year for 28 years in order to be removed from the 14 NOAA Fisheries, Species Directive: Killer Whales, available at: https://www.fisheries.noaa.gov/species/killerwhale. 15 The three sources are the Center for Whale Researchs website (last accessed in 2018); a 2016 5-year review of the SRKWs by the National Marine Fisheries Service; and a list of priority salmon stocks developed by the National Marine Fisheries Service and the Washington Department of Fish and Wildlife. See Columbia River System Operations DEIS at 11-9, 11-48, and 11-50. Endangered Species list,16 yet under current conditions NOAA projects a continued downward trend over the next 50 years.17 NOAA has also recognized that inbreeding in this now very small population of only 73 whales means that the population trajectory may be more negative.18 NOAA Fisheries has recognized the Southern Residents as one of eight marine species most at risk of extinction and considers them a recovery priority number one: a species whose extinction is almost certain in the immediate future because of a rapid population decline . . . .19 NOAA Fisheries itself has concluded in a different recent biological review that the loss of a single [Southern resident orca] individual, or the decrease in reproductive capacity of a single individual, is likely to reduce the likelihood of survival and recovery of the species.20	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not require the co-lead agencies to take affirmative actions to recover ESA listed species. The co-lead agencies agree that the quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differently from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for the whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall-run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall-run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). FEIS Chapter 3 (Vegetation, Wetlands, Wildlife, and Floodplains) has been updated for SRKW (Section 3..6.2.6 and Table 3-102). FEIS Chapter 7 (Preferred Alternative), has been updated with additional analysis information on SRKW and potential increase in forage fish, in particular, Chinook salmon (Section 7.7.8). Also, see response to Comment 6110-16. The co-lead agencies note the contribution to the prey of Southern Resident killer whales through the continued existence of their respective independent congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as Lower Snake River Compensation Plan (LSRCP), which is administered by USFWS.
32185	15	ggoodstefani@nrdc.org	Natural Resources Defense Council	hroughout their range, the Southern Residents face significant threats to their survival, including prey depletion, high toxicant loads, anthropogenic noise, and vessel impacts. A lack of their preferred prey, Chinook salmon, is widely recognized as the primary limiting factor to their immediate survival and future recovery, with increased mortality and decreased fecundity shown to be correlated with coastwide indices of Chinook salmon abundance.21 16 NMFS (2008) Recovery Plan for Southern Resident Killer Whales (Orcinus orca), p. II-82, available at, http://www.nwr.noaa.gov/Marine-Mammals/Whales-Dolphins-Porpoise/Killer-Whales/ESA-Status/Orca-Recovery- Plan.cfm] 17 84 Fed. Reg. at 49,215; National Marine Fisheries Service, West Coast Region (2019) Proposed Revision of the Critical Habitat Designation for Southern Resident Killer Whales, Draft Biological Report at 7-8 (hereafter NOAA Biological Report). 18 NMFS (2016). Southern Resident Killer Whale (Orcinus orca) 5-Year Review: Summary and Evaluation. National Marine Fisheries Service, West Coast Region. 17 pp., available at: https://www.westcoast.fisheries.noaa.gov/publications/status_reviews/marine_mammals/ kw-review-2016.pdf 19 NOAA Fisheries (2016) Species in the Spotlight: Southern Resident Killer Whale DPS 20 NMFS (2009) Biological Opinion and Conference Opinion on the Long-Term Operations of the Central Valley Project and State Water Project, at 573. 21 Ford, J.K.B, G.M. Ellis, and P.F. Olesiuk (2005) Linking prey and population dynamics: Did food limitation cause recent declines of 'resident' killer whales (Orcinus orca) in British Columbia. Fisheries and Oceans; Ford J.K.B et al. (2010) Linking killer whale survival and prey abundance: food limitation in the oceans apex predator? Biology Letters, 6:139142; Robert C. Lacy, et al. (2017) Evaluating Anthropogenic Threats to Endangered Killer Whales to Inform Effective Recovery Plans, 7 Sci. Reports 14119; Ward E.J, E.E. Holmes, and K.C. Balcomb. (2009) Quantifying the effects of prey abundance on killer whale reproduction. Journal of Applied Ecology, 46: 632640; National Marine Fisheries Service (2008) Recovery Plan for Southern Resident Killer Whales (Orcinus orca). One recent population viability analysis considered how Southern Resident population growth would respond to reductions in current threat levels for each of the three threats, singly or in combination.22 They found that only by addressing prey abundance could the NOAA Fisheries recovery goal of 2.3 percent growth for the SRKW population be achieved.23 The authors concluded that reaching the recovery target without increasing Chinook salmon numbers is likely impossible.24 NOAA Fisheries itself has recognized	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not require the co-lead agencies to take affirmative actions to recover ESA listed species. The population dynamics of the SRKW are complicated and there are multiple factors that contribute to the overall success of this species. The quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differently from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for the whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall-run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall-run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). Details on the most crucial prey stocks for Southern Resident killer whales, as well as their population and range, is available from several fact sheets and videos available here: https://www.fisheries.noaa.gov/species/killer-whale#spotlight. For more information, visit this NMFS StoryMap on Southern Resident killer whales: https://noaa.maps.arcgis.com/apps/Cascade/index.html?appid=3405e6637bf74e998d4ebe992c54f613. According to NMFS and the EPA, the estimated SRKW population has fluctuated between 67 and 98 whales between 1960 and 2015. The Snake River dams were constructed between 1962 and 1975. The SRKW population increased from a record low in 1970 to its highest population numbers in 1995. Those years were not high years for Snake or Columbia River Chinook Salmon. Ocean conditions between 2011 and 2013 were good years for salmon. At the same time, 2010 and 2013 were good outmigration years. Particularly, 2011 and 2012 were above normal in water supply, which would mean more cooler water was available and there was better survival of salmon, and 2011 through 2014 were higher than normal spill

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				that the principle impediment to orca recovery is a severe shortage of preyparticularly Chinook salmon.25 For their immediate survival and future recovery, the Southern Residents need abundant, diverse, and accessible Chinook salmon prey throughout their range and across seasons.26 Salmon are the mainstay of the Southern Residents diet. This diet must support daily life activities (e.g., foraging, traveling, socializing, resting), in addition to gestation, lactation, and growth.27 To maintain this high energy balance, Southern 22 Robert C. Lacy, et al. (2017) Evaluating Anthropogenic Threats to Endangered Killer Whales to Inform Effective Recovery Plans, 7 Sci. Reports 14119. 23 Id. 24 Id. at 4-5. 25 NOAA Biological Report at 28. 26 Washington State Southern Resident Orca Task Force (2019) Final Report and Recommendations, available at: https://www.governor.wa.gov/sites/default/files/OrcaTaskForce_FinalReportandRecommendations_11.07.19.pdf 27 NOAA Biological Report at 27. Residents preferentially consume Chinook salmon, particularly older (>3 years), larger Chinook age classes.28 Larger salmon offer the additional benefit that fewer are needed to provide a given amount of nutritional value, so larger individuals require fewer prey capture events, and less foraging effort	years as well. The combination of outmigration and ocean conditions created improved adult salmon returns. The EIS has analyzed spill as a measure in the Preferred Alternative and determined the overall effect to SRKW to be negligible in large part because hatchery production is consistent between the No Action Alternative and the Preferred Alternative. Because the impact from the Preferred Alternative was determined to be negligible, the agencies determined that existing hatchery production would be sufficient to address any potential impacts to prey availability for SRKWs. The co-lead agencies note the contribution to the prey of SRKW through the continued existence of their respective independent Congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as the Lower Snake River Compensation Plan (other than under MO3), which is administered by USFWS. The Preferred Alternative and Proposed Action in the agencies' biological assessment carry forward certain measures described in Chapters 2 and 7 of the EIS, which include continued salmon and steelhead hatchery production. The Preferred Alternative has negligible effects to SRKWs as described in Section 7.7.8. The Biological Assessment (BA) describes the effect of the Proposed Action on the SRKW forage species (see BA Section 3.5.1.2, Southern Resident Killer Whale). The proposed changes in operation of the Columbia River System include increased spring spill during the downstream migration of juvenile spring and summer run Chinook salmon. The result of this action includes potential increases of juvenile fish passing through the spillways, reductions in juvenile fish direct and indirect mortality associated with downstream passage, and the Comparative Survival Study (CSS) model predicts increases in numbers of returning adults, which will benefit SRKWs foraging in and around the mouth of the Columbia River in winter and spring (See EIS Section 7.7.8). The CSS model results predicts Snake River Chinook salmon would have relative improvements in smolt-to-adult returns of 35 percent (see EIS Section 7.7.4). The smolt-to-adult return ratio (SAR) is the rate at which of a group of fish survive from their smolt life stage to a defined ending point where they return as adults. While recovery targets will require more than just the efforts of federal agencies, the CSS models indicate the potential for SARs of Snake River Chinook salmon and steelhead to increase to levels that could approach recovery targets set by the Northwest Power and Conservation Council. FEIS Chapter 3 (Vegetation, Wetlands, Wildlife, and Floodplains) has been updated for SRKW (Section 3..6.2.6 and Table 3-102). FEIS Chapter 7 (Preferred Alternative), has been updated with additional analysis information on SRKW and potential increase in forage fish, in particular, Chinook salmon (Section 7.7.8). The BA, also consistent with the EIS, acknowledges past improvements to the configuration and operation of the Columbia River System, additional improvements to the environmental baseline as a result of completed estuary and tributary habitat actions, and the prospective non-operational conservation measures proposed in Chapter 2 of the Draft EIS, all contribute towards maintaining and improving Chinook abundance. Relevant conservation measures include, among other things, a commitment to continue funding the conservation and safety net hatchery programs listed in Chapter 2 of the Draft EIS. As discussed above, the agencies will fulfill congressionally authorized hatchery mitigation objectives through the funding of hatchery programs that are operated consistent with their independent hatchery program consultations during the term covered by this consultation. Based on those hatchery program consultations, the production levels associated with congressionally authorized hatchery mitigation objectives will continue, at minimum, to be consistent with levels previously analyzed by NOAA in the system consultations in 2008, 2014, and 2019. For the 2020 ESA consultations, therefore, the agencies expect that collectively, all of the actions described above (substantial modifications to migration conditions designed to benefit key prey species, combined with improvements to Chinook spawning and rearing habitat in the tributaries and Columbia River estuary, and continued hatchery production) ensure that remaining Chinook mortality from all sources in the mainstem migratory corridor will continue to be more than offset, resulting in a net gain in Chinook salmon abundance available as a prey source for SRKW. Finally, the 2019 NMFS Fisheries BiOp included increased spring spill operations that are similar to operations evaluated in CRSO EIS, and NOAA validated that the hatchery production of Chinook salmon mitigates for the impacts of operating the Columbia River System and total mortality through the mainstem migratory corridor from all sources.
32185	16	ggoodstefani@nrdc.org	Natural Resources Defense Council	Underscoring the importance of Chinook to the Southern Residents, scientists have found a strong correlation between Chinook abundance and SRKW impaired body condition (peanut head), reduced growth rate, reduced overall length,29 reduced social cohesion,30 reduced fecundity,31 and reduced survival.32 Reproductive-age females seem to be particularly vulnerable to nutritional stress. One recent study found that up to 69 percent of all detectable Southern Resident pregnancies were unsuccessful; of these, up to 33 percent failed relatively late in gestation or immediately postpartum, when the energetic cost and risk is especially high (to the mother whale). The authors concluded that [l]ow availability of Chinook salmon appears to be a . . . significant cause of late pregnancy failure, and that point[s] to the importance of promoting Chinook salmon recovery 28 Id. at 10, 27. 29 Durban, J. et al. (2009) Size and body condition of Southern Resident killer whales, Report to the Northwest Regional Office, National Marine Fisheries Service, Contract AB133F08SE4742; Fearnbach, H. et al. (2011) Size and long-term growth trends of endangered fish-eating killer whales, 13 Endangered Species Research 173; Fearnbach, H. et al. (2018) Using aerial photogrammetry to detect changes in body condition of endangered southern resident killer whales, Endangered Species Research 35: 175-180; Groskreutz et al. (2019) Decadal changes in adult size of salmon-eating killer whales in the eastern North Pacific, Endangered Species Res, 40:183- 188. 30 Parsons KM, Balcomb KC , Ford JKB, Durban JW (2009) The social dynamics of the southern resident killer whales and implications for the conservation of this endangered population. Anim Behav 77: 963971; Ford, J.K.B. et al., (2005) Linking prey and population dynamics: Did food limitation cause recent declines of resident killer whales (Orcinus orca) in British Columbia? Canadian Science Advisory Secretariat Research Document 2005/042. 31 Ward EJ, Holmes EE, Balcomb KC (2009) Quantifying the effects of prey abundance on killer whale reproduction. J Appl Ecol 46: 632640; Wasser S.K. et al. (2017) Population growth is limited by nutritional impacts on pregnancy success in endangered Southern Resident killer whales (Orcinus orca). PLoS ONE 12(6): e0179824, https://doi.org/10.1371/journal.pone.0179824. 32 NOAA Biological Report at 13; Ayres, K.L. et al. (2012) Distinguishing the impacts of inadequate prey and vessel traffic on an endangered killer whale (Orcinus orca) population, PLoS ONE 7(6):e36842; Ford JKB, Ellis GM, Olesiuk PF, Balcomb KC (2009) Linking killer whale survival and prey abundance: food limitation in the oceans apex predator? Biology Letters 6: 139142; Ward, E.J. et al. (2013) Estimating the impacts of Chinook salmon abundance and prey removal by ocean fishing on Southern Resident killer whale, NOAA Technical Memorandum NMFS-NWFSC-123. to enhance population growth of Southern Resident killer whales.33 In particular, the authors concluded that the results of the study strongly suggest that recovering Columbia River Chinook (CRC) runs should be among the highest priorities for managers aiming to recover this endangered population of killer whales.34	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat. 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NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differently from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for the whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall-run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall-run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). Details on the most crucial prey stocks for Southern Resident killer whales, as well as their population and range, is available from several fact sheets and videos available here: https://www.fisheries.noaa.gov/species/killer-whale#spotlight. For more information, visit this NMFS StoryMap on Southern Resident killer whales: https://noaa.maps.arcgis.com/apps/Cascade/index.html?appid=3405e6637bf74e998d4ebe992c54f613. According to NMFS and the EPA, the estimated SRKW population has fluctuated between 67 and 98 whales between 1960 and 2015. The Snake River dams were constructed between 1962 and 1975. The SRKW population increased from a record low in 1970 to its highest population numbers in 1995. Those years were not high years for Snake or Columbia River Chinook Salmon. 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32185	17	ggoodstefani@nrdc.org	Natural Resources Defense Council	The Southern Residents spend more than half the year inhabiting the coastal waters of Washington, Oregon, and northern California. In particular, NOAA Fisheries data compiled from tagged whales, dedicated surveys, and passive acoustic monitoring indicates the Southern Residents spend significant time in the winter and spring (November through May) off the mouth of the Columbia River and have been present there thirty-five times more often than would be expected by chance.35 Although the vast majority of research on Southern Residents is conducted in the Salish Sea, the majority of the population spends the majority of their time in the Pacific, and the majority of their time there is likely within the range of Columbia Basin Chinook. NOAA Fisheries itself has noted this area to be a high use foraging area, and approximately 50 percent of the time spent by the Southern Residents in coastal waters is between Grays Harbor and the Columbia River.36 33 Wasser S.K. et al. (2017) Population growth is limited by nutritional impacts on pregnancy success in endangered Southern Resident killer whales (Orcinus orca). PLoS ONE 12(6): e0179824, https://doi.org/10.1371/journal.pone.0179824. 34 Id. 35 Hanson, M.B., E.J. Ward, C.K. Emmons, and M.M. Holt (2018) Modeling the occurrence of endangered killer whales near a U.S. Navy Training Range in Washington State using satellitetag locations to improve acoustic detection data. Prepared for: U.S. Navy, U.S. Pacific Fleet, Pearl Harbor, HI. Prepared by: National Oceanic and Atmospheric Administration, Northwest Fisheries Science Center under MIPR N0007017MP4C419. 8 January 2018. 33 p.; Hanson, M.B., C.K. Emmons, and E.J. Ward (2013) Assessing the coastal occurrence of endangered killer whales using autonomous passive acoustic recorders. J. Acoustic Soc. Am. 134(5) 3486-3495; NMFS (2014) Southern Resident Killer Whales: 10 Years of Research and Conservation; See also National Marine Fisheries Science Center data and reports on Southern Resident tagging project, https://tinyurl.com/vj4dcbs 36 Hanson, M.B., E.J. Ward, C.K. Emmons, and M.M. Holt (2018) Modeling the occurrence of endangered killer whales near a U.S. Navy Training Range in Washington State using satellitetag locations to improve acoustic detection data. Prepared for: U.S. Navy, U.S. Pacific Fleet, Pearl Harbor, HI. Prepared by: National Oceanic and Atmospheric Administration, Northwest Fisheries Science Center under MIPR	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. 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				N0007017MP4C419. 8 January 2018; Proposed Revision of the Critical Habitat Designation for Southern Resident Killer Whales: Draft Biological Report. National Marine Fisheries Service, September 2019. Available: https://www.fisheries.noaa.gov/action/critical-habitat-southern-resident-killer-whale NOAA Fisheries recently proposed designation of the mouth of the Columbia River, along with other coastal habitat, as critical habitat for the Southern Residents.37 In its Draft Biological Report in support of the proposed revision of critical habitat designation for Southern Residents, NOAA Fisheries highlighted the critical importance of the prey found in the Southern Residents coastal habitat, especially the Columbia River, to SRKW survival and recovery.38 Analysis of fish scale and Southern Resident fecal samples collected on the outer coast indicate that Chinook are the primary species consumed on the outer coast and that over half the Chinook consumed by the Southern Residents are from the Columbia River Basin.39 Elevated triiodothyronine hormone concentrations in early spring indicate that Southern Resident orcas particularly forage on the early spring Columbia River runs.40	According to NMFS and the EPA, the estimated SRKW population has fluctuated between 67 and 98 whales between 1960 and 2015. 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Because the impact from the Preferred Alternative was determined to be negligible, the agencies determined that existing hatchery production would be sufficient to address any potential impacts to prey availability for SRKWs. The co-lead agencies note the contribution to the prey of SRKW through the continued existence of their respective independent Congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as the Lower Snake River Compensation Plan (other than under MO3), which is administered by USFWS. The Preferred Alternative and Proposed Action in the agencies' biological assessment carry forward certain measures described in Chapters 2 and 7 of the EIS, which include continued salmon and steelhead hatchery production. The Preferred Alternative has negligible effects to SRKWs as described in Section 7.7.8. 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The result of this action includes potential increases of juvenile fish passing through the spillways, reductions in juvenile fish direct and indirect mortality associated with downstream passage, and the Comparative Survival Study (CSS) model predicts increases in numbers of returning adults, which will benefit SRKWs foraging in and around the mouth of the Columbia River in winter and spring (See EIS Section 7.7.8). The CSS model results predicts Snake River Chinook salmon would have relative improvements in smolt-to-adult returns of 35 percent (see EIS Section 7.7.4). The smolt-to-adult return ratio (SAR) is the rate at which of a group of fish survive from their smolt life stage to a defined ending point where they return as adults. While recovery targets will require more than just the efforts of federal agencies, the CSS models indicate the potential for SARs of Snake River Chinook salmon and steelhead to increase to levels that could approach recovery targets set by the Northwest Power and Conservation Council. The BA, also consistent with the EIS, acknowledges past improvements to the configuration and operation of the Columbia River System, additional improvements to the environmental baseline as a result of completed estuary and tributary habitat actions, and the prospective non-operational conservation measures proposed in Chapter 2 of the Draft EIS, all contribute towards maintaining and improving Chinook abundance. Relevant conservation measures include, among other things, a commitment to continue funding the conservation and safety net hatchery programs listed in Chapter 2 of the Draft EIS. As discussed above, the agencies will fulfill congressionally authorized hatchery mitigation objectives through the funding of hatchery programs that are operated consistent with their independent hatchery program consultations during the term covered by this consultation. Based on those hatchery program consultations, the production levels associated with congressionally authorized hatchery mitigation objectives will continue, at minimum, to be consistent with levels previously analyzed by NOAA in the system consultations in 2008, 2014, and 2019. For the 2020 ESA consultations, therefore, the agencies expect that collectively, all of the actions described above (substantial modifications to migration conditions designed to benefit key prey species, combined with improvements to Chinook spawning and rearing habitat in the tributaries and Columbia River estuary, and continued hatchery production) ensure that remaining Chinook mortality from all sources in the mainstem migratory corridor will continue to be more than offset, resulting in a net gain in Chinook salmon abundance available as a prey source for SRKW. Finally, the 2019 NMFS Fisheries BiOp included increased spring spill operations that are similar to operations evaluated in CRSO EIS, and NOAA validated that the hatchery production of Chinook salmon mitigates for the impacts of operating the Columbia River System and total mortality through the mainstem migratory corridor from all sources.
32185	18	ggoodstefani@nrdc.org	Natural Resources Defense Council	The Columbia Basin early spring interior race Chinook runs likely serve to replenish energetic reserves expended during the previous winter as well as help sustain the whales until . . . late summer Chinook runs peak and therefore should be among the highest priorities to recover the SRKW.41 While it may be correct that Puget Sound Chinook salmon stocks are one of the most important salmon stocks for Southern Residents,42 it is equally true that Columbia River Basin salmon stocks are one of the most important stocks for SRKW survival and recoveryin particular, the fat rich spring Chinook. The Southern Residents need to maintain a balance of 37 National Marine Fisheries Service: Proposed Rulemaking to Revise Critical Habitat for Southern Resident Killer Whale Distinct Population Segment. 84 FR 49214 38 See e.g. NOAA Biological Report at 33. 39 Ward, E. et al (May 2019) NWFSC Science to Inform SRKW Distribution and Diet, Presentation to Pacific Fisheries Management Council SRKW Working Group: available at https://www.fisheries.noaa.gov/webdam/download/92840008 ; NOAA Biological Report at 11. 40 Wasser S.K. et al. (2017) Population growth is limited by nutritional impacts on pregnancy success in endangered Southern Resident killer whales (Orcinus orca). PLoS ONE 12(6): e0179824, https://doi.org/10.1371/journal.pone.0179824; Hanson, M.B., J.A. Nystuen, M.O. Lammers (November 2013) Assessing the coastal occurrence of endangered killer whales using autonomous passive acoustic recorders, J. Acoust. Soc. Am. 134 (5) Ward, E. et al (May 2019) NWFSC Science to Inform SRKW Distribution and Diet, Presentation to Pacific Fisheries Management Council SRKW Working Group, available at https://www.fisheries.noaa.gov/webdam/download/92840008, https://www.fisheries.noaa.gov/event/ad-hocsouthern- resident-killer-whale-workgroup]. 41 Wasser S.K. et al. (2017) Population growth is limited by nutritional impacts on pregnancy success in endangered Southern Resident killer whales (Orcinus orca). PLoS ONE 12(6): e0179824, https://doi.org/10.1371/journal.pone.0179824. 42 Columbia River Systems Operation DEIS at 3-685. energy year-round to support daily activities, as well as gestation, lactation, and growth.43 The orcas rely on multiple stocks of Chinook, depending on availability at different times of the year and in different parts of their range.44 The DEIS fails to account for the fact that salmon from all of the rivers within the orcas range are not available to the orcas on a year-round basis but, instead, are critical to the orcas survival in specific seasons.45 The spatiotemporal distribution of Chinook runs within the orcas range means that different runs are more available, and therefore more important, to the Southern Residents at different times of the year.46 Columbia Basin Chinook provide the Southern Residents with a key source of food and nutrition during the winter and spring, and they likely sustain the whales until the Fraser River runs peak in the Salish Sea in late summer.47 The size of individual salmon and their caloric content vary by species, geographic area, season, and year, and therefore have different value to Southern Residents as well.48 This too makes the fat-rich inland spring Chinook from the Columbia River Basin uniquely important. 43 NMFS (Sept. 2019) Proposed Revision of the Critical Habitat Designation for Southern Resident Killer Whales: raft Biological Report, available at: https://www.fisheries.noaa.gov/action/critical-habitat-southern-resident-killerwhale 44 NMFS (2019) Endangered Species Act (ESA) Section 7(a)(2) Biological Opinion and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Response. Consultation on the Delegation of Management Authority for Specified Salmon Fisheries to the State of Alaska. NMFS Consultation Number: WCR- 2018-10660. April 5, 2019. 443 p. 45 Ford M.J. et al. (2016) Estimation of a Killer Whale (Orcinus orca) Populations Diet Using Sequencing Analysis of DNA from Feces. PLoS ONE 11(1): e0144956. https://doi.org/10.1371/journal.pone.0144956; Hanson M.B. et al. (2010) Species and stock identification of prey consumed by endangered southern resident killer whales in their summer range. Endang Species Res 11:69-82. https://doi.org/10.3354/esr00263 46 Ayres KL, et al. (2012) Distinguishing the Impacts of Inadequate Prey and Vessel Traffic on an Endangered Killer Whale (Orcinus orca) Population. PLoS One 7: e36842, http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0036842; Shelton, A.O. et al (2019) Using hierarchical models to estimate stock-specific and seasonal variation in ocean distribution, survivorship, and aggregate abundance of fall run Chinook salmon. Can. J. Fish. Aquat. Sci. 76(1): 95-108. doi:10.1139/cjfas-2017- 0204; Weitkamp, L.A. 2010. Marine Distributions of Chinook Salmon from the West Coast of North America Determined by Coded Wire Tag Recoveries, Transactions of the American Fisheries Society, 139:1, 147-170 47 Wasser S.K. et al. (2017) Population growth is limited by nutritional impacts on pregnancy success in endangered Southern Resident killer whales (Orcinus orca). PLoS ONE 12(6): e0179824, https://doi.org/10.1371/journal.pone.0179824 48 Mesa, M., & Magie, C. (2006) Evaluation of energy expenditure in adult spring chinook salmon migrating upstream in the Columbia River Basin: An assessment based on sequential proximate analysis. River Research and Applications, 22(October), 10851095. http://doi.org/10.1002/rra; O'Neill, S. M. et al. (2014) Energy content of Pacific salmon as prey of northern and Southern Resident Killer Whales. Endangered Species Research. 25: 265 281.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not require the co-lead agencies to take affirmative actions to recover ESA listed species. The population dynamics of the SRKW are complicated and there are multiple factors that contribute to the overall success of this species. The quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differently from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for the whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall-run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall-run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). Details on the most crucial prey stocks for Southern Resident killer whales, as well as their population and range, is available from several fact sheets and videos available here: https://www.fisheries.noaa.gov/species/killer-whale#spotlight. For more information, visit this NMFS StoryMap on Southern Resident killer whales: https://noaa.maps.arcgis.com/apps/Cascade/index.html?appid=3405e6637bf74e998d4ebe992c54f613. According to NMFS and the EPA, the estimated SRKW population has fluctuated between 67 and 98 whales between 1960 and 2015. The Snake River dams were constructed between 1962 and 1975. The SRKW population increased from a record low in 1970 to its highest population numbers in 1995. Those years were not high years for Snake or Columbia River Chinook Salmon. Ocean conditions between 2011 and 2013 were good years for salmon. At the same time, 2010 and 2013 were good outmigration years. Particularly, 2011 and 2012 were above normal in water supply, which would mean more cooler water was available and there was better survival of salmon, and 2011 through 2014 were higher than normal spill years as well. The combination of outmigration and ocean conditions created improved adult salmon returns. The EIS has analyzed spill as a measure in the Preferred Alternative and determined the overall effect to SRKW to be negligible in large part because hatchery production is consistent between the No Action Alternative and the Preferred Alternative. Because the impact from the Preferred Alternative was determined to be negligible, the agencies determined that existing hatchery production would be sufficient to address any potential impacts to prey availability for SRKWs. The co-lead agencies note the contribution to the prey of SRKW through the continued existence of their respective independent Congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as the Lower Snake River Compensation Plan (other than under MO3), which is administered by USFWS. The Preferred Alternative and Proposed Action in the agencies' biological assessment carry forward certain measures described in Chapters 2 and 7 of the EIS, which include continued salmon and steelhead hatchery production. The Preferred Alternative has negligible effects to SRKWs as described in Section 7.7.6. FEIS Chapter 3 (Vegetation, Wetlands, Wildlife, and Floodplains) has been updated for SRKW (Section 3..6.2.6 and Table 3-102). FEIS Chapter 7 (Preferred Alternative), has been updated with additional analysis information on SRKW and potential increase in forage fish, in particular, Chinook salmon (Section 7.7.8). The Biological Assessment (BA) describes the effect of the Proposed Action on the SRKW forage species (see BA Section 3.5.1.2, Southern Resident Killer Whale). The proposed changes in operation of the Columbia River System include increased spring spill during the downstream migration of juvenile spring and summer run Chinook salmon. The result of this action includes potential increases of juvenile fish passing through the spillways, reductions in juvenile fish direct and indirect mortality associated with downstream passage, and the Comparative Survival Study (CSS) model predicts increases in numbers of returning adults, which will benefit SRKWs foraging in and around the mouth of the Columbia River in winter and spring (See EIS Section 7.7.8). The CSS model results predicts Snake River Chinook salmon would have relative improvements in smolt-to-adult returns of 35 percent (see EIS Section 7.7.4). The smolt-to-adult return ratio (SAR) is the rate at which of a group of fish survive from their smolt life stage to a defined ending point where they return as adults. While recovery targets will require more than just the efforts of federal agencies, the CSS models indicate the potential for SARs of Snake River Chinook salmon and steelhead to increase to levels that could approach recovery targets set by the Northwest Power and Conservation Council. The BA, also consistent with the EIS, acknowledges past improvements to the configuration and operation of the Columbia River System, additional improvements to the environmental baseline as a result of completed estuary and tributary habitat actions, and the prospective non-operational conservation measures proposed in Chapter 2 of the Draft EIS, all contribute towards maintaining and improving Chinook abundance. Relevant conservation measures include, among other things, a commitment to continue funding the conservation and safety net hatchery programs listed in Chapter 2 of the Draft EIS. As discussed above, the agencies will fulfill congressionally authorized hatchery mitigation objectives through the funding of hatchery programs that are operated consistent with their independent hatchery program consultations during the term covered by this consultation. Based on those hatchery program consultations, the production levels associated with congressionally authorized hatchery mitigation objectives will continue, at minimum, to be consistent with levels previously analyzed by NOAA in the system consultations in 2008, 2014, and 2019. For the 2020 ESA consultations, therefore, the agencies expect that collectively, all of the actions described above (substantial modifications to migration conditions designed to benefit key prey species, combined with improvements to Chinook spawning and rearing habitat in the tributaries and Columbia River estuary, and continued hatchery production) ensure that remaining Chinook mortality from all sources in the mainstem migratory corridor will continue to be more than offset, resulting in a net gain in Chinook salmon abundance available as a prey source for SRKW. Finally, the 2019 NMFS Fisheries BiOp included increased spring spill operations that are similar to operations evaluated in CRSO EIS, and NOAA validated that the hatchery production of Chinook salmon mitigates for the impacts of operating the Columbia River System and total mortality through the mainstem migratory corridor from all sources.
32185	19	ggoodstefani@nrdc.org	Natural Resources Defense Council	The DEIS concludes that the Multiple Objective Alternative 3 (MO3), i.e. lower Snake River dam breaching alternative, would result in a moderate to major increase in smolt-to adult returns and overall abundances of adult salmon and steelhead over the long term, and that would increase the prey base available to . . . killer whale[s]. 49 However, the Action Agencies conclude without citation or analysis that the effect for the prey-limited Southern Residents would be only minor. 50 The Columbia River Basin is a critical source of salmon for this prey limited species, and an increase in overall abundance of salmon from the largest river system in the whales range would have a major impact on Southern Residents. NOAAs own recovery plan for Southern Residents states, [p]erhaps the single greatest change in food availability for resident killer whales since the late 1800s has been the decline of salmon in the Columbia River basin.51 49 Columbia River System Operations DEIS at 3-758. 50 Columbia River System Operations DEIS at 3-758. 51 National Marine Fisheries Service (2008) Recovery Plan for Southern Resident Killer Whales (Orcinus orca).	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not require the co-lead agencies to take affirmative actions to recover ESA listed species. The determination for SRKW in regards to MO3 was based on the following facts: The population dynamics of the SRKW are complicated and there are multiple factors that contribute to the overall success of this species. The quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differently from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for the whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall-run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall-run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early

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					spring months near the mouth of the Columbia River (Ford 2016). Details on the most crucial prey stocks for Southern Resident killer whales, as well as their population and range, is available from several fact sheets and videos available here: https://www.fisheries.noaa.gov/species/killer-whale#spotlight. For more information, visit this NMFS StoryMap on Southern Resident killer whales: https://noaa.maps.arcgis.com/apps/Cascade/index.html?appid=3405e6637bf74e998d4ebe992c54f613. According to NMFS and the EPA, the estimated SRKW population has fluctuated between 67 and 98 whales between 1960 and 2015. The Snake River dams were constructed between 1962 and 1975. The SRKW population increased from a record low in 1970 to its highest population numbers in 1995. Those years were not high years for Snake or Columbia River Chinook Salmon. Ocean conditions between 2011 and 2013 were good years for salmon. At the same time, 2010 and 2013 were good outmigration years. Particularly, 2011 and 2012 were above normal in water supply, which would mean more cooler water was available and there was better survival of salmon, and 2011 through 2014 were higher than normal spill years as well. The combination of outmigration and ocean conditions created improved adult salmon returns. The EIS has analyzed spill as a measure in the Preferred Alternative and determined the overall effect to SRKW to be negligible in large part because hatchery production is consistent between the No Action Alternative and the Preferred Alternative. Because the impact from the Preferred Alternative was determined to be negligible, the agencies determined that existing hatchery production would be sufficient to address any potential impacts to prey availability for SRKWs. 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FEIS Chapter 7 (Preferred Alternative), has been updated with additional analysis information on SRKW and potential increase in forage fish, in particular, Chinook salmon (Section 7.7.8). The Biological Assessment (BA) describes the effect of the Proposed Action on the SRKW forage species (see BA Section 3.5.1.2, Southern Resident Killer Whale). The proposed changes in operation of the Columbia River System include increased spring spill during the downstream migration of juvenile spring and summer run Chinook salmon. The result of this action includes potential increases of juvenile fish passing through the spillways, reductions in juvenile fish direct and indirect mortality associated with downstream passage, and the Comparative Survival Study (CSS) model predicts increases in numbers of returning adults, which will benefit SRKWs foraging in and around the mouth of the Columbia River in winter and spring (See EIS Section 7.7.8). 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Based on those hatchery program consultations, the production levels associated with congressionally authorized hatchery mitigation objectives will continue, at minimum, to be consistent with levels previously analyzed by NOAA in the system consultations in 2008, 2014, and 2019. For the 2020 ESA consultations, therefore, the agencies expect that collectively, all of the actions described above (substantial modifications to migration conditions designed to benefit key prey species, combined with improvements to Chinook spawning and rearing habitat in the tributaries and Columbia River estuary, and continued hatchery production) ensure that remaining Chinook mortality from all sources in the mainstem migratory corridor will continue to be more than offset, resulting in a net gain in Chinook salmon abundance available as a prey source for SRKW. Finally, the 2019 NMFS Fisheries BiOp included increased spring spill operations that are similar to operations evaluated in CRSO EIS, and NOAA validated that the hatchery production of Chinook salmon mitigates for the impacts of operating the Columbia River System and total mortality through the mainstem migratory corridor from all sources.
32190	1	N/A	N/A	Rather, the resources should be managed where the tribes also have an economic interest in the benefits from the projects. That could be in the form of hiring preferences for the lower Snake River Dams, derived value from sale of irrigation waters from the dam or value from the lock operations. The tribes need an interest in the continued operations of the projects.	Thank you for your comment.
32190	2	N/A	N/A	Operations also need to be more targeted to benefit fish, more spill is not better. In fact, the best survival path is transport. To protect juvenal fish, maximum transport should be utilized to help increase their survival. While considered, this has never be utilized (as it improves fish survival).	The co-lead agencies have proposed to continue the use of barge and truck transportation, albeit at lower rates than under previous spill operations. However, the majority of juvenile fish will migrate in-river. As the comment notes, transportation by barge or truck has been shown to provide a benefit that varies by species, by time of year, and by water condition. The juvenile salmon transportation program is managed by expected fish benefits as well as cost efficiency. SAR estimate for each week of the outmigrations, combined with other environmental and biological data, drive the decisions. Prior to these data being available, transportation began at the beginning of April; however, we learned that fish transported in early April performed very poorly. Transporting too early is not effective and does not justify the expense. Maximum transportation levels are not part of the Preferred Alternative, but higher transportation levels were analyzed under MO2.
32190	3	N/A	N/A	In addition, power and reduced spill from current high spill levels could then be managed to improve the migration of adults moving upstream.	Regarding improving adult migration: the survival rates for upstream passage through the 8 dams on the lower Columbia River and lower Snake rivers are generally considered to be good. High levels of spill can delay adults and result in higher rates of adults falling back over the dams. There are measures to address known adult delay issues in the Preferred Alternative, but, additionally, operations will be monitored and adaptively managed in coordination with the Regional Forum as needed.
32190	4	N/A	N/A	I believe that the current goal is not to improve the survivability of fish (which is why no transport), but to marginalize the value of the hydroprojects.	The Preferred Alternative is expected to increase fish survival. Specific to salmon and steelhead, the agencies used two primary modeling approaches which yielded a range of potential outcomes for the alternatives. With respect to the Preferred Alternative, the CSS model predicts that average Smolt to Adult return rates will increase for both Snake River spring Chinook and steelhead and will average above 2% as a result of the Preferred Alternative. The COMPASS and NMFS Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. Varying levels of transportation were included in all MOs with the exception of MO3 (dam breach). MO2 considered much higher levels of transportation that are currently implemented under the NAA. Transportation effects were also analyzed in the Preferred Alternative. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets most other EIS objectives including those for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS, the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams, because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system.
32198	1	brad@lrecoop.com	N/A	Key Points I. Continued need to provide for adequate, efficient, economical, reliable power through the FCRPS. Power generated through the FCRPS supplies SRPA member utilities with their primary source of electric energy. Our member utilities have invested, through rates, in the FCRPS for decades. Should actions proposed in Multiple Objective Alternatives 3 (MO3) and Multiple Objective Alternative 4 (MO4) be implemented, this investment would largely be forgone and our utilities would be left scrambling to acquire alternative power supply. Inadequate power supply and tremendous upward wholesale rate pressure would likely result from such action. These additional expenses would create an unacceptable detrimental impact to our consumers, and the region as a whole. Further, the SRPA asks the co-lead agencies developing the 2020 CRSO-EIS preferred alternative, to limit spill amounts to those maximum levels proposed in Multiple Objective 1 (MO1)3. The SRPA is opposed to breaching of any of the FCRPS dam facilities and or any other actions that would lead to a significant curtailment of power production outside of levels proposed in MO1 and MO2 of the 2020 DEIS.	Neither MO3, which includes the measure to breach the four lower Snake River dams, nor Multiple Objective alternative 4 (MO4) were identified in the Draft EIS as the Preferred Alternative (PA). The statements in the comment regarding potential decreases in power system reliability and rate effects under MO3 and MO4 are consistent with the findings of the EIS. See Section 3.7.3.5, at pages 3-918-924; Table 3-166; Section 3.7.3.6, Electricity Rate Pressure, at pages 3-945-950, and Table 3-182 in the Draft EIS. The Preferred Alternative includes a combination of measures from the MOs, that seek to balance environmental, economic, and social objectives. Under the Preferred Alternative, regional power reliability is the same as under the No Action Alternative. The Preferred Alternative carries forward certain operations in the 2019-2021 Spill Operation Agreement resulting in no loss of reliability compared the No Action Alternative. In contrast, MO1 increased the Loss of Load Probability and had higher Total Dissolved Gas than the Preferred Alternative.
32198	2	brad@lrecoop.com	N/A	II. Necessity of the CRSO to maintain adequate capacity to provide BPA balancing authority response capability. The Bonneville Power Administration (BPA) has regional responsibilities to provide energy balancing services for the Pacific Northwest4. Adequate generation capacity and flexibility are necessary for the BPA to fulfill these obligations. There simply are not base-load dispatchable generation resources of the capacity necessary to replace the lower Snake River Dams on the FCRPS5.	The comment is consistent with discussions in the EIS regarding the dispatchability of renewables and the importance of hydropower for the regional power system. See Section 3.7.2.2 at 3-794 in the draft EIS.
32198	3	brad@lrecoop.com	N/A	III. Environmental benefits of utilizing this carbon-free energy source to mitigate the impacts of carbon-based fuel alternatives We acknowledge that the FCRPS dams, reservoirs and associated infrastructure impact the natural ecosystems of the Columbia River Basin. SRPA member utilities have through member energy rates, paid substantially, for the mitigation of these impacts for decades. The FCRPS 2 (Columbia River System Operations Draft Environemental Impact Statement-Executive Summary, 2020) 3 (Columbia River System Operations Draft Environemental Impact Statement-Executive Summary, 2020) 4 (Bonneville Power Administration (DB/BP-4171), January 2009) 5 (Energy and Environmental Economies, Inc., 2018) environmental impact is often addressed in detrimental terms. One aspect of the power produced from the system, that is often omitted, is its carbon-free attribute. The FCRPS hydro system produces carbon-free 12,000 megawatts of carbon-free power generation annually. Replacing this generation with currently available carbon-based generation would add an additional 50 million metric tons of carbon to the atmosphere6. The lower Snake River Dams produce approximately 12% of the total FCRPS generation. Breaching the lower Snake River Dams or using extreme spill regimes would equate to 6 million tons of additional atmospheric carbon emissions. The environmental cost of replacing these carbon-free generation resources with carbon-based resources would prove costly from an economic and environmental perspective7.	The statements in the comment regarding the importance of regional hydropower for maintaining low regional greenhouse gas emissions is consistent with the findings and discussion in the EIS. The EIS finds that Multiple Objective (MO) Alternative 3 (which includes breaching the four lower Snake River dams) would increase regional greenhouse gas emissions, consistent with the statement in the comment. Contrary to the statistic cited by the comment, the EIS finds that under MO3 and MO4, replacing hydropower with fossil fuel generation would increase emissions by 3.3 and 3.1 million metric tons of CO2, not 6 million tons. The EIS also did not evaluate the greenhouse gas implications of replacing all hydropower generation of the Federal Columbia River Power System as described in the comment. See Section 3.8.3.5, Greenhouse Gas Emissions under Multiple Objective Alternative 3, at 3-1014 in the draft EIS.
32198	4	brad@lrecoop.com	N/A	IV. Preferred alternative must not drastically impact consumer rates The 2020 DEIS addresses customer wholesale power rates in each of the 5 Multiple Objective Alternatives. The viability of any preferred alternative terms must include serious consideration for impact on consumer rates. Rate increases associated with MO3 and MO48 are without question, outside the scope of meeting the providing adequate or economical power supply. Modest rate increases, such as the lower end of estimates provided in the DEIS MO1 of 4.5- 8.6%9 could be acceptable, if there would be significant reduction of fish mortality. Provided that these mortality reduction objectives were met, a potential offset in litigation expenses should be sought to recover these additional costs.	In developing the Preferred Alternative, one of the objectives was to ensure an adequate, efficient, economical and reliable power supply. The MO1 power rate increases quoted in the comment are consistent with the findings of the EIS, and the Preferred Alternative rate pressure is below that of MO1 at 2.7 percent relative to the No Action Alternative. See Section 7.7.9.1, Rate Sensitivity Analysis, Table 7-32 in the Draft EIS. For Bonneville's wholesale power rates, the Preferred Alternative places additional rate pressure of 2.7 percent relative to the No Action Alternative consistent with the statement in the comment regarding increased rates. These estimates compare the Preferred Alternative to the No Action Alternative, which is not the same as comparing the Preferred Alternative to current operations. Consequently, the estimates are not a comparison to the BP-20 wholesale power rates, which were set assuming the financial impact of the 2019-2021 Spill Operation Agreement and therefore already include a substantial portion of the cost pressures found in the Preferred Alternative. The remaining rate pressure associated with the Preferred Alternative falls within a level that Bonneville has historically been able to mitigate through the costs over which it has significant control.
32198	5	brad@lrecoop.com	N/A	V. Willingness to Invest in an Ecologically Sound Solution Fish Passage SRPA member utilities have invested heavily to mitigation for the impacts of the FCRPS to fish migration. From 2007-2018, BPA customers spent an average of over $216 million dollars annually in direct funds relative to fish and wildlife programs10. This is a necessary expense, as the presence of the FCRPS does have an impact on wildlife, particularly fish migrations. The many successes of these mitigation measures ought not to be overlooked. While SRPA members realize that there will continue to be mitigation costs	Thank you for your comment.

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				associated with the operation of the FCRPS, we encourage the co-lead agencies to consider the most efficient and effective use of these funds in the preferred alternative determination.	
32217	1	N/A	N/A	While I share the concern for the survival of the salmon and orcas, there is not enough conclusive evidence that breaching the dams would improve their survival rates significantly, and in fact may do more harm than good.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not require the co-lead agencies to take affirmative actions to recover ESA listed species. The determination for SRKW in regards to MO3 was based on the following facts: The population dynamics of the SRKW are complicated and there are multiple factors that contribute to the overall success of this species. The quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differently from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for the whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall-run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall-run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). Details on the most crucial prey stocks for Southern Resident killer whales, as well as their population and range, is available from several fact sheets and videos available here: https://www.fisheries.noaa.gov/species/killer-whale#spotlight. For more information, visit this NMFS StoryMap on Southern Resident killer whales: https://noaa.maps.arcgis.com/apps/Cascade/index.html?appid=3405e6637bf74e998d4ebe992c54f613. According to NMFS and the EPA, the estimated SRKW population has fluctuated between 67 and 98 whales between 1960 and 2015. The Snake River dams were constructed between 1962 and 1975. The SRKW population increased from a record low in 1970 to its highest population numbers in 1995. Those years were not high years for Snake or Columbia River Chinook Salmon. Ocean conditions between 2011 and 2013 were good years for salmon. At the same time, 2010 and 2013 were good outmigration years. Particularly, 2011 and 2012 were above normal in water supply, which would mean more cooler water was available and there was better survival of salmon, and 2011 through 2014 were higher than normal spill years as well. The combination of outmigration and ocean conditions created improved adult salmon returns. The EIS has analyzed spill as a measure in the Preferred Alternative and determined the overall effect to SRKW to be negligible in large part because hatchery production is consistent between the No Action Alternative and the Preferred Alternative. Because the impact from the Preferred Alternative was determined to be negligible, the agencies determined that existing hatchery production would be sufficient to address any potential impacts to prey availability for SRKWs. The co-lead agencies note the contribution to the prey of SRKW through the continued existence of their respective independent Congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as the Lower Snake River Compensation Plan (other than under MO3), which is administered by USFWS. The Preferred Alternative and Proposed Action in the agencies' biological assessment carry forward certain measures described in Chapters 2 and 7 of the EIS, which include continued salmon and steelhead hatchery production. The Preferred Alternative has negligible effects to SRKWs as described in Section 7.7.8. FEIS Chapter 3 (Vegetation, Wetlands, Wildlife, and Floodplains) has been updated for SRKW (Section 3..6.2.6 and Table 3-102). FEIS Chapter 7 (Preferred Alternative), has been updated with additional analysis information on SRKW and potential increase in forage fish, in particular, Chinook salmon (Section 7.7.8). The Biological Assessment (BA) describes the effect of the Proposed Action on the SRKW forage species (see BA Section 3.5.1.2, Southern Resident Killer Whale). The proposed changes in operation of the Columbia River System include increased spring spill during the downstream migration of juvenile spring and summer run Chinook salmon. The result of this action includes potential increases of juvenile fish passing through the spillways, reductions in juvenile fish direct and indirect mortality associated with downstream passage, and the Comparative Survival Study (CSS) model predicts increases in numbers of returning adults, which will benefit SRKWs foraging in and around the mouth of the Columbia River in winter and spring (See EIS Section 7.7.8). The CSS model results predicts Snake River Chinook salmon would have relative improvements in smolt-to-adult returns of 35 percent (see EIS Section 7.7.4). The smolt-to-adult return ratio (SAR) is the rate at which of a group of fish survive from their smolt life stage to a defined ending point where they return as adults. While recovery targets will require more than just the efforts of federal agencies, the CSS models indicate the potential for SARs of Snake River Chinook salmon and steelhead to increase to levels that could approach recovery targets set by the Northwest Power and Conservation Council. The BA, also consistent with the EIS, acknowledges past improvements to the configuration and operation of the Columbia River System, additional improvements to the environmental baseline as a result of completed estuary and tributary habitat actions, and the prospective non-operational conservation measures proposed in Chapter 2 of the Draft EIS, all contribute towards maintaining and improving Chinook abundance. Relevant conservation measures include, among other things, a commitment to continue funding the conservation and safety net hatchery programs listed in Chapter 2 of the Draft EIS. As discussed above, the agencies will fulfill congressionally authorized hatchery mitigation objectives through the funding of hatchery programs that are operated consistent with their independent hatchery program consultations during the term covered by this consultation. Based on those hatchery program consultations, the production levels associated with congressionally authorized hatchery mitigation objectives will continue, at minimum, to be consistent with levels previously analyzed by NOAA in the system consultations in 2008, 2014, and 2019. For the 2020 ESA consultations, therefore, the agencies expect that collectively, all of the actions described above (substantial modifications to migration conditions designed to benefit key prey species, combined with improvements to Chinook spawning and rearing habitat in the tributaries and Columbia River estuary, and continued hatchery production) ensure that remaining Chinook mortality from all sources in the mainstem migratory corridor will continue to be more than offset, resulting in a net gain in Chinook salmon abundance available as a prey source for SRKW. Finally, the 2019 NMFS Fisheries BiOp included increased spring spill operations that are similar to operations evaluated in CRSO EIS, and NOAA validated that the hatchery production of Chinook salmon mitigates for the impacts of operating the Columbia River System and total mortality through the mainstem migratory corridor from all sources.
32217	2	N/A	N/A	I believe focusing resources and efforts on cleaning the Puget Sound and reducing carbon output would have a more significant impact on the survival of salmon and orcas.	The co-lead agencies' legal authorities relate to operating and maintaining the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. To comply with the ESA, the co-lead agencies have historically supported actions to mitigate adverse effects to listed species from CRS operations, through funding, direct implementation, and other means. Under the Preferred Alternative, those actions would generally continue to ensure compliance with the ESA. Regarding Puget Sound, the effects mentioned in the comment involve a variety of issues beyond the scope of the CRS project. However, water quality effects for the Columbia River Basin were considered in the EIS analysis and are described in Chapter 1, 2, and Section 7.8.3 of the EIS. Additionally, the U.S. Army Corps of Engineers is in partnership with other Federal, state and non-governmental organizations and have been implementing habitat projects for salmon, orcas, and wildlife all around the Puget Sound as part of the Puget Sound Nearshore Ecosystem Restoration Project. The EIS analysis found only a minor effect to the Southern Resident killer whale would result from implementing MO3 (which includes the dam breach measure). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults form the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differentially from hatchery and wild fish. Hatchery fish today likely make up most fish consumed by SRKW (NOAA BiOp 2020). The EIS has analyzed spill as a measure in the Preferred Alternative and determined the overall effect to SRKW to be negligible in large part because hatchery production is consistent between the No Action Alternative and the Preferred Alternative. Because the impact from the Preferred Alternative was determined to be negligible, the agencies determined that existing hatchery production would be sufficient to address any potential impacts to prey availability for SRKWs. The co-lead agencies note the contribution to the prey of SRKW through the continued existence of their respective independent congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as the Lower Snake River Compensation Plan, which is administered by U.S. Fish and Wildlife Service. The Preferred Alternative and Proposed Action in the agencies' biological assessment carry forward certain mitigation measures described in Chapters 2 and 7 of the EIS, which include continued salmon and steelhead hatchery production. The Preferred Alternative has negligible effects to SRKWs as described in Section 7.7.8. Reducing carbon output, as a general matter, is outside the scope of this EIS, but the EIS analyzes effects of the range of alternatives on greenhouse gas emissions and climate change in Section 3.8 and Chapters 4 and 7.
32217	3	N/A	N/A	I believe it would be unwise to pursue breaching the dams without having immediately available better, clean, low-cost power alternatives in place. Considering the current economic downturn, such a spike in energy costs without better alternatives in place, and the potential for power black-outs, could have far-reaching and long-lasting impact on the entire area.	The EIS analyzed two resource portfolios to replace the hydropower generation of the four lower Snake River dams, both of which maintain regional power system reliability. In the Draft EIS, please see Section 3.7.3.5, at pages 3-904-910. Under these replacement portfolios, regional power rate pressure increases. In the Draft EIS, please see Section 3.7.3.5, at pages 3-918-924; and Table 3-166. The findings of the Draft EIS are consistent with the comment with regard to the effects on regional power reliability of breaching the four lower Snake River dams, without resource replacement. In the Draft EIS, see Section 3.7.3.5, Effects on Power System Reliability, at page 3-903; and Appendix H, Table 2-1. The EIS also acknowledges the risk that replacement resources are not constructed in time to address decreased power system reliability. See Section 3.7.3.1, Step 3: Determine Need for Potential Replacement Resources and Associated Costs, at page 3-821 in the Draft EIS.
32217	4	N/A	N/A	More research is needed to ascertain the broader influences on the salmon and orcas that are threatening their survival.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not require the co-lead agencies to take affirmative actions to recover ESA listed species. The population dynamics of the SRKW are complicated and there are multiple factors that contribute to the overall success of this species. The BA, also consistent with the EIS, acknowledges past improvements to the configuration and operation of the Columbia River System, additional improvements to the environmental baseline as a result of completed estuary and tributary habitat actions, and the prospective non-operational conservation measures proposed in Chapter 2 of the Draft EIS, all contribute towards maintaining and improving Chinook abundance. Relevant conservation measures include, among other things, a commitment to continue funding the conservation and safety net hatchery programs listed in Chapter 2 of the Draft EIS. As discussed above, the agencies will fulfill congressionally authorized hatchery mitigation objectives through the funding of hatchery programs that are operated consistent with their independent hatchery program consultations during the term covered by this consultation. Based on those hatchery program consultations, the production levels associated with congressionally authorized hatchery mitigation objectives will continue, at minimum, to be consistent with levels previously analyzed by NOAA in the system consultations in 2008, 2014, and 2019. For the 2020 ESA consultations, therefore, the agencies expect that collectively, all of the actions described above (substantial modifications to migration conditions designed to benefit key prey species, combined with improvements to Chinook spawning and rearing habitat in the tributaries and

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					Columbia River estuary, and continued hatchery production) ensure that remaining Chinook mortality from all sources in the mainstem migratory corridor will continue to be more than offset, resulting in a net gain in Chinook salmon abundance available as a prey source for SRKW. The co-lead agencies agree more information is needed concerning the most crucial prey stocks for SRKW. Details on the most crucial prey stocks for Southern Resident killer whales, as well as their population and range, is available from several fact sheets and videos available here: https://www.fisheries.noaa.gov/species/killer-whale#spotlight. For more information, visit this NMFS StoryMap on Southern Resident killer whales: https://noaa.maps.arcgis.com/apps/Cascade/index.html?appid=3405e6637bf74e998d4ebe992c54f613.
32218	1	Greg Haller	Pacific Rivers	Due to time constraints imposed by the federal Action Agencies for public comment and the ongoing Covid-19 emergency, we are providing the following bulleted comments for your consideration	Thank you for your comment.
32218	2	Greg Haller	Pacific Rivers	1. DEIS Conflates Purpose of NEPA The National Environmental Policy Act (NEPA) makes it the policy of the federal government to administer federal programs in the most environmentally sound manner. Agencies are to take a hard look at the environmental impacts of a proposed action using the best available information Federal agencies are to evaluate the In the CSRO DEIS, it appears that analysis of the effects of each alternative on authorized project purposes takes precedent over analysis of the ecological impacts of the alternatives, as required by NEPA	NEPA requires Federal agencies to consider the environmental effects before making decisions, but it does not require Federal agencies to administer programs or projects in the most environmentally sound manner or implement an environmentally preferred alternative. The co-lead agencies in the CRSO draft and final EIS have taken a hard look at the effects to the natural and human environments anticipated to arise from the alternatives as described in Chapters 3, 4, 6, and 7. These chapters demonstrate the co-lead agencies evaluated effects to varied resources beyond the authorized purposes for the CRS projects.
32218	3	Greg Haller	Pacific Rivers	2. The Public Comment Process Was Inadequate The agencies failed to provide adequate or meaningful opportunities for the public to comment on the DEIS. It is unconscionable that that the public was given only 45 days to provide comments on a document of this size and complexity during the Covid-19 crisis facing the nation. Members of Congress, tribes, and organizations requested that the Action Agencies extend the public comment period to its original 120-day timeline but were denied. Public hearings were cancelled due to state and federal orders to shelter in place to lessen the spread of Covid-19, and in their place a system of phone-in public comment sessions was implemented. These proved to be lightly attended, disorganized, and inadequate for conveying meaning feedback to the Action Agencies.	The co-lead agencies considered requests to extend the public comment period. This NEPA process included a wide array of cooperating agencies whose close involvement throughout the process allowed the co-lead agencies to incorporate feedback. Given the broad range of comments received to date and the extensive Federal and non-Federal participation in the overall process as well as the level of public engagement in the six virtual public meetings in the region, the co-lead agencies determined that an extension was not warranted and that the 45-day public comment period was adequate consistent with NEPA regulations. The CRSO EIS website notified the public on April 9, that they should plan to submit comments by the close of the comment period.
32218	4	Greg Haller	Pacific Rivers	3. Climate Change Analysis Not Complete Current and future water temperatures in the Columbia and Snake Rivers are a major source of concern. Water temperatures often exceed state water quality standards during key lifecycle stages of salmon and steelhead. The Environmental Protection Agency, and others, have shown that federal dams are the primary source of anthropocentric warming in the river. However, and likely due to the truncated timeline for completing the NEPA process, the Action Agencies failed to fully assess the effects of climate change on reservoir temperatures. The climate analysis, which was done by BPA and not supported by the Army Corps or Bureau of Reclamation, only applied to estimates of power production and revenue under four climate scenarios. No other water needs were quantified in the DEIS (i.e fish, water supply, flood risk, navigation, recreation). Additionally, the Action Agencies could have utilized temperature modeling of the Snake and Columbia by the Environmental Protection Agency, which has clearly demonstrated the temperature impacts of the dams, and the benefits of breaching the dams on the lower Snake River to maintain climate resilient conditions, but chose not to include this analysis. Dworshak Dam provides flood risk management for Portland, power to the region, and cooling and flow augmentation water for the lower Snake. It does so at enormous cost to the local environment, to the Nez Perce Tribe and to other communities. Coldwater releases, while beneficial to fish in the Snake, create economic and cultural impacts locally that are not fully assessed in the DEIS. These include impacts such as the inability to swim in the Clearwater River due to dangerously cold water.	The technical and policy elements of this Draft EIS are in full compliance with binding USACE policy and guidance for qualitative assessment of climate threats and their plausible effects and impacts. The primary controlling policy and guidance are the USACE Climate Adaptation Policy Statement, signed by the Assistant Secretary of the Army for Civil Works in 2011, updated and signed again in 2013, and remains in force now; and USACE Engineering and Construction Bulletin 2018-14, "Guidance for Incorporating Climate Change Impacts to Inland Hydrology in Civil Works Studies, Designs, and Projects." The numerical-model simulated outputs were evaluated by multiple technical means (see record of the full USACE Agency Technical Review), and were tested using the set of analytical measures created by the USACE Climate Preparedness and Resilience program to ensure that sound science and engineering compliance with USACE climate change policy and guidance. The assessment of climate threats and impacts is qualitative only in the sense that the biological and other impacts models did not directly ingest the physical hydroclimatology outputs modeled for the assessment. Those hydroclimatology outputs are fully quantitative and so can be the basis for refined estimates of effects and impacts should those be required following this Draft EIS. Water temperature modeling for each alternative is described in Chapter 3, however, as you note it was not conducted for conditions of future climate change. Information to develop, drive, and analyze specific projections of future water temperature and fish characteristics were not available on the timeline of this report.
32218	5	Greg Haller	Pacific Rivers	4. DEIS Fails to Account for the Expiration of Coordinated Flood Risk Management Operations with Canada Coordinated flood risk management operations with the Canada are set to expire in 2024 under the U.S.-Canada Columbia River Treaty. At that time, the United States will be required to use all effective storage in the U.S. side of the basin before it can request storage space in Canada to control high flows. Such an operation would upend current authorized project purposes at U.S. reservoirs throughout the Columbia and Snake, impacting operations designed to benefit irrigation, energy, flood control and salmon. There is no evidence that the DEIS evaluates how a major change in flood risk operations will effect salmon and other resources. While treaty negotiations are ongoing, there is not evidence that a deal that includes continued joint flood risk operations will be achieved by 2024. Further, the renegotiation of the Columbia River Treaty is addressing the issue of Ecosystem-based Function in the operation of treaty dams, which contemplates additional flows in low and average flow years to aid juvenile salmon migration. There is no evidence that the DEIS includes consideration of these important changes in the Treaty and its impact on the operation of the Columbia River System.	The Range of Alternatives Section (Section 2.4 of the CRSO EIS), provides a brief discussion of the Columbia River Treaty, why it is not included in the CRSO EIS, and when it would be added to this NEPA effort. As stated in the CRSO Draft EIS, the information about CRT-related operations available in 2016 is applied in the Draft EIS analysis as the best-available information. The CRSO Draft EIS evaluated the implications of the CRS alternatives using the Treaty coordinated operations, including their relationship to hydropower, ecosystem, and flood risk management, with the best available information. As is also noted in the Draft EIS, if CRT-related operations change after 2024 in a manner that presents new information or circumstances resulting in significant changes that were not previously addressed, those changes will be addressed by this NEPA process if they are identified in time or subsequently in another NEPA process, if necessary.
32218	6	Greg Haller	Pacific Rivers	5. The DEIS Fails in Analyze Fish Passage Fish passage and reintroduction of salmon into areas currently blocked by dams is an important regional issue being explored by tribes and First Nations. Unfortunately, the DEIS fails to include an assessment of fish passage and reintroduction at areas currently blocked by federal dams, including, Grand Coulee, Chief Joseph, and Dworshak. In fact, the discussion of Dworshak fails to mention that it lacks passage (or that it is built on the Nez Perce Reservation for that matter).	Measures to reintroduce salmon above Chief Joseph Dam and Grand Coulee Dam were evaluated early in the process to develop alternatives but eliminated from further consideration. Reintroduction is an important and complex, large-scale concept. Its consideration, evaluation, and implementation should involve multiple Tribal, Federal, state, and other entities. A coordinated approach among water users, Tribes, states, multiple Federal agencies, and others would be necessary. To allow so many differing interests to coordinate on such a complex topic, which may include international considerations, a decision-making framework and a series of regional workshops would be necessary just to approach the first step of defining reintroduction objectives. Given the incompatibility of such a wildlife management decision-making framework with an analysis of the operation of the CRS, it is not feasible to proceed with a detailed consideration of reintroduction in this EIS. Moreover, to meaningfully analyze reintroduction as a measure, the details of the proposal would need to be understood well enough to include in hydrologic, water quality, and fish models. That information is not presently available, and development of those details was not possible in the timeframe of this NEPA process. Nevertheless, the agencies and interested regional sovereigns are developing a framework to address critical information gaps. Section 1.9.7.2 p. 1-41 states that "Dworshak Dam blocks upsteam migration on the North Fork of the Clearwater River." Table 1.2 indicates Dworshak does not include fish passage.
32218	7	Greg Haller	Pacific Rivers	6. Unacceptable Preferred Alternative Given the status of salmon, steelhead, and Pacific Lamprey, the preferred alternative put forward by the Action Agencies is unacceptable. Judge Simon said the system is crying out for a new approach and new thinking if salmon and steelhead are to persist, yet the Action Agencies have delivered more of the same failed policies in attempt to maintain authorized project purposes. The 2020-2021 flexible spill agreement was not intended to serve as a long term operation. However, the DEIS does not evaluate actual spill operations past 2021, leaving uncertainty to how the river will be operated, other than adaptively. Further, adaptive management doesnt preclude reducing spill operations, which is troubling. Clearly, breaching the lower Snake River dams in the alternative likely to have the most success in restoring population of salmon, steelhead and lamprey, as the Action Agencies have concluded. Breaching should be the preferred alternative	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA listed species. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-lead agencies numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3, which includes breaching the four lower Snake River dams. The Preferred Alternative also meets the EIS objectives for: resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS the co-lead agencies did not identify MO3 because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. The EIS concluded MO3, which includes breaching the four lower Snake River dams would have greater improvement to certain salmon species in the lower Snake River. It did not, however, conclude there was greater certainty of that result in MO3 over any other alternative. Because of delayed response time in MO3, and the potential severity of the short term effects, MO3 would likely have the most substantial uncertainty in terms of beneficial effects. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. The effects of delayed mortality are discussed throughout the EIS analysis for each alternative and current high quality data and the best available scientific information was used for this analysis. Based on analysis by the CSS, SARs associated with population declines (SARs of less than 1%) have the potential to be greatly reduced under the Preferred Alternative, and on average, SARs are expected to be well above 2.0% for Snake River spring Chinook salmon and steelhead. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin.
32231	1	N/A	N/A	Here are a few suggestions: #1 Reduce the number of seals, sea lions etc to the level before the dams were built.	As described in the Preferred Alternative, the co-lead agencies propose several measures to reduce avian and marine mammal predation to mitigate adverse effects to listed species from CRS operations. Ongoing actions described in the No Action Alternative to reduce predation on migrating fish are included in the Preferred Alternative. In addition, water management actions (the Predator Disruption Operations measure) in the John Day reservoir is expected to further reduce avian predation on migrating juvenile fish. The No Action Alternative includes ongoing mitigation measures to haze and monitor pinniped predators. These actions would continue into the future under the Preferred Alternative, and the co-lead agencies would continue to assist National Marine Fisheries Service (NMFS), states and Tribes in their pinniped removal efforts near Bonneville Dam.
32231	2	N/A	N/A	#2 Reduce the number of predator birds that gobble up millions of smolt per year.	The co-lead agencies have historically supported actions to mitigate adverse effects to listed species from CRS operations, through funding, direct implementation, and other means. Under the Preferred Alternative, those actions, including implementation of actions for the purpose of reducing predation on ESA-listed species, would generally continue to ensure compliance with the ESA. This includes continued implementation of (1) dissuasion measures at the Corps facilities as described in the annual Fish Passage Plan and coordinated with the FPOM, (2) the Inland Avian Predation Management Plan (IAPMP), (3) CATE management plan for reduction in habitat at East Sand Island, and (4) the Double-crested cormorant (DCCO) management plan at East Sand Island. In addition to the ongoing actions, the preferred alternative includes a new measure to dissuade nesting by terns on the Blalock Island colony in the lower Columbia River.
32231	3	N/A	N/A	#3 Decrease the number of pike minnow, walleye etc. in the rivers.	The co-lead agencies currently implement a Northern Pikeminnow Management Program which includes an ongoing base program and general increase in northern pikeminnow sport-reward fishery reward structure to reduce predation by these fish. This measure would continue under the Preferred Alternative. Management of gamefish such as walleye typically falls within the authority of state fish and wildlife agencies.
32231	4	N/A	N/A	#6 Native Americans and sport fishermen should probably have some limitations or quotas during low number years.	The co-lead agencies developed this EIS to reconsider the operation, maintenance, and configuration of the 14 dams operated as the Columbia River System. Fish harvest management is not within the scope and the co-lead agencies have no role or authority over fishing limitations or quotas. Fishing and harvest are subject to separate actions by federal, state, and tribal agencies outside the scope of this EIS.
32237	1	wildlife.wwu@gmail.com	N/A	(1) The 25-year temporal scope is too brief. Twenty five years is equivalent to just five Chinook salmon generations. Due to long-term consequences of salmonid declines and population extinctions, a much longer analysis window is required to assess risk and impacts accurately.	The temporal scope of the EIS is assumed to be 25 years from the signing of the Record of Decision (ROD) in order to have a similar period of analysis for comparison of effects across resources for all multiple objective alternatives (with the exception of the socioeconomic-related resource analysis - 50 years). The accuracy and reliability of climate change information was also a consideration for determining the temporal scope. The co-lead agencies would continue to re-asses the operations and maintenance of the CRS at regular intervals to ensure that accurate and high quality information is considered in managing the CRS.
32237	2	wildlife.wwu@gmail.com	N/A	(2) The abbreviated EIS development and review period undermine public engagement, EIS quality assurance, and confidence in the process. By compressing time between release of the DEIS and ROD signing, the schedule reduces extent and quality of public review of the DEIS and it curtails ability of the agencies to revise and adapt the EIS according to public input.	The public had several ways to submit comments such as the online comment form and through the mail. Given the broad range of comments received and the extensive Federal and non-Federal participation in the overall process as well as the level of public engagement in the six virtual public hearings in the region, the co-lead agencies determined the 45-day public comment period was adequate as per NEPA regulations. The agencies used the extensive public comments to update the EIS, where appropriate.
32237	3	wildlife.wwu@gmail.com	N/A	(3) Purpose and Need for Action: this section recognizes opportunities for recreation on System lakes and reservoirs, but it omits recreational opportunities on free-flowing rivers. Values of recreation on free-flowing rivers may exceed those associated with reservoirs in economic, health, and	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-lead agencies numerous legal obligations. The EIS evaluates actions within the current authorities of the co-lead agencies, as well as certain actions that are not within their authorities, based on the District Courts observations about alternatives that could be considered and comments received during the scoping process.

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				aesthetic characteristics. The net effect on recreation of any CRSO alternative requires consideration of activities on both reservoir and free-flowing reaches. Recreation on free-flowing rivers should be added to the Purpose and Need statement, and included in analysis of the alternatives.	Recreation opportunities on a more normative river were evaluated as part of MO3, which includes breaching the four lower Snake River dams (Section 3.13). It is important to note that even with the four lower Snake River dams breached, flows are regulated above these dams.
32237	4	wildlife.wwu@gmail.com	N/A	(4) CRSO Objectives: three objectives concern need to improve ESA-listed fish, but they lack standards and criteria with which to evaluate improvements. The objectives should be clarified to state the kind (criteria) and quantity (standards) of improvement necessary to fulfill ESA mandates.	Each of the objectives list criteria for evaluation (e.g., anadromous salmonid juvenile fish rearing, passage, and survival). The criteria and standards the commenter referenced for fulfilment of ESA mandates can be found in the U.S. Fish and Wildlife Service and National Marine Fisheries Services Biological Opinions in the Final EIS, Appendix V, but NEPA and ESA have individual requirements under the respective statutes.
32237	5	wildlife.wwu@gmail.com	N/A	(5) The DEIS appears to maintain a false equivalency between Congressional legislation, executive orders, and treaties. Because treaties with sovereign nations take precedence over legislation and executive orders, treaties must be honored above legislation or orders sanction developments that would violate treaties. This issue is apparent in DEIS comments about CRS facilities and infrastructure predating environmental legislation and executive orders, as an apparent excuse for non-compliance with those laws and orders. Because treaties with Indigenous nations pre-date all CRS facilities and because those treaties have priority over Congressional authorization for CRS facilities, CRSO must rectify violations of those treaties. Timing of CRS development vs. legislation and orders is not relevant to this issue. The imperative to bring CRSO in compliance with treaty rights has particular relevance to Columbia River System Operations DEIS 13 April 2020 -2- inundation of cultural and harvest sites recognized by the tribes, and reduction of wild fish populations below harvestable levels. In this context, the DEIS should evaluate each alternative relative to extent to which it restores treaty rights.	Tribal input, concerns, interests, and especially treaty rights were considered throughout the Draft EIS analyses and in the formulation of the Preferred Alternative. Treaty specific information is included in Section 3.17 as well as Chapter 7. The co-lead agencies recognize and respect the legal obligations treaties impose. The co-lead agencies accordingly included Protecting Native American treaty and reserved rights and fulfilling trust obligations for natural and cultural resources throughout the environment affected by the Columbia River System operations as a purpose in the Purpose and Need Statement in Chapter 1 to ensure treaty obligations were a key consideration of decision making. The co-lead agencies are engaging in government-to-government consultation with the tribes, and several tribes are cooperating agencies on the CRSO EIS. The EIS recognizes the economic and cultural importance of salmon to Tribes in a number of sections throughout the document. The cultural significance and impacts of salmon and steelhead fisheries are described in the Ceremonial and Subsistence Fisheries sub-section and the Social Importance of Commercial, Ceremonial and Subsistence Fisheries sub-section of Section 3.15.2.1. Fisheries tribal interests are provided in Section 3.15.4 additional details regarding the economic significance of salmon and steelhead fisheries have been added to the recreation analysis (Section 3.11) including tribal interests (Section 3.11.3.7). Treaty rights are discussed in the Executive Summary, Section 3.16 Cultural Resources, and Section 3.17 Indian Trust Assets, Tribal Perspectives, and Tribal Interests. Appendix P includes copies of tribal perspectives that were submitted by tribes. Tribal consultation is described in Sections 1.5, 3.5, and 3.15; and Chapter 9. Most sub-sections within Chapter 3 include a Tribal Interests section at the end of the sub-section that attempts to summarize tribal issues by topic. Analysis shows that the Preferred Alternative would meet the objectives for improving juvenile salmon, adult salmon, resident fish and lamprey. The analysis found ranges in potential effects due to different assumptions included in each of the fish models used in the study. Using the Comparative Survival Study (CSS), Snake River Chinook salmon and steelhead are expected to see relative improvements in smolt-to-adult returns of 35 percent and 28 percent, respectively. The Smolt-to-Adult return ratio (SAR) is the rate at which of a group of fish survive from their smolt life stage to a defined ending point where they return as adult. While achieving long-term recovery targets will require more than just the efforts of Federal agencies, the CSS models indicate the potential for SARs of Snake River Chinook salmon and steelhead to increase to levels that could approach recovery targets set by the Northwest Power and Conservation Council. If latent mortality effects are reduced by passing more juvenile fish through the spillway, the NMFS Lifecycle Model (LCM) also shows that levels of SARs would increase. However, if latent mortality effects are not reduced, or are different than modeled, the LCM predicts that SARs for Snake River spring Chinook salmon may be lower than the No Action Alternative (a range of -7.5 percent to +28 percent change relative to the No Action Alternative) due to reduced opportunities for fish transportation. Results for upper Columbia River stocks are beneficial based on LCM estimates. In-river survival and SARs are anticipated to increase. The CSS model does not currently model upper Columbia fish. The Preferred Alternative also has measures intended to increase upstream passage success and reduce injury and mortality for Pacific lamprey. These measures are proposed structural improvements that include converting extended-length submersible bar screen material to screen material that would not impinge or entangle juvenile lamprey, expanding the network of lamprey passage structures to bypass impediments in fish ladders, changing the design for turbine cooling water strainers, and replacing turbines for safer fish passage. The Preferred Alternative would also meet the objective to improve resident fish. Effects to resident fish vary by region and species, but are generally minor relative to the No Action Alternative.
32237	6	wildlife.wwu@gmail.com	N/A	(6) The DEIS misconstures hatcheries as measures to address mandates to restore ESA-listed fish. The following statement is illustrative. The co-lead agencies have funded an extensive hatchery program these examples help provide context for the level of effort that has gone into improving conditions for fish within the basin. Hatchery programs may support harvest in the near term, but they do not improve conditions for ESA-listed fish. Rather, hatchery programs often impact wild fish due to inbreeding, food competition with wild fish upon release into natural habitats, and selection for domesticated traits. The ESA and Northwest Power Act require improving conditions for wild fish regardless of hatchery programs. As revealed in the DEIS, CRSO emphasis on hatchery programs is symptomatic of a production mentality that favors providing hatchery fish for harvest to the detriment of restoration of wild stocks1 whose restoration is mandated by ESA. The EIS should evaluate hatchery impacts to ESA-listed fish under each alternative, to comply with the U.S. District Court Opinion and Order2 to ensure that the prospective management of the CRS is not likely to jeopardize the continued existence of any endangered or threatened species.	Hatchery programs have long been a part of the approach for salmon recovery. Based on our analysis of fish resources in Chapter 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Under this alternative, hatchery programs would continue as under the No Action Alternative, and a number of other mitigation measures would continue as well, but no new hatchery operations are proposed. Hatchery origin fish are often included in the ESA-listed for an ESU/DPS. Hatchery origin fish are very important to Tribal and sport harvest within the CRB, and many hatchery programs are important supplementation to rebuilding natural populations. Further, the three co-lead agencies have legal requirements to produce hatchery fish as mitigation for components of the CRS. The effects of hatchery programs on ESA-listed fish are evaluated through individual consultations under the Endangered Species Act.
32237	7	wildlife.wwu@gmail.com	N/A	(7) Most CRSO alternatives considered are inadequate relative to several criteria. 7.1 Every alternative, except perhaps MO3, falls short of the ESA mandate to restore listed fish to all or a significant portion of [their] range[s]. Without measures to more substantially increase ESA-listed fish populations, CRSO perpetuate extinction risk of those populations. This concern is particularly severe for fish associated with the Snake River, whose current abundances are mostly 1% or less of historic levels.3 In addition, CRSO that maintain fish abundances at such low levels risk extinction of populations associated with smaller tributaries. Extinction of enough of those tributary populations would constitute failure to protect the listed ESUs in a significant portion of [their] range, also an ESA violation. 7.2 None of the alternatives fulfills the Purpose and Need for Action legal provision to protect Native American treaty and reserved rights. Under every alternative, CRSO inundation of usual and accustomed areas used by tribes for fishing and harvesting would continue, effectively denying access rights to those sites guaranteed by the treaties. This conflict between CRSO and the Purpose and Need provision to protect treaty rights is particularly ironic, because some CRS dams were constructed for the explicit purpose of eliminating tribal fishing.4 The EIS should include an evaluation of the extent to which each alternative violates treaty rights by obstructing access to the tribes usual and accustomed sites. 7.3 Except for MO3, every alternative considered in the DEIS fails to protect treaty rights to a harvestable abundance of fish. As stated in the report from the Confederated Tribes of the Warm Springs Indian Reservation of Oregon (Appendix P), the United States Supreme Court affirmed a decision by the Ninth Circuit Court of Appeals which determined that the Columbia River Tribes Treaties guaranteed the right to have fish to take, not just the right for the tribes to dip their nets into empty waters devoid of salmon. They further invoked the appeals court decision: The Indians did not understand the Treaties to promise that they would have access to their usual and accustomed fishing places, but with a qualification that would allow the government to diminish or destroy the fish runs. Governor Stevens did not make, and the Indians did not understand him to make, such a cynical and disingenuous promise. By not including measures to increase salmon and steelhead to harvestable levels, most alternatives in the DEIS would perpetuate treaty violations and do not meet the CRSO legal purpose to protect treaty rights. The EIS should determine the extant of this failure for each alternative. To fulfill treaty obligations and the CRSO legal purpose, the EIS should include additional alternatives that would restore fish to harvestable abundances. Columbia River System Operations DEIS 13 April 2020 -3-	Both human-caused and natural factors that are outside the responsibility and control of the co-lead Federal agencies, also contribute to the decline and recovery of ESA-listed species, and would continue to strongly influence fish and their habitat. Salmon and steelhead have been adversely affected in the Columbia River Basin over the last century by many activities including human population growth, urbanization, introduction of exotic species, overfishing, development of cities and other land uses in the floodplains, water diversions for all purposes, dams, mining, farming, ranching, logging, hatchery production, predation, ocean conditions, and loss of habitat. Operation, configuration and maintenance of the CRS requires mitigation for its effects, and the EIS is not intended or required to serve as an overall salmon recovery plan for the region. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA listed species. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-lead agencies numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3, which includes breaching the four lower Snake River dams. The Preferred Alternative also meets the EIS objectives for: resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS the co-lead agencies did not identify MO3 because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. The EIS concluded MO3, which includes breaching the four lower Snake River dams would have greater improvement to certain salmon species in the lower Snake River. It did not, however, conclude there was greater certainty of that result in MO3 over any other alternative. Because of delayed response time in MO3, and the potential severity of the short term effects, MO3 would likely have the most substantial uncertainty in terms of beneficial effects. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. The effects of delayed mortality are discussed throughout the EIS analysis for each alternative and current high quality data and the best available scientific information was used for this analysis. Based on analysis by the CSS, SARs associated with population declines (SARs of less than 1%) have the potential to be greatly reduced under the Preferred Alternative, and on average, SARs are expected to be well above 2.0% for Snake River spring Chinook salmon and steelhead. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information. Tribal input, concerns, interests, and especially treaty rights were considered throughout the Draft EIS analyses and in the formulation of the Preferred Alternative. Treaty specific information is included in Section 3.17 as well as Chapter 7. The treaties bind all parties and are the supreme law of the land. The co-lead agencies recognize and respect that supremacy. In terms of honoring our treaty obligations, the co-lead agencies included Protecting Native American treaty and reserved rights and fulfilling trust obligations for natural and cultural resources throughout the environment affected by the Columbia River System operations as a purpose in the Purpose and Need Statement in Chapter 1 to ensure treaty obligations were a key consideration of decision making. The co-lead agencies are engaging in government-to-government consultation with the tribes, and several tribes are cooperating agencies on the CRSO EIS. The EIS recognizes the economic and cultural importance of salmon to Tribes in a number of sections throughout the document. The cultural significance and impacts of salmon and steelhead fisheries are described in the Ceremonial and Subsistence Fisheries sub-section and the Social Importance of Commercial, Ceremonial and Subsistence Fisheries sub-section of Section 3.15.2.1. Fisheries tribal interests are provided in Section 3.15.4 additional details regarding the economic significance of salmon and steelhead fisheries have been added to the recreation analysis (Section 3.11) including tribal interests (Section 3.11.3.7). Treaty rights are discussed in the Executive Summary, Section 3.16 Cultural Resources, and Section 3.17 Indian Trust Assets, Tribal Perspectives, and Tribal Interests. Appendix P includes copies of tribal perspectives that were submitted by tribes. Tribal consultation is described in Sections 1.5, 3.5, and 3.15; and Chapter 9. Most sub-sections within Chapter 3 include a Tribal Interests section at the end of the sub-section that attempts to summarize tribal issues by topic.
32237	8	wildlife.wwu@gmail.com	N/A	(8) Contextual statements in the DEIS regarding alternative MO3 suggest that dam breaching was included to fulfill a court order, but without serious consideration. This concern is revealed in the following DEIS statement. However, the [dam breaching] measures are carried forward in the analysis to align with the District Courts Opinion and Order, as well as in response to comments received during public scoping. Doubts about consideration given to MO3 are reinforced by apparent biases in DEIS analysis, described below. The following three comments pertain to elements needed to adequately evaluate CSRO impacts, but that were omitted from the DEIS.	The Draft EIS provides a comprehensive and unbiased analysis of MO3 in a manner consistent with NEPA. The statements referenced in the comment were to provide context for why the agencies were looking at an alternative outside its existing authorities and to note the public's interest in asking the co-lead agencies to analyze this alternative as part of the draft EIS.
32237	9	wildlife.wwu@gmail.com	N/A	(9) Population viability analysis for each ESA-listed fish population. The DEIS reports LCM and CSS model estimates of changes in population abundances and migration survival rates, but it does not provide measures of uncertainty of those estimates. A model might predict an average increase in SAR of 28% under the Preferred Alternative, but there is a non-zero probability SAR would decrease under that alternative. That probability, and its analog for each fish and alternative, must be included in the EIS if decision makers are to make informed risk assessments for ESA-listed fish. More generally, the EIS should include population viability analysis to determine extinction risk for each fish under CRSO alternatives. Similarly, the EIS should apply similar analysis to determine the probability of restoring each wild fish population to harvestable levels within the assessment time frame.	Population viability analysis with salmon typically involves time series of adult recruitment or spawner abundance. Survival during the Smolt-to-Adult lifestage as well as early juvenile lifestages contributes to the viability trend of adults. NOAA has estimated extinction risk of populations using its Life Cycle models (Zabel and Jordan 2020). The comment about estimating time to reach ESU recovery or good levels of harvest could be linked to the extinction risk analysis. The separate NOAA Harvest BiOp for the Columbia Basin contains some of this analysis. Confidence intervals for in-river survival is included in the appendix, although the commenter is correct that confidence intervals were not published along with mean estimates in the main tables of the EIS. It is challenging to estimate uncertainty around metrics spanning multiple life stages such as SAR and adult abundance which reflect variance both from the 80-year water record and data uncertainty from historical fish survival estimates. Population viability analysis is most relevant to recovery planning efforts. Based on the EIS analysis, the Preferred Alternative will make a substantial contribution to improving Snake River anadromous fish runs. Broad-sense recovery goals are beyond the scope of this EIS which focuses on the effects associated with the operation and maintenance of the 14 CRS projects. With respect to the Preferred Alternative, fish analysis in Section 7.7.4 shows that it will provide substantial benefits to ESA-listed salmon and steelhead, which can help contribute to broader recovery goals.
32237	10	wildlife.wwu@gmail.com	N/A	(10) Assessments of CRSO impacts on the ESA-listed Southern Resident Orca (SRO) population. That population has declined to perilously low abundances in recent decades, primarily due to lack of Chinook salmon their principal food source. Similarly, rates of SRO survival and fecundity are below sustainable levels due to low Chinook abundances and resultant starvation.5 CRS Operations have impacted the SRO population by reducing abundances of the largest source of Chinook salmon. Breaching the LSRD provides the greatest potential to increase Chinook abundance in SRO habitat. Conversely, continued CRS operation that maintains low Chinook abundances may consign SRO to extinction in coming decades. Because effects of CRSO on the ESA-listed SRO population are so strong and direct, the EIS must evaluate anticipated effects of each alternative on SRO restoration and extinction risk.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not require the co-lead agencies to take affirmative actions to recover ESA listed species. The population dynamics of the SRKW are complicated and there are multiple factors that contribute to the overall success of this species. The quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differently from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020).

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					The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for the whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall-run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall-run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). Details on the most crucial prey stocks for Southern Resident killer whales, as well as their population and range, is available from several fact sheets and videos available here: https://www.fisheries.noaa.gov/species/killer-whale#spotlight. For more information, visit this NMFS StoryMap on Southern Resident killer whales: https://noaa.maps.arcgis.com/apps/Cascade/index.html?appid=3405e6637bf74e998d4ebe992c54f613. According to NMFS and the EPA, the estimated SRKW population has fluctuated between 67 and 98 whales between 1960 and 2015. The Snake River dams were constructed between 1962 and 1975. The SRKW population increased from a record low in 1970 to its highest population numbers in 1995. Those years were not high years for Snake or Columbia River Chinook Salmon. Ocean conditions between 2011 and 2013 were good years for salmon. At the same time, 2010 and 2013 were good outmigration years. Particularly, 2011 and 2012 were above normal in water supply, which would mean more cooler water was available and there was better survival of salmon, and 2011 through 2014 were higher than normal spill years as well. The combination of outmigration and ocean conditions created improved adult salmon returns. The EIS has analyzed spill as a measure in the Preferred Alternative and determined the overall effect to SRKW to be negligible in large part because hatchery production is consistent between the No Action Alternative and the Preferred Alternative. Because the impact from the Preferred Alternative was determined to be negligible, the agencies determined that existing hatchery production would be sufficient to address any potential impacts to prey availability for SRKWs. The co-lead agencies note the contribution to the prey of SRKW through the continued existence of their respective independent Congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as the Lower Snake River Compensation Plan (other than under MO3), which is administered by USFWS. The Preferred Alternative and Proposed Action in the agencies' biological assessment carry forward certain measures described in Chapters 2 and 7 of the EIS, which include continued salmon and steelhead hatchery production. The Preferred Alternative has negligible effects to SRKWs as described in Section 7.7.8. FEIS Chapter 3 (Vegetation, Wetlands, Wildlife, and Floodplains) has been updated for SRKW (Section 3..6.2.6 and Table 3-102). FEIS Chapter 7 (Preferred Alternative), has been updated with additional analysis information on SRKW and potential increase in forage fish, in particular, Chinook salmon (Section 7.7.8). The Biological Assessment (BA) describes the effect of the Proposed Action on the SRKW forage species (see BA Section 3.5.1.2, Southern Resident Killer Whale). The proposed changes in operation of the Columbia River System include increased spring spill during the downstream migration of juvenile spring and summer run Chinook salmon. The result of this action includes potential increases of juvenile fish passing through the spillways, reductions in juvenile fish direct and indirect mortality associated with downstream passage, and the Comparative Survival Study (CSS) model predicts increases in numbers of returning adults, which will benefit SRKWs foraging in and around the mouth of the Columbia River in winter and spring (See EIS Section 7.7.8). The CSS model results predicts Snake River Chinook salmon would have relative improvements in smolt-to-adult returns of 35 percent (see EIS Section 7.7.4). The smolt-to-adult return ratio (SAR) is the rate at which of a group of fish survive from their smolt life stage to a defined ending point where they return as adults. While recovery targets will require more than just the efforts of federal agencies, the CSS models indicate the potential for SARs of Snake River Chinook salmon and steelhead to increase to levels that could approach recovery targets set by the Northwest Power and Conservation Council. The BA, also consistent with the EIS, acknowledges past improvements to the configuration and operation of the Columbia River System, additional improvements to the environmental baseline as a result of completed estuary and tributary habitat actions, and the prospective non-operational conservation measures proposed in Chapter 2 of the Draft EIS, all contribute towards maintaining and improving Chinook abundance. Relevant conservation measures include, among other things, a commitment to continue funding the conservation and safety net hatchery programs listed in Chapter 2 of the Draft EIS. As discussed above, the agencies will fulfill congressionally authorized hatchery mitigation objectives through the funding of hatchery programs that are operated consistent with their independent hatchery program consultations during the term covered by this consultation. Based on those hatchery program consultations, the production levels associated with congressionally authorized hatchery mitigation objectives will continue, at minimum, to be consistent with levels previously analyzed by NOAA in the system consultations in 2008, 2014, and 2019. For the 2020 ESA consultations, therefore, the agencies expect that collectively, all of the actions described above (substantial modifications to migration conditions designed to benefit key prey species, combined with improvements to Chinook spawning and rearing habitat in the tributaries and Columbia River estuary, and continued hatchery production) ensure that remaining Chinook mortality from all sources in the mainstem migratory corridor will continue to be more than offset, resulting in a net gain in Chinook salmon abundance available as a prey source for SRKW. Finally, the 2019 NMFS Fisheries BiOp included increased spring spill operations that are similar to operations evaluated in CRSO EIS, and NOAA validated that the hatchery production of Chinook salmon mitigates for the impacts of operating the Columbia River System and total mortality through the mainstem migratory corridor from all sources.
32237	11	wildlife.wwu@gmail.com	N/A	(11) Continuity of tribal cultural traditions. All or most tribal elders with personal knowledge and experience of the LSR and other reaches with cultural significance are likely to die within the 25-year EIS assessment period. If the LSRD (and other CRS dams) are not breached, the tribes will lose all living memory of a free-flowing Lower Snake River and cultural association with it. Such a loss would compound prior breaks in cultural continuity caused by government-imposed family separations, language suppression, and banning of cultural practices. The EIS should evaluate anticipated impacts of each alternative on this break in cultural continuity.	The co-leads appreciate your comments and participation in the development of the Draft EIS. The co-lead agencies will continue to consult with the Kootenai Tribe of Idaho throughout this process.
32237	12	wildlife.wwu@gmail.com	N/A	The following seven comments pertain to factors contributing to misleading analysis of DEIS alternatives. (12) The DEIS applies the No Action Alternative as a reference to evaluate effects of the other five alternatives. Because the No Action Alternative was determined to cause unacceptable impacts, it is not an appropriate reference. An alternative could perform unacceptably relative to CRSO objectives, but still represent improved performance relative to the No Action Alternative. The CRSO objectives (refined as described above) provide more relevant and objective standards for evaluating EIS alternatives. Evaluations in the EIS should be revised using the CRSO objectives as baselines.	The co-lead agencies developed the No Action Alternative consistent with regulations implementing NEPA, which allow agencies to use the "status quo" from the time of the Notice of Intent to Prepare the EIS.
32237	13	wildlife.wwu@gmail.com	N/A	(13) Fish modeling: assumptions in the analyses need justification and clarification. Results of LCM and CSS analysis for each alternative depend sensitively on assumptions of latent mortality levels. The values of those levels should be justified, along with plausible evidence that such levels are likely to be realized.	The results of third-party review, both the Corps' Independent Expert Peer Review as well as a recently released ISAB review of the CSS results will be included in the Final EIS. Initial review of the results of the peer review do not indicate fundamental flaws in either the CSS or NMFS approach and both models will continue to frame the potential outcomes associated with all MOs and the Preferred Alternative. Survival estimates from the University of Washington TDG model were not relied on for decision-making purposes but will be used to assess relative exposure indices. Section 3.5 has been updated based on IEPR and ISAB reviews The model results presented in Section 3.5 and Chapter 7 address latent mortality and reservoir mortality. Multiple mechanisms of delayed mortality or 'carryover effects' between experiences in one lifestage influencing survival or physiology in subsequent lifestages (Gosselin et al. 2018). These include transportation related delayed mortality, injuries caused by passing multiple dams via any route, delays caused by reservoir and dam passage, and exposure to toxins. Latent mortality is captured directly in the CSS model for SARs and abundances, and is overlaid with several assumed values (10%, 25% and 50% reductions in latent mortality) in the NMFS Lifecycle model results. Reservoir mortality is captured in the juvenile survival metrics presented in Chapter 3. Delayed mortality in the ocean due to CRS dam passage is discussed throughout the Draft EIS. In their 2007 report the ISAB stated, "The ISAB concludes that the hydrosystem causes some fish to experience latent mortality, but strongly advises against continuing to try to measure absolute latent mortality. Latent mortality relative to a damless reference is not measurable. Instead, the focus should be on the total mortality of in-river migrants and transported fish, which is the critical issue for recovery of listed salmonids. Efforts would be better expended on estimation of processes, such as in-river versus transport mortality that can be measured directly." Gosselin, J. L., Zabel, R. W., Anderson, J. J., Faulkner, J. R., Baptista, A. M., & Sandford, B. P. (2018). Conservation planning for freshwater-marine carryover effects on Chinook salmon survival. Ecology and evolution, 8(1), 319-332.
32237	14	wildlife.wwu@gmail.com	N/A	(14) Water quality: qualitative evaluations of water temperature impacts are not appropriate. Temperature criteria for fish health and survival are quantitative and well understood. Water temperature forecasts are Columbia River System Operations DEIS 13 April 2020 -4- readily available. Given these knowledge resources, it would be inappropriate to jettison quantitative precision in water temperature assessments by using a qualitative approach.	The co-lead agencies agree with your concern relating to water temperatures in the Columbia and Snake rivers and that is why the agencies have used the best available information and resources available to model and evaluate impacts from operations described in each of the alternatives on water temperatures. Water quality analysis completed for this EIS used a combination of numerical models (CE-QUAL W2 and HEC-RAS), past studies and expert knowledge to predict the impacts of the EIS alternatives on water quality. Results were provided to the fish team for incorporation into NMFS COMPASS and CSS modeling and other analysis to evaluate the impacts to anadromous fish. The fish team also used water quality outputs to qualitatively examine effects to fish species based upon known relationships between water temperatures and fish responses specifically for stocks such as sockeye salmon and fall Chinook salmon where quantitative models were not available. In this way, the team was able to discuss effects on time and locality scales that may not be detected by the models.
32237	15	wildlife.wwu@gmail.com	N/A	(15) Assessments of impacts to ESA-listed fish do not account for cumulative impacts of climate change. Failure to include climate change impacts on vulnerable fish populations leads to a false sense of security. Alternatives that provide modest improvements in fish populations actually could lead to extinctions under anticipated climate change. Conversely, stronger mitigation measures than those included in the DEIS are likely to be required to prevent extinctions when CRSO impacts combine with climate change.	Regarding climate change, the climate science community is still developing models that can be used to analyze possible effects to water temperature from climate change and, unfortunately, they have not been fully applied and validated for use with climate affected regulated flow projections of large reservoir systems. Therefore it was not possible to reliably model water temperature changes under climate change for this EIS. In lieu of this information, the climate analysis used the output from the water quality models under historical conditions, climate change data, and scientific literature to qualitatively assess potential effects to water temperature (Section 4.2.3). A full assessment of considerations of climate change and water temperatures are in section 3.4 Water Quality, Chapter 4 Climate, and Chapter 7 of the Preferred Alternative of the analysis.
32237	16	wildlife.wwu@gmail.com	N/A	(16) Many embedded costs of alternatives that retain LSRD are ignored, while costs of LSRD breaching are accounted explicitly. For example, costs of LSRD turbine replacement would be incurred in alternatives that retain LSRD, but those costs are not accounted for. Conversely, costs of turbine replacement would be obviated by breaching, but that cost savings is ignored.	The EIS evaluated benefits and adverse effects across an array of resource areas including potential effects at the national, regional and local level. The EIS does not employ a cost-benefit framework for decision-making. This is because, consistent with NEPA analysis framework (see 40 C.F.R. 1502.23), the beneficial and adverse effects are expressed as a variety of qualitative and quantitative environmental and economic metrics. Furthermore, the EIS evaluates the performance of the CRSO EIS alternatives with respect to multiple stated objectives, for example related to improving fish passage and survival, reliable power generation, and minimizing greenhouse gas emissions. Turbine replacement and other capital requirements to maintain the four lower Snake River projects are included in the cost analysis for the appropriate alternatives, as described in Section 3.19 and Appendix Q (see Section 4.2). Estimated costs for capital and O&M are $107 million annually for the four lower Snake River projects. Under MO3, the Lower Snake River Compensation Plan would no longer be funded, with a cost savings of $34 million. Bonneville's Fish and Wildlife Program costs are systemwide costs. Breaching the lower Snake River dams may result in changes to Bonneville's Fish and Wildlife Program. However, funding decisions for the Fish and Wildlife Program are not being made through the CRSO EIS process. Future budget adjustments would be made in consultation with the region through Bonneville's budget-making processes and other appropriate forums and consistent with existing agreements. For hydropower, the average annual value of the four lower Snake River dams exceeds the average annual equivalent costs. The generation value at the four lower Snake River dams can be described by a range between the cost to replace the generation through new conventional resources or through a portfolio of zero-carbon resources. Although the costs of replacing the power with market purchases was analyzed, it is unlikely that short-term wholesale power markets could reliably replace the power for the long term. This range would put the annual value of power between $240 million and $500 million for the four dams combined. These numbers represent about 90 percent of the lost benefits cited in Table 3-171 of the Draft EIS because the four dams represent about 1,000 aMW of the 1,100 aMW of lost generation estimated in MO3. The average annual cost to operate and maintain all authorized purposes at the four lower Snake River dams is $75 million (Appendix Q, Table 5-1) and the annual-equivalent capital costs are $32 million (Appendix Q, Table 4-1). Hydropower costs funded by Bonneville represent about $50 million of the total annual operations and maintenance costs and nearly all of the annual capital costs, approximately $31 million. This puts the annual-equivalent power-specific costs at approximately $81 million a year. As a result, the net benefits from hydropower for the four lower Snake River dams are between $159 million and $419 million and the benefit-cost ratios are between 3.0 and 6.2. If the $34 million per year for the Lower Snake River Compensation Plan is added to the capital and expense costs, benefits still exceed costs under each replacement power scenario. Considering these costs, the net benefits range from $125 million to $385 million and the benefit-cost ratios range from 2.1 to 4.3.

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					In the less-likely scenario that generation could be reliably replaced with short-term wholesale market purchases and assuming that the four dams represent 90% of the $150 million in market purchases required to replace the lost generation cited in MO3 (see Table 3-170), the lower bound for net benefits would fall to $54 million and the benefit-cost ratio would fall to 1.7. With the Lower Snake River Compensation Plan included, the lower bound for annual net benefits becomes $20 million and the benefit-cost ratio becomes 1.2. From a resource competitiveness perspective, the four lower Snake River dams are among the least costly generating resources in the Federal Columbia River Power System (FCRPS) and the planned investment strategy is expected to maintain that status. As shown in the Federal Hydropower presentation at the 2018 Integrated Program Review1/, the Headwater/Lower Snake Asset Class/2 is forecast to have a 50-year levelized cost of generation/3 of $11.41/MWh based on the direct funded capital and expense (O&M) programs outlined in that process. These costs remain competitive with volatile Mid-Columbia spot market energy prices, which averaged $37/MWh in 2019 and have averaged $21/MWh in 2020. 1/ The Integrated Program Review (IPR) allows interested parties to see and comment on all relevant Federal Columbia River Power System (FCRPS) capital and expense (O&M) spending level estimates in the same forum. The IPR occurs every two years, or just prior to each rate case, and is the public review for the costs that will be recovered through rates the following two-year rate period. Long-term forecasts for the next 50 years and major upcoming projects are also shared in this forum. This information is available here: https://www.bpa.gov/Finance/FinancialPublicProcesses/IPR/2018IPR/IPR%202018%20Fed%20Hydro%20Workshop.pdf and is incorporated by reference into this EIS. 2/ In the 2018 Integrated Program Review, the Headwater/Lower Snake Asset Class consisted of the four lower Snake River dams, Hungry Horse, Libby, and Dworshak dams. These projects were grouped together because they have similar cost characteristics. The Levelized Cost of Generation for the four lower Snake projects alone is slightly lower than that for the whole class including the headwater projects shown in the table. 3/ Levelized Cost of Generation is defined as the forecasted direct costs and administrative overheads of producing power at a plant annualized over a 50-year period. This cost includes direct funded operations, maintenance, administrative and capital costs as well as Columbia River Fish Mitigation (CRFM) costs. Bonneville system-wide mitigation costs, such as its Fish and Wildlife program, are not included in this metric.
32237	17	wildlife.wwu@gmail.com	N/A	(17) Assessments of greenhouse gas emissions ignore methane emissions from reservoirs. This oversight constitutes a bias against MO3, in favor of alternatives that retain the LSRD.	The EIS does include an evaluation of reservoir methane emissions. Appendix G, Chapter 5 of the EIS details the assessment of reservoir methane emissions from the CRS projects. The findings are summarized in Section 3.8. This assessment finds that reservoir characteristics and management substantially influence methane emissions. A 2016 study developed by the Corps' Walla Walla District concluded that for the relatively clean reservoirs of the Federal Columbia River Power System, which include the lower Snake River dams, conditions for low dissolved oxygen concentrations are not prevalent; thus methane gas is generally not an issue. Additionally, in 2017, the Northwest Power and Conservation Council found that data on these sites were insufficient to estimate the reservoir methane emissions specifically for the CRS projects, but that methane emissions at high levels are not likely due to the lower organic and nutrient loads to the system, and higher dissolved oxygen content. The EIS describes that emerging technologies would allow for better measuring and understanding the effects of reservoir methane emissions from CRS projects, including the four lower Snake River dams.
32237	18	wildlife.wwu@gmail.com	N/A	(18) The DEIS limits consideration of cultural resources (section 3.16) to objects and places. No consideration is given to cultural importance of living resources or the role that stewardship of those resources plays in contemporary tribal cultures.	In the Draft EIS, the co-lead agencies used a property-based definition of "cultural resources." This is consistent with Federal laws and regulations, which focus on specific bounded properties. Tribal input, concerns, interests, and especially treaty rights were considered throughout the Draft EIS analyses and in the formulation of the Preferred Alternative. Appendix P includes copies of tribal perspectives that were submitted by tribes and considered by the co-lead agencies. Tribal consultation is described in Sections 1.5, 3.5, and 3.15; and Chapter 9. Most sub-sections within Chapter 3 include a Tribal Interests section at the end of the sub-section that attempts to summarize tribal issues by topic. The co-lead agencies are engaging in government-to-government consultation with the tribes, and several tribes are cooperating agencies on the CRSO EIS.
32237	19	wildlife.wwu@gmail.com	N/A	The following comments concern DEIS recommendations. (18) Since evaluations of the alternatives do not reference performance relative to ESA-mandated restoration of listed fish populations, selection of the Preferred Alternative was premature. Contingent on additional information described above, it appears that all alternatives (except perhaps MO3) do not meet ESA mandates to protect and restore listed fish species. In particular, all alternatives except MO3 would maintain Snake River stocks at 1% to 1.5% of historic abundances, with persistent risk of extinction. In this context, selection of the Preferred Alternative must be reconsidered.	There are many factors that effect salmonid populations that are outside the authority of the co-lead agencies. Both human-caused and natural factors that are outside the responsibility and control of the co-lead federal agencies, also contribute to the decline and recovery of fish, and will continue to strongly influence fish and their habitat. Salmon and steelhead have been adversely affected in the Columbia River Basin over the last century by many activities including human population growth, urbanization, introduction of exotic species, overfishing, development of cities and other land uses in the floodplains, water diversions for all purposes, dams, mining, farming, ranching, logging, hatchery production, predation, ocean conditions, and loss of habitat. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple legal responsibilities, including compliance with Section 7 of the Endangered Species Act. Under Section 7(a)(2) of the ESA, the co-lead agencies must insure that any action authorized, funded, or carried out is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of habitat of such species. The EIS concluded MO3, which includes breaching the four lower Snake River dams would have greater improvement to certain salmon species in the lower Snake River. It did not, however, conclude there was greater certainty of that result in MO3 over any other alternative. Because of delayed response time in MO3, and the potential severity of the short term effects, MO3 would likely have the most substantial uncertainty in terms of beneficial effects. Section 3.5 provides a summary of the fish analysis for the No Action Alternative and four of the multiple objective alternatives. Chapter 7 provides a summary of the fish analysis for the Preferred Alternative. With respect to the Preferred Alternative, the CSS model predicts that average Smolt to Adult return rates would increase for both Snake River spring Chinook and steelhead and will average above 2% (the lower end of the Northwest Power and Conservation Councils recovery targets for the region) as a result of the Preferred Alternative, increasing from 2.0% to 2.7% for Chinook, a 35% relative increase. The NMFS COMPASS and Lifecycle Models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information. Based on the EIS analysis of the Preferred Alternative, it will make a substantial contribution towards recovery targets.
32237	20	wildlife.wwu@gmail.com	N/A	(19) Tribal comments in Appendix P express consistent opposition to CRSO that perpetuate low fish abundances, inundation of cultural sites, and obstruction of cultural practice. The DEIS recommendation of the Preferred Alternative ignores tribal voices, in favor of contemporary hydropower operation.	The co-lead agencies recognize that no matter which alternative in the CRSO Draft EIS is identified as the Preferred Alternative, the identification would likely draw criticism from some stakeholders or sovereigns. The region includes stakeholders, sovereigns, and other interested parties with diverse and varied opinions on these very important topics, and many are strong in the belief that their perspective is the best path forward. The co-lead agencies recognize the desire to continue the conversation across the region about the future of salmon recovery, affordable and reliable clean electricity, tribal perspectives, and economic vitality for the many people who depend on the CRS for their way of life. The co-lead agencies will be active participants in regional discussions and solutions for mitigating the effects of the CRS and achieving broader recovery objectives. Tribal input, concerns, interests, and especially treaty rights were considered throughout the Draft EIS analyses and in the formulation of the Preferred Alternative. Treaty specific information is included in Section 3.17 as well as Chapter 7. The co-lead agencies recognize and respect the legal obligations imposed by treaties. The co-lead agencies accordingly included Protecting Native American treaty and reserved rights and fulfilling trust obligations for natural and cultural resources throughout the environment affected by the Columbia River System operations as a purpose in the Purpose and Need Statement in Chapter 1 to ensure treaty obligations were a key consideration of decision making. The co-lead agencies are engaging in government-to-government consultation with the tribes, and several tribes are cooperating agencies on the CRSO EIS. The EIS recognizes the economic and cultural importance of salmon to Tribes in a number of sections throughout the document. The cultural significance and impacts of salmon and steelhead fisheries are described in the Ceremonial and Subsistence Fisheries sub-section and the Social Importance of Commercial, Ceremonial and Subsistence Fisheries sub-section of Section 3.15.2.1. Fisheries tribal interests are provided in Section 3.15.4 and the economic significance of salmon and steelhead fisheries have been added to the recreation analysis (Section 3.11) including tribal interests (Section 3.11.3.7). Treaty rights are discussed in the Executive Summary, Section 3.16 Cultural Resources, and Section 3.17 Indian Trust Assets, Tribal Perspectives, and Tribal Interests. Appendix P includes copies of tribal perspectives that were submitted by tribes. Tribal consultation is described in Sections 1.5, 3.5, and 3.15; and Chapter 9. Most sub-sections within Chapter 3 include a Tribal Interests section at the end of the sub-section that attempts to summarize tribal issues by topic.
32237	21	wildlife.wwu@gmail.com	N/A	In summary, the DEIS perpetuates a bias toward current operations, without adequate consideration of lessons learned, response to current and anticipated future threats, and tribal voices. I urge you to make revisions to the EIS as described in my comments above.	NEPA requires federal agencies to assess the environmental effects of their proposed actions prior to making decisions. The Draft EIS provides a comprehensive and unbiased analysis of the effects of the No Action Alternative, the Multiple Objective Alternatives, including the Preferred Alternative, while also considering cumulative effects within the basin. Tribal input, concerns, interests, and especially treaty rights were considered throughout the Draft EIS analyses and in the formulation of the Preferred Alternative. Treaty specific information is included in Section 3.17 as well as Chapter 7. The treaties bind all parties and are the supreme law of the land. The co-lead agencies recognize and respect that supremacy. In terms of honoring our treaty obligations, the co-lead agencies included "Protecting Native American treaty and reserved rights and fulfilling trust obligations for natural and cultural resources throughout the environment affected by the Columbia River System operations" as a purpose in the Purpose and Need Statement in Chapter 1 to ensure treaty obligations were a key consideration of decision making.
32262	1	Rodney Cawston	Confederated Tribes of the Colville Reservation	Sec. 1.9.7.3; 1-45, ll. 1303-07 If Grand Coulee Dam (Lake Roosevelt) only has a very weak thermal stratification, it is unclear how this can result in Grand Coulee Dam releasing the coolest water possible during the hot summer months. The statement should emphasize that Lake Roosevelt effectively has a uniform temperature and, as a such, Grand Coulee Dam releases the coolest water in the winter months and warmest water in the summer months, with little opportunity to thermally regulate any portion of the Columbia River anadromous fish migration corridor. As written, the statement is misleading because it suggests that Grand Coulee releases could be used to cool downstream reaches of the river. Rather, because of its near uniform temperature, Grand Coulee cannot be used for temperature mitigation by selectively withdrawing cooler water.	The commenter is correct that effectively the temperatures in the forebay are uniform during the summer months, with little opportunity to thermally regulate releases. Consistent statements are made in Section 3.5 and Appendix D. The statement concerning summer operations releasing the coolest water possible is correct, and does not insinuate more can be done to cool downstream reaches of the river.
32262	2	Rodney Cawston	Confederated Tribes of the Colville Reservation	Sec. 2.4.2.1; 2-22, ll. 726-30 In our comments on the ADEIS (Dec. 24, 2019), we provided the following comment regarding this paragraph: Although it is true that [t]hroughout the year, spill is allocated to the Chief Joseph project as needed to manage TDG on a systemwide basis for the benefit of aquatic species, including ESA-listed species, my comment is that spill in the spring and early summer months negatively affects the Colville Tribal fishery immediately below Chief Joseph Dam. The DEIS should acknowledge that impact. The co-lead agencies responded to the CTCRs comment tracker that Discussion of these effects will be added to Chapter 3. However, we could not find any such discussion. Please identify where this discussion occurs in the DEIS. We also note that this comment was raised early in the process. See Oct. 25, 2016, comment submitted at a scoping meeting by Randy Friedlander, Director of CTCRs Fish and Wildlife Program.	Thank you for the comment. The co-lead agencies have added text to the FEIS in section 3.5.4.1 and to section 7.7.19 to acknowledge this issue.
32262	3	Rodney Cawston	Confederated Tribes of the Colville Reservation	Sec. 3.5.3.1; 3-356 et sea. In our comments on the ADEIS (Dec. 24, 2019), we provided the following comment regarding Section 3.5, lines 11639 and 11653: Suggest consider adopting the CSS Snake River spring/summer Chinook survival, travel time, powerhouse passage values associated with the lower Columbia River projects for UCR Wenatchee spring Chinook abundance to provide CSS estimate. Although not generated with UCR specific data, it would provide a better range of potential benefits incorporating both COMPASS and CSS concepts than simply projecting at 10%, 25% and 50% increase from the NAA. The response of the co-lead agencies was: No Change - data is not available at this time. We understand that our suggestion, which was first made well before we reviewed the ADEIS, may not be possible in the time available. However, considering the favorable reception by agency staff to this idea and the increasing attention that UCR Spring Chinook will receive in the NOAAs BiOp for the Preferred Alternative and other processes due to their imperiled status, we strongly encourage the agencies to commit to developing this proposed approach so the data and methodology is available for future analyses and identify this effort in the EIS as a topic for additional study.	The co-lead agencies will continue to pursue the processes described in this comment into the future. Both CSS and NMFS continue efforts to develop Life Cycle models for stocks from the upper Columbia ESUs and DPS. As noted in the comment, the co-lead agencies were not able to refine the analysis presented in the Draft EIS, however, we feel that NMFS' sensitivity ranges of 10%, 25%, and 50% likely encompass the outcome that would be predicted by CSS models using Snake River stocks and accounting for passage only between McNary Dam and Bonneville Dam as juveniles. Stocks from the upper Columbia ESUs and DPS pass four Federal projects and the duration they are influenced by passage events and CRS operations is shorter than for those stocks emigrating from the Snake River. Because of this, the co-lead agencies expect that any operations that are beneficial to Snake River stocks would also benefit upper Columbia stocks, just to a lesser degree. We appreciate this comment and will continue to work with regional modeling teams to continue to refine Life Cycle modeling efforts for upper Columbia stocks.
32262	4	Rodney Cawston	Confederated Tribes of the Colville Reservation	Sec. 3.7.4; 3-962, ll. 28917-18 The text states that Details of the monetary value are provided in Chapter 4 of Appendix H. As requested by CTCR, no details of the monetary value are actually provided, so it should be changed to Details of the Colville payment are.	The text in the Final EIS has been updated as requested.

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32262	5	Rodney Cawston	Confederated Tribes of the Colville Reservation	Sec. 7.6.4.1; 7-39, ll. 1271-22 We dont think this characterization is entirely correct. Many off-site mitigation efforts mitigate for impacts directly caused by the CRS, but which are unable to mitigate in-kind and in-place. For example, Chief Joseph Hatchery, downstream of Chief Joseph Dam, is partial mitigation for the construction and operation of the CRS, but an anadromous hatchery above the blocked area was not considered at the time of construction as no fish passage (adult or juvenile) existed at Chief Joseph Dam or Grand Coulee Dam. Thus, the hatchery was built downstream from the impact of no passage. For habitat actions, the lower Columbia federal projects kill fish from the UCR, so habitat actions in those basins in the UCR that produce the fish killed at the federal projects are partially mitigating for impacts directly caused by the CRS.	The co-lead agencies consider actions not at the CRS dam and reservoir projects to improve conditions for fish affected by the CRS as offsite mitigation actions. This is consistent with the co-lead obligations under various applicable Federal laws, including the ESA and the Northwest Power Act.
32262	6	Rodney Cawston	Confederated Tribes of the Colville Reservation	Sec. 7.6.4.1.; 7-42; Table 7.5 FRCPS Mitigation Hatcheries - Programmatic It is not clear what FCRPS Mitigation Hatcheries Programmatic means. Does this include continued BPA funding for O&M and M&E actions associated with fish hatcheries attached to the NPCCs Fish and Wildlife Program, including those that support harvest and conservation of nonlisted salmon species? These types of hatcheries should be treated in the Preferred Alternative similar to the LSRCP hatcheries. We note that while the DEIS is geared toward ESA-listed species, the hatcheries funded by the co-lead agencies associated with the LSRCP produce salmon that are not listed but they are included in the DEIS as Measures Included in the Preferred Alternative to Benefit Endangered Species Actlisted Fish that are Being Carried Forward from Previous Commitments by the Co-Lead Agencies. See DEIS at 7-43.	The actions listed in Table 7.5 would be continued with the Preferred Alternative. These actions are described in more detail in the Biological Assessment found in Appendix V, Part 1. Funding decisions for the Bonneville F&W Program are not being made as a part of the CRSO EIS process. However, a range of potential F&W Program costs are included to inform the broader cost analysis for each alternative in the EIS. Future budget adjustments would be made in consultation with the region through Bonneville's budget-making processes and other appropriate forums and consistent with existing agreements.
32262	7	Rodney Cawston	Confederated Tribes of the Colville Reservation	Sec. 7.6.4.1.; 7-42; Table 7.5 Inland Avian Predation Although the co-lead agencies have provided some information to CTCR that indicates that dissuasion efforts regarding inland avian predation will also be included in addition to monitoring identified in Table 7-5, the DEIS still only identifies monitoring. The measure should be changed to include dissuasion and monitoring with a description of the details as to the level of monitoring and dissuasion to be provided so that the reader can better understand the scope of the measure and be able to assess whether or not the actions are sufficient. The level of monitoring and dissuasion provided must be consistent with the level provided by Grant County PUD in recent years.	The Preferred Alternative includes several measures to reduce avian predation including: East Sand Island Caspian tern dissuasion, Double-crested cormorant hazing, and the Inland Avian Predation Management Plan. In addition, water management actions (the Predator Disruption Operations measure) in the John Day reservoir is expected to further reduce avian predation on migrating juvenile fish. The Predator Disruption Operations will mitigate Caspian Tern predation on juvenile salmon and steelhead in the lower Columbia Rivers. The co-lead agencies will continue to work closely with other entities in the region to mitigate impacts from pinniped and avian predators.
32262	8	Rodney Cawston	Confederated Tribes of the Colville Reservation	Sec. 7.6.4.2; 7-44, ll. 1269-74 We have previously recommended that the co-lead agencies define delay for purposes of this provision and specify the regional forum in which it will be discussed, evaluated and decided.	As mentioned in the Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS (Appendix R, Part 2), the co-lead agencies anticipate working collaboratively with regional sovereigns to develop a more detailed adaptive management plan which would include defining the Temporary Extension of Performance Standard Spill Operation measure.
32262	9	Rodney Cawston	Confederated Tribes of the Colville Reservation	Sec. 7.6.4.2; 7-44, l. 1275 There is no mention of Northern Pike. The co-lead agencies should consider another potential invader just upstream: it is just a matter of time before Northern Pike reach the anadromous zone. Mitigation should include development of Northern Pike Species Management Plan and/or Rapid Response Plan for when Northern Pike enter ESA-listed salmon waters in the Columbia River. In addition, the Northern Pikeminnow Management Program (DEIS 7-42, Table 7-5) should be expanded to include Northern Pike. There is currently no mitigation in the EIS for CRS impacts to native resident fish. The CRS created reservoir/lake habitat conducive for nonnative predators like Northern Pike, and the EIS should address this imminent problem facing both salmonids in the anadromous zone and resident native fish species above Chief Joseph Dam.	Line 1275 of the CRSO Draft EIS "Invasive Species Management Plans" refers specifically to invasive aquatic vegetation plans in response to water level changes at Libby reservoir. Regarding northern pike, the co-lead agencies recognize and appreciate the importance of northern pike invasion as a regional issue, and did include analysis where alternative operation, maintenance, and configuration of CRS projects could affect them. An analysis of northern pike invasion in Region B, resident fish noted minor effects to northern pike in the Lake Roosevelt/Chief Joseph Dam area due to a minor change in boat ramp access for ongoing suppression efforts in wet years. In this EIS process the co-lead agencies only develop mitigation for moderate to major effects of the multiple objective alternatives as compared to the No Action Alternative. The assertion that no mitigation is included for resident fish is inaccurate. In most cases, effects to resident fish were either beneficial or minor. Mitigation for the minor resident fish effects is included in the Preferred Alternative as follows: Line 1263: Plant native wetland and riparian vegetation (up to 100 acres) on the Kootenai River downstream of Libby. Line 1281: Spawning habitat augmentation at Lake Roosevelt Line 1330: Bull trout access to perched tributaries in Kootenai River Line 1344: Study offseason surface spill for downstream passage of adult steelhead (and bull trout)
32262	10	Rodney Cawston	Confederated Tribes of the Colville Reservation	Sec. 7.7.1.1; 7-61, l. 1647 The co-lead agencies should indicate how they expect to be able to discern wet years from dry years in January and February when forecasting goes through March.	The modeling uses forecast uncertainty in its evaluation. This process is described in the H&H appendix (Appendix B). The forecasts are perturb so that wet and dry years are both tested with forecasts that are too high and too low. The results of this forecast uncertainty are therefore accounted for in the results.
32262	11	Rodney Cawston	Confederated Tribes of the Colville Reservation	Sec. 7.7.1.1; 7-61, l. 1649 Colville Tribes again encourage co-lead agencies to study this operation and impacts of new operations to determine impacts and mitigate accordingly.	The effects from the modifications to operations at Lake Roosevelt are discussed later in the document. Specifically, effects to resident fish are discussed in Section 7.7.5.2 of the Final EIS. To offset any potential effects to resident fish from the changes in operations, mitigation has been included as part of the Preferred Alternative and is described in Section 7.6.4.2 of the Final EIS under the measure titled Spawning Habitat Augmentation at Lake Roosevelt.
32262	12	Rodney Cawston	Confederated Tribes of the Colville Reservation	Sec. 7.7.5.2; 7-128, l. 3707 Sturgeon are already impacted by current operations (i.e. no recruitment). The co-lead agencies should rephrase this sentence to indicate the real issue and impacts of current operations.	Throughout the document, the analyses of effects of each alternative approach to operations, maintenance, and configuration is compared to the No Action Alternative. Where current operations will continue from the No Action Alternative to the Preferred Alternative, the effects of those operations will continue, including resulting very limited natural recruitment, as is described in Section 3.5.3.3. Ongoing tributary habitat restoration will continue to improve spawning habitat.
32262	13	Rodney Cawston	Confederated Tribes of the Colville Reservation	Sec. 7.7.5.2.; 7-129, l. 3718 The statement should also indicate that entrainment is high in summer when power peaking occurs.	This sentence is comparing levels of entrainment as a result of the Preferred Alternative to that which occurs under the No Action Alternative. The Preferred Alternative would have similar peaking as the No Action Alternative. Effects of the No Action Alternative are described in Section 3.5.3.3. Only effects differing from the No Action Alternative are described in Section 7.7.5.2. Entrainment risk was considered a factor of retention time and outflows, which would be lower than the No Action Alternative is some water year types, as stated in the Draft EIS.
32262	14	Rodney Cawston	Confederated Tribes of the Colville Reservation	Sec. 7.7.5.2.; 7-130, l. 3795 The entrainment study was not species specific. The co-lead agencies should remove the percentage of each species entrained because this is unknown. Please include a citation.	The report referenced (LeCaire 2000) is cited in the No Action Alternative effects analyses and did provide estimates by species based on gill net data that accompanied the hydroacoustics entrainment estimates. The reference was inadvertently not included in this sentence, but is found in Section 3.5.3.3 on page 3-426, line 12134.
32262	15	Rodney Cawston	Confederated Tribes of the Colville Reservation	Sec. 7.7.5.2.; 7-131, ll. 3818-19 This statement is inconsistent with the fall refill objective: if fall refill is the end of October and the start of kokanee spawning is mid to late September, then how would the elevations be above 1283 feet? Additional description or qualification of this statement should be provided.	You are correct, the end of September pool elevation would be below 1283 feet in 40 percent of years. This sentence will be revised. "...but would still be above..." will be replaced with "and in 40 percent of years would be below...".
32262	16	Rodney Cawston	Confederated Tribes of the Colville Reservation	Sec. 7.7.5.2; 7-133, l. 3889 Summer power peaking is another source of entrainment that should be identified here.	Agreed that summer power peaking could be identified as another mechanism of increased entrainment in summer, but peaking would be the same under the Preferred Alternative as under the No Action Alternative (as described in Section 3.5.3.3). Where effects were consistent between the No Action Alternative and the Preferred Alternative, they were not discussed in the referenced section.
32262	17	Rodney Cawston	Confederated Tribes of the Colville Reservation	Sec. 7.8.5.; 7-201, l. 5848 Increased temperature also impacts spawning and access to spawning habitat.	The co-lead agencies agree that increased temperatures due to climate change could affect spawning and access to spawning habitat for resident fish.
32262	18	Rodney Cawston	Confederated Tribes of the Colville Reservation	Sec. 7.7.13.1; 7-182, ll. 5337-38 DEIS states recreation changes at Grand Coulee and Chief Joseph are negligible compared to the No Action Alternative. This seems nave in light of BOR, NPS and CTCR efforts to enhance recreational access to Lake Roosevelt, including camping and boating improvements. CTCR also desires extending existing boat ramps as part of the socio-economic considerations caused by reservoir drawdowns. The result is likely to be a drastic increase of recreation on an annual basis. Whether or not it is an ongoing impact, by accepting the Preferred Alternative, increased recreation usage is perpetuated, which constitutes a direct, indirect and cumulative impact, particularly with respect to cultural resources. The connection between increased recreation at these reservoirs and impacts to cultural resources should be mentioned and evaluated.	Section 7.7.13 describes the changes in water-based recreational visitation and access affected by water-surface elevations under the Preferred Alternative when compared to the No Action Alternative. Changes in water surface elevations in Region B at Lake Roosevelt (Grand Coulee Dam) are very small with small increases in May and June and decreases in September and October, with very small changes to water-based visitation overall under the Preferred Alternative compared to the No Action Alternative. Recreation at other reservoirs would not be affected by changes in water surface elevations under the Preferred Alternative as compared to the No Action Alternative; in other words, there are no differences between the two alternatives. Visitation in 2017 and 2018 is assumed to represent visitation in future years under the No Action Alternative, which is supported by recent visitation trends at Lake Roosevelt and communications with recreation managers. Visitation data at Lake Roosevelt where NPS data is available back to 1941has been relatively flat over recent decades despite growth in population and changes in other factors. Based on this evidence, in concert with input from recreation managers at the Corps and uncertainty about future changes to other factors that affect recreation, current visitation is assumed to continue in future years under the No Action Alternative. Section 3.16 describes the impacts to cultural resources associated with the alternatives, including impacts to archaeological resources, traditional cultural properties, elements of the built environment, and sacred sites. Mitigation proposed under each of the alternatives is described in Chapter 5 and in Section 7.6.4.2, including extension of the Inchelium-Gifford Ferry ramp. The co-lead agencies do not have the authority to provide recreation mitigation for the effects to private infrastructure such as boat ramps or docks.
32262	19	Rodney Cawston	Confederated Tribes of the Colville Reservation	Sec. 7.7.13.1; 7- 187; Table 7-45 For Region B, it is CTCRs sense that boat-based visits to the area are increasing far more than 0.1% per year. With ever-increasing fishing in both Lake Rufus Woods and Lake Roosevelt, the co-lead agencies should conduct a long-term trend analysis to substantiate any statements about changes in boat-based visits. Data from NPS, CTCR, the Spokane Tribe, BOR and the Corps should be used to model such changes.	Table 7-45 in Chapter 7 (Section 7.7.13.1) of the Draft EIS describes the difference in visitation, social welfare, regional economic effects, and social effects for the Preferred Alternative compared to the No Action Alternative. In Region C at Lake Roosevelt, water levels would be slightly higher under the Preferred Alternative than under the No Action Alternative in a typical year, with a resulting small increase in visitation, social welfare, and regional economic effects. Visitation in 2017 and 2018 is assumed to represent visitation in future years under the No Action Alternative, which is supported by recent visitation trends at Lake Roosevelt and communications with recreation managers. Visitation data at Lake Roosevelt where NPS data is available back to 1941has been relatively flat over recent decades despite growth in population and changes in other factors. Based on this evidence, in concert with input from recreation managers at the Corps and uncertainty about future changes to other factors that affect recreation, current visitation is assumed to continue in future years under the No Action Alternative.
32262	20	Rodney Cawston	Confederated Tribes of the	Sec. 7.7.18.1; 7-191, ll. 5525-26 The co-lead agencies assertion that the Preferred Alternative would not result in any major increases in the acre-days exposure of archaeological resources must be balanced with the above comment above regardingchanges in recreational use of the Lake Roosevelt and Lake Rufus Woods area, which is increasing greatly. Rather than acre-day exposure of archaeological resources, the formula should instead reflect	Based on the analysis of recreation conducted in Section 7.7.13 in the Draft EIS, the differences in recreation between the No Action Alternative and the Preferred Alternative are expected to be negligible. Therefore, for the analysis conducted as a part of this Draft EIS, the co-lead agencies do not foresee a concomitant increase in impacts to archaeological resources. The best available information does not substantiate the commenter's assumption of a 1:1 ratio between an increase in visitation at these reservoirs and an increase in damage to archaeological resources.

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			Colville Reservation	increases in the acre-days exposure multiplied by the increase in visitation to cultural resources. The DEIS does not appear to reflect the intensity of exposure of archaeological resources, and should be changed to include this information.	
32262	21	Rodney Cawston	Confederated Tribes of the Colville Reservation	Sec. 7.7.18.1; 7-191, ll. 5537-38 There are ample publications on erosion and landslide predictions, and multiple years of aerial photographs to construct a model of loss of shoreline historically, and then extrapolate ongoing rates. In the end, the banks will erode all sediment back to bedrock, as predicted by Kiver and Stradling over two decades ago. By displaying the change in rate of erosion relative to the No Action Alternative, this analysis circumvents the 'System Operation Review' concept.	The Kiver & Stradling study summarized erosion between 1942 and 1995 without any attempt to correlate erosion to specific operations, and the study would not support the kind of analysis (i.e., extrapolating rates of erosion), as suggested by the commenter. The EIS examines the differences between the No Action Alternative and the Multiple Objective alternatives. The EIS does not compare current conditions to conditions that were in place at the time of the System Operations Review.
32262	22	Rodney Cawston	Confederated Tribes of the Colville Reservation	Sec. 7.7.19; 7-195, ll. 5669-63 The assertion that trust lands identified during the geospatial database query and tribal outreach are located outside of any direct or indirect effects identified in the alternatives is flat-out incorrect. There are thousands of acres within the zone of direct effects on the Colville Reservation from River Miles 545 (the Chief Joseph tailrace) to 689 (the northern Colville Reservation Boundary). There are also several trust holdings in the former North Half of the Colville Reservation that are in the zone of direct effects zone, almost to the Canadian border.	The co-lead agencies requested the CTCR identify those trust lands within the study area. The Tribe provided geographical information system data that identified lands of various status. This information was incorporated into the EIS in Section 3.17.1.1.
32262	23	Rodney Cawston	Confederated Tribes of the Colville Reservation	Appx G; G-5-1; Table 1-1 Table1-1 should include methane. Sources that have water quality standards for compounds created by dams needs to be added to the table, such as the elevation of particulate matter in the drawdown zones when winds blow the sand and dust into the air.	Appendix G, Chapter 5 in the Draft EIS includes a literature review and analysis of reservoir methane emissions. Additionally, Section 3.8.3 evaluates the effects of the alternatives on windblown dust and particulate matter associated with exposed sediment from reservoir drawdown. There is no Table 1-1 in Appendix G, so this response focuses on where the information on methane is contained in the main body of the EIS and Appendix G.
32262	24	Rodney Cawston	Confederated Tribes of the Colville Reservation	Appx G; G-5-1, l. 82; Table 1-2 Lake Roosevelt also has elevated metals including heavy metals from Teck Cominco that can alter the product of oxidation/reduction reactions.	The comment is consistent with the analysis in the EIS. As discussed in Appendix D, Lake Roosevelt sediments are polluted from metals mining and smelting operations. From 1896 to 1995, smelting waste products (primarily slag and wastewater) were discharged into the Columbia River a few miles north of the U.S.-Canada border, introducing zinc, mercury, arsenic, lead, and other metals and contaminants into the lake. Contaminated smelting wastewater continues to be discharged into the river. Some metals have bioaccumulated through the food chain of plants and animals in and surrounding the lake, with the greatest levels of bioaccumulation occurring closest to the location of smelting operations. Movement of slag, wastewater, and sediments that have been contaminated is unclear. However, elevated surface water metal concentrations associated with wastewater releases have been reported near Grand Coulee Dam. Additionally, during high flow events, the surface waters of downstream Rufus Woods Lake can have elevated levels of zinc, suggesting that flow events can facilitate downstream movement of smelting wastewater contaminants. Sediment in Rufus Woods Lake contains elevated levels of metals such as zinc, lead, mercury, and cadmium. Elevated concentrations of metals can bioaccumulate, and if concentrations are very high, can kill aquatic organisms, and fish consumption advisories are made when levels of contaminants in fish tissue render their consumption a health hazard. Mobilization and exposure of contaminated bed sediments is affected by Lake Roosevelt drawdown depths and durations.
32262	25	Rodney Cawston	Confederated Tribes of the Colville Reservation	Appx G; G-5-5, ll. 304-14 References to the importance of assessing reservoirs for the production of methane are provided yet those reservoirs that have high potential for methane production are not assessed. We appreciate the addition of a section on methane production at dams.	The EIS does include an evaluation of reservoir methane emissions. Appendix G, Chapter 5 of the EIS details the assessment of reservoir methane emissions from the CRS projects. The findings are summarized in Section 3.8. This assessment finds that reservoir characteristics and management substantially influence methane emissions. A 2016 study developed by the Corps' Walla Walla District concluded that for the relatively clean reservoirs of the Federal Columbia River Power System, which include the lower Snake River dams, conditions for low dissolved oxygen concentrations are not prevalent; thus methane gas is generally not an issue. Additionally, in 2017, the Northwest Power and Conservation Council found that data on these sites were insufficient to estimate the reservoir methane emissions specifically for the Columbia River System, but that methane emissions at high levels are not likely due to the lower organic and nutrient loads to the system, and higher dissolved oxygen content. The EIS describes that emerging technologies would allow for better measuring and understanding the effects of reservoir methane emissions from CRS projects, including the four lower Snake River dams.
32262	26	Rodney Cawston	Confederated Tribes of the Colville Reservation	Appx G; G-5-9, ll. 464-66 While this may be true of free-flowing sections of the Columbia River, the DEIS should also describe how methane production will be occurring in shallow flats of reservoirs behind dams where retention time can be longer (LR average retention time is 45 days). The lower reaches of the Columbia River in recent years are heating to lethal or near lethal temperatures for salmonids during the summer months, significantly impacting returning adults and continuing to impact the number or out-migrating juvenile and adult returns for several years. Reservoir flats are often located in large coves encompassing acres of land where water is shallow and have long periods of drawdown that expose the lakebed and allow terrestrial grasses to grow. These shallow areas warm up quickly once inundated. Statements about the entire Columbia River do not assess the areas where annual growth of terrestrial vegetation occurs and decomposition releases methane, and a more thorough evaluation should be included.	The EIS does include an evaluation of reservoir methane emissions. Appendix G, Chapter 5 of the Draft EIS details the assessment of reservoir methane emissions from the CRS projects. The findings are summarized in Section 3.8. This assessment finds that reservoir characteristics and management substantially influence methane emissions. A 2016 study developed by the Corps' Walla Walla District concluded that for the relatively clean reservoirs of the Federal Columbia River Power System, which include the lower Snake River dams, conditions for low dissolved oxygen concentrations are not prevalent; thus methane gas is generally not an issue. Additionally, in 2017, the Northwest Power and Conservation Council found that data on these sites were insufficient to estimate the reservoir methane emissions specifically for the Columbia River System, but that methane emissions at high levels are not likely due to the lower organic and nutrient loads to the system, and higher dissolved oxygen content. The EIS describes that emerging technologies would allow for better measuring and understanding the effects of reservoir methane emissions from CRS projects, including the four lower Snake River dams.
32262	27	Rodney Cawston	Confederated Tribes of the Colville Reservation	Appx G; G-5-13, l. 600; Table 5-3 Please clarify where the Sample site Lake Roosevelt behind Grand Coulee Dam is located. The reservoir is 150 miles long, so a specific location would be helpful. We would expect very different results depending on whether the location was directly behind the dam in the water column or in a shallow cove area.	The comment is referring to a study from 2004 titled "Greenhouse Gas Emissions from Reservoirs of the Western United States" which was evaluated in the EIS, see Chapter 5 of Appendix G. The study evaluated four different Lake Roosevelt sample sites in September 2001, accounting for variation in water depth and proximity to the dam. The location of the four sampling sites described in the study are: 4754N; 11846W at a depth of 45m 4756N; 11849W at a depth of 7m 4756N; 11858W at a depth of 106m 4757N; 11855W at a depth of 17m Additional details on the sampling and analysis can be found in the article at: https://agupubs.onlinelibrary.wiley.com/doi/full/10.1029/2003GB002197.
32262	28	Rodney Cawston	Confederated Tribes of the Colville Reservation	Appx G; G-5-15-19, ll. 642-46, 788-90 Grand Coulee experiences deep drafts during seasonal FRM operations. Again, it appears that the DEIS ignores this part of the Basin. The DEIS states that the age and frequent fluctuation of the reservoirs decreases the organic matter available to produce methane annually. However, the deep drawdowns for FRM at Grand Coulee expose large areas that support the growth of terrestrial gasses, supplying fresh organic matter. The DEIS states that Unfortunately, due to time and resource constraints, a full suite of scientific data collection and analyses is simply not feasible at this time. Data and knowledge gaps imperative to quantifying CH4 emissions from hydroelectric reservoirs in the Columbia River basin and determining their contribution to the global carbon budget are detailed below. The co-lead agencies have done extensive literary research but you conclude on lines 788-790 that The major knowledge gaps listed above need to be filled by future research to better understand CH4 production overall and to better estimate regional and global carbon budgets. The subjects and locations of this future research, including the effects of climate change, should be specified in the DEIS. After acknowledging the major data gaps the DEIS concludes on line 822 that the methane contribution from CR dam reservoirs is relatively minor. It is not clear whether this is a valid conclusion based on the available data. Again, we urge the agencies to conduct studies of the CRS contributions to methane production to address this important aspect of the CRS impacts and inform the development of mitigation measures. The importance of additional information and analysis on this topic is underscored by its relationship to the DEIS analysis of climate change impacts and the agencies emphasis on the CRS as a source of low-carbon source of power.	Appendix G, Chapter 5 of the EIS details the assessment of reservoir methane emissions from the CRS dam and reservoir projects. While the assessment acknowledges uncertainty related to the level of methane emissions across the CRS project reservoirs, it relies on the highest quality information to evaluate the potential impacts of the alternatives. Specifically, a 2017 Northwest Power and Conservation Council evaluation of available information found that data on these sites were insufficient to estimate the reservoir methane emissions specifically for the CRS, but described that methane emissions at high levels are not likely due to the lower organic and nutrient loads to the system, and higher dissolved oxygen content. The EIS describes that emerging technologies would allow for better measuring and understanding the effects of reservoir methane emissions from CRS projects, including the four lower Snake River dams. Additionally, as the commenter requests, the Corps' Walla Walla District conducted a study in 2016, which concluded that for the relatively clean reservoirs of the Federal Columbia River Power System, which include the lower Snake River dams, conditions for low dissolved oxygen concentrations are not prevalent; thus methane gas is generally not an issue.
32262	29	Rodney Cawston	Confederated Tribes of the Colville Reservation	Appx I; I-1-4, ll.903-11 This section discusses the elevation of TDG caused by lack of power demand, high stream flows with lack of turbine capacity. There is no discussion about the TDG created at Grand Coulee when Lake Roosevelt elevation is below 1265 and the slip tubes on the face of the dam are used to spill whatever cannot be used for generation, driving TDG to very high levels in Lake Rufus Woods (RW). The Tribes raise trout in our net pens at the Pacific Aquaculture (PAI) Facility about 20 miles below Grand Coulee. Significant losses have occurred several times at this facility. The Tribes have often have been forced to release these fish early into RW and forego planned releases to lakes and streams across the Reservation Because it is thought that some will survive the high TDG levels.	The spill appendix B 4.18.7, discusses how TDG is attempted to be minimized when Grand Coulee is below 1265': Flows at Grand Coulee typically get high enough to induce force spill between May and July. There are two general routes to spill water past Grand Coulee, the regulating outlets on the face of the dam (40 total, 2 rows of 20) or over the 11 drum gates. If the forebay elevation is above 1,266 feet (NGVD29), Reclamation releases the water evenly across the 11 spillway gates. If water is released through the outlets, when the pool elevation is below 1,266 feet, then it is released evenly through the upper and lower gates. An over/under spill pattern for the outlets is used to minimize TDG generation. This impact is also discussed in Appendix D and E as well. The co-lead agencies acknowledge the elevated TDG generated when spilling through the ROs in Appendix D, Water Quality, and in Appendix E (see quoted text from Table 3-75). Entrainment: Flows affect entrainment but do not have it quantified. Could also be similar effect entraining food similar to kokanee tab in Lake Roosevelt. Fish typically spawn on shorelines. Few tributaries. Lake elevations typically stable during day but wide fluctuations at night.
32262	30	Rodney Cawston	Confederated Tribes of the Colville Reservation	Appx I; I-4-7, ll.1124-1126 Short discussion on irrigation water pumped to Banks Lake states that irrigation water can be returned to Lake Roosevelt. This is contrary to our understanding that irrigation water is not returned and should be explained more fully.	The primary purpose of pumping from Lake Roosevelt is for irrigation purposes; However, the John W. Keyes Pump Generating Station also has pump generators that allow targeting opportunities to generate power. The language in Appendix I has been updated to provide clarity.
32262	31	Rodney Cawston	Confederated Tribes of the Colville Reservation	Appx I; I-4-11; ll. 1133-42 This section discusses meeting flows below Priest Rapids Dam but doesnt discuss the flows supported by Grand Coulee to meet the chum elevation of 11.3-12.5 below BON from October through April emergence. This action often results in leaving Lake Roosevelt elevation below the end of March FRM elevation often by several feet. This also can leave us below the April 15th and April 30th FRM elevation. Inflows are then used to refill Lake Roosevelt rather than having that water available for the spring migration. Very little if any concern is brought to the table about impacts to Mid-Columbia salmon species migration.	The analysis does acknowledge that in some years, chum flows may be in conflict with spring flow objectives. This is mentioned in Chapter 3 [Section 3.5 about Chum Survival]. Additionally, in Chapter 7 (Table 7-5 in the Draft EIS), the EIS also acknowledges that the operations to support chum flows will continue to be coordinated through the regional forum, specifically the Technical Management Team. Details about how Grand Coulee Dam operates to no lower than 10 feet below the VDL to support chum in the winter through the spring can be found in Appendix B, Section 4.7.3 Chum Spawning and Incubation.
32262	32	Rodney Cawston	Confederated Tribes of the Colville Reservation	Appx J; J-xi, l.301; J-5-1, l.3142 Mentions a document called the P&T Socioeconomic Appendix. Per phone call with Birgit Koehler, she said this is actually Appendix H. All applicable references in Appendix J should be revised accordingly.	The comment is accurate that the name of the appropriate appendix is Appendix H, Power and Transmission. The Final EIS corrects this reference.
32262	33	Rodney Cawston	Confederated Tribes of the Colville Reservation	Appx M, M-8-5, ll. 1577-79; Table 8-5 There appears to be an error in Region B Lake Roosevelt, which states local income is $1,000 and Non-local $7,000 for a total of $8,000 not $7,000. The total weighted numbers are useless and should be removed. Impact to Recreation in Region B (Lake Roosevelt) - States decrease in boat ramp access would negatively impact recreation by 6% in high water years and 24% in low water years. This is counter-intuitive to our sense that there is more impact in high water years when deep drawdown prevents access to the water often from February through mid to the end of June.	The discrepancy in the figures is a result of a rounding error. The unrounded numbers are $6,634 (non-local), $831 (local), and $7,465 (total). Rounding to nearest thousand, these become $7,000, $1,000, and $7,000. A footnote has been added to all tables in the appendix, where relevant, to say The summation of local and non-local results may not equal the total result reported due to rounding. The total weighted numbers present results for the entire basin (i.e., across all four CRSO regions, which some readers may find useful. The recreation evaluation considers typical water years (50th percentile), low water years (75th percent), and high water years (25th percent). The impacts associated with low water years are compared for the action alternatives compared to the No Action Alternative. For example, the comparison is between a high water year under MO4 to a high water year under the No Action Alternative (and likewise for a low water year). A change has been made under MO4 (Section 3.11.3.6): In a high-water year (i.e., 25th percentile) under MO4, water-based visitation would decrease by over 6 percent relative to a high-water year under the No Action Alternative. (i.e., similar to a typical year) while in the a low-water year (i.e., 75th percent) under MO4, water-based visitation would decrease by over 24 percent relative to a low-water year under the No Action Alternative (a major adverse effect), or about 175,000 visits."

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32262	34	Rodney Cawston	Confederated Tribes of the Colville Reservation	We are doing so under the extraordinary circumstances of the COVID-19 pandemic, which has led the Colville Business Council to institute a partial shutdown of the tribal government and required our elected leaders, staff, and attorneys reviewing the CRSO DEIS issue to greatly restrict their movements under Governor Jay Inslees Stay Home, Stay Healthy order. Despite the unprecedented situation in which we are attempting to comment on a document that is over 8,000 pages in length, CTCRs request to extend the 45-day comment period the minimum required by law by a reasonable 60 days was rejected. We sincerely hope that the co-lead agencies will be more open-minded about the limited comments we have been able to prepare in the time available than they were about ensuring CTCR and other interested parties and members of the public had a meaningful opportunity to review and evaluate the DEIS on this critically important topic during this challenging time.	The co-lead agencies considered requests to extend the public comment period. This NEPA process included a wide array of cooperating agencies whose close involvement throughout the process allowed the co-lead agencies to incorporate feedback. Given the broad range of comments received to date and the extensive Federal and non-Federal participation in the overall process as well as the level of public engagement in the six virtual public meetings in the region, the co-lead agencies determined that an extension was not warranted and that the 45-day public comment period was adequate consistent with NEPA regulations. The CRSO EIS website notified the public on April 9, that they should plan to submit comments by the close of the comment period. The co-lead agencies appreciate the comments CTCR was able to submit.
32262	35	Rodney Cawston	Confederated Tribes of the Colville Reservation	II. The CRSO EIS Must Include a Detailed Analysis of Fish Passage and Reintroduction In every letter and government-to-government meeting during the long EIS process, Colville has emphasized its singular priority of achieving fish passage and reintroduction of anadromous salmon above Chief Joseph and Grand Coulee Dams and the need for the co-lead agencies to include a detailed analysis of this measure in the CRSO EIS. As we explained in our July 6, 2018, letter to the co-lead agencies, evaluation and inclusion of a fish passage and reintroduction measure in the EIS is feasible given the availability of a significant amount of information about fish passage and reintroduction at these two dams and at high-head dams in general. Furthermore, evaluation and inclusion of this centrally important measure is necessary to ensure a legally sufficient EIS and would be a significant step toward addressing the historically inadequate mitigation of the upper Columbia and upholding the agencies trust responsibility to CTCR and other tribes in the Basin. Inclusion of fish passage and reintroduction above Chief Joseph and Grand Coulee Dams is not the impossible-sounding task that the co-lead agencies make it out to be. See DEIS at 2- 79. Rather, as our previous comments have outlined, it would begin with recognition and incorporation of the Northwest Power and Conservation Councils (NPCCs) 2014 Fish and Wildlife Program measure regarding fish passage and reintroduction of salmon in the blocked areas of the upper Columbia and fully funding the phased investigation approach set out therein. See Attachment 2.2 In that measure, the NPCC outlined a phased approach to investigating fish passage and reintroduction that would include habitat assessment, pilot reintroductions and other studies to develop the information necessary to inform a stepwise evaluation process and, ultimately, a decision whether to implement full-scale passage and reintroduction. Significant work on the Fish and Wildlife Program measure has been accomplished by CTCR, the Spokane Tribe of Indians, the Upper Columbia United Tribes (UCUT), and other entities; much of theinformation generated has been available to the co-lead agencies since the early stages of the EIS process. Key studies include an assessment of available habitat above the dams, an evaluation of the risk to resident fish and other resources in the blocked area of reintroducing anadromous fish, and a review of fish passage projects at high head dams.3 Relying on this information, analyses using a lifecycle model, and other studies, UCUT prepared a Phase 1 Report in May 2019.4 The Phase 1 Report synthesizes and evaluates the available information regarding fish passage and reintroduction in the blocked area and concludes that it is feasible. At the request of the NPCC, the Independent Scientific Advisory Board (ISAB) conducted a thorough review of the Phase 1 Report and concluded that it provides significant information about fundamental issues and management alternatives as this important effort moves forward.5 Collectively, the available scientific information provides a strong foundation for the co-lead agencies to evaluate a phased investigation of fish passage and reintroduction and include it as a measure in the EIS.	Measures to reintroduce salmon above Chief Joseph and Grand Coulee dams were evaluated early in the alternative development process but eliminated from further consideration. Reintroduction is an important, complex, large-scale concept. Its consideration, evaluation, and implementation should involve multiple tribal, federal, state, and other entities. A coordinated approach among water users, tribes, states, multiple federal agencies, and others would be necessary. To allow so many differing interests to coordinate on such a complex topic, which may include international considerations, a decision-making framework and a series of regional workshops would be necessary just to approach the first step of defining reintroduction objectives. Given the incompatibility of such a wildlife management decision-making framework with an analysis of the operation of the CRS, it is not feasible to proceed with a detailed consideration of reintroduction in this EIS. Moreover, to meaningfully analyze reintroduction as a measure, the details of the proposal would need to be understood well enough to include in hydrologic, water quality, and fish models. That information is not presently available, and development of those details was not possible in the timeframe of this NEPA process. Nevertheless, the agencies and interested regional sovereigns are developing a framework to address critical information gaps. This effort was initiated on June 23, 2020 when the co-lead agencies participated in a discussion with regional sovereigns concerning fish management in blocked areas.
32262	36	Rodney Cawston	Confederated Tribes of the Colville Reservation	By failing to give serious consideration to fish passage and reintroduction, see DEIS at 2-79, the co-lead agencies invite serious questions about whether their four-year effort to update and evaluate the management of the CRS for the first time in 25 years is consistent with NEPAs broad mandate to fully evaluate environmental impacts and inform agency decisionmaking. A close examination of the purpose and need statement of the EIS demonstrates that fish passage and reintroduction in the upper Columbia is responsive to the co-lead agencies reasons for preparing the document. The statement specifies the co-lead agencies need to review and update the management of the CRS, including evaluating measures to avoid, offset, or minimize impacts to resources affected by managing the CRS in the context of new information and changed conditions in the Columbia River Basin. DEIS at 1-4. This is entirely consistent with including and fully evaluating anadromous fish passage and introduction in the EIS because it would meet the agencies need to update the management of the CRS in light of new information about managing fish passage in the Basin and would offset impacts to anadromous salmonids from current CRS management, which does not provide for passage at Chief Joseph or Grand Coulee Dams despite recent advances in fish passage technology. Evaluating fish passage and reintroduction in the upper Columbia blocked area through a measure providing for a phased investigation would also assist the co-lead agencies in meeting their resource purpose of [p]rovid[ing] for the conservation of fish and wildlife resources and protect[ing] and preserv[ing] cultural resources. DEIS at 1-4. Moreover, it would meet the legal and institutional purpose in the EIS of [c]omply[ing] with environmental laws and regulations . . . including those specifically addressing the CRS such as requirements under the Northwest Power Act to adequately protect, mitigate, and enhance fish and wildlife, including related spawning grounds and habitat, affected by such projects or facilities in a manner that provides equitable treatment for such fish and wildlife with the other purposes for which such system and facilities are managed and operated. DEIS at 1-5 (quoting 16 U.S.C. 839b(h)(II)(A)). Indeed, by taking a hard look at fish passage and reintroduction in the manner outlined by the 2014 Fish and Wildlife Programs phased investigation measure and including it in the Preferred Alternative, the co-lead agencies would be following Congresss mitigation mandate under the Northwest Power Act6 and the federal district courts call for the agencies to develop and consider new and innovative solutions for a System . . . that cries out for a new approach and for new thinking. Natl Wildlife Fedn, 184 F. Supp. 3d at 876. Finally, inclusion of a fish passage and reintroduction measure would be consistent with the co-lead agencies purpose of [p]rotect[ing] Native American treaty and reserved rights and fulfill[ing] trust obligations to CTCR and other tribes that would experience tremendous cultural and subsistence benefits from the return of anadromous salmonids above Grand Coulee Dam. DEIS at 1-5.	Measures to reintroduce salmon above Chief Joseph and Grand Coulee dams were evaluated early in the alternative development process but eliminated from further consideration. Reintroduction is an important, complex, large-scale concept. Its consideration, evaluation, and implementation should involve multiple tribal, federal, state, and other entities. A coordinated approach among water users, tribes, states, multiple federal agencies, and others would be necessary. To allow so many differing interests to coordinate on such a complex topic, which may include international considerations, a decision-making framework and a series of regional workshops would be necessary just to approach the first step of defining reintroduction objectives. Given the incompatibility of such a wildlife management decision-making framework with an analysis of the operation of the CRS, it is not feasible to proceed with a detailed consideration of reintroduction in this EIS. Moreover, to meaningfully analyze reintroduction as a measure, the details of the proposal would need to be understood well enough to include in hydrologic, water quality, and fish models. That information is not presently available, and development of those details was not possible in the timeframe of this NEPA process. Nevertheless, the agencies and interested regional sovereigns are developing a framework to address critical information gaps. This effort was initiated on June 23, 2020 when the co-lead agencies participated in a discussion with regional sovereigns concerning fish management in blocked areas.
32262	37	Rodney Cawston	Confederated Tribes of the Colville Reservation	Inclusion of fish passage and reintroduction would also be responsive to Colvilles repeated expression of concern that the co-lead agencies have placed greater emphasis on developing measures to mitigate impacts of the CRS in the lower Columbia River and lower Snake River than in the upper Columbia.7 As it stands, the DEIS perpetuates these inequities by including a thorough evaluation of breaching the four lower Snake River dams as the focal point of one alternative and numerous measures (both structural and operational) in the Preferred Alternative that are intended to improve passage for salmon, steelhead and lamprey, while providing a single paragraph purporting to justify the decision not to analyze in detail fish passage at two dams where current management allows zero percent passage. See DEIS at 2-79. However, CTCR hopes it is not too late to significantly alleviate this continuing injustice and that the agencies will do so in the Final EIS by fully evaluating passage and reintroduction in the upper Columbia as outlined above.	Measures to reintroduce salmon above Chief Joseph and Grand Coulee dams were evaluated early in the alternative development process but eliminated from further consideration. Reintroduction is an important, complex, large-scale concept. Its consideration, evaluation, and implementation should involve multiple tribal, federal, state, and other entities. A coordinated approach among water users, tribes, states, multiple federal agencies, and others would be necessary. To allow so many differing interests to coordinate on such a complex topic, which may include international considerations, a decision-making framework and a series of regional workshops would be necessary just to approach the first step of defining reintroduction objectives. Given the incompatibility of such a wildlife management decision-making framework with an analysis of the operation of the CRS, it is not feasible to proceed with a detailed consideration of reintroduction in this EIS. Moreover, to meaningfully analyze reintroduction as a measure, the details of the proposal would need to be understood well enough to include in hydrologic, water quality, and fish models. That information is not presently available, and development of those details was not possible in the timeframe of this NEPA process. Nevertheless, the agencies and interested regional sovereigns are developing a framework to address critical information gaps. This effort was initiated on June 23, 2020 when the co-lead agencies participated in a discussion with regional sovereigns concerning fish management in blocked areas.
32262	38	Rodney Cawston	Confederated Tribes of the Colville Reservation	Finally, we briefly respond to the agencies explanation of their decision not to give serious consideration to fish passage and reintroduction in the EIS. This purported rationale amounts to the following: its too big, too complex, and too controversial, and there is not enough time. See DEIS at 2-79; Executive Summary at 13-14. Yet nowhere do the agencies acknowledge the significant information developed by CTCR and others under the NPCCs phased investigation or show that they have evaluated it in a meaningful way. This measure in the 2014 Fish and Wildlife Program provides a feasible approach to investigating and achieving fish passage and reintroduction in the upper Columbia and is subject to the agencies legal obligations under the Northwest Power Act. See, e.g., 16 U.S.C. 839b(h)(11)(A). Yet the agencies never mention it in their brief rejection of fish passage as a potential measure in the EIS alternatives.8 This glaring omission is indicative of the dismissive approach the agencies have taken for years on this issue despite Colvilles and other entities persistent efforts to explain its importance and secure agency support. The claim that fish passage is too complex and that too many data gaps preclude its evaluation in the EIS is belied by the extraordinarily complicated modeling and biological and economic analyses of the impacts to salmon and other resources from management of the CRS that are the foundation of the DEIS.9 Elsewhere, fish passage at dams where no passage currently exists has been evaluated and the benefits to salmon estimated.	Measures to reintroduce salmon above Chief Joseph and Grand Coulee dams were evaluated early in the alternative development process but eliminated from further consideration. Reintroduction is an important, complex, large-scale concept. Its consideration, evaluation, and implementation should involve multiple tribal, federal, state, and other entities. A coordinated approach among water users, tribes, states, multiple federal agencies, and others would be necessary. To allow so many differing interests to coordinate on such a complex topic, which may include international considerations, a decision-making framework and a series of regional workshops would be necessary just to approach the first step of defining reintroduction objectives. Given the incompatibility of such a wildlife management decision-making framework with an analysis of the operation of the CRS, it is not feasible to proceed with a detailed consideration of reintroduction in this EIS. Moreover, to meaningfully analyze reintroduction as a measure, the details of the proposal would need to be understood well enough to include in hydrologic, water quality, and fish models. That information is not presently available, and development of those details was not possible in the timeframe of this NEPA process. Nevertheless, the agencies and interested regional sovereigns are developing a framework to address critical information gaps. This effort was initiated on June 23, 2020, the co-lead agencies participated in a discussion with regional sovereigns concerning fish management in blocked areas.
32262	39	Rodney Cawston	Confederated Tribes of the Colville Reservation	Analysis of passage in the upper Columbia would take time, but the responsibility for failing to consider available information in a timely manner lies squarely with the agencies, who were aware of studies and other relevant information as early as the scoping phase of developing the EIS,13 and failed to take action at that time and as additional information and analyses became available while the DEIS was being developed. Indeed, claiming that they dismissed fish passage as a potential measure due to insufficient time ignores that the agencies informed CTCR as early as August 30, 2017 a mere six months after receiving CTCRs scoping comments that they would not pursue this action in the EIS.14 It is also no defense that fish passage is controversial, see DEIS Executive Summary at 13-14,15 because one of the fundamental purposes of an EIS is to fully evaluate controversies in the evaluation and mitigation of environmental impacts caused by federal agency action. 40 C.F.R. 1508.27(b)(4) (identifying [t]he degree to which the effects on the quality of the human environment are likely to be highly controversial as a factor in determining whether an EIS is required). In the same paragraph that the agencies attempt to rationalize what appears to be a policy decision made at the outset of the EIS process not to conduct any meaningful analysis of fish passage and reintroduction in the EIS, the DEIS points to a potential alternate forum for addressing this issue outside of the CRSO EIS: the agencies and interested regional sovereigns are developing a framework to address critical information gaps. DEIS at 2-79. In an 8,000-page DEIS replete with detailed plans, projections, timelines, and analyses, it is striking that there is but one, vague sentence about the proposed	Measures to reintroduce salmon above Chief Joseph and Grand Coulee dams were evaluated early in the alternative development process but eliminated from further consideration. Reintroduction is an important, complex, large-scale concept. Its consideration, evaluation, and implementation should involve multiple tribal, federal, state, and other entities. A coordinated approach among water users, tribes, states, multiple federal agencies, and others would be necessary. To allow so many differing interests to coordinate on such a complex topic, which may include international considerations, a decision-making framework and a series of regional workshops would be necessary just to approach the first step of defining reintroduction objectives. Given the incompatibility of such a wildlife management decision-making framework with an analysis of the operation of the CRS, it is not feasible to proceed with a detailed consideration of reintroduction in this EIS. Moreover, to meaningfully analyze reintroduction as a measure, the details of the proposal would need to be understood well enough to include in hydrologic, water quality, and fish models. That information is not presently available, and development of those details was not possible in the timeframe of this NEPA process. Nevertheless, the agencies and interested regional sovereigns are developing a framework to address critical information gaps. This effort was initiated on June 23, 2020, the co-lead agencies participated in a discussion with regional sovereigns concerning fish management in blocked areas.

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				framework. To be clear, since the Department of Interior announced the concept of a Fish Management in Blocked Areas Initiative at a meeting with Columbia Basin tribes and the Department of State regarding the Columbia River Treaty on August 28, 2019, minimal progress has been made toward developing such a framework. At most, a brief questionnaire was distributed to regional sovereigns (including CTCR) at the end of October. See Attachment 9(Oct. 31, 2019, email from Lorri Gray and attached list of questions). While CTCR responded to the questionnaire, we are concerned that the proposed Fish Management in Blocked Areas Initiative punts the agencies obligation under NEPA to take a hard look at fish passage and reintroduction to outside the established framework of the CRSO EIS, where it may not include a binding commitment, funding, timeline, or mechanism for holding the agencies accountable. Removing fish passage from the EIS the agencies 25-year framework for managing the CRS raises serious questions for CTCR. With respect to this crucial issue, we remain skeptical about the agencies intentions, commitment to pursuing fish passage and reintroduction in good faith, willingness to devote the necessary resources, ability to accept the information developed through the 2014 Fish and Wildlife Programs measure and build on it, and openness to afford deference to those most affected by Chief Joseph and Grand Coulee Dams.16 Accordingly, CTCR continues to believe that the investigation of fish passage and reintroduction above Chief Joseph and Grand Coulee Dams rightfully belongs in the CRSO EIS as a measure in the Preferred Alternative.17	
32262	40	Rodney Cawston	Confederated Tribes of the Colville Reservation	III. In the Alternative to Including Fish Passage and Reintroduction as a Measure in an Action Alternative, It Must Be Included and Evaluated as a Mitigation Measure in the Preferred Alternative. In lieu of considering fish passage and reintroduction above Chief Joseph Dams and Grand Coulee Dams as an action alternative, the co-lead agencies should consider investigating it as a mitigation measure because, under all of the alternatives, operation of the CRS will continue ongoing extirpation of anadromous salmonids from the upper Columbia an adverse environmental effect[] which cannot be avoided. 42 U.S.C. 4332(2)(ii). As the co-lead agencies observe in the DEIS, the lack of fish passage at some dams, including Chief Joseph and Grand Coulee Dams, within the region has restricted the range of salmonids from some locations where they were historically present. Impacts such as these have adversely affected . . . tribal communities [A]ny discussion pertaining to the CRS must include actions to return salmon and steelhead . . . and to improve access to historical fish habitat. DEIS 7-2 at ll. 45-53. As the Colville Tribes detailed in our December 19, 2019, letter, incorporated here by reference, the co-lead agencies knowing rejection and omission of at minimum studying fish passage and reintroduction as a mitigation measure likely violates NEPA. See 40 C.F.R. 1502.16(h) (mandating that an EIS shall include discussions of [m]eans to mitigate adverse environmental impacts). All relevant, reasonable mitigation measures that could improve the project are to be identified, even if they are outside the jurisdiction of the lead agency or the cooperating agencies.	Measures to reintroduce salmon above CHJ and GCL were evaluated early in the alternative development process but eliminated from further consideration. Reintroduction is an important and complex, large-scale concept. Its consideration, evaluation, and implementation should involve multiple tribal, federal, state, and other entities. A coordinated approach among water users, tribes, states, multiple federal agencies, and others would be necessary. To allow so many differing interests to coordinate on such a complex topic, which may include international considerations, a decision-making framework and a series of regional workshops would be necessary just to approach the first step of defining reintroduction objectives. Given the incompatibility of such a wildlife management decision-making framework with an analysis of the operation of the CRS, it is not feasible to proceed with a detailed consideration of reintroduction in this EIS. Moreover, to meaningfully analyze reintroduction as a measure, the details of the proposal would need to be understood well enough to include in hydrologic, water quality, and fish models. That information is not presently available, and development of those details was not possible in the timeframe of this NEPA process. Nevertheless, the agencies and interested regional sovereigns are developing a framework to address critical information gaps.
32262	41	Rodney Cawston	Confederated Tribes of the Colville Reservation	Here, the proposed action is the continued operation of the CRS without providing fish passage and reintroduction above Chief Joseph and Grand Coulee Dams an adverse environmental effect which cannot be avoided under any of the alternatives. 42 U.S.C. 4332(2)(ii). Accordingly, the co-lead agencies were legally obligated to include discussions of means to mitigate this adverse environmental impact, which duty CTCR brought to the co-lead agencies attention on numerous occasions. 40 C.F.R. 1502.16(h); see CTCR comments and letters cited above. Contrary to the co-lead agencies rationale proffered in the June 2019 Mitigation Toolbox for rejecting fish passage and reintroduction as a mitigation measure, relative change in effect between the No Action Alternative and a proposed action alternative is not a proper standard for determining whether the co-lead agencies must consider mitigation measures for an adverse environmental impact. See DEIS Appx R, Annex C at R-4-50, -51, -58 (The alternatives being analyzed do not change fish passage for these projects from the no action so mitigation is not needed.). Rather, the duty to discuss ways to mitigate adverse environmental impacts with regard to each alternative . . . is mandatory. Idaho ex rel. Kempthorne v. United States Forest Serv., 142 F. Supp. 2d 1248, 1263 (D. Idaho 2001) (emphasis in original). The co-lead agencies have identified no legal basis (and CTCR has found none) to support their proposition that mitigation measures may be eliminated simply because an adverse effect on a resource would be the same under both the No Action Alternative and a proposed action alternative. Notably, this rationale appears to have been abandoned by the co-lead agencies in the DEIS. The co-lead agencies rationale proffered in the DEIS and since its distribution fares no better. In response to a comment by CTCR on the Administrative DEIS that the co-lead agencies should commit to review and study FP&R as a mitigation measure, the co-lead agencies responded, reintroduction above Grand Coulee is outside the scope of this EIS. DEIS Appendix T (forthcoming); Completed Colville Comment Responses 2-10-2020FINAL, Chap. 5 sheet, cell 7H. Yet that rationale is at odds with the co-lead agencies statement in Section 5.1.1 as to the scope of mitigation measures that were considered, analyzed and captured in the DEIS: The inclusion of mitigation measures in this chapter is not intended to indicate that the co-lead agencies, or the Federal government as a whole, has the authority to perform all of the measures listed. Their inclusion in this chapter serves to alert other agencies, officials, and the public who can implement the measures to the potential benefits of the measure. CRSO EIS Chap. 5 at 5-2. The co-lead agencies thus established an appropriately wide aperture for mitigation measures for DEIS discussion purposes, which aligns with the directive to identify [a]ll relevant, reasonable mitigation measures that could improve the project even if they are outside the jurisdiction of the lead agency or the cooperating agencies. 46 Fed. Reg. 18026, 19b. Under the co-lead agencies rubric, fish passage and reintroduction would be particularly well-suited as a mitigation measure because it would alert the water users, tribes, states, multiple federal agencies, and others among whom the co-lead agencies assert a coordinated approach is necessary to achieve fish passage and reintroduction in the upper Columbia blocked areas. Executive Summary at 13; DEIS at 2-79. Moreover, fish passage and reintroduction is eminently relevant as a mitigation measure that could improve the CRS because it would directly address one of the most egregious adverse effects of the CRS that is bound to continue under any alternative. Nevertheless, the co-lead agencies failed to discuss even investigating fish passage and reintroduction as a mitigation measure, claiming it was not feasible to consider. Executive Summary at 14; DEIS at 2-79. That failure is internally inconsistent with the standards set out by the co-lead agencies for selecting and including mitigation measures in the DEIS. Whats more, rejection and omission of this measure which the co-lead agencies themselves characterize as important is doubly erroneous because the co-lead agencies do in fact possess the authority to evaluate the phased approach outlined in the 2014 Fish and Wildlife Program, including the extensive data already generated through Phase 1 of that process. Executive Summary at 13; DEIS at 2-79. Evaluating existing information and making a commitment to conduct a phased investigation of fish passage and reintroduction is the core of the Colville Tribes limited and reasonable request, which is well within the scope of the co-lead agencies authority and the CRSO EIS. In sum, the co-lead agencies should reverse course and include fish passage and reintroduction as either a measure in an action alternative (preferably the Preferred Alternative) or, alternatively, as a mitigation measure. Failure to do so would be based on an erroneous rationale, internally inconsistent, and legally inadequate under NEPA.	Mitigation in NEPA is intended to address environmental effects of the proposed action if that alternative is implemented. Here, the proposed action is the continued operation and maintenance of the Columbia River System. However, mitigation for the identified alternative would include actions that are within the co-lead agencies' authorities that address the effects of the selected alternative, as compared to the No Action Alternative. New mitigation is not proposed to mitigate for the existence of the system, but rather to ameliorate the effects of the operations and maintenance of the CRS as identified in the alternative. See response to Comment 32262-40.
32262	42	Rodney Cawston	Confederated Tribes of the Colville Reservation	IV. The Preferred Alternative Does Not Appreciably Improve Conditions for ESA- Listed Salmonids in the Upper Columbia Based on NOAAs Life Cycle Model (LCM) output for improved smolt-to-adult ratio (SAR), a 3.2% increase (0.94 to 0.97) of the SAR is a minimal advancement toward recovery for Upper Columbia River (UCR) spring Chinook, which is arguably the stock at highest risk of extinction in the Columbia River Basin, notwithstanding Snake River sockeye. If the minimum positive impact projected by the LCM is the actual outcome of the Preferred Alternative, hydro- related recovery benefits for UCR spring Chinook are essentially a status quo continuation of the No Action Alternative, and future hydro operations under the Preferred Alternative and will not meaningfully advance recovery of UCR spring Chinook. Additional, more aggressive measures such as flow for juvenile passage, greater spill at John Day and The Dalles, and greater pinniped and avian predation reduction measures than those provided in the Preferred Alternative would likely be required to achieve greater minimum improvements in survival and productivity of this at-risk stock. As with UCR spring Chinook, the LCM projected improvements for affected metrics in the Preferred Alternative is essentially status quo performance compared to the No Action Alternative and equates to no anticipated survival improvements for ESA-listed UCR summer steelhead. Including greater flow and spill for juvenile passage and aggressive avian predation measures in the inland portion of the Basin (including substantive dissuasion efforts, similar to those funded by Grant PUD is recent years) as measures in the Preferred Alternative would increase the anticipated survival improvements for UCR steelhead.	While flow levels from upstream federal CRS dams effect upper Columbia species from the time they enter the mainstem Columbia River from their tributaries, those stocks only physically pass 4 projects which limits the CRS operational impacts to those stocks. The Preferred Alternative had the largest potential positive impact to upper Columbia River stocks compared to the No Action Alternative, or any of the Multi-Objective Alternatives. In addition to continued habitat restoration and hatchery mitigation, the operational changes in spill levels at McNary, John Day, and Bonneville Dams, combined with federal efforts to reduce predation, and decrease the effects of overwintering fallback of mid-Columbia steelhead are all expected to provide benefits compared to the No Action Alternative. Details of these actions are found in chapter 7 of the FEIS as well as the proposed action submitted to NMFS and the US Fish and Wildlife Service. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the CRS. That call, however, is ultimately the role of NMFS and the USFWS. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species.
32262	43	Rodney Cawston	Confederated Tribes of the Colville Reservation	Finally, both listed species in the UCR would benefit from expanded habitat actions in the Preferred Alternative in the extant anadromous zone in addition to those measures currently specified in the NPCCs Fish and Wildlife Program and by the Mid-Columbia PUDs Habitat and Tributary Committee.	The co-lead agencies concur that habitat actions will continue to be implemented as described in the proposed action. The analysis of the benefits of those actions will be developed by NMFS and by the US Fish and Wildlife Service in their biological opinions. Those final Biological Opinions will be appended to the final EIS in appendix V.
32262	44	Rodney Cawston	Confederated Tribes of the Colville Reservation	While the co-lead agencies have improved the description of what is now a single Lake Roosevelt Additional Water Supply measure in the DEIS by making clear the shift in timing of Odessa Subarea withdrawals, CTCR continues to have concerns about the inclusion of the 1.15 million acre-feet withdrawals for the Columbia Basin Project in three of the four Multi-Objective Alternatives (MO1, MO3 and MO4) and the analysis of re-shaping the approximately 179,000 acre-feet withdrawals for the Odessa Subarea. As we explained in our July 8, 2018, letter, it is problematic to include the measure providing for 1.15 million acre-feet of additional withdrawals during the irrigation season in so many of the action alternatives19 because removing such a large volume of water when juvenile salmon need higher spring flows to assist their migration to the ocean undermines many other measures intended to benefit fish. While we did not oppose inclusion of this measure in one of the alternatives, we advocated for it to be removed from	The CRS is a complex system with multiple, sometimes competing, congressionally-authorized purposes. The Purpose and Need and the objectives developed for this EIS reflect these multiple purposes, as do the alternatives developed to meet them. This EIS was developed to evaluate the operation and maintenance of the CRS over the next 25 years, with the expectation that the co-lead agencies will continue to meet the multiple, authorized purposes until directed differently by Congress. Although Fish and Wildlife is one of the authorized purposes, it is not the only purpose, and the co-lead agencies must balance all resources, and sometimes focus some purposes over others. The analysis of the Multiple Objective (MO) alternatives reflect these trade-offs and have allowed the co-lead agencies to understand the effects of emphasizing some purposes over others in order to find the most acceptable balance for future operations. The MO alternatives relied on preliminary analysis of the single-objective alternatives to inform the combination of alternatives analyzed in the final range. The measures in the final range of alternatives were combined in deliberate ways to display the trade-offs inherent in the operation of such a complex system.

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				Multi-Objective alternatives MO3 and MO4 so the fish benefits of those alternatives could be more fully realized and explained to the public and decisionmakers. By removing the measure only from MO2 the least beneficial action alternative the co-lead agencies have likely masked additional benefits from MO3 and MO4 by retaining this measure with its clear, adverse impacts both to salmon in the anadromous zone and to the Lake Roosevelt environment. The decision to include this measure in three of four Multi-Objective alternatives is particularly suspect given the co-lead agencies subsequent decision to greatly decrease the volume withdrawn to 45,000 acre-feet (approximately 4% of the original volume) in the Preferred Alternative. The agencies should include the reduced volume for this measure in MO3 and MO4 for the Final EIS.	
32262	45	Rodney Cawston	Confederated Tribes of the Colville Reservation	We appreciate the greater transparency with which the DEIS describes the shift in timing of Odessa Subarea withdrawals since the Administrative Draft EIS. However, there are still significant problems that carryover from the earlier draft that must be addressed before the Final EIS. First, the agencies describe a mitigation measure resulting from ESA consultation, namely that the refill target at Grand Coulee is decreased by 0.25 feet to compensate for the additional 45,000 acre-feet withdrawn during the April-October irrigation season. DEIS at 7-48. However, this fails to account for the re-shaping of 179,000 acre-feet for the Odessa Subarea, which will, going forward, also be withdrawn during the irrigation season (as opposed to September and October under the BORs 2013 Record of Decision). This effectively adds almost four times the volume of irrigation-season withdrawals as the proposed increase of 45,000 acre-feet for the Columbia Basin Project. If the refill target, which appears to only correspond to a withdrawal of 45,000 acre-feet, required adjustment for this additional volume, it would be approximately 1.0 additional feet of drawdown. A full accounting, including in appropriate models, of all of the new irrigation-season withdrawals under this measure is required for an accurate and transparent evaluation, and appropriate mitigation for both downstream flows and the Lake Roosevelt environment should be included in the Final EIS. We also continue to oppose and question the wisdom of proceeding with re-shaping the Odessa Subarea withdrawals. As we explained previously, when BOR was evaluating the project a decade ago, it changed the proposed withdrawals from the irrigation season to the fall because of concerns raised in the ESA consultation process regarding impacts to salmon. If it was biologically necessary and appropriate to wait to refill Banks Lake until the fall at that time, we see no justification to deviate from that timing now.20	The Preferred Alternative includes a measure to allow for an additional 45,000 acre-feet of water delivery from Lake Roosevelt; this measure also includes an adjustment to operations to allow the timing of delivery of recently developed water supplies for the Odessa Subarea of the Columbia Basin Project from September and October to when the water is needed as described in Section 7.6.3.6. This measure allows continued delivery of water for current demand and supports near-term additional development of authorized project acres. The Preferred Alternative analysis determines that the combined changes from Region A upstream of Grand Coulee and changes in operations at Grand Coulee result in relatively small changes to river flows, with median monthly average flows typically within 1 percent of those under the No Action Alternative. To reduce these small impacts from the Lake Roosevelt Additional Water Supply measure Reclamation would adjust the refill target of Lake Roosevelt, as described in Section 7.6.4. The effects of the alternatives on fish is included in Section 7.7.4. Previous consultations on the Odessa Subarea withdrawals reduced flow impacts by largely restricting pumping to refill Banks Lake in the fall, this was less because of known biological impacts and more related to limited time to analyze the flow changes and those impacts on anadromous fish migration. The change to water supply delivery, both the additional 45,000 acre-feet and the reshaping flow impacts are included in table summaries in Appendix C. Additionally, the system operations modeling results were provided to NMFS for their analysis, and inclusion in their LCM and COMPASS models
32262	46	Rodney Cawston	Confederated Tribes of the Colville Reservation	VI. Resident Fish Impacts and Mitigation CTCR previously expressed concerns regarding the Fall Operational Flexibility for Hydropower (Grand Coulee) measure, DEIS at 7-32, and its impact on native resident fish access to tributary spawning and overwintering habitat, and reduced shoreline habitat in Lake Roosevelt. Under this measure the end-of-September refill to an elevation of 1283 feet would be delayed in some years to the end of October for greater power generation flexibility and to meet downstream flow objectives. The DEIS indicates that in low water years, this may delay refill to 1283 feet past September 30 in approximately 40% of years. DEIS at 7-129. The co-lead agencies should explain that the end-of-September refill date was established in the NPCCs 2003 Mainstem Amendments to the Fish and Wildlife Program,21 and that the agencies have interpreted this provision as a mandatory target. See, e.g., 2019 Water Management Plan at 33 (Attachment 12). As such, even if this measure is approved in the agencies Record of Decision, it should be noted that it must still be modified by the NPCC in a future amendment to the Fish and Wildlife Program, as BPA attempted to do during the 2019- 2020 amendment process.22 More details about the criteria for delaying refill should be specified, including the water level which would typically trigger a delay, and whether the operation would be available in all years, regardless of water levels. CTCR is concerned that greater flexibility will result in annual refill delays without a clear commitment to work with CTCR to specify the criteria governing this operation. The DEIS should also identify the anticipated power benefits from increasing flexibility and the downstream flow objectives that also inform the agencies desire to increase their flexibility in the operation of Grand Coulee and impose the attendant impacts on CTCR and Lake Roosevelt.	The operational measure discussed in this comment pertains to fall reservoir elevations at Lake Roosevelt. Another measure for flood risk management also affects Lake Roosevelt reservoir elevations in the spring. The comment suggests that the target date and elevation for Lake Roosevelt refill in the fall should be mandatory, based on related guidance from the Northwest Power and Conservation Councils (Council) 2003 Mainstem Amendments to the Columbia River Basin Fish and Wildlife Program (Program). The co-lead agencies disagree that the Councils Program guidance constitutes a mandatory fixed target. First, the plain language of the 2003 Mainstem Amendments allows for flexibility in the fall refill operation. For example: As much as possible, manage the reservoir and dam discharges to minimize fluctuations and ramping rates and produce steady flows across each season and each day to minimize reservoir fluctuations and ramping rates. Attempt to draft no lower than 1283 feet by the end of August. From September through December, attempt to maintain a minimum elevation of 1283 feet to maximize water retention times and protect kokanee access and spawning. Federal operators, fish and wildlife managers, and others should consult with the Council to determine how to provide the biological benefits of a 1283 operation while meeting biological opinion requirements, including chum flows and operating to protect flows for the Hanford Reach. 1/ In addition, past practice since the Councils adoption of the 2003 Mainstem Amendment demonstrates that the nature of this guidance is flexible, not mandatory. As anticipated by the Councils language in the quote above, subsequent biological opinions impacted the ability to refill Lake Roosevelt to 1283 by the end of August, so this elevation target was moved to later in the season. Further, the comment appears to acknowledge that the refill target date is flexible, given that it references an end-of-September target, which already reflects a modification to the August date included in the 2003 Mainstem Amendment. The co-lead agencies note as well that the purpose of the fall refill guidance in the 2003 Mainstem amendments was related to protecting kokanee access to spawning habitat. Consistent with the NPCC language quoted above, Bonneville worked with fish and wildlife managers on a mitigation project to provide the biological benefits of a 1283 operation (that is, kokanee spawning access) even while balancing the need for flexible operations related to downstream flows for biological opinion purposes. Specifically, Bonneville funded a culvert replacement project at Barnaby creek that enabled kokanee passage down to a reservoir elevation of 1257 to restore tributary access and ecological function. 2/ The comment also suggests that changes to the Councils Program would need to be adopted to allow for any additional flexibility in the fall refill operation. The co-lead agencies disagree that the Councils Program, on its own, can prescribe a particular refill operation that the agencies must follow. The flexible language in the 2003 Mainstem Amendment and the fact that subsequent changes to the target refill date were driven by factors other than the Councils Program, as described above, reinforce this position. However, as the comment notes, Bonneville made initial proposals for changes to Council Program guidance on this issue to clarify the acceptability of additional flexibility in the fall refill operation; a future clarification on this point would still be useful. Finally, the co-lead agencies remain willing to work with regional partners to determine where to conduct mitigation actions, consistent with Chapters 5 and 7. Relevant mitigation guidance in the Councils Program could inform this discussion, and would be more in line with the Councils Programs statutory role that is, to guide fish and wildlife mitigation for system operations, not to prescribe the operations themselves. Finally, consistent with previous years when this operation was implemented, the operation may occur due to anticipated low streamflow conditions, downstream operational constraints, and changes in power supply. Additionally, consistent with past years, this flexibility would result in a shift in timing for refilling Lake Roosevelt, but the overall flow volume would remain unchanged between August 31 and November 1 and would be coordinated with tribal fish managers, including CTCR. Finally, the power benefits the Preferred Alternative, including this potential operation are included in Section 7.7.9, Power Generation and Transmission. 1/ See Northwest Power and Conservation Council, Mainstem Amendments to the Columbia River Basin Fish and Wildlife Program (2003), at 26-17 (emphasis added), available at https://www.nwcouncil.org/fish-and-wildlife/previous-programs/2003-mainstem-amendments-to-the-columbia-river-basin-fish-and-wildlife-program. 2/ See Colville Tribes Fish & Wildlife Department, Barnaby Creek Culvert Replacement Project 20 (July 2012).
32262	47	Rodney Cawston	Confederated Tribes of the Colville Reservation	CTCR appreciates the agencies proposal to mitigate for the effects of this measure by augmenting kokanee and other affected species spawning habitat in Lake Roosevelt. DEIS at 7- 44 to 7-45, ll. 1282-88. However, we are disappointed that the DEIS does not reflect the proposed changes to this poorly defined mitigation measure that were discussed with agency staff in February. See Attachment 13 (February 7, 2020, email from Bret Nine to Sonja Kokos and Eric Rothwell and attached modification to the Administrative DEISs explanation of this mitigation measure). In particular, we question whether the proposed mitigation, which would limit potential habitat augmentation to 100 acres in a 150-mile reservoir, is appropriate prior to conducting a study of the impacts of delayed refill and determining the extent of such impacts. Given the significant benefits the agencies apparently would derive from the greater flexibility in refill timing, it is appropriate to fully study and mitigate the impacts to the already over-impacted reservoir. We again request that the proposed changes to this mitigation measure communicated with agency staff in February 2020 be incorporated into the Final EIS.	In response to the suggestions provided to the Co-Lead agencies the description of the mitigation measure in Lake Roosevelt for resident fish has been updated. This update includes consideration of available and future studies to guide the implementation of this measure; additionally this measure will require site specific NEPA that may guide the location and approach to offset the impacts from these proposed operational changes.
32262	48	Rodney Cawston	Confederated Tribes of the Colville Reservation	A. Cultural Resources General Comment Throughout the EIS process, CTCR has provided comments to assist the co-lead agencies in adequately evaluating the tremendous impacts that the CRS has caused to Colville cultural resources. In general, CTCR has found the agencies effort in this respect to be inadequate to address the devastation to tribal culture and lifeways caused since the first construction of dams in the Columbia Basin. Of particular concern is the continuing failure to include fish passage in the management of [Chief Joseph and Grand Coulee Dams]. Appendix P at 18 (CTCR Tribal Perspectives document at 6). We acknowledge that the inclusion of the Tribal Perspectives documents provides an important vehicle for tribes to give voice to their views of CRS impacts ranging from tribal culture to daily life. See DEIS Section 3.17.2; Appendix P. The shortcoming of the co-lead agencies effort is that it is not clear that tribal views expressed in these documents changed the development of the Preferred Alternative in a measurable way, especially with respect to cultural resources connected with anadromous salmonids in the upper Columbia. In order to demonstrate that tribal perspectives influenced development of the Final EIS, the agencies need to include a meaningful response to repeated requests by Colville and other upper Columbia tribes to restore anadromous salmonids to the area where the CRS has blocked them for nearly 80 years. As we have explained throughout the process and underscore in this letter, the agencies response has been a failure.	Measures to reintroduce salmon above Chief Joseph and Grand Coulee dams were evaluated early in the alternative development process but eliminated from further consideration. Reintroduction is an important, complex, large-scale concept. Its consideration, evaluation, and implementation should involve multiple tribal, federal, state, and other entities. A coordinated approach among water users, tribes, states, multiple federal agencies, and others would be necessary. To allow so many differing interests to coordinate on such a complex topic, which may include international considerations, a decision-making framework and a series of regional workshops would be necessary just to approach the first step of defining reintroduction objectives. Given the incompatibility of such a wildlife management decision-making framework with an analysis of the operation of the CRS, it is not feasible to proceed with a detailed consideration of reintroduction in this EIS. Moreover, to meaningfully analyze reintroduction as a measure, the details of the proposal would need to be understood well enough to include in hydrologic, water quality, and fish models. That information is not presently available, and development of those details was not possible in the timeframe of this NEPA process. Nevertheless, the agencies and interested regional sovereigns are developing a framework to address critical information gaps. This effort was initiated on June 23, 2020 when the co-lead agencies participated in a discussion with regional sovereigns concerning fish management in blocked areas.
32262	49	Rodney Cawston	Confederated Tribes of the Colville Reservation	We also have concerns regarding the scope of the agencies cultural resources review in the DEIS. In the mid-1990s, the agencies conducted the System Operation Review and began applying federal cultural resource laws to the Columbia Basin. This change was prompted by tribes insistence that cultural sites be protected. However, this DEIS demonstrates the shortcomings of how the co-lead agencies are applying NEPA, which is not restricted to evaluating impacts to the four identified categories of cultural resources recognized by the agencies: archaeological resources, traditional cultural resources, built environment, and sacred sites. DEIS at 7-190. These four imposed categories are artificially narrow and do not reflect the full scope of impacts of the CRS to Colville cultural resources. As CTCR described in its Tribal Perspectives document, our view of cultural resources is necessarily more inclusive: For the purposes of the Columbia River System Operations (CRSO) EIS, the Confederated Tribes of the Colville Reservation (Tribes or CTCR) take a broad view of cultural resources.24 These include, but are not limited to, cultural resources defined in applicable laws directed toward tangible resources. They also include cultural heritage that is not necessarily site-specific such as ritual, ceremony, language, traditional teachings, etc., and they include resources such as the land, water, air, and animals. These resources consist of individual artifacts, sites, natural resources, and ecosystems. Of particular importance is the recognition of natural resources like fish, wildlife and water as cultural resources of the Colville people. This includes the anadromous salmon and steelhead that previously returned to the upper Columbia in such abundance that they formed a cornerstone of our culture.25 Certainly, for purposes of the CRSO EIS, cultural resources should not be restricted to bounded properties. Times change, perceptions change, and interpretation of regulations change: the co-lead agencies should expand their review to reflect contemporary, wholistic views of cultural resources.26 We are hopeful that the Preferred Alternative may have somewhere in its provisions sufficient flexibility to adapt to new directions and landscape-level application of historic preservation through creative mitigation or another viable mechanism. From CTCRs perspective, it appears that the co-lead agency staff is accepting of the new directions and may be willing to work with tribes in this regard. However, this evolving view must be	In the Draft EIS, the co-lead agencies used a property-based definition of "cultural resources," as this is consistent with Federal laws and regulations, which focus on specific bounded properties. Tribal interests and holistic perspectives on the integration of Native American culture with the environment were addressed throughout the EIS and by inclusion of statements from the tribes. The co-lead agencies note that many of the traditional cultural properties analyzed in the Draft EIS include aspects of the natural and social environment. Please see Section 3.16.2.6 for the traditional cultural resource types, many of which explicitly include hunting, fishing, and gathering areas; Section 3.17.2 for Tribal Perspectives Summaries; and, Section 3.17.3 for Tribal Interests. The co-lead agencies will continue to pursue the commitments outlined in the Systemwide Programmatic Agreement and ensure their ongoing efforts for compliance with Section 106 of the National Historic Preservation Act continue into the future.

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				memorialized in the EIS so that CTCR and other tribes are not, once again, stuck with a 25-year-old preservationist view of the resources essential to our living cultures. In contrast, it would be clearly inadequate to continue relying on the existing FCRPS Cultural Resource Program to implement mitigation actions, which the DEIS indicates is the preferred mitigation measure under the Preferred Alternative.27 Additionally, the CRS imposes indirect impacts on shrub/steppe habitat, an important Colville cultural resource. Shrub/steppe habitat is important to Colville people for spiritual and cultural uses and provides habitat for several culturally significant plants. The CRS is managed in part for irrigation, and irrigation from the Columbia River is increasing the conversion of culturally significant shrub/steppe habitat into agricultural croplands. The increase in irrigated agricultural activity decreases the amount of shrub/steppe habitat and diminishes Colville access to culturally significant plants that are gathered for medicine, as a subsistence food source, and for other cultural and ceremonial activities.	
32262	50	Rodney Cawston	Confederated Tribes of the Colville Reservation	With regard to Indian Trust Assets (ITAs), the co-lead agencies continue to perpetuate two errors in the DEIS. First, the co-lead agencies fail to recognize that that Colville Tribal trust lands are in fact located within areas of effects under all of the alternatives, including the Preferred Alternative. Second, the co-lead agencies employ an unduly narrow definition of ITAs that is out of step with federal law and the agencies own internal guidance, and which erroneously excludes important trust assets of the Colville Tribes and its members. The Colville Tribes have brought these concerns to the attention of the co-lead agencies on several prior occasions, incorporated here by reference. See Colville Tribes letters and comments to the co- lead agencies Sept. 6, 2018; May 30, 2019; Dec. 24, 2019 (Chap. 3.17 sheet, row 8); February 7, 2020 (Chap. 7 sheet, row 38).	The co-lead agencies requested the CTCR identify those trust lands within the study area. The Tribe provided geographical information system data that identified lands of various status. This information was incorporated into the EIS in Section 3.17.1.1. The co-lead agencies have analyzed ITAs consistent with applicable statutes, regulations, and guidance. Neither the rights of fishing, hunting, and gathering, nor the resources subject to those rights, are "assets held by the federal government" within the meaning the Interior Department Manual, 303 DM 2.5(c). As a result, the co-lead agencies do not consider the rights our resources to be ITAs. The agencies' analysis nevertheless considers effects to the resources subject to the Tribe's rights, as well as the cumulative effects to those rights as a result of effects to underlying resources.
32262	51	Rodney Cawston	Confederated Tribes of the Colville Reservation	1. Colville Tribal trust lands The co-lead agencies erroneously conclude that [t]rust lands identified during the geospatial database query and tribal outreach are located outside of any direct or indirect effects identified in the alternatives. DEIS at 3-1399, ll. 7421-23; id. at 7-217, ll. 6347-75. They fail to account for areas of Colville Reservation trust lands that will be directly and indirectly affected under the proposed alternatives, despite recognizing such effects elsewhere in the DEIS. For example, the co-lead agencies have identified that under all of the alternatives, increased drawdown of Lake Roosevelt for flood risk management will affect the Inchelium- Gifford Ferry, causing it to be inoperable for additional days each year. Id. at 5-21, ll. 736-41; 5- 26, ll. 864-67; 5-35, ll. 1113-15; 5-46, ll. 1341-42; 7-179, ll. 5217-25. The Inchelium-Gifford Ferry provides an essential conduit between Colville trust lands and services off the Reservation. See, e.g., id. at 5-21, ll. 740-41. The co-lead agencies acknowledge that [t]he effect would isolate tribal members on Reservation, id. at 5-21, ll. 738-39, and that [e]ffects would primarily occur on the Confederated Tribes of the Colville Reservation. Id. at 7-179, ll. 5225-26. Thus, Colville Reservation lands are clearly located within the area of this effect. Other effects on Colville Tribal trust lands include: Exposure and submersion of lands along Lake Roosevelt and adjacent to Colville Reservation lands contributing to mass wasting of Reservation lands above the 1310 feet elevation boundary; TDG, temperature and other downstream impacts of Grand Coulee Dam operations affecting shore and submerged Colville Tribal lands (including a Tribal recreational fishing site and aquaculture net pen operation) along Lake Rufus Woods; and TDG, temperature and other downstream impacts of Chief Joseph Dam operations affecting Colville Tribal trust lands between Chief Joseph Dam and the Okanogan River. Thus, the co-lead agencies conclusion that there are no trust lands within the area of any direct or indirect effects is erroneous as it pertains to Colville Tribal trust lands. Accordingly, the Colville Tribes are concerned about the accuracy of information contained in the BOR geospatial database, upon which the co-lead agencies purport to have relied as part of the process for identifying ITAs and evaluating effects. Id. at 3-1396, ll. 7320-22. In addition, by failing to acknowledge the Colville Tribes off-Reservation trust lands, which are located throughout the upper Columbia Basin, the co-lead agencies leave unresolved the question whether the co-lead agencies included off-Reservation trust lands in its consideration of the Colville Reservation or whether Colvilles off-Reservation trust lands are absent from the BOR geospatial database. If the latter, the co-lead agencies conclusions in the DEIS regarding the Indian trust lands and effects thereupon are fundamentally flawed because the co-lead agencies analysis was based on incomplete data regarding the location and extent of Colville Tribal trust lands.	The co-lead agencies requested the Confederated Tribes of the Colville Reservation to identify those trust lands within the study area. On April 30, 2020, the co-leads received this information that identified parcels along the Okanogan, Columbia, and Snake Rivers. Those lands located along the bank of the Okanogan River are not considered in this analysis because those areas are outside the area affected by the Columbia River System operations, maintenance and configuration. This information was incorporated into the EIS in Section 3.17.1.2.
32262	52	Rodney Cawston	Confederated Tribes of the Colville Reservation	2. Non-proprietary ITAs The scope of ITAs recognized by the co-lead agencies in the DEIS is improperly narrow and excludes an array of legally recognized trust assets beyond the limits of real property owned by the United States in trust for CTCR. These ITAs include (but are not limited to) the Colvilles federally reserved fishing, hunting and water rights, and the fish, game and water that are the res of those trust assets. Agency policies and legal doctrine both establish that ITAs encompass non-proprietary tribal interests. The BOR Manual on Indian Policy defines ITAs as legal interests in land, water, minerals, funds rights, or other property . . . which may include ownership or the use interests. NIA P10 at 2 (emphasis added). The NEPA Handbook to Procedures to Implement Indian Trust Asset Policy expressly identifies hunting and fishing rights, water rights, and instream flows as examples of ITAs. Pg. 1. The Ninth Circuit has observed that a tribes unqualified [federal reserved water] rights . . . constituted an Indian Trust Asset. Navajo Nation v. Dept of Interior, 876 F.3d 114, 1159 (9th Cir. 2017). If CTCRs use interests, which are secured by federally reserved fishing and hunting rights and supported by its reserved water rights, do not qualify as ITAs in the agencies evaluation of a federal action directly and significantly affecting those same resources, it is not clear where, if anywhere, such use rights would qualify. Notwithstanding that clear guidance, the co-lead agencies insist that ITAs require first a possessory interest; that is, the asset must be held or owned by the Federal government as trustee. DEIS 3-1395, ll. 7285-86. In response to the Colville Tribes December 24, 2019 comment concerning the definition of ITAs propounded in the Administrative DEIS, the co-lead agencies merely amplified their emphasis on ownership status as the determinative characteristic of ITAs.28 Hewing to property concepts as the paramount metric for discerning ITAs is poorly suited for critical natural resources like fish, wildlife and water, which are integral to the Colville Tribes culture and spirituality and in which the Tribes hold federally confirmed, vested rights. See Tee-Hit-Ton Indians v. United States, 348 U.S. 272, 277-78 (1955) (citing United States v. Creek Nation, 295 U.S. 103, 109-110; Shoshone Tribe v. United States, 299 U.S. 476, 497; Chippewa Indians v. United States, 301 U.S. 358, 375-376; United States v. Klamath Indians, 304 U.S. 119; Sioux Tribe v. United States, 316 U.S. 317, 326). Such resources are not amenable to conventional possessory interests or property boundaries, but rather migrate across and between trust lands, public lands, private lands and beyond. Nonetheless, these resources constitute the res of the Colville Tribes trust assets embodied in our federally recognized and protected fishing, hunting and water rights. The co-lead agencies omission of fish, wildlife and water, among other resources, as Colville ITAs is consequential as they acknowledge that DOI requires that all effects to [ITAs], even those considered nonsignificant, be discussed in NEPA analyses and appropriate compensation and/or mitigation implemented. DEIS at 3-1395, ll. 72724-76. By construing ITAs so narrowly as to exclude the important resources that are necessary to fulfill the purposes of the Colville Reservation and meet the fundamental subsistence and cultural needs of the Colville people, the co-lead agencies improperly avoid their obligation to mitigate and/or compensate Colville for the effects of the CRS on CTCRs trust asset resources. In sum, because both the geographic and definitional scope of ITAs employed by the co- lead agencies in the DEIS are indefensibly constrained and omit important Colville ITAs, the co-lead agencies (particularly BOR) should revise their analysis, fully evaluate the effects of the CRS on Colvilles ITAs, and develop appropriate mitigation and/or compensation for these impacts.	The co-lead agencies have analyzed ITAs consistent with applicable statutes, regulations, and guidance. Neither the rights of fishing, hunting, and gathering, nor the resources subject to those rights, are "assets held by the federal government" within the meaning the Interior Department Manual, 303 DM 2.5(c). As a result, the co-lead agencies do not consider the rights or resources to be ITAs. The agencies' analysis nevertheless considers effects to the resources subject to the Tribe's rights, as well as the cumulative effects to those rights as a result of effects to underlying resources. Section 3.17.1.1 provides the legal definition of an Indian Trust Asset. That section states: "Treaty-reserved rights, for instance, fishing, hunting, and gathering rights on and off reservation, are usufructuary rights that do not meet the Department of Interior (DOI) definition of an ITA." Given the importance to the tribes of these resources that do not meet the Department of Interior's definition of an Indian Trust Asset, effects to those resources are discussed in Section 3.17.2, Tribal Perspectives Summaries.
32262	53	Rodney Cawston	Confederated Tribes of the Colville Reservation	The Preferred Alternative would exacerbate the ferry outage in high water years from an average of 27 days per year to 31. DEIS at 7-179. This increase is significant for tribal members, particularly because the outage would be over a contiguous period of time. As a result, in certain years, the ferry would be out of service for a full month. Reliable and convenient access to health care and other vital services has become all the more important under the COVID-19 pandemic and the resulting business closures, gaps in service, and uncertainty it has caused. Colville appreciates the co-lead agencies inclusion of a mitigation measure in the Preferred Alternative to extend the boat ramp for the Inchelium-Gifford Ferry. DEIS at 7-45, ll. 1289-94. This measure will mitigate a disparate impact on Colville tribal members and address a long-standing problem for many of our residents. The description of the mitigation measure should be clarified and improved in several respects. First, it should be noted that while the incremental increase in the ferry outage in the wettest years would be four days, it would result in a total outage of 31 consecutive days on average. See DEIS at 7-179. The proposed measure would mitigate for the entirety of this adverse impact, not just the incremental impact of the Preferred Alternative. Second, more details about the process for extending the ramp should be described, including a lead agency, timeline for planning, design, and construction, and the source of funding the agencies will utilize for the project. Discussion of the ferry ramp extension has occurred for years, without action, and it cannot be allowed to flounder further.	Thank you for your comment. In the Final EIS, Table 7-6 Mitigation Summary for Preferred Alternative has been added which describes the effect after the mitigation of extending of the Inchelium-Gifford Ferry as "potentially providing a beneficial effect from the No Action Alternative." To the second point, after the Record of Decision is signed, the mitigation measures of the Preferred Alternative, including this ferry extension, would be further refined and fully developed during implementation phases.
32262	54	Rodney Cawston	Confederated Tribes of the Colville Reservation	In addition, in our review of the Administrative DEIS, we discovered that BPA had not properly accounted for the adjustment in the formula for a portion of the pumping loads at Grand Coulee. While this change is not expected to significantly affect the estimated payment amount, we reiterate this comment as a reminder to make the correction in the Final EIS.	The updated calculation of the 181d payment in the Final EIS corrects this error. Other changes made between the Draft EIS and the Final EIS (discussed at the end of Section 3.7.3.1) also affected the payment. Section 3.7.4 for Power and Transmission Tribal Interests and Section 3.18, Environmental Justice presents the payment information for alternatives Multiple Objective alternative 1 through Multiple Objective alternative 4. Section 7.7.20 presents the payment information for the Preferred Alternative. Appendix H, Chapter 4, Section 4.1.1.3.1 presents the 181d payment information for all alternatives in one table.
32262	55	Rodney Cawston	Confederated Tribes of the Colville Reservation	X. Environmental Justice The co-lead agencies environmental justice (EJ) analyses in the DEIS fall short by entirely overlooking the disproportionate adverse effects of the CRS in the upper Columbia, including on CTCR. The co-lead agencies longstanding inequitable treatment of the upper Columbia is exacerbated by their continued inattention to acknowledging and mitigating the most glaring impact of the CRS in the upper Columbia: the complete blockage of anadromous salmonids by Grand Coulee and Chief Joseph Dams and resulting extirpation of those fish from the upper Columbia. See also CTCRs letter and comment Nov. 28, 2017; February 2, 2020, at row 39. To right the imbalanced treatment of the upper Columbia to date, the co-lead	This EIS does not propose mitigation for the existence of dams. The EIS compares the effects for alternatives including the Preferred Alternative from the No Action Alternative. Environmental justice populations were identified in section 3.18.3.1 Affected Environment: Populations of Interest. Unique pathways of influence including intensity of use are discussed in section 3.18.4.2 Resource Analysis and 3.18.4.3 Effects Analysis. New disproportionate effects that are greater than "minor" due to the EIS alternatives are mitigated. No disproportionately high and adverse effects remained after mitigation. Measures to reintroduce salmon above Grand Coulee and Chief Joseph were evaluated early in the alternative development process but eliminated from further consideration. Reintroduction is an important and complex, large-scale concept. Its consideration, evaluation, and implementation should involve multiple tribal, federal, state, and other entities. A coordinated approach among water users, tribes, states, multiple federal agencies, and others would be necessary. To allow so many

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				agencies must commit in the Final EIS to studying the phased approached to fish passage and reintroduction outlined in the 2014 Fish and Wildlife Program as a means to mitigate the disproportionate effects of the CRS on the Colville Tribes and the other upper Columbia tribes all constituents of an EJ protected class. As the co-lead agencies observe in the DEIS, federal agencies that engage in NEPA processes are directed to consider the composition of the affected area, to determine whether minority populations, low-income populations, or Indian tribes are present in the area affected by the proposed action, and if so whether there may be disproportionately high and adverse human health or environmental effects on [those EJ protected classes]. CEQ, Environmental Justice Guidance Under the National Environmental Policy Act, Dec. 10, 1997, at 8; CRSO DEIS at 3- 1417, ll. 8044-47; id. at 7-196, ll. 699-702. The CEQ guidance specifically calls on agencies to recognize that different patterns of living, such as subsistence fish . . . consumption may result in unique impacts on EJ protected classes, including Indian tribes, due to a communitys distinct cultural practices. CEQ, Environmental Justice Guidance, at 14. The Colville Reservation is a community that calls out for consideration in this EIS because it meets several of the CEQs criteria it is located in a rural and poor area of Washington state, is comprised predominantly of Native Americans, has poor access to health care, and was situated on the Columbia River to ensure access to the salmon on which the Colville people depend. For nearly eight decades, the CRS has extirpated anadromous salmonids from the upper Columbia an area encompassing 40% of the anadromous habitat in the entire Columbia River Basin which action has imposed disproportionately high and adverse human health and environmental effects on the Colville Tribes and the other tribes of the upper Columbia. No other region of the Columbia has suffered such a complete and drastic effect from the CRS on fish and, commensurately, on tribes as an EJ protected class. Yet the co-lead agencies fail to mention this impact whatsoever in their discussion of the no action alternatives EJ effects relative to fish. They note four species of freshwater fish that are important resources to the Indian tribes in Region B, DEIS at 3-1435, ll. 8538-39, but any discussion of the once-abundant species of anadromous salmonids that populated this stretch of the Columbia and provided a cornerstone of upper Columbia tribes diet, lifeways and spirituality is noticeably absent. See id. at 3-1435-36, ll. 8538-50. Instead, the co-lead agencies collapse the disproportionate impact of the CRS on upper Columbia fish runs and tribes into a generalized and blithe nod to the [a]dverse effects associated with the absence or reduced levels of fish due to the operation and maintenance, or existence of the CRS on Indian tribes as well as other subsistence fishers throughout all regions of the Columbia. Id. at 3-1446, ll. 8793-98 (emphasis added). The co- lead agencies failure to recognize in the DEIS much less discuss mitigation for the disproportionate impacts suffered by the Colville Tribes and the other tribes of the upper Columbia as a result of the CRSs extirpation of anadromous fish in this portion of the River demands correction. Whats more, the co-lead agencies conclude that for each of the proposed action alternatives, including the Preferred Alternative, there would not likely be a disproportionately high and adverse effect on environmental justice populations, despite the fact that none of the alternatives discuss study of fish passage and reintroduction at Grand Coulee and Chief Joseph Dams as a mitigation measure for this grave ongoing harm. Id. at 3-1452, ll. 9053-54 (regarding MO1); id. at 3-1458, ll. 9262-63 (regarding MO2); id. at 3-1466, ll. 9572-73 (regarding MO3); id. at 3-1472, ll. 9828-29; see also id. at 7-196, ll. 5704-05 (concluding that based on the effects analysis for the Preferred Alternative, there is not likely to be a disproportionately high and adverse effect on low income, minority or tribal populations). By contrast, the co-lead agencies are attentive to the potential reduction in operation of the Inchelium-Gifford Ferry that may result under all of the alternatives, and observe that this effect would primarily fall on the CTCR. Id. at 3-1449, ll. 8918-19; id. at 3- 1455, ll. 9151-52; id. at 3-1460, l. 9350; id. at 3- 1468, ll. 9688-89; see also id. at 7-179, ll. 5225-26.29 CTCR appreciates the co-lead agencies attention to this navigation and transportation impact on Colville people as an EJ protected class and the agencies provision of mitigation (extending the ferry ramp) for this prospective adverse effect. See id. at Section 5.4. The extirpation of anadromous salmonids above Chief Joseph Dam a continuing and unavoidable adverse effect of CRS management under every alternative, including the Preferred Alternative also merits attention and mitigation by the co-lead agencies, not least of all because of the disproportionate impact it has on CTCR and other upper Columbia tribes as an EJ protected class. The EJ analyses memorialized by the co-lead agencies in the DEIS remain inadequate because they perpetuate the co-lead agencies disproportionate treatment of the upper Columbia and ongoing failure to manage the CRS to provide for fish passage and reintroduction, adverse effects that will continue to impact Colville and our sister tribes along the upper Columbia. We strongly urge the co-lead agencies to address, evaluate and mitigate this longstanding environmental injustice.	differing interests to coordinate on such a complex topic, which may include international considerations, a decision-making framework and a series of regional workshops would be necessary just to approach the first step of defining reintroduction objectives. Given the incompatibility of such a wildlife management decision-making framework with an analysis of the operation of the CRS, it is not feasible to proceed with a detailed consideration of reintroduction in this EIS. Moreover, to meaningfully analyze reintroduction as a measure, the details of the proposal would need to be understood well enough to include in hydrologic, water quality, and fish models. That information is not presently available, and development of those details was not possible in the timeframe of this NEPA process. Nevertheless, the agencies and interested regional sovereigns are developing a framework to address critical information gaps. This effort was initiated on June 23, 2020, the co-lead agencies participated in a discussion with regional sovereigns concerning fish management in blocked areas. Effects on the tribe from reduced service days of the Inchelium-Gifford Ferry are addressed by additional measure incorporated in the PA that will extend the ramp. Finally, the commenter is correct that the history of anadromous fish in the Upper Columbia River is not discussed in the Environmental Justice analysis. The focus of the Environmental Justice analysis is on resources that would change under the No Action and proposed alternatives, and the presence of anadromous fish would not change under any alternative. Although it is not expressly stated in the Environmental Justice section of the EIS (section 3.18), section 3.17 includes a discussion of this issue as part of the summary of the CTCR's Tribal Perspective. Specifically, it recognizes that "nineteen dams and their corresponding reservoirs affect traditional use areas of the CTCR constituent tribes and bands, including the continued total blockage of anadromous salmonids by the construction of Grand Coulee and Chief Joseph dams. This 'devastation of the Tribes ancestral fisheries caused (and continues to cause) irreparable harm to the culture, subsistence, religion, health, social structure, and economy of all twelve constituent tribes and bands.' Climate science projections will continue to adversely impact anadromous species, their potential habitats, and CTCRs concerted efforts to reintroduce salmon into the upper Columbia River. The boundaries of the Colville Reservation were defined with the intent to include fisheries important to the tribes assigned to the Reservation. The completion of the Grand Coulee Dam, and later the Chief Joseph Dam, inundated these fisheries and the regionally important fishery at Kettle Falls and, more significantly, prevented salmon and other anadromous species from reaching much of the Colville Reservation lands, and the lands and waters of the former North Half of the reservation, rendered as public domain in 1891, to which CTCR members retain federally protected reserved hunting, fishing and gathering rights. Consequently, the Tribes food system and subsistence fishing economy has been destroyed along with the diminishment of many of the cultural traditions associated with salmon fishing.
32262	56	Rodney Cawston	Confederated Tribes of the Colville Reservation	XI. Biological Assessment As noted above in our comment on the co-lead agencies evaluation of re-shaping the withdrawal from Lake Roosevelt of 179,000 acre-feet for the Odessa Subarea, it is important that this measure be described clearly. Although the DEIS does reflect the re-shaping measure in the Preferred Alternative, DEIS at 7-32, the Biological Assessment (BA) does not. The Odessa Subarea withdrawals are discussed in Appendix A of the BA. DEIS Appx V at Appx A (page A-17). There, the BA does not refer to the change in timing of withdrawals, and we could not identify any place in the BA where this change is identified. Moreover, because of the National Marine Fisheries Services (NMFSs) concerns about the timing of withdrawals during consultation on the project in 2013, NMFS should carefully evaluate the proposed change. It is not sufficient (or accurate) to imply, as the co-lead agencies do, that because NMFS consulted on the Odessa Subarea withdrawals in 2013, the proposed measure does not merit attention in the current ESA consultation.	The Preferred Alternative includes a measure to allow for an additional 45,000 acre-feet of water delivery from Lake Roosevelt; this measure also includes an adjustment to operations to allow the timing of delivery of recently developed water supplies for the Odessa Subarea of the Columbia Basin Project from September and October to when the water is needed as described in Section 7.6.3.6. This measure allows continued delivery of water for current demand and supports near-term additional development of authorized project acres. The Preferred Alternative analysis determines that the combined changes from Region A upstream of Grand Coulee and changes in operations at Grand Coulee result in relatively small changes to river flows, with median monthly average flows typically within 1 percent of those under the No Action Alternative. To reduce these small impacts from the Lake Roosevelt Additional Water Supply measure Reclamation would adjust the refill target of Lake Roosevelt, as described in Section 7.6.4. The effects of the alternatives on fish is included in Section 7.7.4. Previous consultations on the Odessa Subarea withdrawals reduced flow impacts by largely restricting pumping to refill Banks Lake in the fall, this was less because of known biological impacts and more related to limited time to analyze the flow changes and those impacts on anadromous fish migration. The change to water supply delivery, both the additional 45,000 acre-feet and the reshaping flow impacts are included in table summaries in Appendix C of the Biological Assessment. Additionally, the system operations modeling results were provided to NMFS for their analysis, and inclusion in their LCM and COMPASS models
32262	57	Rodney Cawston	Confederated Tribes of the Colville Reservation	A shift back to irrigation-season timing - as the Preferred Alternative proposes to do - should be of equal or greater concern now than it was in 2013 because it would be "likely" to take listed salmon. Id. Yet the DEIS does not indicate NMFS was aware of or considered this significant modification. See DEIS at 7-48 (ESA-related mitigation measure to adjust Lake Roosevelt refill target refers to the 45,000 acre feet of new withdrawals during the irrigation season for the Columbia Basin Project but not the re-shaping of Odessa Subarea withdrawals for 179,000 acre-feet, which is effectively four times the volume of the new withdrawals). Given this history (including the sole reasonable and prudent measure of the 2013 biological opinion), it is incumbent on the co-lead agencies to amend the BA to account for the Preferred Alternative's divergence from BOR's 2013 Odessa Subarea record of decision and NMFS's biological opinion in terms of withdrawal timing.	The change to water supply delivery, both the additional 45,000 acre-feet and the reshaping flow impacts are included in table summaries in Appendix C of the Biological Assessment. Additionally, the system operations modeling results were provided to NMFS for their analysis, and inclusion in their LCM and COMPASS models
32263	1	ted@tcklaw.com	Spokane Tribe of Indians	The Tribe notes that the Agencies did not provide an extension of the public comment period even though they received numerous requests related to the Covid-19 pandemic, but for unknown reasons have chosen to overlook the pandemic's impact on the Region's governments and publics ability to review such a significant document during these difficult times.1 With that said, the Tribe's government is currently shutdown and some staff have been unavailable to review these comments and the DEIS. Accordingly, the Tribe will supplement these comments, if necessary, and fully expects the Agencies to consider any supplemental comments submitted by the Tribe.	The co-lead agencies considered requests to extend the public comment period. This NEPA process included a wide array of cooperating agencies whose close involvement throughout the process allowed the co-lead agencies to incorporate feedback. Given the broad range of comments received to date and the extensive Federal and non-Federal participation in the overall process as well as the level of public engagement in the six virtual public meetings in the region, the co-lead agencies determined that an extension was not warranted and that the 45-day public comment period was adequate consistent with NEPA regulations. The CRSO EIS website notified the public on April 9, that they should plan to submit comments by the close of the comment period.
32263	2	ted@tcklaw.com	Spokane Tribe of Indians	The Objectives do not recognize the all of the Agencies' mandatory duties under the Northwest Power Act In the multiple and some places differing lists of "Resource Purposes" the Agencies acknowledge only a portion of their duties under the Northwest Power Act ("Act"). The Agencies misunderstanding is most concisely stated in Section 8.3.6 of the DEIS: Provisions of the Northwest Electric Power Planning and Conservation Act of 1980 (Northwest Power Act) (16 U.S.C. 839 et seq.) require Bonneville to balance multiple public duties and purposes: helping to ensure the Pacific Northwest has an adequate, efficient, economical, and reliable power supply; promoting energy conservation and the use of renewable resources; and, consistent with the program developed by the Northwest Power and Conservation Council (NW Council), protecting, enhancing, and mitigating fish and wildlife to the extent affected by the development and operation of the Federal Columbia River Power System (FCRPS), which includes the Columbia River System (CRS). Bonneville complies with these provisions of the Northwest Power Act through the Fish and Wildlife Program and other actions. Under the Northwest Power Act, Bonneville, the Corps~ and the Bureau of Reclamation (Reclamation) exercise their responsibilities of operating the CRS in a manner that provides equitable treatment for fish and wildlife and with the other purposes for which CRS facilities are operated and managed. In addition, the co-lead agencies consider in their decision making the NW Council's Fish and Wildlife Program and Mainstem Amendments to the fullest extent possible. (DEIS at 8.3.6) (Emphasis added). The Act requires far more. To illustrate, the Act requires that "[f]ollowing the adoption of the plan [Power Plan] and any amendments thereto, all actions of the Administrator pursuant to Section 839d of this title shall be consistent with the plan and any amendment thereto, except as otherwise specified in the chapter." 16 U.S.C. 839b(d)(2). Further, BPA must fund the protection, mitigation and enhancement of fish and wildlife "to the extent affected by the development and operation of any hydroelectric project of the Columbia River and its tributaries in a manner consistent with the plan, if in existence, the Program adopted by the Council under this subsection, and the purposes ofthis chapter." 16 U.S.C. 839b(h)(10Xa). As stated above, the Agencies mention some of the duties in 16 U.S.C. Section 839b(11)(A), but fail to address the mandate of the entire section: (11) (A) The Administrator and other Federal agencies responsible for managing, operating, or regulating Federal or non-Federal hydroelectric facilities located on the Columbia River or its tributaries shall– (i) exercise such responsibilities consistent with the purposes of this chapter and other applicable laws, to adequately protect, mitigate, and enhance fish and wildlife, including related spawning grounds and habitat, affected by such projects or facilities in a manner that provides equitable treatment for such fish and wildlife with the other purposes for which such system and facilities are managed and operated; (ii) exercise such responsibilities, taking into account at each relevant stage of decisionmaking processes to the fullest extent practicable, the program adopted by the Council under this subsection. If, and to the extent that, such other Federal agencies as a result of such consideration impose upon any non-Federal electric power project measures to protect, mitigate, and enhance fish and	The agencies are aware of their responsibilities under all applicable laws, including their responsibilities under the Northwest Power Act at 16 U.S.C. 839b(h)(11), and demonstrate compliance in Chapter 8, Compliance with Environmental Laws, Regulations and Executive Orders in the Final EIS and in their decision document. Section 4.f of the commenters letter suggests that the agencies have failed to fulfill their responsibilities under 16 U.S.C. 839b(h)(11) specifically, to take into account the Councils Fish and Wildlife Program to the fullest extent practicable by not incorporating mitigation recommended through the Councils Fish and Wildlife Program into the EIS. However, the agencies responsibility to take the Councils Program into account under this statutory provision pertains to their shared management and operation of the system. The provisions of the Councils Fish and Wildlife Program cited in the comment, however, do not include any recommendations related to operations or management of the CRS for the agencies to consider. Instead, the comment focuses on the Councils recommendation for non-operational enhancement actions proposed for Bonneville to fund as off-site mitigation under a separate Section of the Northwest Power Act, 16 U.S.C. 839b(h)(10)(A). As described in Chapter 7 of the EIS, such mitigation funding decisions for the Bonneville Fish and Wildlife Program are not being made as part of the CRSO EIS process, and therefore, need not be considered at this stage of decision-making. Furthermore, under 16 U.S.C. 839b(h)(10)(A), such recommendations for off-site mitigation apply only to Bonneville; neither the Corps nor Bureau of Reclamation need consider them. For additional information on existing and proposed mitigation measures, please see Chapters 2, 5 and 7 of the EIS.

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				wildlife which are not attributable to the development and operation of such project, then the resulting monetary costs and power losses (if any) shall be borne by the Administrator in accordance with this subsection. (B) The Administrator and such Federal agencies shall consult with the Secretary of the Interior, the Administrator of the National Marine Fisheries Service, and the State fish and wildlife agencies of the region, appropriate Indian tribes, and affected project operators in carrying out the provisions of this paragraph and shall, to the greatest extent practicable, coordinate their actions. 16 U.S.C. Section 839b(h)(11).	
32263	3	ted@tcklaw.com	Spokane Tribe of Indians	The Tribe has the following recommendations. First, the Agencies, should rewrite the purposes of the DEIS to include all of the purposes of the Northwest Power Act, not just the sections favorable to the Agencies' desired outcome. Second, the Agencies should include and consider their full range of duties pursuant to the Act, not just the provisions they have chosen to focus on. The Agencies' misunderstanding of their mandatory duties under the Act is a problem that is woven through several of the following identified issues.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. The Preferred Alternative includes a combination of measures that meet the Purpose and Need Statement and objectives of the Columbia River System Operations (CRSO) EIS, while providing a balance to the authorized purposes of the 14 Federal dam and reservoir projects that make up the CRS. The co-lead agencies are aware of their responsibilities under the Northwest Power Act as demonstrated in Chapters 1, 2, 3, 5, 7 and 8. The co-lead agencies will also demonstrate compliance with the Northwest Power Act in their Record of Decision.
32263	4	ted@tcklaw.com	Spokane Tribe of Indians	Given the above mandatory duties, Tribe began its scoping comments with a focus on the Council's Fish and Wildlife Program. (Attachment 1). Then in the fall of 201 7, the Tribe began to understand that its concerns were not being considered. The Agencies were instead considering multiple alternatives, one of which would imagine an alternate reality where the Endangered Species Act and the Northwest Power Act did not exist. The Tribe sent a letter outlining its concerns with this concept and requested that instead of playing imagination far outside the scope ofthe Agencies authority (repealing the Endangered Species Act and Northwest Power Act), they instead should conduct the logical alternative based on full implementation of the Council's Plan and Program. (Attachment 2). This recommendation seemed reasonable given the Act's direction to the Council for developing the Fish and Wildlife Program: The Council shall promptly develop and adopt, pursuant to this subsection, a program to protect, mitigate, and enhance fish and wildlife, including related spawning grounds and habitat, on the Columbia River and its tributaries. Because ofthe unique history, problems, and opportunities presented by the development and operation of hydroelectric facilities on the Columbia River and its tributaries, the program, to the greatest extent possible, shall be designed to deal with that river and its tributaries as a system. 16 U.S.C. 839b(h)(l). The Program is developed through an extensive public process while "giving due weight to the recommendations, expertise, and legal rights and responsibilities of the Federal and the region's State fish and wildlife agencies, and appropriate Indian tribes." 839b (h)(7). Even though the Program is supported by the Act and developed and approved by the Region as its chosen path to mitigate for the CRS (which is part of the FCRPS), the Agencies dismissed this request even though it should be the logical starting point when considering any mitigation measure for the FCRPS or CRS. The Agencies informed the Tribe that they had no intention of properly considering the Fish and Wildlife Program to the extent required by the Act (Attachment 4) and had no intention of "taking into account at each relevant stage of decision making processes to the fullest extent practicable" the Council's Plan or Program or for that matter the entirety of purposes of the Northwest Power Act. Unfortunately, this initial failure to properly take into account the Council's Plan and Program led to problems throughout the DEIS.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the CRS. This EIS has been developed in consultation with National Marine Fisheries Service (NMFS) and U.S. Fish and Wildlife Service (USFWS) to find an acceptable balance that allows the co-lead agencies to meet the Purpose and Need Statement while minimizing impacts to affected ESA-listed species and their habitats. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. As stated in Chapter 8, a biological assessment (Appendix V) was submitted to both NMFS and USFWS, to support development of Biological Opinions (BiOps). The NMFS and USFWS BiOps are also included in Appendix V and demonstrate compliance with ESA. Chapter 8 of the EIS also demonstrates the co-lead agencies' compliance the Northwest Power Act. Just as the Councils fish and wildlife program encompasses both Federal and non-Federal stakeholders in the Columbia Basin, the Councils recovery goals are shared by many parties. Based this fish analysis in Section 7.7.4, the Preferred Alternative will make a meaningful contribution, but the Councils broad sense recovery goals are beyond the scope of this EIS which focuses on the effects associated with the operation and maintenance of the 14 CRS projects. The comment seems to take issue with the EIS analysis of an alternative that emphasizes hydropower generation, and suggests that, in doing so, the co-lead agencies necessarily imagine an alternate reality in which the Northwest Power Act does not exist. The commenter raised a similar point earlier in this EIS process, characterizing a draft preliminary alternative focusing on hydropower generation as a concerning pre-Northwest Power Act alternative. The co-lead agencies provided a letter response (cited in this comment as commenters Attachment 4). The letter explained the analytical benefit of considering such an alternative: to help understand the tradeoffs between hydropower and other operations and to show the impacts of various operations on affected resources. Such evaluation of potential tradeoffs and various effects of different system operations is appropriate analysis to consider within this EIS. In addition, consideration and analysis of system operations emphasizing hydropower generation does not equate to ignoring the existence of the Northwest Power Act, as the comment suggests. No alternative considered in the EIS suggests that that the Northwest Power and Conservation Councils (Council) Fish and Wildlife Program, or mitigation implemented consistent with that Program under the Northwest Power Act, would cease to exist. Bonneville's Fish and Wildlife Program is first described in section 2.4.2 as an existing program under the No Action Alternative that will continue. This section provides a high-level overview of Bonneville's Fish and Wildlife Program, many of its major subprograms and their benefits, including habitat actions, hatchery actions, predator management, lamprey research and mitigation, and wildlife mitigation. Moreover, the comment misreads or mischaracterizes the co-lead agencies earlier response letter (cited in this comment as commenters Attachment 4). Nowhere in that letter do the co-lead agencies state that they have no intention of considering the Councils Fish and Wildlife Program. The co-lead agencies have taken into account the Councils Program and the Northwest Power Act in this EIS. For example, under the Councils Fish and Wildlife Program, the overarching anadromous fish goal includes a smolt-to-adult return of 2-6%. The EIS analyzed and considered SAR implications of the various alternatives. In addition, the CSS model predicts that certain smolt-to-adult return rates under the Preferred Alternative would increase from 2.0% to 2.7%, within the range included in the Council Program goal for anadromous fish.
32263	5	ted@tcklaw.com	Spokane Tribe of Indians	Of all the issues identified by the Tribe, the Agencies complete failure to consider any aspect of reintroduction of salmon and steelhead above Chief Joseph ("CJD") and Grand Coulee Dams ("GCD") is by far the most troubling. Troubling because this issue has been analyzed by various federal Agencies to varying degrees since at least 2002.2 Further frustrating the matter has been BPA's failure to adequately fund the Fish and Wildlife Program's Phased Approach to reintroduction, even though it began conducting its own internal process to look into reintroduction as far back as 2014, including attempts to have an outside contractor perform a project for BP A away from the public's review. 3 Further, documents received in response to a recent FOIA request sent to BOR include undated talking points for BOR that state the following: Upstream volitional passage through conventional fish ladders is technically feasible, but would be enormously expensive and probably very difficult to justify. On the other hand, a trap and haul operation that captures adults below Chief Joe and trucks them somewhere above Grand Coulee would be much more affordable and effective. Probably the most costly and technologically challenging issue is providing safe downstfeam passage of smolts through the two dams. Its never been attempted on facilities even half the size of Grand Coulee Dam. Its also not known if a smolt swimming down the upper Columbia River could find its way through the hundred mile long Lake Roosevelt and even get to Grand Coulee Dam. I think those are the kinds of thing we have to put some study into before anybody commits to implementing reintroduction. We have to remain open to possible low tech and low cost solutions as well. Its doubtful reintroduction could ever successfully restore populations to near pre-dam levels. But if we could figure out a low cost low tech solution that achieved even a small fraction of historic run sizes, and didn't threaten the current benefits these facilities produce for the region, then maybe we can all find a happy median.4 Unfortunately, the Agencies have clearly considered reintroducing salmon and steelhead above CJD and GCD outside of the public's view, but have decided to ignore all of the public information developed by the Agencies and others in the Region on reintroducing salmon and steelhead above CJD and GCD pursuant to the 2014 Fish and Wildlife Program. If not corrected, a flawed Record of Decision will be approved and serve as an operations manual for the next 25 years for the CRS. In general, the Agencies' stated the following in regards to ignoring the Tribe's repeated requests to ensure that reintroduction is included in an alternative and/or as mitigation. The excuse being articulated by the Agencies is this statement: Reintroduction of salmon above Grand Coulee Dam and installation of fish passage at Grand Coulee and Chief Joseph Dams is an important and complex, large-scale concept. Its consideration, evaluation, and implementation should involve multiple tribal, federal, state, and other entities. A coordinated approach among water users, tribes, states, multiple federal agencies, and others would be necessary. To allow so many differing interests to coordinate on such a complex topic, which may include international considerations, a decision-making framework and a series of regional workshops would be necessary just to approach the first step of defining reintroduction objectives. Given the incompatibility of such a wildlife management decision-making framework with an analysis of the operation of the CRS, it is not feasible to proceed with a detailed consideration of reintroduction in this EIS. Moreover, to meaningfully analyze reintroduction as a measure, the details of the proposal would need to be understood well enough to include in hydrologic, water quality, and fish models. That information is not currently available, and development of those details was not possible in the timeframe of this NEPA process. Nevertheless, the agencies and interested regional sovereigns are developing a framework to address critical information gaps. DEIS, Executive Summary at 13-14. This statement and others is not an excuse based on the current available information, nor does it provide for the appropriate level of consideration of the Fish and Wildlife Program. Sadly, this single sentence is the most problematic: "Its consideration, evaluation, and implementation should involve multiple tribal, federal, state, and other entities. A coordinated approach among water users, tribes, states, multiple federal agencies, and others would be necessary." It is the most problematic statement because consideration of the reintroduction of salmon and steelhead above CJD and GCD has occurred and is ongoing via the Fish and Wildlife Program and implementation of it. The Program is developed through a robust process that includes ample amounts of statutorily prescribed involvement by all the entities listed in the Act, which are the same entities listed in the Agencies CRSO DEIS. Again just as in the 2014 Fish and Wildlife Program5, in 2019-2020 all of the same process was followed. The same Tribes, States, Federal Agencies, irrigators, power customers, transportation providers, commercial fishing interests, along with the general public provided their review and input, and again the Council adopted and stated the following in the 2020 Addendum to the 2014 Fish and Wildlife Program: Implementer: Bonneville and others Continue to make progress on the program's phased approach to evaluate the possibility of reintroducing anadromous fish above Grand Coulee and Chief Joseph dams. Continuing to assess the feasibility of reintroducing anadromous fish is one measure in the suite of mitigation measures recommended by the Spokane Tribe ofIndians (see previous measure). Continuing to make progress on this measure received substantial support in the amendment process from many governmental and non-governmental entities. 2020 Addendum at Page 5, Pre-Publication Version. It is impossible to square this direction from the Program, which the Agencies are required to be "taking into account at each relevant stage of decision making processes to the fullest extent practicable," with what is stated in the DEIS regarding their justification for failing to consider and include reestablishing salmon and steelhead above Chief Joseph and Grand Coulee Dams within an alternative and/or in the mitigation. See 16 U.S.C. Section 839b(h)(11). In short, the Region through the Congressionally designed public and transparent process has decided how the Region wants to handle the Agencies prior decisions to operate and manage CJD and GCD without fish passage facilities, but the Agencies simply have chosen to ignore this Congressionally sanctioned process. Unfortunately this is nothing new, the Agencies have done this for the past six - (6) years by failing to meaningfully fund Phase One of the 2014 Fish and Wildlife Program, and again by proposing that a new novel process is needed or required in this DEIS6, all the while ignoring the 2020 Fish and Wildlife Program Addendum. This appears to be designed, as a way for the Federal Agencies to impose their will on the Region, and this is not supported by the Congressionally mandated method for developing mitigation for impacts of the FCRPS, the Fish and Wildlife Program. See 16 USC 839b(h). In short, this is just an attempt to avoid the Region's decisions and instead pursue the federal government's goals for our Region and our	Measures to reintroduce salmon above Chief Joseph and Grand Coulee dams were evaluated early in the alternative development process but eliminated from further consideration. Reintroduction is an important and complex, large-scale concept. Its consideration, evaluation, and implementation should involve multiple tribal, federal, state, and other entities. A coordinated approach among water users, tribes, states, multiple federal agencies, and others would be necessary. To allow so many differing interests to coordinate on such a complex topic, which may include international considerations, a decision-making framework and a series of regional workshops would be necessary just to approach the first step of defining reintroduction objectives. Given the incompatibility of such a wildlife management decision-making framework with an analysis of the operation of the CRS, it is not feasible to proceed with a detailed consideration of reintroduction in this EIS. Moreover, to meaningfully analyze reintroduction as a measure, the details of the proposal would need to be understood well enough to include in hydrologic, water quality, and fish models. That information is not presently available, and development of those details was not possible in the timeframe of this NEPA process. Nevertheless, the agencies and interested regional sovereigns are developing a framework to address critical information gaps. This effort was initiated on June 23, 2020 when the co-lead agencies participated in a discussion with regional sovereigns concerning fish management in blocked areas.

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				resources. Recommendation: Given that the impact of this DEIS claims to look 25 years into the future, 2020-2045, Agencies must include in their analysis consideration and impacts to planned and anticipated populations of salmon and steelhead in the areas above CJD and GCD. This should include an alternative that considers salmon and steelhead migration in and out of the areas above CJD and GCD.7 In addition, to measures that can benefit both ESA8 and non-listed anadromous species that previously occupied habitats above CJD and GCD.	
32263	6	ted@tcklaw.com	Spokane Tribe of Indians	Several Tribes, including the Spokane Tribe are currently conducting reintroduction efforts that include the release of adult salmon for ceremonial and educational purposes into the areas above GCD. The Spokane Tribe is also releasing tagged juvenile salmon above GCD.9 The Tribe exercising its regulatory authority over parts of the Columbia and Spokane Rivers, along with other tributaries within its Reservation approved these actions. The preferred alternative's direct and indirect effects on these activities was not analyzed in the DEIS. Recommendation: The Agencies should include an analysis of the preferred alternative's impacts on the current and ongoing reintroduction, and educational and cultural salmon releases conducted by the Tribes.	While changes to operations could affect any salmon that are released above Grand Coulee Dam for ceremonial or educational purposes, effects, if any, would likely be minor, but information is lacking that impedes an effects analysis. The Upper Columbia United Tribes Fish Passage and Reintroduction Phase 1 Report (https://ucut.org/habitat/fish-passage-and-reintroduction-phase-1-report/) found that the reintroduction of salmon to the U.S. portion of the upper Columbia River upstream of Chief Joseph Dam is likely to achieve identified tribal goals given (among other factors) "Current dam operations" and "Existing riverine and reservoir habitat conditions". The divergence from the current dam operations (as represented by the No Action Alternative) and the Preferred Alternative riverine and reservoir habitat conditions consists of minor changes in reservoir elevations, inflows, and outflows. These minor changes could affect released salmon. Effects to released sockeye salmon and summer/fall Chinook salmon in Lake Roosevelt and tributaries, as well as the transboundary reach of the Columbia River could be similar to effects for kokanee, as analyzed in the Draft EIS in Section 7.7.5.2 Region B. However, specific information regarding their habitat use such as spawning and rearing areas, migration timing, and use of reservoir habitats is not available; this impedes a meaningful effects analysis at this time.
32263	7	ted@tcklaw.com	Spokane Tribe of Indians	Environmental Consequences Chapter 3 fails to address the consequences to the Tribe's plans and polices to reintroduce salmon and steelhead to its waters and Reservation lands. The Environmental Consequences section must discuss and consider: "Possible conflicts between the proposed action and the objectives of Federal, regional, State, and local (and in the case of a reservation, Indian tribe) land use plans, policies and controls for the area concerned." 40 CFR Section 1502.16(c) As the Agencies are aware, the Spokane Tribe of Indians retains ownership to the beds and banks of the all of its Reservation boundary waters. This includes the bordering sections of the Columbia River, the Spokane River and Tshimikain Creek, along with numerous small tributaries within its borders. The Tribe retains significant regulatory authority over these water bodies that are within its Reservation. The following are highlights of that authority, but by no means a complete description. The Tribe was granted treatment as a state status under the Clean Water Act in 2002, and EPA approved its first water quality standards in 2003. The Tribe's water quality standards apply to sections of the area impacted by the federal agencies management of the CRS. Additionally, the Five Party Agreement states the following in regards to the Spokane Tribe's Reservation Zone of Lake Roosevelt: The Spokane Tribe shall manage, plan and regulate all activities, development, and uses that take place within that portion of the Reservation Zone within the Spokane Reservation in accordance with applicable provisions of federal and tribal law, and subject to the statutory authorities of Reclamation, and consistent with the provisions of this Agreement subject to Reclamation's right to make use of such areas of the Reservation Zone as required to carry out the purposes of the Columbia basin Project. Lake Roosevelt Cooperative Management Agreement, IV.(D)(3)(c). Important to the discussion here, the Tribe's adopted 2008 Integrated Resource Management Plan includes the following: "The long term goal is to restore anadromous salmon to those areas now blocked by Chief Joseph and Grand Coulee Dams."10 Finally, in pursuit of this goal, after review of the current scientific and policy information and in light of its regulatory authority, the Tribe, by Resolution 2018-422, granted permission and provided policy direction to its Department ofNatural Resources to implement salmon and steelhead reintroduction into the Tribe's waters. (Attachment 5). This action was further supported by the Tribe with its approval of the UCUT Phase One Report via Resolution 2019-206. (Attachment 6). In short, the Tribe is responsible for regulating a portion of the area impacted by the federal agencies management, and operation decisions contemplated in the DEIS. Accordingly, the Agencies are required to consider the Tribe's "plans, policies and controls for the area concerned."11 Recommendation: To address the potential impacts on these "plans, policies and controls for the area concerned" the Tribe urges the Agencies to develop an alternative that includes a measure that takes the required hard look at a future where one or more anadromous species are migrating in and out of the areas above CJD and GCD. The existing life cycle model and information discussed below, along with the information developed by the Columbia River Partnership Taskforce of the Marine Fisheries Advisory Committee12 can be used to support the Alternative's development. Furthermore, since the adoption of the Northwest Power and Conservation Council's 2014 Fish and Wildlife Program's Phased Approach to the reintroduction of anadromous fish into the blocked areas above Chief Joseph and Grand Coulee Dams, multiple entities in the Region completed the vast majority of Phase One of the Fish and Wildlife Program's reintroduction approach. This work includes the following documents, which are hereby incorporated by reference into the Administrative Record and can be utilized by the Agencies in developing the recommended alternative measures and mitigation. The Upper Columbia United Tribes -Phase One Report available at https: / ucut.org/wp-content/uploads/20 19/05/Fish-Passage-and-ReintroductionPhase-!- Report. pdf (Attachment 15) ISAB Review of the UCUT- Phase One Report available at https: /www.nwcouncil.org/reports/isab20 19-3 (Attachment 14) The following documents, which directly contribute to the Phase One Report, are all incorporated into the Administrative Record and available at https://ucut.org/habitat/fishpassage- and-reintroduction-phase-1-report/ Baldwin 2018 - Assessment of Sockeye Spawning Habitat in Sanpoil Baldwin and Bellgraph 2017- Above Chief Joseph Redd Capacity Tech Memo Bellgraph, B.J., C. Baldwin, L. Garavelli, Z. Haque, W. Perkins, M. Richmond, M. Howell, J. McLellan. In Review. Estimates of Chinook Salmon Spawning Habitat in a Blocked Reach ofthe Columbia Upstream of Grand Coulee Dam. Submitted to Northwest Science. Giorgi 2018 - Potential Habitats for Reintroduction Giorgi and Kain 2018- Sockeye Rearing Capacity of Roosevelt Hanrahan et al. 2004 -Rufus Woods Chinook Spawning Habitat Hardiman et al. 2017 - Reintroduction Risk and Donor Stock ICF 2017- Reintroduction Potential for Sanpoil and Roosevelt ICF 2018- Reintroduction Potential for Spokane and Roosevelt Kock et al. 2019- Factors Influencing Fish Collector Performance at High-Head Dams NPCC 2016- Review ofFish Passage Technologies at High-Head Dams Related Analyses: The following informative works were not incorporated into the Phase 1 Report (listed in alphabetical order), but are incorporated into the Administrative Record and available at: https: / ucut.org/habitat/ fish-passage-and-reintroduction-phase-1- report/ Bussanich et al. 2017- Tributary Assessment ofPotential Salmon Spawning Habitat Golder 2016- Salmon Habitat Availability inCA Transboundary Reach Golder 2017- Salmon Habitat Availability inCA Transboundary Reach ICTRT 2005 -Updated Population Delineation ICTRT 2007- Role of Extirpated Areas in Recovery USACE 2002 -Chief Joseph Fish Passage Alternatives Warnock et al. 2016- Chinook donor stock assessment in Transboundary Reach	Please see response to Comment 32263-5.
32263	8	ted@tcklaw.com	Spokane Tribe of Indians	Mitigation (a) The DEIS does not address the Agencies'.continued management and operation of GCD and CJD without providing for salmon and steelhead reestablishment into the habitats above those facilities As many regional FERC regulated entities have discovered through recent reintroduction efforts driven by their FERC hydropower license renewals, fish passage is possible at high head facilities with significant reservoir elevation fluctuations, and is clearly the most in-kind and in-place mitigation for impacts to salmon and steelhead caused by these dams.13 Furthermore, the BORis pursuing fish passage and reintroduction at Cle Blum Dam, which includes a reservoir that fluctuates "over 100 feet" depending on the season.14 (The Tribe incorporates into the Administrative Record by reference all documents, including video links contained in the footnotes). Finally, there are numerous other facilities throughout the Region that are discussed in more detail in the Council's Staff Paper, Review ofFish Passage Technologies at High-Head Dams. 15 Unfortunately, the Agencies in the DEIS decided not include or even discuss reestablishment of salmon and steelhead above GCD and CJD as appropriate mitigation. (1) The Agencies preferred alternative was chosen without considering operation and management CJD and GCD for the next 25-years with the inclusion of fish passage facilities to address those facilities impacts on extant and planned salmon and steelhead populations. The DEIS mitigation section identifies "inkind and in-place mitigation to address impacted resources at the location of impact" as the most preferable option of mitigation when impacts cannot be avoided. However, even with this being the preferred type of mitigation the Agencies ignored their operations and management impact. (2) The Tribe has documented Redband trout populations below GCD and CJD. A portion ofthe Redbandjuveniles begin their lives above GCD, go through smoltification, and make their way to the Pacific. 16 This directly challenges the Agencies statement that "[t]he co-lead agencies are not proposing any mitigation measures in Regions A orB (upstream of Chief Joseph) for impacts to anadromous fish because there are no anadromous fish above Chief Joseph Dam." DEIS 5.4.1 .2. Currently, those wild steelhead (Redband) have no passage back to the Tribe's Reservation, such as truck and haul facilities used elsewhere in the CRS. This does not mean, "there are no anadromous fish," it means the Agencies are choosing to manage CJD and GCD as if there are no anadromous fish. Recommendation: Agencies must consider and analyze fish passage and reestablishment at CJD and GCD as a mitigation measure in the CRSO DEIS. This is necessary to address the historic blockage, but also the current impacts to the Tribe's current reintroduction efforts within their Reservation and its waters, and to the current Redband trout populations above GCD.	Please see response to Comment 32263-5.
32263	9	ted@tcklaw.com	Spokane Tribe of Indians	Lake Roosevelt "Fall Flex" The preferred alternative includes changes in Lake Roosevelt's elevation targets in the fall. This particular operation was a contentious issue addressed in the development of the Fish and Wildlife Program's 2020 Addendum. The situation is best described in the Findings on Recommendations and Responses to Comments for the 2020 Addendum to the 2014 Fish and Wildlife Program ("Findings"). The discussions and correspondence around Fall Flex are accurately described in the Findings: The Spokane Tribe of Indians recommended that the existing program language regarding operations at Grand Coulee Dam remain in the program and be implemented. In an exchange of comments on the recommendations, Bonneville and the Spokane Tribe of Indians and the Confederated Tribes of the Colville Reservation differed over whether conditions were ripe for the program to call for a more flexible approach to fall operations at Grand Coulee Dam, permitting the operators to manage Lake Roosevelt to a minimum elevation of 1,283 feet by the end of October rather than the end of September. After discussions, Bonneville, the Spokane Tribe of Indians and the Colville Tribes asked the Council not to address this issue in the Addendum, effectively retaining the language on Grand	The operational measure discussed in this comment pertains to fall reservoir elevations at Lake Roosevelt. Another measure for flood risk management also affects Lake Roosevelt reservoir elevations in the spring. Given the potential resident fish habitat impacts from reservoir elevation changes associated with this operation, the agencies proposed a mitigation measure intended to augment spawning habitat to offset expected impacts. The co-lead agencies evaluated the impacts and based on their expertise, proposed the addition of gravel to augment spawning habitat. Based on the results of ongoing and future studies of the impact of this operation, the agencies may adapt the mitigation action, as appropriate, in coordination with the fish and wildlife managers. This approach tracks with statements in the Northwest Power and Conservation Councils Findings to its 2020 Program Addendum suggesting need for further evaluation and discussions with fish managers relating to Lake Roosevelt refill timing. The comment notes that this issue has been considered in the Northwest Power and Conservation Councils (Council) Fish and Wildlife Program and that the Council did not make a specific proposal in its recent addendum, leaving prior Program guidance on this issue in place at the request of Bonneville, the Spokane Tribe, and the Colville Tribe. Relevant guidance from past Council Programs dates back to the 2003 Mainstem Amendments and included guidance for Grand Coulee operations to attempt to refill Lake Roosevelt to 1283 feet in August. Subsequent biological opinions impacted the ability to refill by the end of August, so this elevation was moved to later in the season. Given the aspirational language in the Mainstem amendments and the fact that subsequent changes to the target refill date were driven by other factors other than the Councils Program, the co-lead agencies disagree that the Council Program can dictate whether or not it is permissible

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				Coulee Dam operations in the 2014 Program. Any proposal to shift the fall operation needs further evaluation, information generation, and discussions between the project operators and the fish managers before proceeding.17 The Agencies included the elevation change in the Preferred Alternative with very specific mitigation that is not anchored to the above-described path. Instead the Agencies developed their own mitigation proposals with no input from the Tribe(s): The co-lead agencies propose to place appropriate gravel spawning habitat at locations up to 1 00-acres along the reservoir and tributaries. Prior to placement, the co-lead agencies would conduct site surveys post operations of an alternative to determine where to site spawning habitat at Lake Roosevelt for burbot, kokanee, and redband rainbow trout. DEIS at 5-17. This Agency chosen mitigation is further described in the Preferred Alternative chapter as: Increased flexibility of refilling Lake Roosevelt that may occur through the month of October, depending on the annual water conditions, may impact the spawning success of kokanee, burbot and redband rainbow trout. In 2019, Bonneville funded year one of a 3-year study to determine if modifications in Lake Roosevelt refill would impact resident fish access to spawning habitat. If the results indicate that resident fish spawning habitat is impacted by the operation, the co-lead agencies would supplement spawning habitat at locations along reservoir and tributaries (up to 100 acres). DEIS at 7-44, 7-45. A three-year study was funded in 2019 to address this specific change in operations. The three-year Lake Roosevelt "fall flex" study was funded in September of2019 after continuous pressure from the Spokane Tribe to investigate the potential tributary habitat loss as a result of delayed refill. BP A had been considering the use of Lake Roosevelt "fall flex" outside of the CRSO process for a number of years, and the funding for the investigation went to the Spokane Tribe, the agency to conduct the field work and data analyses, with no stated connection to the CRSO. The work was funded immediately before the fieldwork began. Therefore, the initial study was designed quickly and only examined Blue Creek. More importantly, while the study is being conducted, the Agencies have now predetermined the mitigation for "up to 100 acres" when the impacts are not understood. The findings from this preliminary study have not been submitted and as such the 1 00-acre nuniber is almost certainly arbitrary. Furthermore, one-time mitigation of 100 acres of gravel along shorelines and in drawdowns will not mitigate for the loss of habitat due to the fall drawdown. Eroding sand from wave action will cover mitigation gravels over time. And there are many other impacts (temperature increases, no pools, no complexity, no large woody debris, and visual exposure offish to predators due to no riparian channel cover, etc.) that will not be mitigated for by adding gravels. One could also argue that adding gravels in drawdowns would reduce in-stream flows and decrease available habitat by increasing hyporheic flows with gravel addition. Recommendation: Remove the predetermined mitigation and instead state that the mitigation will be developed in accordance with study outcomes in collaboration with fish and wildlife managers of Lake Roosevelt. Clearly state that if the fish and wildlife managers along with the Agencies cannot agree upon appropriate mitigation Fall Flex will not be implemented. Additionally, future mitigation must include operations that have adaptive management principles at 3-year intervals to ensure Redband trout populations do not incur negative impacts that are left unaddressed. Importantly, the DEIS identifies "habitat and spawning success effects from the earlier draft of Lake Roosevelt in above average water years" including "minor to moderate effects from increased stranding of kokanee and bur bot eggs and potential increased spawning habitat access issues for Redband rainbow trout" (Chapter 7, Lines 3703-3706). Investigation into tributary habitat losses in the fall may be ill-suited to address mitigation needs in the winter when the drawdown begins. This should be considered in any future studies on the preferred alternative.	to implement operations that result in variations to the Lake Roosevelt refill timing. However, the co-lead agencies remain willing to work with fish and wildlife managers to determine appropriate mitigation of impacts identified through studies if or when the operation occurs. Relevant mitigation guidance in the Councils Program would inform this discussion, and would be more in line with the Programs statutory role that is, to guide fish and wildlife mitigation for system operations, not to prescribe the operations themselves.
32263	10	ted@tcklaw.com	Spokane Tribe of Indians	Spokane Arm of Lake Roosevelt Dissolved Oxygen impairment The Mitigation Chapter and the Preferred Alternative chapters fail to address mitigation measures to address the dissolved oxygen impairments that can occur in the Spokane Arm of Lake Roosevelt during certain time periods. The preferred alternative will continue to impact the this portion of Lake Roosevelt that is subject to the Tribe's EPA approved water quality standards and the Tribe expects the Agencies to provide appropriate mitigation for this impact. The issue of dissolved oxygen impairments within the Spokane Arm was raised during the development of the Spokane River DO TMDL. At that time EPA blamed this impairment on the current management and operation of GCD: Scenario #4 predicts that SOD is the most important factor affecting DO in the Spokane Arm (Figure 78). When SOD is reduced by 50%, DO levels in the deeper portions of the Arm increase to above 3 mg/L, and anoxic conditions are eliminated. While conditions are improved, they still do not achieve the 8 mg/1 riverine standard. The elevated SOD in the Spokane Arm is a legacy of the accumulation of oxygen-demanding pollutants in sediment. Sediment accumulation is, in tum, caused by the hydrologic regime created by Grand Coulee dam. These results indicates that improving SOD is critical to improving water quality, and that assumptions about SOD will have a significant impact on the estimation of "natural conditions" within the Arm.18 Recommendation: The Agencies should develop mitigation to address the Sediment Oxygen Demand ("SOD") impact that the Agencies' preferred alternative will continue to have on the water quality of the Spokane Arm.	The co-lead agencies agree that dissolved oxygen (DO) impairment in the Spokane Arm occurs in the No Action Alternative. In two alternatives, MO2 and MO4, in only the driest years and for short periods, there were indications in the model results that the DO impairment in the Spokane Arm could impact more of the water column. The Preferred Alternative water quality analysis does not demonstrate an increase in DO impairment in comparison to the No Action Alternative.
32263	11	ted@tcklaw.com	Spokane Tribe of Indians	Mercury There is considerable risk of increased mercury methylation in the reservoir due to the extended drawdown period and between-year water level fluctuations, which could result in higher human health risk than characterized by the current fish advisory. This risk is acknowledged in the DEIS, yet dismissed as comparable to the NAA for the Preferred Alternative given that 'changes in reservoir elevation are small' (Chapter 7, Lines 2115-2116). Literature on the nature of mercury methylation in reservoirs (e.g., Willacker et al. 2016, cited in the DEIS) suggests that increased duration of sediment exposure as well as increased variability of between-year reservoir elevations can also be a significant factor in the process. The increased drawdown duration is influenced by measures present in the Preferred Alternative including the reduced drafting rate and Lake Roosevelt 'Fall Flex' . Recommendation: No mercury mitigation is included in the DEIS. The Agencies must adequately fund regular fish tissue monitoring and commit to additional mitigation in the event of increasing mercury concentrations. The Spokane Tribal water quality standards are based on a fish consumption rate of 865 grams per day; relatively small changes in fish tissue mercury concentrations can further reduce the capacity of Tribe's membership to pursue traditional practices. Potential mercury impacts were identified as impacts of not only Fall Flex measure, but additionally the Lake Roosevelt Additional Water Supply Measure.	The co-lead agencies agree that there is an increased risk of mercury methylation in the reservoir due to the increase in water level fluctuations in some of the alternatives. The analysis relied on the modeled reservoir water elevations compared to the No Action Alternative and was determined to be a small increase in the risk associated with the water surface elevation changes. The Planned Draft Rate at Grand Coulee measure only impacts the duration of exposed sediments in the wettest years; and the Fall Operational Flexibility for Hydropower (Grand Coulee) measure results in minor elevation changes for a short duration in some years, mostly likely in the driest years. The Lake Roosevelt Additional Water Supply measure allows for additional water withdrawals, in comparison to the No Action Alternative, from Lake Roosevelt that reduce flows downstream of Grand Coulee but does not impact Lake Roosevelt pool elevations.
32263	12	ted@tcklaw.com	Spokane Tribe of Indians	Northern Pike The preferred alternative predicts that Northern Pike would "continue to invade downstream" and that there would be a "minor decrease in the ability for boat-based Northern Pike suppression" (Chapter 7, Lines 3714-3715). The Alternative then fails to provide any mitigation to address this impact. Recommendation: The Agencies must address and add mitigation to ensure this impact is fully mitigated given its threat to the entire Columbia River.	The co-lead agencies recognize the ongoing threat of downstream invasion of northern pike under the No Action Alternative and there would be a minor decrease in boat suppression efforts under the Preferred Alternative. The analyses showed there would be a minor effect (up to one week of boat ramp access impeded) in wet years only, and the resulting overall effect to the invasion of northern pike would be minor. The co-lead agencies recognize and appreciate the importance of northern pike invasion as a regional issue, but, in this EIS process, the co-lead agencies developed mitigation for moderate to major effects of the multiple purpose alternatives as compared to the No Action Alternative. Because the impact to northern pike was minor, mitigation was not appropriate for this effect.
32263	13	ted@tcklaw.com	Spokane Tribe of Indians	Mitigation Generally in the Areas above Grand Coulee Dam As stated above the Agencies are required to exercise their authorities in managing the CRS consistently with the purposes of the Northwest Power Act, consider to the fullest extent practicable the Fish and Wildlife Program during every step of the their decision making, and are required to consult with the Tribe(s) and attempt to coordinate their actions "to the greatest extent practicable." See 16 U.S.C. Section 839b(11)(A). Here, thus far the Tribe's requests that the Agencies provide appropriate mitigation consistent with the Fish and Wildlife Program have fallen on deaf ears. Beyond the previously discussed requests by the Tribe to include salmon and steelhead reintroduction within the DEIS (Alternative and Mitigation), the Agencies have completely failed to act consistently with or follow the guidance of the Council's 2020 Addendum to the Fish and Wildlife Program directing an increase in mitigation to the areas above GCD. The 2020 Addendum states the following: Implementer: Bonneville Implement a broad suite of actions to mitigate for the complete loss of anadromous fish and the losses to other fish and wildlife species in the Lake Roosevelt and Spokane River areas above Grand Coulee and Chief Joseph dams, as well as ongoing operational impacts. Increase significantly the level of mitigation for these losses without compromising the substantive protection and mitigation activities elsewhere in the basin. 2020 Addendum, at 4. 19 The Agencies in the preferred alternative explain that there will be increased impacts to the areas above GCD, but only propose two new measures. (1) Related to the Inchelium-Gifford Ferry, and (2) the other related to proposed changes in the hydropower operations within Lake Roosevelt in the Fall Flex section (discussed above "up to 100 acres"). Beyond that all other impacts are left unmitigated, and the above-section of the Fish and Wildlife Program 2020 Addendum is not considered at all by the Agencies in their decision-making process. Recommendation: The Agencies should expand and include significant new mitigation for the continuing and the proposed new impacts of the preferred alternative within the areas above Grand Coulee Dam as directed by the Fish and Wildlife Program.	The co-lead agencies are aware of their Northwest Power Act section 4(h)(11)(A)(ii) duty to take the Northwest Power and Conservation Councils (Council) program into account to the greatest extent practicable in their decision making on issues related to Columbia River System (CRS) operations and management. This is distinct from section 4(h)(10)(A) that applies only to Bonneville's responsibility to mitigate fish and wildlife affected by the CRS in a manner consistent with the Councils program. 16 U.S.C. 839b(h)(10)(A). The comments recommendation appears to apply the latter standard to all three co-lead agencies when section 4(h)(10)(A) of the statute applies to Bonneville only. Please also see Section 5.1.2 in the Draft EIS. The comment also contends that the co-lead agencies have not consulted or coordinated with state and tribal fisheries managers as required by section 4(h)(11)(A) of the Act. State and tribal fisheries managers were either consulted as cooperating agencies under the EIS or as part of the three-tiered government-to-government consultation process established for this EIS. The comment further asserts that the co-lead agencies are responsible for mitigating the complete loss of anadromous fish and the losses to other fish and wildlife species in the Lake Roosevelt and Spokane River areas above Grand Coulee and Chief Joseph dams. The co-lead agencies understand the nature and extent of the adverse effects arising from the development and operation of these two dams. The comment, however, overstates those impacts at least with respect to Grand Coulee Dam effects on Spokane River fish and wildlife. There are seven dams on the Spokane River, from Post Falls Dam at the outlet from Lake Coeur d'Alene to Little Falls Dam. Non-Federal entities built these dams between 1890 and 1922, and none of these dams have fish-passage facilities. Little Falls Dam, completed in 1911 at river mile 29, stopped the fish from returning farther upstream.1/ In addition to these dams, the Spokane Tribe recently co-authored a report that said, [u]pper Columbia River salmon runs were largely depleted in the 1880s and 1890s by commercial fisheries and the advent of salmon canning in the lower Columbia.2/ The historical development of hydropower on the Spokane River and the legacy impacts of commercial fishing in the late 19th-century indicate that Grand Coulee Dam is not the sole cause of the complete loss of anadromous fish and other species of fish and wildlife in the Spokane River area. Therefore, this comment, and the provision of the Northwest Power and Conservation Councils 2020 Addendum it cites, are not wholly accurate and do not offer appropriate guidance to the co-lead agencies. Finally, the comment argues that the Agencies should expand and include significant new mitigation for the continuing and the proposed new impacts of the Preferred Alternative within the areas above Grand Coulee Dam as directed by the Fish and Wildlife Program. Bonneville has funded a significant amount of mitigation in the Upper Columbia River Basin, consistent with past and current Northwest Power and Conservation Council Fish and Wildlife programs. Recent examples include hatchery construction and improvement actions for Chinook, sturgeon, burbot, and trout; habitat restoration actions mitigating operational impacts; and new resident fish mitigation protecting thousands of acres in Montana, including extensive trout habitat that also provides significant wildlife benefits. In the 2020 addendum, the Council based its recommendation for additional mitigation in the Upper Columbia on an incomplete record that did not include all of the work currently underway or completed.3/ A complete tally would show Bonneville alone is currently funding three dozen projects to address Chief Joseph and Grand Coulee impacts.4/ Moreover, the Agencies note that reporting on www.cbfish.org, CB Fish, shows the area above Chief Joseph Dam, the Intermountain Province, falls mid-way at the mean annual funding level of the 11 provinces described by the Council and used for mitigation tracking. 5/ In their recommendation, the Council also failed to acknowledge the significant Federal Columbia River Power System (FCRPS) operations performed routinely to protect fish affected by Chief Joseph and Grand Coulee. These mitigation efforts comply with applicable statutory mandates. Indeed, this level of effort comports with the Councils longstanding general policy, consistent with the intent of Section 2(6) of the Act, in which the Council has directed most of its habitat restoration funds for anadromous fish below blocked areas.6/ 1/ Council website, History of the Columbia River Basin, Spokane River https://www.nwcouncil.org/reports/columbia-river-history/spokaneriver 2/ Columbia River Basin Tribes and First Nations, PASSAGE AND REINTRODUCTION INTO THE U.S. AND CANADIAN UPPER COLUMBIA BASIN at 32 (2015) (citing (Scholz et al. 1985)). 3/ Council, 2020 FINDINGS at 81.

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					4/ See generally cbfish.org; Colville Hatchery Operation and Maintenance, Project # 198503800; Lake Roosevelt Rainbow Trout Habitat and Passage Improvement, Project # 199001800; Coeur d'Alene Subbasin Fisheries Restoration and Enhancement, Project # 199004400; Spokane Tribal Hatchery Operations and Maintenance, Project # 199104600; Sherman Creek Hatchery Operations and Maintenance, Project # 199104700; Lake Roosevelt Fisheries Evaluation Program, Project # 199404300; Lake Roosevelt Rainbow Trout Net Pens, Project # 199500900; Chief Joseph Kokanee Enhancement Project, Project # 199501100; Lake Roosevelt Sturgeon Recovery Project, Project # 199502700; The Resident Fish above Chief Joseph and Grand Coulee Dams Project, Project # 199700400; Ford Trout Hatchery Operations and Maintenance, Project # 200102900; Hangman Creek Fisheries Enhancement, Project # 200103200; Hangman Restoration Project, Project # 200103300; Rufus Woods Fisheries Evaluation, Project # 200740500; Resident Fish Research, Monitoring and Evaluation, Project # 200810900; Lake Roosevelt Burbot Population Assessment, Project # 200811500; White Sturgeon Enhancement, Project # 200811600; Lake Roosevelt Rainbow Trout Habitat and Passage Improvement, Project # 1990-018-00; Restore Salmon Creek Anadromous Fish, Project # 1996-042-00; Spokane Wildlife Mitigation/O&M, Project # 1998-003-00; Omak Creek Anadromous Fish Habitat and Passage, Project # 2000-001-00; Okanogan Basin Monitoring & Evaluation Program, Project # 2003-022-00; Chief Joseph Hatchery Program, Project # 2003-023-00; Spokane Tribe Coordination, Project # 2007-106-00; Upper Columbia United Tribes (UCUT) Coordination, Project # 2007-108-00; Okanogan Basin Locally Adapted Steelhead Broodstock Step 1 and 2 (Casimer Bar), Project # 2007-212-00; Okanogan Subbasin Habitat Implementation Program, Project # 2007-224-00; Rufus Woods Habitat/Passage Improvement, Creel and Triploid Supplementation, Project # 2007-405-00; Selective Gear Deployment, Project # 2008-105-00; Tribal Conservation Enforcement-Colville Tribe, Project # 2008-106-00; Resident Fish Research, Monitoring and Evaluation, Project # 2008-109-00; Twin Lakes Enhancement, Project # 2008-111-00; Resident Fish Loss Assessment, Project # 2008-112-00; Colville Regional Coordination, Project # 2010-044-00; FCRPS Water Studies & Passage of Adult Salmon & Steelhead, Project # 2008-908-00; Coeur D'Alene Tribe Coordination, Project # 2009-010-00. 5/ See, Columbia Basin Fish, Report: Spending by Location at 3 https://www.cbfish.org/Reports/ReportViewer.aspx?RptName=SpendingByLocationProvinceSubbasin&rs%3AFormat=PDF&piPortfolioID=&psFiscalYear=2020&psAccountType=All 6/ Council, 2014 Program at 22.
32263	14	ted@tcklaw.com	Spokane Tribe of Indians	Bald Eagle Nest and Roosting Site Loss The Tribe has lost numerous Bald Eagle nests and roosting sites along Lake Roosevelt and the Spokane Arm due to erosion undermining tree root structure causing downed trees. The DEIS fails to address this impact to the Tribe's resources caused by the operations and maintenance at GCD. Recommendation: Agencies should develop appropriate mitigation for this unaddressed impact.	Section 3.6. (Vegetation, Wetlands, Wildlife, and Floodplains) described minor or negligible impacts to habitat and wildlife for Lake Roosevelt in Region B from the alternatives. Effects to eagles were addressed in Section 3.6 and 7.7.8 in sensitive species. In addition, the River Mechanics Section 3.3 indicated negligible change in shoreline exposure for Lake Roosevelt for all alternatives, including the Preferred Alternative, compared to the No Action Alternative. The co-lead agencies did not propose mitigation measures for minor or negligible impacts.
32263	15	ted@tcklaw.com	Spokane Tribe of Indians	Spokane Arm Wildlife Impacts Caused by Ice Formation The Tribe's wildlife resources are impacted by the formation of ice within the Spokane Arm that historically did not occur. Numerous deer, moose and elk are lost on the ice each year. The ice formation is a direct impact caused by the operations at GCD. Recommendation: The Agencies should develop appropriate mitigation for this unaddressed impact.	Section 3.6 and 7.7.7 (Vegetation, Wetlands, Wildlife, and Floodplains) described only minor or negligible impacts to habitat and wildlife for Lake Roosevelt in Region B from the Preferred Alternative and the other alternatives. Under the Preferred Alternative, the River Mechanics Section 7.7.2 described a negligible (~0.1 feet) change to shoreline exposure at Grand Coulee and the Cultural Resources Section 7.7.18 found no change to shoreline erosion at Grand Coulee, both relative to the No Action Alternative. The No Action Alternative discusses the elk falling through the ice on Lake Roosevelt (Section 3.6.3) and that effect is carried forward through each alternative as the impact does not change for any alternative. The co-lead agencies did not propose mitigation measures for minor or negligible impacts.
32263	16	ted@tcklaw.com	Spokane Tribe of Indians	Landslides Landslides on the Tribe's Reservation are directly caused by Reservoir operations. They cause significant loss to the Tribe's Reservation Land base and pose threats to human safety. Additionally, they cause impacts to the Tribe's cultural resources, environmental impacts and economic impacts. Unfortunately, no mitigation is proposed to address the landslides that occur due to the operations at GCD. Recommendation: The Agencies should develop appropriate mitigation for this unaddressed impact.	The co-lead agencies analyzed potential erosion resulting upstream from Grand Coulee operations. The analysis shows that shoreline slope stability should improve as a result of decreasing reservoir draft rates. In light of that improvement over conditions under the No Action Alternative, the co-lead agencies have not proposed mitigation.
32263	17	ted@tcklaw.com	Spokane Tribe of Indians	Cumulative Effects The "Reasonably Foreseeable Future Actions and Trends" ("RFF A") section fails to identify several actions. Fails to Identify (a) The current and future reintroduction of salmon and steelhead into the habitats above CJD and GCD; (b) Fails to identify the Proposed Banks Lake Storage Project. (FERC License 14329) and the future LOPP process.20 Recommendation: The Agencies should review and expand the RFF As considered in the EIS to include the above.	Reintroduction of salmon and steelhead into habitats above Chief Joseph Dam and Grand Coulee Dam are not currently part of a proposal or plan (with current funding/budget) and are therefore not considered a reasonably foreseeable future action. To meaningfully analyze reintroduction as a measure, the details of the proposal would need to be understood well enough to include in hydrologic, water quality, and fish models. That information is not presently available. The co-lead agencies recognize there is a proposed pumped storage project at Banks Lake. Too many uncertainties surround the potential operation and design of the proposed project, however, to analyze cumulative effects in a way that informs the co-lead agencies' decision making.
32263	18	ted@tcklaw.com	Spokane Tribe of Indians	Lake Roosevelt Additional Water Supply Measure The need for the additional45,000 acre-feet ofwater supply is not explained, nor are the potential impacts to the Spokane Tribe's revenue payments21 caused by this additional withdrawal analyzed or addressed. Finally, as discussed above, how this additional pumping will interact with the new proposed Banks Lake Project described in Footnote 19 is not discussed or analyzed. Recommendation: The Agencies should analyze the additional pumping's impacts on revenue payments and the impacts of the new proposed Banks Lake Project.	This operational measure was included in MO1, MO3, and MO4 where an additional 1.15 million acre-feet could be pumped from Lake Roosevelt at Grand Coulee above what was provided in the No Action. This measure was updated for the Preferred Alternative to pump up to 45,000 acre-feet of water above the No Action Alternative due to the uncertainty over the timing and extent of the development of new water supply projects for the full volume. Additionally, this measure would change the timing of delivery of recently developed water supplies for the Odessa Subarea of the Columbia Basin Project (164,000 acre-feet for irrigation and 15,000 acre-feet for municipal and industrial (M&I) of the current supplies) from September and October to when the water is needed, on demand. The 45,000 acre-feet water supports near-term additional development of authorized project acres. Water pumped from Lake Roosevelt would be delivered as the demand arises during the irrigation season (March to October). In Section 7.7.9.7, the EIS states that "The Confederated Tribes of the Colville Reservation and the Spokane Tribe of Indians (likely starting in 2021) receive annual payments from Bonneville as compensation for tribal lands inundated by Lake Roosevelt. The payment is based on annual average generation produced at Grand Coulee Dam as well as the power used to pump water to Banks Lake for irrigation. Based on the combination of changes in generation (reduced), at Grand Coulee, and market prices of power, the Preferred Alternative results in upward payment pressure of about 1 percent relative to the No Action Alternative."
32263	19	ted@tcklaw.com	Spokane Tribe of Indians	Climate Change The DEIS focuses on climate impacts up to the year 2050. This timeframe fails to properly address climate change's impact on the Region. It allows the Agencies to avoid considering the most significant impacts that will occur after the 2070s, which is the time:frame utilized in most modeling and many of the Agencies reports and documents.22 This is important given that the winter of2014-2015 was similar to what the models predict an average winter in 2070 will be.23 That year included numerous and significant problems throughout the Region's ecosystem and economy. The Agencies chose a socioeconomic analysis timeframe of 50 years, given that the climate models tend to agree on climate impacts in the 2070s and 2080s utilizing the shorter timeframe of 2050 for climate change overlooks and avoids the significant impacts that will occur in the Columbia River caused by rising temperatures. Recommendation: The Agencies should use the year 2070 at a minimum for their analysis of the impacts of climate change. The climate change analysis should match the 50-year timeframe for socioeconomic impacts.	The co-lead agencies agree with your concern relating to water temperatures in the Columbia and Snake rivers and that is why the agencies have used the best information and resources available to model and evaluate impacts from operations described in each of the alternatives on water temperatures. The study results indicate that the operations of the CRS do impact water temperature but the CRS has limited ability to reduce temperatures in the lower Snake and Columbia rivers outside of Dworshak operations. Regionally high air and water temperatures result in water quality standard exceedences and are beyond the ability of the CRS to cool; climate change will stress the system even further. The climate science community is still developing models that can be used to analyze possible effects to water temperature from climate change, and unfortunately, have not been fully applied and validated for use with climate affected regulated flow projections of large reservoir systems. Therefore it was not possible to reliably model water temperature changes under climate change for this EIS. In lieu of this information, the climate analysis used the output from the water quality models under historical conditions, climate change data, and scientific literature to qualitatively assess potential effects to water temperature (Section 4.2.3). An adaptive management plan has been developed for this EIS that captures potential actions that could be employed during drought or lower water years to prevent fish mortality. This information can be found in Appendix O.
32263	20	ted@tcklaw.com	Spokane Tribe of Indians	Several of the UCUT Tribes have engaged as cooperating agencies in the analysis necessary for the Draft EIS, and we are writing to urgently request that you extend the public review and comment deadline for the CRSO Draft Environmental Impact Statement that was released on February 28, 2020 with a 45-day comment period. The 45-day deadline has become impossible for our member Tribes to meet given the outbreak of COVID-19. Each of the UCUT Tribes' governments have restrictions on staff and are under partial shutdowns to do their part to help flatten the curve and control the spread of the virus. Just as the federal government has limited work within your agencies and shifted focus to this National Emergency, the UCUT Tribes too are managing this crisis while needing to keep their government's operational to meet their citizens' basic needs. Ultimately, the constraints from this unexpected National Emergency must be considered and the comment period must be extended. A 120-day period was allowed for the preliminary scoping step for the CRSO EIS. Also, a comment period of 120 days or more would be consistent with the sworn statements from your agencies to the Court in NWF v. NMFS, No. 01-640-SI (D. Or.). As you are well aware, each of our member Tribes has trust and/or treaty resources that will be impacted by the federal decisions made within the preferred alternative and eventual Record of Decision . It is well within your federal trust responsibility owed to the Tribes to extend the arbitrary deadline. With limited staff during this pandemic our member Tribes are simply unable to meaningfully review and comment by the 45-day deadline. Therefore, we request that you extend the comment period to 120-days or more to allow for meaningful involvement for our member Tribes during this time of crisis.	See response to Comment 32263-1.
32264	1	Donald Michel	Upper Columbia United Tribes	With this letter, UCUT insists that the co-lead agencies include and fully evaluate fish passage and reintroduction above Chief Joseph and Grand Coulee dams as a measure within the preferred alternative and calls for the agencies to engage the UCUT Tribes on the issues of managing invasive species and protecting cultural resources of the Tribes, both of which are likely to be exacerbated by the proposed operational changes in the preferred alternative of the DEIS. The upper Columbia River continues to be the most impacted and least mitigated area in the Columbia River Basin. The UCUT Tribes feel strongly that one of the principal purposes of the CRSO EIS must be to ensure that adverse environmental and cultural effects of the Columbia River System are equitably addressed across the Columbia River Basin. This long-standing inequity has resulted in and continues to cause disproportionate harm to the federally protected rights and resources of the UCUT Tribes. The February 2020 DE IS maintains this inequity by providing significant consideration of the breaching of the lower Snake River dams and focusing a vast majority of the new measures in the preferred alternative on improvements to projects in the lower Columbia River and Snake River while rejecting or ignoring a majority of the recommendations by the UCUT Tribes, particularly that of fish passage and reintroduction above Chief Joseph and Grand Coulee dams. After receiving early input from the UCUT Tribes that the EIS Purpose and Need statement needed to include both the expansion of equitable mitigation throughout the Columbia River Basin and the priority of restoring river and habitat connectivity, the DEIS continues to provide the region an inequitable and inadequate implementation plan that rejects the need for restoring connectivity where it has been lost in the upper Columbia. The co-lead agencies must give the Columbia River System's impacts in the upper Columbia River the same level of consideration and analysis as the salmon-specific issues of Judge Simon's order. The colead agencies must consider the comments of the UCUT Tribes within this letter to begin to address equitable mitigation.	Measures to reintroduce salmon above Chief Joseph and Grand Coulee dams were evaluated early in the alternative development process but eliminated from further consideration. Reintroduction is an important and complex, large-scale concept. Its consideration, evaluation, and implementation should involve multiple tribal, federal, state, and other entities. A coordinated approach among water users, tribes, states, multiple federal agencies, and others would be necessary. To allow so many differing interests to coordinate on such a complex topic, which may include international considerations, a decision-making framework and a series of regional workshops would be necessary just to approach the first step of defining reintroduction objectives. Given the incompatibility of such a wildlife management decision-making framework with an analysis of the operation of the CRS, it is not feasible to proceed with a detailed consideration of reintroduction in this EIS. Moreover, to meaningfully analyze reintroduction as a measure, the details of the proposal would need to be understood well enough to include in hydrologic, water quality, and fish models. That information is not presently available, and development of those details was not possible in the timeframe of this NEPA process. Nevertheless, the agencies and interested regional sovereigns are developing a framework to address critical information gaps. This effort was initiated on June 23, 2020 when the co-lead agencies participated in a discussion with regional sovereigns concerning fish management in blocked areas.
32264	2	Donald Michel	Upper Columbia United Tribes	Finally, the UCUT Tribes would like to express their displeasure in the exceptionally brief public comment period and the agencies' reluctance to support an extension in the face of a National Emergei"!CY and an international pandemic. Attachment 21 is the extension request letter submitted by UCUT on March 20, 2020. Each of the five UCUT Tribes have been on a partial shutdown since mid-March and will continue to be operating in this limited capacity for the foreseeable future, which has made a thorough and thoughtful review of the 8,000+ page DE IS impossible. In his 2016 opinion ordering the co-lead agencies to prepare an EIS, Judge Simon stated that, "the purpose of a single EIS is so that the Action Agencies, the public, and public officials can take a hard look at the programmatic plan to offset adverse effects of the FCRPS and consider the reasonable alternatives." To achieve that purpose, the National Environmental Policy Act requires meaningful public involvement in agency decision-making, which the co-lead agencies neglected for the public comment portion of the NEPA process.	The co-lead agencies considered requests to extend the public comment period. This NEPA process included a wide array of cooperating agencies whose close involvement throughout the process allowed the co-lead agencies to incorporate feedback. Given the broad range of comments received to date and the extensive Federal and non-Federal participation in the overall process as well as the level of public engagement in the six virtual public meetings in the region, the co-lead agencies determined that an extension was not warranted and that the 45-day public comment period was adequate consistent with NEPA regulations. The CRSO EIS website notified the public on April 9, that they should plan to submit comments by the close of the comment period.

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32264	3	Donald Michel	Upper Columbia United Tribes	The UCUT Tribes once relied on abundant salmon, steelhead, and lamprey for sustenance until the construction of Grand Coulee Dam, which blocked passage of an estimated annual migration of three-million fish in 1939. Examining and including salmon reintroduction above Grand Coulee and Chief Joseph dams in the preferred alternative would clearly address Judge Simon's order of examining a new approach beyond another habitat restoration effort. Plus, failure to provide fish passage at Grand Coulee and Chief Joseph dams continues to deprive the UCUT Tribes of their First Foods and the upper Columbia region of the once abundant anadromous fish that were cornerstones of the Tribe's culture and sustenance. The consideration and inclusion of salmon reintroduction above Chief Joseph and Grand Coulee dams within the EIS is a requirement to meet the mandates of the National Environmental Policy Act and the Northwest Power Act. The Upper Columbia United Tribes have provided extensive comment and pertinent information on this issue to the co-lead agencies throughout the CRSO EIS process, yet the co-lead agencies chose to ignore our requests and instead noted this as an "area of controversy" to be dealt with in another forum. The UCUT Tribes have continually received this message from federal agencies who insist that the feasibility of reintroduction above Grand Coulee and Chief Joseph dams should be determined within various regional processes such as the Columbia River Treaty, the Northwest Power and Conservation Council's Fish and Wildlife Program, the Bonneville Power Administration's implementation of the Fish and Wildlife Program, and the CRSO EIS. No agency has taken responsibility for analyzing this issue, and the UCUT Tribes persist in this effort despite the illegal, unfair, and unethical abdication of the trust responsibility to the Tribes. Moreover, the fact that an issue is controversial is not a valid reason to exclude it from the co-lead agencies' NEPA analysis. The very function of an EIS is to involve the public in decision-making, and that principle applies with equal force to the issue of fish passage and reintroduction in the upper Columbia basin. The final CRSO EIS must include a measure within the preferred alternative for fish passage and reintroduction above Grand Coulee and Chief Joseph dams. The UCUT Tribes have long endured inequitable treatment by the federal agencies mandated to protect, preserve, and enhance fish and wildlife resources and sovereign Tribal Treaty and Executive Order rights. Our region continues to be the most impacted by the Columbia River System and least mitigated. The Purpose and Need Statement of the DE IS states that the colead agencies must: Comply with environmental laws and regulations and all other applicable federal statutory and regulatory requirements, including those specifically addressing the System such as requirements under the Northwest Power Act "to adequately protect, mitigate, and enhance fish and wildlife, including related spawning grounds and habitat, affected by such projects or facilities in a manner that provides equitable treatment for such fish and wildlife with the other purposes for which such system and facilities are managed and operated." 16 U.S. C. A. 839b{11}{A). The co-lead agencies cannot continue to avoid the Northwest Power Act's purpose, plus the federal government's trust responsibility to the UCUT Tribes requires that the federal agencies meaningfully consider the UCUT Tribes' interests. To follow the mandate required under the Northwest Power Act and to meaningfully consider the Tribes' interests, the CRSO EIS must include detailed analysis and consideration of salmon and steel head reintroduction to the habitats upstream of Grand Coulee and Chief Joseph dams. The Northwest Power and Conservation Council's 2014 Columbia River Basin Fish and Wildlife Program (Attachment 14), the 2020 Addendum (Attachment 15), and the 20011ntermountain Subbasin Plan (Attachment 17) all include science-based steps to determine the feasibility of reintroduction and fish passage above Chief Joseph and Grand Coulee dams. This has also been analyzed in intrinsic potential work done by NOAA in 2007, and BPA in 2014 and 2017 with NOAA's assistance. Following the science-based phased approach in the 2014 Fish and Wildlife Program, the UCUT Tribes completed donor stock, risk, and habitat assessments; reviewed fish passage technologies; and produced a life cycle model. This resulted in the UCUT Phase I Report (Attachment 1), which helped the UCUT Tribes and the region better understand the capacity for salmon production in the upper Columbia, appropriate donor stocks, disease risks and their management, available fish passage technology for both adults and juveniles, and, most importantly, that restoring these habitat areas will deliver cultural and economic benefits for all. This report was distributed widely and was subject to a thorough and favorable science review by the Independent Scientific Advisory Board (Attachment 2). Regardless, the co-lead agencies persist in the notion that reintroduction is a fringe concept not worthy of inclusion in any of the CRSO EIS alternatives. The Northwest Power and Conservation Council, in its legal findings (Attachment 16) for the 2020 Addendum to the 2014 Columbia River Basin Fish and Wildlife Program states that: "Salmon and other fish and wildlife losses in the area above Grand Coulee due to the development of Grand Coulee and Chief Joseph dams- and the ongoing effects of operating Grand Coulee – are as great or greater than anywhere in the Basin. 11 And while extensive mitigation is occurring elsewhere throughout the Basin, "the breadth and scale of mitigation being implemented [in the upper Columbia region] is not comparable. 11 The 2020 Addendum (Attachment 15) to the 2014 Columbia River Basin Fish and Wildlife Program calls on Bonneville and others to continue to make progress on the program's science based, phased approach to evaluating the possibility of reintroducing anadromous fish above Grand Coulee and Chief Joseph dams, a measure and priority that continues to receive substantial support in the program amendment process from many governmental and nongovernmental entities. The 2020 Addendum emphasizes that the Bonneville-funded hydrosystem mitigation program under the Northwest Power Act has a significant role for reintroduction, and the authority for that role. However, rather than follow the mandate of the Northwest Power Act and the guidance of the Northwest Power and Conservation Council, the co-lead agencies chose to focus significant attention to the alternative to breach the lower Snake River dams. This disparity thrust yet another inequity on the upper Columbia basin, as consideration of reintroduction and fish passage above Grand Coulee and Chief Joseph dams is every bit as important to restoring and recovering salmon affected by the CRSO as breaching the Snake River dams. Because there is no defensible reason under NEPA to ignore this issue in the CRSO EIS, the colead agencies should undertake a robust analysis and include this measure in the preferred alternative. Given the clear mandate from Judge Simon, it should not require additional litigation to force the co-lead agencies to abandon the status quo and conduct this analysis. Instead, the co-lead agencies should operate within their legal and moral obligation to include a full analysis of fish passage and reintroduction above Grand Coulee and Chief Joseph dams in the Final EIS. The UCUT Tribes expect as much.	Please reference response to 32264-1.
32264	4	Donald Michel	Upper Columbia United Tribes	Additionally, the co-lead agencies understand that climate change is a reality facing the region; however, they do not give it proper weight in the DEIS. The DEIS utilizes a 50-year timeframe for the socioeconomic analysis, but only analyzes impacts from operations up to the year 2050 even though severe impacts of climate change are expected beyond 2050. Reintroducing anadromous fish in the upper Columbia would significantly increase available habitat higher in the basin in waters that are cooler in temperature, thereby improving the future for all upper basin stocks in the face of climate change. The co-lead agencies should be consistent for the impact analysis and use a 50-year timeframe when considering climate change impacts.	The technical and policy elements of this Draft EIS are in full compliance with binding USACE policy and guidance for qualitative assessment of climate threats and their plausible effects and impacts. The primary controlling policy and guidance are the USACE Climate Adaptation Policy Statement, signed by the Assistant Secretary of the Army for Civil Works in 2011, updated and signed again in 2013, and remains in force now; and USACE Engineering and Construction Bulletin 2018-14, "Guidance for Incorporating Climate Change Impacts to Inland Hydrology in Civil Works Studies, Designs, and Projects." The numerical-model simulated outputs were evaluated by multiple technical means (see record of the full USACE Agency Technical Review), and were tested using the set of analytical measures created by the USACE Climate Preparedness and Resilience program to ensure that sound science and engineering compliance with USACE climate change policy and guidance. The assessment of climate threats and impacts is qualitative only in the sense that the biological and other impacts models did not directly ingest the physical hydroclimatology outputs modeled for the assessment. Those hydroclimatology outputs are fully quantitative and so can be the basis for refined estimates of effects and impacts should those be required following this Draft EIS. Water temperature modeling for each alternative is described in Chapter 3, however, as you note it was not conducted for conditions of future climate change. Information to develop, drive, and analyze specific projections of future water temperature and fish characteristics were not available on the timeline of this report. Measures to reintroduce salmon above Grand Coulee and Chief Joseph were evaluated early in the alternative development process but eliminated from further consideration. Reintroduction is an important and complex, large-scale concept. Its consideration, evaluation, and implementation should involve multiple tribal, federal, state, and other entities. A coordinated approach among water users, tribes, states, multiple federal agencies, and others would be necessary. To allow so many differing interests to coordinate on such a complex topic, which may include international considerations, a decision-making framework and a series of regional workshops would be necessary just to approach the first step of defining reintroduction objectives. Given the incompatibility of such a wildlife management decision-making framework with an analysis of the operation of the CRS, it is not feasible to proceed with a detailed consideration of reintroduction in this EIS. Moreover, to meaningfully analyze reintroduction as a measure, the details of the proposal would need to be understood well enough to include in hydrologic, water quality, and fish models. That information is not presently available, and development of those details was not possible in the timeframe of this NEPA process. Nevertheless, the agencies and interested regional sovereigns are developing a framework to address critical information gaps.
32264	5	Donald Michel	Upper Columbia United Tribes	Finally, according to the DEIS, the agencies and "interested regional sovereigns" are collaborating on a framework to address critical information gaps, set goals, and establish a decision-making framework. This vastly overstates what the agencies have done in this regard. To date, there has been limited communication about the proposed effort and no firm commitment to the UCUT Tribes to follow through on it (see Attachments 18 and 19 for communication received by the co-lead agencies). The UCUT Tribes must be included in this workgroup and demand to know why they have not been as of the date of this letter.	Please see response to Comment 32264-1.
32264	6	Donald Michel	Upper Columbia United Tribes	In addition to consultation with the UCUT Tribes, the co-lead agencies should use the following resources to inform the inclusion and detailed analysis of a measure for reintroduction and fish passage above Grand Coulee and Chief Joseph dams in the CRSO EIS: Attachment 1: UCUT (Upper Columbia United Tribes). 2019. Fish Passage and Reintroduction Phase 1 Report: Investigations Upstream of Chief Joseph and Grand Coulee Dams. Accessible at: ucut.org/wp-content/uploads/2019/05/Fish-Passage-andReintrod uction-Phase-1-Report. pdf. Attachment 2: ISAB {Independent Scientific Advisory Board). 2019. Review ofthe Upper Columbia United Tribes' Fish Passage and Reintroduction Phase 1 Report: Investigations Upstream of Chief Joseph and Grand Coulee Dams (Reintroduction Report), ISAB 2019- 3. Accessible at: nwcouncil.org/sites/default/files/ISAB%202019-3%20ReviewUCUTReintroductionReport1Nov.pdf. Attachment 3: Baldwin, C. 2018. Draft Technical Memo: Sockeye Salmon Spawner Abundance Potential Estimates in the Sanpoil River. Prepared by the Confederated Colville Tribes for the UCUT Fish Committee. Accessible at: ucut.org/wpcontent/uploads/2019/05/Baldwin-2018-Assessment-of-Sockeye-Spawning-Habitat-inSanpoil. pdf. Attachment 4: Baldwin, C. & Bellgraph, B. 2017. Technical Memo: Redd Capacity Above Chief Joseph. Prepared by the Confederated Colville Tribes and the Pacific Northwest National Lab for the Confederated Colville Tribe Senior Fisheries Management Staff. Accessible at: ucut.org/wp-content/uploads/2019/05/Baldwin-and-Bellgraph-2017- Above-Ch ief-Joseph-Redd-Ca pacity-Tech-Memo. pdf. Attachment 5: Bellgraph, B.J., C. Baldwin, L. Garavelli, Z. Haque, W. Perkins, M. Richmond, M. Howell, J.	Thank you for attaching this information. Measures to reintroduce salmon above Chief Joseph Dam and Grand Coulee were evaluated early in the alternative development process but eliminated from further consideration. Please see response for Comment 32264-1.

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				Mclellan. Accepted. Estimates of Chinook Salmon Spawning Habitat in a Blocked Reach ofthe Columbia Upstream of Grand Coulee Dam. Northwest Science. DRAFT. Attachment 6: Giorgi, C. 2018. Identification of Potential Habitats for Blocked Area Reintroduction: An Intrinsic Potential Analysis to Identify Tributary Habitats Available for Reintroduced Anadromous Spring Chinook and Summer/Fall Steelhead in the Upper Columbia River. Spokane Tribe of Indians, Wellpinit, WA. Prepared for Bonneville Power Administration project# 2016-003-00 and contract no. 73291, and Bureau of Reclamation agreement no. R16AP00169. Accessible at: ucut.org/wpcontent/ uploads/2019/05/Giorgi-2018-Potentiai-Habitats-for-Reintroduction.pdf. Attachment 7: Giorgi, C. & Kain, A. 2018. Technical Memo: Sockeye Salmon Rearing Capacity of Lake Roosevelt. Prepared by Spokane Tribal Fisheries for the UCUT Fish Committee. Accessible at: ucut.org/wp-content/uploads/2019/05/Giorgi-and-Kain- 2018-Sockeye-Rearing-Capacity-of-Roosevelt.pdf. Attachment 8: Hanrahan, T.P., Dauble, D. D., Geist, D.R. 2004. An Estimate of Chinook Salmon (Oncorhynchus Tshawytscha) Spawning Habitat and Redd Capacity Upstream of a Migration Barrier in the Upper Columbia River. Canadian Journal of Fisheries and Aquatic Sciences, 2004, 61(1): 23-33, doi.org/10.1139/f03-140 Accessible at: nrcresearchpress.com/doi/abs/10.1139/f03-140?journaiCode=cjfas#.XoOAoUBFw3E. Attachment 9: Hardiman, J.M., Breyta, R.B., Haskell, C.A., Ostberg, C.O., Hatten, J.R., and Connolly, P.J. 2017. Risk Assessment for the Reintroduction of Anadromous Salmonids Upstream of Chief Joseph and Grand Coulee Dams, northeastern Washington: U.S. Geological Survey Open-File Report 2017-1113, 87 p., doi.org/10.3133/ofr20171113. Accessible at: pubs.usgs.gov/of/2017/1113/ofr20171113.pdf. Attachment 10: ICF. 2017. Anadromous Reintroduction Potential for the Sanpoil River and Select Upper Columbia Tributaries on the Colville Reservation using the Ecosystem Diagnosis and Treatment model. September. ICF 00392.17 Seattle, WA. Prepared for Confederated Tribes ofthe Colville Reservation, Spokane, WA. Accessible at: u cut. org/wp-co ntent/ up loa ds/20 19/05/1 CF-2017 -Rei ntrod uction-Pote nti a 1-for-San poi 1- a nd-Roosevelt -1. pdf. Attachment 11: ICF. 2018. Anadromous Reintroduction Potential for the Spokane River and Select Lake Roosevelt Tributaries Using the Ecosystem Diagnosis and Treatment Model. Final version. April. ICF 00281.17 Seattle, WA. Prepared for Spokane Tribe of Indians, Wellpinit, WA. Accessible at: ucut.org/wp-content/uploads/2019/05/ICF-2018- Reintroduction-Potential-for-Spokane-and-Roosevelt.pdf. Attachment 12: Kock, T.J ., Verretto, N.E., Ackerman, N.F., Perry, R.W., Beeman, J.W., Garello, M.C., and Fielding, S.D. 2019. Assessment of Operational and Structural Factors Influencing Performance of Fish Collectors in Forebays of High-Head Dams. doi .org/10.1002/tafs.10146. Attachment 13: NPCC (Northwest Power and Conservation Council). 2016. Staff Paper: Review of Fish Passage Technologies at High-Head Dams, Council document number 2016-14. Accessible at: nwcouncil.org/sites/default/files/2016-14 O.pdf. Attachment 14: NPCC. 2014. Columbia River Basin Fish and Wildlife Program, document number 2014-12. Accessible at: nwcouncil.org/reports/2014-columbia-river-basin-fishand- wildlife-program . Attachment 15: NPCC. 2020. Addendum to the 2014 Columbia River Basin Fish and Wildlife Program, Council document number 2020-1. Accessible at: nwcouncil.org/reports/2020-1. Attachment 16: NPCC. 2020. Columbia River Basin Fish and Wildlife Program Findings on Recommendations and Responses to Comments for the 2020 Addendum to the 2014 Fish and Wild life Program. Accessible at: nwcouncil.org/sites/default/files/2020%20Addendum%20Part%2011%20Findings%20Responses%20finai%20March%202020.pdf. Attachment 17: NPCC. 2004. Intermountain Subbasin Plan. Accessible at: nwcouncil.org/subbasin-plans/intermountain-province-plan . Attachment 18: FMI questionnaire sent to UCUT and CRITFC (Oct ober 18, 2019). Attachment 19: FM I questionnaire sent to t he broader regional leaders (October 31, 2019).	
32264	7	Donald Michel	Upper Columbia United Tribes	Invasive Species Management The DEIS describes a plan for the Army Corps of Engineers to complete and implement a management plan to address the proliferation of invasive species that will likely occur with the new hydro operations at Libby Dam. With the deeper draw down of reservoir waters, more shorelines will be exposed, allowing for invasive species such as flowering rush to take hold and/or expand. The effects of this could be seen throughout the Kootenai and Columbia rivers, including Lake Roosevelt. An increase in flowering rush habitat in Lake Roosevelt will set back the work occurring to suppress Northern Pike in Lake Roosevelt. This will have a direct impact not only on the budgets and efforts of the co-managers of the reservoir-Confederated Tribes ofthe Colville Reservation, Spokane Tribe of Indians, and Washington Department of Fish and Wildlife-but other fish and wildlife managers downstream as Northern Pike pass Grand Coulee and Chief Joseph dams. The Army Corps of Engineers must work with the UCUT Tribes in the planning, development, and implementation of the invasive species management plan. The UCUT Tribes have been the lead on monitoring and suppression efforts of Northern Pike-a non-native invasive species introduced into the Columbia River-in the Pend Oreille and Coeur d'Alene river systems and in Lake Roosevelt and its tributaries. According to the 2019 Independent Scientific Advisory Board's predation report (Attachment 20), Northern Pike were likely brought to the upper Columbia by human illegal introductions. Both Northern Pike and flowering rush have found success in the Columbia River Basin due to the management of the hydropower system causing fluctuating levels of the river and its reservoirs. Drawdowns of the reservoirs result in an increase of exposed riverbank where flowering rush can take hold and grow rapidly turning open water into highly vegetated water. When the reservoir begins to fill again, that flowering rush is prime habitat for Northern Pike, an ambush predator who prefers to hide in highly vegetated water and prey on unsuspecting open water fish, such as salmon ids, passing by. Studies conducted in Montana have shown that juvenile Northern Pike numbers increase dramatically with the addition of flowering rush. It is only a matter of time before these piscivorous fish enter the anadromous waters below Chief Joseph Dam and cause irreparable damage to the ESA-listed salmon and steelhead populations downstream. The region must gain better control of this species to reduce its impacts. In addition to consultation with the UCUT Tribes, to inform the planning stages of this management plan the Army Corps should use the following resources: Attachment 20: ISAB. 2019. Review of Predation Impacts and Management Effectiveness for the Columbia River Basin, ISAB 2019-1. Accessible at: nwcouncil.org/sites/default/files/ISAB%202019-1%20PredationMgmt3May.pdf. Northern Pike webtool developed in 2019 by the Northwest Power and Conservation Council and Washington Invasive Species Council; accessible at: pike.nwcouncil.org/.	Analysis in the CRSO EIS focuses on effects of the operation, maintenance, and configuration of the CRS projects. Effects of this action on vegetation are analyzed in Sections 3.6 and 7.7.7 and Chapter 4. Effects on fish are analyzed in Section 3.5 and 7.7.4, including Northern Pike. Outside of the scope of the CRSO EIS, through the Corps' Aquatic Plant Control program, the Corps is expecting to initiate a 50% cost reimbursement program for Flowering Rush surveys, monitoring, and control in Washington, Idaho, Montana, and Oregon beginning in 2020. Actions in Lake Roosevelt by the Confederated Tribes of the Colville Reservation and Spokane Tribe of Indians, through partnership with the Washington Department of Ecology are included in the Aquatic Plant Control Flowering Rush plan. The 'Draft Integrated Letter Report and Programmatic Environmental Assessment: Flowering Rush Control in Idaho, Montana, Oregon, and Washington through the Aquatic Plant Control Program' includes in the justification as one of the costs of not controlling Flowering Rush would be acceleration of Northern pike population growth. Flowering rush is very susceptible to control in spring when the reservoir is drawn down, and the exposed plants are treated through this Program.
32264	8	Donald Michel	Upper Columbia United Tribes	Cultural resource protection Given the proposed and new hydropower operations throughout the Columbia River System, cultural resources and historical sites of importance to the UCUT Tribes will face an increased risk of exposure and damage as a result of deeper and longer drawdowns. The co-lead agencies must work closely with the UCUT Tribes in the protection of cultural resources and historical sites of Tribal importance along the Columbia River, Kootenai River, Pend Oreille River, Coeur d'Alene River, the North Fork of the Clearwater, and their tributaries and reservoirs. Pursuant to the Native American Grave Protection and Repatriation Act (NAGPRA), the federal agencies must do the following when there is an "inadvertent" discovery of human remains: "Take immediate steps, if necessary, to further secure and protect inadvertently discovered human remains, funerary objects, sacred objects, or objects of cultural patrimony, including, as appropriate, stabilization or covering" 43 CFR 10.4(d). Pursuant to the regulations and statutes the federal agencies have a duty to devise a plan that is acceptable to the UCUT Tribes and that creates a long-term solution to this problem. See Yankton Sioux v. Army Corps of Engineers, 194 F.Supp.2d 977, 985-86 (D.S.D. 2002). The UCUT Tribes have contractual agreements with hydropower operators to address the current impacts to cultural resources. This proposed operation of the Columbia River System will put those monitored sites and ones yet recorded in danger. The CRSO EIS must include actions that can stop or significantly improve the current situations impacting UCUT Communities by erosion created by the Columbia River System and reservoir management.	The co-lead agencies have consistently followed 43 CFR 10.4 when it comes to handling inadvertent discoveries of human remains at the Projects that make up the CRS. This process has included the legally required consultation with individual Tribes regarding protocols for handling human remains and cultural items. The co-lead agencies in Section 8.4.4 describe their compliance with NAGPRA and its implementing regulations, such as addressing inadvertent discoveries of human remains and work to repatriate remains and associated funerary objects. This includes not only human remains and cultural items found since 1990, but also human remains and cultural items that are part of museum collections. The agencies also state that these activities will continue under the Preferred Alternative. The impacts under the Preferred Alternative are largely similar to the No Action Alternative, as shown in Section 7.7.18, with details highlighted in Table 7-47 of the Draft EIS. The co-lead agencies will continue to rely on the Federal Columbia River Power System (FCRPS) Cultural Resources Program to monitor sites and address impacts to cultural resources (see Section 5.2.1.6 for further information).
32267	1	Steve Ulrich	Town of Lamont	The Snake River and its four dams allow us to carry on irrigating our land and shipping crops to market.Your draft EIS confirms what we have long recognized: the dams sustain our rural economy, and without them, many family farms could not carry on. Without the ability to barge, our grain would need to be shipped solely by truck and rail. These methods of transportation, your report estimates, would cost 10 to 33 percent more than barging. In terms of producing wheat, this could add another 80 cents per bushel freight cost for farmers, already marketing a wheat crop at break-even or below cost of production. A study by the Pacific Northwest Waterways Association analyzed the economic impacts of losing barging as a transportation method. They concluded that more than 1,100 farms would risk bankruptcy if the federal government does not increase farm subsidies.	Thank you for your comment. The information provided in the comment regarding the increase in cost to farmers due to breaching the four lower Snake River dams is consistent with the findings of the EIS.
32289	1	Gary Fring	N/A	I am proposing an out of the box four (4) part solution for increasing the number of wild salmon: Item #1. Build a large breeding pond downstream of John Day Dam. Optimize the design of the pond to best simulate what the salmon need. The design should include: a). the correct size of gravel to use, b). The best depth of water. Water level to be maintained constant by the use of overflow dams at the exit side of the pond, c). Optimum water flow rate across the pond. Water to be made available from the upstream side of the Dam, d). An artificial roof over the pond, e). A fish ladder to the pond for the returning adult fish to use no matter what level the Columbia River is at. If this test pond works, the fish hatcheries could be replaced with several well placed breeding ponds. The money that is presently spent on fish hatcheries could then be utilized to restore the river and tributaries to fish friendly environments. Jim Lichatowich's book stressed the importance of improving small river environments. Item #2. Put a five (5) year moratorium on gill net fishing. Hopefully this would be enough time to increase the number of returning fish. These are the fish that have the eggs which the next generation of fish depend on. Item #3. Get rid of the seals downstream of the Bonneville Dam. Item #4. Keep doing what is already in the plans such as new turbines, better fish ladders, environmental upgrades to rivers, etc.	Thank you for your in depth suggestions. This EIS analyzes the effects of operation, maintenance, and configuration of the CRS projects. Hatchery programs are discussed briefly in the Affected Environment to give the reader general information on hatchery programs that are a part of the ESU/DPS described. Additional hatcheries, or spawning ponds like those mentioned in this comment are appreciated but are largely out of scope. Previous efforts to create spawning channels and ponds have been attempted previously below McNary Dam but additional ponds were not considered as viable alternatives in this current process. Harvest and catch limits are outside the scope for this EIS, but the EIS does acknowledge that changes in abundance may affect harvest and catch limits. However, NMFS recently completed an EIS that analyzed effects of harvest on Columbia Basin salmon and steelhead. The co-lead agencies' legal authorities relate to operating and maintaining the CRS to meet multiple statutory purposes. They are also required to ensure that operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy designated critical habitat. To comply with the ESA, the co-lead agencies have historically supported actions to mitigate adverse effects to ESA-listed species from CRS operations, through funding, direct implementation, and other means. Under the Preferred Alternative, those actions, including for the purpose of reducing pinniped (sea lion) and avian predation on ESA-listed species, would generally continue to ensure compliance with the ESA. Under the Preferred Alternative, actions that reduce pinniped and avian predation on ESA-listed species, would generally continue to ensure compliance with ESA as described in Section 7.6.4.1, Ongoing Programs, including ongoing measures to haze and monitor pinniped predators. Other entities in the region have authorities and obligations to mitigate the impacts from pinniped and avian predators and the co-lead agencies will continue to work closely with those entities to benefit ESA-listed salmonids.
32294	1	John Sigler	N/A	It always amazed me that the National Environmental Policy Act was a process controlled by the proponents of a proposed federal action. The National Environmental Policy Act (NEPA) established the Council on Environmental Quality (CEQ) in 1970 within the Executive Office of the President. CEQ	The co-lead agencies used a multi-disciplinary and science-based approach to analyze the alternatives in the EIS analysis. The co-lead agencies invited a number of entities, including Tribes, states, and local agencies, from across the region to participate in the EIS process as cooperating agencies, and more than 30 of those invited agreed to participate. Staff from the cooperating agencies joined the technical teams and provided their expertise and review to the development and analysis

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				oversees Federal agency NEPA implementation and develops and recommends national policies to the President that promote the improvement of environmental quality and meet the Nation's goals. In addition, CEQ is assigned various duties and responsibilities under other statutes, Executive Orders, and Presidential Memoranda, including with regard to Federal ocean policy, Federal sustainability, and timely environmental review and permitting processes for infrastructure development, and other matters. While the concept of independent review of federal agency actions was discussed in the early 1970s, no action has ever been taken to ensure that federal NEPA documentation, written by agency staff of hired third-party contractors is ever reviewed by those within the government WITHOUT a vested interest in the outcome of the process or reviews. Environmental Protection Agency (EPA) has been given the review responsibility for federal NEPA actions. EPA does not necessarily have expertise in salmon and steelhead biology, ecology of inland waters or other relevant aspects of the current EIS proposal. In addition, CEQ guidelines require EPA to review NEPA documents for "adequacy," which is such an obscure term that it becomes irrelevant. This flawed process, in place for 50 years, has allowed the CLAs for this EIS to obfuscate, selectively present both facts and opinion to support the status quo and deny the public full access to all relevant information on power costs, grid and alternative power replacement costs, precipitousness of Idaho salmon and steelhead extinctions.	of the alternatives. Leaders from the co-lead agencies met with Tribal leaders for formal consultation, and with other organizations and stakeholders to have dialogue and receive feedback as the EIS progressed. However, only the co-lead agencies have authority to make decisions regarding future operation and configuration of the dams in the Columbia River System and are not required to seek a third party reviewer for a NEPA document. The co-lead agencies selected senior staff from across the country with expertise in their fields to serve on the EIS team. The draft EIS was subjected to two internal agency reviews by the Corps of Engineers experts not involved in the development of the document. Additionally, the entire document, analysis, and modeling were reviewed following an Independent External Peer Review (IEPR) process that meets OMB circular on peer review requirements under the "Information Quality Act" and the Final Information Quality Bulletin for Peer Review by the Office of Management and Budget (referred to as the "OMB Peer Review Bulletin). It also meets guidance for the implementation of both Sections 2034 and 2035 of the Water Resources Development Act (WRDA) of 2007 (Public Law (P.L.) 110-114) and standards of the National Academy of Sciences independent peer review. The final IEPR report will be publicly available. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-lead agencies numerous legal obligations. The Preferred Alternative meets the objectives of the EIS for ESA-listed juvenile and adult anadromous salmonids, resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy.
32294	2	John Sigler	N/A	Executive Summary Page 13. Bias and perspectives of the CLA are immediately reflected in Figure ES-3 showing fish passage through Snake and Columbia River dams, including the turbines, with no fish adversely affected. Not possible. Spillways kill juvenile fish due to gas pressure changes, turbines kill juvenile salmon and steelhead by grinding them into small chunks.	Survival rates for yearling Chinook and steelhead through spillways is consistently around 98%. Turbine survival varies widely with project operations and water temperatures and ranges from 80%-99% (average turbine survival is 89%) as estimated by telemetry studies. The turbine estimates just described are known to be low because of the extra mass of the transmitter required for the study; however these estimates are used in the COMPASS model because the magnitude of the bias is unknown (Carlson et al. 2012). These types of telemetry studies represent the best available scientific information. Combined springtime survival at an individual dam though all routes at most of the lower Snake and Columbia river dams is >96%. Cumulative survival rates from Lower Granite Dam through all eight dams, including dam and reservoir effects and any natural sources of mortality ranges between 40% and 60% depending on water conditions and fish species. https://www.nwd.usace.army.mil/CRSO/Documents/#top_P_Thomas J. Carlson, Richard S. Brown, John R. Stephenson, Brett D. Pflugrath, Alison H. Colotelo, Andrew J. Gingerich, Piper L. Benjamin, Mike J. Langeslay, Martin L. Ahmann, Robert L. Johnson, John R. Skalski, Adam G. Seaburg & Richard L. Townsend (2012) The Influence of Tag Presence on the Mortality of Juvenile Chinook Salmon Exposed to Simulated Hydroturbine Passage: Implications for Survival Estimates and Management of Hydroelectric Facilities, North American Journal of Fisheries Management, 32:2, 249-261, DOI: 10.1080/02755947.2012.661384
32294	3	John Sigler	N/A	Executive Summary-Page 12 AREAS OF CONTROVERSY Lower Snake River Dam Breach. The co-lead agencies received important feedback from tribal engagement, cooperating agencies, and through public scoping pertaining to breaching the four lower Snake River dams. Breaching the four lower Snake River dams has been a topic of public discourse for decades. This EIS provides an updated analysis of the many biological and sociological variables and the costs and benefits of retaining or breaching the lower Snake River dams. In combination with other sources of information and analysis available in the public domain, this document can help inform the regional conversation on this complex and often polarizing issue. New congressional authority and associated funding would be required to implement the dam breaching measures evaluated in the EIS. However, the measures are carried forward in the analysis to align with the District Court's Opinion and Order, as well as in response to comments received during public scoping. All of the facts associated with the effects of breaching the four LSRDs have been known since the 1990s. There is no actual controversy regarding the science of the success potential for salmon and steelhead survival should the dams be breached. There is only the court-defying intransience of the CLAs. PATH is the Plan for Analyzing & Testing Hypotheses, a collaborative process for formulating & testing hypotheses surrounding Columbia River Basin (CRB) Anadromous Fish Recovery (Marmorek et al 1998). This report was commissioned by the federal agencies responsible for dam operations and salmon and steelhead protection with input from over 30 contributors with personal, scientific knowledge of Snake River salmon and steelhead. PA TH concluded the Natural River (Breach) is the only option that will provide recovery. This option has the highest certainty of success and the lowest risk of failure. PATH reported their findings in 1998 and for the past 20+ years independent scientists and scientific review panels have consistently reaffirmed PATH conclusions. Recent collaborative scientific report that confirms PATH: Comparative Survival Study report (CSS 2019), predicts a 2-3-fold increase in salmon abundance with removal of the four LSRDs and a 4-fold increase if breach is coupled with maximum spill over the Columbia River dams. Dam breaching as the only mechanism to save Idaho salmon and steelhead is supported by the scientific evidence. Had the PATH recommendations been implemented in 1998, we would have already achieved recovery of Idaho's salmon and steelhead	The agencies used current high-quality information consistent with the National Environmental Policy Act and did not rely on information contained in the Plan for Analyzing and Testing Hypotheses (PATH) Weight of Evidence Report (ESSA Technologies 1998), which is over twenty years old and does not reflect current CRS operations. The commenter is correct that EIS analysis of MO3 (the alternative that includes a measure to breach the lower Snake River dams) would provide more certainty of long-term survival and recovery for Snake River salmon and steelhead than the other alternatives analyzed in the EIS. However, the co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the Columbia River System. That call, however, is ultimately the role of NMFS and the USFWS. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets most other EIS objectives including those for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS, the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams, because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system.
32294	4	John Sigler	N/A	Executive Summary - Page 16 Resource Purposes Provide for a reliable level of flood risk by managing the System to afford safeguards for public safety, infrastructure, and property, Provide an adequate, efficient, economical and reliable power supply that supports the integrated Columbia River Power system Provide water supply for irrigation, municipal, and industrial uses Provide for waterway transportation capability Provide for the conservation of fish and wildlife resources, including threatened, endangered, and sensitive species throughout the environment affected by System operations Consider and plan for climate change impacts on resources and on the management of the System Provide opportunities for recreation at System lakes and reservoirs Protect and preserve cultural resources When one of the resource purposes is listed as "waterway transportation capability," the deck is pretty well stacked against any option without it. There are NO flood issues associated with removal of the four LSRDs. Adequate, efficient (more than hydropower) economical, economic and reliable power supply can be constructed using any number of currently available efficient technologies. There is no irrigation from any of the LSRDs except Ice Harbor. Again the CLAs cast loss of irrigation, including from the McNary Pool as lost when McNary Pool irrigation will not be affected in any way following breach of the LSRDs. What municipal and industrial uses are referenced that cannot be served by withdrawals from a river as is done in tens of thousands of locations across the United States? Waterway transportation capability is almost certainly a congressionally mandated "Resource Purpose' connived by the CLAS to solidify their status quo management of the lower Snake River and can certainly be reversed by another "act of Congress." Despite the expenditure of millions of dollars in taxpayer funds over the last several decades, the CLAs have failed completely to provide for the conservation of fish and wildlife resources, including (particularly) threatened, endangered and sensitive species throughout the environment affected by System operations. In addition, no consideration has been given to the life stages ofIdaho salmon and steelhead in the upper Snake and Salmon River drainages or in the tributaries of the Snake where these species used to complete their life histories. What considerations and plans have been made for climate change impacts on resources and management of the System? A definitive and realistic change that is coming is related to warmer waters and water flow peaks at times different from in the past. None of the mitigations offered by the non breach alternatives address these concerns adequately. Again, an egregious misuse of the writers in setting tone is noted in the provision for recreation at System lakes and reservoirs. Water based recreation is successfully accomplished People in flood-prone areas have an interest in FRM in the Northwest. Maintaining existing FRM levels is important to those interests, as are accurate flood forecasting efforts for efficient reservoir storage and water releases. Some have expressed concerns regarding impacts experienced in the upper Columbia River Basin from reservoir FRM operations aimed at protecting flood-prone areas along the lower Columbia River. There are absolutely NO flood risk issues in the vicinity of the four LSRDs. It is disingenuous of the CLA to continue to inject this scare tactic into discussion of alternatives and operations where it is not an issue.	It is unclear what the commenter is referencing regarding flood risk in Region C or D. The EIS evaluation concluded there would be no increase in flood risk, and additionally identified the lower Snake River projects are run-of-river, not storage projects, and do no operate for flood risk purposes. In Region C (lower Snake River), and potentially Region D (mainstem Columbia River) around the confluence of the lower Snake River, MO3 alternative, which includes breaching the earthen embankment of the four lower Snake River dams, would have adverse effects to farmers and irrigation. Currently and in the No Action Alternative, water is available from the pools of these facilities and from groundwater that results from the pools. Removing the earthen embankment portion of the dams would reduce pool elevations by up to 100 feet, which would make surface pumps inoperable. Groundwater pumps in the wells may also be affected due to decreased groundwater elevations depending on the connectivity of the aquifer to the pools. Municipal and industrial water pumps in the Lewiston area would also likely be adversely effected. Additionally, transportation of farming goods would expect to move off river and on to rail or trucks, as there would be a complete loss of commercial navigation on the lower Snake River and could not be feasibly mitigated. All ports along the Snake River would lose access to the navigation channel. Some ports at the confluence or the Snake and Columbia River could dredge new channels to the Federal channel in the confluence (McNary reservoir) to maintain access. Private or public entities or businesses could take actions and/or build infrastructure to extend pumps or water supply access for water. Ports and farmers can likewise change their transportation modes or connect to the navigation system at a different point on the river. The federal co-lead agencies would not mitigate for these impacts to water users or ports. See Chapter 3 analyzes the social and economic effects of implementing a dam breaching alternative (MO3) and Chapter 5 for mitigation discussion. This EIS discusses engineering solutions, including pipeline extensions, in Section 3.12.3. MO3, Region C discussion begins on page 3-1267 line 3244 in the Draft EIS and is also found in Appendix N. The EIS draws upon the 2002 Lower Snake River Juvenile Salmon Migration Feasibility Report and Environmental Impact Statement which concluded that modifying the existing pump system was cost prohibitive. As discussed in Section 3.12.3, for MO3, in Region C this analysis assumes that pumps are unable to deliver water to an estimated 47,926 acres. The EIS provides an evaluation of the social welfare and regional economic effects of the No Action Alternative and the multi-objectives alternatives, including the effects on recreation (Section 3.11) and fisheries (Section 3.15). The EIS described the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. NMFS estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which is described qualitatively. The potential for changes in recreational fishing of anadromous fish under MO3 in the Region C is described in Section 3.11. Increases in recreational fishing could support jobs, income, and social benefits in Tribal and rural river communities. For the effects on recreational fishing under MO3 (Section 3.11.3.5) along the Lower Snake River below Lewiston, the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River) as an indicator for fishing visitation in this reach. The EIS describes that the visitation in the long-term in the lower Snake River, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting outfitting and tourism businesses in the region. However, there is uncertainty around recreational fishing visitation in the long-term given the current measures to regulate, protect, and support ESA-listed fish populations and habitat in the region. For Multiple Objective alternative 1, Multiple Objective alternative 2, Multiple Objective alternative 4 (MO4), and the Preferred Alternative (PA), the evaluation qualitatively describes the potential for effects associated with recreational fishing by referencing the potential effects on relevant fish populations, as described in Section 3.5. Fish modeling results vary for some of the alternatives, for example for the PA and MO4 (i.e., models show either beneficial or adverse effects on anadromous fish), so it is assumed that the potential changes in recreational fishing would follow these changes in fish abundance in the long-term.
32294	5	John Sigler	N/A	1.6.2.4 Power Generation Hydropower provides low cost electricity, helps meet state and local carbon emission goals, provides resiliency to the interconnected power system and, when available, is a low-cost flexible resource that can be used to integrate alternative energy resources into the power grid. At times both Federal CRS dams and non-Federal dams produce large quantities of excess electricity that is surplus to meeting regional firm power load demands. Such surplus power is regularly offered for sale to purchasers throughout the western United States and Canada. Many parties stressed how vitally important hydropower is to the regional economy. Numerous commenters expressed concern that clean, historically affordable hydropower might be replaced with other energy resources like fossil-fuel powered generation such as natural gas power or small modular nuclear reactors. These other types of energy may be more expensive, unproven, or more ecologically damaging. Commenters expressed concern that this EIS process may result in decisions that would compromise the region's historic hydropower resource base. Other power-related concerns included energy conservation, increased generating efficiency, and keeping electricity rates low. 1.6.2.5 Anadromous Fish Tribes, states, the public, commercial and sport fishing groups, and Federal fishery management agencies are concerned about how the projects affect, and will continue to affect, anadromous fish survival and recovery. Many expressed the importance of the salmon and lamprey contribution to the environment, regional economy, and ecosystem of the Pacific Northwest. Sections 1.6.2.4 and Section 1.6.2.5 reflection the institutional bias of the CLAs. Over 100 words are used to detail "many parties that stressed how vitally important hydropower" is to the regional economy and concern regarding clean, historically affordable hydropower might be replace with other energy sources. Only 50 words were used to document the concerns of tribes, states, public and sport fishing groups, to say nothing of the hundreds of individuals which are and will continue to be economically impacted by the continued operation of the LSRDs in their current patterns. More dissembling on the part of the CLAs.	Tribal input, concerns, interests, and especially treaty rights were considered throughout the Draft EIS analyses and in the formulation of the Preferred Alternative. Treaty specific information is included in Section 3.17 as well as Chapter 7. The treaties bind all parties and are the supreme law of the land. The co-lead agencies recognize and respect that supremacy. In terms of honoring our treaty obligations, the co-lead agencies included "Protecting Native American treaty and reserved rights and fulfilling trust obligations for natural and cultural resources throughout the environment affected by the Columbia River System operations" as a purpose in the Purpose and Need Statement in Chapter 1 to ensure treaty obligations were a key consideration of decision making. The EIS recognizes the value of recreational and commercial fishing to the region. Section 3.15 describes the values associated with fisheries in the Northwest. Section 3.11 characterizes the sportfishing economy in the region. However, the uncertainty regarding the overall effects of the alternatives on regional fish populations, and how such changes may affect the management of the fisheries, limits a quantitative analysis of the specific impacts of each alternative on these values. The effects are therefore discussed qualitatively. The social welfare effects on fisheries under MO3 are described as major and beneficial in the long-term, with increases in regional economic effects if commercial fish catch rates increase. For the effects on recreational fishing under MO3 (Section 3.11.3.5), the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River).

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32294	6	John Sigler	N/A	Chapter2 - Section 2.5 Page 270 Table 2-11. List of Draft Single Objective-Focused Alternatives Spill to 125% TOG with Extended Duration; Juvenile Anadromous Fish Survival; Adult; Anadromous Fish Survival; BSA-Listed Resident Fish Survival; Hydropower Generation; Water Management; Water Supply; Lower Snake River Dam Breach. Despite multiple federal court orders requiring review of the "breach the dam" options, the CLAs continue to formulate alternatives which defy the court orders and leave realistic, achievable alternatives out of the discussion and off the table with regard to preservation of salmon and steelhead	The CRS is a complex system with multiple, sometimes competing, congressionally authorized purposes. The Purpose and Need Statement and the objectives developed for this EIS reflect these multiple purposes, as do the alternatives developed to meet them. This EIS was developed to evaluate the operation and maintenance of the CRS over the next 20 years, with the expectation that the co-lead agencies will continue to meet the multiple, authorized purposes until directed differently by Congress. Although Fish and Wildlife is one of the authorized purposes, it is not the only purpose, and the co-lead agencies must balance all resources, and sometimes focus some purposes over others. The analysis of the Multiple Objective (MO) alternatives reflect these trade-offs and have allowed the co-lead agencies to understand the effects of emphasizing some purposes over others in order to find the most acceptable balance for future operations. The MO alternatives relied on preliminary analysis of the single-objective alternatives to inform the combination of alternatives analyzed in the final range. The measures in the final range of alternatives were combined in deliberate ways to display the trade-offs inherent in the operation of such a complex system.
32294	7	John Sigler	N/A	Chapter 2 - Section 2.5.8 Page 2-74 Objectives are what the federal agencies are trying to accomplish (the "why"). They are statements of the desired outcome of the EIS, as identified by the federal agencies and from scoping comments. An example of an objective is to improve BSA-listed anadromous salmonid adult fish migration within the project are. 2.5.8 Single Objective Focus Lower Snake River Dam Breaching Alternative The Single Objective Focus Lower Snake River Dam Breaching Alternative was not an objective focused alternative. It was developed based on formal scoping comments specifically requesting analysis of this action. The hypothesis for this alternative was that habitat conditions for 4 of the 13 listed anadromous species in the Columbia River Basin could potentially be restored. The alternative proposed breaching the four lower Snake River dams (Lower Granite, Little Goose, Lower Monumental, and Ice Harbor) by removing the earthen embankments at each location. The reservoirs behind the dams would be drawn down slowly to avoid damage to adjacent infrastructure (e.g., roads, bridges, and railroads) and ensure life safety of downstream populations. The concrete portions of the dams would remain in place, but the powerhouses would be mothballed. The generators would be modified for use as outlets during a controlled reservoir drawdown. The breaching would occur over a 2-year period, with the two upstream dams (Lower Granite and Little Goose) breached first and followed the next year by Lower Monumental and Ice Harbor. Spreading the breaching over 2 years allows the work to occur during the in-water work window, when very few BSA-listed fish are present in the reservoirs and inflows are relatively small. This alternative was refined and included in M03 for analysis in this EIS. Despite the strong public support for an adequate analysis of the breach alternative, the CLAs again have opted to confuse and modify the suggested solution. As noted above in the PATH analysis, hundreds of informed, professional fisheries scientists have provided way more than adequate rationale for removal of the four LSRDs. Failure by the CLAs to complete this simple task (in accordance with federal court orders), is sufficient justification for EPA to deem the document and its conclusions inadequate and to reject the findings in their entirety.	The co-lead agencies presented a range of alternatives for the continued operation and management of the CRS and evaluated the alternatives to inform decision making and the public. As described in Chapter 2, many alternatives were considered and then eliminated from further consideration for the reasons described therein. A single-objective alternative for breaching the four lower Snake River dams would not provide a complete plan for management of the CRS since there are 10 other dams in the CRS. Changes to these projects must also be made either to accommodate breaching or to update existing operations. Thus, a single-objective dam breaching alternative, which leaves the remaining CRS projects at No Action Alternative operation levels would not meet the Purpose and Need Statement and the objectives of the EIS, which means the single-objective alternative is not within the reasonable range of alternatives. Analysis from the dam breaching single-objective alternative was used to inform development of Multiple Objective Alternative 3, which includes breaching the four lower Snake River dams. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA listed species. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-lead agencies numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3, which includes breaching the four lower Snake River dams. The Preferred Alternative also meets most other EIS objectives for: resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS the co-lead agencies did not identify MO3 because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. Finally, the co-lead agencies used current, high quality modeling information consistent with NEPA and did not rely on information contained in the Plan for Analyzing and Testing Hypotheses (PATH) Weight of Evidence Report (ESSA Technologies 1998), which is over twenty-years-old and does not reflect current CRS operations.
32294	8	John Sigler	N/A	Affected Environment Chapter 3 Page 3-1 CHAPTER 3 - AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES 3.1 INTRODUCTION AND BACKGROUND This chapter presents both the affected environment and environmental consequences, as required by the National Environmental Policy Act (NEPA). It is organized by resource topic, with the status of the affected environment described first, followed by the impacts of each alternative described within each resource section. Each resource has defined the area of analysis consistent with where that resource may experience effects. The affected environment sections provide a description of different aspects of the human environment that may be affected by the No Action Alternative and four Multiple Objective Alternatives (MOs). The environmental consequences sections provide a description of the impact assessment methodologies, and potential direct and indirect effects. Many natural resources are of importance both currently and historically to Native American tribes. As such, effects to these resources, and relationships to tribal interests, are discussed within each applicable resource section as well as in sections such as Indian Trust Assets, Tribal Perspective and Tribal Interests, and Cultural Resources. In an Environmental Impact Statement (EIS) the "Affected Environment/Environmental Consequences" and Chapter 4, "Cumulative Impacts" are the heart and soul of the document. It is the intent of NEPA, and all federal agency NEPA guidance, that the an EIS provide the public, interested patties, stakeholders and decision makers with not only an adequate framework for describing what resources are in the project area, it is essential that the "affected environment" be described factually and in sufficient detail so as to provide from a decision making framework. This EIS fails completely in these required mandates.	The Draft EIS provided the public, interested parties, stakeholders and decision-makers with an adequate description of the affected environment based on the high-quality, available information. This information is included in Chapter 3 of the EIS and informs the analysis in Chapters 4 (Climate), 5 (Mitigation), 6 (Cumulative Effects) and 7 (Preferred Alternative). Consistent with the Council on Environmental Quality (CEQ) June 24, 2005 guidance and interpretation of CEQ's Regulations for Implementing the Procedural Provisions of NEPA (40 C.F.R parts 1500-1508), "Agencies are not required to list or analyze the effects of individual past actions unless such information is necessary to describe the cumulative effect of all past actions combined... Generally agencies can conduct an adequate cumulative effects analysis by focusing on the current aggregate effects of past actions without delving into the historical details of individual past actions." However, the analysis of current conditions includes the ongoing effects of the existence of the system, inclusive of a host of other factors influencing natural and cultural resources of concern to potentially affected tribes.
32294	9	John Sigler	N/A	Figure 3-106 Page 3-234 reflects that no water quality analysis or evaluation was included in the EIS for 90 percent of the Snake River watershed.	The scope of this EIS focused on the operation of the 14 Federal dams in the CRS as described in Section 1.3 Scope of the Project of the EIS. The entirety of the Snake River was out of scope for alternatives development, and as changes to water quality from any of the alternatives under consideration were not anticipated beyond the lower Snake River, a discussion of the effects to water quality were not extended.
32294	10	John Sigler	N/A	Region C of the "Affected Environment" description includes the four LSRDs Region C of the "Affected Environment" description includes the Clearwater River and approximately one-third of the Idaho salmon and steelhead habitat in Idaho. The vast majority of the Snake River and its thousands of miles of main stem and tributary stream spawning areas for salmon and steelhead, are, apparently, not analyzed in this EIS.	Thanks for this comment illustrating the potential for misunderstanding the maps in the Affected Environment description. The shaded areas of Regions A, B, C, and D show, in general, areas of the habitat, with resident fish habitat within each area noted with the lines overlaid on the rivers. The resident fish scope in the Snake and Clearwater rivers was defined by the range of populations of migratory fish such as bull trout that may be affected by the projects. The anadromous fish action area is defined in line 6764 as "Other rivers...where measurable changes in the abundance of salmon, steelhead, lamprey, and other key fish species have altered components of the ecosystem", and in the habitat section (line 6791) as ..."all locations in the study area that are accessible to fish species." In actuality, the Draft EIS does consider effects throughout the action area shown in Region C, including the Snake River, Clearwater River, and thousands of miles of mainstrem and tributary spawning areas for salmon and steelhead in Idaho. These analyses are evident in Section 3.5.3.
32294	11	John Sigler	N/A	According to Figure 3-2 Page 3-16 some 90 percent of the Snake River drainage was not considered in the "affected environment portion of the EIS, Chapter 3 - 3.2.2 Area of Analysis Page 3-16 The area considered in this hydrology and hydraulics evaluation is the CRS reservoirs and the river reaches downstream. The modeling of the system for this analysis is described in the H&H Appendix (Appendix B) and the Hydroregulation Appendix (Appendix I). The order of discussion goes from upstream locations to downstream locations, and is organized by the physiographic NEPA regions shown in Figure 3-2.	The commenter is correct in identifying that the upper Snake River basin, upstream of Anatone, WA, is not included in the scope of this EIS. The upper Snake River basin has a combination of Federal and non-Federal dams and reservoirs, but these projects are not operated in coordination with the CRS projects. The flows from the upper Snake River basin are included in the modeling, just as flows from other tributaries are included, as boundary conditions.
32294	12	John Sigler	N/A	Chapter 3 - 3.4.1 Area of Analysis Page 3-233 The area considered in this water and sediment quality evaluation consists of the Columbia River and tributaries (Snake, Clearwater, Pend Oreille, Flathead, and Kootenai Rivers) from the U.S.Canada border to downstream of Bonneville Dam. This includes the Federal dams of Hungry Horse, Libby, Albeni Falls, Grand Coulee, Chief Joseph, Dworshak, Lower Granite, Little Goose, Lower Monumental, Ice Harbor, McNary, John Day, The Dalles, and Bonneville (Figure 3-106). The water quality analysis for this EIS focused on the area of largest impact both upstream (in the reservoir) and downstream (in the tailrace) of each CRS dam. Area of Analysis Wasting thousands of words and likely millions of dollars, the CLAs, ignoring federal court orders and the preponderance of scientific information accumulated over the last 70 years, elected to complete analysis on an area representing nearly half of the western United States rather than on the simple, easily defined geographic and geologic area bounded by the upper limits of the Clearwater, Lochsa, Salmon rivers and their tributaries, the area in which Idaho's salmon and steelhead are being driven to extinction by actions being taken hundreds of miles distant. It would have been a simple matter to define the relationship between the four LSRDs, their operating protocols over the last several decades and the effects these protocols have had on Idaho salmon and steelhead. This analysis would have analyzed the failed policies of the past 50 years as tweeks, adjustments, major revampings, water spills and other wasted efforts were tried, tried and tried again. Einstein's insanity quote comes to mind: "The definition of insanity is doing the same thing over and over again and expecting different results." Massive fail and lost opportunity on the part of the CLAs.	The scope of this EIS focused on the operation of the 14 Federal dams in the CRS as described in Section 1.3 Scope of the Project of the EIS and the measurable changes to water quality from those actions. That said, the system water quality model's extent includes the entire mainstem river, from the international boundary above Grand Coulee Dam to just downstream of Bonneville Dam at Warrendale, Oregon. The co-lead agencies chose to pull model output from the fixed monitoring stations, located upstream and downstream of each dam, since these are the typical locations where data is utilized when making real-time water management decisions and ensuring compliance with water quality standards.
32294	13	John Sigler	N/A	Chapter 3 - Section 3.4 Water Quality Page 3-232. The water quality of the Columbia River Basin is affected by many past and present influences, including human population growth and associated pollutants, water withdrawal for municipal and industrial water and irrigation (and irrigation return flows), dam structures and operations (Federal and non-Federal), and land use practices including mining, domesticated livestock, agriculture, industry (pulp and paper mills), logging (silviculture and forest management), and recreation (e.g., shoreline erosion). New pollutants are continually being identified, such as pharmaceuticals. The existing National Pollutant Discharge Elimination System programs regulate certain identified compounds from point sources, but other pollutants may also be present and unaccounted for. Nonetheless, surface water in the Columbia River Basin supports a wide variety of resident and anadromous fish and other aquatic organisms and wildlife. The 14 Federal dams within the CRSO study area have affected water and sediment quality due to the creation of reservoirs throughout the system. Prior to the construction of these and other dams, the Columbia River and its tributaries were free-flowing, natural rivers. These rivers experienced seasonal flow and temperature changes. The seasonal peak flows would have moved sediment downstream over time. Water depths would have been comparatively shallow (more shallow than the current reservoirs) which has implications for water velocity, water temperature, and ecological processes. Water in the river was fully mixed as the water flowed downstream. The river conditions dictated the water and sediment quality, which in turn dictated the habitat and species found in the habitat. Water quality in the CRS is indeed affected by the four LSRDs. The overall effect of temperature, slack water, lack of significant directional flow and the repetitiveness of the conditions in the reservoirs all work to confuse and slow downstream migrants from Lewiston, Idaho to the Bonneville Dam.	As noted in this comment, there are many contributing factors that effect water quality. It is well understood that the CRS dams have an impact on natural riverine processes as well as anadromous fish migration. This is discussed throughout the EIS document.
32294	14	John Sigler	N/A	. 3.4.2.1 Water Quality Page 3-236 Water temperature is one of the most important physiochemical constituents of surface water and has been modeled as part of the CRS EIS analysis. It controls the rate of all chemical reactions, directly affects fish and benthic macroinvertebrate growth and reproduction, and can be acutely toxic (fatal) to fish if drastic temperature changes occur or if temperatures exceed 25C for salmon and steelhead. Water temperatures in many reaches do not meet the regulatory standards in the summer and early fall. System operations can impact both water temperature and TDG in the Columbia River Basin, and given this the impact, the analysis in the CRSO EIS focuses on how both parameters may change with a change in operation as described in the MOs as compared to the No Action Alternative. 3.4.3.2 Impact Framework Page 3-246 A framework was developed to define the overall level of water temperature and TDG impact for each CRSO EIS alternative as compared to the No Action Alternative. For water temperature, the level of impact (negligible, minor, moderate, or major) was defined based on the absolute change in the maximum and	It is well understood that the CRS dams have an impact on natural riverine processes as well as anadromous fish migration. This is discussed throughout the EIS. A system water quality model was developed to look water temperature and TDG effects throughout the Columbia and Snake River system. These results were provided to the fish team for incorporation into NMFS COMPASS and CSS modeling and other analysis to evaluate the impacts to anadromous fish. The fish team also used water quality outputs to qualitatively examine effects to fish species based upon known relationships between water temperatures and fish responses specifically for stocks such as sockeye salmon and Fall Chinook salmon where quantitative models were not available.

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				minimum water temperatures as averaged over the 5-year simulation period (2011-2015). If the absolute change in water temperature between the MO Alternative and No Action Alternative was less than 0.4 degree Fahrenheit, the water temperature impact was considered negligible. If the absolute change in average minimum and maximum values was greater than 0.4 degree Fahrenheit, but less than 2 degrees Fahrenheit, the impact was considered negligible, minor or moderate based on the time of year (season) the impact occurred and whether the impact increased the number of days that State water quality standard (WQS) criteria was not met and by how much. Absolute water temperature changes of >2 degrees Fahrenheit, or an increase in water temperature WQS exceedances of greater than 10 days, were considered a major impact. None of this discussion addresses the multiplicative effects of one slack, warm water reservoir after another between Lewiston, Idaho and the Bonneville Dam. One slap side the head is one thing - four then eight in a row is a different story, the cumulative impacts of the eight dams should have been analyzed with respect to physiological effects and timing.	
32294	15	John Sigler	N/A	Chapter 3, Page 3-298 Affected Environment Construction and operation of Federal and non-Federal dams in the Columbia River Basin have impacted longitudinal connectivity by blocking or otherwise affecting migratory fish corridors, changing stream flow patterns, and altering natural water temperature regimes that in many areas can cause delay of migration or even form thermal barriers. An outright admission in the EIS that the federal dams in the CRS, including the four LSRDs, adversely impact Idaho salmon and steelhead: eight of them but particularly the outdated LSRDs.	The co-lead agencies used the best available science in the analysis of the 2019 CRS EIS. This analysis includes the effects of operating and maintaining CRS dams, including the 4 Lower Snake River Dams, on Snake River steelhead and salmon, water quality, water quantity, and host of other resources. Specific to salmon and steelhead, the agencies used two primary modeling approaches which yielded a range of potential outcomes for the alternatives. This information is presented in Chapters 3 and 7 in the Draft EIS. With respect to the preferred alternative, the CSS model predicts that average Smolt to Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% as a result of the Preferred Alternative. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative is nevertheless predicted to benefit salmon and steelhead. It also meets all the other objectives of the study for resident fish, hydropower, water management, water supply and greenhouse gas emissions, while minimizing adverse impacts to communities and the economy.
32294	16	John Sigler	N/A	Chapter 3 Page 3-304 (Line 7316) Multiple factors have contributed to the historical decline and current status of salmon and steelhead. The construction and operations of the Columbia River System are among the many factors that have adversely affected these species. The adverse impact of past Columbia River System operations has been reduced over time, and multiple mitigation actions have improved habitat, hatchery operations, and predator management, thus increasing survival rates of individuals in these ESUs, reducing extinction risk, and thereby contributing to improvements in the likelihood of recovery. Another section where CLAs admitted that the CRS, including the four LSRDs, are part of the reason Idaho salmon and steelhead are afforded protection under the federal Endangered Species Act. The brief paragraph above do not have acknowledge the fact that the proponent agencies are in control of the CRS and the four LSRDs, affording them and only them with the discretionary prospect of first, evaluating the effects of the four LSRDs and second, acknowledging that removal of the dams is feasible by any engineering, economic or social standard. Another opinion PORTLAND, Ore.- The U.S. Army Corps of Engineers, Bonneville Power Administration and Bureau of Reclamation today released the first step of a court-ordered National Environmental Policy Act review of the federal system of dams and reservoirs in the Columbia-Snake River Basin. The review was supposed to detail all credible recovery alternatives for endangered salmon and steelhead But instead it gives short shrift to the only viable alternative for saving salmon and ultimately orcas - removing the four lower Snake River dams. "Instead of taking the one step identified by scientists as absolutely crucial for salmon recovery, these agencies failed our region yet again, " said Meg Townsend, an endangered species attorney with the Center for Biological Diversity. "The science shows that pulling out the four lower Snake River dams is the only way to save Columbia river salmon and the Southern Resident orcas that depend on them. " In May 2016 the U.S. District Court in Portland invalidated the federal agencies' 2014 biological opinion for salmon and steelhead endangered by the federal dams and reservoirs on the Columbia-Snake rivers. This was the fifth consecutive analysis rejected by the courts since the 1990s. Currently only 72 Southern Resident orcas remain. Orcas are starving to death as their primary food source, salmon, continue to face significant declines in the region. The Columbia River System dams cut off more than 55% of salmon spawning and rearing habitat. Many wild salmon runs in the region have as low as 2% or less of their historic populations. The federal government has spent more than $16 billion on regional salmon in the past two decades, yet has so far failed to recover any of the thirteen wild salmon and steelhead populations in the Columbia Basin at risk of extinction today. In a Feb. 11 letter to Washington Governor Jay Inslee, Oregon Governor Kate Brown called for the removal of four dams in the lower Snake River as a better path toward restoring salmon runs in both states.	The co-lead agencies also recognize that there are many effects to salmon and steelhead populations outside the operation of the dams. Research continues to evaluate the magnitude of these effects. For more information see the NMFS website at: https://www.nwfsc.noaa.gov/research/index.cfm. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species as that is a broader goal with shared responsibility. Based on our analysis of the fish resources section of Chapter 7.5, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the Columbia River System. That call, however, is ultimately the role of NMFS and the USFWS. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. The EIS analysis found only a minor effect to the Southern Resident killer whale would result from implementing MO3 (which includes the dam breach measure). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults form the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differentially from hatchery and wild fish. Hatchery fish today likely make up most fish consumed by SRKW (NOAA BiOp 2020). The EIS analyzed spill as a measure in the Preferred Alternative and determined the overall effect to SRKW to be negligible in large part because hatchery production is consistent between the No Action Alternative and the Preferred Alternative. Because the impact from the Preferred Alternative was determined to be negligible, the agencies determined that existing hatchery production would be sufficient to address any potential impacts to prey availability for SRKWs. The co-lead agencies note the contribution to the prey of SRKW through the continued existence of their respective independent congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as the Lower Snake River Compensation Plan, which is administered by U.S. Fish and Wildlife Service. The Preferred Alternative and Proposed Action in the agencies' biological assessment carry forward certain mitigation measures described in Chapters 2 and 7 of the EIS, which include continued salmon and steelhead hatchery production. The Preferred Alternative has negligible effects to SRKWs as described in Section 7.7.8.
32294	17	John Sigler	N/A	Alternative power sources such as wind and solar are rapidly becoming cost competitive to any hydropower project, particularly those over 50 years old which require continual maintenance and turbine replacement to remain functional. Alternative power sources such as wind and solar, which are rapidly becoming cost competitive could easily be used to replace portions of the current ground based materials transport systems such as rail and traffic. For instance, did the CLAs even countenance the prospect of using electric trains and electric trucks to move grain and other materials through the EIS analysis area? Several NGOs are currently developing both electric over-the-road trains and transport trucks.	For hydropower, the average annual value of the four lower Snake River dams exceeds the average annual equivalent costs. The generation value at the four lower Snake River dams can be described by a range between the cost to replace the generation through new conventional resources or through a portfolio of zero-carbon resources. Although the costs of replacing the power with market purchases was analyzed, it is unlikely that short-term wholesale power markets could reliably replace the power for the long term. This range would put the annual value of power between $240 million and $500 million for the four dams combined. These numbers represent about 90 percent of the lost benefits cited in Table 3-171 of the Draft EIS because the four dams represent about 1,000 aMW of the 1,100 aMW of lost generation estimated in MO3. The average annual cost to operate and maintain all authorized purposes at the four lower Snake River dams is $75 million (Appendix Q, Table 5-1) and the annual-equivalent capital costs are $32 million (Appendix Q, Table 4-1). Hydropower costs funded by Bonneville represent about $50 million of the total annual operations and maintenance costs and nearly all of the annual capital costs, approximately $31 million. This puts the annual-equivalent power-specific costs at approximately $81 million a year. As a result, the net benefits from hydropower for the four lower Snake River dams are between $159 million and $419 million and the benefit-cost ratios are between 3.0 and 6.2. If the $34 million per year for the Lower Snake River Compensation Plan is added to the capital and expense costs, benefits still exceed costs under each replacement power scenario. Considering these costs, the net benefits range from $125 million to $385 million and the benefit-cost ratios range from 2.1 to 4.3. In the less-likely scenario that generation could be reliably replaced with short-term wholesale market purchases and assuming that the four dams represent 90% of the $150 million in market purchases required to replace the lost generation cited in MO3 (see Table 3-170), the lower bound for net benefits would fall to $54 million and the benefit-cost ratio would fall to 1.7. With the Lower Snake River Compensation Plan included, the lower bound for annual net benefits becomes $20 million and the benefit-cost ratio becomes 1.2. From a resource competitiveness perspective, the four lower Snake River dams are among the least costly generating resources in the Federal Columbia River Power System (FCRPS) and the planned investment strategy is expected to maintain that status. As shown in the Federal Hydropower presentation at the 2018 Integrated Program Review1/, the Headwater/Lower Snake Asset Class/2 is forecast to have a 50-year levelized cost of generation/3 of $11.41/MWh based on the direct funded capital and expense (O&M) programs outlined in that process. These costs remain competitive with volatile Mid-Columbia spot market energy prices, which averaged $37/MWh in 2019 and have averaged $21/MWh in 2020. 1/ The Integrated Program Review (IPR) allows interested parties to see and comment on all relevant Federal Columbia River Power System (FCRPS) capital and expense (O&M) spending level estimates in the same forum. The IPR occurs every two years, or just prior to each rate case, and is the public review for the costs that will be recovered through rates the following two-year rate period. Long-term forecasts for the next 50 years and major upcoming projects are also shared in this forum. This information is available here: Blockedhttps://www.bpa.gov/Finance/FinancialPublicProcesses/IPR/2018IPR/IPR%202018%20Fed%20Hydro%20Workshop.pdf and is incorporated by reference into this EIS. 2/ In the 2018 Integrated Program Review, the Headwater/Lower Snake Asset Class consisted of the four lower Snake River dams, Hungry Horse, Libby, and Dworshak dams. These projects were grouped together because they have similar cost characteristics. The Levelized Cost of Generation for the four lower Snake projects alone is slightly lower than that for the whole class including the headwater projects shown in the table. 3/ Levelized Cost of Generation is defined as the forecasted direct costs and administrative overheads of producing power at a plant annualized over a 50-year period. This cost includes direct funded operations, maintenance, administrative and capital costs as well as Columbia River Fish Mitigation (CRFM) costs. Bonneville system-wide mitigation costs, such as its Fish and Wildlife program, are not included in this metric. No cost estimates or production functions specific to electric trains or trucks were available or utilized as part of the navigation and transportation analysis.
32294	18	John Sigler	N/A	Throughout this EIS, it appears the COE and their proponent partners have used the frequently seen COE "overbuild" model for this EIS. Rather than provide lucid, understandable documentation on the portions of the CRS relevant to adult and juvenile losses at the four LSRDs, CLAs have elected to pile thousands of pages of material into the EIS which does not address the directions for the several federal court directions in the last several years.	The co-lead agencies analyzed the integrated operation, maintenance, and configuration of the 14 projects that comprise the CRS. Because the CRS has a broad geographic reach, is subject to numerous legal mandates, and implicate numerous complicated and contested subjects, the analysis is necessarily lengthy. The intent of the Executive Summary is to serve as a primer and broad summary of findings. The Final EIS will expand the table of contents that was in the draft EIS to assist readers in finding specific topics. The EIS also includes an index, so the public knows where to look for detailed analysis in either the main body of the EIS or the appendices.
32294	19	John Sigler	N/A	More Math - EIS released with a 45-day period for review and comment. 2000+ pages of main text plus several thousand more pages of appendices. 2000/45 requires to read, understand and comment on 45 plus pages of highly technical material every day while writing and formulating comments in an organized fashion. Shame on the CLAs! ! Reverting to the Executive Summary to try to grasp the realities of the effect of the four LSRDs on Idaho salmon and steelhead mired one in opaque analyses, glittering generalities regarding fisheries science and some sketchy data regarding actual costs of breaching the LSRDs and replacing that power generating capability with sustainable wind and solar.	Given the broad range of comments received and the extensive Federal and non-Federal participation in the overall process as well as the level of public engagement in the six virtual public hearings in the region, the co-lead agencies determined the 45-day public comment period was consistent with NEPA regulations. The intent of the Executive Summary was to serve as a primer and broad summary of findings. The Final EIS will expand the table of contents that was in the draft EIS to assist readers in finding specific topics. The EIS also includes an index, so the public knows where to look for detailed analysis in either the main body of the EIS or the appendices.
32294	20	John Sigler	N/A	Line 7244 To aid the downstream passage of juvenile salmon and steelhead, the co-lead agencies have worked to improve passage and survival past the dams and through the reservoirs of the CRS. Commendable but hardly rising to the federal court rulings over the last several decades which mandated actions which actually move Idaho salmon and steelhead toward recovery. Figure 3-312 Page 3-301 Percentage Survival at Each LSRD Lower Granite 98%, Little Goose, 98.2%, Lower Monumental 98.7, Ice Harbor (assumed 98 %) Do the math. 100 Idaho salmon and steelhead arrive at the confluence of the Snake and Clearwater Rivers near Lewiston, Idaho. Lower Granite Dam kills 2 of them, 98 continue to Little Goose Dam, two more die there, leaving 96 to travel downstream to Lower Monumental Dam where 2 more die, leaving 94. Another 2 die at Ice Harbor leaving 92 and these 92 go through four more dams before reaching the ocean. Even given that these numbers are correct, iffy since they do not reflect delayed mortality or other known but undefined factors, successful returns to the mouth of the Columbia have already been reduced by nearly 10 percent. Species Status-Chinook Salmon. Following guidelines of the Idaho Department of Fish and Game and federal standings, Chinook Salmon are ranked as secure (GS) range wide, but the Snake River populations are ranked as critically imperiled (TI) and in Idaho they are ranked as critically imperiled (S 1). Sockeye Salmon. Sockeye Salmon are ranked as secure (GS) range wide, but the Snake River populations are ranked as critically imperiled (TI) and in Idaho they are ranked as critically imperiled (S 1). Steelhead. Steelhead are ranked as vulnerable to imperiled (G5T2T3) range wide and vulnerable (S3) in Idaho. (Sigler and Zaroban, 2018),	The per-dam survival metric is both accurate and useful in measuring changes in near-field survival at the dams due to structural modifications (e.g., surface passage routes) or operational changes (changes to spill levels or spill patterns). The per-dam survival estimates are multiplicative in nature and the improvements in at-dam survival over the past 10 years has been shown to contribute to improvements in total in-river survival of smolts migrating through the CRS, especially for steelhead. These figures were used to provide context in the Affected Environment Section. The focus of the CRSO EIS and the analysis presented in Section 3.5 and Chapter 7 hinged around total in-river survival, travel time, powerhouse passage rates, and Smolt-to-Adult (SAR) return rates. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the CRS. That call, however, is ultimately the role of NMFS and the USFWS. With respect to the Preferred Alternative, the CSS model predicts that average SAR return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% (within the Northwest Power and Conservation Council (Council) recovery targets for the region) as a result of the Preferred Alternative. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. These improvements are expected to benefit all of the stocks listed in this comment if latent mortality is reduced through higher spill levels.

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32294	21	John Sigler	N/A	EIS References - Looking at the impressive list ofreferences cited in Chapter 11, one can't help but be impressed. A quick review, however reveals an interesting truth: Among the recognized professional fisheries managers throughout the Pacific Northwest, a handful are cited once or twice. Bonneville Power, or adjuncts contributed some 20 publications, all apparently gray literature, never subjected to peer or public review, never scrutinized by any but BPA staffers. Even a significant portion of the references authored by credible fisheries and other scientists were BP A documents, not peer reviewed. Thus BP A for decades formulated management policy, wrote it down in internal documents and proceeded to facilitate the status quo of killing Idaho salmon and steelhead while "shielding" the public from the foundational documents used to make these decisions. Exact same thing is true of the COE publications: written, shelved, never to see the light of public review or be subjected to peer review.	The Draft EIS uses high-quality, best available references. All Bonneville-funded projects are available at cbfish.org. This includes all reports applicable to the various fish and wildlife projects Bonneville funds. Moreover, the co-lead agencies invited a number of entities (including Tribes, states, and agencies) from across the region to participate in the EIS process as Cooperating Agencies, and over 30 of those invited agreed to participate. Staff from the Cooperating Agencies joined the technical teams and provided their expertise and review of the development and analysis of the alternatives. Leaders from the co-lead agencies met with Tribal leaders for formal consultation, and with other organizations and stakeholders to have dialogue and receive feedback as the EIS progressed. However, only the co-lead agencies have authority to make decisions regarding future operation and configuration of the dams in the CRS system. Finally, the co-lead agencies selected senior staff from across the country with expertise in their fields to serve on the EIS team. The draft EIS was subjected to two internal agency reviews by the Corps of Engineers experts not involved in the development of the document. Additionally, the entire document, analysis, and modeling were reviewed following an Independent External Peer Review (IEPR) process that meets OMB circular on peer review requirements under the "Information Quality Act" and the Final Information Quality Bulletin for Peer Review by the Office of Management and Budget (referred to as the "OMB Peer Review Bulletin). It also meets guidance for the implementation of both Sections 2034 and 2035 of the Water Resources Development Act (WRDA) of 2007 (Public Law (P.L.) 110-114) and standards of the National Academy of Sciences independent peer review. The final IEPR report will be publicly available.
32295	1	Rob Mercer	Columbia-Snake River Irrigators Association	CSRIA Policy/Technical Comments on the Draft CRSO ESA BiOp-EIS The Columbia-Snake River Irrigators Association (CSRIA) is providing policy and technical comments on the Draft Columbia River System Operations (CRSO) ESA BiOp-EIS, as Defendant-Intervener in the pending Biological Opinion litigation before U.S. District (OR) Judge Michael Simon. This litigation has involved a remand of the 2014 BiOp (2016), injunctive relieve for full hydro project spill operations (2018-19), and preparation of a new environmental impact statement (EIS) that specifically includes an examination of breaching the Lower Snake River dams. The Draft EIS preferred alternative identified by the CRSO agencies is principally based on the 2014 BiOp, with an Interim BiOp (2019) advancing revised project spill regimes, along with other operations. The remaining Draft EIS alternatives include other water management operations, Lower Snake River dam breaching actions, reservoir drawdown measures, and a broad range of supplemental system/project implementation features. Policy Comments-the Draft EIS Alternatives: Given the conflicting policy-political visions surrounding Lower Snake River dam breaching and its overshadowing litigation forum, the CSRIA has little confidence in the resilience of the Draft EIS preferred alternative. From CSRIA's perspective, the only way it could have prevailed is through an ESA Exemption decision; and the CRSO agencies' WA-DC leadership has largely foreclosed that course of action.	Thank you for your comment.
32295	2	Rob Mercer	Columbia-Snake River Irrigators Association	So being, CSRIA is aware of a growing number of voices from the broader environmental, governmental, industrial, and utility communities calling tor something other than what is portrayed by the Draft EIS alternatives. In effect, this call is tor a "new regional alternative." While those seeking further discourse are short on offering specifics, other Lower Snake River project operations apparently are open tor review, as well as additional mitigation or compensation measures. The CSRIA recommends that the CRSO EIS managers work, now, with the principal stakeholders and litigation participants to define system operation measures that should be included in the Final EIS, as representative of a new regional alternative. This redefinition of a new regional alternative could be part of a status conference with Judge Simon, or it could be led by one or more of the state governors' offices. Through its own dam breaching review, Washington State representatives have expressed a willingness to mediate discussion of a new EIS alternative; the CSRIA would support Gov. Inslee's representatives doing so. This expedited process should not depend on consensus, but pragmatic compromise. Simply grinding on with the current EIS alternatives and ignoring the high degree of regional rejection, invites more hostile litigation in 2021. There is ample time to modify the Draft EIS in an attempt to define a subset of compromise measures, rather than accept that the existing EIS will be reshaped by the federal court. The EIS need not become a classical Greek tragedy.	The co-lead agencies recognize the desire to continue the conversation across the region about the future of salmon recovery, affordable and reliable clean electricity, tribal perspectives, and economic vitality for the many people who depend on the CRS for their way of life. The co-lead agencies will be active participants in regional discussions on the CRS and achieving broader recovery objectives. The Preferred Alternative for long-term system operations, maintenance and configuration of the CRS presented in the Draft EIS is based on todays conditions and environment. Its also important to note that technology is quickly changing, as is the regions dynamic environment and energy market, and the region needs to consider new information and adaptively manage resources. The co-lead agencies recognize that no matter which alternative in the CRSO Draft EIS is identified as the Preferred Alternative, the identification would likely draw criticism from some stakeholders or sovereigns. The region includes stakeholders, sovereigns, and other interested parties with diverse and varied opinions on these very important topics, and many are strong in the belief that their perspective is the best path forward. It is important to keep in mind that factors, both human-caused and natural, that are outside the responsibility and control of the co-lead Federal agencies also contribute to the decline and recovery of fish, and will continue to strongly influence fish and their habitat. Salmon and steelhead have been adversely affected in the Columbia River Basin over the last century by many activities including human population growth, urbanization, introduction of exotic species, overfishing, development of cities and other land uses in the floodplains, water diversions for all purposes, dams, mining, farming, ranching, logging, hatchery production, predation, ocean conditions, and loss of habitat. Operation, configuration and maintenance of the Columbia River System requires mitigation for its effects, and the EIS is not intended or required to serve as an overall salmon recovery plan for the region. All of the human-caused impacts that have contributed to the decline of fish, and how the region should properly and effectively address those impacts, should be part of the continued regional discussion. The co-lead agencies look forward to participating in that discussion.
32295	3	Rob Mercer	Columbia-Snake River Irrigators Association	Technical Changes and Observation: Irrigation Sector Impacts: Under the four Lower Snake River dam breaching alternative, the irrigation sector impact area is substantially underestimated, and the estimated direct net economic value impacts are only partially correct. These factors have been discussed with the USBR and Corps EIS managers, and they have been provided with the CSRIA Risk Mitigation Response Alternative White Paper (see complete White Paper at CSRIA.org/Risk Mitigation). The Draft EIS irrigation sector impact area should be expanded (see attached Maps). While the Ice Harbor Pool irrigated acres are slightly less that the CSRIA estimate (about 54,000 acres), the Draft EIS fails to account tor the McNary Pool acres (about 37,000) that will be affected by breaching/pool drawdown. Under dam breaching, it is not realistic to expect the reach below Ice Harbor Dam to the mainstem Columbia River to remain "stable" or "the same" as under existing physical conditions. The inflows to this reach will be at a much higher water velocity, coming from a much narrower channel; and with very high silt and debris concentrations (as noted in the EIS). Irrigation pumping stations along the entire impact area, including the Upper McNary Pool reach, are highly sensitive to pool elevation drawdowns and siltation issues. The breaching (and/or MOP) operations will definitely impact the pump stations and conventional operations. These are high dollar impacts.	McNary pool elevations are not anticipated to drop below current operating minimums under any alternative. The breaching of the lower Snake dams in MO3 may cause a temporary increase in sediment, which may require increased maintenance.
32295	4	Rob Mercer	Columbia-Snake River Irrigators Association	Within the Risk Mitigation Response Alternative White Paper, the CSRIA has provided the EIS managers with information and further guidance on the regulatory and legal framework tor estimating the direct net economic impacts. The Draft EIS analyses should have relied on the market analysis for willingness-to-pay values, as opposed to county assessment values used for property taxation purposes. The actual market values in the attached tables reveal the full asset values attributable to the irrigation operations, and should be applied or explicitly identified within the Final EIS.	The land value approach, as explained in Appendix N, is an acceptable approach for measuring the social welfare value of irrigation water. The Principles and Guidelines (P&Gs) describe two methods for evaluating the social welfare effects associated with irrigation, farm budget analysis and land value analysis. The land value method is based on the use of land values as a measure of the lands income-producing capability from farm production. The P&Gs land value method call for a with and without comparison of irrigated and non-irrigated lands. When using land values to estimate the social welfare effects of irrigation water, the land values used for estimating the value of the water must be based only on the lands income-producing capability from crop production so other factors not related to irrigation water supply are excluded from the social welfare effects. As explained in Appendix N, the market value of land often differs from the agricultural use value and includes premiums unrelated to irrigation water. The differences may occur when market values are influenced by non-agricultural activities such as urban development.
32295	5	Rob Mercer	Columbia-Snake River Irrigators Association	For the McNary-John Day pools, the Draft EIS appears to establish the operating range baseline as being minimum irrigation pools (MIP) during the spring-summer period. CSRIA supports this operating protocol.	Thank you for your comment.
32295	6	Rob Mercer	Columbia-Snake River Irrigators Association	Navigation-Transportation Impacts: Concerning dam breaching, the navigation-transportation analysis in the EIS has omitted a very critical and essential component: the availability of the WATCO-Union Pacific rail line from Lewiston to Lyons Ferry (along the north side of the Lower Snake River), to the main Union Pacific rail route east to Wallula, Boardman, and Portland (see attached WA State rail map). This rail route would be the primary rail route for grain shipments diverted from barge traffic under dam breaching-pool drawdown operations. The EIS principal investigator for the rail alternative analysis did not calibrate the WSU TOM dispatch model to include the WATCO-UP line, a highly viable rail route. CSRIA representatives have examined this rail route in detail, given multiple contacts and information requests from the WATCO-UP operations managers. They have confirmed the ability of the rail lines to handle additional wheat shipments (1-3M tons), and their ability to make relatively quick modifications to staging areas to absorb incremental loads. The detailed discussions between CSRIA representatives and WATCO-UP managers confirm that the EIS principal investigator failed to contact the rail managers. For the EIS analysis, this is an invalid research protocol and inadequate rail alternative verification process. The EIS principal investigator should be directed to rerun the TOM model with the WATCOUP alternative rail operations. This new EIS analysis, for inclusion in the final EIS, also should be reviewed with the WATCO-UP operations managers to confirm operational viability and dispatch capabilities.	The Great Northwest Railroad, owned by WATCO, is a short-line railroad that runs along the Snake River from Lewiston, ID, to Ayer Junction, WA. Research conducted as part of the EIS suggested that elevator to river port movements via short line rail are not currently occurring because in order for them to ship grain to river terminals on the Columbia, they must operate on part of Union Pacific's rail line and WATCO's operating agreement with Union Pacific does not allow for these shipments. The effect of including this assumption and allowing movements on these short lines during a breach scenario would be to somewhat reduce the anticipated increases in shipping costs to shippers. Information has been added to Appendix L that describes the impacts of modifying this assumption on quantified costs to shippers.
32295	7	Rob Mercer	Columbia-Snake River Irrigators Association	Power Impacts: The CSRIA members depend on a reliable electric power supply. Although this predominantly consists of a summer peaking load, the food production industry depends on winter peaking power to operate food processing-distribution facilities. While we are cognizant of state legislative/regulatory planning constraints, it is absolutely crucial for the EIS managers (particularly BPA managers) to include the full peaking power capacity from existing and planned combustion turbines/combined-cycle combustion turbines for (available) future power resources. The Pacific Northwest regional power demand cannot be met without these units-there is no reasonable scenario, of any kind, to provide "replacement" peak power alternatives. With or without dam breaching or pool drawdowns, the CT/CCCTs must be operational to sustain future loads, as well as for the integration of more costly wind and solar (with some battery capacity) resources. The CO2 footprint of the gas -fired CT/CCCTs is negligible, as the region decommissions coal-fired units and further changes the operational profile of hydro power projects (including BPA's forecast climate change impacts). While we do not discount continued efforts for conservation-efficiency measures and demand response programs, the CT/CCCT units must be in operation. The same is true for the future of small modular nuclear reactor siting. The Idaho National Laboratory and the Dept. of Energy's Hanford Operations (and contractors) may be bullish on modular reactors, but it is unrealistic to assume these units will be sited without confirmation for a permanent commercial nuclear waste siting facility (existing and future waste), more regulatory review by the states, and widespread public acceptance. To the extent such units come on-line, perhaps operating as base load power stations, they should not be presumed to dislodge the need for CT/CCCTs, for readily dispatchable peaking capacity.	The EIS uses the GENESYS and AURORA models to simulate the effects of the regional power system under each alternative. These models account for the capabilities of all existing regional power plants, such as the combustion turbines mentioned by the comment. For all of the Multiple Objective alternatives (MOs) the EIS models two potential replacement portfolios: a least-cost conventional portfolio (natural gas) and a zero-carbon portfolio (primarily solar). In the Draft EIS, see Section 3.7.3.5, at pages 3-904-910. The conventional least-cost portfolios includes gas fired resources to meet the Loss of Load Probability of the No Action Alternative, as suggested by the comment. For the zero-carbon replacement portfolio, the EIS finds that new zero-carbon resources can restore the regional reliability to that of the No Action Alternative, though at considerable cost. Consistent with the discussion in the comment, the EIS power modeling finds that existing peaking plants (CT/CCTs) increase power generation when renewable resources replace the hydropower output lost under the Preferred Alternative, MO3, which includes breaching of the four lower Snake River dams, and Multiple Objective alternative 4 (MO4). Under MO3, a sensitivity study was considered for the full replacement capabilities with non-carbon emitting portfolios that include pumped storage and Small Modular Nuclear Reactors (SMRs). See Section 3.7.3.5, Lower Snake River Full Replacement, pages 3-905-907 in the Draft EIS. It is acknowledged that the Northwest Power and Conservation Council (Council) does not consider these resources to be primary resources at this time. However, pumped storage will likely be considered a secondary resource in the Councils Eighth Power Plan as it is a proven technology with several sites that have moved through the permitting process.
32295	8	Rob Mercer	Columbia-Snake River Irrigators Association	Lower Snake River Fish Passage Survival Modeling: The Final EIS should highlight more clearly the dependence of Snake River fish survival to the existing juvenile fish transport program versus proposed in-river survival strategies. As concisely displayed in Table 1 analysis (attached), without the dams and .juvenile fish transport collection facilities, the overall "average" juvenile fish in-river survival would have to be at least 56%, through Lower Granite Pool to the Bonneville Dam tailrace. Based on existing empirical data and analyses (NOAA Fisheries, CSS Study), this "average" 56% survival rate would not be achievable under low-flow, high water temperature conditions like 2015. The TIR for 2015, approximately 4.0, far exceeds any potential in-river survival benefit from dam breaching-not mathematically possible. This type of basic analysis can be applied further to evaluate other operations for the Lower Snake River projects not incluc:led in the Draft EIS, but reviewed in previous Corps and Fish Passage Center studies. In Figure 2 (attached), it is assumed that some deep pool (spillway crest) drawdowns occur and the survival rates for the other Columbia River projects remain at historical levels, and with	The Preferred Alternative in the CRSO EIS does not include dam breach or deep pool drawdowns. That said, the co-lead agencies acknowledge the importance of using all available tools to enhance the life cycle survival of lower Snake River salmon and steelhead. Transportation will continue to be an operation that the co-lead agencies will utilize in the Preferred Alternative. Through adaptive management and monitoring, the co-lead agencies will continue to analyze the Smolt-to-Adult returns (SAR) of fish that were transported to those that migrated in-river. The region's ability to assess these effects will be enhanced with new PIT-monitoring facilities that are now available in the surface passage spill route at Lower Granite Dam.

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				Lower Monumental and Ice Harbor projects at optimal survival rates without deep pool drawdowns. Under this operating condition, Lower Granite Pool/Dam and the Little Goose Pool/Dam would each have to have a 97% fish survival rate (94% survival through entire reach) to equal the "average" system rate of 56%. Stated differently, deep spillway crest drawdowns at Lower Granite-Little Goose projects would have to have a 97% survival rate to equal or exceed the "average" survival rate provided by the existing juvenile fish transportation program. Under 2015 water-year conditions, the deep pool drawdowns would be ineffective to provide sufficient fish survival rates, even with fish transport remaining at Lower Monumental Dam.	
32295	9	Rob Mercer	Columbia-Snake River Irrigators Association	Attachments: 1) CSRIA Risk Mitigation Response Alternative White Papre, Figures (maps) and asset value impact tables. Complete White Paper at: CSRIA.org/Risk Mitigation. 2) WA State Rail Route Map-WATCO-UP lines along L. Snake River. 3) Figures 1 and 2 for dam breaching-pool drawdown required fish survival rates.	Responses to the comments associated with these references are provided in the individual comment responses where the comments utilized these references.
32296	1	Adam Domanski	ECONorthwest	1. The DEIS does not properly consider the costs of a replacement power portfolio The Lower Snake River Dams produce a small share of the energy needs for the region and account for less power than BP A currently exports to other regions, primarily California.3 While the dams add useful capacity to ensure system reliability during certain months of the year, those capacity services could be provided by other resources at a relatively low cost. The DEIS assumptions result in a higher estimate of rate pressure outcomes associated with dam removal compared to prior studies. The DEIS estimates rate increases of 9.6 percent to 19.3 percent, depending on the replacement portfolio.4 In contrast, The Lower Snake River Dams Power Replacement Study, authored by Energy Strategies for the Northwest Energy Coalition found that the increase in the regional revenue requirement would be two to three percent higher after removal of the dams.5 Although the DEIS comments that the difference is because the Energy Strategies report has "older load data and natural gas price forecasts, has lower estimates for transmission-related costs, and therefore underestimates impacts to Bonneville ratepayers",6 the large difference suggests that the DEIS is using an unnecessarily high estimate for rate impacts that does not prioritize cost savings. Furthermore, the estimates of grid reliability in the DEIS greatly exceed current market estimates of those resources. In their 2018 study, Energy Strategies ran a simulation of the Pacific Northwest grid without the LSRD and noted how the loss of load probability changed for each month. Removing the LSRD increases the loss of load probability over one percent for four months: September, October, December, and January. While no formal market exists for this reliability service in the Pacific Northwest, California utilities are required to contract for "resource adequacy". Applying the price of adequacy contracts in California of approximately $4.34 per kW per month7 to the 1,000 MW operating capacity for the four months during which 3 Figure 1-3: BPA Average Monthly Generation (aMW) frolll 2007-2015 from Energy Strategies. (2018). Lower Snake River Dams Power Replacement Study: Assessing the technical feasibility and costs of clean energy replacement portfolios. Prepared for NW Energy Coalition. Retrieved from https://nwenergy.org/wpcontent/uploads/2018/04/LSRD_Report_Full_Final.pdf 4 DEIS, page 3-920, lines 27784-27785. 5 Energy Strategies. (2018). Lower Snake River Dams Power Replacement Study: Assessing the technical feasibility and costs of clean energy replacement portfolios. Prepared for NW Energy Coalition. Page 12. 6 DEIS, page 3-913, lines 27526-27528. 7 Chow, L., & Brant, S. (2017). The 2016 Resource Adequacy Report. California Public Utilities Commission. Retrieved from: http://www.cpuc.ca.gov/WorkArea/DownloadAsset.aspx?id=6442453942 the LSRD are needed to provide regional reliability sums to $17.4 million per year. This is substantially lower than the DEIS's estimate of $82 million to $371 million per year.8 The DEIS's reliance on the construction of new infrastructure ignores the true market price of these services and indicates that the DEIS' s cost estimates are likely overstated.	The comment is consistent with the EIS in stating that there are times the region is often surplus, that the four lower Snake River dams provided needed capacity during important times of the year, and that power from the four lower Snake River dams could potentially be replaced by other resources. The Loss of Load Probability (LOLP) level increases from 6.6 percent under the No Action Alternative to 14 percent under Multiple Objective (MO) Alternative 3, which includes breaching the four lower Snake River dams, which suggests that the four lower Snake River dams have a relatively large role in the region in terms of reliability. See Section 3.7.3.5, Effects on Power System Reliability, at 3-903 and Appendix H, Table 2-1 in the draft EIS. For example, under average water conditions and 80-year water data, the four lower Snake River dams produce between 460 aMW to upwards of 1400 aMW of power during the winter months of December through February, which are typically energy intensive months in the Northwest. See Section 3.7.3.5, Changes in Power Generation, Table 3-159 in the draft EIS. The comment cites the Northwest Energy Coalition (NWEC) report in suggesting that the EIS overestimates the effect of breaching the four lower Snake River dams on loss of load probability, and thus, overestimates resulting replacement resource needs and rate pressure effects. As described in the draft EIS in Appendix H, Power and Transmission and Section 3.7.3.5, the EIS considered the NWEC study cited in the comment, but it is not directly comparable with the EIS for several reasons, including that the EIS has a broader scope and relies on more recent regional load and resource availability and costs data. The EIS used a load forecast prepared by the Northwest Power and Conservation Council (Council) and published in July 2017 for the 2022 Resource Adequacy Assessment. This load forecast includes all cost-effective conservation from the Council's 7th Power Plan. See Appendix H, Power and Transmission, Section 2.2, H-2-3 in the draft EIS. The Energy Strategies load forecast was from the Councils 7th Power Plan issued in February 2016. Thus, a direct comparison between the LOLP results is not possible. Appendix H, Power and Transmission, Section 2.4 p. H-2-16 in the draft EIS discusses the differences between the EIS and NWEC analyses in more detail. The EIS describes the operational characteristics of the four lower Snake River dams in the draft EIS in Section 3.7.3.5 ,Lower Snake River Full Replacement (Used in Rate Sensitivity Analysis). While the comment is correct that the four lower Snake River dams account for a small portion of total regional power generation, they are a larger portion of the Federal Columbia River Power System, from which Bonneville markets power. They also have unparalleled ramping capability the ability to quickly generate energy to match spikes in energy usage with over 2,000 to approximately 2,300 MW of sustained peaking capability in certain months of the year (see Table 3-160 in the draft EIS). The ramping capability is valuable for system balancing, which is used to serve load (consumed energy by houses, business, industry) and to balance out the variability that renewable generation causes to the system. The comment suggests that the EIS did not prioritize cost savings and thus overestimated rate pressures. The basis for developing replacement resource portfolios may be found in Section 3.7.3.1, Methodology in the draft EIS. The EIS power analysis included all cost-effective conservation from the Councils 7th Power Plan in the load forecasts and identified the most cost-effective resources to improve reliability for each alternative. See Section 3.7.3.1, Methodology, and Chapter 2 of Appendix H in the draft EIS for additional details on the EIS approach to evaluating power system reliability and potential replacement resources and costs. Based on responses to public comments, the final EIS contains an expanded description of how the potential replacement resource portfolios were selected for the EIS. (see Section 3.7.3.1). Similarly, the cost proposed in the comment for reliability and adequacy contracts is not consistent with the approach of the EIS. The EIS analyzed regionally specific loss of load probability (LOLP) and added capacity until the average annual LOLP was the same as the No Action Alternative level instead of focusing solely on pricing capacity lost in each month LOLP was reduced as discussed in the comment. The final EIS includes the de-escalating cost curves prepared by National Renewable Energy Laboratory that will likely be used by the Council in the 8th Power Plan. The EIS did not study capacity contracts with California because the study used the regional planning standard to determine when new capacity was needed to maintain reliability. By definition, the draft EIS identifies when existing capacity is not enough and more capacity needs to be built. Therefore, it is inappropriate to apply todays market price as an estimate for the cost a utility would have to pay to build new capacity. Further, a short-term market price of capacity is an inappropriate method to estimate the long-term cost of capacity. Short-term and long-term capacity purchases are inherently different products that frequently carry different prices particularly when evaluated over a single snapshot of the market that captures the market conditions at a particular moment in time. While there are times, such as during seasonal periods of low demand that the price of short-term market capacity could be very inexpensive, there are also times when the short-term market capacity would be more expensive than the long-run marginal cost of capacity, such as during times of high demand. It is also possible, as suggested by the LOLP analysis in the Draft EIS, that the short-term capacity market would not be available at all and reliability would be at risk. Taken together, the approach adopted by the EIS is more reasonable in that it uses resources as determined by the Councils 7th Power Plan, updated with the Mid-term Update and other information. This analysis estimates cost effective resources based on optimization models and other metrics developed by the Council, which provide a more robust picture of future availability of resources than a volatile spot-market capacity price.
32296	2	Adam Domanski	ECONorthwest	2. The DEIS does not fully account for the market value of foregone power Any reduction in generating load at any of the four Lower Snake River Dams results in an operating cost borne by BPA. This decrease in load can occur naturally through a reduction in river flow, anthropogenically through increased spill over the dams to enhance downstream fish passage, or artificially through oversupply events to manage total dissolved gas levels below the dams. The DEIS prices the oversupply events using a value of $29.22 per MWh which represents the 11 average historical price paid to generators displaced for FY2012-FY2019".9 Although this price is a function of negotiated contracted rates, it does not reflect the market conditions for surplus power generated from (or needed by) the BPA power grid. These negotiated rates are a function of BPA's substantial market power in the region. As a federal managing agency, evaluation of the gains or losses from different operating regimes should not rely on BPA's role as a regulated natural monopoly to identify public benefits and costs, but rather objective indications of the true market value of its services and resources. Fortunately, a market for the exchange of regional power does exist, in the form of the MidColumbia trading hub of the Inter-Continental Exchange (ICE). A comparison of BPA's negotiated rates and those posted on the ICE show that market conditions result in generally lower values of power when spill occurs in the spring due to excess capacity in the system from spring runoff.10,11 The DEIS itself references how market prices for power at the Mid-Columbia trading hub vary throughout the year depending on Il streamflow, generation, demand, and market factors".12 The DEIS's reliance on negotiated rates is an insufficient measure of the value because it does not account for the lowest cost alternative of purchasing the power on the open market to replace the power lost from the spill. The Bonneville negotiated rate of $29.22 is higher than Mid-Columbia trading hub rates of $21.02 per MWh for heavy load hours and $16.66 per MWh for light load hours (2019 dollars)."13 This price differential demonstrates the misleading estimates that can potentially result from not using a market-based rate to value the cost of increased spill in the alternatives. 8 DEIS, page 3-924, lines 27925-27926 and DEIS, page 3-925, lines 27932-27933. 9 DEIS, page 3-838, lines 25559-25562. 10 ECONorthwest. (2019). Lower Snake River Dams Economic Tradeoffs ofRemoval. July. Figure 3. 11 DEIS page 3-851, Figure 3-175. 12 DEIS page 3-851, lines 25922-25923. 13 DEIS page 3-851, lines 25920-25921.	The comment suggests that the EIS overvalues power generated from the four lower Snake River dams, suggesting that the values do not represent the market conditions observable at the Mid-C market price hub. The comment is conflating two distinct analyses in the EIS, one being the oversupply rate sensitivity analysis and the other, the primary base case analysis. While the comment is correct that the oversupply sensitivity analysis does use the higher average cost of $29.22, this is solely applied in the rate sensitivities for oversupply and is based on historical oversupply events. This was not the market price used in the rate pressure analysis or the social and economic analysis, which relied on monthly estimates from the Mid-C trading hub (see Section 3.7.3.1 Methodology in the draft EIS). Consistent with the suggestion in the comment, the EIS power analysis (Section 3.7) used the AURORA model to estimate average monthly Mid-C market prices of $21.02/MWh for heavy load hours (6 a.m. to 10 p.m. Mon-Sat, non-holidays) and $16.66/MWh for light load hours (10 p.m. to 6 a.m., plus Sunday and holidays) under the No Action Alternative (see page 3-851 of the Draft EIS). For each alternative analyzed, the average monthly Mid-C prices were used in the Bonneville wholesale rate pressure analysis, the social welfare analysis and retail rate analysis (see Section 3.7.3.1 Methodology and, in Appendix H, Sections 4.1.2, Market Prices and 5.1.1, Social Welfare Effects Based on the Market Price Method in the Draft EIS).
32296	3	Adam Domanski	ECONorthwest	3. The DEIS performs an insufficient accounting of the greenhouse gas implications of alternatives The electric power sector is the second largest source of CO2-equivalent emissions in the United States.14 Any changes in the power-generating grid can have potentially significant implications for CO2 emissions, as well as resulting climate change impacts. Identification of the sociallyoptimal alternative must consider both the upfront costs of power generation, as well as the resulting social costs of carbon emissions. This evaluation can be conducted two ways: 1) evaluate the cost of a fully renewable power generation portfolio, or 2) calculate the social value of the associated increased CHG emissions using the existing mix of new power generating sources coming online. The DEIS does an insufficient job of evaluating either. The DEIS asserts that during peak demand there would not be sufficient capacity to meet demand in the zero-carbon resource portfolio without fossil fuel generation.15 This assumption ignores the possibility of structural changes that would allow for peak-demand to be met with renewable resources. The finding that coal emissions would increase by one percent more in the "zero-carbon replacement portfolio" (eight percent) compared to the "conventional least-cost resource replacement portfolio" (seven percent) demonstrates that the resource mix chosen for the zero-carbon replacement portfolio is not structured for the lowest carbon emissions.16 If the DEIS did select a portfolio that was truly zero-carbon, it would be possible to meet CHG emissions objectives while also removing the four Lower Snake River dams. Although this may be accomplished at a higher cost, it may still create a socially optimal alternative by offsetting the social costs of increased CO2 emissions. The DEIS also does not comprehensively consider all of the available options for reducing electricity use. Although demand incentives are referenced, there is limited mention of energy efficiency incentives for private industries or similar options. The "zero-carbon" portfolio selects only "the lowest-cost carbon-free resources (e.g., solar, wind, or non-generating tools such as demand response)".17 The analysis artificially constrains the options available by not including higher cost resources to reduce emissions that would allow for zero increases in CHG emissions under MO3.	The comment is correct that any changes in how power is generated can affect greenhouse gas emissions (see Section 3.8.2.2 of the Draft EIS, Greenhouse Gas Emissions from Energy). Sections 3.7.3 and 3.8.3 of the Draft EIS consider two alternative replacement resource portfolios to replace the reduction in hydropower generation under the alternatives. One of these portfolios relies solely on building or acquiring renewable resources for replacement, finding that this scenario still results in some increase in greenhouse gas (GHG) emissions under Multiple Objective alternative 3 due to the need to maintain reliability during periods when the renewable resources could not ramp up to meet power demand. The comment is correct that the EIS analysis did consider the relative costs of renewable resources for this portfolio. However, the selection of the replacement resources additionally considered other aspects of their performance, including how they would contribute to regional reliability, imports, exports, and the potential effects on fossil fuel generation. Section 3.8.3 of the Draft EIS acknowledges that the energy sector is constantly undergoing transformation and that technological improvements could bring other options. Regarding demand-side resources and potential structural changes to reduce peak demand, the EIS included the Northwest Power and Conservation Council's Seventh Power Plan 600 MW target for Demand Response in the renewable resource portfolio and all cost effective conservation in the load forecast for the power analysis (see Section 3.7.3 in the Draft EIS). All cost effective conservation in the region is assumed to be acquired consistent with existing law and mandates regardless of the status of the four lower Snake River dams.
32296	4	Adam Domanski	ECONorthwest	4. The DEIS does not fully evaluate the cost of replacement irrigation infrastructure The DEIS's approach to irrigation relies on the assumption that costs are "prohibitive" to modify the existing pump system for the Ice Harbor Reservoir.18 By not attempting to evaluate the cost of pump modifications, the analysis does not have sufficient information to state that 14 U.S. Environmental Protection Agency. (2020). Draft Inventory of U.S. Greenhouse Gas Emissions and Sinks: 19902018 Executive Sunmary. February 12. Retrieved from https://www.epa.gov/sites/production/files/2020-02/documents/usghg-inventory-2020-chapter-executive-summary.pdf 15 DEIS, page 3-1010, footnote 19. 16 DEIS, page 3-1010, lines 30404-30413. 17 DEIS, page 3-820, lines 25028-25030. 18 DEIS page 3-1267, lines 3246-3247. "all irrigated acres receiving water from the current pumps would no longer be irrigated".19 The DEIS assumes that all irrigated lands would no longer be irrigated and estimates the lost agricultural land value resulting from that change. Labeling costs as "prohibitive" would generally require some cost-estimation to indicate that they would not occur under existing market	This EIS discusses engineering solutions (pipeline extensions for example) in Section 3.12.3 Environmental Consequences - specifically under Region C under the MO3 alternative (see page 3-1267, line 3244, in the Draft EIS) and in Appendix N. The report which this EIS draws upon, as discussed, concluded that modifying the existing pump system was cost prohibitive. Design plans and construction cost need to adhere to Federal guidance for engineering design and cost estimating. The Federal costs and assumptions must be used to be comparable with the dam removal costs.

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				conditions. The DEIS does not independently conduct such analysis. Our report [attached] relied on a mitigation approach to identify the costs of dam removal to existing irrigators. This approach yields an estimate of $160 million in infrastructure adaptation surface water and groundwater costs.20 This is a substantially lower estimate than the $331 million to $458 million in lost irrigation value in the DEIS,21 and certainly not prohibitive. The DEIS also does not fully consider alternative water supply sources, such as the transition from surface water to groundwater sources, or obtaining water from the Columbia River rather than the Snake River. The DEIS references that the 2002 EIS suggested this possibility because the 2002 EIS "assumed that 21 percent of the irrigated land might support the development of alternative water supplies to replace lost irrigation water".22 However, the current DEIS does not provide a sufficient explanation for why these alternatives were not evaluated.	
32296	5	Adam Domanski	ECONorthwest	5. The DEIS does not appropriately estimate the increase in transportation costs resulting from the alternatives The Lower Snake River serves as a transportation corridor, enabled by the lock system operated at each of the four dams. Shippers in the region have multiple transportation mode alternatives in addition to the river, including rail and truck transportation. Given existing market conditions, it can be assumed that shippers are choosing the optimal mode for their goods based on price, timeliness, and reliability. Any shift in transportation mode as a result of the alternatives is likely to affect existing shippers in at least one of those three dimensions. Those resulting mode changes can impose public costs as well. The DEIS, however, fails to properly account for the full mix of private and public costs associated with the alternatives, for the following four reasons: The DEIS relies on a stakeholder survey conducted by the Social and Economic Sciences Research Center (SESRC) at Washington State University referenced in Appendix L.23 However, neither the survey nor associated response data are provided in the DEIS supporting materials, making it difficult to evaluate the appropriateness of the survey instrument or methodology. The DEIS does not provide sufficient information to estimate the expected increases in transportation costs. The transportation analysis relies on assumptions about how much rail rates would increase, using zero, 25 percent, and 50 percent increases in rail rates as 19 DEIS, page 3-1267, lines 3248-3250. 20 ECONorthwest. (2019). Lower Snake River Dams Economic Tradeoffs ofRemoval. July. Appendix 11.4. 21 DEIS, page 3-1259, lines 2959-2962. 22 DEIS, page 3-1267, lines 3248-3250. 23 DEIS, Appendix L, page L-3-3, lines 179-185. arbitrary assumptions.24 As acknowledged in the DEIS, rail rates increased by 35 to 40 percent during historical lock closures.25 However, these represent short term costs without any increase in rail capacity, and thus likely serve as upper bounds. The DEIS does not clearly identify net changes in dredging costs. In one section, the DEIS states "Dredging operations are expected to remain similar to the No Action in other reaches of the Columbia navigation channel, with an estimated cost of $67.1 million annually. In total, annual dredging costs would increase about 4.4 percent under MO3, from $70.1 million annually to $73.2 million."26 However, in another section, the DEIS states that "Annual navigation costs of approximately $10 million, including $3 million in dredging costs, would no longer be authorized at the four lower Snake River projects under MO3."27 These two statements appear contradictory. The DEIS fails to consider the true social value of the use of the lower Snake River as transportation infrastructure. As described in our report, "Significant federal appropriations are dedicated to operating transportation infrastructure on the LSRD that are not recovered via the USACE fuel surcharge and are borne by the federal government. A comparison of solely the transportation costs and the federal appropriations indicates that barge transportation along the LSR would not be viable without this subsidy".28 The DEIS fails to reference this fact or the cost savings from ceasing federal appropriations for operation of the locks.	How rail rates would change without lower Snake River shallow draft barging can not be known with certainty. Therefore, in order to evaluate the impacts of potential rate increases, a range of rail rate increases are evaluated, from 0 to 50 percent. As the modeling effort shows, if rail rates are not increased freight volume would likely exceed current capacity, which would put upward pressure on rail rates. If rail rates increase by 50 percent, truck transport would be relatively attractive to shippers, which would put competitive pressure on rail companies not to increase rail rates much higher. As such, the modeled range of increased rates appears reasonable. Additional sensitivity analysis has been added to Appendix L in the FEIS. Regarding the availability of survey data in the published documents, those documents were withheld for confidentiality reasons (confidential business information). Section 3.19 and Appendix Q describes the costs associated with navigation, including dredging. Changes in dredging operations are also described in Section 3.10.3.5. The document has been revised to reflect the most recent figures for dredging. Under the No Action Alternative, the Portland District dredging (lower Columbia River) were estimated to be $67.1 million annually over the 50-year period. Section 5.1.1.3 describes dredging costs for Walla Walla District projects, estimated to be $2.7 million annually over the period of analysis. A total of $84.2 million in navigation costs under the No Action Alternative annually were estimated, of which $69.8 million is related to dredging. Access to barge transportation is the most cost effective means of accessing export markets for many grain producers in the Pacific Northwest currently and removing that option will increase transportation costs for grain producers, as the EIS described in Section 3.10.3.5. The EIS finds that transportation of freight that is currently barged on the lower Snake River could be accomplished via other transportation modes, but this change would not be without costs to farmers, would require public and private investment in infrastructure, and would result in some adverse regional economic effects, particularly in the short term.
32296	6	Adam Domanski	ECONorthwest	6. The DEIS does not properly account for the economic impacts resulting from all spending associated with the alternatives The DEIS does not fully account for the increase in jobs, labor income, value added, and output that would result from the construction and mitigation spending associated with the various alternatives. Of note, the DEIS acknowledges that removal would be funded by federal appropriations: "An important assumption in the MO3 rate analysis is that the Bonneville would not pay for the cost of dam breaching. Rather, for this EIS, it is assumed that the cost of dam breaching would be covered by congressional appropriations."29 However, this increase in economic activity is not clearly accounted for in the DEIS. The local economic impact of this new spending in the region should be considered, not only for the direct labor and income it supports, but also for how that spending could stay in the local economy and support other jobs. This deficiency also presents itself in the DEIS's analysis of transportation costs and is clearly acknowledged: "This estimate does not include potential impacts associated with reduced 24 DEIS, page 3-1118, lines 33052-33055. 25 DEIS, page 3-1125, lines 33227-33229. 26 DEIS, page 3-1131, lines 33366- 33369. 27 DEIS, Appendix Q page Q-5-4, lines 702-704. 28 ECONorthwest. (2019). Lower Slmke River Dams Economic Tradeoffs ofRemoval. July. p.116. 29 DEIS, page 3-918, Footnote 75. demand for barge employment or an increased demand for trucking employment that would accompany these shifts."30 Similarly, although the DEIS acknowledges that dam breaching could increase recreation in the long term, economic impacts are only estimated for the loss of reservoir recreation and not the potential gain from fishing opportunities or free-flowing river-based recreation.31 These fundamental changes in spending patterns should be included, so that the public has a full appreciation of the net change in economic activity as a result of the different alternatives.	The EIS considers the jobs supported by the implementation and CRSO EIS system costs, including mitigation costs described in Chapter 5 and in Annex B of Appendix Q. The regional economic effects of the CRSO EIS expenditures are described in Section 3.19.3 of the EIS and in Annex C of Appendix Q. The EIS provides a regional economic evaluation in the resource Sections in Chapter 3, for example for Recreation (Section 3.11) and Navigation (Section 3.10). The regional economic effects were estimated for the reduction in reservoir recreation in the short-term under MO3; in the long-term after dam breach, the EIS describes that visitation in the lower Snake River, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting jobs, income, and tourism businesses. The EIS also describes how the transition to river-based activities would require that tourism businesses, such as retail, rental businesses, and service providers, adapt to the new type of visitor who may demand different types of activities, services, gear, and retail merchandise. A range in visitation is described in the lower Snake River post dam breach based on the evaluation in the 2002 Juvenile Salmon Migration Feasibility Study and EIS. The social welfare values and regional economic effects associated with river recreation post dam breach were not estimated because of the uncertainty and large range in visitation and consumer surplus values and visitor expenditures among users. In addition, the timeline of the EIS precluded an extensive survey and evaluation of post dam breach recreation. Section 3.10.3.5 acknowledges that trucking is more labor intensive than barge operations, and therefore increased trucking demand would likely increase employment demand for shipping handlers. However, the EIS also points that stakeholders have noted that, in the short term, an already tight market for truck drivers would be made even tighter when demand increases under MO3.
32296	7	Adam Domanski	ECONorthwest	7. The DEIS does not properly account for the full suite of benefits stemming from recovery of endangered salmonids in the Columbia and Snake Rivers. Any accounting of the benefits and costs of the different alternatives must include all relevant types of economic value. This includes direct monetary benefits and costs (i.e. changes in transportation spending, the costs of dam removal, etc.), but must also include non-market values, including the non-use or existence value of restored ecosystems. Non-use values are measures of the economic tradeoff that an individual is willing to make to assure the protection of a natural resource even if they will not visit or use the resource.32 These values are not revealed by choices in the marketplace (unlike many local public goods),33 and must be measured using stated-preference survey-based approaches.34 Stated preference surveys have questions that help to reveal the monetary tradeoff an individual would make concerning the value of goods or services. Non-use values serve an important role across a broad set of policy arenas. For example: Pennsylvania used contingent valuation in a benefit-cost analysis of additional incarceration versus rehabilitation programs for serious juvenile offenders.35 Non-use value estimates were used to measure the value of developing vaccine policies in Africa.36 30 DEIS, page 3-1142, lines 33700- 33702. 31 DEIS, page 3-1223, lines 1976-1979. 32 Carson, R. T. (2012). Contingent valuation: A practical alternative when prices aren't available. Journal ofeconomic perspectives, 26(4), 27-42. 33 Krutilla, J. V. (1967). Conservation reconsidered. The American Economic Review, 57(4), 777-786. 34 Bowen, H. R. (1943). The interpretation of voting in the allocation of economic resources. The Quarterly Journal of Economics, 58(1), 27-48. 35 Nagin, D. S., Piquero, A. R., Scott, E. S., & Steinberg, L. (2006). Public preferences for rehabilitation versus incarceration of juvenile offenders: Evidence from a contingent valuation survey. Criminology & Public Policy, 5(4), 627-651. 36 Jeuland, M., Cook, J., Poulos, C., Clemens, J., Whittington, D., & DOMI Cholera Economics Study Group. (2009). Cost-effectiveness of new-generation oral cholera vaccines: a multisite analysis. Value in Health, 12(6), 899-908. Stated preference surveys have been used to measure the willingness of the U.S. public to pay for climate change measures.37 Stated preference surveys have been used by state and federal natural resource trustees to estimate natural resource damages in the Exxon Valdez oil spill (1989), Montrose Chemical contamination (2000), Oklahoma v Tyson case (2010), and Deepwater Horizon oil spill (2010).38 Stated preference surveys have been used to evaluate the benefits of dam removal on the Elwha River39,40 and the Klamath River.41 Federal courts and agencies have also long acknowledged the importance of non-use values, in particular: The U.S. Forest Service's 2012 Planning Rule required that planning activities consider ecosystem services as part of an integrated resource management focus.42 The White House issued memorandum M-16-01 in 2015, which directed "agencies to develop and institutionalize policies to promote consideration of ecosystem services, where appropriate and practicable, in planning, investments, and regulatory contexts."43 DC Circuit Court of Appeals: "option and existence values may represent 'passive' use, but they nonetheless reflect utility derived by humans from a resource, and thus, prima facie, ought to be included in a damage assessment."44 The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA): Compensable value includes "all of the public economic values associated with an injured resource, including use values and nonuse values such as option, existence, and bequest values."45 37 Aldy, J. E., Kotchen, M. J., & Leiserowitz, A. A. (2012). Willingness to pay and political support for a US national clean energy standard. Nature Climate Change, 2(8), 596-599. 38 Exxon Valdez NRDA (1989), Montrose NRDA (2000), Deepwater Horizon NRDA (2010), Oklahoma ex rel. Edmondson v. Tyson Foods Inc. (Tyson Foods 11), 619 F.3d 1223, 1239 (10th Cir. 2010). 39 Department of the Interior (DOI) 1996. Elwha River ecosystem restoration implementation, final environmental impact statement. NPS D-271A. Department of the Interior, National Park Service, Olympic National Park. Port Angeles, WA. NOAA 2012 40 Donovan, C. and H. Hosterman. (2015). Economic Valuation of Restoration Actions for Salmon and Forests and Associated Wildlife in and along the Elwha River. National Oceanic and Atmospheric Administration. 41 Graham, R., Mansfield, C., Van Houtven, G., Hendershott, A., Chen, P., Porter, J., ... & Kilambi, V. (2012). Klamath River basin restoration nonuse value survey. LIS Bureau ofReclamation. R TI Project, (0212485.001), 010. 42 Federal Register/Vol. 77, No. 68/Monday, April 9, 2012/Rules and Regulations 43 Memorandum M-16-01 for Executive Departments and Agencies, (2015). Incorporating Ecosystem Services into Federal Decision Making. 44 State of0hi0 v. U.S. Dept. ofthe Interior, 880 F.2d 432 (D.C. Cir. 1989). 45 Federal Register/V01.54 19760, (1991). National Oceanic and Atmospheric Administration (NOAA): 11well conducted CVM studies can produce estimates reliable enough to be the starting point of a judicial process of damage assessment, including lost passive values."46 BoR: "The state of the natural environment affects people both in how they use the environment and how they would prefer the environment to be. Thus,	The EIS (Section 3.15.2.2) describes the existing literature on passive use values for salmon, including the studies referenced in this comment, and affirms that the literature demonstrates that the general public holds value for the salmon and that the population that may benefit from increased salmon populations may be geographically far-reaching. However, due to limitations in the literature and uncertainty regarding the changes in overall fish abundance predicted under each MO (as different fish are affected positively and adversely), the EIS does not rely on this literature to estimate a monetary value of the effects on fish. As is common in NEPA analyses, the beneficial and adverse effects of the alternatives are expressed as a variety of qualitative and quantitative environmental and economic metrics throughout the EIS to inform decision making, including the effects of the alternatives on fish as detailed in Section 3.5. That the effects of the alternatives on fish are not expressed as monetized economic values does not mean that they were not considered in the context of the analysis.

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				both use and non-use values need to be considered when assessing impacts to the human environment."47 Despite this, the DEIS neglects to directly estimate non-use values. Notably, however, the DEIS does acknowledge their importance and likely broad geographic extent. Specifically, the DEIS states that: 11This analysis acknowledges that the general public holds passive use values, and that the population that may experience social welfare benefits from increased salmon populations may be geographically far-reaching."48 Non-use values are widely accepted in the economic literature and among federal agencies, including an instance where the BoR directly implemented a non-use valuation study to evaluate the benefits of removal of the Lower Klamath Dams. It is clear that the DEIS's omission of quantified non-use values makes it an insufficient tool to reach conclusions about alternatives.	
32296	8	Adam Domanski	ECONorthwest	8. The Preferred Alternative does not maximize benefits associated with endangered species The DEIS relies on a "scorecard" approach, where alternatives are rated based upon their ability to meet narrowly defined objectives, rather than evaluating the magnitude of differences in outcomes between alternatives. The most detrimental impact of the scorecard approach for comparing alternatives is the failure to account for the significantly higher benefits to anadromous fish species in MO3 compared with all other alternatives. As described in the Executive Summary, "Model estimates for MO3 showed the highest predicted potential smoltto-adult returns (SARs) for Snake River salmon and steelhead among the alternatives".49 Specifically, for Snake River salmon and steelhead, SARs would increase by 170 percent relative to the No Action Alternative.50 In contrast, the preferred alternative would increase SARs by approximately 30 percent for Snake River Chinook and steelhead and may actually decrease SARs for Snake River Chinook, depending on which model is used.51 46 Arrow, K., Solow, R., Portney, P. R., Leamer, E. E., Radner, R., & Schuman, H. (1993). Report of the NOAA panel on contingent valuation. Federal register, 58(10), 4601-4614. 47 Glen Canyon Environmental Impact Statement (1996) USDOI, BOR. 48 DEIS, page 3-1322, lines 5083-5086. 49 DEIS, page 25 of Executive Summary 50 DEIS, page 25 of Executive Summary. 51 DEIS, page 33 of Executive Summary. The scorecard structure used in the DEIS to evaluate the benefits to anadromous fish is narrow in scope and fundamentally unable to weigh a full suite of benefits and costs. When relative magnitudes of effects are considered, our analysis clearly indicates that the benefits of dam removal outweigh the costs. Since the primary purpose of the DEIS and the ESA listing of anadromous fish is to aid in their recovery, every reasonable effort should be taken to truly weigh the magnitude of benefits and costs of outcomes. In their selection of the preferred alternative, the federal managing agencies are willing to make a tradeoff in the survival of endangered species, without properly accounting for the price of doing so.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. The co-lead agencies acknowledge that model estimates for MO3, which includes breaching the four lower Snake River dams showed the greatest predicted potential Smolt-to-Adult returns (SARs) for Snake River salmon and steelhead among the alternatives. The purpose of the analysis in the EIS is not limited to salmon issues, however. The EIS analysis provides analysis of multiple objectives and resources affected by CRS operations maintenance, and configuration. The CRS operations are balanced for multiple purposes, including flood risk management, water supply, hydropower generation, fish and wildlife conservation (including a variety of other species than salmon and steelhead), navigation, cultural resources, recreation and other environmental and socioeconomic resources. In addition, the CRSO EIS seeks to identify a Preferred Alternative that achieves a reasonable balance of multiple river resource needs and co-lead agency mission requirements. In addition to the benefits for Snake River salmon and steelhead of dam breaching, the analysis showed major adverse impacts, particularly to navigation, irrigation, and power supply and reliability. Under the ESA, in particular Section 7(a)(2), the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the Columbia River System. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. With respect to the Preferred Alternative, the CSS model predicts that average Smolt to Adult return rates would increase for both Snake River spring Chinook and steelhead and will average above 2% (the lower end of the Northwest Power and Conservation Councils recovery targets for the region) as a result of the Preferred Alternative, increasing from 2.0% to 2.7% for Chinook, a 35% relative increase. The NMFS COMPASS and Lifecycle Models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information.
32327	1	Wallace Ruff	N/A	I propose that a four-year moritorium be placed on ALL fishing, sport, commercial, native Indians, on the Snake and Columbia Rivers and in a 200-mile zone of the Pacific Dams along th Northwest Coast. This moritorium would establish the true salmon population that can be expected in today' s climate. It would dictate how improvements might be made, not only in the rivers, but off shore, too.	The three co-lead agencies (Corps, Reclamation, and Bonneville) do not manage fish stocks, and do not have the authority to do so. An evaluation of the West Coast fisheries is outside the scope of this EIS. Fisheries in the Columbia River Basin and those that rely upon Columbia River fish stocks are managed by numerous entities, including Federal, state, and Tribal governments. These entities are guided by a complex array of policies, laws, compacts, and agreements. The management of Pacific salmon fisheries in particular is complex, and involves numerous entities representing a variety of social, political, and conservation interests. Changes in allowable fishery harvest in the Columbia River Basin are a result of decisions made by state, Federal (e.g., NMFS), and Tribal fishery managers based on a variety of environmental, biological, economic, and social factors.
32328	1	Mitchell Hawkins	N/A	The draft EIS indicates that replacing lost generation from dam removal with carbon-free resources could result in a 50% increase in power costs. A rise in energy costs would mean greater hardships for people already struggling to make ends meet. We are seniors on a fixed income and would be directly affected by a large increase in our electrical rates.	The comment that increases in utility costs can adversely affect vulnerable groups is consistent with discussions in the EIS. See Section 3.7.3.5, at 3-918 to 924 in the Draft EIS; see also Table 3-166. The statement that costs could increase by up to 50 percent is also consistent with the findings of the EIS. The Environmental Justice analysis (Section 3.18.3) provides further detail on potential disproportionate effects including to Tribal, low-income, and minority populations.
32335	1	Jan Ostlund	N/A	Regarding the removal of the Snake River dams, is it possible to compromise and remove two of the dams thus providing SOME hydroelectric power and SOME irrigation water leaving two less dams for the salmon to navigate?	The four lower Snake River dams were jointly authorized and function together as a system with the other ten projects analyzed in this EIS; having only two out of the four dams functioning would not allow the co-lead agencies to meet navigation, greenhouse gas, or power reliability objectives, while also not likely making a substantial change for migrating salmon in the Snake River based on analysis of breaching all four projects and in comparison to other alternatives. The Draft EIS examined the operation and maintenance of the 14 projects in the Columbia River System. Other dams are not within the scope of the EIS or the purview of the co-lead agencies.
32345	1	Roman Gillen	Consumer Power Inc. CPI	We appreciate the great care taken to provide detailed information used in the entire analysis, especially the information concerning significant differences between the Comparative Survival Study and Life Cycle Model fish modeling approaches. We would like to see proposed actions and a process to address this issue.	Chapter 7 provides detail at a similar level to Chapter 3 and provides estimates for all elements of the co-lead agencies' Preferred Alternative. The Preferred Alternative will include an adaptive management program that will include updates and assessments of both the CSS and NMFS Life Cycle models. The Preferred Alternative will require a robust monitoring plan for salmon and steelhead to help narrow the uncertainty between the biological models and will help determine how effective increased spill can be in increasing salmon and steelhead returns to the Columbia Basin. Please see Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information.
32345	2	Roman Gillen	Consumer Power Inc. CPI	Our main concern with the PA is increased spill up to 125% total dissolved gas (TDG) levels, resulting in higher power costs for CPI members and possibly adverse effects to ESA-listed species. We support higher spill levels (e.g. up to 125%) and the resulting higher power costs only if scientific analyses clearly show a meaningful benefit to ESA-listed species.	TDG levels are regulated under the Federal Clean Water Act, and administered by the states. Both Oregon and Washington have reassessed the available data on effects of TDG levels up to 125% of saturation on fish and other aquatic organisms. Based on this reassessment Oregon issued a five-year "standard modification" and Washington issued a permanent rule change, supported by the Environmental Protection Agency (EPA), to allow TDG saturation up to 125%. However, as noted by the commenter, there is considerable uncertainty in the effects of free swimming fish; and therefore, monitoring was required by the states and EPA to ensure any negative effects are detected and allow for adaptive management. With respect to the Preferred Alternative, the fish analysis in Section 7.7.4 shows that it will provide substantial benefits to ESA-listed salmon and steelhead, which can help contribute to broader recovery goals. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. The framework for the adaptive management process is detailed in Appendix R, Part 2, Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS. It is the intention of the co-lead agencies to engage regional state, Tribal, and Federal biologists in the development of an appropriate adaptive management process utilizing their respective salmonid management expertise. The goal of that adaptive management process would be to consider additional opportunities to further the effectiveness of the operation while maintaining the goals of the flexible spill operation: additional improvements for salmon and steelhead, maintain opportunities to operate the CRS for hydropower generation in a flexible manner that provides value to the Northwest, is implementable by the dam operators, and provides opportunity to reduce uncertainty and improve the learning opportunities around how operations of the CRS can influence the magnitude of latent mortality effects. Unforeseen outcomes or unintended consequences will be monitored and adjusted using current in-season management teams, such as the Technical Management Team.
32345	3	Roman Gillen	Consumer Power Inc. CPI	Additionally, we urge you to include in the final Record of Decision (ROD) strengthened and expanded measures to mitigate the predation of tens of millions of ESA-listed juvenile fish each year, particularly in the lower Columbia River, by various birds and predatory fish. We also expect the federal agencies to take full advantage of the provisions of the Endangered Salmon Predation Prevention Act to strengthen and expand protections for returning adult fish and would like to see a strong commitment to do so reflected in the final ROD.	The Endangered Salmon Predation Prevention Act authorizes NOAA to issue permits to states and Tribes to kill sea lions in the lower Columbia River and some tributaries in order to protect certain fish from sea lion predation. The co-lead agencies do not have authorities to administer the Act. However, the co-lead agencies have supported actions to mitigate adverse effects to listed species from CRSO operations, through funding, direct implementation, and other means. Under the Preferred Alternative, those actions, including for the purpose of reducing pinniped and avian predation on listed species, would generally continue as described in Chapter 7.
32345	4	Roman Gillen	Consumer Power Inc. CPI	Our support for the P A is also based in large part on substantially preserving bulk power system reliability and avoiding blackouts (a.k.a. Loss of Load Probability), especially compared to Multiple Objective Alternatives 3 and 4 (M03 and M04), which are clearly unacceptable. As Northwest states enact policies that support intermittent, non-firm, renewable generating resources over dispatchable, firm, carbon-based generating resources, our concern for the reliability of our bulk power system has turned to genuine alarm as the risk of blackouts rises dramatically each year. Thousands of our members, many of whom are seniors and those on fixed- or low-incomes, live in rural areas without access to alternative energy sources. They are heavily dependent on the electric service we provide to not only heat their homes and power their appliances, but to also provide domestic water and even septic service in many cases. They are particularly vulnerable to increased risks of blackouts and escalating power costs, which makes the P A worthy of our support in terms of its lower risks in these areas compared to other DEIS alternatives, namely M03 andM04.	Thank you for your comment.
32345	5	Roman Gillen	Consumer Power Inc. CPI	The worst-case wholesale rate impacts of using zero carbon resources to replace the generation lost by removing the four lower Snake River Dams (LSRDs) as proposed in M03 are stunning- a whopping 50% - and M04 is only slightly less damaging. The average monthly bill for residential CPI members is currently $124.55 and would jump more than $30 per month to $155.70 under the worst-case scenario for M03, assuming that we would have to raise our retail rates by 25% in order to cover a 50% increase in wholesale power costs. It is important to keep these financial impacts in perspective for rural communities like ours that have incomes below regional and state averages. These increases in power costs are not a simple shift from disposable and discretionary income to pay for essential services like electricity. Rather, they mean that CPI members are forced to make difficult choices about which essentials like food, medicine, utilities, and such they have to sacrifice.	The comment that increases in utility costs can adversely affect vulnerable groups is consistent with discussions in the EIS. The wholesale power rate effects described in the comment are consistent with the findings of the EIS. The EIS recognizes concerns around the affordability of electricity, and the Environmental Justice analysis (Section 3.18.3 and Chapter 7 of the EIS) provides further detail on this as well as the potential disproportionate effects to Tribal, low-income and minority populations. Chapter 5 of Appendix H, Power and Transmission, provides additional details on potential rate increases by county as well as for urban and rural utility customers mentioned in the comment.
32352	1	Bruce LePage	N/A	15% of our monthly, northwest electric bills go toward salmonid recovery. This cumulatively adds up to billions of dollars.	As described in section 3.7.2.7 (see Power Revenue Requirement), Bonneville is a self-funded, not-for-profit government entity that is required by statute to ensure that the rates it charges are set to recover its costs consistent with sound business principles. Bonneville recovers its costs by establishing a revenue requirement, which is a list of projected costs for a rate period that must be paid by revenues generated from rates. The revenue requirement for power rates is comprised of three major categories: Program costs (O&M, employee costs, fish & wildlife, conservation); Debt payments including principal and interest; and Costs calculated through the rate setting process (Residential Exchange Program, power purchases, cost of transmission, and rate discounts). Figure 3-165 in the draft EIS describes how each dollar of its power revenues is spent. Roughly 17 cents of each dollar are spent on fish and wildlife mitigation, including Bonneville's Fish and Wildlife Mitigation Program. The Bonneville Fish and Wildlife Program funds hundreds of projects each year to mitigate the impacts of the federal hydropower system on fish and wildlife. Bonneville began this program to fulfill mandates established by Congress in the Pacific Northwest Electric Power Planning and Conservation Act of 1980 to protect, mitigate, and enhance fish and wildlife affected by the development and operation of the FCRPS. The full impact of fish and wildlife mitigation on power revenue equates to roughly 24 cents of each dollar due to the costs of lost power generation that results from spill and other operational requirements for fish and wildlife. The projected program costs are discussed through a public process, the Integrated Program Review, prior to the initiation of the rate setting process.
32355	1	Glen Squires	Washington Grain Commission	Washington wheat and barley farmers pay all handling and transportation costs to move their crops to domestic and export locations. The river system is crucial as an essential corridor to move grain and has also served as a competitive buffer against rising rail rates. Approximately 60 percent of all Washington wheat is moved by the Snake/Columbia River System to export ports. The river system serves as important national navigation infrastructure for international trade. According to the DEIS, under MO3, transportation costs would increase seven to 24 cents or 33 percent if the dams are breached, a range the WGC believes errs on the low end of what could occur based on the rates of captive shippers elsewhere (and on shortcomings of the DEIS as noted later). That is, of course, also assuming railroads have the capacity to move the nearly four million tons of commodities that currently travels on the river without a significant investment in other transition costs which have not been accounted for in the DEIS.	The EIS evaluates potential effects on farmers associated with increased transportation costs under MO3 in Section 3.10.3.5. Evaluating the impact of removing the lower Snake River locks and barge navigation above Pasco, Washington, was completed using a transportation optimization model that does not allow shipments on river terminals along the lower Snake River. The EIS analysis finds that transportation of freight that is currently barged on the lower Snake River could be accomplished via other transportation modes, but this change would not be without costs to farmers, would require public and private investment in infrastructure, and would result in some adverse regional economic effects, particularly in the short term. The analysis found that under a dam breach scenario, average transportation costs for wheat farmers would increase 10 to 33 percent, but that individual farmers could experience increases that are doubled. The cost increases to specific shippers would depend upon location and would vary throughout the region, depending on transportation options at each location. Generally, those grain shippers that are the furthest from alternate shipping locations (shuttle rail facilities or river ports on the Columbia River) would be the most negatively impacted. Note, cost scenarios for specific farmers are presented below in the Regional Economic Effects section in Section 3.10.3.5.

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				Removal of river navigation (a competitive alternative) and then the assumption that rail rates would not rise disproportionately goes against years of observation of freight rates as a whole when competition is removed, including PNW wheat freight rates. The cost of rail freight will increase for all grain throughout the Pacific Northwest, even for the grain or other commodities that do not currently move by barge. Not only will rates go up, but other costs, such as the cost of additional trucks a farmer or entity has to purchase to accommodate turnaround times at harvest for example must be accounted for. Whiteside & Associates analysis of current and historical rail rate behavior given changes in modal competition provides valuable insight regarding backhauls, truck movement to Portland and associated impacts, and other freight impacts outside of the immediate Snake River locale, including Montana that should be factored into any analysis of grain flow cost impacts. (Whiteside & Associates transportation analysis is included at the end of the WGC comments). Mention is made in the DEIS of upwards of $86 million that would be needed for rail upgrades and new facilities, but there are also safety costs, property value costs, and a myriad of transition costs that are not captured or specific costs identified, many of which will be ultimately borne by the farmer. The farm producer is unique because they operate in an environment where they do not have any control over the price they receive for their crop and they must bear the increases in costs, including transportation costs, without any possibility to pass those higher costs on to others. We believe the identified upgrades, new facilities and transport costs to be low and misrepresent and even understate the impacts of breaching the Snake River dams. Further analysis by the FCS Group for example, reveals that: The DEIS understates the true cost of highway and rail capacity improvements; Understates the national cost of removing dams; Does not account for grain storage and highway capacity costs; Quantifies transportation impacts, but does not account for non-grain shipments; and Understates the increased truck movements that will result (example: the DEIS acknowledges that 38 percent of the movement on the Snake River is not accounted for in the analysis); and assumption that short line rail costs, which seem low, will automatically be paid is questionable. The short line system is already underfunded now. The discrepancy between both the Whiteside & Associates and FCS study analysis and the DEIS regarding transportation are sufficient such that the WGC encourages the Federal Agencies to review and update their transportation findings in the DEIS. Relative to M03 and the Final EIS, all potential local and national direct and indirect costs to the transportation network, farmers and the farm economy, communities and the state of Washington should be accounted for, with costs listed. (FCS transportation analysis is included at the end of the WGC comments).	Assumptions made in the EIS and within the transportation optimization model are informed by plans released by WSDOT. In particular, a discussion with several experts at WSDOT is cited in Section 3.10.3.2 in which WSDOT provided input on the future of the Palouse River and Coulee City Rail (PCC), which are also presented in the WSDOT 2019 Draft Rail Plan. Additional insights into the capacity of Eastern Washington's short line capacity were also provided by WSDOT that informed the EIS. Additionally, given that it is the Class I railroads that decide where they will invest in their infrastructure and when, there was no reasonable process for predicting how and where they choose to invest to maximize profits on a national rail network that moves far more products than wheat from the northwest. Research conducted as part of the EIS suggested that elevator to river port movements via short line rail are not currently occurring because in order for them to ship grain to river terminals on the Columbia, they must operate on part of Union Pacific's rail line and WATCO's operating agreement with Union Pacific does not allow for these shipments. The effect of including this assumption and allowing movements on these short lines during a breach scenario would be to somewhat reduce the anticipated increases in shipping costs to shippers. Information has been added to Appendix L that describes the impacts of modifying this assumption on quantified costs to shippers.
32355	2	Glen Squires	Washington Grain Commission	Notably absent in all the discussion about lower Snake River dams' role in salmon recovery are the dams that totally block fish migration because of no fish passage capabilities, including those on the Snake and Clearwater rivers upriver from Lower Granite Dam. Perhaps fish passage should be explored.	Section 1.9.7.2 discusses dams eliminating access to historical range, specifically discussing Chief Joseph, the Hells Canyon Complex, and Dworshak. Fish passage over Dworshak was a measure considered early in process, but was eliminated from further analysis and not included in the range of alternatives. The Hells Canyon complex are private dams and not in the scope of this EIS. The purpose of the EIS is not to explore salmon recovery options, but only to update the Operations and Maintenance, and Configuration of the 14 dams operated as the CRS, while complying all applicable laws and meeting multiple purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species as that is a broader goal with shared responsibility. Several of the objectives of the EIS used to evaluate measures were to improve conditions for fish.
32355	3	Glen Squires	Washington Grain Commission	More gains are also clearly possible by addressing the heavy predation on salmon by sea lions and bird colonies.	As described in the Preferred Alternative, the co-lead agencies propose several measures to reduce avian and marine mammal predation to mitigate adverse effects to listed species from CRS operations. Ongoing actions described in the No Action Alternative to reduce predation on migrating fish are included in the Preferred Alternative. In addition, water management actions (the Predator Disruption Operations measure) in the John Day reservoir is expected to further reduce avian predation on migrating juvenile fish. The No Action Alternative includes ongoing mitigation measures to haze and monitor pinniped predators. These actions would continue into the future under the Preferred Alternative, and the co-lead agencies would continue to assist National Marine Fisheries Service (NMFS), states and Tribes in their pinniped removal efforts near Bonneville Dam.
32357	1	Chase Mattoon	N/A	I tried to respond at the web site listed in the newsletter, but it wouldn't work	The co-lead agencies are sorry you had difficulties. The public had several ways to submit comments such as the online comment form and through the mail. We are glad to see you were able to provide comments.
32358	1	Brant Hinze	N/A	Lowering Lake Pend Oreille's summer lake level in low water years, thus eliminating our long understood stable summer lake elevations, would have devastated our local economy, which is predominantly dependent on water base recreation. This change would have prevented boat access at countless locations around the lake, prevented close to 90% of waterfront landowners from mooring their boats, reduced property values, and crippled the summer economy. Given that we are on the shallow end of the lake we require full pool to take advantage of our boat lift and dock.	The Recreation Section 3.11.3.6 describes the adverse social welfare, regional economic, and social effects associated with reduced water surface elevations at Lake Pend Oreille during the summer months in low water years under MO4. MO4 was not selected as the Preferred Alternative.
32359	1	Anna Lindstedt	Fall River Rural Electric Cooperative	Any new costs to the FCRPS as a result of these proposed actions should be equitably allocated and not borne exclusively by BP A's public power customers ~specifically, to the extent that the PA results in additional costs allocated entirely to public power. It is time to find ways to build on existing federal law to more broadly share these regional costs.	The financial responsibility for all proposed actions is not solely allocated to Bonneville's power ratepayers as the comment suggests. Fish and wildlife mitigation costs are assigned to each authorized project purpose based on each purposes overall share of project costs, as determined by an established cost allocation, and this allocation is recovered through power rates. Bonneville is required to pay for its share of mitigation costs based on the existing cost allocation. Congress also granted Bonneville discretion to fund the power share directly to the Corps and Reclamation as part of the Energy Policy Act of 1992, in some situations, including the Columbia River Fish Mitigation program. (Energy Policy Act of 1992, Pub. L. No. 102-486, 2406, 106 Stat. 2776, 3009 (1992) (codified at 16 U.S.C. 839d-1 (2012)). As described in Section 3.19 of the EIS and Appendix Q, funding to operate the system comes through multiple mechanisms, including Federal tax dollars appropriated to cover system costs as well as revenue generated from the marketing and sale of hydropower. For power-specific costs, Bonneville typically provides direct funds to both the Corps and Reclamation. In addition to congressional appropriations for fish and wildlife and costs directly funded to Corps and Reclamation by Bonneville, the Bonneville Fish and Wildlife Program (which is separate and distinct from direct funding described above) funds hundreds of projects each year to mitigate the impacts of the Federal hydropower system on fish and wildlife. Bonneville began this program to fulfill mandates established by Congress in the Pacific Northwest Electric Power Planning and Conservation Act of 1980 to protect, mitigate, and enhance fish and wildlife affected by the development and operation of the FCRPS. Bonneville uses its authority under 16 U.S.C. 839b(h)(10)(A), to make expenditures to implement its Fish and Wildlife Program. These expenditures provide systemwide funding for actions that also mitigate for the non-power purposes of the CRS, so Bonneville recoups the non-power share of those expenditures from the U.S. Treasury as credit, as required under 16 U.S.C. 839b(h)(10)(C). Program expenditures incurred mitigating the Columbia River System operations identified in the Final EIS and adopted in Bonneville's Mitigation Action Plan would continue to be allocated and borne as provided by existing laws governing the FCRPS and the long-standing accounting procedures used to implement them.
32359	2	Anna Lindstedt	Fall River Rural Electric Cooperative	Fall River is concerned about the results of the competing fish modeling used to determine the impact of increased spill on juvenile and returning adult salmon and would request that the agencies continue to monitor and study the net effect on salmon.	The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. The framework for the adaptive management process is detailed in Appendix R, Part 2, Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS. It is the intention of the co-lead agencies to engage regional state, Tribal, and federal fish managers in the development of an appropriate adaptive management process utilizing their respective salmonid management expertise. The goal of that adaptive management process would be to consider additional opportunities to further the effectiveness of the operation while maintaining the goals of the flexible spill operation: additional improvements for salmon and steelhead, maintain opportunities to operate the CRS for hydropower generation in a flexible manner that provides value to the Northwest, is implementable by the dam operators, and provides opportunity to reduce uncertainty and improve the learning opportunities around how operations of the CRS can influence the magnitude of latent mortality effects. Unforeseen outcomes or unintended consequences will be monitored and adjusted using current in-season management teams, such as the Technical Management Team.
32359	3	Anna Lindstedt	Fall River Rural Electric Cooperative	We support the use of adaptive management to protect ESA-listed salmon from any unintended consequences of unprecedented and untested levels of spill. Proposed spill is not proven to help fish. The Cooperative is also concerned that additional spill will de-optimize the federal hydro system and have a negative impact on the region's goals of decarbonization.	The co-lead agencies used current high quality information in the analysis of the CRSO EIS. Specific to salmon and steelhead, the agencies used two primary modeling approaches which yielded a range of potential outcomes for the alternatives. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% as a result of the Preferred Alternative. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective flex spill can be at increasing salmon and steelhead returns to the Columbia Basin. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets most other EIS objectives including those for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. Appendix R, Part 2 describes the principles for implementation of the flexible spill operations and guidance for adaptive management. One of the principles focuses on federal power system benefits, which will be as determined by Bonneville Power Administration. The understanding is that Bonneville must, at a minimum, be no worse financially compared to the 2018 spring fish passage spill operations ordered by the Court. This principle is directly related to Objective 5 of the CRSO EIS: Provide an adequate, efficient, economical and reliable power supply that supports the integrated CR Power System. The co-lead agencies have determined that the Preferred Alternative meets this Objective. In addition, the Preferred Alternative places additional rate pressure for wholesale power rates of 2.7 percent relative to the No Action Alternative consistent with the statement in the comment regarding increased rates. These estimates compare the Preferred Alternative to the No Action Alternative, which is not the same as comparing the Preferred Alternative to current operations. Consequently, the estimates are not a comparison to the BP-20 wholesale power rates, which were set assuming the financial impact of the 2019-2021 Spill Operation Agreement and therefore already include a substantial portion of the cost pressures found in the Preferred Alternative. The remaining rate pressure associated with the Preferred Alternative falls within a level that Bonneville has historically been able to mitigate through the costs it has significant control. The Preferred Alternative does not meet the objective for Greenhouse Gas Emissions across the region. Hydropower generation would decrease resulting in increased generation from existing gas and coal plants resulting in increased greenhouse gas emissions.
32359	4	Anna Lindstedt	Fall River Rural Electric Cooperative	Fall River encourages cooperation with environmental and tribal groups to work on plans that bolster a sustainable salmon and steelhead population. Specifically, we support efforts to manage avian impact and other predation of salmon populations.	Thank you for your comment.
32359	5	Anna Lindstedt	Fall River Rural Electric Cooperative	Thousands of our members, many of whom are seniors or those on a fixed or low income, live in rural areas without access to alternative energy sources. They are heavily dependent on the electric service we provide to not only heat their homes and power their appliances, but also to provide	Thank you for your comment.

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				domestic water and even septic service in many cases. They are particularly vulnerable to increased risks of blackouts and escalating power costs, which makes the P A worthy of our support. Compared to other DEIS alternatives, it presents lower risks in these areas.	
32365	1	Susan Blende	N/A	Lowering Lake Pend Oreille's summer lake level in low water years, thus eliminating our long understood stable summer lake elevations, would have devastated our local economy, which is predominantly dependent on water base recreation. This change would have prevented boat access at countless locations around the lake, prevented close to 90% of waterfront landowners from mooring their boats, reduced property values, and crippled the summer economy. Our own access to the lake for boating would have been eliminated since the dock and boat lift structures have been built to be used at the summer lake level that has been agreed to and maintained for generations. The ramp from the boat house, which is usable at the long established summer lake level, would not have reached a depth to be usable.	The Recreation Section 3.11.3.6 describes the adverse social welfare, regional economic, and social effects associated with reduced water surface elevations at Lake Pend Oreille during the summer months in low water years under MO4. MO4 was not selected as the Preferred Alternative.
32365	2	Susan Blende	N/A	Lowering Lake Pend Oreille's summer lake level in low water years, thus eliminating our long understood stable summer lake elevations, would have devastated our local economy, which is predominantly dependent on water base recreation. This change would have prevented boat access at countless locations around the lake, prevented close to 90% of waterfront landowners from mooring their boats, reduced property values, and crippled the summer economy. Our own access to the lake for boating would have been eliminated since the dock and boat lift structures have been built to be used at the summer lake level that has been agreed to and maintained for generations. The ramp from the boat house, which is usable at the long established summer lake level, would not have reached a depth to be usable.	The Recreation Section 3.11.3.6 describes the adverse social welfare, regional economic, and social effects associated with reduced water surface elevations at Lake Pend Oreille during the summer months in low water years under MO4. MO4 was not selected as the Preferred Alternative.
32366	1	Georg Behrens	N/A	Any new costs to the FCRPS resulting from these proposed actions should be equitably allocated and not borne exclusively by BPA's public power customers. Specifically, to the extent the preferred alternative results in additional costs allocated entirely to public power, it is time to find ways to build on existing federal law to more broadly share these regional costs amongst all parties benefitting from the CRSO.	The financial responsibility for proposed actions is not solely allocated to Bonneville's power ratepayers as the comment suggests. Fish and wildlife mitigation costs are assigned to each authorized project purpose based on each purposes overall share of project costs, as determined by an established cost allocation, and this allocation is recovered through power rates. Bonneville is required to pay for its share of mitigation costs based on the existing cost allocation. Congress also granted Bonneville discretion to fund the power share directly to the Corps and Reclamation as part of the Energy Policy Act of 1992, in some situations, including the Columbia River Fish Mitigation program. (Energy Policy Act of 1992, Pub. L. No. 102-486, 2406, 106 Stat. 2776, 3009 (1992) (codified at 16 U.S.C. 839d-1 (2012)). As described in Section 3.19 of the EIS and Appendix Q, funding to operate the system comes through multiple mechanisms, including Federal tax dollars appropriated to cover system costs as well as revenue generated from the marketing and sale of hydropower. For power-specific costs, Bonneville typically provides direct funds to both the Corps and Reclamation. In addition to congressional appropriations for fish and wildlife and costs directly funded to Corps and Reclamation by Bonneville, the Bonneville Fish and Wildlife Program (which is separate and distinct from direct funding described above) funds hundreds of projects each year to mitigate the impacts of the Federal hydropower system on fish and wildlife. Bonneville began this program to fulfill mandates established by Congress in the Pacific Northwest Electric Power Planning and Conservation Act of 1980 to protect, mitigate, and enhance fish and wildlife affected by the development and operation of the FCRPS. Bonneville uses its authority under 16 U.S.C. 839b(h)(10)(A), to make expenditures to implement its Fish and Wildlife Program. These expenditures provide systemwide funding for actions that also mitigate for the non-power purposes of the Columbia River System, so Bonneville recoups the non-power share of those expenditures from the U.S. Treasury as credit, as required under 16 U.S.C. 839b(h)(10)(C). Bonneville's Fish and Wildlife Program expenditures incurred mitigating the Columbia River System operations identified in the Final EIS and adopted in Bonneville's Mitigation Action Plan would continue to be allocated and borne as provided by existing laws governing the FCRPS and the long-standing accounting procedures used to implement them.
32366	2	Georg Behrens	N/A	Fall River has concerns about the impact of increased spill on juvenal and returning adult salmon and request the agencies continue to monitor and study the net effect on salmon. Proposed spill is not proven to help fish. The Cooperative is also concerned that additional spill will de-optimize the federal hydro system and have a negative impact to the regions goals of decarbonization.	The co-lead agencies used current high quality information in the analysis of the CRSO EIS. Specific to salmon and steelhead, the agencies used both two primary modeling approaches which yielded a range of potential outcomes for the alternatives. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% as a result of the Preferred Alternative. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective flex spill can be at increasing salmon and steelhead returns to the Columbia Basin. Appendix R, Part 2 also describes the adaptive management approach for the flexible spill operational measure. The co-lead agencies will continue to evaluate the impacts of this measure while it is implemented and work through the Regional Forum to address any unintended consequences.
32366	3	Georg Behrens	N/A	Fall River encourages cooperation with environmental groups to work on plans which do bolster a sustainable salmon and steelhead population.	Thank you for your comment.
32370	1	Curtis Short	Blanchly-Lane Electric Co-op	The DEIS concluded that breaching the Snake River dams would have "long-term, major, adverse effects on power costs and rates," and the "rate pressure could be up to 50% on wholesale power rates." This is not an acceptable outcome to our mostly lower income rural consumers. A 50% increase in BPA's rate could lead to rate increases our electric cooperative consumers just cannot afford, especially as they work hard to recover from the economic impacts of the COVID- 19 outbreak, the depths of which we have yet to know.	The statement that the loss of hydropower under MO3 could require substantial renewable replacement resources with costs resulting in rate pressures up to 50 percent is consistent with the findings of the EIS. See Section 3.7.3.5, at 3-918 to 924 in the Draft EIS; see also Table 3-166. For further information on the potential socioeconomic impacts of MO3, see Section 3.7.3.5 Social and Economic Effects of Changes in Power and Transmission.
32373	1	Randall Ririe	N/A	Have just attempted to leave my comments on your website, I was informed the comments did not appear va lid and could not be submitted.	The co-lead agencies are sorry you had technical difficulties. The public had several ways to submit comments such as the online comment form and through the mail. We are glad to see you were able to provide comments.
32373	2	Randall Ririe	N/A	Have just attempted to leave my comments on your website, I was informed the comments did not appear va lid and could not be submitted.	The co-lead agencies are sorry you had technical difficulties. The public had several ways to submit comments such as the online comment form and through the mail. We are glad to see you were able to provide comments.
32376	1	Rodney Cawston	Confederated Tribes of the Colville Reservation	I am writing to request a 60-day extension for comments on the CRSO Draft EIS. Under ordinary circumstances, the 45-day comment period established for the CRSO Draft EIS would be challenging given the document's immense volume, detailed technical analysis, and the broad geographic and topical scope. Moreover, the Confederated Tribes ofthe Colville Reservation (CTCR) is affected directly and significantly by the CRSO, and we have dedicated significant resources to participating as a Cooperating Agency in the agencies' development of the Draft EIS. However, the current public health emergency related to the COVID-19 pandemic makes this already-insufficient period for drafting comments patently unreasonable. The region and the nation are being dramatically affected in countless ways by the pandemic. On March 18 the Colville Business Council ordered a partial government shutdown lasting through- at a minimum- April 1. Many of our staff are working from home if that is feasible, which makes coordination on a large project such as the CRSO EIS more challenging. Because of the state-wide closure ofK-12 schools through- at a minimum- April24, many of us are dealing with the demands of full-time parenting and overseeing lesson plans for children while attempting to stay on top of normal work responsibilities. In addition to our staffwho are integral to the CTCR's preparation of comments on the CRSO Draft EIS, our lead attorneys who work on this issue are located in Seattle, which has experienced severe disruptions as one of the epicenters of the COVID-19 outbreak in the United States. Additionally, on March 23, Governor Jay Inslee issued a "Stay Home, Stay Healthy" proclamation for Washington for all non-essential personnel. We understand that the CRSO EIS is a massive undertaking by the co-lead agencies and that the Administration's requirements have forced an accelerated schedule for completion. However, in the course of a few short weeks the country has changed in dramatic ways not experienced in generations - if ever before - from this pandemic. We respectfully request a modest extension of 60 days so that our staff will have a fair opportunity to provide meaningful and thorough comments on the Draft EIS. The importance of this topic calls for nothing less.	The co-lead agencies considered requests to extend the public comment period. This NEPA process included a wide array of cooperating agencies whose close involvement throughout the process allowed the co-lead agencies to incorporate feedback. Given the broad range of comments received to date and the extensive Federal and non-Federal participation in the overall process as well as the level of public engagement in the six virtual public meetings in the region, the co-lead agencies determined that an extension was not warranted and that the 45-day public comment period was adequate consistent with NEPA regulations. The CRSO EIS website notified the public on April 9, that they should plan to submit comments by the close of the comment period.
32412	1	handerson@cec-co.com	N/A	Central Electric is seriously committed to delivering clean, affordable, reliable electricity to our members. The DEIS concluded breaching the Snake River dams would have "long-term, major, adverse effects on power costs and rates," and the "rate pressure could be up to 50% on wholesale power rates." Increased spill-as envisioned by M04-would also increase costs up to 41%. A 40-50% increase in BPA's rate could impose an additional several hundred dollars a year on our members. The most impacted by these rate increases will be our vulnerable populations senior citizens and those on fixed incomes -who shouldn't have to choose between medicine, food, or paying their electric bills.	The rate pressures identified in the comment are consistent with the findings under Multiple Objective 3 and Multiple Objective 4 in the EIS. See Section 3.7.3.5, at pages 3-918-924 in the Draft EIS; see also Table 3-166 in the Draft EIS and Section 3.7.3.6, Electricity Rate Pressure, at pages 3-945-950, Table 3-182 in the Draft EIS. The comment that increases in utility costs can adversely affect vulnerable groups is consistent with discussions in the EIS. The EIS recognizes concerns around the affordability of electricity, and the Environmental Justice analysis (Section 3.18.3 and Chapter 7) provides further detail on this as well as the potential disproportionate effects to Tribal, low-income and minority populations. Chapter 5 of Appendix H, Power and Transmission, provides additional details on potential rate increases by county as well as for urban and rural utility customers mentioned in the comment.
32412	2	handerson@cec-co.com	N/A	Central Electric proudly touts its clean energy profile, with an energy resource nearly 100% carbon-emission free. According to the DEIS, breaching the dams would create an additional 3.3 million metric tons (MMT) of C02 - a staggering 10% increase in power-related emissions across the Northwest. M04 shows similar carbon impacts. The DEIS demonstrates breaching the Snake River dams or spilling excessive amounts of water would be a step backward from decarbonization efforts in our region.	The 3.3 MMT CO2 increase in greenhouse gas (GHG) emissions under Multiple Objective alternative 3 (a 8.9 percent increase in regional power sector emissions) described in this comment is associated with a scenario in which only natural gas resources are developed or acquired to offset losses from the four lower Snake River dams. The analysis additionally considers a scenario assuming all renewable replacement resources (at a higher cost as discussed in Section 3.8). Under this scenario, the analysis finds a 2.7 percent increase in regional CO2 emissions relative to the No Action Alternative. Given that policy and legislative decisions in Oregon and Washington are targeting large reductions in GHG emissions, the EIS describes that even the 2.7 percent increase in CO2 emissions makes these goals more difficult to achieve. The Preferred Alternative estimates that GHG emissions would increase by 1.5% or 0.54 million metric tons compared to the No Action Alternative.
32412	3	handerson@cec-co.com	N/A	The DEIS also noted the co-lead agencies have made substantial improvements for fish passage at the lower Snake River and lower Columbia River dams. Our cooperative has helped fund this multi-billion-dollar effort to improve fish passage at the dams, which is meeting targets of 96% survival rates for migrating juvenile fish. We believe it is important to build upon this successful fish passage program instead of taking the drastic measure envisioned in M03 and M04. Finally, CEC offers cautious support for the Preferred Alternative (PA) proposed by the co-lead agencies. Though experimental, and without risk to the Endangered Species Act's listed species, CEC is encouraged that the underlying principles and model of constructive collaboration established through the "20 19-2021 Spill Operation Agreement" ("the Agreement" or "Flexible Spill Agreement") reached in December 2018 was carried forward in the P A To the extent that the co-leads finalize the Flexible Spill operation (as the backbone ofthe PA) as part of this EIS process, CEC insists the three objectives of the Agreement remain intact: provide additional fish benefits by increasing spill; manage power system costs and preserve hydro system flexibility; and, retain operational feasibility.	The co-lead agencies intend to keep the three objectives from the Flex Spill agreement intact as stated in Appendix R, Part 2.
32412	4	handerson@cec-co.com	N/A	CEC remains concerned, however, about the wide variability around the two bodies of fishery science considered in the Draft EIS (i.e., NOAA's Life Cycle Model and The Fish Passage Center's Comparative Survival Study model). The extended operation at 125% Total Dissolved Gas ("TDG") at these federal projects called for in the Flexible Spill Agreement (and the basis for the P A) is an unprecedented action. We appreciate that the co-lead agencies understand the potential controversy around the different assumptions made by each of the fish models when it comes to assessing the biological risks versus benefits of operations like the P A, which incorporate increased and un-tested spill levels. To address this issue, we request the adoption of reliable fish monitoring and adaptive management solutions.	To address this uncertainty and minimize risk, the Preferred Alternative includes an adaptive management plan (Appendix R). This plan involves working with regional sovereigns to develop a study to assess the effectiveness of the increased spill regime on adult returns as well as assessment and management of negative unintended consequences, such as long delays of adult migrants, or TDG-related mortality of juvenile migrants. The Preferred Alternative will require a robust monitoring plan for salmon and steelhead to help narrow the uncertainty between the biological models and will help determine how effective increased spill can be in increasing salmon and steelhead returns to the Columbia Basin.
32412	5	handerson@cec-co.com	N/A	Throughout the implementation of Flexible Spill, and as further adopted in this EIS, CEC urges the co-lead agencies to closely monitor the PA's untested operational approach, particularly, spill to 125% TDG. Efforts must include continual analysis of the proposed action and its impacts on ESA species, and	The co-lead agencies agree. The Preferred Alternative will be implemented using adaptive management that includes a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective flex spill can be at increasing salmon and steelhead returns to the Columbia Basin.

Letter No.	Comment No.	Commenter Name/Email	Affiliation	Comment	Response[1/]
				the development of a robust monitoring approach and public platform to provide transparent feedback. We also encourage the co-leads to develop and improve upon an adaptive management framework to ensure their actions do not jeopardize the continued existence of any listed species.	
32418	1	William Keeton	Central Electric Cooperative, Inc.	Cautious support for the Preferred Alternative ("P A") proposed by the co-lead agencies. However, we are concerned with the unprecedented and untested spill to 125% Total Dissolved Gas ("TDG"). The two vastly different scientific findings included in the DEIS around the impacts of increased levels of spill on fish, make it difficult to embrace this experimental approach fully.	TDG levels are regulated under the Federal Clean Water Act, and administered by the states. Both Oregon and Washington have reassessed the available data on effects of TDG levels up to 125% of saturation on fish and other aquatic organisms. Based on this reassessment Oregon issued a five-year "standard modification" and Washington issued a permanent rule change, supported by the Environmental Protection Agency (EPA), to allow TDG saturation up to 125%. However, as noted by the commenter, there is considerable uncertainty in the effects of free swimming fish; and therefore, monitoring was required by the states and EPA to ensure any negative effects are detected and allow for adaptive management. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. The framework for the adaptive management process is detailed in Appendix R, Part 2, Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS. It is the intention of the co-lead agencies to engage regional state, Tribal, and Federal biologists in the development of an appropriate adaptive management process utilizing their respective salmonid management expertise. The goal of that adaptive management process would be to consider additional opportunities to further the effectiveness of the operation while maintaining the goals of the flexible spill operation: additional improvements for salmon and steelhead, maintain opportunities to operate the CRS for hydropower generation in a flexible manner that provides value to the Northwest, is implementable by the dam operators, and provides opportunity to reduce uncertainty and improve the learning opportunities around how operations of the CRS can influence the magnitude of latent mortality effects. Unforeseen outcomes or unintended consequences will be monitored and adjusted using current in-season management teams, such as the Technical Management Team.
32418	2	William Keeton	Central Electric Cooperative, Inc.	Support for fishery monitoring and adaptive management. We support the development of a robust approach to monitoring to see how fish respond to new levels of spill. We also encourage the co-leads to develop and improve upon an adaptive management framework to protect ESA-listed species from unintended consequences that may arise due to operations that utilize enhanced spill.	The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. The framework for the adaptive management process is detailed in Appendix R, Part 2, Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS. It is the intention of the co-lead agencies to engage regional state, Tribal, and federal biologists in the development of an appropriate adaptive management process utilizing their respective salmonid management expertise. The goal of that adaptive management process would be to consider additional opportunities to further the effectiveness of the operation while maintaining the goals of the flexible spill operation: additional improvements for salmon and steelhead, maintain opportunities to operate the CRS for hydropower generation in a flexible manner that provides value to the Northwest, is implementable by the dam operators, and provides opportunity to reduce uncertainty and improve the learning opportunities around how operations of the CRS can influence the magnitude of latent mortality effects. Unforeseen outcomes or unintended consequences will be monitored and adjusted using current in-season management teams, such as the Technical Management Team.
32418	3	William Keeton	Central Electric Cooperative, Inc.	Support for further study regarding socio-economic impacts of blackouts. We encourage the co-lead agencies to sharpen their analysis around this issue before issuance of the Record of Decision.	The commenter is correct that there could be socioeconomic effects if blackouts occur. The EIS methodology includes the full incremental replacement resource cost necessary to return the region to a level where the likelihood of blackouts is equal among all the alternatives, such that comparisons can be made among the alternatives on an equal basis. The EIS assumes for each Multiple Objective alternative (MO) that sufficient resources are acquired to reduce the risk of blackouts to the level of risk that existed prior to implementation of the MO. Once replacement resources have been acquired, the risk of a blackout for each MO is effectively the same as the No Action Alternative. The EIS evaluates the costs of replacement resource portfolios that would be required to avoid increasing the risk of an outage. See Draft EIS, Section 3.7. The approach in the analysis is to first evaluate the increased risk of power outages related to an alternative, and then identify what resources are needed to avoid that increased risk of an outage. Thus instead of identifying the potential socio-economic costs of power shortage, the analysis identifies the costs of replacement resource portfolios that would be required in order to avoid increasing the risk of an outage. If the EIS had then also added to each MO the additional cost of a blackout, then the MOs would have double-counted the impact of blackout risk (i.e. the MOs would have included the cost of avoiding blackouts and the costs of blackouts). The analysis identifies that the expected outcomes of MO3 and Multiple Objective alternative 4 (MO4) would be an increase in the cost of power and not in the risk of an outage. See Draft EIS, Sections 3.7.3.5 (MO3) and 3.7.3.6 (MO4). Because of the shape of the remaining hydropower generation in the Preferred Alternative, the loss of load probability was essentially the same as that of the No Action Alternative and identification of replacement resources was not necessary.
32425	1	Kevin Davis	N/A	The impact on the entire Pacific Northwest would be staggering. The BPA has been providing clean hydro-power to the region for as long as I can remember. What alternatives are there for comparably priced energy?	Breaching the four lower Snake River dams was evaluated in Multiple Objective 3 but was not included in the Preferred Alternative identified in the EIS. The comment may be referring to the loss of hydropower generation under MO3, which includes breaching of the four lower Snake River dams. The EIS identified two potential replacement portfolios, one with natural gas power and one with solar plus storage, that would maintain regional reliability under MO3 at the same level as the No Action Alternative (See Section 3.7.3.5, Potential Replacement Resources and Associated Costs in the draft EIS). As suggested by the comment, these replacement portfolios would increase the cost of regional electricity. See Section 3.7.3.5, at pages 3-918-924 in the Draft EIS; see also Table 3-166 in the Draft EIS. For Bonneville's wholesale power rates, the Preferred Alternative places additional rate pressure of 2.7 percent relative to the No Action Alternative consistent with the statement in the comment regarding increased rates. These estimates compare the Preferred Alternative to the No Action Alternative, which is not the same as comparing the Preferred Alternative to current operations. Consequently, the estimates are not a comparison to the BP-20 wholesale power rates, which were set assuming the financial impact of the 2019-2021 Spill Operation Agreement and therefore already include a substantial portion of the cost pressures found in the Preferred Alternative. The remaining rate pressure associated with the Preferred Alternative falls within a level that Bonneville has historically been able to mitigate through the costs over which it has significant control.
32425	2	Kevin Davis	N/A	How much research has gone into the financial impact of not only the cost of power to homes and industry but what is the impact on agriculture. Many producing areas rely on the water behind these dams to provide irrigation for crops.	Please see Section 3.12, Water Supply, for a discussion of irrigation and the effects on agriculture. In Region C (lower Snake River) and potentially Region D (mainstem Columbia River) around the confluence of the lower Snake River, the MO3 alternative, which includes breaching the earthen embankment of the four lower Snake River dams, would have adverse effects to farmers and irrigation. Currently and in the No Action Alternative, water is available from the pools of these facilities and from groundwater that results from the pools. Removing the earthen embankment portion of the dams will reduce pool elevations by up to 100 feet, which would make surface pumps inoperable. Groundwater pumps in the wells may also be affected due to decreased groundwater elevations depending on the connectivity of the aquifer to the pools. Municipal and industrial water pumps in the Lewiston area would also likely be adversely effected. Additionally, transportation of farming goods would expect to move off river and on to rail or trucks, as there would be a complete loss of commercial navigation on the lower Snake River and could not be feasibly mitigated. All ports along the Snake River would lose access to the navigation channel. Some ports at the confluence or the Snake and Columbia River could dredge new channels to the Federal channel in the confluence (McNary reservoir) to maintain access. Private or public entities or businesses could take actions and/or build infrastructure to extend pumps or water supply access for water. Ports and farmers can likewise change their transportation modes or connect to the navigation system at a different point on the river. The federal co-lead agencies would not mitigate for these impacts to water users or ports. See Chapter 3 analyzes the social and economic effects of implementing a dam breaching alternative (MO3) and Chapter 5 for mitigation discussion. This EIS discusses engineering solutions, including pipeline extensions, in Section 3.12.3. MO3, Region C discussion begins on page 3-1267 line 3244 in the Draft EIS and is also found in Appendix N. The EIS draws upon the 2002 Lower Snake River Juvenile Salmon Migration Feasibility Report and Environmental Impact Statement which concluded that modifying the existing pump system was cost prohibitive. In Region C, under the MO3 alternative this analysis accordingly concludes that pumps are unable to deliver water to an estimated 48,000 acres.
32425	3	Kevin Davis	N/A	With active efforts in the northwest and here in Montana to close down coal fired power plants and without an available explanation on where the power will come from to replace these essential power sources, both hydro and coal fired, we are left to wonder what miracle will occur to replace this energy. And, while I realize the Columbia Hills, the flat lands of eastern Oregon and Washington, and the Snake River Plains are the sights of numerious wind farms they can't begin to replace the energy produced by these dams.	The commenters statement that potential additional coal power retirements would decrease power reliability in the region is consistent with the findings in the EIS. Existing coal projects were presumed to be online when developing the No Action Alternative. See draft EIS, Section 3.7.3.1, Base Case Methodology and Cost Sensitivity Analysis, at page 3-816; see also Id. at page 3-823. Since development of the draft EIS, additional coal retirements have been announced. To address this concern, the EIS considered various sensitivity analyses as well as examining two potential coal retirement scenarios. See draft EIS, Section 3.7.3.1, Availability of Coal Resources at pages 3-841-842 and Section 3.7.3.2, Table 3-123. The EIS examines several alternative resource portfolios that have characteristics similar to, though not complete replacements for, the attributes of the four lower Snake River dams that would be lost if breaching occurred under Multiple Objective Alternative 3, including natural gas and zero-carbon (solar and wind) replacement portfolios (See Section 3.7.3.5, Potential Replacement Resources and Associated Costs at page 3-904).
32429	1	Vernon Brown	N/A	THE POLLUTION ON THE PUGET SOUND IS A MAJOR CAUSE OF CONCERN FOR ALL THE SPECIES DEPENDANT ON CLEAN WATER FOR SURVIVAL. I HAVE FITNESSED THE PROLIFICATION OF FISH FARMS IN ALMOST EVERY BAY AND INLET IN BRITISH COLUMBIA THAT HAVE POISENED WILD FISH AND THEIR FEED. I HAVE SPENT A LOT OF SUMMER TIME IN SOUTHEAST ALASKA, AND THE INCREASE IN WHALE POPULATION CONTINUES YEAR AFTER YEAR, INCUDING THE ORCAS, BUT ESPECIALLY HUMPBACKS. DEMAND FOR FEED IS IN ITS GREATEST NEED AND DECLINE. NONE OF THIS IS CAUSED BY DAMS.	The co-lead agencies' legal authorities relate to operating and maintaining the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. To comply with the ESA, the co-lead agencies have historically supported actions to mitigate adverse effects to listed species from CRS operations, through funding, direct implementation, and other means. Under the Preferred Alternative, those actions would generally continue to ensure compliance with the ESA. Regarding Puget Sound, the effects mentioned in the comment involve a variety of issues beyond the scope of the effects of the operations, maintenance, and configuration of the CRS projects and therefore of this EIS. However, water quality effects for the Columbia River Basin were considered in the EIS analysis and are described in Chapter 1, 2, and Section 7.8.3 of the EIS. Additionally, the U.S. Army Corps of Engineers is in partnership with other Federal, state and non-governmental organizations and have been implementing habitat projects for salmon, orcas, and wildlife all around the Puget Sound as part of the Puget Sound Nearshore Ecosystem Restoration Project. The co-lead agencies agree that the quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differently from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for the whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall-run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall-run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). Additional details on the most crucial prey stocks for Southern Resident killer whales, as well as their population and range, is available from several fact sheets and videos available here: https://www.fisheries.noaa.gov/species/killer-whale#spotlight. For more information, visit this NMFS StoryMap on Southern Resident killer whales: https://noaa.maps.arcgis.com/apps/Cascade/index.html?appid=3405e6637bf74e998d4ebe992c54f613.
32434	1	Howard Jensen	Sunheaven Farms	Dams Provide Affordable Electricity - As a consortium of farms, power costs are one of our greatest expenses. If any of these dams were to be breached, and or removed it would have devastating consequences upon all of our operations. In your EIS it indicates that replacing lost generation from dam removal with carbon-free resources could result in 50% increase in power costs. Those of us in the agriculture community are "Price Takers, and not Price Makers." Our margins are determined for us by the Marketplace. This potential increase in expense could have a devastating impact on not only our profitability, but also our continued business operations. However, it would not only impact the agriculture world, but also all of those who use energy. Everyone in our communities would be negatively impacted.	The statement that the loss of hydropower under MO3 (which includes breaching the four lower Snake River dams) could require substantial renewable replacement resources with costs resulting in rate pressures up to 50 percent is consistent with the findings of the EIS. See Section 3.7.3.5, at 3-918 to 924 in the Draft EIS; see also Table 3-166. However, the 50 percent figure is for wholesale power. The retail rate impact would be lower. For further information on the potential socioeconomic impacts of MO3, see Section 3.7.3.5 Social and Economic Effects of Changes in Power and Transmission.
32434	2	Howard Jensen	Sunheaven Farms	Dams Positive Impact on the Food Chain and Feeding the World: The Dams on the Lower Snake River and the Lower Columbia River have played an influential part in the development of the Lower Columbia Basin and Horse Heaven Hills areas (Southeastern Washington). The ability to irrigate acreage	Thank you for your comment; the comments are largely consistent with the findings in the EIS in that breaching the lower Snake River dams would have adverse effects to farmers and irrigation. Currently, and in the No Action Alternative, water is available from the reservoirs of these facilities and from groundwater that results from the pools. Removing the earthen embankment portion of the dams would reduce pool elevations by up to 100 feet, which would make surface pumps

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				that was previously dry-land has flourished and created a Food Basket that literally feeds our Country, and the World. A wide variety of commodities from Wheat, Fruits, Vegetables, are produced as a result of the water resource (irrigation) being provided from the pools created from these Dams. Removal of any of these Dams will have far lasting negative consequences. Some of these would include a reduction in agricultural acreage, commodities provided to the Food Chain, increase costs to improve irrigation systems necessary to operate as a result of the Pool Levels changing, and the ability for those in the agriculture community to provide a way of life for their families and those they employ.	inoperable. Groundwater pumps in the wells may also be affected due to decreased groundwater elevations depending on the connectivity of the aquifer to the pools. Municipal and industrial water pumps in the Lewiston area would also likely be adversely effected.
32434	3	Howard Jensen	Sunheaven Farms	Dam are only one Factor in Salmon and Orca Survival: Those proponents of breaching/removing the Four Lower Snake River Dams are fixated on this being the only method, solution to the survival of Salmon and Orca. They propose working together to find a solution to this issue but seem to be talking out of both sides of their mouth, because their actions clearly show their final agenda, which is- "Removal of the Dams." If Salmon and Orca survival rates is their top agenda item, then one only needs to look at the level of fishing that takes place in our Oceans by foreign countries, native fishing on the rivers, sea lions at the mouth of the Columbia River, and most of all the pollution levels in the Puget Sound. These four items are clearly greater causes on Salmon and Orca's potential survival rates. Science has clearly shown the current methods in place under the present ESA-BiOP have led to increase numbers of Salmon Runs. Current rates of survival under these required methods has led to numbers as high as 97% in certain areas. Controlling the issues mentioned above is a far better use of time and money in order to save our Salmon and Orca's if that is their ultimate agenda.	The co-lead agencies also recognize that there are many effects to salmon and steelhead populations outside the operation of the dams; including those you mention here. Research continues to evaluate the magnitude of these effects. For more information see the NMFS website at: https://www.nwfsc.noaa.gov/research/index.cfm. This EIS analyzes the effects of operation, maintenance, and configuration of the CRS projects. The four items listed in this comments are beyond the scope of this EIS. Harvest certainly has an impact on salmon and steelhead populations. The three co-lead agencies do not manage fish stocks, and do not have the authority to do so. For harvest, fisheries in the Columbia River Basin and those that rely upon Columbia River fish stocks are managed by numerous entities, including Federal, state, and tribal governments. These entities are guided by a complex array of policies, laws, compacts, and agreements. The management of Pacific salmon fisheries in particular is complex, and involves numerous entities representing a variety of social, political, and conservation interests. Changes in allowable fishery harvest in the Columbia River Basin are a result of decisions made by state, Federal (i.e., NMFS), and tribal fishery managers based on a variety of environmental, biological, economic, and social factors. Alternatives to include changes to harvest are not within the scope of this EIS. The assumptions regarding harvest are taken from the NOAA 2018 EIS and reflect current harvest management guidelines. To see their conclusions and effects analyses please go to: https://www.fisheries.noaa.gov/resource/document/environmental-impact-statement-programmatic-review-harvest-actions-salmon-and. Under the Preferred Alternative, those actions, including for the purpose of reducing pinniped and avian predation on listed species, would generally continue to ensure compliance with the ESA. Other entities in the region have authorities and obligations to mitigate the impacts from pinniped and avian predators and the co-lead agencies will continue to work closely with those entities to benefit ESA-listed salmonids. Regarding Puget Sound, the effects mentioned in the comment involve a variety of issues beyond the scope of the CRS project. However, water quality effects for the Columbia River Basin were considered in the EIS analysis and are described in Chapter 1, 2, and Section 7.8.3 of the EIS. Additionally, the U.S. Army Corps of Engineers is in partnership with other Federal, state and non-governmental organizations and have been implementing habitat projects for salmon, orcas, and wildlife all around the Puget Sound as part of the Puget Sound Nearshore Ecosystem Restoration Project.
32437	1	Blaine Hulse	N/A	Further, the dams in Oregon and Idaho would need removed as well. The spawning rivers upstream would still not be accessible for the fish because there are no fish ladders at the Oxbow, Brownlee and Dworshak. Why not improve the ladders on the lower Snake Dams, and add ladders upriver? Build more hatcheries, and seriously fight those predators that feast on the young migrating fish. Capture and transport the seals to places that cannot harm the salmon, or terminate them. There are many good arguments for retaining the dams.	The co-lead agencies are authorized to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. The scope of this EIS analyzes the effects associated with the operation and maintenance of the 14 CRS projects. The Oxbow and Brownlee dams are not part of the CRS. Fish passage at Dworshak was considered, but eliminated from further analysis. The current configurations of the CRS dams that have fish ladders already have effective upstream adult passage. The Draft EIS did not consider additional mitigation programs such as hatchery production or habitat restoration projects; mitigation program measures are described in the EIS in Chapter 5. Many of the considerations for structural changes proposed in the EIS would be to address downstream juvenile passage and survival, as well as habitat concerns. The technology of fish cannons or similar devices (for adult passage) will continue to be evaluated for future applications. Lastly, to comply with the ESA, the co-lead agencies have historically supported actions to mitigate adverse effects to listed species from CRS operations, through funding, direct implementation, and other means. Under the Preferred Alternative, those actions, including for the purpose of reducing pinniped and avian predation on listed species, would generally continue to ensure compliance with the ESA. Other entities in the region have authorities and obligations to mitigate the impacts from pinniped and avian predators and the co-lead agencies will continue to work closely with those entities to benefit ESA-listed salmonids.
32469	1	Leon Waldron	N/A	Many in our community, include seniors and those on fixed or low incomes, are dependent on the electric service provided by Fall River to heat their homes, power appliances, provide hot water and even pump water from their well. I'm concerned about escalating power costs. Our electric Cooperative, Fall River Rural Electric Cooperative, is serious about their mission of delivering clean, affordable, reliable electricity to us, its members. The DEIS concluded that breaching the Snake River dams would have "long-term, major, adverse effects on power costs and rates," and the "rate pressure could be up to 50% on wholesale power rates." A 50% increase in wholesale power costs would be financially devastating to our household. It is important to keep these financial impacts in perspective for rural communities like ours where incomes are below regional and state averages. These increases in power costs are not a simple shift from disposable and discretionary income to pay for essential services like electricity. Rather, they mean that some neighbors and family will be forced to make difficult choices about which essentials like food, medicine, utilities, and such they have to sacrifice.	The comment that power costs in the region would increase under Multiple Objective 3, which includes breaching of the four lower Snake River dams, is consistent with EIS findings. See Section 3.7.3.5, at page 3-918-924 in the Draft EIS; see also Table 3-166 in the Draft EIS. The Environmental Justice analysis (Section 3.18.3 of the EIS) provides further detail on potential disproportionate effects to Tribal, low-income and minority populations under MO3. Chapter 5 of Appendix H, Power and Transmission, provides additional details on potential rate increases by county as well as for urban and rural utility customers. The EIS also discusses the fact that Bonneville customers, such as cooperative mentioned by the commenter, may be more directly affected by rate pressures than other regional utilities that do not purchase power directly from Bonneville. See Section 3.7.3.5, Residential Effects, at page 3-929 in the Draft EIS, and Chapter 5 of Appendix H, Power and Transmission. For Bonneville's wholesale power rates, the Preferred Alternative places additional rate pressure of 2.7 percent relative to the No Action Alternative consistent with the statement in the comment regarding increased rates. These estimates compare the Preferred Alternative to the No Action Alternative, which is not the same as comparing the Preferred Alternative to current operations. Consequently, the estimates are not a comparison to the BP-20 wholesale power rates, which were set assuming the financial impact of the 2019-2021 Spill Operation Agreement and therefore already include a substantial portion of the cost pressures found in the Preferred Alternative. The remaining rate pressure associated with the Preferred Alternative falls within a level that Bonneville has historically been able to mitigate through the costs over which it has significant control.
32470	1	Alice Didier	N/A	If dam removal was implemented, damage from the monumental passage of accrued sediment from behind these dams would decimate fish breeding grounds, and it would be years before the Snake would recover from this action. Why are we not addressing other factors concerning salmon survival such as the sea lion and tern problem, over-fishing, allowing foreign fishing within our 200-mile limit, and the environmental concerns surfacing in the Puget Sound area as concerns the Orca whale?	The co-lead agencies also recognize that there are many effects to salmon and steelhead populations outside the operation of the dams; including those you mention here. Research continues to evaluate the magnitude of these effects. For more information see the NMFS website at: https://www.nwfsc.noaa.gov/research/index.cfm. The ESA does not require the co-lead agencies to take affirmative actions to recover ESA-listed species. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the Columbia River System. That call, however, is ultimately the role of NMFS and the USFWS. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. This EIS analyzes the effects of operation, maintenance, and configuration of the CRS projects. The four items listed in this comments are beyond the scope of this EIS. Harvest certainly has an impact on salmon and steelhead populations. The three co-lead agencies do not manage fish stocks, and do not have the authority to do so. For harvest, fisheries in the Columbia River Basin and those that rely upon Columbia River fish stocks are managed by numerous entities, including Federal, state, and tribal governments. These entities are guided by a complex array of policies, laws, compacts, and agreements. The management of Pacific salmon fisheries in particular is complex, and involves numerous entities representing a variety of social, political, and conservation interests. Changes in allowable fishery harvest in the Columbia River Basin are a result of decisions made by state, Federal (i.e., NMFS), and tribal fishery managers based on a variety of environmental, biological, economic, and social factors. Alternatives to include changes to harvest are not within the scope of this EIS. The assumptions regarding harvest are taken from the NOAA 2018 EIS and reflect current harvest management guidelines. To see their conclusions and effects analyses please go to: https://www.fisheries.noaa.gov/resource/document/environmental-impact-statement-programmatic-review-harvest-actions-salmon-and. Under the Preferred Alternative, those actions, including for the purpose of reducing pinniped and avian predation on listed species, would generally continue to ensure compliance with the ESA. Other entities in the region have authorities and obligations to mitigate the impacts from pinniped and avian predators and the co-lead agencies will continue to work closely with those entities to benefit ESA-listed salmonids. Regarding Puget Sound, the effects mentioned in the comment involve a variety of issues beyond the scope of the CRS project. However, water quality effects for the Columbia River Basin were considered in the EIS analysis and are described in Chapter 1, 2, and Section 7.8.3 of the EIS. Additionally, the U.S. Army Corps of Engineers is in partnership with other Federal, state and non-governmental organizations and have been implementing habitat projects for salmon, orcas, and wildlife all around the Puget Sound as part of the Puget Sound Nearshore Ecosystem Restoration Project.
32479	1	Ilene Harrel	N/A	The DEIS identified significant impacts that breaching the four dams would have, including: Costing close to one billion dollars to construct other carbon-free electrical generation facilities, construct new long-distance transmission lines and install untested amounts of utility-scale batteries	The statements in the comment regarding potential effects of dam breaching on the regional power system are consistent with the findings in the EIS. See Section 3.7.3.5, Effects on Power System Reliability, at page 3-903 in the Draft EIS; see also Appendix H, Table 2-1.
32479	2	Ilene Harrel	N/A	Loss of irrigation to tens of thousands of acres of agricultural land that produce crops that contribute to the national economy	The information in this comment is consistent with the findings in the EIS, specifically in Section 3.12.
32479	3	Ilene Harrel	N/A	Increasing wholesale power rates by as much as so% which would result in local power rates increasing, perhaps by as much as 25%	The statement that wholesale power rates would increase up to 50% under Multiple Objective 3 (MO3), is consistent with the findings of the EIS. See EIS, Section 3.7.3.5, at pages 3-918-924 in the Draft EIS; see also Table 3-166 in the Draft EIS. The EIS finds that the highest county-level retail rate pressure is 29 percent under MO3. See Section 3.7.3.5 Electricity Rate Pressure, at page 3-929 in the Draft EIS. For Bonneville's wholesale power rates, the Preferred Alternative places additional rate pressure of 2.7 percent relative to the No Action Alternative consistent with the statement in the comment regarding increased rates. These estimates compare the Preferred Alternative to the No Action Alternative, which is not the same as comparing the Preferred Alternative to current operations. Consequently, the estimates are not a comparison to the BP-20 wholesale power rates, which were set assuming the financial impact of the 2019-2021 Spill Operation Agreement and therefore already include a substantial portion of the cost pressures found in the Preferred Alternative. The remaining rate pressure associated with the Preferred Alternative falls within a level that Bonneville has historically been able to mitigate through the costs over which it has significant control.
32479	4	Ilene Harrel	N/A	Undermine regional efforts to reduce carbon emissions as the trucks to haul ag products, rather than transporting them by barge, will result an additional 23.8 million miles annually	The EIS finds that breaching of the four lower Snake River dams would increase greenhouse gas emissions from trucks, consistent with the concern voiced in the comment. The EIS finds that truck ton-miles may experience an increase of up to 84 percent under Multiple Objective alternative 3 when compared to the No Action Alternative. See Section 3.8.3.5 of the Draft EIS. Multiple Objective alternative 3 was not identified in the Draft EIS as the Preferred Alternative. The Preferred Alternative is estimated to increase greenhouse gas emission by 1.5%, or 0.54 million metric tons, over the No Action Alternative.
32482	1	Matt Ruane	N/A	Modeling infers that the removal of many small dams is better for fish. Using the Elwha River's two private dams as a model, removal of 318 vertical feet added 70 square miles of spawning ground. Removal of 2000 private (40 dams and approximate 50 feet each) vertical feet of concrete on primary and secondary streams could add about 9440 miles of spawning grounds. All four Snake River dams add up to only 398 vertical feet. Furthermore, the Elwah dams, had no fish ladders like many archaic and primate dams.	Without reference to a specific model, the co-lead agencies cannot address what model the commenter is addressing. There have been many dam removals that have had significant fish benefits. Comparison of the lower Snake River dams to the Elwha provides little value. The Elwha provided no fish passage or economic benefits. In contrast, the lower Snake River dams have upstream and downstream fish passage. The lower Snake River dams also produce power, and provide navigation and recreation opportunities. For power, the lower Snake River dams have great provide economic benefits to the region by producing power, navigation, and recreation.The four lower Snake River dams produce upwards of 1,100 aMW of power, which is approximately 13 percent of the average power produced by the FCRPS. See EIS, Section 3.7.3.5, Changes in Power Generation, Table 3-159. Losing this amount of power is equivalent to losing power capable of serving 900,000 homes in the Pacific Northwest. See EIS Section 3.7.3.5, Summary of Effect, at 9-935.
32482	2	Matt Ruane	N/A	The criteria for removing smaller dams has already been established. Why spend time and money reinventing the wheel? Oregon's Fish Passage Priority List could be used a model. It's been going for about five years now. Oregon's FPPL program focuses on discerning and removing smaller, unused or inefficient dams to improve fish habitat. Hells Canyon Dam, and a lot of other Eastern Oregon dams are on the remove/fix list. I'm sure with just a phone call from you, you could find out how successful the FPPL has been.	Thank you for the information regarding Oregon's program. Modeling of alternatives for the Draft EIS did not consider effects of elements of the mitigation programs such as hatchery production or habitat restoration projects. Mitigation program measures are described in the EIS in chapter 5. The current Northwest Power and Conservation Council mitigation program allocates a substantial amount of funds to habitat restoration projects planned with regional partner agencies in Idaho, Washington and Oregon, as well as research and monitoring to assess effectiveness of proposed actions http://www.cbfish.org. Over 150 barriers to fish passage in tributary streams and the estuary have been breached as part of the program during the past dozen years.
32487	1	Ronald & Ceona Chitwood	N/A	Item 1: As I drive on Highway #14 along the Columbia River I see Indian nets every J4 to ~ mile at least from White Salmon to McNary Dam. They are in the river when Sports Fishing is CLOSED. I thought Indians were supposed to get 50% of the salmon, not all of them. The nets make no distinction between hatchery and wild stock, how fair is that?	For harvest, fisheries in the Columbia River Basin and those that rely upon Columbia River fish stocks are managed by numerous entities, including Federal, state, and Tribal governments. These entities are guided by a complex array of policies, laws, compacts, and agreements. The management of Pacific salmon fisheries in particular is complex, and involves numerous entities representing a variety of social, political, and conservation interests. Changes in allowable fishery harvest in the Columbia River Basin are a result of decisions made by state, Federal (i.e., National Marine Fisheries Service), and Tribal fishery managers based on a variety of environmental, biological, economic, and social factors. The three co-lead agencies (Corps, Reclamation, and Bonneville) do not manage fish stocks, and do not have the authority to do so.
32487	2	Ronald & Ceona Chitwood	N/A	3: Priest Rapids Dam outflow during the March-May time frame is critical in this last flowing Columbia River Reach. During the construction of WNP-1 and WNP-4 a low flow test was run in April to determine if the river level was adequate to cover the water intake during low licensed flow conditions. The test determined it was but when the biologists ended the test and advised Priest Rapids to return the flow to normal they did but for them during a	The operation and management of Priest Rapids Dam is outside the scope of this EIS.

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				low demand power situation it was minimum flow. The result was thousands of salmon fry still in egg sacks and in the gravel died. This was only noted because biologists were on site, it could and probably does happen every now and then but no one is around to note it. That is why item No.3 is so important. If you investigate this you will find that Battelle Northwest, United Engineers and Constructors and perhaps Energy Northwest funded a substantial expansion of the Priest Rapids Hatchery.	
32491	1	Edward Henderson	N/A	At 8,000 pages it is impossible to read, digest and understand the DEIS. The deletion of the public comment meetings due to the COVID-19 pandemic while necessary only exacerbates this problem. The presentation of so much extraneous misinformation, 8,000 pages! Obscures the main issues that the court ordered examined. Namely actions required to restore the endangered species of salmon and steelhead fish in the Columbia and Snake Rivers. The short time available for comment appears to be a deliberate strategy to limit public critique and involvement.	The co-lead agencies considered requests to extend the public comment period. This NEPA process included a wide array of cooperating agencies whose close involvement throughout the process allowed the co-lead agencies to incorporate feedback. Given the broad range of comments received to date and the extensive Federal and non-Federal participation in the overall process as well as the level of public engagement in the six virtual public meetings in the region, the co-lead agencies determined that an extension was not warranted and that the 45-day public comment period was adequate consistent with NEPA regulations. The CRSO EIS website notified the public on April 9, that they should plan to submit comments by the close of the comment period.
32491	2	Edward Henderson	N/A	While the DEIS does recognize the breaching of the four lower Snalce River dams as the most certain means to restore the endangered salmon, the quick dismissal of this alternative in favor of continued economy active as usual is clearly a preordained outcome reached without considering the evidence. First you set up a false choice between salmon and energy, and then you ignore replacement of the 'lost capacity of the existing dams with clean and affordable energy. The ongoing cost of continuing the current means is disregarded. The U.S. Government has spent 17 to 18 billion dollars on barging salmon smolts around the dams and more recently has enhanced spill, all to simply stave off extinction. The avoided replacement cost of the hydroelectric turbines and generators that have reach the end of their economic life is not considered, the machinery is worn out!	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA listed species. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-lead agencies numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as the MO3 which includes the dam breaching measure. The Preferred Alternative also meets the EIS objectives for: resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS the co-lead agencies did not identify MO3 because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. While the four lower Snake River dams account for a small portion of the total number of dams in the region, they represent a larger portion of the Federal Columbia River Power System (FCRPS) from which Bonneville markets power. They provide approximately 1,000 aMW of carbon-free energy on average, enough to power about 730,000 Northwest homes, and 2,000 MW of sustained peaking capacity at certain times of the year. See draft EIS, Section 3.7.3.5, Changes in Power Generation, Table 3-159. The dams also provide important ramping capability the ability to quickly generate energy to match spikes in energy usage with over 2,000 to 2,300 MW of capability in certain months of the year. See draft EIS, Section 3.7.3.5, Lower Snake River Full Replacement at pages 3-905-907 and Table 3-160. Additionally, the four lower Snake River dams are among Bonneville's lowest cost resources. Although the turbines at the four lower Snake River dams are between 41 and 50 years old and nearing their design lives, there are no plans for any immediate replacements. Investment decisions are driven by equipment condition, probability and consequence of failure and, as such, it is common for equipment to be in service well past its design life. For example, some turbine runners at McNary dam will be over 70 years old by the time the replacement project is complete. Long-term planning analyses that calculate the optimal economic time to replace equipment based on current and expected equipment condition, probability of failure and outage consequence, point to the late 2030s as the earliest replacement dates for major powertrain equipment at the four lower Snake River dams. Most turbine replacements are forecasted between the 2040s and 2060s which would put the turbines at the four lower Snake River dams at about the same age at replacement as McNary. The commenters suggestion that approximately $17 billion in fish and wildlife mitigation investment has been ineffective to recover ESA listed species is misplaced. Those investments delivered the intended results when considered in the appropriate statutory context of the Northwest Power Acts anadromous fish provisions which call for improved survival of such fish at FCRPS projects and sufficient flows between the projects to improve production, migration, and survival. For example, as of 2014 this investment had facilitated juvenile dam passage survival of 96% and 93% for spring and summer migrants respectively, see Endangered Species Act Federal Columbia River Power System 2016 Comprehensive Evaluation Section 1, at 17, t.2 (Jan. 2017), a marked improvement compared to when Congress passed the Northwest Power Act and the estimated average juvenile mortality at each mainstem dam and reservoir complex was 15-20% with losses recorded as high as 30%. See Nw. Res. Info. Ctr. v. Nw. Power Planning Council, 35 F.3d 1371, 1374 (9th Cir. 1994) (citing a Sept. 4, 1979 report by U.S. General Accounting Office describing the systems impacts on anadromous fish).
32491	3	Edward Henderson	N/A	The DEIS fails to consider the economical, ecological and cultural benefits that would accrue from restored abundant salmon.	The EIS provides an evaluation of the social welfare and regional economic effects of the No Action Alternative and the Multiple Objective alternatives, including the effects on recreation (Section 3.11) and commercial fisheries (Section 3.15). The EIS Section 3.5.3.6 describes the long-term effects to anadromous fish migration in the Snake River and tributaries that would occur under a dam breach scenario as major and beneficial, although quantitative impacts from fish modeling results are limited. The impacts to anadromous fish in other locations would have negligible to minor changes from the No Action Alternative. The EIS described the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. NMFS estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which is described qualitatively. For the effects on recreational fishing under MO3 (Section 3.11.3.5) along the Lower Snake River below Lewiston, the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River) as an indicator for fishing visitation in this reach. The EIS describes that the visitation in the long-term in the lower Snake River, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting tourism businesses. The contribution of Columbia River origin fish to ocean fisheries is described in Section 3.15.2.1. Because there is considerable uncertainty regarding the overall effects of the alternatives on regional fish populations, and how such changes may affect the management of the fisheries, the specific quantitative and monetized impacts associated with changes in commercial fisheries under the alternatives was limited. This analysis evaluates potential impacts on fisheries by referencing the potential effects on relevant fish populations, as described in Section 3.5. The cultural significance and impacts of salmon and steelhead fisheries are described in the Ceremonial and Subsistence Fisheries subsection and the Social Importance of Commercial, Ceremonial and Subsistence Fisheries subsection of Section 3.15.2.1. Fisheries Tribal interests are described in Section 3.15.4 additional details regarding the economic significance of salmon and steelhead fisheries have been added to the recreation analysis (Section 3.11) including Tribal interests (Section 3.11.3.7). Most sections of Chapter 3 include a Tribal Interests Section at the end that attempts to summarize issues by topic.
32492	1	John Thoren	N/A	As is pointed out in the study, a major cause of the decline in salmon numbers is most likely overfishing in the late 19th and early 20th centuries, a time before any dams on the Columbia River. The challenge now is how do we rebuild the runs to the highest level possible given the much-changed environment of today versus that in the later 19th and earlier 20th century. The changes are not only in terms of the physical environment but also from the difference in populations and their needs today versus that at 1900. Because of all these changes, it is impossible to point to any one item and assume that by implementing it, all the problems will be solved.	The co-lead agencies also recognize that there are many effects to salmon and steelhead populations outside the operation of the dams; including those you mention here. Research continues to evaluate the magnitude of these effects. For more information see the NMFS website at: https://www.nwfsc.noaa.gov/research/index.cfm. This EIS analyzes the effects of operation, maintenance, and configuration of the CRS projects. In doing so, the co-lead agencies developed a reasonable range of alternatives and compared those alternatives to the No Action Alternative, which is the baseline condition of operations in 2016 when the effort to develop the EIS began. Declines in salmon numbers in the 19th and early 20th centuries are outside the scope of this EIS, as is harvest and fisheries management. The assumptions regarding harvest in this EIS are taken from the NOAA 2018 EIS and reflect current harvest management guidelines. To see their conclusions and effects analyses please go to: https://www.fisheries.noaa.gov/resource/document/environmental-impact-statement-programmatic-review-harvest-actions-salmon-and.
32492	2	John Thoren	N/A	Another point for discussion is the added GHG emissions that would result from (1) the substitution of rail or truck transportation for the products that are currently moved by barge and (2) the use of coal or natural gas fired power generation plants to provide on-demand power ifthe dams were breached. Yes, salmon, steelhead and eels are an issue but added GHG emissions are a global issue that probably have a greater potential impact on earth's survival	The Draft EIS analysis is consistent with this comment. Table 3-209 in the Draft EIS summarizes the emissions by mode (barge, rail, truck) for Multiple Objective alternative 3 and shows that emissions are estimated to slightly increase as compared to the No Action Alternative. The analysis for MO3, demonstrates that pursuing a least-cost portfolio of replacement resources (natural gas), would result in an increase of 3.3 MMT CO2 in greenhouse gas (GHG) emissions, a 8.9 percent increase in regional power sector emissions (Table 3-207, Draft EIS). The analysis additionally considers a scenario assuming all renewable replacement resources (at a higher cost as discussed in Section 3.8). Under this scenario, the analysis finds a 2.7 percent increase in regional CO2 emissions relative to the No Action Alternative. Given that policy and legislative decisions in Oregon and Washington are targeting large reductions in GHG emissions, the EIS describes that even the 2.7 percent increase in CO2 emissions makes these goals more difficult to achieve. The Preferred Alternative estimates that GHG emissions would increase by 1.5% or 0.54 million metric tons compared to the No Action Alternative.
32492	3	John Thoren	N/A	The tradeoffs may best be illustrated with the dual goals of protecting the California Sea Lions and the migrating salmon. Both are federally protected species, but one is an intruder and is having a significant impact on the resurgence of the other. Can we just eliminate the sea lions to save the salmon? Probably not. Can we take actions to make the sea lions less welcome? Most likely. The recommended action appears to make a balanced assessment of the many issues and charts a course to address the many issues that have conspired to create the problem.	As described in the Preferred Alternative, the co-lead agencies propose several measures to reduce avian and marine mammal predation to mitigate adverse effects to listed species from CRS operations. Ongoing actions described in the No Action Alternative to reduce predation on migrating fish are included in the Preferred Alternative. In addition, water management actions (the Predator Disruption Operations measure) in the John Day reservoir is expected to further reduce avian predation on migrating juvenile fish. The No Action Alternative includes ongoing mitigation measures to haze and monitor pinniped predators. These actions would continue into the future under the Preferred Alternative, and the co-lead agencies would continue to assist National Marine Fisheries Service (NMFS), states and Tribes in their pinniped removal efforts near Bonneville Dam.
32499	1	Marc Thomsbury	Port of Klickitat	While the above comprises the fundamental purpose of this letter, we also wish to express concern regarding the estimated costs associated with Multiple Objective Alternative 3 (MOA3). As noted in the DEIS, a vocal constituency "assert breaching the dams [a key component of MOA3] will result in large improvements to certain salmonid populations, and this in turn would have beneficial impacts to the overall function of the Northwest ecosystem." This position appears to be based, in part, on a presumption the restoration of salmon populations to historic levels is of overwhelming value relative to all other CRS objectives (combined) and the projected costs of dam removal are sufficiently limited so as to make it a viable alternative. Although the report notes significant costs resulting from dam removal, we are concerned a number of elements in the projections for MOA3 are low when compared with data provided by others. The Port of Klickitat is not qualified to assess the accuracy of the data in the report or that obtained from others, but we urge the parties to the DEIS to reassess the cost projections concerning MOA3 and reach out to key entities engaged in the various sectors involved so as to ensure the DE IS does not underreport the actual costs of dam removal and, as a result, create the impression it represents a least-cost solution	The EIS evaluates the costs to operate and maintain the lower Snake River dams, including capital costs, under the No Action Alternative, all MOs and the Preferred Alternative. Summary level results of implementation and system cost analysis are provided in Section 3.19 and Chapter 7 of the EIS. A more detailed presentation of cost analysis methodology, data sources and assumptions is provided in Appendix Q. As described in Chapter 2, Overview of Approach in Appendix Q, an extensive effort was undertaken to obtain a comprehensive perspective of the costs to operate the Columbia River System under the No Action Alternative as well as how these costs would change under the multiple objective alternatives. The implementation and system operations costs were developed by Corps, Bonneville, and Reclamation technical specialists, including hydrology and hydraulics engineering, operations, cost engineering, budget, asset management, project-specific specialists, fish, navigation, and hydropower provided input to the cost analysis. Separate from the implementation and system operations costs, the EIS provides an evaluation of the social welfare and regional economic effects of the No Action Alternative and the Multiple Objective alternatives.
32499	2	Marc Thomsbury	Port of Klickitat	In particular, we believe a more thorough analysis of the following areas is warranted: The loss of cost-effective transportation for agricultural products from eastern Washington, Idaho, and the mid-West states (including increased transportation costs, reduced farm income, and the loss of foreign sales to competitors). The environmental impact and infrastructure costs associated with an increase in truck and rail trips (including increased fuel consumption, carbon emissions, and necessary improvements to increase road and rail capacity). The loss of irrigation and the effect on agriculture (including food supply and rural economies). Increased electric power costs (including the impact to low-income, rural communities and the effect of reduced power supply stability resulting from a lack of on-demand, renewable generation alternatives). The loss of river tourism revenue in rural	The potential environmental, economic and social effects from breaching of the lower Snake River dams are evaluated and described throughout the EIS organized by resource area. These include several socioeconomic-related resource areas including Power and Transmission (Section 3.7), Navigation and Transportation (Section 3.10), Water Supply (Section 3.12), and Recreation (Section 3.11). Environmental and human health impacts associated with increased emissions to shipping goods by rail and/or truck are evaluated and described in the Air Quality Section (3.8), and increase health and safety concerns due to increased truck traffic on roadways and potential for increased accidents are described in the Navigation and Transportation Section for other social effects (Section 3.10.3.5).

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				communities where it represents an important element in their economy (including direct effects on ports and vessel services and indirect effects on retail, recreation, food service, and hospitality sectors).	
32502	1	Francis Aiello	N/A	Certainly we all want to see salmon numbers improve for their benefit and also for the orca. But have we really dealt with other mitigating factors? Puget Sound is nowhere near the pristine body of water of SO years ago when there was a public ruckus about increasing ship traffic and refineries within the Sound. Today Puget Sound is probably one of the country's most polluted waterways. Then there are the long liners on the high seas indiscriminately ravaging the ocean of all species of fish. The protected seals devouring scores of salmon. Then there are commercial fishermen in the lower Columbia. Drive along the Lower Columbia in September and tell me how any fish can escape getting past any of the nets. How many thousands of young salmon are eaten by terns at the mouth of the Columbia? Have we honestly dealt with all of these sources of salmon decline?	The co-lead agencies also recognize that there are many effects to salmon and steelhead populations outside the operation of the dams; including those you mention here. Research continues to evaluate the magnitude of these effects. For more information see the NMFS website at: https://www.nwfsc.noaa.gov/research/index.cfm. Regarding Puget Sound, the effects mentioned in the comment involve a variety of issues beyond the scope of the analysis in the CRSO EIS, which analyzes the effects of the operation, maintenance, and configuration of the CRS projects. However, water quality effects for the Columbia River Basin were considered in the EIS analysis and are described in Chapter 1, 2, and Section 7.8.3 of the EIS. Additionally, the U.S. Army Corps of Engineers is in partnership with other Federal, state and non-governmental organizations and have been implementing habitat projects for salmon, orcas, and wildlife all around the Puget Sound as part of the Puget Sound Nearshore Ecosystem Restoration Project. Harvest certainly has an impact on salmon and steelhead populations. The three co-lead agencies do not manage fish stocks, and do not have the authority to do so. For harvest, fisheries in the Columbia River Basin and those that rely upon Columbia River fish stocks are managed by numerous entities, including Federal, state, and tribal governments. These entities are guided by a complex array of policies, laws, compacts, and agreements. The management of Pacific salmon fisheries in particular is complex, and involves numerous entities representing a variety of social, political, and conservation interests. Changes in allowable fishery harvest in the Columbia River Basin are a result of decisions made by state, Federal (i.e., NMFS), and tribal fishery managers based on a variety of environmental, biological, economic, and social factors. Alternatives to include changes to harvest are not within the scope of this EIS. The assumptions regarding harvest are taken from the NOAA 2018 EIS and reflect current harvest management guidelines. To see their conclusions and effects analyses please go to: https://www.fisheries.noaa.gov/resource/document/environmental-impact-statement-programmatic-review-harvest-actions-salmon-and. Under the Preferred Alternative, actions, including for the purpose of reducing pinniped and avian predation on listed species, would generally continue to ensure compliance with the ESA. Other entities in the region have authorities and obligations to mitigate the impacts from pinniped and avian predators and the co-lead agencies will continue to work closely with those entities to benefit ESA-listed salmonids.
32531	1	Keith Brooks	Douglas Electric Cooperative	To be candid, the residents of Douglas County are struggling economically, and have been for some time. Douglas County, like many rural communities in the Northwest, has not benefited from the economic recovery in the same manner as others in the state. For instance, the average median household income in Oregon is $63,426. In Douglas County it is $44,023. We estimate that breaching dams on the Snake River would add about $360 dollars a year to our average members power bill. That is the equivalent to adding two extra power bills a year for each member. People here are already burdened with failing infrastructure, and increased expenses for pretty much everything including necessary utilities such as power, water and sewer. A declining timber industry has caused an exodus of young workers as they continue to pursue opportunities outside of the area. Older residents, many on fixed incomes, remain to shoulder the increasing costs. We hear their stories everyday as they agonize over which essential service they will have to go without until they can find help.	The comment that power costs in the region would increase under Multiple Objective 3, which includes breaching of the four lower Snake River dams, is consistent with EIS findings. See Section 3.7.3.5, at pages 3-918-924 in the Draft EIS; see also Table 3-166 in the Draft EIS. Chapter 5 of Appendix H, Power and Transmission, provides additional details on potential rate increases by county as well as for urban and rural utility customers. The EIS also discusses the fact that Bonneville customers, such as cooperatives, may be more directly affected by rate pressures than other regional utilities that do not purchase power directly from Bonneville. See Section 3.7.3.5, Residential Effects, at page 3-929 in the Draft EIS, and Chapter 5 of Appendix H, Power and Transmission. The Environmental Justice analysis in Section 3.18.3, provides further detail on potential disproportionate effects to Tribal, low-income and minority populations from MO1, MO2, MO3 and MO4. Appendix O, Environmental Justice, recognizes that 36 census block groups in Douglas County, Oregon, meet the EIS's low-income criteria. For Bonneville's wholesale power rates, the Preferred Alternative places additional rate pressure of 2.7 percent relative to the No Action Alternative consistent with the statement in the comment regarding increased rates. These estimates compare the Preferred Alternative to the No Action Alternative, which is not the same as comparing the Preferred Alternative to current operations. Consequently, the estimates are not a comparison to the BP-20 wholesale power rates, which were set assuming the financial impact of the 2019-2021 Spill Operation Agreement and therefore already include a substantial portion of the cost pressures found in the Preferred Alternative. The remaining rate pressure associated with the Preferred Alternative falls within a level that Bonneville has historically been able to mitigate through the costs over which it has significant control.
32531	2	Keith Brooks	Douglas Electric Cooperative	Like the struggles our members are facing, DEC also has it challenges. Last year we faced the worst snowstorm in our company's 80-year history. To put the size of the storm in context, our costliest storm event prior to February 2019, resulted in approximately $350,000 in damage. This last storm cost approximately $9.5 million. While some of those expenses will be covered by FEMA, millions will still be owed after reimbursement. Our financial write-offs have doubled in the last 6 months as members have become so far behind on their bills that many have chosen to abandon their homes in desperation. Fire season is nearly upon us. To address the emerging threat of wildfire, DEC has dramatically increased our vegetation management budget by about 30 percent. Added to these challenges, our costs for energy, materials and labor continue to rise while our kilowatt-hour sales continue to decline. As we have embraced conservation to reduce our members' bills, we now struggle to cover operating expenses. We have had to borrow heavily on our equity to weather these events. Eventually those bills will be passed on in the form of rate increases to our members who can ill afford them. If the picture painted above sounds bleak, that wasn't my intent. It is intended to give you a realistic understanding of the challenges companies like DEC are facing. These things are irrespective of the uncertainty surrounding the future of our power supply. But even with all these pressures, we are still hopeful about the future. We see the draft DEIS conclusions as a positive that validates many of the things we have believed for years.	The comment is consistent with information and discussions in the EIS about the potential effects of increasing power rates on vulnerable groups. The Environmental Justice analysis (Sections 3.18.3 and 7.7.20 of the EIS) provides further detail on potential disproportionate effects to Tribal, low-income and minority populations. Chapter 5 and Exhibit 1 of Appendix H, Power and Transmission provides additional details on potential rate increases by county as well as for urban and rural utility customers. The EIS also discusses the fact that Bonneville customers, such as the cooperative mentioned by the commenter, may be more directly affected by rate pressures than other regional utilities that do not purchase power directly from Bonneville. See Section 3.7.3.5, Residential Effects, at page 3-929 in the Draft EIS, and Chapter 5 of Appendix H, Power and Transmission. The EIS recognizes the concern voiced in the comment regarding increasing power rates. Under the Preferred Alternative, which includes juvenile fish passage spill operations contemplated under the 2019-2021 Spill Operation Agreement, Bonneville's wholesale power rate pressure is 2.7 percent relative to the No Action Alternative. These estimates compare the Preferred Alternative to the No Action Alternative, which is not the same as comparing the Preferred Alternative to current operations. Consequently, the estimates are not a comparison to the BP-20 wholesale power rates, which were set assuming the financial impact of the 2019-2021 Spill Operation Agreement, and therefore already include a substantial portion of the cost pressures found in the Preferred Alternative. The remaining rate pressure associated with the Preferred Alternative falls within a level that Bonneville has historically been able to absorb through the costs over which it has significant control. See Draft EIS Section 3.7.3.1 at page 3-187.
32531	3	Keith Brooks	Douglas Electric Cooperative	We support the Preferred Alternative (PA) outlined in the DEIS. This could help us avoid further economic turmoil while at the same time, protect fish, birds and other animals covered under the Endangered Species Act (ESA). However, some debate exists about the benefits of allowing spills up to 125 percent oftotal dissolved gas. There is credible evidence to the contrary. An independent analysis should be completed to determine whether it is detrimental to the fish we are trying to help.	TDG levels are regulated under the Federal Clean Water Act, and administered by the states. Both Oregon and Washington have reassessed the available data on effects of TDG levels up to 125% of saturation on fish and other aquatic organisms. Based on this reassessment Oregon issued a five-year "standard modification" and Washington issued a permanent rule change, supported by the Environmental Protection Agency (EPA), to allow TDG saturation up to 125%. However, as noted by the commenter, there is considerable uncertainty in the effects of free swimming fish; and therefore, monitoring was required by the states and EPA to ensure any negative effects are detected and allow for adaptive management. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. The framework for the adaptive management process is detailed in Appendix R, Part 2, Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS. It is the intention of the co-lead agencies to engage regional state, Tribal, and Federal biologists in the development of an appropriate adaptive management process utilizing their respective salmonid management expertise. The goal of that adaptive management process would be to consider additional opportunities to further the effectiveness of the operation while maintaining the goals of the flexible spill operation: additional improvements for salmon and steelhead, maintain opportunities to operate the CRS for hydropower generation in a flexible manner that provides value to the Northwest, is implementable by the dam operators, and provides opportunity to reduce uncertainty and improve the learning opportunities around how operations of the CRS can influence the magnitude of latent mortality effects. Unforeseen outcomes or unintended consequences will be monitored and adjusted using current in-season management teams, such as the Technical Management Team.
32531	4	Keith Brooks	Douglas Electric Cooperative	We oppose any scenario that calls for the breaching of any dams. We believe, and it is confirmed in the draft EIS, that this would dramatically impact electric rates and financially devastate the citizens of the Northwest. It is this resource that also allows our power resource mix to be over 96 percent non-carbon emitting. Removing dams would setup a scenario where at times of extreme need, there would be a possibility of rolling blackouts. It would also leave us with no other option but to find alternative, reliable energy sources and ultimately add carbon to the atmosphere. This fact alone should make this a non-starter.	MO3, which includes the measure to breach the four lower Snake River dams, is not identified as the Preferred Alternative in the Draft EIS. The comment that costs in the region would increase under MO3 is consistent with EIS findings. In the Draft EIS, see Section 3.7.3.5, at pages 3-918-924; and Table 3-166. The Environmental Justice analysis in Section 3.18 and Chapter 7 of the EIS provides further detail on potential disproportionate effects to Tribal, low-income and minority populations. The comment that without power replacement, breaching the four lower Snake River dams would increase the frequency of power shortages is consistent with EIS findings. In the Draft EIS, see Section 3.7.3.5, Effects on Power System Reliability, at page 3-903; and Appendix H, Table 2-1. Also consistent with the comment, the EIS finds that greenhouse gas emissions would increase under the two resource replacement portfolios analyzed under MO3. In the Draft EIS, see Section 3.7.3.5, Potential Replacement Resources and Associated Costs, and Section 3.8.3.5, Greenhouse Gas Emissions from Power Generation for emissions implications.
32536	1	Russ Sapp	N/A	I am concerned with the loss of load probability (LOLP) associated with MOl (11.2%), M03 (13.9%) and M04 (29.6%), all of which are absolutely unacceptable. Given the extreme concern about the future reliability of our electric grid and the region's goal to integrate large amounts of renewable energy without the addition of carbon producing thermal plants, a robust hydropower system is vital to successfully keeping the lights on.	The measure to breach the four lower Snake River dams that was evaluated in MO3, was not included in the Preferred Alternative identified in the Draft EIS. Juvenile Fish Passage Spill Operations are included in the Preferred Alternative identified in the Draft EIS as described in Section 7.6.3.10. The effects of the Preferred Alternative (PA) on power are described in Section 7.7.9 of the Draft EIS. Overall, hydropower would decrease relative to the No Action Alternative under the PA. However, because of the shape of the remaining hydropower generation in the PA, the loss of load probability (LOLP) was essentially the same as that of the No Action Alternative and identification of replacement resources was not necessary. The EIS analyzed two resource portfolios to replace the hydropower generation of the four lower Snake River dams, both of which maintain regional power system reliability. In the Draft EIS, see Section 3.7.3.5, at pages 3-904-910. Under these replacement portfolios, regional power rate pressure increases. Without replacement resources, however, the statement that LOLP would increase under MO1, MO3, and MO4 is consistent with the findings of the EIS. The comment that hydropower generation is important for integrating renewable power resources is consistent with the EIS. See Section 3.7.3.5, Lower Snake River Full Replacement, pages 3-905-907 in the Draft EIS.
32547	1	Ted Case	ORECA	The DEIS concluded that breaching the Snake River dams would have "long-term, major, adverse effects on power costs and rates," and the "rate pressure could be up to 50% on wholesale power rates." Increased spill as envisioned by M04 would also increase costs up to 41%. A 40-50% increase in BPA's rate could lead to an increase of several hundred dollars a year on our members. The most impacted by these rate increases will be our vulnerable populations living on the margins - senior citizens and those on fixed incomes - who shouldn't have to choose between medicine, food or paying their electric bills. Even before the economic disruption of the global pandemic, there is still a significant rural-urban divide in the state when it comes to economic prosperity. According to the State of Oregon Employment Department, in 2019 Oregon's overall growth rate was nearly double that of eastern Oregon. The rate increases projected in M03 and M04 will neutralize one of rural Oregon's greatest assets- access to affordable hydropower- and deepen the rural-urban divide. We also take seriously our commitment to keep the lights on for our members. The DEIS concludes the dam breaching alternative would "more than double the region's risk of power shortages." M04 creates an even higher risk of brownouts and blackouts in the Pacific Northwest, which again would harm our co-op's most vulnerable populations.	The comment that breaching of the four lower Snake River dams under Multiple Objective 3 (MO3) and increased spill under Multiple Objective 4 (MO4) would a drive up costs in the region is consistent with EIS findings. See EIS, Section 3.7.3.5, at pages 3-918-924 in the Draft EIS; see also Table 3-166 in the Draft EIS. Chapter 5 of Appendix H, Power and Transmission provides additional details on potential rate increases by county as well as for urban and rural utility customers. If replacement resources were not built, the EIS finds that MO3 and MO4 would adversely affect regional power reliability. The comment that increases in utility costs can adversely affect vulnerable groups is also consistent with discussions in the EIS. Regarding the vulnerable populations mentioned in the comment, the Environmental Justice analysis in Section 3.18.3 and Chapter 7 provides further detail on potential disproportionate effects to Tribal, low-income and minority populations. Chapter 5 of Appendix H, Power and Transmission provides additional details on potential rate increases by county as well as for urban and rural utility customers. For Bonneville's wholesale power rates, the Preferred Alternative places additional rate pressure of 2.7 percent relative to the No Action Alternative consistent with the statement in the comment regarding increased rates. These estimates compare the Preferred Alternative to the No Action Alternative, which is not the same as comparing the Preferred Alternative to current operations. Consequently, the estimates are not a comparison to the BP-20 wholesale power rates, which were set assuming the financial impact of the 2019-2021 Spill Operation Agreement and therefore already include a substantial portion of the cost pressures found in the Preferred Alternative. The remaining rate pressure associated with the Preferred Alternative falls within a level that Bonneville has historically been able to mitigate through the costs over which it has significant control.
32547	2	Ted Case	ORECA	It is unimaginable to ponder a less than reliable electric grid during a global pandemic, but we also should not settle for anything less than maximum reliability in the most normal of times. Oregon's electric cooperatives are also proud of our clean energy profile, with a power supply that is consistently over 90% carbon-emission free. According to the DEIS, breaching the dams would create an additional3.3 million metric tons (MMT) of C02 - a staggering 10% increase in power-related emissions across the Northwest. M04 shows similar carbon impacts. Let me put in perspective what 3.3 million metric tons of C02 means for our environment. According to the Environmental Protection Agency, it is the equivalent greenhouse gas emissions of 712,944 passenger vehicles driven for a year or 18,14 7 railcars' worth of coal burned. Oregon Governor Kate Brown and the Oregon Legislature have made decarbonization a centerpiece of their agenda. This is also the case in Washington state. The DEIS clearly demonstrates that breaching the Snake River dams or spilling excessive amounts of water would be a devastating step backWards from those efforts.	The 3.3 MMT CO2 increase in greenhouse gas (GHG) emissions under Multiple Objective 3 (a 8.9 percent increase in regional power sector emissions) described in this comment is associated with a scenario in which only natural gas resources are developed or acquired to offset losses from the four lower Snake River dams (Draft EIS, Table 3-207). The analysis additionally considers a scenario assuming all renewable replacement resources (at a higher cost as discussed in Section 3.8). Under this scenario, the analysis finds a 2.7 percent increase in regional CO2 emissions relative to the No Action Alternative. Given that policy and legislative decisions in Oregon and Washington are targeting large reductions in GHG emissions, the EIS describes that even the 2.7 percent increase in CO2 emissions makes these goals more difficult to achieve.
32547	3	Ted Case	ORECA	ORECA supports the Preferred Alternative in the DEIS, but we caution against spill levels that are not supported by scientific evidence. We urge flexibility to adjust the spill levels if evidence over time shows them as not having the beneficial impacts to fish anticipated in the DEIS.	The co-lead agencies used current high quality information and the best available science in the analysis of the CRSO EIS. Specific to salmon and steelhead, the agencies used both two primary modeling approaches which yielded a range of potential outcomes for the alternatives. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% as a result of the Preferred Alternative. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. To address this uncertainty and minimize risk, the Preferred Alternative includes an adaptive management plan (Appendix R). This plan involves working with regional sovereigns to develop a study to assess the effectiveness of the increased spill regime on adult returns as well as assessment and management of negative unintended consequences, such as long delays of adult migrants, or TDG-related impacts to juvenile migrants.

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32549	1	Louis Meissner	N/A	I discussed the matter with a fish biologist with 19 years experience. He told me the dams were not 5% of the problem. Preditors are most of the problem. We have the seagulls eating smelt if they pass through the turbines. We have large populations of bass (that didnt used to exist), the pike minnow, sea lions at Bonneville Dam, the [unreadable] terms that exist on the islands that the Corps dredged up at the mouth of the Columbia. We used to also have fishing boats with miles of net that could wipe out a whole run of salmon. We also have Indian nets. Senator Mortore and Cathy McMorris flew from McNary dam to Bonneville dam and counted 421 Indian nets. In all that isnt enough the Idaho Dept. of fish and game poisoned all the sockeye salmon years ago. They put [?] in Red Fish Lake and same of the others. The salmon were screwing up their trout hatchery and they didnt want them.	The are a large number of factors affecting salmon and steelhead populations, including those you list. The Preferred Alternative includes measures to address many of those you listed, among which include many measures to decrease predation from fish, birds, and sea lions directly related to the CRS dams, and dredge disposal islands. Harvest and other fish management actions are outside the authority of the co-lead agencies, and the scope of this EIS.
32550	1	Allan Erickson	Port of Longview	Environmentally Preferred Mode Of the multiple transportation modes serving ports in the Pacific Northwest, barging on the FCSRS is the least carbon intensive at nearly 40% more fuel-efficient than freight trains and 270% more fuel-efficient than semi-trucks. Retaining the operation of dams slows climate change by not only increasing our renewable energy supply, but by replacing less efficient trains and trucks with barging. Consequently, changes to the power generating dams would increase diesel fuel consumption by nearly five million gallons a year as barges would have to be replaced by less efficient rail and truck modes. Maintaining continued operation of the dams directly supports Washington State's commitment to be a national carbon-reduction leader by decreasing emissions from the transportation sector.	Section 3.10 of the EIS recognizes that moving commodities on the waterway results in fewer air pollutant emissions as compared to truck and rail transportation. The EIS evaluates potential effects of MO3 on emissions that would occur under the dam breach measure due to shifts from use of barge shipping through the lower Snake River dams to road and rail transportation. The analysis does anticipate an increase in truck and rail transportation, and associated CO2 emissions, under MO3 relative to the No Action Alternative. Specifically, MO3 would increase CO2 emissions by up to 0.06 MMT CO2.
32557	1	Judy A	N/A	There's nothing in your social effects that recognizes local recreational benefits for reservoir contributions, only spending by visitors. When Lower Granite Dam is removed, 26 recreational features, which per the U.S. Army Corps. of Engineers visitation counts, show there was 1.7 million touches in FY2018 will be without management (see Attachment 1). When Lower Granite Dam is removed, the Clearwater Snake National Recreation Trail will be orphaned and Hells Canyon National Recreation Area will be less accessible (it's only accessible by boat now and in the future, but there will be far fewer boaters and commercial tour boats under MO3).	The Recreation Section 3.11.3.5 describes the social welfare, regional economic, and social effects associated with MO3, including a description of the major adverse effects that would occur to both water- and land-based recreation in the short-term in the region. The future land ownership and management under MO3 is uncertain, although it is likely that recreation on trails can be re-opened if consistent with restoration needs. Decreases in regional economic benefits and social effects associated with the loss of recreation during and following breach are described in this section. Decreased cruise line operations are described in the Navigation Section 3.10.3.5.
34222	1	N/A	N/A	In addition, sustainably generated electricity from solar and wind, along with increasing volume of biofuel production, can power the added freight load when the continuous shipping waterway is closed (ideally this would be on an improved railway).	The hydropower replacement alternatives, which include renewable power sources, and the impacts of this replacement on electricity rates, are evaluated in Section 3.8.
34587	1	N/A	N/A	ACOE should include in any cost/benefit analysis for the DEIS that ecotourism dollars drawn in by having healthy salmon populations in the Snake River	The EIS evaluated beneficial and adverse effects across an array of resource areas including potential effects at the national, regional and local level; effects are monetized and quantified, where possible, and also described qualitatively. As is common in NEPA analyses, the beneficial and adverse effects of the alternatives are expressed as a variety of qualitative and quantitative environmental and economic metrics throughout the EIS to inform decision-making, including the effects of the alternatives on fish as detailed in Section 3.5. That the effects of the alternatives on fish are not expressed as monetized economic values does not mean that they were not considered in the context of the analysis. The EIS does not employ a cost-benefit framework for decision-making. Instead, the EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as the dam breaching alternative. However, the Preferred Alternative also meets most of the other objectives of the study for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. A summary table was added in Section 7.4, which provides a summary of the beneficial and adverse effects of the alternatives, including the quantified social welfare costs and benefits for a number of the resource areas. The EIS provides an evaluation of the social welfare and regional economic effects of the No Action Alternative and the Multiple Objective alternatives, including the effects on recreation and tourism (Section 3.11). The EIS described the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. NMFS estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which is described qualitatively.
37843	1	N/A	N/A	One action that would significantly increase fish populations is to completely redesign hatcheries. I urge you to watch the documentary Artifishal to gain an understanding of why this is such an important part of salmon recovery.	The co-lead agencies support hatchery science through funding conservation and safety-net hatcheries and through funding the continued existence of their respective independent congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as Lower Snake River Compensation Plan (LSRCP), which is administered by USFWS. The Preferred Alternative includes a continuation of these programs.
38675	1	N/A	N/A	Monday, April 13, 2020 U.S. Army Corps of Engineers, Attn: CRSO EIS P.O. Box 2870 Portland, OR 972082870 Dear U.S. Army Corps of Engineers, Martin 901 Lakeview Dr Joshua, TX 760584808	The comment provided consists only of what appears to be a heading to a letter. The co-lead agencies received no attachments. Unfortunately, the commenter did not provide any contact information the co-lead agencies could use to request the comments, so a response was not provided.
50561	1	Rose Ann Witt	N/A	In Oct. 2007, I visited the Broughton Archipelago in coastal British Columbia, which used to boast the world's largest concentration of killer whales. Though my visit coincided with the best time of year to observe these orcas, which follow the spawning salmon schools, we did not see even a single 'resident' killer whale. There were no killer whales because there are insufficient numbers of salmon returning to sustain them. On average 99% of an orcas diet is comprised of salmon, particularly Chinook salmon. But many Chinook salmon populations are threatened with extinction, & its estimated that 40% of wild Chinook salmon populations from the U.S. Pacific Northwest & CA are already extinct. Because salmon are the keystone species for the area, their decline threatens ALL of the mega-fauna which depend on them for survival, including grizzly bears, wolves, bald eagles, dolphins, sea lions & killer whales. Moreover, the decomposing carcasses of spawned salmon provide the nitrogen which nourishes the rainforest, affecting every organism that lives there. Without the salmon, British Columbia, & yes the entire Pacific Northwest, may be contemplating the collapse of an entire ecosystem. This will in turn have seriously negative economic impacts on the entire region's timber, tourism & wild-caught fishing industries.	SRKW analysis is described in the EIS including in the FEIS Chapter 3 (Vegetation, Wetlands, Wildlife, and Floodplains) which has been updated for SRKW (Section 3.6.2.6 and Table 3-102) and FEIS Chapter 7 (Preferred Alternative) with additional analysis information on SRKW and potential increase in forage fish, in particular, Chinook salmon in Section 7.7.8. The co-lead agencies utilized current high quality information and best available science in its analysis of the effects of the operation, maintenance, and configuration of the CRS projects. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not require the co-lead agencies to take affirmative actions to recover ESA listed species. The population dynamics of the SRKW are complicated and there are multiple factors that contribute to the overall success of this species. The quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differently from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for the whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall-run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall-run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). Details on the most crucial prey stocks for Southern Resident killer whales, as well as their population and range, is available from several fact sheets and videos available here: https://www.fisheries.noaa.gov/species/killer-whale#spotlight. For more information, visit this NMFS StoryMap on Southern Resident killer whales: https://noaa.maps.arcgis.com/apps/Cascade/index.html?appid=3405e6637bf74e998d4ebe992c54f613. According to NMFS and the EPA, the estimated SRKW population has fluctuated between 67 and 98 whales between 1960 and 2015. The Snake River dams were constructed between 1962 and 1975. The SRKW population increased from a record low in 1970 to its highest population numbers in 1995. Those years were not high years for Snake or Columbia River Chinook Salmon. Ocean conditions between 2011 and 2013 were good years for salmon. At the same time, 2010 and 2013 were good outmigration years. Particularly, 2011 and 2012 were above normal in water supply, which would mean more cooler water was available and there was better survival of salmon, and 2011 through 2014 were higher than normal spill years as well. The combination of outmigration and ocean conditions created improved adult salmon returns. The EIS has analyzed spill as a measure in the Preferred Alternative and determined the overall effect to SRKW to be negligible in large part because hatchery production is consistent between the No Action Alternative and the Preferred Alternative. Because the impact from the Preferred Alternative was determined to be negligible, the agencies determined that existing hatchery production would be sufficient to address any potential impacts to prey availability for SRKWs. The co-lead agencies note the contribution to the prey of SRKW through the continued existence of their respective independent Congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as the Lower Snake River Compensation Plan (other than under MO3), which is administered by USFWS. The Preferred Alternative and Proposed Action in the agencies' biological assessment carry forward certain mitigation measures described in Chapters 2 and 7 of the EIS, which include continued salmon and steelhead hatchery production. The Preferred Alternative has negligible effects to SRKWs as described in Section 7.7.8. The Biological Assessment (BA) describes the effect of the Proposed Action on the SRKW forage species (see BA Section 3.5.1.2, Southern Resident Killer Whale). The proposed changes in operation of the Columbia River System include increased spring spill during the downstream migration of juvenile spring and summer run Chinook salmon. The result of this action includes potential increases of juvenile fish passing through the spillways, reductions in juvenile fish direct and indirect mortality associated with downstream passage, and the Comparative Survival Study (CSS) model predicts increases in numbers of returning adults, which will benefit SRKWs foraging in and around the mouth of the Columbia River in winter and spring (See EIS Section 7.7.8). The CSS model results predicts Snake River Chinook salmon would have relative improvements in smolt-to-adult returns of 35 percent (see EIS Section 7.7.4). The smolt-to-adult return ratio (SAR) is the rate at which of a group of fish survive from their smolt life stage to a defined ending point where they return as adults. While recovery targets will require more than just the efforts of federal agencies, the CSS models indicate the potential for SARs of Snake River Chinook salmon and steelhead to increase to levels that could approach recovery targets set by the Northwest Power and Conservation Council. The BA, also consistent with the EIS, acknowledges past improvements to the configuration and operation of the Columbia River System, additional improvements to the environmental baseline as a result of completed estuary and tributary habitat actions, and the prospective non-operational conservation measures proposed in Chapter 2 of the Draft EIS, all contribute towards maintaining and improving Chinook abundance. Relevant conservation measures include, among other things, a commitment to continue funding the conservation and safety net hatchery programs listed in Chapter 2 of the Draft EIS. As discussed above, the agencies will fulfill congressionally authorized hatchery mitigation objectives through the funding of hatchery programs that are operated consistent with their independent hatchery program consultations during the term covered by this consultation. Based on those hatchery program consultations, the production levels associated with congressionally authorized hatchery mitigation objectives will continue, at minimum, to be consistent with levels previously analyzed by NOAA in the system consultations in 2008, 2014, and 2019. For the 2020 ESA consultations, therefore, the agencies expect that collectively, all of the actions described above (substantial modifications to migration conditions designed to benefit key prey species, combined with improvements to Chinook spawning and rearing habitat in the tributaries and Columbia River estuary, and continued hatchery production) ensure that remaining Chinook mortality from all sources in the mainstem migratory corridor will continue to be more than offset, resulting in a net gain in Chinook salmon abundance available as a prey source for SRKW.

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					Finally, the 2019 NMFS Fisheries BiOp included increased spring spill operations that are similar to operations evaluated in CRSO EIS, and NOAA validated that the hatchery production of Chinook salmon mitigates for the impacts of operating the Columbia River System and total mortality through the mainstem migratory corridor from all sources. The CRSO EIS addresses abundance of anadromous fish among alternatives, which is the driving mechanism of marine nutrient cycling. The commenter is correct that there are broad ecological effects from marine nutrient cycling. However, the actual mechanisms, effects, magnitudes, and processes are very complex and uncertain. The analyses used in this Draft EIS were for the purposes of comparing the effects of operation, maintenance and configuration of the CRS projects to one another and to the No Action Alternative. For the purposes of comparing alternatives, a more detailed analyses of marine nutrient transfer throughout the spawning habitats was not completed. Section 3.5.2.3 recognizes that anadromous fish deliver resources that affect food web productivity and influence flora and fauna across the Columbia River Basin.
50591	1	Rebecca Caulfield	N/A	There are many causes to salmon loss in the Pacific Northwest (PNW): extensive land clearing, major water diversions, filling and diking of wetlands, and hydroelectric dam development, just to name a few. However, the research conducted on the effects of the four lower Snake River dams on salmon populations has shown that they are extensive. These dams have created 325 miles of slack water in reservoirs where previously, the strong current would push salmon to the Pacific Ocean as parrs and then smolts. Now, salmon have to expend more energy swimming. While in these reservoirs, the salmon are often disoriented and are susceptible to predators as they spend additional time trying to find passage alongside the dams. Delayed, they can go through smoltification at the wrong time as they are traveling to the Pacific Ocean. The result is far fewer salmon reaching this destination and even less returning to their native streams several years later as adults. The very foundation of the PNW ecosystem is largely based on the presence of robust salmon runs. Salmon have been identified as a keystone species to this region. Not only are the Southern Resident orcas suffering from the decline in salmon populations, but an estimated 135 species are also impacted. Bears, eagles, wolves, and many other inhabitants of the PNW feast on nutrient-rich salmon. Salmon carcasses dragged onto the forest floor decompose and enrich the soil from which trees and shrubs have risen. David Montgomery, a geomorphologist and professor at the University of Washington, stated that one-third of nitrogen in old growth trees in our forests swam up river as a fish. At one time, millions upon millions of salmon brought a surge of protein, phosphorous, nitrogen, and other nutrients to our rivers each year. How can we expect the PNW environment to stay healthy if its very foundation disappears? A robust plan based on scientific research must be implemented to address the plight of salmon.	The co-lead agencies concur that there are many causes to salmon loss and the importance of salmon to this region. However, regional salmon recovery planning is best accomplished collaboratively and is more suitable for completion outside of an EIS process. The EIS is being developed to update the operations, maintenance, and configuration of the 14 dams operated at the CRS. These dams each have a number of authorized purposes. In the process, the co-lead agencies identified a Purpose and Need Statement and associated objectives in order to improve conditions for salmon and resident fish. Based on the analysis in the EIS, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Recovery is a broader regional goal and is above and beyond the co-lead agencies' obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the Columbia River System. That call, however, is ultimately the role of NMFS and the USFWS. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. In compliance with ESA, the co-lead agencies submitted biological assessments to NMFS and USFWS (Appendix V). In this Final EIS, the Biological Opinions from NMFS and USFWS can be found in Appendix V, completing this projects ESA consultation. The EIS analysis found only a minor effect to the Southern Resident killer whale would result from implementing MO3 (which includes the dam breach measure). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults form the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differentially from hatchery and wild fish. Hatchery fish today likely make up most fish consumed by SRKW (NOAA BiOp 2020). The EIS has analyzed spill as a measure in the Preferred Alternative and determined the overall effect to SRKW to be negligible in large part because hatchery production is consistent between the No Action Alternative and the Preferred Alternative. Because the impact from the Preferred Alternative was determined to be negligible, the agencies determined that existing hatchery production would be sufficient to address any potential impacts to prey availability for SRKWs. The co-lead agencies note the contribution to the prey of SRKW through the continued existence of their respective independent congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as the Lower Snake River Compensation Plan, which is administered by U.S. Fish and Wildlife Service. The Preferred Alternative and Proposed Action in the agencies' biological assessment carry forward certain mitigation measures described in Chapters 2 and 7 of the EIS, which include continued salmon and steelhead hatchery production. The Preferred Alternative has negligible effects to SRKWs as described in Section 7.7.8.
50626	1	Rona Fried	N/A	According to Scientists, removing all 4 dams would mean 1 million adult Chinook salmon are able to return to the mouth of Columbia River, providing food for critically endangered Southern Resident orcas - only 72 left!	SRKW analysis is described in the EIS including in the FEIS Chapter 3 (Vegetation, Wetlands, Wildlife, and Floodplains) which has been updated for SRKW (Section 3.6.2.6 and Table 3-102) and FEIS Chapter 7 (Preferred Alternative) with additional analysis information on SRKW and potential increase in forage fish, in particular, Chinook salmon in Section 7.7.8. According to NMFS and the EPA, the estimated SRKW population has fluctuated between 67 and 98 whales between 1960 and 2015. The Snake River dams were constructed between 1962 and 1975. The SRKW population increased from a record low in 1970 to its highest population numbers in 1995. Those years were not high years for Snake or Columbia River Chinook Salmon. Ocean conditions between 2011 and 2013 were good years for salmon. At the same time, 2010 and 2013 were good outmigration years. Particularly, 2011 and 2012 were above normal in water supply, which would mean more cooler water was available and there was better survival of salmon, and 2011 through 2014 were higher than normal spill years as well. The combination of outmigration and ocean conditions created improved adult salmon returns. The EIS has analyzed spill as a measure in the Preferred Alternative and determined the overall effect to SRKW to be negligible in large part because hatchery production is consistent between the No Action Alternative and the Preferred Alternative. Because the impact from the Preferred Alternative was determined to be negligible, the agencies determined that existing hatchery production would be sufficient to address any potential impacts to prey availability for SRKWs. The co-lead agencies note the contribution to the prey of SRKW through the continued existence of their respective independent Congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as the Lower Snake River Compensation Plan (other than under MO3), which is administered by USFWS. The Preferred Alternative and Proposed Action in the agencies' biological assessment carry forward certain mitigation measures described in Chapters 2 and 7 of the EIS, which include continued salmon and steelhead hatchery production. The Preferred Alternative has negligible effects to SRKWs as described in Section 7.7.8.
56605	1	John Anderson	N/A	The truck traffic alone would negatively impact freeway use which is almost maximized currently with traffic. Wear and tear creates much more repair on both highways and rails.	Section 3.10 of the Draft EIS provides an evaluation of the Columbia Snake River Navigation System, assessing its relative efficiency, low costs for shippers, safety considerations, and low air emissions relative to other transportation modes. The EIS acknowledges that depending on how rail rates respond to dam breach, shortline rail capacity could be exceeded. The EIS also evaluates the additional transportation infrastructure investments and associated costs that would be required, as well as the increases in air emissions that would occur. The EIS finds that truck ton-miles may experience an increase of 19 percent to 84 percent under MO3 when compared to the No Action Alternative, depending on the rail rate increases that occur. The EIS analysis found that truck trips would increase between 14,000 to 79,000 truck trips per year, which would increase air pollutant and greenhouse gas emissions in the region and add to traffic and congestion in the region. Rail ton-miles would increase by as much as 86 percent (when rail rates are not assumed to increase) or decrease by 2 percent (when rail rates increase by 50 percent). Under low rail rate increase scenarios, additional shortline rail capacity would be required that could cost $25 to $50 million. Under a scenario where rail rates increase by 50 percent, more shipping demand would be transferred to trucks, reducing the demands on rail infrastructure, but increasing demands on roads. Under this scenario, up to $10 million in additional road wear-and-tear costs may occur.
56611	1	Robert Carroll	N/A	Snake River salmon are just one part of the Orca's food chain. With these fish showing a near 97% survival on their way "to consumption" by the Orcas, we must consider another significant risk to this food chain and focus resources on its improvement. Much of the Orca's food sources are from other than Snake River Salmon, specifically the Puget Sound Chinook Salmon that are a vital part of the Orca's diet.	The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). The co-lead agencies agree that the quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults form the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differentially from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020). Regarding Puget Sound, the effects mentioned in the comment involve a variety of issues beyond the scope of the analysis in the CRSO EIS, which analyzes the effects of the operation, maintenance, and configuration of the CRS projects. However, water quality effects for the Columbia River Basin were considered in the EIS analysis and are described in Chapter 1, 2, and Section 7.8.3 of the EIS. Additionally, the U.S. Army Corps of Engineers is in partnership with other Federal, state and non-governmental organizations and have been implementing habitat projects for salmon, orcas, and wildlife all around the Puget Sound as part of the Puget Sound Nearshore Ecosystem Restoration Project.
56611	2	Robert Carroll	N/A	To enhance the flow of Snake River Salmon by a miniscule percentage, only to dump them into the polluted water of Puget Sound is not a responsible activity. The current flow of Snake River Salmon is adequate and the cleanup of Puget Sound is a much more worthwhile expenditure of time and energy to improve the Orca's environment and wellbeing.	The co-lead agencies' legal authorities relate to operating and maintaining the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. To comply with the ESA, the co-lead agencies have historically supported actions to mitigate adverse effects to listed species from CRS operations, through funding, direct implementation, and other means. Under the Preferred Alternative, those actions would generally continue to ensure compliance with the ESA. Regarding Puget Sound, the effects mentioned in the comment involve a variety of issues beyond the scope of the CRS project. However, water quality effects for the Columbia River Basin were considered in the EIS analysis and are described in Chapter 1, 2, and Section 7.8.3 of the EIS. Additionally, the U.S. Army Corps of Engineers is in partnership with other Federal, state and non-governmental organizations and have been implementing habitat projects for salmon, orcas, and wildlife all around the Puget Sound as part of the Puget Sound Nearshore Ecosystem Restoration Project.
56612	1	M.J. Langevin	N/A	The greater volume of water spillage over the dams under consideration as an EIS alternative is not desirable because it would significantly limit the amount of water available for power generation. A great deal of money has already been spent on the dams to optimize the passage of fish through them. In lieu of increased water spillage and more expenditure on the existing fish ladders and equipment, I would recommend that an option such as the Whooshh Innovations (www.whooshh.com) fish cannon system be investigated for use on some or all of the Snake River dams. The Whoosh literature states that: "Our transformational solutions can restore native migratory fish runs and allow dams to remain in place." Additional features of the system allow it to separate hatchery from native fish and also to remove undesirable fish species. This system has already been successfully demonstrated at the Rosa Dam on the Yakima River as well as at other dams that do not have any fish passage structures. An on-line search will reveal more information on this impressive technology.	The wholesale power rate pressure associated with the Preferred Alternative falls within a level that Bonneville has historically been able to mitigate through the costs over which it has significant control. The co-lead agencies received many comments related to use of water cannons, or similar proprietary adult fish passage devices. The current configurations of the CRS dams that have fish ladders already have effective upstream adult passage. Many of the considerations for structural changes proposed in the EIS would be to address downstream juvenile passage and survival, as well as habitat concerns. The technology of fish cannons or similar devices will continue to be evaluated for future applications.
56615	1	David & Judith Becker	N/A	If preservation of the Orca whale population is a concern because of the reduction of salmon, more hatcheries should be built to raise salmon to feed the Orcas.	The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early

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					spring months near the mouth of the Columbia River (Ford 2016). The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults form the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differentially from hatchery and wild fish. Hatchery fish today likely make up most fish consumed by SRKW (NOAA BiOp 2020). The EIS has analyzed spill as a measure in the Preferred Alternative and determined the overall effect to SRKW to be negligible in large part because hatchery production is consistent between the No Action Alternative and the Preferred Alternative. Because the impact from the Preferred Alternative was determined to be negligible, the agencies determined that existing hatchery production would be sufficient to address any potential impacts to prey availability for SRKWs. The co-lead agencies note the contribution to the prey of SRKW through the continued existence of their respective independent congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as the Lower Snake River Compensation Plan, which is administered by U.S. Fish and Wildlife Service. The Preferred Alternative and Proposed Action in the agencies' biological assessment carry forward certain mitigation measures described in Chapters 2 and 7 of the EIS, which include continued salmon and steelhead hatchery production. The Preferred Alternative has negligible effects to SRKWs as described in Section 7.7.8.
56615	2	David & Judith Becker	N/A	Another option would be to harvest the seal population and transport the seals to the ocean to feed the Orcas?	The SRKW are different than other populations and exclusively eat fish. Other populations of orcas prey upon seals or sea lions. Harvesting seals is beyond the authority of the co-lead agencies.
56654	1	Gary Fring	N/A	I have read Jim Lichatowich's book, Salmon, People, and Place: A Biologist's Search for Salmon Recovery. I have also reviewed the EIS and reviewed data on one fish hatchery. In 2017 the Leavenworth Fish Hatchery released 1,131,913 Chinook salmon with only 1,417 adults returning. I was told at the fish hatchery that they only need 1 ,000 adults to get enough eggs. Their goal though is to get a 2% return or 22,638 fish. In 1994 (apologies, that was the most updated info I could find) the cost per returning adult was $573.50. Per Jim Lichatowich's view and the data above, it doesn't look like the fish hatcheries are meeting their goals even with the large budgets they receive. I am proposing an out of the box four (4) part solution for increasing the number of wild salmon: Item #1. Build a large breeding pond downstream of John Day Dam. Optimize the design of the pond to best simulate what the salmon need. The design should include: a). the correct size of gravel to use, b). The best depth of water. Water level to be maintained constant by the use of overflow dams at the exit side of the pond, c). Optimum water flow rate across the pond. Water to be made available from the upstream side of the Dam, d). An artificial roof over the pond, e). A fish ladder to the pond for the returning adult fish to use no matter what level the Columbia River is at. If this test pond works, the fish hatcheries could be replaced with several well placed breeding ponds. The money that is presently spent on fish hatcheries could then be utilized to restore the river and tributaries to fish friendly environments. Jim Lichatowich's book stressed the importance of improving small river environments. Item #2. Put a five (5) year moratorium on gill net fishing. Hopefully this would be enough time to increase the number of returning fish. These are the fish that have the eggs which the next generation of fish depend on. Item #3. Get rid of the seals downstream of the Bonneville Dam. Item #4. Keep doing what is already in the plans such as new turbines, better fish ladders, environmental upgrades to rivers, etc.	The example you provided in 2017 at Leavenworth hatchery was a SAR of 0.1%, which is very low. Leavenworth has been identified as having SARs below other spring Chinook hatcheries in the basin (CSS annual report 2019), and below that of natural origin spawners in the Wenatchee River; there is evidence it may result from water quality challenges in the location. That said, interactions between natural and hatchery origin salmon is an active area of research. Chapter 5 describes proposed mitigation measures including hatchery and habitat restoration related actions and research. The three co-lead agencies do not manage either marine mammal populations or harvest levels on fish stocks, and do not have the authority to do so. For harvest, fisheries in the Columbia River Basin and those that rely upon Columbia River fish stocks are managed by numerous entities, including Federal, state, and tribal governments. These entities are guided by a complex array of policies, laws, compacts, and agreements. The management of Pacific salmon fisheries in particular is complex, and involves numerous entities representing a variety of social, political, and conservation interests. Changes in allowable fishery harvest in the Columbia River Basin are a result of decisions made by state, Federal (i.e., NMFS), and tribal fishery managers based on a variety of environmental, biological, economic, and social factors. Harvest certainly has an impact on salmon and steelhead populations. Alternatives to include changes to harvest are not within the scope of this EIS. The assumptions regarding harvest are taken from the 2018 EIS from NOAA and reflect current harvest management guidelines. To see their conclusions and effects analyses please go to: https://www.fisheries.noaa.gov/resource/document/environmental-impact-statement-programmatic-review-harvest-actions-salmon-and
56692	1		N/A	Build canals tunnels for the fish is be [indecipherable] annual dams. The canal tunnels will be cooler and protect fish from predators. The fish can be channeled in the tunnels.	Thank you for your comment and your idea. A wide array of measures were considered through the process of measures development and during the creation of alternatives for these analyses. Canal or pipe systems were discussed for fish transport but were determined as technically infeasible.
58305	1	Sheila Scott	N/A	I am a senior citizen and if you discontinue the power generator from the dams, our electric rates are sure to rise, hurting all, but especially the people on fixed incomes such as Social Security and all retirement incomes.	The comment that power costs would rise following the breaching of the lower Snake River dams is consistent with the findings of the EIS. The comment that increases in utility costs can adversely affect vulnerable groups is also consistent with discussions in the EIS. The Environmental Justice analysis of the EIS (Section 3.18.3), describes that energy burdens are already likely unaffordable for all households with incomes below the Federal poverty level, and thus any upward rate pressure could impact low-income households for whom energy costs are a larger percentage of their income.
58338	1	Terrance Eberts	N/A	Several independent studies indicate a shortage of electricity generation in the coming years, particularly with the closure of coal plants. The lower Snake River dams are critically needed to avoid a repeat of the 2000-2001 energy crisis that resulted in soaring electricity prices. The draft EIS indicated that replacing lost generation from dam removal with carbon-free resources could result in a 50% increase in power costs. That doesn't consider the loss of coal generation which will also need to be replaced by carbon-free resources to reach CETA goals.	The statement regarding wholesale power rates under Multiple Objective Alternative 3 (which includes breaching the four lower Snake River dams) is consistent with the findings of the EIS. Consistent with the comment, the EIS findings indicate that the region would likely experience a significant regional deficit of power given upcoming coal retirements, which would require adding new power resources to maintain power system reliability at the No Action Alternative levels. See Sections 3.7.3.3 through 3.7.3.6 and Section 3.7.3.5, Potential Replacement Resources and Associated Costs in the draft EIS.
58342	1	Dan Hileman	N/A	I have a safety concern that to the best of my knowledge has not been addressed yet. I will use Ice Harbor Dam as an example but this issue applies to all of the Snake River darns. Ice Harbor Dam has an effective height of about 100 feet. The pool contains approximately 249,000 acre feet of water. Much of the underlying geological structure of the Columbia Basin consists of sand over a basalt base rock base. In some areas this sand is around 250 feet deep. Sand is very permeable to hydraulic invasion. Sand has some interesting characteristics. During an earthquake it can become fluid and act like water. With hydraulic pressure from below it can turn into quicksand. It is also highly susceptible to erosion. My question concerns the additional water that has been forced into the surrounding aquifers since the dam was constructed. 1. If a dam is breached, what will be the environmental impact of the waterlogged sand surrounding the river passage as the water returns rapidly to the river channel? a) Will significant amounts of sand erode back to the river channel? b) As the proportion of sand to water under ground changes, what will be the effect on the surface property surrounding the river channel? c) Will this create massive sinkholes? d) Will the soil itself become unstable, effecting its ability to support the overlaying structures, like roads and homes? e) How violent will these changes be? f) What is the risk to life and safety for those who live and work in the area? g) What will be the cost of damages to the property in the surrounding area? h) Who will be liable for those damages? I feel that these are issues that need to be seriously addressed before any project of breaching the dams in the area can be undertaken. As it is now the area is stable. Will it remain that way if a dam is breached?	Reduction in slope stability associated with the exposure of saturated soils can arise when submerged shorelines experience a rapid reduction of the adjacent reservoir water level. More specifically, as the hydrostatic pressure exerted by the reservoir is reduced, the hydraulic pore-water pressure and internal stresses within the newly exposed soils are relatively higher until they gradually drain. During this draining period, saturated slopes are more susceptible to creep and failure and this risk can be exacerbated by additional stress such as: overland drainage, upslope surcharge loading or toe erosion. The formulation of the MO3 drawdown and embankment removal feasibility plan for the four lower Snake River dams mirrored that developed in the 2002 Lower Snake River FR/EIS. The feasibility plan includes incremental reservoir drawdowns prior to breaching combined with stepped embankment breaching which are general best management practices intended to allow adjacent saturated soils to gradually dewater and reduce risk associated with slope stability. In the near-term post construction period following removal of the four lower Snake River embankments, rapid scouring of fine reservoir deposits (~80% silt/clay & ~20% sands) within the active Snake River channel extents down to the historical river base-level was predicted to occur. Reservoir sediment deposits outside the historic channel (in the pre-dam floodplain) would largely be abandoned in place following breaching, and remain stranded above the active Snake River channel. Within the lower Snake River dams corridor, there are a number of site specific factors that would need to be considered for a more detailed assessment of slope stability risk associated with the MO3 Breach Snake Embankments measure. This includes: landscape stratigraphy, localized rainfall runoff patterns, and soil properties such as permeability, compressibility, erodibility, and in-situ strength. If MO3 is identified as the selected alternative in the ROD, the co-lead agencies would further study the potential impacts and refine the removal plan design details (means, methods, and timing) as well as implementation measures to insure that slope stability and associated geologic hazards were appropriately mitigated in accordance with applicable laws and regulations. Fundamentally, in the event that breaching were to be implemented, the Corps would conduct additional study to identify in more detail best practices, methods, effects, etc. Impacts of drawdown to aquifers, soils, etc would be further identified at that time. Mitigation measures currently proposed for MO3 are described in Chapter 5.4.3
58342	2	Dan Hileman	N/A	The lock and dam system is important to Columbia I Snake River transportation. As a farm raised native of this area, I recognize that. The river system transported 14 million metric tons of wheat alone in 2017. A four barge tow hauls as much product as a 1.4 one hundred car trains or 538large semi trucks. The rail and freeway corridors already carry more than their designed load capacity and exceed their maximum allowable carbon footprint. If the dams are breached, how will we handle the all of those extra trucks and trains needed to haul the products that uses barge traffic now?	Section 3.10 of the Draft EIS provides an evaluation of the Columbia Snake River Navigation System, assessing its relative efficiency, low costs for shippers, safety considerations, and low air emissions relative to other transportation modes. The EIS acknowledges that depending on how rail rates respond to dam breach, shortline rail capacity could be exceeded. The EIS also evaluates the additional transportation infrastructure investments and associated costs that would be required, as well as the increases in air emissions that would occur. The EIS finds that truck ton-miles may experience an increase of 19 percent to 84 percent under MO3 when compared to the No Action Alternative, depending on the rail rate increases that occur. The EIS analysis found that truck trips would increase between 14,000 to 79,000 truck trips per year, which would increase air pollutant and greenhouse gas emissions in the region and add to traffic and congestion in the region. Rail ton-miles would increase by as much as 86 percent (when rail rates are not assumed to increase) or decrease by 2 percent (when rail rates increase by 50 percent). Under low rail rate increase scenarios, additional shortline rail capacity would be required that could cost $25 to $50 million. Under a scenario where rail rates increase by 50 percent, more shipping demand would be transferred to trucks, reducing the demands on rail infrastructure, but increasing demands on roads. Under this scenario, up to $10 million in additional road wear-and-tear costs may occur.
58709	1	Dan Robisch	N/A	t doesn't make sense to breech the lower 4 Snake River dams for additional natural habitat to bring back millions of salmon/steelhead when: In the past 30 years, coastal competing Sea Lion populations have increased 1 OX. In the past 30 years, coastal competing Harbor Seal populations have increased lOX. t Herring and Smelt populations have plummeted, the feed is not there for increased salmon numbers. Salmon body weights have shrunk. Orcas are now forced to catch 25+ salmon per day because the current salmon themselves cannot find enough food. Southern Resident Orcas are expending more energy to hunt/fish, than the food they catch for survival. Current water pollution in the Sound prevents Herring eggs from developing and hatching. Slow moving warm backwater from the Columbia River dams kill off much of the smelt trying to move downstream. Foraging Fish populations have plummeted. Southern Resident Orcas are becoming extinct because they are completely dependent on eating only salmon, and they will not leave their local territories to search for food on the Canadian coast near the Northern Resident Orcas. When the Southern Resident Orcas become extinct, they will be replaced by visiting Northern Resident Orcas. The current Eco-System cannot support feeding additional salmon/steelhead.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. The co-lead agencies conclude there could be a negligible to minor beneficial effects to SRKW from implementing MO3. CSS and NMFS Lifecycle models predict that lower Snake River Chinook salmon smolt-to-adult returns would have a moderate to major increase under MO3. Additionally, Section 7.7.8 concludes that the Preferred Alternative would result in negligible impacts to Southern Resident killer whales. Thus, the co-lead agencies expect salmon and steelhead increases would come from operational measures and existing hatchery production carried forward into the Preferred Alternative. The co-lead agencies note the contribution to the prey of SRKW through the continued existence of their respective independent congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as Lower Snake River Compensation Plan (LSRCP), which is administered by USFWS. Additional details on the most crucial prey stocks for SRKW, as well as their population and range, is available from several fact sheets and videos available here: https://www.fisheries.noaa.gov/species/killer-whale#spotlight. For more information, visit this NMFS StoryMap on SRKW: https://noaa.maps.arcgis.com/apps/Cascade/index.html?appid=3405e6637bf74e998d4ebe992c54f613. Puget Sound conditions are outside the scope of this EIS, but water quality effects for the Columbia River Basin were considered in the EIS analysis and are described in Chapter 1, 2, and Section 7.8.3 of the EIS. Additionally, the U.S. Army Corps of Engineers is in partnership with other Federal, state and non-governmental organizations and have been implementing habitat projects for salmon, orcas, and wildlife all around the Puget Sound as part of the Puget Sound Nearshore Ecosystem Restoration Project. Under the Preferred Alternative, actions for the purpose of reducing pinniped predation on listed species would generally continue to ensure compliance with the ESA. Other entities in the region have authorities and obligations to mitigate the impacts from pinniped predators and the co-lead agencies will continue to work closely with those entities to benefit ESA-listed salmonids.
58714	1	Ken Wilson	Midstate Electric Cooperative	A 40-50% increase in BPAs rate could lead to an increase of several hundred dollars a year to our members.The most impacted by these rate increases will be our vulnerable populations senior citizens and those on fixed incomes who shouldnt have to choose between medicine, food or paying their electric bills.	The measures from MO3 and MO4 creating the largest rate pressure impacts, were not included in the Preferred Alternative identified in the EIS. The range of rate pressure impacts referenced in the comment are consistent with the high-end of the rate sensitivity results for MO3 and MO4 presented in the EIS. Section 3.7.3.5, at pages 3-918-924 in the Draft EIS; see also Table 3-166 in the Draft EIS; Section 3.7.3.6, Electricity Rate Pressure, at pages 3-945-950, Table 3-182, in the Draft EIS. The Environmental Justice analysis in Section 3.18.3 and Chapter 7 of the EIS provides further detail on potential disproportionate effects to Tribal, low-income and minority populations. For Bonneville's wholesale power rates, the Preferred Alternative places additional rate pressure of 2.7 percent relative to the No Action Alternative consistent with the statement in the comment regarding increased rates. These estimates compare the Preferred Alternative to the No Action Alternative, which is not the same as comparing the Preferred Alternative to current operations. Consequently, the estimates are not a comparison to the BP-20 wholesale power rates, which were set assuming the financial impact of the 2019-2021 Spill Operation Agreement and therefore already include a substantial portion of the cost pressures found in the Preferred Alternative. The remaining rate pressure associated with the Preferred Alternative falls within a level that Bonneville has historically been able to mitigate through the costs over which it has significant control.
58714	2	Ken Wilson	Midstate Electric Cooperative	MEC also takes seriously our commitment to keep the lights on. The DEIS concludes the dam breaching alternative would more than double the regions risk of power shortages. MO4 creates an even higher risk of brownouts and blackouts in the Pacific Northwest, which again would harm our co-ops most vulnerable populations	Neither the measure to breach the four lower Snake River dams that was evaluated in MO3 nor the measure to spill to 125% Total Dissolved Gas that was evaluated in Multiple Objective 4 (MO4) were included in the Preferred Alternative identified in the Draft EIS. The effects of the Preferred Alternative (PA) on power are described in Section 7.7.9 of the Draft EIS. Overall, hydropower would decrease relative to the No Action Alternative under the PA. However, because of the shape of the remaining hydropower generation in the PA, the loss of load probability was essentially the same as that of the No Action Alternative and identification of replacement resources was not necessary. The comment that, without power replacement, the frequency of power outages would increase under MO3, which includes breaching of the four lower Snake River dams, and MO4 is consistent with EIS findings. See Sections 3.7.3.5 and 3.7.3.6, Effects on Power System Reliability in the Draft EIS. Should resources not be built or are not built immediately to replace lost capacity, the concern voiced by the commenter towards health and safety effects is consistent with discussions in the EIS.

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58714	3	Ken Wilson	Midstate Electric Cooperative	Our cooperative has helped fund this multi-billion-dollar effort to improve fish passage at the dams, which is meeting targets of 96% survival rates for migrating juvenile fish. We believe that it is important to build upon this successful fish passage program instead of taking the drastic measure envisioned in MO3 and MO4.	Thank you for your comment.
58717	1	Den Mark Wichar	N/A	I support restoring salmon, steelhead and other native aquatic species through breaching Lower Granite, Little Goose, Lower Monumental and Ice Harbor dams on lower Snake River in eastern Washington. Unfortunately, the DEIS is incomplete, inadequate and inaccurate in terms of its analysis of benefits of dam breaching. These benefits include not only restored fish runs, but also restored rural economies that depend on fishing and outdoor recreation, and restored cultures that have been interwoven with salmon and steelhead for millennia.	The EIS provides an evaluation of the social welfare and regional economic effects of the No Action Alternative and the Multiple Objective alternatives, including the effects on recreation (Section 3.11) and commercial fisheries (Section 3.15). The EIS Section 3.5.3.6 describes the long-term effects to anadromous fish migration in the Snake River and tributaries that would occur under a dam breach scenario as major and beneficial, although quantitative impacts from fish modeling results are limited. The impacts to anadromous fish in other areas under MO3 would have negligible to minor changes from the No Action Alternative. The EIS described the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. NMFS estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which is described qualitatively. For the effects on recreational fishing under MO3 (Section 3.11.3.5) along the lower Snake River below Lewiston, the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River) as an indicator for fishing visitation in this reach. The EIS describes that the visitation in the long-term in the lower Snake River, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting outfitting and tourism businesses in the region. The social welfare values and regional economic effects associated with recreational fishing under the MOs, as well as river recreation post dam breach under MO3, were not estimated because of the uncertainty and large range in visitation and consumer surplus values among users. The contribution of Columbia River origin fish to ocean fisheries is described in Section 3.15.2.1. Because there is considerable uncertainty regarding the overall effects of the alternatives on regional fish populations, and how such changes may affect the management of the fisheries, the specific quantitative and monetized impacts associated with changes in commercial fisheries under the alternatives was limited. This analysis qualitatively evaluates potential impacts on fisheries by referencing the potential effects on relevant fish populations, as described in Section 3.5. The EIS recognizes the economic and cultural importance of salmon to Tribes in a number of sections throughout the document. The Fisheries Section 3.15 as well as Section 3.17, in particular, include discussion of reductions in anadromous species catch and associated adverse social effects that have occurred in Tribal communities. The cultural significance and impacts of salmon and steelhead fisheries are described in the Fisheries Section 3.15.2.1, which includes sections that describe ceremonial and subsistence fisheries as well as the social importance of commercial, ceremonial and subsistence fisheries.
58717	2	Den Mark Wichar	N/A	The DEIS dismisses overwhelming scientific research that shows restoring lower Snake River to free-flowing condition will provide salmon and steelhead with their best and likely only chance to recover, and it ignores benefits of increasing salmon runs for critically endangered Southern Resident orcas.	The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets most other EIS objectives including those for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS, the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams, because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. Broad-sense recovery efforts are separate and distinct from the obligations of any single entity or in this case a requirement to be met solely by the co-lead agencies. Just as the Northwest Power and Conservation Councils fish and wildlife program encompasses both Federal and non-Federal stakeholders in the Columbia Basin, the Councils recovery goals are shared by many parties. Based on the analysis of the Preferred Alternative, the co-lead agencies believe their actions will make a substantial contribution, but the Councils broad-sense recovery goals are beyond the scope of this EIS, which contemplates the effects associated with the operation and maintenance of the 14 CRS projects. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species as that is a broader goal with shared responsibility. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the Columbia River System. That call, however, is ultimately the role of NMFS and the USFWS. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. Regarding orcas, The co-lead agencies conclude there could be a negligible to minor beneficial effects to SRKW from implementing MO3. CSS and NMFS Lifecycle models predict that lower Snake River Chinook salmon smolt-to-adult returns would have a moderate to major increase under MO3. Operation of Lower Snake River Compensation Plan fish hatcheries under MO3 is uncertain and therefore, production of Snake River hatchery fish is assumed to decline over the long term, while returning adult wild salmon are anticipated to increase. However, the co-leads do not anticipate a lack of hatchery fish in the short term based on the proposed fish hatchery mitigation described in Chapter 5. These additional hatchery fish should mitigate short-term construction effects to Snake River populations. Additionally, to address short-term effects to ESA-listed species, the co-lead agencies propose constructing a new trap and haul facility at McNary and conducting at least two years of trap and haul operations for Snake River fish (Chinook, sockeye, and steelhead). The co-lead agencies agree that the quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differently from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020).
58717	3	Den Mark Wichar	N/A	The DEIS presents false choice between maintaining affordable utility bills and restoring healthy salmon and steelhead. It overstates the cost of replacing power from lower Snake River dams with clean energy, and suggests replacing their power with fossil fuels, which is unnecessary.	The EIS evaluated tradeoffs associated with the management of the system, and did not quantitatively compare the effects on power customers to the effects on salmon. The EIS describes the replacement resources that would be needed to maintain regional reliability at the No Action Alternative levels based on two potential portfolios: one based on renewable resources and another based on natural gas resources, which are generally the least cost means to maintain reliability. See Section 3.7.3.5, Potential Replacement Resources and Associated Costs in the draft EIS. The EIS uses the best available resource cost information from the Northwest Power and Conservation Council to estimate the potential range in costs of these replacement resources. See Section 3.7.3.1, Step 3: Determine Need for Potential Replacement Resources and Associated Costs, at page 3-821 and Appendix H, Power and Transmission, at Section 2.2 in the draft EIS. In addition, the EIS does not suggest fossil fuels should be used to replace the power; the purpose of providing the range of replacement resource options is to estimate a reasonable range in potential costs. The basis for developing both of these portfolios may be found in Section 3.7.3.1, Methodology, of the draft EIS.
58717	4	Den Mark Wichar	N/A	The DEIS focuses on financial costs of salmon recovery and ignores enormous sacrifices that have already been made by Native American tribes and other Northwest residents in terms of lost fishing opportunity, reduced jobs and incomes, impacts on cultural values, and other socio-economic effects. Further, the DEIS ignores economic and community benefits of salmon recovery and investments and jobs that river restoration activities will generate.	The EIS recognizes the economic and cultural importance of salmon to Tribes in a number of sections throughout the document. The Fisheries Section 3.15 as well as Section 3.17, in particular, include discussion of reductions in anadromous species catch and associated adverse social effects that have occurred in Tribal communities. The cultural significance and impacts of salmon and steelhead fisheries are described in the Fisheries Section 3.15.2.1, which includes sections that describe ceremonial and subsistence fisheries as well as the social importance of commercial, ceremonial and subsistence fisheries. The EIS described the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. NMFS estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which is described qualitatively. For the effects on recreational fishing under MO3 (Section 3.11.3.5) along the lower Snake River below Lewiston, the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River) as an indicator for fishing visitation in this reach. The EIS describes that the visitation in the long-term in the lower Snake River, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting outfitting and tourism businesses in the region. The social welfare values and regional economic effects associated with recreational fishing under the MOs, as well as river recreation post dam breach under MO3, were not estimated because of the uncertainty and large range in visitation and consumer surplus values among users. For MO1, MO2, MO4, and the Preferred Alternative, the evaluation qualitatively describes the potential for effects associated with recreational fishing by referencing the potential effects on relevant fish populations, as described in Section 3.5. Fish modeling results vary for some of the alternatives, for example for the Preferred Alternative and MO4 (i.e., models show either beneficial or adverse effects to anadromous fish), so it is assumed that the potential changes in recreational fishing would follow these changes in fish abundance in the long-term. The contribution of Columbia River origin fish to ocean fisheries is described in Section 3.15.2.1. Because there is considerable uncertainty regarding the overall effects of the alternatives on regional fish populations, and how such changes may affect the management of the fisheries, effects associated with changes in commercial and recreational fisheries under the alternatives were described qualitatively. This analysis evaluates potential effects on fisheries by referencing the potential effects on relevant fish populations, as described in Section 3.5. The EIS considers the jobs supported by the implementation and CRSO EIS system costs, including mitigation costs described in Chapter 5 and in Annex B of Appendix Q. The regional economic effects of the CRSO EIS expenditures are described in Section 3.19.3 of the EIS and in Annex C of Appendix Q. The EIS provides a regional economic evaluation in the resource Sections in Chapter 3, for example for Recreation (Section 3.11) and Navigation (Section 3.10). The regional economic effects were estimated for the reduction in reservoir recreation in the short-term under MO3; in the long-term after dam breach, the EIS describes that visitation in the lower Snake River, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting jobs, income, and tourism businesses. The EIS also describes how the transition to river-based activities would require that tourism businesses, such as retail, rental businesses, and service providers, adapt to the new type of visitor who may demand different types of activities, services, gear, and retail merchandise. A range in visitation is described in the lower Snake River post dam breach based on the evaluation in the 2002 Juvenile Salmon Migration Feasibility Study and EIS. The social welfare values and regional economic effects associated with river recreation post dam breach were not estimated because of the uncertainty and large range in visitation and consumer surplus values and visitor expenditures among users.
58717	5	Den Mark Wichar	N/A	As written, the DEIS does not provide complete or accurate assessment of feasible alternatives for the lower Snake River.	As stated in Chapter 2, the co-lead agencies developed alternatives to meet the objectives and the Purpose and Need. The Purpose and Need Statement includes a desire to meet the congressionally authorized purposes of the system, which include hydropower generation, inland navigation, and irrigation, among others. Each alternative was measured against the No Action Alternative in how well it could meet both achieve the objectives and meet the Purpose and Need Statement .

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					Table 7-1 in Chapter 7 summarizes these considerations. Breaching of the four lower Snake River dams would adversely affect the co-lead agencies' ability to meet those congressionally-authorized purposes, as well as does not meet, or meet as well, the EIS objectives. Operations to meet these purposes are described in the No Action Alternative. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3, which includes breaching the four lower Snake River dams. The Preferred Alternative also meets EIS objectives for resident fish, lamprey, hydropower generation, water management, water supply, while minimizing adverse impacts to communities and the economy. MO3, by contrast, has significant regional economic impacts and community effects, and meet only a small subset of the EIS objectives. Thus, the co-lead agencies did not recommend MO3 because the Preferred Alternative is more likely to satisfy multiple complex, and at times, conflicting legal requirements for a complex system.
58724	1	Julie Dalsciso	N/A	It's been difficult to access the internet and documents to comment, as libraries and federal offices are closed-a comment period extension would have helped.	The co-lead agencies considered requests to extend the public comment period. This NEPA process included a wide array of cooperating agencies whose close involvement throughout the process allowed the co-lead agencies to incorporate feedback. Given the broad range of comments received and the extensive Federal and non-Federal participation in the overall process as well as the level of public engagement in the six virtual public meetings in the region, the co-lead agencies determined that an extension was not warranted and that the 45-day public comment period was adequate consistent with NEPA regulations. On April 9, the CRSO EIS website was updated to inform the public that they should plan to submit comments by the close of the comment period.
58724	2	Julie Dalsciso	N/A	The Northwest Power and Conservation Council identified both technically feasible and affordable renewable energy sources that have been approved in the Northwest. These new projects already exceed power generated by the 4 Snake River Dams. Comparative reviews by independent third parties have suggested ways to realistically transition to rail cooperatives and renewable energy sources to replace barging.	The EIS acknowledges that the energy sector is constantly undergoing transformation and that technological improvements will likely bring other options. To avoid speculation, the EIS analysis focuses on primary technologies identified by the Northwest Power and Conservation Council in their 7th Power Plan (7th Power Plan, page 13-5) and Mid-term Update that are deemed proven, commercially available, and deployable on a large enough scale in the Northwest. The 7th Power Plan was issued in February 2016, and the Mid-term Update was issued in February 2019. See draft EIS, Section 3.7.3.1, Step 3: Determine Need for Potential Replacement Resources and Associated Costs at page 3-821 and Appendix H, Power and Transmission, Section 2.2 The EIS examined navigation options under Multiple Objective Alternative 3 (which includes breaching the four lower Snake River dams) and found that rail freight would increase, consistent with the suggestion in the comment (see draft EIS, Section 3.10.3.5, Commercial Navigation and Transportation Systems).
58740	1	Albert Becker	N/A	There has been a lot of controversy and money ($17 billion dollars) attempting to restore and recover anadromous fish runs since construction of the 14 hydroelectric dams in the Columbia River system. I am only going to focus on the four lower Snake River dams. These dams were built in the early 1970's on the contingency that they would restore salmon and steelhead recovery. Since 2002, there has been five District Court decisions made by three different District Court Judges validating the failure of these dams to meet any hope of recovery. The Courts have rejected the Biological Opinion and/or the pertinent EIS to affirm anadromous fish recovery. Besides all of the money, the BPA and associated agencies have three decades of failure for salmon and steel head recovery! There have been numerous dam operation changes that have helped, but have not met recovery objectives. The current preferred alternative is just Deja Vu all over again with a few more twists and wrinkles.	Based on our analysis, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Recovery is a broader regional goal and is above and beyond the co-lead agencies' obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the CRS. That call, however, is ultimately the role of NMFS and the USFWS. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. In compliance with ESA, the co-lead agencies submitted Biological Assessments to NMFS and USFWS (Appendix V). In this Final EIS, the Biological Opinions from NMFS and USFWS can be found in Appendix V, completing ESA consultation on the Preferred Alternative. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% (within the Northwest Power and Conservation Council (Council) recovery targets for the region) as a result of the Preferred Alternative. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin.
58740	2	Albert Becker	N/A	The current Smolt-Adult Return (SAR) rate is just .07% which is an extinction spiral. It is time to take bold steps to avoid species extinctions. The lower Snake River dams have been identified by Scientific, numerous River Organizations, Biologists and Courts as major impediments for salmon and steelhead recovery. We must breach the four lower Snake River dams.	The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets most other EIS objectives including those for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS, the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams, because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. Recovery efforts referenced in this comment associated with broad-sense recovery are separate and distinct from the obligations of any single entity or in this case a requirement to be met solely by the co-lead agencies. Just as the Councils fish and wildlife program encompasses both Federal and non-Federal stakeholders in the Columbia Basin, the Councils recovery goals are shared by many parties. Based on the analysis of the Preferred Alternative, the co-lead agencies believe their actions will make a substantial contribution, but the Councils broad sense recovery goals are beyond the scope of this EIS which contemplates the effects associated with the operation and maintenance of the 14 CRS projects. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species as that is a broader goal with shared responsibility. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the Columbia River System. That call, however, is ultimately the role of NMFS and the USFWS. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species.
58740	3	Albert Becker	N/A	This EIS does quantify some costs with lost irrigated land from dam removal. However, I am confident that with the increased availability of currently inundated land under the reservoir, improved water pumping techniques and prospects for new revenue (not considered in this EIS from river recreation and outfitted fishing) would negate this loss.	The EIS discusses engineering solutions (pipeline extensions for example) in Chapter 3.12 section 3.12.3 Environmental Consequences - Specifically under Region C under the MO3 alternative and in Appendix N. The report which this EIS draws upon, as discussed, concluded that modifying the existing pump system was cost prohibited. The EIS described the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. NMFS estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which is described qualitatively. For the effects on recreational fishing under MO3 (Section 3.11.3.5) along the lower Snake River below Lewiston, the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River) as an indicator for fishing visitation in this reach. The EIS describes that the visitation in the long-term in the lower Snake River, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting outfitting and tourism businesses in the region. The social welfare values and regional economic effects associated with recreational fishing under the MOs, as well as river recreation post dam breach under MO3, were not estimated because of the uncertainty and large range in visitation and consumer surplus values among users.
58765	1	Willis Stuart	N/A	Im concerned that there are underlying factors concerning orca and salmon populations at sea. These factors deserve investigations and inquiries: Orcas Is the food chain contaminated with radioactive products released from Fukashima? How about infections from sea life parasites? Salmon Food chain contamination by radioactive products or exploitation by parasites? Estimates on how many fish are illegally netted at sea and estimates effects of sea lions on salmon runs.	There are a variety of reasons that the SRKW population is declining, many beyond the scope of the CRS. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy species habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Moreover, the co-lead agencies conclude there could be a negligible to minor beneficial effects to SRKW from implementing MO3. CSS and NMFS Life Cycle models predict that lower Snake River Chinook salmon smolt-to-adult returns would have a moderate to major increase under MO3. Operation of Lower Snake River Compensation Plan fish hatcheries under MO3 is uncertain and therefore, production of Snake River hatchery fish is assumed to decline over the long term, while returning adult wild salmon are anticipated to increase. However, the co-leads do not anticipate a lack of hatchery fish in the short term based on the proposed fish hatchery mitigation described in Chapter 5. These additional hatchery fish should mitigate short-term construction effects to Snake River populations. Additionally, to address short-term effects to ESA-listed species, the co-lead agencies propose constructing a new trap and haul facility at McNary and conducting at least two years of trap and haul operations for Snake River fish (Chinook, sockeye, and steelhead). Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Additionally, Section 7.7.8 states impacts to Southern Resident killer whales would be negligible. Thus, the co-lead agencies expect salmon and steelhead increases would come from operational measures and existing hatchery production carried forward into the Preferred Alternative. The co-lead agencies agree that the quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. The operation of the Columbia River System directly affects Chinook salmon, both wild and hatchery origin fish, which migrate past these federal dam and reservoir projects, and the associated effects would indirectly affect SRKWs. However, according to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differently from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020). The overall health and condition of the Southern Resident Killer Whale (SRKW) depends on the availability of a variety of fish populations throughout their range. SRKW are Chinook specialists, but also consume other available prey populations while they move through various areas of their range in search of prey. NMFS and WDFW have developed a prioritized list of Chinook salmon within their range that are important to SRKW, to help prioritize actions to increase prey availability for the whales (NOAA and WDFW 2018). This list includes many Columbia River Basin Chinook salmon stocks including Lower Columbia fall-run (Tules and Brights), Upper Columbia and Snake fall-run (Upriver Brights), Lower Columbia River spring-run, Middle Columbia River fall-run, and Snake River spring/summer-run. Southern Residents also are known to eat some steelhead, coho, and chum salmon, and halibut, lingcod, and big skate while in coastal waters. The diet is dominated by Chinook salmon both in coastal waters and within the Salish Sea; SRKWs are opportunistic feeders that follow the most abundant Chinook salmon runs throughout their range from the west side of Vancouver Island to the central California coast. There is no evidence that SRKWs feed or benefit differentially between wild and hatchery Chinook salmon. Snake River spring/summer Chinook salmon is a small portion of SRKW overall diet, but can be an important forage species during late winter and early spring months near the mouth of the Columbia River (Ford 2016). The co-lead agencies note the contribution to the prey of Southern Resident killer whales through the continued existence of their respective independent congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as Lower Snake River Compensation Plan, which is administered by USFWS.
58786	1	Kathy Ledig	N/A	#NAME?	The current configurations of the CRS dams that have fish ladders already have effective upstream adult passage. Many of the considerations for structural changes proposed in the EIS would be to address downstream juvenile passage and survival and improvements for lamprey passage. Because structural changes to improve salmon and steelhead (e.g., spillway weirs) are in place at this point, there are few additional mechanistic fixes proposed in the Preferred Alternative. The Preferred Alternative is nevertheless predicted to benefit salmon and steelhead, and it also meets all the other objectives of the study for resident fish, hydropower, water management, and water supply, while minimizing adverse impacts to communities and the economy.
58787	1	Annette Creekpaum	Mason Public Utility Distric PUD 3	The Preferred Alternative Any alternative resulting in drastic increases in wholesale power costs for the Pacific Northwest would be disastrous. In fact, could not come at a worse time. It would exacerbate the economic crisis brought on by the COVID-19 pandemic. One indicator of the pandemic's effect on Washington state's economy is startling: new claims for unemployment benefits in the state reached almost 182,000 for the week of March 22. This represents a 3,500% increase compared to the same time in 2019. It is seven times the peak week during the 2008/2009 recession (WA Dept. of	The statements in the comment that the Preferred Alternative would result in an increase of wholesale power rates, up to 2.7% including rate sensitivities, and that costs in the region would increase under, MO3 which includes breaching of the four lower Snake River dams, are consistent with EIS findings. See Section 7.7.9.1, Rate Sensitivity Analysis, Table 7-32 in Draft EIS; Section 3.7.3.5, at pages 3-918-924 in Draft EIS; see also Table 3-166 in Draft EIS.

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				Employment Security). By many accounts, this economic upheaval caused by the COVID-19 emergency could last many months. The Preferred Alternative anticipates foregone electricity generation through an increased dependence on "Flexible Spill." The anticipated rate increase for Mason PUD 3 customers under the Preferred Alternative would range from .31% to 2.11%. The assumptions of this analysis are based on Mason PUD 3's budgeted wholesale power purchases from the Bonneville Power Administration for 2020. The rate increase calculations assume a direct pass-through to customers of additional costs of BPA whoiesale purchases. Under wholesale rate increases envisioned in the Preferred Alternative, between $119,536 and $813,618 of discretionary income would be lost to the local Mason County economy. [Table included in document: Preferred Alternative (0.4% Wholesale Rate Increase)] [Table included in document: Alternative (2.7% Wholesale Rate Increase)] As noted in the Columbia River System Operations Draft Environmental Impact Statement, the rate pressure may be offset if the Bonneville Power Administration uses financial management strategies to offset costs, manage debt, and find operational efficiencies. BPA has proven in the recent past that it has the willingness and ability to manage its finances to do so. By contrast, Multiple Objective Alternative 3 would mean an increase in Mason PUD 3 electricity rates by at least 6.4%, possibly as high as 39%. Wholesale power rates are only a part of the equation. Mason PUD 3 is under greater pressure than ever to meet reliability expectations of its customers and governmental entities. The cost of normal operations, capital projects, and debt service continue to increase, meaning that the rate impacts stated here will be compounded on the local level. The choice will be to pursue a continuing upward trend of rate increases to maintain a high level of reliability or forgo important capital improvements to offset higher wholesale energy prices.	These estimates compare the Preferred Alternative to the No Action Alternative, which is not the same as comparing the Preferred Alternative to current operations, as noted in the comment. The EIS analysis is not a comparison to the BP-20 wholesale power rates, which were set assuming the financial impact of the 2019-2021 Spill Operation Agreement and therefore already include a substantial portion of the cost pressures expected in the Preferred Alternative. The remaining rate pressure associated with the Preferred Alternative falls within a level that Bonneville has historically been able to absorb through the costs for which it has significant control.
58787	2	Annette Creekpaum	Mason Public Utility Distric PUD 3	Increased spill for juvenile fish passage will reduce overall hydropower generation. However, lessons learned in the "Flexible Spill" regime may help schedule water releases to more effectively help juvenile fish, while achieving a more adaptable schedule for hydropower generation. The Preferred Alternative will maintain a Reliable & Economical Power Supply. Reliability in this alternative "is comparable to that of the No Action Alternative because other measures increase hydropower generation slightly in the winter, and more substantially in late August, and increase hydropower flexibility in some locations and periods. Therefore. no additional resources are needed to maintain regional reliability at the No Action Alternative level."	The comment that the Preferred Alternative reduces hydropower generation but maintains similar system reliability as the No Action Alternative, and therefore does not require replacement resources is consistent with EIS findings, see Draft EIS Section 7.7.9 Power Generation and Transmission. The Preferred Alternative will be implemented using a robust monitoring plan to help determine how effective increased spill can be in increasing salmon and steelhead returns to the Columbia Basin. The effectiveness of the spill program will be monitored, as will the effects to generating resources around the basin.
58787	3	Annette Creekpaum	Mason Public Utility Distric PUD 3	Multiple Objective Alternative 03 Mason PUD 3 urges the rejection of any consideration of Multiple Objective Alternative 03. The financial impacts on all public power customers in the Pacific Northwest would have dire economic and social consequences. The loss of electricity generation from the breaching of the four lower Snake River dams would result in - depending on actions taken under MO3 for replacement power - possible rate increases for Mason PUD 3 customers ranging from 6.4% to 39%. Under wholesale rate increases envisioned in MO3, between $2,467,845 and $15,038,431 of discretionary income would be lost to the local Mason County economy. The assumptions of this analysis are based on Mason PUD 3's budgeted wholesale power purchases from the Bonneville Power Administration for 2020. The rate increase calculations assume a direct pass-through to customers of additional costs of BPA wholesale purchases. [Table Included in Document: Multiple Objective Alternative 03 (Plus Fish-Related Costs, 8.2% Wholesale Rate Increase)] [Table Included in Document: Multiple Objective Alternative 03 (Plus Fish-Related Costs, 9.6% Wholesale Rate Increase)] [Table Included in Document: Multiple Objective Alternative 03 (Plus Resource Replacement Costs, 9.5% Wholesale Rate Increase)] [Table Included in Document:Multiple Objective Alternative 03 {Plus Resource Replacement Costs, 19.3% Wholesale Rate Increase)] [Table included in document: Multiple Objective Alternative 03 {Plus Resource Replacement Costs - Worst Case, 50% Wholesale Rate Increase)] To summarize the negative effects of MO3 on an adequate, efficient, economical, and reliable power supply for the Pacific Northwest: All 31 federally operated dams in the Columbia River basin produce nearly 9,000 aMW. Removing the four lower Snake River dams would reduce generation by nearly 1,100 aMW; a cut of almost 13% of all federal power generation. More than 2,000 MW of sustained peaking capabilities would be lost, including 25% of the federal power system's reserves holding potential. The risk of power shortages would be about 14% under MO3. That's once every seven years. To avert the risk of power shortages, a large amount of replacement power plants would have to be built. Washington state has adopted carbon-free energy legislation. Other Pacific Northwest states are considering similar legislation. The loss of nearly 1,100 aMW of generation, along with the assumption that no fossil-fuel power plants will be constructed as replacement, means dependence on intermittent power sources such as wind and solar. That, combined with the loss of dispatchable hydropower to integrate intermittent sources, will intensify the risk of power shortages.	Breaching the four lower Snake River dams was evaluated in Multiple Objective 3 but was not included in the Preferred Alternative identified in the EIS. The comments that breaching the four lower Snake River dams would: (a) increase the frequency of power shortages (unless and until replacement resources are acquired); and, (b) would result in increased costs in the region, are both consistent with EIS findings. Multiple Objective 3 (MO3), which includes breaching the four lower Snake River dams, would reduce generation by 1,100 aMW, absent replacement resources, and that the loss of load probability under MO3 would be 14%, which is 7.3 percentage points higher than under the No Action Alternative.(Section 3.7.3.5). Note that breaching the four lower Snake River dams accounts for about 90% of the net generation impact in MO3 (1,000 aMW). Other measures, like additional irrigation withdrawals, higher spill at the four lower Columbia River dams also reduce generation in MO3. Chapter 5 of Appendix H, Power and Transmission provides additional details on potential rate increases by county as well as for urban and rural utility customers. The ability of hydropower to aid in grid stability and the integration of renewable power is described in the Bonneville Transmission System Reliability and Operations subsection of Sections 3.7.3.3 through 3.7.3.6 and in Section 3.7.3.5, Potential Replacement Resources and Associated Costs.
58787	4	Annette Creekpaum	Mason Public Utility Distric PUD 3	Objectives: Improve Juvenile Salmon, Improve Adult Salmon, Improve Resident Fish, Improve Lamprey As a preference customer of wholesale electricity marketed by the Bonneville Power Administration, Mason PUD 3's retail customers contribute a substantial amount of funds to fish and wildlife programs in the Columbia River Basin. We estimate that 12% of each customer's retail bill goes to these programs. As such, any changes in river operations and these program costs have an impact on our community. Funding for fish and wildlife programs must be cost-effective and results-oriented. Public power customers in the Pacific Northwest have contributed nearly $1 billion for programs that don't appear to have produced the results or value originally predicted. We contend that the Preferred Alternative is the most appropriate, reliable, and cost effective approach to balancing to the statutory requirement that the Columbia River System Operations balance multiple uses of federal projects.	Thank you for the comment, and support of the Preferred Alternative.
58787	5	Annette Creekpaum	Mason Public Utility Distric PUD 3	Preferred Alternative and Flexible Spill The Preferred Alternative proposes continuation of flexible spill for salmon passage. We suggest that the Columbia River System Operations pay close attention to total dissolved gasses so they may clearly determine if risks being taken provide the reward promised from this experiment. We are puzzled by a drive to allow an increased level of dissolved gasses in the river during spill, subjecting fish to unsafe levels of gasses in their bloodstream. 110% total dissolved gasses used to be the upper limit allowed during spill. It was increased to 120%. Now, 125% total dissolved gasses are considered suitable. Total dissolved gas levels during spill activities in 2019 were permitted up to 120%. According to a memorandum from the NOAA Fisheries Science Center "The combined yearling Chinook salmon survival estimate from the Snake River trap to Bonneville Dam tailrace was 38.1% (31.6-44.6%), substantially below the long-term average of 48.9%." Adult salmon were also hindered in their effort last year (2019) to swim past Little Goose Dam because of increased spill levels. It is because of these effects on young and adult salmon that we request that close attention is paid to the spill program. And, that changes be made to reduce or eliminate spill if the water management program proves to be dangerous for fish.	TDG levels are regulated under the Federal Clean Water Act, and administered by the states. Both Oregon and Washington have reassessed the available data on effects of TDG levels up to 125% of saturation on fish and other aquatic organisms. Based on this reassessment Oregon issued a five-year "standard modification" and Washington issued a permanent rule change, supported by the Environmental Protection Agency (EPA), to allow TDG saturation up to 125%. However, as noted by the commenter, there is considerable uncertainty in the effects of free swimming fish; and therefore, monitoring was required by the states and EPA to ensure any negative effects are detected and allow for adaptive management. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. The co-lead agencies are in consultation with National Marine Fisheries Service and the U.S. Fish and Wildlife Service under Section 7 of the Endangered Species Act for this CRSO EIS. The biological opinions that result from these consultations will be appended to the Final EIS. The framework for the adaptive management process is detailed in Appendix R, Part 2, Process for Adaptive Implementation of the Flexible Spill Operational Component of the CRSO EIS. It is the intention of the co-lead agencies to engage regional state, Tribal, and Federal biologists in the development of an appropriate adaptive management process utilizing their respective salmonid management expertise. The goal of that adaptive management process would be to consider additional opportunities to further the effectiveness of the operation while maintaining the goals of the flexible spill operation: additional improvements for salmon and steelhead, maintain opportunities to operate the CRS for hydropower generation in a flexible manner that provides value to the Northwest, is implementable by the dam operators, and provides opportunity to reduce uncertainty and improve the learning opportunities around how operations of the CRS can influence the magnitude of latent mortality effects. Unforeseen outcomes or unintended consequences will be monitored and adjusted using current in-season management teams such as the Technical Management Team.
58787	6	Annette Creekpaum	Mason Public Utility Distric PUD 3	Multiple Objective Alternative 3 Multiple Objective 3 does not meet the test of balancing the statutory requirements for managing the Columbia River for a wide range of uses. In fact, we assert that the marginal improvements for fish and wildlife implied in MO3 are far outweighed by damage to other Columbia River System Operations Objectives discussed elsewhere in our comments. These objectives include a reliable and economic power supply, minimized greenhouse gas emissions, maximized water management, and water supply. In measuring the speculative results of lower Snake River dam breaching in MO3, we are concerned over conflicting conclusions from the Life Cycle Model and Comparative Survival Study. The CSS predicts higher returns of adult salmon in MO3 compared to the LCM. With such a disparity, and no apparent reconciliation between the two models, how can we trust the estimate of a 14% increase smolt-to-adult returns due to dam removal? The effect ocean conditions have on salmon survival and returns requires much more research before we can have confidence in the use of Comparative Survival Study to make conclusions on dam removal. CSS has simplified some assumptions (such as a constant level of harvest) to come to its deduction. Other factors are predation, food supply, and competitors for food. Also, with a warm water "blob" waxing and waning in the eastern Pacific Ocean off our coast, using simplified variables is not good science on which to base a high-stakes decision on the fate of the four federal Snake River dams.	Based on our analysis, the Preferred Alternative will make a substantial contribution to improving Snake River anadromous fish runs, but broad-sense recovery goals are beyond the scope of this EIS, which focuses on the effects associated with the operation and maintenance of the 14 CRS projects. The co-lead agencies used current high quality information in the analysis of the CRSO EIS. Specific to salmon and steelhead, the agencies used two primary modeling approaches which yielded a range of potential outcomes for the alternatives. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% (within the Northwest Power and Conservation Council recovery targets for the region) as a result of the Preferred Alternative. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. The co-lead agencies concur that ocean conditions will continue to play a large role in salmon returns. Salmon and steelhead have been adversely affected in the Columbia River Basin over the last century by many activities including human population growth, urbanization, introduction of exotic species, overfishing, development of cities and other land uses in the floodplains, water diversions for all purposes, dams, mining, farming, ranching, logging, hatchery production, predation, ocean conditions, and loss of habitat (see Chapters 6 and 7 for additional information). While none of the alternatives would affect ocean conditions, the co-lead agencies recognize that these conditions are a major driver for adult returns and that numerous studies have shown the importance of ocean conditions in the return of adult salmon and steelhead (Peterson et al. 2019). The co-lead agencies analyzed the effects of the operation, maintenance, and configuration of the CRS projects on resources affected by the CRS, including the potential to improve conditions for ESA-listed species. The co-lead agencies also looked at the cumulative effects of other actions in Chapters 6 and 7 of the EIS. Research continues to evaluate the magnitude of these effects. For more information see the NMFS website at: https://www.nwfsc.noaa.gov/research/index.cfm.
58787	7	Annette Creekpaum	Mason Public Utility Distric PUD 3	While the breaching alternative may have marginal benefits for salmon, there is great uncertainty as to the actual benefit. A comprehensive and coordinated effort must include evaluation of the impacts of harvest and hatchery operations to support salmon population stabilization and recovery. Worldwide salmon populations are experiencing coincidental declines because of excess heat and carbon in the oceans. Removing significant carbon-free resources, like the lower Snake River dams, is a step in the wrong direction for our environment. Removal of the four lower Snake River dams under MO3 could prove problematic for improving salmon runs. All four federal dams have fish passage facilities. Immediately upstream, Idaho Power's Hells Canyon Complex effectively blocks fish passage. None of the three Idaho Power dams have fish passage. We have a shared responsibility to help salmon, and we believe there are still great opportunities in the region to collaborate around solutions that help salmon thrive without destroying critical infrastructure. These opportunities include addressing avian, aquatic, and mammal predators. Income from power generated by the dams would be lost, resulting in a subsequent loss of revenues that could be used for fish and wildlife programs.	Thank you for your comment, which aligns with the Preferred Alternative. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets most other EIS objectives including those for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS, the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams, because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system.
58787	8	Annette Creekpaum	Mason Public Utility Distric PUD 3	The Preferred Alternative seeks to accommodate, as much as possible, a balance among the Columbia River System Operations Objectives. It would have relatively minimal effect on the objectives to minimize GHG emissions, maximize adaptable water management, and provide water supply. Multiple Objective 3, through its recommendation to breach the lower Snake River Dams, would adversely affect these objectives. As noted in the Draft Environmental Impact Statement, MO3 would not meet the objective to Minimize Greenhouse Gas Emissions. Emissions would increase the most if	Section 3.8 finds that Multiple Objective Alternative 3, which includes breaching the four lower Snake River dams would make these goals more difficult to meet. The Preferred Alternative estimates that GHG emissions would increase by 1.5% or 0.54 million metric tons compared to the No Action Alternative.

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				the hydropower were replaced with natural gas. This would lead to an additional 3.3 million metric tons (MMT) of CO2, a 10 percent increase in power-related emissions across the Pacific Northwest.	
58787	9	Annette Creekpaum	Mason Public Utility Distric PUD 3	MO 3 would effectively eliminate the Columbia River "water highway" for barge traffic on the Snake River. Barging on the Snake alone keeps as many as 135,000 semi-trucks and 35,000 rail cars from transporting goods through the Columbia River gorge annually. A vibrant barge fleet controls carbon emissions and avoids higher highway maintenance costs, which would be associated with increased vehicular traffic.	The concerns raised in the comment are consistent with the analysis in Section 3.10 of the EIS. The EIS evaluates the addition of trucks and rail due to the dam breach measures included in MO3.
58787	10	Annette Creekpaum	Mason Public Utility Distric PUD 3	The Draft Environment Impact Statement states, " ... Cargo trucks emit three times as much NOx per ton-mile compared to rail and four times as much per ton-mile as compared with inland barges ... and create six times. as much PM. Thus, barge-based freight shipping is associated with the lowest air pollutant emissions profiles as compared with other modes of moving freight..."	Thank you for your comment.
58787	11	Annette Creekpaum	Mason Public Utility Distric PUD 3	The Columbia River trade corridor supports over SO million tons of foreign trade at a value of over $24 billion annually. The Columbia River is the nation's number one wheat export gateway and number two for corn and soybean exports. It is the third-largest grain export gateway in the world, as well as the West Coast's leader in mineral bulks, wood exports, and is a significant auto import and export gateway. Elimination of barge traffic would increase transportation costs for grain farmers between ten and 33 percent.	Thank you for your comment. The information contained in the last sentence of the comment is consistent with the findings in the EIS in Section 3.10.
58787	12	Annette Creekpaum	Mason Public Utility Distric PUD 3	The reservoirs behind Columbia River dams provide an essential source of irrigation for large areas of Pacific Northwest agricultural land that would otherwise be too dry to farm. Six percent of the Columbia River basin's yearly runoff irrigates about 7.8 million acres of Pacific Northwest farmland.	The water supply analysis is discussed in Section 3.12 with additional detail and background found in Appendix N, and the description of irrigation is consistent with your comment. The co-leads estimate that about five percent of the Columbia Basins Water is diverted for agriculture, calculated using place-of-use polygons from the individual states for acres irrigated with water from the Columbia, lower Snake, Clearwater, Kootenai, Pend Oreille, and Flathead Rivers. Irrigation water is diverted directly from the rivers, from the pools behind the storage and run-of-river projects, and pumped from groundwater wells. Diversions can vary from year to year and month to month in response to varying weather and hydrologic conditions
58787	13	Annette Creekpaum	Mason Public Utility Distric PUD 3	The loss of irrigation from the four lower Snake River Dams alone would result in a social welfare cost of nearly $500 million	In Region C (lower Snake River) and potentially Region D (mainstem Columbia River) around the confluence of the lower Snake River, the MO3 alternative, which includes breaching the earthen embankment of the four lower Snake River dams, would have adverse effects to farmers and irrigation. Currently and in the No Action Alternative, water is available from the pools of these facilities and from groundwater that results from the pools. Removing the earthen embankment portion of the dams will reduce pool elevations by up to 100 feet, which would make surface pumps inoperable. Groundwater pumps in the wells may also be affected due to decreased groundwater elevations depending on the connectivity of the aquifer to the pools. Municipal and industrial water pumps in the Lewiston area would also likely be adversely effected. Additionally, transportation of farming goods would expect to move off river and on to rail or trucks, as there would be a complete loss of commercial navigation on the lower Snake River and could not be feasibly mitigated. All ports along the Snake River would lose access to the navigation channel. Some ports at the confluence or the Snake and Columbia River could dredge new channels to the Federal channel in the confluence (McNary reservoir) to maintain access. Private or public entities or businesses could take actions and/or build infrastructure to extend pumps or water supply access for water. Ports and farmers can likewise change their transportation modes or connect to the navigation system at a different point on the river. The federal co-lead agencies would not mitigate for these impacts to water users or ports. See Chapter 3 analyzes the social and economic effects of implementing a dam breaching alternative (MO3) and Chapter 5 for mitigation discussion.
58787	14	Annette Creekpaum	Mason Public Utility Distric PUD 3	One of the lower Snake River dams, Ice Harbor, provides a crucial source of drinking water for communities in the Tri-Cities area. The dam also enables irrigation for 60,000 acres of farmland in central and southeastern Washington. Agriculture would be significantly harmed, and communities would face more severe drought conditions without these dams.	There is a physical limitation to delivering water to these lands in the absence of the dams. Removal of the dams has the potential to drop surface and groundwater levels up to 100 feet and it is not possible from an engineering or cost standpoint to replace the delivery mechanisms. Please see Section 3.12 and Appendix N for additional information.
58787	15	Annette Creekpaum	Mason Public Utility Distric PUD 3	Control of water flows from dams in the Columbia River Basin is essential to avoid significant floods, loss of life, and property damage. One has to only look to the 1942 Vanport disaster to see what would happen without the ability to control the flow of water during times high snowpack runoff, and excessive rainstorms in the Pacific Northwest.	Maintaining or improving FRM operations of the Columbia River System has informed both the alternative development and evaluation process. As stated in the Purpose and Need Statement of the EIS (Section 1.2), one of the purposes of the EIS is to 'Provide for a reliable level of FRM by operating the CRS to afford safeguards for public safety, infrastructure, and property. As reported in Section 3.9, Section 7.7.11, and Table 7-1, there is no elevated flood risk for any of the EIS alternatives.
58787	16	Annette Creekpaum	Mason Public Utility Distric PUD 3	Implications of the Columbia River Treaty One of the issues outside the scope of this Environmental Impact Statement is the implications of the Columbia River Treaty between the United States and Canada. The treaty supports flood control operations, release of water for efficient hydropower generation, and undefined ecosystem benefits. All three should be evaluated in the EIS to avoid duplicate efforts while ensuring cost effective management of the river system.	As stated in the CRSO Draft EIS, the information about CRT-related operations available in 2016 is applied in the Draft EIS analysis as the best-available information. The CRSO Draft EIS evaluated the implications of the CRS alternatives using the Treaty coordinated operations, including their relationship to hydropower, ecosystem, and flood risk management, with the best available information. As is also noted in the Draft EIS, if CRT-related operations change after 2024 in a manner that presents new information or circumstances resulting in significant changes that were not previously addressed, those changes will be addressed by this NEPA process if they are identified in time or subsequently in another NEPA process, if necessary.
58788	1	Erik Molvar	Western Watersheds Project	The Purpose and Need for the EIS is Impermissibly Narrow The Corps defines the Resource Purposes for the EIS to include mitigating flood risk, providing a power supply, and providing waterway transportation capability (presumably for the dwindling towboat industry on the Snake and Columbia). DEIS at 1-4. These goals require leaving the dams in place and preclude the consideration of an alternative (which the Corps should consider, and which WWP would support) to decommission all the dams and return the Columbia River system, in an orderly fashion, to a network of natural and freeflowing rivers and streams, which is its natural state. By contrast, the courts have ordered the Corps to consider alternatives that would not jeopardize the continued existence of any endangered or threatened species. Id. We are concerned that the criteria outlined in the Purpose and Need are incompatible to attaining this legal directive.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-lead agencies numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets most other EIS objectives including those for: resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams, because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. Additionally, the co-lead agencies evaluated many different flow and spill levels and as well as seasonal patterns for when flows are enhanced or reduced. The Preferred Alternative represents an operation that provides a balanced approach between spring and summer flow and spill levels to benefit salmon and steelhead, while also providing benefits to resident fish in the upper portion of the Columbia Basin. The co-lead agencies evaluated a reasonable range of alternatives, but disagree an alternative decommissioning all dams in the CRS is a reasonable alternative given the unreasonable adverse effects to public safety that would result (e.g. blackouts, lack of irrigation and flood risk management).
58788	2	Erik Molvar	Western Watersheds Project	In the-DEIS-,-the Corps-is-dismissive of other types of renewable energy generation vis a- vis hydropower, and claims that dam removal will increase the demand for fossil fuel combustion to generate electricity. Yet the agency has not provided a comprehensive analysis that indicates that the electricity currently generated by federal dams in the Columbia system could not be replaced by other types of renewables without changing current levels of firming electricity from hydrocarbons. We would particularly like to see an analysis of the acreage of parking lots and flat rooftops in the region incorporated into the EIS, to analyze the potential for rooftop and parking-shade photovoltaic to replace and/or exceed the electricity production of Columbia River system hydropower. The Bonneville Power Administration, as a quasi-governmental entity, would much better serve the public interest by getting out of the dam-and-river-destruction business, and getting into the distributed renewable power business, and this transition could ultimately result in far greater reductions in carbon combustion in the Pacific Northwest than the BPA currently achieves through dams and hydroelectricity.	The EIS does not dismiss renewable energy generation, but rather describes the replacement resources that would be needed to maintain regional reliability at the No Action Alternative level based on a range of potential replacement resources, including one that is based on renewable resources (zero-carbon resource portfolio) and another that is based on natural gas resources (for Multiple Objective (MO) Alternative 3 see draft EIS, Section 3.7.3.5, Potential Replacement Resources and Associated Costs). The latter portfolio of replacing hydropower generation with natural gas resources is not to suggest that natural gas is likely to be built in the region, but to provide a cost estimate for the lower-bound on costs. See draft EIS, Section 3.7.3.5 at pages 3-904-910. The commenter is correct that even with new renewable resources, the EIS analysis finds that existing carbon-emitting resources would likely increase generation to integrate the large portfolio of renewable resources. See draft EIS, Section 3.8.3.5 at pages 3-1009-1010. The renewable energy portfolio is described in the draft EIS in Section 3.7.3.5, Potential Replacement Resources and Associated Costs. The basis for developing both of these portfolios may be found in the draft EIS in Section 3.7.3.1, Methodology, and Section 3.7.3.5, Potential Replacement Resources and Associated Costs for MO3, specifically, with more detail in Appendix H, Section 2.2 in the final EIS. The EIS analysis focuses on primary technologies identified by the Northwest Power and Conservation Council in their 7th Power Plan (7th Power Plan, page 13-5) that are deemed proven, commercially available, and deployable on a large enough scale in the Northwest. See draft EIS, Section 3.7.3.1, Step 3: Determine Need for Potential Replacement Resources and Associated Costs at page 3-821 and Appendix H, Power and Transmission, Section 2.2. Thus, distributed generation such as rooftop solar was not considered in favor of large utility scale solar. The EIS did analyze the potential amount of land required for large scale solar power as well as the potential costs of transmission interconnections for new replacement resources as part of the zero-carbon portfolio. The EIS, however, did not identify the amount of roof top or parking lot acreage needed for solar. For MO1, the EIS estimates that the 1,200 MW of solar identified in the potential zero-carbon replacement portfolio would require roughly 7,000 acres or 11 square miles. See draft EIS, Section 3.7.3.5, Potential Replacement Resources and Associated Costs, page 3-863. For MO3, the draft EIS estimates that the 2,500 MW of solar identified in the potential zero-carbon replacement portfolio would require roughly 14,000 acres or roughly 22 square miles. See draft EIS, Section 3.7.3.5, Zero-Carbon Replacement (Base Case Analysis), page 3-904. In response to public comments, the final EIS updates and slightly reduces the amount of solar power in the potential zero-carbon replacement portfolio for MO3. For MO4, the EIS estimates that the 2,500 MW of solar identified in the potential zero-carbon replacement portfolio would require roughly 30,000 acres or roughly 47 square miles. See draft EIS, Section 3.7.3.6, Zero-Carbon Replacement (Base Case Analysis), page 3-941. As to Bonneville's role in the region, Bonneville is statutorily responsible for marketing the output of the Federal Columbia River Power System consistent with its statutory mandates, which includes the four lower Snake River dams. Bonneville, in this regard, is not a quasi-government entity, but a Power Marketing Administration within the U.S. Department of Energy, a Federal agency. Bonneville's acquisition decisions are governed by its applicable statutory mandates which include, among other things, a finding of a need to acquire power. Bonneville cannot change its statutory mandates without an act of Congress.
58788	3	Erik Molvar	Western Watersheds Project	The Range of Alternatives in Im permissibly Narrow \Xlhile the Corps set out to examine 12 different alternatives, which seems like a large number of alternatives, they impermissibly restricted the range of alternatives to exclude the possibility of federal dam removal throughout the river system. The closest they came to such an alternative was a "natural rivers" alternative (quotation marks in original) in which flows would be manipulated to mimic natural river conditions with removing the migration impediments of the dams themselves (DEIS at 2-79), which would remain a major problem for migrating salmonids under such an alternative. There is no consideration at all given to an alternative to phase out and remove all federal dams on the Snake and Columbia systems (see DEIS at 2-79), an alternative that \V\W supports.	The co-lead agencies presented a range of alternatives to continued operation and management of the CRS and evaluated the alternatives to inform decision making and the public. As described in Chapter 2, many alternatives were considered and then eliminated from further consideration for the reasons described therein. The co-lead agencies analyzed alternatives capable of meeting the EIS Purpose and Need Statement and objectives. An alternative to remove every dam in the CRS was not analyzed because it is not a reasonable alternative because of its unreasonable impacts to public health and safety (e.g. power and transmission reliability events and flood risk management issues) and would not meet the Purpose and Need Statement or many objectives.
58788	4	Erik Molvar	Western Watersheds Project	Health and Human Safety, and Concerns Regarding the Soundness of Aging Dams There are 14 hydropower dams under study in the DEIS, and the C01ps needs to take a hard look at the safety of these dams, and the potential for failure and catastrophic flooding, based on the age, designed lifetime of use, and current condition. For example, when I was working for the C01ps of Engineers in the 1990s, multiple towboaters told me that John Day Dam was a "bad pour" of concrete to start with, had cracks that meant the galleries had to be pumped out from leaking water 24 hours a day, was moving downstream at a rate of half an inch a year, and for these reasons the dam itself was uniquely (among the dams of the Snake and Columbia system) closed to public visitors. To what extend are these concerns accurate? John Day Dam holds back an 80-mile fetch of the mainstem Columbia River. What would be the flooding consequences (lives lost, property damage estimates, ecological consequences) if this dam failed catastrophically, releasing the water behind it? Downstream municipalities include The Dalles, Hood River, Astoria, and the Portland-Vancouver metroplex (among others). John Day is but one example. Please evaluate and disclose the engineering specifications for expected lifespan for each dam, condition of the aging concrete and earthen structures that hold back the water, and the likelihood of dam failure under routine and extreme (flooding) conditions. Each dam would be expected to have different effects were it to fail. Dworshak Dam is very tall, and water-falling from a great height, and this together with	This EIS analyzes the environmental impacts of the operations, maintenance and configuration of 14 multiple purpose CRS dams. The Corps and Reclamation each have Dam Safety Programs in place to ensure dams are operated and maintained in a safe manner. These programs include inspections for safety deficiencies, analyzes utilizing current technologies, and corrective actions, if needed based on current engineering practices. The Corps conducts two types of dam inspections. The first one is the Annual Inspection, which is performed on an annual basis to ensure the dam is being properly operated and maintained. The Periodic Inspection is the next level of inspection and is conducted by a multidisciplinary team led by a professional engineer. The Periodic Inspection includes a more detailed, comprehensive evaluation of the condition of the dam and is conducted every five years. Components of the Periodic Inspection include evaluating annual inspection items; verifying proper operation and maintenance; evaluating operational adequacy, structural stability, and safety of the system; and comparing current design and construction criteria with those in place when the dam was built. During every other Periodic Inspection, the team performs a semi-quantitative risk analysis of the dam. Any dam that does not meet societal risk guidelines, is moved into an evaluation study which leads to development of options for mitigation, repair, or both. The primary emphasis of both Reclamation and Corps programs is to perform site evaluations and to quickly identify dams which pose an increased threat to the public, and to quickly complete the related analyses in order to expedite corrective action decisions and safeguard the public and associated resources. The cost for maintenance is included in the Draft EIS (See Section 3.19 and Appendix Q), and captures all maintenance costs associated with additional physical features evaluated in the EIS. None of the alternatives consider features that would add stressors adversely impacting dam safety.

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				its location above Lewiston, Idaho/Clarkston, Washington would be expected to create a different set of circumstances that the failure of a lower dam, Little Goose for example, but which holds back a greater volume of water. A number of dams along the mainstem Columbia and Snake Rivers have concrete powerhouses but earth-fill portions as well, and during by Corps training I was instructed that if the water overtopped the earthen fill part of the dam, erosion from water descending the rubble face would very rapidly gully and then wash out the earthen part of the dam, releasing the water upstream. Please provide a detailed assessment of the worstcase scenario of environmental impacts from dam failure for each of the dams analyzed in the Columbia system. The Corps should consider performance for each dam under stressed such as natural flooding and earthquakes. In addition, effects of the failure of upstream dams on the soundness of downstream dams should also be evaluated in detail, per NEPA's 'hard look' and 'cumulative impacts' requirements.	You can find additional detail on the dam safety considerations at the below website: https://nid.sec.usace.army.mil/ords/f?p=105:1
58788	5	Erik Molvar	Western Watersheds Project	Does Flood Control Remain a Legitimate Concern on this River System? The Corps identifies "flood risk management" as a key consideration under the Purpose and Need statement. DEIS at 1-2- We believe that flood risk management is only an issue in the context of flooding involved with reservoir management and dam failure, but if the dams were removed on the mainstem Columbia and Snake Rivers, flood control would no longer but legitimate issue, because all lands on the floodplain of these rivers have already been permanently flooded by the reservoirs created by the dams in question. With dam removal, the original floodplains (though substantially altered by reservoir silt deposition) would again be dry land. These lands were condemned by the federal government, and as long as the federal government retains ownership, it can solve the flood risk issue by not selling or leasing these lands for residential or commercial development. With no structures or dwellings on the floodplain, there is no longer a substantial human issue with naturally -- - occurring floods. The Corps should evaluate the impacts of flooding under the dam removal alternative with these factors in mind.	As stated in the EIS in Chapter 1, Section 1.2, the lower Snake dams are not authorized for flood risk management, as such they do not have substantial reservoir storage capacity. However maintaining FRM operations of the Columbia River System has informed both the alternative development and evaluation process. As reported in Chapter 7, Table 7-1, there is no elevated risk to flooding in the Lower Snake River reach for any of the EIS Alternatives, including MO3. If in a future analysis, breaching were to be selected as the Preferred Alternative, more detailed evaluations and NEPA would be needed along with congressional authorization and appropriations to assess the engineering requirements of the project, as well as determine appropriate management and use of currently inundated areas The Walla Walla District constructed eight miles of levees around Lewiston as mitigation to help protect lives and property from potentially destructive high-water conditions after the dams were built. The breaching of the lower Snake River projects under MO3 would trigger the scour of legacy sediment deposits, which would eventually lower the base level to historical river elevations, and reduce flood risk (assuming the Lewiston levees still remain in place). If breaching were to be selected as the Preferred Alternative, further, more detailed evaluations and NEPA would be needed along with congressional authorization and appropriations to assess the engineering requirements of the project, as well as determine appropriate management and use of currently inundated areas. The mainstem Columbia River projects (Bonneville, John Day, The Dalles, and McNary) with the exception of John Day are run-of-river projects such that removing them would also not be expected to significantly increase flood risk. John Day has a small amount of flood storage. The loss of that storage would increase flood risk, however this Draft EIS did not evaluate removing the mainstem Columbia River projects, so the impacts to flood risk management from removal of the mainstem Columbia River projects are not known with certainty.
58788	6	Erik Molvar	Western Watersheds Project	White Sturgeon While white sturgeon populations in the mainstem Columbia River are not endangered or threatened, the Kootenai River population is listed under the ESA. DEIS at 3-311, 312. The Lake Koocanoosa dam has altered river sediment deposition, smothering spawning gravels with silt. DEIS at 3-325. Dams certainly pose barriers for the natural migrations of these fish, and break up their populations into isolated units with little or no connectivity between them. In addition to breaking up connectivity, dam construction has resulted in reduced sturgeon habitat suitability and quality, with recruitment of juveniles to the populations a particular problem. DEIS at 3-313.	These statements are paraphrased directly from the EIS and accurately describe the affected environment conditions for the white sturgeon populations analyzed in this process. This information serves as the basis for analysis of the alternatives, including the No Action Alternative. These analyses are found in Section 3.5.3. The Preferred Alternative would result in minor benefits to Kootenai River white sturgeon, as described in Section 7.7.5.
58788	7	Erik Molvar	Western Watersheds Project	The Breaching or Removal of Dams Improves Anadromous Fish Survival and Recovery Each time a major dam has been breached in the Pacific Northwest, anadromous fish populations have benefited. After the breaching of Condit Dam on the White Salmon River, lamprey habitat was enhanced. DEIS at 3-308. When the Elwha River Dam was breached, salmon soon re-established spawning runs up the Elwha, and estuarine habitat for Dungeness crabs was also greatly enhanced. The Corps has yet to undertake a thorough analysis of the positive effects of dam breaching and/ or removal in its Draft EIS, to inform the relative merits of the alternatives, both considered and neglected, in regard to anadromous fish protection and recovery.	MO3 of the Draft EIS provides the analysis of breaching the lower Snake River Dams. The commenter is correct regarding success in restoration of spawning habitat and reintroduction into blocked areas following dam removal for a variety of tributary dam removals. However, these examples do not necessarily have relevance to the lower Snake River Dams. Using some prominent examples in the pacific northwest, the Elwha and Condit dams had no passage, and provided few economic benefits. In contrast, the lower Snake River dams do have fish passage and in fact passed a modern record number of salmon and steelhead as recently as 2014, while also producing power and providing navigation and recreation.
58788	8	Erik Molvar	Western Watersheds Project	Failure to Adequately Analyze Cumulative Impacts Many factors that are very important factors contributing to the decline of salmonids an other fishes in the Columbia River system are given short shrift in the EIS. For example, while irrigation withdrawal impacts on fish are mentioned in passing in the cumulative effects analysis (DEIS at 6-6), the impact of poorly constructed or maintained irrigation intake pipes, which are known to be a major source of mortality for salmonid smolts and lampreys, is not even mentioned. Indeed, most of the impacts analysis regarding irrigation focuses on impacts of dam operations on irrigators, rather than impacts of irrigation operations on fish. Livestock grazing in spawning reaches causes major impairment of salmon and steelhead spawning streams, destroying riparian vegetation that would otherwise provide shade, changing stream channel profiles to eliminate the deeper water habitats important to returning adult salmon and steelhead, directly trampling sahnon and steelhead redds and crushing their eggs while wallowing in streams and rivers, and causing erosion and siltation of spawning gravels that smothers steelhead and salmon redds in silt, killing the eggs, and degrading the spawning habitat most severely. Yet the words "cattle?" and "livestock" do not appear even once in the cumulative effects analysis. Logging is mentioned only once in the cumulative effects analysis (DEIS at 6-2), in passing, and without any analysis despite the fact that it, too, results in major erosion and siltation effects on the salmon and steell1ead spawning streams not damaged by heavy livestock grazing, particularly in heavily timbered headwater streams as are found on the Clearwater National Forest. It appears that the Corps has not even made an attempt to look at the various human-caused factors that depress steelhead and salmon survival throughout the life cycle, so that it can assess the role of dams and reservoirs, and their operational management, in the decline of these species in the Columbia River watershed.	Sections 3.5.1 and 3.5.2 describe the affected environment for aquatic resources, including fish. The co-lead agencies recognize both human-caused and natural factors that are outside the responsibility and control of the co-lead Federal agencies, also contribute to the decline and recovery of ESA-listed species, and would continue to strongly influence fish and their habitat. Salmon and steelhead have been adversely affected in the Columbia River Basin over the last century by many activities including human population growth, urbanization, introduction of exotic species, overfishing, development of cities and other land uses in the floodplains, water diversions for all purposes, dams, mining, farming, ranching, logging, hatchery production, predation, ocean conditions, and loss of habitat. Chapters 6 and 7 incorporate the past and present effects described in Section 3.5 into the cumulative effects analysis for fish.
58789	1	Marilyn Carlson	N/A	The CSS model predicts a relative improvement in SARs of 35% for Snake River Spring Chinook, the LCM model predicts a range of -7.5 to +28% improvement. Neither meets the minimum standard of >2.0 SAR fo Idaho's Spring Chinook. The range of improvement for Idaho steelhead is better, but only meets the 2.0 SAR goa! under the most optomistic projections. Only MOA 3 (breaching of the four LSR dams) and MOA 4 (24l7 spill over all eight dams) met the requirements of the ESA for Idaho's fish.	With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% (within the Northwest Power and Conservation Council (Council) recovery targets for the region) as a result of the Preferred Alternative. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The fish analysis in Section 7.7.4 shows that it will provide substantial benefits to ESA-listed salmon and steelhead, which can help contribute to broader recovery goals. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the CRS. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. It should be noted that the 2-6% average SAR target referenced refers to the Northwest Power and Conservation Councils target for broad-sense recovery and is separate and distinct from the obligations of any single entity or in this case a requirement to be met solely by the co-lead agencies. Just as the Councils fish and wildlife program encompasses both federal and non-federal stakeholders in the Columbia Basin, the Councils recovery goals are shared by many parties.
58797	1	Lorre Gefre	N/A	Most of all; I am so disappointed in lack of regard for U.S. and State Laws not enforced regarding the use of the "Publics Water". There needs to be conversation not more and more taken that is not available. RE: High water marks where flooding occurs and CAFOs built in these p[laces that Corp of Engineers could over see and do better job	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes and take these and other responsibilities very seriously.
58798	1	K. David Hagen	Cleanwater Power Co.	Furthermore, it builds on the current Flexible Spill Agreement and supports adaptive management. However, we have concerns regarding utilizing Flexible Spill as the key component of the P A. Increasing spill levels to 125% Total Dissolved Gas (TDG) is an unprecedented action resulting in higher power costs. Further examination of the potential benefits and unintended consequences of higher spill levels must be conducted in the future as the 2019 operations of the Federal Columbia River Power System (FCRPS) at 120% TDG has shown minimal benefit to ESA-listed species. There must be scientific analyses conducted in the future that clearly shows the benefits of increased spill levels to this magnitude.	The adaptive management plan in the Draft EIS will include evaluations of unintended consequences. While the 2019 flex spill operation showed minimal benefits to salmon, it should be noted that the hypothesized benefit of increased spill is to increase Smolt-to-Adult returns (SARs) due to reduced powerhouse passage. With the primary metric being SARs, an assessment of the flex spill operation will take multiple years of adult returns. One year of in-river data will not answer the question. Appendix R, Part 2 describes the principles for implementation of the flexible spill operations and guidance for adaptive management. One of the principles focuses on federal power system benefits, which will be as determined by Bonneville Power Administration. The understanding is that Bonneville must, at a minimum, be no worse financially compared to the 2018 spring fish passage spill operations ordered by the Court. This principle is directly related to Objective 5 of the CRSO EIS: Provide an adequate, efficient, economical and reliable power supply that supports the integrated CR Power System. The co-lead agencies have determined that the Preferred Alternative meets this Objective. In addition, the Preferred Alternative places additional rate pressure for wholesale power rates of 2.7 percent relative to the No Action Alternative consistent with the statement in the comment regarding increased rates. These estimates compare the Preferred Alternative to the No Action Alternative, which is not the same as comparing the Preferred Alternative to current operations. Consequently, the estimates are not a comparison to the BP-20 wholesale power rates, which were set assuming the financial impact of the 2019-2021 Spill Operation Agreement and therefore already include a substantial portion of the cost pressures found in the Preferred Alternative. The remaining rate pressure associated with the Preferred Alternative falls within a level that Bonneville has historically been able to mitigate through the costs it has significant control.
58798	2	K. David Hagen	Cleanwater Power Co.	Again, Clearwater rejects the actions laid out in M0-3 and M0-4 as they don't meet the multiple objectives laid out. The four Lower Snake River Dams (LSRD) provide more than 2,000 MWs of peaking capability and play an important role in maintaining reliability in the region. As some of the lowest cost, carbon-free generation in the Northwest, their flexibility and dispatchability are valuable components of the FCRPS. Their removal would more than double the risk of regional blackouts and would have a tremendous social-economic impact on the region. It is estimated that Bonneville Power Administration's rates would increase by approximately 50%, costing up to $1 billion a year in additional power costs. The retail rate impact on Clearwater's rural residential customers would be devastating.	The measure to breach the four lower Snake River dams that was evaluated in MO3, was not included in the Preferred Alternative (PA) identified in the Draft EIS. The effects of the PA on power are described in Section 7.7.9 of the Draft EIS. Overall, hydropower would decrease relative to the No Action Alternative under the PA. However, because of the shape of the remaining hydropower generation in the PA, the loss of load probability (LOLP) was essentially the same as that of the No Action Alternative and identification of replacement resources was not necessary. The comments that breaching the four lower Snake River dams would increase the frequency of power shortages, unless and until replacement resources are acquired, and would result in increased costs in the region are both consistent with EIS findings. The Environmental Justice analysis in Section 3.18 and Chapter 7 provide further detail on potential disproportionate effects to Tribal, low-income and minority populations. In the Draft EIS, Appendix H, Power and Transmission, Chapter 5 and Exhibit 1, provides additional details on potential rate increases by county as well as for rural utility customers.
58798	3	K. David Hagen	Cleanwater Power Co.	Additionally, Clearwater supports strengthening and expanding measures to mitigate for avian predation in the Columbia Basin in the PA. Avian predation is a major source of mortality of ESA-listed species therefore, the Final EIS must include a thorough and detailed plan to address avian predators.	The co-lead agencies recognize the importance of addressing avian predation throughout the project area and have historically supported actions to mitigate adverse effects to listed species from CRS operations, through funding, direct implementation, and other means. Under the Preferred Alternative, those actions, including implementation of actions for the purpose of reducing predation on ESA-listed species, would generally continue to ensure compliance with the ESA. This includes continued implementation of (1) dissuasion measures at the Corps hydropower facilities as described in the annual Fish Passage Plan and coordinated with the FPOM, (2) the Inland Avian Predation Management Plan (IAPMP), (3) CATE management plan for reduction in habitat at East Sand Island, and (4) the Double-crested cormorant (DCCO) management plan at East Sand Island. Other entities in the region also have authorities and obligations to mitigate the impacts from predators and the co-lead agencies will continue to work closely with those entities to benefit ESA-listed salmonids. However, the co-lead agencies are limited to implementing measures that are within the authorities of the agencies. Specifically, under the ESA, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Ultimately, recovery, including predation management actions, is a broader regional goal that is the role of NMFS and the USFWS and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the Columbia River System.

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					Based on our analysis in the fish resources section of Chapter 7.7.4, the co-lead agencies anticipate that the Preferred Alternative, which includes measures to reduce predation, would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. It also meets the other objectives of the study for resident fish, hydropower, water management, and water supply, while minimizing adverse impacts to communities and the economy.
58799	1	William Cobb	N/A	A. Many supporters of dam removal are derisive of the those who appropriately worry that the impact of the amount of truck and rail traffic needed to replace the carrying capacity of barge traffic currently plying the lower Snake River has been drastically under estimated ! As has been common in many phases of the dam removal debate, those who are the most contemptuous of those who support keeping the dams do not even live in the area impacted by the proposed dam removal, are grossly misinformed or blatantly uninformed about the current rail and truck infrastructure between Lewiston, Idaho and the Tri-Cities of Washington and their theoretical capacities. B. I have lived in the Tri-Cities since 1974, and have traveled to and from Lewiston numerous times almost every year via Hwy 124 to Hwy 12 or Hwy 12 all the way from the Tri-Cities to Lewiston. The majority of either of these two routes is two lane Hwy over hilly terrain with sparsely placed passing lanes. The routes pass through several small towns with 25 mph speed limits and narrow streets. Waitsburg, for example, using the Hwy 124/ Hwy 12 route, requires truck traffic to make two 90 turns (one right and then one left) within one city block of each other. I would submit that either or both truck routes would soon be dubbed "Blood Alley" if the dams are removed and truck and rail traffic have to fill the void.	The amount of truck and rail traffic needed to replace barge traffic under a dam breach measure is a function of volume, capacity, and location of transportation nodes. The EIS in Section 3.10.3.5 combines this information with the costs to determine the lowest cost routes absent barging under various rail rate scenarios. The truck rates overtime are considered as inclusive of driving conditions. The EIS found that truck trips under MO3, could increase from a range of an additional 14,000 to 79,000 truck trips per year (38 to 216 per day on average), which would increase air pollutant and greenhouse gas emissions and add to traffic and congestion in the region. The EIS also discusses in Section 3.10.3.1 that changes in transportation modes can also have implications for public safety. In particular, the EIS states that accident rates are generally higher for road travel than travel by either barge or rail. As such, shifts from barge to rail and truck would be anticipated to increase accident rates.
58799	2	William Cobb	N/A	C. The existing railroad infrastructure between the Tri-Cities and Lewiston is currently at or very near capacity.	Discussions about capacity concerns throughout the supply chain can be found in Section 3.10.3.5 of the EIS. There is currently very little grain that moves between Lewiston and the Tri-Cities on rail, primarily because of the Positive Train Control requirement of the Class I railroads and the inability of the shortline operator (WATCO) to meet the PTC requirements without significant investments. The EIS analysis finds that transportation of freight that is currently barged on the lower Snake River could be accomplished via other transportation modes, but this change would not be without costs to farmers, would require public and private investment in infrastructure, and would result in some adverse regional economic effects, particularly in the short term.
58799	3	William Cobb	N/A	D. In either case (rail or truck) changes to increase the capacity of the existing network would be very expensive because of the terrain and take multiple stages and years to complete as well as being very susceptible on a biannual basis to the transportation funding priorities of the more populated West side of the state.	The EIS analysis finds that transportation of freight that is currently barged on the lower Snake River could be accomplished via other transportation modes, but this change would not be without costs to farmers, would require public and private investment in infrastructure, and would result in some adverse regional economic effects, particularly in the short term. Ultimately, rail infrastructure investments would be at the discretion of the railroads.
58799	4	William Cobb	N/A	E. The significant increase in heavily laden truck traffic on existing and/or newly improved roadways would also dramatically increase repair and maintenance costs on the truck Hwy routes between the Tri-Cities and Lewiston after dam removal.	The EIS evaluates the additional transportation infrastructure investments that would be required. Under a scenario where rail rates increase by 50 percent, more shipping demand would be transferred to trucks, reducing the demands on rail infrastructure, but increasing demands on roads. Under this scenario, up to $10 million in additional road wear and tear costs may occur.
58799	5	William Cobb	N/A	F. Finally, scores and scores of trucks traversing the route between the Tri-Cities and Lewiston would also drastically increase the carbon footprint of transportation in this locale. Supporters of dam removal counter that this potential increase in our carbon footprint because of dam removal is insignificant on the global stage. That well may be true, but in reality, we as individuals or even as a country, will probably never witness any of us having any real impact on the carbon footprint of China or India or other major large carbon footprint contributors; but there will be a pronounced and unfortunate increase of our carbon footprint if the dams on the lower Snake River are removed !	Consistent with this comment, Section 3.8.3 of the Draft EIS does find an increase in greenhouse gas emissions from increased truck transport of freight under MO3. MO3 was not identified in the Draft EIS as the Preferred Alternative.
58800	1	Randy Grove	CENTRAL LINCOLN	Central Lincoln is Oregon's fourth-largest electric utility, and the second-largest consumer-owned electric utility in Oregon. The average age of our customers is 54, their average educational attainment is some college but no degree, with an average household income of $41,000 annually. We exist solely to serve our customers, and it is through this lens that we evaluate the DE IS. We support this DEIS, and the collaborative approach the Agencies took in analyzing and mitigating the impacts the Preferred Alternative will have on power generation and the SPA's rates. All of the power we supply to our 39,900 meters is purchased from the BPA, thus this matter is of the highest importance to us. A large industrial customer comprises 40% of our load, supporting a workforce of 450. Competitively-priced power is a major factor in retaining these jobs, and keeping their significant payroll dollars in our local economy. We also worry about our low- and fixed-income customers who struggle to pay for life's necessities. We think of them every time we must increase our rates.	The EIS recognizes the concern voiced in the comment regarding increasing power rates. Under the Preferred Alternative the Bonneville wholesale power rate pressure is estimated to be 2.7 percent relative to the No Action Alternative. A portion of that rate pressure has already been incorporated into the BP-20 wholesale power rates; and, the remaining rate pressure likely falls within a level that Bonneville has historically been able to absorb through the costs over which it has significant control. Chapter 5 of Appendix H, Power and Transmission provides additional details on potential rate increases by county as well as for urban and rural utility customers. The Environmental Justice analysis in Chapter 7 of the EIS finds that the Preferred Alternative is not likely to have disproportionately high and adverse effects on low income, minority, or Tribal populations.
58800	2	Randy Grove	CENTRAL LINCOLN	Concerns About the Preferred Alternative Losses in Carbon-Free Generating Capacity and Reliability Implementation of increased spring spill operations up to the proposed 125% total dissolved gas cap is projected to result in the loss of 160 aMW of hydropower generation, with as much as a 2.7% BPA rate impact. When we couple this with escalating Tier 1 power costs, primarily due to fish and wildlife mitigation efforts, we see rates that cause us significant concern. This loss in carbon-free generating capacity coupled with the expected retirement of 2,505 MW of coalfired firm generation would result not only in higher power costs, but could also result in unplanned outages or rolling blackouts. As I have outlined previously, either or both outcomes would be unpalatable to our industrial and residential customers, as well as to our commercial customers.	The EIS recognizes the concern voiced in the comment regarding increasing power rates under the Preferred Alternative. The loss in hydropower generation and the power rate increase quoted in the comment is consistent with the findings of the EIS; however, it is important to note these estimates compare the Preferred Alternative to the No Action Alternative, which is not the same as comparing the Preferred Alternative to current operations or rates. Consequently, the estimates are not a comparison to the BP-20 wholesale power rates, which were set assuming the financial impact of the 2019-2021 Spill Operation Agreement. In addition, as noted in the EIS, the rate pressure associated with the Preferred Alternative may be absorbed by cost reductions. See Section 3.7.3.1, at page 3-817 in the Draft EIS. The comment that the loss of coal-fired generation in the region could increase the risk of regional power shortages unless and until sufficient replacement resources are acquired is correct. The EIS acknowledges that assumptions regarding coal capacity have changed since the base case was developed in 2017, and the EIS presents base case analysis first; then discusses information regarding additional sensitivities and potential cost pressures. See Section 3.7.3.1, Base Case Methodology and Cost Sensitivity Analysis, at page 3-816 in the Draft EIS; see also Id. at page 3-823 of the Draft EIS. Since development of the base case, additional coal retirements have been announced. See Section 3.7.3.1, Availability of Coal Resources, pages 3-841-842 in Draft EIS. To address this concern, the EIS considered various sensitivity analyses as well as examining two potential coal retirement scenarios. See Section 3.7.3.1, Additional Power Rate Sensitivity Analysis and Other Regional Cost Pressure Analysis, pages 3-829-830 in Draft EIS. Coal-fired generation in the region is owned by investor-owned utilities. As such, Bonneville and its customers would not be responsible for the cost of replacing this generation. However, this could still affect regional power prices, as noted in the comment, through the effect on the wholesale market. See Section 3.7.3.1, Availability of Coal Resources, at pages 3-841-842 in the Draft EIS; See also Section 3.7.3.2, Table 3-123 in the Draft EIS.
58800	3	Randy Grove	CENTRAL LINCOLN	Uncertain Benefits of Increased Spill We appreciate increased spill operations are intended to provide more effective fish passage than turbine or bypass passage for juvenile salmonid outmigration. However, we are hopeful the Action Agencies will heavily monitor increased spill, as we fear it will have unintended and negative consequences for fish, particularly gas bubble trauma. We encourage you to include clear authorization language within the final EIS allowing for adaptive management if our fears are realized, and higher spills is shown to be a detriment to either adult or juvenile resident or anadromous fish.	The Preferred Alternative includes an adaptive management plan. This plan involves working with regional sovereigns to develop a study to assess the effectiveness of the increased spill regime on adult returns as well as assessment and management of negative unintended consequences, such as long delays of adult migrants, or TDG-related impacts on juvenile migrants.
58800	4	Randy Grove	CENTRAL LINCOLN	Predation Management As a utility serving fully one-third of Oregon's coastline, we see quite vividly the effects of large and unchecked avian and pinniped populations on our local environment. We have firsthand reason to believe avian and pinniped predation are a significant cause of endangered and threatened salmonid mortality. Central Lincoln encourages the Action Agencies to pursue even more active predation management in the final EIS to improve salmon outcomes.	The co-lead agencies recognize the value in measures to reduce predation throughout the project area and have historically supported actions to mitigate adverse effects to listed species from CRS operations, through funding, direct implementation, and other means. Under the Preferred Alternative, those actions, including implementation of actions for the purpose of reducing predation on ESA-listed species, would generally continue to ensure compliance with the ESA. Other entities in the region also have authorities and obligations to mitigate the impacts from predators and the co-lead agencies will continue to work closely with those entities to benefit ESA-listed salmonids. The EIS is being develop to update the operations, maintenance, and configuration of the 14 dams operated as the CRS. It is not a salmon recovery plan. The co-lead agencies are limited to implementing measures that are within the authorities of the co-lead agencies. Specifically, under the ESA, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Ultimately, recovery, including predation management actions, is a broader regional goal that is the role of NMFS and the USFWS and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the Columbia River System. Based on our analysis in the fish resources section of Chapter 7, the co-lead agencies anticipate that the Preferred Alternative, which includes measures to reduce predation, would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. It also meets the other objectives of the study for resident fish, hydropower, water management, and water supply, while minimizing adverse impacts to communities and the economy.
58800	5	Randy Grove	CENTRAL LINCOLN	Ocean Conditions Survival rates for fish passing around, through, or over dams are just one part of a continuum that includes water temperature, ocean conditions, in-river smolt predation, and adult salmonid predation/harvest rates. Studies have shown our oceans absorb as much as 30% of the climate's excess carbon and 90% of its excess heat. This results in warmer water temperatures, higher acidity, and lower levels of oxygen in our waters. NOAA Fisheries researcher Dr. Lisa Crosier notes scientists around the world have documented "almost synchronous declines in salmon populations" due to these factors. We must do what we can to mitigate these environmental issues to restore healthy salmon populations.	The Draft EIS describes and acknowledges the multitude of factors that affect salmon and steelhead throughout their life cycle in the Affected Environment. This Draft EIS analyzes the effects of the configuration, maintenance, and operation of the CRS projects in Chapter 3.4. The scope of the Draft EIS focuses on the area affected by the alternatives presented for operation, maintenance, and configuration of the CRS projects. We agree that there are many effects to salmon and steelhead populations outside the operation of the dams. Research continues to evaluate the magnitude of these effects. For more information see the NMFS website at: https://www.nwfsc.noaa.gov/research/index.cfm While none of the alternatives would affect ocean conditions, the co-lead agencies recognize that these conditions are a major driver for adult returns and that numerous studies have shown the importance of ocean conditions in the return of adult salmon and steelhead (Peterson et al. 2019). The co-lead agencies analyzed the effects of the operation, maintenance, and configuration of the CRS projects on resources affected by the CRS, including the potential to improve conditions for ESA-listed species. The co-lead agencies also looked at the cumulative effects of other actions in Chapters 6 and 7 of the EIS. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species.
58800	6	Randy Grove	CENTRAL LINCOLN	Clean Energy It is widely recognized the Pacific Northwest produces the cleanest energy in the U.S. primarily thanks to the FCRPS's renewable hydropower. Our system must be kept whole in order to flexibly integrate renewable but intermittent solar and wind generation onto the grid. The value derived from the FCRPS' generation must be properly calculated, and the full costs of the system equitably allocated to all beneficiaries across our region. We encourage you to give proper weight to the comments and concerns expressed by those who finance the outcomes of the final EIS. We hope you will establish a new "base case" within the Power Generation and Transmission Analysis that incorporates anticipated loss of generation, and the costs of replacing lost hydropower capability with new carbon-free resources.	The statements that hydropower is important for the integration of new renewable power resources as well as regional greenhouse gas emissions from power generation are consistent with the findings of the EIS. Consistent with the recommendations in the comment, the EIS considers multiple approaches to valuing the hydropower generation from the Federal Columbia River Power System (FCRPS) as well as the associated costs of changes in hydropower generation under each alternative including the social welfare costs and the potential replacement resources required to maintain regional reliability. See Draft EIS Section 3.8.3.1, Methodology, for additional details. The financial responsibility for the costs of all of the measures included in the Preferred Alternative is not solely allocated to Bonneville's power ratepayers. Fish mitigation costs are assigned to each authorized project purpose based on each purposes overall share of project costs, as determined by an established cost allocation, and this allocation is recovered through power rates. Bonneville is required to pay for its share of mitigation costs based on the existing cost allocation. Congress also granted Bonneville discretion to fund the power share directly to the Corps and Reclamation as part of the Energy Policy Act of 1992, in some situations, including the Columbia River Fish Mitigation program. (Energy Policy Act of 1992, Pub. L. No. 102-486, 2406, 106 Stat. 2776, 3009 (1992) (codified at 16 U.S.C. 839d-1 (2012)). As described in Section 3.19 of the Draft EIS and Appendix Q, funding to operate the system comes through multiple mechanisms, including Federal tax dollars appropriated to cover system costs as well as revenue generated from the marketing and sale of hydropower. For power-specific costs, Bonneville typically provides direct funds to both the Corps and Reclamation. In addition to congressional appropriations for fish and wildlife and costs directly funded to Corps and Reclamation by Bonneville, the Bonneville Fish and Wildlife Program (which is separate and distinct from direct funding described above) funds hundreds of projects each year to mitigate the impacts of the Federal hydropower system on fish and wildlife. Bonneville began this program to fulfill mandates established by Congress in the Pacific Northwest Electric Power Planning and

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					Conservation Act of 1980 to protect, mitigate, and enhance fish and wildlife affected by the development and operation of the FCRPS. Bonneville uses its authority under 16 U.S.C. 839b(h)(10)(A), to make expenditures to implement its Fish and Wildlife Program. These expenditures provide systemwide funding for actions that also mitigate for the non-power purposes of the CRS, so Bonneville recoups the non-power share of those expenditures from the U.S. Treasury as credit, as required under 16 U.S.C. 839b(h)(10)(C). Bonneville's Fish and Wildlife Program expenditures incurred mitigating the CRS operations identified in the Final EIS and adopted in Bonneville's Mitigation Action Plan would continue to be allocated and borne as provided by existing laws governing the FCRPS and the long-standing accounting procedures used to implement them. Regarding the potential future loss of generation from additional coal power retirements, the EIS considered various sensitivity analyses as well as examining two potential coal retirement scenarios. In the Draft EIS, see Section 3.7.3.1, Availability of Coal Resources, at pages 3-841-842; and Section 3.7.3.2, Table 3-123. The EIS acknowledges that assumptions regarding coal capacity have changed since the base case was developed in 2017, and the EIS presents base case analysis first before discussions of information resulting from additional sensitivities and potential cost pressures. The co-lead agencies considered the suggestion to establish a new base case, but determined that the uncertainties involved in updating the regional resource replacements for retiring coal would be too speculative to warrant changes to the base case.
58801	1	Lauri Dayton	N/A	FISH MIGRATION ISSUES The DEIS does not appear to sufficiently present anadromous fish survivability /mortality modeling, through the LSRD, omitting reference to a fundamental component of the equations: Mortality of downstream migrants will remain through a hypothetical, post-breach Lower Snake because migrant mortality is a demonstrable reality for the similar and free flowing section of the Snake system immediately upstream of the LSRDs. Known and knowable information indicate this : Discussions and tables in the DEIS, (and out in the public domain) center on "gross" survivability, such as 97% through this Dam, or 94% through that Dam, aggregating the result through the 4 or 8 dams of interest, the contentions usually being whether this or that number is accurate. The unstated assumption is that you are subtracting estimated survivability from 100%. That does not accurately reflect the difference between present experience and post breaching survival rates, which must account for estimated mortality under free flow conditions, as demonstrated in the following paragraph. Except for an oblique reference I found at Chapter 3, lines 7257-7259, "as noted ... on a per-kilometer basis, these survival rates are approaching those estimated for several free flowing river systems" the DEIS appears to be silent on this calculation. Using existing Pit-tag survivability data for free flowing upstream reaches from 4 hatcheries of origin above Lewiston and isolating out the present estimated mortality of the LG pool (about 7%) Table 25--from Table 24, "Estimated Survival of Hatchery Yearlings." of the "Survival Estimates for Passage of Spring Migrating Juvenile Salmon" (aggregate averages 1993 to 2016) fy 2016, Widener, Faulkner et al, (NOAA), allows generation of per-km mortality factors attending natural free flow conditions on the similar mid to lower Snake system, and so largely applicable to the length of the LSRD reach, once it attains ecological equilibrium in the event of breaching. The 215 km LSRD reach would yield 48.4% 55%, 57% and 81.7% survivability for Dworshak, Kooskia, Grande Round and Rapid River source fish respectively; -not particularly dissimilar results from survivability calculations for the Lower Snake in it's present condition. Further, there is a consistency in the mortality characteristics regardless of the year or quality of the runs examined. Widener, Falkner eta! is the authoritative technical reference for establishing the facts of downstream migrant survivability and related subjects such as travel time through PIT tag tracking. The point is not the actual accuracy of the calculation here but that mortality for the LSRD Reach in a "natural" state occurs and would likely be is relatively significant and that existence of such mortality should be widely understood as a fundamental constituent of the survivability equations to arrive at a true sense of the dams' impacts. The take-away notion is that potential improvements in downstream migration survivability post-breaching would not likely be as substantial as commonly supposed by proponents of breaching, or the casual public at large. I do not believe the DEIS communicates this strongly enough.	The co-agencies concur that there will still be mortality associated with passage through the Snake River, whether dams are breached or not. As noted in the comment, the co-lead agencies have attempted to estimate per-kilometer mortality rates above Lower Granite Dam compared to within. Without an undammed reference river, it is challenging to know the exact level of background mortality compared to a system without dams or for fish that have not been recently released from hatcheries.
58801	2	Lauri Dayton	N/A	Downstream migrant detection problems with Dam breaching. Pit tag detection, presently occurring at "pinch points" built into the Juvenile Bypass System at each Dam, will be rendered useless, if M03, breaching is implemented. No detection system currently exists (Widener, eta!) for spillway bypass routes-implying that the further uncertainties attending detection capability deployment for an earthworks breach will, at best, delay data acquisition further into the future. Meanwhile, without reliable data, information development is retarded and in turn, that of science-driven management tools, thus delaying and harming future stock recovery. Dam breaching will cause abandonment of existing data gathering infrastructure and impede understanding of migrant behavior. Further, since breaching is permanent, we would lose the ability to respond appropriately to new or unforeseen conditions and circumstances. I question the wisdom of such strategy, particularly in light of the known transitional habitat disruption attending breaching. It does not appear to be a sensible, prudent and reasonable strategy to permanently preclude further knowledge of downstream migrant attributes by providing an uncontrolled breach path past the dams. In short, the devil we know is preferable to a substantial probability of inflicting willful/ ignorance. Dam breaching appears to be a form of wagering our entire pile of anadromous chips-once-- "betting on the come." There appears to be little attention brought to the factors and notions above in the DEIS.	The co-lead agencies agree that MO3 would result in a major change in the region's ability to monitor fish passage and survival in the lower Snake River. The co-lead agencies would anticipate broad regional discussions on how to gather scientific information through the lower Snake River in the event the projects were breached.
58801	3	Lauri Dayton	N/A	ENERGY FACTORS The generation peaking and voltage support capability, are most important aspects of the electrical supply complex, and are supplied is virtually carbon free, by the LSRDs, according nicely with the Governor of Washington's vision of our energy future. Hydropower's most valuable attributes are it's storability and dispatchability --meaning it modulates automatically to match generation instantly (and efficiently) to changing demand conditions. Solar, while partially predictable on a daily basis, isn't available during dark hours. Wind is predictably available only during weather changes, usually not the more rigorous conditions associated with system peaking requirements. Having gained the reputation of "only generating when you don't need it," wind can supplement hydro generation, enhancing grid operations when available during fish flushes, allowing more bypass/spill. Supplementation is not replacement. Available "green" generating alternatives, beyond their inherent unsuitability for real-time supply-demand balance, are resource intensive. For example, for wind generation,(without getting into engineering weeds,) the simple formula for power,"I," current, x "V," voltage, requires 40 times the amount of copper to generate and deliver the same kilowatt to an identical "grid" port as does a typical Snake River hydro-generator, something ecology minded costing advocates should consider. Then there is the issue of wind turbines' shorter lifespans. Batteries don't generate any electricity, only store what is put into them. While complementarily useful for response purposes, they are scales of magnitude smaller and scales of magnitude more expensive. For example, if we assume 90% generator availability for the LSRD as a whole, no inflow at Lewiston (unrealistically conservative) and full pools, we could generate 3,135 MW for nearly 16 hours solely using LSRD reservoir capacity, for comparison with the largest utility scale battery installations, about 100 MW for 1 +hour. Supplementation is not replacement. This comment is offered to provide context to the economic and ecological issues of replacing LSRD energy /power by technologies often considered desirably "green."	The suggestion in the comment that hydropower is a reliable source of power that is important for grid stability and power reliability is consistent with the findings of the EIS (see Section 3.8). That hydropower can adjust generation to aid in grid stability and the integration of renewable power, as described by the comment, is also consistent with the descriptions and analysis of the EIS as described in the Bonneville Transmission System Reliability and Operations in Sections 3.7.3.3 through 3.7.3.6 and in Section 3.7.3.5, Potential Replacement Resources and Associated Costs in the Draft EIS. Additionally, the EIS does find that a substantial amount of renewable replacement resources would need to be built or acquired to account for the reduction in hydropower due to the lower capacity factors of solar and wind. Of note, the EIS did not identify wind power as a cost-effective resource for the replacement resource portfolios and thus, did not evaluate the interconnection requirements of wind.
58801	4	Lauri Dayton	N/A	Opposition to use of "contingent" economics derived from the 2002 LSRD EIS: The current DEJS references the 2002 EIS contingency economics regarding recreation lines ~ 1733 to lines ~1785, pages 3-1215 to3-1218: "For the 2002 EIS, a contingent behavior survey was conducted to estimate how non-fishing ..... recreation use would change if the four lower Snake River dams were breached. Using results from this survey, visitation after dam breach was estimated to be 1.5 to 2.7 million annual recreation days after full recovery of the natural river system, ... " "Contingent" in the economic sense is not defined in the current DEIS, but was more fully identified in 2002 and has been construed to mean "indirect" or "non-use" values in later literature employing it relating to the LSRD removal issue. A major justification for it's inclusion in those documents is it's existence in the 2002 EIS. The 2020 DEIS appears to build on this shaky foundation . "Non-use" Values impa1t a degree of psychological wellbeing, satisfaction, or a sense of desirability in a respondent subject, and have been gaged by eliciting a response to the question: "What would you be (W)illing (T)o (P)ay for X?" The fundamental difficulty of including contingent/indirect/nonuse values into quantitative analysis is that they are not tangible. The worth afforded to values derived from a survey response, preference or opinion—requiring no tangible commitment of resources or expenditure-is limited. Contrastingly, tangible commitments and expenditures (including time) as evidenced by actual usage, are directly quantifiable. Exchange of tangibles for Usage constitutes a collective economic transaction. Since survey respondents know a- priori no actual resource expenditure will be required of them because no actual "other side" of the transaction (or exchange mechanism) exists, no quantifiable "contingent" market can be established. If the market does not exist then no substantiated expenditure can be adduced. Because there is no tangible constraint governing the respondents evaluation process, Non-Use value can be anything, nothing at all, or change without limit. —reducing the worth of the response to nothing more than a comment or opinion--which can be, and often is, much influenced by the phrasing of the question. The inherent unreliability and unsubstantial nature of que1y methods or surveys used to generate Non-use values should eliminate them from quantitative consideration. Local constituents unsurprisingly predominate present usage patterns, demonstrating the generally accepted inverse economic relationship between usage and decreasing proximity. Recurring warm season, multi-day visits characterized by home-away--from--home sensibilities complementary to farming and small-business responsibilities prevail. An economist would say that these recurring visits demonstrate a marginal utility of usage to these visitors far in excess of cost: repeated expenditure of time money and effort -or "significantly" in excess of cost. Why significantly? Because the "law of diminishing returns" applies to most discretionary expenditures, including leisure and recreation. This economic utility is "substantiated" by commitment of expenditure to usage, is therefore fully knowable and justified for inclusion into quantitative models. Further, if "Non-use Values" are to be admitted in any manner, the Non-use Value of the River in it's present condition for these more local visitors, and others, certainly exists because active behavior demonstrates an appreciation of desirability above and beyond the passive and unsubstantiated value associated with non-use as evaluated by survey, stated preference or query method. The foregoing	The recreation evaluation under MO3 described in Section 3.11.3.5 used a number of approaches. In the short-term, the evaluation used the current estimates of water- and land-based visitation at the four lower Snake River projects to estimate decreased visitation, social welfare, and regional economic effects from the dam breaching activity. In the long-term, there is considerable uncertainty in terms of recreational access and infrastructure development needed to facilitate river recreation, and the impacts on river-based visitation. The EIS describes a range in non-fishing visitation in the lower Snake River post dam breach based on the general recreation survey (contingent behavior survey) in the 2002 Juvenile Salmon Migration Feasibility Study and EIS. However, the EIS acknowledges that there were concerns regarding the survey methods and results. As a result, Section 3.11.3.5 adjusted the visitation from the survey results to provide a range in visitation. On the low end of the range, visitors from California were excluded. Visitation estimates in the lower Snake River (excluding anglers) would range from approximately 1.2 to 3.4 million annually, depending on whether the estimates were adjusted to current population levels, the extrapolation method used to apply sample results to the general population, and whether or not visitors from California were included. The social welfare values and regional economic effects associated with river recreation post dam breach were not estimated because of the uncertainty and large range in visitation and consumer surplus values among users. The EIS relied on similar rivers in the region to provide an estimate of fishing visitation in the lower Snake River in the long-term; the 2002 Juvenile Salmon Migration Feasibility Study and EIS was not used. In addition, existing studies and literature were used to describe the angler visitation and economic contribution in the Snake River Basin in the Recreation Affected Environment and the No Action Alternative. The Fish Effects (Section 3.5.3.6) were used to describe how changes in fish abundance could affect angler trips in the long-term under MO3 and the other action alternatives. The EIS did not rely on the 2002 study results to quantify passive use value impacts of the CRSO alternatives. The EIS described the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. NMFS estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which is described qualitatively. For the effects on recreational fishing under MO3 (Section 3.11.3.5) along the lower Snake River below Lewiston, the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River) as an indicator for fishing visitation in this reach. The EIS describes that the visitation in the long-term in the lower Snake River, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting outfitting and tourism businesses in the region. The social welfare values and regional economic effects associated with recreational fishing under the MOs, as well as river recreation post dam breach under MO3, were not estimated because of the uncertainty and large range in visitation and consumer surplus values among users. Section 3.15.2.2 includes existing research on the passive use values for fish. This information is considered alongside the analysis of effects of the Multiple Objective alternatives on fish abundance (Sections 3.5 and 7.7.5). As described in Section 3.15.2.2, the economics literature includes research on passive use values for free-flowing rivers. These studies generally bundle the environmental changes associated with free-flowing rivers, including, for example, specifying effects on fish populations. Thus, passive use values for free-flowing rivers are not necessarily distinct from or additive with passive use values for the fish within these rivers.

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				reveals the disparity of integrity between substantiated and unsubstantiated propositions relating to quantitative economic studies, the worth of the fanner and relative uselessness of the latter. The two do not belong in the same calculation, they are not fundamentally equivalent. But, by the mechanism of incorporating both sources of "dollars" into a common quantitative model, they are thereby (incorrectly) deemed equivalent and become fungible, or interchangeable for purposes of manipulation and evaluation. Therein lies the nexus of error; or dishonesty, depending on how characterized. Those homogenized "dollars" are then summed, discounted, multiplied and otherwise quantitatively processed, resulting in erroneous and misleading conclusions. The mischief of these economic mischaracterizations lie in the subsequent model processing where non-use/indirect/contingent estimates are multiplied (extended) by expanded (scaled) populations, then multiplied by multi-year discount factors to present immense benefits derived from compounded uncertainties, often to the extent of materially altering the conclusions of the quantitative analysis. If contingent values are to be admitted into the evaluation process they should be deeply attenuated to account for physical, political, economic, and cultural remoteness of the expanded population, as a matter of evaluative integrity. An example of incorrect application of the contingent/indirect/nonuse evaluative mechanism is shown by this example from the (Washington State) Governors "LSRD Stakeholder Engagement Report," intended to inform the Governor regarding his reasonable and prudent input to the 2020 LSRD DEIS. This report, funded to $750,000 by the Legislature, could not have been intended merely for the Governors personal edification: The stated question was essentially "How much extra would you pay per month to realize the ecological /recreational benefits (list inserted here) of LSR Dam removal and return the River to its natural state?" ie utility bills, taxes etc-was answered in dollars/month. The corollary question: "How much extra would you pay per month to continue realizing the ecological/recreational benefits (list inserted here) of the River retained in its present dammed state?" – clearly of importance to present visitors and the population cohort considered in the study—was not asked-ensuring a result of zero, thereby depriving the quantitative evaluation of the necessary and proper objective symmetry and automatically defaulting the net conclusion to be favorable to dam breaching. There was opposition in 2002 to the EIS to the contingent equivalence accorded Californians and others far afield from local county residents engaging in direct usage for precisely the same reasons as it is opposed here presently: the skewing of the analysis in a way that under-represents the interest of the more local cohort and the exaggeration of the worth to more remote cohorts. My recommendation is to eliminate the practice of contingency/indirect/nonuse valuation from the DEIS. This rather lengthly comment criticizing the appropriateness of recreation related contingent/indirect/nonuse valuation practices applied to quantitative economic analysis is intended to address the 2020 DEIS in the discussion occurring in or near lines~ 1733 to lines ~1785, pages 3-1215 to 3-1218.:	
58802	1	R. Kirk Schroeder	N/A	Summary In 2016 the U.S. District Court found that the Biological Opinion was inadequate for the 5th consecutive time, largely because it failed to address ongoing weaknesses in the approach despite a previous admonishment that "the situation literally cries out for a major overhaul [emphasis added]. I find that the approach in the present DEIS continues to be inadequate in addressing the protection of salmon and steelhead populations, much less their recovery. The Preferred Alternative (P A) in the 2020 DEIS offers only minor modifications to the failed status quo management that would further threaten the existence of Snake River wild salmon and steelhead populations, and falls far short of the 4% smolt to adult ratio (SAR) necessary for recovery. The P A fails as a "major overhaul" repeatedly called for by the courts. Rather than balance the river uses in the P A, it emphasizes unneeded hydropower production, subsidized barge transportation that has been declining for many years, and easily replaceable irrigation (out of one reservoir); all these replaceable uses are at the expense of unreplaceable wild salmon and steelhead populations. The P A, by its own admission ensures that wild salmon and steelhead will continue to decline, which will put them on the path to extinction. Thus, the DEIS fails to carry out the mandate of the court, and will almost certainly fail to recover salmon and steelhead populations. Recommendation As demonstrated by models results in the DEIS, the only option that ensures continued existence of salmon and steelhead and has the highest probability of recovering populations is M03 (dam breaching) that provides a free-flowing lower Snake River. This option combined with 125% spill at the lower Columbia River dams would prevent extinction and allow for recovery of populations. The dam breaching alternative is the only one that minimizes the risk of extinction for Snake River salmon and steelhead populations and it meets the survival criteria that is needed for recovery. A legal requirement of the DEIS is to minimize the risk of extinction for listed populations affected by dam operations. It is time to plan for dam breaching, the continuation of wild salmon and steelhead depends on this action.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets the EIS objectives including those for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS, the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams, because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. Different models predict different long-term survival benefits to ESA-listed species from dam breach, benefits that can contribute to recovery. Under the NMFS COMPASS model, juvenile Snake River spring/summer Chinook in-river survival would improve by 9.6% due to dam breach, which is a 19% relative increase over the No Action Alternative. The NMFS Lifecycle Model predicts an increase in adult returns of 13.6% for these same fish under MO3 (no latent mortality assumed) relative to the No Action Alternative (from 0.88% to 1%). Results for Snake River steelhead are similar (10% absolute improvement, or 23% relative juvenile survival increase - smolt-to-adult returns (SARs) for steelhead were not modeled). Under the CSS model, juvenile in-river survival for the Snake River spring/summer Chinook is predicted to improve by 10.4% due to dam breach, which is an 18% relative increase over the No Action Alternative, while SARs would increase by 115% (from 2% to 4.2% 0.02 to 0.042). The CSS model predicts that Snake River steelhead would see juvenile survival increase by 25.8% which is a 46% relative increase over the No Action Alternative. The CSS model also predicts that SAR increase by 177% (from 1.8% to 5%). Though differing in predictions, both modeling groups predict dam breaching is the best CRSO EIS alternative for salmon and steelhead. One simply predicts adult return increases an order of magnitude higher than the other. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Finally, the agencies disagree that an alternative that includes breaching the four lower Snake River dams and spring spill operations to 125% TDG at all four lower Columbia River dams is reasonable given the unacceptable risks to public safety from such an alternative. For Power and Transmission, MO3 and MO4, individually each caused large loss-of-load probability (LOLP) results (e.g. increased incidence of blackouts). Without major addition of new resources, MO3 would result in power shortages in about one in seven years. MO4 would produce power shortages in about one in every four years. If MO4 were implemented, in addition to breaching the four lower Snake River projects as called for in MO3, then the LOLP would be even higher, with power shortages potentially occurring almost every year. Additionally, if these MOs were combined, in 5% of the years, the power shortages would average close to 1,000 MW in early August when the region might be experiencing a heatwave with particularly high demand for air conditioning. 1,000 aMW is about the average amount of power consumed by Seattle City Light. As shown in Section 3.7, MO3 causes an increase in power reliability concerns in the winter and the summer. MO4 increases power reliability concerns in the summer. Thus, the combination has the largest impact during the summer. The cost of zero-carbon replacement resources for MO3 and MO4 individually are up to $1 billion/year. Resource replacements and associated transmission interconnections for the combination of MO3 and MO4 would be higher, though not likely as high as the sum of the two MOs individually. Assuming that the replacement resources consist largely of wind, solar, and batteries, this would require well over 50 square miles of solar power (more than two and a half times the size of Crater Lake), large areas of new wind generation, and unprecedented amounts of batteries (more batteries in the Northwest alone than the total projection of batteries expected in the entire US by 2023 per the Energy Information Administration). In addition, the reduced generation capability under MO3, particularly throughout the summer, in combination with the impacts of the measures in MO4, and the uncertainty about the characteristics of replacement resources, would result in less capability to provide voltage support and dynamic stability for transmission system reliability than under MO3 or MO4 individually. Thus, combining MO4 with breaching the four lower Snake River projects, would produce unreasonable power and transmission reliability impacts, and it is highly speculative that replacement resources could be sited, permitted and built to address these impacts. This potential alternative has not been evaluated for direct, indirect and cumulative effects to other resources. Thus, an alternative combining juvenile fish passage spill up to 125% and breaching the four lower Snake River dams is unreasonable, and thus was not proposed as an alternative.
58802	2	R. Kirk Schroeder	N/A	Specific Comments on Salmon and Steelhead Operation of the four Lower Snake River dams has been the major factor in the long-term decline of wild salmon and steelhead populations, and today many are near the brink of extinction. Snake River salmon and steelhead runs were listed as threatened or endangered under the Endangered Species Act (ESA) by the early 1990s. Since that time, a litany of approaches has been attempted to protect salmon and steelhead through replacement of wild fish with large hatchery programs or technological fixes such as barging juvenile fish, controlling predators (including native fishes), and countless attempts to safely pass juvenile fish at the dams. This DEIS proposes to continue the same failed course with an emphasis on a mechanistic approach rather than an ecological one. The effects of the four Snake River dams on passage of adult and juvenile salmon and steelhead has been well documented for decades. The DEIS does not adequately address ongoing passage problems. The assertion in the DEIS that juvenile passage at the dams is high is not backed up by scientific studies of the complete in-river survival, which include mortality at the dams plus predation and natural mortality. Another large source of mortality is delayed mortality that can occur in the river or can be expressed in early ocean mortality. All these mortality factors decrease the survival of juvenile salmon and steelhead in the estuary and ocean. SAR provides a more accurate measure of overall survival.	The co-lead agencies also recognize that there are many effects to salmon and steelhead populations outside the operation of the dams. Research continues to evaluate the magnitude of those effects. For more information see the NMFS website at: https://www.nwfsc.noaa.gov/research/index.cfm. Latent mortality effects were considered and factor prominently in the decision on the Preferred Alternative, and those model results are presented in Section 3.5 and Chapter 7. Latent mortality is captured directly in the CSS model for SARs and abundances, and is overlaid with several assumed values (10%, 25% and 50% reductions in latent mortality) in the NMFS Life Cycle model results. Delayed mortality in the ocean due to CRS dam passage is discussed throughout the Draft EIS. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Based on the fish analysis in Section 7.7.5, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the Columbia River System. That call, however, is ultimately the role of NMFS and the USFWS. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. The Preferred Alternative is nevertheless predicted to benefit salmon and steelhead. It also meets the other objectives of the study for resident fish, hydropower, water management, and water supply, while minimizing adverse impacts to communities and the economy.
58802	3	R. Kirk Schroeder	N/A	Studies and models estimate that SAR of 2-6% is necessary to provide ongoing continuation of salmon and steelhead populations. However, the SAR of the populations upstream of the lower Snake River dams has generally been much less than 2%. These low SARs have resulted in continued decreases in the wild populations. In contrast, salmon and steelhead populations in downstream watersheds that have to pass through fewer dams have higher SARs. Population recovery requires high survival to provide societal benefits of harvest by sport, commercial, and tribal fisheries; and that also provides ecological benefits such as prey for orcas and adequate spawners to "fertilize" watersheds. Scientists have identified an average SAR of 4% (range of2-6%) for a sustainable, harvestable population. The P A will not meet the regional SAR goal of 4% and at the lower end of the predicted range, the SAR is below 1%, which would lead to population decline and increase the risk of extinction. Fish survival under the PA is just slightly better than either the No Action Alternative or the M01 Alternative. In contrast, fish survival is higher under the dam breaching and 125% spill alternatives, which would ensure population stability with a higher probability of recovery than other alternatives.	Based on our analysis of the Preferred Alternative, it will make a substantial contribution to improving Snake River anadromous fish runs, but broad-sense recovery goals are beyond the scope of this EIS, which focuses on the effects associated with the operation and maintenance of the 14 CRS projects. The co-lead agencies used high-quality information in the analysis of the CRSO EIS. Specific to salmon and steelhead, the agencies used two primary modeling approaches which yielded a range of potential outcomes for the alternatives. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult return (SAR) rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% (within the Northwest Power and Conservation Council recovery targets for the region) as a result of the Preferred Alternative. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. Thus, the co-lead agencies expect salmon and steelhead increases would come from operational measures and existing hatchery production carried forward into the Preferred Alternative. Additionally, Section 7.7.8 states impacts to Southern Resident killer whales would be minor because of benefits to salmon and steelhead. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. It should be noted that the 4% average SAR target referenced refers to the Councils target for broad-sense recovery and is separate and distinct from the obligations of any single entity or in this case a requirement to be met solely by the co-lead agencies. Just as the Councils fish and wildlife program encompasses both Federal and non-Federal stakeholders in the Columbia Basin, the Councils recovery goals are shared by many parties. The co-lead agencies do not support comparisons of SARs between populations as evidence of latent mortality. The Independent Science Advisory Board has repeatedly questioned that line of evidence and has recommended that the CSS not conduct upstream/downstream comparative studies. For example, see ISAB/ISRP 2007-6 and ISAB 2020-1.
58802	4	R. Kirk Schroeder	N/A	The objective of the DEIS is apparently to prevent extinction of wild salmon and steelhead rather than to restore populations to levels of abundance that would provide for harvest (sport, commercial, tribal) and would provide adequate prey for orcas. Yet, even by this low standard, one of the models predicts the PA would negatively affect survival, thus the DEIS does not even meet the minimum requirement of preventing extinction. The P A continues a failed status quo management and is essentially an experiment that has a high risk of failing to recover salmon and steelhead populations that are in danger of extinction now. A model used to assess alternatives predicts the P A would result in a low SAR that would result in overall population decline, for populations that are already diminished. The P A basically represents a minor tweak to the status quo under the Flex Spill	Based on our analysis, the Preferred Alternative will make a substantial contribution to improving Snake River anadromous fish runs, but broad-sense recovery goals are beyond the scope of this EIS, which focuses on the effects associated with the operation and maintenance of the 14 CRS projects. The co-lead agencies used high-quality information in the analysis of the CRSO EIS. Specific to salmon and steelhead, the agencies used two primary modeling approaches which yielded a range of potential outcomes for the alternatives. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% (within the Northwest Power and Conservation Council recovery targets for the region) as a result of the Preferred Alternative. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin.

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				agreement, which was designed as a temporary measure, not a long-term solution. Analysis of the juvenile passage under the P A is flawed because it uses an 80-year data set of flow presented as daily average flow and juvenile passage when flex spill operates on an hourly basis. This underestimates the higher percentage of juvenile passage through the powerhouse that would occur as a result of low spill levels in the evening and night when juvenile fish passage is higher than during the day.	The co-lead agencies do not agree that results are biased high due to hourly vs. daily time steps. These models will be used to assess relative changes so minor bias if present would not be enough to change relative magnitude of the effect. In practice, model estimates may not overestimate PITPH due to day vs. night passage differences because limitations on nighttime spill reductions are already in place through the adaptive management process and lessons learned from the 2019 flexible spill operation. These adjustments in the amount of nighttime spill were informed by state, Tribal, and Federal biologists with expertise in dam operations and were analyzed for their effects on fish passage. These examples of adaptive management will continue during implementation of selected operations as described in Appendix R.
58802	5	R. Kirk Schroeder	N/A	The DEIS does not provide quantitative measures on the supposed benefits to the federally listed salmon and steelhead populations. Instead, the objective is qualitatively described in general terms as "improving juvenile salmon and improving adult salmon". This lack of quantitative measures is wholly inadequate for an EIS. The regional goal for SAR as laid out by the Northwest Power Planning Council and others is an average of 4% to provide for the recovery of these listed populations. The only alternative that would achieve this goal is M03 which calls for dam breaching. It is imperative that we begin to move rapidly toward this alternative to ensure the continued existence and recovery of these listed populations.	The co-lead agencies disagree that the Draft EIS does not provide quantitative measures on the benefits to ESA-listed species from implementation of the alternatives. Where current high quality information, resources, and models were available, the co-lead agencies were able to quantitatively assess benefits. Where this necessary data was not available for quantitative assessments, the agencies qualitatively assessed benefits using current high quality information. It should be noted that the 4% average SAR target referenced refers to the Northwest Power and Conservation Councils target for broad-sense recovery and is separate and distinct from the obligations of any single entity or in this case a requirement to be met solely by the co-lead agencies. Just as the Councils Fish and Wildlife Program encompasses both Federal and non-Federal stakeholders in the Columbia River Basin, the Councils recovery goals are shared by many parties. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets most other EIS objectives including those for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS, the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams, because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system.
58802	6	R. Kirk Schroeder	N/A	Despite professing to plan for the long term, the PA is extremely short-sighted with a one-year continuation of the existing Flex Spill agreement and an undefined process thereafter. The P A does not mandate operations over a long term and is therefore wholly inadequate in preventing the extinction of populations or in helping populations to recover. Instead, continuing this operation would harm salmon and steelhead populations as demonstrated by the poor performance of Flex Spill in 2019 under which the migration time and powerhouse entrainment .was unimproved from the spill operations of the 2018 BiOp and occasionally worse. Implementation of the PA would jeopardize wild salmon and steelhead populations, which analyses have shown would result in low SAR (1% or less) and put the populations at significant risk of possible extinction. These risks are even higher in light of changes to flow and water temperature from climate change, which the DEIS fails to adequately address or account for in the analyses of the alternatives.	The co-lead agencies do not feel that that short-term nature of this operation is an accurate interpretation of the Preferred Alternative. If no adaptive management needs are identified, the operation would continue through the duration of the ESA consultation period. The co-lead agencies will provide additional clarifying text in Appendix R to make these points more clearly. After careful review of monitoring data from the 2019 flex spill operation, the flex spill signatory entities agreed that all biological, hydropower generation, and operational aspects of 2019 met all parties expectations. It is difficult, and not advisable, to take a single year of data from an operation, such as the single year of 2019, and make long term and long-range decisions based on a limited operation. That is why the parties to the agreement based their expected outcomes on multiple water conditions and potential outcomes. When considering benefits to fish, the flex spill parties used powerhouse encounter rate or PITPH as the primary metric, not in-river survival, or even Smolt-to-Adult (SAR) due to the variation in those metrics and the limited opportunity to evaluate and monitor based on a single year of data. Based on our analysis, the Preferred Alternative will make a substantial contribution to improving Snake River anadromous fish runs, but broad-sense recovery goals are beyond the scope of this EIS, which focuses on the effects associated with the operation and maintenance of the 14 CRS projects. The co-lead agencies used high-quality information in the analysis of the CRSO EIS. Specific to salmon and steelhead, the agencies used two primary modeling approaches which yielded a range of potential outcomes for the alternatives. With respect to the Preferred Alternative, the CSS model predicts that average SAR return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% (within the Northwest Power and Conservation Council recovery targets for the region) as a result of the Preferred Alternative. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. The EIS analyzes effects of the range of alternatives on greenhouse gas emissions and climate change in Section 3.8 and Chapters 4 and 7.
58802	7	R. Kirk Schroeder	N/A	P A does not assess effects of climate change on water quality, availability of water to meet spill goals, etc. that could lead to further declines in the populations. In fact, effects of a changing climate that will lead to warmer and drier conditions will make implementation of the P A difficult, if not impossible, which would likely result in greatly diminished wild populations and probable extinction. P A allows lowering reservoirs before spring which would increase the risk that there would not be enough water to provide spill during low snowpack years, which will become more likely under changing climatic conditions	Regarding climate change, the climate science community is still developing models at the resolution necessary to analyze possible effects to water temperature from climate change, and unfortunately, there are not reliable models at this time. Therefore it was not possible to reliably model water temperature changes under climate change for this EIS. In lieu of this information, the climate analysis used the output from the water quality models under historical conditions, climate change data, and scientific literature to qualitatively assess potential effects to hydrology under the Preferred Alternative in Section 7.8.1 and anadromous fish in Section 7.8.4. The Preferred Alternative includes an adaptive management process as detailed in Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS. It is the intention of the co-lead agencies to engage regional state, tribal, and federal fish managers in the development of an appropriate adaptive management process utilizing their respective salmonid management expertise. The goal of that adaptive management process would be to consider additional opportunities to further the effectiveness of the operation while maintaining the goals of the flexible spill operation: additional improvements for salmon and steelhead, maintain opportunities to operate the CRS for hydropower generation in a flexible manner that provides value to the Northwest, is implementable by the dam operators, and provides opportunity to reduce uncertainty and improve the learning opportunities around how operations of the CRS can influence the magnitude of latent mortality effects. If a changing climate has an impact on the co-lead agencies' ability to operate consistently with the Preferred Alternative, that impact will be discussed and addressed as described in the Adaptive Management Framework.
58802	8	R. Kirk Schroeder	N/A	The P A clearly favors hydropower production, barge transportation, and irrigation over the protection and recovery of the federally listed salmon and steelhead populations. It represents minor tweaks to the existing systems operations instead of the "major overhaul" called for by previous court rulings. Breaching the four lower Snake River dams is the only alternative presented in the DEIS that would have a high probability of not only ensuring the continued existence of the populations but also providing a chance for recovery.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. Both human-caused and natural factors that are outside the responsibility and control of the co-lead Federal agencies, also contribute to the decline and recovery of ESA-listed species, and would continue to strongly influence fish and their habitat. Salmon and steelhead have been adversely affected in the Columbia River Basin over the last century by many activities including human population growth, urbanization, introduction of exotic species, overfishing, development of cities and other land uses in the floodplains, water diversions for all purposes, dams, mining, farming, ranching, logging, hatchery production, predation, ocean conditions, and loss of habitat. Operation, configuration and maintenance of the CRS requires mitigation for its effects, and the EIS is not intended or required to serve as an overall salmon recovery plan for the region. Recovery of ESA-listed salmon is outside of the authority of the co-lead agencies, and was not an objective of this EIS. Recovery of ESA species is the purview of NMFS and the US Fish and Wildlife Service. This EIS has been developed in consultation with NMFS and USFWS to find an acceptable balance that allows the co-leads to meet congressionally authorized purposes while minimizing impacts to affected ESA species and their habitats. Regarding the Preferred Alternative, this alternative is not simply a minor change to operations and maintenance of the CRS. The spill operation for juvenile fish passage in the Preferred Alternative is a significant departure from previous operations, so much so that the Washington and Oregon state water quality standards had to be changed to implement the new spill regime. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Recovery is a broader regional goal and is above and beyond the co-lead agencies obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the CRS. Recovery efforts will need to continue to involve parties across the region that have an influence and impact on ESA-listed species. With respect to the Preferred Alternative, the CSS model predicts that average Smolt-to-Adult return rates will increase for both Snake River spring Chinook and steelhead and will average well above 2% (the lower end of Northwest Power and Conservation Council's recovery targets for the region) as a result of the Preferred Alternative, as a result of the Preferred Alternative increasing SAR from 2.0% to 2.7% for Chinook, a 35% relative increase. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. To address uncertainty highlighted by the two models, the Preferred Alternative includes working with regional sovereigns to develop a study that assess the effectiveness of the increased spill regime on adult returns as well as assessment and management of adverse unintended consequences, such as long delays of adult migrants, or TDG-related mortality of juvenile migrants. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information. The Preferred Alternative will make a meaningful contribution towards recovery. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the EIS objectives) as well as the EIS objectives for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. The Preferred Alternative is also more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system.
58802	9	R. Kirk Schroeder	N/A	The DEIS has failed to be either balanced or adaptive. There is a long history of dam operations that have failed to either recover salmon and steelhead populations or even to stem their continued decline. Most of the alternatives in the DEIS would continue this course despite all the evidence showing this could lead to the extinction of populations. The only measures that have a high probability of success are to breach the lower Snake River dams and operating the lower Columbia River dams under spills of 125% TDG.	The agencies disagree that an alternative that includes breaching the four lower Snake River dams and spring spill operations to 125% TDG at all four lower Columbia River dams is reasonable given the unacceptable risks to public safety from such an alternative. For Power and Transmission, MO3 and MO4, individually each caused large loss-of-load probability (LOLP) results (e.g. increased incidence of blackouts). Without major addition of new resources, MO3 would result in power shortages in about one in seven years. MO4 would produce power shortages in about one in every four years. If MO4 were implemented, in addition to breaching the four lower Snake River projects as called for in MO3, then the LOLP would be even higher, with power shortages potentially occurring almost every year. Additionally, if these MOs were combined, in 5% of the years, the power shortages would average close to 1,000 MW in early August when the region might be experiencing a heatwave with particularly high demand for air conditioning. 1,000 aMW is about the average amount of power consumed by Seattle City Light. As shown in Section 3.7, MO3 causes an increase in power reliability concerns in the winter and the summer. MO4 increases power reliability concerns in the summer. Thus, the combination has the largest impact during the summer. The cost of zero-carbon replacement resources for MO3 and MO4 individually are up to $1 billion/year. Resource replacements and associated transmission interconnections for the combination of MO3 and MO4 would be higher, though not likely as high as the sum of the two MOs individually. Assuming that the replacement resources consist largely of wind, solar, and batteries, this would require well over 50 square miles of solar power (more than two and a half times the size of Crater Lake), large areas of new wind generation, and unprecedented amounts of batteries (more batteries in the Northwest alone than the total projection of batteries expected in the entire US by 2023 per the Energy Information Administration). In addition, the reduced generation capability under MO3, particularly throughout the summer, in combination with the impacts of the measures in MO4, and the uncertainty about the characteristics of replacement resources, would result in less capability to provide voltage support and dynamic stability for transmission system reliability than under MO3 or MO4 individually. Thus, combining MO4 with breaching the four lower Snake River projects, would produce unreasonable power and transmission reliability impacts, and it is highly speculative that replacement resources could be sited, permitted and built to address these impacts. This potential alternative has not been evaluated for direct, indirect and cummulative effects to other resources. Thus, an alternative combining juvenile fish passage spill up to 125% and breaching the four lower Snake River dams is unreasonable, and thus was not proposed as an alternative. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), and also meets most of all the other objectives of the study for resident fish, lamprey, hydropower generation, water management, and water supply and greenhouse gas emissions. It minimizing adverse impacts to communities and the economy. The Preferred Alternative is likely to satisfy multiple complex and at times conflicting legal requirements for a complex system.
58802	10	R. Kirk Schroeder	N/A	Data presented in the DEIS is sometimes disingenuous at best, and often appears to be included in order to mislead the public. As an example, Figure 3-111 (DEIS, p. 3-300) combines all species and all populations as a total count at Bonneville, which no management agency has used to convey status. This approach masks the status of individual species, much less that of the individual populations that are listed under the ESA. At a minimum, returns of the individual populations should be presented as well as their respective SARs. In addition, inclusion of hatchery returns confounds the overall status; wild populations should be shown separately. Finally, inclusion of all populations in the Bonneville Dam counts hides the poor return of salmon and steelhead to the Snake River and upper Columbia River and therefore provide no context for the effect of the lower four Snake River dams on the listed populations affected by the dams.	Hatchery programs have long been a part of the approach for salmon recovery. Figure 3-111 in the Draft EIS is an illustration that the CRS can and has supported large numbers of returning adult salmon and steelhead. As noted, this figure combines hatchery and wild fish. The commenter is correct – there are broad ecological effects concerning interactions of wild and hatchery fish, as well as harvest, throughout the basin. However, the actual mechanisms, effects, magnitudes, and processes are very complex and uncertain. The analyses used in the CRSO Draft EIS were for the purposes of comparing the effects of the Multiple Objective alternatives for operation and configuration of the CRS projects to the No Action Alternative. Alternatives to include changes to harvest are not within the scope of this EIS. The assumptions regarding harvest are taken from the NOAA 2018 EIS and reflect current harvest management guidelines. To see their conclusions and effects analyses please go to: https://www.fisheries.noaa.gov/resource/document/environmental-impact-statement-programmatic-review-harvest-actions-salmon-and. Hatchery origin fish are very important to Tribal and sport harvest within the Columbia River Basin, and many hatchery programs are important supplementation to rebuilding natural populations. Further, the co-lead agencies have legal requirements to produce hatchery fish as mitigation for components of the CRS. The effects of hatchery programs on ESA-listed fish are evaluated through individual consultations under the Endangered Species Act. These consultations ensure the

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					hatchery programs are not appreciably reducing the likelihood of ESA-listed species survival and recovery, or adversely modifying or destroying designated critical habitat. These consultations have resulted in many site-specific reforms to reduce effects of hatchery/wild fish interactions, such as decreasing the temporal and spatial overlap of wild and hatchery fish in integrated programs or transitioning to local broodstock in integrated programs, similar to the examples cited in the comment. The co-lead agencies used the most current, high-quality and scientifically accurate information, a multi-disciplinary team, and a science-based approach to analyze the alternatives in the EIS analysis. Federally funded hatcheries in the Columbia River basin are adaptively managed to minimize impacts on wild fish and the regulatory and action agencies use the best available science to establish best management practices for these programs. The co-lead agencies fund many ongoing research projects to better understand and minimize hatchery and wild fish interactions (i.e. evaluating the relative reproductive success of hatchery fish spawning in the wild from both segregated and integrated stocks, monitoring stray rates of hatchery and wild fish, understanding mechanisms that produce precocious maturation of male hatchery fish), including several referenced in your letter; however, information specifically focused on artificial propagation, while relevant to individual hatchery EISs and BiOps, is out of scope for the CRSO EIS. Consultations under Section 10 of the ESA also ensure that programs intended to be integrated recovery programs do indeed contribute to ESA-listed species. It is appropriate to claim beneficial effects from these hatchery programs. Based on the anadromous fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative (PA) would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Under the PA, hatchery and habitat programs would continue as under the No Action Alternative, and a number of other mitigation measures would continue as well, but no new hatchery programs are proposed. The PA proposes measures such as increased spill intended to improve survival of juvenile anadromous salmonids. Over time, the PA is anticipated to benefit both wild and hatchery fish.
58802	11	R. Kirk Schroeder	N/A	Economics The DEIS purports to provide a balance between uses of the dams and salmon and steelhead populations. This is disingenuous, at best. Even the analyses of costs and benefits of the alternatives is not balanced. For example, benefits of breaching the four lower Snake River dams are underestimated. The effects of declining salmon and steelhead populations on rural communities in the Northwest were not adequately assessed relative to the dam breaching alternative. Analyses did not include non-use or intrinsic values for assessing the benefits of restoring salmon and steelhead under the dam breaching alternative. These values are readily available, are acceptable for economic analyses, and were used by the U.S. Bureau of Reclamation in the study of dam removal on the Klamath River. In addition, the DEIS did not adequately assess the benefits of restoring 140 miles of the lower Snake River to a free-flowing condition. The DEIS instead emphasized potential, detrimental effects on the river ecosystem; effects such as long-term sedimentation that have not been observed in numerous studies of other dam removal projects including the recent removal of the Elwha Dam, which is much larger than the proposed dam breaching of the four lower Snake River dams.	The EIS (Section 3.15.2.2) describes the existing literature on passive use values for salmon, including the study of the Klamath dam referenced in this comment, and affirms that the literature demonstrates that the general public holds value for the salmon and that the population that may benefit from increased salmon populations may be geographically far-reaching. However, due to limitations in the literature and uncertainty regarding the changes in overall fish abundance predicted under each MO (as different fish are affected positively and negatively), the EIS does not rely on this literature to estimate a monetary value of the effects on fish. The EIS evaluated beneficial and adverse effects across an array of resource areas including potential effects at the national, regional and local level; effects are monetized and quantified, where possible, and also described qualitatively. As is common in NEPA analyses, the beneficial and adverse effects of the alternatives are expressed as a variety of qualitative and quantitative environmental and economic metrics throughout the EIS to inform decision-making, including the effects of the alternatives on fish as detailed in Section 3.5. That the effects of the alternatives on fish are not expressed as monetized economic values does not mean that they were not considered in the context of the analysis. The EIS does not employ a cost-benefit framework for decision-making. Instead, the EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations.
58802	12	R. Kirk Schroeder	N/A	Power generation of lower Snake dams is overstated. Output of the dams is less than capacity because power generation is highest in spring and cannot operate at capacity during summer and fall. Low flow in winter and environmental requirements in summer means the four dams provide on average just 2% percent of the needs during the period of highest demand(winter and summer), and is often surplus to regional needs and sold to markets whose demands have shrunk over time.	The comment is correct that power generation at the lower Snake River projects (average about 1,000 aMW) is less than the installed capacity of these projects (3,033 MW). However, the models that are used in this EIS include the hydroelectric generation over the historic record and historic volume and shape of the flows including the high spring flows and do not assume that 3,033 MW of energy is produced. The EIS describes the operational characteristics of the four lower Snake River dams in Section 3.7.3.5 - Lower Snake River Full Replacement (Used in Rate Sensitivity Analysis). As described in that Section, although the dams are run-of-river, the projects do have 1 to 5 feet of operating range for their elevation plus there is upstream storage that is used to increase their firm capacity. This enables these projects to provide up to 2,000 MW of sustained peaking capacity at certain times of the year. In the Draft EIS, see Section 3.7.3.5, Lower Snake River Full Replacement, pages 3-905-907; and Table 3-160. The comment suggests that the four lower Snake River dams produce little energy in the winter. This is incorrect. These projects produce a substantial amount of power in the winter, which is currently the region's highest demand period. See Section 3.7.3.2, Table 3-122 in the Draft EIS. The four lower Snake River dams also have unparalleled ramping capability, the ability to quickly generate energy to match spikes in energy usage with over 2,000 to 2,300 MW of capability in certain months of the year. The comments suggestion that the four lower Snake River dams only produce two percent of the needs for power is inconsistent with the findings of the EIS. The analysis for MO3 demonstrates that the capability of the Federal Columbia River Power System (FCRPS) would be reduced by up to 13 percent. In the Draft EIS, see Section 3.7.3.5, Changes in Power Generation, Table 3-159. The comment states that the output of the four lower Snake River dams is sold as surplus and to markets that have shrunk over time. This is incorrect. Bonneville sells power from the FCRPS as a unified system, not from specific projects. In this regard, the power generated from the four lower Snake River dams is not exclusively sold as surplus, but rather is used to meet Bonneville's collective power obligation, most of which is sold to meet the loads of publicly owned utilities, such as municipalities, rural utilities, and public utility districts. See Section 3.7.2.5, Bonneville Power and Transmission Customers in the Draft EIS.
58802	13	R. Kirk Schroeder	N/A	Costs of wind and solar power has continued to drop and could provide economical replacement power. One study estimated the increase in rates at $1.28 per month up to $1.3 8/month with additional greenhouse gas reduction policies. Costs would be lower if cost of wind and solar power further decrease. In addition, a study found that greenhouse gas emission would rise less than 1% under one scenario and decrease 2% under another scenario.	The statement that prices for renewable resources are declining is consistent with historical trends. The EIS also acknowledges that the energy sector is constantly undergoing transformation and that technological improvements will likely bring other options. To avoid speculation, the EIS relies on the best available cost information for the primary technologies identified by the Northwest Power and Conservation Council (Council) in their 7th Power Plan (page 13-5) and Mid-term Update. The 7th Power Plan was issued in February 2016, and the Mid-Term Update was issued in February 2019. See draft EIS, Section 3.7.3.1, Step 3: Determine Need for Potential Replacement Resources and Associated Costs at page 3-821 and Appendix H, Power and Transmission, Section 2.2. To further address concerns about potential reductions in resource costs, consistent with the comment, publicly released draft information, such as updated prices for solar and battery storage, from development of the Council's 8th Power Plan is included as rate sensitivities in the final EIS. The final EIS also includes the de-escalating cost curves prepared by the National Renewable Energy Laboratory that will likely be used by the Council in its 8th Power Plan. The source of the cost statistics described in the comment may be a study commissioned by the Northwest Energy Coalition (NWEC) and the results are not consistent with the findings of the EIS. As described in the draft EIS in Section 3.7.3.5 and Appendix H, Power and Transmission, Section 2.4, page H-2-16, the EIS considered the NWEC study cited in the comment, but it is not directly comparable with the EIS for several reasons, including that the EIS has a broader scope and relies on more recent regional load and resource availability and costs data. The EIS acknowledges past studies of breaching the four lower Snake River dams, but relies on more recent data and models, where appropriate.
58802	14	R. Kirk Schroeder	N/A	Costs are understated. Costs of operating and maintaining the dams has not been fully accounted in the DEIS, especially the high costs of turbine replacement and maintaining the aging infrastructure. One estimate showed that removing the dams and buying replacement power on the open market would cost $11 million/year, which is $38 million/year cheaper than estimated maintenance and operation costs of lower Snake dams. This estimate did not include benefits from reducing costs needed for juvenile fish passage and turbine replacement (a turbine replacement at McNary Dam was $46 million).	Turbine replacement and other capital requirements to maintain the four lower Snake River projects are included in the cost analysis for the appropriate alternatives, as described in Section 3.19 and Appendix Q.(see Section 4.2). Estimated costs for capital and O&M are $107 million annually for the four lower Snake River projects. Under MO3, the Lower Snake River Compensation Plan would no longer be funded, with a cost savings of $34 million. Bonneville's Fish and Wildlife Program costs are systemwide costs. Breaching the lower Snake River dams may result in changes to Bonneville's Fish and Wildlife Program. However, funding decisions for the Fish and Wildlife Program are not being made through the CRSO EIS process. Future budget adjustments would be made in consultation with the region through Bonneville's budget-making processes and other appropriate forums and consistent with existing agreements. Additionally, the cost analysis estimates the capital and O&M costs savings that would occur under MO3 (see Table 4-1 and 5-1 in Appendix Q). The capital costs include additional construction and capital requirements that would be needed in the future to maintain the four lower Snake River dams. Considering hydropower costs and values, the average annual value of the four lower Snake River dams exceeds the average annual equivalent costs. The generation value at the four lower Snake River dams can be described by a range between the cost to replace the generation through new conventional resources or through a portfolio of zero-carbon resources. Although the costs of replacing the power with market purchases was analyzed, it is unlikely that short-term wholesale power markets could reliably replace the power for the long term. This range would put the annual value of power between $240 million and $500 million for the four dams combined. These numbers represent about 90 percent of the lost benefits cited in Table 3-171 of the Draft EIS because the four dams represent about 1,000 aMW of the 1,100 aMW of lost generation estimated in MO3. The average annual cost to operate and maintain all authorized purposes at the four lower Snake River dams is $75 million (Appendix Q, Table 5-1) and the annual-equivalent capital costs are $32 million (Appendix Q, Table 4-1). Hydropower costs funded by Bonneville represent about $50 million of the total annual operations and maintenance costs and nearly all of the annual capital costs, approximately $31 million. This puts the annual-equivalent power-specific costs at approximately $81 million a year. As a result, the net benefits from hydropower for the four lower Snake River dams are between $159 million and $419 million and the benefit-cost ratios are between 3.0 and 6.2. If the $34 million per year for the Lower Snake River Compensation Plan is added to the capital and expense costs, benefits still exceed costs under each replacement power scenario. Considering these costs, the net benefits range from $125 million to $385 million and the benefit-cost ratios range from 2.1 to 4.3. In the less-likely scenario that generation could be reliably replaced with short-term wholesale market purchases and assuming that the four dams represent 90% of the $150 million in market purchases required to replace the lost generation cited in MO3 (see Table 3-170), the lower bound for net benefits would fall to $54 million and the benefit-cost ratio would fall to 1.7. With the Lower Snake River Compensation Plan included, the lower bound for annual net benefits becomes $20 million and the benefit-cost ratio becomes 1.2. From a resource competitiveness perspective, the four lower Snake River dams are among the least costly generating resources in the Federal Columbia River Power System (FCRPS) and the planned investment strategy is expected to maintain that status. As shown in the Federal Hydropower presentation at the 2018 Integrated Program Review , the Headwater/Lower Snake Asset Class is forecast to have a 50-year levelized cost of generation of $11.41/MWh based on the direct funded capital and expense (O&M) programs outlined in that process. These costs remain competitive with volatile Mid-Columbia spot market energy prices which averaged $37/MWh in 2019 and have averaged $21/MWh in 2020. 1/The Integrated Program Review (IPR) allows interested parties to see and comment on all relevant FCRPS capital and expense spending level estimates in the same forum. The IPR occurs every two years, or just prior to each rate case, and is the public review for the costs that will be recovered through rates the following two-year rate period. Long-term forecasts for the next 50 years and major upcoming projects are also shared in this forum. This information is available here: https://www.bpa.gov/Finance/FinancialPublicProcesses/IPR/2018IPR/IPR%202018%20Fed%20Hydro%20Workshop.pdf and is incorporated by reference into this EIS. 2/In the 2018 Integrated Program Review, the Headwater/Lower Snake Asset Class consisted of the four lower Snake River dams, Hungry Horse, Libby, and Dworshak dams. These projects were grouped together because they have similar cost characteristics. The Levelized Cost of Generation for the four lower Snake projects alone is slightly lower than that for the whole class including the headwater projects shown in the table. 3/Levelized Cost of Generation is defined as the forecasted direct costs and administrative overheads of producing power at a plant annualized over a 50-year period. This cost includes direct funded operations, maintenance, administrative and capital costs as well as Columbia River Fish Mitigation (CRFM) costs. Bonneville systemwide mitigation costs, such as its Fish and Wildlife program, are not included in this metric.
58802	15	R. Kirk Schroeder	N/A	The DEIS overstated the economic impact of dam breaching on barge transportation. Barge transportation is now heavily subsidized and have declined by 45% (grain) to 70% (freight) over the last 20 years, often in favor of shipping by rail. Locks will need extensive maintenance and rebuilding in the coming years because of their age.	Access to barge transportation is the most cost effective means of accessing export markets for many grain producers in the Pacific Northwest currently and removing that option will increase transportation costs for grain producers, as the EIS shows. It is true however, that barge movements on the Snake/Columbia river including grain and other commodities have declined over the past 20 years, but it also appears that the decline has stabilized over the past 10 years. The text of the EIS has be updated to describe how downriver shipment volumes have stabilized in recent years.
58802	16	R. Kirk Schroeder	N/A	Irrigation is not a priority use of the lower Snake River dams and costs of replacing the irrigation supplied by a single reservoir is low compared to benefits of breaching the dams. In some cases, this would merely require extending intake pipes to the river level.	This EIS discusses engineering solutions (pipeline extensions for example) in Section 3.12.3 Environmental Consequences - Specifically under Region C under the MO3 alternative (see page 3-1267, line 3244, in the Draft EIS) and in Appendix N. The report which this EIS draws upon, as discussed, concluded that modifying the existing pump system was cost prohibitive. In Region C under the MO3 alternative this analysis accordingly concludes that pumps are unable to deliver water to estimated at 48,000 acres.
58805	1	Marvin Dugger	N/A	In the early 1990's, our small group of Potlatch employeesin cooperation with members ofthe Lewiston and Clarkston Chambers of Commerce were researching environmental claims that the lower Snake River Dams were devastating salmon runs, when we learned about East Sand Island, a manmade island in the estuary of the Columbia River. The island was formed from dredging deposits in 1983 and by 1984, Caspian terns, cormorants and gulls had colonized the island and were feasting on salmon smelts. We thought "wow, this is an easy fix, tear out a manmade island and save millions of endangered fish." The environmentalists beat us to the punch. They filed in federal court to protect the island and the birds under the Migratory Bird Treaty Act of 1918. Now we have the largest nesting colony of these nonendangered birds in the world, on a manmade island. Every year these birds slaughter 20-30% of juvenile salmon entering the ocean. According to a study done by Oregon State University, between the years	The Proposed Action includes continuing management plans for Double crested cormorants and Caspian terns on East Sand Island. One point of correction, East Sand Island, while used in the past as a dredge material disposal site, is not man-made. The goal of the CATE management plan was to reduce habitat at East Sand Island to a minimum of 1.0 acre following the creation/enhancement of habitat at alternative sites outside of the Columbia River basin. Habitat creation/enhancement was completed and habitat at East Sand Island reduced to 1.0 acre preceding the 2015 breeding season. The number of breeding pairs nesting on East Sand Island was used as a proxy to assess predation rates, but the stated goal of the plan was defined as an acreage of habitat and not the number of pairs in the estuary which has been met. The one acre of habitat will continue to be maintained through the Corps Operations and Maintenance group and coordinated with the FPOM. The management goal of the DCCO plan was a reduction of the breeding colony at East Sand Island via lethal and non-lethal means to no more than 5,380 5,939 breeding pairs nesting. As described in the DCCO management plan, an average 3-year peak estimate of the breeding colony would be used to assess management objectives after implementation of Phase II activities (i.e. habitat modification). Actions would be considered successful when the average 3-year peak colony size estimate does not exceed 5,380 5,939 breeding pairs while no management activities are conducted. In coordination with USFWS, the Corps defines no management activities to mean non-lethal activities described in Chapter 5 of the FEIS.

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				2000-2015, they killed about 200 million juvenile fish. Since the island was created, the birds have probably consumed somewhere between 3 and 4 hundred million smelts. After they leave the Columbia, studies show that about eighty-eight percent of the remaining fish die during their 2 or 3 years in the ocean from predators, adverse ocean conditions, and commercial fishing. The Frazier River in Canada is very similar to the Columbia River system, it and other streams along the west coast of the U.S. and Canada that have no dams, have the same fish problems as the Columbia River system. Bad ocean conditions equal bad fish runs. Each year for the last three decades, between the mouth of the Columbia river and Bonneville dam, about 40% of returning fish have been killed by thousands of nonendangered seals and sea lions. There are about 8000 of these animals now and only in the last several years has there been any meaningful effort to control their exploding numbers. The environmentalists have staunchly opposed any real effort to control these animals. Then, further upstream another 30% of the returning fish die from commercial and sport fishing, and Indian fisheries. If these fish are truly endangered, why do we keep killing them?	Specifically, Phase II activities are intended to consist of lower maintenance, non-lethal hazing and dissuasion actions that reduce the amount of human presence needs on East Sand Island to ensure colony size objectives are not exceeded. Hazing and dissuasion activities would be implemented as needed, and would continually transition to methods that are most effective, least impactful to non-target species, and require the least management effort and cost. Pending evaluation of the peak colony size during the 2020 breeding season, if the average 3-year breeding colony is less than 5,939 breeding pairs, management objectives will be met and actions will transition long-term operation and maintenance of the colony. The co-lead agencies have no authority to manage fisheries, and therefore there were no measures included in any of the alternatives on fisheries management.
58805	2	Marvin Dugger	N/A	Meanwhile, the same groups who are trying to destroy our dams are forcing the closure of coal fired power plants. Over the next 8 years, 12 coal fired plants across the west will be forced to close. A huge block of dependable energy will be lost, enough to power 3.8 million homes. The Northwest Power and Conservation Council was set up by congress to monitor situations like this. They continually run computerized scenarios for what they call Loss of Load Probability, the chance that our supply of power will not keep up with demand. A rating of 5% or less is acceptable. Their computer simulations are predicting 26-33% chance of loss by 2026. In other words, power blackouts, and that's not even considering the loss of our dams. We get 60% of our power from dams.	The statements that coal-fired power plants in the region are expected to retire and that the resulting Loss of Load Probability would be well above the Northwest Power and Conservation Councils target of 5 percent are consistent with the findings of the EIS. See Appendix H, Power and Transmission, Section 2.3 at H-2-8 15 in the Draft EIS. While the regional coal-fired generation is owned by investor-owned utilities, changes in their generation do affect the regional power supply and reliability, which in-turn affects the Columbia River System projects contributions to regional reliability. In the Draft EIS, see Section 3.7.3.2, No Action Alternative, 3-845-84, Table 3-123.
58806	1	rsjlmules@icloud.com	N/A	If theyre ever removed, it will cost many individuals their livelihood and will eventually change the geology of the areas in both sides of the river. Primarily removal would offset the geological stability associated with all roads that parallel the river. Resulting in the current highways being pushed towards the river should the dams be removed because of the removal of the current pressure provided by the stabilized geological pressures of the lakes formed below each of the dams. Dont take my word for it but consult with the Corps of Engineers they are well aware of this fact.	Reduction in slope stability associated with the exposure of saturated soils can arise when submerged shorelines experience a rapid reduction of the adjacent reservoir water level. More specifically, as the hydrostatic pressure exerted by the reservoir is reduced, the hydraulic pore-water pressure and internal stresses within the newly exposed soils are relatively higher until they gradually drain. During this draining period, saturated slopes are more susceptible to creep and failure and this risk can be exacerbated by additional stress such as: overland drainage, upslope surcharge loading or toe erosion.
58807	1	rhayden@portofpasco.org	Port of Pasco	The Tri-Cities in particular is heavily reliant on the power supplied by Ice Harbor Dam and would experience seasonal brownouts if the dam was removed. Our farmers and manufacturing businesses would not be viable without access to reliable power provided by the dams. Affordable and renewable hydroelectric power also supports other intermittent renewable energy sources such as wind and solar, providing reliable energy for our citizens and businesses when wind and solar cannot.	The suggestion that regional reliability would decline if Ice Harbor Dam ceased generation without replacement power resources and transmission reinforcement is consistent with the findings of the EIS as described in the Bonneville Transmission System Reliability and Operations subsection of Sections 3.7.3.3 through 3.7.3.6 and in Section 3.7.3.5, Potential Replacement Resources and Associated Costs of the Draft EIS. Under Multiple Objective alternative 3, which includes the measure to breach the four Lower Snake river dams, the loss of generation at Ice Harbor would require that a transmission reinforcement project be in place prior to breaching of the dams. If the dams were breached prior to completion of the reinforcement, the Tri-Cities area would be vulnerable to a potential loss of load event. The commenter's additional suggestion that hydropower is valuable for balancing intermittent generation sources such as wind and solar is consistent with the findings of the EIS. This is described further in Section 3.7.3.5, Potential Replacement Resources and Associated Costs in the Draft EIS.
58807	2	rhayden@portofpasco.org	Port of Pasco	Much of our nations grains, and the food we enjoy and depend on daily, is transported up and down the river system. The fuel and fertilizer needed to grow that food in our region is also transported on the river. In the Tri-Cities, at certain times of the year nearly half of the fuel used by farmers and consumers arrives by barge. Our economies are not prepared to function if barging on the Columbia and Snake rivers is eliminated. Our highway, rail, and grain elevator networks would need over $1.1 billion in capital investments to adapt. This includes hundreds of miles of shortline rail track that have been abandoned; new rail; major highway improvements; and retrofits for grain elevators that do not have rail-loading capabilities.	The EIS finds that under a dam breach scenario, average transportation costs for wheat farmers would increase 10 to 33 percent, but that individual farmers could experience increases that are doubled. The cost increases to specific shippers would depend upon location and would vary throughout the region, depending on transportation options at each location. Generally, those grain shippers that are the furthest from alternate shipping locations (shuttle rail facilities or river ports on the Columbia River) would be the most negatively impacted. Section 3.10 of the Draft EIS provides an evaluation of the Columbia-Snake River Navigation System, assessing its relative efficiency, low costs for shippers, safety considerations, low air emissions relative to other transportation modes, potential regional economic effects, and other social effects that could occur under MO3. The EIS acknowledges that depending on how rail rates respond to dam breach, shortline rail capacity could be exceeded. The EIS also evaluates the additional transportation infrastructure investments and associated costs that would be required, as well as the increases in air emissions that would occur. Under low rail rate increase scenarios, additional shortline rail capacity would be required that could cost $25 to $50 million. Under a scenario where rail rates increase by 50 percent, more shipping demand would be transferred to trucks, reducing the demands on rail infrastructure, but increasing demands on roads. Under this scenario, up to $10 million in additional road wear and tear costs could occur. The EIS evaluates potential effects on farmers associated with increased transportation costs under MO3 in Section 3.10.3.5.
58807	3	rhayden@portofpasco.org	Port of Pasco	We are proud of the major improvements that have been made in fish runs through the Columbia/Snake River system. We all agree more needs to be done, but we need to consider the whole ecosystem affecting salmon and not limit our focus to just the Columbia/Snake dams. The investment in world-class fish passage infrastructure has improved to help over 95% of fish pass the dams on their journeys up and down river. The result is that fish populations on the Snake River have trended upward for the past 25 years. Breaching the dams would have marginal and uncertain improvements to fish populations and deprive our communities of the dams substantial and documented benefits.	The co-lead agencies have incorporated extensive improvements in structure and operation to mitigate for the effects of the CRS dams. Fish ladders have been shown to be effective in passing up high numbers of adult salmon and steelhead, while spill and barging operations have improved downstream survival and passage. In fact, the lower Snake River dams passed a record number of salmon and steelhead as recently as 2014, while also producing power, navigation, and recreation. Relative to breaching, the EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets most other EIS objectives including those for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS, the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams, because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system.
58808	1	orcharding@yahoo.com	N/A	You need to have actual public meetings when the corona virus pandemic is over. Something as important as Saving the Salmon as well as all the other objectives needs to be fully heard, discussed, and thought aboutnot quickly decided while folks are distracted with the virus panic. Really, this is not acceptable. The agencies involved know better	The co-lead agencies considered requests to extend the public comment period. This NEPA process included a wide array of cooperating agencies whose close involvement throughout the process allowed the co-lead agencies to incorporate feedback. Given the broad range of comments received and the extensive Federal and non-Federal participation in the overall process as well as the level of public engagement in the six virtual public meetings in the region, the co-lead agencies determined that an extension was not warranted and that the 45-day public comment period was adequate consistent with NEPA regulations. On April 9, the CRSO EIS website was updated to inform the public that they should plan to submit comments by the close of the comment period. In response to COVID-19 concerns and public health requirements within the comment period, the agencies converted the six planned in-person regional public comment meetings to conference calls that provided an approach consistent with the format of the planned in-person comment meetings. To ensure adequate opportunity for the public to provide comments on the Draft EIS, the agencies hosted an online comment platform, providing mailing addresses for written comments, and hosted a series of public comment meetings by telephone. The co-lead agencies offered these public comment meetings by telephone to maintain our commitment to accepting verbal comments in accordance with current public health guidelines. These teleconference meetings were structured similarly to the previously scheduled in-person public comment meetings and provided speakers with the same amount of time to submit a verbal comment.
58815	1	afarmllc@embarqmail.com	N/A	The one thing that really bugs me is the talk about saving the Snake and Columbia Rivers salmon by removing the dams and or spilling water. What is little known, the original Snake River salmon were lost long before the dams were built and restocked with Alaska salmon in the early 1900s. Salmon would greatly benefit by cleaning up the rivers and sounds and having the Corp re-dredge the mouth of the Columbia River. If people really would study the problem and stop reacting to unverified information, they would see the true benefits of the dam system and correct the minor problems with the system.	The co-lead agencies also recognize that there are many effects to salmon and steelhead populations outside the operation of the dams; including those you mention here. Research continues to evaluate the magnitude of these effects. For more information see the NMFS website at: https://www.nwfsc.noaa.gov/research/index.cfm. This EIS analyzes the effects of operation, maintenance, and configuration of the CRS projects. The items listed in this comment are beyond the scope of this EIS.
58819	1	chandra.ferrari@tu.org	Trout Unlimited	Trout Unlimited (TU) respectfully requests that the U.S. Army Corps of Engineers (Corps), Bureau of Reclamation (BOR) and Bonneville Power Administration (BPA) (collectively the Action Agencies) extend the public comment period on the Draft Environmental Impact Statement (DEIS) for the Columbia River System Operations (CSRO) to a minimum of 120 days. The current public comment period of 45 days is insufficient to allow meaningful public comment on such a complex and voluminous document; the DEIS is almost 8,000 pages including appendices. This request is consistent with the Action Agencies past practice. The scoping process for the CRSO, a much simpler step in the National Environmental Policy Act (NEPA) process, was afforded a 120-day public comment period. The issues addressed in the DEIS affect people, businesses, governments and communities throughout the Northwest and beyond. In order to ensure all interested individuals and entities are given an adequate opportunity to review, analyze, consider and comment on the DEIS, a minimum 120-day public comment period is required.	The co-lead agencies considered requests to extend the public comment period. This NEPA process included a wide array of cooperating agencies whose close involvement throughout the process allowed the co-lead agencies to incorporate feedback. Given the broad range of comments received and the extensive Federal and non-Federal participation in the overall process as well as the level of public engagement in the six virtual public meetings in the region, the co-lead agencies determined that an extension was not warranted and that the 45-day public comment period was adequate consistent with NEPA regulations. On April 9, the CRSO EIS website was updated to inform the public that they should plan to submit comments by the close of the comment period.
58821	1	N/A	N/A	Without the Snake River locks, the 3.5 million tons of cargo, normally shipped by barge, would be shipped by train and truck. It is estimated that it would take more than 35,140 rail cars to carry this cargo, or more than 135,000 semi-trucks. The rail and infrastructure along the Columbia River are not prepared to function with the loss of barging on the Snake River. Northwest ports and navigation interests have always strongly supported robust salmon recovery efforts that preserve the multiple uses of the river system.	This information in this comment is largely consistent with the findings in Section 3.10 of the EIS.
58821	2	N/A	N/A	I believe, like most, that salmon runs have been affected by a variety of factors. A commitment to improving all four of the Hs of salmon recovery - hydro, habitat, harvest, and hatcheries - is necessary for listed species to recover. Extreme measures like dam breaching have been studied and rejected numerous times over the last twenty years. The dramatic increase in fish returns over the last ten years demonstrates the success of regional investments in fish passage, habitat, and other river improvements.	The Draft EIS describes and acknowledges the multitude of factors that affect salmon and steelhead throughout their life cycle in the Affected Environment. The Draft EIS analyzes the effects of configuration, maintenance, and operation of the CRS projects in Chapter 3.4. The scope of the Draft EIS focuses on the area affected by the alternatives presented for operation and configuration of the CRS projects. We agree that there are many effects to salmon and steelhead populations outside the operation of the dams. Research continues to evaluate the magnitude of these effects. For more information see the NMFS website at: https://www.nwfsc.noaa.gov/research/index.cfm. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets most other EIS objectives including those for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS, the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams, because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system.
58823	1	N/A	N/A	Either breaching dams or increasing spillage will not save a significant additional percentage of fish and is untried wishful thinking. The 3% of fish that do not make it could easily be made up by a slight increase in hatchery output.	The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. MO3 (dam breaching) was not selected as the Preferred Alternative. Hatchery programs are included in the No Action Alternative and would be expected to continue under alternatives MO1, MO2, and MO4, and certain hatcheries would continue under MO3. No new hatchery programs are considered as mitigation under any alternative, but MO3 does include increased hatchery production due to short-term impacts from breaching the four lower Snake River dams. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Under this alternative, hatchery programs would continue as proposed under the No Action Alternative, and a number of other mitigation measures would continue as well, but no new hatchery programs are proposed.
58823	2	N/A	N/A	One critical impact of removing dams that few seem to have considered, is the massive impact on river navigation and transportation. We certainly cannot go back to the hazardous and extremely dangerous river navigation methods of days gone by before our dams and locks were built. Loss of this resource would be extremely detrimental to our economy and greatly increase the amount of trucks on the roads. Not only would this greatly increase	The EIS found that under MO3, truck trips could increase, ranging from an additional 14,000 to 79,000 truck trips per year, which would increase air pollutant and greenhouse gas emissions and add to traffic and congestion in the region. The EIS evaluates options for renewable energy sources to replace lost hydropower under MO3, the alternative that includes dam breach measures. However, assumptions regarding the potential use of electric trucks is not included in the EIS.

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				the amount of fossil fuel use for the foreseeable future, it would impact infrastructure maintenance costs and safety, jamming our roads with trucks. Even if it does become feasible to manufacture fully electric long-haul trucks in any quantity beyond experimental prototypes, the logistics of recharging them en-mass is a massive problem that will be extremely difficult to solve. People naively think that fast charging is going to solve that but they do not understand the immense electrical current required to do that at the low voltages of batteries, which also has its own problems of large copper conductor needs and its own dangers. If it were feasible to generate large amounts of power by solar methods, we would have to find a way to store it for night time use. Batteries are just not feasible in that capacity.	
58823	3	N/A	N/A	However, a method used in the UK might work by pumping water up to reservoirs during the day or off-peak times and generating hydroelectric power with it at night or peak usage times. This could do double duty for our water also by pumping it back behind the dams and reusing it, allowing for greater spillage to protect fish with no loss of hydro power of other or other valuable resources and making use of solar power at night. Its at least worth some thought.	The EIS did evaluate pumped storage as a potential replacement resource among other storage technologies. See, Section 3.7.3.5, at 3-909 in the Draft EIS. While there are several feasible sites in the region that could provide pumped storage capacity, those projects have additional costs, permitting and environmental concerns. There is also uncertainty that these resources would provide sufficient energy and capacity to provide a credible source of replacement resources. Further, the capability of these pumped storage sites would not be able to address the scope of replacement resource needs considered in the EIS. See draft EIS, section 3.7.3.5, at 3-909. Appendix H (Chapter 2) provides additional details on resource selection, including discussing pumped storage. Screening of these systems to minimize harm to fish was also a concern for these types of systems and may require additional mitigation if installed.
58826	1	robin.priddy@bentoncleanair.org	Benton Clear Air Agency	Benton Clean Air Agency in Benton County, Washington is concerned about the effects of additional truck and train shipping on air quality particularly in the lower part of the Columbia River Basin should dams be removed, or the management of the dams changed so that barge traffic can no longer pass down the Snake River as it does currently. Benton County is adjacent to Franklin and Walla Walla Counties at the confluence of the Snake and Columbia Rivers is the Lower Columbia Basin. The four snake river dams under consideration are upstream of this confluence. Currently, approximately two million tons of agricultural products move down the Snake River through these dams. This traffic is examined in detail in the EIS. Ozone is the specific pollutant of concern. The current Design Value for Kennewick is 69 ppb. The Federal Limit on the concentration of ozone as defined in the National Ambient Air Quality Standards (NAAQS) is 70 ppb. Beginning in 2015, ozone has been monitored in Kennewick and found to be consistently present in concentrations that approach the Federal limit in the NAAQS. Ozone is formed from a combination of four things: NOX which comes from combustion - IC engines VOC, also from IC engines and fuel Sunlight which we have in abundance, and Hot, still air the months of June, July, August especially A detailed study that was done by Washington State University and the University of Washington along with WA Department of Ecology in 2016 clearly identified that the ozone precursors NOX and VOCs are coming from vehicle traffic. Additional vehicle traffic that would be created by removing or changing management of the dams is a great concern. A Snake River Dams fact sheet showed that it would take 135,000 semis or 35,140 rail cars to replace barges, each year. This traffic would be moving during the time of year in which we are most likely to develop high levels of ozone (July September). Our region is very close to the Federal Limit. Exceeding that limit has a negative impact on public health and could result in restrictions on businesses and transportation development in the region. Please take ozone, and the specific conditions affecting ozone formation in the Tri-Cities into consideration in the Air Quality Analysis provided in the EIS.	While the EIS analysis includes the same estimate as this comment of approximately two million tons of freight moving on the lower Snake River, the EIS does not find that breaching the four lower Snake River dams would result in 135,000 semis or 35,140 rail cars to replace the barging along the river (please see Section 3.10.3.5 in the Draft EIS). The EIS estimates that rail ton-miles would increase from 819 million up to 1.5 billion and truck ton-miles from 463 million up to 855 million, depending on rail rate increases. Section 3.8 of the EIS (Air Quality and Greenhouse Gases) describes public health concerns and air quality standards related to ozone and emissions of ozone precursors. Section 3.8 also identifies the potential for changes in air pollutant emissions to affect air quality, in particular in areas that are not meeting current air quality standards (non-attainment areas) or have not met them in the recent past (maintenance areas). Because the area described in this study is neither a non-attainment nor a maintenance area, it was not specifically identified in the analysis. However, the EIS does find that Multiple Objective Alternative 3 would increase air pollutant emissions, including due to increased on-road vehicles, and make compliance with air quality standards more difficult in the area surrounding the dams. Specifically, Section 3.8.3.5 describes that the increase in truck freight transportation and truck related emissions is likely primarily in Washington (also see Section 3.10.3.5 and Appendix L for additional detail and maps of potential truck traffic). However, Multiple Objective alternative 3, which includes the measure to breach the four lower Snake River dams was not identified as the Preferred Alternative in the Draft EIS.
58827	1	jonasseiler2@gmail.com	N/A	Obviously, the scope of the CRSO EIS is too narrow to solve the entire problem, which is also stated in the document itself.	The co-lead agencies respectfully disagree. The CRSO EIS has identified a reasonable range of alternatives that are capable of meeting the Purpose and Need Statement and to varying degrees the EIS objectives and the analysis is tailored to the area of effect for each affected resources.
58827	2	jonasseiler2@gmail.com	N/A	The Draft EIS relied on a qualitative, rather than quantitative, analysis to evaluate impacts despite the existence of several current studies on the economic contributions of outdoor recreation and sport fishing in states with salmon and steelhead. This is in contrast to water supply, irrigation, navigation, and hydropower generation, which were all evaluated quantitatively.	Quantitative evaluations were conducted to determine the effects of each of the alternatives when appropriate. In instances when quantitative evaluations were not appropriate or possible, qualitative discussions are included to describe the effects of each of the alternatives. The evaluations are clear, transparent, and repeatable based on the high quality information. The EIS evaluated beneficial and adverse effects across an array of resource areas including potential effects at the national, regional and local level; effects are monetized and quantified, where possible, and also described qualitatively. As is common in NEPA analyses, the beneficial and adverse effects of the alternatives are expressed as a variety of qualitative and quantitative environmental and economic metrics throughout the EIS to inform decision-making, including the effects of the alternatives on fish as detailed in Section 3.5. That the effects of the alternatives on fish are not expressed as monetized economic values does not mean that they were not considered in the context of the analysis.
58827	3	jonasseiler2@gmail.com	N/A	It is unacceptable that the Draft EIS did not use publicly-available data sources to quantify the devastating financial impacts of declining salmon and steelhead populations on rural communities in Idaho and the Pacific Northwest.	The EIS described the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. NMFS estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which is described qualitatively. For the effects on recreational fishing under MO3 (Section 3.11.3.5) along the lower Snake River below Lewiston, the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River) as an indicator for fishing visitation in this reach. The EIS describes that the visitation in the long-term in the lower Snake River, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting outfitting and tourism businesses in the region. The social welfare values and regional economic effects associated with recreational fishing under the MOs, as well as river recreation post dam breach under MO3, were not estimated because of the uncertainty and large range in visitation and consumer surplus values among users.
58827	4	jonasseiler2@gmail.com	N/A	Attached is a screenshot of the qualitative vs quantitative approach for recreation and other uses. This slide is directly from the BPA presentation on the EIS given to Governor Little's Salmon Workgroup earlier this month. Many of the Workgroup members found it equally troubling. Highlighted is the conclusion that 'social welfare benefits may occur' for MO3. The fact that no quantitative analysis was done to accurately depict how important recreation is to Idaho's rural economy is embarrassing.	The EIS provides an evaluation of the social welfare and regional economic effects of the No Action Alternative and the Multiple Objective alternatives, including the effects on recreation (Section 3.11). The EIS Section 3.5.3.6 describes the long-term effects to anadromous fish migration in the Snake River and tributaries that would occur under a dam breach scenario as major and beneficial, although quantitative impacts from fish modeling results are limited. The EIS described the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. NMFS estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which is described qualitatively. For the effects on recreational fishing under MO3 (Section 3.11.3.5) along the Lower Snake River below Lewiston, the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River) as an indicator for fishing visitation in this reach. The EIS describes that the visitation in the long-term in the lower Snake River, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting tourism businesses. A range in visitation is described in the lower Snake River post dam breach based on the evaluation in the 2002 Juvenile Salmon Migration Feasibility Study and EIS. The social welfare values associated with river recreation post dam breach were not estimated because of the uncertainty and large range in visitation and consumer surplus values among users. In addition, the timeline of the EIS precluded an extensive survey of post dam breach recreation.
58839	1	N/A	N/A	One area of salmon enhancement that has had absolutely wonderful results has been the barging of smolts down the river.	The co-lead agencies have incorporated extensive improvements in structure and operation to mitigate for the effects of run of river dams on the Snake and Columbia Rivers. Fish ladders have been shown to be effective in passing up high numbers of adult salmon and steelhead, while spill and barging operations have improved downstream survival and passage. The co-lead agencies have proposed to continue the use of barge and truck transportation, albeit at lower rates than under previous spill operations. However, the majority of juvenile fish will migrate in-river. As the comment notes, transportation by barge or truck has been shown to provide a benefit that varies by species, by time of year, and by water condition. The juvenile salmon transportation program is managed by expected fish benefits as well as cost efficiency. SAR estimate for each week of the outmigrations, combined with other environmental and biological data, drive the decisions. Prior to these data being available, transportation began at the beginning of April; however, we learned that fish transported in early April performed very poorly. Transporting too early is not effective and does not justify the expense.
58839	2	N/A	N/A	We still face the fact that 1 in 4 smolts are consumed by the (NON NATIVE, INVASIVE) arctic tern colonies on the three sand islands (dredge spoils) in the lower Columbia River. Just the removal of these predators would instantly increase salmon and steelhead survival by 25%.	The co-lead agencies recognize the value in measures to reduce avian predation, including at native Caspian tern colonies in the Columbia River estuary and have historically supported actions to mitigate adverse effects to listed species from CRS operations, through funding, direct implementation, and other means. Under the Preferred Alternative, those actions, including implementation of actions for the purpose of reducing predation on ESA-listed species, would generally continue to ensure compliance with the ESA. While arctic terns do not nest in the Columbia River basin, the proposed alternative includes continued implementation of (1) dissuasion measures at the Corps' CRS facilities as described in the annual Fish Passage Plan and coordinated with the FPOM, (2) the Inland Avian Predation Management Plan (IAPMP), (3) Caspian tern management plan for reduction in habitat at East Sand Island, and (4) the Double-crested cormorant (DCCO) management plan at East Sand Island. Other entities in the region also have authorities and obligations to mitigate the impacts from predators and the co-lead agencies will continue to work closely with those entities to benefit ESA-listed salmonids. However, the co-lead agencies are limited to implementing measures that are within the authorities of the agencies. Depredation permits, including those for the removal of avian predators, are issued to alleviate some form of damage, not to achieve population control. As a result, depredation permits are issued only if the requested lethal take of birds is consistent with the conservation of the species (e.g., the species remains at a healthy and sustainable level). (From USFWS DCCO FAQ website: https://www.fws.gov/pacific/migratorybirds/pdf/DCCOQ_A_USFWS03212016.pdf)."
58839	3	N/A	N/A	The timid, half steps to eliminate marine mammal predators - seals and sea lions (which are ABUNDANT in population) in the Columbia below Bonneville dam should be greatly accelerated; many of the fish they kill are Snake River fish.	The co-lead agencies legal authorities relate to operating and maintaining the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. To comply with the ESA, the co-lead agencies have historically supported actions to mitigate adverse effects to listed species from CRS operations, through funding, direct implementation, and other means. Under the Preferred Alternative, those actions, including for the purpose of reducing pinniped and avian predation on listed species, would generally continue to ensure compliance with the ESA. Other entities in the region have authorities and obligations to mitigate the impacts from pinniped and avian predators and the co-lead agencies will continue to work closely with those entities to benefit ESA-listed salmonids.
58839	4	N/A	N/A	More than half the wheat exported comes down the river system to load ocean going vessels at the Portland docks. I cannot imagine the damage that 5-600 heavily loaded semi trucks daily would do to our freeway system, but I know it would be expensive. There is another cost to consider, I have never	The EIS found that under MO3, which includes breaching the four lower Snake River dams, truck trips could increase, ranging from an additional 14,000 to 79,000 truck trips per year (38 to 216 per day on average), which would increase air pollutant and greenhouse gas emissions and add to traffic and congestion in the region. The EIS also discusses in Section 3.10.3.1 that changes in transportation modes can also have implications for public safety. In particular, the EIS states that accident rates are generally higher for road travel than travel by either barge or rail. As such, shifts from barge to rail and truck would be anticipated to increase accident rates.

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				heard of a death relating to shipping by barge; even with our really good professional drivers, with winter weather, spring and summer thunderstorms and dust storms, there is bound to be a number of FATAL accidents each and every year - an avoidable risk.	
58839	5	N/A	N/A	In irrigated farming, without abundant reasonably priced power, we are back to farming not the garden of Eden, but the desert - Where I live annual rainfall is a meager 8-9" annually	Thank you for your comment.
58839	6	N/A	N/A	A classic example is the nearby Fraser River, less than 200 miles to the north; this is an undammed river which has experienced WILD FLUCTUATIONS in each of the half dozen salmon and steelhead species in this river; within a few years runs of 4 million zoom to 24 million and then crash again. What can be learned from this? REMEMBER, there are no dams to blame....so the logical conclusion is inexcapable; IT IS OCEAN CONDITIONS driving the wide swings in populations. I think the latest BIOP reaches largely this same conclusion.	The co-lead agencies also recognize that there are many effects to salmon and steelhead populations outside the operation of the dams; including those you mention here. Research continues to evaluate the magnitude of these effects. For more information see the NMFS website at: https://www.nwfsc.noaa.gov/research/index.cfm. While none of the alternatives would affect ocean conditions, the co-lead agencies recognize that these conditions are a major driver for adult returns and that numerous studies have shown the importance of ocean conditions in the return of adult salmon and steelhead (Peterson et al. 2019). The co-lead agencies analyzed the effects of the operation, maintenance, and configuration of the CRS projects on resources affected by the CRS, including the potential to improve conditions for ESA-listed species. The co-lead agencies also looked at the cumulative effects of other actions, including harvest in Chapters 6 and 7 of the EIS.
58839	7	N/A	N/A	Take a look at GOOGLE EARTH, following the shoreline of Puget Sound. Tens of thousands of houses on the waterfront on septic, lots of impermeable surface run off and a lack of aggressive hatchery production have created the great chinook shortage in Puget Sound. That is the core area of the problem, until that is dealt with successfully, don't even look at my lower Snake River dams.	The co-lead agencies also recognize that there are many effects to salmon and steelhead populations outside the operation of the dams; including those you mention here. Research continues to evaluate the magnitude of these effects. For more information see the NMFS website at: https://www.nwfsc.noaa.gov/research/index.cfm. Regarding Puget Sound, the effects mentioned in the comment involve a variety of issues beyond the scope of the analysis in the CRSO EIS, which analyzes the effects of the operation, maintenance, and configuration of the CRS projects. However, water quality effects for the Columbia River Basin were considered in the EIS analysis and are described in Chapter 1, 2, and Section 7.8.3 of the EIS. Additionally, the U.S. Army Corps of Engineers is in partnership with other Federal, state and non-governmental organizations and have been implementing habitat projects for salmon, orcas, and wildlife all around the Puget Sound as part of the Puget Sound Nearshore Ecosystem Restoration Project. The co-lead agencies agree that the quantity and quality of prey is one of the limiting factors identified by NMFS in recovery of SRKWs, along with vessel traffic and noise, and toxic contaminants. According to NMFS, in terms of the overall abundance of Chinook salmon available to SRKW for prey, numbers of adults from the Snake River Basin (including both hatchery and wild produced fish) are now greater than they were in the 1960s, before three of the four lower Snake River dams were built. NMFS maintains that hatcheries produce more than enough Chinook salmon in the Columbia River basin to offset losses caused by the dams. So far as researchers can determine, SRKW do not distinguish between or benefit differently from hatchery and wild fish. Hatchery fish today likely make up the majority of fish consumed by SRKW (NOAA BiOp 2020).
58845	1	N/A	N/A	Gill netting seems to be more of an issue in my opinion	The co-lead agencies also recognize that there are many effects to salmon and steelhead populations outside the operation of the dams; including gill netting. Research continues to evaluate the magnitude of these effects. For more information see the NMFS website at: https://www.nwfsc.noaa.gov/research/index.cfm. Harvest certainly has an impact on salmon and steelhead populations. The three co-lead agencies do not manage fish stocks, and do not have the authority to do so. For harvest, fisheries in the Columbia River Basin and those that rely upon Columbia River fish stocks are managed by numerous entities, including Federal, state, and tribal governments. These entities are guided by a complex array of policies, laws, compacts, and agreements. The management of Pacific salmon fisheries in particular is complex, and involves numerous entities representing a variety of social, political, and conservation interests. Changes in allowable fishery harvest in the Columbia River Basin are a result of decisions made by state, Federal (i.e., NMFS), and tribal fishery managers based on a variety of environmental, biological, economic, and social factors. Alternatives to include changes to harvest are not within the scope of this EIS. The assumptions regarding harvest are taken from the NOAA 2018 EIS and reflect current harvest management guidelines. To see their conclusions and effects analyses please go to: https://www.fisheries.noaa.gov/resource/document/environmental-impact-statement-programmatic-review-harvest-actions-salmon-and.

1.2.4 Form Letters Received

The agencies received 32 form letters (see Table 1-3 below). Form letters are defined as when a commenter sends an identical letter as other commenters. A form plus letter is when a commenter sends an identical letter but adds additional text (called variant text in this report). Note that a commenter can change the order of the form letter and delete sentences from their form letter submission. These changes would not be shown as variant added sentences. Table 1-3 also details the number of submissions the co-lead agencies received that were the form letter, and the number of submissions received that were the form letter with variant added sentences.

All form letter text and variant added sentences are shown in Table 1-4. If substantive comments were identified in the form letters, those comments were identified and the co-lead agencies provided a response. Form letter text is presented as submitted which may include spelling and other errors. This text has not been edited.

Table 1-3. Form Letter Submissions Summary

Form Letter No.*	Organization (when identified)	No. of Form Letters Received	No. of Form Plus Letters Received
1	Not Identified	1,842	383
2	PNW Protectors	31	132
3	Not Identified	40	42
4	Not Identified	6	7
5	Not Identified	2	28
6	Employees of Midstate Electric Cooperative and Columbia Basin Electric Coop	19	21
7	Inland Power	0	9
8	Not Identified	94	70
9	Not Identified	12	7
10	Not Identified	28	8
11	Not Identified	36	153
12	Not Identified	1	11
13	Not Identified	24	210
15	Not Identified	1	2
16	American Rivers	0	426
17	Not Identified	2	15
18	Not Identified	22	3
19	Not Identified	4	9
20	Members of Peninsula Light Company	2	2
21	Not Identified	21	0
22	Not Identified	1	3
24	Natural Resources Defense Council	23,778	983
25	Not Identified	25	1
26	Not Identified	36	2
27	Not Identified	7	1
28	The National Wildlife Federation Action Fund	10,342	1,371
29	Not Identified	1	12

Form Letter No.*	Organization (when identified)	No. of Form Letters Received	No. of Form Plus Letters Received
30	Employees of Columbia Basin Electric Coop and Washington Rural Electric Coop Association	264	3
32	Not Identified	38	11
33	Not Identified	0	4
34	CBD	11,969	749
35	WDC	861	197
36	Not Identified	0	3

*Form letters were numbered as found, but some that were identified as form were later identified as not form. For example, some submissions were identified as a form by the database that is used to process submissions, but were actually reference materials submitted with the same text in the web form multiple times. Therefore, the numbering of these form letters skips numbers.

Table 1-4. Table of Form Letters Received

Form Letter #	Form Letter Text	Response
1	The Southern Resident killer whales and Snake River salmon and steelhead will not survive this EIS study process. As a first step, the federal agencies can and need to begin breaching the four lower Snake River dams this year. As a parallel step, the agencies can use this new EIS process to undertake future actions. The federal agencies can no longer afford to drag the process out with another EIS that will take years while the salmon and orca go extinct. We have tried expensive bypass systems and more spill, and still, 2019 was another year of costly efforts to recover Snake River salmon with no results. Federal agencies need to begin the breaching of the Snake River dams this year. **Variant Text** • There are 72 Southern Resident Killer Whales left. • Do something about this immediately, the Southern Resident killer whales and Snake River salmon and steelhead will not survive this EIS study process. • This is unacceptable. • As a first step, the federal agencies can and need to begin breaching the four lower Snake River dams this year, 2020. • The federal agencies can no longer afford to drag the process out with another EIS that will take years to while the salmon and orcas go extinct. • As a first step, the federal agencies can use this new EIS process to undertake future actions. • In addition, BPAs financial situation will worsen each year that money is lost on the dams. • We have tried expensive bypass systems and more spills, and still, 2019 was another year of costly efforts to recover Snake River salmon with no results • Governor Kate Brown came out in favor of breaching the four lower Snake River dams in February, stating that it is the best solution to breach these dams. • The Southerm Resident killer whales and Snake River salmon and steelhead will not survive this EIS study process. • Dear U.S. Army Corps of Engineers, Bureau of Reclamation, and Bonneville Power Administration, The southern resident killer whales and snake river salmon and steelhead will not survive this EIS process. • As a first step, the federal agencies can and need to begin breaching the four lower stake river dams this year. • Federal agencies need to begin the breaching of the snake river dams this year in 2020! • as a parallel stop the agencies can use this new eis process to undertake future actions.	The co-lead agencies analyzed the effects of the multiple objective alternatives on SRKW in Section 3.6. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and the Preferred Alternative is not expected to diminish the likelihood of recovery. Additionally, Section 7.7.8 states effects to SRKW would be negligible. Thus, the co-lead agencies expect salmon and steelhead increases will come from operational measures and existing hatchery production carried forward into the Preferred Alternative. These hatcheries include conservation and safety net hatcheries, as well as through the continued existence of certain independent congressionally authorized hatchery mitigation responsibilities, including, but not limited to, Grand Coulee mitigation, John Day mitigation and programs funded and administered by other entities, such as the Lower Snake River Compensation Plan, which is administered by U.S. Fish and Wildlife Service. Moreover, NMFS concluded in its 2020 CRS Biological Opinion that operations, maintenance and configuration of the CRS is not likely to adversely affect SRKW. If MO3 were selected as the Preferred Alternative, the Corps could use the CRSO EIS as a basis for seeking congressional authority to breach the lower Snake River dams. After receiving both authority and appropriations from Congress, the Corps could initiate a detailed construction and design report for the breach measure, identification of disposal areas, real estate acquisition and disposal, permits, and mitigation requirements, including temporary fish hatchery production. Each of these actions are required prior to breaching, and the Corps does not have the authority or appropriations necessary to immediately breach the project's embankments. More information is available in the Corps' Engineering Regulation (ER) 1165-2-119 Water Resources Policies and Authorities, Modifications to Completed Projects (Sept. 20, 1982) or ER 1105-2-100, Appendix G, Section III Post Authorization Changes. Bonneville has high investment grade credit ratings from all three rating agencies who rate Bonneville's ability to pay its debt obligations over many years. These ratings factor for revenue producing assets, market dynamics, financial metrics including cash reserves and future capital needs among other things. In light of all factors, Bonneville has a very strong investment grade credit. As described in the Draft EIS, Section 3.7.2.5, on pages 3-801-802; and, Section 3.7.3.1, on pages 3-842-843, upward rate pressure is an important factor in the competitiveness of Bonneville's rates. The EIS describes the upward rate pressure caused by each of the MOs, the largest range of which is associated with the breaching of the four lower Snake River dams in MO3. The analysis includes assumptions about future operations and maintenance (O&M) and capital investment in the four lower Snake River dams. See Section 3.7.3.5, Table 3-166 in the Draft EIS. For hydropower, the average annual value of the four lower Snake River dams exceeds the average annual equivalent costs. The generation value at the four lower Snake River dams can be described by a range between the cost to replace the generation through new conventional resources or through a portfolio of zero-carbon resources. Although the costs of replacing the power with market purchases was analyzed, it is unlikely that short-term wholesale power markets could reliably replace the power for the long term. This range would put the annual value of power between $240 million and $500 million for the four dams combined. These numbers represent about 90 percent of the lost benefits cited in Table 3-171 in the Draft EIS because the four dams represent about 1,000 aMW of the 1,100 aMW of lost generation estimated in MO3. The average annual cost to operate and maintain all authorized purposes at the four lower Snake River dams is $75 million (Appendix Q, Table 5-1) and the annual-equivalent capital costs are $32 million (Appendix Q, Table 4-1). Hydropower costs funded by Bonneville represent about $50 million of the total annual operations and maintenance costs and nearly all of the annual capital costs, approximately $31 million. This puts the annual-equivalent power-specific costs at approximately $81 million a year. As a result, the net benefits from hydropower for the four lower Snake River dams are between $159 million and $419 million and the benefit-cost ratios are between 3.0 and 6.2. If the $34 million per year for the Lower Snake River Compensation Plan is added to the capital and expense costs, benefits still exceed costs under each replacement power scenario. Considering these costs, the net benefits range from $125 million to $385 million and the benefit-cost ratios range from 2.1 to 4.3. In the less-likely scenario that generation could be reliably replaced with short-term wholesale market purchases and assuming that the four dams represent 90% of the $150 million in market purchases required to replace the lost generation cited in MO3 (see Table 3-170, in the Draft EIS), the lower bound for net benefits would fall to $54 million and the benefit-cost ratio would fall to 1.7. With the Lower Snake River Compensation Plan included, the lower bound for annual net benefits becomes $20 million and the benefit-cost ratio becomes 1.2. From a resource competitiveness perspective, the four lower Snake River dams are among the least costly generating resources in the Federal Columbia River Power System (FCRPS) and the planned investment strategy is expected to maintain that status. As shown in the Federal Hydropower presentation at the 2018 Integrated Program Review (see Footnote 1 below), the Headwater/Lower Snake Asset Class (see Footnote 2 below) is forecast to have a 50-year levelized cost of generation (see Footnote 3 below) of $11.41/MWh based on the direct funded capital and expense (O&M) programs outlined in that process. These costs remain competitive with volatile Mid-Columbia spot market energy prices which averaged $37/MWh in 2019 and have averaged $21/MWh in 2020. Footnotes: 1. The Integrated Program Review (IPR) allows interested parties to see and comment on all relevant FCRPS capital and expense (O&M) spending level estimates in the same forum. The IPR occurs every two years, or just prior to each rate case, and is the public review for the costs that will be recovered through rates the following two-year rate period. Long-term forecasts for the next 50 years and major upcoming projects are also shared in this forum. This information is available here: https://www.bpa.gov/Finance/FinancialPublicProcesses/IPR/2018IPR/IPR%202018%20Fed%20Hydro%20Workshop.pdf and is incorporated by reference into this EIS. 2. In the 2018 Integrated Program Review, the Headwater/Lower Snake Asset Class consisted of the four lower Snake River dams, Hungry Horse, Libby, and Dworshak dams. These projects were grouped together because they have similar cost characteristics. The Levelized Cost of Generation for the four lower Snake projects alone is slightly lower than that for the whole class including the headwater projects shown in the table.

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		3. Levelized Cost of Generation is defined as the forecasted direct costs and administrative overhead of producing power at a plant annualized over a 50-year period. This cost includes direct funded operations, maintenance, administrative and capital costs as well as Columbia River Fish Mitigation (CRFM) costs. Bonneville system-wide mitigation costs, such as its Fish and Wildlife program, are not included in this metric. Under the Preferred Alternative the Bonneville wholesale power rate pressure is estimated to be 2.7 percent relative to the No Action Alternative. A portion of that rate pressure has already been incorporated into the BP-20 wholesale power rates; and, the remaining rate pressure likely falls within a level that Bonneville has historically been able to absorb through the costs over which it has significant control.
2	There are only 72 Southern Resident Killer Whales left! They are starving to death, dying as the four lower Snake River dams cut off salmon runs and reduce their access to food. Campaigners are marching from Portland to Ice Harbor Dam, across the west coast of the USA, a journey that will take 22 days. On the day they reach the dam, a rally will be held. People will join in solidarity around the world. It's time to breach the dams! **Variant Text** • @cnnclimate there are 72 Southern Resident Killer Whales left. • Message @little.gypsea for more information. • We can be hundreds of people walking, but we need a bigger voice to make sure we are heard, or we're going to lose the orcas. • Come walk with us or even just share a tweet asking people to walk with us. • They are starving to death and we are marching 236-miles to put pressure on the governing bodies to finally take action. • There are 72 southern resident killer whales left. • There are only 72 Southern Resident killer whales. • People are marching from Portland to Ice Harbor Dams, a 236-mile march to put global pressure on @usacehq @bonnevillepower and @govinslee who are illegally violating the Endangered Species Act by ignoring the best action to save the orca and salmon, driving them from extinction. • We can still change this situation, but we need to take action NOW! Visit marchforthedams.com to learn more, or join the Facebook event We Are The Orca: March 4 The Dams. • We need everyone to join or we're going to lose the orcas. Go walk with them, for however long you can, we need thousands of people marching. If you can't come march with them, go to the protest held on March 22nd in Paris and London, or organize one in your city. We need the entire world asking for change.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the Endangered Species Act (ESA), in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not however require the co-lead agencies to take affirmative actions to recover ESA-listed species. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Recovery is a broader regional goal and is above and beyond the co-lead agencies' obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the CRS. Recovery of ESA species is the purview of National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (USFWS). This EIS has been developed in consultation with NMFS and USFWS to find an acceptable balance that allows the co-leads to meet CRS purposes while minimizing effects to affected ESA-listed species and their designated critical habitats. Recovery efforts will need to continue to involve parties across the region that have an influence and effect on ESA-listed species. Please see the co-lead agency response to Form Letter 1.
3	Dear Army Corps of Engineers, Bureau of Reclamation, and Bonneville Power Administration, As a person of faith, I care deeply about the health of the Columbia & Snake Rivers and the species and human communities that rely on them. People across the Northwest are calling for the restoration of abundant, harvestable salmon and steelhead populations, but the Columbia River System Operations Draft Environmental Impact Statement (DEIS) won't prevent extinction of our iconic salmon runs or the orcas that depend on them. The current limited scope of the DEIS prevents it from delivering real recommendations that move forward our region's urgent priorities: communities, energy, and salmon. The DEIS needs to recommend a comprehensive solution that addresses the needs of Snake River salmon and our communities by meeting these criteria: 1. Ensure the region meets its treaty obligations to Northwest Native tribes 2. Restore abundant, harvestable populations of salmon 3. Protect and invest in the economic vitality of local communities, especially farming and fishing communities 4. Continue the Northwest's legacy of providing reliable, affordable, clean energy I am calling on the federal agencies and our elected leaders to take bold action on the Snake River because we have a moral obligation to do so. An effective salmon recovery plan must bring all the different interests forward together. Policymakers must work with each other, Northwest tribes, farmers, fishermen, community leaders, and other river stakeholders to develop a salmon recovery plan that actually restores salmon and ensures a prosperous region for everyone. Sincerely,	While salmon recovery is not within the purview of the co-lead agencies, we recognize the desire to continue the conversation across the region about the future of salmon recovery, affordable and reliable clean electricity, tribal perspectives, and economic vitality for the many people who depend on the CRS for their way of life. The co-lead agencies will be active participants in regional discussions and solutions for mitigating the effects of the CRS and achieving broader recovery objectives. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species as that is a broader goal with shared responsibility. Based on the fish analysis in Section 7.7.5 of the Preferred Alternative, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Analysis shows that the Preferred Alternative would meet the objectives for improving juvenile salmon, adult salmon, resident fish and lamprey. The analysis found ranges in potential effects due to different assumptions included in each of the fish models used in the study. Using the Comparative Survival Study (CSS), Snake River Chinook salmon and steelhead are expected to see relative improvements in smolt-to-adult returns of 35 percent and 28 percent, respectively. The Smolt-to-Adult return ratio (SAR) is the rate at which of a group of fish survive from their smolt life stage to a defined ending point where they return as adult. While achieving long-term recovery targets will require more than just the efforts of Federal agencies, the CSS models indicate the potential for SARs of Snake River Chinook salmon and steelhead to increase to levels that could approach recovery targets set by the Northwest Power and Conservation Council. If latent mortality effects are reduced by passing more juvenile fish through the spillway, the NMFS Lifecycle Model (LCM) also shows that levels of SARs would increase. However, if latent mortality effects are not reduced, or are different than modeled, the LCM predicts that SARs for Snake River spring Chinook salmon may be lower than the No Action Alternative (a range of -7.5 percent to +28 percent change relative to the No Action Alternative) due to reduced opportunities for fish transportation. Results for upper Columbia River stocks are beneficial based on LCM estimates. In-river survival and SARs are anticipated to increase. The CSS model does not currently model upper Columbia fish. The Preferred Alternative also has measures intended to increase upstream passage success and reduce injury and mortality for Pacific lamprey. These measures are proposed structural improvements that include converting extended-length submersible bar screen material to screen material that would not impinge or entangle juvenile lamprey, expanding the network of lamprey passage structures to bypass impediments in fish ladders, changing the design for turbine cooling water strainers, and replacing turbines for safer fish passage.

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		The Preferred Alternative would also meet the objective to improve resident fish. Effects to resident fish vary by region and species, but are generally minor relative to the No Action Alternative. The EIS also provides an evaluation of the social welfare and regional economic effects of the No Action Alternative and the Multiple Objective alternatives, including the effects on recreation (Section 3.11) and commercial fisheries (Section 3.15). The EIS described the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. NMFS estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which is described qualitatively. For the effects on recreational fishing under MO3 (Section 3.11.3.5) along the lower Snake River below Lewiston, the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River) as an indicator for fishing visitation in this reach. The EIS describes that the visitation in the long-term in the lower Snake River, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting outfitting and tourism businesses in the region. The social welfare values and regional economic effects associated with recreational fishing under the MOs, as well as river recreation post dam breach under MO3, were not estimated because of the uncertainty and large range in visitation and consumer surplus values among users. The co-lead agencies agree that there are many effects to salmon and steelhead populations outside the operation of the dams, and outside the authority of the co-lead agencies. Research continues to evaluate the magnitude of these effects. For more information see the NMFS website at: https://www.nwfsc.noaa.gov/research/index.cfm. The Preferred Alternative meets the Purpose and Need Statement and certain objectives identified in the EIS for operation of the Columbia River System. The co-lead agencies are committed to ongoing coordination with stakeholders through a variety of forums. In areas where the co-lead agencies have appropriate authority, we will continue to be strong regional partners. Tribal input, concerns, interests, and especially treaty rights were considered throughout the Draft EIS analyses and in the formulation of the Preferred Alternative. Treaty specific information is included in Section 3.17 as well as Chapter 7. The treaties bind all parties and are the supreme law of the land. The co-lead agencies recognize and respect that supremacy. In terms of honoring our treaty obligations, the co-lead agencies included "Protecting Native American treaty and reserved rights and fulfilling trust obligations for natural and cultural resources throughout the environment affected by the Columbia River System operations" as a purpose in the Purpose and Need Statement in Chapter 1 to ensure treaty obligations were a key consideration of decision-making. The co-lead agencies are engaging in government-to-government consultation with the tribes, and several tribes are cooperating agencies on the CRSO EIS. The co-lead agencies are committed to fulfilling their treaty and trust obligations and providing early, open, transparent and meaningful consultation. See Sections 2.3 and 9.3.2. The co-lead agencies look forward to continuing to consult on the EIS, which covers changes to the water management of the existing 14 projects on the Columbia and lower Snake Rivers. The co-lead agencies recognize these obligations while also acknowledging that construction of the Federally authorized CRS projects directly affected many of the region's Tribal communities. Throughout this EIS process, the co-lead agencies have analyzed effects of the ongoing operation and maintenance of the CRS to treaty-reserved rights and associated resources. This analysis addresses how those rights would be affected by the potential alternatives—including how measures could affect fish abundance that may affect the U.S. v. Oregon Fishery Management Agreement, and the extent to which treaty rights and Tribal resources would be protected and enhanced. The Preferred Alternative includes actions to benefit ESA-listed fish as well as lamprey, and these actions also benefit Tribal interests and treaty resources. The MO3 alternative, which includes breaching the earthen embankment of the four lower Snake River dams, would have adverse effects to farmers and irrigation. Currently and in the No Action Alternative, water is available from the pools of these facilities and from groundwater that results from the pools. Removing the earthen embankment portion of the dams would reduce pool elevations by up to 100 feet, which would make surface pumps inoperable. Groundwater pumps in the wells may also be affected due to decreased groundwater elevations depending on the connectivity of the aquifer to the pools. Municipal and industrial water pumps in the Lewiston area would also likely be adversely affected. The EIS describes the engineering solutions for irrigation (pipeline extensions, for example) in Section 3.12.3 Environmental Consequences, Region C under the MO3 alternative. The EIS describes that modifying the existing pump system was cost prohibitive. In Region C under the MO3 alternative, it is assumed that pumps are unable to deliver water to an estimated 47,926 acres. Please also see the response to Form Letters 1 and 2.
4	Please accept these as my comments on the CRSO Draft Environmental Impact Statement (EIS) released on February 28, 2020, including my urgent call on our political leadership in the Pacific Northwest to support a new and much needed approach to comprehensively address the linked challenges facing the region's wild salmon, Tribes, endangered Southern Resident killer whales (SRKWs), fishing and farming communities, and energy system.	The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads' numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3, which includes the dam breaching measure. However, the Preferred Alternative also meets most of the other objectives of the study for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy.

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	First, I am deeply disappointment in the CRSO Draft EIS. Rather than embracing calls dating back to the 1990s for a "major overhaul" of said hydro-system operations in order to protect threatened and endangered salmon and steelhead, this "new" report recommends only minor adjustments to a status quo plan that will perpetuate many serious mistakes from years past. Flexible Spill Agreement (FSA) is the centerpiece of the governments Preferred Alternative. The best available science shows increased levels of spill can buy some additional time to put in place more effective actions for imperiled fish populations, it is not, by itself, a long-term survival strategy, let alone a recovery strategy. Indeed, the parties to the current, short-term FSA made this explicit. Most notably, respected regional scientists confirmed that the flexible spill included in the Preferred Alternative will NOT deliver salmon the survival benefits through the hydro-system they need. Instead, the changing climate will further erode any benefits of flexible spill and will only underscore the urgency for meaningful action. The wild sockeye, spring/summer chinook, fall chinook and steelhead within the Snake and Columbia Rivers face extinction today. This short-sighted alternative spells disaster to the irreplaceable benefits wild salmon and steelhead bring to communities, SRKWs, and the ecosystems working to sustain them. This recent CRSO Draft EIS report does not offer a new approach; rather it recommends minor tweaks to a 25-year federal approach that has cost billions of dollars, and has been invalidated five times consecutively in federal court. This inaction has not only brought salmon and steelhead to some of their lowest levels on record, and while increasing uncertainty for communities across the region, it has assisted in pushing the remaining 72 SRKWs to the edge of extinction. The clock is ticking. Second, I support restoring a free-flowing lower Snake River as an essential cornerstone for any effective strategy to protect and recover its endangered wild salmon and steelhead. The scientific support for restoring the lower Snake River and native fishes that use this basin through dam breaching is well established and documented. For over two decades, Tribal, federal, state and independent research has repeatedly corroborated this determination. The just-released 2020 Draft EIS also acknowledges that breaching will deliver greater benefits to endangered Snake River fish populations than any other option considered or analyzed. Restoring the lower Snake River should be included as a foundational element of the Preferred Alternative. Therefore, a dramatically new approach is urgently needed to develop the comprehensive plan the people of the Northwest and nation are asking for, require, and deserve. A new approach will: recover wild salmon abundance invest in fishing and farming communities to provide them a healthier future, and will support a reliable, affordable and increasingly decarbonized regional energy system In conclusion, the Draft EIS falls far short of what is needed to protect and recover endangered salmon and steelhead populations in the Columbia Basin. Science is well established in showing that restoration of the lower Snake River through dam breaching will be critical in protecting its imperiled native fishes from extinction and will recover them to abundant and harvestable levels. A new regionally-led approach is urgently needed with Northwest policymakers – governors and members of congress – working closely with the region's stakeholders, sovereigns and citizens to craft a lawful, science-based plan that recovers salmon, invests in vibrant fishing and farming communities and ensures a reliable and affordable energy system for current and future generations. Sincerely,	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA listed species. Based on our analysis in the fish resources section of Chapter 7.5, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Recovery is a broader regional goal and is above and beyond the co-lead agencies' obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the Columbia River System. Recovery efforts will need to continue to involve parties across the region that have an influence and effect on ESA-listed species. As required by NEPA's implementing regulations, the co-lead agencies used high quality information in the analysis of the CRSO EIS. The spill operation for juvenile fish passage in the Preferred Alternative is a significant departure from previous operations, so much so that the Washington and Oregon state water quality waiver standards had to be changed to implement the new spill regime. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. The effects of delayed mortality are discussed throughout the EIS analysis for each alternative and current high quality data and the best available scientific information was used for this analysis. Based on analysis by the CSS, SARs associated with population declines (SARs of less than 1%) have the potential to be greatly reduced under the Preferred Alternative, and on average, SARs are expected to be well above 2.0% for Snake River spring Chinook salmon and steelhead. The NMFS COMPASS and Life Cycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. The Preferred Alternative will be implemented using a robust monitoring plan to help narrow the uncertainty between the two models and to determine how effective increased spill can be towards increasing salmon and steelhead returns to the Columbia Basin. See Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information. The Preferred Alternative also has measures intended to increase upstream passage success and reduce injury and mortality for Pacific lamprey. These measures are proposed structural improvements that include converting extended-length submersible bar screen material to screen material that would not impinge or entangle juvenile lamprey, expanding the network of lamprey passage structures to bypass impediments in fish ladders, changing the design for turbine cooling water strainers, and replacing turbines for safer fish passage. The Preferred Alternative would also meet the objective to improve resident fish. Effects to resident fish vary by region and species but are generally minor relative to the No Action Alternative. The co-lead agencies recognize the desire to continue the conversation across the region about the future of salmon recovery, affordable and reliable clean electricity, tribal perspectives, and economic vitality for the many people who depend on the CRS for their way of life. The co-lead agencies will be active participants in regional discussions and solutions for mitigating the effects of the CRS and achieving broader recovery objectives. The Preferred Alternative for long-term system operations, maintenance and configuration of the CRS presented in the Draft EIS is based on today's conditions and environment. Technology is quickly changing, as is the region's dynamic environment and energy market, and the region needs to consider new information and adaptively manage resources. The co-lead agencies recognize that no matter which alternative in the CRSO Draft EIS is identified as the Preferred Alternative, the identification would likely draw criticism from some stakeholders or sovereigns. The region includes stakeholders, sovereigns, and other interested parties with diverse and varied opinions on these very important topics, and many are strong in the belief that their perspective is the best path forward. Factors, both human-caused and natural, that are outside the responsibility and control of the co-lead Federal agencies also contribute to the decline and recovery of fish, and will continue to strongly influence fish and their habitat. Salmon and steelhead have been adversely affected in the Columbia River Basin over the last century by many activities including human population growth, urbanization, introduction of exotic species, overfishing, development of cities and other land uses in the floodplains, water diversions for all purposes, dams, mining, farming, ranching, logging, hatchery production, predation, ocean conditions, and loss of habitat. Operation, configuration and maintenance of the Columbia River System requires mitigation for its effects, and the EIS is not intended or required to serve as an overall salmon recovery plan for the region. All of the human-caused effects that have contributed to the decline of fish, and how the region should properly and effectively address those effects, should be part of the continued regional discussion. The co-lead agencies look forward to participating in that discussion. Please also see response to Form Letters 1 and 3.
5	The Lower Snake River Dams Prevent Blackouts - The lower Snake River dams have already avoided blackouts in my area--the Tri-Cities. Thousands of new homes and businesses will be built here in the next few years. Our economy is growing. Because they can quickly increase energy production, all four lower Snake River Dams have never been more important to avoid blackouts with renewable, carbon-free hydroelectricity Higher Spill is Expensive and Unproven - I urge you to not consider the alternative with the highest spill levels. This approach could increase power rates by 40%, increase carbon emissions and potentially decrease fish survival according to one of the two fish survival models in the draft EIS. The Dams Make Wind and Solar Energy Possible - Without hydroelectricity to fill in the gaps, the grid cannot take the swings in generation caused by fluctuations in wind and sunshine. The Northwest's demand for electricity is highest in the winter when wind is less prevalent and the sun sets early. The Dams Meet Washington's Carbon-Free Goals - Washington state's Clean Energy Transformation Act (CETA) commits us to a path of no coal generation by 2025 and 100% clean energy by 2045. Zero carbon emissions are produced during hydropower generation.	The CRSO EIS describes the importance of the four lower Snake River dams, particularly Ice Harbor, for stability in the Tri-Cities area. See Section 3.7.3.5, Bonneville Transmission System Reliability and Operations. Although it is beyond the scope of the EIS to analyze the role of hydropower in achieving specific clean energy goals, the EIS does find that replacing the hydropower generation of the four lower Snake River dams would increase greenhouse gas emissions from power generation. See Section 3.8.3.5, pages 3-1009–3-1010 in the Draft EIS. The statements regarding the variability of other renewables and the importance of the four lower Snake River dams for integrating new renewables are consistent with the findings and discussions in the EIS. See Section 3.7.3.5, Lower Snake River Full Replacement, pages 3-905-907. The comment that replacing the four lower Snake River dams under Multiple Objective alternative 3 would drive up costs in the region is consistent with EIS findings In its analysis of effects, the Draft EIS used high quality data and best science, including models and studies published in peer review science journals. Specific to salmon and steelhead, the agencies used two primary modeling approaches which yielded a range of potential outcomes for the alternatives. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. The effects of delayed mortality are discussed throughout the EIS analysis for each alternative and current high quality data and the best available scientific information was used for this analysis. Based on analysis by the CSS, SARs

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	The Dams Provide Affordable Electricity - Several independent studies indicate a shortage of electricity generation in the coming years, particularly with the closure of coal plants. The lower Snake River dams are critically needed to avoid a repeat of the 2000-2001 energy crisis that resulted in soaring electricity prices. The draft EIS indicates that replacing lost generation from dam removal with carbon-free resources could result in a 50% increase in power costs. That doesn't consider the loss of coal generation which will also need to be replaced by carbon-free resources to reach CETA goals. A rise in energy costs would worsen our homeless crisis and mean greater hardships for people already struggling to make ends meet. The Dams Are Just One Factor in Salmon and Orca Survival - Salmon from the Snake River are only one part of an orca's diet. Salmon survival rates through these dams are as high as 97%. NOAA Fisheries' analysis shows Puget Sound Chinook salmon are most important for the Southern Resident Orcas. Cleaning the Puget Sound and reducing carbon output would be a better use of time and money in saving our treasured salmon and orca. The Dams Create Tourism, Recreation, Irrigation and Transportation - The lower Snake River dams provide industries, products, flood control and jobs to Northwest residents. **Variant Text** • I support the preferred alternative of the draft EIS. • The draft EIS is the most extensive study in the history of the Columbia River Basin. • I am pleased that the report recognizes the importance of the lower Snake River dams and does not recommend dam breaching. • I am also concerned that increased spill is under consideration. • I also hope the majority of the effort will be placed where the majority of the fish survival problems occur - in the ocean and Puget Sound. • Several independent studies indicate a shortage of electricity generation in the coming years, particularly with the closure of coal plants. • It's a collaborative body of work that included significant input from federal agencies, Native American tribes and the states of Idaho, Montana, Oregon and Washington. • I am concerned that breaching the lower Snake River dams is an option under consideration but am pleased the preferred alternative does not include a recommendation to breach any of the dams. • Army Corp of Engineers, the Bureau of Reclamation and the Bonneville Power Administration: I appreciate your efforts in preparing the draft environmental impact statement for the 14 federal projects on the Columbia River System. • The lower Snake River dams provide industries, products, flood control, irrigation water to agricultural products, and jobs to Northwest residents. • I urge you to not consider the alternative with the highest spill levels. • NOAA Fisheries' analysis shows Puget Sound Chinook salmon are most important for the Southern Residents. • i also hope the majority of the effort will be placed where the majority of the fish survival problems occurin the ocean and puget sound.	associated with population declines (SARs of less than 1%) have the potential to be greatly reduced under the Preferred Alternative, and on average, SARs are expected to be well above 2.0% for Snake River spring Chinook salmon and steelhead. The NMFS COMPASS and Lifecycle models predict higher levels of risk associated with increased spill levels in the absence of offsets from decreased latent mortality. To address uncertainty highlighted by the two models, the Preferred Alternative includes working with regional sovereigns to develop a study that assesses the effectiveness of the increased spill regime on adult returns as well as assessment and management of negative unintended consequences, such as long delays of adult migrants, or Total Dissolved Gas-related mortality of juvenile migrants. The framework for the adaptive management process is detailed in Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS. The co-lead agencies agree that there are many effects to salmon and steelhead populations outside the operation and maintenance of the CRS dams, including toxics. The CRSO EIS is on the effects of the operations, maintenance, and configuration of the CRS and therefore, pollution in the Puget Sound outside the scope of this analysis. The Corps is in partnership with other Federal, state and non-governmental organizations and have been implementing habitat projects for salmon, orcas, and wildlife all around the Puget Sound as part of the Puget Sound Nearshore Ecosystem Restoration Project. However, research continues to evaluate the magnitude of these effects in the Sound. For more information see the NOAA website at: https://www.nwfsc.noaa.gov/research/index. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-lead agencies' numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), as well as meets the EIS objectives for: resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the DEIS the co-lead agencies did not identify MO3 because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. The lower Snake River dams are not authorized for flood risk management and this is clearly stated in the EIS in Chapter 1, Section 1.2. Chapter 7, Table 7-1, also indicates that there is no elevated flood risk for any of the alternatives.
6	Thank you for the opportunity to comment on the Columbia River System Operations Draft Environmental Impact Statement (DEIS). I am an employee of Midstate Electric Cooperative (MEC), a not-for-profit, member-owned electric cooperative headquartered in La Pine, Oregon. The cooperative purchases 100% of our power from the Bonneville Power Administration (BPA) to provide electric service to over 18,000 residents in four counties in Central Oregon. MEC agrees that Multiple Objective 3 (MO3) – breaching the four lower Snake River dams (LSRD) – would have an adverse impact on electric cooperative consumers, the reliability of the Northwest energy grid, and the global environment. The LSRD are an integral part of our electricity supply in the Pacific Northwest – powering 900,000 homes annually. We are pleased that the DEIS rejected the dam breaching option based on the conclusion that it "has the highest adverse impacts to other resources, especially social and economic effects." We are also pleased that the DEIS rejected Multiple Objective 4 (MO4), which significantly increases spill and dramatically decreases power production. MEC is serious about our mission of delivering clean, affordable, reliable electricity to our members. The DEIS concluded that breaching the LSRD would have long-term, major, adverse effects on power costs and rates, and the rate pressure could be up to 50% on wholesale power rates. Increased spill as envisioned by MO4 would also increase costs up to 41%. A 40-50% increase in BPAs rate could lead to an increase of several hundred dollars a year to our members. The most impacted by these rate increases will be our vulnerable populations senior citizens and those on fixed incomes who shouldnt have to choose between medicine, food or paying their electric bills. MEC also takes seriously our commitment to keep the lights on.	The comments that breaching the four lower Snake River dams would increase the frequency of power shortages unless and until replacement resources were built, and would result in increased costs in the region, are both consistent with EIS findings. See EIS, Section 3.7.3.5, Table 3-166 in the Draft EIS; and Appendix H, Table 2-1. The EIS also finds that Bonneville Power Administration (Bonneville) customers, such as cooperatives mentioned by the commenter, may be more directly affected by rate pressures than other regional utilities that do not purchase power directly from Bonneville. See Draft EIS, Section 3.7.3.5, Residential Effects, page 3-929. The comment that replacing the four lower Snake River dams will drive up costs in the region is consistent with EIS findings. The Environmental Justice analysis in Section 3.18.3 of the EIS provides further detail on potential disproportionate effects including to Tribal, low-income and minority populations. Chapter 5 of Appendix H, Power and Transmission provides additional details on potential rate increases by county as well as for urban and rural utility customers. Although it is beyond the scope of the EIS to analyze the role of hydropower in achieving specific clean energy goals, the EIS does find that replacing the hydropower generation of the four lower Snake River dams would increase greenhouse gas emissions from power generation. See Section 3.8.3.5, pages 3-1009–3-1010 in the Draft EIS. The statement in the comment regarding the efficiency of fish passage at the lower Snake River dams is largely consistent with the EIS, see Section 3.5.

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	The DEIS concludes the dam breaching alternative would more than double the regions risk of power shortages. MO4 creates an even higher risk of brownouts and blackouts in the Pacific Northwest, which again would harm our co-ops most vulnerable populations. Oregons electric cooperatives are proud of our clean energy profile, with a power supply that is consistently over 90% carbon-emission free. According to the DEIS, breaching the dams would create an additional 3.3 million metric tons (MMT) of CO2 - a staggering 10% increase in power-related emissions across the Northwest. MO4 shows similar carbon impacts. The DEIS clearly demonstrates that breaching the LSRD or spilling excessive amounts of water would be a step backward from decarbonization efforts in our region. The DEIS also noted that the co-lead agencies have made substantial improvements for fish passage at the LSRD and lower Columbia River dams. Our cooperative has helped fund this multi-billion-dollar effort to improve fish passage at the dams, which is meeting targets of 96% survival rates for migrating juvenile fish. We believe that it is important to build upon this successful fish passage program instead of taking the drastic measure envisioned in MO3 and MO4. Thank you, **Variant Text** • MEC is serious about their mission of delivering clean, affordable, reliable electricity to us, the members. • MEC also takes seriously their commitment to keep our lights on • A 40-50% increase in BPA's rate could lead to an increase of several hundred dollars a year to us, their members.	
7	To Whom It May Concern: Inland Power is the largest electric cooperative in the state, and we serve members in 13 counties in eastern Washington and northern Idaho. Many agricultural communities across the inland Northwest depend on the dams to provide access for low-carbon barging to get our products to market. The state currently exports $6.7 billion worth of agricultural products overseas. The loss of barging would directly raise costs for farms, reduce jobs, and cause air quality issues for Eastern Washington communities that already face an uphill battle with greenhouse gasses and smog. Washington state has 35,900 farms, 95% of which are small, family owned businesses, meaning they sell less than $250,000 each year. Removing the dams would have a severe negative impact on these family businesses. Inland Power, along with all other Washington utilities have been charged with becoming carbon-neutral by 2030 and 100 percent carbon-free by 2045. The lower Snake River dams are essential to reaching the Northwest's clean energy goals. They generate over 1,000 average megawatts of affordable, carbon-free electricity. That is enough energy to provide for more than 800,000 average U.S. homes. These dams also help us safely add intermittent renewables, like wind and solar power, to the grid. The hydroelectric turbines at the dams can very quickly fill in the gaps when the sun doesn't shine and the wind doesn't blow, keeping the grid balanced. The study considered a range of preferred alternatives, including breaching all four dams. In the draft conclusion, the agencies recommended a combination of the alternatives to help communities and fish & wildlife. They also found that dam breaching was not the best alternative for our region. I urge you to strongly consider the numerous negative results that would occur should these vital dams be removed. Our state would suffer greatly from an economic, energy, job, agricultural, trade and environmental standpoint. If we truly want to save salmon and orcas, and improve the health of our environment, we need to heal our oceans. If we genuinely want our clean energy future to include everyone, we need it to be affordable and reliable. To do both, the Northwest needs the lower Snake River dams. **Variant Text** • I serve on the Inland Power and Light's board of trustees. • Aside from my agricultural livelihood, I serve on the Inland Power and Light's board of trustees. • These dams provide the only source of irrigation for tens of thousands of acres in eastern Washington. • If we truly want to save salmon and improve the health of our environment, we need to heal our oceans.	The CRSO EIS recognizes the relevance of the Washington Clean Energy Transformation Act, among other regional emissions reductions targets, in the Section 3.7 Power and Transmission analysis and Section 3.8 Air Quality and Greenhouse Gas (GHG) emissions analysis. The analysis evaluates the extent to which the CRSO EIS alternatives influence the ability of the region to meet these objectives, finding that MO3 (including breaching of the four lower Snake River dams) would make these goals more difficult to meet. The EIS analysis finds that transportation of freight that is currently barged on the lower Snake River could be accomplished via other transportation modes, but this change would not be without costs to farmers, would require public and private investment in infrastructure, and would result in some adverse regional economic effects, particularly in the short term. The EIS evaluates potential effects on farmers associated with increased transportation costs under MO3 in Section 3.10.3.5. Evaluating the effect of removing the lower Snake River locks and barge navigation above Pasco, Washington, is completed using a transportation optimization model that does not allow shipments on river terminals along the lower Snake River. The EIS finds that under a dam breach scenario, average transportation costs for wheat farmers would increase 10 to 33 percent, but that individual farmers could experience increases that are doubled. The cost increases to specific shippers would depend upon location and would vary throughout the region, depending on transportation options at each location. Generally, those grain shippers that are the farthest from alternate shipping locations (shuttle rail facilities or river ports on the Columbia River) would be the most adversely affected. Note, cost scenarios for specific farmers are presented below in the Regional Economic Effects within Section 3.10.3.5. The MO3 alternative, which includes breaching the earthen embankment of the four lower Snake River dams, would have adverse effects to farmers and irrigation. Currently and in the No Action Alternative, water is available from the pools of these facilities and from groundwater that results from the pools. Removing the earthen embankment portion of the dams would reduce pool elevations by up to 100 feet, which would make surface pumps inoperable. Groundwater pumps in the wells may also be affected due to decreased groundwater elevations depending on the connectivity of the aquifer to the pools. Municipal and industrial water pumps in the Lewiston area would also likely be adversely affected. The EIS describes the engineering solutions for irrigation (pipeline extensions, for example) in Section 3.12.3 Environmental Consequences, Region C under the MO3 alternative. The EIS describes that modifying the existing pump system was cost prohibitive. In Region C under the MO3 alternative, it is assumed that pumps are unable to deliver water to an estimated 47,926 acres. Please also see the response to Form Letters 1 and 6.
8	-The Snake River Basin presents the greatest potential for wild fish recovery of any watershed in the Columbia Basin. Mile-for-mile it has the coldest, most undisturbed stream habitat and is predicted to contain the majority of coldwater habitat as the climate warms. -The science consistently supports removal of the four Lower Snake River dams as necessary to recover robust and fishable populations of salmon and steelhead in the Snake River basin. -The DEIS makes clear that removing the lower Snake River dams is the best option for Snake River salmon and steelhead, but substantially underestimates the level of benefit. -The DEIS preferred alternative does not even provide reasonable assurance that it will avoid extinction, let alone recover Snake River salmon and steelhead to abundant, harvestable levels. There is a good chance it will not meet the	The CRSO EIS documents the assessment of benefits and effects of changes to the operations of the 14 Federal projects of the CRS. Using a multi-disciplinary approach and with the coordination and consideration of cooperating agencies and Tribes, as well as public stakeholder input, and by using high-quality information, the co-lead agencies developed the Preferred Alternative. This alternative best meets the Purpose and Need Statement for the system operations in the region, as well as meets many objectives of the study in consideration of changing operations. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the Endangered Species Act (ESA), in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species' survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. In this EIS, the Preferred Alternative meets most objectives of the EIS, including two objectives for ESA-

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	requirements of the Endangered Species Act and will likely land everyone back in court starting yet another cycle of expensive litigation that keeps the region mired in uncertainty. -We are running out of time if we want populations of these iconic fish to persist for future generations. It is time for all stakeholders and elected officials to come to the table to build forward-looking and durable solutions that will recover Snake River salmon and steelhead while strengthening the regional economy. -Dam removal is a proven method to restore fish populations. While this might have been a radical idea at a point in our history, it is not any longer and its power to restore rivers is evident from Maine to the Olympic Peninsula of Washington State. -The final EIS should include a preferred alternative that includes removal of the lower Snake River dams. Recovery of abundant, healthy and harvestable levels of Snake River salmon and steelhead is not achievable with the dams in place, as several decades of failed recovery efforts and billions of dollars have revealed. The agencies should call on Congress to make the necessary investments to replace the dams' benefits so we can both recover the fish and maintain a vibrant regional economy. **Variant Text** • Mile for mile it has the coldest most undisturbed stream habitat on the west coast and is predicted to contain the majority of coldwater habitat as climates change. • dam removal has been a tested and proven method to restore fish populations across the u • according to the science no other singular action can recover significant populations at the rate and in the time needed to avoid extinction • it is time for all stakeholders and elected officials to come to the table to build forward looking and durable solutions that will create opportunity across the pacific northwest and address challenges faced by other sectors such as agriculture transportation and energy. • the science consistently supports removal of the four lower snake river dams to recover robust and fishable populations of salmon and steelhead to idaho.	listed juvenile and adult anadromous. A full assessment of considerations of climate change and water temperatures are in Section 3.4 Water Quality, Chapter 4 Climate, and Chapter 7 of the Preferred Alternative of the analysis. Analysis shows that the Preferred Alternative would meet the objectives for improving juvenile salmon, adult salmon, resident fish and lamprey. The analysis found ranges in potential effects due to different assumptions included in each of the fish models used in the study. Using the Comparative Survival Study (CSS), Snake River Chinook salmon and steelhead are expected to see relative improvements in smolt-to-adult returns of 35 percent and 28 percent, respectively. The Smolt-to-Adult return ratio (SAR) is the rate at which of a group of fish survive from their smolt life stage to a defined ending point where they return as adult. While achieving long-term recovery targets will require more than just the efforts of Federal agencies, the CSS models indicate the potential for SARs of Snake River Chinook salmon and steelhead to increase to levels that could approach recovery targets set by the Northwest Power and Conservation Council. If latent mortality effects are reduced by passing more juvenile fish through the spillway, the NMFS Lifecycle Model (LCM) also shows that levels of SARs would increase. However, if latent mortality effects are not reduced, or are different than modeled, the LCM predicts that SARs for Snake River spring Chinook salmon may be lower than the No Action Alternative (a range of -7.5 percent to +28 percent change relative to the No Action Alternative) due to reduced opportunities for fish transportation. Results for upper Columbia River stocks are beneficial based on LCM estimates. In-river survival and SARs are anticipated to increase. The CSS model does not currently model upper Columbia fish. The Preferred Alternative also has measures intended to increase upstream passage success and reduce injury and mortality for Pacific lamprey. These measures are proposed structural improvements that include converting extended-length submersible bar screen material to screen material that would not impinge or entangle juvenile lamprey, expanding the network of lamprey passage structures to bypass impediments in fish ladders, changing the design for turbine cooling water strainers, and replacing turbines for safer fish passage. The Preferred Alternative would also meet the objective to improve resident fish. Effects to resident fish vary by region and species, but are generally minor relative to the No Action Alternative. Please also see response to Form Letter 2.
9	I am a farmer in Oregon, and I am writing to urge you to protect the operations of the Columbia system dams that Oregon farmers and ranchers rely on for irrigation water, barging our goods to market, and affordable power. Specifically, I urge you not to breach the lower Snake River dams, which would greatly disrupt agricultural shipping across the Northwest and make it much more expensive and difficult for Oregon farmers to get our products to market. I believe that healthy fish populations and healthy rural communities can exist, and maintenance of our dams is essential to our rural economies. Federal agencies have been proactive about installing fish passage and completing projects to help improve salmonid habitats. The health of salmon populations is critically tied to ocean conditions, which have been declining in the last several years, impacting salmonid and orca health. Breaching dams would not change these conditions. Hydropower helps reduce carbon generated electricity and helps ensure the Northwest is doing its part of combat climate change and reduce our carbon footprint. The Columbia system dams are critical for irrigation for farmers in Oregon and Washington, and our farming communities across Eastern Oregon rely on the dams to provide access for low-carbon barging to get our products to market. The loss of barging would directly raise costs for farms, reduce jobs, and create shipping bottlenecks for communities that are depend on agriculture for their economic and social well-being. I urge you to protect Oregon's farmers and ranchers by ensuring that the Columbia River System continue to support irrigation, barging and other services critical to Oregon's farmers and ranchers and that you do not allow the breaching of any dams on the system.	With the selection of the Preferred Alternative, it is not expected to be adverse effect to navigation, irrigation, or affordable power to Oregon farmers. Under the Preferred Alternative the Bonneville wholesale power rate pressure is estimated to be 2.7 percent relative to the No Action Alternative. A portion of that rate pressure has already been incorporated into the BP-20 wholesale power rates, and the remaining rate pressure likely falls within a level that Bonneville has historically been able to absorb through the costs over which it has significant control. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-lead agencies' numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3, which includes the dam breaching measure. However, the Preferred Alternative also meets most of the other objectives of the study for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. For those farming communities on the lower Snake River, the EIS acknowledges that rail rates may increase if the Lower Snake River dams are breached and evaluates three rate scenarios. The EIS finds that under a dam breach scenario, average transportation costs for wheat farmers would increase 10 to 33 percent, but that individual farmers could experience increases that are doubled. The cost increases to specific shippers would depend upon location and would vary throughout the region, depending on transportation options at each location. Generally, those grain shippers that are the farthest from alternate shipping locations (shuttle rail facilities or river ports on the Columbia River) would be the most adversely affected. Note, cost scenarios for specific farmers are presented below in the Regional Economic Effects within Section 3.10.3.5. The Navigation and Transportation Section 3.10 reflects the adverse effects of implementing MO3 including discussions of transportation mode capacity and cost of grain transport. The EIS also evaluates the additional transportation infrastructure investments and associated costs that would be required, as well as the increases in air emissions that would occur. The EIS finds that truck ton-miles may experience an increase of 19 percent to 84 percent under MO3 when compared to the No Action Alternative, depending on the rail rate increases that occur. The EIS analysis found that truck trips would increase between 14,000 to 79,000 truck trips per year, which would increase air pollutant and greenhouse gas emissions in the region and add to traffic and congestion in the region. Rail ton-miles would increase by as much as 86 percent (when rail rates are not assumed to increase) or decrease by 2 percent (when rail rates increase by 50 percent). On the Columbia River, there are no anticipated changes to water supply or irrigation, and therefore, adverse effect to those farming communities. The Draft EIS did not include the measure to breach the four lower Snake River dams in the identified Preferred Alternative.
10	I oppose the breaching of the four lower Snake River dams because that action would: Eliminate the pools behind these dams that will greatly reduce the only source of water for irrigation for nearly 50,000 acres of prime farmland in eastern Washington. Those farms, in turn, provide many diverse and under-served communities with agriculture work. Increase pumping costs that would result in lower net farm income across the region, which translates to farm households having less money to spend within the regional economy. Eliminate an essential component of the Northwest's supply of clean hydroelectric power and increase the regions power costs by $1 billion annually and raise residential utility bills by 25 percent or more. This is in comparison to the estimated rate increase of 2.5 percent	The EIS acknowledges that there is a physical limitation to delivering water to these lands in the absence of the four lower Snake River dams. The MO3 alternative, which includes breaching the earthen embankment of the four lower Snake River dams, would have adverse effects to farmers and irrigation. Currently and in the No Action Alternative, water is available from the pools of these facilities and from groundwater that results from the pools. Removing the earthen embankment portion of the dams would reduce pool elevations by up to 100 feet, which would make surface pumps inoperable. Groundwater pumps in the wells may also be affected due to decreased groundwater elevations depending on the connectivity of the aquifer to the pools. The EIS describes the engineering solutions for irrigation (pipeline extensions, for example) in Section 3.12.3 Environmental Consequences, Region C under the MO3 alternative. The EIS describes that modifying the existing pump system was cost prohibitive. In Region C under the MO3 alternative, it is assumed that pumps are unable to deliver water to an estimated 47,926 acres. Please see Section 3.12 and Appendix N for additional information.

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	associated with increased spills for fish. Ignore the more than $2 billion investment to improve fish passage on the lower Snake and Columbia river dams since 2001. These investments have resulted in the highest adult salmon returns since the first Snake River dam was completed in 1961. Cost $457 million in social welfare as the result of lost irrigation and jobs for farm workers. Cost the U.S. $4 billion over the next 30 years due to the loss of barging. Drive up production costs associated with higher transportation costs for upriver movements (i.e., fertilizer, crops). Place additional demands on existing road and rail infrastructure as well as at barging facilities near the Tri-Cities, thereby increasing CO2 emissions by 17 percent. Remove the important flood mitigation that is currently provided to farmland and residential housing in multiple areas along the Snake River.	The Navigation and Transportation Section (3.10) reflects the adverse effects of implementing MO3, including discussions of transportation mode capacity and cost of grain transport. The EIS also evaluates the additional transportation infrastructure investments and associated costs that would be required, as well as the increases in air emissions that would occur. The EIS finds that truck ton-miles may experience an increase of 19 percent to 84 percent under MO3 when compared to the No Action Alternative, depending on the rail rate increases that occur. The EIS analysis found that truck trips would increase between 14,000 to 79,000 truck trips per year, which would increase air pollutant and greenhouse gas emissions in the region and add to traffic and congestion in the region. Rail ton-miles would increase by as much as 86 percent (when rail rates are not assumed to increase) or decrease by 2 percent (when rail rates increase by 50 percent). Maintaining or improving flood risk management operations of the Columbia River System has informed both the alternative development and evaluation process. However the four lower Snake River dams are not authorized for flood risk mitigation and there is no elevated flood risk for any of the EIS alternatives. The Preferred Alternative identified in the Draft Environmental Impact Statement did not include the measure to breach the four lower Snake River dams.
11	Dear Co-Lead Agencies: I live in Ashton, Idaho and appreciate the opportunity to provide comments on the Draft Environmental Impact Statement (DEIS) for the Columbia River System Operations (CRSO). Thank you for the tremendous effort you made to assemble a vast amount of information from many regional stakeholder groups and countless individuals. The analysis has been vetted by industry experts and the final recommendation is thorough. I value all the aspects of the Columbia River and appreciate the consideration of all stakeholder's priorities including environmental stewardship, tribal treaties, irrigation and agriculture, flood control, economic growth and prosperity and affordable, reliable and carbon free hydroelectric generation. As an electric rate payer, I'm interested in preserving our access to a carbon free, reliable, and historically low-cost federal hydropower generation. I support the Preferred Alternative (PA) contained in the DEIS as a balanced approach that benefits the BSA-listed species, meets the multiple purposes of the federal projects, and minimizes adverse economic, environmental, and social impacts, although the PA comes at a cost to me as I pay for power as a member of Fall River Rural Electric Cooperative. My main concern with the PA is increased spill of up to 125% total dissolved gas (TDG) levels, resulting in higher power costs and possibly adverse effects to ESA-listed species. I support higher spill levels and the resulting higher power costs only if scientific analyses clearly show a meaningful benefit to ESA-listed species. Additionally, I urge you to include in the final Record of Decision (ROD) strengthened and expanded measures to mitigate the predation of tens of millions of ESA-listed juvenile fish each year, particularly in the lower Columbia River, by various birds and predatory fish. I also hope the federal agencies will take full advantage of the provisions of the Endangered Salmon Predation Prevention Act to strengthen and expand protections for returning adult fish and I would like to see a strong commitment to do so reflected in the final ROD. I'm concerned about making sure Fall River has a reliable source of power to meet our communities present and future needs at an affordable cost. Many in our community, include seniors and those on fixed or low incomes, are dependent on the electric service provided by Fall River to heat their homes, power appliances, provide hot water and even pump water from their well. I'm concerned about escalating power costs. While the preferred option and increased spill increases our costs, it is far better compared to other DEIS alternatives. Our electric Cooperative, Fall River Rural Electric Cooperative, is serious about their mission of delivering clean, affordable, reliable electricity to us, its members. The DEIS concluded that breaching the Snake River dams would have "long-term, major, adverse effects on power costs and rates," and the "rate pressure could be up to 50% on wholesale power rates." A 50% increase in wholesale power costs would be financially devastating to our household. It is important to keep these financial impacts in perspective for rural communities like ours where incomes are below regional and state averages. These increases in power costs are not a simple shift from disposable and discretionary income to pay for essential services like electricity. Rather, they mean that some neighbors and family will be forced to make difficult choices about which essentials, like food, medicine, utilities, and such, they have to sacrifice. To conclude, I support the Preferred Alternative with certain caveats and concerns described previously. The PA provides a good blueprint for operating the Columbia River System and has been created and extensively reviewed by some of the best scientists and economists in the U.S. The Preferred Alternative proposes operating the Columbia River in a way which will benefit ESA-listed fish, meet the multiple purposes of the federal projects, and minimize adverse economic, environmental, and social impacts. Thank you for providing our region with a valuable resource of informed decisions on future Columbia River System Operations and for allowing me to participate in this important process.	The EIS set forth eight objectives, which in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-lead agencies' numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as the MO3 which includes the dam breaching measure. The Preferred Alternative also meets the EIS objectives for: resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the DEIS the co-lead agencies did not identify MO3 because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. Total dissolved gas (TDG) levels are regulated under the Federal Clean Water Act, and administered by the states. Both Oregon and Washington have reassessed the available data on effects of TDG levels up to 125% of saturation on fish and other aquatic organisms. Based on this reassessment, Oregon issued a five-year "standard modification" and Washington issued a permanent rule change, supported by the Environmental Protection Agency (EPA), to allow TDG saturation up to 125%.. The Preferred Alternative includes a robust monitoring plan to help narrow the uncertainty between the biological models and will help determine how effective increased spill can be in increasing salmon and steelhead returns to the Columbia Basin. The effectiveness of the spill program will be monitored. The co-lead agencies have historically supported actions to mitigate adverse effects to ESA-listed species from CRS operations, through funding, direct implementation, and other means. Under the Preferred Alternative, those actions, including implementation and adaptive management of actions for the purpose of reducing predation on ESA-listed species, would generally continue to ensure compliance with the ESA. Other entities in the region have authorities and obligations to mitigate the effects from pinniped and avian predators and the co-lead agencies will continue to work closely with those entities to benefit ESA-listed salmonids. The co-lead agencies recognize the value of developing common metrics, identifying measures, and implementation of measures that will aid in the reduction of predation effects and increase survival of Columbia River salmon and other native fish populations. However, the co-lead agencies are limited to implementing measures that are within the authorities of the agencies. The Preferred Alternative includes predation mitigation measures, including maintaining avian wires in the tailrace of lower Columbia and Snake River dams, active hazing of gulls at the dams, and the pattern of operating the spillway gates, all mitigate for predation at the dams by birds and fish. The Predator Disruption Operations will mitigate Caspian Tern predation on juvenile salmon and steelhead in the lower Columbia River. Management efforts are ongoing to reduce salmonid consumption by terns in the lower Columbia River, and similar efforts are in progress to reduce the nesting population of Double-crested cormorants in the estuary. Under the Preferred Alternative the Bonneville wholesale power rate pressure is estimated to be 2.7 percent relative to the No Action Alternative. A portion of that rate pressure has already been incorporated into the BP-20 wholesale power rates; and, the remaining rate pressure likely falls within a level that Bonneville has historically been able to absorb through the costs over which it has significant control. The Preferred Alternative meets the objective to provide an adequate, efficient, economical, and reliable power supply that supports the integrated Columbia River Power System. The Environmental Justice analysis in Section 3.18.3 of the EIS provides further detail on potential disproportionate effects including to Tribal, low-income and minority populations. Chapter 5 of Appendix H, Power and Transmission provides additional details on potential rate increases by county as well as for urban and rural utility customers. Please also see response to Form Letter 6.

Form Letter #	Form Letter Text	Response
	Variant Text • Subject: Comments on the Draft Columbia River System Operations Environmental Impact Statement Dear Co-Lead Agencies: I live in Rexburg, Idaho, and appreciate the opportunity to provide comments on the Draft Environmental Impact Statement (DEIS) for the Columbia River System Operations (CRSO). • Subject: Comments on the Draft Columbia River System Operations Environmental Impact Statement Dear Co-Lead Agencies: I live in Island Park, Idaho and appreciate the opportunity to provide comments on the Draft Environmental Impact Statement (DEIS) for the Columbia River System Operations (CRSO). • Subject: Comments on the Draft Columbia River System Operations Environmental Impact Statement Dear Co-Lead Agencies: I live in West Yellowstone, Montana and appreciate the opportunity to provide comments on the Draft Environmental Impact Statement (DEIS) for the Columbia River System Operations (CRSO). • they provide substantial energy operating reserves and ramping capability to help prevent blackouts and integrate other variable renewable generation like wind and solar. • they have also been built to facilitate fish passage with a spring juvenile survival rate of 96 which meets performance standards. • this reports conclusions on fish and wildlife are consistent with past findings which show the lower snake river dams do not jeopardize the existence of threatened and endangered salmon species that navigate past them • overall juvenile survival of salmon and steelhead through the columbia river system is 40 to 50 depending on the species which is comparable to freeflowing rivers such as the frasier river in canada. • these dams are a key source of lowcost carbon free power. • the dams on the columbia river act to some degree as an integrated battery which has been used to integrate variable wind and solar generation. • many in our area are particularly vulnerable to increased risks of blackouts and escalating power costs which makes the pa worthy of my support in terms of its lower risks in these areas compared to other deis alternatives. • in our area we are also dependent on electric service for our water from wells our electric heat electric water heaters wastewater and sewage treatment. • the lower snake river dams are some of the lowest cost generation marketed by bpa and are increasing in value as the region sets greenhouse gas ghg emission goals. • i am also concerned about the longterm cost of power. • i understand that some of the best scientists biologists and economists have been involved in the threeyear process which resulted in a proposed preferred alternative. • i encourage cooperation with environmental and tribal groups to work on plans which do bolster a sustainable salmon and steelhead population. • i appreciate the comprehensive evaluations and analysis which have taken place in the draft eis. • with regional efforts aimed at reducing carbon and moving to a carbon free generation portfolio having access to the carbon free reliable and flexible generation will be essential to ensure the regions power system reliability and will be essential in meeting the regions ghg goals. • specifically i support efforts to manage avian and other predation of salmon populations. • i support not removing the lower snake river dams as contained in the preferred alternative. • many of my friends and neighbors are seniors and have fixed or low incomes. • i also appreciate the multiple ways comments can be easily submitted for consideration. • im interested in preserving our access to a carbon free reliable and historically lowcost federal hydropower generation and therefore support the preferred alternative pa contained in the deis as a balanced approach that benefits the esalisted species meets the multiple purposes of the federal projects and minimizes adverse economic environmental and social impacts although the pa comes at a cost to me as an electric cooperative member.	
12	Thank you for the opportunity to provide comments. I write today expressing my support of the federal agencies' Preferred Alternative as presented in the Draft EIS for the Columbia River System. Idaho and the entire region benefit from the river system. As a farmer, I depend on the navigation system to get my crops to market outside of the state. Water management and power generation are also very important to me. Too much attention has been put on the discussion of dam breaching. I believe that salmon and dams can co-exist. I support the managed river system with dams, locks, and hydro-turbines that currently exist. I ask the federal agencies to finalize the EIS with the preferred alternative as presented in the Draft EIS.	Please see the response to Form Letter 9.

Form Letter #	Form Letter Text	Response
13	Thank you for the tremendous effort you made to assemble a vast amount of information from many regional stakeholder groups and countless individuals. The analysis has been vetted by industry experts and the final recommendation is thorough. I understand that some of the best scientists, biologists and economists have been involved in the three-year process which resulted in a proposed preferred alternative. I'm interested in preserving our access to a carbon free, reliable, and historically low-cost federal hydropower generation, and therefore support the Preferred Alternative (PA) contained in the DEIS as a balanced approach that benefits the ESA-listed species, meets the multiple purposes of the federal projects, and minimizes adverse economic, environmental, and social impacts, although the PA comes at a cost to me as an electric cooperative member. I appreciate and support he PA and would like to submit the following comments: 1. The Federal Columbia River Power System (FCRPS) provides significant value to the region and specifically to Fall River Electric Cooperative as our largest source of flexible, carbon free generation. The dams on the Columbia River act to some degree as an integrated battery which has been used to integrate variable wind and solar generation. 2. I support not removing the Lower Snake River Dams as contained in the Preferred Alternative. a. These dams are a key source of low-cost, carbon free power. b. Overall juvenile survival of salmon and steelhead through the Columbia River system is 40% to 50%, depending on the species, which is comparable to free-flowing rivers such as the Frasier River in Canada c. The Lower Snake River dams are some of the lowest cost generation marketed by BPA and are increasing in value as the region sets greenhouse gas (GHG) emission goals. d. They provide substantial energy, operating reserves and ramping capability to help prevent blackouts and integrate other variable renewable generation like wind and solar. They have also been built to facilitate fish passage with a spring juvenile survival rate of 96%, which meets performance standards. 3. This report's conclusions on fish and wildlife are consistent with past findings which show the lower Snake River dams do not jeopardize the existence of threatened and endangered salmon species that navigate past them. 4. I am concerned about global warming. With regional efforts aimed at reducing carbon and moving to a carbon free generation portfolio, having access to the carbon free, reliable and flexible generation will be essential to ensure the region's power system reliability and will be essential in meeting the regions GHG goals. 5. I encourage cooperation with environmental and Tribal groups to work on plans which do bolster a sustainable salmon and steelhead population. Specifically, I support efforts to manage avian and other predation of salmon populations. 6. I am also concerned about the long-term cost of power. Many of my friends and neighbors are seniors and have fixed or low incomes. In our area we are also dependent on electric service for our water from wells, our electric heat, electric water heaters, wastewater and sewage treatment. Many in our area are particularly vulnerable to increased risks of blackouts and escalating power costs, which makes the PA worthy of my support in terms of its lower risks in these areas compared to other DEIS alternatives. I appreciate the comprehensive evaluations and analysis which have taken place in the draft EIS. I also appreciate the multiple ways comments can be easily submitted for consideration. Sincerely, **Variant Text** • i appreciate and support he pa and would like to submit the following comments the federal columbia river power system fcrps provides significant value to the region and specifically to fall river electric cooperative as our largest source of flexible carbon free generation. • i appreciate the opportunity to provide comments on the draft environmental impact statement deis for the columbia river system operations crso. • i appreciate and support the pa and would like to submit the following comments 1. • the deis concluded that breaching the snake river dams would have longterm major adverse effects on power costs and rates and the rate pressure could be up to 50 on wholesale power rates. • our electric cooperative fall river rural electric cooperative is serious about their mission of delivering clean affordable reliable electricity to us its members. • a 50 increase in wholesale power costs would be financially devastating to our household. • we support not removing the lower snake river dams as contained in the preferred alternative • we understand that some of the best scientists biologists and economists have been involved in the threeyear process which resulted in a proposed preferred alternative. • we are concerned about global warming • we are also concerned about the longterm cost of power • we appreciate the comprehensive evaluations and analysis which have taken place in the draft eis	The co-lead agencies acknowledge that ocean conditions are a contributor to the decline in salmon populations that is beyond the scope of the CRSO EIS. While none of the alternatives would affect ocean conditions, we recognize that these conditions are a major driver for adult returns and that numerous studies have shown the importance of this environment in the return of adult salmon and steelhead (Peterson et al. 2019). The co-lead agencies concur with the generalized survival rates through the CRS. The co-lead agencies advise caution when directly comparing survival rates between different populations of fish or from different geographical locations. See ISAB 2020-1 for discussion of comparing populations, even populations within the Columbia Basin. The co-lead agencies have historically supported actions to mitigate adverse effects to listed species from CRS operations, through funding, direct implementation, and other means. Under the Preferred Alternative, those actions, including implementation and adaptive management of actions for the purpose of reducing predation on ESA-listed species, would generally continue to ensure compliance with the ESA. Other entities in the region have authorities and obligations to mitigate the effects from pinniped and avian predators and the co-lead agencies will continue to work closely with those entities to benefit ESA-listed salmonids. The co-lead agencies recognize the value of developing common metrics, identifying measures, and implementation of measures that will aid in the reduction of predation effects and increase survival of Columbia River salmon and other native fish populations. However, the co-lead agencies are limited to implementing measures that are within the authorities of the agencies, many of the items listed are outside the co-lead agencies' authorities. The Preferred Alternative includes a large suite of predation mitigation measures. Some of which include maintaining avian wires in the tailrace of lower Columbia and Snake River dams, active hazing of gulls at the dams, and the pattern of operating the spillway gates all mitigate for predation at the dams by birds and fish. The Predator Disruption Operation will mitigate Caspian Tern predation on juvenile salmon and steelhead in the lower Columbia Rivers. Management efforts are ongoing to reduce salmonid consumption by terns in the lower Columbia River, and similar efforts are in progress to reduce the nesting population of Double-crested cormorants in the estuary. Please also see response to Form Letter 11.

Form Letter #	Form Letter Text	Response
	• anthony idaho and i appreciate the opportunity to provide comments on the draft environmental impact statement deis for the columbia river system operations crso • to conclude i support the preferred alternative with certain caveats and concerns described previously. • these increases in power costs are not a simple shift from disposable and discretionary income to pay for essential services like electricity • the preferred alternative proposes operating the columbia river in a way which will benefit esalisted fish meet the multiple purposes of the federal projects and minimize adverse economic environmental and social impacts. • it is important to keep these financial impacts in perspective for rural communities like ours where incomes are below regional and state averages. • while the preferred option and increased spill increases our costs it is far better compared to other deis alternatives • the pa provides a good blueprint for operating the columbia river system and has been created and extensively reviewed by some of the best scientists and economists in the u. • i support the preferred alternative pa contained in the deis as a balanced approach that benefits the bsalisted species meets the multiple purposes of the federal projects and minimizes adverse economic environmental and social impacts although the pa comes at a cost to me as i pay for power as a member of fall river rural electric cooperative. • i support higher spill levels and the resulting higher power costs only if scientific analyses clearly show a meaningful benefit to esalisted species. • additionally i urge you to include in the final record of decision rod strengthened and expanded measures to mitigate the predation of tens of millions of esalisted juvenile fish each year particularly in the lower columbia river by various birds and predatory fish. • thank you for providing our region with a valuable resource of informed decisions on future columbia river system operations and for allowing me to participate in this important process. • my main concern with the pa is increased spill of up to 125 total dissolved gas tdg levels resulting in higher power costs and possibly adverse effects to esalisted species. • many in our community include seniors and those on fixed or low incomes are dependent on the electric service provided by fall river to heat their homes power appliances provide hot water and even pump water from their well. • im concerned about escalating power costs • i value all the aspects of the columbia river and appreciate the consideration of all stakeholders priorities including environmental stewardship tribal treaties irrigation and agriculture flood control economic growth and prosperity and affordable reliable and carbon free hydroelectric generation. • rather they mean that some neighbors and family will be forced to make difficult choices about which essentials like food medicine utilities and such they have to sacrifice. • i also hope the federal agencies will take full advantage of the provisions of the endangered salmon predation prevention act to strengthen and expand protections for returning adult fish and i would like to see a strong commitment to do so reflected in the final rod. • as an electric rate payer im interested in preserving our access to a carbon free reliable and historically lowcost federal hydropower generation. • we appreciate and support he pa and would like to submit the following comments 1. • we encourage cooperation with environmental and tribal groups to work on plans which do bolster a sustainable salmon and steelhead population. • im concerned about making sure fall river has a reliable source of power to meet our communities present and future needs at an affordable cost. • subject comments on the draft columbia river system operations environmental impact statement dear colead agencies i live in island park idaho and appreciate the opportunity to provide comments on the draft environmental impact statement deis for the columbia river system operations crso. • subject comments on the draft columbia river system operations environmental impact statement dear colead agencies i live in rexburg idaho and appreciate the opportunity to provide comments on the draft environmental impact statement deis for the columbia river system operations crso. • we also appreciate the multiple ways comments can be easily submitted for consideration	

Form Letter #	Form Letter Text	Response
	• subject comments on the draft columbia river system operations environmental impact statement dear colead agencies i live in ashton idaho and appreciate the opportunity to provide comments on the draft environmental impact statement deis for the columbia river system operations crso	
15	To Whom it May Concern, I am writing to urge the US government agencies in the strongest terms possible to protect the anadramous and other native fishes of the Columbia and Snake River systems. As a life long Oregonian I have watched in horror as the salmonid species in particular, as well as the sturgeons and other fish, have experienced precipitous declines. The harm also extends to the resident Orca population of Puget Sound who feed in large part on salmonids that spawn in the Columbia and Snake systems. I have become aware that the four lower dams on the Snake River are not only out dated but also financially not self sustaining and dangerous to the water quality of the rivers themselves. In addition developments in modern technology with wind and solar power have obviated the need for the electrical generation from those dams on the Snake River. Any plan for salmon recovery on the Columbia and Snake Rivers must incorporate the following: --Removal of the 4 obsolete dams on the lower Snake River --Increase flow rates over Columbia River dams to lower water temperature --Updated salmon conservation and restoration strategies in line with guidelines following federal court five time rejection of previous agency strategies --Halt of unnecessary scapegoating of native wildlife for declines in salmon numbers --Inclusion of stakeholders in crafting inclusive, creative, proper solutions, including Indigenous peoples, environmental groups and communities along the river systems --Halt of sport and commercial fishing for salmon and sturgeon on the Columbia and Snake River systems by all but Indigenous peoples until fish recovery equals sustainable numbers The salmon, in particular, are a key species of the Columbia River and its tributaries. If they go extinct here, the ecosystems of all the Columbia drainage will suffer immeasurable devastation. It is incumbent upon us as a society to do all we can at this moment to save the salmon by saving our rivers. Thank you for your consideration on this incredibly vital issue. Sincerely,	From a resource competitiveness perspective, the four lower Snake River dams are among the least costly generating resources in the Federal Columbia River Power System (FCRPS) and the planned investment strategy is expected to maintain that status. As shown in the Federal Hydropower presentation at the 2018 Integrated Program Review1/, the Headwater/Lower Snake Asset Class/2 is forecast to have a 50-year levelized cost of generation/3 of $11.41/MWh based on the direct funded capital and expense (O&M) programs outlined in that process. These costs remain competitive with volatile Mid-Columbia spot market energy prices which averaged $37/MWh in 2019 and have averaged $21/MWh in 2020. 1/ The Integrated Program Review (IPR) allows interested parties to see and comment on all relevant FCRPS capital and expense (O&M) spending level estimates in the same forum. The IPR occurs every two years, or just prior to each rate case, and is the public review for the costs that will be recovered through rates the following two-year rate period. Long-term forecasts for the next 50 years and major upcoming projects are also shared in this forum. This information is available here: https://www.bpa.gov/Finance/FinancialPublicProcesses/IPR/2018IPR/IPR%202018%20Fed%20Hydro%20Workshop.pdf and is incorporated by reference into this EIS. 2/ In the 2018 Integrated Program Review, the Headwater/Lower Snake Asset Class consisted of the four lower Snake River dams, Hungry Horse, Libby, and Dworshak dams. These projects were grouped together because they have similar cost characteristics. The Levelized Cost of Generation for the four lower Snake projects alone is slightly lower than that for the whole class including the headwater projects shown in the table. 3/ Levelized Cost of Generation is defined as the forecasted direct costs and administrative overhead of producing power at a plant annualized over a 50-year period. This cost includes direct funded operations, maintenance, administrative and capital costs as well as Columbia River Fish Mitigation (CRFM) costs. Bonneville systemwide mitigation costs, such as its Fish and Wildlife program, are not included in this metric. The comment suggests that the regional supply of power is sufficient without the output of the four lower Snake River dams, and even sufficient without replacing the output of the lower Snake River dams with other resources. Regional demands for power would not be met without the four lower Snake River dams during times of greater than average load or lower than average resource output. In those instances, power system emergencies or blackouts would occur. The EIS uses the loss-of-load probability (LOLP) metric utilized by the Northwest Power and Conservation Council. See EIS Section 3.7.2.2; Appendix H Power and Transmission, at Section 2.1; Appendix I Hydroregulation, Section 2.4.4. The LOLP metric evaluates the adequacy of power supply in the region to meet firm power needs under various conditions. It is measured in terms of a percentage, and represents the likelihood of a blackout occurring in a year. See Appendix H Power and Transmission at Section 2.1. The current LOLP under the No Action Alternative is 6.6 percent; this is equivalent to one blackout in every 15 years. The EIS uses this LOLP level as the benchmark from which to gauge the other Multiple Objective alternatives. Under Multiple Objective alternative 3, on average, the region has surplus generation leading to export sales during certain periods and water years. Nevertheless, to maintain regional reliability at the LOLP levels of the No Action Alternative, replacement resources would be needed. This is driven by the timing and magnitude of changes in hydropower generation analyzed in the EIS. As shown by the analysis of the LOLP, in some years and times of the year, particularly winter and later in the summer of drier years, without the four lower Snake River dams there would be insufficient power supply in the region leading to power emergencies and blackouts. Specifically, without replacing the power from the four lower Snake River dams, the LOLP of the region would more than double to 14 percent, which is equivalent to one blackout every seven years. See EIS page 3-903; and Appendix H Power and Transmission, Table 2-1. Harvest certainly has an effect on salmon and steelhead populations. The three co-lead agencies do not manage fish stocks, and do not have the authority to do so. For harvest, fisheries in the Columbia River Basin and those that rely upon Columbia River fish stocks are managed by numerous entities, including Federal, state, and tribal governments. These entities are guided by a complex array of policies, laws, compacts, and agreements. The management of Pacific salmon fisheries in particular is complex, and involves numerous entities representing a variety of social, political, and conservation interests. Changes in allowable fishery harvest in the Columbia River Basin are a result of decisions made by state, Federal (i.e., NMFS), and tribal fishery managers based on a variety of environmental, biological, economic, and social factors. Alternatives to include changes to harvest are not within the scope of this EIS. The assumptions regarding harvest are taken from the NOAA 2018 EIS and reflect current harvest management guidelines. To see their conclusions and effects analyses please go to: https://www.fisheries.noaa.gov/resource/document/environmental-impact-statement-programmatic-review-harvest-actions-salmon-and. Please also see response to Form Letter 8.
16	I support restoring salmon, steelhead and other native aquatic species through the breaching of the 4 lower Snake River dams in eastern Washington. Unfortunately, the DEIS is incomplete, inadequate and inaccurate in terms of its analysis of the benefits of dam breaching. These benefits include not only restored fish runs, but also restored rural economies that depend on fishing and outdoor recreation, and restored cultures that have been interwoven with salmon and steelhead for millennia. The DEIS dismisses the overwhelming scientific research that shows restoring the lower Snake River to its free-flowing condition will provide salmon and steelhead with their best and likely only chance to recover, and it ignores the benefits of increasing salmon runs for critically endangered Southern Resident orcas. These orcas primarily eat Chinook salmon and forage for these fish from central California into the Salish Sea. The Columbia and Snake rivers have supported salmon runs that the orcas have relied on for centuries.	The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the Endangered Species Act (ESA), in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species as that is a broader goal with shared responsibility. Based on the fish analysis in Section 7.7.4 of the Preferred Alternative, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Analysis shows that the Preferred Alternative would meet the objectives for improving juvenile salmon, adult salmon, resident fish and lamprey. The analysis found ranges in potential effects due to different assumptions included in each of the fish models used in the study. Using the Comparative Survival Study (CSS), Snake River Chinook salmon and steelhead are expected to see relative improvements in smolt-to-adult returns of 35 percent and 28 percent, respectively. The Smolt-to-Adult return ratio (SAR) is the rate at which of a group of fish survive from their smolt life stage to a defined ending

Form Letter #	Form Letter Text	Response
	Historically, nearly half of all the Chinook salmon returning to the Columbia Basin were bound for the Snake River. Scientists from the Fish Passage Center have stated that breaching the four lower Snake River dams would result in roughly one million adult Chinook salmon returning to the mouth of the Columbia River, providing a critical food source for endangered southern resident orcas. The DEIS presents a false choice between maintaining affordable utility bills and restoring healthy salmon and steelhead. It overstates the cost of replacing power from the lower Snake River dams with clean energy, and suggests replacing their power with fossil fuels, which is unnecessary. A report from the Northwest Energy Coalition shows that through strategic investments, the energy produced by these dams can be replaced at a marginal cost to ratepayers while also improving the reliability of the electrical grid. It is time to stop pitting salmon recovery against clean, affordable energy. The DEIS focuses on the financial costs of salmon recovery and ignores the enormous sacrifices that have already been made by Native American tribes and other Northwest residents in terms of lost fishing opportunity, reduced jobs and incomes, impacts on cultural values, and other socio-economic effects. Further, the DEIS ignores the economic and community benefits of salmon recovery and the investments and jobs that river restoration activities will generate. As written, the DEIS does not provide a complete or accurate assessment of the feasible alternatives for the lower Snake River. An effective solution for Northwest salmon and people must move beyond historic conflicts and proactively address four urgent, connected issues. I support the development of long-term plan to: • Restore abundant, fishable salmon and steelhead populations in the Columbia Basin; • Protect and invest in the economic vitality of local farming and fishing communities; • Continue the region's legacy of providing reliable, affordable, clean energy; and • Honor our nation's treaty commitments to Native American tribes Thank you for taking my comments into consideration. Further, the DEIS ignores the economic and community benefits of salmon recovery and the investments and jobs that river restoration activities will generate. As written, the DEIS does not provide a complete or accurate assessment of the feasible alternatives for the lower Snake River. **Variant Text** • Thank you for the opportunity to comment on the Columbia River System Operations (CRSO) Draft Environmental Impact Statement (DEIS). • I am writing to express my support for recovering salmon and steelhead to abundant, self-sustaining levels, and for creating a more vibrant Northwest that is powered by clean energy and features healthy agricultural and fishing economies. • I support restoring salmon, steelhead and other native aquatic species through the breaching of Lower Granite, Little Goose, Lower Monumental and Ice Harbor dams on the lower Snake River in eastern Washington • i support the development of long term plan to restore abundant fishable salmon and steelhead populations in the columbia basin protect and invest in the economic vitality of local farming and fishing communities continue the regions • legacy of providing reliable affordable clean energy and honor our nations treaty commitments to native american tribes thank you for taking my comments into consideration.	point where they return as adult. While achieving long-term recovery targets will require more than just the efforts of Federal agencies, the CSS models indicate the potential for SARs of Snake River Chinook salmon and steelhead to increase to levels that could approach recovery targets set by the Northwest Power and Conservation Council. If latent mortality effects are reduced by passing more juvenile fish through the spillway, the NMFS Lifecycle Model (LCM) also shows that levels of SARs would increase. However, if latent mortality effects are not reduced, or are different than modeled, the LCM predicts that SARs for Snake River spring Chinook salmon may be lower than the No Action Alternative (a range of -7.5 percent to +28 percent change relative to the No Action Alternative) due to reduced opportunities for fish transportation. Results for upper Columbia River stocks are beneficial based on LCM estimates. In-river survival and SARs are anticipated to increase. The CSS model does not currently model upper Columbia fish. The Preferred Alternative also has measures intended to increase upstream passage success and reduce injury and mortality for Pacific lamprey. These measures are proposed structural improvements that include converting extended-length submersible bar screen material to screen material that would not impinge or entangle juvenile lamprey, expanding the network of lamprey passage structures to bypass impediments in fish ladders, changing the design for turbine cooling water strainers, and replacing turbines for safer fish passage. The Preferred Alternative would also meet the objective to improve resident fish. Effects to resident fish vary by region and species, but are generally minor relative to the No Action Alternative. The EIS also provides an evaluation of the social welfare and regional economic effects of the No Action Alternative and the Multiple Objective alternatives, including the effects on recreation (Section 3.11) and commercial fisheries (Section 3.15). The EIS described the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. NMFS estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which is described qualitatively. For the effects on recreational fishing under MO3 (Section 3.11.3.5) along the lower Snake River below Lewiston, the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River) as an indicator for fishing visitation in this reach. The EIS describes that the visitation in the long-term in the lower Snake River, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting outfitting and tourism businesses in the region. The social welfare values and regional economic effects associated with recreational fishing under the MOs, as well as river recreation post dam breach under MO3, were not estimated because of the uncertainty and large range in visitation and consumer surplus values among users. The co-lead agencies agree that there are many effects to salmon and steelhead populations outside the operation of the dams, and outside the authority of the co-lead agencies. Research continues to evaluate the magnitude of these effects. For more information see the NMFS website at: https://www.nwfsc.noaa.gov/research/index.cfm. The Preferred Alternative meets the Purpose and Need Statement and certain objectives identified in the EIS for operation of the Columbia River System. The co-lead agencies are committed to ongoing coordination with stakeholders through a variety of forums. In areas where the co-lead agencies have appropriate authority, we will continue to be strong regional partners. The co-lead agencies are committed to fulfilling their treaty and trust obligations and providing early, open, transparent and meaningful consultation. See Sections 2.3 and 9.3.2. The co-lead agencies look forward to continuing to consult on the EIS, which covers changes to the water management of the existing 14 projects on the Columbia and lower Snake Rivers. The co-lead agencies recognize these obligations while also acknowledging that construction of the Federally authorized CRS projects directly affected many of the region's Tribal communities. Throughout this EIS process, the co-lead agencies have analyzed effects of the ongoing operation and maintenance of the CRS to treaty-reserved rights and associated resources. This analysis addresses how those rights would be affected by the potential alternatives—including how measures could affect fish abundance that may affect the U.S. v. Oregon Fishery Management Agreement, and the extent to which treaty rights and Tribal resources would be protected and enhanced. The Preferred Alternative includes actions to benefit ESA-listed fish as well as lamprey, and these actions also benefit Tribal interests and treaty resources. Please also see responses to Form Letters 1 and 15.
17	For twenty years, the US Army Corps of Engineers has failed to address the primary causes of salmon declines on the Columbia and Snake River Systems. Instead they have scapegoated fish-eating birds like cormorants and terns for doing what comes naturally. In fact, they have lost five times over the last twenty years in Federal Court over the insufficiency of their plans. It is long past time for real solutions, but the Corps has once again brought forward a plan that fails to address the dams. The Agencies preferred alternative perpetuates an approach that has pushed salmon, orca and other fish and wildlife populations to the edge of extinction, and led to the unnecessary scapegoating of native wildlife like Double Crested Cormorants	If MO3 were selected as the Preferred Alternative, the Corps could use the CRSO EIS as a basis for seeking congressional authority to breach the lower Snake River dams. After receiving both authority and appropriations from Congress, the Corps could initiate a detailed construction and design report for the breach measure, identification of disposal areas, real estate acquisition and disposal, permits, and mitigation requirements, including temporary fish hatchery production. Each of these actions are required prior to breaching, and the Corps does not have the authority or appropriations necessary to immediately breach the project's embankments. More information is available in the Corps' Engineering Regulation (ER) 1165-2-119 Water Resources Policies and Authorities, Modifications to Completed Projects (Sept. 20, 1982) or ER 1105-2-100, Appendix G, Section III Post Authorization Changes. The co-lead agencies have historically supported actions to mitigate adverse effects to listed species from CRS operations, through funding, direct implementation, and other means. Under the Preferred Alternative, those actions, including implementation and adaptive management of actions for the purpose of reducing predation on ESA-listed species, would generally continue to ensure compliance with the ESA. Other entities in the region have

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	The Agencies preferred alternative is a huge waste of public resources and perpetuates the status quo – which has been rejected 5 times by a federal court over the last 25 years. An Alternative Plan must focus on three things: -Removal of four obsolete Snake River Dams, increased flows over Columbia River Dams and habitat restoration -Persecution of native predator species must be eliminated from this plan -Real solutions for NW salmon, other wildlife and people will come from NW people – policymakers, sovereigns (states and tribes), stakeholders, and communities working urgently together to craft inclusive, creative solutions to our shared problems and bring all communities forward together. **Variant Text** • Additionally many people had trouble getting through on the phone hearings. • The comment period of 45-days was utterly inadequate to review this complex plan • The Agencies preferred alternative perpetuates an approach that has pushed salmon, orca, and other fish and wildlife populations to the edge of extinction. • The strategy put forth by the Agencies also led to the unnecessary scapegoating of native wildlife like Double Crested Cormorants. • Persecution of native predator species must be eliminated from this plan. • The comment period was insufficient • 45-days is woefully inadequate to review a plan of this complexity and many people had trouble getting through on the phone hearings. • An Alternative Plan must focus on three things: Removal of four obsolete Snake River Dams, increased flows over Columbia River Dams and habitat restoration 2. • Persecution of native predator species must be eliminated from this plan 3. • Real solutions for NW salmon, other wildlife and people will come from NW people – policymakers, sovereigns (states and tribes), stakeholders, and communities working urgently together to craft inclusive, creative solutions to our shared problems and bring all communities forward together.	authorities and obligations to mitigate the effects from pinniped and avian predators and the co-lead agencies will continue to work closely with those entities to benefit ESA-listed salmonids. The co-lead agencies recognize the value of developing common metrics, identifying measures, and implementation of measures that will aid in the reduction of predation effects and increase survival of Columbia River salmon and other native fish populations. However, the co-lead agencies are limited to implementing measures that are within the authorities of the agencies, many of the items listed are outside the co-lead agencies' authorities. The Preferred Alternative includes a large suite of predation mitigation measures. Some of which include maintaining avian wires in the tailrace of lower Columbia and Snake River dams, active hazing of gulls at the dams, and the pattern of operating the spillway gates all mitigate for predation at the dams by birds and fish. The Predator Disruption Operations will mitigate Caspian Tern predation on juvenile salmon and steelhead in the lower Columbia Rivers. Management efforts are ongoing to reduce salmonid consumption by terns in the lower Columbia River, and similar efforts are in progress to reduce the nesting population of Double-crested cormorants in the estuary. In addition, the co-lead agencies considered requests to extend the public comment period. This NEPA process included a wide array of cooperating agencies whose close involvement throughout the process allowed the co-lead agencies to incorporate feedback. Given the broad range of comments received to date and the extensive Federal and non-Federal participation in the overall process as well as the level of public engagement in the six virtual public hearings in the region, the co-lead agencies determined that an extension was not warranted and that the 45-day public comment period was adequate as per NEPA regulations. The CRSO EIS website notified the public on April 9, that they should plan to submit comments by the close of the comment period. In response to COVID-19 concerns and public health requirements within the comment period, the agencies converted the six planned in-person regional public comment meetings to conference calls that provided an approach consistent with the format of the planned in-person comment meetings. The agencies' announcements for the teleconferences included technical assistance instructions for callers who experienced difficulties joining or during a call. The agencies' technical team worked with the AT&T operators to track any concerns heard from anyone who encountered issues joining the calls; no related technical issues were reported. All comment methods were promoted alongside all teleconference information so those unable to participate in a call or who preferred other methods could refer to those comment options. The co-lead agencies offered these public comment meetings by telephone to maintain our commitment to accepting verbal comments in accordance with current public health guidelines. These teleconference meetings were structured similarly to the previously scheduled in-person public comment meetings and provided speakers with the same amount of time to submit a verbal comment. Due to the format of these meetings, they were accessible to any public commenter, regardless of location. To ensure adequate opportunity for the public to provide comments on the Draft EIS, the agencies hosted an online comment platform, providing mailing addresses for written comments, and hosted a series of public comment meetings by telephone. Please also see response to Form Letters 4 and 16.
18	Breaching the lower four snake river dams immediately is the number one solution that will truly save Chinook Salmon and the Southern Resident Orcas from extinction. This is the only sustainable way to save two species from extinction. Immediately place a temporary moratorium on commercial salmon fishing. Absolutely no culling of the pinnipeds.	If MO3 were selected as the Preferred Alternative, the Corps could use the CRSO EIS as a basis for seeking congressional authority to breach the lower Snake River dams. After receiving both authority and appropriations from Congress, the Corps could initiate a detailed construction and design report for the breach measure, identification of disposal areas, real estate acquisition and disposal, permits, and mitigation requirements, including temporary fish hatchery production. Each of these actions are required prior to breaching, and the Corps does not have the authority or appropriations necessary to immediately breach the project's embankments. More information is available in the Corps' Engineering Regulation (ER) 1165-2-119 Water Resources Policies and Authorities, Modifications to Completed Projects (Sept. 20, 1982) or ER 1105-2-100, Appendix G, Section III Post Authorization Changes. The co-lead agencies agree that there are many effects to salmon and steelhead populations outside the operation of the dams. Research continues to evaluate the magnitude of these effects. For more information see the NOAA Fisheries website at: https://www.nwfsc.noaa.gov/research/index.cfm. However, the three co-lead agencies do not manage fish stocks, and do not have the authority to do so. For harvest, fisheries in the Columbia River Basin and those that rely upon Columbia River fish stocks are managed by numerous entities, including Federal, state, and tribal governments. These entities are guided by a complex array of policies, laws, compacts, and agreements. The management of Pacific salmon fisheries in particular is complex, and involves numerous entities representing a variety of social, political, and conservation interests. Changes in allowable fishery harvest in the Columbia River Basin are a result of decisions made by state, Federal (i.e., NMFS), and tribal fishery managers based on a variety of environmental, biological, economic, and social factors. Alternatives to include changes to harvest are not within the scope of this EIS. The assumptions regarding harvest are taken from the NOAA 2018 EIS and reflect current harvest management guidelines. To see their conclusions and effects analyses please go to: https://www.fisheries.noaa.gov/resource/document/environmental-impact-statement-programmatic-review-harvest-actions-salmon-and. The co-lead agencies have historically supported actions to mitigate adverse effects to listed species from CRS operations, through funding, direct implementation, and other means. Under the Preferred Alternative, those actions, including implementation and adaptive management of actions for the purpose of reducing predation on ESA-listed species, would generally continue to ensure compliance with the ESA. Under the Preferred Alternative, actions that reduce pinniped and avian predation on ESA-listed species, would generally continue to ensure compliance with ESA as described in Section 7.6.4.1, Ongoing Programs, including ongoing measures to haze and monitor pinniped predators. Other entities in the region have authorities and obligations to mitigate the effects from pinniped and avian predators and the co-lead agencies will continue to work closely with those entities to benefit ESA-listed salmonids. The co-lead agencies recognize the value of developing common metrics, identifying measures, and implementation of measures that will aid in the reduction of predation effects and increase survival of Columbia River salmon and other native fish populations. However, the co-lead agencies are limited to implementing measures that are within the authorities of the agencies, many of the items listed are outside the co-lead agencies' authorities. The Preferred Alternative includes a large suite of predation mitigation measures. Some of which include maintaining avian wires in the tailrace of lower Columbia and Snake River dams, active hazing of gulls at the dams, and the pattern of operating the spillway gates all mitigate for predation at the dams by birds and fish. The Predator Disruption Operations will mitigate Caspian Tern predation on juvenile

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		salmon and steelhead in the lower Columbia Rivers. Management efforts are ongoing to reduce salmonid consumption by terns in the lower Columbia River, and similar efforts are in progress to reduce the nesting population of Double-crested cormorants in the estuary. Please also see response to Form Letter 8.
19	1) The Draft EIS is fatally flawed because it did not complete the analysis of the effects of climate change on river temperatures and salmon, 2) Dam breaching offers the best chance to save salmon and steelhead. 3) Breaching and restoring the lower Snake to a free flowing recreational mecca will provide enormous economic activity for struggling rural economies. The agencies must evaluate these benefits in the Final EIS. 4) The Final EIS must include a basin-wide review of flood risk management and how the 2024 expiration of the coordinated flood control operations under the U.S.-Canada Columbia River Treaty will impact storage and flows in the Columbia and Snake. 5) The Final EIS must consider the impacts of future irrigation withdrawals, from the lower Snake, which are likely to increase due to climate change. 6) The Final EIS must include consideration of fish passage and reintroduction above Grand Coulee and Chief Joseph dams to support tribal fishery restoration goals in the Upper Columbia. 7) The Final EIS must consider the proper context for addressing the benefits and costs of the Columbia-Snake hydropower system, which means properly addressing the enormous costs - past, present, and future - to the tribes within the basin from the loss and eventual extinction of salmon and steelhead.	1) Chapter 4 includes a discussion on the potential effects that future climate change may have on resources including water quality and quantity. The co-lead agencies agree that climate change is a concern. The climate science community is still developing models that can be used to analyze possible effects to water temperature from climate change, and unfortunately, there are not reliable models at the required resolution (river-scale vs. global- or regional-scale) at this time. Therefore, it was not possible to reliably model water temperature changes under climate change for this EIS. In lieu of this information, the climate analysis used the output from the water quality models under historical conditions, climate change data, and scientific literature to qualitatively assess potential effects to water temperature and other water quality parameters (Section 4.2.3). Specific information in the Draft EIS on climate effects to hydrology and hydraulics can be found in Section 4.2.1, and how climate affects water supply can be found in Section 4.2.9 and Section 7.8.1 (hydrology and hydraulics) and 7.8.12 (water supply). 2) Please see response to Form Letter 4. 3) The potential benefits to recreation associated with Multiple Objective alternative 3 (MO3), which includes breaching the four lower Snake River dams, is described in Section 3.11.3.5. The EIS describes the potential for increased river recreation such as boating, rafting, and kayaking under MO3. There is some uncertainty in the figures; non-fishing recreation in the lower Snake River reach could range from 1.2 to 3.4 million visitors per year. Dworshak's summer drawdown would remain the same under MO3 as under the No Action Alternative because the cooling water in the lower Snake is needed under both alternatives. The EIS described the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. NMFS estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which is described qualitatively. For the effects on recreational fishing under MO3 (Section 3.11.3.5) along the lower Snake River below Lewiston, the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River) as an indicator for fishing visitation in this reach. The EIS describes that the visitation in the long-term in the lower Snake River, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting outfitting and tourism businesses in the region. The social welfare values and regional economic effects associated with recreational fishing under the MOs, as well as river recreation post dam breach under MO3, were not estimated because of the uncertainty and large range in visitation and consumer surplus values among users. Please also see response to Form Letter 16. 4) The current operations of the CRS, including current Treaty-related operations, are included in the EIS analysis. If Treaty-related operations change in a manner that presents new information or circumstances resulting in significant changes that were not previously addressed, those changes will be addressed by this NEPA process if they are identified in time or subsequently in another NEPA process, if necessary. Section 2.5.10 of the Draft EIS explains why re-evaluating system flood risk management was screened out from further consideration in this EIS. Section 2.5.10 also explains that while the U.S. Entity Regional Recommendation stated support the pursuit of Congressional authorization and appropriations for a region-wide public process to assess potential changes to the current level of flood risk protection, no such authorization or appropriation was provided. As such, a study for this purpose was determined to be outside of the scope of this EIS. 5) Through ongoing regional climate change studies and work, the co-lead agencies evaluated potential shifts in precipitation and temperature patterns and resulting changes in unregulated Columbia Basin streamflow timing and volumes. The evaluation consisted of the full range of the latest climate change projections developed using multiple global climate models, emissions scenarios, downscaling techniques, and hydrologic models. Details of this evaluation are in Chapter 4 of the EIS. This information was used to describe the potential effects (both beneficial and adverse) on the river systems and resources due to potential changes in climate for all alternatives. 6) Measures to reintroduce salmon above Chief Joseph and Grand Coulee Dams were evaluated early in the alternative development process but eliminated from further consideration. Reintroduction is an important and complex, large-scale concept. Its consideration, evaluation, and implementation should involve multiple tribal, federal, state, and other entities. A coordinated approach among water users, tribes, states, multiple federal agencies, and others would be necessary. To allow so many differing interests to coordinate on such a complex topic, which may include international considerations, a decision-making framework and a series of regional workshops would be necessary just to approach the first step of defining reintroduction objectives. Given the incompatibility of such a wildlife management decision-making framework with an analysis of the operation of the CRS, it is not feasible to proceed with a detailed consideration of reintroduction in this EIS. Moreover, to meaningfully analyze reintroduction as a measure, the details of the proposal would need to be understood well enough to include in hydrologic, water quality, and fish models. That information is not presently available, and development of those details was not possible in the timeframe of this NEPA process.

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		Nevertheless, the agencies and interested regional sovereigns are developing a framework to address critical information gaps. This effort was initiated on June 23, 2020 when the co-lead agencies participated in a discussion with regional sovereigns concerning fish management in blocked areas. 7) Tribal input, concerns, interests, and especially treaty rights were considered throughout the Draft EIS analyses and in the formulation of the Preferred Alternative. Treaty specific information is included in Section 3.17 as well as Chapter 7. The treaties bind all parties and are the supreme law of the land. The co-lead agencies recognize and respect that supremacy. In terms of honoring our treaty obligations, the co-lead agencies included "Protecting Native American treaty and reserved rights and fulfilling trust obligations for natural and cultural resources throughout the environment affected by the Columbia River System operations" as a purpose in the Purpose and Need Statement in Chapter 1 to ensure treaty obligations were a key consideration of decision-making. The co-lead agencies are engaging in government-to-government consultation with the tribes, and several tribes are cooperating agencies on the CRSO EIS. The EIS recognizes the economic and cultural importance of salmon to Tribes in a number of sections throughout the document. The cultural significance and effects of salmon and steelhead fisheries are described in the Ceremonial and Subsistence Fisheries sub-section and the Social Importance of Commercial, Ceremonial and Subsistence Fisheries sub-section of Section 3.15.2.1. Fisheries tribal interests are provided in Section 3.15.4 additional details regarding the economic significance of salmon and steelhead fisheries have been added to the recreation analysis (Section 3.11) including tribal interests (Section 3.11.3.7). Treaty rights are discussed in the Executive Summary, Section 3.16 Cultural Resources, and Section 3.17 Indian Trust Assets, Tribal Perspectives, and Tribal Interests. Appendix P includes copies of tribal perspectives that were submitted by tribes. Tribal consultation is described in Sections 1.5, 3.5, and 3.15; and Chapter 9. Most sub-sections within Chapter 3 include a Tribal Interests section at the end of the sub-section that attempts to summarize tribal issues by topic.
20	I greatly appreciate the opportunity to comment on the Draft Environmental Impact Study. I am an elected Board Member of Peninsula Light Company, the 2nd largest electric cooperative in Washington State. We serve a membership comprised of 90% residential members and have proudly been providing reliable, affordable power for over 95 years. Almost half of Peninsula Light Companys members are on fixed incomes and 10% live below the poverty line. Any alternative that includes dam breaching would greatly impact rates and be a significant burden to more than 50% of our membership. The increased greenhouse gas emissions would serve to add significant upward pressure to electricity costs as we would pay a penalty for not providing 100% carbon free power. Peninsula Light Company strongly supports the D-EIS' Preferred Alternative option proposed by the co-lead agencies. It incorporates all of the critical objectives for sound river operations now and into the future; this is a delicate and complicated balancing act with huge consequences for our region. Peninsula Light Company supports the following public power positions: We must recognize the region's shared stake in fish recovery, financial health of BPA and equitably align cost responsibility; The economic, environmental, and operational benefits of the Federal Columbia River Power System as it exists today must be properly considered and accounted for; Hydropower is a clean, renewable, flexible resource, vital to meeting Washington State's carbon goals and enables the integration of variable resources like wind and solar; Federal Columbia River Power System projects are a significant part of providing low-cost power to the region In order to preserve our access to clean, affordable power, federal agencies and the Pacific Northwest region must recognize these fundamental tenets. Any alternative that contemplates breaching the four lower Snake river dams cannot be considered viable. Such an action would have decades-lasting, negative impacts on our consumers, the reliability of the Northwest power grid and the environment. I am deeply committed to all of these principles and resolute in my endeavor to make them a part of the legacy of Peninsula Light Company and the Pacific Northwest. Thank you again for this opportunity to comment.	The comment that power costs in the region would increase under MO3, which includes breaching of the four lower Snake River dams, is consistent with EIS findings. See Section 3.7.3.5, at pages 3-918-924 in the Draft EIS; see also Table 3-166 in the Draft EIS. Chapter 5 of Appendix H, Power and Transmission, provides additional details on potential rate increases by county as well as for urban and rural utility customers. The EIS also discusses the fact that Bonneville customers, such as cooperatives, may be more directly affected by rate pressures than other regional utilities that do not purchase power directly from Bonneville. See Section 3.7.3.5, Residential Effects, at page 3-929 in the Draft EIS, and Chapter 5 of Appendix H, Power and Transmission. The Environmental Justice analysis in Section 3.18.3, provides further detail on potential disproportionate effects to Tribal, low-income and minority populations from MO1, MO2, MO3 and MO4. For Bonneville's wholesale power rates, the Preferred Alternative places additional rate pressure of 2.7 percent relative to the No Action Alternative consistent with the statement in the comment regarding increased rates. These estimates compare the Preferred Alternative to the No Action Alternative, which is not the same as comparing the Preferred Alternative to current operations. Consequently, the estimates are not a comparison to the BP-20 wholesale power rates, which were set assuming the financial effect of the 2019-2021 Spill Operation Agreement and therefore already include a substantial portion of the cost pressures found in the Preferred Alternative. The remaining rate pressure associated with the Preferred Alternative falls within a level that Bonneville has historically been able to mitigate through the costs over which it has significant control. The Preferred Alternative meets the objective to provide an adequate, efficient, economical, and reliable power supply that supports the integrated Columbia River Power System, as well as meeting the two objectives for ESA-listed juvenile and adult anadromous salmonids. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species as that is a broader goal with shared responsibility. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide meaningful benefits to ESA-listed species and is not expected to diminish the likelihood of recovery. Recovery is a broader regional goal and is above and beyond the co-lead agencies' obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the Columbia River System. Recovery of ESA-listed salmon is outside of the authority of the co-lead agencies, and was not an objective of this EIS. Recovery of ESA species is the purview of NMFS and the US Fish and Wildlife Service. This EIS has been developed in consultation with NMFS and USFWS to find an acceptable balance that allows the co-leads to meet congressionally authorized purposes while minimizing effects to affected ESA species and their habitats. Recovery efforts will need to continue to involve parties across the region that have an influence and effect on ESA-listed species.
22	To save the endangered Snake River salmon, Southern Resident orcas and ratepayers money, the federal agencies need to address the Columbia River System in a two-tiered process. Tier one is an emergency response action for the immediate drawdown and breach of Lower Granite and Little Goose dam, followed by the remaining two dams in subsequent years. Tier two is addressing system operations and further mitigation activities in the rest of the Columbia River Basin using the new EIS, assuming that the four lower Snake River dams.	The Draft EIS evaluated under MO3 removal of the earthen embankment of the four lower Snake River dams (referenced as tier one in the comment) including operations (referenced as tier two in the comment) of the other ten Federal dams in the Columbia River System (CRS) and mitigation for effects to resources from implementing this alternative. If MO3 were selected, the Corps could use this EIS as a basis for seeking congressional authority to breach the four lower Snake River dams. After receiving both authority and appropriations from Congress, the Corps could initiate a detailed construction and design report for the breach measure, identification of disposal areas, real estate acquisition and disposal, permits, and mitigation requirements, including temporary fish hatchery production. Each of these actions are required prior to breaching, and the Corps does not have the authority or appropriations necessary to immediately breach the project's embankments. More information is available in the Corps' Engineering Regulation (ER) 1165-2-119 Water Resources Policies and Authorities, Modifications to Completed Projects (Sept. 20, 1982) or ER 1105-2- 100, Appendix G, Section III Post Authorization Changes. The EIS set forth eight objectives, which in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-lead agencies' numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous

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		salmonids (two of the objectives), but not as much as the MO3 which includes the dam breaching measure. The Preferred Alternative also meets the EIS objectives for: resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS the co-lead agencies did not identify MO3 because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. Analysis shows that the Preferred Alternative would meet the objectives for improving juvenile salmon, adult salmon, resident fish and lamprey. The analysis found ranges in potential effects due to different assumptions included in each of the fish models used in the study. Using the Comparative Survival Study (CSS), Snake River Chinook salmon and steelhead are expected to see relative improvements in smolt-to-adult returns of 35 percent and 28 percent, respectively. The Smolt-to-Adult return ratio (SAR) is the rate at which of a group of fish survive from their smolt life stage to a defined ending point where they return as adult. While achieving long-term recovery targets will require more than just the efforts of Federal agencies, the CSS models indicate the potential for SARs of Snake River Chinook salmon and steelhead to increase to levels that could approach recovery targets set by the Northwest Power and Conservation Council. If latent mortality effects are reduced by passing more juvenile fish through the spillway, the NMFS Lifecycle Model (LCM) also shows that levels of SARs would increase. However, if latent mortality effects are not reduced, or are different than modeled, the LCM predicts that SARs for Snake River spring Chinook salmon may be lower than the No Action Alternative (a range of -7.5 percent to +28 percent change relative to the No Action Alternative) due to reduced opportunities for fish transportation. Results for upper Columbia River stocks are beneficial based on LCM estimates. In-river survival and SARs are anticipated to increase. The CSS model does not currently model upper Columbia fish. The Preferred Alternative also has measures intended to increase upstream passage success and reduce injury and mortality for Pacific lamprey. These measures are proposed structural improvements that include converting extended-length submersible bar screen material to screen material that would not impinge or entangle juvenile lamprey, expanding the network of lamprey passage structures to bypass impediments in fish ladders, changing the design for turbine cooling water strainers, and replacing turbines for safer fish passage. The Preferred Alternative would also meet the objective to improve resident fish. Effects to resident fish vary by region and species, but are generally minor relative to the No Action Alternative. Please also see response to Form Letters 1 and 2.
24	I'm writing to express my concerns about the Columbia River Systems Operations draft environmental impact statement (EIS) and to urge you to revise this plan to adequately protect salmon, the orcas that depend on them, and Native peoples' rights. Salmon populations in the Columbia Basin have dramatically declined since the four lower Snake River dams were built. Once-abundant species such as chinook salmon, which make up 80 percent of an orca's diet, are only returning at a small fraction of historic levels. Your draft EIS fails to adequately account for the impact that dwindling salmon populations in the Columbia and Snake rivers have on Southern Resident orca survival. There are only 72 of these majestic creatures left. Starving female orcas are experiencing high rates of pregnancy loss, a heartbreaking statistic that was starkly illustrated recently by a grieving mother who refused to let her dead newborn calf go. The draft EIS also fails to meet tribal cultural, health, and economic needs, or treaty trust obligations. For tens of thousands of years, Native peoples have lived with abundant salmon. Restoring plentiful salmon to the Columbia and Snake rivers is not just ecologically important, it is an environmental justice issue. The draft EIS's own analysis shows that, for salmon to recover, the four lower Snake dams must be breached and their energy replaced with zero carbon alternatives. Thank you. I hope to see you and your agency fulfill your responsibilities with a new and improved plan. **Variant Text** • i am writing to express my concerns about the columbia river systems operations draft environmental impact statement eis and to urge you to revise this plan to adequately protect salmon the orcas that depend on them and native peoples rights. • we hope to see you and your agency fulfill your responsibilities with a new and improved plan. • i urge you to revise this plan to adequately protect salmon the orcas that depend on them and native peoples rights. • starving female orcas are experiencing high rates of pregnancy loss • the draft eiss own analysis shows that for salmon to recover the four lower snake dams must be breached and their energy replaced with zerocarbon alternatives. • the draft eis fails to adequately account for the impact that dwindling salmon populations in the columbia and snake rivers have on southern resident orca survival. • the draft eiss own analysis shows that for salmon to recover the four lower snake dams must be breached • im writing to express my concerns about the columbia river systems operations draft environmental impact statement eis. • there are only 72 of these creatures left. • starving female orcas are experiencing high rates of pregnancy loss a statistic that was starkly illustrated recently by a grieving mother who refused to let her dead newborn calf go.	Tribal input, concerns, interests, and especially treaty rights were considered throughout the Draft EIS analyses and in the formulation of the Preferred Alternative. Treaty specific information is included in Section 3.17 as well as Chapter 7. The treaties bind all parties and are the supreme law of the land. The co-lead agencies recognize and respect that supremacy. In terms of honoring our treaty obligations, the co-lead agencies included "Protecting Native American treaty and reserved rights and fulfilling trust obligations for natural and cultural resources throughout the environment affected by the Columbia River System operations" as a purpose in the Purpose and Need Statement in Chapter 1 to ensure treaty obligations were a key consideration of decision-making. The co-lead agencies are engaging in government-to-government consultation with the tribes, and several tribes are cooperating agencies on the CRSO EIS. The EIS recognizes the economic and cultural importance of salmon to Tribes in a number of sections throughout the document. The cultural significance and effects of salmon and steelhead fisheries are described in the Ceremonial and Subsistence Fisheries sub-section and the Social Importance of Commercial, Ceremonial and Subsistence Fisheries sub-section of Section 3.15.2.1. Fisheries tribal interests are provided in Section 3.15.4 additional details regarding the economic significance of salmon and steelhead fisheries have been added to the recreation analysis (Section 3.11) including tribal interests (Section 3.11.3.7). Treaty rights are discussed in the Executive Summary, Section 3.16 Cultural Resources, and Section 3.17 Indian Trust Assets, Tribal Perspectives, and Tribal Interests. Appendix P includes copies of tribal perspectives that were submitted by tribes. Tribal consultation is described in Sections 1.5, 3.5, and 3.15; and Chapter 9. Most sub-sections within Chapter 3 include a Tribal Interests section at the end of the sub-section that attempts to summarize tribal issues by topic. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads' numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3, which includes the dam breaching measure. However, the Preferred Alternative also meets most of the other objectives of the study for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. Analysis shows that the Preferred Alternative would meet the objectives for improving juvenile salmon, adult salmon, resident fish and lamprey. The analysis found ranges in potential effects due to different assumptions included in each of the fish models used in the study. Using the Comparative Survival Study (CSS), Snake River Chinook salmon and steelhead are expected to see relative improvements in smolt-to-adult returns of 35 percent and 28 percent, respectively. The Smolt-to-Adult return ratio (SAR) is the rate at which of a group of fish survive from their smolt life stage to a defined ending point where they return as adult. While achieving long-term recovery targets will require more than just the efforts of Federal agencies, the CSS models indicate the potential for SARs of Snake River Chinook salmon and steelhead to increase to levels that could approach recovery targets set by the Northwest Power and Conservation Council. If latent mortality effects are reduced by passing more juvenile fish through the spillway, the NMFS Lifecycle Model (LCM) also shows that levels of SARs would increase. However, if latent mortality effects are not reduced, or are different than modeled, the LCM predicts that SARs for Snake River spring Chinook salmon may be lower than the No Action Alternative (a range of -7.5 percent to +28 percent change relative to the No Action Alternative) due to reduced opportunities for fish transportation. Results for upper Columbia River stocks are beneficial based on LCM estimates. In-river survival and SARs are anticipated to increase. The CSS model does not currently model upper Columbia fish. The Preferred Alternative also has measures intended to increase upstream passage success and reduce injury and mortality for Pacific lamprey. These measures are proposed structural improvements that include converting extended-length submersible bar screen material to screen material that would

Form Letter #	Form Letter Text	Response
	• onceabundant species such as chinook salmon which make up 80 percent of an orcas diet are returning at only a small fraction of historic levels. • i urge you to revise the columbia river systems operations draft environmental impact statement eis to adequately protect salmon the orcas that depend on them and native peoples rights. • your draft eis fails to account for the impact that dwindling salmon populations in the columbia and snake rivers have on southern resident orca survival. • i expect to see you and your agency fulfill your responsibilities with a new and improved plan.	not impinge or entangle juvenile lamprey, expanding the network of lamprey passage structures to bypass impediments in fish ladders, changing the design for turbine cooling water strainers, and replacing turbines for safer fish passage. The Preferred Alternative would also meet the objective to improve resident fish. Effects to resident fish vary by region and species, but are generally minor relative to the No Action Alternative. As discussed in Section 3.7.3.5 replacing the four lower Snake River dams hydropower with the least cost zero-carbon portfolio of 1,960 MW of solar plus 980 MW of storage is expected to cost $375 million per year, and 600 MWs of demand response would add an additional $29 million[1] per year (2019 dollars)[2]. The Preferred Alternative does not require the additional of any replacement resources for hydropower generation. The Preferred Alternative identified in the Draft EIS meets the objective to provide an adequate, efficient, economical, and reliable power supply that supports the integrated Columbia River Power System, as well as meeting the two objectives for ESA-listed juvenile and adult anadromous salmonids. Please also see response to Form Letters 1 and 2. [1] 400 MW of the assessed potential was assumed to be in Bonneville's service territory with the remainder assumed to be acquired in Portland, OR. Therefore, the rates analysis assumes ~$20 million for Bonneville rates regardless of financing, with the remaining ~$10 million included in the socioeconomic retail rate analysis in Portland General Electric's service territory. [2] These figures for solar power were calculated using data from the Council's midterm assessment to the 7th Power Plan for overnight capital costs and fixed O&M assuming public financing and a 30-year useful life for an eastside installation. Storage costs were sourced from the October 8, 2019 Generating Resources Advisory Committee presentation by the NW Council. The presentation relied on can be found at: https://www.nwcouncil.org/sites/default/files/2019_1015_p4.pdf. Demand response costs were also sourced from the 7th Power Plan. See page 14-10, Figure 14-2 of the 7th Power Plan, which shows the dollar cost of each cost bin which the NW Council staff developed; the transmission deferral benefit was sourced from DR Technical Appendix to the 7th Power Plan, Appendix J. See Pages J-3 through J-5, which present the discount and inflation rate assumptions used, the calculation formulas, and how a $26/kW-year transmission deferral credit was netted out of the real levelized implementation costs for DR. Because any benefits accruing to transmission are embedded in the transmission rate pressure analysis in this EIS, this deferral benefit was not assumed in power rate analysis.
25	I am writing to you on behalf of the Southern Resident orcas. These salmon-eating whales are starving to death due to the lack of Chinook salmon (80% of their diet). On August 6th, the Center for Whale Research pronounced three more deaths in the Southern Resident populations. One from each pod. L84- Nyssa K25- Scoter J17 - Princess Angeline 73. We have 73 Southern Residents left. Iftheir population drops below 70 then we have lost them for good. Their gene pool will not be able to recuperate after that. You cannot ignore this issue anymore. It is time to do something. Action is their only protection. Please use the 2002 EIS Alternative #4 and breach the lower four snake river dams! These dams kill 8 million young salmon per year. This drives the salmon and orcas closer to extinction. YOU can help change that. The immediate breach of the dams can change that. Breaching does not require congress. YOU have the power. YOU have 73 precious lives in your hands. The eyes of the world are on YOU. Extinction is forever. Please breach the dams.	The EIS acknowledges previous analyses of breaching the four lower Snake River dams. However, the Columbia River System Operations EIS relies on current information to evaluate the tradeoffs associated with dam breach under Multiple Objective alternative 3. This includes applying current models and data rather than relying on findings from studies conducted nearly 20 years ago. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads' numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3, which includes the dam breaching measure. However, the Preferred Alternative also meets most of the other objectives of the study for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. Analysis shows that the Preferred Alternative would meet the objectives for improving juvenile salmon, adult salmon, resident fish and lamprey. The analysis found ranges in potential effects due to different assumptions included in each of the fish models used in the study. Using the Comparative Survival Study (CSS), Snake River Chinook salmon and steelhead are expected to see relative improvements in smolt-to-adult returns of 35 percent and 28 percent, respectively. The Smolt-to-Adult return ratio (SAR) is the rate at which of a group of fish survive from their smolt life stage to a defined ending point where they return as adult. While achieving long-term recovery targets will require more than just the efforts of Federal agencies, the CSS models indicate the potential for SARs of Snake River Chinook salmon and steelhead to increase to levels that could approach recovery targets set by the Northwest Power and Conservation Council. If latent mortality effects are reduced by passing more juvenile fish through the spillway, the NMFS Lifecycle Model (LCM) also shows that levels of SARs would increase. However, if latent mortality effects are not reduced, or are different than modeled, the LCM predicts that SARs for Snake River spring Chinook salmon may be lower than the No Action Alternative (a range of -7.5 percent to +28 percent change relative to the No Action Alternative) due to reduced opportunities for fish transportation. Results for upper Columbia River stocks are beneficial based on LCM estimates. In-river survival and SARs are anticipated to increase. The CSS model does not currently model upper Columbia fish. The Preferred Alternative also has measures intended to increase upstream passage success and reduce injury and mortality for Pacific lamprey. These measures are proposed structural improvements that include converting extended-length submersible bar screen material to screen material that would not impinge or entangle juvenile lamprey, expanding the network of lamprey passage structures to bypass impediments in fish ladders, changing the design for turbine cooling water strainers, and replacing turbines for safer fish passage. The Preferred Alternative would also meet the objective to improve resident fish. Effects to resident fish vary by region and species, but are generally minor relative to the No Action Alternative. If MO3 were selected as the Preferred Alternative, the Corps could use the CRSO EIS as a basis for seeking congressional authority to breach the lower Snake River dams. After receiving both authority and appropriations from Congress, the Corps could initiate a detailed construction and design report for the breach measure, identification of disposal areas, real estate acquisition and disposal, permits, and mitigation requirements, including temporary fish hatchery production. Each of these actions are required prior to breaching, and the Corps does not have the authority or appropriations necessary to immediately breach the project's embankments. More information is available in the Corps' Engineering Regulation (ER) 1165-2-119 Water Resources Policies and Authorities, Modifications to Completed Projects (Sept. 20, 1982) or ER 1105-2- 100, Appendix G, Section III Post Authorization Changes. Please also see response to Form Letters 1 and 2.
26	Please use the 2002 EIS Alternative #4 and Breach the lower four snake river dams in 2019!	Please see response to form Letter 25.

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27	The salmon, steelhead and orcas will not survive this EIS process. The first step the agencies need to breach the 4 lower Snake River dams THIS year. There is no more time for "studies" that delay action or small steps or other measures. Even though the Bureau of Reclamation, the Army Corp of Engineers and other agencies do not want to breach the dams - this is the needed step for this year 2020 if we want to save those species.	If MO3 were selected as the Preferred Alternative, the Corps could use the CRSO EIS as a basis for seeking congressional authority to breach the lower Snake River dams. After receiving both authority and appropriations from Congress, the Corps could initiate a detailed construction and design report for the breach measure, identification of disposal areas, real estate acquisition and disposal, permits, and mitigation requirements, including temporary fish hatchery production. Each of these actions are required prior to breaching, and the Corps does not have the authority or appropriations necessary to immediately breach the project's embankments. More information is available in the Corps' Engineering Regulation (ER) 1165-2-119 Water Resources Policies and Authorities, Modifications to Completed Projects (Sept. 20, 1982) or ER 1105-2-100, Appendix G, Section III Post Authorization Changes. Please see responses to Form Letters 1 and 22.
28	Dear U.S. Army Corps of Engineers, Thank you for the opportunity to comment on the Columbia River System Operations (CRSO) Draft Environmental Impact Statement (DEIS). I am writing to express my support for restoring the Snake River, a major Columbia River tributary, which is critical if we are to save Columbia River salmon and steelhead from extinction. With 2019 salmon returns dropping to historic lows, we must rethink how we manage the lower Snake River, and the negative impacts of the Lower Snake River dams. Federal agencies have been tasked with developing a plan to save Snake River salmon from extinction. However, the most recent plan outlined in the DEIS written by U.S. Army Corps of Engineers is wholly inadequate and must be dramatically expanded. As proposed, it cannot recover salmon or provide our communities with economic security. Since the final construction of the dams in the 1970s, 28 distinct populations of salmon and steelhead have been listed as threatened or endangered under the Endangered Species Act. Despite decades of habitat recovery attempts at the cost more than $17 billion, salmon have not recovered. Instead of recognizing this expensive failure, the DEIS proposes only minor modification to ineffective and costly plans that have failed over the last 25 years. The Northwest needs smarter solutions based on real science. This DEIS downplays the best scientific information, which shows that restoring the lower Snake River will provide the biggest available boost to increase salmon and steelhead runs. We cannot continue to ignore the historic and current costs to fishing and rural communities and Tribes. They have shouldered the devastating impacts of job losses and reduced revenue from current river operations that have consistently failed to restore healthy fish runs. Because the DEIS is focused on the direct financial costs of restoring salmon and steelhead runs, it ignores the economic benefits of restored fish runs to rural communities and the investments and jobs that river restoration activities would generate for communities up and down the Snake and Columbia Rivers. People throughout the Northwest are calling for a plan that provides a comprehensive solution that addresses urgent and interconnected issues: restoring salmon runs, investing in the economic vitality of local communities and clean affordable energy. I urge federal agencies to revise the DEIS to deliver this plan. We need to restore the Columbia and Snake Rivers so that we have abundant salmon runs and vibrant communities throughout the Northwest. We need a plan that works for people, fish and wildlife alike. Thank you, **Variant Text** • we have options. • we have clean energy irrigation and transportation alternatives. • this deis is only a minor modification to ineffective and costly plans that have failed over the last 25 years. • the region is calling for a plan that includes a comprehensive solution that addresses urgent and interconnected issues restoring salmon runs investing in the economic vitality of local communities and clean affordable energy. • since the final construction of the dams in the 1970s 28 distinct populations of pacific salmon and steelhead have been listed as threatened or endangered under the endangered species act. • however for many populations of pacific northwest salmon that are barreling toward extinction we donatmt have a lot of time. • big policy changes are urgently needed to save iconic salmon runs and deliver real solutions for farmers fishermen ratepayers and northwest residents. • the deis also ignores future savings from eliminating capital operation and maintenance costs for the four lower snake river dams a savings that would total more than 1 billion. • i am calling on federal agencies to revise the deis to deliver what we need today a plan that aligns with what northwest communities need which is a healthy intact river ecosystem that works for people fish and wildlife alike.	The EIS provides an evaluation of the social welfare and regional economic effects of the No Action Alternative and the MOs, including the effects on recreation (Section 3.11) and commercial fisheries (Section 3.15). The EIS Section 3.5.3.6 describes the long-term effects to anadromous fish migration in the Snake River and tributaries that would occur under a dam breach scenario as major and beneficial, although quantitative effects from fish modeling results are limited. The effects to anadromous fish in other locations would have negligible to minor changes from the No Action Alternative. The EIS described the potential effects to recreational fishing qualitatively based on the evaluation in Section 3.5, Aquatic Habitat, Aquatic Invertebrates, and Fish. The co-lead agencies reviewed the research and literature that describes the economic contribution of recreational fishing in the middle Snake River above Lewiston to Hells Canyon Dam and in the Snake River tributaries, including the Salmon and Clearwater rivers. Anadromous fish conditions draw anglers to this region, bringing jobs and income to outfitting and tourism businesses and rural and tribal communities. Angler visitation can be highly variable from year to year depending on fishing closures, catch rates, bag limits, and fish abundance, among other factors. NMFS estimated that an average of 400,000 steelhead and salmon angler trips occurred in this region annually between 2002 and 2009 (NMFS 2014). Using a mid-point of $350 per trip, and assuming 400,000 salmon and steelhead anglers visit this region annually, angler spending or expenditures are estimated to be $140 million, $109.2 million is associated with non-local anglers. Expenditures by anglers from outside of the region are important to tourism businesses, outfitters, retail, and other businesses, bringing in economic stimulus to the region. These non-local angler trip expenditures are estimated to support 1,200 jobs and $45.2 million in labor income in this region. The action alternatives are anticipated to affect fish conditions, and in turn, angler visitation and spending, and regional economic conditions in Region C, which is described qualitatively. For the effects on recreational fishing under MO3 (Section 3.11.3.5) along the lower Snake River below Lewiston, the evaluation considers fishing visitation in similar river reaches (e.g., Hanford River, Clearwater River) as an indicator for fishing visitation in this reach. The EIS describes that the visitation in the long-term in the lower Snake River, including recreational fishing, would likely offset short-term losses in reservoir recreation and possibly increase in the long-term compared to the No Action Alternative, supporting outfitting and tourism businesses in the region. The social welfare values and regional economic effects associated with recreational fishing under the MOs, as well as river recreation post dam breach under MO3, were not estimated because of the uncertainty and large range in visitation and consumer surplus values among users. The contribution of Columbia River origin fish to ocean fisheries is described in Section 3.15.2.1. Because there is considerable uncertainty regarding the overall effects of the alternatives on regional fish populations, and how such changes may affect the management of the fisheries, effects associated with changes in commercial and recreational fisheries under the alternatives were described qualitatively. This analysis evaluates potential effects on fisheries by referencing the potential effects on relevant fish populations, as described in Section 3.5. This analysis evaluates potential effects on fisheries by referencing the potential effects on relevant fish populations, as described in Section 3.5. The cultural significance and effects of salmon and steelhead fisheries are described in the Ceremonial and Subsistence Fisheries subsection and the Social Importance of Commercial, Ceremonial and Subsistence Fisheries subsection of Section 3.15.2.1. Fisheries Tribal interests are described in Section 3.15.4 additional details regarding the economic significance of salmon and steelhead fisheries have been added to the recreation analysis (Section 3.11) including Tribal interests (Section 3.11.3.7). Most Section of chapter 3 include a Tribal Interests Section at the end that attempts to summarize issues by topic. The costs to breach the dams and draw down the infrastructure are described in Section 3.19 and in Appendix Q (construction costs of the structural measures).Tables 4-1 and 5-1 in Appendix Q show the costs and cost savings under MO3. There would be approximately $107 million in annual capital and O&M cost savings under MO3 compared to the No Action Alternative for the four lower Snake River projects over the 50-year period of analysis. The cost of breaching the dams, as described in Section 3.19 and in Appendix Q, does not include changes to irrigation or rail infrastructure. The MO3 alternative, which includes breaching the earthen embankment of the four lower Snake River dams, would have adverse effects to farmers and irrigation. Currently and in the No Action Alternative, water is available from the pools of these facilities and from groundwater that results from the pools. Removing the earthen embankment portion of the dams would reduce pool elevations by up to 100 feet, which would make surface pumps inoperable. Groundwater pumps in the wells may also be affected due to decreased groundwater elevations depending on the connectivity of the aquifer to the pools. The EIS describes the engineering solutions for irrigation (pipeline extensions, for example) in Section 3.12.3 Environmental Consequences, Region C under the MO3 alternative. The EIS describes that modifying the existing pump system was cost prohibitive. In Region C under the MO3 alternative, it is assumed that pumps are unable to deliver water to an estimated 47,926 acres. Please see Section 3.12 and Appendix N for additional information. The Navigation and Transportation Section (3.10) reflects the adverse effects of implementing alternative MO3, including discussions of transportation mode capacity and cost of grain transport. The EIS analysis finds that transportation of freight that is currently barged on the lower Snake River could be accomplished via other transportation modes, but this change would not be without costs to farmers, would require public and private investment in infrastructure, and would result in some adverse regional economic effects, particularly in the short term. The EIS evaluates potential effects on farmers associated with increased transportation costs under MO3 in Section 3.10.3.5. Evaluating the effect of removing the lower Snake River locks and barge navigation above Pasco, Washington, is completed using a transportation optimization model that does not allow shipments on river terminals along the lower Snake River. The EIS finds that under a dam breach scenario, average transportation costs for wheat farmers would increase 10 to 33 percent, but that individual farmers could experience increases that are doubled. The cost increases to specific shippers would depend upon location and would vary

Form Letter #	Form Letter Text	Response
	• i am writing to express my support for restoring the snake river which is a critical action to recover key salmon runs and the communities that depend on them. • despite decades of habitat recovery attempts at the cost more than 17 billion 2019 salmons returns remained perilously low forcing emergency fishing closures a and economic devastation a in washington and idaho fishing communities. • i support restoring the snake river a major columbia river tributary which is critical if we are to save columbia river salmon and steelhead from extinction.	throughout the region, depending on transportation options at each location. Generally, those grain shippers that are the farthest from alternate shipping locations (shuttle rail facilities or river ports on the Columbia River) would be the most adversely affected. Note, cost scenarios for specific farmers are presented below in the Regional Economic Effects within Section 3.10.3.5. The EIS also evaluates the additional transportation infrastructure investments and associated costs that would be required, as well as the increases in air emissions that would occur. The EIS finds that truck ton-miles may experience an increase of 19 percent to 84 percent under MO3 when compared to the No Action Alternative, depending on the rail rate increases that occur. The EIS analysis found that truck trips would increase between 14,000 to 79,000 truck trips per year, which would increase air pollutant and greenhouse gas emissions in the region and add to traffic and congestion in the region. Rail ton-miles would increase by as much as 86 percent (when rail rates are not assumed to increase) or decrease by 2 percent (when rail rates increase by 50 percent). The commenter's suggestion that approximately $17 billion in fish and wildlife mitigation investment has been ineffective to recover ESA listed species is misplaced. Those investments delivered the intended results when considered in the appropriate statutory context of the Northwest Power Act's anadromous fish provisions which call for improved survival of such fish at FCRPS projects and sufficient flows between the projects to improve production, migration, and survival. For example, as of 2014 this investment had facilitated juvenile dam passage survival of 96% and 93% for spring and summer migrants respectively, see Endangered Species Act Federal Columbia River Power System 2016 Comprehensive Evaluation – Section 1, at 17, t.2 (Jan. 2017), a marked improvement compared to when Congress passed the Northwest Power Act and the estimated average juvenile mortality at each mainstem dam and reservoir complex was 15-20% with losses recorded as high as 30%. See Nw. Res. Info. Ctr. v. Nw. Power Planning Council, 35 F.3d 1371, 1374 (9th Cir. 1994) (citing a Sept. 4, 1979 report by U.S. General Accounting Office describing the system's effects on anadromous fish). The spill operation for juvenile fish passage is a significant departure from previous operations, so much so that the Washington and Oregon state water quality standards had to be changed to implement the new spill regime. Based on the fish analysis in Section 7.7.4, the co-lead agencies anticipate that the Preferred Alternative would provide substantial benefits to ESA-listed species. For example, the CSS and COMPASS models predict that powerhouse encounters would be cut in half relative to the No-Action Alternative for Snake River spring/summer Chinook salmon. The uncertainty lies in the hypothesis that reduced powerhouse encounters will result in increased adult returns. To address this uncertainty, the Preferred Alternative includes an adaptive management plan. This plan involves working with regional sovereigns to develop a study to assess the effectiveness of the increased spill regime on adult returns as well as assessment and management of adverse unintended consequences, such as long delays of adult migrants, or TDG-related mortality of juvenile migrants. Please see Appendix R, Part 2 Process for Adaptive Implementation of the Flexible Spill Operational Component of the Columbia River System Operations EIS for additional information. Please also see responses to Form Letters 2, 4 and 22.
29	Please consider the following responses as part of my comments to the CRSO EIS The Columbia River and the Lower Snake River Dams are a reliable and economical source of renewable energy that must be retained to meet future challenges such as regional growth and reducing the carbon foot print. Clean, renewable hydropower will be required to adequately recharge the electric vehicles needed to meet current and future mandates. Also, according to the CRSO EIS estimates, the region's electric rates could jump as much as 50% due to breaching and I am opposed to that because I believe that would create an economic catastrophe. While wind and solar energy are an important newer energy source, I believe they will never replace hydroelectric power as an economical substitute. Also, these are unreliable sources of energy requiring a "battery" to offset periods when they are unable to generate power. Dams are the perfect battery since their output is continuously adjustable, thus they can quickly "fill in the blanks" that are caused by wind and solar. Several key dams on the Columbia and Snake Rivers are fitted with locks that allow barges and many other water craft to transit from the Pacific Ocean to as far upstream as Lewiston, Idaho. That barge traffic is critically important to the residents and economy of the Pacific Northwest. The roads and rail lines would be severely overloaded and require rebuilding if the Lower Snake River Dams were breached because the important barge traffic would cease. Public safety would also be degraded by the proliferation of trucks and trains required to offset the loss of barge transportation. The carbon foot print would be also enlarged with the added trucks and trains compared to the more efficient barges. Tens of thousands of acres became irrigated farmland when the Lower Snake River Dams were built. Breaching the dams will dry up those important farmlands. I am opposed to the loss of this irrigated farmland. The recovery of Salmon in Pacific Northwest is important, but the mitigation efforts that have been accomplished and future planned actions without breaching these Dams are the correct approach. There has been 16 billion dollars spent to mitigate the effects of the dams on the fish and habitat restoration. The high salmon survival percentages ·now being recorded at each dam is a testament to the effectiveness of these large investments. Recently the Lower Snake River Dams have been targeted as reducing the population of the Southern Resident Orcas which actually spend half their time in the Puget Sound. The EPA and other agencies have been studying the Puget Sound and its aquatic life for decades. There is a lot of science based data that shows that beside pollution in the Puget Sound, the lack of salmon there is also caused by the numerous blockages to streams which prevent them from spawning. These Puget Sound salmon are important to the Orcas because they are the major source of food for them. Cleaning up the Sound and opening the streams that empty into it which the salmon need to spawn in is the correct solution, not breaching major dams on the Columbia and Snake Rivers.	The EIS set forth eight objectives, which in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-lead agencies' numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as the MO3 which includes the dam breaching measure. The Preferred Alternative also meets the EIS objectives for: resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS the co-lead agencies did not identify MO3 because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. The comment that replacing the four lower Snake River dams under MO3 would drive up costs in the region is consistent with EIS findings. The Environmental Justice analysis in Section 3.18.3 of the EIS provides further detail on potential disproportionate effects to Tribal, low-income and minority populations under MO3. Chapter 5 of Appendix H, Power and Transmission provides additional details on potential rate increases by county as well as for urban and rural utility customers. The ability of hydropower to aid in grid stability and the integration of renewable power is described in the Bonneville Transmission System Reliability and Operations subsection of Sections 3.7.3.3 through 3.7.3.6 and in Section 3.7.3.5, Potential Replacement Resources and Associated Costs in the draft EIS. Although it is beyond the scope of the EIS to analyze the role of hydropower in achieving specific clean energy goals, the EIS does find that replacing the hydropower generation of the four lower Snake River dams would increase greenhouse gas emissions from power generation. See Section 3.8.3.5, pages 3-1009-1010 in the Draft EIS. The statements regarding the variability of other renewables and the importance of the four lower Snake River dams for integrating new renewables are consistent with the findings and discussions in the EIS. See Section 3.7.3.5, Lower Snake River Full Replacement, pages 3-905-907. The Preferred Alternative identified in the Draft EIS meets the objective to provide an adequate, efficient, economical, and reliable power supply that supports the integrated Columbia River Power System, as well as most other objectives. The MO3 alternative, which includes breaching the earthen embankment of the four lower Snake River dams, would have adverse effects to farmers and irrigation. Currently and in the No Action Alternative, water is available from the pools of these facilities and from groundwater that results from the pools. Removing the earthen embankment portion of the dams would reduce pool elevations by up to 100 feet, which would make surface pumps inoperable. Groundwater pumps in the wells may also be affected due to decreased groundwater elevations depending on the connectivity of the aquifer to the pools. The EIS describes the engineering solutions for irrigation (pipeline extensions, for example) in Section 3.12.3 Environmental Consequences, Region C under the MO3 alternative. The EIS describes that modifying the existing pump system was cost prohibitive. In Region C under the MO3 alternative, it is assumed that pumps are unable to deliver water to an estimated 47,926 acres. Please see Section 3.12 and Appendix N for additional information. The Navigation and Transportation Section (3.10) reflects the adverse effects of implementing alternative MO3, including discussions of transportation mode capacity and cost of grain transport. The EIS analysis finds that transportation of freight that is currently barged on the lower Snake River could be accomplished via other transportation modes, but this change would not be without costs to farmers, would require public and private investment in infrastructure, and would result in some adverse regional economic effects, particularly in the short term. The EIS evaluates potential effects on farmers

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	The other half of the year, the Orcas travel close along the coast between California and South Eastern Alaska. Using satellite tracking tags on salmon, NOAA Fisheries recently made a startling discovery. It has been determined that the Upper Columbia and Snake River salmon after migrating to the ocean spend their time farther from the coast line than the Orcas do during their travels. It would be an unmitigated disaster to breach important power generating dams when the Orcas and the fish that are their supposed food source are not even in the same space. The Orcas number rose significantly in the 1980's and 90's when hatchery fish were reared and released in great numbers. As hatchery operations were scaled back, the Orcas numbers quickly declined. I believe that feeding the Orcas more hatchery fish, because it is a proven management tool makes more sense than crippling our electric grid through breaching. I believe it would be foolish and reckless to begin breaching Columbia or Snake River Dams after the years of work and billions of dollars invested that have brought great success to saving salmon in our region through mitigation and habitat restoration. Furthermore, blaming dams that have no effect on another species such as the Orcas is wrong and counterproductive when the problems exist elsewhere. I fully support the Preferred Alternative to save the Dams as presented in the CRSO EIS. Signed: Date: April 13, 2020	associated with increased transportation costs under MO3 in Section 3.10.3.5. Evaluating the effect of removing the lower Snake River locks and barge navigation above Pasco, Washington, is completed using a transportation optimization model that does not allow shipments on river terminals along the lower Snake River. The EIS finds that under a dam breach scenario, average transportation costs for wheat farmers would increase 10 to 33 percent, but that individual farmers could experience increases that are doubled. The cost increases to specific shippers would depend upon location and would vary throughout the region, depending on transportation options at each location. Generally, those grain shippers that are the farthest from alternate shipping locations (shuttle rail facilities or river ports on the Columbia River) would be the most adversely affected. Note, cost scenarios for specific farmers are presented below in the Regional Economic Effects within Section 3.10.3.5. The EIS evaluates the additional transportation infrastructure investments and associated costs that would be required, as well as the increases in air emissions that would occur. Under low rail rate increase scenarios, additional shortline rail capacity would be required that could cost $25 to $50 million. Under a scenario where rail rates increase by 50 percent, more shipping demand would be transferred to trucks, reducing the demands on rail infrastructure, but increasing demands on roads. The EIS finds that truck ton-miles may experience an increase of 19 percent to 84 percent under MO3 when compared to the No Action Alternative, depending on the rail rate increases that occur. The EIS analysis found that truck trips would increase between 14,000 to 79,000 truck trips per year, which would increase air pollutant and greenhouse gas emissions in the region and add to traffic and congestion in the region. Rail ton-miles would increase by as much as 86 percent (when rail rates are not assumed to increase) or decrease by 2 percent (when rail rates increase by 50 percent).Under this scenario, up to $10 million in additional road wear-and-tear costs may occur. Actions in Puget Sound are outside the scope of this EIS, which focuses on CRS operations, maintenance and configuration. The US Army Corps of Engineers is in partnership with other Federal, state and non-governmental organizations and have been implementing habitat projects for salmon, orcas, and wildlife all around the Puget Sound as part of the Puget Sound Nearshore Ecosystem Restoration Project. Please also see response to Form Letters 1 and 8.
30	Thank you for the opportunity to comment on the Columbia River System Operations Draft Environmental Impact Statement (DEIS). I believe that breaching the four lower Snake River dams would have an adverse impact on electric cooperative consumers, the reliability of the Northwest power grid, and the environment. The Snake River dams are an integral part of our electricity supply in the Pacific Northwest, supplying power to 900,000 homes each year. The mission of Washington's electric cooperatives is to deliver clean, affordable, reliable electricity to our members. The DEIS concluded that breaching the Snake River dams would have "long-term, major, adverse effects on power costs and rates," and the "rate pressure could be up to 50% on wholesale power rates." A 50% increase in the Bonneville Power Association's (BPA) rate would be a significant increase to electric cooperative consumers. The people most impacted by these rate increases will be our vulnerable populations---seniors, and those on fixed incomes. We shouldn't ask our members to choose between paying their electric bills or purchasing food and medicine. We also should reject any proposal that will lead to blackouts. The DEIS concludes the dam breaching alternative would "more than double the region's risk of power shortages." The Pacific Northwest has a legacy of clean energy, and according to the DEIS, breaching the dams would create a 10% increase in power-related emissions across the Northwest. The DEIS also noted that federal agencies have made substantial improvements for fish passage at the lower Snake River and lower Columbia River dams. BPA customers have helped fund this multi-billion-dollar effort to improve fish passage at the dams, which is meeting targets of 96% survival rates for migrating juvenile fish. I believe it is important to build upon this successful fish passage program, instead of taking drastic measures such as dam breaching. Thank you for the opportunity to comment on the DEIS.	The comment that replacing the hydropower generation from the four lower Snake River dams will drive up costs in the region is consistent with EIS findings. The Environmental Justice analysis in Section 3.18.3 of the EIS provides further detail on potential disproportionate effects including to Tribal, low-income and minority populations. Chapter 5 of Appendix H, Power and Transmission provides additional details on potential rate increases by county as well as for urban and rural utility customers. The commenter is correct that without replacement power, MO3, which includes the measure to breach the four lower Snake River dams, would increase the frequency of power shortages. If the lost capability of the four lower Snake River dams are replaced with natural gas, as assumed in least-cost conventional resource portfolios, emissions would increase. The EIS also considered replacing the lost capability of the four lower Snake River dams with a zero-carbon resource portfolio. The zero-carbon resource portfolio consists entirely of zero carbon resources: solar, wind, and storage technologies (i.e., batteries). However, even with new renewable resources, the EIS analysis finds that existing carbon-emitting resources would likely increase generation to integrate the large portfolio of renewable resources, resulting in a new increase in greenhouse gas emissions. This portfolio is described in Section 3.7.3.5, Potential Replacement Resources and Associated Costs, and emissions implications in Section 3.8.3.5, Greenhouse Gas Emissions from Power Generation in the Draft EIS. The measure to breach the four lower Snake River dams that was evaluated in MO3, was not included in the Preferred Alternative identified in the Draft EIS. The effects of the Preferred Alternative on power are described in Section 7.7.9 of the Draft EIS. Overall, hydropower would decrease relative to the No Action Alternative under the Preferred Alternative. However, because of the shape of the remaining hydropower generation in the Preferred Alternative, the loss of load probability (LOLP) was essentially the same as that of the No Action Alternative. The co-lead agencies thoroughly analyzed the effects of the measure to breach the four lower Snake River dams, including effects to emissions, and did not include the measure to breach the four lower Snake River dams in the Preferred Alternative. The investments of Federal funds for fish passage has delivered the intended results when considered in the appropriate statutory context of the Northwest Power Act's anadromous fish provisions which call for improved survival of such fish at FCRPS projects and sufficient flows between the projects to improve production, migration, and survival. For example, as of 2014 this investment had facilitated juvenile dam passage survival of 96% and 93% for spring and summer migrants respectively, see Endangered Species Act Federal Columbia River Power System 2016 Comprehensive Evaluation – Section 1, at 17, t.2 (Jan. 2017), a marked improvement compared to when Congress passed the Northwest Power Act and the estimated average juvenile mortality at each mainstem dam and reservoir complex was 15-20% with losses recorded as high as 30%. See Nw. Res. Info. Ctr. v. Nw. Power Planning Council, 35 F.3d 1371, 1374 (9th Cir. 1994) (citing a Sept. 4, 1979 report by U.S. General Accounting Office describing the system's effects on anadromous fish). Please also see response to Form Letter 20.
32	I appreciate your efforts in preparing the draft environmental impact statement for the 14 federal projects on the Columbia River System. I am concerned that breaching the lower Snake River dams is an option under but am pleased that the increased preferred alternative does not include a recommendation to breach any of the dams. I am also concerned that increased spill is under consideration. The Lower Snake River Dams Prevent Blackouts - The lower Snake River dams have already avoided blackouts in my area - the Tri-Cities. Thousands of new homes and businesses will be built here in the next few years. Our economy is growing. Because they can quickly increase energy production, all four lower Snake River Dams have never been more important to avoid blackouts with renewable carbon-free hydroelectricity. Higher Spill is Expensive and Unproven - I urge you to not consider the alternative with the highest spill levels. This approach could increase power rates by 40%, increase carbon emissions and potentially decrease fish survival according to one of the two fish survival models in the draft EIS.	Please see the response to Form Letters 4, 5, and 6.

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	The Dams Make Wind and Solar Energy Possible - Without hydroelectricity to fill in the gaps, the grid cannot take the swings in generation caused by fluctuations in wind and sunshine. The Northwest's demand for electricity is highest in the winter when wind is less prevalent and the sun sets early. The Dams Meet Washington's Carbon-Free Goals - Washington state's 2025 Clean Energy Transformation Zero Act carbon (CET A) commits us to a path no coal generation by 2025 and 100% clean energy by 2045. Zero carbon emissions are produced during hydropower generation. The Dams Provide Affordable Electricity -particularly independent studies indicate a shortage of electricity generation in the coming years, particularly with the closure of coal plants. The lower Snake River dams are critically needed to avoid a repeat of the 2000-2001 energy crisis that resulted in soaring electricity prices. The draft EIS indicates that replacing lost generation from dam removal with carbon-free resources could result in a 50% increase in power costs. That doesn't consider the loss of coal generation which will also need to be replaced by carbon-free resources to reach CETA goals. A rise in energy costs would worsen our homeless crisis and mean greater hardships for people already struggling to make end meet. The Dams are Just one factor in Salmon and Orca Survival - Salmon from the Snake River are only one part of an orca's diet. Salmon survival rates through these dams are as high as 97%. NOAA Fisheries' analysis shows Puget Sound Chinook salmon are most important for the Southern Resident Orcas. Cleaning the Puget Sound and reducing carbon output would be a better use of time and money in saving our treasured salmon and orca. The Dams Create Tourism, Recreation, Irrigation and Transportation - The lower Snake River dams provide industries, products, flood control and jobs to Northwest residents. The draft EIS is the most extensive study in the history of the Columbia River Basin. It's a collaborative body of work that included significant input form federal agencies, Native American tribes and the states of Idaho, Montana, Oregon and Washington. I am pleased that the report recognizes the importance of the lower Snake River dams and does not recommend dam breaching. I support the preferred alternative of the draft EIS. I also hope the majority of the effort will be placed where the majority of the fish survival problems occur - in the ocean and Puget Sound. **Variant Text** • a rise in energy costs would worsen our homeless crisis and mean greater hardships for people already struggling to make ends meet. • i am concerned that breaching the lower snake river dams is an option under consideration but am pleased the preferred alternative does not include a recommendation to breach any of the dams. • several independent studies indicate a shortage of electricity generation in the coming years particularly with the closure of coal plants • its a collaborative body of work that included significant input from federal agencies native american tribes and the states of idaho montana oregon and Washington. • i urge you to not consider the alternative with the highest spill levels. • the lower snake river dams provide industries products flood control irrigation water to agricultural products and jobs to northwest residents. • the dams provide affordable electricity several independent studies indicate a shortage of electricity generation in the coming years particularly with the closure of coal plants. • noaa fisheries analysis shows puget sound chinook salmon are most important for the southern residents • army corp of engineers the bureau of reclamation and the bonneville power administration i appreciate your efforts in preparing the draft environmental impact statement for the 14 federal projects on the columbia river system.	
	I am writing to give my support to save our dams. I feel it is important for our environment and for our economy. They do not appear to have any impact on salmon from the Snake and Columbia River dams. The dams are certainly important for the farmers and general economy and provide the cleanest transportation "highways" as compared to rail, trucking, pipe lines etc. The dams cannot be held responsible for what happens in the ocean before the fish arrive in the river or the gill netting by the Indians. I appreciate having our dams and the abundant clean electricity they provide. I cannot see where the protesters even have an argument. Washington state is already one of the most environmentally clean states in the union- perhaps it is the cleanest. Gas fired plants will never be as "clean" as dams. Wind power is so unreliable. I prefer to have electricity 100% of the time, not sporadically. I feel the "greenies" should "clean up their own backyard first". Most of the decreased salmon population is due to problems at the ocean and the gill netting in the rivers. The fish ladders on the Snake River are state of the art. Thank you for giving me an opportunity to give my opinion.	The EIS evaluated beneficial and adverse effects across an array of resource areas including potential effects at the national, regional and local level; effects are monetized and quantified, where possible, and also described qualitatively. As is common in NEPA analyses, the beneficial and adverse effects of the alternatives are expressed as a variety of qualitative and quantitative environmental and economic metrics throughout the EIS to inform decision-making. The EIS does not employ a cost-benefit framework for decision-making. Instead, the EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads' numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3, which includes the dam breaching measure. However, the Preferred Alternative also meets most of the other objectives of the study for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. The EIS estimates the costs to operate the CRSO dams, as well as the costs to the navigation and transportation industry that would be occur if the lower Snake River dams are breached under MO3 as part of this broad analysis that aims to balance the objectives of the agencies for the system. The EIS finds that under a dam breach scenario, average transportation costs for wheat farmers would increase 10 to 33 percent, but that individual farmers could experience increases that are doubled. The cost increases to specific shippers would depend upon location and would vary throughout the region, depending on transportation options

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		at each location. Generally, those grain shippers that are the farthest from alternate shipping locations (shuttle rail facilities or river ports on the Columbia River) would be the most adversely affected. The co-lead agencies also recognize that there are many effects to salmon and steelhead populations outside the operation of the dams; including gill netting. Research continues to evaluate the magnitude of these effects. For more information see the NOAA Fisheries website at: https://www.nwfsc.noaa.gov/research/index.cfm. Harvest certainly has an effect on salmon and steelhead populations. The three co-lead agencies do not manage fish stocks, and do not have the authority to do so. For harvest, fisheries in the Columbia River Basin and those that rely upon Columbia River fish stocks are managed by numerous entities, including Federal, state, and tribal governments. These entities are guided by a complex array of policies, laws, compacts, and agreements. The management of Pacific salmon fisheries in particular is complex, and involves numerous entities representing a variety of social, political, and conservation interests. Changes in allowable fishery harvest in the Columbia River Basin are a result of decisions made by state, Federal (i.e., NMFS), and tribal fishery managers based on a variety of environmental, biological, economic, and social factors. Alternatives to include changes to harvest are not within the scope of this EIS. The assumptions regarding harvest are taken from the NOAA 2018 EIS and reflect current harvest management guidelines. To see their conclusions and effects analyses please go to: https://www.fisheries.noaa.gov/resource/document/environmental-impact-statement-programmatic-review-harvest-actions-salmon-and.
34	Dear Bonneville Power Administration, U.S. Army Corps of Engineers, and Bureau of Reclamation, I'm writing to comment on the draft environmental impact statement for the Columbia River system and specifically in support of Alternative 3, which includes breaching all four lower Snake River dams. Scientists from the Fish Passage Center have stated that breaching all four of these dams would result in roughly one million adult Chinook salmon returning to the mouth of the Columbia River, providing significant relief for endangered Southern Resident orcas. As you know Chinook salmon are the orcas' primary food source from central California to the Salish Sea, and the Columbia Basin supports salmon runs that the orcas have relied on for centuries. Historically half of all the salmon returning to the Columbia Basin were bound for the Snake River. But after the river was dammed more than half a century ago, the wild salmon runs plummeted and left the orcas with fewer fish to eat. Despite the fish ladders and our current interim spill measures, dams continue to cause serious salmon declines by directly killing and preventing their migration. Breaching these dams will cut dam-caused mortality by at least 50%. What's more, these dams have flooded miles of spawning habitat, destroyed healthy riparian forests, and created lethal warm-water reservoirs. With climate change, the number of days where temperatures will reach deadly levels are expected to increase.By removing these dams, we'll also increase salmon access to more than 5,500 miles of free-flowing, climate-resilient, federally protected spawning habitat in northwest Oregon, southeast Washington and central Idaho. And doing so will deliver tremendous economic, ecological and cultural benefits to the region and nation. Removing the dams, of course, will require both state and federal governments to invest in infrastructure that eases the transition for farmers and communities that rely on these dams. But it's an essential endeavor. Investments in rail infrastructure, irrigation pipes and renewable energy will ensure a just transition for the region and help support salmon and orca recovery. There's not a moment to lose. Southern Resident orcas are among the most endangered mammals on the planet, and they're starving to death with only 72 individuals left in the wild. While the orcas also face threats from vessel noise and contamination, breaching the four lower Snake River dams is the most significant action the federal government can take right now to restore salmon runs and orcas' most valuable food source. Please breach the four lower Snake River dams. Sincerely, **Variant Text** • investments in rail infrastructure irrigation pipes and renewable energy will ensure a just transition for the region and help support salmon and orca recovery. • by removing these dams well also be increasing salmon access to more than 5500 miles of free flowing climateresilient federally protected spawning habitat in northwest oregon southeast washington and central idaho. • but its an essential endeavor. • as you know chinook salmon are the orcas primary food source from central california to the salish sea. • and the columbia basin supports salmon runs that the orcas have relied on for centuries • im writing to comment on the draft environmental impact statement for the columbia river system and specifically in support of alternative 3 which includes breaching all four lower snake river dams. • doing so will deliver tremendous economic ecological and cultural benefits to the region and nation • the columbia basin supports salmon runs that the orcas have relied on for centuries. • by removing these dams we will also be increasing salmon access to more than 5500 miles of free flowing climateresilient federally protected spawning habitat in northwest oregon southeast washington and central Idaho	Neither the modeling conducted for the CRSO EIS, nor Fish Passage Center modeling conducted outside the EIS process, indicates that breaching the four lower Snake River dams would result in 1 million adult Chinook salmon returning to the mouth of the Columbia River. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of ESA-listed species' survival and recovery, or adversely modify or destroy species habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. The EIS concluded MO3 would result in greater improvement to certain salmon species in the lower Snake River. It did not conclude there was greater certainty of that result in MO3 over any other alternative. The conclusions were based on the ranges predicted in two independent models that have different parameters and limitations in their predictive capabilities. The CRSO EIS evaluated improvements to fish ladders in the Multiple Objective Alternatives. Fish ladders are proven effective at moving adult fish upstream at the dams that have them. The four lower Snake River and four lower Columbia River dams have fish ladders that safely and effectively pass millions of adult salmon upstream. Adult upstream passage success through these dams is relatively high, generally around 90% from Bonneville to Lower Granite dam. In addition to passing up to 60,000 salmon per day, some of these dams may pass upwards of 250,000 shad in a single day. As described in Section 7.6.2, the Preferred Alternatives includes the Bonneville Ladder Serpentine Weir Modification measure that is expected to reduce stress and delay for adult salmon, steelhead and bull trout and has the potential to increase adult salmon and steelhead survival by reducing upstream passage time at the dam. The Draft EIS does indicate that breaching dams would increase the Smolt-to-Adult ratio by approximately 10%, not the 1 million indicated in the comment. Breaching the dams and increasing the spill to 125% along the Lower Columbia is not possible and maintain the power generation load currently maintained by the CRO. The co-lead agencies are legally obligated to operate and maintain the CRS to meet multiple statutory purposes. They are also required to ensure operation of the CRS complies with other laws. Under the ESA, in particular, the operation of the CRS may not appreciably reduce the likelihood of listed species' survival and recovery, or adversely modify or destroy species habitat. The ESA does not, however, require the co-lead agencies to take affirmative actions to recover ESA-listed species. It is well understood that the CRS dams have an effect on natural riverine processes as well as anadromous fish migration. This is discussed throughout the EIS document. A system water quality model was developed to look at water temperature and TDG effects throughout the Columbia and Snake River system for this EIS. Breaching the four lower Snake River dams would result in long-term benefits including improvements to fall water temperatures and the restoration of the river to more normative riverine processes; this is stated in Chapter 3, pages 3-271 through 3-272 and Appendix D, Section 6.2.3. Under a dam breach scenario, spring water temperatures will warm more quickly than No Action conditions. Similarly, in the fall, under a dam breach scenario, fall water temperatures will cool more quickly than No Action conditions. What has surprised some stakeholders are the predicted summer water temperature effects under dam breaching. Many believe that removing the dams will result in colder water temperatures as compared to the No Action Alternative. While some cooler water temperatures may be observed in the summer under dam breaching, especially during cooler summer weather conditions and at night, water temperatures will remain warm and exceed the state water quality standard at times. This is because without the dams, the lower Snake River will be shallower and more susceptible to solar radiation and warming. Increases in water particle travel time are expected, but the lower Snake River has always been a warm system (USGS 1960, 1961, 1964; Corps 2002a) and breaching the dams will not change this fact. Regionally high air and water temperatures result in water quality standard exceedances and are beyond the ability of the CRS to cool; future climate change predictions will result in even more difficult challenges. The EIS analysis finds that transportation of freight that is currently barged on the lower Snake River could be accomplished via other transportation modes, but this change would not be without costs to farmers, would require public and private investment in infrastructure, and would result in some adverse regional economic effects, particularly in the short term. However, the co-lead agencies do not currently have the authority to provide for those investments in rail or road infrastructure. The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads' numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets most other EIS objectives including those for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS

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	• southern resident orcas are among the most endangered mammals on the planet and they are starving to death with only 72 individuals left in the wild. • there is not a moment to lose. • these dams have flooded miles of spawning habitat destroyed healthy riparian forests and created lethal warmwater reservoirs. • removing the dams will require both state and federal governments to invest in infrastructure that eases the transition for farmers and communities that rely on these dams. • but it is an essential endeavor. • chinook salmon are the orcas primary food source from central california to the salish sea. • with climate change the number of days where temperatures will reach deadly levels is expected to increase • scientists from the fish passage center have stated that breaching all four of these dams would result in roughly 1 million adult chinook salmon returning to the mouth of the columbia river. • after the river was dammed more than half a century ago the wild salmon runs plummeted and left the orcas with fewer fish to eat. • these dams kill up to 50 of juvenile salmon before they even reach the ocean and are roadblocks to adult salmon returning home to spawn. • as you know chinook salmon are the orcas primary food source from central california to the salish sea and the columbia basin supports salmon runs that the orcas have relied on for centuries. • removing the dams of course will require both state and federal governments to invest in infrastructure that eases the transition for farmers and communities that rely on these dams but its an essential endeavor. • furthermore these dams have flooded miles of spawning habitat destroyed healthy riparian forests and created lethal warmwater reservoirs. • federal tribal and independent scientists concluded years ago that removing these four dams is the best way to restore the areas wild salmon. • breaching the four lower snake river dams is the most significant action the federal government can take right now to restore salmon runs and orcas most valuable food source. • in addition these dams have flooded miles of spawning habitat destroyed healthy riparian forests and created lethal warmwater reservoirs. • while the orcas also face threats from vessel noise and contamination breaching the four lower snake river dams is the most significant action the federal government can take right now to restore salmon runs and orcas.	objectives. Thus, in the Draft EIS, the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams, because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. If MO3 were selected as the Preferred Alternative, the Corps could use the CRSO EIS as a basis for seeking congressional authority to breach the lower Snake River dams. After receiving both authority and appropriations from Congress, the Corps could initiate a detailed construction and design report for the breach measure, identification of disposal areas, real estate acquisition and disposal, permits, and mitigation requirements, including temporary fish hatchery production. Each of these actions are required prior to breaching, and the Corps does not have the authority or appropriations necessary to immediately breach the project's embankments. More information is available in the Corps' Engineering Regulation (ER) 1165-2-119 Water Resources Policies and Authorities, Modifications to Completed Projects (Sept. 20, 1982) or ER 1105-2-100, Appendix G, Section III Post Authorization Changes. Please see response to Form Letter 1.
35	Dear U.S. Army Corps of Engineers, Bureau of Reclamation, and Bonneville Power Administration, Thank you for the opportunity to comment on the Columbia River System Operations (CRSO) Draft Environmental Impact Statement (DEIS). I am writing specifically out of concern for the endangered Southern Resident orca population, a unique community of fish-eating orcas that lives off the west coasts of the U.S. and Canada. The DEIS fails to adequately address the connection between Columbia and Snake River salmon and Southern Resident orcas, and the impact that declining salmon abundance has on their survival. As salmon specialists, the main component of the Southern Resident orcas diet is Chinook salmon, and they have depended on the regions historically abundant Chinook runs for millennia. [1] The Columbia Basin is still a significant source of food for Southern Resident orcas, particularly in the winter and early spring when the orcas are foraging in coastal waters. They are highly likely to be off the mouth of the Columbia River, recognized as a high use foraging area, when early spring Chinook are returning. Analysis of prey and fecal samples collected from the Southern Residents orcas in coastal waters indicate that over half of the Chinook consumed are from the Columbia River Basin. [2] As Chinook salmon abundance has declined throughout the Pacific Northwest and California, the orcas have suffered. Scientists have found a strong correlation between coastwide Chinook abundance and Southern Resident health indicators: declining Chinook abundance leads to reductions in growth rates, adult length, social cohesion, fecundity, and survival, as well as impaired body condition in Southern Resident orcas. [3] It is clear that the orcas do not have enough to eat, that nutritional stress has severe impacts on the population, and that recovery of Columbia Basin salmon is essential to ensure their survival. Independent salmon scientists, the National Oceanic and Atmospheric Administration, and this DEIS itself have all determined that breaching the Lower Snake River dams is the best way to recover sustainable wild runs of Snake River spring/summer Chinook salmon. [4] However, the Preferred Alternative offers only a minor adjustment to the status quo, which will not be enough to recover endangered salmon or orcas. Therefore, to support the recovery of the endangered Chinook salmon stocks that Southern Resident orcas rely on, the action agencies should implement measures that maximize salmon survival a combination of Alternative 3, breaching the Lower Snake River dams, and Alternative 4, implementing flexible spill levels up to 125% Total Dissolved Gas throughout the migration period for juvenile salmon. These measures are predicted to	The EIS evaluated beneficial and adverse effects across an array of resource areas including potential effects at the national, regional and local level; effects are monetized and quantified, where possible, and also described qualitatively. As is common in NEPA analyses, the beneficial and adverse effects of the alternatives are expressed as a variety of qualitative and quantitative environmental and economic metrics throughout the EIS to inform decision-making. The EIS does not employ a cost-benefit framework for decision-making. Instead, the EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads' numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3, which includes the dam breaching measure. However, the Preferred Alternative also meets most of the other objectives of the study for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. The agencies disagree that an alternative that includes breaching the four lower Snake River dams and spring spill operations to 125% TDG at all four lower Columbia River dams is reasonable given the unacceptable risks to public safety from such an alternative. MO3 and MO4, individually each caused large loss-of-load probability (LOLP) results (e.g. increased incidence of blackouts). Without major additional of new resources, MO3 would result in power shortages in about one in seven years. MO4 would produce power shortages in about one in every four years. Combining breaching the four lower Snake River dams with spill up to 125% at the lower Columbia River projects is not a reasonable alternative under NEPA. For power and transmission, MO3 and MO4, individually each caused large LOLP results (e.g. increased incidence of blackouts). Without major additional new resources, MO3 would result in power shortages in about one in seven years. MO4 would produce power shortages in about one in every four years. If MO4 were implemented, in addition to breaching the four lower Snake River projects as called for in MO3, then the LOLP would be even higher, with power shortages potentially occurring almost every year. Additionally, if these MOs were combined, in 5% of the years, the power shortages would average close to 1,000 MW in early August when the region might be experiencing a heatwave with particularly high demand for air conditioning. 1,000 aMW is about the average amount of power consumed by Seattle City Light. As shown in Section 3.7, MO3 causes an increase in power reliability concerns in the winter and the summer. MO4 increases power reliability concerns in the summer. Thus, the combination has the largest effect during the summer. The cost of zero-carbon replacement resources for MO3 and MO4 individually are up to $1 billion/year. Resource replacements and associated transmission interconnections for the combination of MO3 and MO4 would be higher, though not likely as high as the sum of the two MOs individually. Assuming that the replacement resources consist largely of wind, solar, and batteries, this would require well over 50 square miles of solar power (more

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	result in the greatest improvements in salmon survival and have the highest likelihood of meeting recovery goals for endangered salmon, resulting in increased abundance available to Southern Resident orcas. This action must be accompanied by continued support and investment in salmon recovery and habitat protection and restoration throughout the range of the orcas. Efforts by state and federal leadership are needed to develop and implement a transition plan to support communities that currently rely on the Snake River dams, and to replace them with carbon-free energy alternatives. The Southern Resident orcas face a multitude of threats, but a lack of Chinook salmon is the primary limiting factor for their survival and recovery. They need abundant and available food high-fat and nutritious Chinook salmon year-round. Breaching the Lower Snake River dams is a vital step for restoring abundant salmon in the Pacific Northwest to support Southern Resident orcas, and rebuilding a healthy watershed to support regional ecosystems and communities.	than two and a half times the size of Crater Lake), large areas of new wind generation, and unprecedented amounts of batteries (more batteries in the Northwest alone than the total projection of batteries expected in the entire United States by 2023 per the Energy Information Administration). In addition, the reduced generation capability under MO3, particularly throughout the summer, in combination with the effects of the measures in MO4 and the uncertainty about the characteristics of replacement resources, would result in less capability to provide voltage support and dynamic stability for transmission system reliability than under MO3 or MO4 individually. Thus, combining MO4 with breaching the four lower Snake River projects, would produce unreasonable power and transmission reliability effects, and it is highly speculative that replacement resources could be sited, permitted and built to address these effects. This potential alternative has not been evaluated for direct, indirect and cumulative effects to other resources. Thus, an alternative combining juvenile fish passage spill up to 125% and breaching the four lower Snake River dams is unreasonable, and thus was not proposed as an alternative. Please see response to Form Letter 1.
36	Dear CRSO worker, Federally endangered Chinook Salmon & Southern Resident Orca whales will not survive this EIS process. Dam breaching, you've concluded in your own research, is a reliably effective way to restore salmon runs, as seen on the Elwha, Sandy & other rivers. Before dam construction in the 30s, anadromos (from ana-'up' + dromos 'running') fish runs on the Columbia, 'Great,' River were in the millions. Not only salmon (large & in the millions). But also lamprey, an eel easily harvested coming up small waterfalls. Steelhead. Sturgeon. All in numbers that sustained a thriving indigenous population, one of the wealthiest west of the Rockies. Today the Orcas are actually hungry. Today. Chinook salmon fishing on the lower Columbia has been completely shut down for 2 years because numbers are so low. I, as a resident of the (your river here) watershed, call upon the EIS team to breathe deep in this time of pandemic & think about the big picture. TODAY WE DON'T NEED A SEAPORT IN LEWISTON, IDAHO. The port today is rarely used. We should support piping projects for local agriculturists & farmers. The public is subsiding salmon passage (barging, trucking, ladders, maintaining bypass systems) while the power & transportation benefits the dams provide maintain an outdated status quo. The 4 LSR dams do not provide peaking power due to low flows & fish passage limitations, providing only 3.5% (or less) of Oregon's electricity, a number easily made in solar, wind, or mindful Christmas lighting.;) Wild spawning Chinook salmon are a millennia-old genetic stock. They used to come in as big as labradors, sustaining some of the wealthiest indigenous cultures, those of the Salish Sea & 'Nick'i-wana' Great River (Columbia). Please help keep them alive, for our grandchildren's grandchildren. In appreciation of your attention,	The EIS set forth eight objectives which, in tandem with the Purpose and Need Statement, establish the framework for evaluating the ability of an alternative to satisfy the co-leads' numerous legal obligations. The Preferred Alternative is predicted to benefit juvenile and adult anadromous salmonids (two of the objectives), but not as much as MO3 which includes breaching the four lower Snake River dams. However, the Preferred Alternative also meets most other EIS objectives including those for resident fish, lamprey, hydropower generation, water management, and water supply, while minimizing adverse effects to communities and the economy. MO3, by contrast, has significant regional economic and community effects, and meets fewer of the EIS objectives. Thus, in the Draft EIS, the co-lead agencies did not recommend MO3 which includes breaching the four lower Snake River dams, because the Preferred Alternative is more likely to satisfy multiple complex and at times conflicting legal requirements for a complex system. Analysis shows that the Preferred Alternative would meet the objectives for improving juvenile salmon, adult salmon, resident fish and lamprey. The analysis found ranges in potential effects due to different assumptions included in each of the fish models used in the study. Using the Comparative Survival Study (CSS), Snake River Chinook salmon and steelhead are expected to see relative improvements in smolt-to-adult returns of 35 percent and 28 percent, respectively. The Smolt-to-Adult return ratio (SAR) is the rate at which of a group of fish survive from their smolt life stage to a defined ending point where they return as adult. While achieving long-term recovery targets will require more than just the efforts of Federal agencies, the CSS models indicate the potential for SARs of Snake River Chinook salmon and steelhead to increase to levels that could approach recovery targets set by the Northwest Power and Conservation Council. If latent mortality effects are reduced by passing more juvenile fish through the spillway, the NMFS Lifecycle Model (LCM) also shows that levels of SARs would increase. However, if latent mortality effects are not reduced, or are different than modeled, the LCM predicts that SARs for Snake River spring Chinook salmon may be lower than the No Action Alternative (a range of -7.5 percent to +28 percent change relative to the No Action Alternative) due to reduced opportunities for fish transportation. Results for upper Columbia River stocks are beneficial based on LCM estimates. In-river survival and SARs are anticipated to increase. The CSS model does not currently model upper Columbia fish. The Preferred Alternative also has measures intended to increase upstream passage success and reduce injury and mortality for Pacific lamprey. These measures are proposed structural improvements that include converting extended-length submersible bar screen material to screen material that would not impinge or entangle juvenile lamprey, expanding the network of lamprey passage structures to bypass impediments in fish ladders, changing the design for turbine cooling water strainers, and replacing turbines for safer fish passage. The Preferred Alternative would also meet the objective to improve resident fish. Effects to resident fish vary by region and species, but are generally minor relative to the No Action Alternative. If MO3 were selected as the Preferred Alternative, the Corps could use the CRSO EIS as a basis for seeking congressional authority to breach the lower Snake River dams. After receiving both authority and appropriations from Congress, the Corps could initiate a detailed construction and design report for the breach measure, identification of disposal areas, real estate acquisition and disposal, permits, and mitigation requirements, including temporary fish hatchery production. Each of these actions are required prior to breaching, and the Corps does not have the authority or appropriations necessary to immediately breach the project's embankments. More information is available in the Corps' Engineering Regulation (ER) 1165-2-119 Water Resources Policies and Authorities, Modifications to Completed Projects (Sept. 20, 1982) or ER 1105-2-100, Appendix G, Section III Post Authorization Changes. The EIS analysis finds that transportation of freight that is currently barged on the lower Snake River could be accomplished via other transportation modes, but this change would not be without costs to farmers, would require public and private investment in infrastructure, and would result in some adverse regional economic effects, particularly in the short term. The EIS finds that under a dam breach scenario, average transportation costs for wheat farmers would increase 10 to 33 percent, but that individual farmers could experience increases that are doubled. The cost increases to specific shippers would depend upon location and would vary throughout the region, depending on transportation options at each location. Generally, those grain shippers that are the farthest from alternate shipping locations (shuttle rail facilities or river ports on the Columbia River) would be the most adversely affected. Breaching of the four lower Snake River dams under Multiple Objective alternative 3 (MO3) would have a direct and substantial effect on the supply of Federal power to meet regional load requirements. These effects would reduce both actual energy to meet regional load requirements and generating capacity (peaking capacity) to meet variability in loads. The four lower Snake River dams are among the most valuable projects in the Federal Columbia River Power System. These dams provide over 1,000 aMW of carbon-free energy and up to 2,000 MW of sustained peaking capacity at certain times of the year. The dams also have unparalleled ramping capability, the ability to quickly generate energy to match spikes in energy usage, with over 2,000 to approximately 2,300 MW of capability in certain months of the year. Table 3-160 of the Draft EIS presents the historical sustained ramping capability of the four lower Snake River dams, peaking that occurred within the normal operating range and without drawing the reservoir below MOP. Please see the response to Form Letter 1.